BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Intro	

SITE: [illegible]
BREAK: [illegible]
OTHER: V23

QUALITY ASSURANCE PROJECT PLAN
FORMER BOB'S BROADWAY TIRE & BRAKES
317 SW BROADWAY STREET
MARION COUNTY, COUNTY, FLORIDA

September 22, 2004

TABLE OF CONTENTS

I. Introduction and Purpose

Form A	Title and Approval Page
I.a	Overview and Purpose of Brownfield Phase II ESA Activities
I.b	QAPP Preparation
I.c	Site Location and Description
I.d	Phase I ESA, October 2003, and Previous Site Information
I.e	DQO Overview and Evaluation

II. Project Management

Form B	Project Organization and Responsibility
Form C	Problem Definition
Form D	Project Description/Project Timeline

III. Measurement Data Acquisition

Form E	Sampling Design
Form F-1	Method and SOP Reference Table
Form F-2	Sampling and Analytical Methods Requirements
Form G	Preventive Maintenance - Field Equipment
Form H	Calibration and Corrective Action - Field Equipment
Form I	Preventive Maintenance - Laboratory Equipment
Form J	Calibration and Corrective Action - Field Equipment
Form K	Sample Handling and Custody Requirements
Form L	Analytical Precision and Accuracy
Form M	Field Quality Control Requirements/Laboratory Quality Control Requirements
Form N	Data Management and Documentation

IV. Assessment/Oversight

Form O	Assessment and Response Actions
Form P	Project Reports

V. Data Validation and Useability

Form Q-1	Verification of Sampling Procedures
Form Q-2	Data Verification and Validation
Form R	Data Useability

Figures

Figure 1	USGS Topographic Map
Figure 2	Site Vicinity Map
Figure 3	Proposed Soil and Groundwater Sampling Locations

Appendices

Appendix A	Chapter 62-160, F.A.C.
Appendix B	FDEP Memorandums Regarding Chapter 62-160, FAC
Appendix C	Marion County Property Appraiser Information
Appendix D	Site Photographs & 1999 Aerial Photograph
Appendix E	Text from AEI Phase I ESA, April 27, 2004
Appendix F	PC&B NELAP Certification Information
Appendix G	Groundwater Quality Sampling Log, Chain-of-Custody Form & Field Meter Calibration Form
Appendix H	Form L Information
Appendix I	Applicable FDEP SOPs for QAPP Field Sampling Activities

APPENDIX I

LIST OF SOP'S

I-1	FA 1000 - Regulatory Scope and Administrative Procedures for Use of DEP SOPs
I-2	FC 1000 - Cleaning Procedures
I-3	FD 1000 - Documentation Procedures
I-4	FQ 1000 - Field Quality Control Requirements
I-5	FS 2200 - Groundwater Sampling
I-6	FS 3000 - Soil
I-7	FT 1100 - Field Measurement of Hydrogen Ion Activity (pH)
I-8	FT 1200 - Field Measurement of Specific Conductivity
I-9	FT 1400 - Field Measurement of Temperature
I-10	FT 1500 - Field Measurement of Dissolved Oxygen
I-11	FT 1600 - Field Measurement of Turbidity
I-12	FT 1000 - General Field Testing and Measurement

Form A

Title and Approval Page

Document Title: Quality Assurance Project Plan - Former Bob's Broadway Tire & Brakes, Ocala, Florida

Prepared by: Andreyev Engineering, Inc.

Address and Telephone Number: 4055 St. Johns Parkway, Sanford, Florida, 32771, (407) (407) 330-7763

Day/Month/Year: 22 September, 2004

Project Manager _____
Signature

_____
Printed Name/Date

Project QA Officer _____
Signature

_____
Printed Name/Date

U.S. EPA Project Manager Approval: _____
Signature

_____
Printed Name/Date

U.S. EPA QA Officer Approval: _____
Signature

_____
Printed Name/Date

I.0 INTRODUCTION AND PURPOSE

Form A - Title and Approval Page

The preceding page contains the Title and Approval Page for the Quality Assurance Project Plan for the Brownfield Phase II Environmental Site Assessment (ESA) to be conducted for the subject site.

1.a Overview and Purpose of Brownfield Phase II ESA Activities

The purpose of this project is to conduct a Brownfield Phase II ESA for the subject site, located at 317 SW Broadway Street, Marion County, Florida. A Phase I ESA was completed for the subject site by Andreyev Engineering Inc. (AEI) on April 27, 2004, which indicated that the subject site previously contained an automotive repair business. The subject site is located to the northeast of the intersection of South Pine Avenue (which is also known as U.S. Highway 441), at SW Broadway Street, in downtown Ocala. The Phase I ESA identified three "Recognized Environmental Conditions", which are identified as follows:

REC #1: The subject site previously contained a gasoline station. In 1989, three gasoline underground storage tanks (USTs) located to the east of the building and a kerosene UST located to the south of the building were abandoned in place. A used oil UST located inside the building was abandoned in 1999. Four in-active gasoline USTs, which have not been abandoned, identified to be present inside the building, on-site.

REC #2: The subject site contained an automotive repair business from approximately 1979 through 2003, and three former in-ground hydraulic lifts were observed on-site. Two former lifts were located within the interior of the building, and one former lift was observed outside of the building on the eastern portion of the subject site.

REC #3 The off-site property immediately to the north at 13 South Pine Avenue reported a discharge of petroleum products in January, 1992, and was identified as a "Recognized Environmental Condition.

As a result, AEI was authorized on September 15, 2004 by Renew Ocala, a Brownfield Redevelopment Program (referred to hereafter as "Renew Ocala") to conduct Phase II ESA activities to investigate REC #1 and REC #2. REC #3 is associated with the off-site facility to the north, and this facility will be investigated separately, and is not included as part of the Phase II ESA for the subject site. The purpose of the Phase II ESA to be conducted by AEI is to determine if the soil and groundwater at the subject site has been adversely impacted by the previous use of the subject site as an automotive repair business and gasoline station. The purpose of the Phase II ESA is to determine the presence of petroleum constituents and solvents in the soil and groundwater at specific locations on-site, and allow decisions to be made concerning future re-development of the subject site. The Phase II ESA activities approved by Renew Ocala are the first phase of a Brownfields Site Assessment, which are designed to identify the highest concentrations in the identified source areas.

As a result of the Phase I ESA, six specific source areas have been identified are being investigated by this Phase II ESA. These are identified as follows:

Source Area #1:	Four in-active gasoline underground storage tanks (USTs) located inside the building.
Source Area #2	Three gasoline USTs located to the northeast of the building, which were abandoned in place in 1989.
Source Area #3:	A 300-gallon kerosene UST located in the southern portion of the site, which was abandoned in place in 1989.
Source Area #4:	Two former pump islands, associated with the former gasoline USTs. One former pump island is located in the western portion of the subject site, and one former pump island is located in the southern portion of the subject site.
Source Area #5:	Three former in-ground hydraulic lifts. Two former in-ground hydraulic lifts were located inside the building, and one former in-ground hydraulic lift was located outside of the building.
Source Area #6:	A 300-gallon used oil UST which was abandoned in place inside the building in 1999.

The specific details associated with each source area are provided in other sections of this documents.

Soil Boring Investigation: A soil boring investigation will be conducted to determine the presence of constituents associated with the each of the six source areas, to determine potential impacts on-site in the unsaturated zone, with emphasis on the upper 10 feet. This will include the following:

a) To investigate the four in-active USTs inside the building, four hand auger borings will be installed to 10 feet, and the soil samples from each hand auger boring will be screened in the field for the presence of petroleum and solvents with an organic vapor analyzer (OVA). Four laboratory soil samples will be collected and analyzed for petroleum parameters and one sample will also be analyzed for solvent parameters.

b) To investigate the three abandoned USTs outside the building, two hand auger borings will be installed to 10 feet, and the soil samples from each hand auger boring will be screened in the field for the presence of petroleum and solvents with an organic vapor analyzer OVA. In addition, one soil boring will be installed to 30 feet, and soil samples from the soil boring will be screened in the field for the presence of petroleum and solvents with an OVA. One laboratory soil sample will be collected from a depth determined as a result of review the OVA results, and analyzed for petroleum parameters.

c) To investigate the former kerosene UST located to the south of the building, one soil boring will be installed to 30 feet and the soil samples from the soil boring will be screened in the field for the presence of petroleum and solvents with an OVA. One laboratory soil sample will be collected from a depth determined as a result of review the OVA results, and analyzed for petroleum parameters.

d) To investigate two former fuel dispenser islands, two soil borings will be installed to 30 feet and the soil samples from the soil boring will be screened in the field for the presence of petroleum and solvents with an OVA. One soil sample will be collected from each dispenser island from a depth determined as a result of review the OVA results, and analyzed for petroleum parameters.

e) To investigate the three in-ground hydraulic lifts, two hand augers will be installed inside the building to 10 feet, and the soil samples from each hand auger boring will be screened with an OVA. A sample will be obtained for Total Petroleum Hydrocarbons (TPH) from each location. For the in-ground hydraulic lift located outside of the building, one soil boring will be installed to 30 feet and the soil samples from the soil boring will be screened in the field for the presence of petroleum constituents with an OVA. One soil sample will be collected from a depth determined as a result of review the OVA results, and analyzed for TPH.

f) The abandoned used oil UST located inside the building was investigated in 1999 as part of tank closure assessment activities. One hand auger will be installed inside the building to 10 feet, and a soil sample will be obtained for TPH.

Groundwater Investigation: A groundwater investigation will be conducted to determine the presence of constituents associated with the each source area, as feasible. The groundwater investigation will include installation of five temporary monitoring wells and sampling three existing monitoring wells. The three existing monitoring wells were installed as a result of groundwater investigation activities conducted for off-site facilities to the south, and west. On September 17, 2004, AEI measured the depth to groundwater in the three existing monitoring wells, and the upper surface of the water table was approximately 30 feet. The following summary information is provided:

a) Since in-active gasoline USTs are located inside the center of building, no groundwater sampling is proposed for inside the building. One temporary monitoring well will be installed to off-site, immediately to the north, and sampled for applicable petroleum and solvent parameters.

b) To investigate the three abandoned gasoline USTs to the northeast of the building, one temporary monitoring well will be installed adjacent to the three abandoned USTs, and sampled for applicable petroleum parameters.

c) To investigate the former kerosene UST located to the south of the building, one temporary monitoring well will be installed and sampled for applicable petroleum parameters.

d) To investigate two former fuel dispenser islands, one temporary monitoring well will be installed in the center of the western fuel island, and sampled for applicable petroleum parameters. To determine potential impacts to groundwater from the southern former fuel island, the temporary monitoring well installed for the former kerosene UST located immediately to the north, will also be sampled for gasoline parameters.

e) For the in-ground hydraulic lift located outside of the building, a temporary monitoring well will be installed to 38 feet, and sampled for TPH. Since the two former hydraulic lifts are located inside the building and the depth to groundwater is estimated to be approximately 30 feet, no groundwater sampling is proposed at this time.

f) For the former used oil UST located inside the building, the depth to groundwater is estimated to be approximately 30 feet, no groundwater sampling is proposed at this time.

- *Data Analyses and Report Preparation:* Upon completion of the soil and groundwater investigations, a quality control analysis will be conducted to insure that each task meets the data quality objectives, and that no errors have occurred in the field, laboratory, or office. The report will evaluate the soil and groundwater for the parameters detected with respect to levels specified in Chapter 62-777, Contaminant Cleanup Target Levels, Florida Administrative Code (FAC), Florida Department of Environmental Protection, 1999.

I.b Quality Assurance Overview and QAPP Preparation

Andreyev Engineering Inc. (AEI) understands that this project should provide site specific data to evaluate the subject site with respect to applicable regulations and make decisions about the potential reuse of the Former Bob's Broadway Tire and Brake facility. AEI also understands that quality assurance (QA) and quality control procedures are applicable to the Phase II Brownfield Site Assessment. Quality assurance is the management activities involving planning, implementation, assessment reporting and quality improvement to ensure that the Brownfield Phase II Site Assessment meets the desired goals. Quality control is the overall system of technical activities that measure the performance of the processes utilized in this Brownfield Phase II Site Assessment against defined standards to verify that they meet predefined requirements.

In preparing this QAPP, Revision 0, AEI has reviewed a number of U.S. Environmental Protection Agency (EPA) and Florida Department of Environmental Protection (FDEP) documents which apply to conducting sampling activities at Brownfield sites. The applicable documents are as follows:

a. U.S. Environmental Protection Agency, Office of Solid Waste Emergency Response, EPA 540-R-98-038, Quality Assurance Guidance for Conducting Brownfields Site Assessments, September, 1998.

b. U.S. Environmental Protection Agency, Region 4, Quality Management Plan for Region 4, Revision 2, May 2003.

c. Florida Department of Environmental Protection, Chapter 62-160, Quality Assurance, Florida Administrative Code. A copy of this document is included in **Appendix A,** and the following specific items apply:

- *Item 62-160.110(6):* This item indicates that "If specifically required by the United States Environmental Protection Agency (EPA) for activities conducted for or funded by EPA, Quality Assurance Project Plans (QAPPs) shall be prepared in accordance with 'EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5' (EPA/240B-01/003 March 2001), which is incorporated by reference in Rule 62-160.800, FAC. These QAPPs will be reviewed and approved by the appropriate EPA office or delegated authority."

- *Item 62-160.110(7):* This item indicates that "This chapter supports the Quality Assurance Management Plan required by the EPA for any environmental programs funded in part or in whole by the EPA, as specified in EPA Order 5360.1 A2, dated May 5, 2000, which is incorporated in rule 62-160.800, F.A.C."

d. Florida Department of Environmental Protection Memorandum, Notice to Persons Responsible For Brownfield Site Rehabilitation and Contractors Performing Work Pursuant to Section 376.81, F.S.. This memorandum indicated that all fieldwork conducted after April 9, 2002 should be conducted in accordance with Chapter 62-160, FAC. A copy of this memorandum is included in **Appendix B.**

e. Florida Department of Environmental Protection Memorandum, Rule 62-160, Quality Assurance, dated August 6, 2002. This memorandum was issued by Edwin J. Conklin, Director, Resource Assessment and Management, which summarized the various new procedures implemented under Chapter 62-160, F.A.C. A significant applicable item is the requirement that all laboratories be certified by the Florida Department of Health (DoH) under the National Environmental Laboratory Accreditation Program (NELAP) standards. A copy of this memorandum is also included in **Appendix B.**

f. U.S. Environmental Protection Agency, Science and Ecosystem Support Division, Office of Quality Assurance and Data Integration Memorandum, Quality Assurance Project Plan Review and Comments, Denise Goddard, June 23, 2004. A copy of this memorandum is also included in **Appendix B.**

I.c Site Location and Description

According to information available from the Marion County Property Appraiser's website, the subject site contains .31 acres of land, with an address of 317 SW Broadway Street, Ocala, and is owned by Ms. Frances King. The information available from the Marion County Property Appraiser's office is contained in **Appendix C.** The subject site is located immediately to the east of South Pine Avenue and north of Broadway Street and is located in Section 18, Township 15 South, Range 22 East, as shown on the U.S. Geological Survey (USGS), "Ocala West", Florida Quadrangle Map, included as **Figure 1**. Based on site visits by J. Jarmolowski of AEI in March and April, 2004, the subject site contains a vacant building which contained an automotive repair business from 1979 to 2003. The majority of the site contains concrete, and there are no unpaved areas on-site. Site photographs and an aerial photograph are included in **Appendix D.**

I.d Phase I ESA, April 27, 2004 Summary Information

As indicated in Section 1.a, a Phase I ESA was completed by AEI on April 27, 2004, and the text from this Phase I ESA is included in **Appendix E.** The following summary information is provided for the USTs on-site:

UST	Location	Status
3 Abandoned Gasoline USTs	Northeast portion of property.	Filled with concrete in 1989.
300-Gallon Kerosene UST	South of building.	Filled with concrete in 1989.
300-Gallon Used Oil UST	Inside maintenance bay.	Filled with concrete in 1999.
4 Gasoline USTs	Inside of building.	In-active, not abandoned.

Summary of Regulatory Information for USTs

- *Three Former USTs in Northeast Portion of Property:* Three former gasoline USTs are located in the northeast portion of the subject site, and were abandoned in place by being filled with concrete in 1989. Tank closure assessment activities were conducted in January 1992 by BTEX Environmental Consultants. The tank closure assessment activities included installation of four soil borings in the vicinity of the abandoned USTs, and soil samples were screened for the presence of petroleum constituents with an OVA. The four soil borings were installed to a depth of approximately 20 feet, and no groundwater samples were collected. An inspection was conducted by Marion County Storage Tank personnel on January 14, 1992, during the soil boring activities. As a result of the tank closure assessment activities conducted in January 1992, no petroleum contamination was detected in the four soil borings near the former USTs in the northeast portion of the property. On March 4, 1992, a letter was issued by Manfred Fiech of the Marion County Storage Tank Regulation Department which indicated that the closure assessment activities met the requirements specified in Chapter 62-761, FAC.

- *Former 300-gallon Kerosene UST:* This former UST was located immediately to the south of the building, and was abandoned in place by being filled with concrete in 1989. There is no documentation which indicates that tank closure assessment activities were conducted for this UST.

- *Former 300-gallon Used Oil UST:* This former UST was located inside the building, between the two in-ground hydraulic lifts. In December 1999, this former UST was abandoned in place by being filled with concrete. Tank closure assessment activities were also conducted, which consisted of removing the concrete from around the top of the UST, and cutting a hole in the bottom of the UST, to obtain a soil sample from below the UST. A Closure Assessment Report dated December 9, 1999, was prepared, and indicated that "No stained soils were observed around the fill port or along the top of the tank. The tank was opened, cleaned, and a hole was cut in the bottom of the tank and soil samples were taken for visual observations. No stained soils were observed from underneath the tank. The tank was filled with concrete".

The Closure Assessment Report was submitted to the Marion County Fire-Rescue Department, who issued a letter on December 21, 1999, which indicated that the closure assessment requirements were met. Based on review of the Closure Assessment Report, no soil samples were required for laboratory analysis, and no groundwater samples were collected.

- *Four Existing In-Active USTs*: As indicated in Section 3.2, there are four in-active USTs which are located beneath the north-central portion of the building. There is no information in the files maintained by Marion County which indicate that these USTs were registered with the FDEP, or have been closed in accordance with requirements specified in Chapter 62-761, FAC.

Observations of the Exterior of the Subject Building, March and April, 2004

- A former fuel dispenser island located in the southwest portion of the subject site is shown in **Figure 3.**
- A former in-ground hydraulic lift was observed on the eastern portion of the subject site, as shown in **Figure 3.**
- One groundwater monitoring well is located on the northwest portion of the property, as shown in **Figure 3.** This monitoring well appears to be associated with a site assessment which was conducted for a former Citgo gasoline station located off-site to the west at 18 South Pine Avenue.
- Two monitoring wells are located on the sidewalk on the southern portion of the property, as shown in **Figure 3.** Based on review of available site assessment information, it was determined that the monitoring well on the southwest corner is associated with the site assessment for the former Citgo to the west. The monitoring well located on the southern portion of the site is associated with the site assessment for the a former Texaco facility located at 43 South Pine Avenue, located off-site, to the south.
- No water supply wells or irrigation wells are located on-site.

Source Identification and Investigation

Based on the information above, four potential sources have been identified for the subject site, and will be investigated by the Brownfield Phase II ESA as follows:

Source Area #1:	The four in-active gasoline USTs located inside the building.
Source Area #2	The three gasoline USTs located to the northeast of the building, which were abandoned in place in 1989.
Source Area #3:	The 300-gallon kerosene UST located in the southern portion of the site, which was abandoned in place in 1989.

Source Area #4: The two former pump islands, associated with the former gasoline USTs. One former pump island is located in the western portion of the subject site, and one former pump island is located in the southern portion of the subject site.

Source Area #5: The three former in-ground hydraulic lifts. Two former in-ground hydraulic lifts were located inside the building, and one former in-ground hydraulic lift was located outside of the building.

Source Area #6: The used oil UST which was abandoned in place inside the building, in 1999.

I.e DQO Overview and Evaluation

The U.S. Environmental Protection Agency requires that all Federally funded environmental monitoring and measurement efforts participate in a centrally managed quality assurance program. AEI understands that the Brownfields site assessment team generating data under this quality assurance program has the responsibility to implement minimum procedures to ensure that the precision, accuracy and completeness of its data are known and documented. The Data Quality Objectives (DQO) process has been incorporated by AEI fo this Brownfield Phase II ESA, which will allow AEI to determine the level of data quality needed for specific data collection activities. AEI has evaluated the subject site with respect to each of the seven steps of the DQO process, as follows:

Step 1 - Problem Definition:

The subject site has been previously used as an automotive repair facility and prior to that as a gasoline station. The subject site currently contains a vacant one-story building, and will be developed along with the adjacent three parcels as part of a large scale downtown revitalization project. There are currently no specific re-development plans, however, it is assumed that re-development will include demolition of the existing automotive repair building, and construction of a multi-tenant commercial retail and professional office building. The other three parcels off-site to the east, north, and northeast will be included. As indicated in Section 1.d above, the subject site has six specific source areas which require investigation to determine if the soil and groundwater has been impacted by petroleum constituents and/or solvents before the site is re-developed. If petroleum constituents or solvents are detected in the soil or groundwater, they must be evaluated with respect to applicable criteria specified in Chapters 62-777 and 62-770, FAC. The evaluation of the levels of the petroleum constituents and/or solvents will determine the various decisions that may be made with respect to the subject site.

On-Site Human or Environmental Receptors: The subject site is currently un-occupied and the entire site is paved. Currently there no on-site human or environmental receptors. Re-development of the subject site for commercial retail and/or professional office use will result in the presence of occupants on-site for approximately 8 to 16 hours per day, depending on the hours of operation.

Off-Site Human or Environmental Receptors: The subject site is located in downtown Ocala, as shown on **Figure 2.** This area is highly urbanized, and there are various businesses located to the north, south, east, and west, which contains potential human receptors within 500 feet of the subject site. There are no environmental receptors in the immediate vicinity.

End-Data Users: The end data users at this time include AEI, Renew Ocala, the FDEP Central District Office located in Orlando, Florida, and the U.S. EPA Region IV Office located in Atlanta, GA.

Step 2 - Identify the Decision:

The results of the Brownfield Phase II ESA will determine if levels of solvents and petroleum parameters are present in the soil and groundwater at the specific source areas investigated. The decisions for this site will be as follows:

a) Are Any Interim-Short Term Remedial Actions Needed? This includes the determination of the presence of soil contamination which is exposed that may impact other areas of the subject site, off-site properties, or potentially impact the surficial aquifer.

b) Are Interim Soil Removal Activities Needed? If it is determined that soil contamination is present above acceptable criteria and is "excessively contaminated" in any of the six source areas, then a decision may be made for removal of soil for specific source areas.

c) Is Free Product Removal Needed? If the presence of any petroleum free product is detected in the monitoring wells installed in the source areas, is the removal of free product needed? Chapter 62-770.300, FAC, requires the removal of any petroleum free product within three days of discovery.

d) Groundwater Contamination: Determine the presence of any elevated parameters of solvents or petroleum constituents associated with the source areas, and the potential for these parameters to impact site redevelopment, and off-site migration, and potential impact on adjacent properties.

e) Determine the Need for Additional Site Assessment Activities: The analyses for soil and groundwater laboratory analyses obtained the source areas will be used to determine the need for delineation of any solvent or petroleum groundwater plumes, the potential for these parameters to impact site redevelopment, and determine the potential for off-site migration and potential impacts on adjacent properties.

Step 3 - Identify the Inputs to the Decision:

This step involves identification of the information necessary to make informed, defensible decisions. As part of this project, the information necessary to make informed decisions will consist of the following:

a) Soil Screening Results: The soil screening results will obtained by analyzing soil samples with an OVA for soil samples obtained from a split spoon sampling device. The OVA results will be reported in parts per million (PPM), and will be utilized to determine the presence of either solvents and/or petroleum constituents. The soil screening results will be evaluated with respect to FDEP criteria for petroleum constituents. Since the subject site dispensed leaded and unleaded gasoline, and contained a 300-gallon kerosene UST, a 300-gallon used oil UST, and in-ground hydraulic lifts, there are different action levels for each type of petroleum product. The various action levels for the sources of the subject are as follows:

Source Area #1 - In-Active Former Gasoline USTs Inside Building

Field Screening - OVA Criteria

0-100 ppm: For OVA samples which detect 0 to 100 ppm, these samples will be considered to be below the criteria for additional sampling.

100-500 ppm: For OVA samples which detect 100 to 500 ppm, these samples will be considered to be "contaminated", and will be identified for laboratory sampling to identify specific parameters and levels present.

>500 ppm For OVA samples which are detected greater than 500 ppm, these samples will be identified as "excessively contaminated", and will be identified for laboratory sampling to identify specific parameters and levels present. In addition, the samples which are greater than 500 ppm will be considered for soil removal activities prior to redevelopment.

Source Area #2 - Abandoned Gasoline USTs Outside of Building

Field Screening - OVA Criteria

0-100 ppm: For OVA samples which detect 0 to 100 ppm, these samples will be considered to be below the criteria for additional sampling.

100-500 ppm: For OVA samples which detect 100 to 500 ppm, these samples will be considered to be "contaminated", and will be identified for laboratory sampling to identify specific parameters and levels present.

>500 ppm For OVA samples which are detected greater than 500 ppm, these samples will be identified as "excessively contaminated", and will be identified for laboratory sampling to identify specific parameters and levels present. In addition, the samples which are greater than 500 ppm will be considered for soil removal activities prior to redevelopment.

Source Area #3 - Abandoned Kerosene UST

Field Screening - OVA Criteria

0-10 ppm: For OVA samples which detect 0 to 10 ppm, these samples will be considered to be below the criteria for additional sampling.

10-50 ppm: For Ova samples which detect 10 to 50 ppm, these samples will be considered to be "contaminated", and will be identified for laboratory sampling to identify specific parameters and levels present.

>50 ppm For OVA samples which are detected greater than 50 ppm, these samples will be identified as "excessively contaminated", and will be identified for laboratory sampling to identify specific parameters and levels present. In addition, the samples which are greater than 50 ppm will be considered for as part of soil removal activities prior to redevelopment.

Source Area #4 - Former Gasoline Pump Islands

Field Screening - OVA Criteria

0-100 ppm: For samples which detect 0 to 100 ppm, these samples will be considered to be below the criteria for additional sampling.

100-500 ppm: For samples which detect 100 to 500 ppm, these samples will be considered to be "contaminated", and will be identified for laboratory sampling to identify specific parameters and levels present.

>500 ppm For samples which are detected greater than 50 ppm, these samples will be identified as "excessively contaminated", and will be identified for laboratory sampling to identify specific parameters and levels present. In addition, the samples which are greater than 500 ppm will be considered for as part of soil removal activities prior to redevelopment.

Source Area #5 - Former In-Ground Hydraulic Lifts

Field Screening - OVA Criteria

0-10 ppm: For samples which detect 0 to 10 ppm, these samples will be considered to be below the criteria for additional sampling.

10-50 ppm: For samples which detect 10 to 50 ppm, these samples will be considered to be "contaminated", and will be identified for laboratory sampling to identify specific parameters and levels present.

>50 ppm For samples which are detected greater than 50 ppm, these samples will be identified as "excessively contaminated", and will be identified for laboratory sampling to identify specific parameters and levels present. In addition, the samples which are greater than 50 ppm will be considered for as part of soil removal activities prior to redevelopment.

Source Area #6 - Abandoned Used Oil UST

Field Screening - OVA Criteria

0-10 ppm: For samples which detect 0 to 10 ppm, these samples will be considered to be below the criteria for additional sampling.

10-50 ppm: For samples which detect 10 to 50 ppm, these samples will be considered to be "contaminated", and will be identified for laboratory sampling to identify specific parameters and levels present.

B) Soil Laboratory Analytical Results

Source Area #1 - In-Active Gasoline USTs Inside Building

Four soil samples will be collected from around the four USTs, and will be analyzed for EPA Method 8021 (volatile aromatics). The parameters detected will be evaluated to those identified in Chapter 62-777, FAC, Table II, Soil Cleanup Target Levels, either for "Direct Exposure-Residential", or "Leachability Based on Groundwater Criteria", which ever is lower. In addition, one soil sample will be collected from beneath the existing building and will be analyzed for EPA Method 8021 (halogens). The parameters detected will be evaluated for those identified in Chapter 62-777, FAC, Table II, Soil Cleanup Target Levels, either for "Direct Exposure-Residential", or "Leachability Based on Groundwater Criteria", which ever is lower.

Source Area #2 - Abandoned Gasoline USTs Outside of Building

One soil sample will be collected near the three USTs, and will be analyzed for EPA Method 8021 (volatile aromatics). The parameters detected will be evaluated to those identified in Chapter 62-777, FAC, Table II, Soil Cleanup Target Levels, either for "Direct Exposure-Residential", or "Leachability Based on Groundwater Criteria", which ever is lower. The parameters detected will be evaluated to those identified in Chapter 62-777, FAC, Table II, Soil Cleanup Target Levels, either for "Direct Exposure-Residential", or "Leachability Based on Groundwater Criteria", which ever is lower.

Source Area # 3 - Abandoned Kerosene UST

A soil sample will be collected near the former 300-gallon kerosene UST, and will be analyzed for EPA Method 8100 (Polynuclear Aromatic Hydrocarbons) & TPH via the FL PRO Method. The parameters detected will be evaluated to those identified in Chapter 62-777, FAC, Table II, Soil Cleanup Target Levels, either for "Direct Exposure-Residential", or "Leachability Based on Groundwater Criteria", which ever is lower.

Source Area # 4 - Former Gasoline Pump Islands

One soil sample will be collected from beneath each of the former gasoline pump islands and will be analyzed for EPA Method 8021 (volatile aromatics). The parameters detected will be evaluated to those identified in Chapter 62-777, FAC, Table II, Soil Cleanup Target Levels, either for "Direct Exposure-Residential", or "Leachability Based on Groundwater Criteria", which ever is lower.

Source Area #5 - Former In-Ground Hydraulic Lifts

One soil sample will be collected near each of the former in-ground hydraulic lifts and will be analyzed for TPH via the FL PRO Method. The parameters detected will be evaluated to those identified in Chapter 62-777, FAC, Table II, Soil Cleanup Target Levels, either for "Direct Exposure-Residential", or "Leachability Based on Groundwater Criteria", which ever is lower.

Source Area #6 - Abandoned Used Oil UST

One soil sample will be collected near the abandoned used oil UST and will be analyzed for TPH via the FL PRO Method. The parameters detected will be evaluated to those identified in Chapter 62-777, FAC, Table II, Soil Cleanup Target Levels, either for "Direct Exposure-Residential", or "Leachability Based on Groundwater Criteria", which ever is lower.

C) Groundwater Laboratory Analytical Results

Source Area #1 - In-Active Gasoline USTs Inside the Building

Since the four in-active USTs are located inside the building, no monitoring wells are proposed for installation within the building at this time. One temporary monitoring well will be installed off-site, approximately 20 feet to the north of the building, to evaluate potential groundwater impacts to the north. This groundwater sample will be analyzed for EPA Methods 601, 602, and total lead. The parameters detected will be evaluated to those identified in Chapter 62-777, FAC, Table I, Groundwater and Surface Water Cleanup Target Levels, for "Groundwater Criteria".

Source Area #2 - Abandoned Gasoline USTs Outside of Building

One temporary monitoring well will be installed adjacent to the three abandoned USTs. The temporary monitoring well will be sampled and analyzed for EPA Methods 601, 602, and total lead. The parameters detected will be evaluated to those identified in Chapter 62-777, FAC, Table I, Groundwater and Surface Water Cleanup Target Levels, for "Groundwater Criteria".

Source Area # 3 - Abandoned Kerosene UST

One groundwater sample will be collected from the area which contains the former 300-gallon kerosene UST and will be analyzed for EPA Methods 602, 8310, and TPH. The parameters detected will be evaluated to those identified in Chapter 62-777, FAC, Table I, Groundwater and Surface Water Cleanup Target Levels, for "Groundwater Criteria".

Source Area # 4 - Former Gasoline Pump Islands

One groundwater sample will be collected from the each former gasoline pump island and will be analyzed for EPA Method 602 parameters and total lead. The parameters detected will be evaluated to those identified in Chapter 62-777, FAC, Table I, Groundwater and Surface Water Cleanup Target Levels, for "Groundwater Criteria".

Source Area #5 - Former In-Ground Hydraulic Lifts

A groundwater sample will be collected from the former in-ground hydraulic lift located outside of the building, and will be analyzed for TPH. The parameters detected will be evaluated to those identified in Chapter 62-777, FAC, Table I, Groundwater and Surface Water Cleanup Target Levels, for "Groundwater Criteria". Since two former in-ground hydraulic lifts are located inside the building, no monitoring wells can be installed inside the building at this time and no groundwater sampling is proposed for the two former in-ground hydraulic lifts located inside the building.

Source Area #6 - Abandoned Used Oil UST

Since the abandoned used oil UST is located inside the building, no monitoring wells can be installed inside the building at this time and no groundwater sampling is proposed for the abandoned used oil UST located inside the building at this time.

Step 4 - Define Boundaries of the Study

This step involves identification of the spatial and temporal boundaries which apply to the subject site. The following items apply:

Site Boundary: As indicated in other sections of this QAPP, the subject site contains .31 acres, as shown in **Figure 3.**

Areas of Investigation: As indicated other sections of this QAPP, the purpose of this Brownfield Phase II Environmental Site Assessment, six source areas which are being investigated, and are identified as follows:

Source Area #1:	The in-active gasoline USTs located inside the building.
Source Area #2:	The abandoned gasoline USTs located to the northeast of the building.
Source Area #3:	The abandoned 300-gallon kerosene UST located in the southern portion of the site.
Source Area #4:	The two former pump islands, associated with the former gasoline USTs, located in the western and southern portions of the subject site.

Source Area #5: Three former in-ground hydraulic lifts. Two former in-ground hydraulic lifts were located inside the building, and one former in-ground hydraulic lift was located outside of the building.

Source Area #6: The abandoned 300-gallon used oil UST located inside the building.

Determination of Unsaturated Zone: As indicated in other sections of this QAPP, the estimated depth to the upper surface of the water table is 30 feet. The seasonal fluctuation in the groundwater table is approximately 2 feet. Based on this information, the unsaturated zone for this project is defined as the interval from 0 to 28 feet, and the "smear zone" associated with the season fluctuation of the water table is from 28 to 30 feet below land surface. Therefore, the unsaturated zone for this project is from 0 to 28 feet below land surface.

Area Applicable to Soil Investigation:

For each of the six source areas, consideration has been given to the characteristics of each area, as follows:

Source Area #1: The in-active UST area located inside the building currently contains four in-active USTs. The floor of the building contains concrete. Based on this information, the expected impacted areas is on the soil beneath the concrete floor, and the perimeter of the UST pit. The estimated interval of potential impact is from below the concrete surface to an area below the USTs. This area is unknown. The locations of the fill pipes associated with the in-active USTs are areas of potential impact. The soil samples from around the in-active USTs will be collected with hand auger borings which will be installed around the perimeter of the USTs. Soil samples will be collected in 2-ft intervals, down to 12 feet, and analyzed with an OVA. Since the soil samples will be collected from inside the building, the maximum depth that can be reached with a hand auger will be approximately 12 feet, depending on site conditions. As a result, the soil interval below 12 feet in this area will not be investigated as part of this phase of the investigation. Four laboratory soil samples will be collected from specific depths based on the OVA results.

Source Area #2: The soil conditions for the abandoned USTs area located to the northeast of the building were previously investigated in 1992. As a result, two hand auger borings will be installed by AEI to a depth of 12 feet, and soil samples will be collected in 2-ft intervals, down to 12 feet, and analyzed with an OVA. In addition, spilt-spoon samples will be obtained in 5-foot intervals from one soil boring which will be installed to a depth of 28 feet below land surface, for OVA analyses. One laboratory soil sample will be collected from a specific depth based on the OVA results.

Source Area #3: The abandoned 300-gallon kerosene UST was located immediately to the south of the building. The 300-gallon UST was filled with concrete in 1989, and the surrounding area contains concrete. The expected impacted areas includes the perimeter and bottom of the UST pit, which is estimated to be approximately 5 feet below land surface. Spilt-spoon samples will be obtained in 5-foot intervals from one soil boring which will be installed to a depth of 28 feet below land surface, for OVA analyses. One laboratory soil sample will be collected from a specific depth based on the OVA results.

Source Area #4: Two former pump islands, associated with the former gasoline USTs are present on-site. One former pump island is located on the western portion of the subject site and one pump island is located on the southern portion of the subject site. The two pump islands have been removed and the surface of the area where the pump islands were removed contains concrete. The pump islands were located on the surface, and the expected impacted area is soil directly beneath each pump island. Soil borings will be installed to the upper surface of the water table, at approximately 30 feet. Samples will be obtained in 5 ft intervals for OVA analysis, and one laboratory soil sample will be collected from a specific depth based on the OVA results.

Source Area #5: Two former in-ground hydraulic lifts were inside the building, and one former in-ground hydraulic lift is present outside to the east of the building. The floor inside the building is concrete, and the area around the in-active lift outside of the building also contains concrete. The expected impacted areas includes the area around each in-ground lift, and the potential vertical impacted area is expected to be 10 feet, which is the approximate length of the cylinder. For the former hydraulic lifts located inside the building, two hand auger borings will be installed by AEI to a depth of 12 feet, and soil samples will be collected in 2-ft intervals, down to 12 feet, and analyzed with an OVA. Two laboratory soil samples will be collected from a specific depth based on the OVA results. For the former hydraulic lift located outside of the building, split-spoon samples will be obtained in 5-foot intervals from one soil boring which will be installed to a depth of 28 feet below land surface, for OVA analyses. One laboratory soil sample will be collected from a specific depth based on the OVA results.

Source Area #6: The abandoned used oil UST was previously investigated in 1999 as part of tank closure assessment activities. The floor inside the building is concrete, and the area around the in-active lift outside of the building also contains concrete. The expected impacted areas includes the perimeter and bottom of the UST pit, which is estimated to be approximately 5 feet below land surface. One hand auger boring will be installed by AEI to a depth of 12 feet, and soil samples will be collected in 2-ft intervals, down to 12 feet, and analyzed with an OVA. One laboratory soil sample will be collected from a specific depth based on the OVA results.

Area Applicable to Groundwater Investigation:

As indicated in other sections of this QAPP, five temporary monitoring wells will be installed, and sampled to determine groundwater conditions. In addition, the three existing monitoring wells on-site will be sampled to obtain additional groundwater results at the southern and western portions of the subject site. As a result, if petroleum constituents or solvents are present on-site, the levels of applicable parameters will be determined for the northern, southern, and western portions of the property. The full extent of any constituents present at the eastern property boundary will not be determined as a result of this Brownfield Phase II ESA. However, the results of this Brownfield Phase II ESA will result in the majority of horizontal plume delineation on-site. For the purposes of this investigation, the property boundaries are the temporal boundaries for the groundwater investigation.

Step 5 - Development of a Decision Rule

The purpose of developing a Decision Rule is to "integrate the output from the previous steps of the DQO process into a statement that estimates the parameter(s) of interest, delineates the scale of decision making, specifies the action level, and describes the logical basis for choosing among alternative actions." The following items are provided:

Soil Investigation, Six Source Areas

Alternative A - The results of the soil investigation for each source area will be evaluated respect to the applicable criteria, identified in Step 3, above. If the levels the applicable parameters in each source area are below the applicable FDEP Soil Cleanup Target Levels for Residential Exposure or Groundwater Leachability, (whichever is lower), **then no additional assessment activities or source removal activities will be recommended for any of the six source areas, as applicable.**

Alternative B - The results of the soil investigation for each source area will be evaluated respect to the applicable criteria, identified in Step 3, above. If the levels the applicable parameters any of the source areas exceed any of the applicable FDEP Soil Cleanup Target Levels for Residential Exposure or Groundwater Leachability, (whichever is lower), **then additional assessment activities or source removal activities may be recommended for applicable a specific source area.**

Groundwater Investigation, Six Source Areas

Alternative C - The results of the groundwater laboratory results for each source area will be evaluated respect to the applicable criteria, identified in Step 3, above. If the levels the applicable parameters in each source area are below the applicable FDEP Groundwater Cleanup Target Levels, **then a conclusion indicating that a specific source area has not adversely impacted groundwater will be provided, and that the re-development project can proceed.**

Alternative D - The results of the groundwater laboratory results for each source area will be evaluated respect to the applicable criteria, identified in Step 3, above. If the levels of the applicable parameters in each source area are below the applicable FDEP Groundwater Cleanup Target Levels, **then a conclusion indicating that a specific source area has adversely impacted groundwater will be provided, and that the-development project should be evaluated with respect to additional site assessment activities.**

Step 6 - Specifying Limits on Decision Errors

Because of the limitations of environmental sampling and analysis, the project must be evaluated with respect to the possibility of making the wrong decision because of incomplete information. The following items are provided:

1. Limitations of Decisions Regarding Soil Assessment Activities:

a. The purpose of the soil sampling activities is to evaluate six source areas for the presence of soil contamination. Since the purpose of this project is to identify the presence of applicable contaminants at each source area, the results will be evaluated with respect to type of contamination, and the vertical extent for the interval from the surface to 28 feet below land surface. If contamination is detected, the horizontal extent will be estimated, and the full horizontal extent will be delineated in the next phase of this project. The number of laboratory samples included in this phase of the project are limited by the budget allocated by Renew Ocala for this project.

b. With respect to the soil samples obtained, the possibility for errors exist if contaminants are not detected in the sampling intervals or locations. For certain source areas, samples will be collected with a hand auger in two-foot intervals, down to a depth of approximately 12 feet. Hand auger borings are limited to a maximum depth of 12 to 15 feet below land surface. Since split-spoon soil samples will be collected in five-foot intervals, contaminants may be present in an interval not sampled.

2. Limitations of Decisions Regarding Groundwater Assessment Activities:

a. The purpose of the groundwater sampling activities is to determine if groundwater has been impacted by six source areas. Since the purpose of this project is to identify the presence of applicable contaminants at each source area, the results will be evaluated with respect to type of contamination, and will be limited to obtaining groundwater samples from the upper surface of the water table, which is expected to occur at approximately 30 feet below land surface. The proposed temporary monitoring wells will be installed to a depth of 38 feet. The interval below 38 feet will not be investigated as part of this phase of the project.

b. The in-active USTs are located inside the building, and due to access limitations with a drill rig, monitoring wells will not be installed immediately adjacent to the in-active USTs. In order to determine any potential impacts to groundwater, a temporary monitoring well will be installed to the north of the building, which is approximately 20 feet to the north of the in-active USTs.

c. The purpose of the groundwater sampling phase of this project is to evaluate the six source areas for the presence of parameters above the applicable cleanup target levels, which are designed to represent the highest concentrations at each area. If contamination is detected, the horizontal extent will be estimated based upon the number and locations of the monitoring wells sampled as part of this study. Since the subject site is .31 acres in size, the five temporary monitoring wells and three existing monitoring wells are located such that potential groundwater impacts at each property boundary can be determined. However, if groundwater contamination is detected at any of the six areas, the full horizontal extent delineation is not part of this project. The number of monitoring wells installed and groundwater samples collected in this phase of the project are limited by the budget allocated by Renew Ocala for this project.

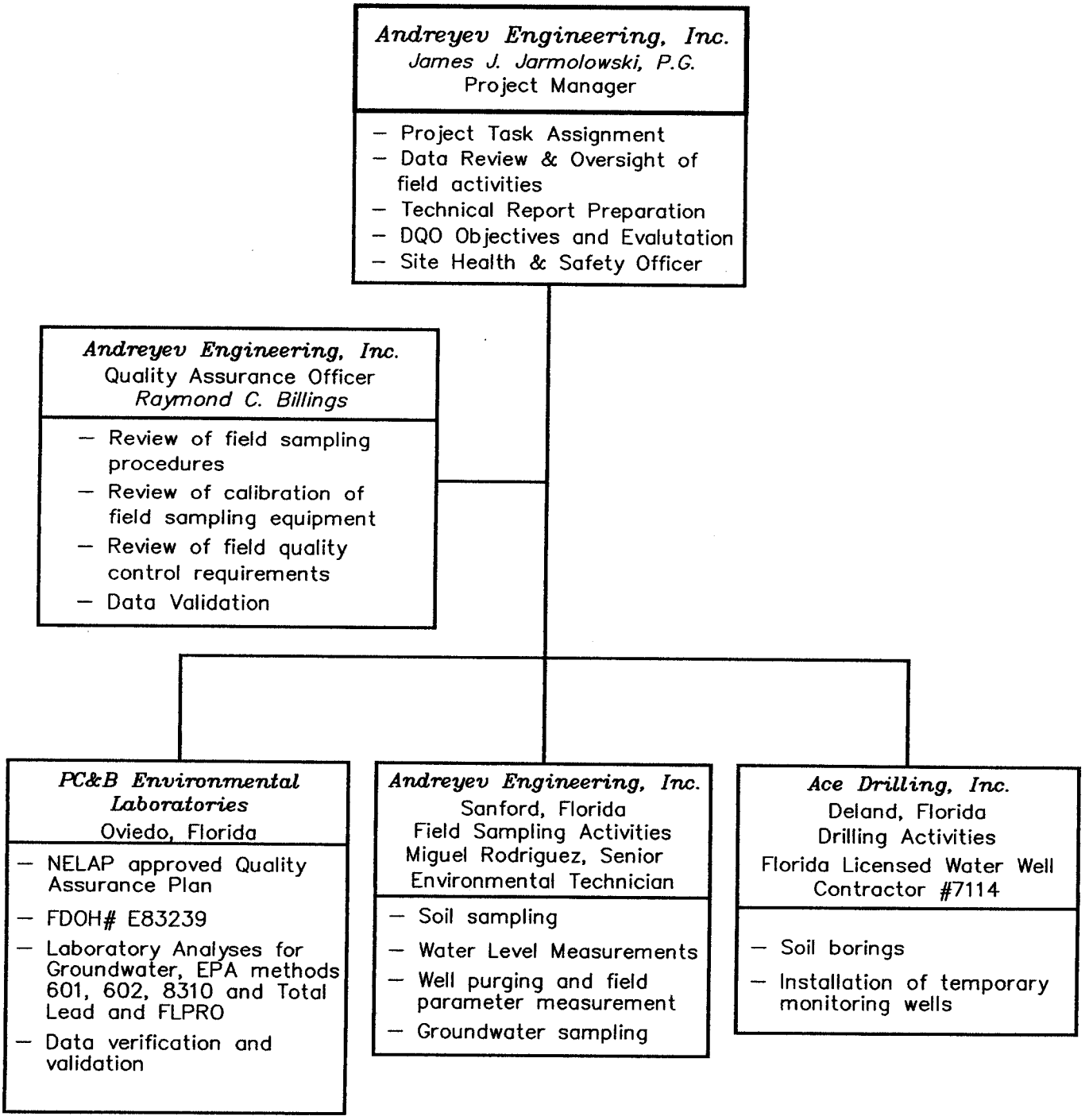
Step 7 - Optimizing the Design

The proposed soil and groundwater sampling activities under this Brownfield Phase II ESA have been designed to obtain results regarding the presence of constituents in the soil and groundwater associated with six sources of contamination. The results will be utilized to determine if any interim remedial actions are necessary, or if the groundwater has been adversely impacted. The sampling plan for this project has been based on a specific project amount, as specified by Renew Ocala.

II. PROJECT MANAGEMENT

FORM B

PROJECT ORGANIZATION AND RESPONSIBILITY



FORM C

PROBLEM DEFINITION

This form is utilized to identify the project objectives, provide site information and characteristics, and state the specific problem that the data collection project is designed to solve.

1. Site Location: The subject site contains .31 acres of land, with an address of 317 SW Broadway Street, Ocala. The subject site is located immediately to the east of South Pine Avenue and north of Broadway Street and is located in Section 18, Township 15 South, Range 22 East, as shown on the U.S. Geological Survey (USGS), "Ocala West", Florida Quadrangle Map, included as **Figure 1**.

2. Specific Problem: The subject site has been previously used as an automotive repair facility and prior to that as a gasoline station. The subject site is currently contains a vacant one-story building, and will be developed along with the adjacent three parcels as part of a large scale downtown revitalization project. There are currently no specific re-development plans, however, it is assumed that re-development will include demolition of the existing automotive repair building, and construction of a multi-tenant commercial retail and professional office building. The other three parcels off-site to the east, north, and northeast will be included. As indicated in Section 1.d above, the subject site has six specific source areas which require investigation to determine if the soil and groundwater has been impacted by petroleum constituents and/or solvents before the site is re-developed. If petroleum constituents or solvents are detected in the soil or groundwater, they must be evaluated with respect to applicable criteria specified in Chapters 62-777 and 62-770, FAC. The evaluation of the levels of the petroleum constituents and/or solvents will determine the various decisions that may be made with respect to the subject site.

3. Purpose of Brownfield Phase II ESA: The purpose of the Phase II ESA is to determine the presence of petroleum constituents and solvents in the soil and groundwater at specific locations on-site, and allow decisions to be made concerning future re-development of the subject site. The Phase II ESA activities approved by Renew Ocala are the first phase of a Brownfields Site Assessment, which are designed to identify the highest concentrations in the identified source areas. As a result of the Phase I ESA, six specific source areas have been identified are being investigated by this Phase II ESA. These are identified as follows:

FORM C (Cont'd)

PROBLEM DEFINITION

Sources to be Investigated by Brownfield Phase II ESA:

Source Area #1:	Four in-active gasoline underground storage tanks (USTs) located inside the building.
Source Area #2	Three gasoline USTs located to the northeast of the building, which were abandoned in place in 1989.
Source Area #3:	A 300-gallon kerosene UST located in the southern portion of the site, which was abandoned in place in 1989.
Source Area #4:	Two former pump islands, associated with the former gasoline USTs. One former pump island is located in the western portion of the subject site, and one former pump island is located in the souther portions of the subject site.
Source Area #5:	Three former in-ground hydraulic lifts. Two former in-ground hydraulic lifts were located inside the building, and one former in-ground hydraulic lift was located outside of the building.
Source Area #6:	A 300-gallon used oil UST which was abandoned in place inside the building in 1999.

FORM D

PROJECT DESCRIPTION

This form is utilized to provide a detailed description of the work to be performed, including identification of the designated laboratory, applicable field analytical methods, applicable work schedule and required reports.

1. Depth to Groundwater: Based on measurements obtained on September 17, 2004, AEI believes that the upper surface of the groundwater table is approximately 30 feet below land surface.

2. Direction of Groundwater Flow: Based on information contained in two other site investigations for sites located to the south and west, and topography, AEI believes that the direction of flow is to the north and northwest. This will be further determined as a result of the Brownfield Phase II ESA.

3. Groundwater Flow Determination: To determine the approximate direction of groundwater flow in the upper surficial aquifer beneath the site, the top-of-casing levels of the five temporary monitoring wells to be installed during the Phase II ESA activities will be surveyed, and the three existing monitoring wells will also be surveyed. Water levels will be measured, and the measured elevations will be referenced to an arbitrary benchmark of 100.00 feet established at the site. The depth to groundwater will be measured from the top-of-casing to the nearest hundredth of a foot in each of the wells with a water level indicator. Groundwater depths from top-of-casing were then converted to relative elevations, which will be used to prepare a groundwater contour map for the subject site.

4. Designated Laboratory: The designated laboratory for the Brownfield Phase II ESA is PC&B Environmental Laboratories, located in Oviedo, Florida. PC&B Environmental Laboratories, Inc. is certified by the Florida DOH (Lab #E83239), and operates under a NELAP approved Quality Assurance Plan. Copies of the NELAP certification information for PC&B are included in **Appendix F**.

5. Soil Investigation: A soil boring investigation will be conducted to determine the presence of constituents associated with the each of the six source areas, to determine potential impacts on-site in the unsaturated zone, with emphasis on the upper 10 feet. This will include the following:

a) To investigate the four in-active USTs inside the building, four hand auger borings will be installed to 10 feet, and the soil samples from each hand auger boring will be screened in the field for the presence of petroleum and solvents with an organic vapor analyzer (OVA). Four laboratory soil samples, SS-1 through SS-4, will be collected and analyzed for petroleum parameters and one sample will also be analyzed for solvent parameters.

FORM D (Continued)

PROJECT DESCRIPTION

This form is utilized to provide a detailed description of the work to be performed, including identification of the designated laboratory, applicable field analytical methods, applicable work schedule and required reports.

b) To investigate the three abandoned USTs outside the building, two hand auger borings will be installed to 10 feet, and the soil samples from each hand auger boring will be screened in the field for the presence of petroleum and solvents with an organic vapor analyzer OVA. In addition, one soil boring will be installed to 30 feet, and soil samples from the soil boring will be screened in the field for the presence of petroleum and solvents with an OVA. One laboratory soil sample, SS-12, will be collected from a depth determined as a result of review the OVA results, and analyzed for petroleum parameters.

c) To investigate the former kerosene UST located to the south of the building, one soil boring will be installed to 30 feet and the soil samples from the soil boring will be screened in the field for the presence of petroleum and solvents with an OVA. One laboratory soil sample, SS-11, will be collected from a depth determined as a result of review the OVA results, and analyzed for petroleum parameters.

d) To investigate two former fuel dispenser islands, two soil borings will be installed to 30 feet and the soil samples from the soil boring will be screened in the field for the presence of petroleum and solvents with an OVA. One soil sample will be collected from each dispenser island from a depth determined as a result of review the OVA results, and analyzed for petroleum parameters. The laboratory soil samples are identified as SS-5 and SS-6.

e) To investigate the three in-ground hydraulic lifts, two hand augers will be installed inside the building to 10 feet, and the soil samples from each hand auger boring will be screened with an OVA. A sample will be obtained for Total Petroleum Hydrocarbons (TPH) from each location. For the in-ground hydraulic lift located outside of the building, one soil boring will be installed to 30 feet and the soil samples from the soil boring will be screened in the field for the presence of petroleum constituents with an OVA. One soil sample will be collected from a depth determined as a result of review the OVA results, and analyzed for TPH. The three laboratory soil samples are identified as SS-7, SS-9, and SS-10.

f) The abandoned used oil UST located inside the building was investigated in 1999 as part of tank closure assessment activities. One hand auger will be installed inside the building to 10 feet, and a soil sample, SS-8, will be obtained for TPH.

FORM D (Continued)

PROJECT DESCRIPTION

This form is utilized to provide a detailed description of the work to be performed, including identification of the designated laboratory, applicable field analytical methods, applicable work schedule and required reports.

6. Monitoring Well Installation: In order to investigate the groundwater at or in the vicinity of the six source areas, five temporary monitoring wells will be installed under AEI supervision to a depth of 38 feet. The temporary monitoring wells will be installed by Ace Drilling of Deland Florida, at the locations shown in **Figure 3.** All drilling equipment, and well installation materials will be decontaminated prior to installation of each monitoring well. The temporary monitoring wells will consist of 15 feet of 0.01-inch well screen which will be connected to 25 feet of 2-inch diameter PVC casing. The temporary monitoring wells will be installed with solid stem flight augers, and no sand filter pack or neat cement grout will be placed in the annular space adjacent to the well screen or solid PVC casing. The drill cuttings will be screened with an OVA for petroleum constituents, and placed on visqueen on the adjacent parcel to the east of the subject site, and will be disposed of by Renew Ocala at a later date. The temporary monitoring wells will be removed upon the completion of sampling activities.

7. Well Purging and Field Measurement Procedures: After installation of the five temporary monitoring wells, the sampling activities will be conducted no sooner than 24 hours after installation of the temporary monitoring wells, to allow the water levels to stabilize. Prior to sampling, each monitoring well will be purged by removing at least three well volumes. Field parameters, including pH, conductivity, dissolved oxygen, turbidity and temperature will be recorded at various intervals during the purging of the wells. Samples will be collected only after at least three well volumes were purged and field parameters had stabilized. This methodology is designed to obtain groundwater samples which are representative of aquifer conditions. **Appendix G** contains a copy of the groundwater field log which will be completed for each monitoring well which will be sampled as part of this Brownfield Phase II ESA.

8. Groundwater Sampling and Laboratory Analyses: The groundwater sampling parameters will consist of the following:

EPA Method 601 (solvent) parameters: The three existing monitoring wells and Temporary Monitoring Wells TW-1, TW-2, TW-4 and TW-5 will be sampled and analyzed for EPA Method 601 parameters.

EPA Method 602 (gasoline) parameters: Three existing monitoring wells and Temporary Monitoring Wells TW-1, TW-2, TW-4 and TW-5 will be sampled and analyzed for EPA Method 601 parameters.

EPA Method 8310 parameters: TW-4 will be sampled and analyzed for EPA Method 8310 (diesel/kerosene parameters).

FORM D (Continued)

PROJECT DESCRIPTION

This form is utilized to provide a detailed description of the work to be performed, including identification of the designated laboratory, applicable field analytical methods, applicable work schedule and required reports.

Total Lead: The three existing monitoring wells and Temporary Monitoring Wells TW-1, TW-2, TW-4 and TW-5 will be sampled and analyzed for the presence of total lead (EPA Method 6010).

TPH: Temporary Monitoring Wells TW-3 and TW-4 will be sampled and analyzed for TPH via the FL PRO Method.

QA Samples: One equipment blank will be obtained and analyzed for EPA Methods 601, 602, 8310, TPH (FL PRO) and total lead. One duplicate sample will be obtained and analyzed for EPA Methods 601, 602, 8310, TPH, and total lead.

9. *Project Schedule:* Upon initiation, the field activities are expected to take four days to complete.

10. *Project Health & Safety Designation:* All activities will be conducted in accordance with AEI's Health & Safety Plan. All AEI field technicians and ACE Drilling personnel have the required "HAZWOPER" training and certification pursuant to 40 CFR, Part 1910.120. The designated level of protection for this project is "Level D". The AEI training documents are maintained in the AEI Sanford Office.

11. *Report Preparation:* Upon completion of all field activities, a single comprehensive report, entitled "Brownfield Phase II ESA" will prepared, which will summarize the various assessment procedures, methodologies utilized, soil and groundwater sampling results, and a comparison the results with FDEP target levels as specified in Chapter 62-777, FAC for soil and groundwater. Based on the current schedule, the Brownfield Phase II ESA will be submitted to Renew Ocala no later than November 30, 2004.

12. *Project Documentation:* The project documentation procedures are described in **Appendix I, item I-3,** "Documentation Procedures".

III. MEASUREMENT DATA ACQUISITION

FORM E

SAMPLING DESIGN

This form is utilized to discuss the sampling design and rationale for the choice of sampling locations for each parameter/matrix.

1. Soil Samples Collected for Laboratory Analyses: As indicated above in Form D, twelve soil samples, SS-1 through SS-12 will be collected for laboratory analyses to investigate the six source areas. The locations of SS-1 through SS-12 are shown on **Figure 3,** and are considered to be "critical" for this project. The following items apply for each soil sample to be collected for laboratory analyses:

SS-1 through SS-4:	Soil samples SS-1 through SS-4 will be collected from around the in-active gasoline USTs located inside the building, after review of the OVA results from the hand auger samples and OVA evaluation, which will be used to determine the applicable depth. These soil samples will be analyzed for EPA Method 8021(volatile organic aromatics) parameters by PC&B Environmental Laboratories. SS-4 will also be analyzed for EPA Method 8021 (halogens parameters).
SS-5 & SS-6:	These soil samples will be collected from beneath the former pump islands after review of the OVA results from the spilt spoon sampling and OVA evaluation, which will be used to determine the applicable depth. These soil samples will be analyzed for EPA Method 8021(volatile organic aromatics) parameters by PC&B Environmental Laboratories.
SS-7:	This soil sample will be collected from near the western former hydraulic lift in the building, and will be analyzed for Total Petroleum Hydrocarbons (TPH) via the FL PRO Method by PC&B Environmental Laboratories.
SS-8:	This soil sample will be collected from near the abandoned used oil UST located inside the building, and will be analyzed for TPH via the FL PRO Method by PC&B Environmental Laboratories.
SS-9:	This soil sample will be collected from near the eastern former hydraulic lift in the building, and will be analyzed for TPH via the FL PRO Method by PC&B Environmental Laboratories.
SS-10:	This soil sample will be collected from former hydraulic lift outside to the east of the building, and will be analyzed for TPH via the FL PRO Method by PC&B Environmental Laboratories.

FORM E (Continued)

SAMPLING DESIGN

This form is utilized to discuss the sampling design and rationale for the choice of sampling locations for each parameter/matrix.

SS-11	This soil sample will be collected from near the abandoned 300-gallon kerosene UST after review of the OVA results from the split-spoon sampling and OVA evaluation, which will be used to determine the applicable depth. This sample will be analyzed for EPA Method 8021 parameters (volatile organic aromatic parameters), EPA Method 8100 parameters, and TPH by PC&B Environmental Laboratories.
SS-12	This soil sample will be collected from near the abandoned gasoline USTs after review of the OVA results from the split-spoon sampling and OVA evaluation, which will be used to determine the applicable depth. This sample will be analyzed for EPA Method 8021 parameters (volatile organic aromatic parameters), by PC&B Environmental Laboratories.

2. *Groundwater Samples Collected for Laboratory Analyses:* As indicated above in Form D, eight groundwater samples will be collected for laboratory analyses to further determine the presence and levels of solvents and petroleum constituents present in groundwater beneath the subject site. The sampling locations are shown on **Figure 3,** and are considered to be critical for this project. The following items apply for each groundwater sample to be collected for laboratory analyses:

EW-1:	This groundwater sample will be collected from an existing monitoring well located in the northwestern portion of the subject site, and will be analyzed for EPA Methods 601 and 602 parameters, and total lead, by PC&B Environmental Laboratories.
EW-2:	This groundwater sample will be collected from an existing monitoring well located in the southwestern portion of the subject site, and will be analyzed for EPA Methods 601 and 602 parameters, and total lead, by PC&B Environmental Laboratories.
EW-3:	This groundwater sample will be collected from an existing monitoring well located in the southern portion of the subject site, and will be analyzed for EPA Methods 601 and 602 parameters, and total lead, by PC&B Environmental Laboratories.
TW-1:	This groundwater sample will be collected from a temporary monitoring well installed to the north of the in-active USTs, and will be analyzed for EPA Methods 601 and 602 parameters, and total lead, by PC&B Environmental Laboratories.

FORM E (Continued)

SAMPLING DESIGN

This form is utilized to discuss the sampling design and rationale for the choice of sampling locations for each parameter/matrix.

TW-2:	This groundwater sample will be collected from a temporary monitoring well installed near the abandoned gasoline USTs and will be analyzed for EPA Methods 601, 602, and total lead, by PC&B Environmental Laboratories.
TW-3:	This groundwater sample will be collected from a temporary monitoring well installed near the in-active hydraulic lift located outside of the building and will be analyzed for TPH by PC&B Environmental Laboratories.
TW-4:	This groundwater sample will be collected from a temporary monitoring well installed near the abandoned 300-gallon kerosene UST and near the former pump island on the southern portion of the subject site and will be analyzed for EPA Methods 602, 8310, and TPH parameters by PC&B Environmental Laboratories.
TW-5:	This groundwater sample will be collected from a temporary monitoring well installed in the area of the former pump island located on the western portion of the subject site , and will be analyzed for EPA Methods 601, 602,and total lead, by PC&B Environmental Laboratories.

FORM F-1

Method and SOP Reference Table

This form is utilized to contain SOP Reference Tables. The appropriate number/letter reference from this table are used to complete Forms F-2 through J and Form L. The referenced Project Analytical and Sampling SOPs have been attached to the QAPP.

Analytical Method Reference: Include document title, method name/number, revision number, date	**Project Analytical SOPs:** Include document title, method name/number, revision number, date
1a. EPA Method 601, EPA -600/4-79-020, Methods for Chemical Analysis of Water & Wastes, Revised March 1983.	1b. PC&B Environmental Laboratories, NELAP Approved Quality Assurance Plan.
2a. EPA Method 602, EPA -600/4-79-020, Methods for Chemical Analysis of Water & Wastes, Revised March 1983.	
3a. EPA Method 8021 (Halogens), Test Methods for Evaluating Solid Waste (EPA-SW-846, revised January 1995).	
4a. EPA Method 8021 (Aromatics), Test Methods for Evaluating Solid Waste (EPA-SW-846, revised January 1995).	
5a. EPA Method 8310, Test Methods for Evaluating Solid Waste (EPA-SW-846, revised January 1995).	
6a. EPA Method 6010, Methods for Chemical Analysis of Water & Wastes, Revised March 1983.	
7a. FL PRO, FDEP analytical method for total petroleum hydrocarbons.	

FORM F-1 (Continued)

Method and SOP Reference Table

Project Sampling SOPs:
1c. FA1000, Regulatory Scope, FDEP SOPs for Field Activities, DEP-SOP-001/01, February 2004.
2c. FC 1000, Cleaning Procedures, FDEP SOPs for Field Activities, DEP-SOP-001/01, February 2004.
3c. FD 1000, Documentation Procedures, FDEP SOPs for Field Activities, DEP-SOP-001/01, February 2004.
4c. FQ 1000, Field Quality Control Requirements, FDEP SOPs for Field Activities, DEP-SOP-001/01, February 2004.
5c. FS 2200, Groundwater Sampling, FDEP SOPs for Field Activities, DEP-SOP-001/01, February 2004.
6c. FS 3000, Soil Sampling, FDEP SOPs for Field Activities, DEP-SOP-001/01, February 2004.
7c. FT 1100, Field Measurement fo Hydrogen Ion Activity (pH), FDEP SOPs for Field Activities, DEP-SOP-001/01, Feb. 2004.
8c. FT 1200, Field Measurement of Specific Conductance, FDEP SOPs for Field Activities, DEP-SOP-001/01, February 2004.
9c. FT 1400, Field Measurement of Temperature, FDEP SOPs for Field Activities, DEP-SOP-001/01, February 2004.
10c. FT 1500, Field Measurement of Dissolved Oxygen, FDEP SOPs for Field Activities, DEP-SOP-001/01, February 2004.
11c. FT 1600, Field Measurement of Turbidity, FDEP SOPs for Field Activities, DEP-SOP-001/01, February 2004.
12c. FT 1000, General Field Testing and Measurement

These SOPs are contained in **Appendix I** of this document.

FORM F-2

Sampling and Analytical Methods Requirements

Parameter	Matrix	Number of Samples (including Field QC)	Analytical Method	Sampling SOP	Containers Per Sample	Preservation Requirements	Maximum, Holding Time at Lab
Volatile Organic Halocarbons	Water	8	EPA 601	5c.	2x 40mL glass VOA Vials	pH to <2 HCL	14 Days
Volatile Organic Aromatics	Water	9	EPA 602	5c.	2x 40mL glass VOA Vials	pH to <2 HCL	14 Days
Volatile Organic Halocarbons	Soil	1	EPA 8021	6c.	1 4ounce clear glass jar	None	14 Days
Volatile Organic Aromatics	Soil	8	EPA 8021	6c.	1 4ounce clear glass jar	None	14 Days
Poly Aromatic Hydrocarbons	Water	3	EPA 8310	5c.	1 x 1 Liter Amber Glass	None	7 Days
Poly Aromatic Hydrocarbons	Soil	1	EPA 8100	6c.	1 4ounce clear glass jar	None	7 Days
Total Petroleum Hydrocarbons by FLPRO	Water	4	FL PRO	5c.	1 x 1 Liter Amber Glass	pH to <2	7 Days
Metals by Ion Coupled Plasma Emission Spectrophotometer	Water	8	EPA 6010	5c.	1x125mL HDPD	pH to <2 HNo3	6 Months
Total Petroleum Hydrocarbons by FLPRO	Soil	5	FL PRO	6c.	1 4ounce clear glass jar	None	7 Days

FORM G

Preventive Maintenance - Field Equipment

Identification of the equipment and/or systems requiring periodic preventive maintenance. References are cited regarding how periodic preventive and corrective maintenance of measurement or test equipment is performed to ensure availability and satisfactory performance of the systems. This includes applicable descriptions of how to resolve deficiencies and when re-inspections are conducted. This includes the availability of spare parts identified in the manufacturer's operating instructions and how SOPs will be maintained.

Instrument	Activity	Frequency	SOP Ref. No.
Horiba U-10 Water Quality Meter	Calibration, per SOP FT 1000, Appendix I-12	Prior to each use.	7c., 8c., 9c., 10c., 11c., 12c.
Foxboro 128 Organic Vapor Analyzer	Calibration, per SOP FT 1000, Appendix I-12, by Cyclone Instruments, located off-site.	Prior to each use.	12c., & Manufacturer's instructions and specifications.

List of Consumables: Isopropyl alcohol, Liquidnox, distilled water, Horiba Standard Calibration Solution for Horiba U-10 Water Quality Meter. These items are maintained by AEI in the Sanford Office, located at 4055 St. Johns Parkway, Sanford, Florida.

Additional Information:

1. The individuals responsible for inspecting the supplies during field sampling activities are Mr. Miguel Rodriguez, AEI Senior Field Technician, James Jarmolowski, AEI Project Manager, and Mr. Raymond Billings, Project Quality Assurance Officer.

2. All supplies, calibration reagents and field equipment for this project are maintained at the AEI office located at 4055 St. Johns Parkway, Sanford, Florida.

FORM H

Calibration and Corrective Action - Field Equipment

This includes identification of all tools, gauges, instruments, and other equipment used for data collection activities that must be calibrated to maintain performance within specified limits. The calibration procedures are referenced using certified equipment and standards with known relationships to recognized performance standards. The procedures for maintenance of calibration records are referenced.

Instrument	Activity	Frequency	Acceptance Criteria	Corrective Action	SOP Ref. No.
Horiba U-10 Water Quality Meter	Calibration	Prior to each use.	See below.	Re-calibration when needed.	7c., 8c., 9c., 10c., 11c., 12c.
Foxboro 128 Organic Vapor Analyzer	Calibration	Prior to each use.	Manufacturer's specifications	Re-calibration when needed.	12c., & Manufacturer's instructions and specifications.

QC REQUIREMENTS FOR STABILIZED FIELD MEASUREMENTS

Field Parameters	Requirement	SOP Ref. No.
pH	±0.2 standard units	5c. (FS 2200)
Conductivity	±5% of reading	5c. (FS 2200)
Dissolved Oxygen	<20% saturation at temperature	5c. (FS 2200)
Turbidity	<20 NTU	5c. (FS 2200)
Temperature	±0.2 degrees C	5c. (FS 2200)

FORM I

Preventive Maintenance - Laboratory Equipment

Identification of the equipment and/or systems requiring periodic preventive maintenance. References are cited regarding how periodic preventive and corrective maintenance of measurement or test equipment is performed to ensure availability and satisfactory performance of the systems. This includes applicable descriptions of how to resolve deficiencies and when re-inspections are conducted. This includes the availability of spare parts identified in the manufacturer's operating instructions and how SOPs will be maintained.

Instrument	Activity	Frequency	SOP Ref No.
Gas Chromatograph/Mass Spectrometer	Follow manufacturer's methodology/requirements	Daily	1,2,3,4a
	Replace injector septum	Weekly	1,2,3,4a
	Change inlet liner	Weekly	1,2,3,4a
	Clean source	Weekly	1,2,3,4a
	Oil turbomecular pump wick	Every 6 months	1,2,3,4a
	Renew rough pump oil	Every 6 months	1,2,3,4a
High Performance Liquid Chromatograph	De-gas and filer all solvents prior to use	Daily	5a
	Clean out waste bottle	Daily	5a
	Follow manufacturer's methodology/requirements	Daily	5a
	Follow manufacturer's monthly instructions	Monthly	5a
	Clean instrument housing	Monthly	5a
	Oil pump heads	Quarterly	5a
	Reseat controller and cables	Quarterly	5a
Gas Chromatograph	Follow manufacturer's methodology/requirements	Daily	6a
	Wipe check ECD	Every 6 months	6a
	Recharge flow controllers	Every 6 months	6a
	Clean injectors glass liners	Every 6 months	6a
Ion coupled Plasma Emission Spectrophotometer	Follow manufacturer's methodology/requirements	Daily	7a
	Follow methodology requirements	Bi-weekly	7a

FORM J

Calibration and Corrective Action - Laboratory equipment

This includes identification of all tools, gauges, instruments, and other equipment used for data collection activities that must be calibrated to maintain performance within specified limits. The calibration procedures are referenced using certified equipment and standards with known relationships to recognized performance standards. The procedures for maintenance of calibration records are referenced.

Instrument	Activity	Frequency	Acceptance Criteria	Corrective Action	SOP Ref. No.
Gas Chromatograph/ Mass Spectrometer	Per methodology	Per methodology	Per NELAC & FDEP SOPs	Per NELAC & FDEP SOPs	1,2,3,4a
High Performance Liquid Chromatograph	Per methodology	Per methodology	Per NELAC & FDEP SOPs	Per NELAC & FDEP SOPs	5a
Gas Chromatograph	Per methodology	Per methodology	Per NELAC & FDEP SOPs	Per NELAC & FDEP SOPs	6a
Ion Coupled Plasma Emission Spectrophotometer	Per methodology	Per methodology	Per NELAC & FDEP SOPs	Per NELAC & FDEP SOPs	7a

FORM K

Sample Handling and Custody Requirements

This includes a description of the procedures for sampling handling and custody. Include chain-of-custody forms; identify the sampling tags and custody seals the field teams should use. Refer to the SOPs for collecting, transferring, storing, analyzing, and disposing of samples.

The following SOPs apply:

SOP 3c. FD 1000, Documentation Procedures.
SOP 5c. FS 2200, Groundwater Sampling.
SOP 6c. FS 3000, Soil Sampling.

PC&B's standard operating procedures for sample handling, custody, transferring, storing, analyzing, and disposal of samples complies with NELAC's Quality Assurance Manuals, in effect as of the date of this SOP. Laboratory SOP's are accessible to all personnel to ensure strict compliance with applicable SOP's.

FORM L

Analytical Precision and Accuracy

This includes identification of the analytical methods and equipment required, including sub-sampling or extraction methods, laboratory decontamination procedures and materials, waste disposal requirements (if any) and specific performance requirements for each method.

Analyte	Analytical Method*	Detection Limit (water/soil) (units	Quantitation Limit (water/soil) (units	Precision (water/soil)	Accuracy (water/soil)
1a.	1a.	Per method and PC&B NELAP SOP. See Appendix H, Table 1 for water.	Per method and PC&B NELAP SOP. See Appendix H, Table 1 for water.	Per method and PC&B NELAP SOP. See Appendix H, Table 1 for water.	Per method and PC&B NELAP SOP. See Appendix H, Table 1 for water.
2a.	2a.	Per method and PC&B NELAP SOP. See Appendix H, Table 2 for water.	Per method and PC&B NELAP SOP. See Appendix H, Table 2 for water.	Per method and PC&B NELAP SOP. See Appendix H, Table 2 for water.	Per method and PC&B NELAP SOP. See Appendix H, Table 2 for water.
3a.	3a.	Per method and PC&B NELAP SOP. See Appendix H, Table 3.	Per method and PC&B NELAP SOP. See Appendix H, Table 3.	Per method and PC&B NELAP SOP. See Appendix H, Table 3.	Per method and PC&B NELAP SOP. See Appendix H, Table 3.
4a.	4a.	Per method and PC&B NELAP SOP. See Appendix H, Table 3.	Per method and PC&B NELAP SOP. See Appendix H, Table 3.	Per method and PC&B NELAP SOP. See Appendix H, Table 3.	Per method and PC&B NELAP SOP. See Appendix H, Table 3.
5a.	5a.	Per method and PC&B NELAP SOP. See Appendix H, Table 7.	Per method and PC&B NELAP SOP. See Appendix H, Table 7.	Per method and PC&B NELAP SOP. See Appendix H, Table 7.	Per method and PC&B NELAP SOP. See Appendix H, Table 7.
6a	6a	Per method and PC&B NELAP SOP.	Per method and PC&B NELAP SOP.	Per method and PC&B NELAP SOP.	Per method and PC&B NELAP SOP.
7a	7a	Per method and PC&B NELAP SOP. See Appendix H, Table s 4 & 5.	Per method and PC&B NELAP SOP. See Appendix H, Table s 4 & 5.	Per method and PC&B NELAP SOP. See Appendix H, Table s 4 & 5.	Per method and PC&B NELAP SOP. See Appendix H, Table s 4 & 5.

* Insert the appropriate reference number /letter from Form F-1, Method and SOP Reference Table.

FORM M

Field Quality Control Requirements

The procedures and requirements contained in *EPA Requirements for Quality Assurance Project Plans,* October 1997. EPA QA/R-5 (Draft Final), or latest revision, should be followed and referenced.

QC Sample	Frequency *	Acceptance Criteria	Corrective Action
Duplicate	5% per parameter matrix or 1 per project.	Within 20 % of the relative percent difference.	If the duplicate value exceeds 20% of the relative percent difference for a parameter, the sampling procedures will be reviewed, and the laboratory will be contacted for a data quality review. Depending on the results of review of sampling and laboratory procedures, re-sampling may be required.
Equipment Blank	5% per parameter matrix or1 per project.	Non-detection of applicable method parameters.	If a parameter is detected, the sampling procedures will be reviewed, and the laboratory will be contacted for a data quality review. Depending on the results of review of sampling and laboratory procedures, re-sampling may be required.
VOA Trip Blank	1 per Cooler	Non-detection of parameters of interest.	If a parameter is detected, the sampling procedures will be reviewed, and the laboratory will be contacted for a data quality review. Depending on the results of review of sampling and laboratory procedures, re-sampling may be required.
Cooler Temperature Blank	1 per Cooler	4 degrees C, ±2°	Review procedures. Re-sampling may be required.
Bottle Blank	1 per Lot #	NA for this project	NA

* Circle criterial listed or indicate alternative criteria.

FORM M

Laboratory Quality Control Requirements

QC Sample	Frequency *	Acceptance Criteria	Corrective Action
VOA Reagent/Method Blank	Daily or every 12 hours	As per methodology	As per methodology
Reagent/Method Blank	Daily or every 20 samples	As per methodology	As per methodology
Duplicate	5% per parameter matrix or every 20 samples	As per methodology	As per methodology
Matrix Spike	5% per parameter matrix or every 20 samples	As per methodology	As per methodology
Performance Evaluation (PE) Sample	5% per parameter matrix per concentration level or 2 per program per year.	As per methodology	As per methodology

* Circle criterial listed or indicate alternative criteria.

FORM N

Data Management and Documentation

This section includes a discussion of data documentation and management from field collection and laboratory analysis to date storage and use. Analytical data packages should include all relevant documents. This section also includes a description of procedures for detecting and correcting errors during data reporting and data entry. Copies of applicable forms or checklists including field calibration forms and chain-of-custody forms are references, and attached, as applicable.

The following SOPs apply:

SOP 3c. FD 1000, Documentation Procedures.
SOP 5c. FS 2200, Groundwater Sampling.
SOP 6c. FS 3000, Soil Sampling.
SOP 12c. FT 1000 General Field Testing and Measurement.

Copies of the chain-of-custody form to be used, the groundwater sampling log and the field calibration form to be used are included in **Appendix G.** The laboratory report for the project to be provided by PC&B include all applicable quality assurance documentation in accordance with the NELAC SOPs. These items include:

a) Data Results Sheets (including any performance evaluation sample results)
b) Method Blank Results
c) Surrogate Recoveries and Acceptance Limits
d) Matrix Spike/Matrix Spike Duplicate Results and Acceptance Limits
e) Spike/Duplicate and Acceptance Limits
f) Laboratory Control Sample Results and Acceptance Limits

PC&B's standard operating procedures for sample handling, custody, transferring, storing, analyzing, and disposal of samples complies with NELAC's Quality Assurance Manuals, in effect as of the date of this SOP. Laboratory SOP's are accessible to all personnel to ensure strict compliance with applicable SOP's.

IV. ASSESSMENT/OVERSIGHT

FORM O

Assessment and Response Actions

This section includes a description of the procedures for identifying and correcting any problems encountered during specific project operations.

1. Field Sampling Activities: All field sampling activities will be conducted under the supervision of the AEI Project Manager, or a designated representative. The AEI Project Manager will be notified immediately of any problems encountered by the AEI field sampling technician with regard to sampling equipment, sampling procedures, or other related problems. All applicable SOPs for field sampling will be followed by AEI sampling personnel.

2. Laboratory Analysis: Laboratory data documentation, management, Quality Control, and all administrative actions of the laboratory, follow NELAC Quality Manuals in effect as of the date of this SOP. Laboratory SOP's are located in the facility with access to all personnel for review at anytime, to ensure strict compliance with applicable SOP's.

3. On-Site or Off-Site Assessments: For this project, the sampling activities will be supervised by the AEI Project Manager, James Jarmolowski. Mr. Jarmolowski has over 20 years of environmental consulting experience. Due to the specific budget for this project authorized by Renew Ocala, no off-site assessments or audits will be conducted during the course of this project. AEI believes that the utilization of the procedures contained in this document will result in analytical results which will be utilized in the DQO evaluation of the subject site, as specified in Section 1e.

FORM P

Project Reports

This section includes a discussion of the frequency, content, and distribution of project reports that detail project status, results of internal assessment, corrective actions implemented, and project results.

1. Laboratory and Field Documentation: The AEI Project Manager and the AEI QA Officer will review the field sampling documentation and the completed laboratory results to insure the laboratory results provided by the laboratory meet the project requirements. The laboratory will be notified any corrective actions required. As indicated in other sections of this document, the procedures concerning the documentation for the field and laboratory are specified in **Appendix I-3,** FD 1000, Documentation Procedures. FD 1000 contains applicable information with respect to

2. Brownfield Phase II ESA Report: Upon receipt of the laboratory analytical results, AEI will prepare a Brownfield Phase II ESA report. The report will be detailed and comprehensive, and will include the results of the DQO evaluation for the soil and groundwater for each of the six source areas. All copies of the reports will be provided to Mr. George Roberts, of Renew Ocala. No other copies will be distributed by AEI to any other parties. Mr. Roberts will be responsible for distribution of the reports to any additional parties.

V. DATA VALIDATION AND USEABILITY

FORM Q - 1

Verification of Sampling Procedures

This section includes a discussion of the process to be used to review the sampling procedures to verify that they conform to requirements in the sampling and analysis plan.

The AEI Project Manager and the AEI QA Officer will review the field sampling documentation and the completed laboratory results to insure the laboratory results provided by the laboratory meet the project requirements. The validation procedures outlined in the various SOPs will be those used for this project.

FORM Q - 2

Data Verification and Validation

This section includes a discussion of the process to be used to verify conformance of the analytical data with predefined requirements. This section also includes a discussion of the process used to validate conformance of the analytical data to the predefined needs of the Brownfields site assessment.

All samples and QC samples are verified and validated by according to NELAC standards and method requirements whichever has stricter requirements.

The AEI Project Manager and the AEI QA Officer will review the field sampling documentation and the completed laboratory results to insure the laboratory results provided by the laboratory meet the project requirements as part of the . The laboratory will be notified any corrective actions required.

FORM R

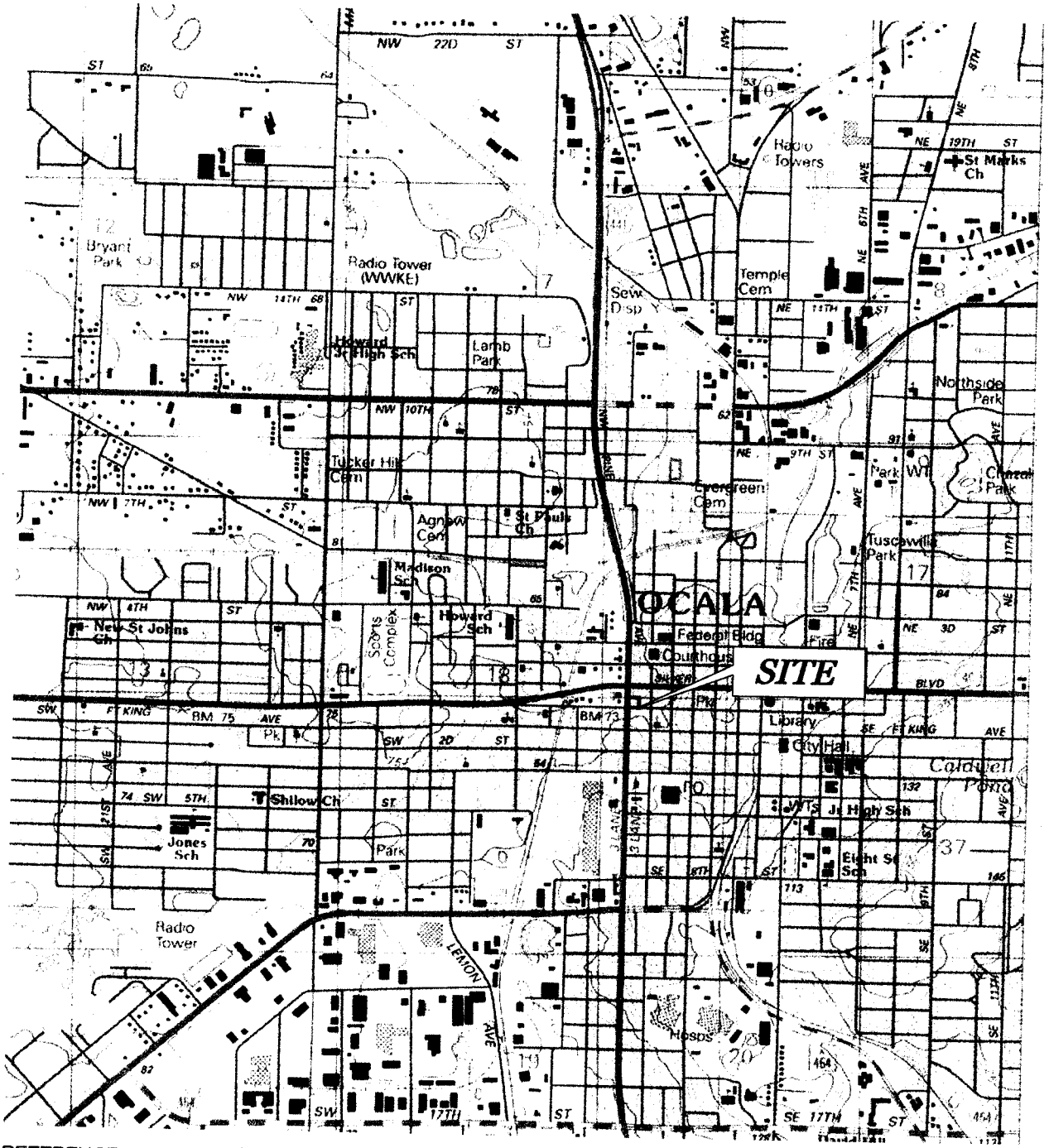
Data Useability

This section includes a discussion of the process for determining whether the data successfully meet the requirements for their intended use, including an outline of the methods to be used to identify anomalies and departures from assumptions in the sampling and analysis design. In addition, this includes how limitations of the data will be reported.

Final usability of data is determined by AEI. All samples and QC samples are verified and validated by PC& B Environmental Laboratories according to NELAC standards and method requirements whichever has stricter requirements.

The data will be evaluated with respect to the DQO objectives, and any anomalies and departures from the assumptions in the sampling and analysis design will be documented in the Brownfield Phase II ESA report. Any limitations of the data generated for this project will be reported in the Brownfield Phase II ESA.

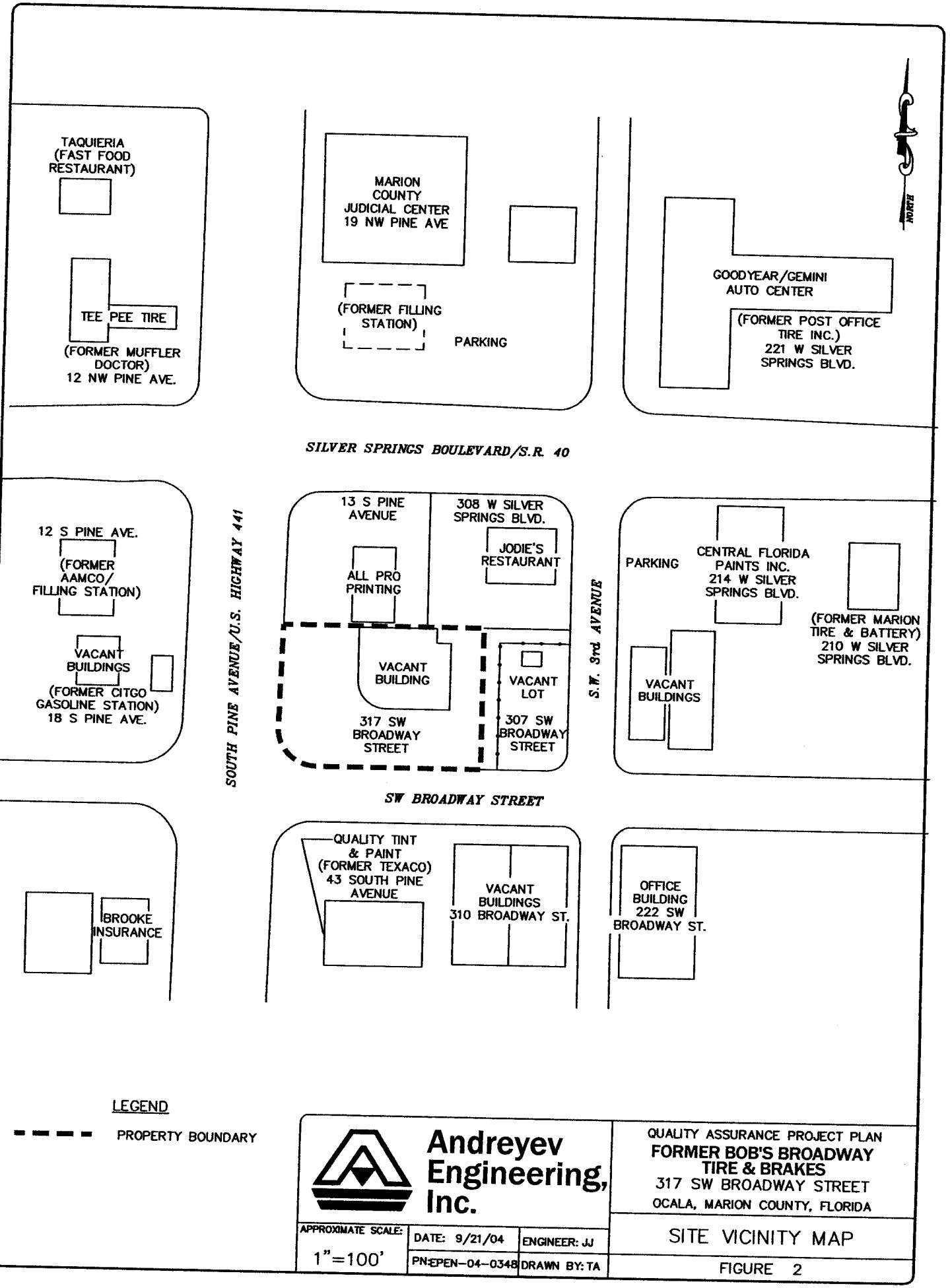
FIGURES



REFERENCE: U.S.G.S. "OCALA WEST, FLORIDA" QUADRANGLE MAP

SECTION: 18
TOWNSHIP: 15 SOUTH
RANGE: 22 EAST
ISSUED: 1991

Andreyev Engineering, Inc.			QUALITY ASSURANCE PROJECT PLAN FORMER BOB'S BROADWAY TIRE & BRAKES 317 SW BROADWAY STREET OCALA, MARION COUNTY, FLORIDA
APPROXIMATE SCALE: 1"=2000'	DATE: 9/21/04	ENGINEER: JJ	U.S.G.S. TOPOGRAPHIC MAP
	PN: EPEN-04-0348	DRAWN BY: TA	FIGURE 1



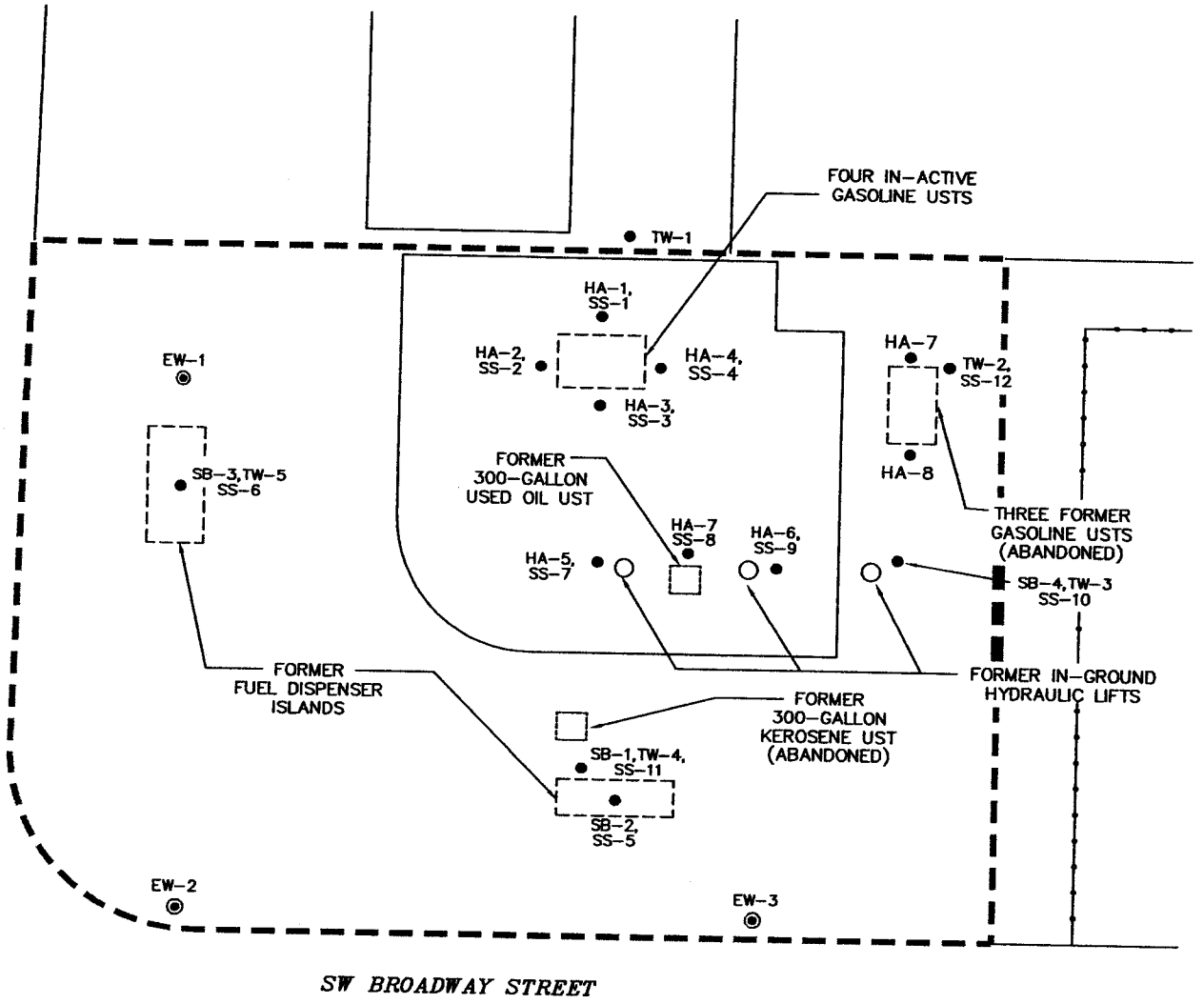
Andreyev Engineering, Inc.

APPROXIMATE SCALE: 1"=100'	DATE: 9/21/04	ENGINEER: JJ
	PN:EPEN-04-0348	DRAWN BY: TA

QUALITY ASSURANCE PROJECT PLAN
FORMER BOB'S BROADWAY TIRE & BRAKES
317 SW BROADWAY STREET
OCALA, MARION COUNTY, FLORIDA

SITE VICINITY MAP

FIGURE 2



LEGEND

- PROPERTY BOUNDARY
- SB-1 ● PROPOSED SOIL BORING LOCATIONS
- SS-1 ● PROPOSED SOIL SAMPLING LOCATIONS
- HA-1 ● PROPOSED HAND AUGER LOCATIONS
- TW-1 ● PROPOSED TEMPORARY MONITORING WELL LOCATIONS
- EW-1 ◉ EXISTING MONITORING WELL LOCATIONS

Andreyev Engineering, Inc.

APPROXIMATE SCALE:	DATE: 9/21/04	ENGINEER: JJ
1"=30'	PN:EPEN-04-0348	DRAWN BY: TA

QUALITY ASSURANCE PROJECT PLAN
FORMER BOB'S BROADWAY TIRE & BRAKES
317 SW BROADWAY STREET
OCALA, MARION COUNTY, FLORIDA

PROPOSED SOIL AND GROUNDWATER SAMPLING LOCATIONS

FIGURE 3

APPENDICES

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Part 1 General	

CHAPTER 62-160 QUALITY ASSURANCE

PART I	GENERAL
62-160.100	Purpose. (Repealed)
62-160.110	Purpose, Scope and Applicability.
62-160.120	Definitions.
PART II	FIELD PROCEDURES
62-160.200	Introduction and General Requirements. (Repealed)
62-160.210	Approved Field Procedures.
62-160.220	Approval of New and Alternative Field Procedures.
62-160.230	Research Quality Assurance Plans. (Repealed)
62-160.240	Record Keeping and Reporting Requirements for Field Procedures.
PART III	LABORATORY CERTIFICATION AND PROCEDURES
62-160.300	Laboratory Certification.
62-160.310	Direct Contracts with the Department. (Repealed)
62-160.320	Approved Laboratory Methods.
62-160.330	Approval of New and Alternative Laboratory Methods.
62-160.340	Record Keeping and Reporting Requirements for Laboratory Procedures.
PART IV	MISCELLANEOUS
62-160.400	Sample Preservation and Holding Times.
62-160.410	Quality Control Requirements (Field). (Repealed)
62-160.420	Required Containers, Preservation and Holding Times. (Repealed)
62-160.430	Approval of Alternate Field Procedures. (Repealed)
62-160.500	Approved Analytical Methods. (Repealed)
62-160.510	Quality Control Requirements (Laboratory). (Repealed)
62-160.520	New Methods, Validation Requirements. (Repealed)
62-160.530	Approval of Alternate Test Procedures. (Repealed)
62-160.600	Research Field and Laboratory Procedures.
62-160.610	Field Sampling and Sample Custody Records. (Repealed)
62-160.620	Laboratory Sample Preparation, Analysis and Custody Records. (Repealed)
62-160.630	Quality Control Data and Charts. (Repealed)
62-160.640	Quality Assurance Reports: Guidance and Frequency. (Repealed)
62-160.650	Field and Laboratory Audits.
62-160.660	Project Audits – Data Validation by the Department. (Repealed)
62-160.670	Data Validation by the Department.
62-160.680	Administrative Procedures. (Repealed)
62-160.700	Tables.
62-160.800	Documents Incorporated by Reference.
62-160.900	Forms.

PART I GENERAL

62-160.110 Purpose, Scope and Applicability.

(1) The purpose of this chapter is to assure that chemical, physical, biological, microbiological and toxicological data used by the Department are appropriate and reliable, and are collected and analyzed by scientifically sound procedures. To this end, this chapter defines the minimum field and laboratory quality assurance, methodological and reporting requirements of the Department.

(2) Except as provided in subsection (3) of this section, this chapter shall apply to all programs, projects, studies or other activities that are required by the Department, and that involve the measurement, use or submission of environmental data or reports to the Department.

(3) Programs, projects, studies or activities pertaining to air quality, meteorology, atmospheric radiation, atmospheric noise, electric and magnetic fields or air pollutant emissions, and having no requirements for monitoring contamination of soil or ambient water, are excluded from the scope of this chapter. These excluded activities include those specified in Chapters 62-204, 62-210, 62-212, 62-213, 62-214, 62-252, 62-296 and 62-297 (Air Resources Management), F.A.C.

(4) The provisions of this chapter shall take precedence over quality assurance requirements in any other Department rule except as otherwise specifically provided for elsewhere in this chapter. However, nothing in this subsection shall be construed to prevent additional or more stringent requirements imposed by any specific contract, order, permit, or Title 62 rule.

(5) All local and state programs or other organizations with delegated responsibility for Department activities shall assure that the Quality Assurance requirements of this chapter are met for the specified activities.

(6) If specifically required by the United States Environmental Protection Agency (EPA) for activities conducted for or funded by EPA, Quality Assurance Project Plans (QAPPs) shall be prepared in accordance with "EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5", (EPA/240B-01/003 March 2001), which is incorporated by reference in Rule 62-160.800, F.A.C. These QAPPs will be reviewed and approved by the appropriate EPA office or delegated authority.

(7) This chapter supports the Quality Assurance Management Plan required by the EPA for any environmental programs funded in part or in whole by the EPA, as specified in EPA Order 5360.1 A2, dated May 5, 2000, which is incorporated by reference in Rule 62-160.800, F.A.C.

(8) All requirements specified in this chapter shall take effect on the date that this chapter is effective. Quality assurance requirements in Department contracts, orders or permits issued or entered into prior to the effective date of this chapter shall remain in effect until such contracts, orders or permits are modified or renewed.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 1-1-91, Amended 2-4-93, 2-27-94, Formerly 17-160.110, Amended 3-24-96, 4-9-02, 6-8-04.

62-160.120 Definitions and Standards.

For purposes of this chapter:

(1) "Alternative method" is a field procedure or analytical laboratory method that involves the collection or testing of environmental samples for an analyte (chemical compound, component, microorganism, etc.) in a specified matrix where a Department-approved method already exists. An alternative method is one intended to be used in place of an existing Department-approved laboratory method or field procedure.

(2) "Audit" is a systematic review of laboratory and field protocols to determine if proper procedures are being used and supporting documentation is present. An audit shall consist of an on-site assessment of sample collection, field sampling procedures, laboratory procedures and/or a review, assessment and/or validation of data associated with a Department program activity. If necessary, an audit shall include the submission of performance samples (for example, blind, split and/or performance check samples) to an organization for subsequent use in the evaluation of that organization's technical performance associated with a specific Department project or program activity.

(3) "Chemical Abstracts Service (CAS) Registry Number" is a unique number assigned to a chemical by the Chemical Abstracts Service Registry. The CAS is a division of the American Chemical Society and is internationally recognized as the producer of the largest and most comprehensive database of chemical information. The CAS Registry Number provides an unambiguous way to identify a chemical substance or molecular structure.

(4) "Data quality objectives" are a set of qualitative and quantitative requirements that environmental data must achieve to be acceptable for use in a specific program or project.

(5) "Data validation" is an evaluation of the technical usability of the verified data with respect to the planned objectives or intention of a project.

(6) "Data verification" is a consistent, systematic process that determines whether the data have been collected in accordance with project specifications with respect to compliance, correctness, consistency and completeness as compared to a method standard or contract specification.

(7) "Department" is the Florida Department of Environmental Protection.

(8) "Department-approved method" is a field procedure or laboratory analytical method specified as acceptable for use in this chapter and in any other Department contract, order, permit or Title 62 rule.

(9) "Department of Health (DOH) Environmental Laboratory Certification Program (ELCP)" is the state of Florida's environmental laboratory certification program, authorized by Section 381.00591, F.S., and recognized by the National Environmental Laboratory Accreditation Program (NELAP) as an authority with responsibility and accountability for granting accreditation for specified fields of laboratory testing. The standards used by the DOH ELCP are those established by the National Environmental Laboratory Accreditation Conference (NELAC) as specified in Chapter 64E-1, F.A.C.

(10) "Holding time" is the storage time allowed between sample collection and sample preparation and/or analysis as specified by regulatory requirements or by the field sample collection protocol or laboratory method.

(11) "Limited-use method" is an analytical laboratory method that is validated for the testing of environmental samples from a particular site, waste stream (e.g., facility location) or sample matrix (e.g., effluent, groundwater or drinking water). A limited-use method is validated by a single laboratory and may only be used by that laboratory.

(12) "Matrix" is the predominant material in which an analyte of interest is contained. For example, soil, groundwater and drinking water are three environmental matrices.

(13) "Method-defined analyte" is defined by the U.S. Environmental Protection Agency as an analyte whose result is totally dependent on how the measurement is made. Any changes or modifications in the preparation or determinative techniques of these methods have the potential of changing the result. Examples are: Carbonaceous Biological Oxygen Demand, Oil and Grease and Toxicity Leaching Procedure.

(14) "Method detection limit (MDL)" is the minimum concentration of an analyte of interest that can be measured and reported with 99% confidence that the analyte concentration is greater than zero. The MDL for an analyte is determined from the preparation and analysis of a sample in a given matrix containing the analyte. MDLs shall be determined following the procedures specified in "New and Alternative Analytical Laboratory Methods", DEP-QA-001/01 (February 1, 2004) which is incorporated by reference in Rule 62-160.800, F.A.C., unless otherwise specified by a mandated test method for which the laboratory is certified or seeking certification.

(15) "Method modification" is any modification to an approved field procedure or analytical laboratory method that is specifically allowed by the approved field procedure or analytical laboratory method.

(16) "NELAC Field of Accreditation Matrix" is defined in the Glossary of the 2001 NELAC standards and shall be used to determine matrices under which a laboratory must be certified:

(a) Drinking Water: any aqueous sample that has been collected from a water source designated by the Department as a potable or potential potable water source.

(b) Non-potable Water: any aqueous sample excluded from the definition of drinking water matrix. Includes surface water, groundwater, effluents, water treatment chemicals, and toxicity characteristic leaching procedures (TCLP) or other extracts. To be considered as non-potable water, water treatment chemicals must be in an aqueous solution, and TCLP or other extracts must have been received by the laboratory as the extract, otherwise, the original environmental sample shall determine the field of accreditation matrix.

(c) Solid and Chemical Materials: includes soils, sediments, sludges, products and by-products of an industrial process that results in a matrix not previously defined. For purposes of accreditation, biosolids are considered a solid.

(d) Biological Tissue: any sample of a biological origin such as fish tissue, shellfish, or plant material.

(17) "National Environmental Laboratory Accreditation Conference (NELAC)" is a voluntary organization of state and federal environmental agencies, sponsored by the EPA, and formed to establish and promote mutually acceptable performance standards for the operation of environmental laboratories. These standards cover both analytical testing of environmental samples and the laboratory accreditation process. The goal of NELAC is to foster the generation of environmental laboratory data of known and documented quality through the adoption of national performance standards for environmental laboratories and other entities directly involved in the environmental field measurement and sampling process.

(18) "National Environmental Laboratory Accreditation Program (NELAP)" is the program that implements the NELAC standards. NELAP is administered by the EPA.

(19) "NELAP accreditation" is an accreditation status applied to a laboratory's field(s) of testing upon satisfying all requirements for certification as provided in Chapter 64E-1, F.A.C.

(20) "New method" is a field procedure or analytical laboratory method that involves the collection or testing of samples for an analyte (chemical compound, component, microorganism, etc.) in a specified matrix where a Department-approved method does not exist.

(21) "Percent relative standard deviation (% RSD)" is a calculated measure of precision from results of replicate sample analyses. It is calculated as specified in DEP-QA-001/01 (February 1, 2004), which is incorporated by reference in Rule 62-160.800, F.A.C.

(22) "Permit" is any permit or license issued by the Department pursuant to its lawful authority, or by another government agency under delegation of authority from the Department.

(23) "Practical quantitation limit (PQL)" is the lowest level of measurement that can be reliably achieved during routine laboratory operating conditions within specified limits of precision and accuracy. For Departmental use, if a laboratory fails to report a PQL, the PQL shall be calculated as four times the MDL.

(24) "Quality assurance" is an integrated system of management activities involving planning, implementation, documentation, assessment, reporting and quality improvement to ensure that a process, product or service meets defined standards of quality.

(25) "Quality assurance project plan (QAPP)" is a document required by the EPA for certain activities conducted for or funded by the EPA. The plan outlines the quality assurance criteria, as well as all protocols and quality control measures needed to meet the project data quality objectives. These plans are prepared in accordance with "EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5", (EPA/240/B-01/003 March 2001). These QAPPs are reviewed and approved by the appropriate EPA office or delegated authority.

(26) "Quality control" is the overall system of technical activities that measures the attributes and performance of a process, product or service against defined standards to verify that they meet the established data quality objectives.

(27) "Rejection" of data means the Department shall not use the data for the program or project for which they were generated. If the data do not comply with the validation criteria specified in subsection 62-160.670(1), F.A.C., they shall be subject to rejection in part or in whole for use by Department programs, as provided in subsections 62-160.670(2) and (3), F.A.C.

(28) "Relative percent difference (RPD)" is a calculated measure used to compare results from duplicate sample analyses. It is calculated as specified in DEP-QA-001/01 (February 1, 2004), which is incorporated by reference in Rule 62-160.800, F.A.C.

(29) "Research method" is a field procedure or analytical laboratory method that involves the evaluation or use of a new, innovative technology.

(30) "Site-specific sampling method" is a field method that is validated for the collection of environmental samples from a particular site, waste stream (e.g., facility location), or sample matrix (e.g., effluent, groundwater or drinking water). A site-specific sampling method is approved for use on a specific site by any field organization that is conducting field activities for that site. The approval of a site-specific sampling method does not apply to a sampling organization that wishes to use the method on other sites or for other projects. The alternate approval process is outlined in FA 2100 and FA 2200 of DEP-SOP-001/01 (February 1, 2004), which is incorporated by reference in Rule 62-160.800, F.A.C.

(31) "Spike" is an environmental sample that has been fortified with a known chemical of interest, at a known concentration. The purpose of a spike is to determine the method recovery efficiency for the chemical of interest, at the fortified concentration level, in the particular environmental sample of interest.

(32) "Statewide method" is a field procedure or analytical laboratory method that is validated for the collection or testing of environmental samples from similar sites or waste streams within the state of Florida by multiple field sampling organizations or laboratories, as applicable. The process for the validation of a statewide method is outlined in FA 2100 and FA 2200 of DEP-SOP-001/01 (February 1, 2004), and "New and Alternative Analytical Laboratory Methods", DEP-QA-001/01 (February 1, 2004)" which are incorporated by reference in Rule 62-160.800, F.A.C.

(33) "Surrogate spikes" are samples fortified at known concentration(s) with a compound(s) having similar chemical characteristics to the compounds of interest, but which are not normally found in environmental samples.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 1-1-91, Amended 2-4-93, 2-27-94, Formerly 17-160.120, Amended 3-24-96, 4-9-02, 6-8-04.

PART II FIELD PROCEDURES

62-160.210 Approved Field Procedures.

(1) All field sampling organizations shall follow the applicable collection and quality control protocols and requirements described in DEP-SOP-001/01 (February 1, 2004), which is incorporated by reference in Rule 62-160.800, F.A.C., unless specifically exempted by the rules of a particular Department program.

(2) Any party that wishes to apply for new or alternative field procedures other than those specified in DEP-SOP-001/01 (February 1, 2004) shall follow the requirements provided in Rule 62-160.220, F.A.C.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 1-1-91, Amended 2-4-93, 2-27-94, Formerly 17-160.210, Amended 3-24-96, 10-15-96, 4-9-02, 6-8-04.

62-160.220 Approval of New and Alternative Field Procedures.

(1) Any party may apply for use of a field procedure other than those specified in DEP-SOP-001/01 (February 1, 2004). Any field procedure not included in DEP-SOP-001/01 (February 1, 2004) must be approved by the Department prior to use according to the requirements in DEP-SOP-001/01 (February 1, 2004). Field procedures approved for use by a contract, order, or permit before the effective date of this chapter shall remain approved for the duration of the project. The documentation that approved the use of the procedure must be retained for at least five years after the last use of the procedure.

(2) Field procedures not included in DEP-SOP-001/01 (February 1, 2004) or not specified by Department contracts, orders or permits, fall into one of the following two categories:

(a) New – a field procedure that involves the collection of an analyte (chemical compound, component, microorganism, etc.) in a specified matrix where a Department-approved field procedure does not exist.

(b) Alternative – a field procedure that involves the collection of an analyte (chemical compound, component, microorganism, etc.) in a specified matrix where a Department-approved procedure already exists. An alternative procedure is one intended to be used in place of an existing Department-approved field procedure. Alternative procedures cannot be approved for the following methods in DEP-SOP-001/01 and DEP-SOP-002/01:

1. FS 7410, Rapid Bioassessment (Biorecon) Method;
2. FS 7420, Stream Condition Index (D-Frame Dipnet) Sampling;
3. FS 7460, Lake Condition Index (Lake Composite Sampling); and
4. FT 3000, Aquatic Habitat Assessment.

(3) A procedure modification to an approved field procedure that is specifically allowed by the approved procedure are not considered alternative or new procedures and do not require approval by the Department prior to use. However, the field sampling organization shall retain all data that demonstrate that the modification produces equivalent results when applied to the relevant sample matrix. These records shall be retained for at least five years after the last use of the modification.

(4) A new or alternative field procedure shall be evaluated based on its intended use. A new or alternative field procedure falls into one of two use categories:

(a) Site-Specific Sampling Method – the field procedure is validated for a specified project. A site-specific sampling method is approved for the project, and may be used by any organization designated to perform the procedure for the project.

(b) Statewide-Use Sampling Method – the field procedure is collaboratively validated for the collection of environmental samples from similar sites, matrices, waste streams, etc. within the state of Florida by multiple parties.

(5) Research field collection procedures shall be submitted for review and approval according to the requirements provided in Rule 62-160.600, F.A.C. If a method is initially developed for research purposes but will subsequently be used for compliance or other regulatory activities, the procedure(s) shall be submitted for review and approval according to subsections 62-160.220(1), (2), (4) and (6), F.A.C.

(6) Complete requests for a new or alternative field procedure shall be approved if the Department determines that the circumstances for the modification are justified, based on technical merit or logistical limitations in the sampling design, and that the requested modification would cause no loss in the ability of the requesting organization to evaluate data quality. In addition, any alternative field procedure must be demonstrated to meet or exceed the data quality objectives of the project.

(7) Any new or alternative field procedure approved for statewide use shall be incorporated into updates of the Department's field sampling procedures (DEP-SOP-001/01). New or alternative field procedures approved for limited use shall not be incorporated into DEP-SOP-001/01.

(8) A field procedure approved by the Department shall be removed from approval if new technical, scientific or regulatory information justifies its removal. The Department shall use the best scientific and technical information, methods and data in its possession in making the determination to remove a procedure from approval.

(a) If the affected procedure has been approved for statewide use and incorporated into the Department's field sampling procedures (DEP-SOP-001/01), the Department shall issue a notice of intent to revise the SOPs to remove the affected procedure. This notice shall include the technical justification for the removal of the procedure and shall be published in the Florida Administrative Weekly and on the Department's Internet site. Any substantially affected party may request an administrative hearing as provided in Chapter 120, F.S., within 21 days of receipt of the notice.

(b) If the affected procedure has been approved for limited use, the Department shall issue a notice of intent to remove the procedure from approval. This notice shall include the technical justification for the removal of the procedure and shall be addressed to the party (e.g., permittee, consultant, company) initially requesting approval for the field procedure. Any substantially affected party may request an administrative hearing as provided in Chapter 120, F.S., within 21 days of receipt of the notice.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 1-1-91, Amended 2-4-93, Formerly 17-160.220, Amended 3-24-96, 10-15-96, 4-9-02, 6-8-04.

62-160.240 Record Keeping and Reporting Requirements for Field Procedures.

(1) All record keeping requirements for field sampling organizations are specified in DEP-SOP-001/01 (February 1, 2004). These records shall be kept by the generator of the records for a minimum of five years after the date of project completion or permit cycle unless otherwise specified in a Department contract, order, permit or Title 62 rules.

(2) If specified by the Department in a contract, order, permit, or other Title 62 rule, the following field sampling information shall be provided to the Department for each site/facility and sampling location, as applicable:

(a) Project information including:

1. Project and/or program identification or name;

2. Site and/or facility name, address and phone number;

(b) Site and/or facility locational information to include:

1. Latitude measure in degrees-minutes-seconds (seconds may contain up to four decimal places);

2. Longitude measure in degrees-minutes-seconds (seconds may contain up to four decimal places);

3. Datum – the horizontal reference for measuring locations on the Earth's surface;

4. Spheroid – the ellipsoid used as a model for the surface of the Earth;

5. Geolocational collection information:

a. Collection method – the method or mechanism used to derive the measurements;

b. Collector name – name of individual who collected the locational data;

c. Collector affiliation – collector's agency or entity affiliation;

d. Collection date – date locational data were collected;

e. Relationship of point to feature – the type of the feature for which the measurement is being made;

f. Coordinate accuracy level – the measured, estimated or deduced degree of correctness of the measurement;

g. Verification information including name of person verifying the measurement, the date and the time when verification was performed;

(c) Information about the collected samples:

1. Name(s) and affiliation of individual(s) collecting samples;

2. Sampling method(s) used;

3. Sample description such as sample type, sample matrix, and sample treatments (preservation, filtration, etc.);

4. Client or field identification number for each sample;

5. Date and time of sample collection, including date and time sample collection ended (if collecting a composite sample);

6. Sample collection depth;

7. Unambiguous identification of all field-generated quality control samples such as field or equipment blanks, replicate samples or split samples;

8. Any additional information from the field documentation records specified in DEP-SOP-001/01 (February 1, 2004)

(d) Information about field measurement activities:

1. Method(s) used to make field measurement;

2. Name of field parameter;

3. Result, result units and associated data qualifier code(s); and

4. Any additional information from the field documentation records specified in DEP-SOP-001/01 (February 1, 2004)

(e) Information about site conditions:

1. Weather;

2. Flow (including units);

3. Any additional information from the field documentation records specified in DEP-SOP-001/001/01 (February 1, 2004); and;

(f) Any additional information specified by the Department in contracts, orders, permits or Title 62 rules.

(3) Field sampling data issued to a client(s) for Department-related work or directly to the Department shall be provided to the Department in an electronic format consistent with requirements for importing into Department databases, as specified by the Department in applicable contracts, orders, permits or Title 62 rules. In addition, certain Department programs specify the submission of paper reports. Field sampling information may be incorporated into laboratory reports specified in Rule 62-160.340, F.A.C. Specific electronic and paper report format requirements shall be as specified by the Department in the applicable contract, order, permit or Title 62 rule.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 4-9-02, Amended 6-8-04.

PART III LABORATORY CERTIFICATION AND PROCEDURES

62-160.300 Laboratory Certification.

(1) Except as provided in subsections 62-160.300(2), (3), (4) and (5), F.A.C., or other Title 62 rules, all laboratories generating environmental data for submission to the Department or for use in Department-regulated or Department-sponsored activities shall hold certification from the DOH ELCP. Such certification shall be for all matrix/test method/analyte(s) combinations being measured. The matrix of a sample is defined to be the condition under which the laboratory originally receives the sample, and shall be classified according to the NELAC Field of Accreditation Matrix groups defined by subsection 62-160.120(16), F.A.C.

(2) To the extent possible, a laboratory must be certified as specified in subsection 62-160.300(1), F.A.C., before reporting results for a given matrix/test method/analyte combination. However, a Department program may allow a laboratory to begin using a method before the certification process is complete if the laboratory wishes to add an analyte to a matrix/test method combination that is already certified; or if the laboratory is certified for a specific matrix/test method/analyte combination and wishes to add the capability of analyzing samples using the same test method/analyte combination in a different matrix.

(a) The laboratory must have met all the requirements for certification except for the on-site visit by DOH ELCP inspectors. The laboratory must be prepared to provide to the Department copies of the relevant application, applicable performance test sample results and the initial demonstration of capability, and

(b) The precision, accuracy and method detection limits generated by the laboratory must meet or exceed the project specific data quality objectives.

(c) The laboratory shall notify the Department of the status of its certification application within 90 days of the on-site visit by DOH ELCP inspectors.

(3) Laboratory certification by the DOH ELCP is not required for the following test procedures when conducted for the purposes of drinking water compliance:

(a) Alkalinity;

(b) Bromide;

(c) Calcium;

(d) Chlorite (only at entrances to distribution systems);

(e) Specific conductance;

(f) Disinfectant residual (includes residual chlorine);

(g) Orthophosphate;

(h) pH;

(i) Silica;

(j) Specific ultraviolet absorbance;

(k) Temperature;

(l) Total organic carbon; or

(m) Turbidity.

In cases where the Department has a specific field testing method standard operating procedure (e.g., FT 1100 for pH), the laboratory shall follow the Department's procedures. For all other analytes, a laboratory shall only use test methods that are acceptable for drinking water compliance.

(4) Except for drinking water compliance testing (see subsection 62-160.300(3), F.A.C), laboratories are not required to be certified by the DOH ELCP when conducting the following test procedures:

(a) pH;

(b) Dissolved oxygen;

(c) Specific conductivity;

(d) Temperature;

(e) Total residual chlorine (including free available chlorine);

(f) Transparency or light penetration;

(g) Salinity;

(h) Oxidation/reduction potential;

(i) Turbidity (when performed at the sampling location);

(j) Explosive gases (when monitoring for the Lower Explosive Limit);

(k) Sulfite (when performed at the sampling location);

(l) Sediment oxygen demand; and

(m) Any other test with a specific holding time of fifteen minutes or less when performed at the sampling location.

However, these laboratories shall follow the applicable standard operating procedures in DEP-SOP-001/01 (February 1, 2004) when conducting the analyses specified in paragraphs 62-160.300(4)(a) through (m), F.A.C.

(5) Certification is not required for:

(a) Any analyses related solely to internal process control;

(b) Geochemical parameters conducted at the sampling location for the purposes of evaluating remediation activities;

(c) Those matrix/method/analyte combinations (such as taxonomic identification) that are not included in the DOH ELCP scope of accreditation;

(d) Research-oriented methods as described in Rule 62-160.600, F.A.C.; or

(e) Methods developed for site-specific, limited-use purpose if such certification is specifically waived by the Department program for which the method will be used.

(6) Even if certification is not required (see subsections 62-160.300(3), (4) and (5), F.A.C.), laboratory organizations shall follow the relevant Department-approved methods as provided in Rule 62-160.320, F.A.C., as applicable. In addition, the laboratory shall operate a quality assurance program consistent with the quality systems standards of the NELAC specified in Chapter 64E-1, F.A.C.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 1-1-91, Amended 2-4-93, 2-27-94, Formerly 17-160.300, Amended 3-24-96, 4-9-02, 6-8-04.

62-160.320 Approved Laboratory Methods.

(1) Approved laboratory methods are specified in the Department's program rules, contracts, orders or permits. When methods are specified by a Department program, rule, contract, order or permit, only those methods shall be used. For informational purposes, the Department's Bureau of Laboratories maintains a list of methods and method compendiums that have been recognized by various Departmental programs. However, this list shall not supersede or limit the use of other methods that may be required by contract, order, permit or Title 62 rule. A copy of this list may be obtained from the Florida Department of Environmental Protection, Environmental Assessment Section, 2600 Blair Stone Road, MS 6511, Tallahassee, Florida 32399-2400.

(2) Laboratories performing taxonomic identification for periphyton or macrobenthic invertebrates shall use DEP-SOP-002/01, Method LQ 7000 which is incorporated by reference in Rule 62-160.800, F.A.C.

(3) Laboratories calculating the Stream Condition Index (SCI), the Lake Condition Index or making a Biorecon determination shall follow DEP-SOP-002/01, Methods LD 7000 and LT 7000, which are incorporated by reference in Rule 62-160.800, F.A.C.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 4-9-02.

62-160.330 Approval of New and Alternative Laboratory Methods.

(1) Any party may apply for use of a laboratory method other than those specified in the Department's contracts, orders, permits, or Title 62 rules. Laboratory methods that have been approved for use in a contract, order, permit or Title 62 rule before the effective date of this chapter shall remain approved. The documentation that approved the use of the procedure must be retained for at least five years after the last use of the procedure.

(2) All laboratory methods that support a Department contract, order, permit or Title 62 rule must be approved by the Department prior to use. These methods fall into one of two categories:

(a) New – an analytical laboratory method that tests for an analyte (chemical compound, component, microorganism, etc.) in a specified matrix where a Department-approved method does not exist;

(b) Alternative – an analytical laboratory method that tests for an analyte (chemical compound, component, microorganism, etc.) in a specified matrix where a Department-approved method does exist. An alternative method is one intended to be used in place of an existing Department-approved method. Alternative procedures cannot be approved for:

1. Alternatives to methods that the United States Environmental Protection Agency has designated as "method defined analyte"; and

2. The following methods from DEP-SOP-002/01:

a. LT 7100, Biorecon Determination;

b. LT 7200, Stream Condition Index (SCI) Determination; and

c. LT 7300, Lake Condition Index (LCI) Determination.

(3) A method modification is any modification to an approved analytical laboratory method that is specifically allowed by the approved method. Method modifications are not considered alternative methods and do not require approval by the Department prior to use. However, the laboratory shall retain all data that demonstrate that the modification produces equivalent results to the unmodified method. These records shall be retained for at least five years after the last use of the modification.

(4) New and alternative methods shall be demonstrated as appropriate for use according to the requirements in New and Alternative Analytical Laboratory Methods, DEP-QA-001/01 (February 1, 2004) unless otherwise specified in a Department contract, order, permit or Title 62 rule. A new or alternative laboratory method shall be evaluated based on its intended use:

(a) Limited-Use Method – the laboratory method is intended only for testing environmental samples from a particular site, waste stream (e.g., facility location) or sample matrix (e.g., effluent, groundwater or drinking water). A limited-use method is validated by a single laboratory and may only be used by that laboratory.

(b) Statewide-Use Method – the laboratory method is intended for testing environmental samples from similar sites or waste streams within the state of Florida by multiple laboratories. For a statewide method, the Department requires an interlaboratory collaborative study following the specifications in Appendix D of the Official Methods of Analysis of the Association of Official Analytical Chemists (1995), incorporated by reference in Rule 62-160.800, F.A.C. Alternatively, an interlaboratory collaborative study that is designed based on procedures published by a nationally recognized consensus-based standards organization (e.g., American Society for Testing and Materials) may be used. Specifications for these studies are provided in DEP-QA-001/01 (February 1, 2004), incorporated by reference in Rule 62-160.800, F.A.C.

(5) Research methods shall be submitted for review and approval according to the requirements provided in Rule 62-160.600, F.A.C. If a method is initially developed for research purposes but will subsequently be used for compliance or other regulatory activities, the method shall be submitted for review and approval according to subsections 62-160.330(1), (2) and (4), F.A.C.

(6) Applicants who are analyzing discharges regulated under the National Pollutant Discharge Elimination System (NPDES) permit system shall comply with applicable provisions of the United States Environmental Protection Agency regulations in 40 CFR Part 136 paragraphs 136.4 and 136.5 (2000). Applicants shall submit the application to the Department, which shall forward the application to the United States Environmental Protection Agency Administrator of Region 4 for review and approval. The determination for approval or rejection shall be made by the United States Environmental Protection Agency.

(7) Applicants who are analyzing compliance samples under the Safe Drinking Water Act shall comply with the applicable provisions of the United States Environmental Protection Agency regulations (40 CFR Part 141 paragraph 127) and Department Rule 62-550.550, F.A.C. Use of an alternative analytical technique requires written permission from the Department and United States Environmental Protection Agency.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 4-9-02, Amended 6-8-04.

62-160.340 Record Keeping and Reporting Requirements for Laboratory Procedures.

(1) Laboratory record keeping requirements shall follow those specified by the DOH ELCP Chapter 64E-1, F.A.C. Records shall be retained for a minimum of five years after the date of project completion or permit cycle unless otherwise specified in a Department contract, order, permit or Title 62 rules.

(2) A laboratory shall issue an analytical report that is consistent with the requirements of the DOH ELCP and using applicable qualifiers as defined in Table 1: Data Qualifiers Codes. In addition, when specified by the Department in a contract, order, permit or other Title 62 rule, the following laboratory information shall be provided in reports issued to the client for Department-related work or in reports issued directly to the Department:

(a) Laboratory name, address and phone number;

(b) Project information such as client name, site name, client project number, or client project name;

(c) Client or field identification number for each sample;

(d) Date and time of sample collection;

(e) Sample matrix (e.g., groundwater, effluent, waste, soil, etc.);
(f) Sample type (e.g., environmental sample, field blank, matrix spike);
(g) Laboratory identification number for each sample fraction;
(h) Sample receipt conditions such as proper and intact custody seals, or receipt temperature;
(i) Type of chemical and/or physical sample preservative and if intact at sample receipt/analysis;
(j) Sample analysis method;
(k) Sample preparation method, if applicable;
(l) Date of sample preparation, if applicable;
(m) Time of sample preparation if the holding time specified in Rule 62-160.400, F.A.C., is less than or equal to 48 hours;
(n) Date of sample analysis;
(o) Time of sample analysis if the holding time specified in Rule 62-160.400, F.A.C., is less than or equal to 48 hours;
(p) Identification of all laboratories providing analytical results in the report and the appropriate laboratory certification numbers from the DOH ELCP (if applicable) for each laboratory;
(q) Textual comments, if applicable, that specify any samples failing to meet preservation, container or holding time as determined by laboratory at sample receipt;
(r) Textual comments, if applicable, that specify any deviations (such as failed quality control), additions to, or exclusions from, the analytical method (such as environmental conditions), and any non-standard conditions that may have affected the quality of results;
(s) Batch identifiers that unambiguously link groups of samples to a specified set of activities such as preparation, analysis, shipping, reporting, or quality control;
(t) For chemical testing:
1. Analyte name;
2. Analyte CAS registry number or NELAP parameter code, if available;
3. The analytical result for each analysis with applicable Data Qualifiers, as specified in Table 1: Data Qualifiers Codes;
a. Non-detected analytes shall be indicated by the method detection limit value, followed by the code "U";
b. Laboratories may report a non-detected analyte whose method detection limit is two orders of magnitude below the target criterion with a value no greater than one order of magnitude below the target criteria. Such values shall be reported with a "U" qualifier.
4. Result units;
5. Sample lab filtered? (Yes or No – was the sample filtered in the laboratory?);
6. Method detection limit(s);
7. Practical quantitation limit(s);
8. Dilution factor;
9. Batch ID (unambiguous reference linking samples prepared or analyzed together);
10. Replicate sample reference (an unambiguous reference to laboratory replicate samples);
11. Matrix spike concentration level (level of analyte added to a spiked sample);
12. Matrix spike recovery (results for matrix spike/duplicate sample analysis required by methods);
13. Matrix spike duplicate recovery (results for matrix spike/duplicate sample analysis as required by the method);
14. Matrix spike precision (results for matrix spike/duplicate sample analysis as required by methods expressed as Relative Percent Difference or % Relative Standard Deviation, as defined in DEP-QA-001/01 (February 1, 2004);
15. Matrix spike recovery limits (in-house recovery limits used by the data generator to control their process);
16. Matrix spike precision limits (in-house recovery limits used by the data generator to control their process);
17. Results for laboratory replicate samples (results for duplicate/replicate sample analysis as required by the method);
18. Laboratory blank results (results for any laboratory blank analysis as required by the method and DEP-SOP-001/01 (February 1, 2004);
19. Field quality control results including trip blanks, field blanks, equipment blanks, and field replicates as required by DEP-SOP-001/01 (February 1, 2004) or the applicable contract, order, permit or Title 62 rule.
20. Surrogate spike concentration level (level of analyte added to the sample);
21. Surrogate spike recovery (if surrogate spikes are required by the method);
22. Surrogate recovery limits (if surrogates are required by the method);
23. Other sample characteristics such as percent moisture or fraction (i.e., total or dissolved);
(u) For toxicity (bioassay) testing:
1. Test type (acute or chronic);
2. Test organism(s) used;
3. Age(s) of test organism(s);
4. Test result(s);
5. Statistical method used to generate the result(s);
6. Control data (mortality/weight/reproduction, etc.) as appropriate to test type;
7. Test end points and confidence intervals;

8. Standard reference toxicant data associated with batch of test organisms;
9. Physical and chemical measures (pH, temperature, dissolved oxygen, etc.).
(v) For benthic invertebrate taxonomic identification:
1. Sorting efficiency, as percent (%);
2. Number and identity of taxa in sample;
3. Percent agreement between or among identifications performed by two or more independent taxonomists associated with period when results were generated;
4. Were all organisms verified against standard reference collection? (Yes or No);
5. Does organism range include Florida? (Yes or No).
(w) For algal taxonomic identification:
1. Percent agreement between or among identifications performed by two or more independent taxonomists associated with period when results were generated;
2. Number and identity of taxa in sample;
3. Microscope magnification;
4. Dilution factor;
5. Surface area sampled (periphyton); volume sampled (phytoplankton);
6. Number of fields counted;
7. Counting chamber dimensions.
(x) For microbiological testing:
1. Identity of test;
2. Test result with applicable data qualifiers, as specified in Table 1: Data Qualifiers Codes;
3. Test result units;
4. Results for laboratory replicate samples (results for duplicate/replicate sample analysis as required by the method) and field replicate samples, if performed;
5. Replicate sample reference (an unambiguous reference to laboratory replicate samples);
6. Field and laboratory blank results (results for any field and laboratory blank analysis as required by the method and DEP-SOP-001/01 (February 1, 2004);
7. Number of colonies in dilution water suitability test associated with samples;
8. Optimal growth in media test? (Yes or No);
(y) Any additional elements specified by the Department in contracts, orders, permits or Title 62 rules.
(3) If requested by the Department in an applicable contract, order, permit or Title 62 rule, laboratory data issued to a client(s) for Department-related work or directly to the Department shall be provided in an electronic format consistent with requirements for importing into Department databases. In addition, certain Department programs specify the submission of paper reports. Specific electronic and paper report format requirements shall be specified by the Department in the applicable contract, order, permit or Title 62 rule.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 4-9-02, Amended 6-8-04.

PART IV MISCELLANEOUS

62-160.400 Sample Preservation and Holding Times.
(1) Except as noted in subsection (2) below, or as otherwise provided for in the rules of a specific Department program, sample preservation methods, container types and holding times shall follow those requirements specified in DEP-SOP-001/01 (February 1, 2004), section FS 1070, which is incorporated by reference in Rule 62-160.800, F.A.C.
(2) Sample preservation procedures, container material and maximum allowable holding times for analytes not specified in DEP-SOP-001/01 (February 1, 2004) shall follow the method-specified requirements. If no method-specified requirements exist, the best available scientific knowledge shall be used as guidance for determining the appropriate procedures for use.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 1-1-91, Amended 2-4-93, Formerly 17-160.400, Amended 3-24-96, 10-15-96, 4-9-02, 6-8-04.

62-160.600 Research Field and Laboratory Procedures.
(1) Research field sampling and laboratory procedures involve one or more of the following:
(a) Evaluation, development or use of new, innovative technologies not yet approved by the Department;
(b) Evaluation, development or use of innovative field sampling or analytical laboratory methods not yet approved by the Department;
(c) Evaluation of new methodology or technology to be used in lieu of a Department-approved method; and

(d) Other projects not included in the above areas but designated as research by the relevant Department project or contract manager.

(2) If a research field sampling or laboratory method is being developed for subsequent use in compliance or other regulatory activities, the method shall be reviewed and approved according to the requirements provided in Rules 62-160.220 and 62-160.330, F.A.C.

(3) All research field sampling and laboratory procedures shall be described in a Department-approved work or study plan or in direct contract language. The following minimum elements shall be addressed, as applicable:

(a) Project purpose and intended end use of the data, including specific hypotheses;

(b) Brief historical overview or literature searches;

(c) Statement of anticipated results or effects of the research project;

(d) Description of work to be conducted, including the types of analyses to be performed to monitor the effectiveness of the research;

(e) The information and records to be included in the data report package and the reporting format for hard copy and electronic reports. Minimum requirements for record keeping shall follow those specified in Rules 62-160.240 and 62-160.340, F.A.C., as applicable;

(f) Identification of any specialized training or certification needed by personnel in order to successfully complete the project or task. This requirement includes specifying any laboratory certification requirements as provided in Rule 62-160.300, F.A.C. The Department project manager may waive the requirement for laboratory certification as provided in paragraph 62-160.300(5)(e), F.A.C. Regardless of this waiver of certification requirement, laboratories conducting work for these projects shall operate a quality assurance program consistent with the quality systems standards of the NELAC specified in Chapter 64E-1, F.A.C.

(g) All aspects of data generation and acquisition to ensure appropriate methods for sampling, measurement and analysis, data collection or generation, data handling, and quality assurance and quality control activities are employed and documented;

(h) The experimental data generation or data collection design for the project, including as appropriate:

1. Types and numbers of samples required;
2. Design of the sampling network;
3. Sampling locations and frequencies;
4. Sample matrices;
5. Analytes of interest;
6. Rationale for the design;
7. Procedures for collecting samples, including sample handling, preservation and custody in the field, laboratory and transport, and sampling equipment specifications and equipment decontamination procedures;
8. Sample preparation (if applicable) and analytical methods used;
9. Quality control activities needed for sampling and analysis, and the assessment of the quality control results. Quality control activities for the field and the laboratory include, but are not limited to, the use of blanks, duplicates, matrix spikes, laboratory control samples and surrogates;
10. Quality assurance activities that occur after the data collection or generation phase of the project, such as data verification validation, and field and laboratory audits;
11. Criteria to be used to objectively and consistently review, verify and validate project data, including the chain of custody for data throughout the life of the project or task;
12. Proposed methods to analyze the data and determine possible anomalies or departures from assumptions established in the planning phase of data collection; and
13. Any additional elements specifically required by the Department project manager.

(4) The Department shall conduct a technical review of the project work plan prior to the project's initiation in order to assess its technical and scientific merit and appropriateness.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 1-1-91, Amended 2-4-93, Formerly 17-160.600, Amended 3-24-96, 10-15-96, 4-9-02.

62-160.650 Field and Laboratory Audits.

(1) The Department and agencies or individuals with delegated authority from the Department shall conduct periodic audits of field and laboratory procedures or records to determine if approved protocols are being followed as required and to ensure data are being generated in compliance with the requirements of this chapter.

(2) An audit shall consist of one or more of the following:

(a) An on-site assessment of field sampling and/or laboratory procedures;

(b) A review, assessment and/or validation of data associated with a Department program activity;

(c) The submission of performance samples (for example, blind, split and/or performance check samples) to an organization for subsequent use in the evaluation of that organization's technical performance associated with a specific Department project or program activity; or

(d) Other relevant information as specified in a Department contract, order, permit or Title 62 rule.

(3) Upon request, the field sampling organization, consultant or responsible party shall provide copies of all applicable records as specified in Rule 62-160.240, F.A.C. Sufficient information shall be provided to enable the auditor to independently reconstruct all field procedures related to the project.

(4) Upon request, the laboratory, consultant or responsible party shall provide copies of those applicable records as specified in Rule 62-160.340, F.A.C. Sufficient information shall be provided to enable the auditor to independently reconstruct all laboratory procedures related to the project.

(5) A final audit report will be provided to the audited party within ninety (90) days of the audit unless the Department provides written request for additional information. In that case, the Department shall specify a date by which the audited party will receive the final audit report in the written request for additional information. Upon receipt of the final audit report, the audited party shall have thirty (30) days thereafter to respond to the Department with a letter that addresses the corrective action and implementation schedule for any deficiency that may have been noted in the final report, and provides justification for noted deficiencies that will not be addressed or corrected.

(6) Failure to respond with a letter of corrective action or to additional requests for corrective action shall result in the rejection by the Department of the associated project data until such time that the noted deficiencies are corrected. Rejection of data under this subsection shall follow the procedures set forth in subsection 62-160.670(3), F.A.C., and Chapter 120, F.S.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 1-1-91, Formerly 17-160.650, Amended 3-24-96, 4-9-02.

62-160.670 Data Validation by the Department.

(1) All data generated for Department activities are subject to data verification and data validation to determine if the data meet program or project data quality objectives. Data shall be verified and validated based on the assessment of the following:

(a) Completeness of the Department requested data package(s) and the response of involved parties to any Department requests for additional data;

(b) Integrity of samples as determined by complete and proper sample chain of custody documentation, and adherence to proper preservation, transport or handling protocols, as applicable;

(c) Proper use of sample collection and analysis methodology;

(d) Proper and sufficient use of quality control measures and criteria;

(e) Documentation of all generated data as provided in Rules 62-160.240 and 62-160.340, F.A.C.;

(f) Ability to reconstruct all field sampling and laboratory procedures through the documentation and records of the laboratory or field sampling organization as provided in Rules 62-160.240 and 62-160.340, F.A.C.;

(g) Ability to trace data in the final report to a specific sampling site, date and time;

(h) Status of the laboratory's certification through the DOH ELCP as provided in Chapter 64E-1, F.A.C., for any given analyte or category of analytes. Data associated with any given analyte or category of analytes generated during any period of suspension or revocation of laboratory certification as provided in Sections 403.0625(4) and (5) and 403.863, F.S., shall be subject to rejection unless certification requirements have been waived as provided in paragraph 62-160.300(5)(e), F.A.C.; and

(i) Appropriateness of the collected data as related to the specific data quality objectives of the Department program activity or project for which they were collected.

(2) If the Department determines that the data cannot be verified or validated based on one or more of the items in paragraphs 62-160.670(1)(a) through (i), F.A.C., or the Department determines that the affected data are not useable for their intended purpose, the data shall be rejected in whole or in relevant part by the Department.

(3) If the Department determines the data should be rejected, either in whole or in part for use by its programs or for a specified project, the Department shall issue a notice of intent to reject. A copy of the notice of intent to reject shall be provided, as applicable, to the affected permittee, facility owner/operator, laboratory and any field sampling consultant, as well as to any party who has submitted a specific request to receive such notice. Any substantially affected party (e.g., respondent, permittee, consultant, company or laboratory) may request an administrative hearing as provided in Chapter 120, F.S., within 21 days of receipt of the notice.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 1-1-91, Amended 2-4-93, 2-27-94, Formerly 17-160.670, Amended 3-24-96, 4-9-02.

62-160.700 Tables.

The following table have been referenced in this chapter and is identified by this title:

Table 1: Data Qualifier Codes.

Table 1
DATA QUALIFIER CODES

The following codes shall be used by laboratories when reporting data values that either meet the specified description outlined below or do not meet the quality control criteria of the laboratory:

SYMBOL	MEANING
A	Value reported is the arithmetic mean (average) of two or more determinations. This code shall be used if the reported value is the average of results for two or more discrete and separate samples. These samples shall have been processed and analyzed independently. Do not use this code if the data are the result of replicate analysis on the same sample aliquot, extract or digestate.
B	Results based upon colony counts outside the acceptable range. This code applies to microbiological tests and specifically to membrane filter colony counts. The code is to be used if the colony count is generated from a plate in which the total number of coliform colonies is outside the method indicated ideal range. This code is not to be used if a 100 mL sample has been filtered and the colony count is less than the lower value of the ideal range.
F	When reporting species: F indicates the female sex.
H	Value based on field kit determination; results may not be accurate. This code shall be used if a field screening test (i.e., field gas chromatograph data, immunoassay, vendor-supplied field kit, etc.) was used to generate the value and the field kit or method has not been recognized by the Department as equivalent to laboratory methods.
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value. A "J" value shall be accompanied by a narrative justification for its use. Where possible, the organization shall report whether the actual value is less than or greater than the reported value. A "J" value shall not be used as a substitute for K, L, M, T, V, or Y, however, if additional reasons exist for identifying the value as estimate (e.g., matrix spiked failed to meet acceptance criteria), the "J" code may be added to a K, L, M, T, V, or Y. The following are some examples of narrative descriptions that may accompany a "J" code: • No known quality control criteria exist for the component; • The reported value failed to meet the established quality control criteria for either precision or accuracy (the specific failure must be identified); • The sample matrix interfered with the ability to make any accurate determination; • The data are questionable because of improper laboratory or field protocols (e.g., composite sample was collected instead of a grab sample). • The field calibration verification did not meet calibration acceptance criteria.
K	Off-scale low. Actual value is known to be less than the value given. This code shall be used if: 1. The value is less than the lowest calibration standard and the calibration curve is known to be non-linear; or 2. The value is known to be less than the reported value based on sample size, dilution. This code shall not be used to report values that are less than the laboratory practical quantitation limit or laboratory method detection limit.
L	Off-scale high. Actual value is known to be greater than value given. To be used when the concentration of the analyte is above the acceptable level for quantitation (exceeds the linear range or highest calibration standard) and the calibration curve is known to exhibit a negative deflection.
M	When reporting chemical analyses: presence of material is verified but not quantified; the actual value is less than the value given. The reported value shall be the laboratory practical quantitation limit. This code shall be used if the level is too low to permit accurate quantification, but the estimated concentration is greater than the method detection limit. If the value is less than the method detection limit use "T" below.
N	Presumptive evidence of presence of material. This qualifier shall be used if: 1. The component has been tentatively identified based on mass spectral library search; or 2. There is an indication that the analyte is present, but quality control requirements for confirmation were not met (i.e., presence of analyte was not confirmed by alternative procedures).
O	Sampled, but analysis lost or not performed.
Q	Sample held beyond the accepted holding time. This code shall be used if the value is derived from a sample that was prepared or analyzed after the approved holding time restrictions for sample preparation or analysis.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only and shall not be used in statistical analysis.
U	Indicates that the compound was analyzed for but not detected. This symbol shall be used to indicate that the specified component **was not** detected. The value associated with the qualifier shall be the laboratory method detection limit. Unless requested by the client, less than the method detection limit values shall not be reported (see "T" above).

V Indicates that the analyte was detected in both the sample and the associated method blank. Note: the value in the blank shall not be subtracted from associated samples.
Y The laboratory analysis was from an improperly preserved sample. The data may not be accurate.
Z Too many colonies were present (TNTC); the numeric value represents the filtration volume.
? Data are rejected and should not be used. Some or all of the quality control data for the analyte were outside criteria, and the presence or absence of the analyte cannot be determined from the data.
* Not reported due to interference.

The following codes deal with certain aspects of field activities. The codes shall be used if the laboratory has knowledge of the specific sampling event. The codes shall be added by the organization collecting samples if they apply:

D Measurement was made in the field (i.e., in situ). This applies to any value (**except** pH, specific conductance, dissolved oxygen, temperature, total residual chlorine, transparency, or salinity) that was obtained under field conditions using approved analytical methods. If the parameter code specifies a field measurement (e.g., "Field pH"), this code is not required.
E Indicates that extra samples were taken at composite stations.
R Significant rain in the past 48 hours. (Significant rain typically involves rain in excess of 1/2 inch within the past 48 hours.) This code shall be used when the rainfall might contribute to a lower than normal value.
! Data deviate from historically established concentration ranges.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 1-1-91, Amended 2-4-93, 2-27-94, Formerly 17-160.700, Amended 3-24-96, 4-9-02, 6-8-04.

62-160.800 Documents Incorporated by Reference.

(1) Specific references to the documents listed below are made throughout this chapter and are incorporated by reference.

(a) Department of Environmental Protection Standard Operating Procedures for Field Activities, DEP-SOP-001/01 (February 1, 2004), Florida Department of Environmental Protection, Bureau of Laboratories, Environmental Assessment Section. This document is a compendium of standard operating procedures with the following major topics:

1. FA 1000: Regulatory Scope and Administrative Procedures for Use of FDEP SOPs;
2. FC 1000: Cleaning/Decontamination Procedures;
3. FD 1000: Documentation Procedures;
4. FM 1000: Field Planning and Mobilization;
5. FQ 1000: Field Quality Control Requirements;
6. FS 1000: General Sampling Procedures;
7. FS 2000: General Aqueous Sampling;
8. FS 2100: Surface Water Sampling;
9. FS 2200: Groundwater Sampling;
10. FS 2300: Drinking Water Sampling;
11. FS 2400: Wastewater Sampling;
12. FS 3000: Soil Sampling;
13. FS 4000: Sediment Sampling;
14. FS 5000: Waste Sampling;
15. FS 6000: General Biological Tissue Sampling;
16. FS 7000: General Biological Community Sampling;
17. FS 8100: Contaminated Surface Sampling;
18. FS 8200: Clean Sampling for Ultratrace Metals in Surface Waters;
19. FT 1000: General Field Testing and Measurement; and
20. FT 3000: Aquatic Habitat Characterization;

(b) Department of Environmental Protection Standard Operating Procedures for Laboratory Activities, DEP-SOP-002/01 (February 1, 2004), Florida Department of Environmental Protection, Bureau of Laboratories, Environmental Assessment Section:

1. LD 1000: Laboratory Documentation;
2. LQ 1000: Laboratory Quality Control; and
3. LT 7000: Determination of Biological Indices.

(c) New and Alternative Analytical Laboratory Methods, DEP-QA-001/01 (February 1, 2004), Florida Department of Environmental Protection, Bureau of Laboratories, Environmental Assessment Section.

(d) EPA Requirements for Quality Assurance Project Plans, EPA QA/R-5 (EPA/240/B-01/003, March 2001), United States Environmental Protection Agency.

(e) Interlaboratory Collaborative Study for Method Validation in the AOAC, Appendix D, Official Methods of Analysis of the Association of Official Analytical Chemists (AOAC), 16th edition (1995), Association of Official Analytical Chemists.

(f) Closed-System Purge-and-Trap and Extraction for Volatile Organics in Soil and Waste Samples, Method 5035, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, SW 846, Third Edition, November 1986 as amended by Update III, December 1996; United States Environmental Protection Agency.

(g) Standard Methods for the Examination of Water and Wastewater, 20th Edition (1999); American Public Health Association, American Water Works Association and Water Environment Federation. The following methods and tables are incorporated by reference:

1. Table 4500-H^+:I: Preparation of pH Standard Solutions, Method 4500-H^+ B, Electrometric Method;
2. Method 2510, Conductivity;
3. Method 2520, Salinity;
4. Table 8010:III: Procedure for Preparing Reconstituted Seawater, Method 8010, Introduction to Toxicity;
5. Method 4500-O C, Dissolved Oxygen, Azide Modification;
6. Method 2130, Turbidity;
7. Residual Chlorine:

a. Method 4500-CI B, Iodometric Method I
b. Method 4500-CI C, Iodometric Method II
c. Method 4500-CI D, Amperometric Titration Method
d. Method 4500-CI F, DPD Ferrous Titrimetric Method
e. Method 4500-CI E, Low-Level Amperometric Titration Method
f. Method 4500-CI G, DPD Colorimetric Method

(h) Methods for Chemical Analysis of Water and Wastes, Revised March 1983, United States Environmental Protection Agency. The following methods and tables are incorporated by reference:

1. Method 120.1, Conductance, Specific,
2. Method 330.1 Chlorine, Total Residual, Titrimetric, Amperometric,
3. Method 330.2 Chlorine, Total Residual, Titrimetric, Back, Iodometric,
4. Method 330.3 Chlorine, Total Residual, Titrimetric, Iodometric,
5. Method 330.4 Chlorine, Total Residual, Titrimetric, DPD-FAS,
6. Method 330.5, Chlorine, Total Residual, Spectrophotometric, DPD.

(i) Policy and Program Requirements for the Mandatory Agency-Wide Quality System, EPA Order 5360.1 A2, May 5, 2000, United States Environmental Protection Agency.

(j) U.S. Environmental Protection Agency Office of Research and Development, ICR Microbial Laboratory Manual, EPA/600/R-95/178, Section VII, Part 9, April 1996.

(k) U.S. Environmental Protection Agency Office of Water, Method 1623: *Cryptosporidium* and *Giardia* in Water by Filtration/IMS/FA, EPA-821-R-99-006, April 1999.

(2) The referenced documents are available for inspection at the Department's district and Tallahassee offices. Some referenced documents are available at the Department's Internet site.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 4-9-02, Amended 6-8-04.

62-160.900 Forms.

At this time, this chapter contains no forms. If forms are added to this chapter in the future, they will be included in this section.

Specific Authority 403.061, 403.0623 FS. Law Implemented 373.026, 373.309, 373.409, 373.413, 373.414, 373.416, 373.4592, 376.303, 376.305, 376.3071, 403.0623, 403.0625, 403.087, 403.088, 403.0881, 403.504, 403.704, 403.707, 403.722, 403.783, 403.853 FS. History–New 1-1-91, Amended 2-4-93, Formerly 17-160.900, Amended 3-24-96, 10-15-96, 4-9-02.

Table 1
DATA QUALIFIER CODES

The following codes shall be used by laboratories when reporting data values that either meet the specified description outlined below or do not meet the quality control criteria of the laboratory:

SYMBOL	MEANING
A	Value reported is the arithmetic mean (average) of two or more determinations. This code shall be used if the reported value is the average of results for two or more discrete and separate samples. These samples shall have been processed and analyzed independently. Do not use this code if the data are the result of replicate analysis on the same sample aliquot, extract or digestate.
B	Results based upon colony counts outside the acceptable range. This code applies to microbiological tests and specifically to membrane filter colony counts. The code is to be used if the colony count is generated from a plate in which the total number of coliform colonies is outside the method indicated ideal range. This code is not to be used if a 100 mL sample has been filtered and the colony count' is less than the lower value of the ideal range.
F	When reporting species: F indicates the female sex.
H	Value based on field kit determination; results may not be accurate. This code shall be used if a field screening test (i.e., field gas chromatograph data, immunoassay, vendor-supplied field kit, etc.) was used to generate the value and the field kit or method has not been recognized by the Department as equivalent to laboratory methods.
I	The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J	Estimated value. A "J" value shall be accompanied by a narrative justification for its use. Where possible, the organization shall report whether the actual value is less than or greater than the reported value. A "J" value shall not be used as a substitute for K, L, M, T, V, or Y, however, if additional reasons exist for identifying the value as estimate (e.g., matrix spiked failed to meet acceptance criteria), the "J" code may be added to a K, L, M, T, V, or Y. The following are some examples of narrative descriptions that may accompany a "J" code: ► No known quality control criteria exist for the component; ► The reported value failed to meet the established quality control criteria for either precision or accuracy (the specific failure must be identified); ► The sample matrix interfered with the ability to make any accurate determination; ► The data are questionable because of improper laboratory or field protocols (e.g., composite sample was collected instead of a grab sample). ► The field calibration verification did not meet calibration acceptance criteria

SYMBOL	MEANING
K	Off-scale low. Actual value is known to be less than the value given. This code shall be used if: 1. The value is less than the lowest calibration standard and the calibration curve is known to be non-linear; or 2. The value is known to be less than the reported value based on sample size, dilution. This code shall not be used to report values that are less than the laboratory practical quantitation limit or laboratory method detection limit.
L	Off-scale high. Actual value is known to be greater than value given. To be used when the concentration of the analyte is above the acceptable level for quantitation (exceeds the linear range or highest calibration standard) and the calibration curve is known to exhibit a negative deflection.
M	When reporting chemical analyses: presence of material is verified but not quantified; the actual value is less than the value given. The reported value shall be the laboratory practical quantitation limit. This code shall be used if the level is too low to permit accurate quantification, but the estimated concentration is greater than the method detection limit. If the value is less than the method detection limit use "T" below.
N	Presumptive evidence of presence of material. This qualifier shall be used if: 1. The component has been tentatively identified based on mass spectral library search; or 2. There is an indication that the analyte is present, but quality control requirements for confirmation were not met (i.e., presence of analyte was not confirmed by alternative procedures).
O	Sampled, but analysis lost or not performed.
Q	Sample held beyond the accepted holding time. This code shall be used if the value is derived from a sample that was prepared or analyzed after the approved holding time restrictions for sample preparation or analysis.
T	Value reported is less than the laboratory method detection limit. The value is reported for informational purposes only and shall not be used in statistical analysis.
U	Indicates that the compound was analyzed for but not detected. This symbol shall be used to indicate that the specified component **was not** detected. The value associated with the qualifier shall be the laboratory method detection limit. Unless requested by the client, less than the method detection limit values shall not be reported (see "T" above).
V	Indicates that the analyte was detected in both the sample and the associated method blank. Note: the value in the blank shall not be subtracted from associated samples.
Y	The laboratory analysis was from an improperly preserved sample. The data may not be accurate.

SYMBOL	MEANING
Z	Too many colonies were present (TNTC); the numeric value represents the filtration volume.
?	Data are rejected and should not be used. Some or all of the quality control data for the analyte were outside criteria, and the presence or absence of the analyte cannot be determined from the data.
*	Not reported due to interference.

The following codes deal with certain aspects of field activities. The codes shall be used if the laboratory has knowledge of the specific sampling event. The codes shall be added by the organization collecting samples if they apply:

D	Measurement was made in the field (i.e., in situ). This applies to any value (**except** pH, specific conductance, dissolved oxygen, temperature, total residual chlorine, transparency, or salinity) that was obtained under field conditions using approved analytical methods. If the parameter code specifies a field measurement (e.g., "Field pH"), this code is not required.
E	Indicates that extra samples were taken at composite stations.
R	Significant rain in the past 48 hours. (Significant rain typically involves rain in excess of ½ inch within the past 48 hours.) This code shall be used when the rainfall might contribute to a lower than normal value.
!	Data deviate from historically established concentration ranges.

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Allen B	

APPENDIX B

FDEP POLICY MEMORANDUMS REGARDING

CHAPTER 62-160, FAC AND BROWNFIELDS ACTIVITIES

Department of
Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

NOTICE TO PERSONS RESPONSIBLE FOR BROWNFIELDS SITE REHABILIATION AND CONTRACTORS PERFORMING WORK PURSUANT TO SECTION 376.81, F.S.

BROWNFIELDS REDEVELOPMENT PROGRAM

On April 9, 2002, the Department adopted changes to Chapter 62-160, Florida Administrative Code (F.A.C.). This Rule incorporates, by reference, the Department's Standard Operating Procedures (SOP) for Field Activities (DEP-SOP-001/01). The SOP for groundwater Sampling has new procedures that shall be followed **immediately**. Copies of these documents can be obtained online at:

http://www.dep.state.fl.us/labs/sop/index.htm

All fieldwork that begins on or after April 9, 2002 shall be conducted in accordance with this Rule. Similar to the Bureau of Petroleum Storage Systems and the Bureau of Waste Cleanup's Hazardous Waste Cleanup Section the following exemption will apply to all work conducted in accordance with the Brownfields Redevelopment Program:

Although the Groundwater Sampling SOP allows for continued purging if the stabilization parameters are not within acceptable limits after purging five well volumes, sampling must be performed after the fifth well volume unless otherwise approved by the respective the Department's Brownfields Coordinator or an approved local pollution control program's Brownfields Coordinator.

The Quality Assurance Section recently sent a letter to all analytical laboratories that currently have a comprehensive quality assurance plan with the Department, stating that the new quality assurance rule and SOPs required all laboratories performing analytical work for Department projects must be National Environmental Laboratory Accreditation Program (NELAP) certified. The later further stated that the laboratories had one year to obtain the certification. All contractors are encouraged to review the Quality Assurance Sections guidelines that may be obtained online at:

http://www.dep.state.fl.us/labs/qa/index.htm#documents

For ready reference in the District Offices, we are including a notebook (along with the paper copy of this memo) that contains all documents that were incorporated by reference into the new rule. A copy has also been placed in the Tallahassee DEP Library. This notebook should be made available to anyone who wishes to review any of the material that was incorporated by reference in the rule.

The new QA Rule more clearly states DEP's expectations for laboratory and field performance. The new Rule also delineates criteria for assessing data acceptability, enabling programs to make decisions concerning data usability and quality, which are based on their program Data Quality Objectives. The new SOPs reflect improvements in technology, cover additional topics, and are better organized than the previous versions.

I have asked Dr. Bill Coppenger, Chief of the Bureau of Laboratories, to provide support to DEP programs in several areas related to the QA Rule. Our primary emphasis will be on delivering scientific training (field SOPs and data consumer education), performing audits (laboratory, field, and data review), and providing program-specific scientific and technical support. I encourage you to have staff contact either Bill or Russ Frydenborg, Administrator of the Environmental Assessment Section, to request assistance in these areas.

You may also visit the Bureau of Laboratories' website, http://www.dep.state.fl.us/labs/qa/index.htm, for comprehensive information about the QA Rule, a link to DEP field Standard Operating Procedures, and for the complete text of the Rule.

Thank you.

Date: August 6, 2002

To: Division Directors
Regulatory District Directors

From: Edwin J. Conklin, Director
Resource Assessment and Management

Subject: Rule 62-160, Quality Assurance

After three years of effort, with substantial department staff and public involvement, the revised Quality Assurance (QA) Rule (62-160) was adopted on April 9, 2002. The QA Rule, which takes precedence over all other QA provisions in rule, changes the requirements that organizations must meet for environmental data that are submitted to the Department of Environmental Protection (DEP).

The new QA Rule:

- Eliminates the current system of program-specific requirements and a Department-Approved Comprehensive Quality Assurance Plan (CompQAP).
- Requires that the Department of Health (DoH) certify all laboratories that provide data to DEP, with some exceptions, under the National Environmental Laboratory Accreditation Program (NELAP) standards.
- Requires that organizations conducting field activities follow DEP Standard Operating Procedures (DEP SOP-001/01) that are incorporated by reference into the rule.
- Specifies procedures for submitting new or alternative laboratory or field procedures (or methods) for consideration by the department. Existing alternative methods in contracts, orders, etc. are still valid.
- Itemizes the information that must be submitted if requested by a program.
- Identifies the circumstances under which the department will audit a laboratory or field organization, including the types of audits.
- Establishes the criteria by which DEP will evaluate environmental data to determine its acceptability and appropriateness for use.

Laboratories need to apply to the DoH Environmental Laboratory Certification Program for NELAP Certification by October 9, 2002, and must complete certification no later than October 9, 2003. I am pleased to note that several department District Labs have already submitted applications under the program. Staff from the Bureau of Laboratories have previously provided "NELAP readiness" training to District Labs, and will continue to do so, upon request.

Entities performing field sampling (including your programs) must develop a quality manual (see FA 3300 in the Standard Operating Procedures) by October 9, 2002. This manual does not need to be submitted to the Bureau of Laboratories for pre-approval, but will be evaluated during routine audits.

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Appen C	

APPENDIX C

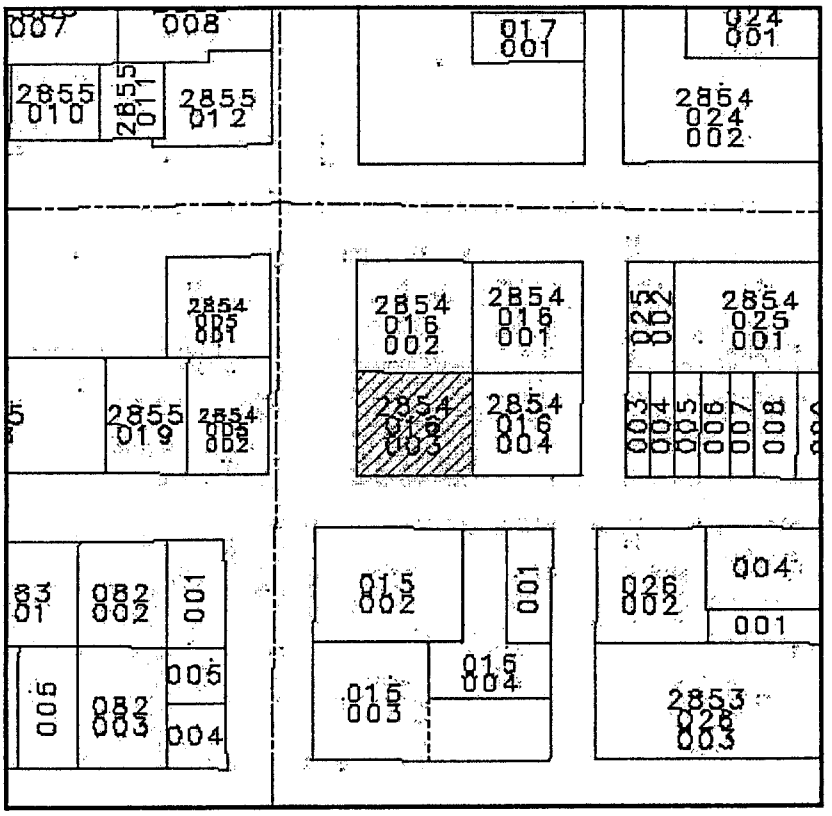
MARION COUNTY PROPERTY APPRAISER INFORMATION

Marion County Property Appraiser

Willie M. Smith, CFA, ASA

Property Focus Map

General_ Section Map. 179_B1___181522



Data Summary for Parcel 2854-016-003

Owner Name	KING FRANCES F
Situs Address	000317 SW BROADWAY ST
Section/Town/Range	18 15 22
Property Acreage	0.31
Current Just Value	135,567
Current Taxes/Assessments	3011.33
Current Millage Id	1004

Marion County Property Appraiser
Villie M. Smith, CFA, ASA

Search. Previous Parcel. Next Parcel.

2854-016-003

MARION COUNTY

2854-016-003 Alt Key:1243564 ** Property Information ** As of 02/06/0

KING FRANCES F
PO BOX 296
OCALA FL

TAXES/ASSESSMENTS: $3,011.33 M.S.T.U.
LOCATION: MAP: 179 B1 PC: 2
000317 SW BROADWAY ST IMAGES Mill Grp 100
344780296 .31 Acre

**** Current Values ****

Property Values:		
	Land Just Val	83,538
	Buildings	45,863
	Miscellaneous	6,166
	Total Just/Assd	135,567
	Total Taxable	135,567

**** History of Assessed Values ****

Year	Land	Building	Misc Impr	Just	Assessed	Exemption	Taxable
2003 1	83,538	45,863	6,166	135,567	135,567	0	135,567
2002 1	64,974	45,863	6,166	117,003	117,003	0	117,003
2001 1	64,974	45,863	6,166	117,003	117,003	0	117,003

**** Property Transfer History ****

(Official Records Transfer) Book Page	Date	Instrument	Code	Qualified/ Unqualified	Vacant/ Improved	Price
3498/1999	07/03	08 CORRECTIVE	0	U	I	
C087/0326	11/87	EI E&I	0	U	I	
0667/0261	12/74	02 DEED NC	0	Q QUALIFIED	I	

**** Property Description ****

01 - SEC 18 TWP 15 RGE 22
02 - PLAT BOOK E PAGE 002
03 - OLD SUR OCALA

04 - BLK 16 SW 1/4

** Land Data **

LN	Use	Front	Depth	Zone	C	Notes	Units	Type	Rate	Dph	Loc	Shp	Phy	Just Va
01	2715	119	112	B3			119.00	FF	900.00	100	100	78	100	83,53

Neighborhood 5058 441 - SR 40 S TO SW 17TH Total Land - Class 83,53
Mkt: 8 70 Total Land - Just 83,53

** Building Characteristics **

Building 01 of 01

COM01=L43U6L4U51R3U12R22D29R22D40.
UCN02=R24U52L24D52.U52L22
COM03=R22U15L22D15.

```
  #----22----#
  |COM01      #-----22----#
  1          |COM03      |
  2          1           1
  |          5           5
#3#          2           |
|            9           |
|            E-----22----#-----24----#
|            |           |UCN02      |
|            |           |           |
|            |           |           |
|            |           |           |
|            #-----22----#           |
|                        |           |
|                        |           |
5                        |           |
1                        |           |
|                        5           5
|                        2           2
|                        |           |
|                        4           |
|                        0           |
|                        |           |
|                        |           |
|                        |           |
|                        |           |
#4#                      |           |
  6                      |           |
  |                      |           |
  #----------43----------S-----24----#
```

Structure Type 4 MASONRY NO PILAST
Effective Age 4 15-19 YRS Obsolesence: Functional 0
Condition 4 FAIR+ Year Built 1954 Locational 0
Quality Grade 350
Inspected on 02/02/00 by 145-EX-EMPLOYEE Base Perimeter 30

Exterior Wall: 29 VINYL SIDING 93%
24 CONC BLK-PAINT 7%

Section	Avg Wall Height	Number Stories	Year Bilt	Bsmt %	Ground Flr Area	---Interior Finish(es)---		Sprinkler	A/
01	13.0	1.00	1954	0	2,545	M27 VEHICLE/SALES/REP	7%	N	Y

						M49	STORAGE	63%	N	N
						G27	AUTO REPAIR	30%	N	N
02	12.0	1.00	1993	0	1,248	UCN	CANOPY UNFIN	100%	N	N
03	13.0	1.00	1954	0	330	M00	MINIMUM FINISH	100%	N	N

Elevator Shafts	0	Apartments	0	Kitchens	0	4FixBath	0	3FixBath	
Elevator Landings	0	Escalators	0	Fireplaces	0	2FixBath	3	XFixture	

**** Miscellaneous Refinements ****

SEC SECURITY SYSTM	1 UT	2475.00	2475.00

**** Miscellaneous Improvements ****

Type		Number	Units/Type	Life	EYB	Grade	Length	Width	Just Valu
159	PAV CONCRETE	5950.00	SF	20	1963	3			4,04
144	PAVING ASPHALT	3255.00	SF	05	1963	3			1,77
184	RETAIN WALL	208.00	SF	50	1963	3			35
					Total Just Value as of 02/08/00				6,16

**** Appraiser Notes ****

01 - BOB`S BROADWAY TIRE & BRAKE

**** Planning and Building ****
County Permit search

	Permit Number	Permit Amount	Date Issued	Date Complete	Construction Description	
01	OC17761	765	06/84	-	ADD CAN	-
02	OC01768	3,000	10/86	-	ADD TO BLDG	-
03	OC00425	6,000	03/93	-	CMRA CANOPY	-
04	OC01557	2,200	09/93	-	ROOF	-
05	OC01894	1,997	12/99	-	CMRA	-

**** Cost/Market Summary ****

Buildings R.C.N.	66,468	02/08/00	Bldg Nbr	Reproduction Cost New	Amount of Depreciation	R.C.N. Les Depreciatio
Total Depreciatio	-20,605					
Bldg - Just Value	45,863		01	66,468	20,605	45,86
Misc - Just Value	6,166	02/08/00				
Land - Just Value	83,538	05/07/03				
Total Just Value	135,567					

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Allen D	

APPENDIX D

SITE PHOTOGRAPHS AND 1999 AERIAL PHOTOGRAPH

SITE PHOTOGRAPHS

SEPTEMBER 17, 2004

PHOTOGRAPHIC INDEX

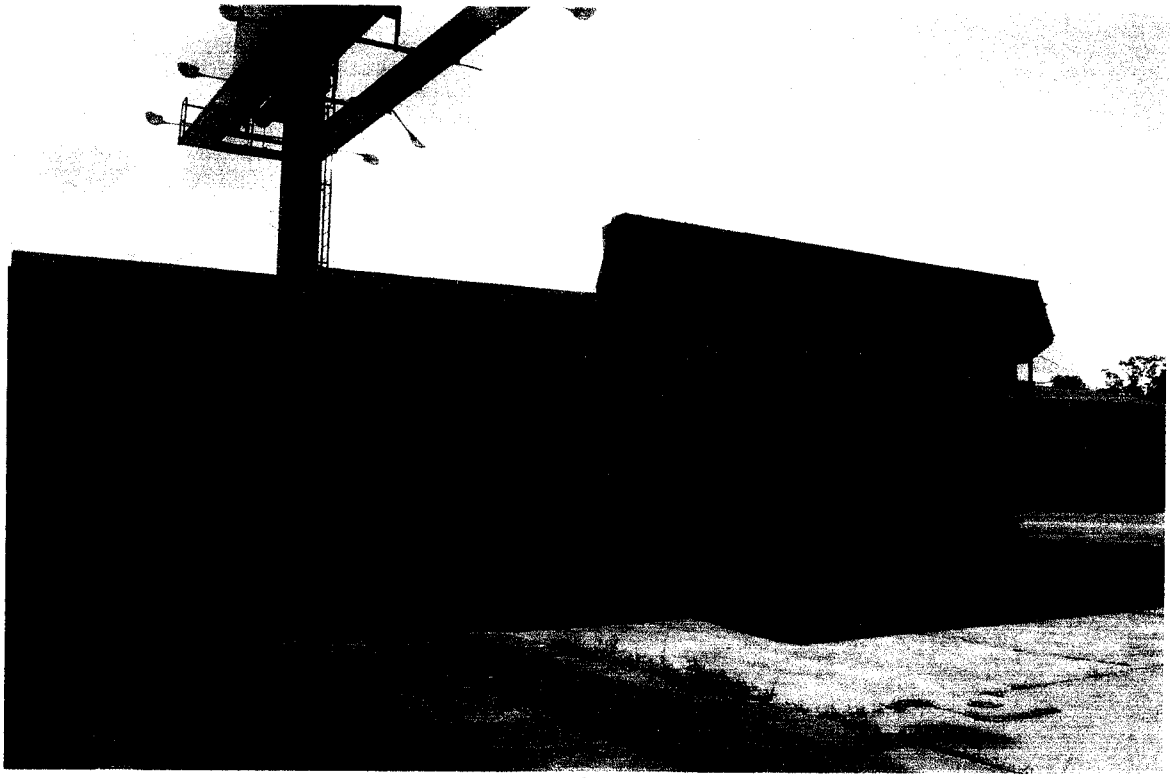
Former Bob's Broadway Tire & Brakes
SW Broadway Street
Ocala, Marion County, Florida

September 17, 2004

1. View of the northeast corner of the building, near the abandoned USTs, facing northwest
2. View of the western portion of the subject site, facing south.
3. View of the western portion of the building, facing southeast.
4. View from the northwest portion of the subject site, facing north.
5. View from the northwest portion of the subject site, facing northeast.
6. View of the subject building on-site, facing northeast.
7. View of the subject building on-site, facing north.
8. View of the former fuel island on the western portion of the subject site, facing north.
9. View of the former fuel island on the southern portion of the subject site, facing northwest.
10. View of the area to the east of the building, which contains an in-active hydraulic lift and three abandoned USTs.
11. View of the northeastern portion of the subject site, facing west.
12. View of the area to the east of the building, which contains an in-active hydraulic lift and three abandoned USTs, facing south.

1

2



3

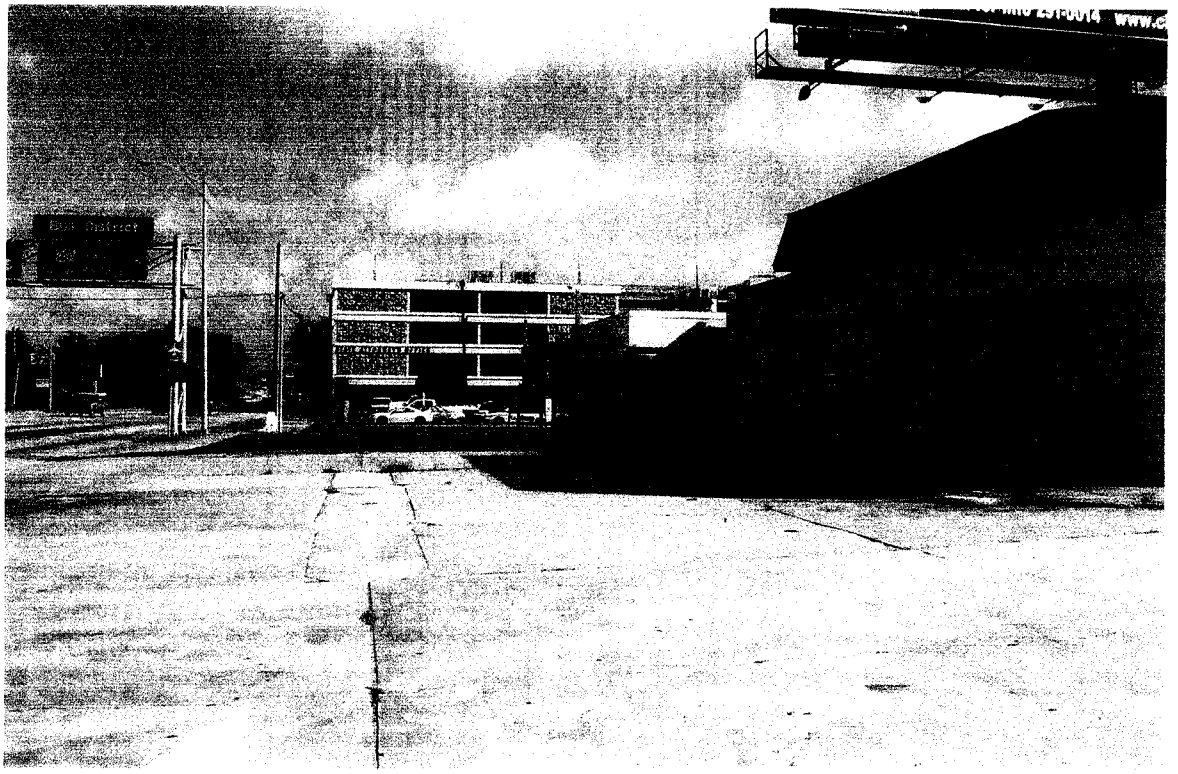
4

TINTING

5

Clinical P.E.T.
OF OCALA
CANCER?
It Can't Hide from P.E.T. / C.T. Scan
Call for info 291-0014 www.clinicalpet.com

6

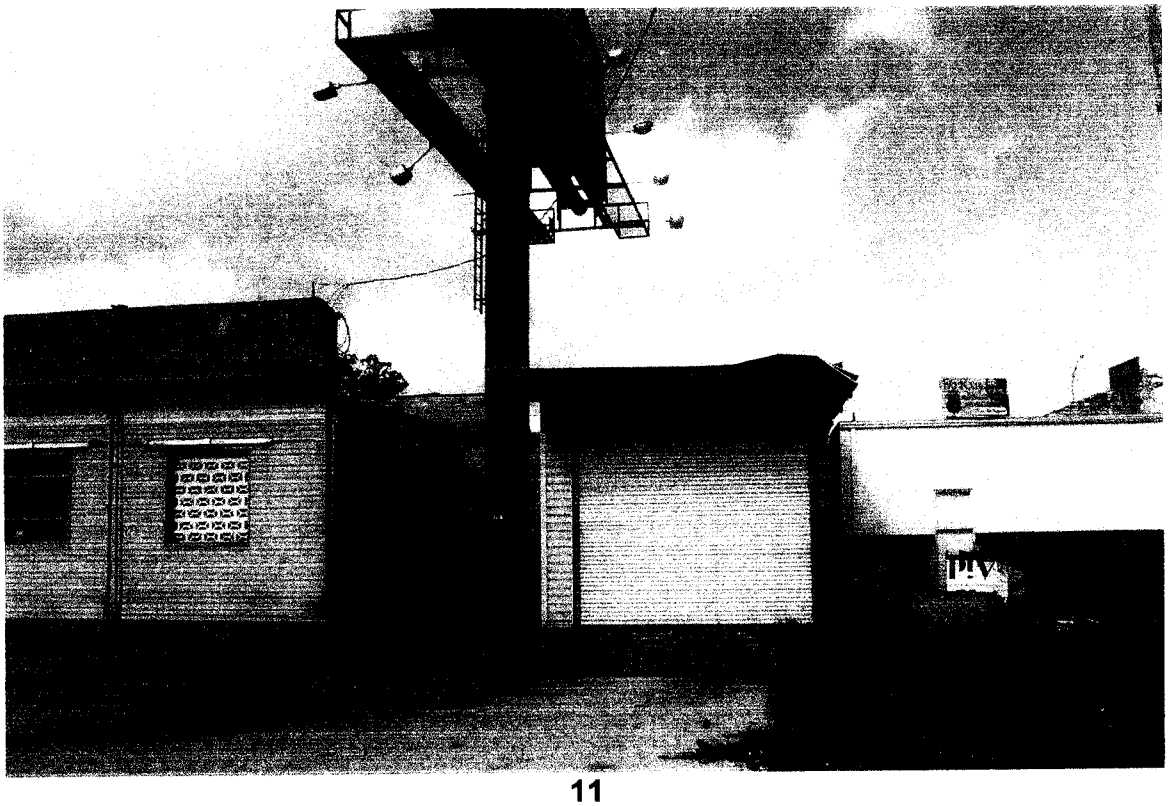


7

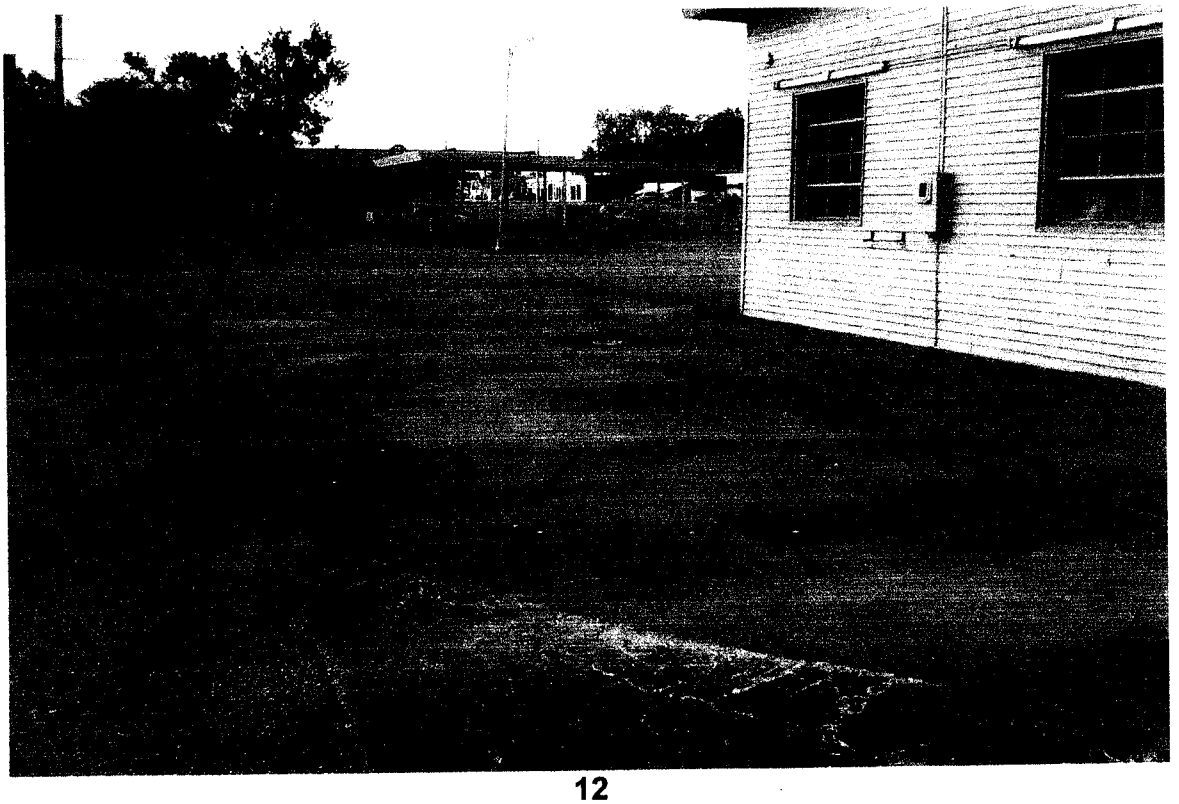
8

9

10



11



12

1999 AERIAL PHOTOGRAPH

LEGEND

PROPERTY BOUNDARY

Andreyev Engineering, Inc.

APPROXIMATE SCALE:	DATE: 9/16/04	ENGINEER: JJ
1"=100'	PN:EPEN-04-0348	DRAWN BY: TA

QUALITY ASSURANCE PROJECT PLAN
FORMER BOB'S BROADWAY TIRE & BRAKES
317 SW BROADWAY STREET
OCALA, MARION COUNTY, FLORIDA

1999 AERIAL PHOTOGRAPH

APPENDIX

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Allen E	

APPENDIX E

TEXT FROM AEI PHASE I ESA

APRIL 27, 2004

PHASE I ENVIRONMENTAL SITE ASSESSMENT

FORMER BOB'S BROADWAY TIRE & BRAKES
317 SW BROADWAY STREET
OCALA, MARION COUNTY, FLORIDA

prepared for

RENEW OCALA-A BROWNFIELD REDEVELOPMENT PROGRAM
P.O. BOX 1270
OCALA, FLORIDA 34478

prepared by

ANDREYEV ENGINEERING, INC.
4055 ST. JOHNS PARKWAY
SANFORD, FLORIDA 32771

(407) 330-7763

PROJECT NO. EPEN-04-0114-A

APRIL 27, 2004

Andreyev Engineering, Inc.

SANFORD OFFICE
4055 St. John's Parkway
Sanford, Florida 32771
407-330-7763
Fax: 407-330-7765

▼ Groundwater ▼ Environmental ▼ Geotechnical ▼ Construction Materials Testing

April 27, 2004
Project No. EPEN-04-0114-A

TO: **Renew Ocala-A Brownfield Redevelopment Program**
P.O. Box 1270
Ocala, Florida 34478

Attention: Mr. George Roberts

SUBJECT: Phase I Environmental Site Assessment, Former Bob's Broadway Tire & Brakes, 317 SW Broadway Street, Ocala, Marion County, Florida

---

Dear Mr. Roberts:

Andreyev Engineering, Inc., has completed the Phase I Environmental Site Assessment of the above referenced site. This assessment has been completed pursuant to the standards and conditions set forth in ASTM E 1527-00. The following report presents the scope of our work, data review and evaluation, together with conclusions and recommendations developed on the basis of the environmental assessment findings. Other items which may be applicable to a commercial real estate transaction, such as lead paint, radon, lead in drinking water, regulatory compliance, or other non-scope items identified in Section 12.0 of ASTM E 1527-00, were not requested, or conducted.

We appreciate the opportunity to be of service to you on this project and trust that the information included herein is complete and sufficient for your purposes. Should you have any questions concerning the contents of this report, please do not hesitate to contact the undersigned at (407) 330-7763.

Sincerely,

ANDREYEV ENGINEERING, INC.

James J. Jarmolowski, P.G.
Vice President

TABLE OF CONTENTS

Page

ASTM E 1527-00 Certification

1.0 **INTRODUCTION** 1
- 1.1 Purpose and Scope of Services 1
- 1.2 Site Specific Limiting Conditions 2
- 1.3 User Provided Information 2
- 1.4 Marion County Property Appraiser Information 2
- 1.5 Significant Assumptions 3

2.0 **SITE AND VICINITY CHARACTERISTICS** 4
- 2.1 Site Location 4
- 2.2 Topographic Map Review 4
- 2.3 Surface Water Features 4
- 2.4 Soil Survey Review 4

3.0 **SITE RECONNAISSANCE & INTERVIEWS** 5
- 3.1 Descriptions of Structures and Improvements 5
- 3.2 On-Site Reconnaissance 5
- 3.3 Off-Site Reconnaissance 8
- 3.4 Interviews 9

4.0 **REGULATORY RECORDS REVIEW** 11
- 4.1 ASTM Database Search Results 11
- 4.2 Additional Regulatory Review Information 15
- 4.3 Summary of Regulatory Record Review Information 19

5.0 **HISTORICAL USE INFORMATION** 20
- 5.1 Chain-of-Title Review 20
- 5.2 Aerial Photograph Review 20
- 5.3 City Directory Review 21
- 5.4 Sanborn Fire Insurance Map Review 25
- 5.5 Summary of Previous Uses of Subject Site and Adjacent Properties 26

6.0 **CONCLUSIONS AND RECOMMENDATIONS** 28
- 6.1 Findings and Conclusions 28
- 6.2 Recommendations 30

7.0 **LIMITATIONS, TERMS AND SPECIAL CONDITIONS** 31
- 7.1 Warranty 31
- 7.2 User Reliance 31
- 7.3 Limitations and Exceptions 31

FIGURES

Figure 1	U.S.G.S. Topographic Map
Figure 2	Site Map
Figure 3	Detailed Site Map

APPENDICES

Appendix A	Marion County Property Appraiser Information
Appendix B	Site Photographs
Appendix C	Radius Database Survey
Appendix D	Regulatory Review File Information
Appendix E	Aerial Photographs
Appendix F	City of Ocala City Directory Review Summary Information
Appendix G	Sanborn Fire Insurance Maps
Appendix H	Resume

ASTM E 1527-00 CERTIFICATION

The Phase I Environmental Site Assessment for the subject property, located at 317 SW Broadway Street, Ocala, Marion County, Florida, has been reviewed by a registered professional in the State of Florida, and has been determined to be in accordance with professional practices and standards contained in ASTM E 1527-00, entitled "Standard Practice for Environmental Site Assessments: Phase I Environmental Site Assessment Process".

Signed this 21st day of April, 2004

James J. Jarmolowski, P. G.
Vice President
Florida Registration #0000428

1.0 INTRODUCTION

Andreyev Engineering, Inc. (AEI) has completed a Phase I Environmental Site Assessment (ESA) pursuant to ASTM E 1527-00 requirements for the subject property. The subject site contains a former automotive repair facility at 317 SW Broadway Street, Ocala, Marion County, Florida. This report is an instrument of service of AEI and presents the results of the Phase I ESA of the subject site, performed for Renew Ocala-A Brownfield Redevelopment Program (referred to hereafter as "Renew Ocala").

1.1 Purpose and Scope of Services

The purpose of ASTM E1527-00 is to define good commercial and customary practice in the United States of America for conducting an environmental assessment of a parcel of commercial real estate with respect to the range of contaminants within the scope of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) and petroleum products. The purpose of this Phase I ESA is to satisfy one of the requirements to qualify for the innocent landowner defense to CERCLA liability. An evaluation of business environmental risk associated with a parcel of commercial real estate may necessitate investigation beyond that identified in ASTM 1527-00. The purpose of this ESA was to identify **"Recognized Environmental Conditions"** in connection with the subject property. The term "Recognized Environmental Conditions" as defined by ASTM E 1527-00, refers to the presence or likely presence of any Hazardous Substances or Petroleum Products on a property under conditions that indicate an existing release, a past release, or a material threat of a release of any Hazardous Substances or Petroleum Products into structures on the property or into the ground, groundwater, or surface water of the property. The term includes Hazardous Substances or Petroleum Products even under conditions in compliance with State and Federal regulations. The term is not intended to include *de minimis* conditions that generally do not present a material risk of harm to public health or the environment and that generally would not be the subject of an enforcement action if brought to the attention of appropriate governmental agencies. The major components of this investigation were directed at obtaining a historical and current perspective of the subject site and identifying any onsite or offsite contaminant sources that **may** have an adverse environmental impact on the subject property. The Phase I ESA tasks consisted of the following:

- Reviewed U.S.G.S. Quadrangle Map.
- On-Site and Off-Site Reconnaissance.
- Conducted Interviews With Site Personnel.
- Reviewed Federal and State Regulatory Database Records.
- Review of Historical Sources.
- Reviewed Previous Uses or Occupants of the Property, and Off-Site Properties.
- Source Documentation and Report Preparation.

1.2 Site Specific Limiting Conditions

The following site specific limiting conditions apply to this Phase I ESA:

1. The Phase I ESA reconnaissance activities were limited to the subject property at the time of the assessment, and limited to observations of the existing property located at 317 SW Broadway Street, Ocala, Marion County, Florida.

2. Access and historical information concerning the property were provided by Ms. Frances King, who is the owner of the subject site. Additional information was provided by the owner of Bob's Broadway Tire & Brakes, and who occupied the property from approximately 1982 through August 2003.

3. The historical source review included a detailed review of available historical information for the subject site and off-site properties. The historical source review included review of aerial photographs, R.L. Polk city directories, Sanborn Fire Insurance Maps, and interviews with the owner of the subject site and a former tenant. The subject site is located at the intersection of Silver Springs Boulevard (State Road 40) and South Pine Avenue (US Highway 441). As a result, it was necessary to research a large number of off-site properties over a large area. With respect to the historical source review for the subject site and for off-site properties, there are certain intervals in the 1940s and 1950s, where the uses of these properties could not be determined due to incomplete city directory listings.

4. The off-site properties further to the west, across South Pine Avenue, were not included on the Sanborn Maps which were obtained and reviewed by AEI for this project. These include the properties at 12 South Pine Avenue, 18 South Pine Avenue, and 12 NW Pine Avenue.

5. With respect to regulatory information concerning the various USTs on the subject site, AEI was unable to verify that closure assessment activities were conducted for the former 300-gallon kerosene UST.

1.3 User Provided Information

The subject site is one of four parcels owned by Mrs. Frances King. The other three parcels are located to the north, northeast, and east, as shown on **Figure 2.** As part of this project, Mr. George Roberts, who is the project manager for Renew Ocala, provided AEI regulatory and historical summary information for the subject site, and for the adjacent parcels owned by Mrs. King. The following summary information is provided:

Subject Site

It was indicated by Mr. Roberts that the site contained an automotive repair business for approximately 23 years, and that three underground storage tanks (USTs) were abandoned in 1989.

Off-Site Property Information

Parcel to the North: It was indicated by Mr. Roberts that the parcel immediately to the north at 13 South Pine Avenue currently contains a business identified as All Pro Printing Signs & Graphics, and that this location was a former gasoline station, and the USTs have been removed.

Parcel to the Northeast: It was indicated by Mr. Roberts that the parcel immediately to the northeast at 308 West Silver Springs Boulevard contains Jodies Restaurant, and did not contain a former gasoline station.

Parcel to the East: It was indicated by Mr. Roberts that the parcel immediately to the east at 307 West Silver Springs Boulevard contained a former used car lot and a taxi cab stand, and did not contain a former gasoline station.

Off-Site Property to the South: It was indicated by Mr. Roberts that the property off-site to the south, across Broadway Street, at 43 SW Pine Avenue contained a former Texaco gasoline station.

Off-Site Property to the West: It was indicated by Mr. Roberts that the property off-site to the west, across SW Pine Avenue, at 18 SW Pine Avenue contained a former Citgo gasoline station.

1.4 Marion County Property Appraiser Information

Information for the subject site which can be obtained from the Marion County Property Appraiser's web site, is included in **Appendix A.**

1.5 Significant Assumptions

The following significant assumptions have been made concerning the subject site

1. The subject site was identified by the Marion County Property Appraiser to contain 0.31 acres of property at 317 SW Broadway Street. During the site reconnaissance activities in March and April 2004, it was observed that the previous use of the subject property included an area larger than .31 acres. This area extended approximately 60 feet further to the east, and for the purposes of this Phase I ESA, the subject site has been determined to include an area larger than .31 acres, as shown on **Figure 2.**

2. Based on review of the topography in the vicinity of the subject site and review of site assessment reports completed for the former Citgo facility located off-site to the west, and the former Texaco facility located off-site to the south, the direction of groundwater flow is generally to the southwest, with local variations to the west.

2.0 SITE AND VICINITY CHARACTERISTICS

2.1 Site Location

The subject property contains a vacant automotive repair building, located at 317 SW Broadway Street, in Ocala, Marion County, Florida. The site is located at the northeast corner of Broadway Street and South Pine Avenue. The site lies entirely in Section 18, Township 15 South, Range 22 East, as shown on the U.S. Geological Survey (USGS), "Ocala West", Florida Quadrangle Map, included as **Figure 1**.

2.2 Topographic Map Review

The U.S. Geological Survey, "Ocala West" Quadrangle Map dated 1991, (based upon aerial photographs taken in 1964, and 1988), showing the area on which the subject site is located, was reviewed. Based on this review, the subject site is located at the intersection of South Pine Avenue and SW Broadway Street, in downtown Ocala. The subject site is located within a highly urbanized area, and as a result, no structures are shown on site. The site occurs at an elevation of approximately 70 feet above National Geodetic Vertical Datum (NGVD), and the topography in the vicinity of the subject site slopes from the northeast to southwest. No "Recognized Environmental Conditions" were identified.

2.3 Surface Water Features

Based on site reconnaissance activities and the review of the 2002 aerial photograph, there are no surface water features on-site, or in the vicinity of the subject site.

2.4 Soil Survey Review

According to the U.S.D.A. "Soil Survey of Marion County", the soils within the study area are generally described as Urban Land. Urban land is more than 70 percent covered with parking lots, buildings, shopping centers, and other structures.

3.0 SITE RECONNAISSANCE & INTERVIEWS

3.1 Description of Structures and Improvements

The subject site contains a vacant building which was previously occupied by an automotive repair business, and the entire site is paved. According to information obtained from the Marion County Property Appraiser Website, the vacant building was constructed in 1954, and contains 2,545 square feet. In addition, a canopy was installed on the eastern portion of the building in 1993. The subject site also contains a large billboard sign, as shown in **Photographs 7 and 8.** The subject site and vicinity features observed at the time of this assessment are illustrated on the site map included as **Figure 2.** Water and wastewater services are provided to the subject site by the City of Ocala.

3.2 On-Site Reconnaissance

An onsite visual reconnaissance of the property and improvements for indications of "Recognized Environmental Conditions" was performed on March 26, 2002 James J. Jarmolowski, where the interior of the building was not inspected. The interior of the building was inspected on March 31, 2004 by Mr, Brad Reddick of AEI. An additional site inspection of the interior of the building was conducted by James Jarmolowski on April 20, 2004. During the site reconnaissance activities, particular attention was given to features which may indicate "Recognized Environmental Conditions" such as fuel storage tanks, utilities, fill ports, vents, stained soils, debris, evidence of improper storage of hazardous materials or improper waste discharge and stressed vegetation. Where possible, photographs were taken to document site conditions and any potential environmental conditions of concern. **Appendix B** contains the photographs taken during the site reconnaissance. **Figure 3** contains a detailed site map. As a result of the onsite reconnaissance, the following observations were noted:

Observations of the Exterior of the Subject Building, March 26, 2004

- The building on the subject site is shown in **Photograph 1,** which shows the southern portion of the building, from across SW Broadway Street. The southern portion building contains two bay doors. The historical summary information provided to AEI by Mr. George Roberts of Renew Ocala indicated that the subject was previously utilized as gasoline station, and indicated that four underground storage tanks (USTs) had been filled in place with concrete in 1989.

- A former fuel dispenser island located in the southwest portion of the subject site is shown in **Photograph 3,** and a former fuel dispenser island located in the northwest portion of the subject site is shown in **Photograph 6.** During the site reconnaissance on March 26, 2004, the specific locations of the former USTs abandoned in 1989 could not be determined.

- No active aboveground or underground petroleum storage tanks were observed on the exterior of the subject site, and no 55-gallon drums were observed on the exterior of the subject site on-site on March 26, 2004. A former in-ground hydraulic lift was observed on the eastern portion of the subject site, as shown in **Photograph 2.**

- One groundwater monitoring well was present on the northwest portion of the property, as shown in **Photograph 4.** This monitoring well appears to be associated with a site assessment which was conducted for a former Citgo gasoline station located at 18 South Pine Avenue. Additional information concerning the site assessment for this facility is provided in Section 4.2.

- Two monitoring wells were present on the sidewalk on the southern portion of the property, as shown in **Photographs 12 and 13.** Based on review of available site assessment information contained in Section 4.2, the monitoring well on the southwest corner is associated with the site assessment for the former Citgo to the west. The monitoring well located on the southern portion of the site is associated with the site assessment for the former Texaco facility located at 43 South Pine Avenue, located off-site, to the south. Additional information regarding the site assessment for the former Texaco facility located to south is also provided in Section 4.2.

- No electrical transformers were observed on the subject site. No water supply wells or irrigation wells were observed on-site.

Observations of the Building Interior, March 31, 2004

As indicated above, Mr. Brad Reddick of AEI inspected the interior of the building on March 31, 2004. Mr. Reddick indicated the following:

- There appeared to be two or three fill pipes which were located in the center of the buildings, and that they may be associated with additional USTs which had not been abandoned. Mr. Reddick indicated that the fill pipes extended 3 or 4 feet below land surface.

- Mr. Reddick indicated that the southeast portion of the building contained two in-active hydraulic lifts, where the cylinders had been removed.

Observations of the Building Interior, April 20, 2004

Based on information provided by Mr. Reddick, AEI contacted Mrs. Frances King on April 19, 2004 and Mr. Bob Skrob on April 19 and 20, 2004 to obtain additional information for the subject site. The information obtained as a result of these interviews is provided in Section 3.4 below. AEI discussed the observations provided by Mr. Reddick with Mr. Skrob, who verified that the fill pipes observed in the building were associated with four former USTs, which had not been abandoned. As a result, Mr. Jarmolowski conducted an additional site visit on April 20, 2004, to inspect the interior of the building. The following information is provided:

- In order to obtain additional information for the subject site, AEI conducted additional site reconnaissance activities on April 20, 2004. Site access arrangements were provided by Ms. Frances King (the owner of the property) and Ms. Renee Foster, of Hallmark Realty. Mr. Bob Skrob, who was the previous tenant and is the owner of the Bob's Broadway Tire and Brakes, provided information during the site reconnaissance. Mr. George Roberts of Renew Ocala was also present during the site visit.

- The interior of the building was vacant, and contained an office, two repair bays, and two storage rooms. **Photographs 13, 14 and 18** show the interior of the southeast portion of the building where the two in-active hydraulic lifts were located. The approximate locations of the two in-active hydraulic lifts are also shown on **Figure 3.**

- With respect to the pipes observed by Mr. Reddick on March 31, 2004, Mr. Skrob verified that there were four fill pipes which were associated with four gasoline USTs, which were not abandoned. **Photographs 15, 16, and 17** show the various items associated with the four USTs. The approximate locations of the four USTs are shown on **Figure 3.**

- Mr. Skrob indicated that the four USTs were not originally in the building and that the northern portion of the building was an addition and was constructed over the former USTs.

- Mr. Skrob verified that a 300-gallon UST used to store used oil was abandoned in place in 1999, and the location of this former UST is shown on **Figure 3.** From 1999 through 2003, Mr. Skrob indicated that Bob's Broadway Tire & Brakes utilized a 500-gallon aboveground storage tank (AST) for the storage of used oil, which was removed from the subject site in August, 2003.

- With respect to the exterior of the subject site, Mr. Skrob indicated that a 300-gallon kerosene UST was abandoned in place in 1989. The former kerosene UST was located immediately to the south of the building, as shown on **Figure 3.** The former kerosene UST is shown in **Photograph 20.**

- With respect to the former gasoline USTs which were abandoned in 1989 as indicated by Mr. George Roberts, Mr. Skrob indicated that these former USTs were located immediately to the northeast of the building, as shown on **Figure 3** and in **Photograph 22.**

Summary of USTs On-site

Based on the site reconnaissance activities in March and April 2004, the following summary information is provided for the USTs on-site:

UST	Location	Status
3 Gasoline USTs	Northeast portion of property.	Filled with concrete in 1989.
300-Gallon Kerosene UST	South of building.	Filled with concrete in 1989.
300-Gallon Used Oil UST	Inside maintenance bay.	Filled with concrete in 1999.
4 Gasoline USTs	Inside of building.	In-active, not abandoned.

Additional information concerning the regulatory status of the USTs on-site is provided in Section 4.2.

The following summary of items noted during the site reconnaissance is provided:

ITEM	OBSERVED	NOT OBSERVED	DISCUSSED IN REPORT
55-Gallon Drums		X	
Stormwater Retention - Pond		X	
Site Fencing		X	
Septic Tank(s)		X	
Underground Storage Tank(s)	X		X
Aboveground Storage Tank(s)		X	
Chemical Storage		X	
Pits and/or Lagoons		X	
Electrical Transformer(s)		X	
Stressed Vegetation		X	
Monitoring Well(s)	X		X
Water Supply Well(s)		X	
Irrigation Well(s)		X	
Solid Waste Dumpster		X	
Improper Hazardous Materials Storage		X	
Chemical Odor(s)		X	

As a result of the site reconnaissance activities, two "Recognized Environmental Conditions" were identified, as follows:

REC #1: The subject site previously contained a gasoline station. In 1989, three gasoline USTs and a kerosene UST were abandoned in place. A 300-gallon used oil UST was abandoned in place in 1999. Four additional gasoline USTs were observed on-site.

REC #2: The subject site contained an automotive repair business from approximately 1979 through 2003, and three former in-ground hydraulic lifts were observed on-site. Two former lifts were located within the interior of the building, and one former lift was observed on the eastern portion of the subject site.

3.3 Off-Site Reconnaissance

A visual reconnaissance of adjacent properties and improvements for indications of possible environmental concerns was conducted on March 26, and April 20, 2004. The observations were

limited to areas and facilities that were readily visible and were immediately adjacent to the subject property. Particular attention was given to off-site features which may indicate "Recognized Environmental Conditions" such as fuel storage tanks, utilities, fill ports, vents, stained soils, debris, evidence of improper storage of hazardous materials or improper waste discharge and stressed vegetation. The adjacent offsite properties are identified as follows:

- The northern portion of the subject site is bound by building at 13 South Pine Avenue, which contains a business identified as All Pro Printing Signs and Graphics. As indicated in Section 1.3, this facility previously contained a gasoline station. Silver Springs Boulevard (State Road 40) is located further to the north. Jodies Restaurant is located to the northeast at 308 West Silver Springs Boulevard. Additional information regarding the former gasoline station to the north is provided in Section 4.2.

- The southern portion of the subject site is bound by SW Broadway Street, and further to the south by a building at 43 South Pine Avenue, which contains Quality Tint and Signs. This location is shown in **Photograph 14,** and appears to be a former gasoline station. This property contained a total of 13 monitoring wells, and additional information regarding this facility is provided in Section 4.2.

- The eastern portion of the subject site is bound by a vacant lot which contains a small dilapidated building.

- The subject site is bound immediately to the west by South Pine Avenue (U.S. Highway 441). A former Citgo gasoline station is located further to the west, across South Pine Avenue, at 18 SW Pine Avenue. Additional information regarding this facility is provided in Section 4.2.

As a result of the off-site reconnaissance, no "Recognized Environmental Conditions" were identified.

3.4 Interviews

Interview with Key Site Manager, Ms. Frances King

Information concerning the subject site was provided by Ms. Frances King, who is the owner of the subject site. Ms. King indicated the following on April 19, 2004:

- Mrs. King indicated that she has owned the subject property since December 1974. In December 1974, Mrs. King indicated that the subject property contained a used car lot.

- Mrs. King indicated that the subject site contained a single tenant for approximately 23 years. Mrs. King indicated that the tenant was Bob's Broadway Tire and Brakes, who occupied the property from approximately 1982 through August, 2003.

- With respect to USTs, Mrs. King indicated to her recollection, four USTs were filled with concrete in 1989 by Ocala Pump and Tank. In addition, Mrs. King indicated that one used oil UST was filled with concrete in 1999 by Ocala Pump and Tank.

- Mrs. King also indicated that she had a receipt for approximately $2,300.00 for work performed in 1992 by Mr. Scott Sumner of Beeline Construction. Mrs. King indicated that she believed that the receipt was for gasoline USTs with concrete in 1992.

- Mrs. King indicated that to her knowledge, there were no active USTs or aboveground storage tanks on-site. Mrs. King indicated that she was not aware of any pending, threatened, or past litigation relevant to hazardous substances or petroleum products and that he was not aware of violations of any environmental laws, or pending administrative proceedings or possible violations of environmental laws pertaining to the subject site.

Interview with Former Tenant, Mr. Bob Skrob, Owner of Bob's Tire and Brakes

As indicated in Section 3.2, Mr. Skrob met with J. Jarmolowski of AEI and Mr. George Roberts of Renew Ocala on-site on April 20, 2004. The information provided by Mr. Skrob concerning the former USTs, and hydraulic lifts was provided in Section 3.2. Mr. Skrob indicated that four in-active USTs were present within the building.

Interview With Regulatory Officials

On April 21, 2004, AEI contacted the FDEP Drycleaning Section concerning the status of drycleaning facilities located within a ¼-mile radius of the subject site. The information obtained as a result of this interview is provided in Section 4.2.

Summary

No additional "Recognized Environmental Conditions" were identified as a result of the interviews conducted.

4.0 REGULATORY RECORDS REVIEW

4.1 ASTM Database Search Results

Information from several available lists provided by the U.S. Environmental Protection Agency (EPA) and the Florida Department of Environmental Protection (FDEP) were reviewed pursuant to the requirements in ASTM E 1527-00 for evidence of activities which may have an adverse environmental impact on the subject site. The U.S. EPA compiles and publishes information regarding facilities that are involved in the generation, transportation, treatment, storage, and disposal of Hazardous Wastes; information concerning the control and use of hazardous chemicals in the environment; and permits for facilities which may affect the environmental integrity of its surroundings. The EPA also provides information concerning sites involved in the Superfund cleanup program. The Florida Department of Environmental Protection (FDEP) also maintains data systems which list facilities subject to environmental regulation and enforcement action. These databases include the Florida Sites, Solid Waste Facilities (SWF), Leaking Underground Storage Tanks (LUST), and the Stationary Tank Inventory (STI) list. The following descriptions include only those state and federal regulatory agency databases required by ASTM E 1527-00. Summaries of applicable federal and state databases are provided below and **Appendix C** contains a detailed listing of the sites identified by the radius search performed by FirstSearch Technology Corporation on March 24, 2004.

- **National Priorities List (NPL)** - The NPL is an inventory of facilities and/or locations with confirmed environmental contamination. These sites fall under the Comprehensive Environ mental Response, Compensation and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986 (SARA) and are often referred to as "Superfund" sites. The NPL is maintained by the EPA and allows them to rank those sites according to the extent of environmental health and safety concerns and schedule them for remedial action. **No NPL sites were listed within 1-mile of the subject site.**

- **Comprehensive Environmental Response, Compensation & Liability Index System (CERCLIS)** - CERCLIS is an identification of those facilities and/or locations that are currently being investigated by the EPA or associated state environmental agencies to ascertain the presence of potential or existing contamination. Preliminary site assessments are normally conducted by either the EPA or the appropriate state environmental agency for all sites included in CERCLIS. Many of the sites investigated through CERCLA will be placed on NPL for remedial action and will be included in the Sites Enforcement Tracking System (SETS) for identification of potential liability. **One CERCLIS site was listed within a ½-mile of the subject site.** This site is identified as follows:

  1. West Florida Natural Gas Company, 206 Northeast 9th Street, Ocala. This facility is located approximately 2,400 feet to the southeast of the subject site, and due to the distance from the subject site, it is not identified as a "Recognized Environmental Condition".

- **Resource Conservation and Recovery Act Index System List (RCRIS)** - The RCRIS List reports those facilities and/or locations that are handling, storing or treating hazardous substances or waste. Due to the activities relating to the handling of hazardous substances

or waste, these sites possess the potential for environmental contamination. Inclusion on RCRIS does not necessarily indicate contamination but rather the potential due to the presence and handling of hazardous substances. **There were no TSD facilities listed within 1-mile of the subject site. Five RCRA small quantity generator facilities were listed within a ¼-mile of the subject site.** The RCRA small quantity generator facilities located within 800 feet of the subject site are as follows:

1. Aamco Transmission, 12 S. Pine Avenue, Ocala, located approximately 150 feet to the west. This facility is currently closed.
2. Budget Instant Printing, 114 S. Pine Avenue, Ocala, located approximately 530 feet to the southwest of the subject site.
3. USGSA, 207 NE 2nd Street, Ocala, located approximately 800 feet to the northeast.

Due the distance from the subject site, these facilities are not identified as "Recognized Environmental Conditions".

- **Emergency Response Notification System List (ERNS)** - The ERNS is a national computer database used to store information on the releases of oil and hazardous substances. The ERNS List identifies those facilities and/or locations that have been reported to the EPA because of the release of potentially hazardous material. Included in the ERNS listing is the date of the incident, the response action, the hazardous substances involved and the location. **One ERNS site was listed within a ¼-mile radius of the subject site.** This site is identified as follows:

  1. SW 1st Avenue and Broadway Street, located approximately 740 feet to the southeast. In October 1987, a release of 300-gallons of diesel fuel from a tanker was reported for this location. The City of Ocala Fire Department conducted cleanup activities. Due to the nature of this incident, the release of 300-gallons of diesel fuel in 1987 is not identified as a "Recognized Environmental Condition".

- **Florida Sites List (FSL)** - This list is closely associated with the CERCLIS List and identifies facilities and/or locations that the FDEP has recognized with potential for existing environmental contamination. **One site was listed on the FSL within 1-mile of the subject site.** This site is identified as follows:

  1. West Florida Natural Gas Company, 206 Northeast 9th Street, Ocala. This facility is located approximately 2,400 feet to the southeast of the subject site, and due to the distance from the subject site, it is not identified as a "Recognized Environmental Condition".

- **Solid Waste Facilities (SWF)** - The SWF is concerned with the handling of solid waste and includes locations identified with solid waste landfills or associated activities involving the handling of solid wastes. The presence of a site on this list does not necessarily indicate existing environmental contamination, but rather the potential for contamination. **No sites were listed in the SWF database within a ½-mile radius of the subject site.**

- **Leaking Underground Storage Tanks (LUST)** - The LUST database is concerned with petroleum storage systems and includes facilities and/or locations that have reported the

possible release of contaminants in accordance with requirements specified in Chapter 62-770, FAC. Included within this list are sites that are in the Florida Early Detection Incentive (EDI) Program and the Petroleum Liability Insurance Restoration Program (PLIRP). These programs support remedial action or reimbursement for those sites with environmental problems due to leaking fuel storage tanks. **21 facilities have reported a discharge within a ¼-mile radius of the subject site, and 34 facilities have reported a petroleum discharge within a ½-mile radius of the site.** The facilities which have reported petroleum discharges within 600 feet of the subject site are as follows:

1. Clydes Auto Air, 13 South Pine Avenue, Ocala. STI #428734055. This facility is located immediately to the north of the subject site. A petroleum discharge was reported to the FDEP in January, 1992. Additional information for this facility is provided in Section 4.2.

2. Former Riches Texaco, 43 South Pine Avenue, Ocala. STI #428511390. This facility is located approximately 60 feet to the south of the subject site. A petroleum discharge was reported to the FDEP in May, 1985. Additional information for this facility is provided in Section 4.2.

3. Former Citgo, 18 South Pine Avenue, Ocala. STI #428518839. This facility is located approximately 150 feet to the west of the subject site. A petroleum discharge was reported to the FDEP in November, 1990. Additional information for this facility is provided in Section 4.2.

4. Aamco Transmission Shop, 12 SW Pine Avenue, Ocala. STI #428942748. This facility is located approximately 150 feet to the west of the subject site. A petroleum discharge was reported to the FDEP in October, 1991. Additional information for this facility is provided in Section 4.2.

5. Former Muffler Doctor, 12 NW Pine Ocala. STI #429200610. This facility is located approximately 350 feet to the northwest of the subject site. A petroleum discharge was reported to the FDEP in June, 1992. Additional information for this facility is provided in Section 4.2.

6. Former Marion Tire & Battery, 210 West Silver Springs Boulevard. STI #429200616. This facility is located approximately 350 feet to the northeast of the subject site. A petroleum discharge was reported to the FDEP in June, 1992. Additional information for this facility is provided in Section 4.2.

7. Former Post Office Tire Service, Inc., 221 West Silver Springs Boulevard. STI #429200608. This facility is located approximately 380 feet to the northeast of the subject site. A petroleum discharge was reported to the FDEP in June, 1992. Additional information for this facility is provided in Section 4.2.

8. Florida Thoroughbred Industry Building, 108 NW Pine Avenue, Ocala. STI #429200613. This facility is located approximately 600 feet to the northwest of the subject site. A petroleum discharge was reported to the FDEP in February, 1995. Additional information for this facility is provided in Section 4.2.

The remaining facilities which have reported petroleum discharges at distances greater than 600 feet from the subject site are listed in the FirstSearch Report, contained in **Appendix C.** The facilities which have reported discharges which are located greater than 600 feet from the subject site are not identified as "Recognized Environmental Conditions", due to the distance from the subject site.

- **Stationary Tank Inventory System List (STI)** - The Florida Administrative Code requires registration of underground and aboveground stationary petroleum storage tanks. Inclusion on this list indicates the presence of stationary petroleum storage tanks and therefore the potential for environmental problems. It does not necessarily indicate existing problems. **Based on review of the STI List, 43 facilities were identified within a ¼-mile radius of the subject site.** The facilities which were identified to have registered petroleum storage tanks with the FDEP within 500 feet of the subject site are as follows:

  1. Former Bobs Broadway Tire & Brake, 317 SW Broadway Street, Ocala, STI #428630442. This is the subject site, and additional information is provided in Section 4.2.

  2. Clydes Auto Air, 13 South Pine Avenue, Ocala. STI #428734055. This facility is located immediately to the north of the subject site. Additional information for this facility is provided in Section 4.2.

  3. Former Riches Texaco, 43 South Pine Avenue, Ocala. STI #428511390. This facility is located approximately 60 feet to the south of the subject site. Additional information for this facility is provided in Section 4.2.

  4. Former Citgo, 18 South Pine Avenue, Ocala. STI #428518839. This facility is located approximately 150 feet to the west of the subject site. Additional information for this facility is provided in Section 4.2.

  5. Aamco Transmission Shop, 12 SW Pine Avenue, Ocala. STI #428942748. This facility is located approximately 150 feet to the northwest of the subject site. Additional information for this facility is provided in Section 4.2.

  6. Marion County State Attorney Office, 19 NW Pine Avenue, Ocala. STI #429200609. This facility is located approximately 300 feet to the north of the subject site. Additional information for this facility is provided in Section 4.2.

  7. Former Muffler Doctor, 12 NW Pine Ocala. STI #429200610. This facility is located approximately 350 feet to the northwest of the subject site. Additional information for this facility is provided in Section 4.2.

  8. Former Marion Tire & Battery, 210 West Silver Springs Boulevard. STI #429200616. This facility is located approximately 350 feet to the northeast of the subject site. Additional information for this facility is provided in Section 4.2.

9. Former Post Office Tire Service, Inc., 221 West Silver Springs Boulevard. STI #429200608. This facility is located approximately 380 feet to the northeast of the subject site. Additional information for this facility is provided in Section 4.2.

10. Florida Thoroughbred Industry Building, 108 NW Pine Avenue, Ocala. STI #429200613. This facility is located approximately 600 feet to the northwest of the subject site. Additional information for this facility is provided in Section 4.2.

- **FDEP Drycleaning Facilities and Drycleaning Solvent Cleanup Program -** The FDEP requires drycleaner facilities to be registered and has established a program for cleanup of drycleaning sites which reported a release of drycleaning solvents prior to December 31, 1998. **One site with a drycleaning release has been reported for the Drycleaning Solvent Cleanup Program within a ¼-mile of the subject site. No registered drycleaners are present within a ¼-mile of the subject site.** This site which has reported a release of drycleaning solvents is identified as follows:

  1. Bays Cleaners, 219 N. Magnolia Avenue, Ocala. This facility is located approximately 1,300 feet to the northeast of the subject site and reported a discharge of drycleaning solvents in June, 1997. This facility was determined to be eligible for the FDEP Drycleaning Program in October, 1998. According to Ms. Jennifer Farrell of the FDEP Drycleaning Section on April 20, 2004, the facility has been assigned a priority score of 91, and no work has been initiated. Due to the distance and regulatory status, this facility is not identified as a "Recognized Environmental Condition".

4.2 Additional Regulatory Review Information

Additional regulatory review information regarding the subject site and for petroleum storage tank facilities located within 500 feet of the subject site is provided as follows:

A. Subject Site Information: As indicated in Section 3.2, the subject site contains or has contained nine USTs. **Appendix D** contains information obtained on April 1, 2004 as a result of review of the information maintained by the Marion County Fire Department. The following table contains a summary of the nine USTs on-site:

UST	Location	Status
3 Gasoline USTs	Northeast portion of property.	Filled with concrete in 1989.
300-Gallon Kerosene UST	South of building.	Filled with concrete in 1989.
300-Gallon Used Oil UST	Inside maintenance bay.	Filled with concrete in 1999.
4 Gasoline USTs	Inside of building.	In-active, not abandoned.

The following summary information for the subject site is provided:

- *Three Former USTs in Northeast Portion of Property:* For the three former gasoline USTs located in the northeast portion of the subject site, these were abandoned in place by being filled with concrete in 1989. Tank closure assessment activities were conducted in January 1992 by BTEX Environmental Consultants. The tank closure assessment activities included installation of four soil borings in the vicinity of the former UST pit, and soil samples were screened for the presence of petroleum constituents with an Organic Vapor Analyzer (OVA). The four soil borings were installed to a depth of approximately 20 feet, and no groundwater samples were collected. An inspection was conducted by Marion County Storage Tank personnel on January 14, 1992, during the soil boring activities. As a result of the tank closure assessment activities conducted in January 1992, no petroleum contamination was detected in the four soil borings near the former USTs in the northeast portion of the property. On March 4, 1992, a letter was issued by Manfred Fiech of the Marion County Storage Tank Regulation Department which indicated that the closure assessment activities met the requirements specified in Chapter 62-761, FAC.

- *Former 300-gallon Kerosene UST:* This former UST was located immediately to the south of the building, and was abandoned in place by being filled with concrete in 1989. There is no documentation which indicates that tank closure assessment activities were conducted for this UST.

- *Former 300-gallon Used Oil UST:* This former UST was located inside the building, between the two in-ground hydraulic lifts. In December 1999, this former UST was abandoned in place by being filled with concrete. Tank closure assessment activities were also conducted, which consisted of removing the concrete from around the top of the UST, and cutting a hole in the bottom of the UST, to obtain a soil sample from below the UST. A Closure Assessment Report dated December 9, 1999, was prepared, and indicated that "No stained soils were observed around the fill port or along the top of the tank. The tank was opened, cleaned, and a hole was cut in the bottom of the tank and soil samples were taken for visual observations. No stained soils were observed from underneath the tank. The tank was filled with concrete". The Closure Assessment Report was submitted to the Marion County Fire-Rescue Department, who issued a letter on December 21, 1999, which indicated that the closure assessment requirements were met. Based on review of the Closure Assessment Report, no soil samples were required for laboratory analysis, and no groundwater samples were collected.

- *Four Existing In-Active USTs::* As indicated in Section 3.2, there are four in-active USTs which are located beneath the north-central portion of the building. There is no information in the files maintained by Marion County which indicate that these USTs were registered with the FDEP, or have been closed in accordance with requirements specified in Chapter 62-761, FAC.

B. Off-site Information:

As indicated in Section 4.1, there are eight facilities which have reported discharges of petroleum products within 500 feet of the subject site. **Appendix D** contains information obtained on April 1, 2004 as a result of review of the information maintained by the Marion County Fire Department,

and information which was obtained from the FDEP 'Oculus' data system, on the FDEP website. The following information is provided:

1. Clydes Auto Air, 13 South Pine Avenue, Ocala. STI #428734055. This facility is located immediately to the north of the subject site. A petroleum discharge was reported to the FDEP in January, 1992, and was determined by the FDEP to be eligible for the Abandoned Tank Restoration Program (ATRP) in March, 1992. The petroleum discharge was associated with the detection of soil contamination in a soil boring installed to the south of a former UST pit and to the north of a former UST pit. An inspection report form completed by Marion County Storage Tank personnel in January 1992 indicated that three former gasoline USTs and one used oil UST were removed from this facility. Due to the close proximity to the subject site, this facility is identified as an off-site "Recognized Environmental Condition".

2. Former Riches Texaco, 43 South Pine Avenue, Ocala. STI #428511390. This facility is located approximately 60 fee to the south of the subject site. A petroleum discharge was reported to the FDEP in May, 1985. This facility was determined by the FDEP to be eligible for the Early Detection Incentive (EDI) program in March, 1987. There are no active USTs at this facility. Extensive site assessment activities have been conducted, and review of a document dated April 6, 2001 indicated that soil contamination was present in three source areas and that additional samples were needed to further define the horizontal and vertical extent of groundwater contamination. An FDEP letter dated September 22, 2003, indicated that a Remedial Action Plan and Addendum were approved, and that the next phase would include implementation of the remedial action system. Based on review of the document dated April 6, 2001, the horizontal extent of the dissolved hydrocarbon plume does not extend off-site, and the direction of groundwater flow can vary. Flow directions were shown to be in a west-southwest direction, with local variations. Based on a direction of groundwater flow to the west and southwest, and that remedial actions are scheduled to be implemented within the near future, this facility is not identified as a "Recognized Environmental Condition".

3. Former Citgo, 18 South Pine Avenue, Ocala. STI #428518839. This facility is located approximately 150 feet to the west of the subject site. A petroleum discharge was reported to the FDEP in November, 1990, and was determined by the FDEP to be eligible for the FDEP ATRP in July 1991. Site assessment activities were conducted up through 1996, and the FDEP Oculus Website did not contain any additional technical documents after 1996. The FDEP STI database indicates that the USTs were removed in 1990. Based on review of the site assessment reports which were completed in 1996, the direction of groundwater in the vicinity was to the southwest, and that petroleum constituents were present in the soil and groundwater at this facility. Based on a direction of groundwater flow to the west and southwest, and that this facility is eligible for cleanup under the FDEP pre-approval program, this facility is not identified as an off-site "Recognized Environmental Condition".

4. Aamco Transmission Shop, 12 South Pine Avenue, Ocala. STI #428942748. This facility is located approximately 150 feet to the northwest of the subject site. A petroleum discharge was reported to the FDEP in October, 1991, and was determined by the FDEP to be eligible for the FDEP ATRP in January, 1992. There are no active USTs registered for this facility. Site assessment activities were completed in 1996, and no off-site groundwater contamination was identified. The site assessment activities determined a direction of groundwater flow to the northeast, which is not consistent with other site assessment reports. Due to a priority score of 10, no additional work has been conducted under the FDEP pre-approval program since 1996. Based

on a direction of groundwater flow to the northeast, or to the southwest, this facility is not identified as a "Recognized Environmental Condition".

5. Marion County State Attorney Office, 19 NW Pine Avenue, Ocala. STI #429200609. This facility is located approximately 300 feet to the north of the subject site. This facility has not reported a petroleum discharge, and the FirstSearch database information indicated that two UST were removed in 1998. However, no additional regulatory information for this facility could be obtained. Due to the distance and direction of groundwater flow to the southwest, this facility is not identified as a "Recognized Environmental Condition".

6. Former Muffler Doctor, 12 NW Pine Ocala. STI #429200610. This facility is located approximately 350 feet to the northwest of the subject site. A petroleum discharge was reported to the FDEP in June, 1992 and was determined by the FDEP to be eligible for the FDEP ATRP in October, 1992. There are no active USTs registered for this facility, and there was no additional information in the FDEP Oculus website. Based on the distance and an assumed direction of groundwater flow to the southwest, this facility is not identified as a "Recognized Environmental Condition".

7. Former Marion Tire & Battery, 210 West Silver Springs Boulevard. STI #429200616. This facility is located approximately 350 feet to the northeast of the subject site. A petroleum discharge was reported to the FDEP in June, 1992, and was determined by the FDEP to be eligible for the FDEP ATRP in February, 1993. There are no active USTs registered for this facility, and it was reported that the former USTs were last used in the early 1960s. There was no additional information in the FDEP Oculus website. Due to the distance from the subject site, this facility is not identified as a "Recognized Environmental Condition".

8. Former Post Office Tire Service, Inc., 221 West Silver Springs Boulevard. STI #429200608. This facility is located approximately 380 feet to the northeast of the subject site. A petroleum discharge was reported to the FDEP in June, 1992 and was determined by the FDEP to be eligible for the FDEP ATRP in September, 1993. There are no active USTs registered for this facility, and it was reported that the former USTs were last used in 1985. Three in-active USTs were filled with concrete in December 1992. A groundwater sampled obtained by ECT in May 1992 detected 3,118 micrograms per liter (ug/L) of benzene, toluene, ethylbenzene and xylene (BTEX). There was no additional information in the FDEP Oculus website. Based on the distance of 350 feet, this facility is not identified as a "Recognized Environmental Condition".

9. Florida Thoroughbred Industry Building, 108 NW Pine Avenue, Ocala. STI #429200613. This facility is located approximately 600 feet to the northwest of the subject site. A petroleum discharge was reported to the FDEP in August, 1994 and was determined by the FDEP to be eligible for the FDEP ATRP in June, 1995. There are no active USTs registered for this facility, and it was reported that two former USTs were removed in 1992. There is no additional information for the subject site in the FDEP Oculus website. Based on the distance and an assumed direction of groundwater flow to the southwest, this facility is not identified as a "Recognized Environmental Condition".

4.3 Summary of Regulatory Review Information

Subject Site

As a result of the regulatory review activities, the following information for the subject site is provided.

- There are five former USTs which have been closed in place, and closure assessment activities have been conducted. These USTs include three gasoline USTs, a 300-gallon kerosene UST, and a 300-gallon used oil UST. No petroleum discharges have been reported for the five former USTs.

- The four in-active former gasoline USTs have not been registered with the FDEP, and no closure assessment activities have been conducted. The four in-active gasoline USTs were identified as a "Recognized Environmental Condition" in Section 3.2.

Off-Site Properties

As a result of the regulatory review activities, there are a number of off-site properties which have reported discharges of petroleum products. Based on review of available information, one "Recognized Environmental Condition" was identified. This facility is the former Clydes Auto Air facility located adjacent to the north at 13 South Pine Avenue.

5.0 HISTORICAL USE INFORMATION

5.1 Chain-of-Title Review

A 50 year chain-of-title review was not requested, or conducted for the subject property.

5.2 Aerial Photograph Review

Historical aerial photographs were reviewed to aid in the evaluation of the previous uses or occupancies of the property and surrounding area in order to identify those uses or occupancies that were likely to have led to "Recognized Environmental Conditions" in connection with the subject property. A series of historical aerial photographs were reviewed on March 26, 2004, to determine if the subject site is likely to have been impacted through visual identification of structures, land features, or topographic attributes. This review was limited to the scale, quality, and number of aerial photographs available. This review was limited to the scale, quality, and number of aerial photographs available through the Marion County Property Appraiser's Office located in Ocala Florida, and the U.S. Department of Agriculture office, also located in Ocala, Florida. **Appendix E** contains copies of portions the 2002 and 1976 aerial photographs. Observations and interpretations of the aerial photographs available for **2002, 1999, 1996, 1992, 1985, 1980, 1976, 1966, 1964, 1957 and 1949** are provided as follows:

2002 The subject site and adjacent offsite properties generally appear as they did during the site reconnaissance. The subject site contains the current vacant building which was previously utilized by an automotive repair business, and the entire site is paved. The northern portion of the subject site is bound by building at 13 South Pine Avenue. Silver Springs Boulevard (State Road 40) is located further to the north. Jodies Restaurant is located to the northeast at 308 West Silver Springs Boulevard. The southern portion of the subject site is bound by SW Broadway Street, and further to the south by a building at 43 South Pine Avenue, which contains Quality Tint and Signs. The eastern portion of the subject site is bound by a vacant lot which contains a small building and there are parked cars on this property. The subject site is bound immediately to the west by South Pine Avenue (U.S. Highway 441). A vacant building (which was a former Citgo gasoline station) is located further to the west, across South Pine Avenue, at 18 South Pine Avenue. (Scale: 1" = 200').

1999 Essentially the same as in 2002. (Scale: 1" = 200').

1996 Essentially the same as in 1999. (Scale: 1" =200').

1992 Essentially the same as in 1996. (Scale: 1" = 200').

1985 Essentially the same as in 1992, except the building on the subject site is not as large, and the northern portion is not present. (Scale: 1" = 200').

1980 Essentially the same as in 1985. (Scale: 1" = 200').

1976 Essentially the same as in 1980, except there are no parked cars on the adjacent property to the east. (Scale: 1" = 200').

1964 Essentially the same as in 1976. However, due to a scale of 1" = 660', it is difficult to identify specific features. (Scale: 1" = 660').

1957 Essentially the same as in 1964, however, due to a scale of 1" = 660', it is difficult to identify specific features. (Scale: 1" = 660').

1949 Essentially the same as in 1957, however, due to a scale of 1" = 660', it is difficult to identify specific features. (Scale: 1" = 660').

No "Recognized Environmental Conditions" were identified as a result of review of the historical aerial photographs.

5.3 City Directory Review

As part of this Phase I ESA, city directories (R.L. Polk Directories and Cross Reference Directories) maintained by the Marion County Public Library were reviewed on March 26, 2004. City directories identify the names and addresses of businesses or individuals occupying a property for the year in the directory was compiled. Our review included the subject site and properties in the immediate vicinity for various years from the present to prior to the time the site was developed. The years reviewed included 2002, 1997, 1992, 1987, 1982, 1977, 1972, 1967, 1962, 1957, 1951, and 1945, to determine the development history of the subject site and the nature of the various businesses and occupants of the adjacent properties. Listings for the subject site at 317 SW Broadway Street, and for off-site properties were reviewed. The review of off-site properties included listings for SW 3rd Avenue, South Pine Avenue, and West Silver Springs Boulevard. In addition to the information obtained by AEI, Mr. George Roberts of Renew Ocala provided summary information obtained from reviewing city directories, and this summary information is included in **Appendix F.** The following summary information is provided:

Subject Site: The following summary information for the subject site at 317 SW Broadway Street is provided:

- From 2002 through 1987, the subject site was listed as Bob's Broadway Tire and Brakes.
- In 1982, the subject site was listed as Clydes Tire & Brake Service.
- In 1977, the subject site was listed as Floyds Used Cars.
- In 1972, there is no listing for the subject site.
- In 1967, the subject site was listed at 315 SW Broadway Street as Fenn's Fire Extinguishers.

- In 1962, the subject site was listed at 315 SW Broadway Street as Perk's Big Sinclair Service.

- In 1957, the subject site was listed at 315 SW Broadway Street as Perk's Big Sinclair Service.

- In 1945, the subject site was listed at 315 SW Broadway Street as Baron Oil Company.

- In 1940, there is no listing for 315 SW Broadway Street.

- In 1935, there is no listing for 315 SW Broadway Street.

As a result of review of the city directory information, the subject site was utilized as a gasoline station from 1945 through 1962, and as an automotive repair business from 1977 through 2002.

Off-Site Properties: The following summary information is provided:

SW Broadway Street, Extending to the East

1987-2002: From 2002 through 1987, the adjacent property to the east at 307 SW Broadway Street was not listed. Other properties included listings for various businesses, and no gasoline stations or drycleaners were identified.

1982: In 1982, the property at 307 SW Broadway Street was listed as Affordable Car Rentals. No gasoline stations or drycleaners were identified for other addresses on SW Broadway Street.

1977: In 1977, the property at 307 SW Broadway site was listed as Union Cab Company. No gasoline stations or drycleaners were identified for other addresses on SW Broadway Street.

1972: In 1972, there is no listing for the property at 307 SW Broadway Street. No gasoline stations or drycleaners were identified for other addresses on SW Broadway Street.

1967: In 1967, the address at 307 SW Broadway Street was changed to 309 SW Broadway Street, and was listed as United Cab Company. No gasoline stations or drycleaners were identified for other addresses on SW Broadway Street.

1962: In 1962, the address at 309 SW Broadway Street was listed as United Cab Company. No gasoline stations or drycleaners were identified for other addresses on SW Broadway Street.

1957: In 1957, there was no listing for the address at 309 SW Broadway Street. No gasoline stations or drycleaners were identified for other addresses on SW Broadway Street.

1945: In 1945, the address at 309 SW Broadway Street was listed as United Cab Company. No gasoline stations or drycleaners were identified for other addresses on SW Broadway Street.

1940: In 1940, there is no listing for 309 SW Broadway Street. There is a listing at 316 W. Broadway for Weathersby's Garage, which appears to be off-site to the south.

1935: In 1935, there is no listing for 309 SW Broadway Street. There is no listing for 316 W. Broadway.

As a result of review of the city directory information, the off-site property to the east at 307 SW Broadway Street was utilized by a taxi cab company from 1945 through 1977. In 1982, the property at 307 SW Broadway Street contained a car leasing business, and was not listed through 2002. No other gasoline stations, drycleaners, or automobile repair businesses were identified except for a listing for Weathersby's Garage at 316 W. Broadway in 1940.

South Pine Avenue, For Off-site Properties to the North, South, and West:

1997-2002: From 1997 through 2002, the adjacent property to the north at 13 South Pine Avenue was listed as Ricks Sings and Tint. The property to the south at 43 S. Pine Avenue was listed as Rogers Discount Tires in 1997 and Ocala's Quality Tint and Signs in 2002. The address at 18 South Pine Avenue was listed as Sunshine Roses in 1997 and Fruits and Flower Place in 2002. Based on review of the listings in the vicinity, no gasoline stations or drycleaners were identified.

1987-1992: From 1987 through 1992, the adjacent property to the north at 13 South Pine Avenue was listed as Clyde's Auto Air. The property to the south at 43 South Pine Avenue was not listed in 1992, and was listed as Riches Texaco Service Station in 1987. The address at 18 South Pine Avenue was not listed in 1992, and in 1987 was listed as Citgo Station No. 1. In 1992, the property at 12 South Pine Avenue was listed as vacant, and was listed as an Aamco Transmission business in 1987. No other gasoline stations or drycleaners were identified.

1977-1982: From 1977 through 1982, the adjacent property to the north at 13 South Pine Avenue was listed as North Florida Auto Sound. The properties at 18 South Pine Avenue and 43 South Pine Avenue both contained gasoline stations. The property at 12 South Pine Avenue contained an Aamco Transmission business from 1977 to 1982.

1972: There is no listing for 13 South Pine Avenue in 1972. 12 South Pine Avenue is listed as Elder Shell Service Station, 18 South Pine Avenue is listed as Don's Union 76, and 43 South Pine Avenue is listed as Sowell's Texaco.

1967: The address for 13 South Pine Avenue changed, and listed as Jim's Standard Service at 7 South Pine Avenue. The address for 12 South Pine Avenue was changed, and Elder Shell Service at 6 South Pine Avenue. The address for 43 South Pine Avenue was changed, and Cash's Texaco Service was listed at 105 South Pine Avenue.

1962: Standard Oil was listed at 7 South Pine Avenue. Elder & Roberston Shell Service was listed at 6 South Pine Avenue. Jack's Texaco Station was listed at 105 South Pine Avenue.

1957: Standard Oil was listed at 7 South Pine Avenue. Don's Shell Service was listed at 6 South Pine Avenue. There was no listing for 105 South Pine Avenue.

1951: It appears that the numbering for the various addresses has been changed. There were no listings for addresses for the intersection of South Pine Avenue and Broadway.

1945: There are residential listings for 112 and 203 South Pine Avenue. No gasoline stations were listed.

1940: The only address present is at 3 South Pine Avenue, for Sweat & Smith, Biksmiths. No gasoline stations were listed.

1935: The only address present is at 3 South Pine Avenue, for Gloster Garage & Biksmith Shop. No gasoline stations were listed.

SW 3rd Avenue

The listings for SW 3rd Avenue which intersects SW Broadway Street, did not identify any additional listings such as gasoline stations, dry cleaners, etc., for the interval from 1935 through 2002 which would be identified as "Recognized Environmental Conditions".

Silver Springs Boulevard:

1992-2002: From 2002 through 1987, the adjacent property to the northeast at 308 W. Silver Springs Boulevard was listed as Jodies Restaurant. 214 West Silver Springs Boulevard was listed as Central Florida Paints Inc., 221 West Silver Springs Boulevard was listed as Post Office Tire Service Inc., and 210 West Silver Springs Boulevard was listed as Marion Tire & Battery Company.

1972-1987: From 1977 through 1982, the address at 308 W. Silver Springs Boulevard was listed as Woodie's Restaurant. 214 West Silver Springs Boulevard was listed as PPG Paint Industries Inc., 221 West Silver Springs Boulevard was listed as Post Office Tire Service Inc. In 1982 and as a Goodyear Tire store in 1972 and 1977. 210 West Silver Springs Boulevard was listed as Marion Tire & Battery Company.

1967: The addresses are slightly different. 308 West Silver Springs Boulevard is listed as Al's Dinette at 304 Silver Springs Boulevard. Post Office Tire Service is listed at 217 West Silver Springs Boulevard, 208 (formerly 210) is listed as B./F. Goodrich, and 214 West Silver Springs Boulevard is listed as Pittsburgh Plate Glass Co.

1957: In 1957, Silver Springs Boulevard is Ocklawaha Avenue. There were no listings for 309 or 304 West Ocklawaha Avenue.

1951: In 1951, 303, 307, and 315 West Ocklawaha Avenue were listed as residential properties. 316 West Ocklawaha was listed as Norvel Lenox, auto repair, near the intersection of North and South Pine Avenue.

1945: In 1945, 303, 307, and 315 West Ocklawaha Avenue were listed as residential properties. 316 West Ocklawaha was not listed. Geo Washington was listed at 403 West Ocklawaha Avenue, near the intersection of North Ocklawaha Avenue and South Pine Avenue.

1940: In 1940, 303, 307, 312, and 315 West Ocklawaha Avenue were listed as residential properties, near the intersection of North Ocklawaha Avenue and South Pine Avenue.

1935: In 1935, 303, 307, and 315 West Ocklawaha Avenue were listed as residential properties, near the intersection of North Ocklawaha Avenue and South Pine Avenue.

5.4 Sanborn Map Review

In order to further determine the historical use of the subject site and surrounding properties, AEI obtained a copy of the available Sanborn Maps for the subject site. The Sanborn Maps for the subject site are included in **Appendix G.** The off-site properties further to the west, across South Pine Avenue were not included on the Sanborn Maps which were obtained and reviewed by AEI for this project. These include the properties at 12 South Pine Avenue, 18 South Pine Avenue, and 12 NW Pine Avenue. The following summary information is provided:

1970 - A building is shown in the north-central portion of the site, which is identified as a "gasoline station". With respect to off-site properties, the property to the east contains a parking area and a small building. The property to the northeast at 308 West Silver Springs Boulevard contains a restaurant located to the northeast of this site. The property immediately to the north at 13 South Pine Avenue contains a building in the central portion of the property with no specific designation. The property immediately to the south across Broadway Street contains a gasoline station. The property located further to the north, to the northeast of the intersection of Silver Springs Boulevard and South Pine Avenue, at 19 NW North Pine Avenue contains a gasoline station. The property at 210 West Silver Springs Boulevard contains an auto garage, and the property at 221 West Silver Springs Boulevard contains a tire, battery, sales and service business.

1948 - The subject site appears different. Two buildings are shown on-site, one in the northwest corner, and a smaller building in the southwest portion of the site, which is identified as a "gasoline station". With respect to off-site properties, the property to the east is shown to be vacant. The property to the northeast at 308 West Silver Springs Boulevard appears different than in 1972, and contains a restaurant in the eastern-central portion of the property. The property immediately to the north at 13 South Pine Avenue appears different than in 1970, and contains three buildings; one in the northwest corner, and two residences immediately to the east of it. The property immediately to the south across Broadway Street appears different than in 1970, and contains two buildings. The property located further to the north, to the northeast of the intersection of Silver Springs Boulevard and South Pine Avenue, at 19 NW North Pine Avenue, appears to be different than in 1970, and contains a gasoline station. There are no buildings at 210 or 221 West Silver Springs Boulevard.

1930 - The subject site appears different, and no buildings are shown on-site. With respect to off-site properties, the property to the east is shown to contain the designation "livery" and a small office building. The property immediately to the north is shown to contain one building in the northwest portion of the property, and is identified as "auto repair". The property to the northeast at 308 West Silver Springs Boulevard appears different than in 1948, and does not contain any buildings. The property immediately to the south across Broadway Street appears different than in 1948, and does not contain the building in the northwest portion of the property, and two residential buildings are present. The property located further to the north, to the northeast of the intersection of Silver Springs Boulevard and South Pine Avenue, at 19 NW Pine Avenue, which contained a gasoline station in 1948, contains a residence.

1924 - The subject site appears the same as in 1930, and is undeveloped. With respect to off-site properties, the property to the east is the same as in 1930, the property immediately to the north is shown to contain the same building, except it is identified as a "grain warehouse". The property to the northeast at 308 West Silver Springs Boulevard appears the same as in 1930, and the property immediately to the south across Broadway Street appears the same as in 1930. The property located further to the north, to the northeast of the intersection of Silver Springs Boulevard and South Pine Avenue is the same as in 1930.

5.5 Summary of Previous Uses of Subject Site and Adjacent Properties

Based on review of the historical aerial photographs, information obtained from interviews with the current owner and a former tenant, review of city directories, and review of Sanborn Fire Insurance Maps, the following historical use information for the subject site and for off-site properties is provided:

Subject site

From prior to 1924 through 1930, the subject site did not contain any buildings. From approximately 1945 through 1962 the subject site contained a gasoline station. From approximately 1967 through 1977, the subject site was occupied by various businesses, which included a fire extinguisher business and a used car business. From approximately 1979 through 2003, the subject site contained an automobile repair business. No additional "Recognized Environmental Conditions" were identified for the subject site as a result of the historical source review.

Off-Site Properties

North: The following detailed information is provided for applicable off-site properties:

13 South Pine Avenue: For the property immediately adjacent to the north at 13 South Pine Avenue, this property contained a grain warehouse in 1924, and this building contained an auto repair business in 1930. Up through 1948, this property contained two buildings, which were utilized as residences. The exact uses of the property could not be determined from between 1948 and prior to 1957. From 1957 through 1967, this property contained a gasoline station. There various uses in the 1970s, and from 1977 through 1982, this property was occupied by North Florida Auto Sound. From approximately 1985 through 1992, this property was occupied by Clyde's Auto Air. From 1997 through 2002, this property was occupied by Ricks Signs and Tint. The previous use of this property as a gasoline station was identified as a "Recognized Environmental Condition" in Section 4.2.

308 West Silver Springs Boulevard: For the property located immediately to the northeast at 308 West Silver Springs Boulevard, this property was vacant from 1924 up through prior to 1948. In 1948, this property contained a restaurant building in the eastern portion of the property. In 1970, this property contained a restaurant in the northeast portion of the property, and based on review of available historical sources, the building located in the northeast portion of this property has been used as a restaurant from 1970 through the present.

19 Northwest Pine Avenue: This property is located approximately 350 feet to the north of the subject site, across West Silver Springs Boulevard. In 1930, this property contained a residence, and contained a gasoline station from 1948 up through 1970. At some time in the 1970's, this property became a parking lot which for the Marion County Judicial Center. Based on the distance and assumed direction of groundwater flow to the southwest, the former gasoline station at this location is not identified as a "Recognized Environmental Condition".

210 West Silver Springs Boulevard: This property is located approximately 350 feet to the northeast of the subject site, and was undeveloped from prior to 1924 through 1948. The exact use cannot be determined for the interval from 1948 through the mid-1960s, when it was developed with a automotive repair facility. This facility was occupied by Marion Tire & Battery from approximately 1967 through 2002. As indicated in Section 4.2, a discharge of petroleum products has been reported for this location, and due to the distance from the subject site, was not identified as a "Recognized Environmental Condition".

221 West Silver Springs Boulevard: This property is located approximately 380 feet to the northeast of the subject site, and was undeveloped from prior to 1924 through 1948. The exact use cannot be determined for the interval from 1948 through the mid-1960s, when it was developed with a automotive repair facility. This facility was occupied by various automotive repair businesses, including Post Office Tire Service, from approximately 1967 through 2002. As indicated in Section 4.2, a discharge of petroleum products has been reported for this location, and due to the distance from the subject site, was not identified as a "Recognized Environmental Condition".

South: The property immediately to the south across SW Broadway Street contained two residences from prior to 1924 through 1930. In 1948, a building is present on the western portion of this property in addition to the two residences. The exact property use could not be determined between 1948 through 1957. From 1957 through 1982, this property contained a gasoline station. From 1987 through the present, this property has contained various businesses that include automotive repair, and window tinting. The properties further to the southeast along SW Broadway Street have contained various businesses. No additional "Recognized Environmental Conditions" were identified.

East: The property to the east at 307 SW Broadway Street contained an office and "livery" designation from prior to 1924 through 1930. In 1945 this property was listed at 309 SW Broadway as United Cab Company, and no buildings were shown on this property in the 1948 Sanborn Fire Insurance Map. This location was identified as being used by taxi cab companies from 1945 through 1980. In 1982, this property was utilized by a car leasing company, and was not listed in city directories from 1987 through 2002. Based on the interview with Mr. Bob Skrob, this property was previously utilized for parking automobiles for his automotive repair business. No additional "Recognized Environmental Conditions" were identified.

West: The properties located to the west across South Pine Avenue at 12 SW Pine Avenue, 18 SW Pine Avenue, and to the northwest at 12 NW Pine Avenue were not contained in the Sanborn Fire Insurance Maps reviewed by AEI as part of this Phase I ESA. Based on review of city directory information, the off-site facilities to the west at 12 South Pine Avenue and 18 South Pine Avenue have contained gasoline stations from 1957 through approximately 1987. From 1987 through 1997, these locations were either vacant or contained automotive repair businesses. From 1997 through 2002, these locations were either vacant or contained florist businesses. No additional "Recognized Environmental Conditions" were identified.

6.0 CONCLUSIONS AND RECOMMENDATIONS

6.1 Findings and Conclusions

This survey represents an appropriate inquiry and investigation of the subject property to determine the existence of "Recognized Environmental Conditions" based on:

- Apparent possible sources of onsite contamination;
- Apparent possible neighboring sources of contamination;
- Regulatory information obtained from Federal and State agencies; and
- Information regarding previous owners operators and uses of the property.

Based upon the information presented in the survey reported above, AEI has the following findings and conclusions:

1. The purpose of this ESA was to identify "Recognized Environmental Conditions" in connection with the subject property, which contains a vacant automotive repair building, located at 317 SW Broadway Street, in Ocala, Marion County, Florida.

2. The U.S. Geological Survey, "Ocala West" Quadrangle Map was reviewed. Based on this review, the subject site is located at the intersection of South Pine Street and SW Broadway Street, in downtown Ocala. The subject site is located within a highly urbanized area, and as a result, no structures are shown on site. The site is estimated to occur at an elevation of approximately 70 feet above NGVD, and the topography in the vicinity of the subject site slopes from the northeast to southwest. No "Recognized Environmental Conditions" were identified.

3. The subject site contains a vacant building which was previously occupied by an automotive repair business, and the entire site is paved. Water and wastewater services are provided to the subject site by the City of Ocala. Based on the site reconnaissance activities in March and April 2004, nine USTs were identified for the subject site, which are summarized as follows:

UST	Location	Status
3 Gasoline USTs	Northeast portion of property.	Filled with concrete in 1989.
300-Gallon Kerosene UST	South of building.	Filled with concrete in 1989.
300-Gallon Used Oil UST	Inside maintenance bay.	Filled with concrete in 1999.
4 Gasoline USTs	Inside of building.	In-active, not abandoned.

4. As a result of the site reconnaissance activities, two "Recognized Environmental Conditions" were identified, as follows:

REC #1: The subject site previously contained a gasoline station. In 1989, three gasoline USTs and a kerosene UST were abandoned in place. In 1999, a used oil UST was abandoned in place. Four additional in-active gasoline USTs were observed on-site.

REC #2: The subject site contained an automotive repair business from approximately 1979 through 2003, and three former in-ground hydraulic lifts were observed on-site. Two former lifts were located within the interior of the building, and one former lift was observed on the eastern portion of the subject site.

5. With respect to observation of off-site facilities, no "Recognized Environmental Conditions" were identified.

6. Information concerning the subject site was provided by Ms. Frances King, who is the owner of the subject site, and Mr. Bob Skrob, who owned Bobs Brake and Tires. Both Ms. King and Mr. Skrob provided detailed information concerning the use of the subject site from approximately 1974 through the present. This information was utilized in the Section 3.2, and no additional "Recognized Environmental Conditions" were identified.

7. As a result of the regulatory review activities, the following information for the subject site is provided.

- There are five former USTs which have been closed in place, and closure assessment activities have been conducted. These USTs include three gasoline USTs, a 300-gallon kerosene UST, and a 300-gallon used oil UST. No petroleum discharges have been reported for the five former USTs.

- The four in-active gasoline USTs have not been registered with the FDEP, and no closure assessment activities have been conducted. The four in-active gasoline USTs have already been identified as "Recognized Environmental Condition".

8. With respect to the regulatory review for off-site properties, there are a number of off-site properties which have reported discharges of petroleum products, which are summarized in Section 4.2. The off-site property immediately to the north of the subject site at 13 South Pine Avenue reported a discharge of petroleum products in January, 1992, and is identified as a "Recognized Environmental Condition.

9. With respect to the historical source review for the subject site, from prior to 1924 through 1930, the subject site did not contain any buildings. From approximately 1945 through 1962 the subject site contained a gasoline station. From approximately 1967 through 1977, the subject site was occupied by various businesses, which included a fire extinguisher business and a used car business. From approximately 1979 through 2003, the subject site contained an automobile repair business. No additional "Recognized Environmental Conditions" were identified for the subject site as a result of the historical source review.

10. With respect to the historical source review for off-site properties, this information is contained in Section 5.0. No additional "Recognized Environmental Conditions" were identified.

11. AEI has performed a Phase I Environmental Site Assessment in conformance with the scope and limitations of ASTM E 1527-00 for the subject site, located at 317 SW Broadway Street, Ocala, Marion County, Florida. Any exceptions to, or deletions from, the practice are described in Section 1.2 of this report. This report revealed no "Recognized Environmental Conditions" for the subject site, except for the following:

REC #1: The subject site previously contained a gasoline station. In 1989, three gasoline USTs and a kerosene UST were abandoned in place. A used oil UST was abandoned in 1999. Four additional in-active gasoline USTs were observed on-site.

REC #2: The subject site contained an automotive repair business from approximately 1979 through 203, and three former in-ground hydraulic lifts were observed on-site. Two former lifts were located within the interior of the building, and one former lift was observed on the eastern portion of the subject site.

REC #3 The off-site property immediately to the north at 13 South Pine Avenue reported a discharge of petroleum products in January, 1992, and is identified as a "Recognized Environmental Condition.

6.2 Recommendations

As a result of this Phase I ESA, the following recommendations are provided:

1. The four in-active gasoline USTs should be abandoned, and closure assessment activities conducted in accordance with the requirements specified in Chapter 62-761, FAC. This will be difficult since the four in-active USTs are located within the building on-site.

2. Phase II assessment activities are recommended to further evaluate soil and groundwater conditions beneath the subject site from the former USTs, the former in-ground hydraulic lifts, and the adjacent off-site facility to the north at 13 North Pine Avenue..

7.0 LIMITATIONS, TERMS AND SPECIAL CONDITIONS

7.1 Warranty

A Phase I ESA is conducted to permit formulation of an opinion as to the presence of "Recognized Environmental Conditions exist at a site. Opinions relative to the "Recognized Environmental Conditions" provided in this report are based upon the information described herein. Renew Ocala-A Brownfield Redevelopment Program is advised that the conditions observed by AEI in March and April 2004, may be subject to change. In addition, certain indicators of the presence of hazardous materials may have been latent at the time of the most recent site reconnaissance and may subsequently become observable. In a similar manner, the research effort conducted for a Phase I ESA is limited to the standard historical sources identified in ASTM E 1527-00. AEI warrants that it has completed a Phase I ESA for the subject site in accordance with ASTM E 1527-00. No other warranties are implied or expressed.

7.2 User Reliance

With respect to this report, Renew Ocala-A Brownfield Redevelopment Program is the only intended beneficiary of this report, unless otherwise designated. Renew Ocala-A Brownfield Redevelopment Program is the only party to which AEI has explained any risks involved from Renew Ocala-A Brownfield Redevelopment Program's point of view. Reliance on this report by any party other than Renew Ocala-A Brownfield Redevelopment Program would perforce result in reliance on assumptions whose extent and nature would distort the meaning and impact of the findings and opinions related herein, in turn resulting in potential misinterpretation of these findings and opinions and unwise actions based on those misinterpretations. AEI's findings and opinions related in this report may not be relied upon by any other party except Renew Ocala-A Brownfield Redevelopment Program, unless otherwise designated.

7.3 Limitations and Exceptions

This report is limited to information concerning the observed physical characteristics of the subject property, as well as adjacent properties and environmental record sources up to the time of this report. A limited asbestos survey was completed, and will be submitted separately. Our services did not include any additional services which may be applicable to a commercial real estate transaction, such as, radon, wetlands, regulatory compliance, or other non-scope items identified in Section 12.0 of ASTM E 1527-00. The findings and opinions conveyed via this Phase I ESA report are based on the information obtained from a variety of regulatory and historical sources enumerated herein, which AEI believes are reliable and accurate. However, AEI can not guarantee the authenticity or reliability of the historical or regulatory information this report has relied upon.

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Appx F	

APPENDIX F

PC&B NELAP CERTIFICATION INFORMATION

State of Florida
Department of Health, Bureau of Laboratories

This is to certify that

E83239

PC&B Environmental Laboratory, Inc.

210 Park Road

Oviedo, FL 32765

has complied with Florida Administrative Code 64E-1 for the examination of Environmental samples in the following categories:

Drinking Water

Group I Unregulated Contaminants, Group II Unregulated Contaminants, Primary Inorganic Contaminants, Secondary Inorganic Contaminants, Synthetic Organic Contaminants

Non-Potable Water

Extractable Organics, General Chemistry, Metals, Pesticides-Herbicides-PCB's, Volatile Organics

Solid and Chemical Materials

Extractable Organics, General Chemistry, Metals, Pesticides-Herbicides-PCB's, Volatile Organics

Continued certification is contingent upon successful on-going compliance with the NELAC Standards and FAC Rule 64E-1 regulations. Specific methods and analytes certified are cited on the Laboratory Scope of Accreditation for this laboratory and are on file at the Bureau of Laboratories, P. O. Box 210, Jacksonville, Florida 32231. Clients and customers are urged to verify with this agency the laboratory's certification status in Florida for particular methods and analytes.

EFFECTIVE JULY 1, 2004 **THROUGH JUNE 30, 2005**

Ming S. Chan, Ph.D.
Bureau Chief, Bureau of Laboratories
Florida Department of Health
DH Form 1697, 7/03
NON-TRANSFERABLE 05/03/2004-E83239

Note: This list of laboratories is provided by the respective Acrediting Authority. Please contact the Laboratory's Primary Accrediting Authority, or when appropriate, the Secondary Accrediting Authority for 1) specific details of the laboratory's accredited Fields of Testing, 2) methods and analytes, or 3) when there is a descrepancy with the information given.

LabName	City	State	Phone	PrimaryAA	SecondaryAA	CAA	CWA	RCRA	SDWA	CERCLA
Paragon Analytics, Inc.	Fort Collins	CO	(970) 490-1511		FL			X		
Paragon Analytics, Inc.	Fort Collins	CO	(970) 490-1511		KS		X	X	X	
Paragon Analytics, Inc.	Fort Collins	CO	(970) 490-1511		LA DEQ		X	X		
Park City Wastewater Treatment Laboratory	Park City	KS	(316) 838-4748	KS			X			
PBS&J Environmental Toxicology Laboratory	Houston	TX	(713) 977-1500		LA DEQ		X			
PBS&J Environmental Toxicology Laboratory	Houston	TX	(713) 977-1500	FL			X			
PC&B Environmental Laboratories, Inc	Oviedo	FL	(407) 359-7194	FL			X	X	X	
PCI Labs, Inc	Orangeburg	NY	(845) 680-0031		NJ		X		X	
pCi/Labs, Inc	Orangeburg	NY	(845) 680-0031	NY			X		X	
PDC Laboratories, Inc	Peoria	IL	(309) 692-9688	IL			X	X	X	
PDC Laboratories, Inc.	Peoria	IL	(309) 692-9688		KS		X	X	X	
PEL	Tampa	FL	(865) 247-2805	FL			X	X		
PEL Laboratories, Inc.	Tampa	FL	(813) 247-2805		KS			X		
Pembroke Laboratory, Inc.	Ft Meade	FL	(863) 285-8145	FL			X	X	X	
Pennichuck Water Works Laboratory	Nashua	NH	(603) 598-5316	NH					X	
Perrier-Vittel M.T.	Vittel	FR	(332) 908-7123	NY					X	
Philip Analytical Services Corp	Mississauga	ON	(905) 890-8566	NY			X	X	X	
Philip Analytical Services, Inc	London	ON	(519) 686-7558	NY			X	X		
Philip Analytical Services, Inc	Burlington	ON	(905) 332-8788		KS		X	X		
Philip Analytical Services, Inc.	Burlington	ON	(905) 332-8788		CA		X	X		
Phoenix Environmental Labs	Manchester	CT	(860) 645-1102	NY		X	X	X	X	
Phoenix Environmental Labs	Manchester	CT	(860) 645-1102		NH		X		X	
Pieczonka Consultants	Lackawanna	NY	(716) 826-8830	NY			X			
Pinellas County Utilities Laboratory	Largo	FL	(727) 582-2302	FL			X	X	X	
Pittsburg Municipal Wastewater Laboratory	Pittsburg	KS	(620) 230-5590	KS			X			
Plant City Water Pollution Control Laboratory	Plant City	FL	(813) 757-9191	FL			X			
Plant Technicians, Inc	Leesburg	FL	(352) 787-2944	FL			X		X	
Plattsburgh WPCP Laboratory	Plattsburgh	NY	(518) 563-7172	NY			X		X	
Poletti Project Laboratory	Astoria	NY	(718) 626-8215	NY			X			
Polk County Natural Resources Division	Bartow	FL	(863) 534-7370 x245	FL			X		X	
Port Orange Utility - Gamsey Water Treatment Plant Laboratory	Port Orange	FL	(386) 756-5381	FL					X	
Port Richmond Water Pollution Ctrl Plant	Staten Island	NY	(718) 447-1100	NY			X			
Port Washington WPCD	Port Washington	NY	(516) 944-6100	NY			X			
Portland Water Bureau Laboratory	Portland	OR	(503) 823-4900	OR					X	
Poughkeepsie (C) Water Works	Poughkeepsie	NY	(845) 485-3428	NY					X	
Poughkeepsie (C) Water Works	Poughkeepsie	NY	(845) 451-4173	NY			X		X	
PPB Environmental Laboratories, Inc.	Gainesville	FL	(352) 377-2349	FL			X	X		
PPL System Chemical Laboratory	Hazleton	PA	(570) 384-5234	PA			X		X	
Prairie Analytical Systems	Springfield	IL	(217) 753-1148	IL			X	X	X	
Precision Petroleum Labs, Inc.	Houston	TX	(713) 680-9425		UT		X	X		
Premier Laboratory LLC	Brooklyn	CT	(860) 774-6814		NJ		X	X		
Premier Laboratory LLC	Dayville	CT	(800) 334-0103	NY			X	X	X	
Premier Laboratory LLC	Dayville	CT	(800) 334-0103		NH		X		X	
Premium Testing Laboratory	Lisbon	NY	(315) 386-2757	NY					X	
Princeton Analytical Lab	Flemington	NJ	(908) 806-2620		NY	X				
Princeton Analytical Lab	Flemington	NJ	(908) 806-2620	NY		X				
Priority Analytical Laboratory Inc	Wichita	KS	(316) 269-4200	KS			X	X		
Prism Laboratories, Inc	Charlotte	NC	(704) 529-6364	FL		X	X	X	X	
Product Assurance Laboratory Operations (PALO)	Norco	LA	(985) 465-7832	LA DEQ				X		
Proscience Analytical	Woburn	MA	(781) 935-3212	NY		X	X	X	X	
Provo Water Reources Laboratory	Provo	UT	(801) 852-6796	UT					X	
PSC Analytical Services	Burlington	ON	(905) 332-8788		NJ		X	X		
PSC Analytical Services	Burlington	ON	(905) 332-8788		LA DEQ		X	X		
PSC Analytical Services	Burlington	ON	(905) 332-8788	NJ				X		
PSC Analytical Services Inc	Burlington	ONT	(905) 332-8788	NY			X	X	X	
PSC Analytical Services, Inc	Burlington	ON	(905) 332-8778		UT		X	X	X	
PSEG Results Lab	Glenmont	NY	(518) 436-5055	NY			X			
PSTC Food Chemistry	Salina	KS	(785) 825-1671	KS			X			
Public Service Testing Lab	Woodside	NY	(718) 476-9202	NY		X	X	X		
Pure Earth Environmental Lab Inc	Pennsauken	NJ	(856) 486-1177	NJ			X	X	X	
Pure Earth Environmental, Inc	Pennsauken	NJ	(856) 486-1177		NY		X	X		
Q.C. Inc	Southampton	PA	(215) 355-7231	NJ			X	X		
Q.C. Inc	Southampton	PA	(215) 355-3900		NJ				X	
Q.C. Inc	Southampton	PA	(215) 355-7231		NJ				X	
Q.C. Inc	Southampton	PA	(215) 355-3900	NJ			X	X		
Q.C. Inc-All Test Division	East Rutherford	NJ	(215) 355-3900		NJ				X	
QC Incorporated	Southampton	PA	(215) 355-3900	PA			X		X	
QC, Inc	Southampton	PA	(215) 355-3900		NY		X	X		
Quality Control Nepera Inc	Harriman	NY	(845) 782-1274	NY			X			
Queensbury Laboratory	Queensbury	NY	(518) 793-8866	NY					X	
Quest International WWTP	Norwich	NY	(607) 334-9951	NY			X			
R&J Laboratories	Penn Yan	NY	(315) 536-7248	NY			X		X	
Radon Testing Corp of America	Elmsford	NY	(914) 345-3380		NJ	X			X	
Raytheon Aircraft Company	Wichita	KS	(316) 676-5916	KS			X			
Reckitt Benckiser	Wolcott	NY	(315) 594-8021	NY			X			
Red Hook Water Poll Plant-NYCDEP	Brooklyn	NY	(718) 852-4100	NY			X			
Red Hook Water Pollution Control Lab	Brooklyn	NY	(718) 595-5006	NY			X			
Reedy Creek Improvement District Environmental Services	Lake Buena Vista	FL	(407) 824-7301	FL			X	X	X	
Rensselaer Co Sewer Dist #1	Troy	NY	(518) 283-2236	NY			X			
Rensselaer Darrin Fresh Water Institute	Bolton Landing	NY	(518) 644-3541	NY			X		X	
Research Triangle Park Laboratories	Raleigh	NC	(919) 510-0228	NJ				X		
Resource Laboratories	Portsmouth	NH	(603) 436-2001	NH			X		X	
Reynolds Metals Company Lab	Massena	NY	(315) 764-6233	NY		X	X		X	

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Appen G.	

APPENDIX G

GROUNDWATER QUALITY SAMPLING LOG, CHAIN-OF-CUSTODY FORM & FIELD METER CALIBRATION FORM

Florida Department of Environmental Protection
GROUNDWATER SAMPLING LOG

SITE NAME:	SITE LOCATION:	
WELL NO:	SAMPLE ID:	DATE:

PURGING DATA

WELL DIAMETER (in):	TOTAL WELL DEPTH (ft):	STATIC DEPTH TO WATER (ft):	WELL CAPACITY (gal/ft):

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY =

= (–) X =

PURGE METHOD:	PURGE INITIATED AT:	PURGE ENDED AT:	TOTAL VOL. PURGED (gal):

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE (gpm)	DEPTH TO WATER (ft)	pH	TEMP. (°C)	COND. (µmhos)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	ODOR

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION	SAMPLER(S) SIGNATURE(S)	
SAMPLING METHOD(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N	DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

PC&B Environmental

210 Park Road, Oviedo, FL 32765
407-359-7194 **(FAX) 407-359-7197**

21341

Chain of Custody

Work Order: _____

Date: _____ Page ____ of ____

COMPANY:

ADDRESS:

SAMPLED BY: **SIGN:**

PHONE: **FAX:**

ANALYSIS REQUESTED

#	SAMPLE ID	DATE/TIME	MATRIX: AIR	WATER	SLUDGE	SOIL/SOLID	ORG. LIQUID	PRESERVATION
1								
2								
3.								
4								
5								
6								
7								
8								
9								
10								
11								
12								
13								

RELINQUISHED BY	DATE/TIME	RECEIVED BY	DATE/TIME
1:		1:	
2:		2:	
3:		3:	

SPECIAL INSTRUCTIONS/COMMENTS:

QUOTE/CONTRACT #:

PROJECT INFORMATION

PROJECT NAME:

PROJECT #:

SITE ADDRESS:

PROJECT MANAGER:

SAMPLE RECEIPT

Total # of Containers	
Chain of Custody Seals	
Recv'd in Good Condition	
PO #:	

INVOICE TO:
(IF DIFFERENT FROM ABOVE)

Field Instrument Calibration Records

INSTRUMENT (MAKE/MODEL#) ____________________ **INSTRUMENT #** ______________

PARAMETER: *[check only one]*

☐ TEMPERATURE ☐ CONDUCTIVITY ☐ SALINITY ☐ pH ☐ ORP

☐ TURBIDITY ☐ RESIDUAL CL ☐ DO ☐ OTHER ________________

STANDARDS: *[Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]*

Standard A ____

Standard B ____

Standard C ____

DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS

Field Instrument Maintenance Records

INSTRUMENT (MAKE/MODEL#) _____ **INSTRUMENT #** _____

DATE OF PURCHASE: _____ (☐ *new;* ☐ *used*)

PARAMETER(S): *[check all that apply for this instrument]*

☐ TEMPERATURE ☐ CONDUCTIVITY ☐ SALINITY ☐ pH ☐ ORP

☐ TURBIDITY ☐ RESIDUAL CL ☐ DO ☐ OTHER _____

DATE (yy/mm/dd)	TIME (hr:min)	TYPE OF MAINTENANCE	DESCRIPTION OF PERFORMED MAINTENANCE	SAMPLER INITIALS

REMARKS: _____

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Apiew H	

APPENDIX H

FORM L INFORMATION

TABLE 1

601

PARAMETER	MDL	ACCURACY	PRECISION	PQL
Bromobenzene	1.0 ug/l	92 +/- 16	0-8	1.0 ug/l
Bromodichloromethane	1.0 ug/l	96 +/- 12	0-12	1.0 ug/l
Bromoform	1.0 ug/l	88 +/- 21	0-15	1.0 ug/l
Bromomethane	1.0 ug/l	91 +/- 22	0-20	1.0 ug/l
Carbon Tetrachloride	1.0 ug/l	89 +/- 14	0-16	1.0 ug/l
Chlorobenzene	1.0 ug/l	101 +/- 18	0-11	1.0 ug/l
Chloroethane	1.0 ug/l	87 +/- 22	0-19	1.0 ug/l
2-Chloroethyl vinyl Ether	1.0 ug/l	94 +/- 12	0-12	1.0 ug/l
Chloroform	1.0 ug/l	99 +/- 12	0-9	1.0 ug/l
Chloromethane	1.0 ug/l	98 +/- 21	0-7	1.0 ug/l
Dibromocloromethane	1.0 ug/l	105 +/- 9	0-9	1.0 ug/l
Dibromomethane	1.0 ug/l	95 +/- 10	0-9	1.0 ug/l
1,2 Dichlorobenzene	1.0 ug/l	104 +/- 9	0-6	1.0 ug/l
1,3 Dichloroethene	1.0 ug/l	101 +/- 6	0-6	1.0 ug/l
1,4 Dichlorobenzen	1.0 ug/l	106 +/- 10	0-9	1.0 ug/l
1,1 Dichloroethane	1.0 ug/l	108 +/- 12	0-12	1.0 ug/l
Dichlorodifluoromethane	1.0 ug/l	98 +/- 12	0-12	1.0 ug/l
1,2 Dichloroethane	1.0 ug/l	110 +/- 18	0-18	1.0 ug/l
1,1 Dichloroethene	1.0 ug/l	108 +/- 12	0-12	1.0 ug/l
trans-1,2 Dichloroethene	1.0 ug/l	109 +/- 6	0-6	1.0 ug/l
1,2 Dichloropropane	1.0 ug/l	105 +/- 6	0-6	1.0 ug/l
cis-1,3 Dichloropropene	1.0 ug/l	103 +/- 3	0-3	1.0 ug/l
trans-1,3 Dichloropropene	1.0 ug/l	99 +/- 3	0-3	1.0 ug/l
Methylene Chloride	1.0 ug/l	126 +/- 18	0-18	1.0 ug/l
1,1,2,2-Tetrachloroethane	1.0 ug/l	98 +/- 9	0-9	1.0 ug/l
1,1,1,2-Tetrachloroethane	1.0 ug/l	100 +/- 6	0-6	1.0 ug/l
Tetrachloroethene	1.0 ug/l	103 +/- 6	0-6	1.0 ug/l
1,1,1-Trichloroethane	1.0 ug/l	91 +/- 6	0-6	1.0 ug/l
1,1,2-Trichloroethane	1.0 ug/l	100 +/- 9	0-9	1.0 ug/l
Trichloroethene	1.0 ug/l	92 +/- 9	0-9	1.0 ug/l
Trichlorofluoromethane	1.0 ug/l	105 +/- 9	0-9	1.0 ug/l
1,2,3-Trichloropropane	1.0 ug/l	101 +/- 12	0-12	1.0 ug/l
Vinyl Chloride	1.0 ug/l	110 +/- 18	0-18	1.0 ug/l
cis 1,2-Dichloroethene	1.0 ug/l	109 +/- 6	0-6	1.0 ug/l

TABLE 2

602

PARAMETER	MDL	ACCURACY	PRECISION	PQL
Benzene	1.0 ug/l	105 +/- 12	0-12	1.0 ug/l
Chlorobenzene	1.0 ug/l	102 +/- 15	0-15	1.0 ug/l
1,2-Dichlorobenzene	1.0 ug/l	104 +/- 6	0-6	1.0 ug/l
1,3-Dichlorobenzene	1.0 ug/l	101 +/- 6	0-6	1.0 ug/l
1,4-Dichlorobenzene	1.0 ug/l	106 +/- 9	0-9	1.0 ug/l
Ethylbenzene	1.0 ug/l	101 +/- 15	0-15	1.0 ug/l
MTBE	5.0 ug/l	118 +/- 24	0-24	5.0 ug/l
Toluene	1.0 ug/l	98 +/- 6	0-6	1.0 ug/l
m&p Xylenes	1.0 ug/l	100 +/- 12	0-12	1.0 ug/l
o-Xylene	1.0 ug/l	100 +/- 12	0-12	1.0 ug/l

TABLE 3
8021

PARAMETER	MDL	ACCURACY	PRECISION	PQL
Bromobenzene	1.0 ug/l	75-120	20	5 ug/kg
Bromodichloromethane	1.0 ug/l	75-120	20	5 ug/kg
Bromoform	1.0 ug/l	75-120	20	5 ug/kg
Bromomethane	1.0 ug/l	75-120	20	5 ug/kg
Carbon Tetrachloride	1.0 ug/l	49-148	15	5 ug/kg
Chlorobenzene	1.0 ug/l	66-130	18	5 ug/kg
Chloroethane	1.0 ug/l	75-120	20	5 ug/kg
2-Chloroethyl vinyl Ether	1.0 ug/l	70-125	20	5 ug/kg
Chloroform	1.0 ug/l	75-120	20	5 ug/kg
Chloromethane	1.0 ug/l	75-120	20	5 ug/kg
Dibromocloromethane	1.0 ug/l	75-120	20	5 ug/kg
Dibromomethane	1.0 ug/l	75-120	20	5 ug/kg
1,2 Dichlorobenzene	1.0 ug/l	75-120	20	5 ug/kg
1,3 Dichloroethene	1.0 ug/l	75-120	20	5 ug/kg
1,4 Dichlorobenzene	1.0 ug/l	75-120	20	5 ug/kg
1,1 Dichloroethane	1.0 ug/l	75-120	20	5 ug/kg
Dichlorodifluoromethane	1.0 ug/l	75-120	20	5 ug/kg
1,2 Dichloroethane	1.0 ug/l	75-120	20	5 ug/kg
1,1 Dichloroethene	1.0 ug/l	51-150	18	5 ug/kg
trans-1,2 Dichloroethene	1.0 ug/l	75-120	20	5 ug/kg
1,2 Dichloropropane	1.0 ug/l	75-120	20	5 ug/kg
cis-1,3 Dichloropropene	1.0 ug/l	70-125	20	5 ug/kg
trans-1,3 Dichloropropene	1.0 ug/l	70-125	20	5 ug/kg
Methylene Chloride	1.0 ug/l	75-120	20	5 ug/kg
1,1,2,2-Tetrachloroethane	1.0 ug/l	75-125	20	5 ug/kg
1,1,1,2-Tetrachloroethane	1.0 ug/l	75-120	20	5 ug/kg
Tetrachloroethene	1.0 ug/l	75-120	20	5 ug/kg
1,1,1-Trichloroethane	1.0 ug/l	75-120	20	5 ug/kg
1,1,2-Trichloroethane	1.0 ug/l	75-120	20	5 ug/kg
Trichloroethene	1.0 ug/l	59-144	18	5 ug/kg
Trichlorofluoromethane	1.0 ug/l	70-125	20	5 ug/kg
1,2,3-Trichloropropane	1.0 ug/l	75-120	20	5 ug/kg
Vinyl Chloride	1.0 ug/l	75-120	20	5 ug/kg
cis 1,2-Dichloroethene	1.0 ug/l	75-120	20	5 ug/kg
Benzene	1.0 ug/l	59-143	18	5 ug/kg
Ethylbenzene	1.0 ug/l	42-157	19	5 ug/kg
MTBE	5.0 ug/l	70-125	20	5 ug/kg
Toluene	1.0 ug/l	75-120	20	5 ug/kg
m&p Xylenes	1.0 ug/l	75-120	20	5 ug/kg
o-Xylene	1.0 ug/l	75-120	20	5 ug/kg
Bromochloromethane	1.0 ug/l	75-120	20	5 ug/kg
n-Butylbenzene	1.0 ug/l	75-120	20	5 ug/kg
sec-Butylbenzene	1.0 ug/l	75-120	20	5 ug/kg
tert-Butylbenzene	1.0 ug/l	75-120	20	5 ug/kg
2-Chlorotoluene	1.0 ug/l	75-120	20	5 ug/kg
4-Chlorotoluene	1.0 ug/l	75-120	20	5 ug/kg
1,3 Dichloropropane	1.0 ug/l	75-120	20	5 ug/kg
2,2 Dichloropropane	1.0 ug/l	75-120	20	5 ug/kg
1,1 Dichloropropene	1.0 ug/l	75-120	20	5 ug/kg

TABLE 4
TPH-FL (Water)

PARAMETER	MDL	ACCURACY	PRECISION	PQL
Total PHS	1 mg/l	84-111	4.6	1 mg/l

TABLE 5
TPH-FL (Soil)

PARAMETER	MDL	ACCURACY	PRECISION	PQL
Total PHS	4.0 mg/l	53-111	11	4.0 mg/l

TABLE 6
8100

PARAMETER	MDL	ACCURACY	PRECISION	PQL
Acenaphthene	70 ug/kg	68-112	8	160 ug/kg
Acenaphthylene	70 ug/kg	67-115	9	160 ug/kg
Anthracene	70 ug/kg	69-120	9	160 ug/kg
Benzo(a)anthracene	70 ug/kg	73-133	14	160 ug/kg
Benzo(a)pyrene	70 ug/kg	69-124	15	160 ug/kg
Benzo(b)fluoranthene	70 ug/kg	69-114	15	160 ug/kg
Benzo(ghi)perylene	70 ug/kg	68-111	16	160 ug/kg
Benzo(k)fluoranthene	70 ug/kg	65-126	20	160 ug/kg
Chrysene	70 ug/kg	80-119	27	160 ug/kg
Dibenzo(ah)anthracene	70 ug/kg	68-121	9	160 ug/kg
Fluoranthene	70 ug/kg	70-128	10	160 ug/kg
Fluorene	70 ug/kg	74-131	24	160 ug/kg
Indeno(123cd)pyrene	70 ug/kg	69-129	9	160 ug/kg
Napthalene	70 ug/kg	73-119	12	160 ug/kg
1-Methyl naphthalene	70 ug/kg	76-117	14	160 ug/kg
2-Methyl naphthalene	70 ug/kg	74-114	12	160 ug/kg
Phenanthrene	70 ug/kg	73-106	12	160 ug/kg
Pyrene	70 ug/kg	75-134	20	160 ug/kg

TABLE 7
8310

PARAMETER	MDL	ACCURACY	PRECISION	PQL
Acenaphthene	10 ug/l	45-133	33	5 ug/l
Acenaphthylene	10 ug/l	45-133	25	5 ug/l
Anthracene	10 ug/l	45-133	25	5 ug/l
Benzo(a)anthracene	.20 ug/l	45-133	25	.2 ug/l
Benzo(a)pyrene	.20 ug/l	45-133	25	.25 ug/l
Benzo(b)fluoranthene	.20 ug/l	45-133	25	.2 ug/l
Benzo(ghi)perylene	10 ug/l	45-133	25	.2 ug/l
Benzo(k)fluoranthene	.50 ug/l	45-133	25	.25 ug/l
Chrysene	2 ug/l	45-133	25	.01 ug/l
Dibenzo(ah)anthracene	.20 ug/l	45-133	25	.2 ug/l
Fluoranthene	10 ug/l	45-133	25	.2 ug/l
Fluorene	10 ug/l	45-133	25	.01 ug/l
Indeno(123cd)pyrene	.20 ug/l	45-133	25	.10 ug/l
Napthalene	1.0 ug/l	45-133	25	.05 ug/l
1-Methyl naphthalene	1.0 ug/l	45-133	25	.05 ug/l
2-Methyl naphthalene	1.0 ug/l	45-133	25	.05 ug/l
Phenanthrene	10 ug/l	45-133	30	.025 ug/l
Pyrene	10 ug/l	45-133	25	.25 ug/l

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Appen I	

APPENDIX I

APPLICABLE FDEP CHAPTER 62-160, FAC

SOP'S FOR QAPP FIELD SAMPLING ACTIVITIES

I-1	FA 1000 - Regulatory Scope and Administrative Procedures for Use of DEP SOPs
I-2	FC 1000 - Cleaning Procedures
I-3	FD 1000 - Documentation Procedures
1-4	FQ 1000 - Field Quality Control Requirements
1-5	FS 2200 - Groundwater Sampling
I-6	FS 3000 - Soil
I-7	FT 1100 - Field Measurement of Hydrogen Ion Activity (pH)
I-8	FT 1200 - Field Measurement of Specific Conductivity
I-9	FT 1400 - Field Measurement of Temperature
I-10	FT 1500 - Field Measurement of Dissolved Oxygen
I-11	FT 1600 - Field Measurement of Turbidity
I-12	FT 1000 - General Field Testing and Measurement

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Appen. 1-1	

APPENDIX I-1

FA 1000 - REGULATORY SCOPE AND ADMINISTRATIVE PROCEDURES

FOR USE OF DEP SOPs

FA 1000. REGULATORY SCOPE AND ADMINISTRATIVE PROCEDURES FOR USE OF DEP SOPS

FA 1100. Intent and Purpose

This administrative SOP provides guidance and specific instructions concerning the organization and regulatory use of the various components of the collection of DEP SOPs found in DEP-SOP-001/01 (Field Procedures) and DEP-SOP-002/01 (Laboratory Procedures). For those situations where procedures alternative to the DEP SOPs are proposed, see FA 2100, Application to Use Alternative Procedures. In addition, quality assurance management recommendations and requirements for implementation of the DEP SOPs are discussed in FA 3000, Quality Systems. Auditing protocols used by DEP to evaluate individuals and organizations for compliance with the DEP SOPs are described in FA 4000. Minimum personnel qualifications required for certain DEP SOP activities are listed in FA 5000. Definitions and terms used throughout the DEP SOPs are included in the Tables and Glossary included in the Appendix to FA 1000.

1. TERMS SPECIFIC TO RECOMMENDED AND REQUIRED PROCEDURES

Although the entire collection of DEP SOPs comprises minimum requirements under the DEP Quality Assurance Rule, 62-160, F.A.C., certain provisions in the DEP SOPs specifically describe recommendations that are suggestive and not mandatory. In addition, certain requirements may likewise be emphasized in the text of DEP SOPs according to the terms defined below.

1.1. When the words "shall" or "must" are associated with a procedure or other item, the item is mandatory and required in all cases.

1.2. When the words "should" or "may" are used, the referenced item is recommended or suggested but not mandatory.

2. COMPLIANCE WITH HEALTH & SAFETY AND WASTE DISPOSAL REGULATIONS

The collection of DEP SOPs is not intended to provide guidance on compliance with personal protection, health & safety or waste disposal regulations. Users of the DEP SOPs should ensure that the requirements of all local, state and federal regulations concerning personal protection, health & safety planning and the storage and disposal of any hazardous or investigation-derived wastes are fulfilled when performing the procedures described in the DEP SOPs.

3. DISCLAIMER FOR USE OF TRADE NAMES

Trade names are used in certain DEP SOPs to provide examples of equipment or materials appropriate for use according to the indicated procedures. Other brand names of equipment of equivalent design, construction materials and function may be used interchangeably. The use of trade names by DEP does not indicate an endorsement of any commercial product. In rare instances, the listed brand name may be the only item or material of its kind available meeting specifications required by the associated DEP SOP.

FA 1200. Regulatory Use

All parties producing data for use by DEP are required to use applicable DEP SOPs per the DEP Quality Assurance Rule, 62-160.200 & .320, F.A.C.

FA 1210. EXCEPTIONS TO USE

Activities exempted from mandatory use of the DEP SOPs are indicated in the DEP Quality Assurance Rule, 62-160.110 & .210, F.A.C.

FA 1300. Format, Definitions and Terms

FA 1310. SOP FORMAT

The SOPs are divided into major topic areas

1. FA: ADMINISTRATION:
   - 1.1. Outlines the intended use and scope of the SOPs
   - 1.2. Defines:
     - 1.2.1. Terms
     - 1.2.2. Matrices
     - 1.2.3. Analyte groups
   - 1.3. Outlines procedures to be used when applying for alternative field procedures and how they will be used.
   - 1.4. Discusses the required elements of a quality system, personnel responsibilities and the quality manual.
   - 1.5. Describes auditing procedures used by DEP to evaluate individuals and organizations for compliance with the DEP SOPs.
   - 1.6. Lists personnel qualifications required for performing certain procedures in the DEP SOPs.
2. FC: CLEANING PROCEDURES: Outlines appropriate cleaning procedures for field equipment and sample containers.
3. FD: FIELD DOCUMENTATION:
   - 3.1. Summarizes the types of documentation and records that must be maintained.
   - 3.2. Provides field forms that may be used by organizations.
4. FM: FIELD PLANNING AND MOBILIZATION:
   - 4.1. Discusses recommended procedures for obtaining laboratory services.
   - 4.2. Discusses recommended activities to be performed before beginning a sample collection project.
5. FQ: FIELD QUALITY CONTROL:
   - 5.1. Discusses the types of quality control measures that may be used by sampling organizations.
   - 5.2. Outlines the mandatory quality control samples to be collected.
   - 5.3. Discusses the quality control measures that are associated with field measurements.
6. FS: FIELD SAMPLING: Discusses sample collection procedures based on source:

6.1. General sampling procedures applicable to all sampling activities including construction materials, container types, preservation and holding times.

6.2. General aqueous sampling procedures applicable to collecting all water samples

6.3. Specific SOPs for:

- Surface Water
- Groundwater
- Drinking water
- Wastewater
- Soils
- Sediment
- Waste
- Biological Tissues
- Biological Community
- Contaminated Surface Sampling
- Ultra Trace Metal Sampling

7. FT: FIELD TEST MEASUREMENTS: Discusses procedures to calibrate and maintain instruments and perform field measurements for:

- pH
- Specific Conductance
- Salinity
- Temperature
- Dissolved Oxygen
- Turbidity
- Light Penetration (Transparency and Secchi Depth)
- Water Flow and Velocity (Discharge)
- Multi Parameter Meters
- Residual Chlorine
- Sulfites
- Ferrous Iron
- Combustible and Explosive Gases
- Oxidation Reduction Potential
- Sediment Oxygen Demand
- Aquatic Biological Habitat Characterization

8. LD: DOCUMENTATION FOR LABORATORY PROCEDURES: Lists documentation requirements for the following laboratory procedures not discussed in the NELAC Quality Systems standards:

- Determination of Biological Indices
- Quality Control for Biological Community Analysis

9. LQ: LABORATORY QUALITY CONTROL: Describes quality control for the following laboratory procedures not discussed in the NELAC Quality Systems standards:

- Benthic Macroinvertebrate Taxonomic Identification and Enumeration

10. LT: LABORATORY TESTING PROCEDURES: Describes laboratory methods for procedures not discussed in the NELAC Quality Systems standards:

- Biological laboratory procedures for taxonomic identification and enumeration of benthic macroinvertebrates
- Calculation of Biorecon, Stream Condition and Lake Condition indices

FA 1320. SOP GLOSSARY

The glossary, found in FA 1000, Appendix A defines the terms used throughout the DEP SOPs.

FA 1330. MATRIX DEFINITIONS

Table FA 1000-1 identifies and defines the sample-collection matrices that are used throughout the DEP SOPs.

FA 1340. ANALYTE GROUP DEFINITIONS

Tables FA 1000-2 and FA 1000-3 identify and define the sample-collection analyte groups as used throughout the DEP SOPs.

FA 2000. GENERAL ADMINISTRATIVE PROCEDURES

FA 2100. Application to Use Alternative Procedures

1. INTRODUCTION

When protocols described in the collection of DEP SOPs are unsuitable for a specific application, use alternative procedures approved by DEP according to the following conditions and instructions.

2. SCOPE, REGULATORY REQUIREMENTS AND EXCLUSIONS

2.1. The procedures in the DEP SOPs are minimum requirements for sample collection, sample handling, field testing and certain laboratory procedures used to generate data for DEP use. Per the DEP Quality Assurance Rule, 62-160.210 & .330, F.A.C., alternative and new procedures require preapproval by DEP before use on a project. Apply for approval to use alternatives to the DEP SOPs except for those DEP SOPs and alternative or new procedures described or listed in sections 2.1.1 – 2.3 below.

2.1.1. Certain DEP SOPs will provide for allowable alternatives to the indicated procedures. See specific SOPs for a description of these preapproved alternatives.

2.1.2. Per the DEP Quality Assurance Rule, 62-160.600, F.A.C., procedures employed for research purposes are not considered alternative procedures. Submit applications for approval of proposed alternative or new procedures only where permits, consent decrees or other legal orders, voluntary agreements or contract provisions have specified a *required* use of the DEP SOPs for research projects and alternative procedures are instead proposed.

2.1.2.1. Submit research procedures proposed to be incorporated into the collection of DEP SOPs according to FA 2240 below.

2.1.3. Alternative or new procedures submitted in DEP-approved Quality Assurance Plans prior to the adoption of the collection of DEP SOPs in SOP-DEP-001/01 and SOP-DEP-002/01 may be approved by DEP for future specific projects without modification. In these cases, the requirements indicated in FA 2200 – FA 2230 may be waived by DEP.

2.1.4. Per the DEP QA Rule, 62-160.210, F.A.C., alternative or new procedures submitted under the provisions of DEP contracts, permits or orders and approved by DEP prior to the effective date of the collection of DEP SOPs in SOP-DEP-001/01 and SOP-DEP-002/01 remain approved for the duration of the project associated with the contract, permit or order. The requirements indicated in FA 2200 – FA 2230 are waived for these procedures.

2.1.5. Procedures used by the DEP Bureau of Emergency Response or its designated representatives and contractors to collect samples under regulations governing emergency response incidents may deviate from the requirements in the DEP SOPs without preapproval to the extent necessary to protect human health, public safety and the environment. The requirements indicated in FA 2200 – FA 2230 are waived for these procedures.

2.2. DEP SOPs Not Requiring Preapproved Alternatives

- FC 1000-1430 and Appendix
- FS 8200

2.3. Excluded Modifications to DEP SOPs

The following DEP SOPs cannot be modified or replaced by alternative or new procedures:

- FS 7000, Biological Community Sampling
- FT 3000, Biological Habitat Assessment
- LT 7000, Determination of Biological Indices

FA 2200. Review and Approval of Alternative Procedures

1. GENERAL INSTRUCTIONS

1.1. Submit all applications for alternative procedures to the DEP project manager assigned to the site, project, permit or contract. Do not send applications to DEP headquarters offices in Tallahassee unless the project manager is stationed in Tallahassee or the application is submitted for general approval as a statewide-use procedure.

1.2. Do not commence using the alternative procedure until approval is granted by DEP.

1.2.1. DEP may impose specific conditions on the use of the alternative procedure or request modifications to the procedure before approval.

FA 2210. General Description of Alternative Procedures

The degree of modification of a published DEP SOP or the specifications of a proposed new procedure will in part determine whether the procedure is deemed alternative. Evaluate proposed procedures according to the following criteria in determining whether to apply for alternative or new procedure approval.

1. Included Modifications and Effects Associated with Alternative or New Sampling Procedures:

Procedures containing the following modifications or potentially producing the indicated effects require the submittal of applications for approval as alternative or new procedures.

1.1. Step-wise, procedural modifications using the equipment specified in an affected FDEP SOP that alter the integrity, nature or representativeness of the sample, as determined by comparison with the published DEP SOP.

1.1.1. *Where the proposed alternative is claimed to offer an improvement over the published DEP SOP, this criterion may facilitate approval.*

1.2. Modifications in the use of materials of construction of equipment or containers that may potentially contaminate the sample with substances that may interfere with sample preservation or analysis or that may otherwise result in a loss or fortification (contamination) of analytes or parameters of interest in the sample

1.3. Use of substantially different equipment as an alternative to the equipment prescribed in the affected DEP SOP.

1.4. Use of substitute reagents or chemicals, where applicable, to sample collection procedures.

1.5. Use of entirely new procedures or technology not discussed in the DEP SOPs. These procedures are defined as **new procedures**.

2. Modifications to Field Testing Methods and New Field Testing Methods

Alternative field-testing methods of all types are subject to the provisions of the DEP Quality Assurance Rule, 62-160.330 FAC, for approval of alternative analytical methods.

3. Modifications to Sample Preservation Protocols/New Preservation Protocols

Sample preservation procedures of all types are subject to the provisions of the DEP Quality Assurance Rule, 62-160.400 F.A.C., which references approved sample preservation protocols listed in FS 1000. Alternative procedures for sample preservation, container types and sample storage are subject to the preapproval requirements described in FA 2100 – FA 2230.

FA 2220. General Criteria for Approval of Alternative Procedures

1. The approval of all proposed alternative and new procedures is dependent upon fulfillment of the following general criteria.

1.1. Alternative procedures must be appropriate for the Data Quality Objectives (DQOs) established for the project for which the alternative procedure is proposed.

1.2. Where applicable, the alternative procedure must be demonstrated to be equivalent to the DEP SOP that the alternative procedure is proposed to replace. Performance that exceeds the performance of the published DEP SOP may satisfy this requirement.

1.3. Approval may not be granted if the procedure produces data unusable by DEP for the fulfillment of DQOs, or if the procedure produces data that are not comparable to or are otherwise incompatible for use with existing DEP data generated by other approved procedures.

1.4. Approval may not be granted if the alternative procedure is shown to produce data at obvious risk of being invalidated according to the requirements of the DEP Quality Assurance Rule, 62-160.670, F.A.C. or according to data validation criteria established by DEP as specific DQOs for the affected project(s).

1.5. Procedures developed by consensus or standardization organizations, such as ASTM, EPA or USGS, or by manufacturers or vendors and derived from collaborative studies, will be considered on merit for approval as published by the standard-setting organization or commercial interest.

1.6. Approval of alternative or new procedures of all types is independent of the operating party and may be used by any entity for the affected project for which the procedure is approved.

1.7. Each proposed alternative or new procedure will be evaluated on an individual basis against these criteria according to the specific requirements of the project for which the alternative or new procedure will be used.

2. Although most requests for alternative procedure approval must be routed through the designated DEP project or contract manager for a site or project, approval will be granted by DEP through internal review that includes other staff in addition to the project manager.

3. See additional discussion for statewide-use approval in FA 2230, section 2.

FA 2230. PROJECT-SPECIFIC AND STATEWIDE-USE ALTERNATIVE PROCEDURES

The protocol for applying for alternative procedure approval differs depending on whether the alternative or new procedure is intended for project-specific or statewide use, and will determine the scope of approval for the procedure.

1. PROJECT-SPECIFIC ALTERNATIVE FIELD PROCEDURES: Submit all applications for project-specific alternative or new procedures to the DEP project manager assigned to the project, legal case, site, permit, order, contract or other agreement. Approvals of project-specific procedures are subject to the following:

1.1. Apply for project-specific alternative procedures on a site or project basis. The approval will not be portable and the alternative procedures cannot be used on other sites or projects, **but may be used by any party performing the alternative procedure approved for the affected project.**

1.1.1. Alternative procedures employed for experimental purposes where data derived from the alternative procedure will not be used by DEP may be handled informally with the DEP project manager and are not subject to the approval requirements of this SOP.

1.1.2. The statewide-use application will not be required for any project-specific approval, but a statewide-use approval for an alternative procedure may satisfy project-specific approval requirements.

2. STATEWIDE-USE ALTERNATIVE FIELD PROCEDURES:

2.1. Submit applications for approval for alternative or new procedures for statewide use for general approval or for use on multiple sites in the state.

2.1.1. Statewide-use procedures require the design of a collaborative multi-party study to investigate the efficacy of the proposed procedure for specified site conditions and sample types. An evaluation of the proposed procedure on multiple sites may be required. Each application will be considered on a case-by-case basis by DEP. Approval for statewide use does not guarantee applicability of the procedure for all projects.

2.1.2. The statewide-use application will not be required for any project-specific approval, but a statewide-use approval for an alternative or new procedure may satisfy project-specific approval requirements.

2.2. Submit written study designs and applications for approval to the DEP project manager assigned to the project, site, permit, case, contract or other agreement. If the procedure is being submitted for general approval and not for use on a specific project, submit the application for approval to the Environmental Assessment Section (EAS) at DEP headquarters in Tallahassee.

2.2.1. Consult with the DEP project manager or the EAS prior to submittal. The format and content of the application, as well as the study design, will be determined on a case-by-case basis in collaboration with all affected parties.

2.3. Procedures approved for statewide use become part of the public domain and are made available to any party.

2.3.1. DEP will not accept applications for alternative or new procedures for statewide use where proprietary rights, exclusive use or other limitations on use of the procedures are claimed.

FA 2240. ADDITION OF ALTERNATIVE PROCEDURES TO THE COLLECTION OF FDEP SOPS

1. Incorporation of procedures or methods into the collection of DEP SOPs requires approval of the procedure or method for Statewide Use, per the DEP Quality Assurance Rule, 62-160.210 & .330, F.A.C.

1.1. See FA 2230, section 2, above.

2. Upon request to the Environmental Assessment Section at DEP headquarters in Tallahassee, and after approval for statewide use, the procedure will be added to the collection of FDEP SOPs at the next publication date.

2.1. Approval for statewide use is effective at the time of original approval of the procedure or method, regardless of publication date of the revised collection of DEP SOPs.

FA 3000. QUALITY SYSTEMS

Each organization shall establish and maintain a quality system that will:

1. Identify, implement and promote quality assurance policies and procedures that will produce data of a known and verifiable quality;

2. Create and/or identify and follow standard operating procedures for all activities, both technical and administrative;

3. Monitor adherence to the established policies, procedures and written standard operating procedures;

4. Establish and use procedures for continual improvement through both corrective and preventive action policies; and

5. Monitor the quality of the organization's product.

FA 3100. Quality Assurance Policies and Procedures

Each organization shall ensure that there are policies and procedures in place for the following activities:

1. ORGANIZATION

   1.1. Policies and procedures on how information concerning quality assurance issues are distributed and communicated.

   1.2. Personnel procedures and documentation - FDEP will review this type of information relative to the understanding and training of each individual for their assigned duties and quality assurance responsibilities. DEP will assess these items:

   - Hiring procedures and policies;
   - Position qualifications including education and experience requirements
   - Training requirements and training records
   - Position descriptions
   - Expectations on ethical behavior
   - Consequences of poor performance, unethical behavior or any activity that might misrepresent the quality of the organization's work.

2. REVIEW AND ASSESSMENT

   2.1. Procedures on how data are reviewed, evaluated and reported.

   2.2. Policies concerning how non-standard or unacceptable results are handled.

   2.3. Procedures describing how the entire quality system is monitored (audited) at the technical and managerial level.

   2.4. Policies and procedures on how external audits are reviewed and used.

   2.5. Policies and procedures on how the outcome of all audits are handled including initiating and monitoring both corrective and preventive actions.

      2.5.1. Identification of key personnel who are responsible for ensuring that the system is evaluated and for issuing audit reports and follow-up corrective/preventive action summaries.

      2.5.2. Identification of key personnel who review such reports and are in a position to make decisions about the effectiveness of the quality system.

   2.6. Policies and procedures on how to deal with activities that did not follow the organization's procedures.

2.7. Policies and procedures on how to document the use of procedures that are different from those in the FDEP SOPs or are new technology.

3. CLIENT SERVICES

3.1. Policies and procedures that are used to review requests for services.

3.2. Policies and procedures relating to how customer concerns or complaints about any activity addressed in the FDEP SOPs are handled. This must include but is not limited to conducting audits and initiating corrective actions

3.3. When applicable, policies and procedures to ensure and protect client confidentiality.

4. PROCUREMENT: These policies must reflect the specifications and requirements the FDEP SOPs as well as any additional considerations an organization might impose on how purchases are made.

4.1. Policies and procedures describing how equipment, supplies and other services are obtained including:

4.1.1. Specifications for equipment, containers, testing equipment, reagents and other supplies; and

4.1.2. Specifications and procedures for obtaining laboratory services.

FA 3200. Quality Assurance Responsibilities

Each individual in an organization has a responsibility for ensuring that their assigned tasks meet the organization's stated quality assurance goals, policies and procedures.

The following discussions assign certain tasks to various levels of responsibility. FDEP recognizes that the organization structure within a company may vary. With the exception of the QA Officer, the duties specified below may differ from suggested job titles and may be assigned to more than one person.

All tasks outlined below must be performed by an individual or individuals within the organization.

FA 3210. QUALITY ASSURANCE OFFICER

The role of the Quality Assurance Officer (QAO) is one of oversight. In addition to coordinating and overseeing data quality activities, monitoring adherence to company policies and procedures and corrective actions, the QAO must have the ability and authority to recommend and implement immediate corrective measures, without going through chains of command. Therefore, organizational and functional position of QAO cannot be placed in direct lines of authority.

The Quality Assurance Officer must be able to objectively evaluate data and perform audits without outside influences. The responsibilities of the QAO may be divided among several individuals (i.e. corporate QAO, regional QA managers) and the designated QA Officer may be assigned other duties (e.g., project management). However, any other responsibilities cannot bias the performance of these tasks:

1. Reviews quality control data to determine if data are acceptable;

2. Performs annual systems audits to ensure compliance with all quality assurance plans and standard operating procedures;

3. Distributes results of internal and external audits to management and all affected individuals;
   3.1. Oversees responses to internal and external audits;
   3.2. Oversees and recommends corrective actions as a result of the audits;
   3.3. Verifies corrective action implementation.
4. Oversees administration of performance audits;
5. Coordinates preparation of quality assurance reports to management, clients and regulatory agencies;
6. Coordinates and oversees the preparation of quality manuals and quality assurance project plans;
7. Reviews new or proposed procedures to determine appropriate use. Also reviews associated method validation information;
8. Reviews, in writing, initiated corrective actions to assure effectiveness. Recommends additional measures if necessary.

FA 3220. TECHNICIAN LEVEL

The field technician or sample collector must:

1. Perform field measurement tests according to FDEP SOPs including calibrations;
2. Verify that all calculations (e.g., purge volume) are correct;
3. Collect samples following the FDEP SOPs (or company SOPs) using appropriate equipment;
4. Ensure that sample containers are properly and accurately labeled;
5. Ensure that appropriate preservatives are added and that appropriate sample containers are used to collect required fractions;
6. Legibly and fully document all activities in field logs or field data sheets;
7. Ensure that all field information is accurately recorded;
8. Identify and/or document potential quality control problems (e.g., unacceptable calibrations, environmental conditions, procedure and equipment variances, etc.); and
9. Maintain equipment and test instruments in working condition, and document all preventative maintenance and repairs.
10. Implement any corrective action procedures that are a result of any type of audit.

FA 3230. SUPERVISORS AND/OR SUBSECTION/SECTION MANAGEMENT

These individuals must:

1. Ensure that all activities (either sampling or field or laboratory testing) are performed according to methods and protocols specified in any quality planning document, sampling and analysis plan and the FDEP SOPs.
2. Review all field and laboratory generated data by:
   2.1. Checking documentation for completeness and proper sample identification;

2.2. Checking raw data for calculation, interpretation or clerical errors

2.3. Assuring that produced quality control data are acceptable

3. Coordinate analytical work or field activities to assure that completion of all tasks within established time frames.

4. Oversee preventative maintenance activities.

5. Evaluate and implement changes in methodology and quality control measures.

6. Identify quality control problems and takes measures to correct or eliminate the problem source.

7. Monitor and/or implement any corrective action procedures that are a result of any audit type.

8. Assume the responsibility for validating all field generated documentation and data and ensure that final field reports are accurate before final review by management.

FA 3240. PROJECT MANAGEMENT

1. Acts as a liaison between the client and the organization.

2. Oversees and coordinates project activities including workplans, quality assurance plans, data quality objectives, standard operating procedures and scheduling.

3. Ensures that there are adequate qualified personnel, equipment and time to produce a completed project of a specified quality.

4. Reviews project data prior to final report to assure that all data (field and laboratory) are acceptable and within specified project objectives.

FA 3250. MANAGEMENT

These individual(s) are responsible for overall operation of the organization including fiscal resources and personnel. They must:

1. Ensure that all organizational activities are conducted according the organization's established quality system, quality manual and standard operating procedures and that all policies and procedures are consistent with the quality manual.

2. Conduct management reviews at regularly scheduled intervals, not to exceed 12 months:

2.1. The review and the procedures for such a review must be documented.

2.2. The review must assess the organization's quality system, and related activities to determine the effectiveness of the system, and its continuing suitability. The review must include, but is not limited to:

- Policy and procedures review
- Outcome of internal and external audits
- Corrective and preventative actions
- Reports from managerial and supervisory staff
- Changes in volume and type of work
- Client feedback

- Complaints and their resolution
- Staff training

2.3. The findings and recommendations of this management review must be documented, as well as any actions that are the result of the review.

3. Ensure that there is sufficient managerial, technical and support staff with the authority and resources (equipment, etc.) to perform their stated duties.

4. Establish procedures to ensure that all personnel are free from any undue internal or external commercial, financial and other pressures or influences that may adversely affect the performance and quality of their work.

5. Ensure that the staff has the necessary education, experience and/or training to perform their stated duties.

FA 3300. Quality Manual

Each organization must have a quality manual that outlines their quality system, quality assurance policies and quality control procedures. All topics specified in FA 3100 and 3200 must be addressed by descriptive discussions or reference to specific policies and procedures.

At a minimum, the quality manual must address the following:

1. A title page signed by the quality assurance officer(s), and the highest level of management responsible for field activities with:

- Document Title
- Organization's full name, address and telephone number
- Identification of all major organizational units covered by the document
- The effective date of the version.

2. A table of Contents, and applicable lists of references, glossaries, appendices, tables and figures.

3. A statement of policy which must outline the organization's commitment to generating data through the use of sound Quality Assurance and Quality Control management practices.

4. An ethics statement which must outline (or make reference to) the organization's ethics policy and employee training on ethics.

5. ORGANIZATIONAL TOPICS:

5.1. A discussion on the organizational structure, including lines of authority, identification of key personnel and their responsibilities, the relationship of all units (including administration, management and support services) to the quality system,

5.2. Stated job descriptions for all staff or reference to such information

5.3. A list of all approved signatories (e.g., Professional Geologist, Professional Engineer, Quality Assurance Officer).

5.4. Discussion on or reference to procedures and policies dealing with employee credentials and training.

6. DOCUMENTATION

6.1. Discussion on or reference to procedures and policies concerning how records are generated, retained and stored.

6.2. Discussion on or reference to procedures dealing with how documentation is controlled and maintained.

6.3. Discussion on or reference to the types of documents/reports that are generated by the organization.

6.4. Discussion on or reference to procedures to ensure accurate sample identification and data integrity.

6.5. Discussion on or reference to procedures to project client confidentiality (when applicable).

7. CAPABILITIES

7.1. Specify the organization's capabilities. This must include the types of sampling, sampling matrix and laboratory and field testing relevant to execution of the FDEP SOPs, and may include other services such as hydrology, engineering, etc.

7.2. Reference to the specific sampling procedures to be used.

7.3. List all field and laboratory test methods

7.4. List the types of field and laboratory instruments and equipment used by the organization for implementation of the FDEP SOPs.

7.5. Reference to or discussion on how samples are handled and transported/submitted to a laboratory.

8. EQUIPMENT AND INSTRUMENTS

8.1. Discussion on or reference to procedures used for calibrating instruments; source, preparation and documentation of standards; and procedures used to generate, assess and document calibrations.

8.2. Discussion on or reference to routine procedures used to maintain analytical instruments and sampling equipment and the associated documentation.

9. REVIEW AND ASSESSMENT

9.1. Reference to or discussion on the types of quality control measures to be used. Include:

9.1.1. Types and frequency of field generated quality controls (blanks, replicates, etc.);

9.1.2. Types and frequency of any ongoing quality control program to ensure the accuracy of laboratory data;

9.1.3. The criteria against which each quality control measure will be assessed;

9.2. Discussion on or reference to procedures to be used to review and assess raw data, laboratory data and project data. At a minimum included:

9.2.1. Data reduction: how raw data are reviewed and assessed (including criteria for accepting initial and continuing calibrations), and the formulas for calculating final sample results.

9.2.2. Data verification: how data are assessed with respect to calculations (are the correct values reported?) and to quality control (were the systems in control according to all QC criteria?).

9.2.3. Data validation: how project data are reviewed and assessed, including the content of any reports.

9.3. Discussion on or reference to the criteria for determining when corrective action must be initiated for each QC measure and the procedures used to implement corrective action.

9.4. Discussion on or reference to procedures to be used in the case of deviations from the documented policies and procedures

9.5. Discussion on or reference to the types of performance, systems and management audits to be performed including the frequency, the participants and the process.

10. CONSUMER RELATIONS

10.1. Discussion on or reference to policies and procedures regarding review of proposed work to ensure adequate personnel and equipment.

10.2. Discussion on or reference to policies and procedures for dealing with complaints.

FA 4000. AUDITS AND DATA VALIDATION PROCEDURES

FA 4100. Regulatory Requirements

All field and laboratory procedures conducted in accordance with the DEP SOPs or approved alternative procedures are subject to audits and data validation per the DEP Quality Assurance Rule, 62-160.650 & .660, F.A.C.

FA 4200. Auditing Procedures

DEP audits affected parties for procedural compliance with the applicable sections of the collection of DEP SOPs. The subsections of FA 4200 outline the protocols employed by DEP in conducting these audits. Criteria by which parties are audited and evaluated are also listed according to general topic area and specifically associated DEP SOPs.

FA 4210. (RESERVED)

FA 4220. (RESERVED)

FA 4230. (RESERVED)

FA 4240. (RESERVED)

FA 4250. (RESERVED)

FA 4260. (RESERVED)

FA 4270. AUDITING OF BIOLOGICAL COMMUNITY ASSESSMENT PROCEDURES

Auditing protocols in this section are applicable to biological procedures described in the following DEP SOP series:

- FS 7000
- FT 3000
- LT 7000

FA 4271. Auditing for Stream and River Habitat Benthic Macroinvertebrate Sampling

1. SCOPE AND APPLICABILITY

This auditing protocol is applicable to stream and river benthic macroinvertebrate sampling procedures described in FS 7410 and FS 7420.

1.1. Personnel performing the procedures in FS 7410, Rapid Bioassessment Method (Biorecon) and FS 7420, Stream Condition Index (SCI) Sampling for the purpose of determining biological indices as calculated per LT 7100, Biorecon Determination and LT 7200, Stream Condition Index (SCI) Determination must be audited by DEP according to the auditing protocol described in section 2 below and produce a satisfactory evaluation and score according to the audit and scoring criteria listed below in sections 3 & 4.

2. AUDITING PROTOCOL FOR STREAM AND RIVER BENTHIC MACROINVERTEBRATE SAMPLING

2.1. General Auditing Protocols

1.1.1. Audits are conducted in an appropriate physical field setting selected by DEP.

1.1.2. Audit candidates are required to provide proper equipment in good working order necessary to conduct sampling.

1.1.3. Audit candidates will be asked a series of questions designed to evaluate their conceptual knowledge of appropriate sampling methods.

1.1.4. Audit candidates are expected to demonstrate satisfactory skill in performing the procedures detailed in the Biorecon and SCI sampling SOPs.

3. AUDITING EVALUATION CRITERIA FOR STREAM AND RIVER BENTHIC MACROINVERTEBRATE SAMPLING

Personnel must demonstrate a satisfactory working knowledge of and demonstrate the ability to perform the following:

3.1. Identify the best available habitats in a 100-meter stream reach (snags, leaf packs, roots, aquatic plants, limerock).

3.1.1. Identification of best available habitat must include the following:

- Length of inundation considered
- Siltation and sedimentation effects considered
- Leaf packs partially decayed
- Flow considerations taken into account

3.2. Discuss and recognize circumstances where SCI or Biorecon sampling should be postponed, e.g., in the event of recent increase in water level or during flooding.

3.3. Know correct number of dipnet sweeps for SCI (20) and Biorecon (4).

3.4. Properly apportion dipnet sweeps to available habitats.

3.5. Efficiently capture invertebrates during dipnet sweeps while properly agitating substrates with at least 3 passes of the dipnet over a 0.5 meter sample area (area sampled is 0.5 meters, plus or minus 0.1 m, absent consistently high or low bias).

3.6. Sample only productive portions of habitats while not diluting sample with unproductive detritus.

3.7. Properly transfer sampled material to sample container (SCI) or pick pan (Biorecon) without sample loss.

3.8. Biorecon Sorting

3.8.1. Dispense proper density of detritus into pick pan for sorting efficiency.

3.8.2. Methodically search for organisms in pick pan.

3.8.3. Efficiently capture organisms using forceps and pipets.

3.8.4. Process entire dipnet contents.

3.8.5. Attain >95% picking efficiency (1 point; between 90% and 95% efficiency, 0.5 point; < 90%, no points, non-attainment).

4. AUDIT EVALUATION SCORING FOR BENTHIC MACROINVERTEBRATE SAMPLING

For mastery of each component in section 3 above, 1 point is awarded. Only 0.5 point is awarded if the applicable component is evaluated as partially correct. To pass, only 0.5 point can be missed (see section 3.8.5 above also).

FA 4272. Auditing for Lake Condition Index (LCI) Sampling

1. SCOPE AND APPLICABILITY

This auditing protocol is applicable to Lake Composite Index (LCI) sampling procedures described in FS 7460.

1.1. Personnel performing the procedures in FS 7460, Lake Composite Index (LCI) Sampling for the purpose of determining the LCI (biological index), as calculated per LT 7300, LCI Determination must be audited by DEP according to the auditing protocol described in section 2 below and produce a satisfactory evaluation and score according to the audit and scoring criteria listed below in sections 3 & 4.

2. AUDITING PROTOCOL FOR LAKE CONDITION INDEX (LCI) SAMPLING

2.1. General Auditing Protocols

2.1.1. Audits are conducted in an appropriate physical field setting selected by DEP.

2.1.2. Audit candidates are required to provide proper equipment in good working order necessary to conduct sampling.

2.1.3. Audit candidates will be asked a series of questions designed to evaluate their conceptual knowledge of appropriate sampling methods.

2.1.4. Audit candidates are expected to demonstrate satisfactory skill in performing the procedures detailed in the LCI sampling SOP.

3. AUDITING EVALUATION CRITERIA FOR LAKE CONDITION INDEX (LCI) SAMPLING

Personnel must demonstrate a satisfactory working knowledge of and demonstrate the ability to perform the following:

3.1. Appropriately subdivide lake into sampling units, using a map, GPS and landmarks (12 subunits in lakes less than 1000 acres, 2-4 subunits in larger systems).

3.2. Discuss and recognize circumstances where LCI sampling is not appropriate and should be replaced by wetlands sampling procedures, i.e., aquatic system with greater than 50% emergent macrophyte cover and depth less than 2 meters.

3.3. Follow correct sampling procedure using dredges:

3.3.1. Deploy dredge from correct location on boat.

3.3.2. Deploy and retrieve dredge to properly sample the benthos.

3.3.3. Collect samples in the requisite sampling unit from the specified water depth (2 to 4 m).

3.3.4. Repeat dredge deployment for each designated sampling unit.

3.4. Correctly process retrieved samples:

3.4.1. Examine the sediment and document visual characteristics on the Composite Lake Sampling Sheet (Form FD 9000-2) or equivalent record.

3.4.2. Check for sample loss from dredge before sieving sample.

3.4.3. Properly sieve sample without losing portions of sample.

3.4.4. Concentrate and transfer sample into collection container without loss.

3.5. Record appropriate location information for collected samples.

4. AUDIT EVALUATION SCORING FOR LAKE CONDITION INDEX (LCI) SAMPLING

For mastery of each component in section 3 above, 1 point is awarded. Only 0.5 point is awarded if the applicable component is evaluated as partially correct. To pass, only 0.5 point can be missed.

FA 4300. Data Validation (Reserved)

FA 5000. FIELD PERSONNEL QUALIFICATIONS AND TRAINING

Certain procedures described in the DEP SOPs necessitate commensurate levels of expertise and proficiency for the user. Minimum qualifications, training and other requirements for personnel are described below for the indicated procedures.

FA 5100. (Reserved)

FA 5200. (Reserved)

FA 5300. (Reserved)

FA 5400. (Reserved)

FA 5500. (Reserved)

FA 5600. (Reserved)

FA 5700. Qualifications and Training for Biological Procedures

FA 5710. Sampling for Benthic Macroinvertebrates

1. Training for Benthic Macroinvertebrate Sampling (Reserved)

2. Qualifications for Benthic Macroinvertebrate Sampling: Personnel performing macroinvertebrate sampling according to FS 7410, Rapid Bioassessment Method (Biorecon) and FS 7420, Stream Condition Index (SCI) Sampling for the purpose of determining biological indices as calculated per LT 7100, Biorecon Determination and LT 7200, Stream Condition Index (SCI) Determination or, according to FS 7460, Lake Composite Index (LCI) Sampling for the purpose of determining the LCI (biological index), as calculated per LT 7300, LCI Determination, must successfully complete an audit evaluation administered by DEP according to FA 4271, Auditing for Stream and River Habitat Benthic Macroinvertebrate Sampling or FA 4272, Auditing for Lake Condition Index (LCI) Sampling, as applicable.

FA 6000. References

1. Florida Department of Environmental Protection, DEP Standard Operating Procedures for Laboratory Operations and Sample Collection Activities, DEP QA-001/92, September 1992.

2. U.S. Environmental Protection Agency, Region 4; Environmental Investigations Standard Operating Procedures and Quality Assurance Manual, May 1996.

3. U.S. Environmental Protection Agency, National Environmental Laboratory Accreditation Conference Constitution, Bylaws and Standards, EPA600/R-99/-68, July 1999.

4. Florida Department of Environmental Protection, DEP Manual for Preparing Quality Assurance Plans, DEP QA001/90, September 1992.

5. Florida Department of Environmental Protection, Chapter 62-160, F.A.C., Quality Assurance, Effective date, September 2001.

Appendix FA 1000
Tables, Figures and Forms

Table FA 1000-1 Sample Collection Matrices

Table FA 1000-2 Aqueous Sample Collection Analyte Groups

Table FA 1000-3 Non-Aqueous Sample Collection Analyte Groups

Glossary

Table FA 1000-1
Sample Collection Matrices

NOTE: Matrix terms are organized on the basis of differentiation of sample collection technique and sample source, not analytical matrix.

1. AQUEOUS ENVIRONMENTAL MATRICES
   - Potable water
   - Groundwater
   - Surface water
   - Rainwater
   - Soil interstitial (pore) water
   - Sediment interstitial (pore) water
   - Stormwater
2. AQUEOUS WASTE MATRICES
   - Aqueous chemical waste
   - Aqueous leachate
   - Aqueous industrial sludge
   - Aqueous domestic wastewater sludge
   - Industrial wastewater
   - Domestic wastewater
3. NON-AQUEOUS ENVIRONMENTAL MATRICES
   - Soil
   - Sediment
4. NON-AQUEOUS WASTE MATRICES
   - Non-aqueous liquid industrial sludge
   - Non-aqueous liquid chemical waste
   - Mixed-media liquid industrial sludge
   - Mixed-media liquid chemical waste
   - Solid industrial waste
   - Solid chemical waste
   - Solid domestic waste
   - Construction & demolition debris
   - Refuse-derived fuel
   - Domestic wastewater sludge cake
   - Industrial sludge cake
   - Compost

Table FA 1000-1
Sample Collection Matrices

Screened material

5. BIOLOGICAL TISSUE MATRICES
   Finfish
   Shellfish
   Mammals
   Birds
   Reptiles
   Other animals
   Plants
6. AIR MATRICES
   Remedial treatment system exhaust
   Soil vapor
7. SUBSTRATES
   Contaminated surfaces
   Natural biological community substrates
   Artificial biological community substrates

Table FA 1000-2
Aqueous Sample Collection Analyte Groups

NOTE: Examples are given for most of the analyte groups listed below, but the lists are not comprehensive. The analyte groups are organized according to the following criteria as they apply to sample collection only: 1) uniqueness of the group name to signify common sample collection technique and compatible sampling equipment materials; 2) familiarity of group name and conventional usage; 3) special sampling technique associated with the group name; and 4) brevity in the interest of avoiding a longer list.

1. VOLATILE ORGANICS: Volatile organic aromatics, volatile organic halocarbons, EDB

2. EXTRACTABLE ORGANICS: Base/neutral/acid individual, synthetic organics typically analyzed by GC, GCMS and HPLC (e.g., phenols, PCBs, PAHs, pesticides, herbicides, dioxins, etc.)

3. PETROLEUM HYDROCARBONS AND OIL & GREASE: Samples collected for all Oil & Grease, TRPH and FL-PRO analyses

4. RADIONUCLIDES: Total Alpha and Beta emitters, but not Radon

5. BIOLOGICALS: Aquatic toxicity tests (biotoxicity/whole effluent toxicity), algal growth potential, phytoplankton and chlorophyll

6. METALS

7. ULTRA-TRACE METALS: Metals collected by "clean-hands" sampling techniques for sub-ppb analyses

8. INORGANIC NON-METALLICS: Nutrients and other inorganic anions, residual chlorine, dissolved oxygen, neutral-charge chemical species

9. AGGREGATE ORGANICS: TOX, BOD, COD, TOC, total phenols and surfactants

10. MICROBIOLOGICAL-BACTERIA: Fecal and total coliforms, enterococcus and fecal strep

11. MICROBIOLOGICAL-PROTOZOA: *Giardia, cryptosporidium* and microscopic particulate analysis (MPA)

12. MICROBIOLOGICAL-VIRUSES

13. VOLATILE INORGANICS: Sulfide, hydrogen sulfide, sulfite

14. PHYSICAL AND AGGREGATE PROPERTIES: Color, conductivity, hardness, alkalinity, odor, residues (solids), turbidity, salinity, asbestos, SOUR test, acidity, hazardous waste characteristics

Table FA 1000-3
Non-Aqueous Sample Collection Analyte Groups

NOTE: This list is applicable to liquid, solid and mixed-phase non-aqueous matrices. Examples are given for most of the analyte groups listed below, but the lists are not comprehensive. The analyte groups are organized according to the following criteria, as they apply to sample collection only: 1) uniqueness of the group name to signify common sample collection technique and compatible sampling equipment materials; 2) familiarity of group name and conventional usage; 3) special sampling technique associated with the group name; and, 4) brevity in the interest of avoiding a longer list

1. VOLATILE ORGANICS: Volatile organic aromatics, volatile organic halocarbons, EDB

2. EXTRACTABLE ORGANICS: Base/neutral/acid individual, synthetic organics typically analyzed by GC, GCMS and HPLC, e.g., phenols, PCBs, PAHs, pesticides, herbicides, dioxins, etc.

3. PETROLEUM HYDROCARBONS AND OIL & GREASE: Samples collected for all Oil & Grease, TRPH and FL-PRO analyses

4. RADIONUCLIDES: Total Alpha and Beta emitters, but not Radon

5. BIOLOGICALS: Benthic macroinvertebrates and periphyton from natural and artificial substrates, toxicity studies conducted in non-aqueous media

6. METALS

7. INORGANIC NON-METALLICS: Nutrients and inorganic anions, neutral-charge chemical species

8. AGGREGATE ORGANICS: TOX, SOD, COD, TOC, total phenols

9. MICROBIOLOGICAL-BACTERIA: Fecal and total coliforms, enterococcus and fecal strep

10. MICROBIOLOGICAL-VIRUSES

11. VOLATILE INORGANICS: Sulfide, hydrogen sulfide

12. PHYSICAL AND AGGREGATE PROPERTIES: Residues (solids), SOUR test, hazardous waste characteristics, particle size, etc.

Glossary

Acceptance criteria	The numerical limits, prescribed by an approved analytical method, internal data or other preestablished data quality objectives, by which an analytical system or analysis result is verified. Also known as control limits. Acceptance criteria are usually established for calibration, precision, sensitivity and accuracy.
Accuracy	The degree of agreement of a measurement (or an average of measurements of the same thing), X, with an accepted reference or true value, T, usually expressed as the difference between the two values, X-T, or the difference as a percentage of the reference or true value, 100 (X-T)/T, and sometimes expressed as a ratio, X/T. Accuracy is a measure of the bias in a system.
Analyte	Any measured quantity reported in final units of concentration.
Analyte group	A categorical grouping of analytes based on shared sample collection procedure and equipment construction restrictions. See Tables FA 1000-1 and FA 1000-2.
Analyte-free water	Water free of all positive or negative analytical interferences in which all analytes of interest are below method detection limits.
Audit	A systematic check to determine the quality of the operation of a function, procedure or activity.
Best management practices (BMPs)	Procedures designed to mitigate against adverse environmental consequences associated with human activities.
Bioaccumulation	The accumulation of contaminants in the tissue of organisms through any route, including respiration, ingestion, or direct contact with contaminated water, sediment, pore water, or dredged material.
Bioconcentration	A process by which there occurs a net accumulation of a chemical directly from water into aquatic organisms resulting from simultaneous uptake (e.g., by gill or epithelial tissue) and elimination.
Biological tissue	Includes tissues of plant or animal origin. The most common of these are shellfish, finfish and aquatic plants.
Biomagnification	Result of the process of bioconcentration and bioaccumulation by which tissue concentrations of bioaccumulated chemicals increase as the chemical passes upwards through two or more trophic levels. The term implies an efficient transfer of chemical from food to consumer, so that residue concentrations increase systematically from one trophic level to the next.
Blank	An artificial quality control sample of an analytical matrix designed to monitor the introduction of artifacts and interferences into a sample collection or analytical system.

Glossary

Blind sample	A quality control sample of known composition whose analytical characteristics are unknown to an audited analyst or organization.
Calibration	The process by which the correlation between instrument response and actual value of a measured analyte or parameter is determined.
Calibration curve	A curve that plots the concentration of known analyte standards against the instrument response to the analyte. Also known as a standard curve.
Calibration standard	Solutions or purified quantities of a substance or material with a verifiable composition that are used to measure the amount or value of an analyte or parameter in an unknown sample. Calibration standards are used to establish a calibration curve or instrument response factor.
Chemical waste	Liquid or solid chemicals that are no longer industrially useful.
Comparability	Expresses the statistical confidence with which one data set can be compared to another.
Confidence level	The statistical probability associated with an interval of variance. Usually expressed as percent probability. The result being tested is significant if the calculated probability is greater than 90 percent and is highly significant if the probability is greater than 99 percent.
Continuing calibration standard	A standard analyzed during a measurement process to verify the accuracy of a calibration curve or other instrument calibration.
Creel census	An assessment of the fish consumption by human populations based on a statistical survey of fish landings by sport and subsistence catches.
Data quality	The features and characteristics of a set of data that determine its suitability for a given purpose. Examples of data quality include accuracy, precision, sensitivity, representativeness and comparability.
Data quality objectives	A set of specifications established for an intended use of a set of data.
Data validation	An audit in which data are evaluated according to predetermined validation criteria established as data quality objectives.
Detection limit	The smallest amount of an analyte that can be measured with a stated probability of significance.
D-frame dipnet	Pole with a No.30 mesh bag attached to a "D-shaped" frame used for the collection of aquatic invertebrates.

Glossary

Drinking water	Includes finished (treated) or raw source water designated as potable water. Drinking water sources may originate from surface or ground water.
Environmental sample	Any sample from a natural or other source that may reasonably be expected to contribute pollution to or receive pollution from ground waters or surface waters of the state. [Definition per Rule 10D-41.101(7), F.A.C.]
Equipment blank	Quality control blanks prepared on-site during sampling by pouring analyte-free water through decontaminated field equipment into appropriate sample containers for each matrix and analyte group of interest. Equipment blanks are chemically preserved, stored, transported and analyzed with the collected field samples.
External	Refers to operations, personnel, documents and protocols from a party that is separate from or outside the specified organization.
Field blanks	Quality control blanks prepared on-site during sampling by pouring analyte-free water into appropriate sample containers for each analyte group of interest. Field blanks are chemically preserved, stored, transported and analyzed with the collected field samples.
Field spike	An environmental sample fortified to a known and validated concentration in the field during sampling. These quality control samples are sometimes submitted as blind samples to the analyzing laboratory.
Frotus	A double rake-head with a line attached and used for collecting submerged aquatic vegetation.
Groundwater	Includes all waters found below ground in confined or unconfined aquifers.
Hester-Dendy artificial substrate (HD)	Artificial substrate of known surface area used for the collection of invertebrates over a known amount of time.
Hydrophobic	A hydrophobic or lipophilic chemical having low water solubility and correspondingly high solubility in lipids or nonpolar solvents.
Instrument detection limit	The smallest amount of an analyte of interest that generates an instrument response (signal) under prescribed conditions such that the magnitude of the signal is larger than the absolute uncertainty (error) associated with the signal.
Intensive study	A study of the temporal and spatial variability of specific contaminants found in the tissues of aquatic organisms living in a body of water impacted by pollution.

Glossary

Interference	Any substance in a sample that may fortify or diminish the amount of an analyte or otherwise affect the ability to detect and quantify an analyte in the sample.
Internal	Refers to operations, personnel, documents and protocols within the specified organization.
Internal standard	A compound having similar chemical characteristics to the compounds of interest but which is not normally found in the environment or does not interfere with the compounds of interest. A known and specified concentration of the standard is added to each sample prior to analyses. The concentration in the sample is based on the response of the internal standard relative to that of the calibration standard and the compound in the standard.
Legal or evidentiary chain of custody	A sample custody protocol in which all personnel, time intervals and supporting activities associated with the collection, possession, handling, processing, analysis, transport, storage and disposal of a specific sample are documented.
Method blank	A blank of an appropriate analyte-free matrix that is processed (digested, extracted, etc.) and analyzed with a specified sample set.
Method detection limit	The smallest amount of an analyte that can be analyzed by a given measurement system under specified conditions of sample processing and analysis and reported with a 99% confidence that the concentration of the analyte in the sample is greater than zero.
Parameter	For the purposes of the FDEP SOPs, any measured quantity not reported in units of concentration.
Parent sample	A sample from which aliquots or subsamples are taken for processing or testing purposes.
Performance audit	An audit where quantitative data are independently obtained for comparison with routinely obtained data in a measurement system. Examples of these audits are EPA performance evaluation programs, commercial performance evaluation programs, split sampling programs involving at least two laboratories and/or sampling organizations and blind samples.
Performance evaluation samples	A sample submitted for analysis whose composition and concentration are known to the submittor but unknown to the analyst. Also known as a blind sample.
Periphytometer	Artificial substrate of known surface area used for collection of algae (specifically periphyton) over a known amount of time.
Periphyton	Aquatic algae attached to natural or artificial substrates.

Glossary

Practical quantitation limit	The smallest concentration of an analyte that can be reported with an associated precision. FDEP defines a practical quantitation limit as: PQL= 4 × MDL.
Precision	A measure of mutual agreement among individual measurements of a parameter or an analyte, usually under prescribed similar conditions. Precision is best expressed in terms of the standard deviation. Various measures of precision are used depending upon the "prescribed similar conditions".
Project audit	An independent review of all sampling and analytical documentation associated with a specific project or event in order to determine if the resulting data are valid and acceptable according to preestablished validation criteria and other data quality objectives. Enough documentation must be available so that a reviewer is able to reconstruct the history of a sample from time of sample collection (or sample container acquisition) through final results and sample disposal.
Quality assurance	The system of management activities and quality control procedures implemented to produce and evaluate data according to preestablished data quality objectives.
Quality assurance plans	An orderly assembly of detailed and specific procedures that delineates how data of known and accepted quality are produced.
Quality assurance project plans	A QA plan written for a specific project outlining data quality objectives, sampling and analytical protocols and QC measures needed to satisfy the intended uses of the data.
Quality control	The system of measurement activities used to document and control the quality of data so that it meets the needs of data users as specified by preestablished data quality objectives.
Quality control check sample	A sample obtained from an independent source for which the level of an analyte has been validated or certified. Also known as a reference material. The sample is prepared and analyzed with a sample set of similar matrix. If the sample has been obtained from the National Institute of Standards and Technology, it is referred to as a Standard Reference Material.
Quality control check standards	Certified and traceable standard solutions or purified materials from a source other than routine calibration standards used to check the accuracy of a calibration.
Quality control checks	Standards or known samples from an independent source that are analyzed at a specified frequency.
Reagent blank	An aliquot of analyte-free water or solvent that is analyzed with a sample set.

Glossary

Reagent spike	Samples of an appropriate analyte-free matrix (deionized water, sand, soil, etc.) that are fortified to a known and validated concentration of analyte(s) before sample preparation and subsequent analysis.
Reagent water	A sample of water that conforms to ASTM grades II, III or IV.
Replicate sample	Samples that have been collected at the same time from the same source (field replicates) or aliquots of the same sample that are prepared and analyzed at the same time (laboratory replicates). Duplicate samples are one type of replicate sample. The analytical results from replicates are used to determine the precision of a system. If the concentration of analytes in the sample are below detectable limits, duplicate spike samples may be used to determine precision. Blind replicates (or duplicates) are replicates that have been collected (field replicates) or prepared (laboratory replicates) and are analyzed as separate samples whose replicate nature remains unknown to the analyst or organization.
Representativeness	Expresses the degree to which data for a sampled source accurately and precisely represent a characteristic or variation of the sampled source in terms of a measured analyte or parameter.
Research quality assurance plan	A quality assurance project plan written for research activities where non-standard procedures are used.
Riparian buffer zone	Land directly adjacent to a water body.
Sample custody	All records and documentation that trace sample possession, handling and associated supporting activities from the point of sample collection through transport, storage, processing, analysis and disposal of the sample.
Sample matrix	The natural or artificial medium from which a sample is collected. For the purposes of the FDEP SOPs, a matrix is categorized in terms of the sample source and associated collection technique. See Table FA 1000-1.
Sample matrix spike	An environmental sample fortified to a known and validated concentration of analyte(s) before sample preparation and subsequent analysis.
Sampling Kit	A set of sampling accessories that has been assembled for a specified use or project. Examples of sampling accessories include: sample containers, sampling equipment, chemical preservatives, trip blanks, reagent transfer implements (e.g., disposable pipets), calibration standards, indicator papers (e.g., pH paper), reagents, etc.

Glossary

Screening study	A study where a body of water is being surveyed for the presence of contaminants in the tissues of aquatic organisms without prior knowledge of their presence.
Secchi disk	A large round disk with an alternating black and white pattern used to determine visibility in lakes. The disk is lowered into the water column until the observer can no longer see the pattern.
Sediment	The unconsolidated solid matrix occurring immediately beneath any surface water body. The surface water body may be present part or all of the time.
Spiked samples	Any samples fortified with a known and validated concentration of analyte.
Split samples	Replicates of the same sample that are given to two independent laboratories for analysis.
Stream order	A method of classifying stream channels in a watershed. DEP uses Strahler's system where the uppermost channels (headwater streams with no tributaries) are considered first-order streams. The confluence of two first-order streams creates a second-order. Third-order streams start at the confluence of two second-order streams.
Subsample	Refers to any derivative obtained from a sample. Examples of subsamples include: aliquots, filtrates, digestates, eluates, fractions, extracts, reaction products, supernatants, etc.
Surface water	Includes fresh or saline waters from water bodies such as streams, canals, rivers, lakes, ponds, bays and estuaries (natural or manmade).
Surrogate spikes	Samples fortified with a compound having similar chemical characteristics to the analytes of interest, but which is not normally found in environmental samples. Known concentrations of these compounds are added to all samples in the set before sample preparation and subsequent analysis.
System audit	A qualitative on-site review and evaluation of a laboratory or field operation quality assurance system and physical facilities utilized for sampling, sample processing, calibration and measurement or analysis.
Trip blank	Trip blanks are only used for VOC samples. Blanks of VOC-free water are prepared by the organization providing sample containers for VOC collection. These blanks are transported to the site with the empty VOC sample containers and shipped to the analyzing laboratory in the same transport containers as the VOC samples. They remain unopened for the entire trip and are analyzed at the laboratory with the environmental VOC samples.

Glossary

Trophic level	The different feeding relationships in an ecosystem that determine the route of energy flow and the pattern of chemical cycling.
U.S. No. 30 mesh	Standard U.S. 30 sieve size.
Van Dorn bottle	A water quality sampling device which allows for discrete water samples to be taken at various depths.
Vascular plant	A plant of higher order containing conducting tissues consisting primarily of xylem and phloem. These tissues are also known as vascular tissues.
Wastewater	Includes any influent or effluent associated with domestic or industrial waste treatment facilities.

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Appen 1-2	

APPENDIX I-2

FC 1000 - CLEANING PROCEDURES

FC 1000. CLEANING / DECONTAMINATION PROCEDURES

1. PERFORMANCE CRITERIA

1.1. The cleaning/decontamination procedures must ensure that all equipment that contacts a sample during sample collection are free from the analytes of interest and constituents that would interfere with the analytes of interest.

1.2. The detergents and other cleaning supplies cannot contribute analytes of interest or interfering constituents unless these are effectively removed during a subsequent step in the cleaning procedure.

1.3. The result of any cleaning procedure (including all cleaning reagents) must be equipment blanks with reported non-detected values.

The cleaning procedures outlined in this SOP are designed to meet the above-mentioned performance criteria. Alternative cleaning reagents or procedures may be used. However, the organization must be prepared to demonstrate through documentation (i.e., company-written protocols and analytical records) and historical data (i.e., absence of analytes of interest in equipment blanks) that it consistently meets these performance criteria. Field quality control measures (see FQ 1210) must support the use of alternative reagents or procedures.

FC 1001. Cleaning Reagents

Recommendations for the types and grades of various cleaning supplies are outlined below. The recommended reagent types or grades were selected to ensure that the cleaned equipment is free from any detectable contamination.

1. DETERGENTS: Use Liqui-Nox (or a non-phosphate equivalent) or Alconox (or equivalent). Liqui-Nox (or equivalent) is recommended by EPA, although Alconox (or equivalent) may be substituted if the sampling equipment will not be used to collect phosphorus or phosphorus-containing compounds.

2. SOLVENTS

2.1. Use pesticide grade isopropanol as the rinse solvent in routine equipment cleaning procedures. This grade of alcohol must be purchased from a laboratory supply vendor. Rubbing alcohol or other commonly available sources of isopropanol **are not acceptable**.

2.2. Other solvents, such as acetone or methanol, may be used as the final rinse solvent if they are pesticide grade. However, methanol is more toxic to the environment and acetone may be an analyte of interest for volatile organics.

2.2.1. **Do not use** acetone if volatile organics are of interest.

2.2.2. Containerize all methanol wastes (including rinses) and dispose as a hazardous waste.

2.3. Preclean equipment that is heavily contaminated (see FC 1120, section 3) with organic analytes with reagent grade acetone and hexane or other suitable solvents.

2.4. Use pesticide grade methylene chloride when cleaning sample containers.

2.5. Store all solvents away from potential sources of contamination (gas, copier supplies, etc.).

3. ANALYTE-FREE WATER SOURCES

3.1. Analyte-free water is water in which all analytes of interest and all interferences are below method detection limits.

3.2. Maintain documentation (such as results from equipment blanks) to demonstrate the reliability and purity of analyte-free water source(s).

3.3. The source of the water must meet the requirements of the analytical method and must be free from the analytes of interest. In general, the following water types are associated with specific analyte groups:

- Milli-Q (or equivalent polished water): suitable for all analyses.
- Organic-free: suitable for volatile and extractable organics.
- Deionized water: may not be suitable for volatile and extractable organics.
- Distilled water: not suitable for volatile and extractable organics, metals or ultra-trace metals.

3.4. Use analyte-free water for blank preparation and the final decontamination water rinse.

3.5. In order to minimize long-term storage and potential leaching problems, obtain or purchase analyte-free water just prior to the sampling event. If obtained from a source (such as a laboratory), fill the transport containers and use the contents for a single sampling event. Empty the transport container(s) at the end of the sampling event.

3.6. Discard any analyte-free water that is transferred to a dispensing container (such as a wash bottle) at the end of each sampling day.

4. ACIDS

4.1. Reagent Grade Nitric Acid: 10 - 15% (one volume concentrated nitric acid and five volumes deionized water).

4.1.1. Use for the acid rinse unless nitrogen components (e.g., nitrate, nitrite, etc.) are to be sampled.

4.1.2. If sampling for ultra-trace levels of metals, use an ultra-pure grade acid.

4.2. Reagent Grade Hydrochloric Acid: 10% hydrochloric acid (one volume concentrated hydrochloric and three volumes deionized water).

4.2.1. Use when nitrogen components are to be sampled.

4.3. If samples for both metals and the nitrogen-containing components (see FC 1001, section 4.1.1 above) are collected with the equipment, use the hydrochloric acid rinse, or thoroughly rinse with hydrochloric acid after a nitric acid rinse.

4.4. If sampling for ultra trace levels of metals, use an ultra-pure grade acid.

4.5. Freshly prepared acid solutions may be recycled during the sampling event or cleaning process. Dispose appropriately at the end of the sampling event, cleaning process or if acid is discolored or appears otherwise contaminated (e.g., floating particulates).

4.5.1. Transport only the quantity necessary to complete the sampling event.

4.6. Dispose of any unused acids according to FDEP and local ordinances.

FC 1002. Reagent Storage Containers

The contents of all containers must be clearly marked.

1. DETERGENTS: Store in the original container or in a high density polyethylene (HDPE) or polypropylene (PP) container.

2. SOLVENTS

2.1. Store solvents to be used for cleaning or decontamination in the original container until use in the field. If transferred to another container for field use, the container must be either glass or Teflon.

2.2. Use dispensing containers constructed of glass, Teflon or stainless steel. Note: if stainless steel sprayers are used, any gaskets that contact the solvents must be constructed of inert materials.

3. ANALYTE-FREE WATER: Transport in containers appropriate to the type of water to be stored. If the water is commercially purchased (e.g., grocery store), use the original containers when transporting the water to the field. Containers made of glass, Teflon, polypropylene, or HDPE are acceptable.

3.1. Use glass or Teflon to transport organic-free sources of water on-site. Polypropylene or HDPE may be used but are not recommended.

3.2. Dispense water from containers made of glass, Teflon, HDPE or polypropylene.

3.3. Do not store water in transport containers for more than three days before beginning a sampling event.

3.4. If working on a project that has oversight from EPA Region 4, use glass containers for the transport and storage of all water.

3.5. Store and dispense acids using containers made of glass, Teflon or plastic.

FC 1003. General Requirements

1. Before using any equipment, clean/decontaminate all sampling equipment (pumps, tubing, lanyards, split spoons, etc.) that are exposed to the sample.

1.1. Before installing, clean (or obtain as certified precleaned) all equipment that is dedicated to a single sampling point and remains in contact with the sample medium (e.g., permanently installed groundwater pump (see FS2220, section 3.3.4).

1.2. Clean this equipment any time it is removed for maintenance or repair.

1.3. Replace dedicated tubing if discolored or damaged.

2. Clean all equipment in a designated area having a controlled environment (house, laboratory, or base of field operations) and transport to the field precleaned and ready to use, unless otherwise justified.

3. Rinse all equipment with water after use, even if it is to be field-cleaned for other sites. Rinse equipment used at contaminated sites or used to collect in-process (e.g., untreated or partially treated wastewater) samples immediately with water.

4. Whenever possible, transport sufficient clean equipment to the field so that an entire sampling event can be conducted without the need for cleaning equipment in the field.

5. Segregate equipment that is only used once (i.e., not cleaned in the field) from clean equipment and return to the in-house cleaning facility to be cleaned in a controlled environment.

6. Protect decontaminated field equipment from environmental contamination by securely wrapping and sealing with one of the following:

6.1. Aluminum foil (commercial grade is acceptable);

6.2. Untreated butcher paper; or

6.3. Clean, untreated, disposable plastic bags. Plastic bags may be used:

6.3.1. For all analyte groups except volatile and extractable organics;

6.3.2. For volatile and extractable organics if the equipment is first wrapped in foil or butcher paper or if the equipment is completely dry.

FC 1100. Cleaning Sample Collection Equipment

FC 1110. On-site/In-field Cleaning

1. Cleaning equipment on-site is not recommended because:

1.1. Environmental conditions cannot be controlled.

1.2. Wastes (solvents and acids) must be containerized for proper disposal.

2. If performed, follow the appropriate cleaning procedure as outlined in FC 1130. Ambient temperature water may be substituted in the hot, sudsy water bath, and hot water rinses.

Note: Properly dispose of all solvents and acids.

3. Rinse all equipment with water after use, even if it is to be field-cleaned for other sites. Rinse equipment used at contaminated sites or used to collect in-process (e.g., untreated or partially treated wastewater) samples immediately with water.

FC 1120. Heavily Contaminated Equipment

In order to avoid contaminating other samples, isolate heavily contaminated equipment from other equipment and thoroughly decontaminate the equipment before further use. Equipment is considered heavily contaminated if it:

- Has been used to collect samples from a source known to contain significantly higher levels than background;
- Has been used to collect free product; or
- Has been used to collect industrial products (e.g., pesticides or solvents) or their by-products.

1. Cleaning heavily contaminated equipment in the field is not recommended.

2. On-site Procedures

2.1. Protect all other equipment, personnel and samples from exposure by isolating the equipment immediately after use.

2.2. At a minimum, place the equipment in a tightly sealed untreated plastic bag.

2.3. Do not store or ship the contaminated equipment next to clean, decontaminated equipment, unused sample containers, or filled sample containers.

2.4. Transport the equipment back to the base of operations for thorough decontamination.

2.5. If cleaning must occur in the field, and in order to document the effectiveness of the procedure, collect and analyze blanks on the cleaned equipment (see FQ 1000).

3. CLEANING PROCEDURES

3.1. If organic contamination cannot be readily removed with scrubbing and a detergent solution, prerinse equipment by thoroughly rinsing or soaking the equipment in acetone.

3.1.1. Use hexane only if preceded and followed by acetone.

3.2. In extreme cases, it may be necessary to steam clean the field equipment before proceeding with routine cleaning procedures.

3.3. After the solvent rinses (and/or steam cleaning), use the appropriate cleaning procedure (see FC 1130).

3.3.1. Scrub, rather than soak all equipment with sudsy water.

3.3.2. If high levels of metals are suspected and the equipment cannot be cleaned without acid rinsing, soak the equipment in the appropriate acid. Since stainless steel equipment should not be exposed to acid rinses, do not use stainless steel equipment when heavy metal contamination is suspected or present.

3.4. If the field equipment cannot be cleaned utilizing these procedures, discard unless further cleaning with stronger solvents and/or oxidizing solutions is effective as evidenced by visual observation and blanks.

3.5. Clearly mark or disable all discarded equipment to discourage use.

FC 1130. GENERAL CLEANING

Follow these procedures when cleaning equipment under controlled conditions. See FC 1110 for modifications if cleaning is performed on-site. Check manufacturer's instructions for cleaning restrictions and/or recommendations.

FC 1131. Procedure for Teflon, Stainless Steel and Glass Sampling Equipment

This procedure must be used when sampling for **ALL** analyte groups: extractable organics, metals, nutrients, etc. or if a single decontamination protocol is desired to clean all Teflon, stainless steel and glass equipment.

1. Rinse equipment with hot tap water.

2. Soak equipment in a hot, sudsy water solution (Liqui-Nox or equivalent - see FC 1001, section 1).

3. If necessary, use a brush to remove particulate matter or surface film.

4. Rinse thoroughly with hot tap water.

5. If samples for trace metals or inorganic analytes will be collected with the equipment and the equipment **is not** stainless steel, thoroughly rinse (wet all surfaces) with the appropriate acid solution (see FC 1001, section 4).

6. Rinse thoroughly with analyte-free water. Use enough water to ensure that all equipment surfaces are thoroughly flushed with water.

7. If samples for volatile or extractable organics will be collected, rinse with isopropanol. Wet equipment surfaces thoroughly with free-flowing solvent. Rinse thoroughly with analyte-free water (see FC 1001, section 3).

8. Allow to air dry. Wrap and seal according to FC 1003, section 6 as soon as the equipment is air-dried.

9. If isopropanol is used, the equipment may be air-dried without the final analyte-free water rinse (see FC 1131, section 8 above); however, **the equipment must be completely dry before wrapping or use.**

10. Wrap clean sampling equipment according to the procedure described in FC 1003, section 6.

FC 1132. General Cleaning Procedure for Plastic Sampling Equipment

1. Rinse equipment with hot tap water.

2. Soak equipment in a hot, sudsy water solution (Liqui-Nox or equivalent - see FC 1001, section 1).

3. If necessary, use a brush to remove particulate matter or surface film.

4. Rinse thoroughly with hot tap water.

5. Thoroughly rinse (wet all surfaces) with the appropriate acid solution (see FC 1001, section 4). Check manufacturer's instructions for cleaning restrictions and/or recommendations.

6. Rinse thoroughly with analyte-free water. Use enough water to ensure that all equipment surfaces are thoroughly flushed with water. Allow to air dry as long as possible.

7. Wrap clean sampling equipment according to the procedure described in FC 1003, section 6.

FC 1133. Cleaning Procedure by Analyte Group

See Table FC 1000-1 for the procedures to be used to decontaminate equipment based on construction of sampling equipment, and analyte groups to be sampled.

FC 1140. Automatic Samplers, Sampling Trains and Bottles

1. When automatic samplers are deployed for extended time periods, clean the sampler using the following procedures when routine maintenance is performed. Inspect deployed samplers prior to each use. At a minimum, change the tubing if it has become discolored or has lost elasticity (FC 1140, section 2.3 below).

2. Clean all automatic samplers (such as ISCO) as follows:

   2.1. Wash the exterior and accessible interior portions of the automatic samplers (excluding the waterproof timing mechanisms) with laboratory detergent (see FC 1001, section 1) and rinse with tap water.

   2.2. Clean the face of the timing case mechanisms with a clean, damp cloth.

2.3. Check all tubing (sample intake and pump tubing). Change the tubing every six months (if used frequently) or if it has become discolored (i.e., affected by mold and algae) or if it has lost its elasticity.

2.4. See FC 1160, section 4 for the procedures associated with cleaning the tubing in the pump head.

3. AUTOMATIC SAMPLER ROTARY FUNNEL AND DISTRIBUTOR

3.1. Clean with hot sudsy water and a brush (see FC 1001, section 1 for appropriate detergent type).

3.2. Rinse thoroughly with analyte-free water.

3.3. Air dry.

3.4. Replace in sampler.

4. SAMPLER METAL TUBE: Clean as outlined in FC 1160, section 5.

5. REUSABLE GLASS COMPOSITE SAMPLE CONTAINERS

5.1. If containers are used to collect samples that contain oil, grease or other hard to remove materials, it may be necessary to rinse the container several times with reagent-grade acetone before the detergent wash. If material cannot be removed with acetone, discard the container.

5.2. Wash containers following the procedure outlined in FC 1131 above. End with a final solvent rinse if organics are to be sampled.

5.3. Invert containers to drain and air dry for at least 24 hours.

5.4. Cap with aluminum foil, Teflon film or the decontaminated Teflon-lined lid.

5.5. After use, rinse with water in the field, seal with aluminum foil to keep the interior of the container wet, and return to the laboratory or base of operations.

5.6. **Do not recycle or reuse containers if:**

5.6.1. They were used to collect in-process (i.e., untreated or partially treated) wastewater samples at industrial facilities;

5.6.2. A visible film, scale or discoloration remains in the container after the cleaning procedures have been used; or

5.6.3. The containers were used to collect samples at pesticide, herbicide or other chemical manufacturing facilities that produce toxic or noxious compounds. Such containers must be properly disposed of (preferably at the facility) at the conclusion of the sampling activities.

5.6.4. If the containers described above are reused, check no less than 10% of the cleaned containers for the analytes of interest **before** use. If found to be contaminated, (i.e., constituents of interest are found at method detection levels or higher), the **discard the containers**.

6. REUSABLE PLASTIC COMPOSITE SAMPLE CONTAINERS

6.1. Follow FC 1132.

6.2. Inspect the containers. Determine if the containers can be reused by the criteria in FC 1140, section 5 above.

7. GLASS SEQUENTIAL SAMPLE BOTTLES FOR AUTOMATIC SAMPLER BASED FOR SEQUENTIAL MODE

7.1. Clean glass sequential sample bottles to be used for collecting inorganic samples by using a laboratory dishwasher (see FC 1140, sections 7.1.1 through 7.1.3 below) or manually following the procedures in FC 1131.

7.1.1. Rinse with appropriate acid solution (see FC 1001, section 4).

7.1.2. Rinse thoroughly with tap water.

7.1.3. Wash in dishwasher at wash cycle, using laboratory detergent cycle, followed by tap and analyte-free water rinse cycles.

7.2. Replace bottles in covered, automatic sampler base; cover with aluminum foil for storage.

7.3. Rinse bottles in the field with water as soon as possible after sampling event.

8. Glass Sequential Sample Bottles (Automatic Sampler based for Sequential Mode) to be used for Collecting Samples for Organic Compounds

8.1. Use cleaning procedures outlined in FC 1131. Allow containers to thoroughly air dry before use.

8.2. Replace bottles in covered, automatic sampler base; cover with aluminum foil for storage.

9. BOTTLE SIPHONS USED TO TRANSFER SAMPLES FROM COMPOSITE CONTAINERS

9.1. Rinse tubing with solvent and dry overnight in a drying oven.

9.2. Cap ends with aluminum foil and/or Teflon film for storage.

9.3. Seal in plastic for storage and transport.

9.4. Flush siphon thoroughly with sample before use.

10. REUSABLE TEFLON COMPOSITE MIXER RODS

10.1. Follow procedures outlined in FC 1131.

10.2. Wrap in aluminum foil for storage.

FC 1150. FILTRATION EQUIPMENT

1. DISSOLVED CONSTITUENTS USING IN-LINE, MOLDED AND DISPOSABLE FILTER UNITS

1.1. Peristaltic Pump

1.1.1. Clean the pump following procedures in FC 1170, section 2.2.

1.1.2. Clean the pump head tubing following FC 1160, section 4.

1.1.3. If Teflon tubing is used, clean following the procedures in FC 1160, section 3.

1.1.4. Clean other tubing types such as polyethylene according to the appropriate procedures listed in FC 1160, section 7.

1.2. Other Equipment Types (e.g., pressurized Teflon bailer)

1.2.1. Follow the appropriate cleaning regimen specified in FC 1131 through FC 1132 for other types of equipment that utilize in-line, molded and disposable filters.

Note: filtration units for dissolved metals must follow the configuration and requirements outlined in FS 2225.

2. DISSOLVED CONSTITUENTS USING NON-DISPOSABLE FILTRATION UNITS (E.G., SYRINGES, "TRIPOD ASSEMBLY")

2.1. Stainless Steel or Glass Units

2.1.1. Follow FC 1131, assembling and applying pressure to the apparatus after each rinse step (water and acid) to drive rinsing solution through the porous filter holder in the bottom of the apparatus.

2.1.2. Remove and clean any transfer tubing according to the appropriate cleaning procedures (see FC 1160).

2.1.3. Assemble the unit and cap both the pressure inlet and sample discharge lines (or whole unit if a syringe) with aluminum foil to prevent contamination during storage.

2.1.4. If the unit will not be used to filter volatile or extractable organics, seal the unit in an untreated plastic bag to prevent contamination.

2.2. Reusable In-Line Filter Holders

2.2.1. Clean, using FC 1131, (if Teflon, glass or stainless steel) or FC 1132 (if plastic) assembling and applying pressure to the apparatus after each rinse step (water and acid) to drive rinsing solution through the porous filter holder in the bottom of the apparatus.

2.2.2. Assemble the unit and wrap with aluminum foil to prevent contamination during storage.

2.2.3. If the unit will **not** be used to filter volatile or extractable organics, seal the unit in an untreated plastic bag to prevent contamination.

3. FILTERS

3.1. Do not clean filters. Instructions for rinsing the filters prior to use are discussed in the applicable sampling SOPs (FS 2000 - FS 8000).

FC 1160. SAMPLE TUBING DECONTAMINATION

1. Check tubing:

1.1. For discoloration: Remove discolored tubing from use until it can be cleaned. If the discoloration cannot be removed, discard the tubing.

1.2. For elasticity (if used in a peristaltic-type pump): Discard any tubing that has lost its elasticity.

2. Transport all tubing to the field in precut, **precleaned** sections.

3. TEFLON, POLYETHYLENE AND POLYPROPYLENE TUBING

3.1. New Tubing: Follow this procedure unless the manufacturer/supplier provides certification that the tubing is clean.

3.1.1. Teflon

3.1.1.1. Rinse outside of tubing with pesticide-grade solvent (see FC 1001, section 2).

3.1.1.2. Flush inside of tubing with pesticide-grade solvent.

3.1.1.3. Dry overnight in drying oven or equivalent (zero air, nitrogen, etc.).

3.1.2. Polyethylene and Polypropylene

3.1.2.1. Clean the exterior and interior of the tubing by soaking in hot, sudsy water.

3.1.2.2. Thoroughly rinse the exterior and interior of the tubing with tap water, followed by analyte-free water.

3.2. Reused Tubing

Use the following procedure for in-lab cleaning. **Field cleaning is not recommended:**

3.2.1. Clean the exterior of the tubing by soaking in hot, sudsy water (see FC 1001, section 1) in a stainless steel sink (or equivalent non-contaminating material). Use a brush to remove any particulates, if necessary.

3.2.2. Use a small bottle brush and clean the inside of the tubing ends where the barbs are to be inserted or cut 1-2 inches from the ends of the tubing after cleaning.

3.2.3. Rinse tubing exterior and ends liberally with tap water.

3.2.4. Rinse tubing surfaces and ends with the appropriate acid solution (see FC 1001, section 4), tap water, isopropanol (see FC 1001, section 2), and finally analyte-free water.

3.2.4.1. Note: Eliminate the isopropanol rinse for polyethylene or polypropylene tubing.

3.2.5. Place tubing on fresh aluminum foil or clean polyethylene sheeting. Connect all of the precut lengths of tubing with Teflon inserts or barbs.

3.2.6. Cleaning configuration:

3.2.6.1. Place cleaning reagents: [sudsy water (see FC 1001, section 1); acid (see FC 1001, section 4); isopropanol (see FC 1001, section 2)] in an appropriately cleaned container (2-liter glass jar is recommended).

3.2.6.2. Place one end of the Teflon tubing into the cleaning solution.

3.2.6.3. Attach the other end of the Teflon tubing set to the influent end of a pump.

3.2.6.4. Recycle the effluent from the pump by connecting a length of Teflon tubing from the effluent to the glass jar with the cleaning reagents.

3.2.6.5. Recycling as described above may be done for all reagents listed in FC 1160, section 3.2.6.1 above, **except** the final isopropanol rinse and the final analyte-free water rinse. Disconnect the tubing between the effluent end of the pump and the jar of cleaning reagents.

3.2.6.6. Containerize isopropanol in a waste container for proper disposal.

3.2.6.7. Analyte-free water may be discarded down the drain.

3.2.7. Using the above configuration described in FS 1160, section 3.2.6 above:

3.2.7.1. Pump hot, sudsy water through the connected lengths. Allow the pump to run long enough to pump at least three complete tubing volumes through the tubing set.

3.2.7.2. Using the same procedure, successively pump tap water, the acid solution(s), tap water, isopropanol, and finally analyte-free water through the system.

3.2.7.3. Leave the Teflon inserts or barbs between the precut lengths and cap or connect the remaining ends.

3.2.8. After the interior has been cleaned as described in FC 1160, section 3.2.7 above, rinse the exterior of the tubing with analyte-free water.

3.2.9. Wrap the connected lengths in aluminum foil or untreated butcher paper and store in a clean, dry area until use.

4. FLEXIBLE TUBING USED IN PUMP HEADS OF AUTOMATIC SAMPLERS AND OTHER PERISTALTIC PUMPS

Replace tubing after each sampling point if samples are collected through the tubing. Unless the pump is deployed to collect samples from the same location over a long period of time, remove and wash the tubing after each sampling event (see FC 1140, section 1).

4.1. Flush tubing with hot tap water then sudsy water (see FC 1001, section 1).

4.2. Rinse thoroughly with hot tap water.

4.3. Rinse thoroughly with analyte-free water.

4.4. If used to collect metals samples, flush the tubing with an appropriate acid solution (see FC 1001, section 4), followed by thorough rinsing with analyte-free water. If used to collect both metals and nitrogen components use hydrochloric acid (see FC 1001, section 4.1.1).

4.5. Install tubing in peristaltic pump or automatic sampler.

4.6. Cap both ends with aluminum foil or equivalent.

Note: change tubing at specified frequencies as part of routine preventative maintenance.

5. STAINLESS STEEL TUBING

Clean the exterior and interior of stainless steel tubing as follows:

5.1. Using sudsy water (see FC 1001, section 1), scrub the interior and exterior surfaces.

5.2. Rinse with hot tap water.

5.3. Rinse with analyte-free water.

5.4. If volatile or extractable organics are to be sampled, rinse all surfaces with isopropanol (see FC 1001, section 2). Use enough solvent to wet all surfaces with free flowing solvent.

5.5. Allow to air dry or thoroughly rinse with analyte-free water.

6. GLASS TUBING

6.1. Use new glass tubing.

6.2. If volatile or extractable organics are to be sampled, rinse with isopropanol (see FC 1001, section 2).

6.3. Air dry for at least 24 hours.

6.4. Wrap in aluminum foil or untreated butcher paper to prevent contamination during storage.

6.5. Discard tubing after use.

7. MISCELLANEOUS NON-INERT TUBING TYPES (TYGON, RUBBER, PVC, ETC.)

7.1. New Tubing

7.1.1. As a general rule, new tubing may be used without preliminary cleaning.

7.1.2. Protect new tubing from potential environmental contamination by wrapping in aluminum foil and sealing in untreated plastic bags or keep in the original sealed packaging until use.

7.1.3. If new tubing is exposed to potential contamination, rinse the exterior and interior tubing surfaces with hot tap water followed by a thorough rinse with analyte-free water.

7.1.4. If new tubing is to be used to collect samples, thoroughly rinse the tubing with sample water (i.e., pump sample water through the tubing) before collecting samples.

7.2. Reused Tubing

7.2.1. Flush tubing with sudsy solution of hot tap water and laboratory detergent (see FC 1001, section 1).

7.2.2. Rinse exterior and interior thoroughly with hot tap water.

7.2.3. Rinse exterior and interior thoroughly with analyte-free water.

7.2.4. If used to collect only metals samples, flush the tubing with nitric acid (see FC 1001, section 4.1), followed by a thorough rinse with analyte-free water.

7.2.5. If used to collect metals and nitrogen-containing compounds, see FC 1001, section 4.3.

7.2.6. Cap ends in aluminum foil and store in clean, untreated plastic bags to prevent contamination during storage and transport.

FC 1170. PUMPS

1. SUBMERSIBLE PUMPS

1.1. Pumps used for Purging and Sampling Metals and/or Volatile and Extractable Organics

1.1.1. Construction of pump body and internal mechanisms (bladders, impellers, etc.), including seals and connections, must follow Tables FS 1000-1, FS 1000-2 and FS 1000-3.

1.1.2. Tubing material must follow Tables FS 1000-1, FS 1000-2 and FS 1000-3.

1.1.3. Clean pump exterior following FC 1131. Note: omit the solvent rinse if the pump body is constructed of plastic (e.g., ABS, PVC, etc.).

1.1.4. Clean the pump internal cavity and mechanism as follows:

1.1.4.1. If used only for purging, thoroughly flush the pump with water before purging the next well.

1.1.4.2. If used for purging and sampling, completely disassemble the pump (if practical) and decontaminate between each well.

1.1.4.3. When used for purging and sampling and the pump cannot be (practicably) disassembled, then clean the internal cavity/mechanism by pumping several gallons of sudsy water (see FC 1001, section 1), followed by several gallons of tap water, and finally, several gallons of analyte-free water.

1.1.4.4. If multiple sampling points are located in an area that is not accessible by a vehicle, and it is difficult to return to the vehicle for cleaning or to transport all cleaning materials to the staging location, at a minimum thoroughly rinse the pump with water.

1.1.5. Refer to FC 1160, section 3 to clean Teflon tubing.

1.1.6. Refer to FC 1160, section 5 for stainless steel tubing.

1.1.7. Clean other types of tubing according to FC 1160, sections 6 and 7.

1.2. Pumps used for Purging and Sampling all Analytes except Metals and Volatile and Extractable Organics

1.2.1. Pump construction: no restrictions.

1.2.2. Pump tubing material: no restrictions.

1.2.3. Scrub the exterior of the pump with appropriate metal-free, phosphate-free or ammonia-free detergent solution.

1.2.4. Rinse the exterior with tap water and analyte-free water.

1.2.5. Rinse the interior of the pump and tubing by pumping tap or analyte-free water through the system using a clean bucket or drum.

2. ABOVE-GROUND PUMPS USED FOR PURGING AND SAMPLING

2.1. Pumps used only for Purging

2.1.1. The exterior of the pump must be free of oil and grease.

2.1.2. Select tubing according to Tables FS 1000-1, FS 1000-2 and FS 1000-3.

2.1.3. Clean the tubing that contacts the formation water according to the appropriate protocol for construction materials specified in FC 1160.

2.2. Pumps used for Sampling

2.2.1. Clean the exterior of the pump with a detergent solution followed by a tap water rinse. Use clean cloths or unbleached paper towels that have been moistened with the appropriate solution to wipe down the pump.

2.2.2. Select tubing according to Tables FS 1000-1, FS 1000-2 and FS 1000-3.

2.2.3. Clean the tubing that contacts the formation water according to the appropriate protocol for construction materials specified in FC 1160.

FC 1180. ANALYTE-FREE WATER CONTAINERS

This section pertains to containers that are purchased to transport, store and dispense analyte-free water. It does not apply to water that has been purchased in containers. See FC 1002, section 3 for appropriate construction materials.

1. NEW CONTAINERS

1.1. Wash containers and caps according to FC 1131, omitting the solvent rinse if plastic (polyethylene or polypropylene) containers are being cleaned.

1.2. Cap with Teflon film or the bottle cap. The bottle cap must be composed of the same material as the container and cannot be lined.

2. REUSED CONTAINERS

2.1. Immediately after emptying, cap with aluminum foil (if not being used for metals), Teflon film or the container cap.

2.2. Wash the exterior of the container with lab-grade detergent solution (see FC 1001, section 1) and rinse with analyte-free water.

2.3. Rinse the interior thoroughly with analyte-free water.

2.4. Invert and allow to drain and dry.

FC 1190. ICE CHESTS AND SHIPPING CONTAINERS

1. Wash the exterior and interior of all ice chests with laboratory detergent (see FC 1001, section 1) after each use.

2. Rinse with tap water and air dry before storing.

3. If the ice chest becomes severely contaminated with concentrated waste or other toxic or hazardous materials clean as thoroughly as possible, render unusable, and properly dispose.

FC 1200. Field Instruments and Drilling Equipment

FC 1210. FIELD INSTRUMENTS (TAPES, METERS, ETC.)

Follow manufacturer's recommendations for cleaning instruments. At a minimum:

1. Wipe down equipment body, probes, and cables with lab-grade detergent solution (see FC 1001, section 1). Check manufacturer's instructions for recommendations and/or restrictions on cleaning.

2. Rinse thoroughly with tap water.

3. Rinse thoroughly with analyte-free water.

4. Store equipment according to the manufacturer's recommendation or wrap equipment in aluminum foil, untreated butcher paper or untreated plastic bags to eliminate potential environmental contamination.

FC 1220. SOIL BORING EQUIPMENT

This section pertains only to equipment that is not used to collect samples. Clean split spoons, bucket augers and other sampling devices according to FC 1131.

1. Remove oil, grease, and hydraulic fluid from the exterior of the engine and power head, auger stems, bits and other associated equipment with a power washer or steam jenny or wash by hand with a brush and sudsy waster (no degreasers).

2. Rinse thoroughly with tap water.

FC 1230. Well Casing Cleaning

These are recommended procedures for cleaning well casing and riser pipes. Use procedures specified by a FDEP contract, order, permit, or rule, if different or more stringent than the procedures outlined below.

1. FDEP recommends only using casing that is designed for subsurface environmental groundwater monitoring.

2. Casing that has been contaminated with grease, hydraulic fluid, petroleum fuel, etc. may require additional cleaning or deemed unusable.

3. Clean all casing and riser pipe should be cleaned before installation, unless the casing is received wrapped and ready for installation:

3.1. Steam clean all casing and riser pipe. Steam cleaning criteria shall meet the following: water pressure - 2500 psi; water temperature - 200°F.

3.2. Rinse thoroughly with tap (potable) water. This tap water must be free of the analytes of interest.

FC 1300. Sample Containers

FC 1310. Obtaining Clean Containers

1. Obtain clean sample containers in one of three ways:

1.1. From commercial vendors as precleaned containers. The cleaning grades must meet EPA analyte specific requirements. Keep all records for these containers (lot numbers, certification statements, date of receipt, etc.) and document the container intended uses;

1.2. From internal groups within the organization that are responsible for cleaning and maintaining containers according to the procedures outlined in FC 1320; or

1.3. From a subcontracted laboratory that is accredited under the National Environmental Laboratory Accreditation Program (NELAP).

1.3.1. The contractor must verify that the laboratory follows the container cleaning procedures outlined in FC 1320.

1.3.2. If the laboratory cleaning procedures are different, the contractor must require that the laboratory use the following cleaning procedures or provide documentation and historical records to show that their in-house procedure produces containers that are free from the analytes of interest.

FC 1320. Container Cleaning Procedures

1. Refer to Table FC 1000-2. Follow the cleaning steps in the order specified in the chart.

2. Cleaning procedures that are different from those outlined in FC 1320 may be used as long as blanks collected in the containers are free from the analytes of interest and any analytical interferences and the cleaning procedures are supported by historical and continuing documentation.

3. Inspect all containers before cleaning.

3.1. **Do not recycle or reuse containers if:**

3.1.1. Containers were used to collect in-process (i.e., untreated or partially treated) wastewater samples at industrial facilities;

3.1.2. A visible film, scale or discoloration remains in the container after the cleaning procedures have been used; or

3.1.3. Containers were used to collect samples at pesticide, herbicide or other chemical manufacturing facilities that produce toxic or noxious compounds. Such containers shall be properly disposed of (preferably at the facility) at the conclusion of the sampling activities.

3.1.4. If the containers described above are reused, check no less than 10% of the cleaned containers for the analytes of interest before use. If found to be contaminated (i.e., analytes of interest are found at MDL levels or higher), discard the containers.

FC 1400. Documentation

Retain all documentation as permanent records for at least five years. If the documentation is associated with samples that are associated with a civil or criminal enforcement case, the court system may require that records be retained for longer periods of time.

FC 1410. Field Equipment

1. In-Field Cleaning

1.1. Initially identify the procedures that are used to clean equipment in the field by SOP numbers and dates of usage.

1.2. Record the date and time that equipment was cleaned.

2. In-House Cleaning

2.1. Retain any cleaning certificates, whether from a laboratory or commercial vendor.

2.2. Identify the procedure(s) that are used to clean equipment by the SOP number and dates of usage.

2.3. Record the date that the equipment was cleaned.

FC 1420. Sample Containers

1. Organizations that order precleaned containers must retain the packing slips, and lot numbers of each shipment, any certification statements provided by the vendor and the vendor cleaning procedures.

2. Organizations that clean containers must maintain permanent records of the following:

2.1. Procedure(s) used to clean containers by SOP number and dates of usage.

2.2. If containers are certified clean by the laboratory the laboratory must record:

- Type of container;
- Date cleaned;
- SOP used;

- Person responsible for cleaning;
- Lot number (date of cleaning may be used) of the batch of containers that were cleaned using the same reagent lots and the same procedure;
- The results of quality control tests that were run on lot numbers; and
- Any additional cleaning or problems that were encountered with a specific lot.

FC 1430. REAGENTS AND OTHER CLEANING SUPPLIES

Maintain a record of the lot number with the inclusive dates of use for all acids, solvents, and other cleaning supplies.

FC 2000. REFERENCES

1. Florida Department of Environmental Protection, DEP Standard Operating Procedures for Laboratory Operations and Sample Collection Activities, DEP QA-001/92, September 1992.

2. U.S. Environmental Protection Agency, Region 4, Environmental Investigations Standard Operating Procedures and Quality Assurance Manual, May 1996

Appendix FC 1000
Tables, Figures and Forms

Table FC 1000-1 Procedures for Decontamination at the Base of Operations or On-site
Table FC 1000-2 Container Cleaning Procedures

Table FC 1000-1
Procedures for Decontamination at the Base of Operations or On-Site

Construction Material	Analyte Group Sampled	SOP Reference	Base of Operations	On-Site
Teflon or Glass	All	FC 1131	Follow as written	May substitute ambient temperature water for the hot water rinses and hot detergent solution
	Extractable & Volatile Organics Petroleum Hydrocarbons		May omit acid rinse	May substitute ambient temperature water for the hot water rinses and hot detergent solution May omit acid rinse
	Metals[1] Radionuclides For ultra trace metals, refer to FS 8200		May omit solvent rinse	May substitute ambient temperature water for the hot water rinses and hot detergent solution May omit solvent rinse
	Inorganic Nonmetallics Physical & Aggregate Properties Aggregate Organics Biologicals Volatile Inorganics		May omit solvent rinse	Rinse several times with water Rinse several times with sample water from the next sampling location
	Microbiological – Viruses Microbiological - Bacteria		Omit solvent and acid rinses	Rinse several times with water Rinse several times with sample water from the next sampling location
Metallic (stainless steel, brass, etc.)	All Extractable & Volatile Organics Petroleum Hydrocarbons	FC 1131	Omit the acid rinse	May substitute ambient temperature water for the hot water rinses and hot detergent solution Omit the acid rinse
	Metals Radionuclides		Omit the acid rinse May omit the solvent rinse	May substitute ambient temperature water for the hot water rinses and hot detergent solution Omit the acid rinse May omit the solvent rinse
	Inorganic Nonmetallics Physical & Aggregate Properties Aggregate Organics Biologicals Volatile Inorganics		Omit solvent rinse May omit the acid rinse	Rinse several times with water Rinse several times with sample water from the next sampling location

Table FC 1000-1
Procedures for Decontamination at the Base of Operations or On-Site

Construction Material	Analyte Group Sampled	SOP Reference	Base of Operations	On-Site
	Microbiological – Viruses Microbiological - Bacteria		Omit solvent and acid rinses	Rinse several times with water Rinse several times with sample water from the next sampling location
Plastic	All except Volatile and Extractable Organics and Petroleum Hydrocarbons	FC 1132	Follow as written	May substitute ambient temperature water for the hot water rinses and hot detergent solution
	Inorganic Nonmetallics Physical & Aggregate Properties Aggregate Organics Biologicals Volatile Inorganics		May omit the acid rinse	Rinse several times with water Rinse several times with sample water from the next sampling location
	Microbiological – Viruses Microbiological - Bacteria		Omit acid rinse	Rinse several times with water Rinse several times with sample water from the next sampling location

[i] Do not use glass if collecting samples for boron or silica.

Table FC 1000-2
Container Cleaning Procedures

ANALYSIS / ANALYTE GROUP	CLEANING STEPS See Description Below
Extractable Organics	1, 2, 4, 6, (5 and 7 optional), 11
Volatile Organics	1, 2, 4, (6 optional, methanol only), 7
Metals	1, 2, 3, 4, 8, 11 ** **Procedures to clean containers for ultra-trace metals are found in FS 8200
Inorganic Nonmetallics, Radionuclides, Physical and Aggregate Properties, Aggregate Inorganics, and Volatile Inorganics	1, 2, 3*, 4, 8, 11 * For nutrients, replace nitric acid with hydrochloric acid, or use a hydrochloric acid rinse after the nitric acid rinse. See FC 1001, section 4
Petroleum Hydrocarbons, and Oil and Grease	1, 2, 3, 4, (5, 6, 7 optional), 11
Microbiological (all)	1, 2, 4, 8, 9, 11
Toxicity Tests (Includes Bioassays)	1, 2, 10, 2, 4, 6.1, (10 optional), 11

NOTE: Steps 1 and 2 may be omitted when cleaning new, uncertified containers.

1. Wash with hot tap water and a brush using a suitable laboratory-grade detergent:

   1.1. Volatile and Extractable Organics, Petroleum Hydrocarbon, Oil and Grease: Liqui-Nox, Alconox or equivalent;

   1.2. Inorganic nonmetallics: Liqui-Nox or equivalent;

   1.3. Metals: Liqui-Nox, Acationox, Micro or equivalents:

   1.4. Microbiologicals (all): Must pass an inhibitory residue test.

2. Rinse thoroughly with hot tap water.
3. Rinse with 10% nitric acid solution.
4. Rinse thoroughly with analyte-free water (deionized or better).
5. Rinse thoroughly with pesticide-grade methylene chloride.
6. Rinse thoroughly with pesticide-grade isopropanol, acetone or methanol.

   6.1. For bioassays, use only acetone, and only when containers are glass.

7. Oven dry at 103°C to 125°C for at least 1 hour.

   7.1. VOC vials and containers must remain in the oven in a contaminant-free environment until needed. They should be capped in a contaminant-free environment just prior to dispatch to the field.

Table FC 1000-2
Container Cleaning Procedures

8. Invert and air-dry in a contaminant-free environment.
9. Sterilize containers:
   9.1. Plastic: 60 min at 170°C, loosen caps to prevent distortion.
   9.2. Glass: 15 min at 121°C.
10. Rinse with 10% hydrochloric acid followed by a sodium bicarbonate solution.
11. Cap tightly and store in a contaminant-free environment until use. Do not use glass if collecting samples for boron or silica.

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Aspen 1-3	

APPENDIX I-3

FD 1000 - DOCUMENTATION PROCEDURES

FD 1000. DOCUMENTATION PROCEDURES

1. INTRODUCTION: For the creation of unequivocal, accurate and methodical records to document all field activities affecting sample data, implement the following standard operating procedures for sample collection, sample handling and field-testing activities.

2. SCOPE AND APPLICABILITY

2.1. This SOP provides a detailed listing of the information required for documentation of all sampling procedures and field testing.

2.2. Refer to the associated sampling or field testing SOP for any requirements for the chronological or sequential documentation of data.

3. QUALITY ASSURANCE: Implement review procedures to monitor and verify accurate manual and automated data entry and recordkeeping for all documentation tasks outlined in this SOP.

FD 1100. Universal Documentation Requirements

Incorporate efficient archival design and succinct documentation schemes for all record systems. Ensure that the history of a sample is clearly evident in the retained records and documentation and can be independently reconstructed.

1. CRITERIA FOR ALL DOCUMENTS

1.1. Keep all applicable documentation available for inspection. Keep all original data and records as well as reduced or manipulated forms of the original data or records.

1.1.1. Authorized representatives of FDEP may legally inspect and request copies of any records using paper, electronic digital media or other media during any FDEP audit of physical facilities or on-site sampling events, and for any data validations conducted for applicable project data submitted to FDEP.

1.2. Record enough information so that clarifications, interpretations or explanations of the data are not required from the originator of the documentation.

1.3. Clearly indicate the nature and intent of all documentation and all record entries.

1.4. Link citations to SOPs and other documents by the complete name, reference or publication number, revision number and revision date for the cited document, when applicable. Also assign this information to internally generated SOPs.

1.5. Retain copies of all revisions of all cited documents as part of the documentation archives.

2. PROCEDURES

2.1. Sign, initial or encode all documentation entries made to paper, digital/electronic or other records with a link indicating the name and responsibility of the author making the data entry, clearly indicating the reason for the signature, initials or code (e.g., "sampled by"; "released by"; "prepared by"; "reviewed by").

2.2. In order to abbreviate record entries, make references to procedures written in internal SOPs or methodology and procedures promulgated by external sources.

2.2.1. Document the intent to use SOPs other than the FDEP SOPs, or to use allowable modifications to the FDEP SOPs by recording the effective date of use for all such SOPs or modifications.

2.2.1.1. Retain any correspondence with FDEP regarding approval to use alternative procedures for any projects.

2.2.2. Authorize all internal SOPs with the signatures of the quality assurance officer(s) and manager(s) responsible for implementation of the SOPs. Record the dates of signature.

2.3. Employ straightforward archiving of records to facilitate documentation tracking and retrieval of all current and archived records for purposes of inspection, verification and historical reconstruction of all procedures and measurement data.

2.4. Keep copies or originals of all documentation, including documentation sent to or received from external parties.

2.5. Use waterproof ink for all paper documentation.

2.6. Do not erase or obliterate entry errors on paper records. Make corrections by marking a line through the error so that it is still legible. Initial or sign the marked error and its correction.

2.7. Maintain electronic audit trails for all edited electronic digital records, if possible. Utilize software that allows tracking of users and data edits, if available. Software that prompts the user to double-check edits before execution is also preferred. See FD 1200.

2.8. Unequivocally link all documentation associated with a sample or measurement. Make cross-references to specific documentation when necessary.

2.9. Link final reports, data summaries or other condensed versions of data to the original sample data, including those prepared by external parties.

3. RETENTION REQUIREMENTS

3.1. Per the FDEP QA Rule, 62-160.220 & .340, F.A.C., keep all documentation archives for a minimum of 5 years after the date of project completion or permit cycle unless otherwise specified in a Department contract, order, permit or Title 62 rules.

FD 1200. Electronic and Digital Documentation

Handle electronic digital data as with any data according to applicable provisions of FD 1100.

1. RETENTION OF AUTOMATIC DATA RECORDING PRODUCTS

1.1. For data not directly read from the instrument display and manually recorded, retain all products or outputs from automatic data recording devices, such as strip chart recorders, integrators, data loggers, field measurement devices, computers, etc. Store records in electronic, magnetic, optical or paper form, as necessary.

1.1.1. Retain all original, raw output data. Ensure archiving of these data prior to subsequent reduction or other manipulation of the data.

1.2. Identify output records as to purpose, analysis date and time, field sample identification number, etc. Maintain unequivocal linkage with the associated sample, other data source or measured medium and specific instrument used to make the measurement.

2. ELECTRONIC DIGITAL DATA SECURITY

2.1. Control levels of access to electronic digital data systems as required to maintain system security and prevent unauthorized editing of data.

2.2. Do not alter raw instrumentation data or original manual data records in any fashion without retention of the original raw data.

2.3. Maintain secure computer networks and appropriate virus protection as warranted for each system design.

3. ELECTRONIC DATA STORAGE AND DOCUMENTATION

3.1. Store all electronic, magnetic and optical media for easy retrieval of records.

3.1.1. Ensure that all records can be printed to paper if needed for audit or verification purposes.

3.1.2. If it is anticipated that the documentation archive will become unreadable due to obsolescence of a particular storage technology, retain a paper archive of the data or transfer to other suitable media.

3.2. For easy retrieval of records, link all stored data to the associated sample data or other data source.

3.3. Back up all data at a copy rate commensurate with the level of vulnerability of the data. Consider replicating all original data as soon as possible after origination.

4. SOFTWARE VERIFICATION

4.1. Ensure that any software used to perform automatic calculations conforms to required formulas or protocols.

4.2. Document all software problems and their resolution in detail, where these problems have irretrievably affected data records or linkage. Record the calendar date, time, responsible personnel and relevant technical details of all affected data and software files. Note all software changes, updates, installations, etc. per the above concerns. File and link all associated service records supplied by vendors or other service personnel.

5. PROTECTION OF EQUIPMENT AND STORAGE MEDIA

5.1. Place stationary computers, instrumentation and peripheral devices in locations of controlled temperature and humidity and away from areas where the potential for fluid leaks, fire, falling objects or other hazards may exist. In the field, protect portable equipment from weather, excess heat or freezing, storage in closed vehicles, spillage from reagents and samples, etc.

5.2. Protect storage media from deteriorating conditions such as temperature, humidity, magnetic fields or other environmental hazards as above.

FD 1300. Documentation Using Other Media

1. UNIVERSAL REQUIREMENTS

1.1. Handle documentation prepared using other media according to FD 1100.

2. PROTECTION OF STORED MEDIA

2.1. Store media such as photographs, photographic negatives, microfilm, videotape, etc. under conditions generally prescribed for these media by manufacturers and conducive to long-term storage and protection from deterioration. See also FD 1200, section 5, above.

FD 2000. DOCUMENTATION OF CLEANED EQUIPMENT, SAMPLE CONTAINERS, REAGENTS AND SUPPLIES

When providing sample containers, preservation reagents, analyte-free water or sampling equipment, document certain aspects of these preparations.

1. EQUIPMENT CLEANING DOCUMENTATION

   1.1. Document all cleaning procedures by stepwise description in an internal SOP if cleaning procedures in the FDEP SOP have been modified for use.

   1.2. Retain any certificates of cleanliness issued by vendors supplying cleaned equipment or sample containers.

   1.3. If items are cleaned in the field during sampling activities for a site, document the date and time when the affected equipment was cleaned.

2. SAMPLING KIT DOCUMENTATION

Transmit to the recipient the following information pertaining to sampling equipment or other implements, sample containers, reagent containers, analyte-free water containers, reagents or analyte-free water supplied to the recipient.

- Quantity, description and material composition of all containers, container closures or closure liners
- Intended application for each sample container type indicated by approved analytical method or analyte group(s)
- Type and concentration of preservative added to clean sample containers and/or shipped as additional preservative
- Intended use of any additional preservatives or reagents
- Description of any analyte-free water (i.e., deionized, organic-free, etc.)
- Date of analyte-free water containerization
- Date of sampling kit preparation
- Description and material composition of all reagent transfer implements (e.g., pipets) shipped in the sampling kit
- Intended use of all implements
- Quantity, description and material composition of all sampling equipment
- Tare weight of VOC vials, as applicable (this item may be necessary in cases where EPA 5035 VOC sample vials are provided by a third party supplier)

3. DOCUMENTATION FOR REAGENTS AND OTHER CHEMICALS

   3.1. Keep a record of the lot numbers and inclusive dates of use for all reagents, detergents, solvents and other chemicals used for cleaning, field testing and sample preservation.

FD 3000. DOCUMENTATION OF EQUIPMENT MAINTENANCE

1. Log all maintenance and repair performed for each instrument unit, including routine cleaning procedures and solution or parts replacement for instrument probes.

    1.1. Include the calendar date for the procedures performed.

    1.2. Record names of personnel performing the maintenance or repair tasks.

        1.2.1. Describe any malfunctions necessitating repair or service.

    1.3. Designate the identity of specific instrumentation in the documentation with a unique description or code for each instrument unit employed. This may include a manufacturer name, model number, serial number, inventory number, etc.

2. Retain vendor service records for all affected instruments.

3. Record the following for rented equipment:

    - Rental date(s)
    - Equipment type and model or inventory number or other description

4. Retain the manufacturer's operating and maintenance instructions.

FD 4000. DOCUMENTATION FOR CALIBRATION OF FIELD-TESTING INSTRUMENTS AND FIELD ANALYSES

Document acceptable instrument or measuring system calibration for each field test or analysis of a sample or other measurement medium.

FD 4100. General Documentation for all Field Testing

1. Link standard preparation and working standards to intermediate and primary standards used in all calibrations.

    1.1. Record the concentration or other value for the standard in the appropriate measurement units.

        1.1.1. Note vendor catalog number and description for preformulated solutions as well as for neat liquids and powdered standards.

        1.1.2. Retain vendor assay specifications for standards as part of the calibration record.

            1.1.2.1. Record the grade of standard used.

    1.2. When formulated in-house, document all calculations used to formulate calibration standards.

        1.2.1. Record the date of preparation for all in-house formulations.

    1.3. Record expiration dates for all calibration standards.

        1.3.1. Document acceptable assay or calibration response or verification of any standard used after an expiration date.

    1.4. Describe or cite the procedure(s) used to prepare any standards in-house (FDEP SOP or internal SOP).

2. Document acceptable calibration and calibration verification for each instrument unit and field test or analysis, linking this record with affected sample measurements. Retain vendor certifications of all factory-calibrated instrumentation.

2.1. Designate the identity of specific instrumentation in the documentation with a unique description or code for each instrument unit employed.

2.1.1. Record manufacturer name, model number and identifying number such as a serial number for each instrument unit.

2.2. Record the time and date of all calibrations, calibration checks and verifications.

2.2.1. Record the result (value in appropriate measurement units) of all calibrations, calibration checks and verifications.

2.3. Record the name of the analyst(s) performing the calibration.

2.4. Document the specific standards used to calibrate or check (verify) the instrument or field test.

2.5. Specify the calibration acceptance criteria and the calibration check or verification acceptance criteria for each instrument unit and field test or analysis.

2.5.1. Retain manufacturers' instrument specifications or acceptable recoveries specified by QC check sample suppliers as part of the calibration record, if these data are used as calibration acceptance criteria. Link these records to the affected samples, instrument unit and field test.

2.5.2. Document the result(s) indicating that successful calibration acceptance occurred.

2.5.3. Document the result(s) indicating whether the calibration check or verification passed or failed.

2.6. Document any corrective actions taken prior to recalibration after a failed check or verification.

2.6.1. Note any incidence of discontinuation of use of the instrument due to calibration failure.

2.7. Describe or cite the specific calibration or check procedure performed (FDEP SOP or internal SOP).

FD 5000. Documentation Of Sample Collection, Preservation And Transport

Follow these procedures for all samples. See FD 5100 - FD 5427 below for additional documentation for specific sampling activities. See example Forms in FD 9000, below for additional documentation requirements for specific sampling and testing procedures.

1. Sample Identification Requirements

1.1. Label or tag each sample container with a unique field identification code that distinguishes each sample container from all others.

1.1.1. Link the unique field identification code to the sample source or sampling point identification, the analytes of interest, the preservation technique and sample replicate

sequence. Make sure the code is different from codes assigned to any other sample containers.

1.2. Attach the label or tag so that it does not contact any portion of the sample that is removed or poured from the container.

1.3. Record the unique field identification code on all other documentation associated with the specific sample container.

2. GENERAL REQUIREMENTS FOR SAMPLING DOCUMENTATION: Record the following information for all sampling.

2.1. Names of all sampling team personnel on site during sampling

2.2. Date and time of sample collection (indicate hours and minutes)

2.2.1. Use 24-hour clock time or indicate A.M. and P.M.

2.2.2. Note the exact time of collection for individual sample containers for time-sensitive analyses of less than 24 hours maximum holding time.

2.3. Ambient field conditions, to include, but not limited to information such as weather, tides, etc.

2.4. Specific description of sample location including site name and address

2.4.1. Describe the specific sampling point (e.g., monitoring well identification number, outfall number, station number, etc.).

2.4.2. Determine latitude and longitude of sampling source location using GPS (if available)

2.4.3. Locate sampling points on scaled maps or drawings where applicable.

2.5. Unique field identification code for each sample container and parameters to be analyzed

2.6. Matrix sampled

2.7. Field-testing measurement data, to include the following:

- Project name
- Date and time of measurement or test
- Source and location of the measurement or test sample (e.g., monitoring well identification number, outfall number, station number or other description)
- Latitude and longitude of sampling source location determined by GPS (if available)
- Analyte or parameter measured
- Measurement or test sample value in appropriate reporting units
- Analyst(s) performing the measurement(s) or test(s)
- Unique identification of the specific instrument unit(s) used for the test(s)

2.8. Calibration records for field-testing equipment

2.8.1. See FD 4000 above for specific details.

2.9. Preservation for each container

2.9.1. See FD 5100, section 4 below.

2.10. Purging and sampling equipment used

2.11. Types, number, collection location and collection sequence of quality control samples

2.12. Use of fuel powered vehicles and equipment

2.13. Number of subsamples and amount of each subsample in any composite samples

2.13.1. Include sufficient location information for the composite subsamples per 2.4 above.

2.14. Signature(s) or initials of sampler(s)

3. SAMPLE TRANSMITTAL RECORDS: Transmit the following information to the analytical laboratory or other receiving party. Link transmittal records with a given project and retain all transmittal records.

3.1. Site name and address

3.1.1. Client code is acceptable if samples are considered sensitive information and if the field records clearly trace the code to a specified site and address.

3.2. Date and time of sample collection

3.3. Name of sampler responsible for sample transmittal

3.4. Unique field identification codes for each sample container

3.5. Total number of samples

3.6. Required analyses

3.7. Preservation protocol

3.8. Comments about sample or sample conditions

3.9. Identification of common carrier (if used)

4. SAMPLE TRANSPORT

4.1. If shipping transmittal forms in the transport containers with the samples, place the forms in a waterproof enclosure and seal.

4.2. For common carrier shipping, seal transport containers securely with strapping tape or other means to prevent lids from accidentally opening.

4.2.1. Keep all shipping bills from common carriers with archived transmittal records.

5. ANCILLARY FIELD RECORDS: Link any miscellaneous or ancillary records (photographs, videotapes, maps, etc.) to specific sampling events such that these records are easily traceable in the data archives associated with the project, sampling date and sample source(s).

FD 5100. Documentation Specific To Aqueous Chemistry Sampling

1. SAMPLE PRESERVATION: Record the following for all samples:

1.1. Chemical preservative name(s)

1.2. pH verification (if applicable)

1.3. Amount/quantity of preservative added to sample or amount/quantity of additional preservative added (if using sample containers with premeasured preservatives)

1.3.1. For documentation of preservation for routine samples, defer to SOPs for this information.

1.3.2. Record instances of deviation from preservation protocols found in SOPs for non-routine or problematic samples.

1.4. Use of ice or other cooling method, if applicable.

2. GROUNDWATER SAMPLING

2.1. Record the following for all samples. See section 3 below for in-place plumbing:

- Purging equipment used
- Well casing composition and diameter of well casing
- Water table depth and well depth
- Calculations used to determine purge volume
- Total amount of water purged
- Date well was purged
- Sampling equipment used
- Well diameter
- Total depth of well
- Depth to groundwater
- Volume of water in the well
- Purging method
- Times for beginning and ending of purging
- Total volume purged
- Times of stabilization parameter measurements
- Purging rate, including any changes in rate
- Temperature measurements
- pH measurements
- Specific conductance measurements
- Dissolved oxygen measurements
- Turbidity measurements
- Site or monitor well conditions impacting observed dissolved oxygen and turbidity measurements
- Color of groundwater
- Odor of groundwater

2.2. Record the following for Water Level and Purge Volume Determination (FS 2211):

- Depth to groundwater
- Total depth of well
- Length of water column
- Well diameter
- Volume of water in the well
- Volume of pump
- Tubing diameter
- Length of tubing
- Volume of flow cell
- Volume in the pumping system

2.3. Record the following for Well Purging (FS 2212)

- Calculations for pumping rates, including any changes in rates
- Flow meter readings
- Volume of water purged
- Time needed to purge one (1) well volume or purging equipment volume
- Well volumes or purging equipment volumes purged
- Temperature measurements
- pH measurements
- Specific conductance measurements
- Dissolved oxygen measurements
- Turbidity measurements
- Purging rate, including any changes in rate
- Drawdown in the well

3. IN-PLACE PLUMBING SOURCES INCLUDING DRINKING WATER SYSTEMS

3.1. Record the following for all samples:

- Plumbing and tap material construction (if known)
- Flow rate at which well was purged
- Amount of time well was allowed to purge
- Flow rate at time of sample collection
- Public water system identification number (if applicable)
- Name and address of water supply system and an emergency phone number for notification of sample results (if applicable)

4. SURFACE WATER SAMPLING

- Sample collection depth

- Beginning and ending times (24 hr) for timed composite sampling
- Type of composite (e.g., flow-proportioned, continuous, etc.)

5. WASTEWATER SAMPLING
   - Beginning and ending times (24 hr) for timed composite sampling
   - Type of composite (e.g. flow-proportioned, continuous, etc.)

FD 5200. Records for Non-Aqueous Environmental Samples

Document the following information for all samples when using the indicated procedures.

FD 5210. DOCUMENTATION SPECIFIC TO SOIL SAMPLING (FS 3000)

1. GENERAL SOIL SAMPLING
   - Sample collection depth
   - Areal location of sample
   - Sample collection device
2. SAMPLING FOR VOLATILE ORGANIC COMPOUNDS (VOC) PER EPA METHOD 5035
   - Tare weight of VOC sample vial (if applicable)
   - Weight of sample (if applicable)

FD 5220. DOCUMENTATION SPECIFIC TO SEDIMENT SAMPLING (FS 4000)

1. General Sediment Sampling
   - Sample collection depth
   - Areal location of sample
   - Sample collection device
2. SAMPLING FOR VOLATILE ORGANIC COMPOUNDS (VOC) PER EPA METHOD 5035
   - Tare weight of VOC sample vial (if applicable)
   - Weight of sample (if applicable)

FD 5300. Documentation Specific To Waste Sampling (FS 5000)

1. DRUM SAMPLING
   1.1. Record the following information for each drum:

- Type of drum and description of contents
- Drum number, if applicable
- Terrain and drainage condition
- Shape, size and dimensions of drum
- Label wording or other markings
- Dimensional extent of leaks or spills associated with the drum
- Drum location (or location map)

1.2. Record the following information for the drum sample(s):

- Description of phases, colors, crystals, powders, sludges, etc.
- Stratified layers sampled, including aliquot amounts for composites, if applicable

1.3. Record the following for field testing results on opened drums and drum samples:

- Background readings for OVA meters
- Sample readings for OVA meters
- Type of OVA probe
- Radiation background reading and sample radiation reading
- Type of radiation monitor used
- Oxygen and LEL readings from container opening
- Water reactivity results
- Specific gravity
- PCB test results
- Water solubility results
- pH of aqueous wastes
- Results of chemical test strips
- Ignitability results
- Results of other chemical hazard test kits
- Miscellaneous comments for any tests

2. DOCUMENTATION FOR TANKS

2.1. Record the following information for the tank:

- Type of tank, tank design and material of construction of tank
- Description of tank contents and markings
- Tank number or other designation, if applicable
- Terrain and drainage condition
- Shape, size and dimensions of tank
- Label or placard wording or other markings
- Dimensional extent of leaks or spills associated with the tank
- Tank location (or location map)

2.2. Record the following information for the tank sample(s):

- Description of phases, colors, crystals, powders, sludges, etc.
    - Stratified layers sampled, including aliquot amounts for composites, if applicable

2.3. Record the following for field testing results on opened tanks and tank samples:

- Background readings for OVA meters
- Sample readings for OVA meters
- Type of OVA probe
- Radiation background reading and sample radiation reading
- Type of radiation monitor used
- Oxygen and LEL level from container opening
- Water reactivity results
- Specific gravity
- PCB test results
- Water solubility results
- pH of aqueous wastes
- Results of chemical test strips
- Ignitability results
- Results of other chemical hazard test kits
- Miscellaneous comments for any tests

3. DOCUMENTATION FOR WASTE LEACHATE AND WASTE SUMP SAMPLES

3.1. Document information specific to leachate and sump sampling according to the documentation requirements for the respective FDEP SOPs employed to collect samples (FS 2100, FS 2200, FS 4000, FS 5100 and FS 5200).

4. DOCUMENTATION FOR WASTE PILE SAMPLES

4.1. Document information specific to waste pile sampling according to associated regulatory requirements for the project.

5. DOCUMENTATION FOR WASTE IMPOUNDMENT AND WASTE LAGOON SAMPLES

5.1. Document information specific to impoundment and lagoon sampling according to the documentation requirements for the respective FDEP SOPs employed to collect samples (FS 2100, FS 4000, FS 5100 and FS 5200).

FD 5400. Documentation For Biological Sampling

The following SOP sections list required documentation items for specific biological sampling procedures, as indicated.

FD 5410. DOCUMENTATION FOR BIOLOGICAL AQUATIC HABITAT CHARACTERIZATION

Minimum documentation required for biological habitat characterization and sampling is listed below according to requirements as specified in the indicated sampling and field-testing FDEP SOPs.

FD 5411. Physical/Chemical Characterization for Biological Sampling (FT 3001)

1. Record the following information or use the Physical/Chemical Characterization Field Sheet (Form FD 9000-3):

- STORET station number
- Sample date
- Sample location
- Field identification
- Receiving body of water
- Time of sampling
- Percentage of land-use types in the watershed that drain to the site
- Potential for erosion within the portion of the watershed that affects the site
- Local non-point-source pollution
- Width of 100-meter section of river or stream
- Size of the system or the size of the sample area within the system (lake, wetland, or estuary)
- Three measurements of water depth across the typical width transect
- Three measurements of water velocity, one at each of the locations where water depth was measured
- Vegetated riparian buffer zone width on each side of the stream or river or at the least buffered point of the lake, wetland or estuary
- Presence of artificial channelization in the vicinity of the sampling location (stream or river)

- Presence or absence of impoundments in the area of the sampling location
- Vertical distance from the current water level to the peak overflow level
- Distance of the high water mark above the stream bed
- Percentage range that best describes the degree of shading in the sampling area
- Any odors associated with the bottom sediments
- Presence or absence of oils in the sediment
- Any deposits in the area, including the degree of smothering by sand or silt
- Temperature
- pH
- Dissolved oxygen
- Specific conductance
- Salinity
- Secchi depth
- Type of aquatic system sampled
- Description of any noticeable water odors
- Term that best describes the relative coverage of any oil on the water surface
- Term that best describes the amount of turbidity in the water
- Term that best describes the color of the water
- Weather conditions during the time of sampling
- Any other conditions/observations that may be helpful in characterizing the site
- Relative abundances of periphyton, fish, aquatic macrophytes and iron/sulfur bacteria
- Signature(s) of sampler(s)
- Sampling date

2. For streams and rivers, draw a grid sketch of the site (optionally use Form FD 9000-4), showing the location and amount of each substrate type (as observed by sight or touch). Using the grid sketch, count the number of grid spaces for each substrate type. Divide each of these numbers by the total number of grid spaces contained within the site sketch. Record this percent coverage value for each substrate type.

3. For lakes, divide the site map into twelve sections and note visual markers that may assist in distinguishing those sections.

4. Photographs of the sampling area are also useful tools for documenting habitat conditions and identifying station location.

FD 5412. Stream and River Biological Habitat Assessment Records (FT 3100)

1. Record the following information or use Form FD 9000-5, Stream/River Habitat Assessment Field Sheet:

- STORET station number
- Sampling date
- Sampling location
- Field identification
- Receiving body of water
- Time of sampling upon arrival at the site

2. Additionally record the following:
   - Substrate diversity score
   - Substrate availability score
   - Water velocity score
   - Habitat smothering score
   - Artificial channelization score
   - Bank stability score for each bank
   - Riparian buffer zone width score for each bank
   - Riparian zone vegetation quality score for each bank
   - Primary habitat components score
   - Secondary habitat components score
   - Habitat assessment total score
   - Signatures
   - Assessment date

FD 5413. Lake Biological Habitat Assessment Records (FT 3200)

1. Document the following information or use the Lake Habitat Assessment Field Sheet (Form FD 9000-6):
   - STORET station number
   - Sampling date
   - Sampling location
   - Field identification number
   - County name
   - Lake size
   - Features observed
   - Hydrology of the system (water residence time)
   - Color of the lake
   - Vegetation quality score

- Stormwater inputs score
- Bottom substrate quality score
- Lakeside adverse human alterations score
- Upland buffer zone score
- Adverse watershed land use score
- Habitat assessment total score
- Signature and date

FD 5420. Biological Aquatic Community Sampling Records (FS 7000)

FD 5421. Periphyton Sampling Records (FS 7200)

For each sample, record the following:

- Station sampled
- Date collected

FD 5422. Qualitative Periphyton Sampling Records (FS 7210)

Complete the Physical/Chemical Characterization Field Sheet (Form FD 9000-3), Stream/River Habitat Sketch Sheet (Form FD 9000-4) or site map and Stream/River Habitat Assessment Field Sheet (Form FD 9000-5), as appropriate for the water body sampled (see FT 3000 – FT 3400). Other customized formats may be used to record the information prompted on the above forms.

FD 5423. Rapid Bioassessment (Biorecon) Records (FS 7410)

Record the following information or use the Biorecon Field Sheet (Form FD 9000-1).

- Family or genus of all organisms from all material in all four dipnet sweeps
- Total taxa tallies
- Taxa richness, Florida Index and EPT Index scores
- Signatures
- Collection date

FD 5424. Stream Condition Index (D-frame Dipnet) Sampling Records (FS 7420)

Complete the Physical/Chemical Characterization Field Sheet (Form FD 9000-3), Stream/River Habitat Sketch Sheet (Form FD 9000-4) or site map and Stream/River Habitat Assessment Field Sheet (Form FD 9000-5) forms appropriate for the water body sampled (see FT 3000 – FT 3400). Other customized formats may be used to record the information prompted on the above forms.

Record the following for each sample:

- Number of sweeps for each habitat

- Number of containers per sample

FD 5425. Sediment Core Biological Grab Sampling Records (FS 7440)

Record the sampling location of site grab core samples.

FD 5426. Sediment Dredge Biological Grab Sampling Records (FS 7450)

Record the sampling location of site grab dredge samples.

FD 5427. Lake Condition Index (Lake Composite) Sediment Dredge Biological Grab Sampling Records (FS 7460)

Record the following:

- sampling location of site grab dredge sample
- sediment type(s) in each grab dredge sample

FD 6000. (RESERVED)

FD 7000. LEGAL OR EVIDENTIARY DOCUMENTATION

1. SCOPE: The use of legal or evidentiary Chain-of-Custody (COC) protocols are not required by DEP, except for cases involving civil or criminal enforcement. Do not use these procedures for routine sampling for compliance, for example, unless evidentiary custody protocols are specifically mandated in a permit or other legal order or when required for enforcement actions.

2. GENERAL PROCEDURAL INSTRUCTIONS

2.1. Follow applicable requirements in FD 1000 – FD 5000 for all evidence samples.

2.2. Establish and maintain the evidentiary integrity of samples and/or sample containers. Demonstrate that the samples and/or sample containers were handled and transferred in such a manner as to eliminate possible tampering.

2.2.1. Document and track all time periods and the physical possession and storage of sample containers and samples from point of origin through the final analytical result and sample disposal.

FD 7100. General Requirements for Evidentiary Documentation

1. CHAIN OF CUSTODY RECORDS: Use the Chain-of-Custody (COC) records to establish an intact, contiguous record of the physical possession, storage and disposal of sample containers, collected samples, sample aliquots, and sample extracts or digestates. For ease of discussion, the above-mentioned items are referred to as "samples".

1.1. Account for all time periods associated with the physical samples.

1.2. Include signatures of all individuals who physically handle the samples.

1.2.1. The signature of any individual on any record that is designated as part of the Chain-of-Custody is their assertion that they personally handled or processed the samples identified on the record.

1.2.2. Denote each signature with a short statement that describes the activity of the signatory (e.g., "sampled by", "received by", "relinquished by", etc.).

1.2.3. In order to simplify recordkeeping, minimize the number of people who physically handle the samples.

2. CONSOLIDATION OF RECORDS: The COC records need not be limited to a single form or document. However, limit the number of documents required to establish COC, where practical, by grouping information for related activities in a single record. For example, a sample transmittal form may contain both certain field information and the necessary transfer information and signatures for establishing delivery and receipt at the laboratory.

3. LIABILITY FOR CUSTODY DOCUMENTATION: Ensure appropriate personnel initiate and maintain sample chain-of-custody at specified times.

3.1. Begin legal chain-of-custody when the precleaned sample containers are dispatched to the field.

3.1.1. Omit the transmittal record for precleaned sample containers if the same party provides the containers and collects the samples.

3.2. Sign the COC record upon relinquishing the prepared sample kits or containers.

3.3. Sign the COC record upon receipt of the sample kits or containers.

3.4. Thereafter, ensure that all parties handling the samples maintain sample custody (i.e., relinquishing and receiving) and documentation until the samples or sampling kits are relinquished to a common carrier.

3.4.1. The common carrier should not sign COC forms.

3.4.2. Indicate the name of the common carrier in the COC record, when used. Retain shipping bills and related documents as part of the record.

3.4.3. Ensure that all other transferors and transferees releasing or accepting materials from the common carrier sign the custody record.

3.5. Chain-of-custody is relinquished by the party who seals the shipping container and is accepted by the party who opens it.

3.5.1. Indicate the date and time of sealing of the transport container for shipment.

3.5.1.1. See FD 7200, section 3 below regarding the use of custody seals.

4. SAMPLE SHIPPING OR TRANSPORTING

4.1. Affix tamper-indicating custody seals or evidence tape before shipping samples.

4.1.1. Seal sample container caps with tamper-indicating custody seals or evidence tape before packing for shipping or transport.

4.1.2. Seal sample transport or shipping containers with strapping tape and tamper-indicating custody seals or evidence tape.

4.1.3. If the same party collects then possesses (or securely stores), packs and transports the samples from time of collection, omit any use of custody seals or evidence tape.

4.2. Keep the COC forms with the samples during transport or shipment. Place the COC records in a waterproof closure inside the sealed ice chest or shipping container.

FD 7200. Required Documentation for Evidentiary Custody

1. GENERAL CONTENT REQUIREMENTS: Document the following in COC tracking records by direct entry or linkage to other records:

- Time of day and calendar date of each transfer or handling procedure
- Signatures of transferors, transferees and other personnel handling samples
- Location of samples (if stored in a secured area)
- Description of all handling procedures performed on the samples for each time and date entry recorded above
- Storage conditions for the samples, including chemical preservation and refrigeration or other cooling
- Unique identification for all samples
- Final disposition of the physical samples
- Common carrier identity and related shipping documents

2. DOCUMENTATION CONTENT FOR SAMPLE TRANSMITTAL

Provide a Chain-of-Custody record for all evidentiary samples and subsamples that are transmitted or received by any party. Include the following information in the COC record of transmittal:

- Sampling site name and address
- Date and time of sample collection
- Unique field identification code for each sample source and each sample container
- Names of personnel collecting samples
- Signatures of all transferors and transferees
- Time of day and calendar date of all custody transfers
- Clear indication of number of sample containers
- Required analyses by approved method number or other description
- Common carrier usage
- Sample container/preservation kit documentation, if applicable

3. CHAIN-OF-CUSTODY SEALS: If required, affix tamper-indicating evidence tape or seals to all sample, storage and shipping container closures when transferring or shipping sample container kits or samples to another party.

3.1. Place the seal so that the closure cannot be opened without breaking the seal.

3.2. Record the time, calendar date and signatures of responsible personnel affixing and breaking all seals for each sample container and shipping container.

3.3. Affix new seals every time a seal is broken until continuation of evidentiary custody is no longer required.

FD 7300. Documenting Controlled Access to Evidence Samples

Control and document access to all evidentiary samples and subsamples.

1. Limit the number of individuals who physically handle the samples as much as practicable.

2. When storing samples and subsamples, place samples in locked storage (e.g., locked vehicle, locked storeroom, etc.) at all times when not in the possession or view of authorized personnel.

3. Alternatively, maintain restricted access to facilities where samples are stored. Ensure that unauthorized personnel are not able to gain access to the samples at any time.

4. Do not leave samples in unoccupied motel or hotel rooms or other areas where access cannot be controlled by person(s) responsible for custody without first securing samples and shipping or storage containers with tamper-indicating evidence tape or custody seals.

FD 7400. Documenting Disposal of Evidence Samples

1. Dispose of the physical samples only with the concurrence of the affected legal authority, sample data user and/or submitter/owner of the samples.

2. Record all conditions of disposal and retain correspondence between all parties concerning the final disposition of the physical samples.

3. Record the date of disposal, the nature of disposal (i.e., sample depleted, sample flushed into sewer, sample returned to client, etc.), and the name of the individual who performed the disposal. If samples are transferred to another party, document custody transfer in the same manner as other transfers (see FD 7000 – FD 7200).

FD 8000. REFERENCES

1. Florida Department of Environmental Protection, Standard Operating Procedures for Laboratory Operations and Sample Collection, Chapter 5.0, "Sample Custody and Documentation", DEP-QA-001/92, September 30, 1992.

2. National Environmental Laboratory Accreditation Conference, Constitution, Bylaws and Standards, "Quality Systems", Section 5.12, EPA 600/R-99/068, July 1999.

3. U.S. Environmental Protection Agency, Good Automated Laboratory Practices, EPA 2185, 8/10/95

FD 9000. FORMS

Use the following DEP SOP Forms to facilitate documentation of sampling, field-testing and biological laboratory calculation activities. These forms are for unrestricted public use and are suggestive in format. *The use of these forms is not mandatory. However, the data elements and other information denoted by the form prompts comprise* ***required documentation*** *items.* Customize these forms as needed. These forms are available as separate document files. The respective FDEP SOPs for which they are intended are also listed below.

- Form FD 9000-1 Biorecon Field Sheet (FS 7000 and LT 7000)
- Form FD 9000-2 Composite Lake Sampling Sheet (FS 7000)
- Form FD 9000-3 Physical/Chemical Characterization Field Sheet (FT 3000)

- Form FD 9000-4 Stream/River Habitat Sketch Sheet (FT 3000)
- Form FD 9000-5 Stream/River Habitat Assessment Field Sheet (FT 3000)
- Form FD 9000-6 Lake Habitat Assessment Field Sheet (FT 3000)
- Form FD 9000-7 Field Measurements Record Form (FT 1100 - FT 2400)
- Form FD 9000-8 Field Instrument Calibration Form (FT 1100 - FT 2400)
- Form FD 9000-9 Field Instrument Maintenance Form (FT 1100 - FT 2400)
- Form FD 9000-10 LI-COR Data Sheet for Transparency Measurements (FT 1700)
- Form FD 9000-11 Discharge Measurement Notes [USGS Form, 1971] (FT 1800)
- Form FD 9000-12 Maintenance and Calibration Log for Residual Chlorine Spectrophotometer (FT 2000)
- Form FD 9000-13 Field Calibration Check Log Form for Residual Chlorine (FT 2000)
- Form FD 9000-14 Gel Standard Calibration Log Form (FT 2000)
- Form FD 9000-15 Sediment Oxygen Demand Field Record Form (FT 2300)
- Form FD 9000-16 Chain-of-Custody Form for Tissues (FS 6000-FS 6200)
- Form FD 9000-17 Sample Request Form for Tissues (FS 6000-FS 6200)
- Form FD 9000-18 Field Record for Shellfish Contaminant Monitoring Program - Screening Study (FS 6100)
- Form FD 9000-19 Field Record for Shellfish Contaminant Monitoring Program - Intensive Study (FS 6100)
- Form FD 9000-20 Field Record for Fish Contaminant Monitoring Program - Screening Study (FS 6200)
- Form FD 9000-21 Field Record for Fish Contaminant Monitoring Program - Intensive Study (FS 6200)
- Form FD 9000-22 Field Equipment Checklist- General Field Support (FS 1000)
- Form FD 9000-23 Field Equipment Checklist- Sample Collection (FS 1000)
- Form FD 9000-24 Groundwater Sampling Log (FS 2200)

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Appen 1-4	

APPENDIX I-4

FQ 1000 - FIELD QUALITY CONTROL REQUIREMENTS

FQ 1000. FIELD QUALITY CONTROL REQUIREMENTS

Field quality control measures monitor the sampling event to ensure that the collected samples are representative of the sample source and that the field-collected data have stated limits of precision and accuracy.

1. Field-collected blanks must demonstrate that the collected samples have not been contaminated by:

- The sampling environment
- The sampling equipment
- The sample container
- The sampling preservatives
- Sample transport
- Sample storage

2. Field Measurement Quality Controls must demonstrate that

- The instrument was properly calibrated; and
- The instrument maintained acceptable calibration during use.

FQ 1100. Sample Containers

Sample containers must be free from contamination by the analytes of interest or any interfering constituents and must be compatible with the sample type.

FQ 1200. Sampling Operations

1. When collected, analyze all quality control samples for the same parameters as the associated samples.

1.1. When collected, collect blanks the following parameter groups and tests:

- Volatile Organics
- Extractable Organics
- Metals
- Ultratrace Metals
- Inorganic Nonmetallics
- Radionuclides
- Petroleum Hydrocarbons and Oil & Grease
- Volatile Inorganics
- Aggregate Organics except Biochemical Oxygen Demand

1.2. Blanks are not required for:

- Microbiological (all types)
- Toxicity
- Field parameters such as pH, Specific Conductance, Residual Chlorine, Temperature, Light Penetration, Dissolved Oxygen, ORP and Salinity,
- Radon
- Algal Growth Potential
- Biological Community
- Physical and Aggregate Properties
- Biochemical Oxygen Demand

2. Preserve, transport, document and handle all quality control samples as if they were samples. Once collected, they must remain with the sample set until the laboratory has received them.

3. Prepare equipment blanks by rinsing the sampling equipment set with the appropriate type of analyte-free water and collecting the rinsate in appropriate sample containers (see FQ 1100).

4. Except for trip blanks, prepare all quality control samples **on-site in the field.**

4.1. Do not prepare precleaned equipment in advance at the base of operations

4.2. Do not prepare field-cleaned equipment blanks after leaving the sampling site.

5. Perform and document any field QC measures specified by the analytical method (such as trip blanks for volatile organics).

FQ 1210. QUALITY CONTROL BLANKS

FQ 1211. Precleaned Equipment Blanks

1. USE: Monitors on-site sampling environment, sampling equipment decontamination, sample container cleaning, the suitability of sample preservatives and analyte-free water, and sample transport and storage conditions.

2. Collect these blanks on sampling equipment that has been brought to the site precleaned and ready for use.

3. Collect these blanks before the equipment set has been used.

FQ 1212. Field-Cleaned Equipment Blanks

1. USE: Monitors on-site sampling environment, sampling equipment decontamination, sample container cleaning, the suitability of sample preservatives and analyte-free water, and sample transport and storage conditions.

2. Collect these blanks using sampling equipment that has been cleaned in the field (i.e., between sampling points).

FQ 1213. Trip Blanks

1. USE: Monitors sample container cleaning, the suitability of sample preservatives and analyte-free water, and both contain and sample transport and storage conditions.

2. These blanks are applicable if samples are to be analyzed for volatile constituents (volatile organics, methyl mercury, etc.).

3. The organization that is providing the VOC vials must provide the trip blanks by filling one or more VOC vials with analyte-free water.

4. Place a set of trip blanks in each transport container used to ship/store empty VOC vials. They must remain with the VOC vials during the sampling episode and must be transported to the analyzing laboratory in the same shipping or transport container(s) as the VOC samples.

5. Trip blanks must be opened **only** by the laboratory after the blank and associated samples have been received for analysis.

FQ 1214. Field Blanks

1. USE: Monitors on-site sampling environment, sample container cleaning, the suitability of sample preservatives and analyte-free water, and sample transport and storage conditions.

2. Prepare field blanks by pouring analyte-free water into sample containers for each parameter set to be collected.

3. Field blanks are not required if equipment blanks (FQ 1211 or FQ 1212) are collected.

FQ 1220. FIELD DUPLICATES

1. USE: Designed to measure the variability in the sampling process.

2. GENERAL CONSIDERATIONS:

2.1. Collect duplicates by **repeating** (simultaneously or in rapid succession) the entire sample acquisition technique that was used to obtain the first sample.

2.1.1. Collect, preserve, transport and document duplicates in the same manner as the samples. **These samples are not considered laboratory duplicates**.

2.2. If collected, analyze field duplicates for the same parameters as the associated samples.

2.3. When possible, collect duplicate samples from sampling locations where contamination is present.

FQ 1221. Water Duplicates

Collect water duplicates by sampling from successively collected volumes (i.e., samples from the next volume of sample water).

FQ 1222. Soil Duplicates

Collect soil duplicates from the same sample source (i.e., soil from the same soil sampling device).

FQ 1230. MANDATORY FIELD QUALITY CONTROLS

1. The respondent, permittee or contractor and the sampling organization are responsible for ensuring that blanks (excluding trip blanks) are collected at a minimum of 5% of each reported test result/matrix combination.

1.1. If a party wishes to claim that a positive result is due to external contamination sources during sample collection, transport or analysis, then at least one field collected blank (excludes trip blanks) must have been collected at the same time the samples were collected and analyzed with the same sample set.

2. Collect at least one blank (excluding trip blanks) for each reported test result/matrix combination each year.

3. When collecting a set of blanks, use the following criteria:

3.1. Equipment Blanks:

3.1.1. Collect field-cleaned equipment blanks if any sample equipment decontamination is performed in the field.

3.1.2. If no decontamination is performed in the field collect precleaned equipment blanks if the equipment is not certified clean by the vendor or the laboratory providing the equipment.

3.2. Field Blanks:

3.2.1. Collect field blanks if no equipment except the sample container is used to collect the samples or if the sampling equipment is certified clean by the vendor or the laboratory providing the equipment.

4. OPTIONAL QUALITY CONTROL MEASURES

4.1. The method or project may require collection of additional quality control measures as outlined in FQ 1210 (Blanks), FQ 1220 (Duplicates) and FQ 1240 (Split Samples).

4.2. Trip blanks are not required, but must be collected and analyzed if the analytical test method requires them. If collected, these blanks are in addition to the requirements specified in sections 1 and 2 above.

FQ 1240. SPLIT SAMPLES

The FDEP or the client may require split samples as a means of determining compliance or as an added measure of quality control. Unlike duplicate samples that measure the variability of both the sample collection and laboratory procedures, split samples measure only the variability **between** laboratories. Therefore, the laboratory samples must be subsamples of the same parent sample and every attempt must be made to ensure sample homogeneity.

Collect, preserve, transport and document split samples using the same protocols as the related samples. In addition, attempt to use the same preservatives (if required).

If split samples are incorporated as an added quality control measure, the FDEP recommends that all involved parties agree on the logistics of collecting the samples, the supplier(s) of the preservatives and containers, the analytical method(s), and the statistics that will be used to evaluate the data.

FQ 1241. Soils, Sediments, Chemical Wastes and Sludges

Collecting split samples for these matrices is not recommended because a true split sample in these matrices is not possible.

FQ 1242. Water

Collect split samples for water in one of two ways:

1. Mix the sample in a large, appropriately precleaned, intermediate vessel (a churn splitter is recommended). This method shall not be used if volatile or extractable organics, oil and grease or total petroleum hydrocarbons are of interest. While continuing to thoroughly mix the sample, pour aliquots of the sample into the appropriate sample containers. Alternatively:

2. Fill the sample containers from consecutive sample volumes **from the same sampling device**. If the sampling device does not hold enough sample to fill the sample containers, use the following procedure:

   2.1. Fill the first container with half of the sample, and pour the remaining sample into the second container.

   2.2. Obtain an additional sample, pour the first half into the **second** container, and pour the remaining portion into the first container.

   2.3. Continue with steps described in sections 2.1 and 2.2 above until both containers are filled.

FQ 1250. Quality Control Documentation

1. Document all field quality control measures in the permanent field records.
2. At a minimum, record the following information:
   - The type, time and date that the quality control sample was collected; and
   - The preservative(s) (premeasured or added amount) and preservation checks performed.
3. If blanks are collected/prepared by the field organization, maintain records of the following:
   - Type of analyte-free water used;
   - Source of analyte-free water (include lot number if commercially purchased);
   - A list of the sampling equipment used to prepare the blank.

   If items 3.1 through 3.3 are specified in an internal SOP, you may reference the SOP number and revision date in the field notes. Note any deviations to the procedure in the field notes.
4. For duplicates, record the technique that was used to collect the sample.
5. For split samples, identify the method used to collect the samples and the source(s) of the sample containers and preservatives.

FQ 1300. Field Measurements

The following are the quality control requirements for the field measurements discussed in FT 11100 through 2400. There may be additional requirements specified in the method or by FDEP Programs.

FQ 1310. Frequency

1. To be acceptable, a field test result must be bracketed between acceptable calibration results.

1.1. The first check may be an initial calibration, but the second must be a continuing verification check.

2. Verify or calibrate each field instrument prior to use (see FT 1000).

3. Verify the calibration at no more than 24-hour intervals during use and at the end of the use if the instrument will not be used the next day or any time period greater than 24 hours.

4. All initial calibration and verification checks must meet the acceptance criteria outlined in FT 1100 - FT 2400.

5. If a verification check or initial calibration fails to meet acceptance criteria, immediately recalibrate the instrument or remove it from service.

6. If a calibration check fails to meet acceptance criteria (see FT 1100 - FT 2400) and it is not possible to reanalyze the sample(s):

6.1. Report all results between the last acceptable calibration check and the failed calibration check: as estimated (report the value with a "J");

6.2. Include a narrative description of the problem; and

6.3. Shorten the time period between verification checks or replace/repair the instrument.

7. If historically generated data demonstrate that a specific instrument remains stable for longer periods of time, the time interval between initial calibration and/or calibration checks may be increased.

7.1. All acceptable field data must be bracketed by acceptable checks (see FQ 1310, section 1 above). Qualify data that are not bracketed by acceptable checks (see FQ 1310, section 6.1 above).

7.2. The maximum time interval is 1 month or at the conclusion of a sampling event, whichever is less.

7.3. Base the selected time interval on the shortest interval that the instrument maintains stability.

7.4. If an extended time interval is used, and the instrument consistently fails to meet the final calibration check:

7.4.1. The instrument may need maintenance to correct the problem; or

7.4.2. The time period is too long and must be decreased.

8. For instruments that are deployed for extended periods of time, calibrate the instrument before deployment and verify the calibration at the end of the deployment.

8.1. All acceptable field data must be bracketed by acceptable checks (see FQ 1310, section 1 above) or the data must be qualified (see FQ 1310, section 6.1 above).

9. For continuous monitoring instruments, all acceptable field data must be bracketed by acceptable checks (see FQ 1310, section 1 above), or the data must be qualified (see FQ 1310, section 6 above).

FQ 1320. Field Measurement Documentation

1. Record each calibration check (initial, continuing or final) in the permanent field records (or calibration logs). At a minimum, these records must indicate:

1.1. Date, time and location (e.g., monitoring well XXX; laboratory; etc.) of each calibration check;

1.2. Individual performing the check;

1.3. Results of each check, including the concentration/type of standard, expected reading, and the actual reading;

1.4. Whether the check met or failed acceptance criteria;

1.5. Readings associated with a failed check; and

1.6. Corrective actions associated with failed check (such as recalibration, removal from use, etc.).

FQ 1400. References

1. Florida Department of Environmental Protection, DEP Standard Operating Procedures for Laboratory Operations and Sample Collection Activities, DEP QA-001/92, September 1992.

2. U.S. Environmental Protection Agency, Region 4, Environmental Investigations Standard Operating Procedures and Quality Assurance Manual, May 1996.

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Appen. 1-5	

APPENDIX I-5

FS 2200 - GROUNDWATER SAMPLING

FS 2200. Groundwater Sampling

1. INTRODUCTION AND SCOPE

1.1. Use these Standard Operating Procedures to collect groundwater samples. They are designed to ensure that the collected samples will be representative of water in the aquifer or target formation and that the samples have not been altered or contaminated by the sampling and handling procedures. Use of alternative, FDEP-approved and properly documented procedures (e.g., Corporate SOP, ASTM Standards, alternative equipment, etc.) is acceptable if they meet the intent (e.g., sample representativeness and integrity) of this standard (see FA 1000).

1.2. The topics in this SOP include equipment and supply selection, equipment construction materials, and purging and sampling techniques.

1.3. Use the following FDEP SOPs in conjunction with FS 2200:

- FA 1000 Regulatory Scope and Administrative Procedures for Use of DEP SOPs
- FC 1000 Cleaning/Decontamination Procedures
- FD 1000 Documentation Procedures
- FQ 1000 Field Quality Control Requirements
- FS 1000 General Sampling Procedures
- FS 2000 General Aqueous Sampling
- FT 1000 Field Testing and Measurement

1.4. Groundwater samples may be collected from a number of different configurations. Each configuration is associated with a unique set of sampling equipment requirements and techniques:

1.4.1. Wells without Plumbing: These wells require that equipment be brought to the well to purge and sample unless dedicated equipment is placed in the well.

1.4.2. Wells with In-Place Plumbing: Wells with in-place plumbing do not require that equipment be brought to the well to purge and sample. In-place plumbing is generally considered permanent equipment routinely used for purposes other than purging and sampling, such as for water supply. They are generally found at wellfields, industrial facilities, and private residences. See FS 2300 for procedures to sample potable water wells.

1.4.3. Air Strippers or Remedial Systems: These types of systems are installed as remediation devices. Sample these wells like drinking water wells (see FS 2300).

FS 2201. Equipment and Supplies

Use groundwater purging and sampling equipment constructed of only non-reactive, non-leachable materials that are compatible with the environment and the selected analytes. In selecting groundwater purging and sampling equipment, give consideration to the depth of the well, the depth to groundwater, the volume of water to be evacuated, the sampling and purging technique, and the analytes of interest. Refer to Tables FS 1000-1, FS 1000-2, FS 1000-3 and FS 2200-1 for selection of appropriate equipment.

Additional supplies such as reagents and preservatives may be necessary.

1. PUMPS: All pumps or pump tubing must be lowered and retrieved from the well slowly and carefully to minimize disturbance to the formation water. This is especially critical at the air/water interface.

1.1. Above-Ground Pumps

1.1.1. Variable Speed Peristaltic Pump: Use a variable speed peristaltic pump to purge groundwater from wells when the static water level in the well is no greater than 20-25 feet below land surface (BLS). If the water levels are deeper than 18-20 feet BLS, the pumping velocity will decrease.

1.1.1.1. A variable speed peristaltic pump can be used for normal purging and sampling (FS 2213 and FS 2221), sampling low permeability aquifers or formations (FS 2222) and collecting filtered groundwater samples (FS 2225, section 1).

1.1.1.2. Most analyte groups can be sampled with a peristaltic pump if the tubing and pump configurations are appropriate. See Table FS 1000-3 for proper tubing selection and pump configurations.

1.1.2. Variable Speed Centrifugal Pump: A variable speed centrifugal pump can be used to purge groundwater from 2-inch and larger internal diameter wells. **Do not use** this type of pump to collect groundwater samples.

1.1.2.1. When purging is complete, do not allow the water that remains in the tubing to fall back into the well. Install a check valve at the end of the purge tubing, and withdraw the tubing slowly from the well while the pump is still running.

1.1.2.2. See Table FS 1000-3 for proper tubing selection and allowable analyte groups.

1.2. Submersible Pumps

1.2.1. Variable Speed Electric Submersible Pump: A variable speed submersible pump can be used to purge and sample groundwater from 2-inch and larger internal diameter wells.

1.2.1.1. A variable speed submersible pump can be used for normal purging and sampling (FS 2213 and FS 2221), sampling low permeability aquifers or formations (FS 2222) and collecting filtered groundwater samples (FS 2225, section 1).

1.2.1.2. Make sure that the pump housing, fittings, check valves and associated hardware are constructed of stainless steel. Make sure that any other materials are compatible with the analytes of interest. See Table FS 1000-3 for restrictions.

1.2.1.3. Install a check valve at the output side of the pump to prevent backflow.

1.2.1.4. If purging **and** sampling for organics:

- The entire length of the delivery tube must be Teflon, Polyethylene or Polypropylene (PP) tubing.
- The electrical cord must be sealed in Teflon, Polyethylene or PP and any cabling must be sealed in Teflon, Polyethylene or PP, or be constructed of stainless steel.
- All interior components that contact the sample water (impeller, seals, gaskets, etc.) must be constructed of stainless steel or Teflon.

1.2.2. Variable Speed Bladder Pump: A variable speed positive displacement bladder pump (no-gas contact) can be used to purge and sample groundwater from 3/4-inch and larger internal diameter wells.

1.2.2.1. A variable speed bladder pump can be used for normal purging and sampling (FS 2213 and FS 2221), sampling low permeability aquifers or formations (FS 2222) and collecting filtered groundwater samples (FS 2225, section 1).

1.2.2.2. The bladder pump system is composed of the pump, the compressed air tubing, the water discharge tubing, the controller and a compressor or compressed gas supply.

1.2.2.3. The pump consists of a bladder and an exterior casing or pump body that surrounds the bladder and two (2) check valves. These parts can be composed of various materials, usually combinations of polyvinyl chloride (PVC), Teflon, Polyethylene, PP and stainless steel. Other materials must be compatible with the analytes of interest. See Table FS 1000-3 for restrictions.

1.2.2.4. If purging and sampling for organics:

- The pump body must be constructed of stainless steel and the valves and bladder must be Teflon, Polyethylene or PP.
- The entire length of the delivery tube must be Teflon, Polyethylene or PP.
- Any cabling must be sealed in Teflon, Polyethylene or PP, or be constructed of stainless steel.

1.2.2.5. Permanently installed pumps may have a PVC pump body as long as the pump remains in contact with the water in the well.

2. BAILERS:

2.1. Purging: FDEP does not recommend using bailers for purging unless no other equipment can be used or purging with a bailer has been specifically authorized by an FDEP program, permit, contract or order (see Table FS 2200-3). Use a bailer if there is non-aqueous phase liquid (free product) in the well or non-aqueous phase liquid is suspected to be in the well. If in doubt about the appropriateness of using a bailer at a site or during a particular sampling event, contact the appropriate FDEP program or project manager. If a bailer is used, follow FS 2213, section 4 with no deviations.

2.2. Sampling: Bailers may be used to routinely collect some analyte groups or under specific circumstances for other analyte groups (see Table FS 2200-3).

2.3. Construction and Type:

2.3.1. Bailers must be constructed of materials compatible with the analytes of interest. See Table FS 1000-3 for restrictions.

2.3.1.1. Stainless steel, Teflon, Polyethylene and PP bailers may be used to sample all analytes.

2.3.2. Use disposable bailers when sampling grossly contaminated sample sources.

2.3.3. FDEP recommends using dual check valve bailers when collecting samples.

2.3.4. Use bailers with a controlled flow bottom when collecting volatile organic samples.

2.3.5. Use bailers that can be pressurized when collecting filtered samples for metals.

2.4. Contamination Prevention:

2.4.1. Keep the bailer wrapped (foil, butcher paper, etc.) until just before use.

2.4.2. Use protective gloves to handle the bailer once it is removed from its wrapping.

2.4.3. Handle the bailer by the lanyard to minimize contact with the bailer surface.

3. LANYARDS

3.1. Lanyards must be made of non-reactive, non-leachable material. They may be cotton twine, nylon, stainless steel, or may be coated with Teflon, Polyethylene or PP.

3.2. Discard cotton twine, nylon, and non-stainless steel braided lanyards after sampling each monitoring well.

3.3. Decontaminate stainless steel, coated Teflon, Polyethylene and PP lanyards between monitoring wells (see FC 1003). They do not need to be decontaminated between purging and sampling operations.

FS 2210. GROUNDWATER PURGING

FS 2211. Water Level and Purge Volume Determination

Collect groundwater samples from fresh water from the aquifer. The amount of water that must be purged from a well is determined by the volume of water and/or field parameter stabilization.

1. GENERAL EQUIPMENT CONSIDERATIONS

1.1. Selection of appropriate purging equipment depends on the analytes of interest, the well diameter, transmissivity of the aquifer, the depth to groundwater and other site conditions.

1.2. Use a pump to purge the well unless no other equipment can be used or there is non-aqueous phase liquid in the well or non-aqueous phase liquid is suspected to be in the well.

1.2.1. FDEP does not recommend using bailers because improper bailing:

- Introduces atmospheric oxygen which may precipitate metals (i.e., iron) or cause other changes in the chemistry of the water in the sample (i.e., pH)
- Agitates groundwater which may bias volatile and semi-volatile organic analyses due to volatilization
- Agitates the water in the aquifer and resuspends fine particulate matter
- Surges the well loosening particulate matter in the annular space around the well screen
- May introduce dirt into the water column if the sides of the casing wall are scraped

1.2.2. Bailers may be used if approved by an FDEP program, or if bailer use is specified in a permit, contract or FDEP order (see Table FS 2200-3). If used, bailers must be of appropriate type and construction, and the user must follow the procedure outlined in 2213, section 4 with no deviations. If in doubt about the appropriateness of

using a bailer at a site or during a particular sampling event, contact the appropriate FDEP program or project manager.

2. INITIAL INSPECTION

2.1. Remove the well cover and remove all standing water around the top of the well casing (manhole) before opening the well.

2.2. Inspect the exterior protective casing of the monitoring well for damage and document the results of the inspection if there is a problem.

2.3. It is recommended that you place a protective covering around the well head. Replace the covering if it becomes soiled or ripped.

2.4. Inspect the well lock and determine whether the cap fits tightly. Replace the cap if necessary.

3. WATER LEVEL MEASUREMENTS: Use an electronic probe or chalked tape to determine the water level.

3.1. Decontaminate all equipment before use.

3.2. Measure the depth to groundwater from the top of well casing to the nearest 0.01 foot and always measure from the same reference point or survey mark on the well casing.

3.3. Record the measurement.

3.4. Electronic Probe

3.4.1. Decontaminate all equipment before use.

3.4.1.1. Follow the manufacturer's instructions for use.

3.4.1.2. Record the measurement.

3.5. Chalked Line Method

3.5.1. Decontaminate all equipment before use.

3.5.2. Lower chalked tape into the well until the lower end is in the water (usually determined by the sound of the weight hitting the water).

3.5.3. Record the length of the tape relative to the reference point (see section 3.2 above).

3.5.4. Remove the tape and note the length of the wetted portion.

3.5.5. Record the length.

3.5.6. Determine the depth to water by subtracting the length of the wetted portion (section 3.5.4 above) from the total length (section 3.5.3 above). Record the result.

4. WATER COLUMN DETERMINATION

4.1. Subtract the depth to the top of the water column from the total well depth to determine the length of the water column.

4.2. The total well depth depends on the well construction. Some wells may be drilled in areas of sinkhole or karst formations or rock leaving an open borehole. Attempt to find the total borehole depth in cases where there is an open borehole below the cased portion.

5. WELL WATER VOLUME

5.1. Calculate the total volume of water in gallons in the well using the following equation:

V = (0.041)d x d x h

Where: V = volume in gallons
d = well diameter in inches
h = height of the water column in feet

5.2. The total volume of water in the well may also be determined with the following equation by using a casing volume per foot factor (Gallons per Foot of Water) for the appropriate diameter well:

V = [Gallons per Foot of Water] x h

Where: V = volume in gallons
h = height of the water column in feet

Casing Internal Diameter	Approximate Gallons per Foot of Water
0.75"	0.02
1"	0.04
1.25"	0.06
2"	0.16
3"	0.37
4"	0.65
5"	1.02
6"	1.47
12"	5.88

5.3. Record all measurements and calculations in the field records.

6. PURGING EQUIPMENT VOLUME

6.1. Calculate the total volume of the pump, associated tubing and flow cell, if used, using the following equation:

V = p + ((0.041)d x d x l) + fc

Where: V = volume in gallons
p = volume of pump in gallons
d = tubing diameter in inches
l = length of tubing in feet
fc = volume of flow cell in gallons

7. When collecting samples from multiple wells on a site, if the groundwater elevation data are to be used to construct groundwater elevation contour maps, all water level measurements must be taken within the same 24 hour time interval unless a shorter time period is required by a FDEP program. If the site is tidally influenced, complete the water level measurements within the time frame of an incoming or outgoing tide.

FS 2212. Well Purging Techniques

The selection of the purging technique and equipment is dependent on the hydrogeologic properties of the aquifer, especially depth to groundwater and hydraulic conductivity. Equipment selection must comply with construction and configuration requirements specified in Table FS 2200-1 and the discussions in FS 2201.

1. MEASURING THE PURGE VOLUME: The volume of water that is removed during purging must be recorded. Therefore, you must measure the volume during the purging operation.

1.1. Collect the water in a graduated container and multiply the number of times the container was emptied by the volume of the container, or

1.2. Estimate the volume based on pumping rate. This technique may be used only if the pumping rate is constant. Determine the pumping rate by measuring the amount of water that is pumped for a fixed period of time or use a flow meter.

1.2.1. Calculate the amount of water that is discharged per minute:

$$D = \frac{\text{Measured amount}}{\text{Total time in minutes}}$$

1.2.2. Calculate the time needed to purge one (1) well volume or one (1) purging equipment volume:

$$\text{Time} = \frac{V}{D}$$

Where: V = well volume determined from FS 2211, section 5 or purging equipment volume

D = discharge rate calculated in section 1.2.1. above

1.2.3. Make new measurements (section 1.2.1 above) each time the pumping rate is changed.

1.3. Use a totalizing flow meter.

1.3.1. Record the reading on the totalizer prior to purging.

1.3.2. Record the reading on the totalizer at the end of purging.

1.3.3. Subtract the reading on the totalizer prior to purging from the reading on the totalizer at the end of purging to obtain the volume purged.

1.4. Record in the field records the times that purging begins and ends.

2. PURGING MEASUREMENT FREQUENCY

2.1. When purging a well that has the well screen fully submerged and the pump or intake tubing is placed within the well casing above the well screen or open hole, purge a minimum of one (1) well volume prior to collecting measurements of the field parameters. Allow at least one quarter (1/4) well volume to purge between subsequent measurements.

2.2. When purging a well that has the pump or intake tubing placed within a fully submerged well screen or open hole, purge until the water level has stabilized (well recovery rate equals the purge rate), then purge a minimum of one (1) volume of the pump, associated tubing and flow cell (if used) prior to collecting measurements of the field parameters. Take measurements of the field parameters no sooner than two (2) to three (3)

minutes apart. Purge at least three (3) volumes of the pump, associated tubing and flow cell, if used, prior to collecting a sample.

2.3. When purging a well that has a partially submerged well screen, purge a minimum of one (1) well volume prior to collecting measurements of the field parameters. Take measurements of the field parameters no sooner than two (2) to three (3) minutes apart.

3. PURGING COMPLETION: Purging is considered complete if any one of the following three (3) criteria are satisfied:

3.1. Three (3) consecutive measurements in which the three (3) parameters listed below are within the stated limits, Dissolved Oxygen is no greater than 20 percent of saturation at the field measured temperature, and Turbidity is no greater than 20 Nephelometric Turbidity Units (NTUs).

- Temperature: ± 0.2° C
- pH: ± 0.2 Standard Units
- Specific Conductance: ± 5.0% of reading

Document and report the following, as applicable, except that the last four (4) items only need to be submitted once:

- Purging rate.
- Drawdown in the well, if any.
- A description of the process and the data used to design the well.
- The equipment and procedure used to install the well.
- The well development procedure.
- Pertinent lithologic or hydrogeologic information.

3.2. If it is impossible to get Dissolved Oxygen at or below 20 percent of saturation at the field measured temperature, or Turbidity at or below 20 NTUs, then three (3) consecutive measurements of Temperature, pH, Specific Conductance and the parameter(s) Dissolved Oxygen and/or Turbidity that does not meet the requirements in section 3.1 above must be within the limits listed below:

- Temperature: + 0.2° C
- pH: ± 0.2 Standard Units
- Specific Conductance: ± 5.0% of reading
- Dissolved Oxygen: ± 0.2 mg/L or 10%, whichever is greater
- Turbidity: ± 5 NTUs or 10%, whichever is greater

Additionally, document and report the following, as applicable, except that the last four (4) items only need to be submitted once:

- Purging rate.
- Drawdown in the well, if any.

- A description of conditions at the site that may cause the Dissolved Oxygen to be high and/or Dissolved Oxygen measurements made within the screened or open hole portion of the well with a downhole dissolved oxygen probe.
- A description of conditions at the site that may cause the Turbidity to be high and any procedures that will be used to minimize Turbidity in the future.
- A description of the process and the data used to design the well.
- The equipment and procedure used to install the well.
- The well development procedure.
- Pertinent lithologic or hydrogeologic information.

If from review of the submitted data the Department determines that both the elevated Dissolved Oxygen and Turbidity measurements are due to naturally occurring conditions, then only the first two (2) items are required to be submitted in future reports. However, if the Department cannot determine if the Dissolved Oxygen or Turbidity is elevated due to naturally occurring conditions, then in addition to the first two (2) items, a description of the conditions at the site that may have caused the affected parameter(s) to be high is required to be submitted in future reports.

3.3. If after five (5) well volumes, three (3) consecutive measurements of the field parameters Temperature, pH, Specific Conductance, Dissolved Oxygen, and Turbidity are not within the limits stated in section 3.2 above, check the instrument condition and calibration, purging flow rate and all tubing connections to determine if they might be affecting the ability to achieve stable measurements. It is at the discretion of the project leader whether or not to collect a sample or to continue purging.

Further, the report in which the data are submitted must include the following, as applicable, except that the last four (4) items only need to be submitted once:

- Purging rate.
- Drawdown in the well, if any.
- A description of conditions at the site that may cause the Dissolved Oxygen to be high and/or Dissolved Oxygen measurements made within the screened or open hole portion of the well with a downhole dissolved oxygen probe.
- A description of conditions at the site that may cause the turbidity to be high and any procedures that will be used to minimize turbidity in the future.
- A description of the process and the data used to design the well.
- The equipment and procedure used to install the well.
- The well development procedure.
- Pertinent lithologic or hydrogeologic information.

If from review of the submitted data the FDEP determines that both the elevated Dissolved Oxygen and Turbidity measurements are due to naturally occurring conditions, then only the first two (2) items are required to be submitted in future reports. However, if the FDEP cannot determine if the Dissolved Oxygen or Turbidity is elevated due to naturally occurring conditions, then in addition to the first two (2) items, a description of the conditions at the site that may have caused the affected parameter(s) to be high is required to be submitted in future reports.

3.4. One fully dry purge (not recommended). This criterion applies only if purging was attempted per FS 2212, FS 2213, and section 3.4.1 below, and if it is impossible to balance the pumping rate with the rate of recharge at very low pumping rates (< 100 mL/minute).

3.4.1. If wells have previously and consistently purged dry, when purged according to FS 2212 and FS 2213, and the current depth to groundwater indicates that the well will purge dry during the current sampling event, minimize the amount of water removed from the well by using the same pump to purge and collect the sample:

3.4.1.1. Place the pump or tubing intake within the well screened interval.

3.4.1.2. Use very small diameter Teflon, Polyethylene or PP tubing and the smallest possible pump chamber volume to minimize the total volume of water pumped from the well and to reduce drawdown.

3.4.1.3. Select tubing that is thick enough to minimize oxygen transfer through the tubing walls while pumping.

3.4.1.4. Pump at the lowest possible rate (100 mL/minute or less) to reduce drawdown to a minimum.

3.4.1.5. Purge at least two (2) volumes of the pumping system (pump, tubing and flow cell, if used).

3.4.1.6. Measure pH, Specific Conductance, Temperature, Dissolved Oxygen and Turbidity and begin to collect the samples (see FS 2222)..

4. Collect samples immediately after purging is complete. The time period between completing the purge and sampling cannot exceed six (6) hours. If sample collection does not occur within one (1) hour of purging completion, re-measure the five (5) field parameters Temperature, pH, Specific Conductance, Dissolved Oxygen and Turbidity just prior to collecting the sample. If the measured values are not within 10 percent of the previous measurements, re-purge the well. The exception is "dry" wells (see section 3.4 above).

5. LANYARDS

5.1. Securely fasten lanyards, if used, to any downhole equipment (bailers, pumps, etc.).

5.2. See FS 2201, section 3 for acceptable lanyard types and use.

5.3. Use bailer lanyards in such a way that they do not touch the ground surface.

FS 2213. Wells Without Plumbing

1. TUBING/PUMP PLACEMENT

1.1. If you are attempting to minimize the volume of purge water, the pump will be used for both purging and sampling, the well screen interval is less than or equal to 10 feet, and the well screen is fully submerged, position the intake hose or pump at the midpoint of the screened or open hole interval.

1.2. If monitoring well conditions do not allow minimizing of the purge water volume (see 1.1 above) or you intend to collect samples with equipment different than that used to purge, position the pump or intake hose near the top of the water column. This will ensure that all stagnant water in the casing is removed.

1.3. If the well screen or borehole is partially submerged, and the pump will be used for both purging and sampling, position the pump midway between the measured water level and the bottom of the screen. Otherwise position the pump as described in 1.2 above.

2. NON-DEDICATED (PORTABLE) PUMPS

2.1. Variable Speed Peristaltic Pump

2.1.1. Wear sampling gloves to position the decontaminated pump and tubing.

2.1.2. Attach a short section of tubing to the discharge side of the pump and into a graduated container.

2.1.3. Attach one end of a length of new or precleaned tubing to the pump head flexible hose.

2.1.4. Place the tubing per one of the options in FS 2213, section 1 above.

2.1.5. Change gloves before beginning purging.

2.1.6. Measure the depth to groundwater at frequent intervals.

2.1.7. Record these measurements.

2.1.8. Adjust the purging rate so that it is equivalent to the well recovery rate to minimize drawdown.

2.1.9. If the purging rate exceeds the well recovery rate, reduce the pumping rate to balance the withdrawal rate with the recharge rate.

2.1.10. If the water table continues to drop during pumping, lower the tubing at the approximate rate of drawdown so that the water is removed from the top of the water column.

2.1.11. Record the purging rate each time the rate changes.

2.1.12. Measure the purge volume by one of the methods outlined in FS 2212, section 1.

2.1.13. Record this measurement.

2.1.14. Decontaminate the pump and tubing between wells (see FC 1000) or only the pump if precleaned tubing is used for each well.

2.2. Variable Speed Centrifugal Pump

2.2.1. Position fuel powered equipment **downwind** and at least 10 feet from the well head. Make sure that the exhaust faces downwind.

2.2.2. Wear sampling gloves to position the decontaminated pump and tubing.

2.2.3. Place the decontaminated suction hose so that water is always pumped from the top of the water column.

2.2.4. Change gloves before beginning purging.

2.2.5. Equip the suction hose with a foot valve to prevent purge water from re-entering the well.

2.2.6. Measure the depth to groundwater at frequent intervals.

2.2.7. Record these measurements.

2.2.8. Adjust the purging rate so that it is equivalent to the well recovery rate to minimize drawdown.

2.2.9. If the purging rate exceeds the well recovery rate, reduce the pumping rate to balance the withdrawal rate with the recharge rate.

2.2.10. If the water table continues to drop during pumping, lower the tubing at the approximate rate of drawdown so that the water is removed from the top of the water column.

2.2.11. Record the purging rate each time the rate changes.

2.2.12. Measure the purge volume by one of the methods outlined in FS 2212, section 1.

2.2.13. Record this measurement.

2.2.14. Decontaminate the pump and tubing between wells (see FC 1000) or only the pump if precleaned tubing is used for each well.

2.3. Variable Speed Electric Submersible Pump

2.3.1. Position fuel powered equipment **downwind** and at least 10 feet from the well head. Make sure that the exhaust faces downwind.

2.3.2. Wear sampling gloves to position the decontaminated pump and tubing.

2.3.3. Carefully position the decontaminated pump per one of the options in FS 2213, section 1 above.

2.3.4. Change gloves before beginning purging.

2.3.5. Measure the depth to groundwater at frequent intervals.

2.3.6. Record these measurements.

2.3.7. Adjust the purging rate so that it is equivalent to the well recovery rate to minimize drawdown.

2.3.8. If the purging rate exceeds the well recovery rate, reduce the pumping rate to balance the withdrawal rate with the recharge rate.

2.3.9. If the water table continues to drop during pumping, lower the tubing or pump at the approximate rate of drawdown so that the water is removed from the top of the water column.

2.3.10. Record the purging rate each time the rate changes.

2.3.11. Measure the purge volume by one of the methods outlined in FS 2212, section 1.

2.3.12. Record this measurement.

2.3.13. Decontaminate the pump and tubing between wells (see FC 1000) or only the pump if precleaned tubing is used for each well.

2.4. Variable Speed Bladder Pump

2.4.1. Position fuel powered equipment **downwind** and at least 10 feet from the well head. Make sure that the exhaust faces downwind.

2.4.2. Wear sampling gloves to position the decontaminated pump and tubing.

2.4.3. Attach the tubing and carefully position the pump per one of the options in FS 2213, section 1 above.

2.4.4. Change gloves before beginning purging.

2.4.5. Measure the depth to groundwater at frequent intervals.

2.4.6. Record these measurements.

2.4.7. Adjust the purging rate so that it is equivalent to the well recovery rate to minimize drawdown.

2.4.8. If the purging rate exceeds the well recovery rate, reduce the pumping rate to balance the withdrawal rate with the recharge rate.

2.4.9. If the water table continues to drop during pumping, lower the tubing or pump at the approximate rate of drawdown so that the water is removed from the top of the water column.

2.4.10. Record the purging rate each time the rate changes.

2.4.11. Measure the purge volume by one of the methods outlined in FS 2212, section 1.

2.4.12. Record this measurement.

2.4.13. Decontaminate the pump and tubing between wells (see FC 1000) or only the pump if precleaned tubing is used for each well.

3. DEDICATED PORTABLE PUMPS: Place dedicated pumps per one of the options in FS 2213, section 1 above.

3.1. Variable Speed Electric Submersible Pump

3.1.1. Position fuel powered equipment **downwind** and at least 10 feet from the well head. Make sure that the exhaust faces downwind.

3.1.2. Wear sampling gloves.

3.1.3. Measure the depth to groundwater at frequent intervals.

3.1.4. Record these measurements.

3.1.5. Adjust the purging rate so that it is equivalent to the well recovery rate to minimize drawdown.

3.1.6. If the purging rate exceeds the well recovery rate, reduce the pumping rate to balance the withdraw with the recharge rate.

3.1.7. Record the purging rate each time the rate changes.

3.1.8. Measure the purge volume by one of the methods outlined in FS 2212, section 1.

3.1.9. Record this measurement.

3.2. Variable Speed Bladder Pump

3.2.1. Position fuel powered equipment **downwind** and at least 10 feet from the well head. Make sure that the exhaust faces downwind.

3.2.2. Wear sampling gloves.

3.2.3. Measure the depth to groundwater at frequent intervals.

3.2.4. Record these measurements.

3.2.5. Adjust the purging rate so that it is equivalent to the well recovery rate to minimize drawdown.

3.2.6. If the purging rate exceeds the well recovery rate, reduce the pumping rate to balance the withdraw with the recharge rate.

3.2.7. Record the purging rate each time the rate changes.

3.2.8. Measure the purge volume by one of the methods outlined in FS 2212, section 1.

3.2.9. Record this measurement.

4. BAILERS: FDEP recommends against using bailers for purging except as a last contingency, or if free product is present in the well or suspected to be in the well. However, they may be used if approved by an FDEP program, or specified in a permit, contract or FDEP order (see Table FS 2200-3 and FS 2211, section 1.3.2). If in doubt about the appropriateness of using a bailer at a site or during a particular sampling event, contact the appropriate FDEP program or project manager.

4.1. Minimize handling the bailer as much as possible.

4.1.1. Wear sampling gloves.

4.1.2. Remove the bailer from its protective wrapping just before use.

4.1.3. Attach a lanyard of appropriate material (see FS 2201, section 3).

4.1.4. Use the lanyard to move and position the bailer.

4.2. Lower and retrieve the bailer slowly and smoothly.

4.2.1. Lower the bailer carefully into the well to a depth approximately a foot above the water column.

4.2.1.1. When the bailer is in position, lower the bailer into the water column at a rate of 2 cm/sec until the desired depth is reached (see 4.2.2 below).

4.2.2. Do not lower the top of the bailer more than one (1) foot below the top of the water table so that water is removed from the top of the water column.

4.2.3. Allow time for the bailer to fill with aquifer water as it descends into the water column.

4.2.3.1. Carefully raise the bailer. Retrieve the bailer at the same rate of 2 cm/sec until the bottom of the bailer has cleared to top of the water column.

4.3. Measure the purge volume by one of the methods outlined in FS 2212, section 1.

4.3.1. Record the volume of the bailer.

4.4. Continue to carefully lower and retrieve the bailer as described above until the purging completion conditions specified in FS 2212, section 3 have been satisfied.

4.4.1. Remove at least one (1) well volume before collecting measurements of the field parameters. Take each subsequent set of measurements after removing at least one quarter (1/4) well volume between measurements.

FS 2214. Wells With Plumbing (permanently installed pumps or production wells)

Wells with in-place plumbing are commonly found at municipal water treatment plants, industrial water supplies, private residences, etc.

1. Remove all hoses, aerators and filters (if possible).

2. Open the spigot and purge sufficient volume to flush the spigot and lines and until the purging completion criteria in FS 2212, section 3 have been met.

3. Reduce the flow rate to approximately 500 mL/minute (a 1/8" stream) or approximately 0.1 gal/minute before collecting samples.

FS 2215. Airstrippers and Remedial Treatment Systems

1. Collect influent and effluent samples from air stripping units as described in FS 2214 above.
2. Remove any tubing from the sampling port and flush for one to two minutes.

FS 2220. GROUNDWATER SAMPLING TECHNIQUES

1. Purge wells using the techniques outlined in FS 2210.
2. Replace the protective covering around the well if it is soiled or torn after completing the purging operations.
3. EQUIPMENT CONSIDERATIONS

3.1. Some pumps may be used for sampling groundwater. Follow all notes and restrictions as defined in Table FS 2200-1 and discussed in Equipment and Supplies (FS 2201) when using pumps to collect samples.

NOTE: The only pumps that are currently approved for use in collecting volatile organic samples through the pump are stainless steel and Teflon variable speed submersible pumps, stainless steel and Teflon or Polyethylene variable speed bladder pumps, and permanently installed PVC bodied pumps as long as the pump remains in contact with the water in the well at all times.

3.2. Collect the sample into the sample container from the sampling device. **Do not** use intermediate containers.

3.3. In order to avoid contaminating the sample or loss of analytes from the sample:

3.3.1. Handle the sampling equipment as little as possible.

3.3.2. Minimize the equipment that is exposed to the sample.

3.4. Dedicated Sampling Equipment

3.4.1. Whenever possible, use dedicated equipment because it significantly reduces the chance of cross-contamination.

3.4.2. Dedicated is defined as equipment that is to be used solely for one location for the life of that equipment (e.g., permanently mounted pump).

3.4.3. All material construction and restrictions from Table FS 2200-1 also apply to dedicated equipment. Purchase equipment with the most sensitive analyte of interest in mind.

3.4.4. Cleaning/Decontamination

3.4.4.1. Clean or make sure dedicated pumps are clean before installation. They do not need to be cleaned prior to each use but must be cleaned if they are withdrawn for repair or servicing.

3.4.4.2. Clean or make sure any permanently mounted tubing is clean before installation.

3.4.4.3. Change or clean tubing when the pump is withdrawn for servicing.

3.4.4.4. Clean any replaceable or temporary parts as specified in FC 1000.

3.4.4.5. Collect equipment blanks on dedicated pumping systems when the tubing is cleaned or replaced.

3.4.4.6. Clean or make sure dedicated bailers are clean before placing them into the well.

3.4.4.7. Collect an equipment blank on dedicated bailers before introducing them into the water column.

3.4.4.8. Suspend dedicated bailers above the water column if they are stored in the well.

FS 2221. Wells Without Plumbing

1. SAMPLING WITH PUMPS: Variable speed stainless steel and Teflon submersible pumps and stainless steel, Teflon or Polyethylene bladder pumps, and permanently installed PVC bodied pumps, as long as the pump remains in contact with the water in the well at all times, may be used to sample for all organics. The delivery tubing must be Teflon, Polyethylene or PP. **Extractable organics** may be collected through a peristaltic pump if flexible interior-wall Teflon, Polyethylene or PP tubing is used in the pump head, or through a peristaltic pump with a vacuum trap (see Figure FS 2200-1 for specific configuration) is used. Follow all notes and restrictions as defined in Table FS 2200-1 and discussed in Equipment and Supplies (FS 2201) when using pumps to collect samples.

1.1. Peristaltic Pump

1.1.1. Volatile Organics:

1.1.1.1. Remove the drop tubing from the inlet side of the pump.

1.1.1.2. Submerse the drop tubing into the water column.

1.1.1.3. Prevent the water in the tubing from flowing back into the well.

1.1.1.4. Remove the drop tubing from the well.

1.1.1.5. Carefully allow the groundwater to gravity drain into the sample vials. Avoid turbulence. Do not aerate the sample.

1.1.1.6. Repeat steps 1.1.1.2 through 1.1.1.5 until enough vials are filled.

Alternatively

1.1.1.7. Use the pump to fill the drop tubing.

1.1.1.8. Quickly remove the tubing from the pump.

1.1.1.9. Prevent the water in the tubing from flowing back into the well.

1.1.1.10. Remove the drop tubing from the well.

1.1.1.11. Carefully allow the groundwater to drain into the sample vials. Avoid turbulence. Do not aerate the sample.

1.1.1.12. Repeat steps 1.1.1.7 through 1.1.1.11 until enough vials are filled.

Or:

1.1.1.13. Use the pump to fill the drop tubing

1.1.1.14. Withdraw the tubing from the well.

1.1.1.15. Reverse the flow on the peristaltic pumps to deliver the sample into the vials at a slow, steady rate.

1.1.1.16. Repeat steps 1.1.1.13 through 1.1.1.15 until enough vials are filled.

1.1.2. Extractable Organics

1.1.2.1. If the tubing in the pump head is Polyethylene or PP, or is Teflon lined, the samples may be collected through the pump.

1.1.2.2. If the tubing in the pump head is not Polyethylene or PP, or is not Teflon lined, use the pump and vacuum trap method.

- Assemble the components of the pump and trap according to Figure FS 2200-1.
- The sample container should be the trap.
- All equipment that contacts the groundwater **before** the sample container must be constructed of Teflon, Polyethylene, PP, stainless steel or glass, including the transport tubing to and from the sample container, the interior liner of the container cap and all fittings. **Do not use a rubber stopper as a cap.**
- Connect the outflow tubing from the container to the influent side of the peristaltic pump.
- Turn the pump on and reduce the flow rate to a smooth and even flow.
- Discard a small portion of the sample to allow an air space.
- Preserve (if required), label and complete the field notes.

1.1.3. Inorganics

1.1.3.1. Inorganic samples may be collected from the effluent tubing. There are a few restrictions on tubing type (see Table FS 2200-1).

1.1.3.2. If samples are collected from the pump, decontaminate all tubing (including the tubing in the head) or change it between wells.

1.1.3.3. Preserve (if required), label and complete field notes.

1.2. Variable Speed Bladder Pump

1.2.1. If sampling for organics the pump body must be constructed of stainless steel and the valves and bladder must be Teflon. All tubing must be Teflon, Polyethylene, or PP and any cabling must be sealed in Teflon, Polyethylene or PP, or made of stainless steel.

1.2.2. After purging to a smooth even flow, reduce the flow rate.

1.2.3. When sampling for volatile organic compounds, reduce the flow rate to 100-200 mL/minute, if possible.

1.3. Variable Speed Submersible Pump

1.3.1. The housing must be stainless steel.

1.3.2. If sampling for organics, the internal impellers, seals and gaskets must be constructed of stainless steel, Teflon, Polyethylene or PP. The delivery tubing must be Teflon, Polyethylene or PP and the electrical cord must be sealed in Teflon and any cabling must be sealed in Teflon or constructed of stainless steel.

1.3.3. After purging to a smooth even flow, reduce the flow rate.

1.3.4. When sampling for volatile organic compounds, reduce the flow rate to 100-200 mL/minute, if possible.

2. SAMPLING WITH BAILERS: A high degree of skill and coordination are necessary to collect representative samples with a bailer. When properly used, bailers may be used to collect samples for certain analyte groups and under specific conditions (see Table FS 2200-3). They must be of an appropriate type and construction (see FS 2201, section 2.2), and must be used as outlined below. If in doubt about the appropriateness of using a bailer at a site or during a particular sampling event, contact the appropriate FDEP program or project manager.

2.1. General Considerations

2.1.1. Minimize handling the bailer as much as possible.

2.1.1.1. Wear sampling gloves.

2.1.1.2. Remove the bailer from its protective wrapping just before use.

2.1.1.3. Attach a lanyard of appropriate material (see FS 2201, section 3).

2.1.1.4. Use the lanyard to move and position the bailers.

2.1.2. Do not allow the bailer or lanyard to touch the ground.

2.1.3. Rinsing

2.1.3.1. If the bailer is certified precleaned, no rinsing is necessary.

2.1.3.2. If both a pump and a bailer are to be used to collect samples, rinse the exterior and interior of the bailer with sample water from the pump before removing the pump.

2.1.3.3. If the purge pump is not appropriate for collecting samples (e.g., non-inert components), rinse the bailer with by collecting a single bailer of the groundwater to be sampled. Use the technique described in 2.2, Bailing Technique, below.

2.1.3.4. Discard the water appropriately.

2.1.3.5. **Do not** rinse the bailer if Oil & Grease, TRPHs, etc. (see FS 2006,) are to be collected.

2.2. Bailing Technique

2.2.1. Collect all samples that are required to be collected with a pump before collecting samples with the bailer.

2.2.2. Raise and lower the bailer gently to minimize stirring up particulate matter in the well and the water column which can increase sample turbidity.

2.2.3. Lower the bailer carefully into the well to a depth approximately a foot above the water column.

2.2.3.1. When the bailer is in position, lower the bailer into the water column at a rate of 2 cm/sec until the desired depth is reached (see 2.2.3 below).

2.2.4. Do not lower the top of the bailer more than one (1) foot below the top of the water table so that water is removed from the top of the water column.

2.2.5. Allow time for the bailer to fill with aquifer water as it descends into the water column.

2.2.6. Do not allow the bailer to touch the bottom of the well or particulate matter will be incorporated into the sample.

2.2.6.1. Carefully raise the bailer (2.2.2.2 above). Retrieve the bailer at the same rate of 2 cm/sec until the bottom of the bailer has cleared to top of the water column.

2.2.7. Lower the bailer to approximately the same depth each time.

2.2.8. Collect the sample.

2.2.8.1. Install a device to control the flow from the bottom of the bailer and discard the first few inches of water.

2.2.8.2. Fill the appropriate sample containers by allowing the sample to slowly flow down the side of the container.

2.2.8.3. Discard the last few inches of water in the bailer.

2.2.9. Repeat steps 2.2.1 through 2.2.9 for additional samples.

2.2.10. As a final step measure the DO, pH, temperature, turbidity and specific conductance after the final sample has been collected.

2.2.10.1. Record all measurements and note the time that sampling was completed.

3. SAMPLING WELLS WITH FLOATING NON-AQUEOUS PHASE LIQUID: FDEP does not recommend the sampling of wells with floating non-aqueous phase liquid for trace contaminants. This concerns primarily petroleum related sites, but includes any chemical product (e.g., solvent) that floats on the water table. Sampling is acceptable if the information is to be used for the purpose of remedial design.

Sample data from such wells cannot provide useful information regarding the level of contamination. Furthermore, FDEP believes that these wells may never provide legitimate data as they may have become (permanently) chemically damaged by the product being in contact with the well casing for an extended period of time.

FDEP does reserve the right to require sampling of these wells, not for levels of trace contaminants, but for confirmation of an appropriate remediation technique. This type of sampling is performed **below** the non-aqueous phase layer (see section 3.2 below).

3.1. Non-Aqueous Phase Liquid Sampling: Non-aqueous phase liquid may be evident in a cased monitoring well or in an open excavation.

3.1.1. Non-aqueous phase liquid is normally sampled for two reasons:

- Documentation for its existence and thickness; and
- Determination of the type of product so that the proper analyses can be performed to determine extent. This is only feasible for relatively recent releases as it may not be possible to identify weathered product.

3.1.2. Disposable plastic (acrylic, clear PVC) bailers are recommended for sampling. Disposable Polyethylene and PP bailers are also acceptable. Other wide mouth vessels may be used for sampling non-aqueous phase liquid in an excavation.

3.1.3. Monitoring Well

3.1.3.1. If a non-aqueous phase liquid is identified in a monitoring well during the water level measurement, measure its thickness in the well. If the thickness of the non-aqueous phase liquid is greater than 0.01 foot or product globules are present, collect a sample using a precleaned disposable bailer.

3.1.3.2. Measure the product thickness to the nearest 0.01 foot after withdrawing the bailer.

3.1.3.3. Pour a portion of the product into a glass sample container.

3.1.3.4. This sample is considered a concentrated waste. Therefore, package the container in protective wrapping to prevent breakage, isolate from other samples, and ice to 4° C.

3.1.4. Excavation

3.1.4.1. If non-aqueous phase liquid is observed in an open excavation, a glass sample container or a precleaned intermediate vessel may be used to collect the sample.

3.1.4.2. Securely tie a lanyard to the container and lower it into the excavation.

3.1.4.3. Gently lower and retrieve the container so that no solid material is released or collected.

3.1.4.4. If sufficient water is available, a bailer can be used.

3.1.4.5. Although not recommended, screened casing can be placed (or augered and placed) in the bottom of the excavation and the product sampled with a bailer.

3.1.4.6. Avoid dangerous situations, such as standing too close to the edge of an excavation, riding in the backhoe bucket, or entering a trench or excavation that may collapse.

3.1.4.7. Follow all applicable OSHA regulations.

3.1.5. Equipment that is dedicated to sampling non-aqueous phase liquid does not need to be cleaned according to the standard, full decontamination protocols. Acrylic or PVC bailers that are never used for trace contaminant sampling may be cleaned as listed below. It is recommended that all cleaning be done in the lab, office or base of operations and not in the field.

3.1.5.1. Disassemble bailers and intermediate vessels and soak in hot, sudsy tap water using a brush to clean away all particulates and greasy films.

3.1.5.2. Rinse with hot tap water.

3.1.5.3. Thoroughly rinse with analyte free water.

3.1.5.4. An optional acid rinse may be used to strip the equipment of any hard to clean residues.

3.1.5.5. The solvent rinse is not mandatory since this equipment is not used for contaminant sampling, other than the product itself. It is not recommended on clear acrylic.

3.2. Sampling Below Product

3.2.1. This type of depth-specific sampling to attempt to sample the dissolved constituents in the water column below the product layer is performed only at the request of FDEP or its designee.

3.2.2. These data provide information that helps define adequate groundwater treatment. Without these data, incorrect (and sometimes unnecessarily expensive) remediation techniques may be designed for a situation where they are not required.

3.2.3. There are some substantial logistical problems involved with sending a sampler through non-aqueous phase liquid to sample the groundwater below. Although there are some products designed specifically for this type of sampling, they are expensive and the results may not be commensurate with their cost. The use of "self-engineered" equipment or coverings may be the best option.

3.2.4. These data are only to be used for qualitative use and will aid in deciding on an appropriate remediation technique.

3.2.5. Wrapping bailers and tubing in plastic seems to be the most popular technique in getting past the product layer.

3.2.6. Although not recommended, some have wrapped submersible pumps in several layers of plastic and retrieved each layer by a separate lanyard. One suggestion would be to use a rigid piece of stainless steel tubing wrapped in plastic.

3.2.6.1. Once the covered tubing is past the layer, pull up on the plastic, piercing the plastic and exposing the (somewhat) clean tubing inlet.

3.2.6.2. Introduce the wrapped hose slowly to not entrain any more product into the dissolved layer located below.

3.2.6.3. Also, perform this procedure with a peristaltic pump or a vacuum pump linked to a trap bottle. To use this setup, the water table must be no deeper than 15-20 feet, realizing that actual sampling may be occurring several feet below the product layer.

FS 2222. Sampling Low Permeability Aquifers or Wells that have Purged Dry

1. Collect the sample(s) after the well has been purged according to FS 2212, section 3.4.1. Minimize the amount of water removed from the well by using the same pump to purge and collect the sample. If the well has purged dry, collected samples as soon as sufficient sample water is available.

2. Measure the five (5) field parameters Temperature, pH, Specific Conductance, Dissolved Oxygen and Turbidity at the time of sample collection.

3. Advise the analytical laboratory and the client that the usual amount of sample for analysis may not be available.

FS 2223. Wells With In-Place Plumbing

If a storage tank is present, locate a cold water spigot, valve or other sampling point close to the well head between the pump and the storage tank. If there is no sampling location between the pump and the storage tank, locate the spigot, valve or other sampling point closest to the tank. Remove all screens or aerators and reduce the flow rate to no more than 500 mL/minute. Collect the samples directly into the appropriate containers.

FS 2224. Airstripper and Remedial Treatment System Sampling

Reduce the flow rate to less than 500 mL/minute and begin sample collection. Collect the samples directly into the appropriate containers.

FS 2225. Filtering Groundwater Samples

1. FILTERING GROUNDWATER FOR METALS: Filtered groundwater samples can only be collected after approval from the FDEP program or project manager. If filtering is approved, the FDEP program or permit may require both filtered and unfiltered samples to be collected and reported. Unless specified by the program, use a 1 micrometer (µm) filter.

1.1. Use a disposable, high capacity, 1 µm in-line filter.

1.1.1. Flush the filter with 30-50 mL of analyte free water or an inert gas (nitrogen) to remove atmospheric oxygen;

or

1.1.2. Insert the filter on the high pressure side (i.e., on the delivery side) of the pump. Hold the filter upright with the inlet and outlet vertical. Pump water from the aquifer through the filter until all atmospheric oxygen has been removed.

1.2. Use a variable speed pump that can be fitted with an in-line filter on the outlet end. Peristaltic pumps, bladder pumps or submersible pumps can be used when water levels are no greater than 20 to 25 feet deep; bladder pumps or submersible pumps must be used when water levels are greater than 20 to 25 feet deep.

1.2.1. Install new or precleaned silastic tubing in the variable speed peristaltic pump head at each monitoring well.

1.2.2. Use new or precleaned delivery tubing at each monitoring well.

1.3. Collect filtered samples by either of the methods outlined below if the static water level in the well is too deep for a variable speed peristaltic pump and a variable speed electric submersible pump or variable speed bladder pump of appropriate configuration is not available. Do not agitate the sample or expose it to atmospheric oxygen. **Do not** pour the sample into any intermediate vessel for subsequent filtration.

1.3.1. Collect the sample in a Polyethylene, Teflon or PP bailer that can be pressurized. When the bailer has been retrieved, immediately connect the filter and begin to pressurize the bailer;

or

1.3.2. Collect the sample with a bailer and immediately place the intake tube of the peristaltic pump into the full bailer and begin pumping the water through the filter as described in section 1.2 above.

1.4. **Do not** use the following equipment for filtering groundwater samples for metals:

1.4.1. Any pump and apparatus combination in which the filter is on the vacuum (suction) side of the pump.

1.4.2. Any type of syringe or barrel filtration apparatus.

1.4.3. Any filter that is not encased in a one-piece, molded unit.

FS 2230. REFERENCES

1. Florida Department of Environmental Protection, DEP Standard Operating Procedures for Laboratory Operations and Sample Collection Activities, DEP QA-001/92, September 1992.

2. U.S. Environmental Protection Agency, Region 4, Environmental Investigations Standard Operating Procedures and Quality Assurance Manual, May 1996.

Appendix FS 2200
Tables, Figures and Forms

Table FS 2200–1	Equipment for Collecting Groundwater Samples
Table FS 2200-2	Dissolved Oxygen Saturation
Table FS 2200-3	Allowable Uses for Bailers
Figure FS 2200-1	Pump and Trap for Extractable Organics
Form FD 9000-24	Groundwater Sampling Log

Table FS 2200-1
Equipment for Collecting Groundwater Samples

Activity	Equipment Type
Well Purging	Variable speed centrifugal pump Variable speed submersible pump Variable speed bladder pump Variable speed peristaltic pump Bailer with lanyard: **Not Recommended**
Well Stabilization	pH meter DO meter Conductivity meter Thermometer/Thermistor Turbidimeter Flow-through cell Multi-function meters
Sample Collection	Variable speed peristaltic pump Variable speed submersible pump Variable speed bladder pump Bailer with lanyard (See Table FS 2200-3)
Filtration	Variable speed peristaltic pump Variable speed submersible pump Variable speed bladder pump Pressurized bailer 1.0 µm high capacity molded filter
Groundwater Level	Electronic sensor Chalked tape

Table FS 2200-2
Dissolved Oxygen Saturation

TEMP	D.O.	mg/L	TEMP	D.O.	mg/L	TEMP	D.O.	mg/L	TEMP	D.O.	mg/L
deg C	SAT.	20%	deg C	SAT.	20%	deg C	SAT.	20%	deg C	SAT.	20%
15.0	10.084	2.017	19.0	9.276	1.855	23.0	8.578	1.716	27.0	7.968	1.594
15.1	10.062	2.012	19.1	9.258	1.852	23.1	8.562	1.712	27.1	7.954	1.591
15.2	10.040	2.008	19.2	9.239	1.848	23.2	8.546	1.709	27.2	7.940	1.588
15.3	10.019	2.004	19.3	9.220	1.844	23.3	8.530	1.706	27.3	7.926	1.585
15.4	9.997	1.999	19.4	9.202	1.840	23.4	8.514	1.703	27.4	7.912	1.582
15.5	9.976	1.995	19.5	9.184	1.837	23.5	8.498	1.700	27.5	7.898	1.580
15.6	9.955	1.991	19.6	9.165	1.833	23.6	8.482	1.696	27.6	7.884	1.577
15.7	9.934	1.987	19.7	9.147	1.829	23.7	8.466	1.693	27.7	7.870	1.574
15.8	9.912	1.982	19.8	9.129	1.826	23.8	8.450	1.690	27.8	7.856	1.571
15.9	9.891	1.978	19.9	9.111	1.822	23.9	8.434	1.687	27.9	7.842	1.568
16.0	9.870	1.974	20.0	9.092	1.818	24.0	8.418	1.684	28.0	7.828	1.566
16.1	9.849	1.970	20.1	9.074	1.815	24.1	8.403	1.681	28.1	7.814	1.563
16.2	9.829	1.966	20.2	9.056	1.811	24.2	8.387	1.677	28.2	7.800	1.560
16.3	9.808	1.962	20.3	9.039	1.808	24.3	8.371	1.674	28.3	7.786	1.557
16.4	9.787	1.957	20.4	9.021	1.804	24.4	8.356	1.671	28.4	7.773	1.555
16.5	9.767	1.953	20.5	9.003	1.801	24.5	8.340	1.668	28.5	7.759	1.552
16.6	9.746	1.949	20.6	8.985	1.797	24.6	8.325	1.665	28.6	7.745	1.549
16.7	9.726	1.945	20.7	8.968	1.794	24.7	8.309	1.662	28.7	7.732	1.546
16.8	9.705	1.941	20.8	8.950	1.790	24.8	8.294	1.659	28.8	7.718	1.544
16.9	9.685	1.937	20.9	8.932	1.786	24.9	8.279	1.656	28.9	7.705	1.541
17.0	9.665	1.933	21.0	8.915	1.783	25.0	8.263	1.653	29.0	7.691	1.538
17.1	9.645	1.929	21.1	8.898	1.780	25.1	8.248	1.650	29.1	7.678	1.536
17.2	9.625	1.925	21.2	8.880	1.776	25.2	8.233	1.647	29.2	7.664	1.533
17.3	9.605	1.921	21.3	8.863	1.773	25.3	8.218	1.644	29.3	7.651	1.530
17.4	9.585	1.917	21.4	8.846	1.769	25.4	8.203	1.641	29.4	7.638	1.528
17.5	9.565	1.913	21.5	8.829	1.766	25.5	8.188	1.638	29.5	7.625	1.525
17.6	9.545	1.909	21.6	8.812	1.762	25.6	8.173	1.635	29.6	7.611	1.522
17.7	9.526	1.905	21.7	8.794	1.759	25.7	8.158	1.632	29.7	7.598	1.520
17.8	9.506	1.901	21.8	8.777	1.755	25.8	8.143	1.629	29.8	7.585	1.517
17.9	9.486	1.897	21.9	8.761	1.752	25.9	8.128	1.626	29.9	7.572	1.514
18.0	9.467	1.893	22.0	8.744	1.749	26.0	8.114	1.623	30.0	7.559	1.512
18.1	9.448	1.890	22.1	8.727	1.745	26.1	8.099	1.620	30.1	7.546	1.509
18.2	9.428	1.886	22.2	8.710	1.742	26.2	8.084	1.617	30.2	7.533	1.507
18.3	9.409	1.882	22.3	8.693	1.739	26.3	8.070	1.614	30.3	7.520	1.504
18.4	9.390	1.878	22.4	8.677	1.735	26.4	8.055	1.611	30.4	7.507	1.501
18.5	9.371	1.874	22.5	8.660	1.732	26.5	8.040	1.608	30.5	7.494	1.499
18.6	9.352	1.870	22.6	8.644	1.729	26.6	8.026	1.605	30.6	7.481	1.496
18.7	9.333	1.867	22.7	8.627	1.725	26.7	8.012	1.602	30.7	7.468	1.494
18.8	9.314	1.863	22.8	8.611	1.722	26.8	7.997	1.599	30.8	7.456	1.491
18.9	9.295	1.859	22.9	8.595	1.719	26.9	7.983	1.597	30.9	7.443	1.489

Derived using the formula in Standard Methods for the Examination of Water and Wastewater, Page 4-101, 18th Edition, 1992

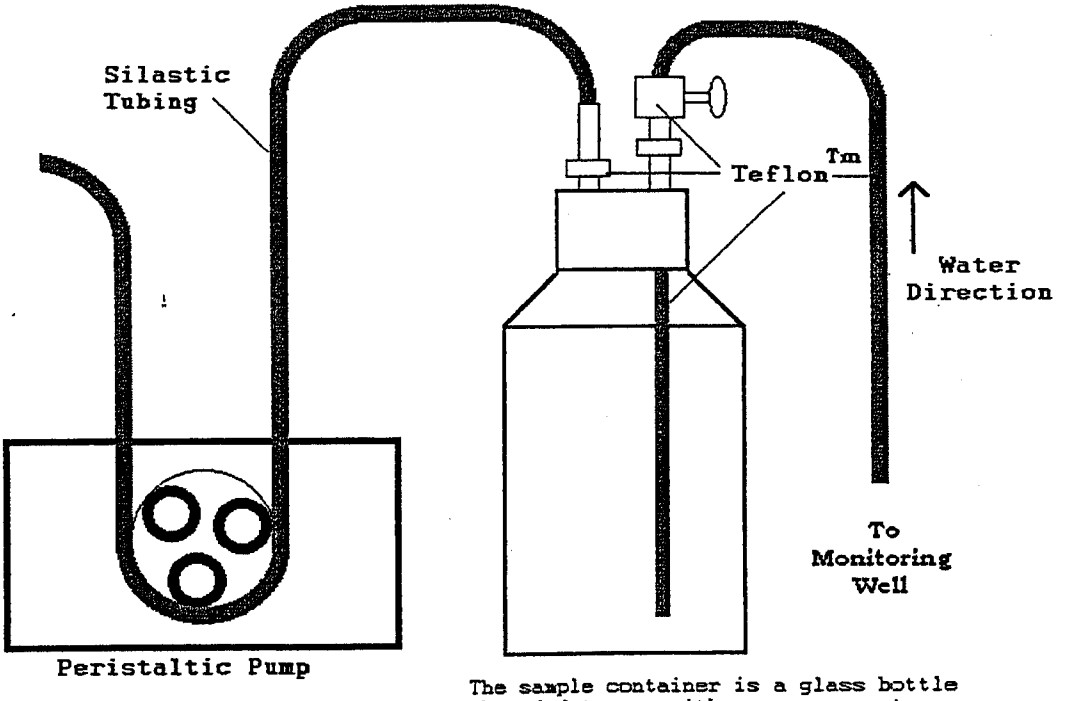
Table FS 2200-3
Allowable Uses for Bailers

ANALYTE GROUP(S)	PURGING (Not Recommended)	SAMPLING	
	Use:	Use:	Not Recommended:
Volatile Organics Extractable Organics Radionuclides, including Radon Metals Volatile Sufides	If allowed by permit, program, contract or order or If operated by a skilled individual with documented training in proper techniques. Field documentation must demonstrate that the procedure in FS 2213, section 4 was followed without deviation.	If concentrations exceed action levels, the purpose is to monitor effective treatment, and the FDEP program allows the use of bailers; or If specified by FDEP permit, program, contract or order. or If operated by a skilled individual with documented training in proper techniques and using appropriate equipment. Field documentation must demonstrate that the procedure in FS 2221, section 2 was followed without deviation.	If concentrations are near or below the stated action levels; or If a critical decision (e.g., clean closure) will be made based on the data; or If data are to demonstrate compliance with a permit or order.
Petroleum Hydrocarbons (TRPH) & Oil & Grease	If allowed by permit, program, contract or order or If operated by a skilled individual with documented training in proper techniques. Field documentation must demonstrate that the procedure in FS 2213, section 4 was followed without deviation.	Only if allowed by permit, program, contract or order as samples should be collected into the container without intermediate devices.	Unless allowed by permit, program, contract or order.

Table FS 2200-3
Allowable Uses for Bailers

ANALYTE GROUP(S)	PURGING (Not Recommended)	SAMPLING	
	Use:	Use:	Not Recommended:
Biologicals Inorganic Non-Metallics Aggregate Organics Microbiological Physical and Aggregate Properties	If allowed by permit, program, contract or order or If operated by a skilled individual with documented training in proper techniques. Field documentation must demonstrate that the procedure in FS 2213, section 4 was followed without deviation.	If all analytes collected from the well can be collected with a bailer; or If collected after collecting all analytes that require the use of a pump.	Before collecting any analytes that must be collected with a pump.
Ultra-Trace Metals	Never	Never	

Figure FS 2200-1
Pump and Trap for Extractable Organics



The sample container is a glass bottle threaded to use either a permanent Teflon lined cap or a sampling cap with a Teflon insert similar to the design above.

For ready reference in the District Offices, we are including a notebook (along with the paper copy of this memo) that contains all documents that were incorporated by reference into the new rule. A copy has also been placed in the Tallahassee DEP Library. This notebook should be made available to anyone who wishes to review any of the material that was incorporated by reference in the rule.

The new QA Rule more clearly states DEP's expectations for laboratory and field performance. The new Rule also delineates criteria for assessing data acceptability, enabling programs to make decisions concerning data usability and quality, which are based on their program Data Quality Objectives. The new SOPs reflect improvements in technology, cover additional topics, and are better organized than the previous versions.

I have asked Dr. Bill Coppenger, Chief of the Bureau of Laboratories, to provide support to DEP programs in several areas related to the QA Rule. Our primary emphasis will be on delivering scientific training (field SOPs and data consumer education), performing audits (laboratory, field, and data review), and providing program-specific scientific and technical support. I encourage you to have staff contact either Bill or Russ Frydenborg, Administrator of the Environmental Assessment Section, to request assistance in these areas.

You may also visit the Bureau of Laboratories' website, http://www.dep.state.fl.us/labs/qa/index.htm, for comprehensive information about the QA Rule, a link to DEP field Standard Operating Procedures, and for the complete text of the Rule.

Thank you.

Florida Department of Environmental Protection
GROUNDWATER SAMPLING LOG

SITE NAME:	SITE LOCATION:

WELL NO:	SAMPLE ID:	DATE:

PURGING DATA

WELL DIAMETER (in):	TOTAL WELL DEPTH (ft):	STATIC DEPTH TO WATER (ft):	WELL CAPACITY (gal/ft):

1 WELL VOLUME (gal) = (TOTAL WELL DEPTH – DEPTH TO WATER) X WELL CAPACITY =

= (–) X =

PURGE METHOD:	PURGE INITIATED AT:	PURGE ENDED AT:	TOTAL VOL. PURGED (gal):

TIME	VOLUME PURGED (gal)	CUMUL. VOLUME PURGED (gal)	PURGE RATE (gpm)	DEPTH TO WATER (ft)	pH	TEMP. (°C)	COND. (µmhos)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR	ODOR

WELL CAPACITY (Gallons per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION	SAMPLER(S) SIGNATURE(S)	
SAMPLING METHOD(S):	SAMPLING INITIATED AT:	SAMPLING ENDED AT:
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N	DUPLICATE: Y N

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD
NO.	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOLUME ADDED IN FIELD (mL)	FINAL pH	

REMARKS:

MATERIAL CODES: AG = AMBER GLASS; CG = CLEAR GLASS; PE = POLYETHYLENE; O = OTHER (SPECIFY)

NOTE: The above do not constitute all of the information required by Chapter 62-160, F.A.C.

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Appen 1-6	

APPENDIX I-6

FS - SOIL

FS 3000. SOIL

See also the following Standard Operating Procedures:

- FA 1000 and 2000 Administrative Procedures
- FC 1000 Cleaning/Decontamination Procedures
- FD 1000-9000 Documentation Procedures
- FM 1000 Field Planning and Mobilization
- FQ 1000 Field Quality Control Requirements
- FS 1000 General Sampling Procedures
- FT 1000 General Field Testing and Measurement

1. INTRODUCTION AND SCOPE

1.1. Use these SOPs during field investigations to collect soil samples that are representative of current site conditions. It is very important to ensure that the collected samples are neither altered nor contaminated by sampling and handling techniques.

1.2. The following topics include: equipment choice, equipment construction materials, grab and areal or depth composite sampling techniques. Sample collection methods fall into three general depth classifications: surface, shallow subsurface, and deep subsurface. Once the samples are acquired, the handling procedures are very similar and are described below.

2. GENERAL

2.1. Select sampling equipment based on the type of sample to be collected and the analytes of interest. Choose soil sampling locations such that a representative portion of the soil is collected with minimal disturbance. Locations where natural vegetation is stressed or dead and/or areas that have surficial soil staining may be indicative of improper waste disposal practices.

2.2. If background and/or quality control sampling is warranted and feasible as determined in the site's work plan or by the project manager, select an upgradient, undisturbed location for obtaining the background and/or quality control samples. Be aware that differences in soil types may affect these background samples (e.g., sands vs. clays).

2.3. **Do not collect** samples for chemical analysis from auger flights or cuttings from hollow stem auger flights, except for waste characterization purposes for disposal.

2.4. Do not use samples that are collected for geological/lithological or vapor meter determinations for chemical analyses.

3. EQUIPMENT AND SUPPLIES

3.1. All equipment must be constructed of materials consistent with the analytes of interest. Refer to FS 1000, Table FS 1000-3 for selection of appropriate equipment.

3.2. For information on sample container size and construction, see FS 1000, Table FS 1000-6.

3.3. For information on sampling equipment cleaning requirements, see FC 1000.

3.4. For information on preservation and holding time requirements, see FS 1000, Table FS 1000-6.

3.5. For information on documentation requirements, see FD 1000.

4. PROCEDURES FOR COMPOSITING

4.1. The following is not a complete discussion regarding all available sampling protocols nor the appropriateness or inappropriateness of compositing soil samples. The appropriateness of compositing soil samples will depend on the data quality objectives of the project. However, it is sometimes advantageous to composite soil samples and thus minimize the number of samples to be analyzed when sampling highly contaminated areas. Obtain permission from the FDEP program.

4.1.1. Select sampling points from which to collect each aliquot.

4.1.2. Using the appropriate sampling technique, collect equal aliquots (same sample size) from each location and place in a properly cleaned container.

4.1.3. **Do not mix sample aliquots before containerizing.**

4.1.4. Record the amount of each aliquot (volume or weight).

4.1.5. Label container, preserve on wet ice to 4°C and complete field notes.

4.1.6. Notify the laboratory that the sample is an unmixed composite sample, and request that the sample be thoroughly mixed before sample preparation or analysis.

5. SPECIFIC PROCEDURES FOR VOLATILE ORGANIC COMPOUNDS

Follow the procedures specified in EPA Method 5035 for sample collection and sample preparation. The protocols listed below **do not replace Method 5035** but clarify and/or modify certain method procedures. Therefore, it is essential that all organizations have a copy of Method 5035 as a reference document.

5.1. Container Preparation

5.1.1. All containers must be cleaned according to the FC 1000 sample container cleaning procedures for volatile organics.

5.1.2. Sample Vials: If sample vials are filled in the field, they must be provided with all reagents, stirring devices, label **and vial cap** to be used during sample analysis. These vials must be preweighed by the laboratory and records must be maintained so that there is an unambiguous link between the tare weight and the filled sample vial.

5.2. Collection Procedure

5.2.1. The sample vials (when used) will contain a premeasured amount of liquid. The laboratory must weigh the vials before sending into the field, and must weigh them again after receipt. Therefore:

- Do not lose any of the liquid either through evaporation or spillage
- Do not use a vial if some of the contents has spilled, or if it appears that some has leaked during transport
- Use the laboratory-supplied container label for identification information. **DO NOT apply any additional labels to the container**

- Do not interchange vial caps or septa

5.2.2. Minimize exposure to air by obtaining the sample directly from the sample source, using a coring device or a commercially designed sampling tool.

5.2.2.1. The sample collection device must be designed to fit tightly against the mouth of the vial or be small enough to be inserted into the vial.

- EnCore or equivalent sampling devices may be used.
- Disposable plastic syringes with the syringe end cut off prior to sampling may only be used **once** per sampling location.

5.2.2.2. Extrude the sample directly into the sample container.

5.2.3. Follow the method procedures for field transfer into the vial.

5.2.4. Procedures for determining the sample weight in the field are not required unless the project manager requires an accurate determination of the 5-gram sample size.

5.2.4.1. If the vials are returned to the laboratory for weighing, the sampler must be proficient in estimating the requisite 5-gram weight necessary for each sample.

5.2.4.2. If an accurate estimate of the 5-gram sample size is desired prior to starting sample collection activities, use a balance with a sensitivity of 0.1 gram. Check the balance calibration before each day's use with a set of weights that have been calibrated against NIST-traceable weights at least annually.

5.2.5. If the sampling device is transported to the laboratory with a sample, make sure the seals are intact, especially if collecting samples from sandy soils.

5.2.6. Collect at least two replicate samples from the same soil stratum and within close proximity to the original sample location.

5.2.7. Collect an additional aliquot of sample for screening and dry weight determinations.

5.3. Preservation (see FS 1000, Table FS 1000-7)

5.3.1. Low Level (□ 200 µg/kg volatile organics)

5.3.1.1. The method states the use of sodium bisulfate, which is an acid. Since Florida soils contain significant amounts of calcium carbonate that reacts with acids, FDEP does not recommend using this preservative.

5.3.1.2. Properly pack the samples (see FS 2004, section 5), and place all samples on wet ice.

5.3.1.3. An unpreserved sample (no acid) must be analyzed within 48 hours.

5.3.1.4. An acid preserved sample has a 14-day holding time.

5.3.1.5. An unpreserved sample in a vial with premeasured analyte-free water must be analyzed within 48 hours.

5.3.1.6. Holding times for unpreserved samples in vial with premeasured analyte-free water may be extended to 14 days if the laboratory freezes the samples to -10°C within 48 hours of sample collection.

5.3.1.7. If transported to the laboratory in a sealed coring device, the samples must be analyzed within 48 hours.

5.3.1.8. Holding times for sealed coring device samples may be extended to 14 days if the laboratory extrudes the sample into the appropriate liquid, and freezes it to -10°C.

5.3.2. High Level (> 200 µg/kg volatile organics)

5.3.2.1. Properly pack the samples (see FS 2004, section 5), and place all samples on wet ice.

5.3.2.2. If transported to the laboratory in a sealed coring device, the samples must be analyzed within 48 hours.

5.3.2.3. Holding times for sealed coring device samples may be extended to 14 days if the laboratory extrudes the sample into the appropriate liquid, and refrigerates it at 4°C.

5.3.2.4. Samples that are place in methanol in the field have a 14-day holding time.

6. BULK SAMPLES: The collection of bulk samples will depend on the data quality objectives of the project.

6.1. Do not composite or mix VOC samples unless required by the FDEP program or if mandated by a formal FDEP document (permit, order or contract).

6.2. Select sampling points from which to collect each aliquot.

6.3. Using the appropriate sampling technique, collect equal aliquots (same sample size) from each location and place in a properly cleaned container.

6.3.1. **Do not mix sample aliquots before containerizing.**

6.3.2. Pack soil tightly minimizing as much headspace as possible in the sample container.

6.3.3. Cap container tightly with Teflon side facing sample.

6.4. Record the amount of each aliquot (volume or weight) in the field notes.

6.5. Label container. Refer to FS 1000, Table FS 1000-7 for preservation and holding time requirements.

6.6. Notify the laboratory that the sample is an unmixed composite sample, and request that the sample be thoroughly mixed before sample preparation or analysis.

FS 3100. Surface Soil Sampling

Surface soil is generally classified as soil between the ground surface and 6-12 inches below ground surface.

1. Remove leaves, grass and surface debris from the area to be sampled.
2. Collect samples for volatile organic analyses as described in FS 3000, section 5.
3. Select an appropriate precleaned sampling device and collect the sample.
4. Transfer the sample to the appropriate sample container.
5. Clean the outside of the sample container to remove excess soil.
6. Label the sample container, place on wet ice to preserve to 4°C and complete the field notes.

FS 3200. Subsurface Soil Sampling

Interval begins at approximately 12 inches below ground surface.

FS 3210. Sample Collection Procedure

Use the following after the desired depth has been reached by one of the methods outlined in FS 3220.

1. Collect samples for volatile organic analyses as described in FS 3000, section 5.

2. For other analyses, select an appropriate precleaned sampling device and collect the sample.

3. Transfer the sample to the appropriate sample container.

4. Clean the outside of the sample container to remove excess soil.

5. Label the sample container, place on wet ice to preserve to 4°C and complete the field notes.

FS 3220. Reaching the Appropriate Depth

1. SHOVELS AND DIGGERS: Used for soils from approximately 12 inches to a point when using the implement becomes impractical.

    1.1. Dig a hole or trench to the required depth.

    1.2. Follow the sample collection procedures outlined in FS 3210.

2. BACKHOE: Used for soils from approximately 12 inches to a point when using the implement becomes impractical.

    2.1. Dig a trench to the appropriate depth.

    2.2. Expose the sample, in the trench, by using a precleaned spoon, spatula or equivalent to clean away the soil that came in contact with the backhoe bucket.

    2.3. Use a **second** precleaned utensil to actually collect the sample from the trench.

    2.4. Follow the procedures outlined in FS 3210 to collect the sample.

3. BUCKET AUGERS AND HOLLOW CORERS: Suitable to reach soils from approximately 12 inches to a point when using the implement becomes impractical.

    3.1. Push and rotate the auger into the soil until the bucket is filled.

    3.2. Addition of a non-contaminating sleeve may allow an undisturbed soil sample to be obtained.

        3.2.1. The device consists of a standard auger head with a removable sleeve, which is inserted into the auger barrel. In this case it is the sleeve, which fills with soil.

        3.2.2. Remove the sleeve from the auger and cap.

    3.3. If the auger hole is prone to collapse due to low cohesion in some soils, FDEP recommends inserting a temporary rigid PVC casing into the hole. The casing prevents hole collapse and minimizes cross-contamination between soil zones as the auger is advanced. After collecting the samples, remove the temporary casing (if used) and fill the hole filled with the excavated soil.

3.4. Remove the sample from the sampler by pushing or scraping the soil with an appropriate precleaned utensil into an appropriately precleaned tray or aluminum foil.

3.5. Remove any portion of the sample that has been disturbed and discard.

3.6. Follow the sample collection procedures outlined in FS 3210.

NOTE: If a confining layer has been breached during sampling, grout the hole to land surface with Type-1 Portland cement. This requirement may be different throughout Florida; contact the local Water Management District office for local requirements.

4. SPLIT SPOON SAMPLER: Suitable for reaching soils from approximately 12 inches to depths greater than 10 feet.

4.1. A split spoon sampler, useful for sampling unconsolidated soil, consists of two half cylinders (spoons) that fit together to form a tube approximately two feet in length and two inches in diameter.

4.1.1. The cylindrical arrangement is maintained by a retaining head and bit rings that screw on at each end of the split spoon.

4.1.2. The bit ring has beveled edges to facilitate sampling as the split spoon is forced into the ground.

4.1.3. Advance the sampler using the weight of the drilling stem and rods or a mechanical hammer.

4.1.4. Insert a catcher device in the head ring to prevent loss of unconsolidated sample during recovery.

4.2. After retrieving the split spoon sampler, expose the soil by unscrewing the bit and head rings and splitting the barrel.

4.3. If the recovery is enough to accommodate discarding a portion of the sample, discard the top and bottom two to three inches of the sample.

4.4. For volatile organic compounds collect the sample immediately from the **center portion of the split spoon** using the procedures described in FS 3000, section 5.

4.5. For other analyses, slice the sample from the center portion of the split spoon using a clean, decontaminated utensil.

4.6. Select an appropriate precleaned sampling device and collect the sample.

4.7. Transfer the sample to the appropriate sample container.

4.8. Clean the outside of the sample container to remove excess soil.

4.9. Label the sample container, place on wet ice to preserve to 4°C and complete the field notes.

5. DIRECT PUSH RIGS: May be used for depths greater than 10 feet below ground surface.

5.1. Liners: The clear liners are used with direct push rigs. This method is appropriate only for unconsolidated materials. The sampling depth that can be achieved varies depending on the rig and the lithologies that are encountered. Typically, the rig operator will:

- Place the liner inside the metal probe rod

- Select a point holder with an opening appropriate for the site lithology and screw it on the probe rod
- Advance the rod a full rod length
- Retrieve the rod
- Remove the point holder
- Remove the liner, and
- Slice the liner to expose the soil.

5.2. After the liner has been sliced, follow the procedures outlined in FS 3220, collecting volatile organic samples (if needed) immediately after the liner is sliced.

5.3. If samples for organic vapor analysis screening are required, collect them by slicing the sample(s) using a clean, decontaminated utensil and place them in 8-ounce (preferred) or 16-ounce jars, immediately cover the opening with aluminum foil and screw on the lid ring. If the contamination is derived from petroleum products it is acceptable to use a clean gloved hand to transfer the sample(s) to the sample container(s).

5.4. For other analyses, slice the sample from the center portion of the split spoon using a clean, decontaminated utensil.

5.5. Select an appropriate precleaned sampling device and collect the sample.

5.6. Transfer the sample to the appropriate sample container.

5.7. Clean the outside of the sample container to remove excess soil.

5.8. Label the sample container, place on wet ice to preserve to 4°C and complete the field notes.

6. SHELBY TUBE SAMPLER

6.1. The Shelby tube sampler is used to sample unconsolidated soil and consists of a tube approximately 30 inches long and two inches (or larger) in diameter.

6.2. One end of the tube has edges beveled into a cutting edge. The other end can be mounted to an adapter, which allows attachment to the drilling rig assembly.

6.3. After drilling to the required depth with an auger or rotary drill bit, a soil sample is obtained through the auger or directly in the borehole.

6.4. Push the Shelby tube into the soil using the drilling rig's hydraulic ram or manually with a sledge hammer.

6.5. Remove the tube from the sampler head.

6.6. Extrude the sample from the Shelby tube.

6.7. Use a decontaminated utensil to remove any portion of the sample that has been disturbed.

6.8. Collect samples for volatile organics immediately from the center portion of the Shelby tube using the procedures described in FS 3000, section 5.

6.9. For other analyses, slice the sample from the center portion of the Shelby tube using a clean, decontaminated utensil.

6.10. Transfer the sample to the appropriate sample container.

6.11. Clean the outside of the sample container to remove excess soil.

6.12. Label the sample container, place on wet ice to preserve to 4°C and complete the field notes.

7. CORE BARREL

7.1. A standard core barrel is utilized when consolidated samples (such as limestone or dolomite) are to be sampled.

7.1.1. The core barrel is a cylinder approximately three feet long and two inches in diameter.

7.1.2. The barrel has a removable head ring with small embedded diamonds which allow the device to cut through rock or consolidated soil as the drilling rods are rotated.

7.2. Retrieve the sample core by unscrewing the head ring and sliding the sample into a precleaned container.

7.3. Use a decontaminated utensil to remove any portion of the sample that has been disturbed.

7.4. Remove the sample from the sampler (corer) with a precleaned tool.

7.5. Transfer the sample to the appropriate sample container.

7.6. Clean the outside of the sample container to remove excess soil.

7.7. Label the sample container, place on wet ice to preserve to 4°C and complete the field notes.

FS 3230. REFERENCES

1. U.S. Environmental Protection Agency, Region 4, Environmental Investigations Standard Operating Procedures and Quality Assurance Manual, May 1996.

2. U.S. Environmental Protection Agency, Test Methods for Evaluating Solid Waste, Physical/Chemical Methods EPA SW-846, Third Edition (November 1986) as amended by Update III (December 1996).

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Appen. 1-7	

APPENDIX I-7

FT 1100 - FIELD MEASUREMENT OF HYDROGEN ION ACTIVITY (Ph)

FT 1100. FIELD MEASUREMENT OF HYDROGEN ION ACTIVITY (pH)

Use in conjunction with:

- FT 1000 General Field Testing and Measurement
- FQ 1000 Field Quality Control Requirements
- FS 1000 General Sampling Procedures
- FD 1000 Documentation Procedures

1. EQUIPMENT AND SUPPLIES

1.1. Field Instrument: Use any pH meter consisting of a potentiometer, a glass electrode, a reference electrode, and a temperature-compensating device.

1.1.1. For routine fieldwork use a pH meter accurate and reproducible to at least 0.2-unit in the range of 0.0 to 14.0 units, and equipped with temperature-compensation adjustment.

1.1.2. Advanced silicon chip pH sensors (with digital meters) may be used if demonstrated to yield equivalent performance to glass electrode sensors for the intended application.

1.2. Standards: Purchased or laboratory-prepared standard buffer solutions of pH values that bracket the expected sample pH range. Use buffers with nominal values of 4.0, 7.0 and 10.0 units for most situations. If the sample pH is outside the range of 4.0 to 10.0, then use two buffers that bracket the expected range with the pH 7 buffer being one of the two buffers. Alternatively, prepare appropriate standards per table I in method SM4500-H^+-B.

1.3. Recordkeeping and Documentation Supplies:

- Field notebook (w/ waterproof paper is recommended)
- Field record forms (e.g., forms FD 9000-7, FD 9000-8, and FD 9000-9)
- Indelible pens

2. CALIBRATION AND USE

2.1. General Concerns

2.1.1. Calibrate the meter at the base of operations or in the field. If the calibration is performed at the base of operations, check the instrument on-site, prior to use, since a calibration is likely to change during mobilization.

2.1.2. The acceptance criterion for the initial calibration or the calibration check is a reading of the standard within +/- 0.2-unit of the expected value.

2.1.3. On a weekly basis, check the calibration to ensure the % theoretical slope is greater than 90% (if applicable to your instrument type).

2.1.3.1. Note the % slope in the calibration records.

2.1.3.2. A % slope of less than 90% indicates a bad electrode that must be changed or repaired.

2.1.3.3. If % slope cannot be determined on your meter, or the manufacturer's optimum specifications are different, follow the manufacturer's recommendation for maintaining optimum meter performance.

2.2. Interferences

2.2.1. Sodium at pH $\geq$ 10.0 units can be reduced or eliminated by using a low sodium error electrode.

2.2.2. Coatings of oils, greases, and particles may impair the electrode's response. Pat the electrode bulb dry with lint-free paper or cloth and rinse with de-ionized water. For cleaning hard-to-remove films, use acetone very sparingly so that the electronic surface is not damaged.

2.2.3. Temperature effects on the electrometric measurement of pH are controlled by using instruments having temperature compensation or by calibrating the meter at the temperature of the samples.

2.2.4. Poorly buffered solutions with low specific conductance (< 200 µmhos/cm) may cause fluctuations in the pH readings. Equilibrate electrode by immersing in several aliquots of sample before taking pH.

2.3. Calibration: Follow the manufacturer's calibration instructions specific to your meter. Most instruments allow for a two-point calibration and a few models can perform a three-point calibration. Use the appropriate number of standard buffer solutions for calibration. Do not reuse buffers after they have been in contact with the probe or sensor.

2.3.1. Check the battery before mobilizing and turn on the meter when you reach the first site or facility and allow it to equilibrate to ambient temperature.

2.3.2. Follow the calibration quality control procedures specified in FT 1000, section 2.2.

2.3.3. Calibrate the meter/electrode system with at least two buffers. Always use a pH 7 buffer first. The second buffer must be at least three pH units (4 or 10) and must bracket the expected sample pH. Check historical data for expected pH or use narrow-range pH paper on an aliquot to estimate.

2.3.4. If the pH sample range is expected to be wider than 3 pH units (e.g., some samples at pH 4 and others at pH 8), then add a third calibration point (buffer must be at least 4 or 10 pH units). If the instrument cannot be calibrated with three buffers, calibrate the instrument on the range that is expected and used the third buffer as a calibration check on the range.

2.3.4.1. To be acceptable, a calibration check must be within +/- 0.2 pH unit of the stated buffer value. For example, if checking the pH 4.0 buffer, the result must be in the 3.8 to 4.2 range.

2.3.5. To obtain an accurate reading, align the needle of the pH meter with its image in the mirror on the gauge. For a digital meter, round the result to one decimal figure (e.g., 7.6 instead of 7.57 units).

2.3.6. Rinse the probe with de-ionized water (DI) before and between each standard buffer solution.

2.4. Measuring Sample pH: After an acceptable initial calibration or calibration check, follow these procedures to take a pH reading of a freshly collected sample.

2.4.1. Pour enough of the fresh sample into a clean cup to take the reading.

2.4.2. Place the pH electrode in the sample (in the cup) and swirl the electrode.

2.4.3. Wait for stabilization, and read the pH value.

2.4.3.1. In the case of low specific conductance and meter drift, add 1 mL of 1M KCl (potassium chloride) solution to each 100 mL of sample, swirl and read pH.

2.4.3.2. Note: to make 1M KCl solution, take 74.55 g of primary standard grade KCl and add it to a 1-liter volumetric flask. Add DI to the 1-liter line on the flask and mix. Solutions of the appropriate strength may be purchased from commercial laboratory suppliers.

2.4.4. Turn the meter off after the last sample reading, rinse the electrode thoroughly with de-ionized water and replace the electrode's cap.

2.4.5. In-Situ pH of Samples: After calibrating the multi-probe sensors (e.g., in Hydrolab or YSI meters) as outlined in 2.3 above, follow the meter's instructions to select the display for reading the pH of the sample.

2.4.6. Immerse the probe at the desired depth in the water and wait at least thirty seconds for stabilization of the reading (record the value when the difference between two readings taken ten seconds apart is not greater than 0.2 unit).

2.5. Flow-through Cells: When using a flow-through cell, the procedure described above in section 2.4.6 is applicable.

3. PREVENTIVE MAINTENANCE: Refer to FT 1000, section 3.

4. RECORDS: See FT 1000, section 4 for additional details.

4.1. Calibration: Record all calibration information (initial and continuing) in the field notebook or on a form specifically designed for this purpose (e.g. FD 9000-8). This information must be recorded:

4.1.1. The calibration method (or SOP) and the type of standard(s) (including the concentrations) used.

4.1.2. Record each calibration check (initial, continuing or final) in the permanent field records (or calibration logs). At a minimum, these records must include:

4.1.2.1. Date, time and location (e.g., monitoring well MW-X; laboratory; etc.) of each calibration check;

4.1.2.2. Individual performing the check;

4.1.2.3. Results of each check, including the concentration/type of standard, expected reading, and the actual reading;

4.1.3. Whether the check met or failed acceptance criteria;

4.1.4. Readings associated with a failed check; and

4.1.5. Corrective actions associated with failed check (such as recalibration, removal from use, etc.).

4.1.6. Optionally, enter the meter name, model number, and identification number (if applicable).

4.2. Samples: Record the sample results on the appropriate field parameter sheets (e.g., Form FD 9000-7) or in a field notebook. For each sample record the following information:

- Project Name
- Date and time the measurement was collected
- Location of the sample (description, monitor well number, etc.)
- Analyte Name
- Reporting Units
- Sample Value
- Initials of the person taking the measurements.

4.3. Reagent and Standards Documentation: Maintain documentation on calibration standards (e.g., buffers, KCl) and other reagents.

4.3.1. At a minimum, note the date of receipt, expiration dates (on the bottle label), and date of first use (on the standard container).

4.3.2. Follow expiration dates: If any standard or chemical is used after the expiration date, there must be documentation showing that the reagent is providing an acceptable response.

FT 1110. REFERENCES

1. U.S. Environmental Protection Agency, EPA 180.1, Methods for the Chemical Analysis of Water and Waste, EPA-600/4-79-020, Revised 1983.

2. American Public Health Association, American Water Works Association, Water Pollution Control Federation, SM 4500-H^+, Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1999.

Appendix FT 1100
Tables, Figures and Forms

Form FD 9000-7 Field Parameter Data Sheet for Surface Water

Form FD 9000-8 Field Instrument Calibration Records

DEP-S[illegible]1/01

Page [illegible]

FT 1100 Field Measureme[illegible]ydrogen Ion Activity (pH)

Field Parameter Data Sheet for Surface Water

SURVEY/PROJECT: _____ SAMPLERS: _____ METER # _____

STATION NUMBER	STATION DESCRIPTION	PARAMETER	DATE	TIME	TOTAL DEPTH	SAMPLE DEPTH	WATER TEMP	DO	%SAT DO	COND	SALINITY	PH	TURBIDITY
		UNIT	yy/mm/dd	hr:min	feet	feet	Celsius	mg/L	%	µS/cm	ppt	su	NTU
		STORET CODE	73672		81903	68	10	299	301	94	480	400	82078

FIELD CONDITIONS FOR STATION# _____ AT TIME _____:

CLOUD COVER (%): _____ WIND DIRECTION: _____ TIDAL STAGE: _____

PREVIOUS RAINFALL: _____ WIND SPEED (MPH/KNOTS): _____ WAVE CONDITIONS: _____

Note: This Sheet is used for recording Sample Data – Calibration information must also be documented (see FT 1100, section 4)

FT 1100 Field Measurement of Hydrogen Ion Activity (pH)

Field Instrument Calibration Records

INSTRUMENT (MAKER/MODEL#) _____ **INSTRUMENT #** ____

PARAMETER: *[check only one]*

☐ TEMPERATURE ☐ CONDUCTIVITY ☐ SALINITY ☐ pH ☐ ORP

☐ TURBIDITY ☐ RESIDUAL CL ☐ DO ☐ OTHER _____

STANDARDS: *[Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]*

Standard A _____

Standard B _____

Standard C _____

DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV.	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Appen. 1-8	

APPENDIX I-8

FT 1200 - MEASUREMENT OF SPECIFIC CONDUCTIVITY

FT 1200. FIELD MEASUREMENT OF SPECIFIC CONDUCTANCE (CONDUCTIVITY)

Use in conjunction with:

- FT 1000 General Field Testing and Measurement
- FQ 1000 Field Quality Control Requirements
- FD 1000 Documentation Procedures

1. INTRODUCTION: Specific conductance is a useful method to approximate the total amount of inorganic dissolved solids.

1.1. Conductivity varies with temperature. For example, the conductivity of salt water increases 3%/degree C at 0°C, and only 2 %/degree C at 25°C.

1.2. Record the sample temperature or adjust the temperature of the samples prior to measuring specific conductance if the conductivity instrument does not employ automatic temperature compensation and correction of the instrument display value.

2. EQUIPMENT AND SUPPLIES

2.1. Field Instrument: Any self-contained conductivity instrument suitable for field work, accurate and reproducible to 5% or better over the operational range of the instrument, and preferably equipped with temperature-compensation adjustment. See references in FT 1210 below for additional information about instruments.

2.2. Standards: Purchased or laboratory-prepared standard potassium chloride (KCl) solutions with conductivity values that bracket the expected samples' range. In the laboratory, prepare standards of appropriate conductivities per SM2510. See FT 1210, section 2 below.

2.3. Recordkeeping and Documentation Supplies:

- Field notebook or,
- Field record forms (e.g., forms FD 9000-7, FD 9000-8 and FD 9000-9)

3. CALIBRATION AND USE

3.1. General Concerns

3.1.1. For instruments without automatic temperature compensation, attempt to adjust the temperature of the samples to 25°C. If the temperature cannot be adjusted, record the temperature, correct for temperature (per section 3.4 below) and report the results corrected to 25°C. See references in FT 1210 below for further information about temperature correction.

3.1.2. **Temperature measurement devices used to manually or automatically correct conductivity measurements must be calibrated per FT 1400.**

3.2. Calibration

3.2.1. Initial Calibration: Calibrate the meter prior to use according to the following steps:

3.2.1.1. Follow the instrument manufacturer's calibration instructions.

3.2.1.2. Use two standard potassium chloride solutions that bracket the range of expected sample conductivities.

3.2.1.3. Calibrate the instrument with the first standard.

3.2.1.4. Check the calibration of the instrument with the second standard, bracketing the range of expected sample values.

3.2.1.5. If the instrument can be calibrated with more than one standard, choose additional calibration standards within the range of expected sample values. The second standard in section 3.2.1.4 above may be used as an additional calibration standard.

3.2.2. Acceptability: Accept the calibration if the meter reads within +/- 5% of the value of any calibration standard used to check the calibration. For example, the acceptance range for a 100 µmhos/cm standard is 95 to 105 µmhos/cm. If the meter does not read within +/- 5% of each calibration check standard, determine the cause of the problem and correct before proceeding.

3.2.3. Temperature Correction: Most field instruments read conductivity directly. If the meter does not automatically correct values to 25°C, calculate correction factors using the procedure in section 3.4 below. Record all readings and calculations in the calibration records.

3.2.4. Continuing calibration: Check the meter with at least one KCl standard with a specific conductance within the range of conductivity measured in environmental samples. The reading for the calibration check must also be within +/- 5% of the standard value (see 3.2.2 above).

3.2.4.1. If new environmental samples are encountered outside the range of the initial calibration in 3.2.1 above, check the instrument calibration with 2 standards bracketing the expected range of sample values. If these calibration checks fail, recalibrate the instrument as in 3.2.1.

3.2.5. Quality Control: Follow the calibration quality control procedures and frequency of calibrations specified in FT 1000, section 2.2.

3.2.5.1. **More frequent calibration checks may be required for discharge permit compliance measurements or other regulatory requirements.**

3.3. Measuring Specific Conductance of Samples:

3.3.1. Follow manufacturer's instructions for sample measurement.

3.3.2. Immerse or place the conductivity probe or sensor in situ at a measuring location representative of the sampling source.

3.3.3. Allow the conductivity instrument to stabilize.

3.3.4. Measure the water temperature (if necessary for manual temperature compensation) and record the temperature. See FT 1400 for temperature measurement procedures.

3.3.5. If the meter is equipped with manual temperature compensation, adjust the conductivity meter to the water temperature per manufacturer's instructions.

3.3.6. If the conductivity meter has a set of positions that multiply the reading by powers of ten in order to measure the full range of potential conductivities, set this dial to the correct range in order to take a reading.

3.3.7. Record the sample conductivity measurement reading.

3.3.8. Rinse off the probe with de-ionized water. Follow manufacturer's instructions for probe storage between use.

3.4 Calculations for Temperature Compensation

If the meter does not automatically correct for temperature (manual or automatic adjustment), or if a probe with a cell constant other than 1 is used, the following formula must be used to normalize the data to 25°C:

$$K = \frac{(K_m)(C)}{1 + 0.0191(T-25)}$$

Where: K = conductivity in µmhos/cm at 25°C

K_m = measured conductivity in µmhos/cm at T degrees C

C = cell constant

T = measured temperature of the sample in degrees C

If the cell constant is 1, the formula for determining conductivity becomes:

$$K = \frac{(K_m)}{1 + 0.0191(T-25)}$$

Refer to SM2510B, 20th edition, if other calculations (i.e., determining cell constant, etc.) are required. See FT 1210 below.

3.5 In-Situ Measurements at Depth or With Flow-through Cells: After calibrating the instrument as outlined in 3.2 above, follow the manufacturer's instructions to measure the conductivity of the sample.

3.5.1. For in-situ measurements immerse the probe at the desired depth and wait for stabilization of the reading and record its value. Follow a similar procedure when using a flow-through cell.

3.5.1.1 Preferably measure groundwater sample conductivity in-situ with a downhole probe or in a flow-through system.

4. PREVENTATIVE MAINTENANCE: Refer to FT 1000, section 3.

5. RECORDS: See FT 1000, section 4 for additional details.

5.1. Calibration:

Record all calibration information (initial and continuing) in a field notebook, on a form specifically designed for this purpose (e.g., FD 9000-8) or in other records, to include:

- Standard concentrations used
- Results of each calibration check, including expected reading for the calibration standard and actual reading obtained from the instrument
- Date, time and location (e.g., sample site, laboratory; etc.) of each calibration check
- Individual performing the check
- Whether the check met or failed acceptance criteria

- Sample readings associated with a failed check, either by direct listing or link to other records
- Corrective actions associated with failed check (such as recalibration, removal from use, etc.)
- Meter name, model number, and identification number (if applicable)

5.2. Samples:

Record the sample results on the appropriate field parameter sheets (e.g., Form FD 9000-7), field notebook or other records, to include:

- Project name
- Date and time the measurement was collected
- Location of the sample (description, monitor well number, etc.)
- Parameter name
- Reporting units
- Sample measurement value
- Indentification of operator taking the measurements

5.3. Reagent and Standards Documentation

Maintain documentation on calibration standards.

5.3.1. Note the standard value, vendor, lot number, date of receipt, expiration date and date of first use.

5.3.2. Observe and follow the expiration dates. If any standard is used after the expiration date, there must be documentation showing independent verification that the standard is providing an acceptable response.

FT 1210. REFERENCES

1. U.S. Environmental Protection Agency, EPA120.1, Methods for the Chemical Analysis of Water and Waste, EPA-600/4-79-020, Revised 1983.

2. American Public Health Association, American Water Works Association, Water Pollution Control Federation, SM2510, Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1999.

3. American Society for Testing and Materials, ASTM, D1125-95 (Reapproved 1999), Standard Test Methods for Electrical Conductivity and Resistivity of Water

4. U.S. Geological Survey, National Field Manual for the Collection of Water-Quality Data, Book 9, Chapter A6, Field Measurements, Section 6.3, Specific Electrical Conductance, Techniques of Water-Resources Investigations, 4/98

Appendix FT 1200
Tables, Figures and Forms

Form FD 9000-7 Field Parameter Data Sheet for Surface Water

Form FD 9000-8 Field Instrument Calibration Records

DEP-S J1/01

FT 1200 Field Measurement of Specific Conductance

Field Parameter Data Sheet for Surface Water

SURVEY/PROJECT: _____ SAMPLERS: _____ METER # _____

STATION NUMBER	STATION DESCRIPTION	PARAMETER	DATE	TIME	TOTAL DEPTH	SAMPLE DEPTH	WATER TEMP	DO	%SAT DO	COND	SALINITY	PH	TURBIDITY
		UNIT	yy/mm/dd	hr:min	feet	feet	Celsius	mg/L	%	µS/cm	ppt	su	NTU
		STORET CODE	73672		81903	68	10	299	301	94	480	400	82078

FIELD CONDITIONS FOR STATION# _____ AT TIME _____:

CLOUD COVER (%): _____ WIND DIRECTION: _____ TIDAL STAGE: _____

PREVIOUS RAINFALL: _____ WIND SPEED (MPH/KNOTS): _____ WAVE CONDITIONS: _____

Note: This Sheet is used for recording Sample Data – Calibration information must also be documented (see FT 1100, section 4)

Field Instrument Calibration Records

INSTRUMENT (MAKER/MODEL#) _____ **INSTRUMENT #** ____

PARAMETER: *[check only one]*

☐ TEMPERATURE ☐ CONDUCTIVITY ☐ SALINITY ☐ pH ☐ ORP

☐ TURBIDITY ☐ RESIDUAL CL ☐ DO ☐ OTHER _____

STANDARDS: *[Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]*

Standard A _____

Standard B _____

Standard C _____

DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS

Form FD 9000-8 (June 1, 2001) Revision Date: January 1, 2002

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Open 1-9	

APPENDIX I-9

FT 1400 - FIELD MEASUREMENT OF TEMPERATURE

FT 1400. FIELD MEASUREMENT OF TEMPERATURE

Use this SOP in conjunction with the following DEP SOPs:

- FT 1000 General Field Testing and Measurement
- FQ 1000 Field Quality Control Requirements
- FD 1000 Documentation Procedures

1. EQUIPMENT AND SUPPLIES

1.1. Field Instruments: Use any of the following instrument types for performing field measurements:

- Digital thermistor (thermocouple type) and meter typical of field instruments
- Glass bulb, mercury-filled thermometer (not recommended for field ruggedness)
- Glass bulb, alcohol-filled thermometer with protective case
- Bi-metal strip/dial-type thermometer
- Advanced silicon chip temperature sensor and digital meter

1.1.1. Field instruments must be capable of measuring temperature in 0.1°C increments.

1.2. Standard Thermometer: NIST-traceable Celsius certified thermometer with scale marks for every 0.1°C increment, a range of 0°C to 100°C (or a range bracketing expected sample temperatures) and correction chart supplied with certification.

1.3. Recordkeeping and Documentation Supplies:

- Field notebook or forms (e.g., forms FD 9000-7, FD 9000-8 and FD 9000-9)

2. CALIBRATION AND USE

2.1. General Concerns

2.1.1. Select a temperature measuring device meeting the requirements of section 1.1 above.

2.1.2. Dial-type and thermocouple-type devices with meters are preferred over the glass thermometers for fieldwork because of their durability and ease of reading.

2.1.2.1. Transport glass thermometers in protective cases.

2.1.2.2. Inspect glass thermometers for liquid separation. Do not use a thermometer if the liquid has separated.

2.1.2.3. Most instruments with digital display will provide more decimal figures than are significant. Record the temperature reading with only one rounded decimal figure (e.g., 25.9 instead of 25.86°C).

2.2. Calibration

2.2.1. See FT 1000 for required frequency of initial calibration and calibration checks.

2.2.1.1. **Other field-testing measurements requiring temperature compensation necessitate calibration of the temperature field measurement device according to this SOP.**

2.2.2. Check all thermistor (meter) devices and field thermometers against the NIST-traceable standard thermometer at several temperatures in the expected sample measurement range, using any correction factor indicated by the certificate supplied with the NIST-traceable thermometer.

2.2.2.1. See the reference in FT 1410, section 3 below for additional guidance about making temperature comparisons with the standard thermometer.

2.2.2.2. Make note of the calibration in the calibration records. See section 4, below.

2.2.2.3. The field measurement device may be used with a linear correction factor provided that the observed temperature difference with the standard thermometer is documented at incremental temperatures over the range of expected sample temperatures. See the reference in FT 1410, section 3 below for further guidance about correction factors.

2.2.2.4 Use the resulting correction factor when making temperature measurements of samples with the field measurement device.

2.2.2.5 Prominently display the correction factor on the field measurement device, with the date last checked. A calibration correction curve or plot may also be used.

2.2.2.6 Properly dispose of glass-bulb thermometers that do not meet the above calibration acceptance criteria.

2.2.3. Continuing Calibration Checks: See FT 1000 for required frequency of continuing calibration checks.

2.2.3.1. The maximum time between continuing calibration checks (continuing calibration verifcation) can be extended beyond one month if verified by historical data for calibration checks for the specific field temperature measurement device.

2.2.3.2. Check the field measurement device against the standard NIST-traceable thermometer as in section 2.2.2 – 2.2.2.6 above.

2.2.4. Refer to additional calibration requirements in FT 1000, section 2.2.

2.2.5. **More frequent calibration checks may be required for discharge permit compliance measurements or other regulatory requirements.**

2.3. Measuring Sample Temperature

2.3.1. Insert or place the thermometer or sensor in situ at a measuring location representative of the sampling source.

2.3.2. Allow the thermometer or temperature sensor to equilibrate to ambient in-situ temperature.

2.3.2.1. Groundwater samples must be measured in-situ with a downhole probe or in a flow-through system. Do not measure bailed or pumped samples in an intermediate container containing static sample.

2.3.3. Record the temperature to the nearest 0.1°C when the reading stabilizes and remains constant.

3. PREVENTIVE MAINTENANCE: Refer to FT 1000, section 3.

4. RECORDS: See FT 1000, section 4 for additional details.

4.1. Calibration records

Document all calibration information (initial and continuing), to include the following:

- Details of the method used to compare the field measurement device to the NIST-traceable standard thermometer (see guidance in the reference listed in FT 1410, section 3 below)
- Temperature values at which calibrations were checked
- Date, time and location of each calibration check
- Analyst or operator performing the check
- Results of each calibration check, including the expected reading (per the NIST – traceable standard thermometer) and the actual reading of the field measurement device, using any established correction factors
- Whether the check met or failed acceptance criteria
- Corrective actions associated with failed check (such as new correction factor, removal from use, etc.)
- Field measurement meter or thermometer name, model number, and identification number (if applicable)

4.2. Sample measurement records

Document sample measurement results as follows:

- Project name
- Date and time the measurement was performed
- Location of the sample (description, monitor well number, etc.)
- Parameter name
- Reporting units
- Sample measurement temperature value
- Identification of the operator taking the measurements

FT 1410. REFERENCES

1. U.S. Environmental Protection Agency, EPA170.1, Methods for the Chemical Analysis of Water and Waste, EPA-600/4-79-020, Revised 1983.

2. American Public Health Association, American Water Works Association, Water Pollution Control Federation, SM2550, Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1999.

3. U.S. Geological Survey, National Field Manual for the Collection of Water-Quality Data, Book 9, Chapter A6, Field Measurements, Section 6.1, Temperature, Techniques of Water-Resources Investigations, 4/98

Appendix FT 1400
Tables, Figures and Forms

Form FD 9000-7	Field Parameter Data Sheet for Surface Water
Form FD 9000-8	Field Instrument Calibration Records

FT 1400 Field Measu[illegible]ent of Temperature

Field Parameter Data Sheet for Surface Water

SURVEY/PROJECT: _____ SAMPLERS: _____

_____ METER # _____

STATION NUMBER	STATION DESCRIPTION	PARAMETER	DATE	TIME	TOTAL DEPTH	SAMPLE DEPTH	WATER TEMP	DO	%SAT DO	COND	SALINITY	PH	TURBIDITY
		UNIT	yy/mm/dd	hr:min	feet	feet	Celsius	mg/L	%	µS/cm	ppt	su	NTU
		STORET CODE	73672		81903	68	10	299	301	94	480	400	82078

FIELD CONDITIONS FOR STATION# _____ AT TIME _____:

CLOUD COVER (%): _____ WIND DIRECTION: _____

_____ TIDAL STAGE: _____

PREVIOUS RAINFALL: _____ WIND SPEED (MPH/KNOTS): _____

_____ WAVE CONDITIONS: _____

Note: This Sheet is used for recording Sample Data – Calibration information must also be documented (see FT 1100, section 4)

FT 1400 Field Measurement of Temperature

Field Instrument Calibration Records

INSTRUMENT (MAKER/MODEL#) _____ **INSTRUMENT #** _____

PARAMETER: *[check only one]*

☐ TEMPERATURE ☐ CONDUCTIVITY ☐ SALINITY ☐ pH ☐ ORP

☐ TURBIDITY ☐ RESIDUAL CL ☐ DO ☐ OTHER _____

STANDARDS: *[Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]*

Standard A _____

Standard B _____

Standard C _____

DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS

18 – Gary Maddox, e-mail to Frances Hartnett, subject: "River Rise" definition, July 18, 2000.

19 – T.R. Kincaid, abstract: *The Relationship Between Cave Development and Spring/Aquifer Protection*, presented at Florida Springs Conference, February 8-10, 2000, Gainesville, Florida.

20 – P.L. Butt, A.W. Hayes, T.L. Morris, and W.C. Skiles, abstract: *Results of the Rose Creek Swallet to Ichetucknee Springs Dye Trace Study August to September, 1997*, presented at Florida Springs Conference, February 8-10, 2000, Gainesville, Florida.

21 – R.W. Dean, abstract: *Surface and Ground Water Mixing in a Karst Aquifer: An Example from the Floridan Aquifer*, presented at Florida Springs Conference, February 8-10, 2000, Gainesville, Florida.

22 – David Hornsby, Rob Mattson, and Tom Mirti, *Surfacewater Quality and Biological Monitoring Annual Report, 1999*, Suwannee River Water Management District.

23 – Russel Frydenborg and T.F. Frick, *Biological Communities in Spring-Dominated Streams*, a slide presentation offered at the Florida Springs Conference, February 8-10, 2000, Gainesville, Florida.

24 – website, http://www.ianr.unl.edu/pubs/water/nf49.htm, viewed 8/23/00.

25 – Tom Morris, abstract: A Review of Florida Aquatic Cave Biology and Possible Threats to Endemic Cave Fauna, presented at Florida Springs Conference, February 8-10, 2000, Gainesville, Florida.

26 – Kent Smith and R.R. Mezich, abstract: Manatees and Florida Springs: Habitat for the Future, presented at Florida Springs Conference, February 8-10, 2000, Gainesville, Florida.

APPENDIX A – First Magnitude Springs of Florida

Spring	County	WMD	Type	Discharge Cfs	Nitrates mg/L	Cave Mapped	Monitoring Spr./Basin	Basin-Work Group	Basin Delineation	Owner
GAINER	Bay	NWF	G	159	No Data	No	No	No	Yes	P
JACKSON/BLUE	Jackson	NWF	SS	205	3.0	Yes	No	No	Yes	S/CM
ST MARKS	Leon	NWF	R/R	670	.16	No	No	No	No	PU
SPRING CREEK	Wakulla	NWF	G	2003	No Data	No	No	No	No	PU
WAKULLA	Wakulla	NWF	SS	390	1.0	Yes	Yes	Yes	Yes	S
ALA 112971	Alachua	SR	R/R	406	.41	No	Yes	No	No	P
HORNSBY	Alachua	SR	SS	352	.53	Yes	Yes	No	No	P
COLUMBIA	Columbia	SR	SS	306	.21	No	Yes	No	No	P
COL 61981	Columbia	SR	SS	150	.09	No	Yes	No	No	P
ICHETUCKNEE	Columbia	SR	G	361	.74	N/a	Yes/Yes	Yes	Yes	S
DEVILS EAR	Gilchrist	SR	G	117	1.55	Yes	No	No	No	P
SANTA FE RISE	Columbia	SR	R/R	442	.78	No	No	No	No	S
SIPHON CREEK RISE	Gilchrist	SR	R	370	1.38	No	No	No	No	P
ALAPAHA RISE	Hamilton	SR	R/R	608	.24	Yes	Yes	No	No	P
HOLTON CREEK RISE	Hamilton	SR	R/R	288	.40	No	No	No	No	WMD
LAFAYETTE/BLUE	Lafayette	SR	SS	162	1.41	Yes	Yes	No	No	C

Legend

R/R = River Rise
R = In the River
G = Spring Group
SS = Single Spring
PU = Private Uplands
CM = County Mgt.
PM = Private Mgt.
C = City or County
P = Private
S = State
F = Federal

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Copies 1-10	

APPENDIX I-10

FT 1500 - FIELD MEASUREMENT OF DISSOLVE OXYGEN

FT 1500. FIELD MEASUREMENT OF DISSOLVED OXYGEN (DO)

Use in conjunction with:

- FT 1000 General Field Testing and Measurement
- FQ 1000 Field Quality Control Requirements
- FS 1000 General Sampling Procedures
- FD 1000 Documentation Procedures

1. EQUIPMENT AND SUPPLIES

1.1. Field Instrument: a membrane/electrode DO meter, with polarographic or galvanic electrode, and a sensitivity that results in a precision of +/- 0.2 mg DO/L and an accuracy of +/- 0.2 mg DO/L. Temperature compensation must be done either automatically by the DO probe, or manually in accordance with SM 4500-O G. Temperature must also be calibrated in accordance with FT 1400.

1.2. Standards

1.2.1. NIST-traceable Celsius thermometer with a scale marked for every 0.1°C and a range of 0 to 100°C.

1.2.2. Access to an organization with capability to perform the Winkler titration procedure is recommended but not mandatory.

1.2.3. A "zero-DO standard", prepared on-site with an aliquot of the sample water, is optional. Prepare by adding excess sodium sulfite and a trace of cobalt chloride to bring the DO to zero.

1.3. Recordkeeping and Documentation Supplies:

- Field notebook (w/ waterproof paper is recommended)
- Field record forms (e.g., forms FD 9000-7, FD 9000-8 and FD 9000-9)
- Indelible pens

2. CALIBRATION AND USE: the electrode method is predominantly used in-situ for dissolved oxygen determinations.

2.1. General Concerns

2.1.1. Turbulence is necessary to keep a constant flow of water across the membrane-sample interface. Make sure the appropriate mechanism is working before using the probe.

2.1.2. Store the probe with a cover that creates a saturated atmosphere. A cap, with a wet sponge in it, will suffice for single-parameter probes. If the sensor is in a multi-probe device, keep the protective cap filled with water during storage.

2.1.3. Before mobilizing, check to make sure there are no bubbles beneath the probe membrane, or any wrinkles or tears in the probe membrane. If so, replace the membrane and KCl solution. Check the leads, contacts, etc. for corrosion and/or shorts if meter pointer remains off-scale, does not calibrate, or drifts.

2.1.4. Dissolved inorganic salts interfere with the performance of DO probes. For example, DO readings in salt water are affected by the salinity and must be corrected. The DO meter may adjust automatically based on readings taken from the specific conductivity/salinity probe. If corrections are not automatic the appropriate calculations must be used to correct for salinity. If automatic adjustments are used the specific conductivity/salinity probe calibration must be checked or calibrated in accordance with FT1200.

2.1.5. Reactive gases, which pass through the membrane, may interfere. For example, chlorine will depolarize the cathode and cause a high probe output. Long-term exposures to chlorine will coat the anode with the chloride of the anode metal and eventually desensitize the probe. Sulfide (from H_2S) will undergo oxidation if high enough potential (voltage) is applied, creating current flow, yielding faulty readings. If such interferences are suspected, change the membrane electrode more frequently and calibrate at more frequent intervals.

2.2. Calibration

2.2.1. Follow the quality control requirements for calibration (see FT 1000, section 2.2).

2.2.2. Air Calibration and Checks: before use, check the meter in water-saturated air to make sure it is properly calibrated and operating correctly. Make a similar check at the end of the day or sampling event. Follow the manufacturer's instructions for your specific instrument.

2.2.2.1. Allow an appropriate warm up period before initial field calibration.

2.2.2.2. Once the probe/calibration chamber is stable at ambient temperature, check the air temperature and determine, from the DO versus temperature table (See Table 1 Below) what the DO should measure. A stable and accurate temperature is required for a valid calibration.

2.3. Continuous Calibration

2.3.1. Air-Calibration Chamber in Air: DO sensor or instrument is calibrated against air that is saturated with water at a known temperature and ambient atmospheric pressure. Use table 1 to check calibration at specified temperature (*USGS TWRI Book 9 See Table 1)*

2.3.1.1. Wet the inside of the calibration chamber with water-pour out the excess water (leave a few drops) and insert the sensor into the chamber (this ensures 100-percent humidity)

2.3.1.2. Allow adequate time for the DO sensor and the air inside the calibration chamber to equilibrate.

2.3.1.3. Measure the temperature in the calibration chamber and observe the readings until the instrument stabilizes.

2.3.1.4. Use the oxygen solubility table 1 to determine the DO saturation at a measured temperature and atmospheric pressure.

2.3.1.5. Compare DO meter reading with value obtained from table 1 to ensure continuous calibration

Table 1: Solubility of Oxygen in Water at Atmospheric Pressure[1,2]

Temperature °C	Oxygen Solubility mg/L	Temperature °C	Oxygen Solubility mg/L
0.0	14.621	26.0	8.113
1.0	14.216	27.0	7.968
2.0	13.829	28.0	7.827
3.0	13.460	29.0	7.691
4.0	13.107	30.0	7.559
5.0	12.770	31.0	7.430
6.0	12.447	32.0	7.305
7.0	12.139	33.0	7.183
8.0	11.843	34.0	7.065
9.0	11.559	35.0	6.950
10.0	11.288	36.0	6.837
11.0	11.027	37.0	6.727
12.0	10.777	38.0	6.620
13.0	10.537	39.0	6.515
14.0	10.306	40.0	6.412
15.0	10.084	41.0	6.312
16.0	9.870	42.0	6.213
17.0	9.665	43.0	6.116
18.0	9.467	44.0	6.021
19.0	9.267	45.0	5.927
20.0	9.092	46.0	5.835
21.0	8.915	47.0	5.744
22.0	9.743	48.0	5.654
23.0	8.578	49.0	5.565
24.0	8.418	50.0	5.477
25.0	8.263		

1. The table provides three decimal places to aid interpolation
2. Under equilibrium conditions, the partial pressure of oxygen in air-saturated water is equal to that of the oxygen in water-saturated air

2.4. Additional Checks: The following methods may be used as additional checks to verify calibration. These additional checks may be required as part of a specific permit.

2.4.1. Winkler method (e.g. SM4500-0 C): this check is useful to assess the condition of the DO sensor (i.e., its degradation with time/use) and that the instrument can still maintain a valid calibration. (EPA Method# 360.2, and SM4500-O B)

2.4.1.1. Following EPA Method# 360.2 or SM4500-O C when using the Winkler method is **necessary** for an accurate calibration check.

2.4.1.2. Fill a clean bucket with uncontaminated or de-ionized water and place the probe into the bucket (with stirrer or equivalent mechanism turned off). Fill at least two biological oxygen demand (BOD) bottles without entraining atmospheric oxygen into the bottles. Carefully submerge the bottom of the bottle (one at a time) into the water and allow the water to fill the bottle. Place the bottle on the bottom of the

bucket and carefully place stopper into it without adding atmospheric oxygen. Retrieve the bottles and determine their DO by the Winkler method (see SM4500-O-B for more details). Turn the stirrer or equivalent mechanism on and read the DO of the water in the bucket.

2.4.1.3. Adjust the DO meter according to manufacturer's instructions. Be sure to adjust the meter to the temperature of water in the bucket, and then calibrate the DO meter to read the average DO concentration of the two samples determined by the Winkler test.

2.4.2. Zero-DO Check: The air calibration and the interfering effects of the sample can be further checked in the field by means of a "zero-DO standard"(SM 4500-O G.).

2.4.2.1. Prepare this standard on-site with an aliquot of the sample by adding excess sodium sulfite and a trace of cobalt chloride to bring the DO to zero. Prepare this zero-DO standard in a beaker or a large-mouth sample container of appropriate size to insert the DO probe.

2.4.2.2. After adding the chemicals, gently swirl the water and let it sit for about 30 seconds before inserting the probe.

2.4.2.3. Read the DO of the sample. If the reading is outside the acceptance interval, the instrument must be recalibrated and/or zero-adjusted if the meter allows for this adjustment.

2.4.3. Air-Saturated Water: The DO sensor or instrument system is calibrated against water that is saturated with oxygen at a known temperature and ambient atmospheric pressure. *(USGS TWRI Book 9 See Table 1 above)*

2.4.3.1. The temperature and Conductivity of water used for calibration should be about the same as the temperature and conductivity of the water to be measured.

2.4.3.2. Place DO sensor and calibration water in a large beaker or open-mouth container.

2.4.3.3. Aerate the water for an adequate amount of time.

2.4.3.4. Determine if the water is 100 percent saturated with oxygen, and take a temperature reading (Temperature must be calibrated or check for accuracy before DO calibration check)

2.4.3.5. Use table 1 above to determine the DO saturation value at the measured water temperature. Compare DO meter reading with value obtained from table 1 to ensure continuous calibration

2.5. Measuring DO in Samples:

2.5.1. Place the DO probe at the depth and location appropriate to what you are measuring.

2.5.1.1. For example, take the DO of an effluent just before it enters the receiving water. If the effluent aerated prior to entering the surface water, take the DO reading in the receiving water right where it enters.

2.5.1.2. For well mixed surface waters, e.g., fast flowing streams, take the DO reading at approximately 1-2 feet below the surface or at mid-depth.

2.5.1.3. For still or sluggish surface waters, take a reading at one foot below the surface, one foot above the bottom, and at mid-depth.

2.5.1.4. If it is shallow, say less than two feet, take the reading at mid-depth.

2.5.1.5. Do not take a reading in frothy/aerated water since you may get a false reading.

2.5.1.6. For groundwater, if it is impractical to place the probe in the well, collect a sample with minimal aeration and measure the DO immediately upon collection. Use a low-flow pumping system with a flow-through cell for best results.

2.5.2. Rinse probe with de-ionized water and keep the probe in the saturated atmosphere (see 2.1.2 above) between sites and events.

2.5.3. If the readings show distinct, unexplainable changes in DO levels, or when the probe has been in waters with high sulfides, recalibrate using the Winkler method or perform maintenance per manufacturer's instructions. While taking a reading, if it is very low (e.g., below 1.0 mg/L), allow it to stabilize, record it and then, remove and rinse the probe, as the environment is very likely anoxic and may contain hydrogen sulfide, which can damage the probe.

2.5.4. Salinity and Temperature corrections may be necessary. Follow manufacturer instructions for automatic corrections or perform manual calculations (SM 4500-O G.).

3. PREVENTIVE MAINTENANCE: Refer to FT 1000, section 3.

4. RECORDS: See FT 1000, section 4 for additional details.

4.1. Calibration: Record all calibration information (initial and continuing) in the field notebook or on a form specifically designed for this purpose (e.g. FD 9000-8). This information must be recorded:

4.1.1. The calibration method (or SOP) and the type of standard(s) (including the concentrations) used.

4.1.2. Record each calibration check (initial, continuing or final) in the permanent field records (or calibration logs). At a minimum, these records must include:

4.1.2.1. Date, time and location (e.g., monitoring well MW-X; laboratory; etc.) of each calibration check;

4.1.2.2. Individual performing the check;

4.1.2.3. Results of each check, including the concentration/type of standard, expected reading, and the actual reading;

4.1.3. Whether the check met or failed acceptance criteria;

4.1.4. Readings associated with a failed check; and

4.1.5. Corrective actions associated with failed check (such as recalibration, removal from use, etc.).

4.1.6. Optionally, enter the meter name, model number, and identification number (if applicable).

4.2. Samples: Record the sample results on the appropriate field parameter sheets (e.g., form FD 9000-7) or in a field notebook. For each sample record the following information:

- Project Name
- Date and time the measurement was collected
- Location of the sample (description, monitor well number, etc.)+
- Analyte Name
- Reporting Units
- Sample Value
- Initials of the person taking the measurements.

4.3. Reagent and Standards Documentation: Maintain documentation on calibration standards and other reagents.

4.3.1. At a minimum, note the date of receipt, expiration dates (on the bottle label), and date of first use (on the standard container).

4.3.2. Follow expiration dates: If any standard or chemical is used after the expiration date, there must be documentation showing that the reagent is providing an acceptable response.

FT 1510. REFERENCES

1. U.S. Environmental Protection Agency, EPA360.1 and 360.2, Methods for the Chemical Analysis of Water and Waste, EPA-600/4-79-020, Revised 1983.

2. American Public Health Association, American Water Works Association, Water Pollution Control Federation, SM4500-O-G, Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1999.

3. U.S. Geological Survey, TWRI, Book 9, 04/98.

4. American Society for Testing and Materials, Annual book of ASTM Standards 2001, Section 11 Water and Environmental Technology, Vol. 11.01

Appendix FT 1500
Tables, Figures and Forms

Form FD 9000-7	Field Parameter Data Sheet for Surface Water
Form FD 9000-8	Field Instrument Calibration Records

DEP-SOP-0[illegible]/01
FT 1500 Field Measurement of Dissolved Oxygen
Field Parameter Data Sheet for Surface Water

SURVEY/PROJECT: _____ SAMPLERS: _____

_____ METER # _____

STATION NUMBER	STATION DESCRIPTION	PARAMETER	DATE	TIME	TOTAL DEPTH	SAMPLE DEPTH	WATER TEMP	DO	%SAT DO	COND	SALINITY	PH	TURBIDITY
		UNIT	yy/mm/dd	hr:min	feet	feet	Celsius	mg/L	%	µS/cm	ppt	su	NTU
		STORET CODE	73672		81903	68	10	299	301	94	480	400	82078

FIELD CONDITIONS FOR STATION# _____ AT TIME_____:

CLOUD COVER (%): _____ WIND DIRECTION: _____

_____ TIDAL STAGE: _____

PREVIOUS RAINFALL: _____ WIND SPEED (MPH/KNOTS): _____

_____ WAVE CONDITIONS: _____

Note: This Sheet is used for recording Sample Data – Calibration information must also be documented (see FT 1100, section 4)

Field Instrument Calibration Records

INSTRUMENT (MAKER/MODEL#) _____ **INSTRUMENT #** _____

PARAMETER: *[check only one]*

☐ TEMPERATURE ☐ CONDUCTIVITY ☐ SALINITY ☐ pH ☐ ORP

☐ TURBIDITY ☐ RESIDUAL CL ☐ DO ☐ OTHER _____

STANDARDS: *[Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]*

Standard A _____

Standard B _____

Standard C _____

DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Apples 1-11	

APPENDIX I-11

FT 1600 - FIELD MEASUREMENT OF TURBIDITY

FT 1600. FIELD MEASUREMENT OF TURBIDITY

Use in conjunction with:

- FT 1000 General Field Testing and Measurement
- FQ 1000 Field Quality Control Requirements
- FS 1000 General Sampling Procedures
- FD 1000 Documentation Procedures

1. INTRODUCTION: Turbidity measures the scattering effect that suspended solids have on the propagation of light through a body of water (surface or ground waters). The higher the effect (i.e., intensity of scattered light), the higher the turbidity value. Suspended and colloidal matter such as clay, silt, finely divided organic and inorganic matter, and plankton and other microscopic organisms cause turbidity in water.

This SOP describes the use of true nephelometric measurement using instruments meeting the specifications of the cited methods (see references). The use of in-situ probes with turbidity sensors may be used for screening purposes only. Do not report their results for regulatory purposes.

2. EQUIPMENT AND SUPPLIES

2.1. Field Instrument: Use a turbidimeter (aka nephelometer) or a spectrophotometer consisting of a light source and one or more photoelectric detectors with a readout device to indicate the intensity of light. The instrument must meet these specifications:

2.1.1. The light source must have a tungsten-filament lamp operated at a color temperature between 2000 and 3000°K.

2.1.2. The distance traversed by the incident light and scattered light within the sample tube must not exceed 10 cm.

2.1.3. The light detector, positioned at 90° to the incident light, must have an acceptance angle that does not exceed ± 30° from 90°.

2.1.4. The detector and any filter system must have a spectral peak response between 400 and 600 nanometers.

2.1.5. The instrument sensitivity must permit detection of a turbidity difference of 0.02 NTU at the 0 – 1.0 NTU scale.

2.1.6. Note: using the appropriate equipment and following the procedures in this SOP, the field accuracy of this measurement is close to %R= 100 ± 10% for turbidities in the range of 1 to 100 NTU.

2.2. Sample Cells (cuvettes): Use sample cells or tubes of clear, colorless glass or plastic.

2.2.1. Keep cells scrupulously clean, both inside and out, and discard if scratched or etched.

2.2.1.1. Never handle them where the light beam strikes the sample.

2.2.1.2. Clean sample cells by thorough washing with laboratory soap (inside and out) followed by multiple rinses with distilled or de-ionized water, and let air-dry.

2.2.2. Use a very thin layer of silicone oil on the outside surfaces to mask minor imperfections or scratches in the cells.

2.2.2.1. Use silicone oil with the same refractive index of the glass; making sure the cell appear to be nearly dry with little or no visible signs of oil.

2.2.3. Because small differences between cells significantly impact measurement, use either matched pairs or the same cell for standardization and sample measurement.

2.3. Standards: Formazin stock suspension of 4,000 NTU, either prepared according to method SM 2130B, section 3.b, or of commercial origin. Use daily or working standards as outlined below. Do not use standards past their expiration dates.

2.3.1. Working formazin standards: in the turbidity ranges of interest, prepare by diluting the 4,000 NTU stock standard with "high-quality dilution water" (nominal value of 0.02 NTU).

2.3.1.1. Prepare this water by passing laboratory reagent-grade water through a filter with pore size of 0.1 µm (rinse the collection flask at least twice with filtrate and discard the next 200 mL).

2.3.2. Secondary commercial standards: use only those certified by the manufacturer to give equivalent calibrations to the primary standards and retain their certificates.

2.3.3. Primary or secondary Gel-type standards: suspensions of microspheres of styrene-divinylbenzene (SDVB) copolymer that are as stable as the concentrated formazin and more stable than diluted formazin. These standards, available commercially, are also known as "gel-type" standards. They are recommended for field use.

2.4. Recordkeeping and Documentation Supplies:

- Field notebook (w/ waterproof paper is recommended)
- Field record forms (e.g., forms FD 9000-7, FD 9000-8 and FD 9000-9)
- Indelible pens

3. CALIBRATION AND USE

3.1. General Concerns

3.1.1. Light absorption by dissolved and suspended matter may cause a negative bias on the turbidity measurement. When present in significant concentrations, particles of light-absorbing materials such as activated carbon will cause a negative interference. Likewise, the presence of dissolved, color-causing substances that absorb light may also cause a negative interference. Some commercial instruments may have the capability of either correcting for slight color interference or optically blanking out the color effect.

3.1.2. Handle samples with natural effervescence as described in 3.3.5 below.

3.2. Calibration

3.2.1. Follow the quality control requirements for calibration (see FT 1000, section 2.2).

3.2.2. Calibrate the field instrument before use either at the base of operations or in the field. The acceptance criterion for the initial calibration or a calibration check depend on the range of turbidity of the standard value:

- S= 0.1 - 10 NTU: the response must be within 10% of the standard;

- S= 11 - 40 NTU: the response must be within 8% of the standard;
- S= 41 – 100 NTU: the response must be within 6.5% of the standard; and
- S > 100 NTU: the response must be within 5% of the standard.

3.2.3. Nephelometer Calibration: Follow the manufacturer's operating instructions. Run at least one standard in each instrument range to be used in the field. Make certain that the instrument gives stable readings in all sensitivity ranges used.

3.2.4. Secondary standards (see 2.3.3 above) may be used to calibrate and/or check calibrations. Check secondary standards against a primary standard at least once per quarter.

3.3. Measuring Turbidity in Samples:

3.3.1. Gently agitate the sample and wait until air bubbles disappear.

3.3.2. Double-rinse the sample cell or cuvette with a small amount of the sample. Discard, and pour an aliquot into the sample cell or cuvette.

3.3.3. Gently dry out its external surface with lint-free paper.

3.3.4. Insert the cell in the instrument and read the turbidity directly from the meter display. Report turbidity measurements as follows:

Turbidity Range (NTU)	Report to Nearest (NTU)
0 – 0.1	0.05
1 – 10	0.1
10 – 40	1
40 – 100	5
100 – 400	10
400 – 1000	50
> 1000	100

3.3.5. Do not use vacuum degassing, ultrasonic bath or other devices to remove bubbles from the sample. If the sample contains visible bubbles or if it effervesces (as in groundwater, with changes in pressure and temperature), make a note of this in the field records and collect a sample for laboratory measurement.

3.3.5.1. If effervescing samples are collected for laboratory analysis collect the sample without leaving headspace in the container and ship it as soon as possible to the laboratory (the holding time for this measurement is only 48 hrs). Ship this sample in wet ice at 4°C.

3.3.6. Pour out the sample, double-rinse the cuvette with de-ionized water in preparation for the next sample.

4. PREVENTIVE MAINTENANCE: Refer to FT 1000, section 3.

5. RECORDS: See FT 1000, section 4 for additional details.

5.1. Calibration: Record all calibration information (initial and continuing) in the field notebook or on a form specifically designed for this purpose (e.g. FD 9000-8). This information must be recorded:

5.1.1. The calibration method (or SOP) and the type of standard(s) (including the concentrations) used.

5.1.2. Record each calibration check (initial, continuing or final) in the permanent field records (or calibration logs). At a minimum, these records must include:

5.1.2.1. Date, time and location (e.g., monitoring well MW-X; laboratory; etc.) of each calibration check;

5.1.2.2. Individual performing the check;

5.1.2.3. Results of each check, including the concentration/type of standard, expected reading, and the actual reading;

5.1.3. Whether the check met or failed acceptance criteria;

5.1.4. Readings associated with a failed check; and

5.1.5. Corrective actions associated with failed check (such as recalibration, removal from use, etc.).

5.1.6. Optionally, enter the meter name, model number, and identification number (if applicable).

5.2. Samples: Record the sample results on the appropriate field parameter sheets (e.g., Form FD 9000-7) or in a field notebook. For each sample record the following information:

- Project Name
- Date and time the measurement was collected
- Location of the sample (description, monitor well number, etc.)
- Analyte Name
- Reporting Units
- Sample Value
- Initials of the person taking the measurements

5.3. Reagent and Standards Documentation: Maintain documentation on calibration standards (e.g., formazin, gel standards) and other reagents.

5.3.1. At a minimum, note the date of receipt, expiration dates (on the bottle label), and date of first use (on the standard container).

5.3.2. Follow expiration dates: If any standard or chemical is used after the expiration date, there must be documentation showing that the reagent is providing an acceptable response.

FT 1610. REFERENCES

1. U.S. Environmental Protection Agency, EPA 180.1, Methods for the Chemical Analysis of Water and Waste, EPA-600/4-79-020, Revised 1983.
2. American Public Health Association, American Water Works Association, Water Pollution Control Federation, SM 2130, Standard Methods for the Examination of Water and Wastewater, 20th Edition, 1999.

3. U.S. Geological Survey, National Field Manual for the Collection of Water-Quality Data; Techniques of Water-Resources Investigations, Book 9, Chapter 6.7, 1998.

Appendix FT 1600
Tables, Figures and Forms

Form FD 9000-7	Field Parameter Data Sheet for Surface Water
Form FD 9000-8	Field Instrument Calibration Records

DEP-SC[illegible]1/01

FT 1600 Field Mea[illegible]ment of Turbidity

Field Parameter Data Sheet for Surface Water

SURVEY/PROJECT: _____ SAMPLERS: _____

METER # _____

STATION NUMBER	STATION DESCRIPTION	PARAMETER	DATE	TIME	TOTAL DEPTH	SAMPLE DEPTH	WATER TEMP	DO	%SAT DO	COND	SALINITY	PH	TURBIDITY
		UNIT	yy/mm/dd	hr:min	feet	feet	Celsius	mg/L	%	µS/cm	ppt	su	NTU
		STORET CODE	73672		81903	68	10	299	301	94	480	400	82078

FIELD CONDITIONS FOR STATION# _____ AT TIME_____:

CLOUD COVER (%): _____ WIND DIRECTION: _____

TIDAL STAGE: _____

PREVIOUS RAINFALL: _____

WAVE CONDITIONS: _____ WIND SPEED (MPH/KNOTS): _____

Note: This Sheet is used for recording Sample Data – Calibration information must also be documented (see FT 1100, section 4)

Field Instrument Calibration Records

INSTRUMENT (MAKER/MODEL#) _____ **INSTRUMENT #** _____

PARAMETER: *[check only one]*

☐ TEMPERATURE ☐ CONDUCTIVITY ☐ SALINITY ☐ pH ☐ ORP

☐ TURBIDITY ☐ RESIDUAL CL ☐ DO ☐ OTHER _____

STANDARDS: *[Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]*

Standard A _____

Standard B _____

Standard C _____

DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
424-158	Appen 1-12	

APPENDIX I-12

FT 1000 - GENERAL FIELD TESTING AND MEASUREMENT

FT 1000. GENERAL FIELD TESTING AND MEASUREMENT

Use the following SOPs in conjunctions with FT 1000:

- FD 1000 Documentation Procedures
- FQ 1000 Field Quality Control Requirements
- FS 1000 General Sampling Procedures

1. INTRODUCTION

1.1. Scope and Applicability: SOPs FT 1100 to FT 3400 outline procedures to conduct field measurements that are commonly associated with sampling activities. They include the parameters that are measured in-situ or in a field sample by means of direct-reading instruments (meters connected to sensing probes).

1.1.1. Included in SOPs FT 1100 to FT 2400 are:

1.1.1.1. The parameters that fall under physical/chemical properties: pH, Conductivity, Salinity, Temperature and Dissolved Oxygen;

1.1.1.2. The parameters that require some minimal chemistry to yield a measurable quantity (usually color) are Residual Chlorine and Sulfite. A freshly collected field sample is required for these two parameters; these measurements must be performed immediately or no longer than fifteen minutes from the time of collection; and

1.1.1.3. Optical properties such as Turbidity, Secchi Depth and Transparency (also included in these SOPs).

1.1.1.4. Others, less common parameters or procedures such as the measurement of Water Flow/Velocity, Sediment Oxygen Demand, Oxidation-Reduction Potential (ORP or Redox) and Habitat Assessments, fall under this category.

1.1.2. FT 3000 to FT 3400 address aquatic habitat characterization.

1.1.3. The above-mentioned SOPs involve the active participation and intervention of the sampling team and the results are either recorded by the individual making the measurement or stored electronically in a meter or a data-logger. Remotely operated meters and continuous monitoring devices are addressed in FT 1900. In the latter cases, the results are either transmitted by telemetry or recorded on-site by electronic means.

1.2. Exclusions: **Field-screening procedures are not addressed in these SOPs** because they do not yield data of quantifiable quality. The use of field screening, if and when useful and at the discretion of the site or project managers, must be addressed for each program or project in other documents dealing specifically with the planning and design of sampling events.

1.3. Expectations and Requirements:

1.3.1. In some cases, specific instruments may be identified, with detailed instruction on their use. If you are using a different instrument, follow the manufacturer's instructions for assembly operation and maintenance.

1.3.2. When required, these SOPs outline the instrument specifications. A field instrument must meet the stated requirements.

1.3.3. These SOPs outline the calibration requirements for each method. Although instruments may vary in configuration or operation, these essential calibration requirements must be met.

2. MINIMUM CALIBRATION REQUIREMENTS: This section outlines the essential calibration and quality control measures that must be followed for each field instrument.

2.1. General Considerations: Prior to mobilization, the sampling personnel must verify that all equipment is in proper working condition, calibrated, and that batteries are properly charged.

2.2. Minimum Quality Control Requirements (see FQ 1310)

2.2.1. To be acceptable, a field test result must be bracketed between acceptable calibration results. The first check may be an initial calibration, but the second must be a continuing verification check.

2.2.2. Verify or calibrate each field instrument prior to use by following the applicable field measurement SOP.

2.2.3. Verify the calibration at no more than 24-hour intervals during use and at the end of the use if the instrument will not be used the next day or any time period greater than 24 hours.

2.2.4. All initial calibration and verification checks must meet the calibration acceptance criteria specified in the applicable field measurement SOP.

2.2.4.1. If a verification check or initial calibration fails to meet acceptance criteria, immediately recalibrate the instrument using the applicable initial calibration procedure or remove it from service.

2.2.4.2. If a calibration check fails to meet acceptance criteria and it is not possible to reanalyze the sample(s):

- Report all results between the last acceptable calibration check and the failed calibration check as estimated (report the value with a "J");
- Include a narrative description of the problem; and
- Shorten the time period between verification checks or replace/repair the instrument.

2.2.5. If historically generated data demonstrate that a specific instrument remains stable for longer periods of time, the time interval between initial calibration and calibration checks may be increased.

2.2.5.1. All acceptable field data must be bracketed by acceptable checks (see section 2.2.1 above). Qualify data that are not bracketed by acceptable checks (see section 2.2.4.2 above).

2.2.5.2. The maximum time interval is one month or at the conclusion of a sampling event, whichever is less.

2.2.5.3. Base the selected time interval on the shortest interval that the instrument maintains stability. If an extended time interval is used, and the instrument consistently fails to meet the final calibration check, the instrument may need

maintenance to correct the problem; or the time period is too long and must be decreased.

2.2.6. For instruments that are deployed for extended periods of time, calibrate the instrument before deployment and verify the calibration at the end of the deployment.

2.2.6.1. All acceptable field data must be bracketed by acceptable checks (see section 2.2.1 above) or the data must be qualified (see section 2.2.4.2 above).

2.2.6.2. For continuous monitoring instruments, all acceptable field data must be bracketed by acceptable checks (see section 2.2.1 above), or the data must be qualified (see section 2.2.4.2 above).

3. PREVENTIVE MAINTENANCE: Record all maintenance and repair notes in the maintenance logbook for each meter (see FS 1007). If rental equipment is used, a log is not required. However, the origin (i.e., rental company), rental date, equipment type, model number and identification number (if applicable) must be entered into the field notes or a rental equipment notebook.

4. DOCUMENTATION

4.1. Sample Documentation: For each sample record the following information:

- Project Name
- Date and time the measurement was collected
- Location of the sample (description, monitor well number, etc.)
- Analyte Name
- Reporting Units
- Sample Value
- Initials of the person taking the measurements.

4.2. Field Calibration Documentation: Field instrument calibration must be performed on a regular basis and calibration records must be kept on the field sheets, field logs or in a separate calibration log.

4.2.1. The records must indicate the calibration method (or SOP), and the type of standard(s) (including the concentrations) that were used.

4.2.2. Record each calibration check (initial, continuing or final) in the permanent field records (or calibration logs). At a minimum, these records must include:

4.2.2.1. Date, time and location (e.g., monitoring well MW-X; laboratory; etc.) of each calibration check;

4.2.2.2. Individual performing the check;

4.2.2.3. Results of each check, including the concentration/type of standard, expected reading, and the actual reading;

4.2.3. Whether the check met or failed acceptance criteria;

4.2.4. Readings associated with a failed check; and

4.2.5. Corrective actions associated with failed check (such as recalibration, removal from use, etc.).

4.2.6. Optionally, enter the meter name, model number, and identification number (if applicable).

4.3. Reagent and Standards Documentation: Maintain documentation on calibration standards (e.g., buffers, KCl) and other reagents.

4.3.1. At a minimum, note the date of receipt, expiration dates (on the bottle label), and date of first use (on the standard container).

4.3.2. Observe and follow the expiration dates.

4.3.2.1. If any standard or chemical is used after the expiration date, there must be documentation showing that the reagent is providing an acceptable response.

4.3.3. If reagents or standards are prepared from stock chemicals, they must be analytical reagent grade or better.

4.3.3.1. Some reagents or standards may specify **"primary standard"**. In such cases, purchase only the specified grade. Do not substitute an analytical grade chemical.

FT 1010. REFERENCES

1. Florida Department of Environmental Protection, DEP Standard Operating Procedures for Laboratory Operations and Sample Collection Activities, DEP-QA-001/92, September 1992.

2. U.S. Environmental Protection Agency, Region 4, Environmental Investigations Standard Operating Procedures and Quality Assurance Manual, May 1996.

Appendix FT 1000
Tables, Figures and Forms

Form FD 9000-8 Field Instrument Calibration Records

Form FD 9000-9 Field Instrument Maintenance Records

FT 1000 General Field Testing and Measurement

Field Instrument Calibration Records

INSTRUMENT (MAKE/MODEL#) ____________________ **INSTRUMENT #** ______________

PARAMETER: *[check only one]*

☐ TEMPERATURE ☐ CONDUCTIVITY ☐ SALINITY ☐ pH ☐ ORP

☐ TURBIDITY ☐ RESIDUAL CL ☐ DO ☐ OTHER ______________

STANDARDS: *[Specify the type(s) of standards used for calibration, the origin of the standards, the standard values, and the date the standards were prepared or purchased]*

Standard A ____

Standard B ____

Standard C ____

DATE (yy/mm/dd)	TIME (hr:min)	STD (A, B, C)	STD VALUE	INSTRUMENT RESPONSE	% DEV	CALIBRATED (YES, NO)	TYPE (INIT, CONT)	SAMPLER INITIALS

Field Instrument Maintenance Records

INSTRUMENT (MAKE/MODEL#) _____ **INSTRUMENT #** _____

DATE OF PURCHASE: _____ (☐ *new;* ☐ *used*)

PARAMETER(S): *[check all that apply for this instrument]*

☐ TEMPERATURE ☐ CONDUCTIVITY ☐ SALINITY ☐ pH ☐ ORP

☐ TURBIDITY ☐ RESIDUAL CL ☐ DO ☐ OTHER _____

DATE (yy/mm/dd)	TIME (hr:min)	TYPE OF MAINTENANCE	DESCRIPTION OF PERFORMED MAINTENANCE	SAMPLER INITIALS

REMARKS: _____

The END

421158

April 27, 2004

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
437548	Vol 24 Ocala Brownfield Assessment Pilot Ocala Intro	

Department of
Environmental Protection

Jeb Bush
Governor

Twin Towers Office Building
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

David B. Struhs
Secretary

September 30, 1999

Ms. Barbara Dick
U.S. Environmental Protection Agency
Region 4
AFC Tower Building
61 Forsyth Street
Atlanta, Georgia 30303

Re: Ocala Brownfields Site Assessment
Ocala, Marion County, Florida

Dear Barbara:

Please find enclosed the Ocala Brownfields Site Assessment. If you have any questions, please contact Jesus Diaz or me at Suncom 278-3935.

Sincerely,

Subrenia Jackson
Environmental Specialist I
Site Screening Superfund Subsection
Bureau of Waste Cleanup

Enclosure

cc: Eric Nuzie, DEP
Reading file
Site File

FDEP Brownfields Site Assessment Project Ocala Brownfields Information System (OBIS)

August 1999

Prepared for:
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
2600 Blair Stone Road
Tallahassee, Florida 32301

ecology and environment, inc.
International Specialists in the Environment
1950 Commonwealth Lane, Tallahassee, Florida 32303
Tel. (850) 574-1400, Fax: (850) 574-1179

recycled paper

FDEP Brownfields Site Assessment Project Ocala Brownfields Information System (OBIS)

August 1999

Prepared for:
FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
2600 Blair Stone Road
Tallahassee, Florida 32301

ecology and environment, inc.
International Specialists in the Environment
1950 Commonwealth Lane, Tallahassee, Florida 32303
Tel. (850) 574-1400, Fax: (850) 574-1179

14 [illegible]50-799\754.hv05.00.02.02\obis.doc

recycled paper

Table of Contents

Section — Page

1. Introduction 1-1

2. Information Sources/Database Queries 2-1
   - 2.1 Petroleum Theme 2-1
   - 2.2 Drycleaning Theme 2-2
   - 2.3 Comet Theme 2-3
   - 2.4 CERCLIS Theme 2-4
   - 2.5 Brownfields Theme 2-4

3 Data Dictionary 3-1
   - 3.1 General Information Theme 3-1
   - 3.2 Parcels Information Theme 3-1
   - 3.3 Petroleum Theme 3-2
   - 3.4 Drycleaning Theme 3-6
   - 3.5 Comet Theme 3-8
   - 3.6 CERCLIS Theme 3-9
   - 3.7 Brownfields Theme 3-9

4 Maps and Data Tables 4-1

Appendix

A User Guide A-1
B General Information B-1
C Parcels C-1
D Petroleum Sites D-1
E Drycleaning Sites E-1
F Comet Database Sites F-1
G CERCLIS Sites G-1
H Brownfields Sites H-1

List of Illustrations

Figure Page

General Information Theme A-2

Petroleum Theme C-2

Drycleaning Theme D-2

Comet Theme E-2

CERCLIS Theme F-2

Brownfields Theme G-2

Notice

The data contained within the Ocala Brownfields Information System (OBIS) has been obatined from a 1998 search applicable to Florida Department of Environmental Protection (FDEP) databases and files; digital topographic maps prepared for the City of Ocala in 1996; and property data obtained from the Marion County property appraisers OASIS database. Field verification of the data has not been performed. If inaccuracies are found within OBIS, please contact Wendi Turi, of the Renew Ocala Office, at (352) 401-0358. Contact persons and phone numbers for the referenced databases are provided in this document.

1 Introduction

This document describes the geographic information system (GIS) database and customized graphical user interface (GUI) developed for the Ocala Brownfields project. The Ocala Brownfields Information System (OBIS) was designed and developed by Ecology and Environment, Inc., (E & E) for the City of Ocala under Florida Department of Environmental Protection (FDEP) Contract No. HW-363.

The Ocala Brownfields project encompasses a 108-block Community Redevelopment Area (CRA) with more than 400 parcels of land in downtown Ocala, Marion County, Florida. The CRA, once a mixed-use neighborhood that included small businesses and residential units, has experienced a decline in residential usage in recent years. Ocala has created a redevelopment plan that promotes a return to residential land use in portions of the CRA, encourages residential units in mixed-use and commercial areas, and provides for other revitalization efforts within the CRA. The revitalization efforts are affected by a perception, held by lenders and potential investors, that downtown Ocala is an environmentally contaminated area. While contamination had been verified for some parcels within the CRA, a thorough understanding of the presence or absence of contamination within the CRA had not been developed, prior to the development of OBIS.

The purpose of designing and implementing a GIS database for the Ocala Brownfields project was as follows:

- To summarize available state and federal information regarding known or potentially contaminated sites within the CRA. This information is the basis of the GIS and provides an overview of the nature and extent of environmental contamination within the CRA; and

- To provide a reliable and user-friendly source of factual information regarding contamination or the potential for contamination within the CRA. The GIS database has been designed to quickly provide available information in graphic or text formats.

The City of Ocala has identified it's redevelopment efforts as Renew Ocala and has established a Centralized Redevelopment Environmental Dissemination Office within the redevelopment area. As stated in Ocala's Brownfields proposal, the Renew Ocala office is "...

devoted to dissemination of specific information on individual sources of contamination to remove the cloud from uncontaminated sites, to narrow the investment risk only to contaminated sites, and to offer clean-up and mitigation options to those property owners with contaminated sites." The GIS database system is a primarty tool for dissemination of environmental information through the Renew Ocala Office.

Implementation of this conceptual model has resulted in a GIS database system, which uses ARCView as a platform. The system includes information regarding known or potentially contaminated sites, obtained from FDEP and federal databases. This information is presented on a topographic base map and a parcel map. Provided in this document is the following technical information regarding the OBIS system:

- The sources of the databases and the queries used to obtain data from FDEP databases;
- A data dictionary describing each of the data fields and codes associated with those fields; and
- Maps and data tables for each of the themes, generated from using OBIS.

A system User Guide is provided in Appendix A.

2 Information Sources/Database Queries

2.1 Petroleum Theme

The information in the OBIS Petroleum Database theme was obtained November 1997 from FDEP's Storage Tank and Contamination Monitoring System (STCMS) database. The software INTERSOLVE DataDirect Explorer® was used to extract the information from STCMS. The following query was used to obtain information on sites with reported releases of petroleum or petroleum products that are located within the Ocala Community Redevelopment Area. Updated petroleum database information can be obtained from the FDEP Bureau of Petroleum Storage Systems at (850) 488-3299.

```
SELECT DISTINCT
        AK$FACILITY,
        NAME,
        ADDRESS1,
        CITY,
        LAT_DD,
        LAT_MM,
        LAT_SS,
        LONG_DD,
        LONG_MM,
        LONG_SS,
        RP_PHONE,
        RP_CONTACT,
        AK$FAC_STAT,
        AK$FAC_TYPE,
        SCORE,
        PK$PCT_DISCHARGE,
        DISCHARGE_DATE,
        POLLUTANT.AK$SUBSTANCE,
        AK$DISCHARGE_CLEANUP_STATUS,
        AK$TANK_STAT,
        PK$TANK,
        PLACEMENT,
        GALLONS,
        TANK$STCM.AK$SUBSTANCE,
        AK$ELIGIBILITY_STATUS,
        AK$CLEANUP_PROGRAM,
        AK$FACILITY_CLEANUP_STATUS
FROM
        TANK$STCM,
        PCT_DISCHARGE,
        FACILITY$STCM,
```

```
        POLLUTANT,
        T$FAC_STCM_RELATED_PARTY,
        CLEANUP_ELIGIBILITY,
        FACILITY_CONTAMINATION
WHERE
                T$FAC_STCM_RELATED_PARTY.FAC_PK$FACILITY = FACILITY$STCM.PK$FACILITY
        AND     PCT_DISCHARGE.FK$FACILITY = FACILITY$STCM.PK$FACILITY
        AND     TANK$STCM.AK$FACILITY = PCT_DISCHARGE.FK$FACILITY
        AND     POLLUTANT.FK$FACILITY = PCT_DISCHARGE.FK$FACILITY
        AND     CLEANUP_ELIGIBILITY.FK$FACILITY = PCT_DISCHARGE.FK$FACILITY
        AND     FACILITY_CONTAMINATION.FK$FACILITY = PCT_DISCHARGE.FK$FACILITY
        AND     FAC_CITY = 'OCALA'
        AND     FAC_AK$COUNTY = 42
```

2.2 Drycleaning Theme

The facility and program information in the OBIS Drycleaning Database theme was obtained in November 1997 from FDEP's Drycleaning Solvent Cleanup Program's tracking system. The tank and operator information was obtained from FDEP's Storage Tank and Contamination Monitoring System (STCMS) database. The software INTERSOLVE DataDirect Explorer® was used to extract the information from STCMS. The following query was used to obtain the tank and operator information on sites that have applied to FDEP's Drycleaning Solvent Cleanup Program that are located within the Ocala Community Redevelopment Area. Updated drycleaning database information may be obtained from the FDEP Bureau of Waste Cleanup at (850) 488-0190.

```
SELECT
        AK$FAC_TYPE,
        PK$FACILITY,
        AK$FAC_STAT,
        NAME,
        OPERATOR,
        TANK_VESSEL_INDICATOR,
        PLACEMENT,
        AK$SUBSTANCE,
        AK$TANK_STAT,
        GALLONS,
        PK$TANK,
        AK$DISCHARGE_CLEANUP_STATUS
FROM
        FACILITY$STCM,
        TANK$STCM,
        SITE$STCM
WHERE
                FACILITY$STCM.PK$FACILITY = TANK$STCM.AK$FACILITY
        AND     (CITY = 'OCALA'
        AND     AK$FAC_TYPE = '1'
        OR      AK$FAC_TYPE = '2'
        OR      AK$FAC_TYPE = '3'
        OR      AK$FAC_TYPE = '4'
        OR      AK$FAC_TYPE = '5'
```

```
        OR      AK$FAC_TYPE = '6')
ORDER BY
        NAME
```

2.3 Comet Database Theme

The information in the OBIS COMET Database theme was obtained in April 1998 from FDEP's Compliance and Enforcement Tracking (COMET) system. The site assessment/cleanup status description was obtained from conversations with FDEP Central District office personnel. The COMET sites located within the Ocala Community Redevelopment Area are FDEP Waste Cleanup Compliance and Enforcement sites that are managed by FDEP's Central District Waste Cleanup Section. The software INTERSOLVE DataDirect Explorer® was used to extract the information from COMET. The following query was used to obtain information on COMET sites located within the Ocala Community Redevelopment Area. Updated Comet database information can be obtained from the Water Management Program of the FDEP Central District Office at (407) 893-3328.

```
SELECT DISTINCT
        SITE.NAME,
        ADDRESS_1,
        CITY,
        AK$PROGRAM_AREA,
        AK$ACTIVITY_CODE,
        DATE_COMPLETE,
        PREP_NOTES,
        COMPLETION_NOTES,
        PK$PROJECT,
        AK$REASON,
        OPEN_DATE,
        AK$STATUS,
        DESCRIPTION,
        AK$OFFICE,
        FK$PROJECT,
        LAT_DD,
        LAT_MM,
        LAT_SS,
        LONG_DD,
        LONG_MM,
        LONG_SS
FROM
        ACTIVITY,
        PROJECT,
        PROJECT_SITE,
        SITE
WHERE
                ACTIVITY.AK$PROJECT = PROJECT.PK$PROJECT
        AND     PROJECT.PK$PROJECT = PROJECT_SITE.FK$PROJECT
        AND     PROJECT_SITE.FK$SITE = SITE.PK$SITE
        AND     AK$PROGRAM_AREA = 'CU'
        AND     PROJECT.AK$COUNTY = 42
```

ORDER BY
SITE.NAME

2.4 CERCLIS Database Theme

The information in the OBIS CERCLIS Database theme was mainly obtained February 1998 from the U.S. Environmental Protection Agency's (EPA) Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS) inventory. CERCLIS includes sites listed on the National Priority List (NPL) and potentially contaminated sites that are being evaluated under federal EPA Superfund Site Assessment program. No NPL sites were identified within the Ocala Community Redevelopment Area during the November 1997 CERCLIS database search. A list of CERCLIS sites in Ocala may be obtained by contacting EPA or through EPA's Superfund CERCLIS Query Form webpage at http://www.epa.gov/enviro/html/cerclis/cerclis_query.html. Other information, including program status, lead agency, last assessment completed, and contaminants of concern, was obtained from site files (located at the Bureau of Waste Cleanup, Site Screening Superfund Subsection, Tallahassee, Florida) and correspondence with the EPA. Updated CERCLIS Database information can be obtained from the Region 4 Office of the USEPA at (404) 562-8910 or the FDEP Site Screening Superfund Subsection at (850) 488-3935.

2.5 Brownfields Database Theme

No brownfields sites were identified during the November 1997 through April 1998 site identification time period. However, following completion of the database, the City of Ocala passed a resolution designating the Brownfields Community Redevelopment Area as a State Brownfield Area. To establish a Brownfields Database Theme for OBIS, a site location was required. Therefore, the Ocala Courthouse, which is within the City of Ocala's designated Brownfields Area, was chosen to represent a brownfields site for the OBIS database. Information regarding State-designated Brownfields Areas/Sites will need to be obtained by contacting FDEP's Brownfields Program Office in the Bureau of Waste Cleanup at (850)413-0062 or the FDEP Central District Office Brownfields Coordinator at (407) 893-2331.

3 Data Dictionary

3.1 General Information Theme

The following fields are contained within the General theme in OBIS. The definition of the field is provided as well as a description of codes where appropriate.

GENERAL INFORMATION THEME			
FIELD IDENTIFIER	**FIELD CONTENT**	**APPLICABLE CODES**	**CODE DEFINITION**
PROGRAM	FDEP Program under which the site is administered.		
NAME	Facility name		
ADDRESS	Facility address		
STATUS	Facility status	Open	Facility is still active
		Closed	Facility is no longer active
IND			

3.2 Parcels Theme

The following fields are contained within the Parcels theme in OBIS. The definition of the field is provided as well as a description of codes where appropriate.

PARCELS THEME			
FIELD IDENTIFIER	**FIELD CONTENT**	**APPLICABLE CODES**	**CODE DEFINITION**
DXF-TEXT			
PARC-NUM	Parcel number		
OWNER	Property owner		
ADDRESS	Property address		
TOT-VAL	Total value of the property		
ACRES	Acreage of the property		

PARCELS THEME			
FIELD IDENTIFIER	FIELD CONTENT	APPLICABLE CODES	CODE DEFINITION
ZONE			
YR-BUILT			
STREET	Street where the property is located		
FNAME			
ELU			
FLOORS			
CONDITION			
PARK-EXEMPT			
PAR-VAC			
VAC-OCC			
TAX-DIST			
NUM-TEN			
COMMENTS			
BUS-PHONE			
IND			

3.3 Petroleum Theme

The following fields are contained within the petroleum database theme in OBIS. The field identifiers are those as obtained from the FDEP's Storage Tank and Contamination Monitoring System (STCMS) database. A definition of each field is provided as well as a description of codes where appropriate.

PETROLEUM THEME			
FIELD IDENTIFIER	FIELD CONTENT	APPLICABLE CODES	CODE DEFINITION
FNAME	Facility name		
FADDRESS	Facility address		
FZIPCODE	Facility zip code		
LONG	Longitude		
LAT	Latitude		

PETROLEUM THEME			
FIELD IDENTIFIER	**FIELD CONTENT**	**APPLICABLE CODES**	**CODE DEFINITION**
FSTAT	Facility status codes	A	Abandoned
		C	Closed
		O	Open
FTYPE	Facility type codes	A	Retail station
		B	Residence
		C	Fuel user/non-retail
		D	Inland bulk petroleum storage – not waterfront
		E	Industrial plant
		F	Federal government
		G	State government
		H	Local government
		I	County government
		Z	Other
FHCUSOR	Facility ranking/score		
FCUSTAT	Facility cleanup status codes	CMPL	Completed (All related discharge cleanup activities are completed. At least 1 discharge required a cleanup activity. Some may have never required cleanup, per Chapter 17-770 rules or contamination was not found by inspection).
		DNR	Discharge notification received (a discharge has been reported, but not yet verified)
		NREQ	Not required (All related discharges either did not require cleanup per Chapter 17-770 rules or no contamination was found by inspection
		CMR	Contaminated media reported (At least one contaminated media has been reported but no cleanup activities have begun).
		ONGO	Ongoing (At least one cleanup activity is in progress at a related discharge).
		UNLV	Contamination information unavailable
RPCONTACT	Contact person		
RPPHONE	Contact person's phone number		
DISCHARGE SUB.	Discharge substance code	A	Leaded gas
		B	Unleaded gas
		C	Gasohol

PETROLEUM THEME			
FIELD IDENTIFIER	**FIELD CONTENT**	**APPLICABLE CODES**	**CODE DEFINITION**
		D	Vehicular diesel
		E	Aviation gas
		F	Jet fuel
		G	Diesel-emergency generator
		H	Diesel-generator, pump
		K	Kerosene
		L	Waste oil
		M	Fuel oil – onsite heat
		N	Fuel oil – distribution
		O	New/lube oil
		P	Generic gasoline
		V	Grades 5&6, bunker "C" residual oils
		W	Petroleum additive
		X	Misc. petrol-based product
		Y	Unknown/not reported
		Z	Other
DISCHDAY	Date of reported discharge(s)		
DCUPSTAT	Discharge cleanup status codes	APPR	Approved – No task level data
		CA	Contamination assessment (CA) ongoing (Contamination assessment cleanup activity in progress
		CMR	Contaminated media reported (at least 1 contaminated media has been reported with detectable levels of contamination)
		DENY	Denied cleanup assistance
		ELIG	Eligible – no task level data
		INC	Inspection found no contamination (No evidence of contamination was found during inspection)
		INEL	Ineligible for cleanup assistance
		IRA	IRA ongoing (Initial remedial action cleanup activity in progress)
		NFA	NFA complete (No further action status approved)
		NREQ	Cleanup not required (Cleanup not required by Chapter 17-770 rules)

PETROLEUM THEME			
FIELD IDENTIFIER	**FIELD CONTENT**	**APPLICABLE CODES**	**CODE DEFINITION**
		PART	Partial eligibility – no task level data
		RA	Remedial Action (RA) ongoing (Remedial action cleanup activity in progress)
		RAP	Remedial Action Plan (RAP) ongoing (Remedial action plan cleanup activity in progress)
		SRCR	Site Rehabilitation Completion Report (SRCR) Site rehabilitation completion report has been approved
		UNLV	Facility discharge information unavailable
		WDRW	Withdrawn from cleanup program
CUPROG	Cleanup program codes	A	Abandoned Tank Restoration Program (ATRP)
		C	Petroleum Contamination Participation Program (PCPP)
		E	Early detection Incentive (EDI)
		G	Good Samaritan (GOODS)
		H	Hardship Case (HARDS)
		O	Other (OTHER)
		P	Petroleum Liability Insurance & Restoration Program (PLIRP)
		R	Responsible Party – No claim (OTHER)
ELIGSTAT	Program eligibility status codes	A	Approved
		D	Denied
		E	Eligible
		I	Ineligible
		P	Partial
		W	Withdrawn
TANK-ID	Tank Identification Number		
TANK-STAT	Tank status	A	Closed in place
		B	Removed
		D	Deleted
		E	Enclosed/modified
		F	Un-maintained
		T	Temp out of service

PETROLEUM THEME			
FIELD IDENTIFIER	**FIELD CONTENT**	**APPLICABLE CODES**	**CODE DEFINITION**
		U	In service
PLACEMENT	Tank Placement	Underground	
		Aboveground	
TANK-SUB	Substance (Tank Contents) Codes	A	Leaded gas
		B	Unleaded gas
		C	Gasohol
		D	Vehicular diesel
		E	Aviation gas
		F	Jet fuel
		G	Diesel-emergency generator
		H	Diesel-generator, pump
		K	Kerosene
		L	Waste oil
		M	Fuel oil – onsite heat
		N	Fuel oil – distribution
		O	New/lube oil
		P	Generic gasoline
		V	Grades 5&6, bunker "C" residual oils
		W	Petroleum additive
		X	Misc. petrol-based product
		Y	Unknown/not reported
		Z	Other
GALLON	Size of tank in gallons		
IND			

3.4 Drycleaning Theme

The following fields are contained within the drycleaning database theme in OBIS. . The field identifiers are those as obtained from FDEP's Drycleaning Solvent Cleanup Program tracking

system and FDEP's Storage Tank and Contamination Monitoring System (STCMS) database. A definition of each field is provided as well as a description of codes where appropriate.

DRYCLEANING THEME			
FIELD IDENTIFIER	**FIELD CONTENT**	**APPLICABLE CODES**	**CODE DEFINITION**
FAC-ID	Site number specified by FDEP		
DISTRICT	FDEP district where the facility is located.	NWD	Northwest
		NED	Northeast
		CD	Central
		SWD	Southwest
		SED	Southeast
		SD	South
COUNTY	FDEP County code number	42	Marion (Note all sites in OBIS are located within Marion County. FDEP has assigned codes for all counties in the state in the DSCP database).
NAME	Name of facility		
ADDRESS	Address of facility		
ELIG-STAT	Status of eligibility	E	Eligible
		N	Not eligible
SCORE	Score of an eligible facility		
LONG	Longitude		
LAT	Latitude		
CLEANUP STAT	Discharge cleanup status codes	Refer to codes listed for DCUPSTAT under the petroleum theme	
FAC_STAT	Facility status	Open	
		Closed	
		Open, no solvent history	
		Closed with solvent history	
OPERATOR	Facility operator		
FAC_TYPE	Facility type	1	Drycleaner
		2	Wholesale supplier
		3	Dry drop-off
		4	Uniform-linen service
		5	Coin laundry

DRYCLEANING THEME			
FIELD IDENTIFIER	FIELD CONTENT	APPLICABLE CODES	CODE DEFINITION
		6	Dryclean-related other
PK TANK	Tank identification number		
TANK TYPE	Container type	DRUM	
		TANK	
PLACEMENT	Tank placement	Underground	
		Aboveground	
TANK-SUB	Substance (tank contents) codes	Refer to codes listed for TANK-SUB under the petroleum theme	
TANK-STAT	Tank status	Refer to codes listed for TANK-STAT under the petroleum theme	
IND			

3.5 Comet Theme

The following fields are contained within the COMET theme in OBIS. The field identifiers are those as obtained from the FDEP's Waste Cleanup Compliance and Enforcement (COMET) tracking system. The definition of the field is provided as well as a description of codes where appropriate.

COMET THEME			
FIELD IDENTIFIER	FIELD CONTENT	APPLICABLE CODES	CODE DEFINITION
FNAME	Facility name		
CITY	City where the facility is located		
LONG	Longitude		
LAT	Latitude		
ADDRESS	Address of the facility		
AK-STATUS	Facility status codes	A	Abandoned
		C	Closed
		O	Open
DESCRIPTION	Description of site assessment/cleanup status		
IND			

3.6 CERCLIS Database Theme

The following fields are contained within the CERCLIS theme in OBIS. The field identifiers are those as obtained from the EPA's Comprehensive Environmental Response, Compensation and Liability Information System (CERCLIS). The definition of the field is provided as well as a description of codes where appropriate.

CERCLIS THEME			
FIELD IDENTIFIER	**FIELD CONTENT**	**APPLICABLE CODES**	**CODE DEFINITION**
FAC-ID	Site number specified by the Environmental Protection Agency		
FNAME	Facility name		
FADDRESS	Facility address		
LONG	Longitude		
LAT	Latitude		
PROGRAM	Program currently administering the site		
STATUS	Site Status	Closed	Site no longer active
		Open	Site active
DISC-DATE	Discovery date		
PROGRAM-STATUS	Priority for additional CERCLA work		
LEAD-AGENCY	Agency responsible for the site		
LAST-ASSESS	Last stage of CERCLA work at the site	Preliminary Assessment	
		Site Investigation	
		Expanded Site Investigation	
CONTAMINANTS	Principal contaminants of concern at the site		

3.7 Brownfields Database Theme

The following fields are contained within the Brownfields theme in OBIS. The field identifiers are those obtained from FDEP's Brownfields Database. The definition of the field is provided as well as a description of codes where appropriate.

BROWNFIELDS DATABASE THEME			
FIELD IDENTIFIER	**FIELD CONTENT**	**APPLICABLE CODES**	**CODE DEFINITION**
SITE-ID	Site identification number specified by FDEP	11 Character code composed of the following:	
		BF	Indicates a Brownfields site
		XX	Two character FDEP County code. For sites in OBIS this code is 42
		XX	Two character code indicating year of resolution
		XX	Two character code for the sequential area number for the specified county
		XX	Two character code for the sequential site number for the specified area
ADDRESS	Address of the Brownfields site		
PFBSR	Person Responsible for Brownfields Site Rehabilitation		
DATE-BSRA	Date of the Brownfields Site Rehabilitation Agreement		
INT-SOURCE_REMOV *(Phase – ISR)*	Interim Source Removal Status		
SITE-ASSESSMENT *(Phase – SA)*	Date of most recent site assessment		
RISK-ASSESSMENT *(Phase – RA)*	Date of most recent risk assessment		
MONITOR ONLY *(Phase – MO)*	Date of Monitoring Only Plan		
ACT-REMEDIATION *(Phase – AR)*	Date of most recent cleanup action/remediation at site		
POST-ACT-REMED *(Phase-PARM)*	Date of post active remediation		
SITE-REHAB-CO *(Phase – SRCO)*	Date of Site Rehabilitation Completion Order		
SITE-REHAB-COND	Status of Rehabilitation		
SITE-REHAB-DESC	Description of Rehabilitation		
CONT-CONCERN *(COC)*	Contaminants of concern at site		
X-COORD *(see Note)*	Latitudinal coordinate of site		
Y-COORD *(see Note)*	Longitudinal coordinate of site		

NOTE: Since the development of OBIS, FDEP has made changes to the Brownfields Database field identifiers. In the table above these changes are shown in italics below the old identifier. In FDEP's new database, Phase is a field identifier. The phase field contains initials for that phase (ex., MO=monitor only) and a date. The field identifier for contaminant of concern has been changed to (COC). Finally, in the new database, the two x and y coordinate records have been replaced by a total of six records. Latitude is represented by three records lat-dd for degrees, lat-mm for minutes and lat-ss for seconds. The database contains three similar records for longitude.

4 Maps and Data Tables

Maps and data tables for each of the OBIS data themes are provided in then appendices specified below:

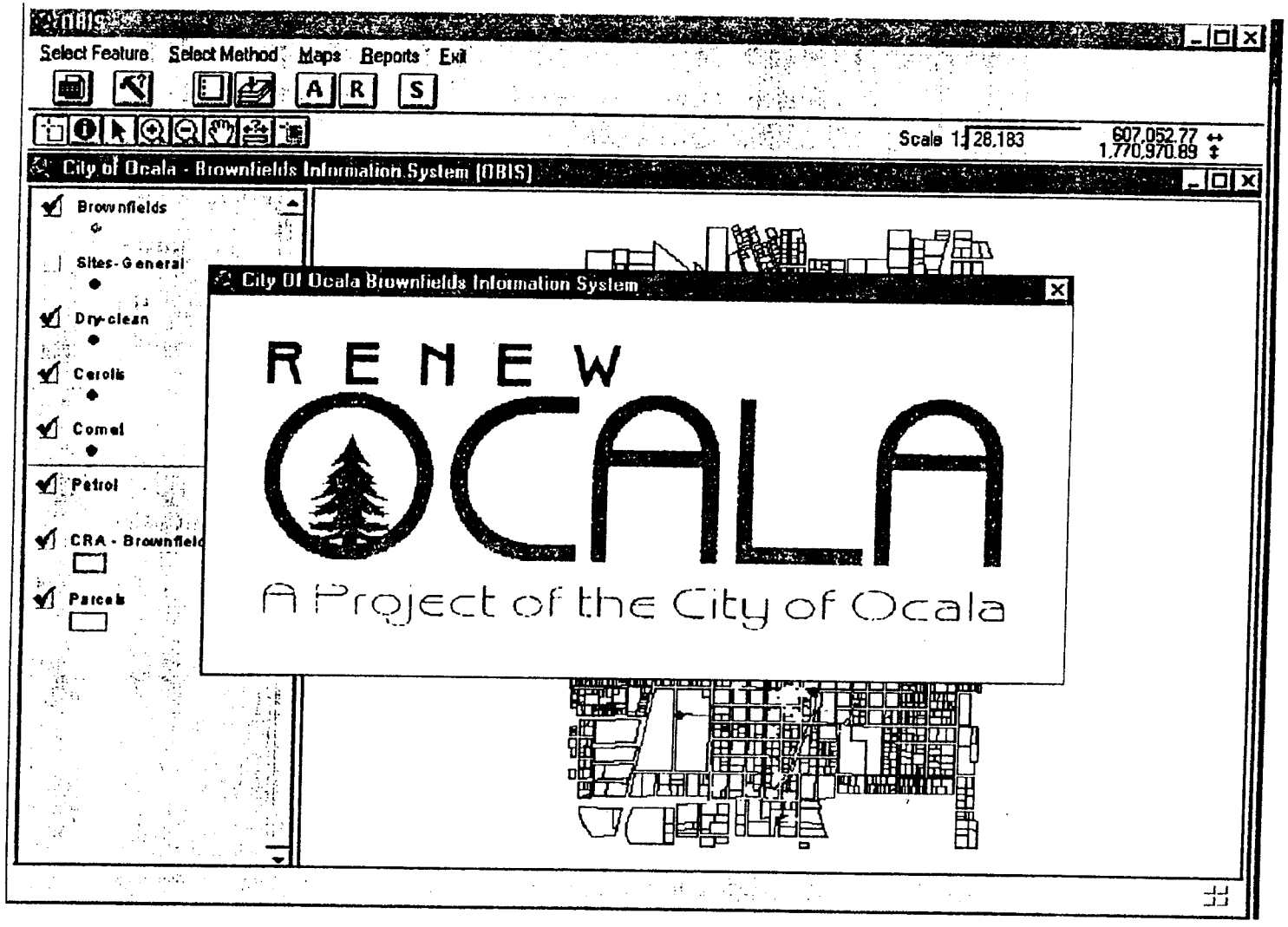
B. General Information
C. Parcels Information (Table Only)
D. Petroleum Sites
E. Drycleaning Sites
F. Comet Database Sites
G. CERCLIS Sites
H. Brownfields Sites

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

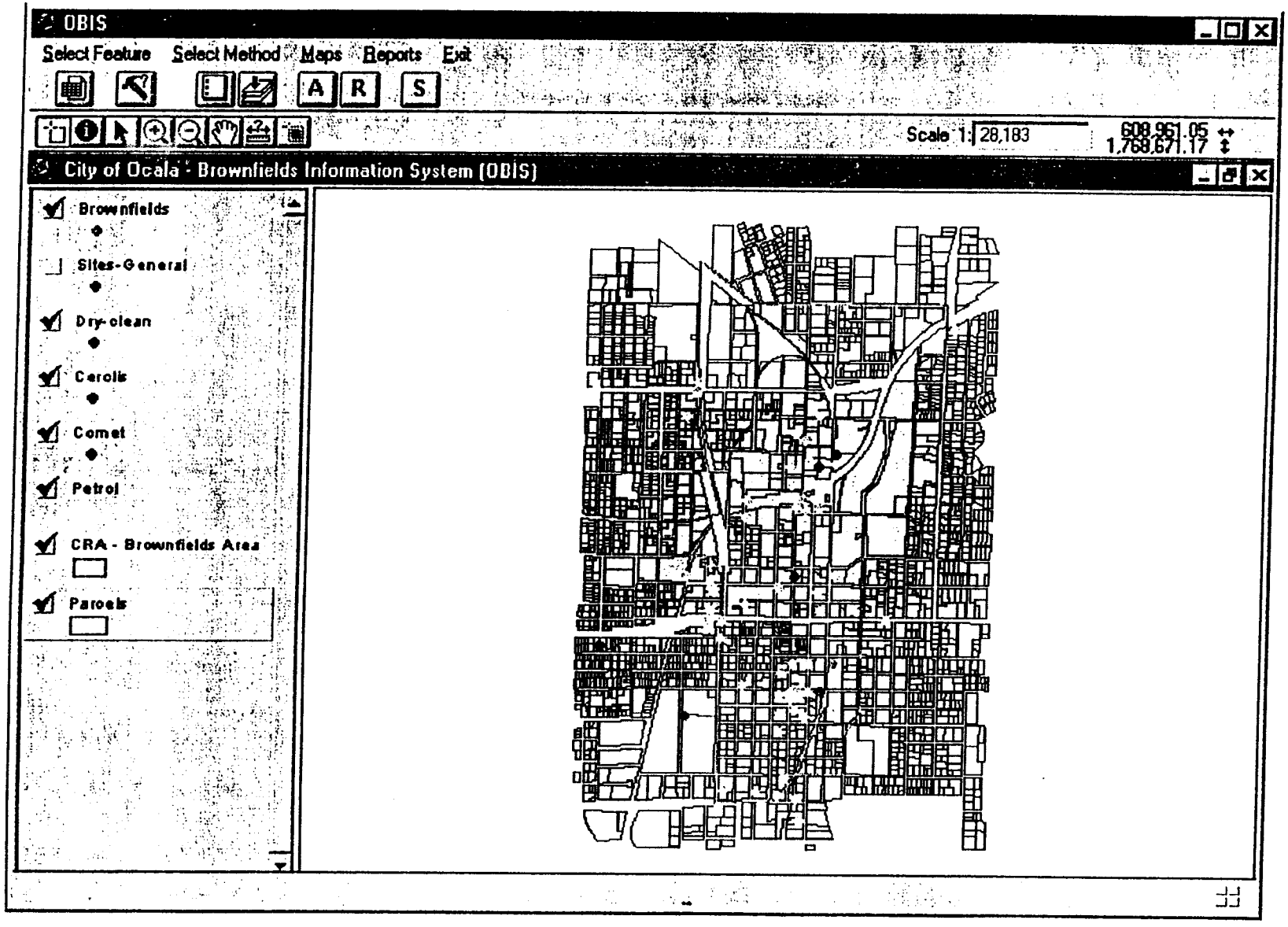
FOLDER NUMBER	BRIEF DESCRIPTION	
437548	Brownfield TABA ocala Fla	

A - User Guide

A User Guide


Select Feature
Select Method
Maps
Reports
Exit
A
R
S
Scale 1: 28,183
607,052.77
1,770,970.89
City of Ocala - Brownfields Information System (OBIS)
Brownfields
Sites-General
Dry-clean
Ceroils
Comel
Petrol
CRA - Brownfield
Parcels
City Of Ocala Brownfields Information System
RENEW
OCALA
A Project of the City of Ocala

Users Guide

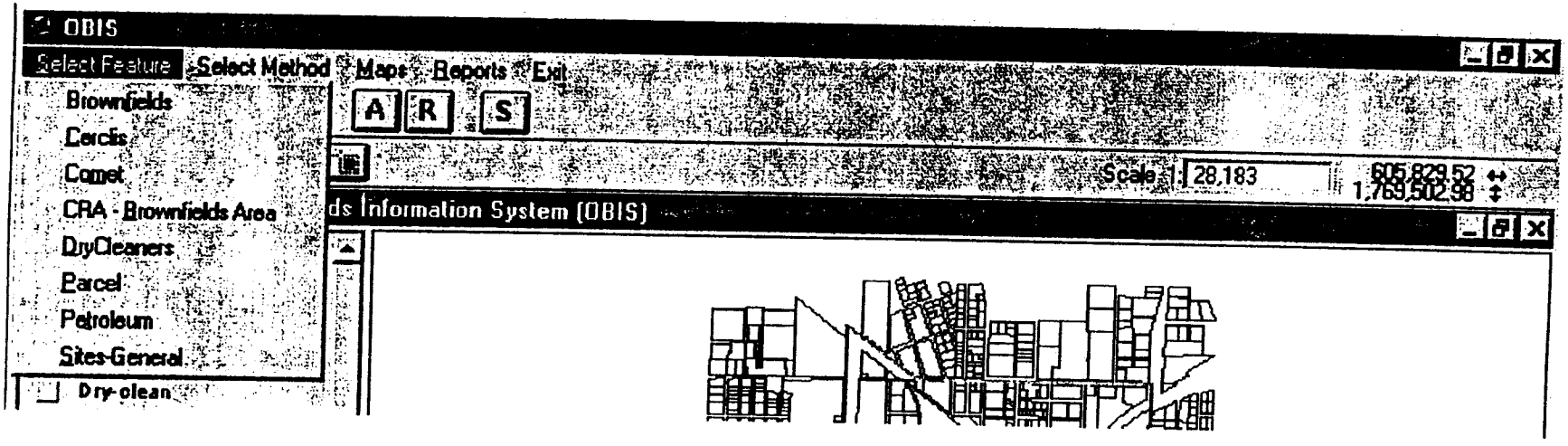

OBIS
Select Feature
Select Method
Maps
Reports
Exit
A
R
S
Scale 1: 28,183
608,961.05
1,768,671.17
City of Ocala - Brownfields Information System (OBIS)
Brownfields
Sites-General
Dry-clean
Carolis
Comet
Petrol
CRA - Brownfields Area
Parcels

The Ocala Brownfields Information System (OBIS) is a menu driven application that allows the user to select from different analysis options and to pick which map themes to draw or report on the main display. Hard copy maps and reports may also be generated and redirected to print on the local printer. This guide will present the basic functions and procedures incorporated into the OBIS system.

Startup

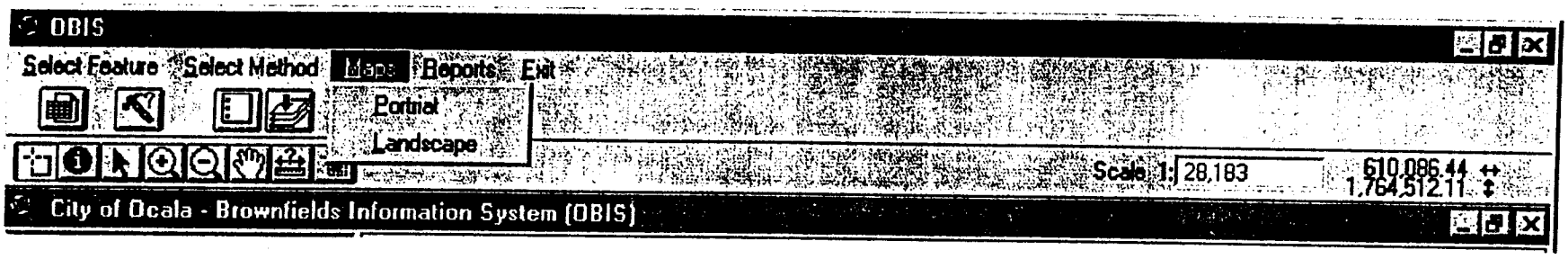
MENUS

Select Feature Menu



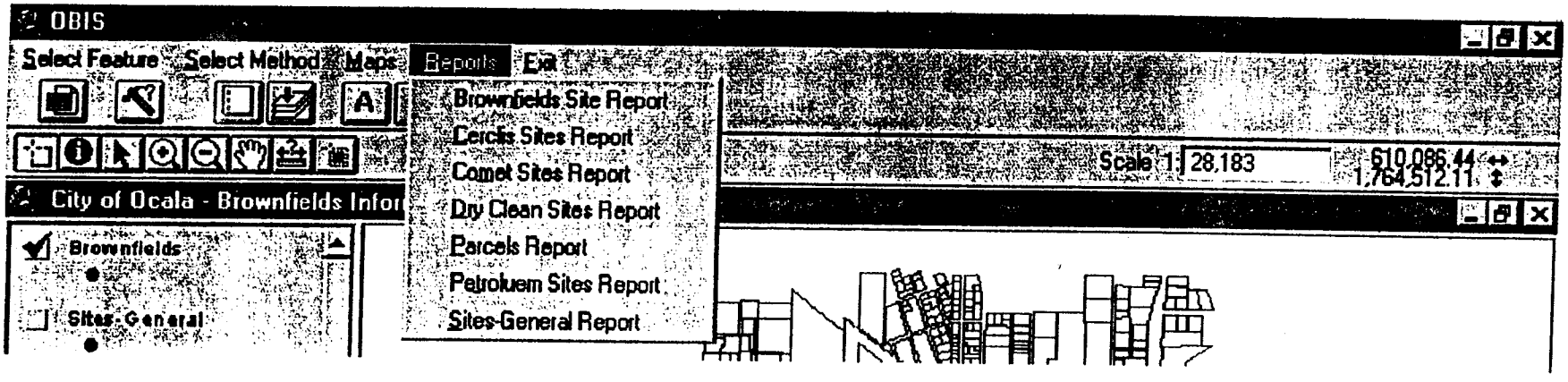
The Select Feature menu contains the 8 themes that comprise the OBIS application. To activate a particular theme for information or query analysis, click on the feature name of interest.

Maps



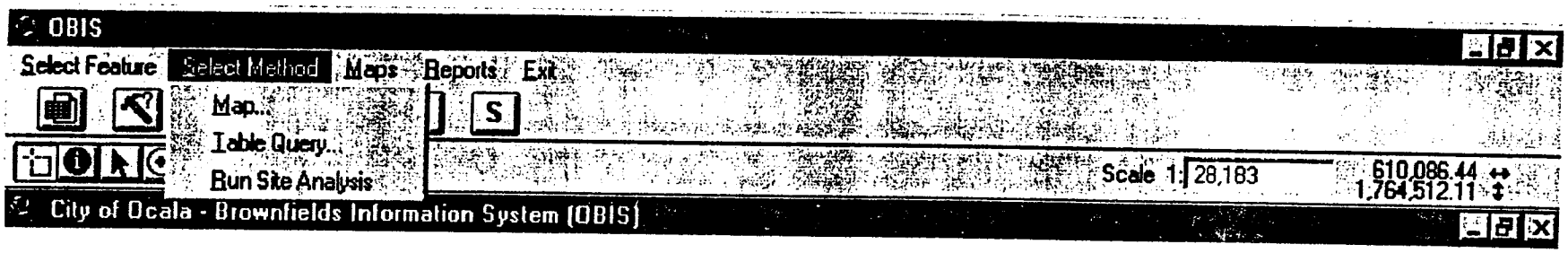
The Maps menu will allow the user to view on the main display or to print individual maps based on the selection of active themes and/or the results of any user defined query or site-analysis parameters that have previously been set. The maps are printable in either portrait or landscape format.

Reports



The Reports menu allows the user to view either on the main display or to redirect to a local printer the attribute information for the selected theme. The report will include all records for the selected theme or a subset of the records which currently match a previously defined user query or site analysis parameters.

Select Method Menu



The Select Method menu allows the user to redefine the viewable Map extent, to develop a Table Query for selected attribute values from the active theme, or to Run Site Analysis for active themes.

Map: This allows the user to select features with the mouse by pointing at , or by dragging a selection box over the area of interest. Features that fall partly or wholly inside the box defined will be selected. Features will be selected from all of the currently active themes.

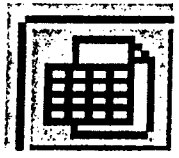
Table Query: This is used to select and highlight feature values according to their attribute values. For example, click on this menu selection after making the Sites-General theme active. With the query builder box open double click on the field 'Program' then select the logical operator '=' by double clicking, now select the attribute value 'Petroleum' by double clicking. When you have finished defining the query parameters, click 'New Set', 'Add To Set', or 'Select From Set'. Now, on the main display you will see all that matched the query (Program=Petroleum) highlighted in yellow.

Run Site Analysis: Click on a theme in the Views Table of Contents to make it active, then select the Run Site Analysis option from the Select Method pull down menu. Run Site Analysis allows selection of features from all active themes that are completely within, completely contained, have their center in, contain the center of, or are within a distance of the selected features of the theme initially activated.

Exit

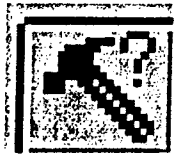
The Exit menu will close the OBIS application and return the user to the Windows desktop.

BUTTONS



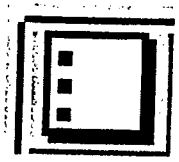
Show Table

Click on the theme in the views Table of Contents to make it active, then click this button to view the attribute data in a tabular format.



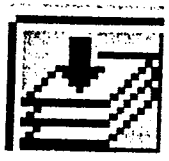
Query Builder

The Query Builder button is used to select and highlight feature values according to their attribute values. For example, click on this button after making the Sites-General theme active. With the query builder box open double click on the field 'Program' then select the logical operator '=' by double clicking, now select the attribute value 'Petroleum' by double clicking. When you have finished defining the query parameters, click 'New Set', 'Add To Set', or 'Select From Set'. Now, on the main display you will see all that matched the query (Program=Petroleum) highlighted in yellow.



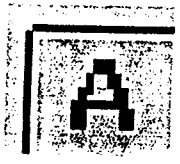
Clear Selected Features

Use the Clear Selected Features button to deselect the selected features in the active theme(s). Click on the theme(s) in the view Table of Contents to make it active, then click this button to deselect the selected features.



Zoom to Active Themes

Click on a theme in the views Table of Contents window to make it active, then click this button to zoom to the map extent of the active theme.

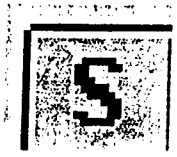


Add a Label

Clicking this button allows the user to interactively place and label a landmark on the main display.

Remove a Label

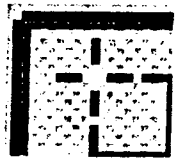
Clicking this button will remove user defined labels on the main display.



Show Symbol Window

Click on a theme in the views Table of Contents window to make it active, then click this button to bring up the Legend Editor box. This will allow the user to change symbols and colors for the active theme.

TOOLS

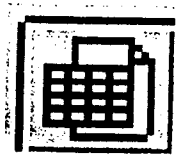


Select Feature Tool

The Select Feature tool allows the user to select features with the mouse by pointing at , or by dragging a selection box over the area of interest. Features that fall partly or wholly inside the box defined will be selected. Features will be selected from all of the currently active themes.

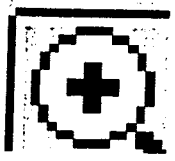
Identify Tool

The Identify tool allows the user to view attribute information for the currently active theme(s). Locate the mouse on top of the feature and click.



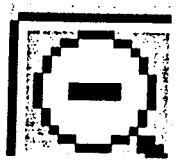
Select Tool

The Select tool allows the user to select of deselect features on a view by toggling the check-boxes on or off.



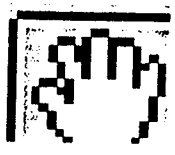
Zoom In Tool

The Zoom In tool allows the user to zoom in with the mouse by pointing at a location, or by dragging a selection box over the area of interest.



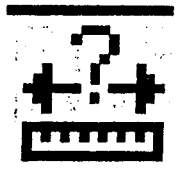
Zoom Out Tool

The Zoom Out tool allows the user to zoom out with the mouse by pointing at a location, or by dragging a selection box over the area of interest.



Pan Tool

The Pan tool allows the user to pan the current view by dragging it any direction on the main display.



Measure Tool

Use the Measure tool measure the distance on a view. Use the mouse to draw a line defining the distance to be measured. The measurements are displayed in the ArcView status bar, shown in distance units of the current view.

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
437548	Ocala Brownfield	

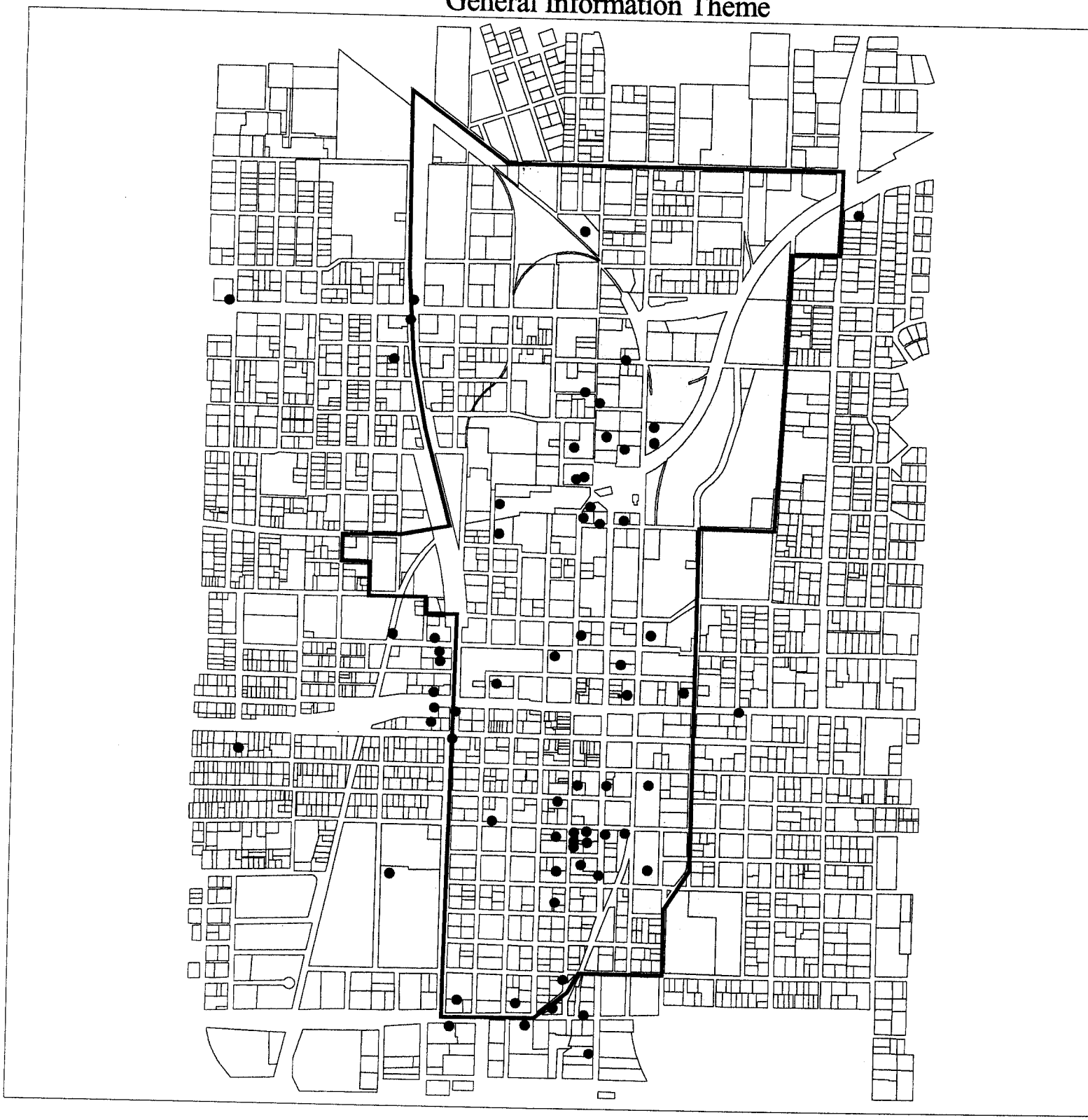
AB - B

General Info

B General Information

Ocala Brownfields Information System

General Information Theme



- Brownfields
- Sites-General
- Dry-clean
- Cerclis
- Comet
- Petrol

CRA - Brownfields Area

Parcels

1000 0 1000 2000 Feet

N

PROGRAM	NAME	ADDRESS	STATUS	IND
COMET	WEST FLORIDA NATURAL GAS COMPANY	613 NORTHEAST OSCEOLA AVE	CLOSED	
COMET	PEOPLES GAS/W FLORIDA NAT'L GAS (TOWN GAS)	112 SE FORT KING STREET	OPEN	
Dry Clean	BAYS DRY CLEANERS (FORMERLY)	412 SW PINE AVE	CLOSED	
Dry Clean	PRESTIGE CLEANERS	305 S MAGNOLIA AVE	OPEN	
Dry Clean	CHESE DRY CLEANERS	822 W BROADWAY ST	OPEN	
Dry Clean	BAYS CLEANERS	219 N MAGNOLIA AVE	OPEN-SH	
Petroleum	HASKINS AUTO GLASS	101 SW 1ST AVE	CLOSED	
Petroleum	CLARDY OIL CO	606 N MAGNOLIA AVE	OPEN	
Petroleum	COMFUEL #2	1001 SW PINE AVE	OPEN	
Petroleum	CIRCLE K #8614	917 NW PINE AVE	OPEN	
Petroleum	JET-OCALA	852 NW PINE AVE	CLOSED	
Petroleum	OCALA MINIT MAN CAR WASH	121 SW 10TH ST	CLOSED	
Petroleum	CHEVRON-JONES	905 SW PINE AVE	OPEN	
Petroleum	SHELL-CAR WASH #12	819 NW PINE AVE	CLOSED	
Petroleum	CHEVRON #47730	315 E SILVER SPRINGS BLVD	OPEN	
Petroleum	TEXACO-RICHE'S	43 SW PINE AVE	CLOSED	
Petroleum	U-HAUL CENTER OF OCALA	1011 NW PINE AVE	OPEN	
Petroleum	K W BAXLEY INC	904 SE 1ST TER	OPEN	
Petroleum	WALTONS SERVICE CENTER INC	520 NE 1ST AVE	CLOSED	
Petroleum	MOORHEAD ENGINEERING CO.	305 SE 1ST AVE	CLOSED	
Petroleum	BORDEN INC	209 NE 2ND ST	CLOSED	
Petroleum	CITGO #1	18 SW PINE AVE	CLOSED	
Petroleum	SMITH OIL CO.	109 NE 9TH ST	OPEN	
Petroleum	CLYDES AUTO AIR	13 S PINE AVE	OPEN	
Petroleum	RICHARDSON OIL CO	519 NW 3RD AVE	OPEN	
Petroleum	SIMMS,J.E .-FORMER GAS STATION	SE 1ST AVE & SE 5TH ST	CLOSED	
Petroleum	AUTO SAVE-AUTO SALES	SR 301 & NW 2ND ST	CLOSED	
Petroleum	SIMMS DIS TRIBUTOR,INC,J E	1020 SE 1ST TER	CLOSED	
Petroleum	AAMCO TRANSMISSION SHOP	12 SW PINE ST	CLOSED	
Petroleum	PROFESSIONAL AUTO BODY	507 N MAGNOLIA AVE	CLOSED	
Petroleum	TREASURE CHEST GIFT SHOP	119 SE 1ST AVE	CLOSED	
Petroleum	OCALA LINCOLN MERCURY	407 S MAGNOLIA AVE	OPEN	
Petroleum	AUTO-SAVE	210 NW PINE AVE	CLOSED	
Petroleum	OCALA,CIT Y-OLD LIGHT PLT WHSE	5TH ST & 3RD AVE	CLOSED	
Petroleum	ART LAWSON CUSTOM FIREARMS INC	313 S MAGNOLIA AVE	CLOSED	
Petroleum	PINE STREET MOTORS INC	320 SE 1ST AVE	CLOSED	
Petroleum	A B C SIGN CO	304 S MAGNOLIA AVE	CLOSED	
Petroleum	3 POINT BUILDING	805 S MAGNOLIA AVE	CLOSED	
Petroleum	CSX TRANSPORTATION INC-PANNING LUMBER	NW 3RD AVE & NW 6TH ST	CLOSED	
Petroleum	SOVEREIGN BUILDING	108 N MAGNOLIA AVE	CLOSED	
Petroleum	MID STATE FEDERAL	512 E SILVER SPRINGS BLVD	CLOSED	
Petroleum	MAIN STREET BUILDING	300 SE 1ST AVE	CLOSED	
Petroleum	MAGNOLIA SQUARE	201 S MAGNOLIA AVE	CLOSED	
Petroleum	A-1 RADIATOR	N MAGNOLIA	CLOSED	
Petroleum	OCALA, CI TY-INTERFAITH SERVICES	435 NW 2ND ST	CLOSED	
Petroleum	OCALA TIRE SERVICE	426 N MAGNOLIA AVE	CLOSED	
Petroleum	BI-LO VENTURES INC	733 N MAGNOLIA AVE	CLOSED	
Petroleum	POST OFFICE TIRE SERVICE	221 W SILVER SPRINGS BLVD	CLOSED	
Petroleum	MUFFLER DOCTOR	12 NW PINE AVE	CLOSED	
Petroleum	FL THOROUGHBRED INDUSTRY BLDG	108 NW PINE AVE	CLOSED	
Petroleum	MARION TIRE & BATTERY CO	210 W SILVER SPRINGS BLVD	CLOSED	
Petroleum	THOMAS & CONYBEAR PROPERTY	NW 2ND ST & N PINE AVE	CLOSED	
Petroleum	CHAZAL PROPERTY	201 S MAGNOLIA AVE	CLOSED	
Petroleum	CLIPPER HAIR DESIGN	11 SW 10TH ST	CLOSED	
Petroleum	CALIFORNIA FEDERAL BANK PROPERTY	117 E SILVER SPRINGS BLVD	CLOSED	
Petroleum	RAY THE LOCKSMITH	506 NE 1ST AVE	CLOSED	
Petroleum	WTMC	321 S MAGNOLIA AVE	CLOSED	
Petroleum	EXECUTIVE AUTO SPA INC	822 NE 14TH ST	CLOSED	
Petroleum	LYLES PROPERTY	726 N MAGNOLIA	CLOSED	
Petroleum	WALTS BRAKES	522 S MAGNOLIA AVE	CLOSED	
Petroleum	GATOR'S ONE HOUR CLEANERS	305 S MAGNOLIA AVE	CLOSED	
Petroleum	ACE SUPPLY CO	1202 N MAGNOLIA AVE	CLOSED	
Petroleum	PRO TRANS	833 NW 10TH ST	CLOSED	
Petroleum	CLARDY PROPERTY	616 N MAGNOLIA AVE	CLOSED	
Petroleum	OCALA FORD MOTOR CO	125 NE FIRST AVE	CLOSED	
Petroleum	LEE MARINE	507 NE 1ST AVE	CLOSED	

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
437548	Vol 24 [redacted] Ocala Brownfield Assessment Pilot Ocala Har. 6	

TAB C

Parcels

C-1 — C-70

C Parcels

PARCEL IE TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P.PAF
25808-002-00	25808-002-00			0.00									
25805-000-00	25805-000-00			0.00									
25802-000-00	25802-000-00			0.00									
26137-002-00	26137-002-00			0.00									
26020-000-00	26020-000-00			0.00									
26133-000-00	26133-000-00			0.00									
25805-001-00	25805-001-00			0.00									
25792-000-00	25792-000-00			0.00									
25836-000-00	25836-000-00			0.00									
25812-000-00	25812-000-00			0.00									
25810-000-00	25810-000-00			0.00									
25805-000-00	25805-000-00			0.00									
26135-000-00	26135-000-00			0.00									
25811-000-00	25811-000-00			0.00									
25835-001-00	25835-001-00			0.00									
25813-000-00	25813-000-00			0.00									
				0.00									
2613-005-000	2613-005-000			0.00									
2600-001-000	2600-001-000			0.00									
2613-011-000	2613-011-000			0.00									
				0.00									
2600-004-000	2600-004-000			0.00									
				0.00									
25827-001-00	25827-001-00			0.00									
25814-000-00	25814-000-00			0.00									
25795-000-00	25795-000-00			0.00									
25794-000-00	25794-000-00			0.00									
25835-014-07	25835-014-07			0.00									
25442-000-00	25442-000-00			0.00									
25820-000-00	25820-000-00			0.00									
25827-003-00	25827-003-00			0.00									
25820-001-00	25820-001-00			0.00									
2600-002-000	2600-002-000			0.00									
2600-003-000	2600-003-000			0.00									
				0.00									
2613-006-000	2613-006-000			0.00									
25827-002-00	25827-002-00			0.00									
26137-001-00	26137-001-00			0.00									
25818-000-00	25818-000-00			0.00									
25796-000-00	25796-000-00			0.00									
				0.00									
25817-000-00	25817-000-00			0.00									
25771-000-00	25771-000-00			0.00									
25797-000-00	25797-000-00			0.00									
25841-000-00	25841-000-00			0.00									
25448-000-00	25448-000-00			0.00									
25822-000-00	25822-000-00			0.00									
25769-000-00	25769-000-00			0.00									
				0.00									
25769-000-00	25769-000-00			0.00									
2613-009-000	2613-009-000			0.00									
25819-000-00	25819-000-00			0.00									
25823-000-00	25823-000-00			0.00									
25798-000-00	25798-000-00			0.00									
				0.00									
				0.00									
				0.00									
25799-000-00	25799-000-00			0.00									
26137-004-00	26137-004-00			0.00									
26137-000-00	26137-000-00			0.00									
2600-025-000	2600-025-000			0.00									
2600-028-000	2600-028-000			0.00									
				0.00									
2600-026-000	2600-026-000			0.00									
26150-001-00	26150-001-00			0.00									
26158-001-00	26158-001-00			0.00									
				0.00									

PARCEL THEME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P_PAF
26158-002-00	26158-002-00				0.00								
26151-000-00	261 00-00				0.00								
25828-001-00	25828-001-00				0.00								
					0.00								
26158-003-00	26158-003-00				0.00								
25769-000-00	25769-000-00				0.00								
25781-000-00	25781-000-00				0.00								
					0.00								
26177-000-00	26177-000-00				0.00								
					0.00								
25853-001-00	25853-001-00				0.00								
25853-000-00	25853-000-00				0.00								
25800-000-00	25800-000-00				0.00								
25842-000-00	25842-000-00				0.00								
26136-004-00	26136-004-00				0.00								
26152-000-00	26152-000-00				0.00								
					0.00								
26149-000-00	26149-000-00				0.00								
25829-010-01	25829-010-01				0.00								
26013-000-01	26013-000-01				0.00								
26136-003-00	26136-003-00				0.00								
25854-000-00	25854-000-00				0.00								
25448-000-00	25448-000-00				0.00								
26153-000-00	26153-000-00				0.00								
					0.00								
26175-000-00	26175-000-00				0.00								
25843-000-00	25843-000-00				0.00								
25829-010-06	25829-010-06				0.00								
26137-004-01	26137-004-01				0.00								
25448-000-00	25448 000-00				0.00								
26136-003-00	26136-003-00				0.00								
25846-000-00	25846-000-00				0.00								
					0.00								
25775-000-00	25775-000-00				0.00								
25774-000-00	25774-000-00				0.00								
25769-000-00	25769-000-00				0.00								
26154-000-00	26154-000-00				0.00								
25831-000-00	25831-000-00				0.00								
25847-000-00	25847-000-00				0.00								
25855-000-00	25855-000-00				0.00								
26384-000-00	26384-000-00				0.00								
25448-000-00	25448-000-00				0.00								
25442-000-00	25442-000-00				0.00								
26155-000-00	26155-000-00				0.00								
25849-000-00	25849-000-00				0.00								
25863-000-00	25863-000-00				0.00								
25857-000-00	25857-000-00				0.00								
					0.00								
26176-000-00	26176-000-00				0.00								
26136-003-00	26136-003-00				0.00								
26136-003-00	26136-003-00				0.00								
26156-000-00	26156-000-00				0.00								
25832-000-00	25832-000-00				0.00								
25844-000-00	25844-000-00				0.00								
26174-000-00	26174-000-00				0.00								
					0.00								
25856-000-00	25856-000-00				0.00								
25781-000-00	25781-000-00				0.00								
25848-000-00	25848-000-00				0.00								
26136-001-00	26136-001-00				0.00								

PARCEL ..IE TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P.PAF
25778-000-00	25778-000-00				0.00								
25784-000-00	25784-000-00				0.00								
25785-000-00	25785-000-00				0.00								
26136-002-00	26136-002-00				0.00								
25833-000-00	25833-000-00				0.00								
25861-000-00	25861-000-00				0.00								
25858-000-00	25858-000-00				0.00								
25850-000-00	25850-000-00				0.00								
25861-001-00	25861-001-00				0.00								
25834-000-00	25834-000-00				0.00								
25783-000-00	25783-000-00				0.00								
25864-000-00	25864-000-00				0.00								
25446-000-00	25446-000-00				0.00								
					0.00								
25569-000-00	25569-000-00				0.00								
2572-017-004	2572-017-004				0.00								
2572-017-002	2572-017-002				0.00								
2572-017-001	2572-017-001				0.00								
2572-018-001	2572-018-001				0.00								
2572-015-001	2572-015-001				0.00								
2572-019-001	2572-019-001				0.00								
2573-009-001	2573-009-001				0.00								
2572-019-002	2572-019-002				0.00								
26294-000-00	26294-000-00				0.00								
2573-007-001	2573-007-001				0.00								
26289-000-00	26289-000-00				0.00								
25673-001-00	25673-001-00				0.00								
25691-000-00	25691-000-00				0.00								
25681-000-00	25681-000-00				0.00								
25680-000-00	25680-000-00				0.00								
26288-000-00	26288-000-00				0.00								
26284-000-00	26284-000-00				0.00								
2637-001-000	2637-001-000				0.00								
2637-002-000	2637-002-000				0.00								
26286-000-00	26286-000-00				0.00								
2637-003-000	2637-003-000				0.00								
2637-004-000	2637-004-000				0.00								
26287-000-00	26287-000-00				0.00								
26381-000-00	26381-000-00				0.00								
2572-015-001	2572-015-001				0.00								
2572-019-004	2572-019-004				0.00								
					0.00								
2572-017-005	2572-017-005				0.00								
2572-017-003	2572-017-003				0.00								
					0.00								
25673-002-00	25673-002-00				0.00								
26290-000-00	26290-000-00				0.00								
26283-000-00	26283-000-00				0.00								
26285-000-00	26285-000-00				0.00								
					0.00								
25692-000-00	25692-000-00				0.00								
25673-000-00	25673-000-00				0.00								
25682-000-00	25682-000-00				0.00								
25683-000-00	25683-000-00				0.00								
2618-003-001	2618-003-001				0.00								
26297-000-00	26297-000-00				0.00								
2572-018-001	2572-018-001				0.00								
2572-018-001	2572-018-001				0.00								
25687-000-00	25687-000-00				0.00								
25688-000-00	25688-000-00				0.00								
25674-000-00	25674-000-00				0.00								
25675-000-00	25675-000-00				0.00								
25748-000-00	25748-000-00				0.00								
2572-019-003	2572-019-003				0.00								
2618-001-030	2618-001-030				0.00								

PARCEL THEME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P.PAF
				0.00									
				0.00									
				0.00									
2618-003-003	2618-003-003			0.00									
25694-000-00	25694-000-00			0.00									
25686-001-00	25686-001-00			0.00									
25684-000-00	25684-000-00			0.00									
26282-000-00	26282-000-00			0.00									
26291-000-00	26291-000-00			0.00									
26281-000-00	26281-000-00			0.00									
26280-001-00	26280-001-00			0.00									
26280-000-00	26280-000-00			0.00									
26275-000-00	26275-000-00			0.00									
26287-000-00	26287-000-00			0.00									
25686-000-00	25686-000-00			0.00									
2618-001-001	2618-001-001			0.00									
25676-000-00	25676-000-00			0.00									
25749-000-00	25749-000-00			0.00									
				0.00									
26292-000-00	26292-000-00			0.00									
26358-000-00	26358-000-00			0.00									
25697-000-00	25697-000-00			0.00									
25685-000-00	25685-000-00			0.00									
25678-000-00	25678-000-00			0.00									
				0.00									
25677-000-00	25677-000-00			0.00									
25750-000-00	25750-000-00			0.00									
26298-000-00	26298-000-00			0.00									
26270-000-00	26270-000-00			0.00									
26270-001-00	26270-001-00			0.00									
26271-000-00	26271-000-00			0.00									
26272-000-00	26272-000-00			0.00									
26273-000-00	26273-000-00			0.00									
26293-000-00	26293-000-00			0.00									
26274-000-00	26274-000-00			0.00									
				0.00									
25679-000-00	25679-000-00			0.00									
25751-000-00	25751-000-00			0.00									
				0.00									
				0.00									
25689-000-00	25689-000-00			0.00									
25752-000-00	25752-000-00			0.00									
2572-016-001	2572-016-001			0.00									
2572-016-002	2572-016-002			0.00									
2572-014-002	2572-014-002			0.00									
2572-014-001	2572-014-001			0.00									
2618-001-006	2618-001-006			0.00									
2618-001-026	2618-001-026			0.00									
2618-003-013	2618-003-013			0.00									
				0.00									
2573-005-001	2573-005-001			0.00									
26303-000-00	26303-000-00			0.00									
26301-000-00	26301-000-00			0.00									
26318-000-00	26318-000-00			0.00									
26318-003-00	26318-003-00			0.00									
26318-001-00	26318-001-00			0.00									
26316-000-00	26316-000-00			0.00									
26317-000-00	26317-000-00			0.00									
26322-000-00	26322-000-00			0.00									
25718-002-00	25720-000-00			0.00									
25742-000-00	25742-000-00			0.00									
25725-000-00	25725-000-00			0.00									
25734-000-00	25734-000-00			0.00									
25724-000-00	25724-000-00			0.00									
25735-000-00	25735-000-00			0.00									
2618-001-009	2618-001-009			0.00									

PARCEL ME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P_PAF
26302-000-00	26302-000-00				0.00								
					0.00								
2618-001-024	2618-001-024				0.00								
2618-003-017	2618-003-017				0.00								
26374-000-00	26374-000-00				0.00								
					0.00								
					0.00								
26320-000-00	26320-000-00				0.00								
26319-000-00	26319-000-00				0.00								
26307-000-00	26307-000-00				0.00								
2618-001-012	2618-001-012				0.00								
26310-000-00	26310-000-00				0.00								
2618-001-022	2618-001-022				0.00								
26311-000-00	26311-000-00				0.00								
26312-000-00	26312-000-00				0.00								
25743-000-00	25743-000-00				0.00								
25736-000-00	25736-000-00				0.00								
25737-000-00	25737-000-00				0.00								
25726-000-00	25726-000-00				0.00								
2618-003-020	2618-003-020				0.00								
26359-000-00	26359-000-00				0.00								
					0.00								
					0.00								
2618-001-014	2618-001-014				0.00								
26308-000-00	26308-000-00				0.00								
2618-001-018	2618-001-018				0.00								
2572-014-004	2572-014-004				0.00								
2572-014-003	2572-014-003				0.00								
25728-000-00	25728-000-00				0.00								
25727-000-00	25727-000-00				0.00								
2573-006-001	2573-006-001				0.00								
2618-003-022	2618-003-022				0.00								
2618-001-016	2618-001-016				0.00								
25744-000-00	25744-000-00				0.00								
26333-000-00	26333-000-00				0.00								
26321-000-00	26321-000-00				0.00								
26330-000-00	26330-000-00				0.00								
26332-000-00	26332-000-00				0.00								
					0.00								
26315-000-00	26315-000-00				0.00								
26314-000-00	26314-000-00				0.00								
26329-000-00	26329-000-00				0.00								
26334-000-00	26334-000-00				0.00								
26313-000-00	26313-000-00				0.00								
25745-000-00	25745-000-00				0.00								
25739-000-00	25739-000-00				0.00								
25738-001-00	25738-001-00				0.00								
25730-000-00	25730-000-00				0.00								
25729-000-00	25729-000-00				0.00								
					0.00								
					0.00								
26361-000-00	26361-000-00				0.00								
26362-000-00	26362-000-00				0.00								
2572-016-003	2572-016-003				0.00								
26364-000-00	26364-000-00				0.00								
2618-002-025	2618-002-025				0.00								
2618-002-030	2618-002-030				0.00								
2618-003-027	2618-003-027				0.00								
25746-000-00	25746-000-00				0.00								
25738-000-00	25738-000-00				0.00								
25731-000-00	25731-000-00				0.00								
					0.00								
25718-001-00	25718-001-00				0.00								
					0.00								
26365-000-00	26365-000-00				0.00								
					0.00								

PARCEL THEME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P.PAR
25747-000-00	25747-000-00				0.00								
25741-000-00	25741-000-00				0.00								
25733-001-00	25733-001-00				0.00								
					0.00								
25733-000-00	25733-000-00				0.00								
25740-000-00	25740-000-00				0.00								
25732-000-00	25732-000-00				0.00								
2572-011-001	2572-011-001				0.00								
					0.00								
2572-012-001	2572-012-001				0.00								
2618-003-031	2618-003-031				0.00								
2572-012-001	2572-012-001				0.00								
2572-013-001	2572-013-001				0.00								
2572-013-002	2572-013-002				0.00								
2573-003-001	2573-003-001				0.00								
2573-002-004	2573-002-004				0.00								
2573-002-002	2573-002-002				0.00								
26366-000-00	26366-000-00				0.00								
2573-002-004	2573-002-004				0.00								
2618-002-006	2618-002-006				0.00								
2573-001-001	2573-001-001				0.00								
26343-000-00	26343-000-00				0.00								
25740-001-00	25740-001-00				0.00								
26335-000-00	26335-000-00				0.00								
26336-000-00	26336-000-00				0.00								
26338-000-00	26338-000-00				0.00								
26339-000-00	26339-000-00				0.00								
2573-001-003	2573-001-003				0.00								
26345-000-00	26345-000-00				0.00								
2573-001-008	2573-001-008				0.00								
26346-000-00	26346-000-00				0.00								
26353-000-00	26353-000-00				0.00								
2573-025-006	2573-025-006				0.00								
2573-025-002	2573-025-002				0.00								
2573-025-001	2573-025-001				0.00								
					0.00								
					0.00								
					0.00								
2618-003-032	2618-003-032				0.00								
					0.00								
25753-000-00	25753-000-00				0.00								
					0.00								
26368-000-00	26368-000-00				0.00								
26352-000-00	26352-000-00				0.00								
26369-000-00	26369-000-00				0.00								
2618-002-009	2618-002-009				0.00								
2618-002-024	2618-002-024				0.00								
2618-003-035	2618-003-035				0.00								
25758-000-00	25758-000-00				0.00								
25759-000-00	25759-000-00				0.00								
25767-000-01	25767-000-01				0.00								
25204-301-00	25204-301-00				0.00								
25204-303-00	25204-303-00				0.00								
25764-001-00	25764-001-00				0.00								
					0.00								
2573-002-005	2573-002-005				0.00								
26349-000-00	26349-000-00				0.00								
26336-001-00	26336-001-00				0.00								
26342-000-00	26342-000-00				0.00								
26340-000-00	26340-000-00				0.00								
26337-000-00	26337-000-00				0.00								
26367-000-00	26367-000-00				0.00								
26348-000-00	26348-000-00				0.00								
					0.00								
26351-000-00	26351-000-00				0.00								
2573-001-002	2573-001-002				0.00								

PARCEL .E TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	FLU	FLOORS	CONDITION	P_PAF
2618-003-037	2618-003-037				0.00								
2618-002-020	2618-002-020				0.00								
25204-302-00	25204-302-00				0.00								
2573-025-003	2573-025-003				0.00								
26373-000-00	26373-000-00				0.00								
26372-000-00	26372-000-00				0.00								
26371-000-00	26371-000-00				0.00								
26370-000-00	26370-000-00				0.00								
2618-003-039	2618-003-039				0.00								
2572-013-004	2572-013-004				0.00								
2572-013-003	2572-013-003				0.00								
25204-304-00	25204-304-00				0.00								
25761-000-00	25761-000-00				0.00								
25760-000-00	25760-000-00				0.00								
2573-003-003	2573-003-003				0.00								
2573-002-007	2573-002-007				0.00								
25767-000-00	25767-000-00				0.00								
2573-002-006	2573-002-006				0.00								
2573-001-006	2573-001-006				0.00								
2573-025-004	2573-025-004				0.00								
25756-000-00	25756-000-00				0.00								
25757-000-00	25757-000-00				0.00								
26100-000-00	26100-000-00				0.00								
26103-000-00	26103-000-00				0.00								
25402-000-00	25402-000-00				0.00								
25204-104-00	25204-104-00				0.00								
2573-025-008	2573-025-009				0.00								
2619-016-000	2619-016-000				0.00								
2619-017-000	2619-017-000				0.00								
2619-001-000	2619-001-000				0.00								
2617-002-012	2617-002-012				0.00								
2617-002-002	2617-002-002				0.00								
2617-003-003	2617-003-003				0.00								
2619-002-000	2619-002-000				0.00								
25756-001-00	25756-001-00				0.00								
2617-002-014	2617-002-014				0.00								
2619-003-000	2619-003-000				0.00								
2617-003-005	2617-003-005				0.00								
2619-015-000	2619-015-000				0.00								
2619-004-000	2619-004-000				0.00								
2617-002-017	2617-002-017				0.00								
2617-002-007	2617-002-007				0.00								
2572-007-001	2572-007-001				0.00								
2573-010-003	2573-010-003				0.00								
2572-008-006	2572-008-006				0.00								
2572-008-004	2572-008-004				0.00								
2572-008-002	2572-008-002				0.00								
2572-007-005	2572-007-005				0.00								
2571-001-002	2571-001-002				0.00								
2571-002-001	2571-002-001				0.00								
2573-010-002	2573-010-002				0.00								
2572-008-001	2572-008-001				0.00								
2573-010-001	2573-010-001				0.00								

PARCEL THEME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P_PAR
2572-009-001	2572-009-001				0.00								
26100-001-00	26100-001-00				0.00								
2571-003-001	2571-003-001				0.00								
2571-003-002	2571-003-002				0.00								
2619-005-000	2619-005-000				0.00								
2571-004-003	2571-004-003				0.00								
2570-203-301	2570-203-301				0.00								
2570-203-201	2570-203-201				0.00								
2570-103-301	2570-103-301				0.00								
2570-103-201	2570-103-201				0.00								
2619-014-000	2619-014-000				0.00								
2571-004-006	2571-004-006				0.00								
2571-004-005	2571-004-005				0.00								
2571-005-003	2571-005-003				0.00								
2619-012-000	2619-012-000				0.00								
2619-006-000	2619-006-000				0.00								
2619-013-000	2619-013-000				0.00								
2572-007-007	2572-007-007				0.00								
2572-007-011	2572-007-011				0.00								
2572-008-007	2572-008-007				0.00								
2572-008-009	2572-008-009				0.00								
2572-008-011	2572-008-011				0.00								
26100-001-01	26100-001-01				0.00								
2617-001-013	2617-001-013				0.00								
2617-004-002	2617-004-002				0.00								
26100-001-02	26100-001-02				0.00								
2617-001-001	2617-001-001				0.00								
2617-004-001	2617-004-001				0.00								
2619-010-000	2619-010-000				0.00								
26100-001-03	26100-001-03				0.00								
2570-203-202	2570-203-202				0.00								
2571-004-010	2571-004-010				0.00								
2619-008-000	2619-008-000				0.00								
2617-001-015	2617-001-015				0.00								
2571-004-012	2571-004-012				0.00								
2572-009-003	2572-009-003				0.00								
2571-005-011	2571-005-011				0.00								
2572-008-008	2572-008-008				0.00								
2572-008-010	2572-008-010				0.00								
2619-009-000	2619-009-000				0.00								
2617-004-005	2617-004-005				0.00								
2571-004-014	2571-004-014				0.00								
2572-009-002	2572-009-002				0.00								
2570-203-401	2570-203-401				0.00								
2570-203-103	2570-203-103				0.00								
2570-203-101	2570-203-101				0.00								
2617-005-016	2617-005-016				0.00								
2617-005-013	2617-005-013				0.00								
2617-005-011	2617-005-011				0.00								
2617-005-009	2617-005-009				0.00								
2617-005-001	2617-005-001				0.00								
2617-005-007	2617-005-007				0.00								
2617-001-007	2617-001-007				0.00								
2617-005-015	2617-005-015				0.00								

PARCEL .IE TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P.PAF
2572-009-004	2572-009-004				0.00								
2617-005-002	2617-005-002				0.00								
2573-010-007	2573-010-007				0.00								
2573-010-008	2573-010-008				0.00								
2572-006-004	2572-006-004				0.00								
2572-006-003	2572-006-003				0.00								
2572-006-002	2572-006-002				0.00								
2572-006-006	2572-006-006				0.00								
2570-303-101	2570-303-101				0.00								
					0.00								
2571-011-001	2571-011-001				0.00								
2572-005-006	2572-005-006				0.00								
2572-005-005	2572-005-005				0.00								
2572-005-004	2572-005-004				0.00								
					0.00								
2572-005-003	2572-005-003				0.00								
2571-007-003	2571-007-003				0.00								
					0.00								
2572-005-002	2572-005-002				0.00								
2572-005-001	2572-005-001				0.00								
2571-008-001	2571-008-001				0.00								
2571-009-002	2571-009-002				0.00								
2571-006-001	2571-006-001				0.00								
2570-203-102	2570-203-102				0.00								
2571-006-002	2571-006-002				0.00								
2617-004-009	2617-004-009				0.00								
2570-103-302	2570-103-302				0.00								
2617-001-010	2617-001-010				0.00								
					0.00								
2572-006-001	2572-006-001				0.00								
					0.00								
2571-011-005	2571-011-005				0.00								
2572-005-009	2572-005-009				0.00								
2571-006-005	2571-006-005				0.00								
2571-008-005	2571-008-005				0.00								
2571-008-006	2571-008-006				0.00								
2571-007-001	2571-007-001				0.00								
2572-002-002	2572-002-002				0.00								
2572-002-001	2572-002-001				0.00								
2573-019-006	2573-019-006				0.00								
2572-001-001	2572-001-001				0.00								
2573-019-014	2573-019-014				0.00								
2573-019-013	2573-019-013				0.00								
2571-006-009	2571-006-009				0.00								
2573-019-012	2573-019-012				0.00								
26101-000-00	26101-000-00				0.00								
2572-002-002	2572-002-002				0.00								
2572-002-002	2572-002-002				0.00								
2572-005-007	2572-005-007				0.00								
26107-000-00	26107-000-00				0.00								
26105-000-00	26105-000-00				0.00								
26109-000-00	26109-000-00				0.00								
2615-006-000	2615-006-000				0.00								
2615-008-000	2615-008-000				0.00								
					0.00								
2615-009-000	2615-009-000				0.00								
2571-009-010	2571-009-010				0.00								
					0.00								
2571-008-009	2571-008-009				0.00								
2571-008-010	2571-008-010				0.00								
2570-302-202	2570-302-202				0.00								
					0.00								
2617-007-001	2617-007-001				0.00								
2570-202-301	2570-202-301				0.00								
2570-202-302	2570-202-302				0.00								
2570-202-413	2570-202-413				0.00								

PARCEL THEME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P_PAR
2570-102-302	2570-102-302				0.00								
2570-202-303	2570-202-303				0.00								
2570-102-303	2570-102-303				0.00								
2570-102-301	2570-102-301				0.00								
2570-102-201	2570-102-201				0.00								
2572-002-002	2572-002-002				0.00								
2572-005-008	2572-005-008				0.00								
2571-007-011	2571-007-011				0.00								
2571-008-011	2571-008-011				0.00								
2573-019-009	2573-019-009				0.00								
2573-019-008	2573-019-008				0.00								
2617-007-004	2617-007-004				0.00								
2570-202-402	2570-202-402				0.00								
2615-010-000	2615-010-000				0.00								
2615-005-000	2615-005-000				0.00								
2572-003-001	2572-003-001				0.00								
2617-007-006	2617-007-006				0.00								
2570-202-201	2570-202-201				0.00								
2570-102-401	2570-102-401				0.00								
2573-019-010	2573-019-010				0.00								
2572-004-001	2572-004-001				0.00								
2572-004-003	2572-004-003				0.00								
2572-004-004	2572-004-004				0.00								
2572-004-005	2572-004-005				0.00								
2572-004-006	2572-004-006				0.00								
2571-016-001	2571-016-001				0.00								
2571-016-002	2571-016-002				0.00								
2571-015-001	2571-015-001				0.00								
26108-000-00	26108-000-00				0.00								
2571-014-001	2571-014-001				0.00								
2571-014-002	2571-014-002				0.00								
2571-013-001	2571-013-001				0.00								
2571-013-002	2571-013-002				0.00								
2571-012-006	2571-012-006				0.00								
2571-012-005	2571-012-005				0.00								
2615-004-000	2615-004-000				0.00								
2615-010-012	2615-010-012				0.00								
2570-302-101	2570-302-101				0.00								
2570-202-403	2570-202-403				0.00								
26109-001-00	26109-001-00				0.00								
2570-102-102	2570-102-102				0.00								
2572-004-003	2572-004-003				0.00								
2617-006-001	2617-006-001				0.00								
2571-013-003	2571-013-003				0.00								
2571-013-004	2571-013-004				0.00								
2615-003-000	2615-003-000				0.00								
2617-007-010	2617-007-010				0.00								
2571-016-005	2571-016-005				0.00								
2571-014-005	2571-014-005				0.00								
25498-000-00	25498-000-00				0.00								
2571-013-006	2571-013-006				0.00								
2571-013-005	2571-013-005				0.00								
25500-000-00	25500-000-00				0.00								
2570-302-102	2570-302-102				0.00								
2615-002-000	2615-002-000				0.00								
2572-004-009	2572-004-009				0.00								
2572-004-009	2572-004-009				0.00								
2572-004-008	2572-004-008				0.00								

PARCEL iE TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P_PAF
2572-004-007	2572-004-007				0.00								
2615-010-013	2615-010-013				0.00								
2571-013-008	2571-013-008				0.00								
25499-000-00	25499-000-00				0.00								
25503-000-00	25503-000-00				0.00								
2571-016-009	2571-016-009				0.00								
					0.00								
2570-202-101	2570-202-103				0.00								
2570-102-403	2570-102-403				0.00								
2570-102-402	2570-102-402				0.00								
2570-102-101	2570-102-101				0.00								
					0.00								
					0.00								
					0.00								
25501-000-00	25501-000-00				0.00								
2571-014-010	2571-014-010				0.00								
2571-013-009	2571-013-009				0.00								
2571-012-009	2571-012-009				0.00								
2615-001-000	2615-001-000				0.00								
2570-202-104	2570-202-104				0.00								
2571-016-011	2571-016-011				0.00								
2571-016-012	2571-016-012				0.00								
2571-014-012	2571-014-012				0.00								
2571-014-013	2571-014-013				0.00								
25497-000-00	25497-000-00				0.00								
2571-013-011	2571-013-011				0.00								
2571-012-011	2571-012-011				0.00								
2571-013-012	2571-013-012				0.00								
26111-000-00	26111-000-00				0.00								
26113-000-00	26113-000-00				0.00								
2572-004-008	2572-004-008				0.00								
26097-002-00	26097-002-00				0.00								
26127-006-00	26127-006-00				0.00								
26099-000-00	26099-000-00				0.00								
26127-000-00	26127-000-00				0.00								
26127-004-00	26127-004-00				0.00								
2571-012-013	2571-012-013				0.00								
					0.00								
2570-201-302	2570-201-302				0.00								
2570-201-301	2570-201-301				0.00								
2570-201-201	2570-201-201				0.00								
2570-101-004	2570-101-004				0.00								
2570-101-006	2570-101-006				0.00								
2570-101-009	2570-101-009				0.00								
					0.00								
26127-007-00	26127-007-00				0.00								
25788-000-00	25788-000-00				0.00								
26127-001-00	26127-001-00				0.00								
2571-021-002	2571-021-002				0.00								
26127-005-00	26127-005-00				0.00								
2571-021-001	2571-021-001				0.00								
2571-019-001	2571-019-001				0.00								
2571-019-011	2571-019-011				0.00								
2571-019-010	2571-019-010				0.00								
2571-020-002	2571-020-002				0.00								
2571-020-001	2571-020-001				0.00								
2571-018-001	2571-018-001				0.00								
2571-018-002	2571-018-002				0.00								
					0.00								
2571-017-002	2571-017-002				0.00								
26104-000-00	26104-000-00				0.00								
26110-000-00	26110-000-00				0.00								
26112-000-00	26112-000-00				0.00								
2572-000-001	2572-000-001				0.00								
2572-001-000	2572-001-000				0.00								

PARCEL THEME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P_PAR
2572-000-002	2572-000-002				0.00								
2570-301-202	2570-301-202				0.00								
					0.00								
					0.00								
26127-002-00	26127-002-00				0.00								
2571-017-004	2571-017-004				0.00								
2570-101-011	2570-101-011				0.00								
2570-101-013	2570-101-013				0.00								
2570-101-014	2570-101-014				0.00								
2570-101-016	2570-101-016				0.00								
28392-000-00	28392-000-00				0.00								
26127-008-00	26127-008-00				0.00								
2571-018-006	2571-018-006				0.00								
2571-017-006	2571-017-006				0.00								
2571-017-005	2571-017-005				0.00								
26127-003-00	26127-003-00				0.00								
2826-049-001	2826-049-001				0.00								
2571-019-002	2571-019-002				0.00								
2571-019-009	2571-019-009				0.00								
26097-001-00	26097-001-00				0.00								
26098-001-00	26098-001-00				0.00								
	2866-010-000	Martha Mortgage Corp.	400 Block NW 1st Avenue	$89,920	0.14	B-3B	1970	415 NW 1st Avenue		Office - Profe 1		Standard	8
2571-020-005	2571-020-005				0.00								
2571-018-008	2571-018-008				0.00								
2571-017-008	2571-017-008				0.00								
2570-301-101	2570-301-101				0.00								
					0.00								
2570-201-401	2570-201-401				0.00								
2570-201-403	2570-201-403				0.00								
2570-201-404	2570-201-404				0.00								
2570-201-101	2570-201-101				0.00								
2570-201-102	2570-201-102				0.00								
					0.00								
2826-050-001	2826-050-001				0.00								
2571-019-008	2571-019-008				0.00								
					0.00								
25787-001-00	25787-001-00				0.00								
25787-000-00	25787-000-00				0.00								
2571-017-010	2571-017-010				0.00								
2571-017-009	2571-017-009				0.00								
2572-003-000	2572-003-000				0.00								
2571-019-004	2571-019-004				0.00								
2571-019-007	2571-019-007				0.00								
2571-019-006	2571-019-006				0.00								
2826-050-002	2826-050-002				0.00								
					0.00								
2826-048-001	2826-048-001				0.00								
2571-020-004	2571-020-004				0.00								
2571-018-012	2571-018-012				0.00								
2571-017-012	2571-017-012				0.00								
2570-101-028	2570-101-028				0.00								
2570-101-024	2570-101-024				0.00								
					0.00								
2826-048-002	2826-048-002				0.00								
28395-001-00	28395-001-00				0.00								
2571-018-014	2571-018-014				0.00								
2826-047-001	2826-047-001				0.00								
2571-017-014	2571-017-014				0.00								
					0.00								
26097-000-00	26097-000-00				0.00								
2826-047-002	2826-047-002				0.00								
	2866-011-000	Salvation Army	320 NW 1st Avenue - Wino Parl	$39,964	1.03	B-3B		100 Block NW 4th Street	Salvation Army Cer	Service/Salv: 2		Standard	N
					0.00								
					0.00								

PARCEL ME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P_PAR
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
2831-039-000	2831-039-000				0.00								
2831-040-000	2831-040-000				0.00								
2831-041-000	2831-041-000				0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
2826-046-000	2826-046-000				0.00								
2826-045-001	2826-045-001				0.00								
2826-045-002	2826-045-002				0.00								
2826-062-000	2826-062-000				0.00								
2831-038-000	2831-038-000				0.00								
					0.00								
	2867-001-000				0.00								
	2866-017-000				0.00								
					0.00								
28393-000-00	28218-002-00				0.00								
					0.00								
	2866-010-001				0.00								
					0.00								
2826-043-000	2826-043-000				0.00								
2826-044-001	2826-044-001				0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
2826-044-002	2826-044-002				0.00								
					0.00								
					0.00								
28218-002-00	28218-002-00				0.00								
2831-070-000	2831-070-000				0.00								
2831-068-000	2831-068-000				0.00								
2831-067-000	2831-067-000				0.00								
					0.00								
					0.00								
					0.00								
					0.00								
2826-042-000	2826-042-000				0.00								
2826-041-001	2826-041-001				0.00								
2826-060-001	2826-060-001				0.00								
					0.00								
	2866-012-001				0.00								
28235-000-00	28235-000-00	Seaboard		$54,544	0.33	B-3B	1927	533 NE 1st Avenue	Southern Blade & S	Service/Reta 1	Standard		5
	2866-012-000				0.00								
					0.00								
28218-007-00	28218-007-00				0.00								
					0.00								
					0.00								

PARCEL THEME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P.PAF
					0.00								
2826-041-002	2826-041-002				0.00								
2826-059-000	2826-059-000				0.00								
2826-039-000	2826-039-000				0.00								
					0.00								
28235-002-00	28235-002-00	Seaboard		$19,473	0.00	B-3B	1918	529 NE 1st Avenue	Good Times Printin Service/Reta	1		Slightly Deteno	9
					0.00								
					0.00								
					0.00								
2826-040-001	2826-040-001				0.00								
28222-000-00	28222-000-00	Veterans of Foreign Wars	543 NE Sanchez Avenue		0.00	G-U	1920	516 NE SAN AV.	VFW Convention C American Le	0		Standard	
2826-040-002	2826-040-002				0.00								
					0.00								
2826-021-001	2826-021-001				0.00								
2826-021-002	2826-021-002				0.00								
2826-022-000	2826-022-000				0.0								
					0.00								
2831-072-000	2831-072-000				0.00								
2831-074-000	2831-074-000				0.00								
2831-075-000	2831-075-000				0.00								
					0.00								
					0.00								
					0.00								
					0.00								
28235-003-00	28235-003-00				0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
2826-020-001	2826-020-001				0.00								
2826-035-000	2826-035-000				0.00								
					0.00								
					0.00								
2826-019-000	2826-019-000				0.00								
28216-005-00	28216-005-00				0.00								
					0.00								
28216-001-00	28216-001-00				0.00								
					0.00								
2826-057-000	2826-057-000				0.00								
28235-004-00	28235-004-00	Ocala Manufacturing Co.	500 Block NE 1st Avenue	$42,035	0.35	B-3B		507 NE 1st Avenue		Vacant Grass Lot		Grass	10
28235-005-00	28235-005-00	Ocala Manufacturing Co.	500 Block NE 1st Avenue	$45,148	0.27	B-3B	1928	125 NE 5th Street		Industrial	2	Deteriorated	3
					0.00								
					0.00								
	2866-012-000				0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
2831-105-000	2831-105-000				0.00								
	2866-015-000				0.00								

PARCE. ME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P PAF
2831-103-000	2831-103-000				0.00								
					0.00								
2831-102-000	2831-102-000				0.00								
					0.00								
2831-101-000	2831-101-000				0.00								
					0.00								
2826-017-001	2826-017-001				0.00								
28216-004-00	28216-004-00				0.00								
					0.00								
2826-017-002	2826-017-002				0.00								
	2866-008-001				0.00								
2826-056-000	2826-056-000				0.00								
					0.00								
2826-018-002	2826-018-002				0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
28237-002-00	28237-002-00				0.00								
28237-005-00	28237-005-00	Markovich, Inc.	431 NE 1st Avenue	$98,695	0.46	B-3A	1952	431 NE 1st Avenue	Markovich, Inc.	Service/Reta	1	Standard	
28235-006-00	28235-006-00	James Kirk, Jr.	416 NE Osceola Avenue	$52,519	0.45	B-3A	1911	416 NW 2nd Avenue		Residential/C	1	Standard	N
28243-000-00	28243-000-00	Branch Properties, Inc.	335 NE Watula	$84,452	0.92	B-3C	1900	200 Block NE 5th Street		Industrial	1	Dilapidated	5
28245-000-00	28245-000-00	Branch Properties, Inc.	335 NE Watula	$1,043,189	0.00	B-3C	1928-1984	333 NE Watula Avenue	Seminole Feed	Industrial	1	Slightly Deterio	50
28220-000-00	28220-000-00	City of Ocala	PO Box 1270	$96,750	4.13	G-U	0	NE 3rd Street and 4th Avenue		Park - Public	0	Grass	N
2826-015-001	2826-015-001				0.00								
2826-034-000	2826-034-000				0.00								
2826-016-001	2826-016-001				0.00								
					0.00								
2826-033-000	2826-033-000				0.00								
					0.00								
2826-015-002	2826-015-002				0.00								
	2865-009-003				0.00								
	2866-008-002				0.00								
	2866-008-005				0.00								
					0.00								
2832-001-000	2832-001-000				0.00								
2832-002-000	2832-002-000				0.00								
2832-003-000	2832-003-000				0.00								
2826-013-001	2826-013-002				0.00								
2826-016-003	2826-016-003				0.00								
					0.00								
	2866-008-003				0.00								
	2866-008-006				0.00								
	2866-008-004				0.00								
					0.00								
					0.00								
	2865-014-001				0.00								
	2865-014-002				0.00								
	2865-015-000				0.00								
					0.00								
2826-031-001	2826-031-001				0.00								
					0.00								
					0.00								
					0.00								
2826-013-004	2826-013-004				0.00								
2826-031-002	2826-031-002				0.00								
2826-014-001	2826-014-001				0.00								
					0.00								

PARCEL THEME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P_PAR
					0.00								
					0.00								
2826-032-001	2826-032-001				0.00								
2826-032-002	2826-032-002				0.00								
2826-055-001	2826-055-001				0.00								
2826-055-002	2826-055-002				0.00								
					0.00								
28234-010-00	28234-010-00	James Kirk, Jr.	343 NE 1st Avenue	$765,571	2.64		1920	343 NE 1st Avenue	WMOP Country Ra	Service/Reta	1	Standard	50
2826-013-003	2826-013-003				0.00								
	2865-014-002				0.00								
					0.00								
	2860-007-002	Duggan, Joiner, Birkenmeyer, S	400 Block NW 4th Avenue	$24,944	0.61	B-3B		400 Block NW 4th Avenue		Vacant Grass	0	Grass/Trees	
	2860-007-000	Don Ritter & V. Milbrath	NW 5th Street & 3rd Avenue	$8,736	0.14	B-3B		NW 5th Street and 3rd Avenue		Vacant Grass	0	Grass/Trees	
					0.00								
					0.00								
	2860-014-002	Harvey Klein	421 NW 3rd Avenue	$25,436	0.29	B-3B	1948	421 NW 3rd Avenue		Grass Lot	1	Grass/Trees	N
					0.00								
					0.00								
					0.00								
	2860-014-001	W.H. McDonald III	NW 2nd Avenue & 5th Street	$17,472	0.29	B-3B		426 NW 2nd Avenue	McDonald, Baker, I	Office - Profe	2	Standard	10
					0.00								
					0.00								
					0.00								
					0.00								
	2860-007-001	George & S.A. Ritter	400 Block NW 3rd Avenue	$16,157	0.17	B-3B	1905	418 NW 3rd Avenue		Residential	1	Dilapidated	N
					0.00								
					0.00								
					0.00								
					0.00								
28234-008-00	28234-008-00				0.00								
2826-012-000	2826-012-000				0.00								
2826-027-000	2826-030-000				0.00								
					0.00								
2826-011-000	2826-011-000				0.00								
2832-033-000	2832-033-000				0.00								
					0.00								
2826-029-001	2826-029-001				0.00								
2826-029-002	2826-029-002				0.00								
2832-032-000	2832-032-000				0.00								
2826-029-003	2826-029-003				0.00								
2826-029-004	2826-029-004				0.00								
					0.00								
2826-053-000	2826-053-000				0.00								
2832-031-000	2832-031-000				0.00								
2832-030-000	2832-030-000				0.00								
2826-054-002	2826-054-002				0.00								
	2854-040-000	Salvation Army	320 NW 1st Avenue		1.02	B-3B	1963	320 NW 1st Avenue	S.A. Education Bld	Office & Cha	1	Standard	23
28249-000-00	28249-000-00	Gregory Branch		$215,275	0.15	B-3C	1979	335 NE 4th Avenue	Seminole Stores, Ir	Office	1	Slightly Deterio	20
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
	2860-014-003	Haas, Boeham, Brown, Rigdon &	405 NW 30th Avenue	$128,215	0.29	B-3B	1976	401 NW 3rd Avenue		Office - Profe	2	Standard	8
	2860-007-004	John Walkup, Jr.	NW 4th Street & 3rd Avenue	$15,600	0.26	B-3B		NW 4th Street and 3rd Avenue		Vacant Grass	0	Grass/Trees	
	2860-014-004	Haas, Boeham, Brown Rigdon &	NW 2nd Avenue & 4th Street	$17,472	0.29	B-3B		212 NW 4th Street		Grass Lot	0	Grass/Trees	N
2826-009-001	2826-009-001				0.00								
					0.00								
28239-002-00	28239-002-00	Henry & Jack Costello	331 N Magnolia Avenue	$47,766	0.21	B-3A	1912	345 N Magnolia Avenue	Southern Glass and	Service/Reta	2	Deteriorated	
					0.00								
					0.00								
					0.00								
2826-028-001	2826-028-001				0.00								
2826-010-002	2826-010-002				0.00								
					0.00								

PARCEL ..ME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P	PAF
					0.00									
					0.00									
					0.00									
					0.00									
2826-026-000	2826-026-000				0.00									
					0.00									
2826-028-002	2826-028-002				0.00									
2826-052-000	2826-052-000				0.00									
28247-000-00	28247-000-00	Henry & Jack Costello	331 N Magnolia Avenue	$51,539	0.16	B-3A	1938	343 NW Magnolia Avenue	Southern Glass and	Service/Reta	1	Deteriorated		
					0.00									
					0.00									
					0.00									
					0.00									
2826-007-001	2826-007-001				0.00									
					0.00									
2826-025-000	2826-025-000				0.00									
					0.00									
28234-006-00	28234-006-00	Manning Building Supply	328 NE 1st Avenue	$206,904	0.44	B3A	1912	328 NE 1st Avenue	Manning Millwork a	Service/Reta	1	Standard		N
					0.00									
	2860-006-001	G.S. Krehl & Charles Forman	320 NW 3rd Avenue	$408,754	0.72	B-3B	1976	320 NW 3rd Avenue	Piccin, Thompson,	Office - Profe	1	Standard		34
2826-008-003	2826-008-003				0.00									
	2860-015-002	Harvey & Randolph Klein	NW 4th Street & 3rd Avenue	$11,232	0.19	B-3B	1977	300 Block NW 3rd Avenue		Parking Lot -	1	Paved Parking Lot		
	2860-015-001	Smith	212 NW 4th Street		0.29	B-3B		212 NW 4th st. & 350 NW 2nd Avenue		Vacant Gras	1	Grass/Trees		N
					0.00									
					0.00									
2826-023-000	2826-023-000				0.00									
					0.00									
					0.00									
2832-035-000	2832-035-000				0.00									
2832-036-000	2832-036-000				0.00									
2832-037-000	2832-037-000				0.00									
2832-038-000	2832-038-000				0.00									
2826-051-000	2826-051-000				0.00									
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
	2860-015-003	Harvey & Randolph Klein	333 NW 3rd Avenue	$96,254	0.23	B-3B	1977	333 NW 3rd Avenue	Harvey Klein, H. Ra	Office - Profe	1	Standard		
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
2826-005-003	2826-005-003				0.00									
					0.00									
	2860-006-002	Duggan, Joiner, Birkenmeyer, S	334 NW 3rd Avenue	$227,137	0.45	B-3B	1963	334 NW 3rd Avenue	Duggan, Joiner, Bir	Office - Profe	1	Stan		
	2860-015-005	Michael & Patricia Cooper	300 Block NW 2nd Avenue	$13,884	0.00	B-3B				Vacan Grass	0			
					0.00									
2826-006-001	2826-006-001				0.00									
					0.00									
2826-006-002	2826-006-002				0.00									

PARCEL THEME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P_PAF
2826-006-003	2826-006-003				0.00								
					0.00								
2826-024-001	2826-024-001				0.00								
					0.00								
					0.00								
	2860-015-004	Michael & Patricia Cooper	321 NW 3rd Avenue	$51,397	0.10	B-3B	1970	321 NW 3rd Avenue	Michael J. Cooper I	Office - Profe	1	Standard	4
					0.00								
2823-061-003	2823-061-003	Herbert Sawaya	21 NE 3rd Street	$55,073	0.38	B-3A	1942	100 Block NE 3rd St. & 303 NE	Autrey's Auto Sales	Service/Reta	1	Standard/Dilaip	20
	2854-021-002	Henry & Stacy Giedzinski	2 Block NW 3rd Street	$12,600	0.19	B-3B		2 Block NW 3rd Street		Grass Lot	0	Grass/Trees	
	2854-021-001	Henry & Stacy Giedzinski	211 NW 3rd Street	$60,038	0.57	B-3B	1920	211 NW 3rd Street	H.B. Giedzinski, Pu	Office - Profe	1	Standard	
	2854-040-002	Fred Krim & Gary Simons	121 NW 3rd Street	$223,335	0.37	B-3B	1973	121 NW 3rd Street	Law Offices of Sav	Office - Profe	1	Standard	6
					0.00								
					0.00								
	2854-040-001	Fred Krim & Gray Simons	300 Block NW 1st Avenue	$17,550	0.19	B-3B		300 Block NW 1st Avenue		Parking Lot -	0	Paved Parking	23
	2854-041-000	Agnes Spontak	100 Block NW 3rd Street	$120,235	0.77		1921	304 NW Magnolia Avenue	Toffaletti Hardware	Service/Reta	2/2	Standard (2 blo	N
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
2820-050-001	2820-050-001				0.00								
2820-050-004	2820-050-004				0.00								
2820-049-001	2820-049-001				0.00								
2820-049-012	2820-049-012				0.00								
28241-001-00	28241-001-00				0.00								
	2854-020-002	Donald & C.J. Denson / Eric & F	300 Block NW 3rd Street	$18,375	0.22	B-3B		302 NW 3rd Avenue		Parking Lot &	0	Paved Parking Lot &	
	2854-020-001	Danson, Inc.	307 NW 3rd Street	$165,481	0.27	B-3B	1970	307 NW 3rd Street	Owen & Assoc. Co	Office - Profe	1	Standard	13
					0.00								
					0.00								
2820-045-008	2820-045-008				0.00								
					0.00								
2820-044-010	2820-044-010				0.00								
2820-044-110	2820-044-110				0.00								
2820-044-011	2820-044-011				0.00								
2820-044-012	2820-044-012				0.00								
2820-044-013	2820-044-013				0.00								
					0.00								
28341-001-00	28341-001-00				0.00								
2820-050-006	2820-050-006				0.00								
2820-050-005	2820-050-005				0.00								
2823-060-003	2823-060-003	Herbert Sawaya	305 N Magnolia	$28,519	0.16	B-3A	1953	304 N Magnolia Avenue	Sawaya Automotive	Service/Reta	1	Deteriorated/Dilapid	
					0.00								
	2854-040-004	Ben Daniel, Jr.	101 NW 3rd Street	$79,423	0.00	B-3B	1974	101 NW 3rd Street	Ben Daniel, Jr., Bill	Office - Profe	1	Standard	N
2820-049-002	2820-049-002				0.00								
					0.00								
2820-049-011	2820-049-011				0.00								
					0.00								
2820-049-003	2820-049-003				0.00								
2820-049-010	2820-049-010				0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
2820-049-004	2820-049-004				0.00								
	2854-019-001	Marion County	204 NW 3rd Avenue	$613,870	0.54	B-3B	1966	204 NW 3 Avenue	Office of the Public	Office - Profe	3	Standard	37
2823-079-001	2823-079-001	Unifirst Corp.	NE 2nd Avenue & 2nd Street	$658,556	1.37	B-3C	1947-1965	209 NE 2nd Street	Unifirst	Commercial	1	Standard/Slight	30
2823-059-001	2823-059-001	Herbert Sawaya	213 &219 N Magnolia Avenue	$103,252	0.31	B-3	1953	213 &219 NE Magnolia Avenue	Bay's One Hour Cle	Service/Reta	1	Standard	6
2820-050-007	2820-050-007				0.00								
2823-059-003	2823-059-003	Florida Title & Abstract Co.	216 NE 1st Avenue	$231,804	0.34	B-3	1950	216 NE 1 Avenue	Florida Title and Ab	Office - Profe	1	Standard	7
	2854-022-000	U.S. Govt. General Services Ad	200 Block NW 2nd Avenue	$80,752	1.15	G-U	1962	207 NW 2 Street	Golden & Collum M	Public - Fede	4	Sta	
2823-062-001	2823-062-001	William Ayres Et Al		$26,208	0.14	B-3	0	200 NE 1st Avenue		Parking Lot -	0	Paved Parking	21
	2854-039-000	United States Government	100 Block NW 2nd & 3rd Street	$80,752	1.15	G-U	0	1[illegible] NW 2nd & 3rd Street		Parking Lot	0	Paved Parking	160
2823-062-002	2823-062-002	Herbert Sawaya		$10,920	0.14	B-3	0	100 Block NE 3rd Street		Vacant Grass	0	Grass	15
	2854-042-000	Marion County Board of County	0-100 Block NW 2nd & 3rd Stre	0	1.15	G-U	1920	220 NE Magnolia Avenue		Parking Lot &	2	Slightly Deterio	80

PARCEL .IE TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P PAF
2820-050-003	2820-050-003				0.00							
					0.00							
2820-049-005	2820-049-005				0.00							
2820-049-009	2820-049-009				0.00							
					0.00							
2820-045-001	2820-045-001				0.00							
2820-045-005	2820-045-005				0.00							
2820-045-006	2820-045-006				0.00							
2820-045-007	2820-045-007				0.00							
2820-044-007	2820-044-007				0.00							
2823-062-004	2823-062-004	Moses Brothers			0.00							
2820-050-008	2820-050-008			0	0.73 B-3	0	209 NE 1st Avenue	Classic II Body Sho Service/Reta 1			Sl. Det./Standa 11	
2820-044-005	2820-044-005				0.00							
2820-044-004	2820-044-004				0.00							
2820-044-003	2820-044-003				0.00							
2820-044-002	2820-044-002				0.00							
2820-044-001	2820-044-001				0.00							
					0.00							
28341-001-00	28341-001-00				0.00							
					0.00							
					0.00							
					0.00							
2823-059-002	2823-059-002	Day By Day, Inc.	205 N Magnolia Avenue	$250,646	0.31 B-3	1953	201 & 205 N Magnolia Avenue	Ferguson Printing, . Service/Reta 1			Standard	6
2820-045-003	2820-045-002				0.00							
2820-050-002	2820-050-002				0.00							
2823-059-004	2823-059-004	Florida Title & Abstract Co.	216 NE 1st Avenue	$48,708	0.27 B-3	0	200 NE 1st Avenue	Parking Lot - 0			Paved Parking	31
2820-050-009	2820-050-009				0.00							
					0.00							
2820-049-006	2820-049-006				0.00							
2820-049-007	2820-049-007				0.00							
					0.00							
2820-049-008	2820-049-008				0.00							
2820-049-013	2820-049-013				0.00							
2820-045-004	2820-045-004				0.00							
					0.00							
					0.00							
					0.00							
					0.00							
					0.00							
					0.00							
					0.00							
					0.00							
					0.00							
					0.00							
					0.00							
					0.00							
					0.00							
					0.00							
2823-058-000	2823-058-000	City of Ocala	PO Box 1270	$138,432	1.15 G-U	0	100 Block NE 1st Avenue	Parking Lot - 0				Y
2823-063-000	2823-063-000	Young Simmons & Steven Gray	125 NE 1st Avenue	$773,016	0.66 B-3	1917	125 NE 1 Avenue	Al Cone PA; Green Office - Profe 1			Standar	
	2854-023-000	Marion County Board of County	110 NW 1st Avenue	$1,154,464	1.83 G-U	1962	19 NW Pine Avenue	Marion County Judi Public Buildir 4			Standard	Par
2823-078-001	2823-078-001	Sun Bank	210 NE 2nd Street	$25,935	0.24 B-3	0	100 Block NE 2nd Avenue	Sun Bank - Parking Parking Lot - 0			Paved Parking	47
					0.00							
	2854-043-000				0.00							
					0.00							
2820-046-005	2820-046-005				0.00							
2820-046-004	2820-046-004				0.00							
2820-046-003	2820-046-003				0.00							
2824-003-002	2824-003-002				0.00							
2820-046-006	2820-046-006				0.00							
2820-043-001	2820-043-001				0.00							
2820-046-002	2820-046-002				0.00							
2820-043-003	2820-043-003				0.00							
2820-046-001	2820-046-001				0.00							

PARCEL THEME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P_PAR
2824-003-001	2824-003-001				0.00								
2820-043-004	2820-043-004				0.00								
2820-048-001	2820-048-001				0.00								
2820-043-005	2820-043-005				0.00								
2824-000-003	2824-000-003				0.00								
2820-048-010	2820-048-010				0.00								
2824-000-001	2824-000-001				0.00								
2820-043-006	2820-043-006				0.00								
28362-052-01	28362-052-01				0.00								
28311-016-00	28311-016-00				0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
2824-000-002	2824-000-002				0.00								
2820-048-007	2820-048-007				0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
28232-001-00	28232-001-00	Norris Building Condominium	101 NE 1st Avenue	$99,359	0.00	B-3	0	NE 1st Street & NE 1st Avenue	Berryhill, Hoffman C	Office	1	Standard	Y
					0.00								
2824-002-000	2824-002-000				0.00								
2820-042-002	2820-042-002				0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
2820-048-002	2820-048-002				0.00								
					0.00								
					0.00								
2824-001-000	2824-001-000				0.00								
28311-001-00	28311-001-00				0.00								
					0.00								
					0.00								
2824-000-004	2824-000-004				0.00								
2820-048-003	2820-048-003				0.00								
					0.00								
					0.00								
					0.00								
					0.00								
2820-042-008	2820-042-008				0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								

PARCEL E TABLE

EXE_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P PAF
					0.00								
2820-042-006	2820-042-006				0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
	2854-024-001	Frances Selph	217 West Silver Springs Blvd.	$58,500	0.42	G-U	0	200 Block NW 1st Street		Parking Lot -	0	Open lot with some	
	2854-037-000	First Union	109 West Silver Springs Blvd.	$1,253,478	0.00	B-3	1986	109 W Silver Springs Blvd.	First Union Bank	Office - Finar	2	Standard	Y 30
2823-057-001	2823-057-001	Frank & Marcia Murphy	21 North Magnolia Avenue	$260,047	0.11	B-3	1906	21 NE Magnolia Avenue	Mathies, Cross, det	Commercial	2	Standard	Y
	2854-044-000	Southtrust			0.00			Silver Springs & SW 1st Avenue		Parking Lot	0	Paved Parking	200
2823-057-004	2823-057-004	City of Ocala	PO Box 1270	$11,898	0.10	B-3	0	N Magnolia Avenue		Office & Cou	0		Y
2823-057-007	2823-057-007	Frank & Marcia Murphy	10 NE 1st Street	$99,325	0.04	B-3	1917	8 NE 1st Street	Ocalahan's Eatery	Service/Reta	2	Standard	Y
2823-057-008	2823-057-008	Frank & Marcia Murphy	NE 1st Avenue & 1st Street	$286,415	0.28	B-3	1938	12,14,16, 18, &20 NE 1st Avenu	1Bad-Kut HairSalor	Retail/Service a			
2823-064-001	2823-064-001	Gary Bennett	27 NE 1st Avenue	$143,917	0.14	B-3	1917	29 NE 1 Avenue	Downtown Pawn ar	Service/Reta	2	Standard	Y 5
2823-064-007	2823-064-007	California Federal Bank	117 East Silver Springs Blvd.	$268,117	0.64	B-3	1927	117 & 125 E Silver Springs Blvd	California Federal A	Office - Professiona/Financ			
					0.00								
2820-047-003	2820-047-003				0.00								
2823-077-001	2823-077-001	Sun Bank	211 East Silver Springs Blvd.	0	0.80	B-3	0	203 E Silver Springs Blvd.	Sun Bank of Ocala,	Office - Finar	0	Standard	40
2823-077-002	2823-077-002	Sun Bank of Ocala	211 East Silver Springs Blvd.	$17,640	0.14	B-3	0	200 Block NE 1st Street		Parking Lot -	0	Paved Parking Lot	
2823-077-008	2823-077-008				0.00								
2824-000-005	2824-000-005				0.00								
2823-077-006	2823-077-006				0.00								
					0.00								
28362-053-01	28362-053-01				0.00								
2823-057-002	2823-057-002	Frank & Marcia Murphy	21 North Magnolia Avenue	$23,664	0.11	B-3	0	N Magnolia Avenue	Mathies, Cross, etc	Open Space	0		Y
	2854-021-002	Henry & Stacy Giedzinski	2 Block NW 3rd Street	$12,600	0.00								
2824-001-001	2824-001-001				0.19	B-3B		2 Block NW 3rd Street		Grass Lot	0	Grass/Trees	
					0.00								
					0.00								
	2854-017-001	J.B. Walkup, Jr.	18 NW 3rd Avenue	$93,956	0.15	B-3	1970	18 NW 3 Avenue	J.B. Walkup Jr. & D	Office - Profe	1	Standard	6
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
2823-064-002	2823-064-002	Landis Curry, Jr.	21 NE 1st Avenue	$290,536	0.14	B-3	1911	21 NE 1 Avenue	Ayres, Cluster, Curr	Office - Profe	2	Standard	Y N
2824-000-006	2824-000-006				0.00								
2820-048-006	2820-048-006				0.00								
2823-077-007	2823-077-007				0.00								
					0.00								
2820-048-004	2820-048-004				0.00								
2823-077-003	2823-077-003	Sun Bank of Ocala	211 East Silver Springs Blvd.	$763,887	0.28	B-3	1944	203 E Silver Springs Blvd.	Sun Bank	Office - Finar	2	Standard	
					0.00								
					0.00								
					0.00								
2823-057-003	2823-057-003	Frank & Marcia Murphy	11 North Magnolia Avenue	$181,458	0.06	B-3	1933	11 N Magnolia Avenue	FAI Investigations,F	Office - Professiona			
2823-057-009	2823-057-009	California Federal Bank	11 East Silver Springs Blvd.	$89,454	0.09	B-3	1963	11 E Silver Springs Blvd.		Office - Profe	2	Standard	Y
2823-064-003	2823-064-003	Brents Bullock, Inc.	19 NE 1st Avenue	$88,845	0.07	B-3	1942	19 NE 1 Avenue		Service/Reta	2	Standard	Y N
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								

PARCEL THEME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P	PAF
2823-064-005	2823-064-005	James Smith, Jr.	9-11 NE 1st Avenue	$76,934	0.06	B-3	1907	9, 10, 11, & 13 NE 1st Avenue	G Sheppard W Doz	Office - Profe	2	Standard	Y	N
2823-064-004	2823-064-004			0	0.00	B-3	0	In the Alley between SS & NE 1:	ADT Security Syste	Office - Profe	1	Slightly Deter	Y	1
2823-057-005	2823-057-005	Eastpoint Development, Inc.	0001 East Silver Springs Blvd.	$215,058	0.08	B-3	1911	Silver Springs & N. Magnolia		Office	2	Slightly Deter	Y	
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
2823-057-006	2823-057-006	Frank & Marcia Murphy	007 East Silver Springs	929,166	0.14	B-3	1917	7 E Silver Springs Blvd.	The Concord Buildi	Office	5	Standard	Y	
					0.00									
2823-064-006	2823-064-006	Bernadette Castro	1 NE 1st Avenue	$703,297	0.15	B-3	1913	1 NE 1st Avenue	One Professional C	Office- Profe	4	Standard	Y	N
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
	2854-016-002	Frances & Annette King	PO Box 296	$78,498	0.25	B-3	1941	13 SW Pine Avenue	Auto Headliners Si	Service/Reta	1	Standard		10
	2854-016-001	Frances & Annette King	PO Box 296	$41,440	0.25	B-3	1958	308 W Silver Springs Blvd.	Jodie's Restaurant	Service/Reta	1	Standard		10
	2854-025-002	Clifford & L.C. Allen	200 Block East Silver Springs Bl	$25,740	0.15	B-3	0	200 Block E Silver Springs Blvd.		Parking Lot	0	Paved Parking		11
	2854-025-001	James Jr. & D.R. Smith	11 NE 1st Avenue	$176,342	0.42	B-3	1956	210 & 214 W Silver Springs Blvd	Marion Tire & Batte	Service/Reta	1	Standard		5
	2854-036-002	First Union National Bank of Flo	100 Block East Silver Springs Bl	$36,982	0.22	B-3	0	128 SW Broadway		Parking Lot -	0	Paved Parking		20
	2854-036-000	Walter Porter	14 SW 1st Avenue	$112,283	0.27	B-3	1946	12 & 14 SW 1 Avenue	Boulevard Diamonc	Service/Reta	1	Standard	Y	
					0.00									
					0.00									
	2854-036-001	Walter Porter	14 SW 1st Avenue		0.00	B-3	0	SW 1st Avenue & Silver Springs	Walt's Pawn & Gun	Service/Reta	1	Standard	Y	10
2820-000-021	2820-000-021				0.00									
					0.00									
2823-071-000	2823-071-000	City of Ocala	PO Box 1270	$679,066	2.47	G-U		Multiple Addresses - City Government of Ocala		City Building	0	Standard		15
					0.00									
28364-010-00	28364-010-00				0.00									
					0.00									
2820-000-022	2820-000-022				0.00									
					0.00									
28364-003-00	28364-003-00				0.00									
2820-000-024	2820-000-024				0.00									
28364-004-00	28364-004-00				0.00									
28363-003-01	28363-003-01				0.00									
					0.00									
					0.00									
28363-002-03	28363-002-03				0.00									
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
					0.00									
	2854-045-001	Thomas Alderman	10 S Magnolia	$177,177	0.14	B-3	1920	10, & 4 S Magnolia Avenue		Service/Reta	2	Slightly Deter	Y	
	2854-045-003	Richard & Nancy Bierema	24 SW Silver Springs Blvd.	$75,562	0.06	B-3	1930	11 SW 1st Avenue	Pip Printing	Service/Reta	1	Standard	Y	
28383-006-00	28383-006-00				0.00									
	2854-045-002	Doug Cone	0-100 Block East Silver Springs	$71,241	0.11	B-3	1930	20 W Silver Springs Blvd.		Service/Reta	1	Slightly Deter	Y	4
					0.00									
28383-002-00	28383-002-00				0.00									

PARCEL E TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P_PAR
2823-065-000	2823-065-000	City of Ocala	PO Box 1270	$138,432	1.15	B-3	0	110 NE Silver Springs Blvd.	Chamber of Comm	Office	2	Standard	Y 20
					0.00								
2823-056-000	2823-056-000	City of Ocala	PO Box 1270	138432	1.15	G-U	0	SE 1 Avenue & SE Broadway		Open Space	0	Grass/Trees/Gazeb	
	2854-045-008	Barnett Bank	35 SE 1st Avenue	$150,647	0.08	B-3	1942	14, &16 S Magnolia Avenue	Downtown Booksh	Service/Reta	2	Standard	Y
					0.00								
	2854-045-007	Joyce Ballantyne Brand	18 S Magnolia Avenue	$116,755	0.30	B-3	1920	18 S Magnolia Avenue	Withlacoochee Are	Office - Profe	3	Slightly Deter	Y
					0.00								
					0.00								
					0.00								
	2854-045-010				0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
					0.00								
	2854-036-003	First Union	100 Block SW 2nd Avenue	$31,302	0.17	B-3	0	100 Block SW 2nd Avenue		Parking Lot -	0	Paved Parking	25
					0.00								
	2854-045-009	Gene Miller	3408 SE 36th Avenue	$71,1333	0.06	B-3	1953	17, 19, 21 SW 1st Avenue	Mr. B's Shoe Repai	Service/Reta	1	Deteriorated	Y
	2854-036-004	James Taylor Et Al	100 Block SW 1st Street	$59,778	0.44	B-3	0	100 Block SW 1st Street		Parking - Me	0	Paved Parkir	P 30+
					0.00								
	2854-016-003	Frances & Annette King	PO Box 296	$119,873	0.31	B-3	1954	307 &317 SW Broadway Street	Bob's Broadway Tir	Service/Reta	1	Standard	25
	2854-025-003	Charlie Jr. & Betty Wright	223 SW 1st Street	$76,964	0.06	B-3	1921	SW 3rd Avenue & West Broadw	Miss Pearl's Restau	Service/Reta	1	Standard	
	2854-025-004	Bearneatha Hopkins	219 SW Broadway	0	0.06	B-3	1936	219 SW Broadway Street	Broadway Cafe	Service/Reta	1	Deteriorated	
	2854-016-004				0.00								
	2854-025-005	Dorsey & Marva Mansfield	200 Block SW 1st Street	$9,477	0.07		0	200 Block SW 1st Street		Vacant Grass	0	Grass Lot	
	2854-025-006	Dorsey & Marva Mansfield	200 Block SW 1st Street	$9,477	0.07	B-3	0	200 Block SW 1st Street		Vacant Grass	0	Grass Lot	7
	2854-025-007	Dorsey & Marva Mansfield	200 Block SW 1st Street	$8,775	0.06	B-3	0	200 Block SW 1st Street		Vacant Grass	0	Grass Lot	7
	2854-025-008				0.00								
	2854-025-009	Dorsey and Marva Mansfield	201 SW Broadway	$58,243	0.12	B-3	1962	200 Block SW 1st Street	Formerly BF Goodr	Industrial	1	Deteriorated	
2820-000-025	2820-000-025				0.00								
2820-000-026	2820-000-026				0.00								
2820-000-025	2820-000-025				0.00								
					0.00								
28363-002-04	28363-002-04				0.00								
28364-009-00	28364-009-00				0.00								
28364-008-00	28364-008-00				0.00								
28364-006-00	28364-006-00				0.00								
	2854-045-006	M.C. Humane Society	22 S Magnolia Avenue	0	0.08	B-3	1920	22 S Magnolia Avenue	Humane Society Tr	Service/Reta	2	Standard	Y
					0.00								
	2854-045-005	Robert DeConna	0-100 Bolck SW Magnolia	$34,169	0.05	B-3	1946	24 S Magnolia Avenue	Formerly Duke's Mi	Service/Reta	1	Standard	Y
	2854-045-011				0.00								
28383-004-00	28383-004-00				0.00								
	2854-045-004	Broward Sanchez	26 S Magnolia Avenue	$364,175	0.22	B-3	1953	Magnolia & SW Broadway	Wayne's Brick City	Service/Reta	1	Deteriorated	Y
28363-002-08	28363-002-08				0.00								
					0.00								
2846-005-000	2846-005-000				0.00								
28504-000-00	28504-000-00				0.00								
					0.00								
28500-000-00	28500-000-00				0.00								
28495-000-00	28495-000-00				0.00								
28493-000-00	28493-000-00				0.00								
28492-000-00	28492-000-00				0.00								
28498-000-00	28498-000-00				0.00								
28497-000-00	28497-000-00				0.00								
28494-000-00	28494-000-00				0.00								
28487-000-00	28487-000-00				0.00								
2853-015-002	2853-015-002	M. Shashy Et Al	43 SW Pine	$134,249	0.35	B-3	1960	43 SW Pine Avenue	Rogers Discount Ti	Service/Reta	1	Standard	10
					0.00								
28484-000-00	28484-000-00				0.00								
					0.00								
28363-003-04	28363-003-04				0.00								
2853-026-002	2853-026-002	Time For Freedom	222 SW Broadway	$90,041	0.29	B-3	0	222&224 SW Broadway Street	Time For Freedom	Office - Profe	1	Standard	15

PARCEL THEME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	EUI	FLOORS	CONDITION	P_PAF
2853-026-004	2853-026-004	Mt. Moriah Baptist Church	206 SW Broadway	0	0.21	B-3	1927	206 & 210 SW Broadway Street	Mt. Moriah Baptist (	Church	1	Slighlty Deterioratec	
2853-035-002	2853-035-002	Phillip Castora, Jr.	128 SW Broadway	$44,890	0.07	B-3	1900	128 SW Broadway	Norma Jeans Spec	Service/Reta	1	Standard	
2853-035-001	2853-035-001	Marc Iacovelli	100 Blk, SW 1st Avenue	$92,278	0.17	B-3	1920	W Broadway & SW 1st Avenue	For Information - Pr	Service/Reta	2	Dilapidated	Y
2853-015-004	2853-015-004	Moses Brothers	306 SW Broadway	$54,694	0.26	B-3B	1937	300 Block SW 2nd Street	Offices and S		2	Deteriorated	
2853-015-001	2853-015-001	Est. of E.W. Jones, Jr.	304 SW 1st Street	$60,972	0.13	B-3	1935	304 SW Broadway	Bothers Keeper Thi	Service/Reta	2	Standard	
2853-046-006	2853-046-006	CFCC&Appleton Museum, Fine Arts on Broadway Inc.		$83,604	0.00			Broadway & SW 1st Avenue	Artist in Residence, Artists Coope		1	Standard	
2853-046-005	2853-046-005	Ronald & Ernest Gay	18 SW Broadway	$57,871	0.10	B-3	1942	18 SW Broadway Street	Formerly Bittings D	Service/Reta	1	Slightly Deter	Y
2853-046-004	2853-046-004	Ronald & Ernest Gay	18 SW Broadway	$18,624	0.06	B-3	1927	18 SW Broadway Street		Service/Reta	2	Slightly Deter	Y
2853-046-001	2853-046-001	James & Louise Johnson, Sr.	36 S Magnolia	0	0.07	B-3	1927	36 S Magnolia Avenue	Keystone Jewelers,	Service/Reta	3	Standard	Y
					0.00								
2823-055-001	2823-055-001	Blanchard, Merriam, Adel, & Kirkland Law Firm		$163,689	0.16	B-3	1942	4 E Broadway Street	(Formerly McCroy E	Service/Reta	2	Slighlty Deter	Y
2851-082-001	2851-082-001				0.00								
2823-055-002	2823-055-002	Gause & Son Jewelers	14 SE Broadway	$69,354	0.08	B-3	1936	8 SE Broadway Street	Gause & Son Jewe	Service/Reta	2	Standard	Y
2851-082-002	2851-082-002				0.00								
2823-055-003	2823-055-003	Gause & Son Jewelers	14 SE Broadway	$98,334	0.08	B-3	1940	14 SE Broadway Street	Gause & Son Jewe	Service/Reta	2	Standard	Y
2851-083-001	2851-083-001				0.00								
2851-084-002	2851 084-002				0.00								
2851-084-001	2851-084-001				0.00								
2851-083-002	2851-083-002				0.00								
2823-055-004	2823-055-004	Robert DeConna	18 SE Broadway	90,625	0.07	B-3	1939	18 SE Broadway Street	Dukes Men's Shop	Service/Reta	2	Standard	Y
2851-084-005	2851-084-005				0.00								
2851-084-003	2851-084-003				0.00								
2823-055-005	2823-055-005	Bahram & Shahram Assary	20 SE Broadway		0.14	B-3	1936	20 SE Broadway Street	Cyrus Rug Gallery	Service/Reta	2	1st floor Star	Y
2851-085-001	2851-085-001				0.00								
2851-085-002	2851-085-002				0.00								
2851-085-006	2851-085-006				0.00								
2851-086-001	2851-086-001				0.00								
2823-055-006	2823 055-006	FNB Properties	26 SE Broadway	$444,399	0.14	B-3	1901	24 SE Broadway Street	Speakers Corner, n	Service/Reta	3	Standard	Y
2851-086-002	2851-086-002				0.00								
2851-087-004	2851-087-004				0.00								
2851-087-001	2851-087-001				0.00								
2823-066-000	2823-066-000	Barnett Bank of Ocala	35 SE 1st Avenue	$2,106,557	0.61	B-3	1985	35 SE 1 Avenue	Barnett Bank	Office - Finar	3	Standard	Y 73
2823-071-000	2823-071-000	City of Ocala	PO Box 1270	$679,066	2.47	G-U		Multiple Addresses - City Government of Ocala		City Building	0	Standard	15
2823-005-006	2823-005-006	Florida Telephone Corp.	311 SE Ft. King Street	$1,457,035	0.28	B-3	1961	302 SW Broadway Street	United Telephone (	Service/Reta	2	Standard	80+
2820-000-012	2820-000-012				0.00								
2820-000-013	2820-000-013				0.00								
2820-000-001	2820-000-001				0.00								
2820-000-002	2820-000-002				0.00								
2820-000-003	2820-000-003				0.00								
2820-000-004	2820-000-004				0.00								
2820-000-005	2820-000-005				0.00								
2820-000-011	2820-000-011				0.00								
2853-046-002	2853-046-002	Hascal & Margaret Hill	40 S Magnolia	$71,689	0.06	B-3	1942	40 S Magnolia Avenue	Fancy's Sweet Trea	Service/Reta	2	Standard	Y
2853-046-003	2853-046-003	Charles Jr. & Sylvia Jean Moxley	42 S Magnolia	$52,403	0.07	B-3	1922	42 S Magnolia Avenue	Andrews Bakery &	Service/Reta	2	Standard	Y
28363-002-10	28363-002-10				0.00								
28363-003-05	28363-003-05				0.00								
2853-026-001	2853-026-001	Mt. Moriah Baptist Church	55 SW 3rd Avenue	0	0.09	B-3	0	00 Block SW 2nd Avenue	Mt. Moriah Baptist (	Parking Lot -	1	Standard	
28383-006-02	28383-006-01				0.00								
2851-087-005	2851-087-005				0.00								
2853-046-009	2853-046-009		John & Annie Norman	$53,512	0.11	B-3	1927	48 S Magnolia Avenue	Avanti Salon, Fancy	Service/Reta	1	Standard	Y
2820-000-016	2820-000-016				0.00								
28502-000-00	28502-000-00				0.00								
28486-000-00	28486-000-00				0.00								
					0.00								
28503-000-00	28503-000-00				0.00								
					0.00								
					0.00								
					0.00								
2823-075-000	2823-075-000	City of Ocala	PO Box 1270	$28,798	0.25	B-3	1970	200 SE Ft. King Street		Parking Lot -	1		
2853-015-003	2853-015-003	Ralph Kazarian	53 S Pine	$103,717	0.28	B-3	1920	53 S Pine Avenue	Ralph Kazarian Aut	Office - Profe	1	Standard	8
2851-085-005	2851-085-005				0.00								
2851-085-004	2851-085-004				0.00								
					0.00								
2851-085-003	2851-085-003				0.00								

PARCEL E TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P_PAR
2851-084-004	2851-084-004				0.00								
2853-026-003	2853-026-003	Mt. Moriah Baptist Church	55 SW 3rd Avenue	0	0.58	B-3B	1966	55 SW 3 Avenue	Mt. Moriah Baptist (	Church	0	Standard	35
2851-084-006	2851-084-006				0.00								
					0.00								
2851-083-003	2851-083-003				0.00								
2851-086-004	2851-086-004				0.00								
2851-086-003	2851-086-003				0.00								
					0.00								
2851-087-006	2851-087-006				0.00								
2851-083-004	2851-083-004				0.00								
2851-083-005	2851-083-005				0.00								
2851-082-003	2851-082-003				0.00								
2851-082-005	2851-082-005				0.00								
2820-000-027	2820-000-027				0.00								
2853-035-003	2853-035-003	City of Ocala	PO Box 1270	$28,798	0.25	B-3	0	300 Block E Fort King Streeet		Open Space	0		
2853-046-008	2853-046-008	City of Ocala	PO Box 1270	$57,968	0.29	B-3B	0	100 Block SW Ft. King		Parking Lot -	0	Paved Parking	20
2853-035-005	2853-035-005	Robert & Ina Mea Stroh - Morris & Vera Hicks		0	0.19	B-3	1940	50 S Magnolia Avenue	Discovery Science (	Public/Educa	1	Standard	Y
2846-015-000	2846-015-000			0	0.15	B-3B	1927	46, 48, & 50 SW 1 Avenue	Sure Shirt	Service/Reta	1	Deteriorated	Y
2846-016-000	2846-016-000				0.00								
2820-000-006	2820-000-006				0.00								
2823-055-008	2823-055-008	City of Ocala	PO Box 1270		0.00								
2820-000-010	2820-000-010				0.00			S Ft. King b/w Magnolia & 1st Avenue		Alley	0	City Alley	
2820-000-007	2820-000-007				0.00								
2846-003-000	2846-003-000				0.00								
2823-055-009	2823-055-009				0.00								
2820-000-014	2820-000-014			$9,019	0.07	B-3	0	BK SE 1st Avenue		Parking Lot -	0	Paved Parkir	Y
2820-000-008	2820-000-008				0.00								
2820-000-009	2820-000-009				0.00								
2853-046-007	2853-046-007	City of Ocala	PO Box 1270	$50,778	0.00								
2820-000-015	2820-000-015				0.35	B-3	0	100 BK S Magnolia Avenue		Parking Lot -	0	Paved Parkir	Y 20
					0.00								
28363-003-06	28363-003-06				0.00								
2823-055-010	2823-055-010	Irwin & France Weiner	50 SE 1st Avenue		0.00								
					0.00			50 SE 1st Avenue	Weiner, Cannon &	Professional -	Office		
2846-002-000	2846-002-000				0.00								
2846-001-000	2846-001-000				0.00								
CBD	CBD				0.00								
2853-035-004	2853-035-004	Doug Cone			0.00								
2851-082-004	2851-082-004			$61,252	0.15	B-3B	1940	54 SW 1 Avenue		Service/Reta	1	Grass Lot	Y
2823-055-011	2823-055-011	Soheil Namdar	56 SE 1st Avenue		0.00								
2823-055-012	2823-055-012	M.M. Brinson III & Eugene Card	50 S Magnolia Avenue	88,910	0.00			56 SE 1st Avenue					
					0.12	B-3	1901	50 S Magnolia Avenue & 9 SE	Wig World, Garden	Service/Ret			
2847-001-000	2847-001-000				0.00								
					0.00								
2846-018-000	2846-018-000				0.00								
2851-088-006	2851-088-006				0.00								
					0.00								
2851-088-004	2851-088-004				0.00								
					0.00								
2846-020-000	2846-020-000				0.00								
2851-088-003	2851-088-003				0.00								
					0.00								
2846-021-000	2846-021-000				0.00								
2851-089-004	2851-089-004				0.00								
2846-022-000	2846-022-000				0.00								
2851-089-003	2851-089-003				0.00								
					0.00								
2851-089-002	2851-089-002				0.00								
2846-023-000	2846-023-000				0.00								
					0.00								
2846-024-000	2846-024-000				0.00								
2851-089-001	2851-089-001				0.00								
2846-026-000	2846-026-000				0.00								
2846-027-000	2846-027-000				0.00								
					0.00								
2851-090-004	2851-090-004				0.00								
					0.00								

PARCEL THEME TABLE

PAR_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	FLU	FLOORS	CONDITION	P_PAR
2853-014-002	2853-014-002	Ronald & Nina Adams		$78,624	0.29	B-3A		100 Block Sw Pine Avenue		Parking Lot -	0	Paved Parkir	N 15
2853-014-001	2853-014-001	Ronald & Nina Adams		$26,208	0.29	B-3B		300 Block SW Fort King Street		Vacant Grass	0	Grass/Trees	N
2846-029-000	2846-029-000				0.00								
2851-090-003	2851-090-003				0.00								
2846-030-000	2846-030-000				0.00								
2851-090-002	2851-090-002				0.00								
					0.00								
2851-090-001	2851-090-001				0.00								
2846-032-000	2846-032-000				0.00								
2853-027-003	2853-027-003	Minnie Shootes		$14,976	0.09	B-3B		200 Block SW Fort King Street		Vacant Grass	0	Grass/Trees	N
2853-027-002	2853-027-002	Hugh & Melissa McNichols		$20,078	0.10	B-3B	1927	216 SW Fort King Street		Residential	1	Deteriorated	N
2853-027-001	2853-027-001	Arlene Kidd		$34,944	0.29	B-3B		200 Block SW Ft. King Street		Vacant Grass	0	Grass/Trees	N
2851-093-001	2851-093-001				0.00								
2851-092-002	2851-092-002				0.00								
2851-092-001	2851-092-001				0.00								
2851-093-004	2851-093-004				0.00								
2851-091-001	2851-091-001				0.00								
2851-092-003	2851-092-003				0.00								
2851-091-003	2851-091-003				0.00								
2851-091-002	2851-091-002				0.00								
2853-034-002	2853-034-002	S.C. Culbreth, Jr. & Laurie Yong	118 SW Ft. King Street	$182,533	0.36	B-3B	1946	118 SW Ft. King Street	Collier Building	Service/Reta	1	Standard	N 17
2853-034-004	2853-034-004	Caledonia Henry		$15,600	0.13	B-3B		100 Block SW 2nd Street		Vacant Grass	0	Grass	Y
2853-034-001	2853-034-001	Michael & Joan Meline	111 SW Ft. King Street	$29,938	0.23	B-3B	1945	106 SW 1st Avenue		Vacant Grass	1	Grass	Y
2853-047-003	2853-047-003	M. Thomas Bond, Jr. & Jerry Gause		$23,484	0.29	B-3	0	100 Block SW 1st Avenue		Parking Lot -	0	Paved Parkir	Y 50
2853-047-002	2853-047-002	Minor Bond, Jr. & Jerry Gause		$18,260	0.16	B-3	0	00 Block SW Ft. King Street	Babcock Home Fur	Parking Lot -	2	Standard	Y
2853-047-001	2853-047-001	Minor Bond, Inc.	2 SW Ft. King	0	0.21	B-3	0	102 S Magnolia Avenue	Babcock Home Fur	Service/Reta	2	Standard	Y
2823-054-001	2823-054-001	Richard & Marjorie Chazal	104 SE 1st Avenue	$123,742	0.19	B-3	1900	4 SE Ft. King Avenue	North American Liv	Service/Reta	2	Slightly Deterio	11
2823-054-004	2823-054-004	Richard & Marjorie Chazal	104 SE 1st Avenue	$366,960	0.68	B-3	1924	104 SE 1 Avenue	Chazal - Blair Insur	Office - Profe	1	Standard	7
2823-067-001	2823-067-001	Maria & Christoforo Arena		$107,225	0.12	B-3	1956	102, 104,106, &108 SE Ft. King	Alfio's Sandwhich &	Service/Reta	2	Standard	Y
2823-067-003	2823-067-003	Barnett Bank	120 SE Ft. King Street	$655,305	0.86	B-3	1970	SE 2nd Street & Osceola	Barnett Bank	Service/Reta	2	Standard	Y
2823-071-000	2823-071-000	City of Ocala	PO Box 1270	$679,066	2.47	G-U		Multiple Addresses - City Government of Ocala		City Building	0	Standard	15
2820-001-001	2820-001-001	City of Ocala	PO Box 1270		2.99	G-U		300 Block E. Ft. King Street		Public Buildir	0	Standard	
2820-001-003	2820-001-003	City of Ocala	PO Box 1270		0.00	G-U		100 Block SE 4th Avenue		Parking Lot -	0	Standard	
2820-012-001	2820-012-001				0.00								
2820-012-002	2820-012-002				0.00								
2820-013-001	2820-013-001				0.00								
2820-013-002	2820-013-002				0.00								
2820-026-000	2820-026-000				0.00								
2820-027-001	2820-027-001				0.00								
2820-027-002	2820-027-002				0.00								
2820-027-003	2820-027-003				0.00								
2820-027-004	2820-027-004				0.00								
2820-039-001	2820-039-001				0.00								
2820-027-005	2820-027-005				0.00								
2820-039-002	2820-039-002				0.00								
2820-039-003	2820-039-003				0.00								
2820-039-004	2820-039-004				0.00								
					0.00								
28362-039-05	28362-039-05				0.00								
28362-039-02	28362-039-02				0.00								
28362-039-01	28362-039-01				0.00								
					0.00								
2853-027-004	2853-027-004	Minnie Shootes		$11,700	0.13	B-3B		100 Block SW 3rd Avenue		Vacant Grass	0	Grass/Trees	N
2853-047-006	2853-047-006	J. Manning, Roberto Del Torro,	112 S Magnolia	$41,733	0.06	B-3	1945	112 S Magnolia Avenue	Neon Hair Salon	Service/Reta	1	Standard	Y
2823-067-004	2823-067-004				0.00								
					0.00								
2847-001-003	2847-001-003				0.00								
2846-057-000	2846-057-000				0.00								
2846-056-000	2846-056-000				0.00								
2846-055-000	2846-055-000				0.00								
2846-052-000	2846-052-000				0.00								
2846-051-000	2846-051-000				0.00								
2846-049-000	2846-049-000				0.00								
2846-048-000	2846-048-000				0.00								
2846-047-000	2846-047-000				0.00								
2846-045-000	2846-045-000				0.00								

PARCEL ME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P.PAF
2846-044-000	2846-044-000				0.00							
2846-043-000	2846-043-000				0.00							
2846-041-000	2846-041-000				0.00							
2851-090-005	2851-090-005				0.00							
2851-089-007	2851-089-007				0.00							
2851-090-006	2851-090-006				0.00							
2851-089-006	2851-089-006				0.00							
2851-089-005	2851-089-005				0.00							
2851-088-009	2851-088-009				0.00							
2851-090-007	2851-090-007				0.00							
2851-090-008	2851-090-008				0.00							
2853-047-005	2853-047-005	ABC Liquors	114 S Magnolia	$64,900	0.06 B-3	1950	114 S Magnolia Avenue		Service/Reta 1		Slightly Deteriorated	
2851-091-004	2851-091-004				0.00							
2851-091-005	2851-091-005				0.00							
2853-014-003	2853-014-003	Mariel Morris	117 S Pine Avenue	$107,657	0.29 B-3A	1959	119 SW Pine Avenue		Service/Reta 1		Standard	N
2853-014-004	2853-014-004	Betty Stanton		$26,208	0.29 B-3B		300 Block SW 2nd Street		Vacant Grass 0		Grass/Trees	N
2851-092-004	2851-092-004				0.00							
2853-027-007	2853-027-007	Res, Inc.		$17,742	0.14 B-3B	1918	211 SW 2nd Street		Vacant Grass 1		Grass/Trees	N
2853-027-008	2853-027-008	Res, Inc.		$17,742	0.14 B-3B		100 Block SW 2nd Avenue		Vacant Grass 0		Grass/Trees	N
2851-092-005	2851-092-005				0.00							
2851-092-006	2851-092-006				0.00							
2853-034-003	2853-034-003	Rhea Rein	125 SW 2nd Street	65617	0.18 B-3B	1923	125 SW 2nd Street	Summers Funeral H	Service/Reta 2		Slightly Deter	N 5
2853-034-006	2853-034-006	B. & L.R. & Charles Jr. & Wm. Boynton		$31,114	0.13 B-3B	1901	103 SW 2nd Street		Single Family 2		Deteriorated	Y
2823-054-002	2823-054-002	Richard & Marjorie Chazal	104 SE 1st Avenue	$41,168	0.36 B-3	0	00 Block SE 2nd Street		Parking Lot - 0		Paved Parking	35
2853-027-005	2853-027-005	Minnie Shootes		$31,339	0.13 B-3B	1966	23 SW 3rd Avenue		Residential 1		Slightly Deter	N
2853-027-006	2853-027-006				0.00							
2853-047-004	2853-047-004	W.J. Rogers, Jr.	116 S Magnolia	$220,962	0.40 B-3	1940	116, 120, 122, 124, &126 S Ma	Bec's Quickdraw, S	Offices and Serv			
2823-067-002	2823-067-002	David Lee Skipper	119 SE 1st Avenue	$88,062	0.17 B-3	1950	119 SE 1 Avenue	The Treasure Ches	Service/Reta 1		Standard	Y 10
2820-001-004	2820-001-004	City of Ocala	PO Box 1270		0.00 G-U		100 Block SE 1st aveunue		0		Standard	
2851-093-003	2851-093-003				0.00							
2820-027-006	2820-027-006				0.00							
2820-027-007	2820-027-007				0.00							
2820-027-008	2820-027-008				0.00							
2851-088-010	2851-088-010				0.00							
2820-001-002	2820-001-002	City of Ocala	PO Box 1270		0.12 G-U		City Complex		Public Buildir 0		Standard	
2820-039-009	2820-039-009				0.00							
2820-039-010	2820-039-010				0.00							
2820-012-003	2820-012-003				0.00							
2820-039-006	2820-039-006				0.00							
2820-012-004	2820-012-004				0.00							
28362-039-03	28362-039-03				0.00							
28362-039-04	28362-039-04				0.00							
2820-039-008	2820-039-008				0.00							
2820-002-001	2820-002-001	City of Ocala	PO Box 1270		0.78 G-U		200 Block SE 4th Avenue		Parking Lot - 0		Standard	
2846-000-001	2846-000-001				0.00							
2846-000-003	2846-000-003				0.00							
2846-000-001	2846-000-001				0.00							
2846-000-004	2846-000-004				0.00							
2846-000-005	2846-000-005				0.00							
2846-059-000	2846-059-000				0.00							
2846-060-000	2846-060-000				0.00							
2846-062-000	2846-062-000				0.00							
2846-066-000	2846-066-000				0.00							
2846-067-000	2846-067-000				0.00							
2846-069-000	2846-069-000				0.00							
2846-070-000	2846-070-000				0.00							
2846-072-000	2846-072-000				0.00							

PARCEL THEME TABLE

PID_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P_PAR	
2846-073-000	2846-073-000				0.00									
2846-074-000	2846-074-000				0.00									
2851-099-001	2851-099-001				0.00									
2851-099-002	2851-099-002				0.00									
2851-099-003	2851-099-003				0.00									
2851-100-001	2851-100-001				0.00									
2851-100-002	2851-100-002				0.00									
2851-100-003	2851-100-003				0.00									
					0.00									
2851-100-004	2851-100-004				0.00									
2853-013-001	2853-013-001	Salvatore Chessari	207 SW Pine Avenue	$168,144	0.58	B-3A	1947	207 SW Pine Avenue	Glass Masters, Me	Service/Reta	1	Standard	N	19
2851-097-003	2851-097-003				0.00									
2851-098-002	2851-098-002				0.00									
2851-098-001	2851-098-001				0.00									
2851-097-001	2851-097-001				0.00									
2851-098-003	2851-098-003				0.00									
2851-096-002	2851-096-002				0.00									
2851-098-004	2851-098-004				0.00									
2851-096-001	2851-096-001				0.00									
2851-098-005	2851-098-005				0.00									
2851-095-003	2851-095-003				0.00									
2851-095-002	2851-095-002				0.00									
2851-095-001	2851-095-001				0.00									
2851-094-001	2851-094-001				0.00									
NFD	NFD				0.00									
2853-026-002	2853-026-002	Time For Freedom	222 SW Broadway	$90,041	0.29	B-3	0	222&224 SW Broadway Street	Time For Freedom	Office - Profe	1	Standard		15
2853-026-003	2853-026-003	Mt. Moriah Baptist Church	55 SW 3rd Avenue	0	0.58	B-3B	1966	55 SW 3 Avenue	Mt. Moriah Baptist (	Church	0	Standard		35
2853-033-002	2853-033-002	Lincoln Carlton		$34,944	0.29	B-3B		100 Block SW 2nd Street		Vacant Grass	0	Grass/Trees	N	
2853-033-001	2853-033-001	Herman & Cressie Spencer		$17,472	0.14	Grass Lot		204 SW 1st Avenue		Vacant	0	Grass	N	
2853-048-004	2853-048-004	Sun Bank of Ocala, Finance Dept.		$56,142	0.14	B-3	1946	108 SW 2nd Street	Formerly Spencer's	Service/Reta	1	Deteriorated		
2853-048-001	2853-048-001	Robert & J.N. Brownlee	210 S Magnolia	$161,448	0.31	B-3	1941	202, 206,& 210 S Magnolia		Service/Reta	1	Slightly Deterio		15
2823-053-006	2823-053-006	Skipper's , Inc.	224 SE 1st Avenue	$163,558	0.88	B-3	1936	224 SE 1st Avenue		Service/Reta	1&3	Standard/Dilapi		88
2823-068-000	2823-068-000	Skipper's Inc.	217 SE 1st Avenue	$430,089	1.18	B-3	1936	217 SE 1 Avenue	Skipper's Office Su	Service/Reta	1	Standard		41
2820-011-000	2820-011-000				0.00									
2820-011-000	2820-011-000				0.00									
2820-023-000	2820-023-000				0.00									
2820-028-001	2820-028-001				0.00									
28362-038-01	28362-038-01				0.00									
					0.00									
2820-000-00	2820-000-00				0.00									
28355-003-16	28355-003-16				0.00									
28355-003-11	28355-003-11				0.00									
28355-003-12	28355-003-12				0.00									
28355-003-13	28355-003-13				0.00									
					0.00									
					0.00									
					0.00									
					0.00									
2853-033-003	2853-033-003	John Arnett & Thomas Bond, Jr.	101 SW 3rd Street	$330,939	0.29	B-B3	1986	101 SW 3rd Street	Bond, Arnett, & Phe	Office - Profe	1	Standard	N	22
					0.00									
2848-003-001	2848-003-001				0.00									
2848-003-002	2848-003-002				0.00									
2820-028-002	2820-028-002				0.00									
					0.00									
2848-004-003	2848-004-003				0.00									
2848-004-001	2848-004-001				0.00									
2853-048-005	2853-048-005	79 West Corpration		$16,784	0.04	B-3	1941	200 Block S Magnolia		Service/Reta	1	Deteriorated		
2853-048-007	2853-048-007	Thomas & Sonya Jacobs	31 SW 3rd Street	$47,738	0.23	B-3	1907	31 SW 3 Street	Ocala Blueprint	Service/Reta	0	Slightly Deteriorated		
2853-048-002	2853-048-002	Mid Florida Publishing	212 S. Magnolia	$85,804	0.08	B-3	1947	212 S Magnolia Avenue	Formerly Marion Sh	Service/Reta	2	Standard		
					0.00									
2848-009-001	2848-009-001				0.00									
2848-009-002	2848-009-002				0.00									
2848-009-005	2848-009-005				0.00									
2848-009-004	2848-009-003				0.00									
2848-010-003	2848-010-003				0.00									
2820-002-002	2820-002-002	City of Ocala	PO Box 1270		0.78	G-U		200 Block SE 4th Street		Parking Lot -	0	Standard		

PARCE iE TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P_PAF
2851-098-009	2851-098-009				0.00								
					0.00								
2851-096-003	2851-096-003				0.00								
2848-010-001	2848-010-001				0.00								
2851-100-006	2851-100-006				0.00								
2851-100-008	2851-100-008				0.00								
2851-098-008	2851-098-008				0.00								
2853-013-003	2853-013-003	Jaykrishna & Ansuya Patel	215 SW Pine Avenue	$165,940	0.29	B-3A	1960	215 SW Pine Avenue	Shamrock Motel	Service/Reta	1	Standard	N 11
					0.00								
2851-100-009	2851-100-009				0.00								
2851-095-004	2851-095-004				0.00								
2851-099-004	2851-099-004				0.00								
2851-098-007	2851-098-007				0.00								
2851-095-005	2851-095-005				0.00								
2851-099-005	2851-099-005				0.00								
					0.00								
2851-098-006	2851-098-006				0.00								
2851-095-006	2851-095-006				0.00								
2853-013-004	2853-013-004	Andres Sequi		$24,336	0.27	B-3B		300 Block SW 3rd Street		Vacant Grass	0	Grass/Trees	N
2848-010-006	2848-010-006				0.00								
2848-015-001	2848-015-001				0.00								
2848-003-003	2848-003-004				0.00								
2848-003-005	2853-048-006	Thomas & Sonya Jacobs	31 SW 3rd Street	$15,600	0.13	B-3	0	200 Block SW 1st Avenue		Parking Lot -	0	Paved Parking Lot	
2853-048-006	28355-003-15				0.00								
28355-003-15	2820-028-007				0.00								
2820-028-007	2820-028-008				0.00								
2820-028-008	28362-038-03				0.00								
28362-038-03					0.00								
2820-028-006	2820-028-006				0.00								
					0.00								
28355-003-14	28355-003-14				0.00								
28355-003-04	28355-003-04				0.00								
					0.00								
2823-053-004	2823-053-004	Barnett Hatchett III	221 SW Magnolia Avenue	$34,596	0.21	B-3	1930	221 SW Magnolia Avenue	Swinson's Classic C	Service/Reta	1	Standard	3
2820-028-004	2820-028-004				0.00								
2820-028-005	2820-028-005				0.00								
2851-014-000	2851-014-000				0.00								
2851-013-000	2851-013-000				0.00								
2851-005-000	2851-005-000				0.00								
NFD	NFD				0.00								
28510-002-00	28510-002-00				0.00								
NFD	NFD				0.00								
2853-012-001	2853-012-001	Richard & Deloris Walther	321 SW Pine Avenue	$273,243	0.74	B-3A	1965	315 SW Pine Avenue	J's Restaraunt	Service/Reta	1	Standard	N 50
2848-001-002	2848-001-002				0.00								
2853-029-000	2853-029-000	United States Postal Service	400 SW 1st Avenue	0	2.65	G-U	1980	400 SW 1st Avenue	U.S. Postal Service	FEDERAL BI	1	Standard	N
2848-002-002	2848-002-002				0.00								
2853-029-000	2853-029-000	United States Postal Service	400 SW 1st Avenue	0	2.65	G-U	1980	400 SW 1st Avenue	U.S. Postal Service	FEDERAL BI	1	Standard	N
2848-005-001	2848-005-001				0.00								
2823-052-001	2823-052-001	Gator's One Hour Cleaners	305 S Magnolia Avenue	0	0.00	B-3A	0	3rd Street & S. Magnolia	Gator's One Hour C	Service/Reta	1	Standard	10
2853-049-002	2853-049-002	Alexander Thomas III	304 S Magnolia	$19,840	0.16	B-3A		000 SW 3rd Street		Vacant Grass	0	Grass/Trees	N
2823-052-004	2823-052-004	Ed d'Avi	300 SE 1st Avenue	$221,194	0.33	B-3A	1982	300 SE 1st Avenue		Office	1	Standard	15
2848-005-003	2848-005-003				0.00								
2853-049-001	2853-049-001	Alexander Thomas III	304 S Magnolia	$69,048	0.30	B-3A	1924	304 S Magnolia Avenue	ABC Signs, Inc.	Service/Reta	1	Slightly Deter	N 8
2848-005-002	2848-005-002				0.00								
2823-069-001	2823-069-001	Elton Clemmons & J.H. Williams	401 SE 1st Avenue	$252,061	0.33	B-3A	1901	305 SE 1st Avenue	Moorhead Engineer	Service/Reta	3	Slightly Deter	N
2823-069-004	2823-069-004	W.E. Clemmons & J.H. Williams		$23,256	1.02	B-3A		100 Block SE 3rd Street		Grass Lot	0	Vacant Grass	N
2848+008-001	2848+008-001				0.00								
2848-008-002	2848-008-002				0.00								
2823-071-000	2823-071-000	City of Ocala	PO Box 1270	$679,066	2.47	G-U		Multiple Addresses - City Government of Ocala		City Building	0	Standard	15
2848-008-001	2848-008-001				0.00								
2823-071-000	2823-071-000	City of Ocala	PO Box 1270	$679,066	2.47	G-U		Multiple Addresses - City Government of Ocala		City Building	0	Standard	15
2848-011-001	2848-011-001				0.00								

PARCEL THEME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P_PAR
2820-010-001	2820-010-001				0.00								
2820-010-002	2820-010-002				0.00								
2848-014-002	2848-014-002				0.00								
2820-010-003	2820-010-003				0.00								
2820-008-000	2820-008-000				0.00								
2848-014-001	2848-014-001				0.00								
2820-029-001	2820-029-001				0.00								
2820-029-002	2820-029-002				0.00								
2820-023-000	2820-023-000				0.00								
2820-029-003	2820-029-003				0.00								
2820-029-004	2820-029-004				0.00								
28353-001-00	28353-001-00				0.00								
2820-037-001	2820-037-001				0.00								
2820-029-005	2820-029-005				0.00								
2820-037-002	2820-037-002				0.00								
2820-029-006	2820-029-006				0.00								
2820-037-003	2820-037-003				0.00								
2820-037-004	2820-037-004				0.00								
2820-037-005	2820-037-005				0.00								
2853-049-003	2853-049-003	Alexander Thomas III	16 SW 4th Street	$16,000	0.13	B-3A		300 Block SW 1st Avenue		Vacant Grass	0	Grass/Trees	N
2851-012-000	2851-012-000				0.00								
2848-014-003	2848-014-003				0.00								
2848-011-003	2848-011-003				0.00								
2823-052-002	2823-052-002	Arthur & Estelle Lawson		$50,731	0.09	B-3A	1940	313 S Magnolia Avenue	Art Lawson Custom	Service/Reta	1	Standard	3
2820-010-006	2820-010-006				0.00								
2853-049-004	2853-049-004	Frances Thigpin	322 SW Magnolia Avenue	$101,531	0.30	B-3A	1945	322 SW Magnolia Avenue		Service/Reta	1	Slightly Deter	N 5
2851-011-000	2851-011-000				0.00								
2851-010-000	2851-010-000				0.00								
2823-052-005	2823-052-005	Pine[illegible] Motors, Inc.		$32,144	0.31	B-3A	0	300 Block SE 1st Avenue		Vacant Grass	0		
2820-010-004	2820-010-004				0.00								
2823-069-002	2823-069-002	Pi[illegible] Frances Misl[illegible]		$25,473	0.10	B-3A		321 SE 1st Avenue	Moorhead Engineer	Parking Lot -	1	Paved Parkir	N 11
2823-052-003	2823-052-003	Pine Motors, Inc	321 S Magnolia Avenue	$75,345	0.25	B-3A	1936	321 S Magnolia Avenue	Ocala Lincoln Merc	Service/Reta	1	Standard	5
2820-037-006	2820-037-006				0.00								
2820-037-007	2820-037-007				0.00								
2820-037-008	2820-037-008				0.00								
2820-037-009	2820-037-009				0.00								
2820-037-010	2820-037-010				0.00								
2820-029-007	2820-029-007				0.00								
2820-029-008	2820-029-008				0.00								
2820-029-009	2820-029-009				0.00								
2820-029-010	2820-029-010				0.00								
2823-069-003	2823-069-003	William & H.T. Stalnaker		$43,447	0.19	B-3A	1926	323 SE 1st Avenue	Phil's Garage and	Service/Reta	1	Slightly Deter	N N
2820-010-005	2820-010-005				0.00								
2851-009-000	2851-009-000				0.00								
2848-011-002	2848-011-002				0.00								
2848-013-001	2848-013-001				0.00								
					0.00								
2848-001-004	2848-001-004				0.00								
2848-001-001	2848-001-001				0.00								
					0.00								
2823-070-001	2823-070-001	William Stalnaker			0.00	B-3A		SE 1st Avenue & SE 5th Street	Ocala Lincoln Mercury	Body Sho	1	Slightly Deteriorated	
2848-006-004	2848-006-004				0.00								
NFD	NFD				0.00								
2848-006-006	2848-006-006				0.00								
2823-070-003	2823-070-003	Lawrence Mayhew	420 SE 2nd Avenue	$67,846	0.27	B-3A	1965	420 & 424 SE 1st Avenue	Mayhew Pest Contr	Service/Reta	1	Standard/Sli	N 2
2853-029-000	2853-029-000	United States Postal Service	400 SW 1st Avenue	0	2.65	G-U	1980	400 SW 1st Avenue	U.S. Postal Service	FEDERAL BI	1	Standard	N
2848-007-001	2848-007-001				0.00								
2853-029-000	2853-029-000	United States Postal Service	400 SW 1st Avenue	0	2.65	G-U	1980	400 SW 1st Avenue	U.S. Postal Service	FEDERAL BI	1	Standard	N
2848-007-003	2848-007-003				0.00								
2823-051-001	2823-051-001	Pine St. Motors	407 S Magnolia Avenue	$425,953	0.50	B-3A	1956	407 S Magnolia Avenue	Ocala Lincoln Merc	Service/Reta	1	Standard	
2853-050-003	2853-050-003	James & M.S. & Wm. G. & D.S. & R.M. Dupree		$18,096	0.15	B-3A	1900	16 SW 4th Street		Vacant Grass	1	Grass/Trees	N
2853-050-002	2853-050-002	William & H.T. Stalnaker		$18,096	0.15	B-3A		000 Block SW 4th Street		Vacant Grass	0	Grass/Trees	N
2823-051-002	2823-051-002	William Stalnaker		$56,753	0.31	B-3A	1952	400 Block SE 1st Avenue	Ocala Lincoln Merc	Service/Reta	0	Car Lot	
2853-050-001	2853-050-001	Pine St. Motors, Inc.	406 S Magnolia	$41,855	0.29	B-3A		406 S Magnolia Avenue		Service/Reta	0	Paved Parkir	N
2851-008-000	2851-008-000				0.00								
					0.00								

PARCE iE TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P PAF
2848-012-002	2848-012-002				0.00							
					0.00							
2823-071-000	2823-071-000	City of Ocala	PO Box 1270	$679,066	2.47 G-U		Multiple Addresses - City Government of Ocala		City Building	0	Standard	15
2820-009-001	2820-009-001				0.00							
2820-009-002	2820-009-002				0.00							
2820-008-000	2820-008-000				0.00							
2820-030-001	2820-030-001				0.00							
2820-030-003	2820-030-003				0.00							
2820-030-004	2820-030-004				0.00							
					0.00							
2820-023-002	2820-023-002				0.00							
2820-023-001	2820-023-001				0.00							
2820-030-010	2820-030-010				0.00							
2820-030-008	2820-030-008				0.00							
					0.00							
2820-036-001	2820-036-001				0.00							
2820-036-002	2820-036-002				0.00							
2820-036-003	2820-036-003				0.00							
2820-036-007	2820-036-007				0.00							
2848-001-003	2848-001-003				0.00							
2851-007-000	2851-007-000				0.00							
2848-006-001	2848-006-001				0.00							
2851-006-000	2851-006-000				0.00							
2820-009-005	2820-009-005				0.00							
					0.00							
2848-006-002	2848-006-002				0.00							
					0.00							
					0.00							
2848-001-006	2848-001-006				0.00							
2848-001-005	2848-001-005				0.00							
					0.00							
2851-004-000	2851-004-000				0.00							
28510-000-00	28510-000-00				0.00							
2820-030-007	2820-030-007				0.00							
2853-011-003	2853-011-003	ABC Liquors, Inc.	421 SW Pine Avenue	$184,042	0.29 B-3A	1968	421 SW Pine Avenue		Service/Reta	2	Deteriorated	N 15
2853-011-004	2853-011-004	Dorris Parr	319 SW 5th Street	$7,050	0.29 B-3A	1950	319 SW 5th Street		Residential	1	Deteriorated	N 1
2820-009-003	2820-009-003				0.00							
2820-009-004	2820-009-004				0.00							
2820-036-004	2820-036-004				0.00							
2853-050-004	2853-050-004	Jessie Pearl Kay	424 S Magnolia Avenue	0	0.59 B-3A	1927	424 S Magnolia Avenue	Ocala Tire	Service/Reta	1	Slightly Deter	N 15
2823-070-002	2823-070-002	J.E. Simms		$50,768	0.34 B-3A	1965	423 SE 1st Avenue	Ocala Lincoln Merc	Service/Reta	1	Parking Lots	N 40
2820-030-005	2820-030-005				0.00							
2820-023-003	2820-023-003				0.00							
2820-036-005	2820-036-005				0.00							
2820-036-006	2820-036-006				0.00							
2820-030-002	2820-030-002				0.00							
					0.00							
2823-051-003	2823-051-003	Pine St. Motors	513 S Magnolia Avenue	$28,840	0.36 B-3A	0	513 S Magnolia Avenue	Ocala Lincoln Merc	Service/Reta	1	Car Lot	10
2823-071-000	2823-071-000	City of Ocala	PO Box 1270	$679,066	2.47 G-U		Multiple Addresses - City Government of Ocala		City Building	0	Standard	15
2849-000-002	2849-000-002				0.00							
2849-007-006	2849-007-006				0.00							
2849-007-004	2849-007-004				0.00							
2849-007-001	2849-007-001				0.00							
2852-000-009	2852-000-009	Louise Chalker Brewer		$82,937	0.29 B-3A	1954	509 & 511 SW Pine Avenue	Modern Muffler Shc	Service/Reta	1	Standard	N 5
2852-000-007	2852-000-007	ABC Liquors		$15,672	0.14 B-3B		300 Block SW 5th Street		Parking Lot	0	Paved Parkir	N
2852-000-004	2852-000-004	Barbara Chalkey		$69,733	0.27 B-3B	1948	507 SW 3rd Avenue	Formerly Marion M	Service/Reta	1	Standard	N 5
2852-000-002	2852-000-002				0.00 B-3B		SW 5th Street & SW 2nd Avenue		Residential	0	Standard	
2852-016-002	2852-016-002	City of Ocala	515 SW 2nd Avenue		0.58 B-3B	1974	515 SW 2nd Avenue	Ocala Housing Aut	Residential -	2	Standard	N 35
2852-016-001	2852-016-001	Ben & Renee Goldman	120 SW 5th Street	$132,262	0.44 B-3B	1978	120 SW 5th Street	Goldman Appliance	Service/Reta	1	Standard	N 20
2822-026-001	2822-026-001	Kay & Ruth Kibler	513 S Magnolia	$67,052	0.07 B-3A	1979	513 S Magnolia Avenue		Service/Reta	1	Standard	N 3
2822-026-002	2822-026-002	Patrick Beshere	506 SE 1st Avenue	$96,046	0.29 B-3A	1965	506 SE 1st Avenue	Harp Computer Ser	Service/Reta	1	Standard	N 20
2852-017-002	2852-017-002	James & Betty Jackson	505 SW 1st Avenue	$251,794	0.00 B-3B	1985	505 to 515 SW 1st Avenue	Nat. Health Laborat	Office and Sc	1	Stan	
2822-027-002	2822-027-002	Ben & Renee Goldman		$40,160	0.00 B-3B	1944	114 SE 5th Street		Service/Reta	1	Deteriorated	N
2822-027-001	2822-027-001	Robert Bitter		$81,210	0.15 B-3A	1973	505, 506,& 507 SE 1st Avenue	Ocala Executive Of	Office - Profe	0	Standard	N 7
2852-017-001	2852-017-001	George Vazquez	506 S Magnolia Avenue	$54,436	0.16 B-3A	1937	506 S Magnolia Avenue	Central Florida Swi	Service/Reta	1	Standard	N 5
2822-027-003	2822-027-003	Ben & Renee Goldman		$6,699	0.07 B-3B	1950	116 SE 5th Street		Industrial	1	Deteriorated	N

PARCEL THEME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P	PAF
2822-036-000	2822-036-000	Marion County School District			1.34	G-U	1925	506 SE 3rd Ave. & 210, 215 SE	Marion County Sch	Marion Coun	1	Standard	N	N
2820-004-000	2820-004-000				0.00									
2820-004-000	2820-004-000				0.00									
2820-026-001	2820-026-001				0.00									
2820-008-000	2820-008-000				0.00									
2820-026-002	2820-026-002				0.00									
2820-026-005	2820-026-005				0.00									
2820-022-001	2820-022-001				0.00									
2820-022-004	2820-022-004				0.00									
2820-031-001	2820-031-001				0.00									
2820-031-003	2820-031-003				0.00									
2820-031-004	2820-031-004				0.00									
2820-035-001	2820-035-001				0.00									
2820-035-002	2820-035-002				0.00									
					0.00									
2852-000-008	2852-000-008	Donaldson Eddie Fulford	512 SW 3rd Avenue	$31,016	0.14	B-3B	1941	512 SW 3rd Avenue	Tech-nic Hair Desig	Service/Reta	1	Standard	N	6
2852-000-003	2852-000-003	John Nettles, Jr.	514 SW 2nd Avenue	$14,530	0.18	B-3B	1948	514 SW 2nd Avenue		Residential	1	Standard	N	
2820-022-002	2820-022-002				0.00									
2852-017-003	2852-017-003	James & Betty Jackson	514 S Magnolia Avenue	$83,604	0.02	B-3A	1930	514 S Magnolia Avenue	Ocala Paint Center	Service/Reta	1	Standard	N	13
2820-031-002	2820-031-002				0.00									
2822-026-003	2822-026-003	Mitchelle Beshere	522 SE 1st Avenue	$135,156	0.37	B-3A	1931	510, 516, & 522 SE 1st Avenue	Executive Karate C	Service/Reta	1	Standard	N	15
2849-007-012	2849-007-012				0.00									
2849-007-009	2849-007-009				0.00									
2849-008-037	2849-008-037				0.00									
2852-000-010	2852-000-010	Donald Fulford	519 SW Pine Avenue	$107,189	0.29	B-3A	1948	519 SW Pine Avenue	Dr. D.E. Fulford	Office	1	Standard	N	10
2852-000-012	2852-000-012	Donald Fulford		$7,632	0.07	B-3B		500 Block SW 3rd Avenue		Parking Lot -	0	Paved Parkir	N	
2822-026-004	2822-026-004	Royal & Wanda Bliss	521 S Magnolia Avenue	$91,490	0.31	B-3A	1932	521 S Magnolia Avenue	Hexham's Custom (	Service/Reta	1	Standard	N	12
2852-000-005	2852-000-005	May Fulford	219 SW 6th Street	$32,859	0.27	B-3B	1946	219 SW 6th Street		Residential	1	Standard	N	
2820-022-003	2820-022-003				0.00									
2820-022-005	2820-022-005				0.00									
2822-027-004	2822-027-004	James Kirk, Jr.	520 SE Osceola Avenue	$68,488	0.24	B-3B	1984	520 SE Osceola Avenue		Indusrtial	1	Standard	N	8
2820-031-005	2820-031-005				0.00									
2820-031-006	2820-031-006				0.00									
2849-008-038	2849-008-038				0.00									
2852-000-011	2852-000-011	Dr. D.E. Fulford	519 SW Pine Avenue	$37,900	0.22	B-3B	1943	524 SW 3rd Avenue	Pediatric Therapy S	Service/Rreta	1	Standard	N	10
2820-031-007	2820-031-007				0.00									
					0.00									
2852-000-006	2852-000-006	Maye Fulford	219 SW 6th Street		0.00	B-3B		SW 2nd Avenue & SW 6th Street		Vacant Grass	0	Grass/Trees		
2852-016-004	2852-016-004	Kirby & Alice Bristow	522 SW 1st Avenue	$55,929	0.14	B-3B	1918	522 SW 1st Avenue	Now and Then Res	Service/Reta	1	Standard	N	2
2849-008-039	2849-008-039				0.00									
2822-027-007	2822-027-007	Clausson Lexonn		101	0.81	B-3A		600 Block SE 1st Avenue		Vacant Grass	0	Vacant Grass	N	
2820-022-006	2820-022-006				0.00									
2822-027-005	2822-027-005	T.A. Carroll Jaycox		$70,056	0.23	B-3B	1962	604 SE Osceola Avenue		Service/Reta	1	Slightly Deter	N	2
2849-006-006	2849-006-006				0.00									
2852-000-014	2852-000-014	A.R. & Ruby Moree		$114,639	0.29	B-3A	1968	607 SW Pine Avenue	Formerly Lube Tub	Service/Reta	1	Standard	N	8
2822-025-001	2822-025-001	Fenn Folsom	603 S Magnolia	$75,832	0.31	B-3A	1931	603 S Magnolia Avenue	Folsom Business F	Service/Reta	1	Standard	N	5
2849-006-001	2849-006-001				0.00									
2852-000-013	2852-000-013	Ralph Singbush, TR		$84,550	0.29	B-3B	1928	606 SW 3rd Avenue	James T Reich, Att	Office - Profe	1	Standard	N	8
2822-025-002	2822-025-002	Walter Berry & Walter Fraser	606 E 1st Avenue	$71,166	0.33	B-3A	1965	700 SE 1st Avenue	Sam C. Fraser, C.P	Office - Profe	1	Slightly Deter	N	5
2852-000-001	2852-000-001	Edgar & Mamie Roberts	606 SW 2nd Avenue	$692,179	0.58	B-3B	1919	606 & 608 SW 2nd Avenue & 2	Roberts Chapel/Fur	Service/Reta	1, 2	Standard	N	20
2849-005-001	2849-005-001				0.00									
2852-015-004	2852-015-004	Edgar & Mamie Roberts	613 SW 2nd Avenue	$40,192	0.19	B-3B	1947	613 SW 2nd Avenue	Orchidknoll Flower	Service/Reta	0	Standard	N	6
2852-015-001	2852-015-001	Marion County Board of County	612 SW 1st Avenue		0.58	B-3B		612 SW 1st Avenue	Intergovernment Ri	Office	1	Standard	N	7
2822-035-001	2822-035-001	Nick & Glenda Amorginos		$12,708	0.14	B-3B	1928	206 SE 6th Street		Residential	1	Slightly Deter	N	1
2852-018-002	2852-018-002	Ray & Agnes Musleh	601 & 605 SW 1st Street	$129,952	0.31	B-3B	1984	601 & 605 SW 1st Avenue	Southtrust Residen	Offices - Professional/Fin				
2822-035-002	2822-035-002	Amy, Wes, & Patricia Rogers	210 SE 6th Street	$20,883	0.13	B-3B	1928	210 SE 6th Street	Fine Arts Studio	Service/Reta	1	Standard	N	1
2822-035-007	2822-035-007	M.C. Board of Public Instruction		$16,598	0.26	B-3B		200 Block SE 7th Street		Vacant Grass	0	Grass	N	
2852-018-001	2852-018-001	Moses Bros.	700 S Magnolia Avenue	$85,960	0.31	B-3A	1937	608 S Magnolia Avenue		Service/Reta	1	Slightly Deter	N	
2822-035-003	2822-035-003	Brian & Diane Lee	606 SE 3rd Avenue	$58,517	0.16	B-3B	1920	606 SE 3rd Avenue	Brian Lee P.A., Indi	Office - Profe	1	Standard	N	5
2820-021-002	2820-021-002				0.00									
					0.00									
2820-032-002	2820-032-002				0.00									
					0.00									
2820-032-005	2820-032-005				0.00									
					0.00									
2820-034-102	2820-034-102				0.00									

PARCEL .E TABLE

PXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P	PAF
2820-034-002	2820-034-002				0.00									
					0.00									
28351-001-00	28351-001-00				0.00									
2822-035-004	2822-035-004	Leila Stewart			0.00									
2822-025-003	2822-025-003	Walter Berry & Walter Fraser	606 SE 1st Avenue	$18,330	0.16	B-3B	1928	612 SE 3rd Avenue		Residential	1	Slightly Deter	N	1
2820-021-003	2820-021-003			$14,240	0.13	B-3A		600 Block SE 1st Avenue		Vacant Grass	0	Grass	N	
2820-021-006	2820-021-006				0.00									
2820-032-004	2820-032-004				0.00									
2822-027-006	2822-027-006	T.A. & Carroll Jaycox			0.00									
2820-034-001	2820-034-005			$13,000	0.30	B-3B		600 SE Osceola Avenue						
2822-025-004	2822-025-004				0.00					Grass Lot	0	Vacant Grass	N	
2822-025-005	2822-025-005	Church	623 S Magnolia Avenue	$152,867	0.29	B-3A	1900	621 S Magnolia Avenue	Mt. Zion A.M.E Chu	Church	2	Standard	N	
2849-000-001	2849-000-001	Loreetta & Walter Harris	620 SE 1st Avenue	$22,357	0.24	B-3A	1948	620 SE 1st Avenue		Residential	1	Deteriorated	N	1
2852-000-015	2852-000-015				0.00									
2820-032-006	2820-032-006	Betty Stanton	619 SW Pine	$152,672	0.29	B-3A	1970	619 SW Pine Avenue	Sunrise Restaurant	Service/Reta	1	Standard	N	15
2852-000-016	2852-000-016				0.00									
2822-035-005	2822-035-005	German & Araminta Rivera		$26,208	0.29	B-3B		600 Block SW 3rd Avenue		Vacant Grass	0	Grass/Trees	N	10
2822-035-006	2822-035-006	John Vitto	205 SE 7th Street	$17,300	0.13	B-3B	1948	205 SE 7th Street	Mid Florida Dental I	Service/Reta	1	Slightly Deter	N	2
2852-018-003	2852-018-003	Kim Bryant	209 SE 7th Street	$11,538	0.13	B-3B	1928	209 SE 7th Street		Residential	1	Slightly Deter	N	2
2852-018-004	2852-018-004	Carter Vincent Brown		$34,089	0.29	B-3B	1918	621 SW 1st Avenue		Residential	2	Deteriorated	N	2
2822-035-008	2822-035-008	Victor Buttermore	614 & 618 S Magnolia	$68,069	0.31	B-3A	1940	614, 616, & 618 S Magnolia Av	Sign's Unlimited, Tr	Service/Reta	1	Standard	N	10
2822-035-009	2822-035-009	Louise Sanford		$25,181	0.14	B-3B	1928	221 SE 7th Street		Residential	1	Standard	N	2
2849-006-013	2849-006-013	Jerry & Barbara Rushing		$40,599	0.11	B-3B	1946	622 SE 3rd Avenue	Bo-Kay Florist	Service/Reta	1	Standard	N	7
2849-006-010	2849-006-010				0.00									
2849-005-040	2849-005-040				0.00									
2820-021-104	2820-021-104				0.00									
2820-021-005	2820-021-005				0.00									
2820-032-008	2820-032-008				0.00									
2820-034-106	2820-034-106				0.00									
2820-034-006	2820-034-006				0.00									
2820-034-007	2820-034-007				0.00									
					0.00									
2820-032-007	2820-032-007				0.00									
2820-020-001	2820-020-001				0.00									
2820-020-002	2820-020-002				0.00									
2822-024-001	2822-024-001	Thomas & J. Markovich	SW 2nd Street		0.00									
2822-024-004	2822-024-004	Thomas & J. Markovich		$83,600	0.39	B-3A		SE 7th Street & s Magnolia Avenue		Vacant Grass	0	Grass/Trees		
2822-024-005	2822-024-005	Thomas & J. Markovich			0.00	B-3A		700 Block SE 1st Avenue		Vacant Grass	0	Grass/Trees	N	
2852-008-002	2852-008-002	Jayanti & Manhar Patel	723 Sw Pine Avenue	$315,791	0.58	B-3A	1958	700 Block SE 1st Avenue		Vacant Grass	0	Grass/Trees		
2852-008-001	2852-008-001	Edward & Maria Franczyk	704 SW 3rd Avenue	$65,073	0.16	B-3B	1984	833 SW Pine Avenue	Friendship Inn	Service/Reta	1	Standard	N	20
2822-024-006	2822-024-006				0.00			704 SW 3rd Avenue		Office	1	Standard	N	10
2822-029-001	2822-029-001	David Roquemore		$8,625	0.20	B-3B								
2852-009-001	2852-009-001	Edgar & Mamie Roberts	708 SW 2nd Avenue	$194,499	0.58	B-3B	1942	100 SE 7th Street		Grass Lot	0		N	
2822-029-003	2822-029-003	Richard Kesselring	Bldg. 1, 151 SE 8th Street	$216,799	0.51	B-3B	1918	708 SW 2nd Avenue		Service/Reta	1	Standard	N	25
2822-034-001	2822-034-001	Earl & Diane Wingo	210 SE 7th Street	$54,362	0.29	B-3B	1980	151 SE 8th Street & 730 SE Osceola Avenue		Residential	2	Standard/Slig	N	4
2822-034-002	2822-034-002	Thelma Shaw		$15,880	0.14	B-3B	1933	733 SE Osceola Avenue		Industrial	1	Slightly Deter	N	12
2852-014-002	2852-014-002	Neal Bonivia		$78,624	0.58	B-3B		216 SE 7th Street		Single Family	1	Slightly Deter	N	
2822-034-003	2822-034-003	Mary Von Rodenstein	SE 3rd Avenue & 7th Street	$4,648	0.13	B-3B		700 Block SW 2nd Avenue		Vacant Grass	0	Grass/Trees	N	
2852-014-001	2852-014-001	Marion County Board of Co		$39,312	0.29	B-3B		200 Block SE 7th Street		Vacant Grass	0	Vacant Grass	N	
2852-019-002	2852-019-002	George Vazquez	711 SW 1st Avenue	$46,547	0.29	B-3A	1933 & 1957	100 Block SW 7th Street		Grass Lot	0	Grass	N	
2852-019-001	2852-019-001	Neal Bonavia		$54,614	0.31	B -3A	1936	711 SW 1st Avenue & 506 S Magnolia Avenue		Residential, S	1	Deteriorated	N	
2820-034-008	2820-034-008				0.00			706 S Magnolia Avenue		Vacant Grass	1	Grass/Trees	N	
					0.00									
2822-034-004	2822-034-004	Dorothy Chancey		0	0.13	B-3B	1928	712 SE 6th Street		Residential	1	Standard	N	2
2820-033-001	2820-033-001				0.00									
2820-033-002	2820-033-002				0.00									
2820-033-003	2820-033-003				0.00									
2852-008-003	2852-008-003	Edward & Maria Franczyk	706 SW 3rd Avenue	$52,961	0.13	B-3B	1958	706 SW 3rd Avenue	Unemployment Tax	Office - Profe	1	Standard	N	
2849-003-002	2849-003-002				0.00									
2820-033-004	2820-033-004				0.00									
2849-003-001	2849-003-001				0.00									
2820-020-103	2820-020-103				0.00									
2822-029-002	2822-029-002	Gary Jarrell	111 SE 8th Street	$201,206	0.39	B-3B	1971	11 SE 8th Street	Southern Electric S	Service/Reta	1	Standard	N	10
2822-024-002	2822-024-002	Thomas & J.K. Markovich	719 S Magnolia Avenue		0.00	B-3A		SE 8th Street & S Magnolia Avenue		Vacant Grass	0	Grass/Trees		
2822-034-005	2822-034-005	Earl & Diane Wingo		$19,232	0.22	B-3B	1928	207, 208,&209 SE 8th Street		Residential	1	Deteriorated	N	1

PARCEL THEME TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P	PAF
2852-008-004	2852-008-004	Stewart & Dorothy Brady		$30,576	0.29	B-3B		300 Block SW 8th Street		Vac	0	Grass/Trees	N	
2822-034-006	2822-034-006	Thelma Shaw			0.23	B-3B	1928	215 SE 8th Street		Resid	1	Standard	N	2
2822-029-103	2822-029-103				0.00									
2822-034-007	2822-034-007	Rodney & Violet Poetter		$39,790	0.22	B-3B	1954	227 SE 8th Street	Daniel J. Wade - Tl	Service/Reta	1	Standard	N	8
2852-009-003	2852-009-003	Stephen Reeves	211 SW 8th Street	$185,401	0.58	B-3B	1966	203-237 SW 8th Street	Sandalwood Apartn	Residential -	1	Standard	N	
2820-020-004	2820-020-004				0.00									
2852-014-004	2852-014-004	D. Depaz,A.Bazo,A.Sharon & M	111 SW 8th Street	$111,229	0.29	B-3B	1978	11 SW 8th Street	Family Medical Clin	Office - Profe	1	Standard	N	15
2852-019-003	2852-019-003	Nicholas Mansito		$18,368	0.15	B-3B		700 Block SW 1st Avenue		Vacant Grass	0	Gras/Trees/C	N	
2852-019-004	2852-019-004	Marc Iacovelli	814 S. Magnolia	$20,259	0.15	B-3A		700 Block S Magnolia Avenue	For Sale - Peek Prc	Car Lot w/vel	1	Deteriorated	N	
2820-033-005	2820-033-005				0.00									
2820-033-006	2820-033-006				0.00									
2820-034-010	2820-034-010				0.00									
2820-034-009	2820-034-009				0.00									
2850-000-000	2850-000-000				0.00									
					0.00									
2820-034-109	2820-034-109				0.00									
2850-001-000	2850-001-000				0.00									
2820-020-003	2820-020-003				0.00									
2822-024-003	2822-024-003	Farley Neasman & Melvin Lang	723 S. Magnolia Avenue	$20,160	0.12	B-3A		723 S Magnolia Avenue		Parking Lot -	0	Paved Parkir	N	8
2852-019-005	2852-019-005	Rosa Lee Parson	723 SW 1st Avenue	$3,483	0.14	B-3B	1934	723 SW 1st Avenue		Residential	1	Standard	N	
2849-003-004	2849-003-004				0.00									
2849-003-003	2849-003-003				0.00									
2849-004-037	2849-004-037				0.00									
2822-023-002	2822-023-002				0.00									
2822-023-001	2822-023-001				0.00			S. 8th Street & S. Magnolia	Nails by Kris, Cellul	Service/Reta	1	Standard		8
2822-023-001	2822-023-001				0.00			S. 8th Street & S. Magnolia	Nails by Kris, Cellul	Service/Reta	1	Standard		8
2852-007-001	2852-007-001	Jui-Cho & Win-Hsiu Han	815 SW Pine Avenue	$397,057	1.15	B-3A	1954	805 & 815 SW Pine Avenue	Ocala Mouse Hous	Service/Reta	1	Standard	N	40
					0.00									
					0.00									
2852-010-001	2852-010-001	John & Leonie Gootee	807 SW 3rd Avenue	$399,642	1.15	B-3B	1976	807 SW 3rd Avenue	Ocala Professional	Office - Profe	1	Standard	N	40
2852-013-005	2852-013-005	John Clardy, Jr.	805 SW 2nd Avenue	$38,258	0.16	B-3B	1933	805 SW 2nd Avenue		Residential	2	Standard	N	
2835-002-004	2835-002-004				0.00									
2852-013-002	2852-013-002	John Clardy, Jr.	116 SW 8th Street	$17,550	0.13	B-3B		116 SW 8th Street		Grass Lot	0	Garden and I	N	
					0.00									
2835-002-003	2835-002-003				0.00									
2851-136-000	2851-136-000				0.00									
2852-013-001	2852-013-001	John Clardy, Jr.		$41,803	0.35	B-3B		800 Block SW 1st Avenue		Vacant Grass	0	Grass	N	
2852-020-002	2852-020-002	Manuel DelCharco	801-803 Sw 1st Ave.	$129,906	0.29	B-3A	1979	801, 802, & 803 1st Avenue	Center for Family H	Office - Profe	1	Standard		
2820-101-001	2820-101-001				0.00									
2820-101-002	2820-101-002				0.00									
2820-101-003	2820-101-003				0.00									
2851-134-000	2851-134-000				0.00									
2851-142-000	2851-142-000				0.00									
2820-101-007	2820-101-007				0.00									
2852-020-001	2852-020-001	Farley Neasman		$15,990	0.11	B-3A		000 Block SW 8th Street		Vacant Grass	0	Grass/Trees	N	
2820-101-004	2820-101-004				0.00									
2851-135-000	2851-135-000				0.00									
2851-138-000	2851-138-000				0.00									
2820-101-005	2820-101-005				0.00									
2825-000-018	2825-000-018				0.00									
2851-139-000	2851-139-000				0.00									
2825-000-015	2825-000-015				0.00									
2825-000-013	2825-000-013				0.00									
2825-000-010	2825-000-010				0.00									
					0.00									
2820-003-000	2820-003-000				0.00									
2820-002-000	2820-002-000				0.00									
2825-000-007	2825-000-007				0.00									
2820-014-002	2820-014-002				0.00									
2825-000-033	2825-000-033				0.00									
2825-000-004	2825-000-004				0.00									
					0.00									
2825-000-001	2825-000-001				0.00									
					0.00									
2852-020-005	2852-020-005	W.R. III & Mara Elliott	812, 814, & 816 S. Magnolia	$130,653	0.29	B-3A	1946	812, 814, & 816 S Magnolia Ave	Art & Gift Gallery(Ai	Service/Reta	1			
2822-023-004	2822-023-004				0.00									

PARCEL TABLE

DXF_TEXT	PARC_NUM	OWNER	ADDRESS	TOT_VAL	ACRES	ZONE	YR_BUILT	STREET	FNAME	ELU	FLOORS	CONDITION	P	PAF
2822-023-005	2822-023-005				0.00									
2851-136-001	2851-136-001				0.00									
2852-013-003	2852-013-003	John Clardy, Jr.		$45,302	0.34	B-3B		800 Block SW 2nd Avenue		Vacant Grass	0	Grass/Trees	N	
2852-020-003	2852-020-003	W.R. III & Mara Elliott		$19,656	0.14	B-3A		800 Block SW 1st Avenue		Alley betwee	0	Paved Alley	N	
2825-000-020	2825-000-020				0.00									
2825-000-022	2825-000-022				0.00									
2820-101-006	2820-101-006				0.00									
2825-000-023	2825-000-023				0.00									
2825-000-024	2825-000-024				0.00									
2825-000-025	2825-000-025				0.00									
2825-000-026	2825-000-026				0.00									
2825-000-028	2825-000-028				0.00									
2820-101-008	2820-101-008				0.00									
2849-002-002	2849-002-002				0.00									
2849-002-001	2849-002-001				0.00									
2825-000-030	2825-000-030				0.00									
2849-002-004	2849-002-004				0.00									
2825-000-031	2825-000-031				0.00									
2820-102-000	2820-102-000				0.00									
2825-000-032	2825-000-032				0.00									
2820-014-001	2820-014-001				0.00									
					0.00									
2825-000-003	2825-000-003				0.00									
2825-000-036	2825-000-036				0.00									
2825-000-038	2825-000-038				0.00									
					0.00									
2852-013-004	2852-013-004	Russels Sands	822 SW 1st Avenue	$38610	0.28	B-3B		822 SW 1st Avenue		Vacant Grass	0	Grass/Trees	N	
2850-002-000	2850-002-000				0.00									
2835-002-005	2835-002-005				0.00									
2835-002-012	2835-002-012				0.00									
2851-143-001	2851-143-001				0.00									
					0.00									
2852-020-006	2852-020-006	W.R. III & Mara Elliott	11 SW 10th Street	$124,210	0.14	B-3A	1968	11 SW 10th Street	Express Pantry & D	Service/Reta	1	Standard	N	
2852-020-004	2852-020-004	E & S Corp.		$9,800	0.12	B-3A		800 or 900 Block S Magnolia Avenue		Parking Lot -	0	Paved Parkir	N	21
2825-000-029	2825-000-029				0.00									
2852-020-004	2852-020-004	E & S Corp.		$9,800	0.12	B-3A		800 or 900 Block S Magnolia Avenue		Parking Lot -	0	Paved Parkir	N	21
2822-022-001	2822-022-001				0.00									
2822-022-002	2822-022-002				0.00									
2852-006-002	2852-006-002	Central Florida Oil Co.	905 S. Pine Avenue	$131,321	0.38	B-3A	1969	905 S Pine Avenue	Shell Food Mart	Service/Reta	1	Standard	N	
2852-006-001	2852-006-001	Joseph & Zlata Sabo	307 & 309 SW 10th St.	$91,552	0.22	B-3A	1951	307 & 309 SW 10th Street	Mowers Plus, E&Z	Service/Reta	1	Standard	N	15
2852-011-001	2852-011-001	Robert & Sharon Denman	221 SW 10th Street	$179,155	0.62	B-3A	1956	221 SW 10th Street	Denman Realty	Service/Reta	1	Standard	N	15
2852-012-001	2852-012-001	John Clardy, Jr.	121 SW 10th Street	$171,137	0.62	B-3A	1970	121 SW 10th Street	Minitman Car Wast	Service/Reta	1	Standard	N	5
2852-021-001	2852-021-001	W.R. III & Mara Elliott		$1,313	0.01	B-3A		00 Block SW 10th Street		Parking Lot -	0	Parkin Lot	N	
2852-021-004	2852-021-004				0.00									
2849-002-005	2849-002-005				0.00									
2835-002-007	2835-002-007				0.00									
					0.00									
2849-002-003	2849-002-003				0.00									
2835-002-008	2835-002-008				0.00									
					0.00									

VAC_OCC	T_NU	COMMENTS	BUS_PHONE	HID

PARCEI .E TABLE

VAC_OCC T_NUMBER COMMENTS BUS_PHONE IND

VAC_OCC	T_NU	COMMENTS	BUS_PHONE	IND

PARCEL E TABLE

VAC_OCC	T_NU	COMMENTS	BUS_PHONE	IND

PARCEL THEME TABLE

VAC_OCC	T_NU_COMMENTS	BUS_PHONE	IND

PARC ME TABLE

VAC_OCC	T.NU	COMMENTS	BUS_PHONE	IND

VAC_OCC	T:NU:COMMENTS	BUS_PHONE	IND

VAC_OCC	T_NUCOMMENTS	BUS_PHONE	IND

PARCEL THEME TABLE

VAC_OCC	T_NU_COMMENTS	BUS_PHONE	IND

PARCL ME TABLE

VAC_OCC	T.NU COMMENTS	BUS_PHONE	IND

PARCEL THEME TABLE

VAC_OCC	NUCOMMENTS	SUB_PHONE	IND

PARC EME TABLE

VAC_OCC	T_NO	COMMENTS	BUS_PHONE	IND	
Vacant	N 0	This building has 2	0		x
Occupied	N 0		0		x

VAC_OCC	T_NU	COMMENTS	BUS_PHONE	IND
Occupied	N 1		0	x

VAC_OCC	T_NU	COMMENTS	BUS_PHONE	IND	
Occupied	N	1	Terminal & other buildings For Sale, Gu		x
Occupied	N	1		0	x
Vacant	N	0	Concrete foundatio	0	x
Vacant	N	0	Possibly being use	0	x

PARCEL THEME TABLE

VAC_OCC	T_NU	COMMENTS	BUS_PHONE	IND
Occupied	N 1	Part of parcel is fen	0	x
Vacant	N 0		0	x
Vacant	N 0	Adjoins Seminole F	0	x
Occupied	N 2	Sem. Feed Ind. Complex-True Valu Hd		x
Undeveloped	N 0		0	x

VAC_OCCL	T_NU	COMMENTS	BUS_PHONE	IND
Occupied	N 3		0	x
Vacant	N 0		0	x
Vacant	N 0		0	x
Vacant	N 0		0	x
Occupied	N 1		0	x
Vacant	N 0		0	x
Occupied	N 1	Two buildings		x
Occupied	N 2	Uncertain of number of tenants,		x
Vacant	N 0	(904) 622-8160 ask	0	x
Vacant	N 0	Cars from accountir	0	x
Vacant	N 0		0	x
V or O?	N 0		0	x

VAC_OCC	T_NU	COMMENTS	BUS_PHONE	D	
Occupied	N	1		0	x
Occupied	N	1		0	x
Occupied	N	1	Public		x
Undeveloped	N	0		0	x
Vacant	N	0		0	x
Occupied	N	1		0	x
Vacant	N	0		0	x x

VAC_OCC	T_NU	COMMENTS	BUS_PHONE	IND	
Occupied	N 1		0		x
Partiall					x
Vacant	N 0	Lawn adjoining Gie	0		x
Occupied	N 1		0		x
Occupied	N 0		0		x
Vacant	N 0	Parking lot used by adjoining parce			x
Occupied	N 2	La			x
Undeveloped	N 0		0		x
Partially Occupied	N 2	For Re			x
Partially Occupied	N 1	Parc			x
Occupied	N 0		0		x
Occupied	C 1	Bldg. might house more than just Pu			x
Occupied	N 1	1 Standard bldg. & Fenced in			x
Occupied	C 1	Bay's Cleaners	629-1051		x
Occupied	C 1		732-7910		x
Vacant	C 0	Private Parking for	351-22		x
Undeveloped	C 0	Parking Lot for Federal Buil			x
Vacant	C 0	Fenced in grass lot	0		x
Vacant	C 0	Parking			x

PARCEL THEME TABLE

VAC/OCC	ENU	COMMEN..S	BUS_PHONE	IND
Occupied	C 2	2 buildings on this p 867-0024, 732-310		x
Occupied				x
Vacant	C 0	Parking for Florida 7		x
Undeveloped	B 0		0	x
				x
O				x
Undeveloped	B 0		368-6200	x

PARCEL ...E TABLE

VAC_OCC	T_NU	COMMENTS	BUS_PHONE	IND

x

PARCEL THEME TABLE

VAC_OCC	T_NU	COMMENTS	BUS	IND
Vacant	C 0	For Rent 732-4353	0	x
Occupied	B 1		620-7100	x
Occupied	A 1	Orlean		x
Undeveloped	A 0	Paid Parking, very l	732-4770	x
	A 0	Courtyard b/w busir	0	x
Occupied	A 1	2nd floor connectec	620-8700	x
				x
Partially Occupied	A 1	2nd floor available, inquire at Downtowi		x
				x
Occupied	B 1		368-6200	x
Undeveloped	B 0		368-6200	x
Occupied	A 1	Orleans Building	622-1624	x
Vacant	N 0	Lawn adjoining Gie	0	x
Occupied	C 1		622-4257	x
Occupied	A 1		351-2222	x
Occupied	B 0		368-6200	x
				x
Vacant	A 0		732-7283	x
Vacant	A 0	For Rent or Sale, E	351-0055	x

VAC/OCC	T	NU	COMMENTS	BUS_PHONE	IND
Partially Occupied	A	1	Ajo		x
Occupied	A	1	Not accessible to cl	0	x
Vacant	A	0	For Information Call	732-5056	x
Occupied	A	1		732-5056	x
Partially Occupied	A	1			x
Occupied	C	1	Building with parkin	?	x
Occupied	C	1		629-4852	x
Undeveloped	C	0	Adjoins Central Fl.	Pain	x
Occupied	C	1		62	x
Undeveloped	B	0		620-710	x
Occupied	B	1		622-5765	x
Occupied	B	1		629-5703	x
Occupied	S	1		0	x
Vacant	A	0	Seperate door leading to 2nd floor.	Fir	x
Occupied	A	1	On street parking o	622-3224	x
Vacant	A	0		368-2050	x

VAC_OCC	T	NU	COMMENT	BUS_PHONE	IND
Occupied	A	1	Majority	629-8051	x
Occupied	A	1	Gazebo,	0	x
Occupied	A	2	Does R	-12 S Magno	x
Occupied	A	2	Law		x
Undeveloped	B	0		620-7100	x
Partially Occupied	A	2	Spaces for Sal		x
Undeveloped	B	0	Parking meters on every parking s		x
Occupied	B	1	Auto repair shop and adjacent f		x
Partially Occupied	C	1	Space on 2nd fl		x
Occupied	C	1		629-9341	x
Occupied	C	0		0	x
Vacant	C	0	Stacks of old tires and trucks parked on		x
Vacant	C	0	Stacks of old tires and trucks parked on		x
Vacant	C	0		0	x
Occupied	A	1		732-8424	x
Vacant	A	0	For Rent 629-0781	629-0781	x
Occupied	A	1		629-4700	x
Occupied	C	1		620-8894	x
Occupied	C	1	Abundant Life Christian Assembly & so		x

PARCEL .E TABLE

VAC/OCC	T	NU	COMMENTS	BUS_PHONE	IND
Occupied	C	1		629-3782	x
Partially Occupied	B	2		622-3700	x
Vacant	B	0	Vaca		x
Vacant	C	0	Large metal shed-like structure; one do		x
Partially Occupied	C	1		622-5544	x
Occupied	A	2	1 building - 2 occup	0	x
Vacant	A	0		0	x
Vacant	A	0		0	x
Occupied	A	1		622-3500	x
Vacant	A	0	Future home of Bl		x
Occupied	A	1		732-8844	x
Occupied	A	1		732-8844	x
Occupied	A	1		629-0781	x
Occupied	A	1		629-3200	x
Occupied	A	0		62	x
Occupied	A	1		620-1111	x
Occupied	S	1		0	x
Occupied	B	1		368-8706	x
Vacant	A	1	Several electrical & building permits we		x
Occupied	A	1		622-7769	x
Occupied	C	1	Parking lot is either churches or c		x
Occupied	A	2		867-5010,	x
	B	0		0	x
Occupied	C	1		622-2454	x

PARCEL THEME TABLE

VAC/OCC	T/HU	COMMENTS	BUS_PHONE	ND
Occupied	C 1	Church building an	629-3782	x
	B 0		0	x
Vacant	B 0		0	x
Occupied	A 1		620-2555	x
Occupied	B 1	Roof leaks water.	No phone # listed.	x
Undeveloped	A 0	Alley leads into sm	0	x
Vacant	A 0			x
Undeveloped	A 0	Parking for the Disc	620-2555	x
	A 1			x
Vacant	B 0		368-2050	x
	A 0			x
				x

VAC_OCC	T	NU	COMMENTS	BUS_PHONE	IND
Vacant	S	0		0	x
Vacant	S	0		0	x
Vacant	S	0		0	x
Occupied	S	1	Fred Wright Realty 732-5867, For sale		x
Vacant	S	0	Chain link fence se	0	x
Vacant	S	0	Gwen Dickinson		x
Vacant	S	0		0	x
Vacant	S	0		0	x
Undeveloped	B	0		622-1188	x
Occupied	B	1		622-8121	x
Occupied	B	1		622-8121	x
Occupied	B	1		351-4799	x
Occupied	B	1		622-4125	x
Partially Occ					x
Occupied	B	1	Drive Thru Tellers, Marketing & Mor		x
Occupied	S	1		0	x
Occupied	S	1		0	x
Occupied	S	1		0	x
Vacant	S	0		0	x
Occupied	B	1		629-7001	x

PARCEL THEME TABLE

VAC_OCC	F_NU	COMMENTS	BUS_PHONE	IND
Vacant	B 0		Vacant/No Number	x
Occupied	S 0		0	x
Vacant	S 0		0	x
Vacant	S 0		0	x
Vacant	S 0		0	x
Occupied	S 1		0	x
Occupied	S 0		0	x
Undeveloped	B 0		622-4125	x
Occupied	S 1		0	x
				x
Occupied	B 1		732-0211	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Occupied	S 1		0	x

PARCEL . .ME TABLE

VAC_OCC	T_NU	COMMENTS	BUS_PHONE	IND	
Partially Occupied					x
Occupied	C 1	Abundant Life Christian Assembly & so			x
Occupied	C 1	Church building an	629-3782		x
Vacant	S 0	Bill Rodgers Realty	0		x
Vacant	S 0	Concrete foundatio	0		x
Vacant	C 0	Sunshine and water through ceiling.			x
Vacant	C 0	Foxfire Realty 732-:	732-3344		x
Vacant	C 0	1 very large parking lot, 1 standard bldg			x
Occupied	C 1		622-3221		x
Occupied	S 1		0		x
Vacant	C 0	Phone # (305) 434-	0		x
Occupied	C 1		622-7561		x
Vacant	C 0		0		x
Occupied	S 1		0		x

PARCEL THEME TABLE

VAC_OCC	T_NU	COMMENTS	BUS_PHONE	IND
Occupied	S 1		0	x
Vacant	S 0	Mark Abarone Real	0	x
Undeveloped	C 0	Lawn and Parking Lot for Ocala Bluepri		x
Occupied	C 1		732-5338	x
Partially Occupied	S 1	Large vacant pa[illegible]lot behin		x
Occupied	S 1	High Fenc[illegible]ed wire surroundi		x
Occupied	S 1	High Fenced w/barbed wire surroundi		x
Occupied	C 1	Connected building	622-987	x
Vacant	S 0		0	x
Vacant	C 0		0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Vacant	S 0		0	x
Occupied	S 1		0	x
Occupied	S 1		0	x

VAC_OCC	T_NU	COMMENTS	BUS_PHONE	IND
Vacant	S 0		0	x
Occupied	C 1		622-5831	x
Vacant	S 0	Grass lot with trees behind the bdlg. Pa		x
Vacant	C 0		0	x
Vacant	S 0		0	x
Occupied	C 1	Building & Car Lot	732-2866	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Occupied	S 2			x
Occupied	S 1	High Fenced w/barbed wire surroundi		x
Occupied	S 1	High Fenced w/barbed wire surroundi		x
Occupied	C 1		732-2866	x
Vacant	S 0		0	x
Vacant	S 0		0	x
Undeveloped	C 0	Lot for car sales	732-2866	x
Occupied	S 1	Ocala - Lincoln Mer	0	x

VAC_OCC	TNI	COMMENTS	BUS_PHONE	IND
Occupied	S 1		0	x
Vacant	S 0	Formely ABC Liquo	0	x
Vacant	S 1		0	x
Occupied	C 1		622-7233	x
Undeveloped	S 0	Parking for employ	0	x
Occupied	C 1	Garage.	732-2866	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Vacant	S 0	Contains a vacant	0	x
Vacant	S 0	For Sale or Rent - (	0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Vacant	S 0	Large fenced in lot	0	x
Occupied	S 1		0	x
				x
Vacant	S 0	Vacant Warehouse	0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Occupied	S 1		0	x

PARCE ME TABLE

VAC_OCC	T NU	COMMENTS	BUS_PHONE	IND
Occupied	S 1		0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Occupied	S 2		0	x
Occupied	S 1		0	x
Undeveloped	S 0	Parking lot for adjoi	0	x
Occupied	S 1		0	x
Occupied	S 1	House.	0	x
Vacant	S 0	Vacant warehouse	0	x
Occupied	S 1		0	x
Vacant	S 0		0	x
Occupied	S 1		0	x
Vacant	S 0	For Sale Wright Re	0	x
Vacant	S 0	Vacant warehouse.	0	x
Vacant	S 0	For information on	0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Occupied	S 1	1 st		x
Occupied	S 1		0	x
Occupied	S 1	Vacant w		x
Occupied	S 1		0	x
				x
Occupied	S 1		0	x
Vacant	S 0	School board empl	0	x
Vacant	S 1	Formerly Mike's TV	0	x
Occupied	S			x

PARCEL THEME TABLE

VAC_OCC	T_NU	COMMENTS	BUS_PHONE	IND
Occupied	S 1		0	x
Vacant	S 0		0	x
Vacant	S 0		0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Occupied	S 0		0	x
Vacant	S 0	Cars parked on gra	0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Occupied	S 2		0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Vacant	S 0		0	x
Vacant	S 0		0	x
Vacant	S 0		0	x
Occupied	S 1		0	x
Vacant	S 0	Wheel chair access	0	x
Vacant	S 0		0	x
Vacant	S 1	Large vacant ware	0	x
Occupied	S 2	2 houses ar		x
Vacant	S 0	Vacant warehouse or auto service/stor		x
Occupied	S 1		0	x
Vacant	S 0	For Sale: Phone # (	0	x
Vacant	S 0		0	x
Vacant	S 0		0	x
Vacant	S 0	2 apparently vacant		x
Vacant	S 0		0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Vacant	S 0		0	x
Vacant	S 0	Windows are board	0	x

VAC_OCC	T_NU	COMMENTS	BUS_PHONE	IND
Vacant	S 0	Preferred Propertie	0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Occupied	S 1		0	x
Vacant	S 0		0	x
Vacant	S 0	Very small bldg.		x
Vacant	S 0		0	x
Occupied	S 1		0	x
Partially Occupied	S 2	1 of 3 spaces is vacant,	Contact A.T.TI	x
Partially Occupied	S 2	1 of 3 spaces is vacant,	Contact A.T.TI	x
Occupied	S 2	This par		x
Partially Occupied	S 1	3 buildings & parki		x
Occupied	S 1	2 story house	0	x
Undeveloped	S 0		0	x
Vacant	S 0	Enclosed by chain l	0	x
				x
Vacant	S 0		0	x
				x

PARCEL THEME TABLE

VAC_OCC	T_NO	COMMENTS	BUS_PHONE	IND
Vacant	S 0		0	x
Vacant	S 0		0	x
Vacant	S 0		0	x
Occupied	S 3	Waynes 1hr		x
Vacant	S 0		0	x
Vacant	S 0		0	x
Occupied	S 1		0	x
Occupied	S 2		0	x
Occupied	S 1	Building & grass lot	0	x
Occupied	S 1		0	x
Vacant	S 0		0	x

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
437.548	Ocala Fla Brownfield	

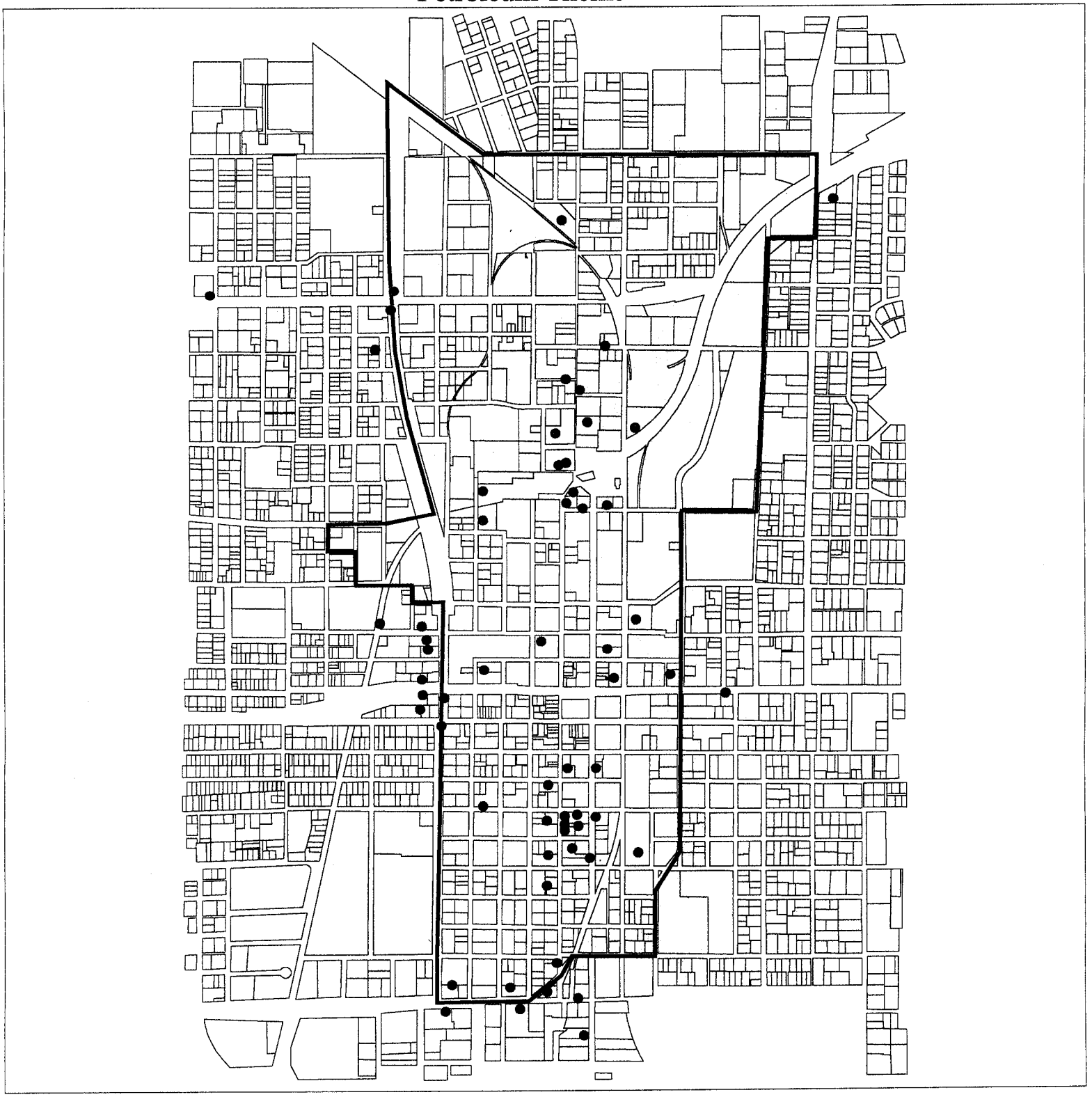
TAB - D

Petroleum Sites

D Petroleum Sites

Ocala Brownfields Information System

Petroleum Theme



N

1000 0 1000 2000 Feet

- Petrol
- CRA - Brownfields Area
- Parcels

HASKINS AUTO GLASS		101 SW 1ST AVE		32670	82.138111	29.179000	CLOSE	I	A	40	UNLV	LARRY RHODEN	9042552888	Y	17-Apr-91	UNLV		50352	B	UNDERGROUND	Y	6000
CLARDY OIL CO		606 N MAGNOLIA AVE		34475	82.137000	29.192806	OPEN	D		10	ONGO	JOHN S CLARDY JR	9046227161	B	16-Jul-91	RAP	P	E 50280	U	UNDERGROUND	D	5300
COMFUEL #2		1001 SW PINE AVE		34474	82.140250	29.178944	OPEN	A		40	ONGO	JOHN S CLARDY JR	9046227161	B	27-Apr-90	RAP	P	E 50267	U	UNDERGROUND	B	10000
CIRCLE K #8614		917 NW PINE AVE		32670	82.141806	29.196750	OPEN	A		11	CMR	STEVE BELIN	8137445266	Y	10-Aug-87	ELIG	E	E 50210	B	UNDERGROUND	A	4000
JET-OCALA		852 NW PINE AVE		32670	82.142250	29.195750	CLOSE	I	A	12	ONGO	MIKE BEEVERS	7132935462	Y	14-Nov-86	RAP	E	E 49976	B	UNDERGROUND	B	5000
OCALA MINIT MAN CAR WASH		121 SW 10TH ST		32671	82.138389	29.179556	CLOSE	I	A	55	ONGO	JOHN S CLARDY JR	9046227161	A	20-May-92	CA	A	E 49851	B	UNDERGROUND	D	888
CHEVRON-JONES		905 SW PINE AVE		34471	82.140056	29.179611	OPEN	A		11	ONGO	J R HILTZ	8136814279	B	23-Mar-87	RAP	E	E 49767	U	UNDERGROUND	L	2000
SHELL-CAR WASH #12		819 NW PINE AVE		32670	82.136389	29.194722	CLOSE	I	C	0		BETTY WILLIAMS	9046223278	B	30-Jan-89		O	49679	B	UNDERGROUND	H	275
CHEVRON #47730		315 E SILVER SPRINGS BLVD		32670	82.133806	29.187444	OPEN	A		61	ONGO	TOM RUSHMORE	9046290361	B	9-Aug-89	RA	P	E 49591	B	UNDERGROUND	M	250
TEXACO-RICHE'S		43 SW PINE AVE		32671	82.140361	29.186167	CLOSE	I	A	64	ONGO	R STEVEN MILLER	8135734000	A	14-May-85	RAP	E	E 49493	B	UNDERGROUND	B	3000
U-HAUL CENTER OF OCALA		1011 NW PINE AVE		32670	82.141722	29.197250	OPEN	C		0		MIKE JACOBS	4072409975	Y	12-Dec-88	NREQ	E	I 49474	U	UNDERGROUND	D	10000
K W BAXLEY INC		904 SE 1ST TER		32671	82.136444	29.179278	OPEN	D		42	ONGO	JOE BAXLEY	9046223614	H	27-May-87	CA	E	E 49466	U	ABOVEGROUND	Z	8000
WALTONS SERVICE CENTER INC		520 NE 1ST AVE		32670	82.136583	29.192111	CLOSE	I	C	30	CMR	JIM WALTON	9046224974	Y	30-Mar-91	ELIG	A	E 49435	B	UNDERGROUND	B	550
MOORHEAD ENGINEERING CO.		305 SE 1ST AVE		32671	82.135944	29.183833	CLOSE	I	C	60	CMR	W.ELTON CLEMMONS	9047324406	A	16-Mar-91	ELIG	A	E 49233	B	UNDERGROUND	B	2000
BORDEN INC		209 NE 2ND ST		32607	82.134778	29.188889	CLOSE	I	E	10	CMPL	JIM WOLF	3058412320	Y	28-Nov-88	NFA	E	E 49180	B	UNDERGROUND	A	888
CITGO #1		18 SW PINE AVE		32671	82.140972	29.186583	CLOSE	I	A	40	ONGO	JOHN S CLARDY JR	9046227161	B	29-Nov-90	CA	A	E 49086	B	UNDERGROUND	K	1000
SMITH OIL CO.		109 NE 9TH ST		32670	82.135667	29.195833	OPEN	C		10	CMR	TOM RUSHMORE	9046290361	Y	12-Dec-90	PART	P	P 48998	U	UNDERGROUND	B	10000
CLYDES AUTO AIR		13 S PINE AVE		32671	82.140278	29.186861	OPEN	C		10	CMR	MRS KING	9046942294	Y	15-Jan-92	ELIG	A	E 48464	B	UNDERGROUND	D	888
RICHARDSON OIL CO		519 NW 3RD AVE		32670	82.139167	29.191389	OPEN	D		29	ONGO	VIOLET SIMMONS	9046224178	Y	20-Nov-87	RAP	E	E 48411	U	ABOVEGROUND	L	1000
SIMMS,J.E.-FORMER GAS STATION	S	E 1ST AVE & SE 5TH ST	3	2678	82.136111	29.182806	CLOSE	I	A	10	CMR	CHARLES RUSE JR	3523511515	P	18-Nov-87	ELIG	E	E 48372	B	UNDERGROUND	B	888
AUTO SAVE-AUTO SALES		SR 301 & NW 2ND ST		32670	82.140917	29.188722	CLOSE	I	C	0		JEFF ANDREWS	9047323121	A	30-Mar-90		O	48282	B	UNDERGROUND	A	5000
SIMMS DISTRIBUTOR,INC,J E		1020 SE 1ST TER		32671	82.136278	29.178333	CLOSE	I	D	10	CMPL	JOHN CALHOUN	9043597527	P	18-Apr-88	SRCR	E	E 48205	B	UNDERGROUND	A	888
AAMCO TRANSMISSION SHOP		12 SW PINE ST		32670	82.140889	29.186944	CLOSE	I	C	40	ONGO	BETTY WILLIAMS	9046223278	L	10-Oct-91	CA	A	P 48169	B	UNDERGROUND	B	6000
PROFESSIONAL AUTO BODY		507 N MAGNOLIA AVE		32670	82.136778	29.191833	CLOSE	I	A	10	CMR	WINSTON BAILEY	9047326980	A	11-Jun-92	ELIG	A	E 48045	B	UNDERGROUND	Y	888
TREASURE CHEST GIFT SHOP		119 SE 1ST AVE		32671	82.135944	29.185056	CLOSE	I	C	60	ONGO	DAVID LEE SKIPPER	9047320211	A	26-Mar-91	CA	A	E 48019	B	UNDERGROUND	A	400
OCALA LINCOLN MERCURY		407 S MAGNOLIA AVE		34471	82.136611	29.183056	OPEN	C		75	ONGO	MIKE BRANLEY	9047322866	D	25-Mar-92	RA	A	E 47975	B	UNDERGROUND	A	1000
AUTO-SAVE		210 NW PINE AVE		32670	82.140917	29.188722	CLOSE	I	C	10	CMPL	R E SCHMIDT	8004437762	A	14-Feb-90	NFA	A	E 47929	B	UNDERGROUND	Y	888
OCALA,CITY-OLD LIGHT PLT WHSE	5	TH ST & 3RD AVE			82.134722	29.182944	CLOSE	I	H	75	CMR	GLENN A STEPHENS	9043516753	A	30-Jun-90	NFA	A	E 47927	B	UNDERGROUND	A	50
ART LAWSON CUSTOM FIREARMS INC		313 S MAGNOLIA AVE		32671	82.136833	29.183639	CLOSE	I	C	80	CMR	ART LAWSON	9046297793	Y	13-Aug-90	ELIG	A	E 47922	B	UNDERGROUND	Z	120
PINE STREET MOTORS INC		320 SE 1ST AVE		32671	82.136444	29.183611	CLOSE	I	C	60	CMPL	WILLIAM R STALNAKER	9047320141	Y	11-Oct-90	NFA	A	E 47862	B	ABOVEGROUND	D	888
A B C SIGN CO		304 S MAGNOLIA AVE		32671	82.137333	29.183750	CLOSE	I	C	40	UNLV	A T THOMAS	9047325026	Y	23-Mar-91	UNLV		47766	B	UNDERGROUND	D	500
3 POINT BUILDING		805 S MAGNOLIA AVE		32671	82.137056	29.180167	CLOSE	I	C	40	CMPL	EDWARD D'AVI	9043515400	Y	24-Mar-91	NFA	A	E 47763	A	UNDERGROUND	D	888
CSX TRANSPORTATION INC-PANNING LUMBER		NW 3RD AVE & NW 6TH ST			82.139167	29.192139	CLOSE	I	C	30	CMPL	JOHN CALHOUN	9043597527	B	27-Mar-91	NFA	A	E 47752	B	UNDERGROUND	P	1000
SOVEREIGN BUILDING		108 N MAGNOLIA AVE		32670	82.137500	29.188333	CLOSE	I	C	10	CMR	MIKE STEINBERG	9043731700	Y	21-May-91	ELIG	A	E 47736	B	UNDERGROUND	L	550
MID STATE FEDERAL		512 E SILVER SPRINGS BLVD		32670	82.132222	29.186972	CLOSE	I	C	60	CMPL	BECKY HART	9048544125	Y	29-Mar-91	NFA	A	E 47716	B	UNDERGROUND	D	550
MAIN STREET BUILDING		300 SE 1ST AVE		32671	82.136472	29.183889	CLOSE	I	C	62	CMR	EDWARD D'AVI	9043515400	Y	29-Mar-91	ELIG	A	E 47706	B	UNDERGROUND	M	10000
MAGNOLIA SQUARE		201 S MAGNOLIA AVE		32671	82.137306	29.184639	CLOSE	I	C	40	CMR	ROBERT BROWNLEE	3058689898	Y	27-May-91	ELIG	A	E 47693	B	UNDERGROUND	Y	500
A-1 RADIATOR		N MAGNOLIA		32670	82.136806	29.195000	CLOSE	I	C	0			0	Y	30-Mar-91	NREQ	A	I 47673	B	UNDERGROUND	Y	888
OCALA, CITY-INTERFAITH SERVIC ES	4	35 NW 2ND ST	3	2670	82.142111	29.188806	CLOSE	I	H	40	ONGO	GLENN A STEPHENS	9043516753	P	17-May-91	CA	A	E 47621	B	UNDERGROUND	Y	888
OCALA TIRE SERVICE		426 N MAGNOLIA AVE		32670	82.137306	29.182889	CLOSE	I	A	55	CMR	DON KAY	9046227121	A	15-Jun-92	ELIG	A	E 47559	B	UNDERGROUND	B	888
BI-LO VENTURES INC		733 N MAGNOLIA AVE		32670	82.136167	29.193889	CLOSE	I	C	10	CMR	HILMER SCHMIDT	9046226635	A	7-Nov-91	ELIG	A	E 47510	B	UNDERGROUND	K	550
POST OFFICE TIRE SERVICE		221 W SILVER SPRINGS BLVD		34471	82.139139	29.187583	CLOSE	I	C	10	CMR	DON CLAYBROOK	9046228191	A	18-Jun-92	PART	A	P 47437	A	UNDERGROUND	K	500
MUFFLER DOCTOR		12 NW PINE AVE		32671	82.140917	29.187333	CLOSE	I	Z	10	CMR	CHARLES SAVAGE	0	A	3-Jun-92	PART	A	P 47430	B	UNDERGROUND	L	250
FL THOROUGHBRED INDUSTRY BLDG		108 NW PINE AVE		32671	82.140750	29.188139	CLOSE	I	Z	65	CMR		0	Y	22-Aug-94	ELIG	A	E 47426	B	UNDERGROUND	Y	888
MARION TIRE & BATTERY CO		210 W SILVER SPRINGS BLVD		32670	82.139167	29.184111	CLOSE	I	A	10	CMR		0	A	13-Jun-92	PART	A	P 47424	B	UNDERGROUND	L	550
THOMAS & CONYBEAR PROPERTY		NW 2ND ST & N PINE AVE		32670	82.140778	29.188389	CLOSE	I	A	65	CMR		0	Y	22-Aug-94	ELIG	A	E 47381	B	UNDERGROUND	Y	888
CHAZAL PROPERTY		201 S MAGNOLIA AVE		32678	82.136750	29.185056	CLOSE	I	A	80	CMPL	RICHARD CHAZEL	9046224125	A	15-May-92	NFA	A	E 47341	B	UNDERGROUND	Y	550
CLIPPER HAIR DESIGN		11 SW 10TH ST		32670	82.137333	29.179444	CLOSE	I	A	30	CMPL	WALTER ELLIOTT	3526293780	A	24-Jun-92	NFA	A	E 47338	B	UNDERGROUND	Y	888
CALIFORNIA FEDERAL BANK PROPERTY		117 E SILVER SPRINGS BLVD		32670	82.135417	29.187361	CLOSE	I	A	10	CMPL	VINCENT J FERRARA	3053893300	A	15-Jun-92	NFA	A	E 47324	B	UNDERGROUND	Y	888
RAY THE LOCKSMITH		506 NE 1ST AVE		32670	82.136306	29.191694	CLOSE	I	A	35	CMR	WINSTON BAILEY	9047326980	A	27-May-92	ELIG	A	E 47309	B	UNDERGROUND	Y	888
WTMC		321 S MAGNOLIA AVE		32671	82.136833	29.183500	CLOSE	I	A	35	CMR	GARY COOPER	9046297400	A	2-Jun-92	ELIG	A	E 47292	B	UNDERGROUND	Y	888
EXECUTIVE AUTO SPA INC		822 NE 14TH ST		32670	82.129194	29.199583	CLOSE	I	C	30	CMR	S A MOSES SHASHY	9046292822	Y	21-Apr-92	ELIG	A	E 47290	B	UNDERGROUND	D	888
LYLES PROPERTY		726 N MAGNOLIA		32670	82.137083	29.193611	CLOSE	I	C	26	CMR	ABE SHASHY	9046224539	L	28-Mar-92	PART	A	P 47282	B	UNDERGROUND	D	888
WALTS BRAKES		522 S MAGNOLIA AVE		32670	82.137333	29.182111	CLOSE	I	A	40	CMR	WALTER E KRUMM	9046293134	Y	9-May-92	ELIG	A	E 47270	B	UNDERGROUND	Y	888
GATOR'S ONE HOUR CLEANERS		305 S MAGNOLIA AVE		32671	82.136833	29.183861	CLOSE	I	C	0		MICHAEL LYLES	9046296886	A	28-May-92	INC	A	I 47245	A	UNDERGROUND	Y	888
ACE SUPPLY CO		1202 N MAGNOLIA AVE			82.136917	29.199056	CLOSE	I	A	10	CMPL	DON ALLI	9046224224	A	4-Jun-92	NFA	A	E 47241	B	UNDERGROUND	Y	888
PRO TRANS		833 NW 10TH ST		32675	82.146889	29.197139	CLOSE	I	A	60	CMR	HAYDEN HASKINS	9047322221	A	17-Jun-92	ELIG	A	E 47224	B	UNDERGROUND	D	888
CLARDY PROPERTY		616 N MAGNOLIA AVE		32670	82.136778	29.192861	CLOSE	I	A	10	CMPL	JOHN S CLARDY JR	9046223053	D	12-Jun-92	NFA	A	E 47222	B	UNDERGROUND	D	15000
OCALA FORD MOTOR CO		125 NE FIRST AVE		34470	82.135611	29.188139	CLOSE	I	A	10	CMPL	YOUNG SIMMONS OR STEVEN GRA	9047328121	A	29-May-92	NFA	A	E 47221	A	UNDERGROUND	A	888
LEE MARINE		507 NE 1ST AVE		32670	82.135611	29.191778	CLOSE	I	C	35	CMPL	WINSTON BAILEY	9047326980	Y	15-Jun-92	NFA	A	E 47218	B	UNDERGROUND	A	888
WEST FL NATURAL GAS CO		613 NE OSCEOLA AVE			82.134806	29.193750	CLOSE	I	C	10	CMR		0	M	1-Jan-85	PART	A	P 47196	B	ABOVEGROUND	M	888

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
437 548	Brownfield Ocala Fla	

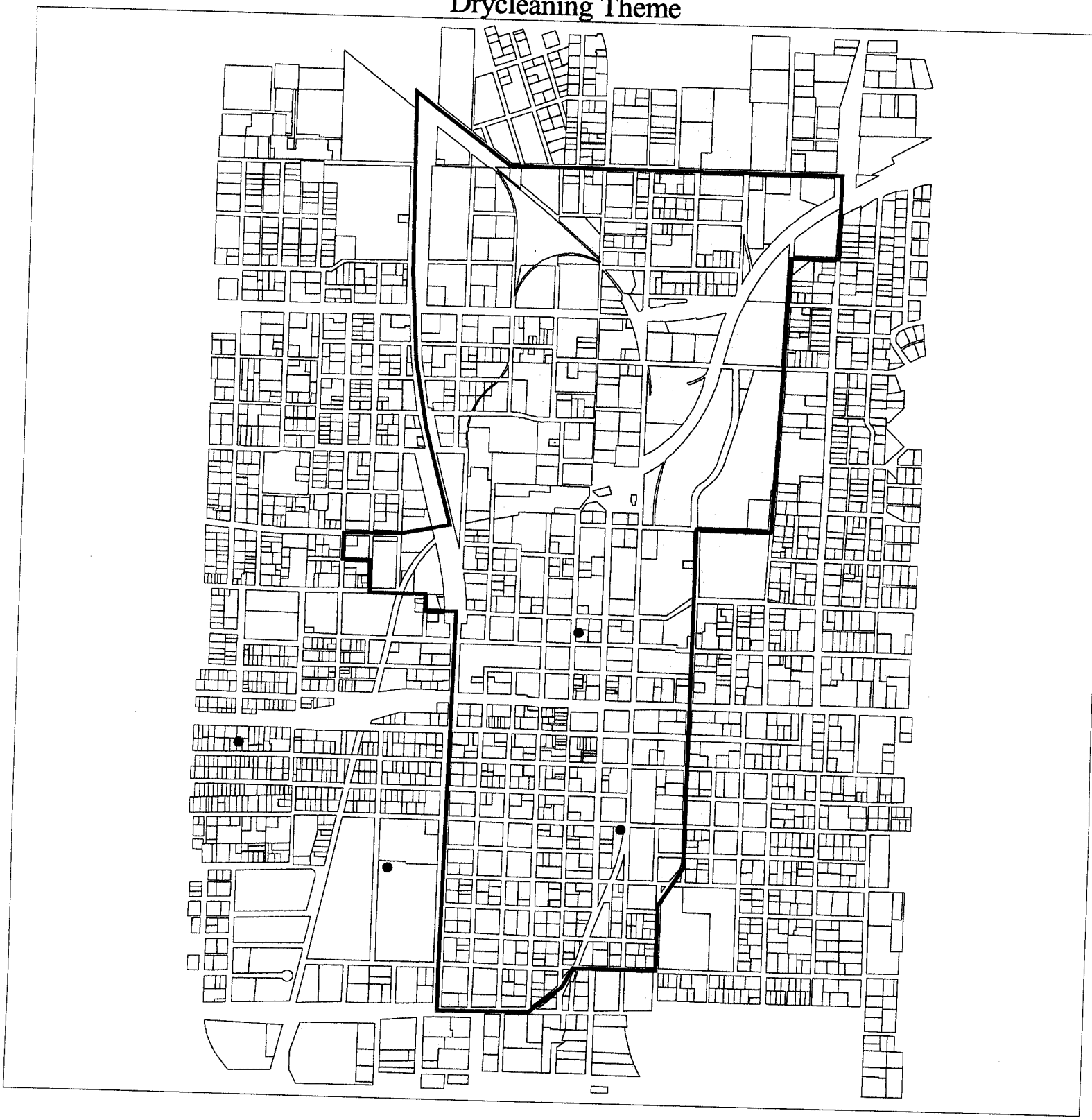
TAB E

Dry cleaning Sites

E Drycleaning Sites

Ocala Brownfields Information System

Drycleaning Theme



1000 0 1000 2000 Feet

N

- Dry-clean
- CRA - Brownfields Area
- Parcels

DRYC NG THEME

FAC_ID	DISCONAME	ADDRESS	E SC	LONG	LAT	CLEA	FAC_STA	OPERATOR	F. PK_TAI	TANK	PLACEMENT	T. T. IND
9502525	CD 42 BAYS DRY CLEANERS (FORMERLY)	412 SW PINE AVE	E 22	-82.142222	29.182500	NFA	CLOSED	CLOSED	1	157038	DRUI ABOVEGROUN	2 B
9502451	CD 42 PRESTIGE CLEANERS	305 S MAGNOLIA AVE	E 27	-82.135556	29.183611	ELIG	OPEN	MIKE LYLES	1	156349	DRUI ABOVEGROUN	2 U
9502453	CD 42 CHESE DRY CLEANERS	822 W BROADWAY ST	E 66	-82.146533	29.185550	ELIG	OPEN	CHUL SOO KZM	1	156351	DRUI ABOVEGROUN	4 U
9502670	CD 42 BAYS CLEANERS	219 N MAGNOLIA AVE	A 0	-82.136944	29.188611		OPEN-SH	CHARLIE ROARK	3	157037	DRUI ABOVEGROUN	2 B

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
437-548	Ocala Florida	

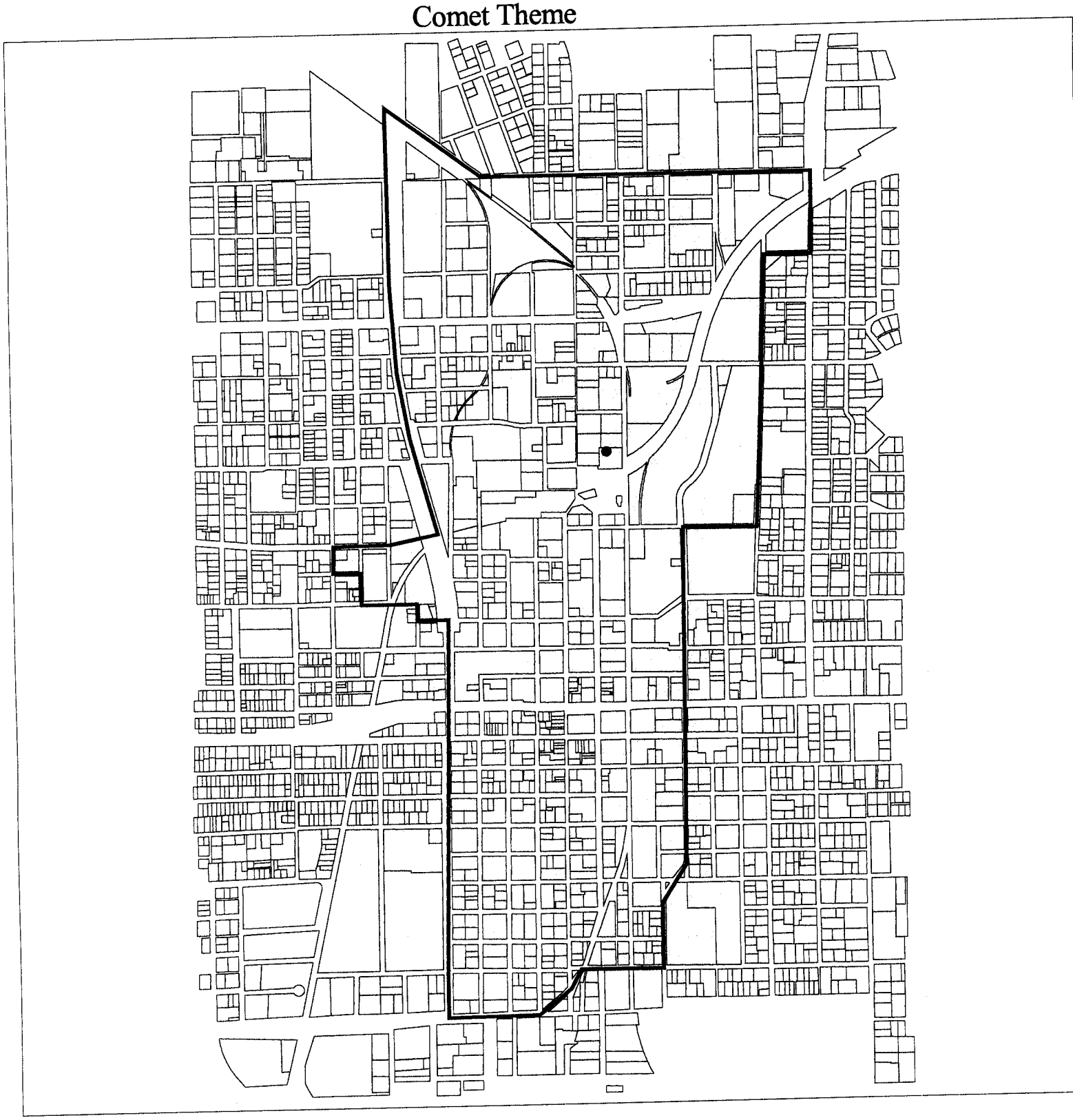
TAB F

Comet Database Sites

F Comet Database Sites

Ocala Brownfields Information System

Comet Theme



N

1000 0 1000 2000 Feet

- Comet
- CRA - Brownfields Area
- Parcels

CO. ATABASE

FNAME	CITY	LONG	LAT	ADDRESS	AK_S DESCRIPTIO	IND
PEOPLES GAS/W FLORIDA NAT'L GAS (TOWN GAS)	OCALA	-82.135833	29.193333	112 SE FORT KING STREET	OPEI RESPONSIBLE PARTY	

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
437-548	Ocala Florida - Brownfield	

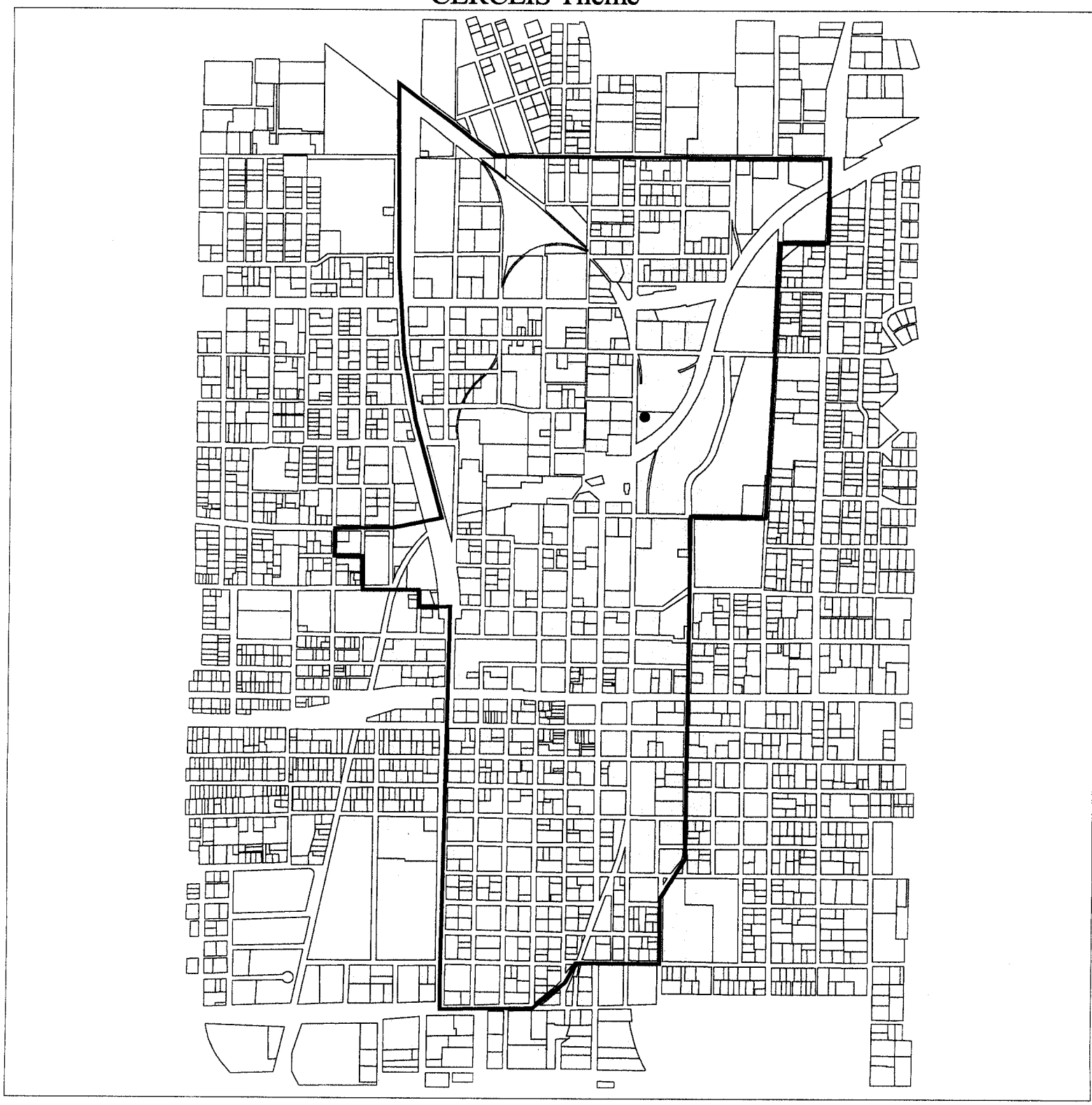
CERCLIS Site

TAB G

G CERCLIS Sites

Ocala Brownfields Information System

CERCLIS Theme



1000 0 1000 2000 Feet

N

- Cerclis
- CRA - Brownfields Area
- Parcels

CEI DATABASE

FAC_ID	FNAME	FADDRESS	LONG	LAT	PROGRAM	STATUS	DISC_DATE	PROGRAM_ST	LEAD_AG	LAST_ASSES
FLD982119729	WEST FLORIDA NATURAL GAS COMPANY	613 NORTHEAST OSCEOLA AVE	-82.13500	29.193889	SUPERFUND/CERCLIS	CLOSED	4-Sep-87	HIGH PRIORITY FOR EXPANDED SITE INSPECTION	EPA	SITE INSPECTION

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
737-548	Ocala Florida-Brownfield	

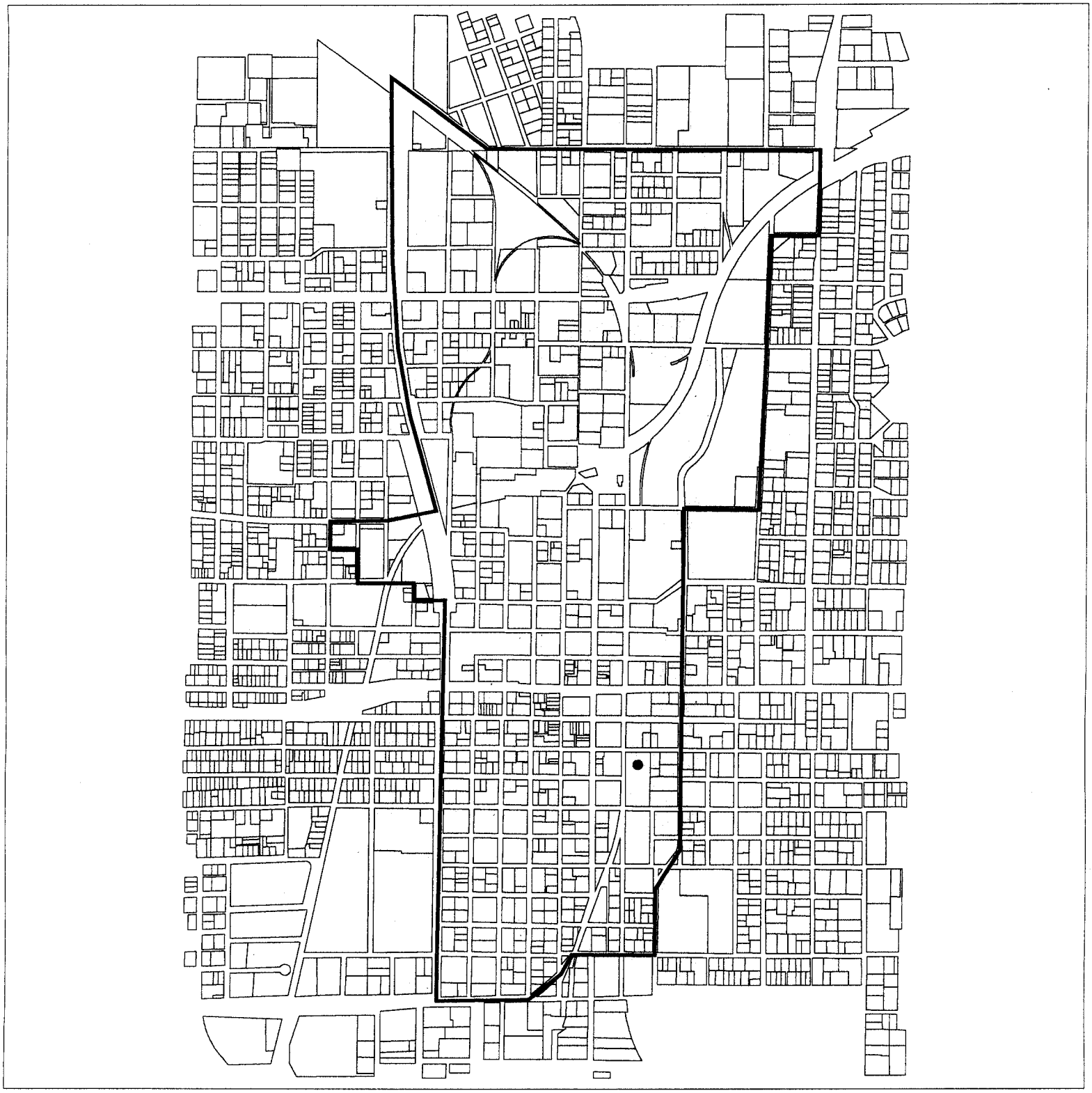
TAB H

Brownfield Sites

H Brownfields Sites

Ocala Brownfields Information System

Brownfields Theme



1000 0 1000 2000 Feet

N

- Brownfields
- CRA - Brownfields Area
- Parcels

SITE_ID	ADDRESS	PRFBSR	DATE_BSI	INT_SOUF	SITE_ASS	RISK_ASS	MONITOR	ACT_REM	POST_AC	SITE_REF	SITE_REF	SITE_REHAB	CONT_CONCE	X_COORD	Y_COORD
Courthouse	151 Osceola Ave													613169.688	1763610.500

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
137-552	Targeted Brownfield, Ocala FL	

TAB- Intro

Final Revision

Targeted Brownfields Assessment Report for the White's Meats Site, Ocala, Marion County, Florida

FINAL REVISION
February 29, 2000

Prepared for:

FLORIDA DEPARTMENT OF ENVIRONMENTAL PROTECTION
Site Screening Superfund Subsection
2600 Blair Stone Road
Tallahassee, Florida 32399-2400

ecology and environment, inc.
International Specialists in the Environment

1950 Commonwealth Lane, Tallahassee, Florida 32303
Tel. (850) 574-1400, Fax: (850) 574-1179

recycled paper

Table of Contents

Section		Page
1	Introduction	1-1
2	Site Background/History	
	2.1 Site Description	2-1
	2.2 Ownership History	2-1
	2.3 Operational History	2-3
	2.4 Regulatory/Investigative History	2-3
3	Site Environmental Setting	3-1
	3.1 Surrounding Areas	3-1
	3.2 Climatology	3-2
	3.3 Site Topography and Drainage	3-2
	3.4 Sensitive Environments	3-2
	3.5 Geology/Hydrogeology	3-3
	3.5.1 Regional Geology/Hydrogeology	3-3
	3.5.2 Site-Specific Geology/Hydrogeology	3-4
	3.6 Drinking Water Targets	3-4
4	Fieldwork Methods	4-1
	4.1 Soil Investigation	4-1
	4.2 Groundwater Investigation	4-2
	4.2.1 Monitoring Well Installation	4-2
	4.2.2 Groundwater Samples	4-3
	4.2.3 Hydrologic Assessment	4-3
	4.3 Quality Assurance/Quality Control	4-3
	4.4 Investigation-Derived Wastes	4-3
5	Investigation Results	5-1
	5.1 Results of Previous Investigations	5-1
	5.2 Targeted Brownfields Results	5-1
	5.2.1 Soil Analytical Results	5-2
	5.2.2 Groundwater Field Parameters	5-3
	5.2.3 Groundwater Analytical Results	5-4
	5.3 Quality Assurance/Quality Control	5-5
6	Pathway/Exposure Route Evaluation	6-1
	6.1 Groundwater Migration Pathway	6-1

Table of Contents (Cont.)

Section — Page

6.2 Surface Water Migration Pathway 6-1
6.3 Soil Exposure Pathway 6-2
6.4 Air Migration Pathway 6-2

7 Conclusions/Recommendations 7-1

8 References 8-1

9 Florida Professional Geologist Seal 9-1

Appendix

A Photographic Documentation Log A-1

B Lithologic Logs and Well Construction Details B-1

C Laboratory Analytical Data C-1

List of Tables

Table		Page
3-1	Distribution of Potable Supply Wells within 4 Miles of the White's Meats Site, Ocala, Marion County, Florida	3-5
4-1	Sample Locations, Rationale, and Laboratory Analyses, White's Meats Site, Ocala, Marion County, Florida	4-5
5-1	Summary of Soil Analytical Results, White's Meats Site, Ocala, Marion County, Florida, (September 20, 1999)	5-7
5-2	Monitoring Well Construction, Water Level, and Groundwater Field Parameter Data, White's Meats Site, Ocala, Marion County, Florida	5-21
5-3	Summary of Groundwater Analytical Results, White's Meats Site, Ocala, Marion County, Florida, (September 21, 1999)	5-25

List of Illustrations

Figure		Page
1	Location Map, White's Meats Site, Ocala, Marion County, Florida	2-5
2	Site Map, White's Meats Site, Ocala, Marion County, Florida	2-7
3	Water Level Elevations (September 22, 1999), White's Meats Site, Ocala, Marion County, Florida	5-21

1 Introduction

This Targeted Brownfields Assessment (TBA) report summarizes the results of the environmental sampling conducted by Ecology and Environment, Inc. (E & E) at the White's Meats site in Ocala, Marion County, Florida. The TBA was completed by E & E for the Department of Environmental Protection (FDEP) under Contract Number HW-363. The purpose of the TBA was to assist the City of Ocala's Brownfields program in evaluating environmental conditions at the site. The TBA included the completion of a site reconnaissance, a TBA workplan, and collection of soil and groundwater samples.

2 Site Background/History

2.1 Site Description

The White's Meats site, formerly Swift and Co. Meat Packing Plant, is located at 300 Northeast 14th Street, Ocala, Marion County, Florida, within Section 8, Township 15 South, Range 22 East [1, 7]. Based on the United States Geological Survey Quadrangle topographic map for Ocala West, the latitudinal and longitudinal coordinates for the site are 29° 12' 06" N and 82° 07' 58"W, respectively [2]. Figure 1 shows the site location and 1-mile radius from the site [2].

The White's Meats site is a former slaughterhouse and meat packing facility [1, 2, 3]. The site occupies 5.76 acres and is fenced on all sides. The site is situated in an urban area with a mixture of industrial and commercial land use, and is located approximately 0.5 mile east of the intersection of Northwest Pine Avenue (a.k.a. U.S. Highway 301 or 441) and Northeast 14th Street [2, 3, 5]. The facility operated from the 1920s through 1984 as a slaughterhouse and meat packing plant [1, 3, 4]. Since 1984, the site has been used by the current owner Luther White of White Construction Co., for storage of miscellaneous items that reportedly included 55-gallon drums of pesticides, oils, corrosives, and other unknown contents [1, 16, 17, 18].

Several buildings and additions were constructed on the site between 1923 and 1957 (see Figure 2) [4]. The original meat packing facility was constructed in 1925 and was approximately 38,000 square feet [4]. The auto repair shop, salt storage, and general storage buildings were also constructed in 1925 [4]. Between 1925 and 1957, several other buildings were constructed, and the main building was expanded [7]. The 1948 Sanborn Fire Insurance map for the site shows that the site did not extend as far west as the present site boundary. A citrus fruit packing plant formerly existed on the southwestern portion of the present site, outside the 1948 site property boundary [7]. With the exception of the former citrus cold storage warehouse, the citrus packing facility was demolished and the property was added to the meat packing facility. In 1957, several buildings at the site were constructed and the main facility

expanded, including: the office (located on the land formerly occupied by the citrus packing facility); the boiler room (located at the northwest corner of the main building); and the welding room (located in the vicinity of the northwest corner of the main facility building) [7]. Beginning in 1957, the former citrus cold storage building was used for dry storage at the White's Meats facility [7].

The Sanborn Fire insurance maps and aerial photographs show two railroad lines east and west of the main building. In addition, two railroad spurs, apparently used for unloading cattle and supplies and loading meat for transport, are shown on Sanborn maps before 1948 (see Figure 2) [7, 8]. The available aerial photographs show that the railroad and spurs were removed between 1980 and 1992 [8]. The railroad lines and spurs to the east were located beyond the fence along the eastern boundary of the site [8]. Remnants of the railroad spurs are still apparent on the western side of the main facility building.

Several other key site features were constructed after 1925 [4, 7]. The 1948 Sanborn Fire Insurance map and property appraiser's office records describe concrete cattle pens north of the main building and a cattle run to the sheds and pens on property north of the site. The sheds and pens were north of the fence that defines the current northern site boundary [4, 7]. A 30-foot-high water tank and an adjacent concrete pump house are still present in the northwestern portion of the site (see Figure 2). There are also indicators (i.e. piping and meter) of the existence of a production well adjacent to the water tank. However, the pump house was unable to be accessed to confirm the existence of the production well. In addition to the water tank, there are two aboveground storage tanks (ASTs) on site. One is located at the southeast corner of the dry storage building, and the second is located along the western wall of the main building. The contents and uses of the ASTs are unknown [8]. However, during the field investigation, a former employee of Swift suggested that the ASTs were used for either storage of dried blood or as settling tanks for emulsified fats. The former employee mentioned that the slaughter process generated very little waste and that products not used for human consumption were sold for animal feeds or for other unknown purposes. Exiting the AST located on the west of the building in the vicinity of WMMW-2, was a discharge pipe used to load the contents of the tank onto railroad carriages that used to run along the west side of the facility. This appeared to be consistent with the statement of the former employee.

A 15,000-gallon underground storage tank (UST) used for diesel storage was formerly located north of the water tower [1, 3]. A 500-gallon waste oil tank was located at the northeastern corner of the auto repair shop. The 500- and 15,000-gallon USTs were removed in 1993 [3]. A third UST was reportedly located along the western wall of the main building. However, it is unknown whether the third UST existed, whether it was removed, and what the

contents might have been [1, 3, 16, 17, 18]. In addition to the three USTs, a railroad car, which had been used to store diesel for the boilers, was located near the northwest corner of the main building in the vicinity of the boiler room [1, 3, 18].

Several buildings have been removed since 1996, including the main office, the auto repair shop, and the welding room [3, 8]. The current condition of the remaining buildings on site is very poor [1]. During the August 1997 site inspection, FDEP and the City of Ocala inspected and photographed the interior of the main building. Stairwells were missing or crumbling, sewer connections were open, and asbestos was surfacing throughout the building. The City of Ocala stated that the main building was not safe; it was not entered during the TBA site reconnaissance. Other buildings on site were locked and could not be accessed. Two, small underground vaults were observed on the northern portion of the site, containing pipes assumed to transport water or diesel from the water tower and 15,000-gallon UST, respectively, located in the northwest portion of the site. During the period of operation, the facility was serviced by city water and sewer. However, observations of the pump house, and exposed piping around the building, suggest that the water tower may have been serviced by an on-site well. This could not be confirmed as the pump house was boarded up and locked.

During the TBA site reconnaissance and field investigation, the two large boilers were noted in the boiler room at the northwest corner of the main building.

2.2 Ownership History

From 1925 until approximately 1980, the site was owned and operated by Swift and Co. [4, 7, 16]. Since 1980, White's Meats (White Construction Co.) has owned the site [1, 4].

2.3 Operational History

From 1925 to 1984, the White's Meats site was used as a slaughterhouse and meat packing facility [1, 3, 4]. From 1984 until 1991, the site was reportedly used for storage, including the storage of 55-gallon drums that may have contained corrosives, oils, and Excelcide (insect and rodent control), as well as other unknown materials [1, 17].

2.4 Regulatory/Investigative History

Available historical information indicates that no regulatory activities involving site operations were conducted prior to 1991. Investigation activities were initiated at the site on June 7, 1991, when the Florida Department of Environmental Regulation (FDER) Emergency Response Coordinator received notification of a fire at the facility (FDER and the Florida

Department of Natural Resources [FDNR] merged July 1, 1993, to form FDEP). The following is a chronological listing of relevant regulatory and investigative events associated with the White's Meats site:

- **June 7, 1991.** The FDER Emergency Response coordinator was notified of a fire at the site and that approximately 100 drums were on site. In addition to the drums, FDER was notified that USTs were present on the site [1, 18].

- **June 7, 1991.** FDER conducted an immediate site inspection of the site. The inspection confirmed the presence of approximately 50 to 60 55-gallon drums containing corrosives, oils, Excelcide, and unknown materials. The inspection reported the presence of three USTs, only one of which was registered [1, 17, 18].

- **June 10, 1991.** FDER sent a letter to Luther White (site owner) requesting additional information concerning the number and contents of the 55-gallon drums. FDER also requested notification of the number of USTs on the site [17].

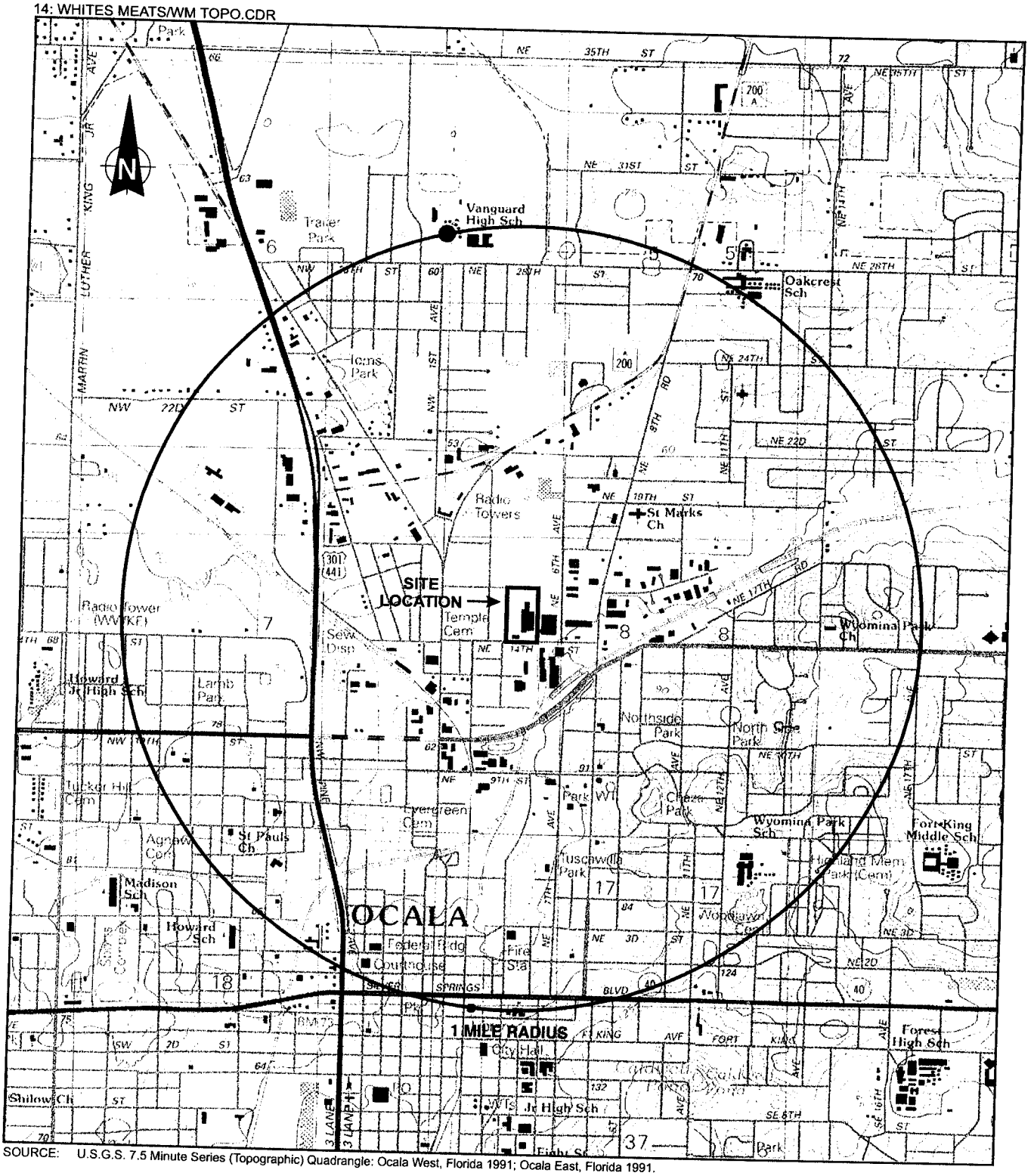
- **November 22, 1991.** White Construction Company's response to FDER's request for additional information stated that all drums were removed from the site and that there were plans to remove all USTs [16].

- **November 1993**. Water and Air Research, Inc., (WAR) submitted a Tank Closure Assessment Report to Marion County Hazardous Waste Storage Tank Program on behalf of White Construction Company. The report stated that two USTs were removed. In addition the report concluded that soil samples and groundwater samples, collected from two temporary monitoring wells, did not exhibit contamination attributable to site operations. The WAR tank closure report (1993) does not reference a third UST [3].

- **August 20, 1997.** FDER and the City of Ocala conducted an inspection of the site. Several drums were observed on the site. The railroad car used to store diesel was still on site, and asbestos was visible throughout the main building. The inspection found the buildings in very poor condition and unsafe to access [1].

- **May 27, 1999.** FDEP, the City of Ocala, and E & E completed a site reconnaissance of the White's Meats Site. Many of the pipes and tanks observed on the outside of the building were insulated with potentially asbestos-containing materials. The interiors of the buildings were inaccessible.

14: WHITES MEATS/WM TOPO.CDR



SOURCE: U.S.G.S. 7.5 Minute Series (Topographic) Quadrangle: Ocala West, Florida 1991; Ocala East, Florida 1991.

Figure 1 **LOCATION MAP -- WHITE'S MEATS SITE, OCALA, MARION COUNTY, FLORIDA**

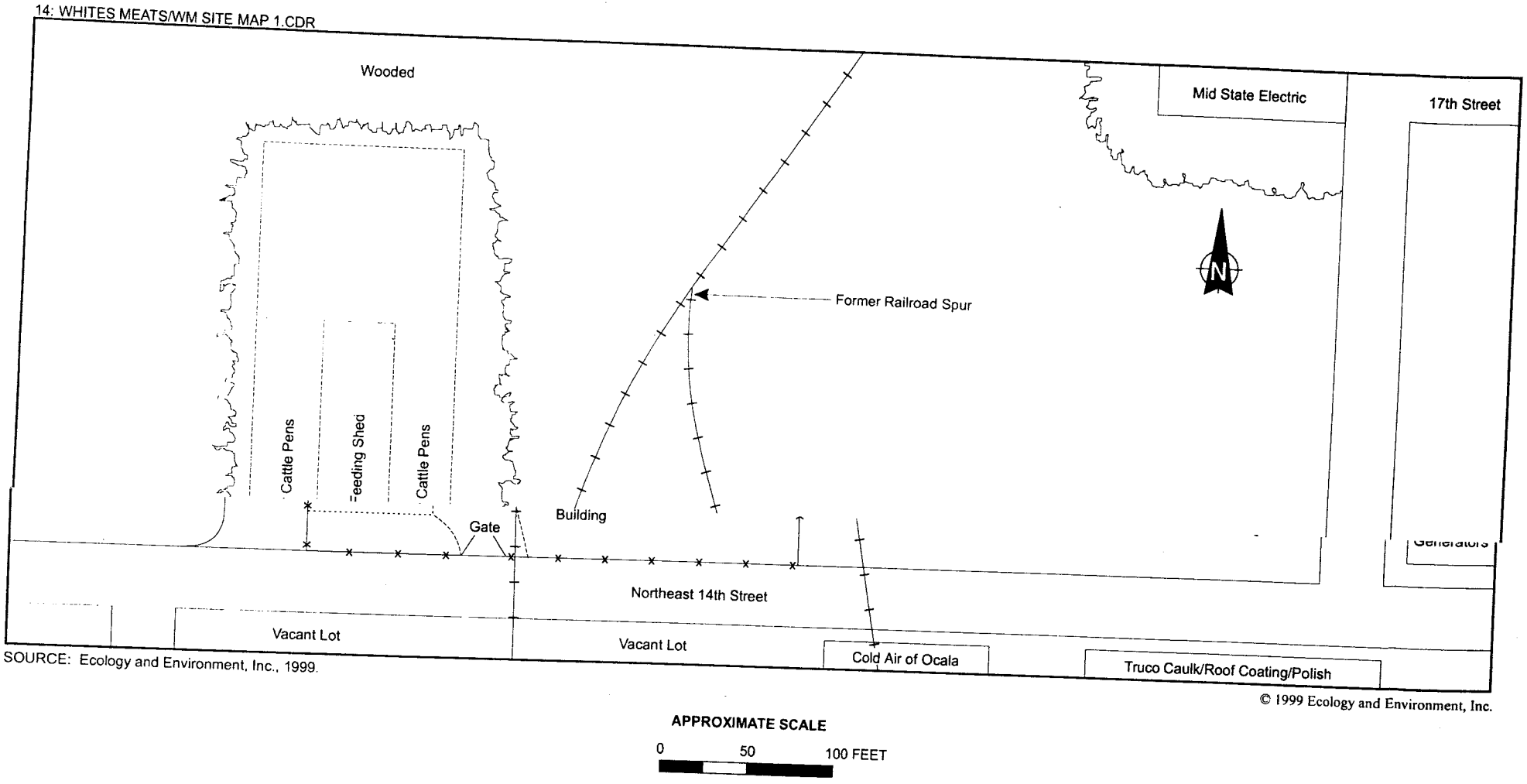


Figure 2 **SITE MAP -- WHITE'S MEATS, OCALA, MARION COUNTY, FLORIDA**

3 Site Environmental Setting

3.1 Surrounding Areas

The White's Meats site is located in an urban area of commercial and residential land uses. The site is bordered on the south by Northeast 14th Street. Directly south of Northeast 14th Street is a vacant property currently for lease, beyond which is located a telephone company service and maintenance center. Located southeast of the site are several businesses, including: Cold Air of Ocala (air conditioning) and Truco Caulk/Roof Coating/Polish. Located southwest of the site is Southeast 3rd Avenue, west of which is an area of mixed residential/light commercial land use.

A cold storage warehouse, constructed in 1964, is located on the property east of the site [7]. Prior to the construction of the cold storage warehouse, the North Ocala Primary School existed on the property. The school was constructed in 1936, but the date that it was demolished is currently unknown [7]. As previously mentioned, a railroad line and two railroad spurs existed on the cold storage warehouse property between the cold storage building and the White's Meats main building [7, 8]. Beyond the cold storage warehouse is Northeast 6th Avenue, east of which are several light industrial/commercial businesses.

The property immediately north of the site is currently undeveloped [8]. However, the available Sanborn Fire Insurance maps and historical aerial photographs show this property was used in conjunction with the slaughtering operation. A feeding shed, cattle pens, and a cattle run to the main facility formerly existed on this property [7, 8]. The aerial photographs show that the feeding shed and pens were removed between 1980 and 1992 [8]. In addition, a pond was located in the northern portion of the property. The pond was filled between 1976 and 1980 [8].

To the west of the site is a drivers education facility, constructed between 1980 and 1992 [7, 8]. A stormwater retention pond is located immediately north of the drivers education building. In addition to receiving stormwater from the asphalt parking lot of the drivers education facility, ground surface topography suggests that the stormwater pond receives surface

water runoff from the White's Meats site. West of the drivers education facility is Northeast 2nd Avenue, beyond which are light industrial/commercial businesses.

3.2 Climatology

The Ocala area lies within the humid subtropical region of north-central Florida. The average temperature ranges from 58.8° Fahrenheit (°F) in January to 81.2°F in August. The maximum 2-year, 24-hour rainfall event is approximately 4.5 inches, and the net annual precipitation for the area is approximately 53.95 inches [23, 24, 25].

3.3 Site Topography and Drainage

The site slopes downward in a west-northwesterly direction toward the stormwater retention pond west of the site and to the undeveloped property north of the site [2]. The site has a surface elevation of approximately 60 to 65 feet National Geodetic Vertical Datum (NGVD; 1927) [2]. Based on a review of the FEMA flood rate insurance map, the site is located outside the 100-year flood zone [9]. The National Wetland Inventory (NWI) map does not describe any wetlands on the site [9]. However, an approximately 1.0-acre area on the adjacent northern property is described as PEM1Fh (palustrine, emergent, persistent, semipermanent, diked/impounded). This wet area is easily observed on the 1976 aerial photograph, but cannot be observed in subsequent aerial photographs, suggesting that the area was filled [8]. The pond was not observed during the TBA field investigation.

3.4 Sensitive Environments

A review of the Florida Natural Areas Inventory (FNAI) database indicated that only one documented sensitive element has been located in the site vicinity. An element occurrence (EO) of the short-tailed snake (*Stilisoma extenuatum*), a species listed as threatened by the Florida Game and Freshwater Fish Commission (FGFWFC), has been documented approximately 11,700 feet west-southwest of the site [22].

3.5 Geology/Hydrogeology

3.5.1 Regional Geology/Hydrogeology

The site is located in the Central Valley geomorphologic feature of the Central or Mid-Peninsular Zone geomorphologic province of Florida [10, 11].

According to the Florida Geological Survey (FGS) geologic map of Marion County, the White's Meats site is located in an area where the Eocene-age Ocala Limestone Formation is the uppermost lithologic unit [13]. The Ocala Limestone is composed of the upper and lower groups. The upper Ocala Limestone is cream to white in color, with soft granular texture, and is regarded as highly porous. The Ocala Limestone is cherty, more commonly in the upper zones, but the erratic chert may occur at any depth [11]. The Ocala Limestone is often highly karstified with karst features in-filled by Hawthorn Group sediments and/or quartz sands [13]. The soil survey for Marion County describes the area, including the White's Meats site, as urban land. Therefore the soil type is not defined.

Two principal hydrogeologic units exist in Marion County. In descending order from ground surface, these units are the surficial aquifer system and the Floridan aquifer system [11, 15].

The surficial aquifer system occurs where sand and clay lenses or beds are arranged so that the units can retain infiltrated water. A distinct surficial aquifer system does not exist in Marion County [15]. A surficial aquifer system may be present in areas having an appreciable thickness (tens of feet) of undifferentiated sand and clay deposits [12]. The surficial aquifer system is recharged primarily by rainfall [17]. Discharge occurs via downward leakage to the Floridan aquifer system, evapotranspiration, and seepage to lakes and streams [15].

The confining unit, if present, separating the surficial aquifer system from the Floridan aquifer system, consists primarily of the Hawthorn Group sediments [15]. The rate and direction of vertical flow or leakage is dependant upon the vertical hydraulic conductivity, thickness of the confining unit, and the head difference between the surficial and Floridan aquifer systems [15].

The Floridan aquifer system is the major source of water in the area and consists of carbonate (limestone and dolomite) deposits of Eocene Age. These units include, in descending order, the Ocala Limestone and the Avon Park Formation. The Ocala Limestone forms the top of the Floridan aquifer system in Marion County and ranges from white to tan to brown, recrystallized limestone to a very fine-grained, chalky, porous, cream-colored, fossiliferous limestone. The Ocala Limestone is up to 180 feet thick in Marion County. The Floridan aquifer system occurs near land surface in the central part of the county, but its depth varies considerably. Throughout the area, the Floridan aquifer system acts primarily as a semi-confined

aquifer. Where the confining clay layer is absent, the aquifer is unconfined. Rainfall is the principal source of recharge to the unconfined Floridan aquifer system where the confining clays do not exist [10, 11, 12, 15].

3.5.2 Site-Specific Geology/Hydrogeology

Detailed site-specific lithologic descriptions from previous investigations were not available for the White's Meats site. The Tank Closure Investigation conducted by WAR describes site soils as sandy clays and clayey sands [3]. WAR installed two temporary monitoring wells during the tank closure, one near the former 15,000-gallon diesel UST (MP1) and one near the former 500-gallon waste fuel UST (MP2). The two monitoring wells were installed to approximately 25 feet below ground surface (BGS; MP1) and 18 feet BGS (MP2). Detailed lithologic descriptions were not provided, and depth to water measurements were only described as less than 20 feet BGS [3].

Six monitoring wells were installed during the TBA field investigation. One monitoring well, WMGW-1 located in the southeast section of the site, was logged by the on-site geologist to the total depth of the well. Surface soils at the WMGW-1 location consisted of a grayish-brown to brown, fine- to medium-grained, organic rich sand to a depth of approximately one foot. Below the organic-rich surface interval, soils consisted of a tan, fine-grained clean sand that graded with depth to a tan to yellowish-brown, moderately plastic sandy clay at 15 feet. At 25-feet, the sandy clay contained approximately 10 percent gravel and was saturated. The well was completed to a total depth of 32 feet BGS.

3.6 Drinking Water Targets

The majority of private and public drinking water wells in the site vicinity are open to the Floridan aquifer system. The upper Floridan Aquifer is the principle source of water supply for domestic, agricultural, and industrial supplies [15]. One hundred and thirty-two public water supply (PWS) wells exist within 4 miles of the White's Meats site and serve 75,288 residents. A population of approximately 56,181 resides within 4 miles of the site (see Table 3-1) [19, 20].

Table 3-1
DISTRIBUTION OF POTABLE SUPPLY WELLS WITHIN 4 MILES OF THE WHITE'S MEATS SITE
OCALA, MARION COUNTY, FLORIDA

Supply Wells	0 to 1 mile (number of wells/population served)	1 to 2 miles (number of wells/population served)	2 to 3 miles (number of wells/population served)	3 to 4 miles (number of wells/population served)
Private Wells	NA / NA	NA / NA	NA / NA	NA / NA
City of Ocala Municipal Wells	--/--	--/--	4 / 41,914	--/--
Community Wells	2 / 60	20 / 14,903	35 / 7,186	71 / 11,225
Total Number of Wells/Population Served (approximate)	NA / 60	NA / 14,903	NA / 49,100	NA / 11,225

Source: FDEP 1999 [19, 20].

Total population served within 4-mile radius of the site is approximately 56,181 [19, 20].

NA = The number of private potable wells was not available.

4 Fieldwork Methods

The following sections describe the sampling methodologies used during the TBA. Table 4-1 lists the designations, locations, rationale, and laboratory analyses performed for soil and groundwater samples collected at the White's Meats site. Modifications were made to the scope of work detailed in the TBA work plan [21]. These modifications are summarized in Table 4-1 and discussed in the following sections. All sampling and fieldwork activities were conducted in accordance with E & E's FDEP-approved Comprehensive Quality Assurance Plan (No. 860165-32).

4.1 Soil Investigation

Seven surface soil samples (WMSS-1 through WMSS-7) were collected at the White's Meats site on September 20, 1999. Of the surface soil samples collected, three surface soil samples were collected in potential source areas (WMSS-2, WMSS-3, and WMSS-7); two surface soil samples were collected in potential source/impact areas (WMSS-5 and WMSS-6); one surface soil sample was collected in potential impact area (WMSS-4); and one background surface soil sample (WMSS-1) was collected. The TBA work plan specified six surface soil and one subsurface soil samples. The scope of work was modified in the field at the direction of the FDEP project manager.

All surface soil samples were collected with stainless steel hand augers from ground surface to approximately 2 feet BGS. The surface soil samples were collected from the monitoring well boreholes with the exception of surface soil sample WMSS-7. Surface soil WMSS-7 was collected in the vicinity of the former citrus packing facility. The TBA work plan specified that a subsurface soil sample would be collected in the vicinity of the former citrus packing facility. However, a surface soil sample was collected at this location (see Table 4-1 and Figure 2).

Each of the seven surface soil samples were analyzed for the following: Target

Compound List (TCL) volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs); pesticides and polychlorinated biphenyls (PCBs); target analyte list (TAL) metals; and cyanide. Laboratory analyses were performed by the FDEP Central Laboratory in Tallahassee, Florida. It should be noted that the site soil samples collected for TCL VOC laboratory analyses were collected using EPA Method 5035.

4.2 Groundwater Investigation

4.2.1 Monitoring Well Installation

Six 2-inch inside-diameter (ID), polyvinyl chloride (PVC), permanent monitoring wells (WMGW-1 through WMGW-6) were installed by a Florida-licensed well driller at the locations indicated on Figure 2. Monitoring well, WMGW-1, was installed to total depth (TD) of 32-feet BGS; the remaining five monitoring wells were installed to a TD of 28-feet BGS. Five monitoring wells were installed in potential source or impact areas, and one control monitoring well was installed. The control monitoring well was installed to compare upgradient groundwater conditions to that of on-site groundwater and to assess the potential for any upgradient contamination that may not be attributable to the site. Monitoring wells were installed in the locations proposed in the BSA work plan. The location and rationale for each of the monitoring wells are summarized in Table 4-1.

The monitoring wells were installed using a drill rig equipped with 4.25-inch ID, hollow stem augers. The monitoring wells were each constructed with 10-feet of 2-inch ID, factory slotted, Schedule 40 PVC screen with a slot size of 0.010 inch. A two-inch ID, Schedule 40 PVC riser was used to complete each well to the ground surface. The borehole annulus for each well was filled with clean silica sand (20/30 mesh) to a height just above the screen/casing joint. A layer of fine sand (30/65 mesh) with an approximate thickness of two feet was placed above the sand pack to act as a seal.

Prior to grouting, each well was developed and subsequently sampled with the approval of the FDEP project manager. Well development consisted of surging and overpumping using a submersible pump. Well construction details for the on-site monitoring wells are presented in Appendix B.

Upon completion of groundwater sampling, the remaining annular space of each newly-installed well was filled with cement grout. Each well was completed with a locking cap and a flush-mounted security cover, and surrounded by a concrete pad.

4.2.2 Groundwater Samples

Six groundwater samples were collected from newly-installed monitoring wells (WMGW-1 through WMGW-6; see Table 4-1). A low flow, peristaltic pump was used to purge each monitoring well of a minimum of three well volumes prior to groundwater sampling. The monitoring wells were considered purged when pH, specific conductance, and temperature readings had stabilized and turbidity values were below 10 nephelometric turbidity units (NTUs). Groundwater purged from monitoring wells WMGW-2 and WMGW-4 contained significant limestone flour. Therefore, upon the approval of the FDEP project manager, the monitoring wells were purged of approximately 10 and 5 well volumes, respectively, to achieve the desired turbidity levels.

4.2.3 Hydrologic Assessment

The hydrologic assessment conducted at the site included depth to water measurements in each of the 6 monitoring wells. In addition, a well-head elevation survey, relative to an arbitrary datum, was performed on the monitoring wells.

4.3 Quality Assurance/Quality Control

Duplicate, equipment rinsate, and trip blank samples were collected in conjunction with the sampling efforts at the White's Meats site. One duplicate sample (WMSS-4DUP) and one equipment rinsate sample (WMSS-RB1) were collected in conjunction with the soil sampling efforts. One duplicate sample (WMGW-4DUP) and one equipment rinsate sample (WMGW-RB1) were collected in conjunction with the groundwater sampling activities. One trip blank sample was shipped with the soil samples (WMSS-TB1) and one with the groundwater samples (WMGW-TB1).

4.4 Investigation-Derived Wastes (IDW)

All investigation-derived wastes (IDW; i.e., soil cuttings, well development/purge water, and decontamination fluids) generated during the TBA activities were disposed of in accordance with the FDEP and EPA guidelines.

Table 4-1
Sample Locations and Rationale for the White's Meats Site
Ocala, Marion County, Florida

Sample Type	Sample Designation	Sample Location	Rationale	Laboratory Analysis
Soil	WMSS-1	Surface soil collected upgradient from the main facility near the southeast corner of the site.	Control location.	VOCs, metals/Cn BNAs, Pest/PCBs
	WMSS-2	Surface soil collected in the vicinity of the AST located centrally along the western wall of the main facility building.	Potential Source Area .	VOCs, metals/Cn BNAs, Pest/PCBs
	WMSS-3	Surface soil collected in the vicinity of the dry storage building and AST.	Potential Source Area.	VOCs, metals/Cn BNAs, Pest/PCBs
	WMSS-4	Surface soil collected centrally along the western boundary of the site in the vicinity of the former concrete block building.	Potential Impact Area	VOCs, metals/Cn BNAs, Pest/PCBs
	WMSS-5	Surface soil collected northwest of the former location of the 15,000-gallon diesel fuel UST.	Potential Source/ Impact Area	VOCs, metals/Cn BNAs, Pest/PCBs
	WMSS-6	Surface soil collected down gradient from the former 500-gallon waste oil UST located near the former auto repair shop.	Potential Source/ Impact Area	VOCs, metals/Cn BNAs, Pest/PCBs
	WMSS-7	Surface soil collected in the vicinity of the former citrus packing facility.	Potential Source Area	VOCs, metals/Cn BNAs, Pest/PCBs
Groundwater	WMGW-1	Monitoring well, upgradient from the main facility near the southeast corner of the site.	Control location	VOCs, metals/Cn BNAs, Pest/PCBs
	WMGW-2	Monitoring well, in the vicinity of the AST located centrally along the western wall of the main facility building.	Potential Source Area	VOCs, metals/Cn BNAs, Pest/PCBs
	WMGW-3	Monitoring well, in the vicinity of the dry storage building and AST.	Potential Source Area.	VOCs, metals/Cn BNAs, Pest/PCBs
	WMGW-4	Monitoring well, centrally located, along the western boundary of the site, in the vicinity of the former concrete block building.	Potential Impact Area.	VOCs, metals/Cn BNAs, Pest/PCBs

Table 4-1
Sample Locations and Rationale for the
White's Meats Site
Ocala, Marion County, Florida

Sample Type	Sample Designation	Sample Location	Rationale	Laboratory Analysis
Groundwater (cont.)	WMGW-5	Monitoring well, northwest of the former location of the 15,000-gallon diesel fuel UST.	Potential Source/ Impact Area	VOCs, metals/Cn BNAs, Pest/PCBs
	WMGW-6	Monitoring well, downgradient from the former 500-gallon waste oil UST located near the former auto repair shop.	Potential Source/ Impact Area	VOCs, metals/Cn BNAs, Pest/PCBs
Quality Assurance/ Quality Control	WMSS-RB1	NA	Soil Sampling Equipment Rinsate Blank	VOCs, metals/Cn BNAs, Pest/PCBs
	WMSS-4-DUP	WMSS-4. Surface soil sample location.	Duplicate Soil Sample	VOCs, metals/Cn BNAs, Pest/PCBs
	WMSS-TB1	NA	Trip Blank for Soil Samples	VOCs
	WMGW-RB1	NA	Groundwater Sampling Equipment Rinsate Blank	VOCs, metals/Cn BNAs, Pest/PCBs
	WMGW-4-DUP	WMGW-4 monitoring well, centrally located, along the western boundary of the site, in the vicinity of the former concrete block building.	Duplicate Groundwater Sample	VOCs, metals/Cn BNAs, Pest/PCBs
	WMGW-TB	NA	Trip Blank for Groundwater Samples	VOCs

Note: All surface soil, subsurface soil, and groundwater samples will be analyzed by the FDEP Central Laboratory for the following: Target Compound List (TCL) volatile organic compounds (VOCs); TCL base, neutral, and acidic (BNA) extractable organics; pesticides and polychlorinated biphenyls (PCBs); and Target Analyte List (TAL) metals.

Key: UST = underground storage tank.
NA = not applicable.

5 Investigation Results

5.1 Results of Previous Investigations

A detailed chronological history of the regulatory and investigation activities at the White's Meats site is presented in Section 2.4. This section summarizes the results of selected investigations conducted at the site. Detailed information regarding previous investigations and interpretation of results at specific locations can be found in the cited references.

As part of the 1993 Tank Closure Assessment report, WAR conducted an organic vapor analysis (OVA) of soil in the vicinity of the former diesel and waste oil tanks. In addition, WAR installed two temporary monitoring wells (MP1 and MP2) in the vicinity of the former tanks.

Results of the OVA study did not indicate the presence of excessively-contaminated soil. In addition, observation of the soils during the removal did not indicate the presence of staining or odor. Groundwater samples collected from the two temporary monitoring wells did not exhibit detectable concentrations of organic compounds. Chromium (130 micrograms per liter [μg/l]) and lead (30 μg/l) were detected in the unfiltered groundwater sample collected from temporary monitoring well MP2. However, the filtered sample collected from MP2 did not exhibit any detectable concentrations of chromium or lead. Monitoring well MP2 was located at the northeast corner of the former auto repair shop in the vicinity of the former waste oil UST.

5.2 Targeted Brownfields Assessment Results

The analytical results from the TBA are summarized in Tables 5-1 through 5-3. The results were compared to applicable federal and state guidelines. It should be noted that several concentrations of analytes or compounds in surface soil and groundwater samples were qualified by the laboratory with an "I". The 'I" qualifies results detected between the method detection limit (MDL) and the sample quantitation limit (SQL). These results were not used for data comparison purposes. The TBA analytical data are provided in Appendix C.

5.2.1 Soil Analytical Results

A summary of soil analytical results is presented in Table 5-1. Soil sample analytical results were compared to the Soil Cleanup Target Levels[1] (SCTLs) for residential and industrial direct exposure criteria, and to the SCTLs for leachability based on groundwater criteria (Chapter 62-777, Florida Administrative Code [FAC]). Shaded and bolded cells on the table denote concentration of compounds or analytes that exceed SCTLs. Soil sampling locations are summarized on Figure 2 and Table 4-1.

Metals and Cyanide. Surface soil samples collected at the Whites Meats site during the TBA data collection activities exhibited concentrations of 19 metals.

Surface soil sample WMSS-3, located south of the dry storage building, in the vicinity of the former citrus packing facility and an AST, was the only surface soil sample collected that exhibited a concentration of lead (22 mg/kg) above the SQL. The concentration of lead exhibited by surface soil sample WMSS03, was below the SCTLs.

Surface soil sample WMSS-6, collected north of the former waste oil UST, exhibited concentrations of 11 metals above the concentrations exhibited by control sample WMSS-1. These metals included calcium, chromium, copper, iron, magnesium, mercury, nickel, potassium, sodium, vanadium, and zinc (see Table 5-1). The vanadium concentration (20.3 mg/kg) exhibited by surface soil sample WMSS-6 exceeded the residential direct exposure SCTL of 15 mg/kg. The remaining metals concentrations, detected in surface soils samples, were below the applicable SCTLs.

Pesticides/PCBs. Surface soil samples WMSS-3, WMSS-5, and WMSS-6 exhibited pesticides and PCBs at concentrations above the control sample. Compounds detected included chlordane, p,p'-DDD, p,p'-DDE, p,p'-DDT, and PCB-1260. However, background surface soil sample WMSS-1 exhibited a trace concentration of chlordane below the SQL.

Surface soil sample WMSS-3 exhibited the highest concentrations of chlordane (44 μg/kg), p,p'-DDD (10 J μg/kg), p,p'-DDE (87 μg/kg), and p,p'DDT (210 μg/kg). Surface soil sample WMSS-3 was collected south of the dry storage building, in the vicinity of the former

[1]The SCTLs used in this report are used for comparison only. The SCTLs apply only to the cleanup of contamination at sites that are governed by the terms of a brownfield site rehabilitation agreement pursuant to Chapter 62-785, F.A.C., and to the program-specific contaminants of concern for sites being addressed under Chapter 62-770, F.A.C., Petroleum Contamination Site Cleanup Criteria, and Chapter 62-782, F.A.C., Dry-cleaning Solvent Cleanup Criteria; and to the treatment of soil at facilities permitted pursuant to Chapter 62-713, F.A.C., Soil Treatment Facilities.

citrus packing facility and an AST. Surface soil sample WMSS-6, collected north of the former waste oil UST, exhibited the highest concentration of PCB-1260 (55 J μg/kg).

The PCB-1260 concentration exhibited by surface soil sample WMSS-6, exceeded the SCTL for leachability (based on groundwater criteria) of 20 μg/kg. The remaining pesticides concentrations detected in surface soil samples did not exceed the applicable SCTLs.

Volatile Organic Compounds. No volatile organic compounds (VOCs) were detected in surface soil samples collected during the TBA data collection activities.

Semivolatile Organic Compounds. A number of semi-volatile organic compounds (SVOCs) were detected in surface soil samples WMSS-1, WMSS-3, WMSS-5, and WMSS-6 (see Table 5-1). The concentrations of SVOCs exhibited by surface soil samples WMSS-3, WMSS-5, and WMSS-6 were above those exhibited by the control samples.

The concentrations of benzo (a)pyrene exhibited by surface soil sample WMSS-1 (510 μg/kg), WMSS-3 (1,300 μg/kg), WMSS-5 (1,300 μg/kg), amd WMSS-6 (560μg/kg), exceeded the SCTLs for residential and industrial direct exposure of 100 μg/kg and 500 μg/kg, respectively. The concentration of benzo (a) anthracene exhibited by surface soil sample WMSS-3 (1,600 μg/kg) exceeded the SCTL for residential direct exposure of 1,400 μg/kg. In addition, the concentrations of benzo (b) fluoranthene exhibited by surface soil samples WMSS-3 (2,000μg/kg) and WMSS-5 (2,000μg/kg) exceeded the SCTL for residential direct exposure of 1,400 μg/kg.

It should be noted that all surface soil samples for SVOC analysis were extracted 10 days beyond the extraction hold time. Therefore, all SVOC results were reported as estimated by the FDEP Central Laboratory.

5.2.2 Groundwater Field Parameters

Table 5-2 presents the pH, specific conductance, temperature, and turbidity values recorded for groundwater samples collected during the September 1999 TBA field activities. The pH values for the samples ranged from 6.60 to 7.32 standard international units (SI), which are within the pH range specified by the Florida Secondary Drinking Water Standards (SDWSs; 6.5 to 8.5 SI). Specific conductance readings for the samples ranged from 451 micromhos/cm (μmhos/cm) to 4,080 μmhos/cm, and temperature readings ranged from 24.8 degrees Celsius (°C) to 27.6 °C. Turbidity values ranged from 2.47 NTUs to 9.74 NTUs.

5.2.3 Groundwater Analytical Results

A summary of groundwater analytical results is presented in Table 5-3. All groundwater analytical results were compared to to state and federal drinking water standards (see Table 4-1 and Figure 2). Shaded and bolded cells on the table denote concentration of compounds or analytes that exceed drinking water standards.

Metals and Cyanide. Aluminum was detected in groundwater samples collected from monitoring wells WMGW-2 (440 μg/l), WMGW-3 (220 μg/l) WMGW-4 (950 μg/l: WMGW-4D 1,1010 μg/l) , and WMGW-6 (2,360 μg/l). at concentrations exceeding the state and federal drinking water standards. In addition, these concentrations of aluminum were above the concentration exhibited by the control sample WMGW-1.

The iron concentration exhibited by the groundwater sample collected from monitoring well WMGW-6 (624 μg/l), located in the north of former waste oil UST, exceeded the state and federal secondary drinking water standard of 300 μg/l.

Pesticides and PCBs. None of the groundwater samples collected during the TBA field data collection activities exhibited detectable concentrations of pesticides and PCBs

Semivolatile Organic Compounds. None of the groundwater samples collected during the TBA field data collection activities exhibited detectable concentrations of SVOCs.

Volatile Organic Compounds. None of the groundwater samples collected during the TBA field data collection activities exhibited concentrations of VOCs exceeding state or federal drinking water standards. However, the control groundwater sample collected from monitoring well WMGW-1 exhibited trace concentrations of three VOCs. The only VOC detected in groundwater WMGW-1 greater than the SQL was chloroform (2.1 μg/l). Chloroform is commonly detected in potable water at similar concentrations to that exhibited by groundwater sample collected from WMGW-1. Therefore, the chloroform concentration exhibited by groundwater sample WMGW-1 is unlikely to be attributable to the site.

5.2.4 Hydrologic Assessment

On September 22, 1999, depth to water measurements were recorded in each of the newly-installed monitoring well (see Table 5-2). Depth-to-water measurements in the monitoring wells ranged from 17.75 to 24.65 feet below top of casing (BTOC), or 78.53 to 77.55 feet NGVD. Based on the measured depths-to-water, groundwater flow over the northern and eastern

portions of the site ranged from northerly to easterly. Groundwater flow observed in the west central portion of the site was southerly and westerly (see Figure 3).

5.3 Quality Assurance/Quality Control

One duplicate sample, one sampling equipment rinsate blank, and one trip blank sample were collected in conjunction with the soil sampling activities at the White's Meats site. The analytical results of the duplicate soil sample (WMSS-4DUP) were comparable to those of the original sample (WMSS-4). Trace concentrations of VOCs were detected in soil sampling equipment rinsate blank WMSS-RB1, but were not detected in the associated on-site surface soil samples. Therefore the trace concentrations of VOCs exhibited in the soil sampling rinsate blank did not affect the interpretation of the soil analytical results. VOCs were not detected in trip blank sample WMSS-TB1 shipped to the laboratory with the soil samples.

One duplicate sample, one sampling equipment rinsate sample, and one trip blank sample were collected in conjunction with the groundwater sampling activities at the White's Meats site. The analytical results of the duplicate groundwater sample (WMGW-4DUP) were comparable to those of the original sample (WMGW-4). Trace concentrations of VOCs were detected in the groundwater sampling equipment rinsate blank (WMGW-RB1), but were not detected in the associated on-site groundwater samples. Therefore, the trace concentrations of VOCs exhibited in the groundwater rinsate blank did not affect the interpretation of the groundwater analytical results. VOCs were not detected in trip blank sample WMGW-TB1 shipped to the laboratory with the groundwater samples.

Table 5-1
SUMMARY OF SOIL ANALYTICAL RESULTS
WHITE'S MEATS SITE
OCALA, MARION COUNTY, FLORIDA

Parameter	Soil Cleanup Target Levels (Chapter 62-777)[a]			Surface Soil and QA/QC Sample Identification				
	Direct Exposure Residential	Direct Exposure Industrial	Leachability Based on Groundwater Criteria	WMSS-1	WMSS-2	WMSS-3	WMSS-4	WMSS-4 DUP
Metals and Cyanide (mg/kg)								
Aluminum	72,000	***	***	2,530	2,050	3,250	3,380	3,350
Antimony	26	240	5	3.8 U	--	--	--	--
Barium	110**	87,000	1,600	21.7	18.1	35.1	24.9	25.7
Beryllium	120	800	63	0.099 I	--	0.16 I	0.11 I	0.12 I
Cadmium	75**	1300	8	1.1 U	--	--	--	--
Calcium	NL	NL	NL	2,970 J	1,020 J	6,650 J	930 J	910 J
Chromium	210	420	38	4.7 I	2.7 I	6.0 I	4.5 I	4.5 I
Cobalt	47,000	110,000	***	0.76 U	--	--	--	--
Copper	110**	76,000	***	6.7 I	--	3.5 I	--	--
Iron	23,000	480,000	***	1,660	874	1,850	1,150	1,150
Lead	400	920	***	5.7 U	--	22	--	--
Magnesium	NL	NL	NL	151	79	211	122	118
Manganese	1,600	22,000	***	27.7	22.6	63.7	19.9	19.6
Mercury	3.4	26	2.1	0.019 I	--	0.014 I	0.0056 I	0.0055 I
Nickel	110**	28,000	130	1.5 I	--	3.0 I	1.8 I	1.3 I

Key at end of table.

Table 5-1
SUMMARY OF SOIL ANALYTICAL RESULTS
WHITE'S MEATS SITE
OCALA, MARION COUNTY, FLORIDA

Parameter	Soil Cleanup Target Levels (Chapter 62-777)[a]			Surface Soil and QA/QC Sample Identification				
	Direct Exposure Residential	Direct Exposure Industrial	Leachability Based on Groundwater Criteria	WMSS-1	WMSS-2	WMSS-3	WMSS-4	WMSS-4 DUP
Potassium	NL	NL	NL	36 I	52 I	100 I	47 I	47 I
Sodium	NL	NL	NL	19 U	--	30 I	--	--
Vanadium	15**	7,400	980	3.4	1.8 I	2.8 I	2.6 I	2.5 I
Zinc	23,000	560,000	6,000	17 I	20 I	36 I	--	18 I
Pesticides/PCBs (µg/kg)								
Chlordane	3,100	12,000	9,600	11 I	--	44	--	--
DDD-p,p'	4,600	18,000	4,000	0.74 U	--	10 J	--	--
DDE-p,p'	3,300	13,000	18,000	0.74 U	--	87	--	--
DDT-p,p'	3,300	13,000	11,000	1.1 U	--	210	--	--
PCB-1260	12,000	36,000	20	11 U	--	19 I	--	--
Volatile Organic Compounds (µg/kg)								
Methylene Chloride	16,000	23,000	20	2.4 U	--	--	--	--
Toluene	380	2,600	0.5	2.4 U	--	--	--	--
Xylenes (total)	5,900	40,000	0.2	2.4 U	--	--	--	--
Semi-Volatile Organic Compounds (µg/kg)								
Acenaphthene	1,900,000	18,000,000	21,000	64 UQ	--	400 JQ	--	--

Kev[illegible]t end of table.

Table 5-1
SUMMARY OF SOIL ANALYTICAL RESULTS
WHITE'S MEATS SITE
OCALA, MARION COUNTY, FLORIDA

Parameter	Soil Cleanup Target Levels (Chapter 62-777)[a]			Surface Soil and QA/QC Sample Identification				
	Direct Exposure Residential	Direct Exposure Industrial	Leachability Based on Groundwater Criteria	WMSS-1	WMSS-2	WMSS-3	WMSS-4	WMSS-4 DUP
Acenaphthylene	1,100,000	11,000,000	27,000	64 UQ	--	--	--	--
Anthracene	18,000,000	260,000,000	2,500,000	85 UQ	--	670 JQ	--	--
Benzo(a)anthracene	1,400	5,000	3,200	450 JQ	--	**1,600 JQ**	--	--
Benzo(a)pyrene	100	500	3,200	**510 JQ**	--	**1,300 JQ**	--	--
Benzo(b)flouranthene	1,400	4,800	10,000	730 JQ	--	**2,000 JQ**	--	--
Benzo(k)flouranthene	15,000	52,000	25,000	220 IQ	--	570 JQ	--	--
Benzo(g,h,i)perylene	2,300,000	41,000,000	32,000,000	410 JQ	--	830 JQ	--	--
Bis(2-ethylhexyl)phthalate	76,000	280,000	3,600,000	360 UQ	470 IQ	510 IQ	450 IQ	370 IQ
Carbazole	53,000	190,000	6,000	64 UQ	--	380 JQ	--	--
Chrysene	140,000	450,000	77,000	440 JQ	--	1,500 JQ	--	--
Dibenzo(a,h)anthracene	100	500	30,000	96 IQ	--	210 IQ	--	--
Dibenzofuran	280,000	5,000,000	15,000	64 UQ	--	150 IQ	--	--
Flouranthene	2,900,000	48,000,000	1,200,000	390 JQ	--	3,400 JQ	--	--
Fluorene	2,200,000	28,000,000	160,000	64 UQ	--	270 JQ	--	--
Indeno(1,2,3-cd)pyrene	1,500	5,300	28,000	340 JQ	--	760 JQ	--	--

Key at end of table.

Table 5-1
SUMMARY OF SOIL ANALYTICAL RESULTS
WHITE'S MEATS SITE
OCALA, MARION COUNTY, FLORIDA

Parameter	Soil Cleanup Target Levels (Chapter 62-777)[a]			Surface Soil and QA/QC Sample Identification				
	Direct Exposure Residential	Direct Exposure Industrial	Leachability Based on Groundwater Criteria	WMSS-1	WMSS-2	WMSS-3	WMSS-4	WMSS-4 DUP
2-Methylnaphthalene	83,000,000	560,000,000	6,100,000	64 UQ	--	78 IQ	--	--
Naphthalene	40,000	270,000	1,700	64 UQ	--	170 IQ	--	--
Phenanthrene	2,000,000	30,000,000	250,000	100 IQ	--	2,700 JQ	--	--
Pyrene	2,200,000	37,000,000	880,000	410 JQ	--	3,100 JQ	--	--

Key at end of table.

Table 5-1
SUMMARY OF SOIL ANALYTICAL RESULTS
WHITE'S MEATS SITE
OCALA, MARION COUNTY, FLORIDA

Parameter	Soil Cleanup Target Levels (Chapter 62-777)			Surface Soil and QA/QC Sample Identification				
	Direct Exposure Residential	Direct Exposure Industrial	Leachability Based on Groundwater Criteria	WMSS-5	WMSS-6	WMSS-7	WMSS-RB1[c]	WMSS-TB1[c]
Metals (mg/kg)								
Aluminum	72,000	•••	•••	3,230	4,080	3,770	--	NA
Antimony	26	240	5	--	6.1 I	--	--	NA
Barium	110**	87,000	1,600	49.3	35.0	27.9	--	NA
Beryllium	120	800	63	0.12 I	--	0.14 I	--	NA
Cadmium	75**	1300	8	--	1.6 I	--	--	NA
Calcium	NL	NL	NL	5,570 J	181,000	5,850 J	--	NA
Chromium	210	420	38	3.9 I	20.7	4.7 I	--	NA
Cobalt	47,000	110,000	•••	--	2.6 I	--	--	NA
Copper	110*	73,000	•••	2.2 I	23.7	--	--	NA
Iron	23,000	480,000	•••	1,140	6,320	1,200	--	NA
Lead	400	920	•••	6.0 I	21 I	--	--	NA
Magnesium	NL	NL	NL	259	1,590	176	--	NA
Manganese	1,600	22,000	•••	35.3	66.5	49.0	--	NA
Mercury	3.4	26	2.1	0.0053 I	0.12	0.0085 I	--	NA
Nickel	110**	28,000	130	1.7 I	14.4	2.1 I	--	NA
Potassium	NL	NL	NL	88 I	190	53 I	--	NA

Key at end of table.

Table 5-1
SUMMARY OF SOIL ANALYTICAL RESULTS
WHITE'S MEATS SITE
OCALA, MARION COUNTY, FLORIDA

Parameter	Soil Cleanup Target Levels (Chapter 62-777)			Surface Soil and QA/QC Sample Identification				
	Direct Exposure Residential	Direct Exposure Industrial	Leachability Based on Groundwater Criteria	WMSS-5	WMSS-6	WMSS-7	WMSS-RB1[c]	WMSS-TB1[c]
Sodium	NL	NL	NL	--	120	--	--	NA
Vanadium	15**	7,400	980	2.4 I	20.3	2.6 I	--	NA
Zinc	23,000	560,000	6,000	47 I	186	19 I	--	NA
Pesticides/PCBs (µg/kg)								
Chlordane	3,100	12,000	9,600	--	33 I	--	--	NA
DDD-p,p'	4,600	18,000	4,000	5.1	6.6	--	--	NA
DDE-p,p'	3,300	13,000	18,000	29	9	--	--	NA
DDT-p,p'	3,300	13,000	11,000	12	8.5	--	--	NA
PCB-1260	12,000	36,000	20	--	55 J	--	--	NA
Volatile Organic Compounds (µg/kg)								
Methylene Chloride	16,000	23,000	20	--	--	--	1.4 I	--
Toluene	380,000	2,600,000	500	--	--	--	0.73 I	--
Xylenes (total)	5,900,000	40,000,000	200	--	--	--	0.80 I	--
Semi-Volatile Organic Compounds (µg/kg)								
Acenaphthene	1,900,000	18,000,000	21,000	--	--	--	--	NA
Acenaphthylene	1,100,000	11,000,000	27,000	100 IQ	160 IQ	--	--	NA

Ke· · end of table.

Table 5-1
SUMMARY OF SOIL ANALYTICAL RESULTS
WHITE'S MEATS SITE
OCALA, MARION COUNTY, FLORIDA

Parameter	Soil Cleanup Target Levels (Chapter 62-777)			Surface Soil and QA/QC Sample Identification				
	Direct Exposure Residential	Direct Exposure Industrial	Leachability Based on Groundwater Criteria	WMSS-5	WMSS-6	WMSS-7	WMSS-RB1[c]	WMSS-TB1[c]
Anthracene	18,000,000	260,000,000	2,500,000	--	170 IQ	--	--	NA
Benzo(a)anthracene	1,400	5,000	3,200	1,100 JQ	290 JQ	--	--	NA
Benzo(a)pyrene	100	500	8,000	**1,300 JQ**	**560 JQ**	--	--	NA
Benzo(b)flouranthene	1,400	4,800	10,000	**2,000 JQ**	930 JQ	--	--	NA
Benzo(k)flouranthene	15,000	52,000	25,000	590 JQ	260 IQ	--	--	NA
Benzo(g,h,i)perylene	23,000,000	41,000,000	32,000,000	790 JQ	480 JQ	--	--	NA
Bis(2-ethylhexyl)phthalate	76,000	280,000	3,600,000	600 IQ	830 IQ	710 IQ	--	NA
Carbazole	53,000	190,000	6,000	--	--	--	--	NA
Chrysene	140,000	450,000	77,000	1,200 JQ	340 JQ	--	--	NA
Dibenzo(a,h)anthracene	100	500	30,000	240 IQ	94 IQ	--	--	NA
Dibenzofuran	280,000	5,000,000	15,000	--	--	--	--	NA
Flouranthene	2,900,000	48,000,000	1,200,000	830 JQ	450 JQ	--	--	NA
Flourene	2,200,000	28,000,000	160,000	--	--	--	--	NA
Indeno(1,2,3-cd)pyrene	1,500	5,300	28,000	760 JQ	340 JQ	--	--	NA
2-MethylInaphthalene	83,000	560,000	6,100	--	--	--	--	NA
Naphthalene	40,000	270,000	1,700	--	--	--	--	NA
Phenanthrene	2,000,000	30,000,000	250,000	51 TQ	220 IQ	--	--	NA

Key at end of table.

Table 5-1
SUMMARY OF SOIL ANALYTICAL RESULTS
WHITE'S MEATS SITE
OCALA, MARION COUNTY, FLORIDA

Parameter	Soil Cleanup Target Levels (Chapter 62-777)			Surface Soil and QA/QC Sample Identification				
	Direct Exposure Residential	Direct Exposure Industrial	Leachability Based on Groundwater Criteria	WMSS-5	WMSS-6	WMSS-7	WMSS-RB1[c]	WMSS-TB1[c]
Pyrene	2,200,000	37,000,000	880,000	1,100 JQ	480 JQ	--	--	NA

[a] The Soil Cleanup Target Levels (SCTLs) presented in this report are used for comparison only. The SCTLs apply only to the remediation of contamination at sites that are governed by the terms of a brownfiled site rehabilitation agreement pursuant to Chapter 62-785, F.A.C., and to the program-specific contaminants of concern for sites being addressed under Chapter 62-770, F.A.C., Petroleum Contamination Site Cleanup Criteria, and Chapter 62-782, F.A.C., Dry-Cleaning Solvent Cleanup Criteria; and to the treatment of soil at facilities permitted pursuant to Chapter 62-713, F.A.C., Soil Treatment Facilities.

[b] Background sample. Note: All surface soil samples (WMSS-2, etc.) are compared to background soil sample WMSS-1.

[c] Rinsate and trip blank analytical results are presented in mg/L or µg/L, as appropriate.

Key:

---	=	Use site-specific leachability values; no established SCTL.
**	=	Direct exposure value based on acute toxicity considerations.
--	=	Material was analyzed for but not detected.
Shaded bold text	=	Concentration exceeds SCTLs.
A	=	Value reported is the mean of two or more determinations.
DUP	=	Duplicate sample.
I	=	Value reported is less than the minimum quantitation limit and greater than or equal to the minimum detection limit.
J	=	Estimated value.
K	=	Actual value is known to be less than given value.
mg/kg	=	Milligrams per kilogram.
NA	=	Not analyzed.
NL	=	No soil cleanup target level (SCTL).
µg/kg	=	Micrograms per kilogram.
U	=	Material was analyzed for but not detected; the value reported is the minimum detection limit.
Q	=	Sample held beyond normal holding time.
T	=	Value reported is less than the criterion of detection.

Table 5-2
MONITORING WELL CONSTRUCTION, WATER LEVEL, AND GROUNDWATER FIELD PARAMETER DATA
WHITE'S MEATS SITE
OCALA, MARION COUNTY, FLORIDA

Well Construction Data				Water Level Data (September 22, 1999)			Groundwater Field Parameters (September 21, 1999)			
Monitoring Well	Well Diameter (inches)	Well Depth (feet BGS)[a]	Screened Interval (feet BGS)[a]	Top of Casing Elevation (feet)	Depth to Water (feet BTOC)	Water Level Elevation (feet)	pH (SI units)	Specific Conductance (μmhos/cm)	Temperature (C)	Turbidity (NTUs)
WMGW-1	2	32	22 - 32	102.20	24.65	77.55	6.72	545	25.6	2.47
WMGW-2	2	28	18 - 28	96.28	17.75	78.53	6.60	1,394	25.5	9.74
WMGW-3	2	28	18 - 28	95.79	18.18	77.61	7.32	678	25.4	9.07
WMGW-4	2	28	18 - 28	95.98	17.91	78.07	6.90	451	26.0	6.07
WMGW-5	2	28	18 - 28	95.69	17.84	77.85	7.25	562	24.8	4.63
WMGW-6	2	28	18 -28	95.48	17.86	77.62	7.09	4,080	27.6	6.67

[a] = approximate

Key:
BGS = Below Ground Surface.
BTOC = Below Top of Casing.

Table 5-3
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
WHITE'S MEATS SITE
OCALA, MARION COUNTY, FLORIDA

Parameter*	Applicable Standard(s)	WMGW-1	WMGW-2	WMGW-3	WMGW-4 DUP	WMGW-4
Metals and Cyanide						
Aluminum	50-200[a], 200[b]	82 I	440	220	1,010	950
Barium	2,000[c,d]	8.5 A	4.9	5.4	14.9	14.0
Cadmium	5[c,d]	0.40 U	--	0.40 I	--	--
Calcium (mg/L)	NS	96.8 A	77.8	63.6	65.9	63.0
Chromium	100[c,d]	2.8 A	--	2.4 I	1.4 I	1.2 I
Cobalt	NS	0.70 U	0.77 I	--	0.70 I	--
Copper	1,000[a,b]	2.0 I	2.4 I	--	2.9 I	2.7 I
Iron	300[a,b]	134 A	83	125	134	135
Magnesium (mg/L)	NS	7.4 A	1.1	3.1	3.8	3.6
Manganese	50[a,b]	5.10 A	12.8	4.01	10.3	9.83
Nickel	100[c,d]	7.6 A	--	--	--	--
Potassium (mg/L)	NS	0.92 A	0.35	1.6	4.4	4.2
Sodium (mg/L)	NS[c], 160,000[d]	1,150 A	223	72.6	15.5	15.2
Vanadium	NS	10.7 A	22.6	11.2	8.7	8.1
Zinc	5,000[a,b]	20 U	--	23 I	--	--
Pesticides/PCBs						
None Detected	Various					
Semi-Volatile Organic Compounds						
None Detected	Various					
Volatile Organic Compounds						
Acetone	700[e]	10 U	--	--	--	--
Bromodichloromethane	100[c]/80 0.6[e]	0.53 I	--	--	--	--
2-Butanone	4,200[e]	10 U	--	--	--	--
Chloroform	100[c]/80 0.6[e]	2.1	0.21 I	0.44 I	--	--

Key at end of table.

Table 5-3
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
WHITE'S MEATS SITE
OCALA, MARION COUNTY, FLORIDA

Parameter*	Applicable Standard(s)	WMGW-1	WMGW-2	WMGW-3	WMGW-4 DUP	WMGW-4
Methylene chloride	5[cd]	0.50 U	--	--	--	--
Xylenes (total)	10,000[cd]	0.65 I	--	--	--	--

Key at end of table.

Table 5-3
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
WHITE'S MEATS SITE
OCALA, MARION COUNTY, FLORIDA

Parameter*	Applicable Standard(s)	WMGW-5	WMGW-6	WMGW-RB1	WMGW-TB1
Metals					
Aluminum	50-200[a], 200[b]	180 I	**2,360**	--	NA
Barium	2,000[c,d]	12.7	34.7	--	NA
Cadmium	5[c,d]	2.6	--	--	NA
Calcium (mg/L)	NS	61.8	124	--	NA
Chromium	100[c,d]	2.3 I	4.3	--	NA
Cobalt	NS	2.7	--	--	NA
Copper	1,000[a,b]	--	5.1 I	7.8 I	NA
Iron	300[a,b]	43	**624**	--	NA
Magnesium (mg/L)	NS	5.0	7.3	--	NA
Manganese	50[a,b]	19.4	27.2	--	NA
Nickel	100[c,d]	5.5	3.4 I	--	NA
Potassium (mg/L)	NS	5.2	12.0	--	NA
Sodium (mg/L)	NS[c], 160,000[d]	29.0	754	--	NA
Vanadium	NS	8.7	23.7	--	NA
Zinc	5,000[a,b]	28 I	--	--	NA
Pesticides/PCBs					
None Detected	Various				NA
Semi-Volatile Organic Compounds					
None Detected	Various				NA
Volatile Organic Compounds					
Acetone	0[e]	--	--	19 I	--
Bromodichlorethane	100[c]/80 0.6[e]	--	--	--	--
2-Butanone	4,200[e]	--	--	21 I	--

Key at end of Table.

Table 5-3
SUMMARY OF GROUNDWATER ANALYTICAL RESULTS
WHITE'S MEATS SITE
OCALA, MARION COUNTY, FLORIDA

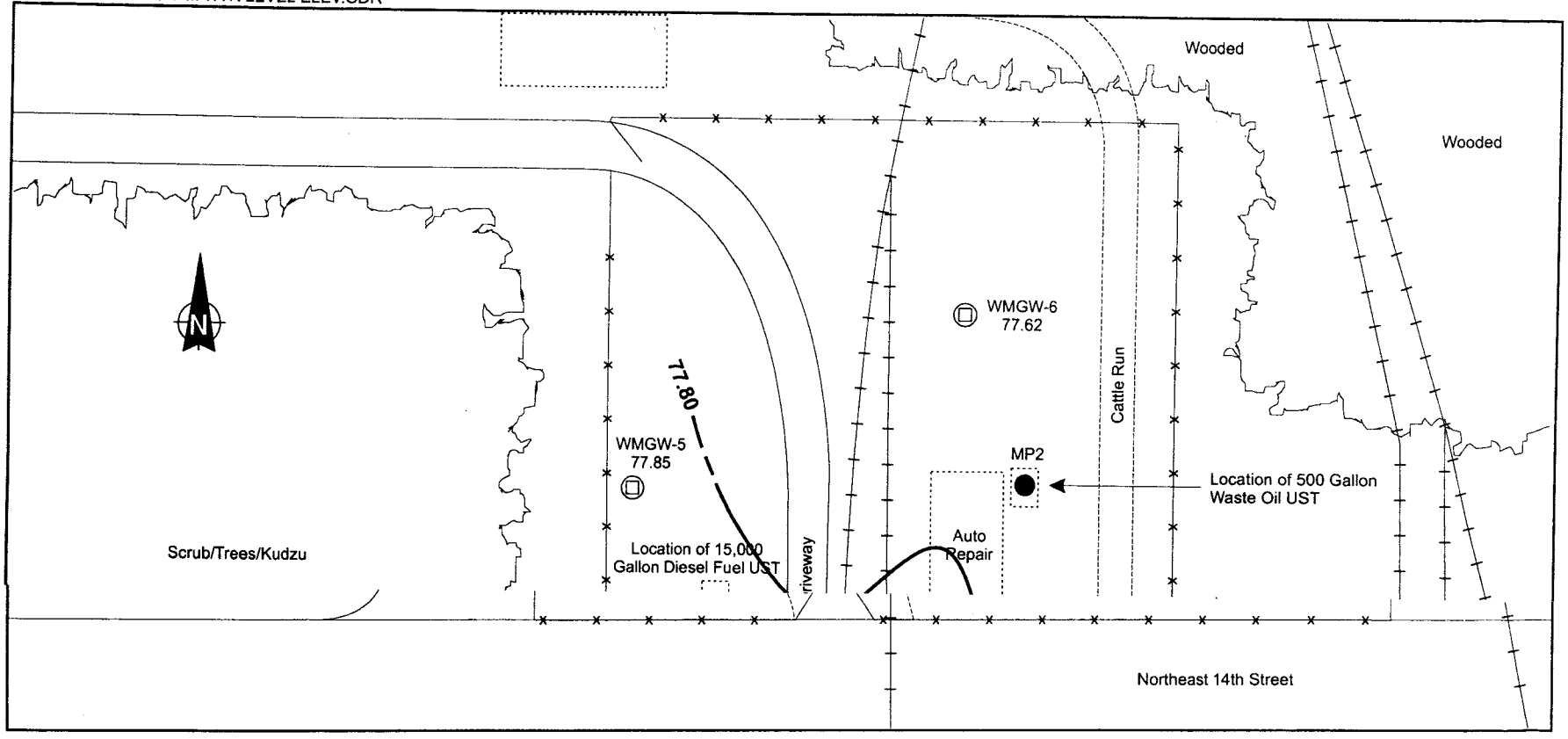
Parameter*	Applicable Standard(s)	WMGW-5	WMGW-6	WMGW-RB1	WMGW-TB1
Chloroform	100[c]/80 0.6[e]	--	--	--	--
Methylene Chloride	5[cd]	--	--	1.4 I	
Xylenes (total)	10,000[cd]	--	--	--	--

*Unless otherwise noted, results are in micrograms per liter (μg/L).
[a]Federal Secondary Drinking Water Standard.
[b]State of Florida Secondary Drinking Water Standard.
[c]Federal Primary Drinking Water Standard.
[d]State of Florida Primary Drinking Water Standard.
[e]Florida Groundwater Guidance Concentrations.
[f]Shallow-zone background location.
[g]Deep-zone background location.
[h]Total for trihalomethanes cannot exceed 80 μg/L.

Key:

Shaded bold text	=	Concentration exceeds drinking water standards.
--	=	Material was analyzed for but not detected; the value reported is the minimum detection limit.
A	=	Value reported is the mean of two or more determinations.
I	=	Value reported is less than the minimum quantitation limit and greater than or equal to the minimum detection limit.
J	=	Estimated value.
mg/L	=	Milligrams per liter.
NA	=	Not analyzed.
NS	=	No standard.
T	=	Value reported is less than the criterion of detection.
U	=	Material was analyzed for but not detected; the value reported is the minimum detection limit.
μg/L	=	Micrograms per liter.

14: WHITES MEATS/WM WTR LEVEL ELEV.CDR



SOURCE: Ecology and Environment, Inc., 1999.

© 1999 Ecology and Environment, Inc.

APPROXIMATE SCALE

0 50 100 FEET

KEY:

+-+-+-+	Railroad (removed)	AST	Aboveground Storage Tank
-x-x-	Fence/Site Boundary	UST	Underground Storage Tank
⬚	Features Removed	◎	Groundwater and Surface Soil Sampling Locations
● MPI	Temporary Monitoring Well Location (WAR 1993)	▽	Surface Soil Sampling Location

Figure 3 WATER LEVEL ELEVATION ISOPLETH MAP (SEPTEMBER 22, 1999) -- WHITE'S MEATS, OCALA, MARION COUNTY, FLORIDA

6 Pathway/Exposure Route Evaluation

6.1 Groundwater Migration Pathway

The groundwater pathway does not appear to be of concern at the White's Meats site. Six monitoring wells were installed during the TBA field investigation. Groundwater samples collected from the on-site monitoring wells did not exhibit significant concentrations of organic contaminants attributable to the site. Groundwater samples collected from four of the on-site monitoring wells exhibited concentrations of aluminum that exceeded the federal and state SDWS. In addition, the groundwater sample collected from WMSS-6, located north of the former waste oil UST, exhibited a concentration of iron that exceeded the federal and secondary SDWS. Secondary drinking water standards relate to the organoleptic or other aesthetic undesirable properties of groundwater and do not represent a limitation based on the potential risk to humans. The presence of these cannot be directly attributed to activities at the site.

Although the groundwater sampling data do not indicate significant environmental problems, further assessment of the groundwater pathway is recommended to evaluate potential source areas that were not included in this TBA.

6.2 Surface Water Migration Pathway

Sampling of the surface water pathway was not included in the scope of this TBA. The surface water pathway does not appear to be of concern. Some contaminants were detected in soil samples collected in the northern and western sections of the site at concentrations significantly above background. Surface topography suggests that on-site stormwater run-off would be directed in a westerly to north-westerly direction. Stormwater run-off would flow towards the stormwater pond located on the adjacent property to the west and to the empty lots to the northwest and north. A discharge point from the stormwater pond and empty lots was not observed during the field investigation. Therefore, it appears the surface water runoff does not migrate beyond these areas.

6.3 Soil Exposure Pathway

The soil exposure pathway does not appear to be a major concern at the site. Surface soil samples collected during the TBA exhibited concentrations of metals, pesticides, PCBs, and SVOCs.

Surface soil samples (WMSS-1, WMSS-3, WMSS-5, and WMSS-6) collected during the TBA field investigation exhibited concentrations of VOCS that exceeded the SCTLs for residential and industrial direct exposure. In addition, the concentration of PCB-1260 exhibited by surface soil sample WMSS-6 exceeded the established SCTLs for leachability (based on groundwater criteria). However, the groundwater sample collected from monitoring well WMGW-6, co-located with surface soil sample WMSS-6, did not exhibit any detected concentration of the PCB. The potential for exposure to surrounding populations is reduced by the commercial/industrial nature of the surrounding areas, and the site is fenced on all sides.

Although the soil sampling data do not indicate significant environmental problems, further assessment of the soil pathway is recommended to evaluate potential source areas that were not included in this TBA.

6.4 Air Migration Pathway

Sampling of the air migration pathway was not included in the scope of this TBA. Based on the analytical data results, and observed site conditions, the air migration pathway does not appear to be of concern at the White's Meats site.

7 Conclusions/Recommendations

The White's Meats site was a slaughterhouse and meat packing facility that operated from the 1920s to the mid 1980s. Since the mid 1980s, the site was reportedly used for storage, including the storage of 55-gallon drums that may have contained pesticides, oils, and other unknown materials. In 1991, there was a fire at the facility that initiated the investigative activities.

Surface soil samples (WMSS-3 and WMSS-6) collected at the site exhibited concentrations of metals, pesticides, PCBs, and SVOCs that exceeded the concentrations exhibited by the control sample (WMSS-1). Concentrations of one or more SVOCs and vanadium exhibited by surface soil samples WMSS-1, WMSS-3, WMSS-5, and WMSS-6 exceeded the respective SCTL for residential direct exposure. In addition, surface soil WMSS-6 exhibited a concentration of PCB-1260 that exceeded the SCTL for leachability (based on groundwater criteria). The control sample exhibited concentrations of several SVOCs. However, vanadium, pesticides, and PCB-1260 were not detected in the control sample. Therefore, the concentrations of pesticides exhibited in on-site soils, and the concentrations of vanadium and PCB-1260 exhibited by surface soil sample WMSS-6 may be attributable to former operations at the site. Surface soil sample WMSS-6 was collected north (downgradient) of the former waste oil UST that was located in the vicinity of the auto repair shop. The groundwater sample WMGW-6, co-located with surface soil sample WMSS-6, did not exhibit any detectable concentration of vanadium or PCBs. Therefore, the contaminants observed in the surface soil do not appear to have leached to the groundwater.

Aluminum and iron were found in groundwater samples collected from the site at concentrations that exceeded state and federal SDWS. With current information, the presence of these metals cannot be directly attributed to the activities at the site. Based on available file information and observations made during the TBA field investigation activities, the potential contamination sources such as 55-gallon drums and USTs have been removed from the site.

Surface soil sample results suggest that historical operations at the site may have resulted in some surface soil contamination.

Based upon the information provided in this TBA report, it is recommended that additional assessment and corrective actions be implemented pursuant to a Brownfields Site rehabilitation Agreement in accordance with Chapter 62-785, F.A.C.

8 References

1. Turi, W., 1998. City of Ocala - Risk Management. Site Information Report, White's Meats, Ocala, Florida.

2. United States Geological Survey (U.S.G.S.). 7.5 Mile Topographic Maps for Ocala, West, Fla. (1991); and Ocala, East, Fla. (1991).

3. Water and Air Research, Inc (1993). Tank Closure Assessment Report for the Former White Meat Packing Plant, Ocala, Florida.

4. Property Appraiser's Office. August 10, 1999. Marion County, Florida. Property Information for 315 NE 14th Street.

5. Microsoft Expedia (1999) Streets and Trips 2000.

6. Stephens, R. (July 22, 1999) (E & E) Conservation record with Roger West (IFAS-Meat Science Dept.).

7. Sanborn Fire Insurance Maps Ocala. Grid No. 34. 1948 and 1970.

8. Marion County, Florida. Office of the Property Appraiser. Areal Photographs (1976, 1980, 1992 and 1996) for Section 8, Township 15 South and Range 22 East.

9. E & E, August 1999. National Wetland Inventory and Federal Emergency Management Agency, Floodrate Insurance Map. 2-Mile Radius Map.

10. White, W.A. 1970. The Geomorphology of the Florida Peninsula. Florida Department of Resources. Bureau of Geological, Bulletin No. 51.

11. Rohrer. K. 1984. Hydrologic Reconnaissance of Marion County. St. Johns River Water Management District. Department of Water Resources. Technical Publication SJ 84-6.

12. Lane, E., and Hoenstine. R.W., 1991. Environmental Geology and Hydrogeology of the Ocala Area, Florida. Florida Geological Survey (FGS), Special Publication No.31.

13. Scott. T. 1991. Geologic Map of Marion County. Florida. FGS Oper-life Map Series No. 13.

14. U.S. Department of Agriculture Soil Conservation Service 1979. Soil Survey of Marion County Area, Florida.

15. Southwest Florida Water Management District, 1987. Ground Water Resources Availability Inventory: Marion County, Florida.

16. Pollock, E. 1991. Environmental Coordinator. White Construction Company, Inc. Letter to John White; FDER Central District.

17. Alexander, A., June 10, 1991. FDER Central District. Letter to Luther White, White Construction Company.

18. White, J., June 10, 1991, FDER-Central District. Memorandum to Deborah Metrin. Section Manager, Tanks Program.

19. FDEP. August 23, 1999. FDEP Tiger Database. White's Meats, Ocala.

20. FDEP. August 23, 1999. Public Water Survey (PWS) Summary. White's Meat, Ocala.

21. Ecology and Environment, Inc., September 1999. Brownfields Site Assessment Phase II Work Plan for the White's Meats, Ocala, Marion County, Florida.

22. Ecology and Environment, Inc., November 1999. Florida Natural Inventory (FNAI) Database Search-Element Occurrence Records, Search of Occurrences within a 2-mile radius of the White's Meats Site, Ocala, Marion County, Florida.

23. Heath, R. C., and Conover, C. S., 1981. Hydrologic Almanac of Florida. USGS Open-File Report 81-1107.

24. Visher, F.N., and Hughes, G.H., 1975. The Difference Between Rainfall and Potential Evaporation in Florida. USGS Map Series No. 32, Second Edition.

25. Hershfield, D.M., 1961. Rainfall Frequency Atlas of the United States for Durations from 30 Minutes to 24 Hours and Return Periods from 1 to 100 Years. U.S. Department of Commerce, Weather Bureau, Technical Paper No. 40.

9 Florida Professional Geologist Seal

I hereby affix my seal to this Targeted Brownfields Assessment Report for the White's Meats Site, Ocala, Marion County, Florida, in accordance with Chapter 492 of the Florida Statutes and applicable rules and regulations developed pursuant thereto:

Name: Bruce R. Wilson

License Number: 120

State: Florida

Bruce R. Wilson

2/24/00

Date

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
137-552	Targeted Brownfield, Ocala FL	

TAB A

Photographic Documentation Log

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
137-552	Targeted Brownfield, Ocala FL	

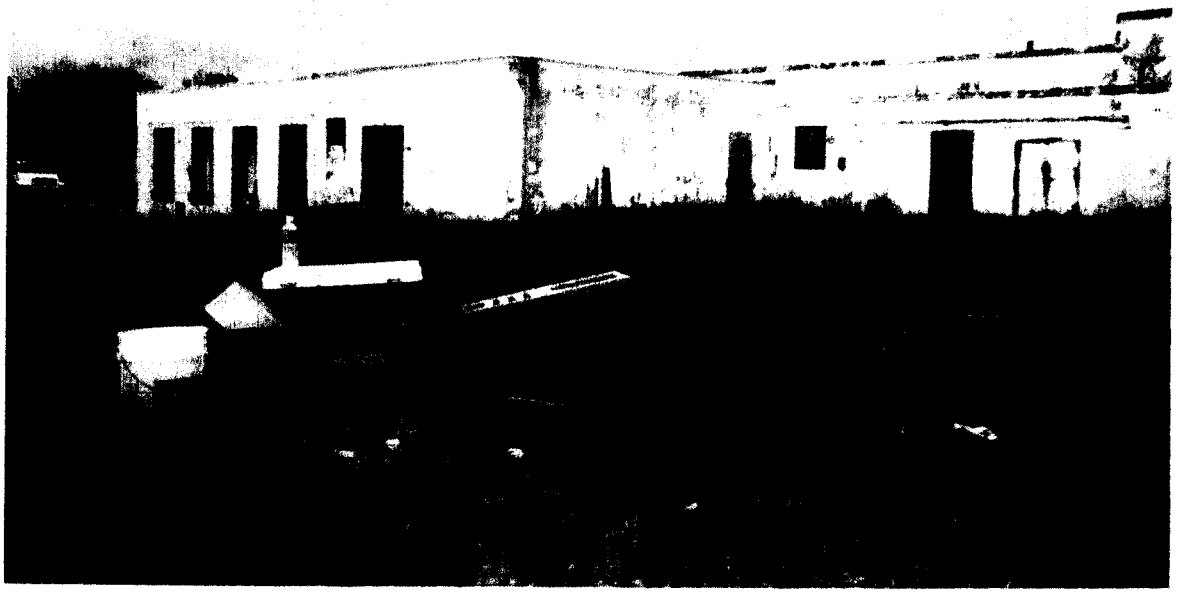
TAB

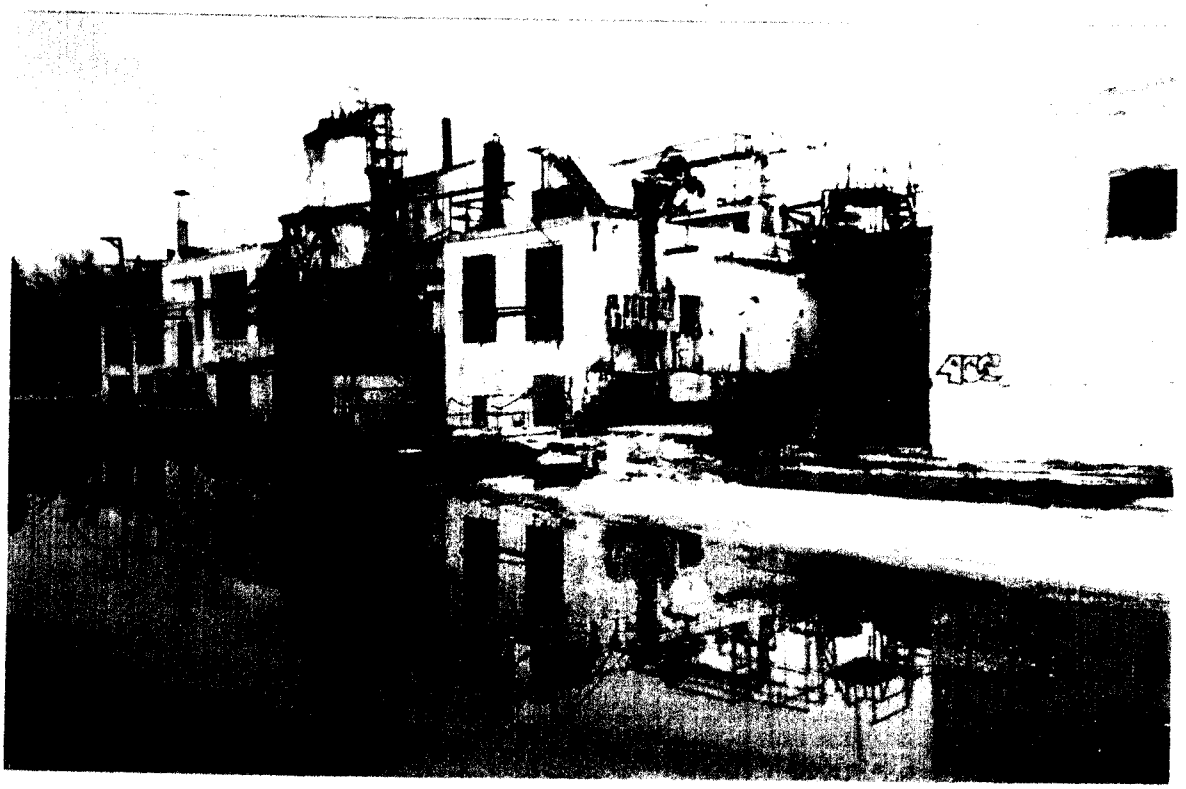
A Photographic Documentation Log

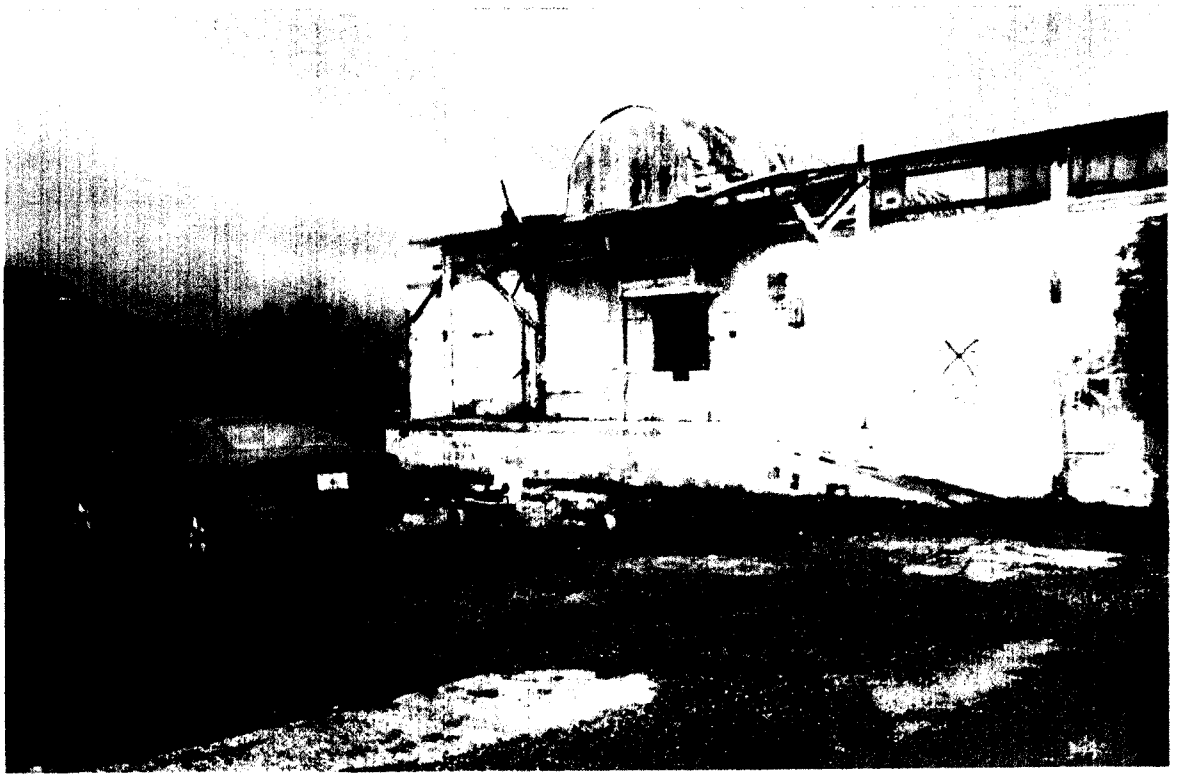
PHOTOGRAPHIC DOCUMENTATION LOG
FOR THE CROSBY WARTMAN PACKING COMPANY
CITRA, MARION COUNTY, FLORIDA

Photo No.	Date	Subject	Direction
1	August 1999	Log storage area corresponding with geophysical survey grid Area C. Wood shaving shed shown in photograph.	ENE
3	August 1999	Bartlett maintenance shed within centrally located fenced area.	E
4	August 1999	Former truck loading dock, located within fenced area. Location of surface soil sample CWPCSS-4.	E
5	August 1999	Background soil location east of concrete block office building.	SSW
6	August 1999	Location of former packing house that was destroyed in 1987 fire.	E
7	August 1999	Location of soil samples CWPCSS-2/SB-2, corresponding to geophysical anomaly Grid A point 50/250.	NW
8	August 1999	Property under construction west of the site. Location of off-site supply well sample CWPC-2.	WNW
9	August 1999	Piezometer 2. Well was reportedly abandoned; however, well was accessible to collect groundwater sample CWPC-1.	NW
10	August 1999	Soil sampling location CWPCSB-3, located NE of former pit within geophysical survey Grid B.	SSW
11	August 1999	Junk trucks and cars located in NE cleared area.	NNE
12	August 1999	Drums located in NE wooded area of the site. Sampling location for soil samples CWPCSS-8 and CWPCSB-4.	S

Source: Ecology & Environment, Inc.







BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
137-552	Targeted Brownfield, Ocala FL	

TAB B

Lithologic Logs and Well Construction Details

B Lithologic Logs and Well Construction Details

DRILLING LOG OF BORING NO. WMGW-1

Project: White's Meats
Location: Ocala, Florida
Well/Boring Coordinates:
Drilling Co./Equipment: Groundwater Protection, Inc./D-120
Driller/Geologist: Jeff Ziegler/Paul Cheney
Date Started/Finished: 9/20/99 / 9/20/99

Total Depth of Hole (feet BGS): 32
Ground Elevation (feet above MSL):
Drilling Method: HSA
HSA Bit Size / HSA Size: 7 1/4" OD HSA
Borehole diameter: 7 1/4"
Type of Sampler: Split Spoon

ELEVATION / DEPTH	GRAPHIC LOG	OVERBURDEN DESCRIPTION	SAMPLER TYPE	SAMPLE NUMBER	BLOW COUNT	% RECOVERY	OVA (ppm)	COMMENTS
1		C-1 Sand, Grayish brown to brown. Fine to medium Grained, high organic content (SP)	~~SS~~ HA	NA	NA	NA	~~NC~~	Sample collected with hand auger.
2								
3		3-4' Sand, Tan, Fine Grained, loose, dry (SP	~~SS~~ HA	NA	NA	NA	~~NC~~	Sample collected with hand auger. No staining or odor noted
4		4-4.5 Same as above						
5		4.5-6 Silty Sand, Tan, Fine grained. Firm, Damp, low plasticity (SM)	SS	NA	4 7 9 11	75	~~NC~~ 0.0	
6								
7			SS				~~NC~~	
8								
9			SS				~~NC~~	
10								
11		10-12 Clayey Sand, very light tan. Firm, Damp. No staining or odor (SC	SS	NA	7 7 9 10	100	~~NC~~ 0.0	
12								
13			SS				NC	
14								
15		15-17: Sandy Clay. Tan to light brown. Soft, Damp. Med. plasticity. (CL)	SS	NA	4 6 4	100	~~NC~~ 0.0	
16		No staining or odor						
17			SS				NC	
18								

DRILLING LOG OF BORING NO. WMGW-1 Page 2 of

Project: White's Meat Total Depth of Hole (feet BGS): 32

ELEVATION	DEPTH	GRAPHIC LOG	OVERBURDEN DESCRIPTION	SAMPLER TYPE	SAMPLE NUMBER	BLOW COUNT	% RECOVERY	OVA (ppm)	COMMENTS
	19			SS				NC	
	20		20-22: Sandy Clay. Tan to light brown. minor shell fragments (<5%) Soft, low to moderate plasticity No staining or odor (CL)	SS		1 2 3 3	80	~~NC~~ 0	
440	22								
	23			SS	NA			NC	
	24								
	25		25-27: Sandy Clay. Tan to yellowish brown. 5-10% pea gravel. Wet at 25'	SS	NA	1 2 2 2	25	~~NC~~ 0	
	26								
435	27			SS	NA			NC	
	28								
	29			SS				NC	
	30								
	31			SS	NA			NC	
430	32		TD = 32' Set 10' of 2" PVC Screen from 32-22' 2" pvc riser to surface. 20/30 Sand pack 32-22' 30/65 22-20' Cement seal to surface.						
	33			SS	NA			NC	
	34								
	35			SS	NA			NC	
	36								
425	37			SS	NA			NC	
	38								
	39			SS				NC	

WELL COMPLETION LOG

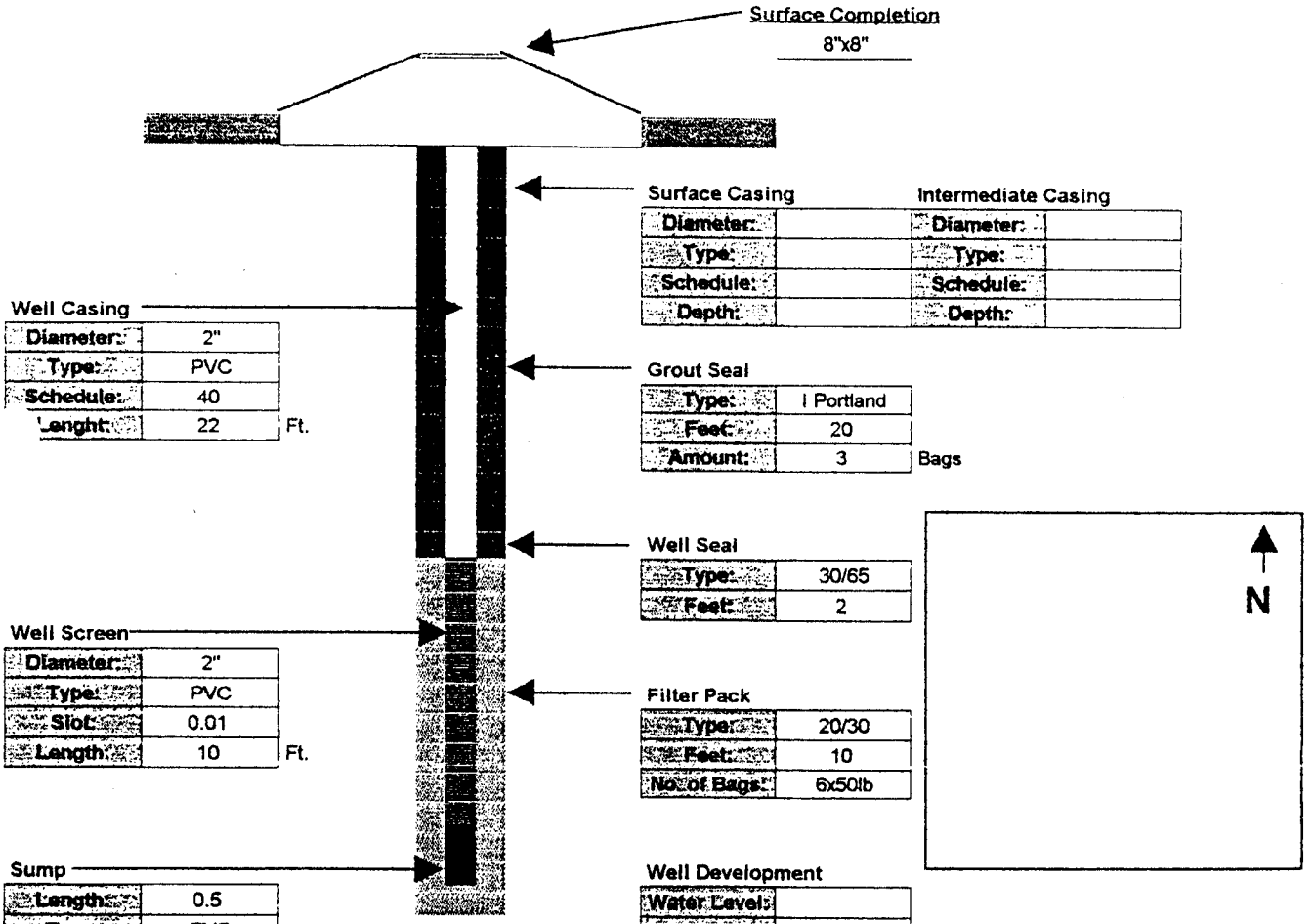
Water Mgmt. Dist.:
Permit Number:

Work Order: 6715
Type of Well: Monitor
Well Number: MW1
Method Used: HSA
Borehole Dia. 8"

Site Information:
Name: White's Meat
Address: 300 N.E. 14th Street
C,S,Z: Ocala, Florida
S/T/R:

Client / Consultant Information
Consultant: Ecology & Environment
Field Rep: Richard Stephens

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	32	10	22	3	6x50lb	20/30	30/65
40	Schedule	Slot Size:	0.01		20	Feet	10	2



Surface Casing		Intermediate Casing	
Diameter:		Diameter:	
Type:		Type:	
Schedule:		Schedule:	
Depth:		Depth:	

Well Casing	
Diameter:	2"
Type:	PVC
Schedule:	40
Lenght:	22 Ft.

Grout Seal	
Type:	I Portland
Feet:	20
Amount:	3 Bags

Well Seal	
Type:	30/65
Feet:	2

Well Screen	
Diameter:	2"
Type:	PVC
Slot:	0.01
Length:	10 Ft.

Filter Pack	
Type:	20/30
Feet:	10
No. of Bags:	6x50lb

Sump	
Length:	0.5
Type:	PVC

Well Development			
Water Level:			
Method:			
Start:	Cloudy	Finish:	Clear
Time:			
GPM:			

Contractor Information

Contractor #:	2638
Completion:	09/21/1999
Driller:	Jeff Zeigler
Lead Hand:	Dave Berry
Helper:	Bob Evans
Drill Rig:	D120

Company:	Groundwater Protection, Inc.
Address:	1824 W. Washington Street
C,S,Z:	Orlando, Florida 32805
Phone/FAX:	(407) 426-7885 / (407) 426-7586

WELL COMPLETION LOG

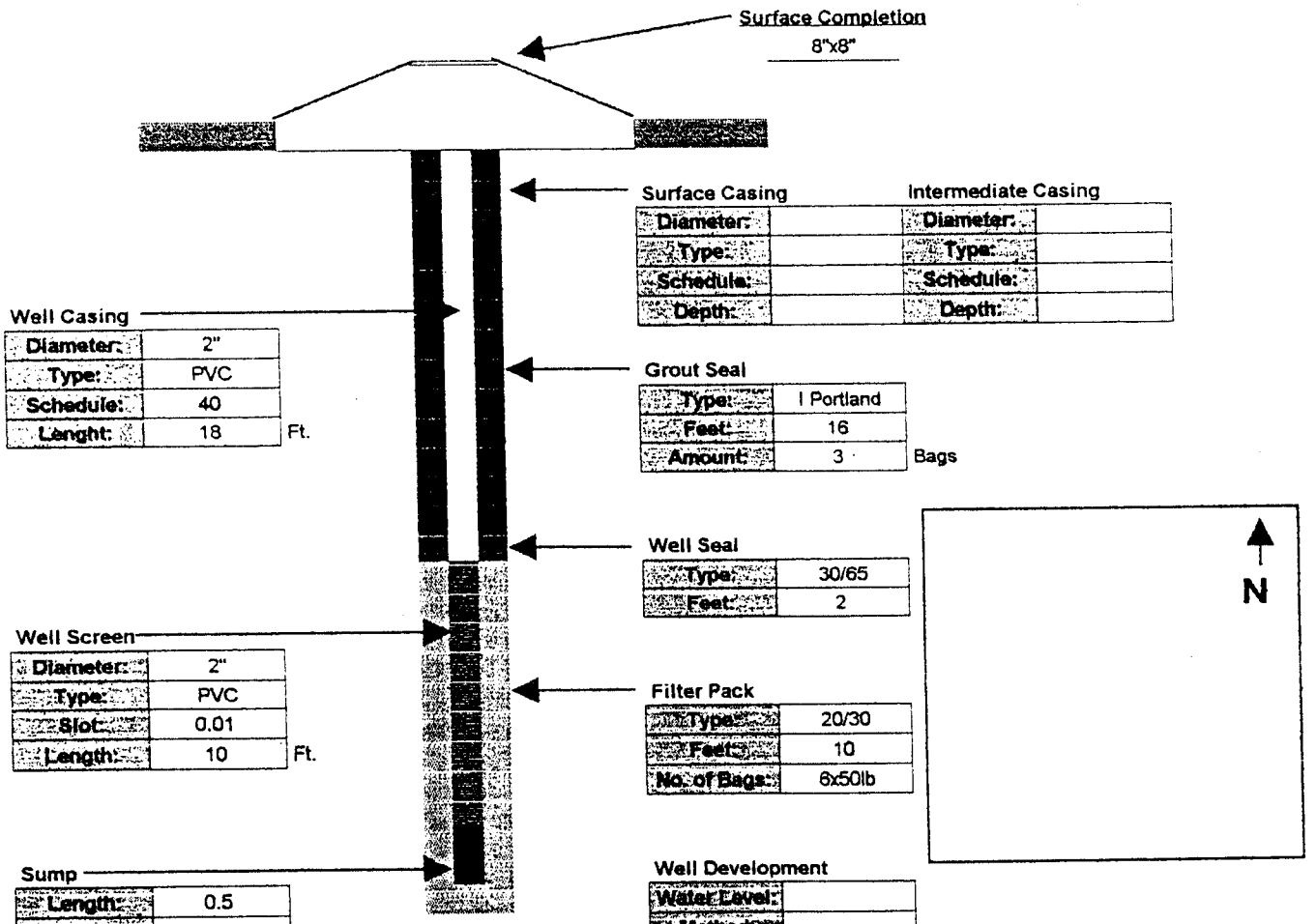
Water Mgmt. Dist.:
Permit Number:

Work Order: 6715
Type of Well: Monitor
Well Number: MW2
Method Used: HSA
Borehole Dia. 8"

Site Information:
Name: White's Meat
Address: 300 N.E. 14th Street
C,S,Z: Ocala, Florida
S/T/R:

Client / Consultant Information
Consultant: Ecology & Environment
Field Rep: Richard Stephens

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	28	10	18	3	6x50lb	20/30	30/65
40	Schedule	Slot Size:	0.01		16	Feet	10	2



Surface Casing		Intermediate Casing	
Diameter:		Diameter:	
Type:		Type:	
Schedule:		Schedule:	
Depth:		Depth:	

Well Casing		
Diameter:	2"	
Type:	PVC	
Schedule:	40	
Lenght:	18	Ft.

Grout Seal		
Type:	I Portland	
Feet:	16	
Amount:	3	Bags

Well Seal		
Type:	30/65	
Feet:	2	

Well Screen		
Diameter:	2"	
Type:	PVC	
Slot:	0.01	
Length:	10	Ft.

Filter Pack		
Type:	20/30	
Feet:	10	
No. of Bags:	6x50lb	

Sump		
Length:	0.5	
Type:	PVC	

Well Development			
Water Level:			
Method:			
Start:	Cloudy	Finish:	Clear
Time:			
GPM:			

Contractor Information

Contractor #:	2638
Completion:	09/21/1999
Driller:	Jeff Zeigler
Lead Hand:	Dave Berry
3rd Man:	Bob Evans
Drill Rig:	D120

Company: Groundwater Protection, Inc.
Address: 1824 W. Washington Street
C,S,Z: Orlando, Florida 32805
Phone/FAX: (407) 426-7885 / (407) 426-7586

WELL COMPLETION LOG

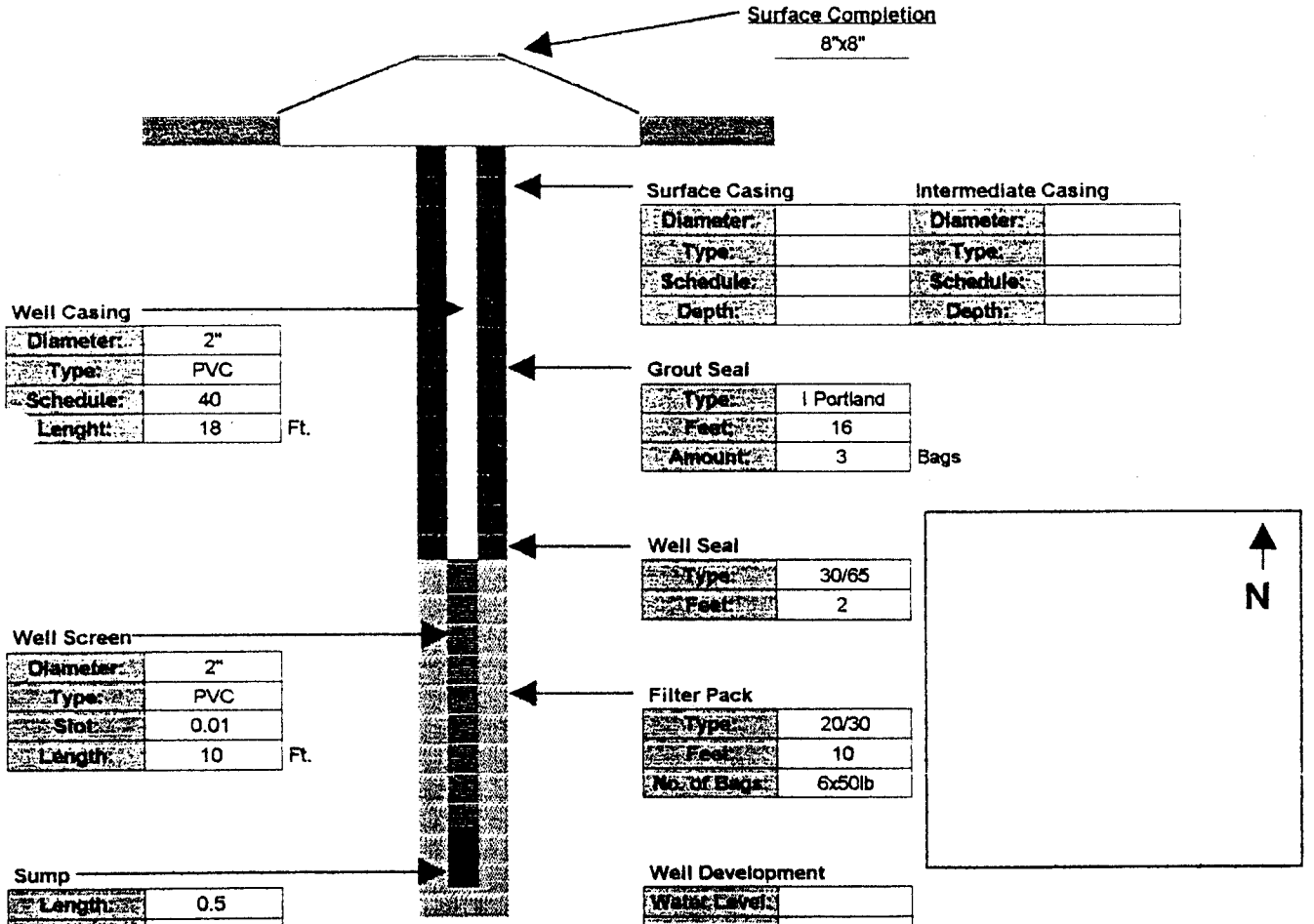
Water Mgmt. Dist.:
Permit Number:

Work Order: 6715
Type of Well: Monitor
Well Number: MW3
Method Used: HSA
Borehole Dia. 8"

Site Information:
Name: White's Meat
Address: 300 N.E. 14th Street
C,S,Z: Ocala, Florida
S/T/R:

Client / Consultant Information
Consultant: Ecology & Environment
Field Rep: Richard Stephens

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	28	10	18	3	6x50lb	20/30	30/65
40	Schedule	Slot Size:	0.01		16	Feet	10	2



Contractor Information

Contractor #:	2638
Completion:	09/21/1999
Driller:	Jeff Zeigler
Lead Hand:	Dave Berry
Asst Man:	Bob Evans
Drill Rig:	D120

Company: Groundwater Protection, Inc.
Address: 1824 W. Washington Street
C,S,Z: Orlando, Florida 32805
Phone/FAX: (407) 426-7885 / (407) 426-7586

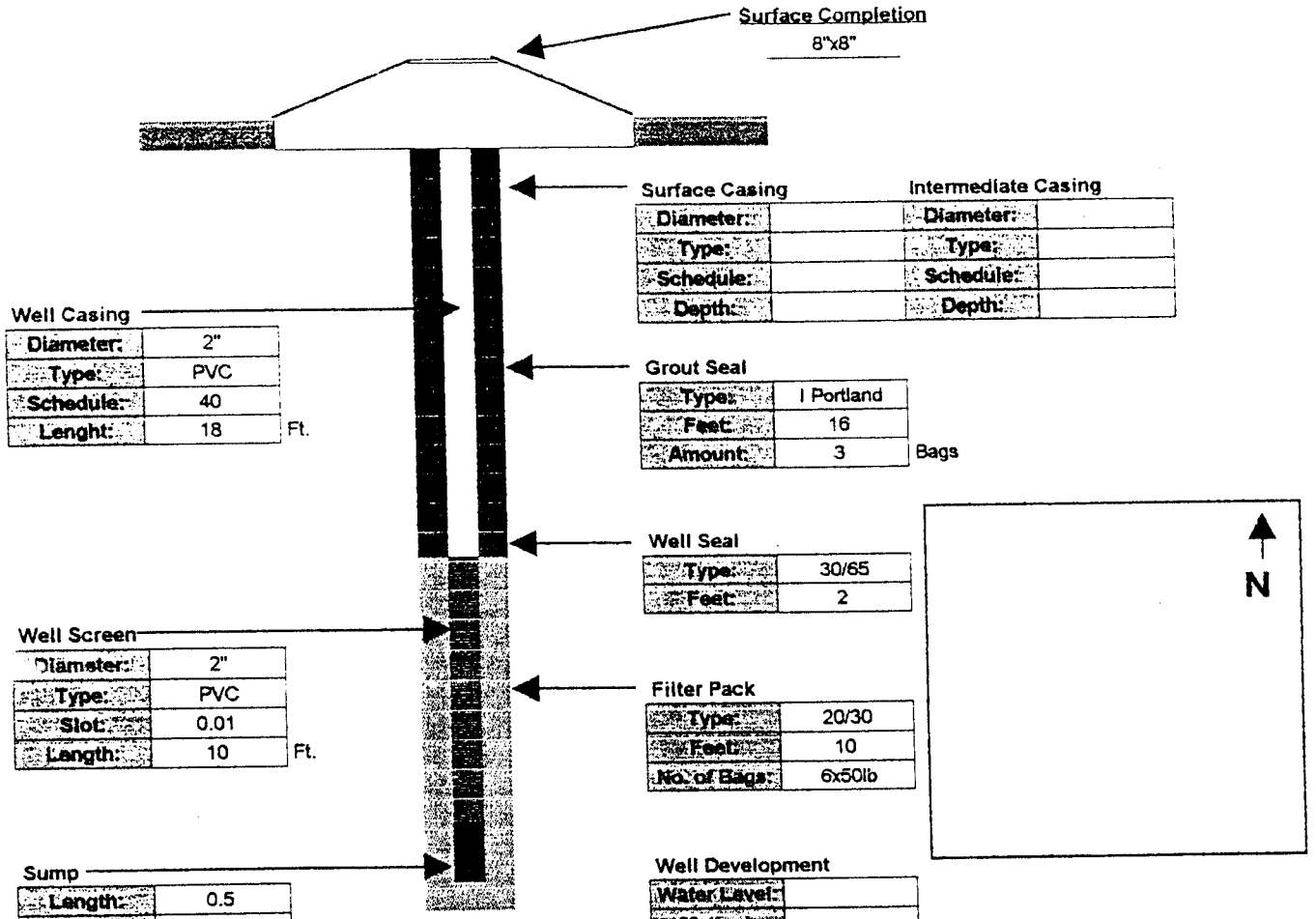
WELL COMPLETION LOG

Water Mgmt. Dist.:
Permit Number:

Work Order: 6715
Type of Well: Monitor
Well Number: MW4
Method Used: HSA
Borehole Dia. 8"

Site Information:
Name: White's Meat
Address: 300 N.E. 14th Street
C,S,Z: Ocala, Florida
S/T/R:
Client / Consultant Information
Consultant: Ecology & Environment
Field Rep: Richard Stephens

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	28	10	18	3	6x50lb	20/30	30/65
40	← Schedule	Slot Size: →	0.01		16	← Feet →	10	2



Contractor Information

Contractor #:	2638
Completion:	09/21/1999
Driller:	Jeff Zeigler
Lead Hand:	Dave Berry
3rd Man:	Bob Evans
Drill Rig:	D120

Company: Groundwater Protection, Inc.
Address: 1824 W. Washington Street
C,S,Z: Orlando, Florida 32805
Phone/FAX: (407) 426-7885 / (407) 426-7586

WELL COMPLETION LOG

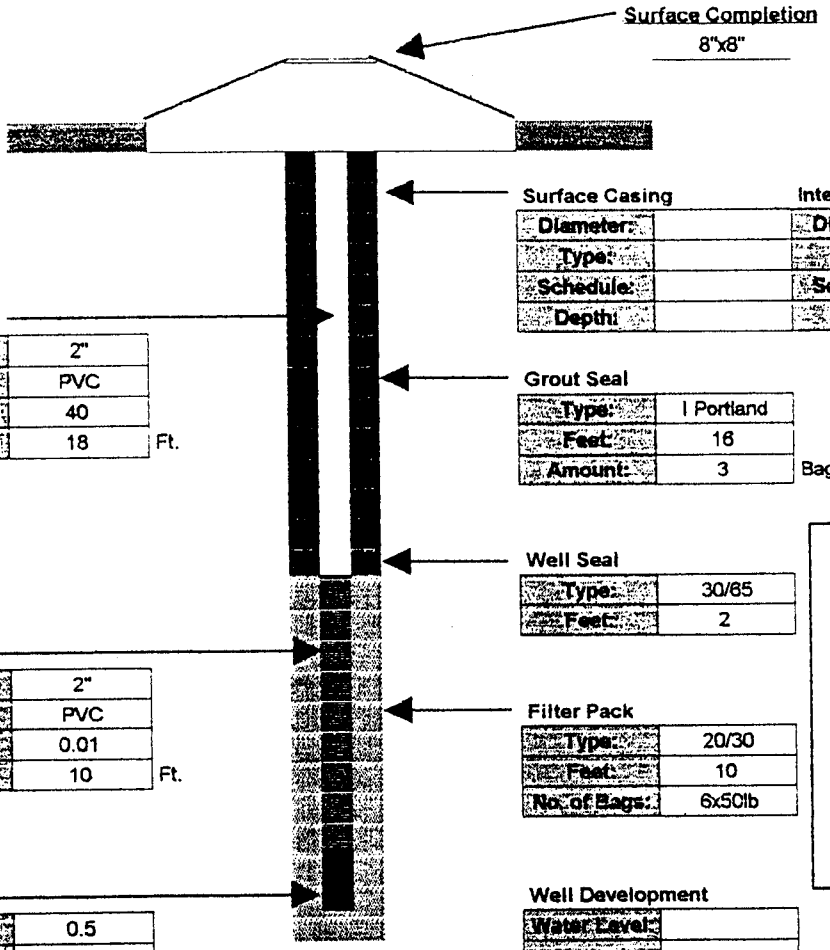
Water Mgmt. Dist.:
Permit Number:

Work Order: 6715
Type of Well: Monitor
Well Number: MW5
Method Used: HSA
Borehole Dia. 8"

Site Information:
Name: White's Meat
Address: 300 N.E. 14th Street
C,S,Z: Ocala, Florida
S/T/R:

Client / Consultant Information
Consultant: Ecology & Environment
Field Rep: Richard Stephens

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	28	10	18	3	6x50lb	20/30	30/65
40	Schedule	Slot Size:	0.01		16	Feet	10	2



Surface Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Intermediate Casing

Diameter:	
Type:	
Schedule:	
Depth:	

Well Casing

Diameter:	2"
Type:	PVC
Schedule:	40
Lenght:	18 Ft.

Grout Seal

Type:	I Portland
Feet:	16
Amount:	3 Bags

Well Seal

Type:	30/65
Feet:	2

Well Screen

Diameter:	2"
Type:	PVC
Slot:	0.01
Length:	10 Ft.

Filter Pack

Type:	20/30
Feet:	10
No. of Bags:	6x50lb

N

Sump

Length:	0.5
Type:	PVC

Well Development

Water Level:			
Method:			
Start:	Cloudy	Finish:	Clear
Time:			
GPM:			

Contractor Information

Contractor #:	2638
Completion:	09/21/1999
Driller:	Jeff Zeigler
Lead Hand:	Dave Berry
3rd Man:	Bob Evans
Rig:	D120

Company: Groundwater Protection, Inc.
Address: 1824 W. Washington Street
C,S,Z: Orlando, Florida 32805
Phone/FAX: (407) 426-7885 / (407) 426-7586

WELL COMPLETION LOG

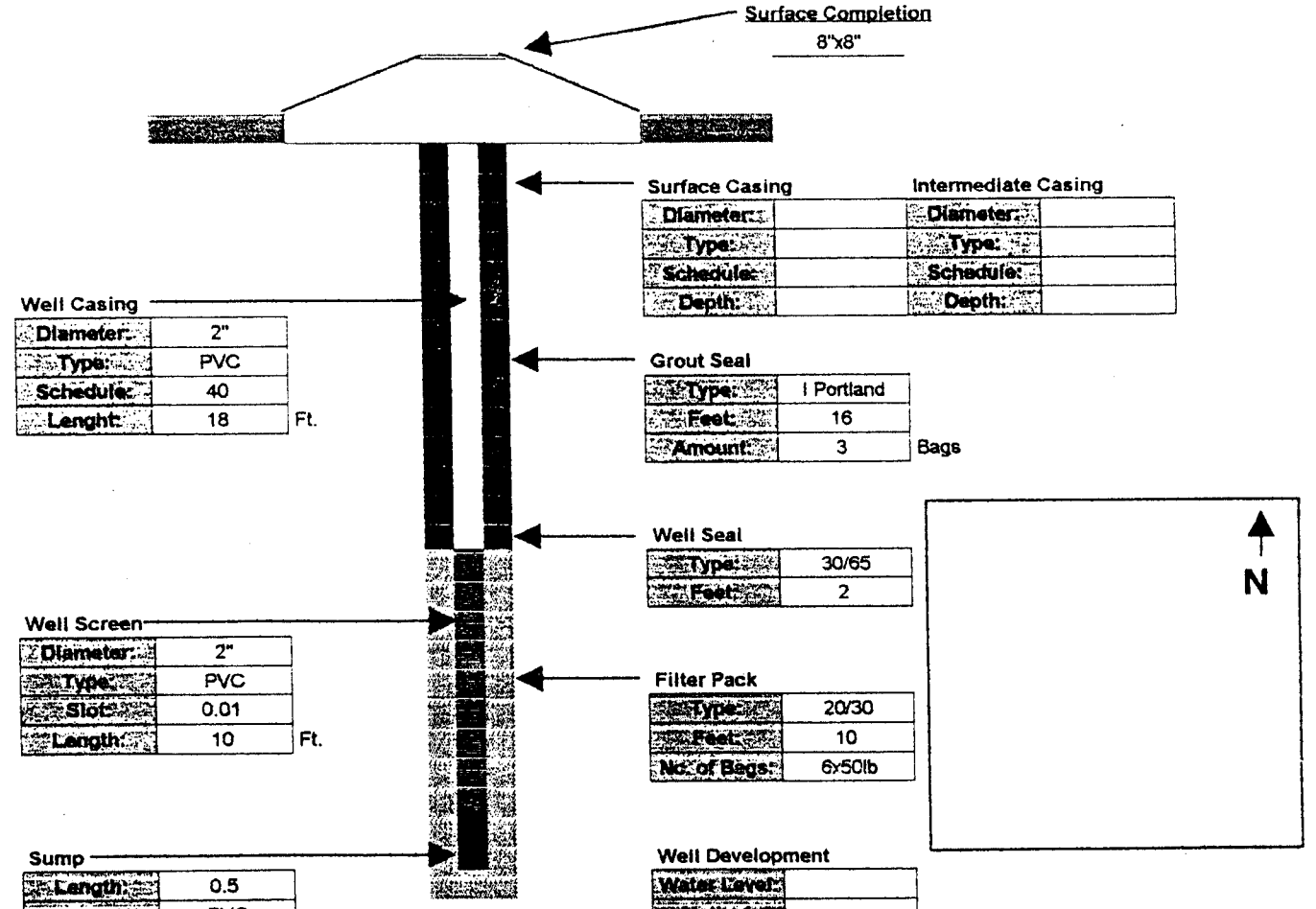
Water Mgmt. Dist.:
Permit Number:

Work Order: 6715
Type of Well: Monitor
Well Number: MW6
Method Used: HSA
Borehole Dia. 8"

Site Information:
Name: White's Meat
Address: 300 N.E. 14th Street
C,S,Z: Ocala, Florida
S/T/R:

Client / Consultant Information
Consultant: Ecology & Environment
Field Rep: Richard Stephens

Well Diameter	Well Type	Well Depth	Screen Length	Casing Length	Bags Grout	Sand Bags/Weight	Filter Type	Well Seal
2"	PVC	28	10	18	3	6x50lb	20/30	30/65
40 ← Schedule		Slot Size: →	0.01		16	← Feet →	10	2



Contractor Information

Contractor #:	2638
Completion:	09/21/1999
Driller:	Jeff Zeigler
Lead Hand:	Dave Berry
3rd Man:	Bob Evans
Drill Rig:	D120

Company: Groundwater Protection, Inc.
Address: 1824 W. Washington Street
C,S,Z: Orlando, Florida 32805
Phone/FAX: (407) 426-7885 / (407) 426-7586

BROWNFIELDS ASSESSMENT. OCALA, FLORIDA
FOIA 2019-003937

FOLDER NUMBER	BRIEF DESCRIPTION	
137-552	Targeted Brownfield, Ocala FL	

TAB C

Laboratory Analytical data

C Laboratory Analytical Data

Chemical Analysis Report

SSSS-1999-09-21-01

Florida Department of Environmental Protection
Central Laboratory
2600 Blair Stone Road
Tallahassee, FL 32399-2400
CompQAP# 870688G

Event Description: **White's Meats Site**

Request ID: **RQ-1999-09-20-19**

Customer: **SSSS**

Project ID: **SSSS**

Job: TLH-1999-09-21-15	Group: Pesticides
Job: TLH-1999-09-21-15	Group: Priority Organic Pollutants
Job: TLH-1999-09-21-16	Group: Nutrients
Job: TLH-1999-09-21-17	Group: Metals
Job: TLH-1999-09-21-20	Group: Metals
Job: TLH-1999-09-21-23	Group: Pesticides
Job: TLH-1999-09-21-27	Group: Priority Organic Pollutants
Job: TLH-1999-09-21-31	Group: Pesticides
Job: TLH-1999-09-21-31	Group: Priority Organic Pollutants
Job: TLH-1999-09-21-33	Group: Nutrients
Job: TLH-1999-09-21-34	Group: Metals
Job: TLH-1999-09-21-36	Group: Metals
Job: TLH-1999-09-21-37	Group: Pesticides
Job: TLH-1999-09-21-38	Group: Priority Organic Pollutants
Job: TLH-1999-09-22-14	Group: Pesticides
Job: TLH-1999-09-22-14	Group: Priority Organic Pollutants
Job: TLH-1999-09-22-15	Group: Nutrients
Job: TLH-1999-09-22-17	Group: Metals
Job: TLH-1999-09-22-18	Group: Metals
Job: TLH-1999-09-22-19	Group: Pesticides
Job: TLH-1999-09-22-20	Group: Priority Organic Pollutants

Send Reports to
FL Dept. of Environmental Protection
2600 Blairstone Road
Tallahassee, FL 32399-2400
Attn: Hank Cheng

For additional information please contact
Timothy W. Fitzpatrick
Yuh-Hsu Pan, Ph.D.
Julio Arrecis, Ph.D.
Liang-Tsair Lin, Ph.D.
Suncom 277-2571 Phone (850) 487-2571

Certified by:

Date: 10-28-99

Report Printed Date: Oct 27, 1999

Abbreviations and data remark codes

A - Value reported is the mean of two or more determinations
B - Results based on colony counts outside the acceptable range.
I - The reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.
J - Estimated value
K - Actual value is known to be less than value given
L - Actual value is known to be greater than value given
N - Presumptive evidence of presence of material.
O - Sampled, but analysis lost or not performed.
Q - Sample held beyond normal holding time.
T - Value reported is less than the criterion of detection.
U - Material was analyzed for but not detected; The value reported is the minimum detection limit.
V - Analyte was detected in both sample and method blank.
Y - The laboratory analysis was from an unpreserved or improperly preserved sample. The data may not be accurate
Z - Colonies were too numerous to count (TNTC).

recycled paper

Sample Location: WHITES MEATS

Field ID: TRIP BLK

Collection Date/Time: 9/20/1999 10:20 AM

Matrix: W-TRIP-BLK

Lab ID: 408458	Storet Code	Component	Result	Code	Units
Test: Volatile organic pollutants in acid preserved water matrices by GC/MS. (EPA 624/8260 mod.)					
	81552	Acetone	10	U	ug/L
	78124	Benzene	0.20	U	ug/L
	32101	Bromodichloromethane	0.20	U	ug/L
	32104	Bromoform	0.50	U	ug/L
	34413	Bromomethane	0.50	U	ug/L
	81595	2-Butanone	10	U	ug/L
	77041	Carbon disulfide	0.50	U	ug/L
	32102	Carbon tetrachloride	0.20	U	ug/L
	34301	Chlorobenzene	0.20	U	ug/L
	34311	Chloroethane	0.50	U	ug/L
	32106	Chloroform	0.20	U	ug/L
	34418	Chloromethane	0.50	U	ug/L
	32105	Dibromochloromethane	0.20	U	ug/L
	34496	1,1-Dichloroethane	0.20	U	ug/L
	34531	1,2-Dichloroethane	0.20	U	ug/L
	34501	1,1-Dichloroethene	0.20	U	ug/L
	77093	cis-1,2-Dichloroethene	0.50	U	ug/L
	34546	trans-1,2-Dichloroethene	0.50	U	ug/L
	34541	1,2-Dichloropropane	0.20	U	ug/L
	34704	cis-1,3-Dichloropropene	0.50	U	ug/L
	34699	trans-1,3-Dichloropropene	0.20	U	ug/L
	34371	Ethylbenzene	0.50	U	ug/L
	77103	2-Hexanone	10	U	ug/L
	78133	4-Methyl-2-Pentanone	10	U	ug/L
	34423	Methylene chloride	0.50	U	ug/L
	77128	Styrene	0.50	U	ug/L
	34516	1,1,2,2-Tetrachloroethane	0.20	U	ug/L
	34475	Tetrachloroethene	0.20	U	ug/L
	78131	Toluene	0.50	U	ug/L
	34506	1,1,1-Trichloroethane	0.20	U	ug/L
	34511	1,1,2-Trichloroethane	0.20	U	ug/L
	39180	Trichloroethene	0.20	U	ug/L
	39175	Vinyl chloride	0.50	U	ug/L
	81551	Xylenes (total)	0.50	U	ug/L

Sample Location: WHITE'S MEATS

Field ID: WMGW-1

Collection Date/Time: 9/21/1999 12:15 PM

Matrix: W-SURF-FRH

Lab ID: 408682	Storet Code	Component	Result	Code	Units
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water matrices by GC/MS. (EPA 625/ 8270 mod.)					

Comments:
Insufficient sample to prepare a duplicate matrix spike.

34205	Acenaphthene	1.0	U	ug/L
34200	Acenaphthylene	1.0	U	ug/L
34220	Anthracene	1.0	U	ug/L
34526	Benzo(a)anthracene	1.0	U	ug/L
34247	Benzo(a)pyrene	1.0	U	ug/L
34230	Benzo(b)fluoranthene	1.0	U	ug/L
34242	Benzo(k)fluoranthene	1.0	U	ug/L
34521	Benzo(g,h,i)perylene	1.0	U	ug/L
34278	Bis(2-chloroethoxy)methane	1.0	U	ug/L
34273	Bis(2-chloroethyl)ether	1.0	U	ug/L
34283	Bis(2-chloroisopropyl)ether	3.0	U	ug/L
34292	Butyl benzyl phthalate	5.0	U	ug/L
77954	4-Chloroaniline	1.0	U	ug/L
34581	2-Chloronaphthalene	1.0	U	ug/L
34641	4-Chlorophenyl phenyl ether	2.0	U	ug/L
77571	Carbazole	1.0	U	ug/L
34320	Chrysene	1.0	U	ug/L
77151	m,p-Cresols	2.0	U	ug/L
77152	o-Cresol	2.0	U	ug/L
39110	Di-n-butyl phthalate	5.0	U	ug/L
34596	Di-n-octyl phthalate	1.0	U	ug/L
34556	Dibenzo(a,h)anthracene	1.0	U	ug/L
81302	Dibenzofuran	1.0	U	ug/L
34536	1,2-Dichlorobenzene	1.0	U	ug/L
34566	1,3-Dichlorobenzene	1.0	U	ug/L
34571	1,4-Dichlorobenzene	1.0	U	ug/L
34631	3,3'-Dichlorobenzidine	40	U	ug/L
34336	Diethyl phthalate	1.0	U	ug/L
34341	Dimethyl phthalate	1.0	U	ug/L
34611	2,4-Dinitrotoluene	1.0	U	ug/L
34626	2,6-Dinitrotoluene	1.0	U	ug/L
34376	Fluoranthene	1.0	U	ug/L
34381	Fluorene	1.0	U	ug/L
39700	Hexachlorobenzene	1.0	U	ug/L
34391	Hexachlorobutadiene	3.0	U	ug/L
34386	Hexachlorocyclopentadiene	3.0	U	ug/L
34396	Hexachloroethane	3.0	U	ug/L
34403	Indeno(1,2,3-cd)pyrene	1.0	U	ug/L
34408	Isophorone	1.0	U	ug/L
77416	2-Methylnaphthalene	1.0	U	ug/L
34696	Naphthalene	1.0	U	ug/L
78142	2-Nitroaniline	1.0	U	ug/L
78300	3-Nitroaniline	1.0	U	ug/L
73605	4-Nitroaniline	1.0	U	ug/L
34447	Nitrobenzene	2.0	U	ug/L
34428	N-Nitrosodi-n-propylamine	2.0	U	ug/L
34433	N-Nitrosodiphenylamine	3.0	U	ug/L
34461	Phenanthrene	1.0	U	ug/L

recycled paper

34469	Pyrene	1.0	U	ug/L
34551	1,2,4-Trichlorobenzene	1.0	U	ug/L
34452	4-Chloro-3-methylphenol	1.0	U	ug/L
34586	2-Chlorophenol	1.0	U	ug/L
34601	2,4-Dichlorophenol	1.0	U	ug/L
34606	2,4-Dimethylphenol	3.0	U	ug/L
34616	2,4-Dinitrophenol	15	U	ug/L
34657	2-Methyl-4,6-dinitrophenol	3.0	U	ug/L
34591	2-Nitrophenol	1.0	U	ug/L
34646	4-Nitrophenol	4.0	U	ug/L
39032	Pentachlorophenol	3.0	U	ug/L
34694	Phenol	1.0	U	ug/L
77687	2,4,5-Trichlorophenol	1.0	U	ug/L
34621	2,4,6-Trichlorophenol	1.0	U	ug/L

Lab ID: 408715	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in aqueous matrices (EPA 335.2)					
	00720	Cyanide	0.010	U	mg/L

Lab ID: 408723	Storet Code	Component	Result	Code	Units
Test: Mercury in aqueous samples using cold vapor AA spectroscopy. (EPA 245.2)					
	71900	Mercury	0.10	U	ug/L

Lab ID: 408731	Storet Code	Component	Result	Code	Units
Test: Metals, total recoverable, in aqueous samples using trace-ICP emission spectroscopy. (EPA 200.7 mod.)					

Comments:
Please refer to the QC Report for parameters observed to exceed control limits. The Ag and Zn MDLs and the Ni PQL were adjusted. The results are not consistent with the reported field conductivity.

01005	Aluminum_308	82	I	ug/L
01002	Arsenic	4.0	U	ug/L
01097	Antimony	4.0	U	ug/L
01007	Barium	8.5	A	ug/L
01012	Beryllium	0.40	U	ug/L
01027	Cadmium	0.40	U	ug/L
00916	Calcium	96.8	A	mg/L
01034	Chromium	2.8	A	ug/L
01037	Cobalt	0.70	U	ug/L
01042	Copper	2.0	I	ug/L
01045	Iron_259	134	A	ug/L
01051	Lead	2.0	U	ug/L
00927	Magnesium	7.4	A	mg/L
01055	Manganese	5.10	A	ug/L
01067	Nickel	7.6	A	ug/L
00937	Potassium	0.92	A	mg/L
01147	Selenium	3.0	U	ug/L
01077	Silver	2.0	U	ug/L
00929	Sodium_330	1.15E+03	A	mg/L
01059	Thallium	6.0	U	ug/L

	01087	Vanadium	10.7	A	ug/L
	01092	Zinc	20	U	ug/L

Lab ID: 408739	Storet Code	Component	Result	Code	Units
Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD. (EPA 608 mod.)					
	39330	Aldrin	0.0097	U	ug/L
	39337	Alpha-BHC	0.0097	U	ug/L
	39338	Beta-BHC	0.0097	U	ug/L
	34259	Delta-BHC	0.0097	U	ug/L
	39340	Gamma-BHC	0.0097	U	ug/L
	39350	Chlordane	0.19	U	ug/L
	39310	DDD-p,p'	0.019	U	ug/L
	39320	DDE-p,p'	0.019	U	ug/L
	39300	DDT-p,p'	0.029	U	ug/L
	39380	Dieldrin	0.019	U	ug/L
	34361	Endosulfan I	0.019	U	ug/L
	34356	Endosulfan II	0.019	U	ug/L
	34351	Endosulfan Sulfate	0.019	U	ug/L
	39390	Endrin	0.049	U	ug/L
	34366	Endrin Aldehyde	0.029	U	ug/L
	39410	Heptachlor	0.0097	U	ug/L
	39420	Heptachlor Epoxide	0.019	U	ug/L
	39480	Methoxychlor	0.049	U	ug/L
	39400	Toxaphene	0.73	U	ug/L
	34671	PCB-1016	0.19	U	ug/L
	39488	PCB-1221	0.19	U	ug/L
	39492	PCB-1232	0.19	U	ug/L
	39496	PCB-1242	0.29	U	ug/L
	39500	PCB-1248	0.19	U	ug/L
	39504	PCB-1254	0.29	U	ug/L
	39508	PCB-1260	0.19	U	ug/L

Lab ID: 408748	Storet Code	Component	Result	Code	Units
Test: Volatile organic pollutants in acid preserved water matrices by GC/MS. (EPA 624/8260 mod.)					
	81552	Acetone	10	U	ug/L
	78124	Benzene	0.50	U	ug/L
	32101	Bromodichloromethane	0.53	I	ug/L
	32104	Bromoform	0.50	U	ug/L
	34413	Bromomethane	0.50	U	ug/L
	81595	2-Butanone	10	U	ug/L
	77041	Carbon disulfide	0.50	U	ug/L
	32102	Carbon tetrachloride	0.20	U	ug/L
	34301	Chlorobenzene	0.20	U	ug/L
	34311	Chloroethane	0.50	U	ug/L
	32106	Chloroform	2.1		ug/L
	34418	Chloromethane	0.50	U	ug/L
	32105	Dibromochloromethane	0.20	U	ug/L
	34496	1,1-Dichloroethane	0.20	U	ug/L
	34531	1,2-Dichloroethane	0.20	U	ug/L
	34501	1,1-Dichloroethene	0.20	U	ug/L
	77093	cis-1,2-Dichloroethene	0.50	U	ug/L

34546	trans-1,2-Dichloroethene	0.20	U	ug/L
34541	1,2-Dichloropropane	0.20	U	ug/L
34704	cis-1,3-Dichloropropene	0.20	U	ug/L
34699	trans-1,3-Dichloropropene	0.20	U	ug/L
34371	Ethylbenzene	0.50	U	ug/L
77103	2-Hexanone	10	U	ug/L
78133	4-Methyl-2-Pentanone	10	U	ug/L
34423	Methylene chloride	0.50	U	ug/L
77128	Styrene	0.50	U	ug/L
34516	1,1,2,2-Tetrachloroethane	0.20	U	ug/L
34475	Tetrachloroethene	0.20	U	ug/L
78131	Toluene	0.50	U	ug/L
34506	1,1,1-Trichloroethane	0.20	U	ug/L
34511	1,1,2-Trichloroethane	0.20	U	ug/L
39180	Trichloroethene	0.20	U	ug/L
39175	Vinyl chloride	0.50	U	ug/L
81551	Xylenes (total)	0.65	I	ug/L

Sample Location: WHITE'S MEATS

Field ID: WMGW-2

Collection Date/Time: 9/21/1999 11:20 AM

Matrix: W-SURF-FRH

Lab ID: 408683 **Storet Code** **Component** **Result** **Code** **Units**

Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water matrices by GC/MS. (EPA 625/ 8270 mod.)

Comments:
Insufficient sample to prepare a duplicate matrix spike.

34205	Acenaphthene	0.98	U	ug/L
34200	Acenaphthylene	0.98	U	ug/L
34220	Anthracene	0.98	U	ug/L
34526	Benzo(a)anthracene	0.98	U	ug/L
34247	Benzo(a)pyrene	0.98	U	ug/L
34230	Benzo(b)fluoranthene	0.98	U	ug/L
34242	Benzo(k)fluoranthene	0.98	U	ug/L
34521	Benzo(g,h,i)perylene	0.98	U	ug/L
34278	Bis(2-chloroethoxy)methane	0.98	U	ug/L
34273	Bis(2-chloroethyl)ether	0.98	U	ug/L
34283	Bis(2-chloroisopropyl)ether	2.9	U	ug/L
34292	Butyl benzyl phthalate	4.9	U	ug/L
77954	4-Chloroaniline	0.98	U	ug/L
34581	2-Chloronaphthalene	0.98	U	ug/L
34641	4-Chlorophenyl phenyl ether	2.0	U	ug/L
77571	Carbazole	0.98	U	ug/L
34320	Chrysene	0.98	U	ug/L
77151	m,p-Cresols	2.0	U	ug/L
77152	o-Cresol	2.0	U	ug/L
39110	Di-n-butyl phthalate	4.9	U	ug/L
34596	Di-n-octyl phthalate	0.98	U	ug/L
34556	Dibenzo(a,h)anthracene	0.98	U	ug/L

81302	Dibenzofuran	0.98	U	ug/L
34536	1,2-Dichlorobenzene	0.98	U	ug/L
34566	1,3-Dichlorobenzene	0.98	U	ug/L
34571	1,4-Dichlorobenzene	0.98	U	ug/L
34631	3,3'-Dichlorobenzidine	39	U	ug/L
34336	Diethyl phthalate	0.98	U	ug/L
34341	Dimethyl phthalate	0.98	U	ug/L
34611	2,4-Dinitrotoluene	0.98	U	ug/L
34626	2,6-Dinitrotoluene	0.98	U	ug/L
34376	Fluoranthene	0.98	U	ug/L
34381	Fluorene	0.98	U	ug/L
39700	Hexachlorobenzene	0.98	U	ug/L
34391	Hexachlorobutadiene	2.9	U	ug/L
34386	Hexachlorocyclopentadiene	2.9	U	ug/L
34396	Hexachloroethane	2.9	U	ug/L
34403	Indeno(1,2,3-cd)pyrene	0.98	U	ug/L
34408	Isophorone	0.98	U	ug/L
77416	2-Methylnaphthalene	0.98	U	ug/L
34696	Naphthalene	0.98	U	ug/L
78142	2-Nitroaniline	0.98	U	ug/L
78300	3-Nitroaniline	0.98	U	ug/L
73605	4-Nitroaniline	0.98	U	ug/L
34447	Nitrobenzene	2.0	U	ug/L
34428	N-Nitrosodi-n-propylamine	2.0	U	ug/L
34433	N-Nitrosodiphenylamine	2.9	U	ug/L
34461	Phenanthrene	0.98	U	ug/L
34469	Pyrene	0.98	U	ug/L
34551	1,2,4-Trichlorobenzene	0.98	U	ug/L
34452	4-Chloro-3-methylphenol	0.98	U	ug/L
34586	2-Chlorophenol	0.98	U	ug/L
34601	2,4-Dichlorophenol	0.98	U	ug/L
34606	2,4-Dimethylphenol	2.9	U	ug/L
34616	2,4-Dinitrophenol	15	U	ug/L
34657	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L
34591	2-Nitrophenol	0.98	U	ug/L
34646	4-Nitrophenol	3.9	U	ug/L
39032	Pentachlorophenol	2.9	U	ug/L
34694	Phenol	0.98	U	ug/L
77687	2,4,5-Trichlorophenol	0.98	U	ug/L
34621	2,4,6-Trichlorophenol	0.98	U	ug/L

Lab ID: 408716	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in aqueous matrices (EPA 335.2)					
	00720	Cyanide	0.010	U	mg/L

Lab ID: 408724	Storet Code	Component	Result	Code	Units
Test: Mercury in aqueous samples using cold vapor AA spectroscopy. (EPA 245.2)					
	71900	Mercury	0.10	U	ug/L

Lab ID: 408732	Storet Code	Component	Result	Code	Units

recycled paper

Test: Metals, total recoverable, in aqueous samples using trace-ICP emission spectroscopy. (EPA 200.7 mod.)

Comments:
Please refer to the QC Report for parameters observed to exceed control limits. The Ni, Ag and Zn MDLs were adjusted.

01005	Aluminum_308	440		ug/L
01002	Arsenic	4.0	U	ug/L
01097	Antimony	4.0	U	ug/L
01007	Barium	4.9		ug/L
01012	Beryllium	0.40	U	ug/L
01027	Cadmium	0.40	U	ug/L
00916	Calcium	77.8		mg/L
01034	Chromium	0.70	U	ug/L
01037	Cobalt	0.77	I	ug/L
01042	Copper	2.4	I	ug/L
01045	Iron_259	83		ug/L
01051	Lead	2.0	U	ug/L
00927	Magnesium	1.1		mg/L
01055	Manganese	12.8		ug/L
01067	Nickel	3.0	U	ug/L
00937	Potassium	0.35		mg/L
01147	Selenium	3.0	U	ug/L
01077	Silver	2.0	U	ug/L
00929	Sodium_330	223		mg/L
01059	Thallium	6.0	U	ug/L
01087	Vanadium	22.6		ug/L
01092	Zinc	20	U	ug/L

Lab ID: 408740	Storet Code	Component	Result	Code	Units
Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD. (EPA 608 mod.)					
	39330	Aldrin	0.0097	U	ug/L
	39337	Alpha-BHC	0.0097	U	ug/L
	39338	Beta-BHC	0.0097	U	ug/L
	34259	Delta-BHC	0.0097	U	ug/L
	39340	Gamma-BHC	0.0097	U	ug/L
	39350	Chlordane	0.19	U	ug/L
	39310	DDD-p,p'	0.019	U	ug/L
	39320	DDE-p,p'	0.019	U	ug/L
	39300	DDT-p,p'	0.029	U	ug/L
	39380	Dieldrin	0.019	U	ug/L
	34361	Endosulfan I	0.019	U	ug/L
	34356	Endosulfan II	0.019	U	ug/L
	34351	Endosulfan Sulfate	0.019	U	ug/L
	39390	Endrin	0.049	U	ug/L
	34366	Endrin Aldehyde	0.029	U	ug/L
	39410	Heptachlor	0.0097	U	ug/L
	39420	Heptachlor Epoxide	0.019	U	ug/L
	39480	Methoxychlor	0.049	U	ug/L
	39400	Toxaphene	0.73	U	ug/L
	34671	PCB-1016	0.19	U	ug/L
	39488	PCB-1221	0.19	U	ug/L

39492	PCB-1232	0.19	U	ug/L
39496	PCB-1242	0.29	U	ug/L
39500	PCB-1248	0.19	U	ug/L
39504	PCB-1254	0.29	U	ug/L
39508	PCB-1260	0.19	U	ug/L

Lab ID: 408749	Storet Code	Component	Result	Code	Units
Test: Volatile organic pollutants in acid preserved water matrices by GC/MS. (EPA 624/8260 mod.)					
	81552	Acetone	10	U	ug/L
	78124	Benzene	0.50	U	ug/L
	32101	Bromodichloromethane	0.20	U	ug/L
	32104	Bromoform	0.50	U	ug/L
	34413	Bromomethane	0.50	U	ug/L
	81595	2-Butanone	10	U	ug/L
	77041	Carbon disulfide	0.50	U	ug/L
	32102	Carbon tetrachloride	0.20	U	ug/L
	34301	Chlorobenzene	0.20	U	ug/L
	34311	Chloroethane	0.50	U	ug/L
	32106	Chloroform	0.21	I	ug/L
	34418	Chloromethane	0.50	U	ug/L
	32105	Dibromochloromethane	0.20	U	ug/L
	34496	1,1-Dichloroethane	0.20	U	ug/L
	34531	1,2-Dichloroethane	0.20	U	ug/L
	34501	1,1-Dichloroethene	0.20	U	ug/L
	77093	cis-1,2-Dichloroethene	0.50	U	ug/L
	34546	trans-1,2-Dichloroethene	0.20	U	ug/L
	34541	1,2-Dichloropropane	0.20	U	ug/L
	34704	cis-1,3-Dichloropropene	0.20	U	ug/L
	34699	trans-1,3-Dichloropropene	0.20	U	ug/L
	34371	Ethylbenzene	0.50	U	ug/L
	77103	2-Hexanone	10	U	ug/L
	78133	4-Methyl-2-Pentanone	10	U	ug/L
	34423	Methylene chloride	0.50	U	ug/L
	77128	Styrene	0.50	U	ug/L
	34516	1,1,2,2-Tetrachloroethane	0.20	U	ug/L
	34475	Tetrachloroethene	0.20	U	ug/L
	78131	Toluene	0.50	U	ug/L
	34506	1,1,1-Trichloroethane	0.20	U	ug/L
	34511	1,1,2-Trichloroethane	0.20	U	ug/L
	39180	Trichloroethene	0.20	U	ug/L
	39175	Vinyl chloride	0.50	U	ug/L
	81551	Xylenes (total)	0.50	U	ug/L

Sample Location: WHITE'S MEATS

Field ID: WMGW-3

Collection Date/Time: 9/21/1999 10:30 AM

Matrix: W-SURF-FRH

Lab ID: 408684	Storet Code	Component	Result	Code	Units
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water matrices by GC/MS. (EPA 625/ 8270 mod.)					

Comments:
Insufficient sample to prepare a duplicate matrix spike.

34205	Acenaphthene	0.95	U	ug/L
34200	Acenaphthylene	0.95	U	ug/L
34220	Anthracene	0.95	U	ug/L
34526	Benzo(a)anthracene	0.95	U	ug/L
34247	Benzo(a)pyrene	0.95	U	ug/L
34230	Benzo(b)fluoranthene	0.95	U	ug/L
34242	Benzo(k)fluoranthene	0.95	U	ug/L
34521	Benzo(g,h,i)perylene	0.95	U	ug/L
34278	Bis(2-chloroethoxy)methane	0.95	U	ug/L
34273	Bis(2-chloroethyl)ether	0.95	U	ug/L
34283	Bis(2-chloroisopropyl)ether	2.9	U	ug/L
34292	Butyl benzyl phthalate	4.8	U	ug/L
77954	4-Chloroaniline	0.95	U	ug/L
34581	2-Chloronaphthalene	0.95	U	ug/L
34641	4-Chlorophenyl phenyl ether	1.9	U	ug/L
77571	Carbazole	0.95	U	ug/L
34320	Chrysene	0.95	U	ug/L
77151	m,p-Cresols	1.9	U	ug/L
77152	o-Cresol	1.9	U	ug/L
39110	Di-n-butyl phthalate	4.8	U	ug/L
34596	Di-n-octyl phthalate	0.95	U	ug/L
34556	Dibenzo(a,h)anthracene	0.95	U	ug/L
81302	Dibenzofuran	0.95	U	ug/L
34536	1,2-Dichlorobenzene	0.95	U	ug/L
34566	1,3-Dichlorobenzene	0.95	U	ug/L
34571	1,4-Dichlorobenzene	0.95	U	ug/L
34631	3,3'-Dichlorobenzidine	38	U	ug/L
34336	Diethyl phthalate	0.95	U	ug/L
34341	Dimethyl phthalate	0.95	U	ug/L
34611	2,4-Dinitrotoluene	0.95	U	ug/L
34626	2,6-Dinitrotoluene	0.95	U	ug/L
34376	Fluoranthene	0.95	U	ug/L
34381	Fluorene	0.95	U	ug/L
39700	Hexachlorobenzene	0.95	U	ug/L
34391	Hexachlorobutadiene	2.9	U	ug/L
34386	Hexachlorocyclopentadiene	2.9	U	ug/L
34396	Hexachloroethane	2.9	U	ug/L
34403	Indeno(1,2,3-cd)pyrene	0.95	U	ug/L
34408	Isophorone	0.95	U	ug/L
77416	2-Methylnaphthalene	0.95	U	ug/L
34696	Naphthalene	0.95	U	ug/L
78142	2-Nitroaniline	0.95	U	ug/L
78300	3-Nitroaniline	0.95	U	ug/L
73605	4-Nitroaniline	0.95	U	ug/L
34447	Nitrobenzene	1.9	U	ug/L
34428	N-Nitrosodi-n-propylamine	1.9	U	ug/L
34433	N-Nitrosodiphenylamine	2.9	U	ug/L
34461	Phenanthrene	0.95	U	ug/L

34469	Pyrene	0.95	U	ug/L
34551	1,2,4-Trichlorobenzene	0.95	U	ug/L
34452	4-Chloro-3-methylphenol	0.95	U	ug/L
34586	2-Chlorophenol	0.95	U	ug/L
34601	2,4-Dichlorophenol	0.95	U	ug/L
34606	2,4-Dimethylphenol	2.9	U	ug/L
34616	2,4-Dinitrophenol	14	U	ug/L
34657	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L
34591	2-Nitrophenol	0.95	U	ug/L
34646	4-Nitrophenol	3.8	U	ug/L
39032	Pentachlorophenol	2.9	U	ug/L
34694	Phenol	0.95	U	ug/L
77687	2,4,5-Trichlorophenol	0.95	U	ug/L
34621	2,4,6-Trichlorophenol	0.95	U	ug/L

Lab ID: 408717	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in aqueous matrices (EPA 335.2)					
	00720	Cyanide	0.010	U	mg/L

Lab ID: 408725	Storet Code	Component	Result	Code	Units
Test: Mercury in aqueous samples using cold vapor AA spectroscopy. (EPA 245.2)					
	71900	Mercury	0.10	U	ug/L

Lab ID: 408733	Storet Code	Component	Result	Code	Units
Test: Metals, total recoverable, in aqueous samples using trace-ICP emission spectroscopy. (EPA 200.7 mod.)					

Comments:
Please refer to the QC Report for parameters observed to exceed control limits. The Ag MDL was adjusted.

01005	Aluminum_308	220		ug/L
01002	Arsenic	4.0	U	ug/L
01097	Antimony	4.0	U	ug/L
01007	Barium	5.4		ug/L
01012	Beryllium	0.40	U	ug/L
01027	Cadmium	0.40	I	ug/L
00916	Calcium	63.6		mg/L
01034	Chromium	2.4	I	ug/L
01037	Cobalt	0.70	U	ug/L
01042	Copper	2.0	U	ug/L
01045	Iron_259	125		ug/L
01051	Lead	2.0	U	ug/L
00927	Magnesium	3.1		mg/L
01055	Manganese	4.01		ug/L
01067	Nickel	1.3	U	ug/L
00937	Potassium	1.6		mg/L
01147	Selenium	3.0	U	ug/L
01077	Silver	2.0	U	ug/L
00929	Sodium_330	72.6		mg/L
01059	Thallium	6.0	U	ug/L
01087	Vanadium	11.2		ug/L

	01092	Zinc	23	I	ug/L

Lab ID: 408741	Storet Code	Component	Result	Code	Units
Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD. (EPA 608 mod.)					
	39330	Aldrin	0.0097	U	ug/L
	39337	Alpha-BHC	0.0097	U	ug/L
	39338	Beta-BHC	0.0097	U	ug/L
	34259	Delta-BHC	0.0097	U	ug/L
	39340	Gamma-BHC	0.0097	U	ug/L
	39350	Chlordane	0.19	U	ug/L
	39310	DDD-p,p'	0.019	U	ug/L
	39320	DDE-p,p'	0.019	U	ug/L
	39300	DDT-p,p'	0.029	U	ug/L
	39380	Dieldrin	0.019	U	ug/L
	34361	Endosulfan I	0.019	U	ug/L
	34356	Endosulfan II	0.019	U	ug/L
	34351	Endosulfan Sulfate	0.019	U	ug/L
	39390	Endrin	0.049	U	ug/L
	34366	Endrin Aldehyde	0.029	U	ug/L
	39410	Heptachlor	0.0097	U	ug/L
	39420	Heptachlor Epoxide	0.019	U	ug/L
	39480	Methoxychlor	0.049	U	ug/L
	39400	Toxaphene	0.73	U	ug/L
	34671	PCB-1016	0.19	U	ug/L
	39488	PCB-1221	0.19	U	ug/L
	39492	PCB-1232	0.19	U	ug/L
	39496	PCB-1242	0.29	U	ug/L
	39500	PCB-1248	0.19	U	ug/L
	39504	PCB-1254	0.29	U	ug/L
	39508	PCB-1260	0.19	U	ug/L

Lab ID: 408750	Storet Code	Component	Result	Code	Units
Test: Volatile organic pollutants in acid preserved water matrices by GC/MS. (EPA 624/8260 mod.)					

Comments:
The MDL for chloromethane is elevated due to detection of this compound in a method blank.

81552	Acetone	10	U	ug/L
78124	Benzene	0.50	U	ug/L
32101	Bromodichloromethane	0.20	U	ug/L
32104	Bromoform	0.50	U	ug/L
34413	Bromomethane	0.50	U	ug/L
81595	2-Butanone	10	U	ug/L
77041	Carbon disulfide	0.50	U	ug/L
32102	Carbon tetrachloride	0.20	U	ug/L
34301	Chlorobenzene	0.20	U	ug/L
34311	Chloroethane	0.50	U	ug/L
32106	Chloroform	0.44	I	ug/L
34418	Chloromethane	1.0	U	ug/L
32105	Dibromochloromethane	0.20	U	ug/L
34496	1,1-Dichloroethane	0.20	U	ug/L

34531	1,2-Dichloroethane	0.20	U	ug/L
34501	1,1-Dichloroethene	0.20	U	ug/L
77093	cis-1,2-Dichloroethene	0.50	U	ug/L
34546	trans-1,2-Dichloroethene	0.20	U	ug/L
34541	1,2-Dichloropropane	0.20	U	ug/L
34704	cis-1,3-Dichloropropene	0.20	U	ug/L
34699	trans-1,3-Dichloropropene	0.20	U	ug/L
34371	Ethylbenzene	0.50	U	ug/L
77103	2-Hexanone	10	U	ug/L
78133	4-Methyl-2-Pentanone	10	U	ug/L
34423	Methylene chloride	0.50	U	ug/L
77128	Styrene	0.50	U	ug/L
34516	1,1,2,2-Tetrachloroethane	0.20	U	ug/L
34475	Tetrachloroethene	0.20	U	ug/L
78131	Toluene	0.50	U	ug/L
34506	1,1,1-Trichloroethane	0.20	U	ug/L
34511	1,1,2-Trichloroethane	0.20	U	ug/L
39180	Trichloroethene	0.20	U	ug/L
39175	Vinyl chloride	0.50	U	ug/L
81551	Xylenes (total)	0.50	U	ug/L

Sample Location: WHITE'S MEATS

Field ID: WMGW-4 DUP

Collection Date/Time: 9/21/1999 1:05 PM

Matrix: W-SURF-FRH

Lab ID: 408686 **Storet Code** **Component** **Result** **Code** **Units**

Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water matrices by GC/MS. (EPA 625/ 8270 mod.)

Comments:
Insufficient sample to prepare a duplicate matrix spike.

34205	Acenaphthene	0.95	U	ug/L
34200	Acenaphthylene	0.95	U	ug/L
34220	Anthracene	0.95	U	ug/L
34526	Benzo(a)anthracene	0.95	U	ug/L
34247	Benzo(a)pyrene	0.95	U	ug/L
34230	Benzo(b)fluoranthene	0.95	U	ug/L
34242	Benzo(k)fluoranthene	0.95	U	ug/L
34521	Benzo(g,h,i)perylene	0.95	U	ug/L
34278	Bis(2-chloroethoxy)methane	0.95	U	ug/L
34273	Bis(2-chloroethyl)ether	0.95	U	ug/L
34283	Bis(2-chloroisopropyl)ether	2.9	U	ug/L
34292	Butyl benzyl phthalate	4.8	U	ug/L
77954	4-Chloroaniline	0.95	U	ug/L
34581	2-Chloronaphthalene	0.95	U	ug/L
34641	4-Chlorophenyl phenyl ether	1.9	U	ug/L
77571	Carbazole	0.95	U	ug/L
34320	Chrysene	0.95	U	ug/L
77151	m,p-Cresols	1.9	U	ug/L
77152	o-Cresol	1.9	U	ug/L

recycled paper

39110	Di-n-butyl phthalate	4.8	U	ug/L
34596	Di-n-octyl phthalate	0.95	U	ug/L
34556	Dibenzo(a,h)anthracene	0.95	U	ug/L
81302	Dibenzofuran	0.95	U	ug/L
34536	1,2-Dichlorobenzene	0.95	U	ug/L
34566	1,3-Dichlorobenzene	0.95	U	ug/L
34571	1,4-Dichlorobenzene	0.95	U	ug/L
34631	3,3'-Dichlorobenzidine	38	U	ug/L
34336	Diethyl phthalate	0.95	U	ug/L
34341	Dimethyl phthalate	0.95	U	ug/L
34611	2,4-Dinitrotoluene	0.95	U	ug/L
34626	2,6-Dinitrotoluene	0.95	U	ug/L
34376	Fluoranthene	0.95	U	ug/L
34381	Fluorene	0.95	U	ug/L
39700	Hexachlorobenzene	0.95	U	ug/L
34391	Hexachlorobutadiene	2.9	U	ug/L
34386	Hexachlorocyclopentadiene	2.9	U	ug/L
34396	Hexachloroethane	2.9	U	ug/L
34403	Indeno(1,2,3-cd)pyrene	0.95	U	ug/L
34408	Isophorone	0.95	U	ug/L
77416	2-Methylnaphthalene	0.95	U	ug/L
34696	Naphthalene	0.95	U	ug/L
78142	2-Nitroaniline	0.95	U	ug/L
78300	3-Nitroaniline	0.95	U	ug/L
73605	4-Nitroaniline	0.95	U	ug/L
34447	Nitrobenzene	1.9	U	ug/L
34428	N-Nitrosodi-n-propylamine	1.9	U	ug/L
34433	N-Nitrosodiphenylamine	2.9	U	ug/L
34461	Phenanthrene	0.95	U	ug/L
34469	Pyrene	0.95	U	ug/L
34551	1,2,4-Trichlorobenzene	0.95	U	ug/L
34452	4-Chloro-3-methylphenol	0.95	U	ug/L
34586	2-Chlorophenol	0.95	U	ug/L
34601	2,4-Dichlorophenol	0.95	U	ug/L
34606	2,4-Dimethylphenol	2.9	U	ug/L
34616	2,4-Dinitrophenol	14	U	ug/L
34657	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L
34591	2-Nitrophenol	0.95	U	ug/L
34646	4-Nitrophenol	3.8	U	ug/L
39032	Pentachlorophenol	2.9	U	ug/L
34694	Phenol	0.95	U	ug/L
77687	2,4,5-Trichlorophenol	0.95	U	ug/L
34621	2,4,6-Trichlorophenol	0.95	U	ug/L

Lab ID: 408719	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in aqueous matrices (EPA 335.2)					
	00720	Cyanide	0.010	U	mg/L

Lab ID: 408727	Storet Code	Component	Result	Code	Units
Test: Mercury in aqueous samples using cold vapor AA spectroscopy. (EPA 245.2)					
	71900	Mercury	0.10	U	ug/L

Lab ID: 408735	Storet Code	Component	Result	Code	Units
Test: Metals, total recoverable, in aqueous samples using trace-ICP emission spectroscopy. (EPA 200.7 mod.)					
Comments: Please refer to the QC Report for parameters observed to exceed control limits. The Ag and Zn MDLs were adjusted.					
	01005	Aluminum_308	1.01E+03		ug/L
	01002	Arsenic	4.0	U	ug/L
	01097	Antimony	4.0	U	ug/L
	01007	Barium	14.9		ug/L
	01012	Beryllium	0.40	U	ug/L
	01027	Cadmium	0.40	U	ug/L
	00916	Calcium	65.9		mg/L
	01034	Chromium	1.4	I	ug/L
	01037	Cobalt	0.70	I	ug/L
	01042	Copper	2.9	I	ug/L
	01045	Iron_259	134		ug/L
	01051	Lead	2.0	U	ug/L
	00927	Magnesium	3.8		mg/L
	01055	Manganese	10.3		ug/L
	01067	Nickel	1.3	U	ug/L
	00937	Potassium	4.4		mg/L
	01147	Selenium	3.0	U	ug/L
	01077	Silver	2.0	U	ug/L
	00929	Sodium_330	15.5		mg/L
	01059	Thallium	6.0	U	ug/L
	01087	Vanadium	8.7		ug/L
	01092	Zinc	20	U	ug/L

Lab ID: 408743	Storet Code	Component	Result	Code	Units
Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD. (EPA 608 mod.)					
	39330	Aldrin	0.0095	U	ug/L
	39337	Alpha-BHC	0.0095	U	ug/L
	39338	Beta-BHC	0.0095	U	ug/L
	34259	Delta-BHC	0.0095	U	ug/L
	39340	Gamma-BHC	0.0095	U	ug/L
	39350	Chlordane	0.19	U	ug/L
	39310	DDD-p,p'	0.019	U	ug/L
	39320	DDE-p,p'	0.019	U	ug/L
	39300	DDT-p,p'	0.029	U	ug/L
	39380	Dieldrin	0.019	U	ug/L
	34361	Endosulfan I	0.019	U	ug/L
	34356	Endosulfan II	0.019	U	ug/L
	34351	Endosulfan Sulfate	0.019	U	ug/L
	39390	Endrin	0.048	U	ug/L
	34366	Endrin Aldehyde	0.029	U	ug/L
	39410	Heptachlor	0.0095	U	ug/L
	39420	Heptachlor Epoxide	0.019	U	ug/L
	39480	Methoxychlor	0.048	U	ug/L

39400	Toxaphene	0.71	U	ug/L
34671	PCB-1016	0.19	U	ug/L
39488	PCB-1221	0.19	U	ug/L
39492	PCB-1232	0.19	U	ug/L
39496	PCB-1242	0.29	U	ug/L
39500	PCB-1248	0.19	U	ug/L
39504	PCB-1254	0.29	U	ug/L
39508	PCB-1260	0.19	U	ug/L

Lab ID: 408752	Storet Code	Component	Result	Code	Units
Test: Volatile organic pollutants in acid preserved water matrices by GC/MS. (EPA 624/8260 mod.)					
	81552	Acetone	10	U	ug/L
	78124	Benzene	0.50	U	ug/L
	32101	Bromodichloromethane	0.20	U	ug/L
	32104	Bromoform	0.50	U	ug/L
	34413	Bromomethane	0.50	U	ug/L
	81595	2-Butanone	10	U	ug/L
	77041	Carbon disulfide	0.50	U	ug/L
	32102	Carbon tetrachloride	0.20	U	ug/L
	34301	Chlorobenzene	0.20	U	ug/L
	34311	Chloroethane	0.50	U	ug/L
	32106	Chloroform	0.20	U	ug/L
	34418	Chloromethane	0.50	U	ug/L
	32105	Dibromochloromethane	0.20	U	ug/L
	34496	1,1-Dichloroethane	0.20	U	ug/L
	34531	1,2-Dichloroethane	0.20	U	ug/L
	34501	1,1-Dichloroethene	0.20	U	ug/L
	77093	cis-1,2-Dichloroethene	0.50	U	ug/L
	34546	trans-1,2-Dichloroethene	0.20	U	ug/L
	34541	1,2-Dichloropropane	0.20	U	ug/L
	34704	cis-1,3-Dichloropropene	0.20	U	ug/L
	34699	trans-1,3-Dichloropropene	0.20	U	ug/L
	34371	Ethylbenzene	0.50	U	ug/L
	77103	2-Hexanone	10	U	ug/L
	78133	4-Methyl-2-Pentanone	10	U	ug/L
	34423	Methylene chloride	0.50	U	ug/L
	77128	Styrene	0.50	U	ug/L
	34516	1,1,2,2-Tetrachloroethane	0.20	U	ug/L
	34475	Tetrachloroethene	0.20	U	ug/L
	78131	Toluene	0.50	U	ug/L
	34506	1,1,1-Trichloroethane	0.20	U	ug/L
	34511	1,1,2-Trichloroethane	0.20	U	ug/L
	39180	Trichloroethene	0.20	U	ug/L
	39175	Vinyl chloride	0.50	U	ug/L
	81551	Xylenes (total)	0.50	U	ug/L

Sample Location: WHITE'S MEATS

Field ID: WMGW-4

Collection Date/Time: 9/21/1999 1:05 PM

Matrix: W-SURF-FRH

Lab ID: 408685

Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water matrices by GC/MS. (EPA 625/ 8270 mod.)

Comments:
Insufficient sample to prepare a duplicate matrix spike.

Storet Code	Component	Result	Code	Units
34205	Acenaphthene	0.97	U	ug/L
34200	Acenaphthylene	0.97	U	ug/L
34220	Anthracene	0.97	U	ug/L
34526	Benzo(a)anthracene	0.97	U	ug/L
34247	Benzo(a)pyrene	0.97	U	ug/L
34230	Benzo(b)fluoranthene	0.97	U	ug/L
34242	Benzo(k)fluoranthene	0.97	U	ug/L
34521	Benzo(g,h,i)perylene	0.97	U	ug/L
34278	Bis(2-chloroethoxy)methane	0.97	U	ug/L
34273	Bis(2-chloroethyl)ether	0.97	U	ug/L
34283	Bis(2-chloroisopropyl)ether	2.9	U	ug/L
34292	Butyl benzyl phthalate	4.9	U	ug/L
77954	4-Chloroaniline	0.97	U	ug/L
34581	2-Chloronaphthalene	0.97	U	ug/L
34641	4-Chlorophenyl phenyl ether	1.9	U	ug/L
77571	Carbazole	0.97	U	ug/L
34320	Chrysene	0.97	U	ug/L
77151	m,p-Cresols	1.9	U	ug/L
77152	o-Cresol	1.9	U	ug/L
39110	Di-n-butyl phthalate	4.9	U	ug/L
34596	Di-n-octyl phthalate	0.97	U	ug/L
34556	Dibenzo(a,h)anthracene	0.97	U	ug/L
81302	Dibenzofuran	0.97	U	ug/L
34536	1,2-Dichlorobenzene	0.97	U	ug/L
34566	1,3-Dichlorobenzene	0.97	U	ug/L
34571	1,4-Dichlorobenzene	0.97	U	ug/L
34631	3,3'-Dichlorobenzidine	39	U	ug/L
34336	Diethyl phthalate	0.97	U	ug/L
34341	Dimethyl phthalate	0.97	U	ug/L
34611	2,4-Dinitrotoluene	0.97	U	ug/L
34626	2,6-Dinitrotoluene	0.97	U	ug/L
34376	Fluoranthene	0.97	U	ug/L
34381	Fluorene	0.97	U	ug/L
39700	Hexachlorobenzene	0.97	U	ug/L
34391	Hexachlorobutadiene	2.9	U	ug/L
34386	Hexachlorocyclopentadiene	2.9	U	ug/L
34396	Hexachloroethane	2.9	U	ug/L
34403	Indeno(1,2,3-cd)pyrene	0.97	U	ug/L
34408	Isophorone	0.97	U	ug/L
77416	2-Methylnaphthalene	0.97	U	ug/L
34696	Naphthalene	0.97	U	ug/L
78142	2-Nitroaniline	0.97	U	ug/L
78300	3-Nitroaniline	0.97	U	ug/L
73605	4-Nitroaniline	0.97	U	ug/L
34447	Nitrobenzene	1.9	U	ug/L

34428	N-Nitrosodi-n-propylamine	1.9	U	ug/L
34433	N-Nitrosodiphenylamine	2.9	U	ug/L
34461	Phenanthrene	0.97	U	ug/L
34469	Pyrene	0.97	U	ug/L
34551	1,2,4-Trichlorobenzene	0.97	U	ug/L
34452	4-Chloro-3-methylphenol	0.97	U	ug/L
34586	2-Chlorophenol	0.97	U	ug/L
34601	2,4-Dichlorophenol	0.97	U	ug/L
34606	2,4-Dimethylphenol	2.9	U	ug/L
34616	2,4-Dinitrophenol	15	U	ug/L
34657	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L
34591	2-Nitrophenol	0.97	U	ug/L
34646	4-Nitrophenol	3.9	U	ug/L
39032	Pentachlorophenol	2.9	U	ug/L
34694	Phenol	0.97	U	ug/L
77687	2,4,5-Trichlorophenol	0.97	U	ug/L
34621	2,4,6-Trichlorophenol	0.97	U	ug/L

Lab ID: 408718	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in aqueous matrices (EPA 335.2)					
	00720	Cyanide	0.010	U	mg/L

Lab ID: 408726	Storet Code	Component	Result	Code	Units
Test: Mercury in aqueous samples using cold vapor AA spectroscopy. (EPA 245.2)					
	71900	Mercury	0.10	U	ug/L

Lab ID: 408734	Storet Code	Component	Result	Code	Units
Test: Metals, total recoverable, in aqueous samples using trace-ICP emission spectroscopy. (EPA 200.7 mod.)					

Comments:
Please refer to the QC Report for parameters observed to exceed control limits. The Ag and Zn MDLs were adjusted.

01005	Aluminum_308	950		ug/L
01002	Arsenic	4.0	U	ug/L
01097	Antimony	4.0	U	ug/L
01007	Barium	14.0		ug/L
01012	Beryllium	0.40	U	ug/L
01027	Cadmium	0.40	U	ug/L
00916	Calcium	63.0		mg/L
01034	Chromium	1.2	I	ug/L
01037	Cobalt	0.70	U	ug/L
01042	Copper	2.7	I	ug/L
01045	Iron_259	135		ug/L
01051	Lead	2.0	U	ug/L
00927	Magnesium	3.6		mg/L
01055	Manganese	9.83		ug/L
01067	Nickel	1.3	U	ug/L
00937	Potassium	4.2		mg/L
01147	Selenium	3.0	U	ug/L
01077	Silver	2.0	U	ug/L

00929	Sodium_330	15.2		mg/L
01059	Thallium	6.0	U	ug/L
01087	Vanadium	8.1		ug/L
01092	Zinc	20	U	ug/L

Lab ID: 408742	Storet Code	Component	Result	Code	Units
Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD. (EPA 608 mod.)					
	39330	Aldrin	0.0098	U	ug/L
	39337	Alpha-BHC	0.0098	U	ug/L
	39338	Beta-BHC	0.0098	U	ug/L
	34259	Delta-BHC	0.0098	U	ug/L
	39340	Gamma-BHC	0.0098	U	ug/L
	39350	Chlordane	0.20	U	ug/L
	39310	DDD-p,p'	0.020	U	ug/L
	39320	DDE-p,p'	0.020	U	ug/L
	39300	DDT-p,p'	0.029	U	ug/L
	39380	Dieldrin	0.020	U	ug/L
	34361	Endosulfan I	0.020	U	ug/L
	34356	Endosulfan II	0.020	U	ug/L
	34351	Endosulfan Sulfate	0.020	U	ug/L
	39390	Endrin	0.049	U	ug/L
	34366	Endrin Aldehyde	0.029	U	ug/L
	39410	Heptachlor	0.0098	U	ug/L
	39420	Heptachlor Epoxide	0.020	U	ug/L
	39480	Methoxychlor	0.049	U	ug/L
	39400	Toxaphene	0.74	U	ug/L
	34671	PCB-1016	0.20	U	ug/L
	39488	PCB-1221	0.20	U	ug/L
	39492	PCB-1232	0.20	U	ug/L
	39496	PCB-1242	0.29	U	ug/L
	39500	PCB-1248	0.20	U	ug/L
	39504	PCB-1254	0.29	U	ug/L
	39508	PCB-1260	0.20	U	ug/L

Lab ID: 408751	Storet Code	Component	Result	Code	Units
Test: Volatile organic pollutants in acid preserved water matrices by GC/MS. (EPA 624/8260 mod.)					
	81552	Acetone	10	U	ug/L
	78124	Benzene	0.50	U	ug/L
	32101	Bromodichloromethane	0.20	U	ug/L
	32104	Bromoform	0.50	U	ug/L
	34413	Bromomethane	0.50	U	ug/L
	81595	2-Butanone	10	U	ug/L
	77041	Carbon disulfide	0.50	U	ug/L
	32102	Carbon tetrachloride	0.20	U	ug/L
	34301	Chlorobenzene	0.20	U	ug/L
	34311	Chloroethane	0.50	U	ug/L
	32106	Chloroform	0.20	U	ug/L
	34418	Chloromethane	0.50	U	ug/L
	32105	Dibromochloromethane	0.20	U	ug/L
	34496	1,1-Dichloroethane	0.20	U	ug/L
	34531	1,2-Dichloroethane	0.20	U	ug/L

recycled paper

34501	1,1-Dichloroethene	0.20	U	ug/L
77093	cis-1,2-Dichloroethene	0.50	U	ug/L
34546	trans-1,2-Dichloroethene	0.20	U	ug/L
34541	1,2-Dichloropropane	0.20	U	ug/L
34704	cis-1,3-Dichloropropene	0.20	U	ug/L
34699	trans-1,3-Dichloropropene	0.20	U	ug/L
34371	Ethylbenzene	0.50	U	ug/L
77103	2-Hexanone	10	U	ug/L
78133	4-Methyl-2-Pentanone	10	U	ug/L
34423	Methylene chloride	0.50	U	ug/L
77128	Styrene	0.50	U	ug/L
34516	1,1,2,2-Tetrachloroethane	0.20	U	ug/L
34475	Tetrachloroethene	0.20	U	ug/L
78131	Toluene	0.50	U	ug/L
34506	1,1,1-Trichloroethane	0.20	U	ug/L
34511	1,1,2-Trichloroethane	0.20	U	ug/L
39180	Trichloroethene	0.20	U	ug/L
39175	Vinyl chloride	0.50	U	ug/L
81551	Xylenes (total)	0.50	U	ug/L

Sample Location: WHITE'S MEATS

Field ID: WMGW-5

Collection Date/Time: 9/21/1999 1:40 PM

Matrix: W-SURF-FRH

Lab ID: 408687 **Storet Code** **Component** **Result** **Code** **Units**

Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water matrices by GC/MS. (EPA 625/ 8270 mod.)

Comments:
Insufficient sample to prepare a duplicate matrix spike.

34205	Acenaphthene	0.96	U	ug/L
34200	Acenaphthylene	0.96	U	ug/L
34220	Anthracene	0.96	U	ug/L
34526	Benzo(a)anthracene	0.96	U	ug/L
34247	Benzo(a)pyrene	0.96	U	ug/L
34230	Benzo(b)fluoranthene	0.96	U	ug/L
34242	Benzo(k)fluoranthene	0.96	U	ug/L
34521	Benzo(g,h,i)perylene	0.96	U	ug/L
34278	Bis(2-chloroethoxy)methane	0.96	U	ug/L
34273	Bis(2-chloroethyl)ether	0.96	U	ug/L
34283	Bis(2-chloroisopropyl)ether	2.9	U	ug/L
34292	Butyl benzyl phthalate	4.8	U	ug/L
77954	4-Chloroaniline	0.96	U	ug/L
34581	2-Chloronaphthalene	0.96	U	ug/L
34641	4-Chlorophenyl phenyl ether	1.9	U	ug/L
77571	Carbazole	0.96	U	ug/L
34320	Chrysene	0.96	U	ug/L
77151	m,p-Cresols	1.9	U	ug/L
77152	o-Cresol	1.9	U	ug/L
39110	Di-n-butyl phthalate	4.8	U	ug/L

34596	Di-n-octyl phthalate	0.96	U	ug/L
34556	Dibenzo(a,h)anthracene	0.96	U	ug/L
81302	Dibenzofuran	0.96	U	ug/L
34536	1,2-Dichlorobenzene	0.96	U	ug/L
34566	1,3-Dichlorobenzene	0.96	U	ug/L
34571	1,4-Dichlorobenzene	0.96	U	ug/L
34631	3,3'-Dichlorobenzidine	38	U	ug/L
34336	Diethyl phthalate	0.96	U	ug/L
34341	Dimethyl phthalate	0.96	U	ug/L
34611	2,4-Dinitrotoluene	0.96	U	ug/L
34626	2,6-Dinitrotoluene	0.96	U	ug/L
34376	Fluoranthene	0.96	U	ug/L
34381	Fluorene	0.96	U	ug/L
39700	Hexachlorobenzene	0.96	U	ug/L
34391	Hexachlorobutadiene	2.9	U	ug/L
34386	Hexachlorocyclopentadiene	2.9	U	ug/L
34396	Hexachloroethane	2.9	U	ug/L
34403	Indeno(1,2,3-cd)pyrene	0.96	U	ug/L
34408	Isophorone	0.96	U	ug/L
77416	2-Methylnaphthalene	0.96	U	ug/L
34696	Naphthalene	0.96	U	ug/L
78142	2-Nitroaniline	0.96	U	ug/L
78300	3-Nitroaniline	0.96	U	ug/L
73605	4-Nitroaniline	0.96	U	ug/L
34447	Nitrobenzene	1.9	U	ug/L
34428	N-Nitrosodi-n-propylamine	1.9	U	ug/L
34433	N-Nitrosodiphenylamine	2.9	U	ug/L
34461	Phenanthrene	0.96	U	ug/L
34469	Pyrene	0.96	U	ug/L
34551	1,2,4-Trichlorobenzene	0.96	U	ug/L
34452	4-Chloro-3-methylphenol	0.96	U	ug/L
34586	2-Chlorophenol	0.96	U	ug/L
34601	2,4-Dichlorophenol	0.96	U	ug/L
34606	2,4-Dimethylphenol	2.9	U	ug/L
34616	2,4-Dinitrophenol	14	U	ug/L
34657	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L
34591	2-Nitrophenol	0.96	U	ug/L
34646	4-Nitrophenol	3.8	U	ug/L
39032	Pentachlorophenol	2.9	U	ug/L
34694	Phenol	0.96	U	ug/L
77687	2,4,5-Trichlorophenol	0.96	U	ug/L
34621	2,4,6-Trichlorophenol	0.96	U	ug/L

Lab ID: 408720	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in aqueous matrices (EPA 335.2)					
	00720	Cyanide	0.010	U	mg/L

Lab ID: 408728	Storet Code	Component	Result	Code	Units
Test: Mercury in aqueous samples using cold vapor AA spectroscopy. (EPA 245.2)					
	71900	Mercury	0.10	U	ug/L

Recycled paper

Lab ID: 408736

Test: Metals, total recoverable, in aqueous samples using trace-ICP emission spectroscopy. (EPA 200.7 mod.)

Comments:
Please refer to the QC Report for parameters observed to exceed control limits. The Ag MDL was adjusted.

Storet Code	Component	Result	Code	Units
01005	Aluminum_308	180	I	ug/L
01002	Arsenic	4.0	U	ug/L
01097	Antimony	4.0	U	ug/L
01007	Barium	12.7		ug/L
01012	Beryllium	0.40	U	ug/L
01027	Cadmium	2.6		ug/L
00916	Calcium	61.8		mg/L
01034	Chromium	2.3	I	ug/L
01037	Cobalt	2.7		ug/L
01042	Copper	2.0	U	ug/L
01045	Iron_259	43		ug/L
01051	Lead	2.0	U	ug/L
00927	Magnesium	5.0		mg/L
01055	Manganese	19.4		ug/L
01067	Nickel	5.5		ug/L
00937	Potassium	5.2		mg/L
01147	Selenium	3.0	U	ug/L
01077	Silver	2.0	U	ug/L
00929	Sodium_330	29.0		mg/L
01059	Thallium	6.0	U	ug/L
01087	Vanadium	8.7		ug/L
01092	Zinc	28	I	ug/L

Lab ID: 408744

Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD. (EPA 608 mod.)

Storet Code	Component	Result	Code	Units
39330	Aldrin	0.0098	U	ug/L
39337	Alpha-BHC	0.0098	U	ug/L
39338	Beta-BHC	0.0098	U	ug/L
34259	Delta-BHC	0.0098	U	ug/L
39340	Gamma-BHC	0.0098	U	ug/L
39350	Chlordane	0.20	U	ug/L
39310	DDD-p,p'	0.020	U	ug/L
39320	DDE-p,p'	0.020	U	ug/L
39300	DDT-p,p'	0.029	U	ug/L
39380	Dieldrin	0.020	U	ug/L
34361	Endosulfan I	0.020	U	ug/L
34356	Endosulfan II	0.020	U	ug/L
34351	Endosulfan Sulfate	0.020	U	ug/L
39390	Endrin	0.049	U	ug/L
34366	Endrin Aldehyde	0.029	U	ug/L
39410	Heptachlor	0.0098	U	ug/L
39420	Heptachlor Epoxide	0.020	U	ug/L
39480	Methoxychlor	0.049	U	ug/L

39400	Toxaphene	0.74	U	ug/L
34671	PCB-1016	0.20	U	ug/L
39488	PCB-1221	0.20	U	ug/L
39492	PCB-1232	0.20	U	ug/L
39496	PCB-1242	0.29	U	ug/L
39500	PCB-1248	0.20	U	ug/L
39504	PCB-1254	0.29	U	ug/L
39508	PCB-1260	0.20	U	ug/L

Lab ID: 408753

Test: Volatile organic pollutants in acid preserved water matrices by GC/MS. (EPA 624/8260 mod.)

Storet Code	Component	Result	Code	Units
81552	Acetone	10	U	ug/L
78124	Benzene	0.50	U	ug/L
32101	Bromodichloromethane	0.20	U	ug/L
32104	Bromoform	0.50	U	ug/L
34413	Bromomethane	0.50	U	ug/L
81595	2-Butanone	10	U	ug/L
77041	Carbon disulfide	0.50	U	ug/L
32102	Carbon tetrachloride	0.20	U	ug/L
34301	Chlorobenzene	0.20	U	ug/L
34311	Chloroethane	0.50	U	ug/L
32106	Chloroform	0.20	U	ug/L
34418	Chloromethane	0.50	U	ug/L
32105	Dibromochloromethane	0.20	U	ug/L
34496	1,1-Dichloroethane	0.20	U	ug/L
34531	1,2-Dichloroethane	0.20	U	ug/L
34501	1,1-Dichloroethene	0.20	U	ug/L
77093	cis-1,2-Dichloroethene	0.50	U	ug/L
34546	trans-1,2-Dichloroethene	0.20	U	ug/L
34541	1,2-Dichloropropane	0.20	U	ug/L
34704	cis-1,3-Dichloropropene	0.20	U	ug/L
34699	trans-1,3-Dichloropropene	0.20	U	ug/L
34371	Ethylbenzene	0.50	U	ug/L
77103	2-Hexanone	10	U	ug/L
78133	4-Methyl-2-Pentanone	10	U	ug/L
34423	Methylene chloride	0.50	U	ug/L
77128	Styrene	0.50	U	ug/L
34516	1,1,2,2-Tetrachloroethane	0.20	U	ug/L
34475	Tetrachloroethene	0.20	U	ug/L
78131	Toluene	0.50	U	ug/L
34506	1,1,1-Trichloroethane	0.20	U	ug/L
34511	1,1,2-Trichloroethane	0.20	U	ug/L
39180	Trichloroethene	0.20	U	ug/L
39175	Vinyl chloride	0.50	U	ug/L
81551	Xylenes (total)	0.50	U	ug/L

Sample Location: WHITE'S MEATS

Field ID: WMGW-6

Collection Date/Time: 9/21/1999 2:30 PM

Matrix: W-SURF-FRH

Lab ID: 408688

Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water matrices by GC/MS. (EPA 625/ 8270 mod.)

Comments:
Insufficient sample to prepare a duplicate matrix spike.

Storet Code	Component	Result	Code	Units
34205	Acenaphthene	0.98	U	ug/L
34200	Acenaphthylene	0.98	U	ug/L
34220	Anthracene	0.98	U	ug/L
34526	Benzo(a)anthracene	0.98	U	ug/L
34247	Benzo(a)pyrene	0.98	U	ug/L
34230	Benzo(b)fluoranthene	0.98	U	ug/L
34242	Benzo(k)fluoranthene	0.98	U	ug/L
34521	Benzo(g,h,i)perylene	0.98	U	ug/L
34278	Bis(2-chloroethoxy)methane	0.98	U	ug/L
34273	Bis(2-chloroethyl)ether	0.98	U	ug/L
34283	Bis(2-chloroisopropyl)ether	2.9	U	ug/L
34292	Butyl benzyl phthalate	4.9	U	ug/L
77954	4-Chloroaniline	0.98	U	ug/L
34581	2-Chloronaphthalene	0.98	U	ug/L
34641	4-Chlorophenyl phenyl ether	2.0	U	ug/L
77571	Carbazole	0.98	U	ug/L
34320	Chrysene	0.98	U	ug/L
77151	m,p-Cresols	2.0	U	ug/L
77152	o-Cresol	2.0	U	ug/L
39110	Di-n-butyl phthalate	4.9	U	ug/L
34596	Di-n-octyl phthalate	0.98	U	ug/L
34556	Dibenzo(a,h)anthracene	0.98	U	ug/L
81302	Dibenzofuran	0.98	U	ug/L
34536	1,2-Dichlorobenzene	0.98	U	ug/L
34566	1,3-Dichlorobenzene	0.98	U	ug/L
34571	1,4-Dichlorobenzene	0.98	U	ug/L
34631	3,3'-Dichlorobenzidine	39	U	ug/L
34336	Diethyl phthalate	0.98	U	ug/L
34341	Dimethyl phthalate	0.98	U	ug/L
34611	2,4-Dinitrotoluene	0.98	U	ug/L
34626	2,6-Dinitrotoluene	0.98	U	ug/L
34376	Fluoranthene	0.98	U	ug/L
34381	Fluorene	0.98	U	ug/L
39700	Hexachlorobenzene	0.98	U	ug/L
34391	Hexachlorobutadiene	2.9	U	ug/L
34386	Hexachlorocyclopentadiene	2.9	U	ug/L
34396	Hexachloroethane	2.9	U	ug/L
34403	Indeno(1,2,3-cd)pyrene	0.98	U	ug/L
34408	Isophorone	0.98	U	ug/L
77416	2-Methylnaphthalene	0.98	U	ug/L
34696	Naphthalene	0.98	U	ug/L
78142	2-Nitroaniline	0.98	U	ug/L
78300	3-Nitroaniline	0.98	U	ug/L
73605	4-Nitroaniline	0.98	U	ug/L
34447	Nitrobenzene	2.0	U	ug/L

34428	N-Nitrosodi-n-propylamine	2.0	U	ug/L
34433	N-Nitrosodiphenylamine	2.9	U	ug/L
34461	Phenanthrene	0.98	U	ug/L
34469	Pyrene	0.98	U	ug/L
34551	1,2,4-Trichlorobenzene	0.98	U	ug/L
34452	4-Chloro-3-methylphenol	0.98	U	ug/L
34586	2-Chlorophenol	0.98	U	ug/L
34601	2,4-Dichlorophenol	0.98	U	ug/L
34606	2,4-Dimethylphenol	2.9	U	ug/L
34616	2,4-Dinitrophenol	15	U	ug/L
34657	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L
34591	2-Nitrophenol	0.98	U	ug/L
34646	4-Nitrophenol	3.9	U	ug/L
39032	Pentachlorophenol	2.9	U	ug/L
34694	Phenol	0.98	U	ug/L
77687	2,4,5-Trichlorophenol	0.98	U	ug/L
34621	2,4,6-Trichlorophenol	0.98	U	ug/L

Lab ID: 408721	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in aqueous matrices (EPA 335.2)					

Comments:
The MDL was elevated due to sample matrix interference.

00720	Cyanide	0.020	U	mg/L

Lab ID: 408729	Storet Code	Component	Result	Code	Units
Test: Mercury in aqueous samples using cold vapor AA spectroscopy. (EPA 245.2)					
	71900	Mercury	0.10	U	ug/L

Lab ID: 408737	Storet Code	Component	Result	Code	Units
Test: Metals, total recoverable, in aqueous samples using trace-ICP emission spectroscopy. (EPA 200.7 mod.)					

Comments:
Please refer to the QC Report for parameters observed to exceed control limits. The Ag and Zn MDLs were adjusted. The results are not consistent with the reported field conductivity.

01005	Aluminum_308	2.36E+03		ug/L
01002	Arsenic	4.0	U	ug/L
01097	Antimony	4.0	U	ug/L
01007	Barium	34.7		ug/L
01012	Beryllium	0.40	U	ug/L
01027	Cadmium	0.40	U	ug/L
00916	Calcium	124		mg/L
01034	Chromium	4.3		ug/L
01037	Cobalt	0.70	U	ug/L
01042	Copper	5.1	I	ug/L
01045	Iron_259	624		ug/L
01051	Lead	2.0	U	ug/L
00927	Magnesium	7.3		mg/L
01055	Manganese	27.2		ug/L

recycled paper

	01067	Nickel	3.4	I	ug/L
	00937	Potassium	12.0		mg/L
	01147	Selenium	3.0	U	ug/L
	01077	Silver	2.0	U	ug/L
	00929	Sodium_330	754		mg/L
	01059	Thallium	6.0	U	ug/L
	01087	Vanadium	23.7		ug/L
	01092	Zinc	20	U	ug/L

Lab ID: 408745	Storet Code	Component	Result	Code	Units
Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD. (EPA 608 mod.)					
	39330	Aldrin	0.0098	U	ug/L
	39337	Alpha-BHC	0.0098	U	ug/L
	39338	Beta-BHC	0.0098	U	ug/L
	34259	Delta-BHC	0.0098	U	ug/L
	39340	Gamma-BHC	0.0098	U	ug/L
	39350	Chlordane	0.20	U	ug/L
	39310	DDD-p,p'	0.020	U	ug/L
	39320	DDE-p,p'	0.020	U	ug/L
	39300	DDT-p,p'	0.029	U	ug/L
	39380	Dieldrin	0.020	U	ug/L
	34361	Endosulfan I	0.020	U	ug/L
	34356	Endosulfan II	0.020	U	ug/L
	34351	Endosulfan Sulfate	0.020	U	ug/L
	39390	Endrin	0.049	U	ug/L
	34366	Endrin Aldehyde	0.029	U	ug/L
	39410	Heptachlor	0.0098	U	ug/L
	39420	Heptachlor Epoxide	0.020	U	ug/L
	39480	Methoxychlor	0.049	U	ug/L
	39400	Toxaphene	0.74	U	ug/L
	34671	PCB-1016	0.20	U	ug/L
	39488	PCB-1221	0.20	U	ug/L
	39492	PCB-1232	0.20	U	ug/L
	39496	PCB-1242	0.29	U	ug/L
	39500	PCB-1248	0.20	U	ug/L
	39504	PCB-1254	0.29	U	ug/L
	39508	PCB-1260	0.20	U	ug/L

Lab ID: 408754	Storet Code	Component	Result	Code	Units
Test: Volatile organic pollutants in acid preserved water matrices by GC/MS. (EPA 624/8260 mod.)					
	81552	Acetone	10	U	ug/L
	78124	Benzene	0.50	U	ug/L
	32101	Bromodichloromethane	0.20	U	ug/L
	32104	Bromoform	0.50	U	ug/L
	34413	Bromomethane	0.50	U	ug/L
	81595	2-Butanone	10	U	ug/L
	77041	Carbon disulfide	0.50	U	ug/L
	32102	Carbon tetrachloride	0.20	U	ug/L
	34301	Chlorobenzene	0.20	U	ug/L
	34311	Chloroethane	0.50	U	ug/L
	32106	Chloroform	0.20	U	ug/L

34418	Chloromethane	0.50	U	ug/L
32105	Dibromochloromethane	0.20	U	ug/L
34496	1,1-Dichloroethane	0.20	U	ug/L
34531	1,2-Dichloroethane	0.20	U	ug/L
34501	1,1-Dichloroethene	0.20	U	ug/L
77093	cis-1,2-Dichloroethene	0.50	U	ug/L
34546	trans-1,2-Dichloroethene	0.20	U	ug/L
34541	1,2-Dichloropropane	0.20	U	ug/L
34704	cis-1,3-Dichloropropene	0.20	U	ug/L
34699	trans-1,3-Dichloropropene	0.20	U	ug/L
34371	Ethylbenzene	0.50	U	ug/L
77103	2-Hexanone	10	U	ug/L
78133	4-Methyl-2-Pentanone	10	U	ug/L
34423	Methylene chloride	0.50	U	ug/L
77128	Styrene	0.50	U	ug/L
34516	1,1,2,2-Tetrachloroethane	0.20	U	ug/L
34475	Tetrachloroethene	0.20	U	ug/L
78131	Toluene	0.50	U	ug/L
34506	1,1,1-Trichloroethane	0.20	U	ug/L
34511	1,1,2-Trichloroethane	0.20	U	ug/L
39180	Trichloroethene	0.20	U	ug/L
39175	Vinyl chloride	0.50	U	ug/L
81551	Xylenes (total)	0.50	U	ug/L

Sample Location: WHITE'S MEATS

Field ID: WMGW-RB1

Collection Date/Time: 9/21/1999 3:40 PM

Matrix: W-EQPMT-BK

Lab ID: 408689 **Storet Code** **Component** **Result** **Code** **Units**

Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water matrices by GC/MS. (EPA 625/ 8270 mod.)

Comments:
Insufficient sample to prepare a duplicate matrix spike.

34205	Acenaphthene	0.95	U	ug/L
34200	Acenaphthylene	0.95	U	ug/L
34220	Anthracene	0.95	U	ug/L
34526	Benzo(a)anthracene	0.95	U	ug/L
34247	Benzo(a)pyrene	0.95	U	ug/L
34230	Benzo(b)fluoranthene	0.95	U	ug/L
34242	Benzo(k)fluoranthene	0.95	U	ug/L
34521	Benzo(g,h,i)perylene	0.95	U	ug/L
34278	Bis(2-chloroethoxy)methane	0.95	U	ug/L
34273	Bis(2-chloroethyl)ether	0.95	U	ug/L
34283	Bis(2-chloroisopropyl)ether	2.9	U	ug/L
34292	Butyl benzyl phthalate	4.8	U	ug/L
77954	4-Chloroaniline	0.95	U	ug/L
34581	2-Chloronaphthalene	0.95	U	ug/L
34641	4-Chlorophenyl phenyl ether	1.9	U	ug/L
77571	Carbazole	0.95	U	ug/L

recycled paper

34320	Chrysene	0.95	U	ug/L
77151	m,p-Cresols	1.9	U	ug/L
77152	o-Cresol	1.9	U	ug/L
39110	Di-n-butyl phthalate	4.8	U	ug/L
34596	Di-n-octyl phthalate	0.95	U	ug/L
34556	Dibenzo(a,h)anthracene	0.95	U	ug/L
81302	Dibenzofuran	0.95	U	ug/L
34536	1,2-Dichlorobenzene	0.95	U	ug/L
34566	1,3-Dichlorobenzene	0.95	U	ug/L
34571	1,4-Dichlorobenzene	0.95	U	ug/L
34631	3,3'-Dichlorobenzidine	38	U	ug/L
34336	Diethyl phthalate	0.95	U	ug/L
34341	Dimethyl phthalate	0.95	U	ug/L
34611	2,4-Dinitrotoluene	0.95	U	ug/L
34626	2,6-Dinitrotoluene	0.95	U	ug/L
34376	Fluoranthene	0.95	U	ug/L
34381	Fluorene	0.95	U	ug/L
39700	Hexachlorobenzene	0.95	U	ug/L
34391	Hexachlorobutadiene	2.9	U	ug/L
34386	Hexachlorocyclopentadiene	2.9	U	ug/L
34396	Hexachloroethane	2.9	U	ug/L
34403	Indeno(1,2,3-cd)pyrene	0.95	U	ug/L
34408	Isophorone	0.95	U	ug/L
77416	2-Methylnaphthalene	0.95	U	ug/L
34696	Naphthalene	0.95	U	ug/L
78142	2-Nitroaniline	0.95	U	ug/L
78300	3-Nitroaniline	0.95	U	ug/L
73605	4-Nitroaniline	0.95	U	ug/L
34447	Nitrobenzene	1.9	U	ug/L
34428	N-Nitrosodi-n-propylamine	1.9	U	ug/L
34433	N-Nitrosodiphenylamine	2.9	U	ug/L
34461	Phenanthrene	0.95	U	ug/L
34469	Pyrene	0.95	U	ug/L
34551	1,2,4-Trichlorobenzene	0.95	U	ug/L
34452	4-Chloro-3-methylphenol	0.95	U	ug/L
34586	2-Chlorophenol	0.95	U	ug/L
34601	2,4-Dichlorophenol	0.95	U	ug/L
34606	2,4-Dimethylphenol	2.9	U	ug/L
34616	2,4-Dinitrophenol	14	U	ug/L
34657	2-Methyl-4,6-dinitrophenol	2.9	U	ug/L
34591	2-Nitrophenol	0.95	U	ug/L
34646	4-Nitrophenol	3.8	U	ug/L
39032	Pentachlorophenol	2.9	U	ug/L
34694	Phenol	0.95	U	ug/L
77687	2,4,5-Trichlorophenol	0.95	U	ug/L
34621	2,4,6-Trichlorophenol	0.95	U	ug/L

Lab ID: 408722	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in aqueous matrices (EPA 335.2)					
	00720	Cyanide	0.010	U	mg/L

Lab ID: 408730	Storet Code	Component	Result	Code	Units
Test: Mercury in aqueous samples using cold vapor AA spectroscopy. (EPA 245.2)					
	71900	Mercury	0.10	U	ug/L

Lab ID: 408738	Storet Code	Component	Result	Code	Units
Test: Metals, total recoverable, in aqueous samples using trace-ICP emission spectroscopy. (EPA 200.7 mod.)					

Comments:
Please refer to the QC Report for parameters observed to exceed control limits. The Ag, Ni and Zn MDLs were adjusted. The presence of Cu was confirmed.

01005	Aluminum_308	50	U	ug/L
01002	Arsenic	4.0	U	ug/L
01097	Antimony	4.0	U	ug/L
01007	Barium	0.70	U	ug/L
01012	Beryllium	0.40	U	ug/L
01027	Cadmium	0.40	U	ug/L
00916	Calcium	0.10	U	mg/L
01034	Chromium	0.70	U	ug/L
01037	Cobalt	0.70	U	ug/L
01042	Copper	7.8	I	ug/L
01045	Iron_259	10	U	ug/L
01051	Lead	2.0	U	ug/L
00927	Magnesium	0.012	U	mg/L
01055	Manganese	0.25	U	ug/L
01067	Nickel	3.0	U	ug/L
00937	Potassium	0.010	U	mg/L
01147	Selenium	3.0	U	ug/L
01077	Silver	2.0	U	ug/L
00929	Sodium_330	0.30	U	mg/L
01059	Thallium	6.0	U	ug/L
01087	Vanadium	0.50	U	ug/L
01092	Zinc	20	U	ug/L

Lab ID: 408746	Storet Code	Component	Result	Code	Units
Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD. (EPA 608 mod.)					
	39330	Aldrin	0.0098	U	ug/L
	39337	Alpha-BHC	0.0098	U	ug/L
	39338	Beta-BHC	0.0098	U	ug/L
	34259	Delta-BHC	0.0098	U	ug/L
	39340	Gamma-BHC	0.0098	U	ug/L
	39350	Chlordane	0.20	U	ug/L
	39310	DDD-p,p'	0.020	U	ug/L
	39320	DDE-p,p'	0.020	U	ug/L
	39300	DDT-p,p'	0.029	U	ug/L
	39380	Dieldrin	0.020	U	ug/L
	34361	Endosulfan I	0.020	U	ug/L
	34356	Endosulfan II	0.020	U	ug/L
	34351	Endosulfan Sulfate	0.020	U	ug/L
	39390	Endrin	0.049	U	ug/L

34366	Endrin Aldehyde	0.029	U	ug/L
39410	Heptachlor	0.0098	U	ug/L
39420	Heptachlor Epoxide	0.020	U	ug/L
39480	Methoxychlor	0.049	U	ug/L
39400	Toxaphene	0.74	U	ug/L
34671	PCB-1016	0.20	U	ug/L
39488	PCB-1221	0.20	U	ug/L
39492	PCB-1232	0.20	U	ug/L
39496	PCB-1242	0.29	U	ug/L
39500	PCB-1248	0.20	U	ug/L
39504	PCB-1254	0.29	U	ug/L
39508	PCB-1260	0.20	U	ug/L

Lab ID: 408755	Storet Code	Component	Result	Code	Units
Test: Volatile organic pollutants in acid preserved water matrices by GC/MS. (EPA 624/8260 mod.)					
	81552	Acetone	19	I	ug/L
	78124	Benzene	0.50	U	ug/L
	32101	Bromodichloromethane	0.20	U	ug/L
	32104	Bromoform	0.50	U	ug/L
	34413	Bromomethane	0.50	U	ug/L
	81595	2-Butanone	21	I	ug/L
	77041	Carbon disulfide	0.50	U	ug/L
	32102	Carbon tetrachloride	0.20	U	ug/L
	34301	Chlorobenzene	0.20	U	ug/L
	34311	Chloroethane	0.50	U	ug/L
	32106	Chloroform	0.20	U	ug/L
	34418	Chloromethane	0.50	U	ug/L
	32105	Dibromochloromethane	0.20	U	ug/L
	34496	1,1-Dichloroethane	0.20	U	ug/L
	34531	1,2-Dichloroethane	0.20	U	ug/L
	34501	1,1-Dichloroethene	0.20	U	ug/L
	77093	cis-1,2-Dichloroethene	0.50	U	ug/L
	34546	trans-1,2-Dichloroethene	0.20	U	ug/L
	34541	1,2-Dichloropropane	0.20	U	ug/L
	34704	cis-1,3-Dichloropropene	0.20	U	ug/L
	34699	trans-1,3-Dichloropropene	0.20	U	ug/L
	34371	Ethylbenzene	0.50	U	ug/L
	77103	2-Hexanone	10	U	ug/L
	78133	4-Methyl-2-Pentanone	10	U	ug/L
	34423	Methylene chloride	1.4	I	ug/L
	77128	Styrene	0.50	U	ug/L
	34516	1,1,2,2-Tetrachloroethane	0.20	U	ug/L
	34475	Tetrachloroethene	0.20	U	ug/L
	78131	Toluene	0.50	U	ug/L
	34506	1,1,1-Trichloroethane	0.20	U	ug/L
	34511	1,1,2-Trichloroethane	0.20	U	ug/L
	39180	Trichloroethene	0.20	U	ug/L
	39175	Vinyl chloride	0.50	U	ug/L
	81551	Xylenes (total)	0.50	U	ug/L

Sample Location: WHITE'S MEATS

Field ID: WMGW-TB1

Collection Date/Time: 9/21/1999 7:30 AM

Matrix: W-TRIP-BLK

Lab ID: 408747	Storet Code	Component	Result	Code	Units
Test: Volatile organic pollutants in acid preserved water matrices by GC/MS. (EPA 624/8260 mod.)					
	81552	Acetone	10	U	ug/L
	78124	Benzene	0.50	U	ug/L
	32101	Bromodichloromethane	0.20	U	ug/L
	32104	Bromoform	0.50	U	ug/L
	34413	Bromomethane	0.50	U	ug/L
	81595	2-Butanone	10	U	ug/L
	77041	Carbon disulfide	0.50	U	ug/L
	32102	Carbon tetrachloride	0.20	U	ug/L
	34301	Chlorobenzene	0.20	U	ug/L
	34311	Chloroethane	0.50	U	ug/L
	32106	Chloroform	0.20	U	ug/L
	34418	Chloromethane	0.50	U	ug/L
	32105	Dibromochloromethane	0.20	U	ug/L
	34496	1,1-Dichloroethane	0.20	U	ug/L
	34531	1,2-Dichloroethane	0.20	U	ug/L
	34501	1,1-Dichloroethene	0.20	U	ug/L
	77093	cis-1,2-Dichloroethene	0.50	U	ug/L
	34546	trans-1,2-Dichloroethene	0.20	U	ug/L
	34541	1,2-Dichloropropane	0.20	U	ug/L
	34704	cis-1,3-Dichloropropene	0.20	U	ug/L
	34699	trans-1,3-Dichloropropene	0.20	U	ug/L
	34371	Ethylbenzene	0.50	U	ug/L
	77103	2-Hexanone	10	U	ug/L
	78133	4-Methyl-2-Pentanone	10	U	ug/L
	34423	Methylene chloride	0.50	U	ug/L
	77128	Styrene	0.50	U	ug/L
	34516	1,1,2,2-Tetrachloroethane	0.20	U	ug/L
	34475	Tetrachloroethene	0.20	U	ug/L
	78131	Toluene	0.50	U	ug/L
	34506	1,1,1-Trichloroethane	0.20	U	ug/L
	34511	1,1,2-Trichloroethane	0.20	U	ug/L
	39180	Trichloroethene	0.20	U	ug/L
	39175	Vinyl chloride	0.50	U	ug/L
	81551	Xylenes (total)	0.50	U	ug/L

Sample Location: WHITES MEATS

Field ID: WMSS-1

Collection Date/Time: 9/20/1999 10:30 AM

Matrix: S-SOIL

Lab ID: 408344	Storet Code	Component	Result	Code	Units
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments by GC/MS. (EPA 8270 mod.)					

recycled paper

*** Preparation exceeds holding time ***

Comments:
Please refer to QC report for parameters exceeding limits. Sample re-extracted after expiration. J due to sample preparation exceeding holding time. MDL and PQL for Di-n-butyl phthalate and Butyl benzyl phthalate elevated due to their detection in extraction blank.

34208	Acenaphthene	64	UQ	ug/kg
34203	Acenaphthylene	64	UQ	ug/kg
34223	Anthracene	85	UQ	ug/kg
34529	Benzo(a)anthracene	450	JQ	ug/kg
34250	Benzo(a)pyrene	510	JQ	ug/kg
34233	Benzo(b)fluoranthene	730	JQ	ug/kg
34245	Benzo(k)fluoranthene	220	IQ	ug/kg
78828	Benzo(g,h,i)perylene	410	JQ	ug/kg
34281	Bis(2-chloroethoxy)methane	64	UQ	ug/kg
34276	Bis(2-chloroethyl)ether	64	UQ	ug/kg
34286	Bis(2-chloroisopropyl)ether	64	UQ	ug/kg
39102	Bis(2-ethylhexyl)phthalate	360	UQ	ug/kg
78800	Butyl benzyl phthalate	270	UQ	ug/kg
34639	4-Bromophenyl phenyl ether	64	UQ	ug/kg
78547	4-Chloroaniline	180	UQ	ug/kg
34584	2-Chloronaphthalene	64	UQ	ug/kg
34644	4-Chlorophenyl phenyl ether	64	UQ	ug/kg
78543	Carbazole	64	UQ	ug/kg
34323	Chrysene	440	JQ	ug/kg
73133	m,p-Cresols	64	UQ	ug/kg
78872	o-Cresol	64	UQ	ug/kg
39112	Di-n-butyl phthalate	1600	UQ	ug/kg
34599	Di-n-octyl phthalate	64	UQ	ug/kg
34559	Dibenzo(a,h)anthracene	96	IQ	ug/kg
75647	Dibenzofuran	64	UQ	ug/kg
34539	1,2-Dichlorobenzene	140	UQ	ug/kg
34569	1,3-Dichlorobenzene	140	UQ	ug/kg
34574	1,4-Dichlorobenzene	140	UQ	ug/kg
34634	3,3'-Dichlorobenzidine	3600	UQ	ug/kg
34339	Diethyl phthalate	64	UQ	ug/kg
34344	Dimethyl phthalate	64	UQ	ug/kg
34614	2,4-Dinitrotoluene	64	UQ	ug/kg
34629	2,6-Dinitrotoluene	64	UQ	ug/kg
34379	Fluoranthene	390	JQ	ug/kg
34384	Fluorene	64	UQ	ug/kg
75042	Hexachlorobenzene	64	UQ	ug/kg
34394	Hexachlorobutadiene	140	UQ	ug/kg
78329	Hexachlorocyclopentadiene	64	UQ	ug/kg
34399	Hexachloroethane	140	UQ	ug/kg
34406	Indeno(1,2,3-cd)pyrene	340	JQ	ug/kg
34411	Isophorone	64	UQ	ug/kg
78868	2-Methylnaphthalene	64	UQ	ug/kg
34445	Naphthalene	64	UQ	ug/kg
78299	2-Nitroaniline	64	UQ	ug/kg
78869	3-Nitroaniline	64	UQ	ug/kg

78870	4-Nitroaniline	64	UQ	ug/kg
34450	Nitrobenzene	64	UQ	ug/kg
34431	N-Nitrosodi-n-propylamine	64	UQ	ug/kg
34436	N-Nitrosodiphenylamine	64	UQ	ug/kg
34464	Phenanthrene	100	IQ	ug/kg
34472	Pyrene	410	JQ	ug/kg
75039	1,2,4-Trichlorobenzene	140	UQ	ug/kg
34455	4-Chloro-3-methylphenol	64	UQ	ug/kg
34589	2-Chlorophenol	140	UQ	ug/kg
34604	2,4-Dichlorophenol	64	UQ	ug/kg
79402	2,4-Dimethylphenol	1800	UQ	ug/kg
34619	2,4-Dinitrophenol	360	UQ	ug/kg
34660	2-Methyl-4,6-dinitrophenol	64	UQ	ug/kg
34594	2-Nitrophenol	64	UQ	ug/kg
34649	4-Nitrophenol	64	UQ	ug/kg
78873	Pentachlorophenol	64	UQ	ug/kg
34695	Phenol	64	UQ	ug/kg
78401	2,4,5-Trichlorophenol	64	UQ	ug/kg
34624	2,4,6-Trichlorophenol	64	UQ	ug/kg

Lab ID: 408352	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in solid matrices (EPA 335.2 mod.)					
	00721	Cyanide	0.52	U	mg/kg

Lab ID: 408360	Storet Code	Component	Result	Code	Units
Test: Mercury in solid samples using cold vapor AA spectroscopy. (EPA 245.5)					
	71921	Mercury	0.019	I	mg/kg

Lab ID: 408370	Storet Code	Component	Result	Code	Units
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy. (EPA 6010 mod.)					

Comments:
Please refer to the QC Report for parameters observed to exceed control limits. The Al and Ca recoveries could not be assessed.

01108	Aluminum	2.53E+03		mg/Kg
01003	Arsenic	3.8	U	mg/Kg
01098	Antimony	3.8	U	mg/Kg
01008	Barium	21.7		mg/Kg
01013	Beryllium	0.099	I	mg/Kg
01028	Cadmium	1.1	U	mg/Kg
00917	Calcium	2.97E+03	J	mg/Kg
01029	Chromium	4.7	I	mg/Kg
01038	Cobalt	0.76	U	mg/Kg
01043	Copper	6.7	I	mg/Kg
01170	Iron	1.66E+03		mg/Kg
01052	Lead	5.7	U	mg/Kg
00924	Magnesium	151		mg/Kg
01053	Manganese	27.7		mg/Kg
01068	Nickel	1.5	I	mg/Kg
00938	Potassium	36	I	mg/Kg

recycled paper
envelopes and correspondence

	01148	Selenium	6.7	U	mg/Kg
	01078	Silver	0.76	U	mg/Kg
	00934	Sodium	19	U	mg/Kg
	34480	Thallium	9.5	U	mg/Kg
	01088	Vanadium	3.4		mg/Kg
	01093	Zinc	17	I	mg/Kg

Lab ID: 408380	Storet Code	Component	Result	Code	Units
Test: Organochlorine pesticides in sediment matrices by GC/ECD. (EPA 8080 mod.)					
	39333	Aldrin	0.42	U	ug/kg
	39076	Alpha-BHC	0.42	U	ug/kg
	34257	Beta-BHC	0.42	U	ug/kg
	34262	Delta-BHC	0.74	U	ug/kg
	39343	Gamma-BHC	0.42	U	ug/kg
	39351	Chlordane	11	I	ug/kg
	39311	DDD-p,p'	0.74	U	ug/kg
	39321	DDE-p,p'	0.74	U	ug/kg
	39301	DDT-p,p'	1.1	U	ug/kg
	39383	Dieldrin	0.42	U	ug/kg
	34364	Endosulfan I	0.42	U	ug/kg
	34359	Endosulfan II	0.42	U	ug/kg
	34354	Endosulfan Sulfate	0.74	U	ug/kg
	39393	Endrin	1.5	U	ug/kg
	82633	Endrin Aldehyde	0.74	U	ug/kg
	75044	Heptachlor	0.42	U	ug/kg
	39423	Heptachlor Epoxide	0.42	U	ug/kg
	39481	Methoxychlor	1.8	U	ug/kg
	39403	Toxaphene	26	U	ug/kg
	39514	PCB-1016	11	U	ug/kg
	39491	PCB-1221	7.4	U	ug/kg
	39495	PCB-1232	16	U	ug/kg
	39499	PCB-1242	11	U	ug/kg
	39503	PCB-1248	7.4	U	ug/kg
	39507	PCB-1254	7.4	U	ug/kg
	39511	PCB-1260	11	U	ug/kg

Lab ID: 408420	Storet Code	Component	Result	Code	Units
Test: Volatile organic pollutants in sediment matrices by GC/MS. (EPA 8260)					

Comments:
Please refer to QC report for parameters exceeding limits.

75059	Acetone	12	U	ug/kg
34237	Benzene	2.4	U	ug/kg
34330	Bromodichloromethane	2.4	U	ug/kg
34290	Bromoform	2.4	U	ug/kg
34416	Bromomethane	2.4	U	ug/kg
75078	2-Butanone	12	U	ug/kg
78544	Carbon disulfide	2.4	U	ug/kg
34299	Carbon tetrachloride	2.4	U	ug/kg
34304	Chlorobenzene	2.4	U	ug/kg

34314	Chloroethane	2.4	U	ug/kg
34318	Chloroform	2.4	U	ug/kg
34421	Chloromethane	2.4	U	ug/kg
34309	Dibromochloromethane	2.4	U	ug/kg
34499	1,1-Dichloroethane	2.4	U	ug/kg
34534	1,2-Dichloroethane	2.4	U	ug/kg
34504	1,1-Dichloroethene	2.4	U	ug/kg
78497	cis-1,2-Dichloroethene	2.4	U	ug/kg
34549	trans-1,2-Dichloroethene	2.4	U	ug/kg
34544	1,2-Dichloropropane	2.4	U	ug/kg
34702	cis-1,3-Dichloropropene	2.4	U	ug/kg
34697	trans-1,3-Dichloropropene	2.4	U	ug/kg
34374	Ethylbenzene	2.4	U	ug/kg
75166	2-Hexanone	2.4	U	ug/kg
75169	4-Methyl-2-Pentanone	2.4	U	ug/kg
34426	Methylene chloride	2.4	U	ug/kg
75192	Styrene	2.4	U	ug/kg
34519	1,1,2,2-Tetrachloroethane	2.4	U	ug/kg
34478	Tetrachloroethene	2.4	U	ug/kg
34483	Toluene	2.4	U	ug/kg
34509	1,1,1-Trichloroethane	2.4	U	ug/kg
34514	1,1,2-Trichloroethane	2.4	U	ug/kg
34487	Trichloroethene	2.4	U	ug/kg
34495	Vinyl chloride	2.4	U	ug/kg
45510	Xylenes (total)	2.4	U	ug/kg

Sample Location: WHITES MEATS

Field ID: WMSS-2

Collection Date/Time: 9/20/1999 11:40 AM

Matrix: S-SOIL

Lab ID: 408345 **Storet Code** **Component** **Result** **Code** **Units**

Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments by GC/MS. (EPA 8270 mod.)

*** Preparation exceeds holding time ***

Comments:
Please refer to QC report for parameters exceeding limits. Sample re-extracted after expiration. J due to sample preparation exceeding holding time. MDL and PQL for Di-n-butyl phthalate and Butyl benzyl phthalate elevated due to their detection in extraction blank.

34208	Acenaphthene	64	UQ	ug/kg
34203	Acenaphthylene	64	UQ	ug/kg
34223	Anthracene	86	UQ	ug/kg
34529	Benzo(a)anthracene	64	UQ	ug/kg
34250	Benzo(a)pyrene	64	UQ	ug/kg
34233	Benzo(b)fluoranthene	64	UQ	ug/kg
34245	Benzo(k)fluoranthene	64	UQ	ug/kg
78828	Benzo(g,h,i)perylene	64	UQ	ug/kg
34281	Bis(2-chloroethoxy)methane	64	UQ	ug/kg
34276	Bis(2-chloroethyl)ether	64	UQ	ug/kg
34286	Bis(2-chloroisopropyl)ether	64	UQ	ug/kg

recycled paper

39102	Bis(2-ethylhexyl)phthalate	470	IQ	ug/kg
78800	Butyl benzyl phthalate	270	UQ	ug/kg
34639	4-Bromophenyl phenyl ether	64	UQ	ug/kg
78547	4-Chloroaniline	180	UQ	ug/kg
34584	2-Chloronaphthalene	64	UQ	ug/kg
34644	4-Chlorophenyl phenyl ether	64	UQ	ug/kg
78543	Carbazole	64	UQ	ug/kg
34323	Chrysene	64	UQ	ug/kg
73133	m,p-Cresols	64	UQ	ug/kg
78872	o-Cresol	64	UQ	ug/kg
39112	Di-n-butyl phthalate	1600	UQ	ug/kg
34599	Di-n-octyl phthalate	64	UQ	ug/kg
34559	Dibenzo(a,h)anthracene	64	UQ	ug/kg
75647	Dibenzofuran	64	UQ	ug/kg
34539	1,2-Dichlorobenzene	140	UQ	ug/kg
34569	1,3-Dichlorobenzene	140	UQ	ug/kg
34574	1,4-Dichlorobenzene	140	UQ	ug/kg
34634	3,3'-Dichlorobenzidine	3600	UQ	ug/kg
34339	Diethyl phthalate	64	UQ	ug/kg
34344	Dimethyl phthalate	64	UQ	ug/kg
34614	2,4-Dinitrotoluene	64	UQ	ug/kg
34629	2,6-Dinitrotoluene	64	UQ	ug/kg
34379	Fluoranthene	64	UQ	ug/kg
34384	Fluorene	64	UQ	ug/kg
75042	Hexachlorobenzene	64	UQ	ug/kg
34394	Hexachlorobutadiene	140	UQ	ug/kg
78329	Hexachlorocyclopentadiene	64	UQ	ug/kg
34399	Hexachloroethane	140	UQ	ug/kg
34406	Indeno(1,2,3-cd)pyrene	64	UQ	ug/kg
34411	Isophorone	64	UQ	ug/kg
78868	2-Methylnaphthalene	64	UQ	ug/kg
34445	Naphthalene	64	UQ	ug/kg
78299	2-Nitroaniline	64	UQ	ug/kg
78869	3-Nitroaniline	64	UQ	ug/kg
78870	4-Nitroaniline	64	UQ	ug/kg
34450	Nitrobenzene	64	UQ	ug/kg
34431	N-Nitrosodi-n-propylamine	64	UQ	ug/kg
34436	N-Nitrosodiphenylamine	64	UQ	ug/kg
34464	Phenanthrene	64	UQ	ug/kg
34472	Pyrene	64	UQ	ug/kg
75039	1,2,4-Trichlorobenzene	140	UQ	ug/kg
34455	4-Chloro-3-methylphenol	64	UQ	ug/kg
34589	2-Chlorophenol	140	UQ	ug/kg
34604	2,4-Dichlorophenol	64	UQ	ug/kg
79402	2,4-Dimethylphenol	1800	UQ	ug/kg
34619	2,4-Dinitrophenol	360	UQ	ug/kg
34660	2-Methyl-4,6-dinitrophenol	64	UQ	ug/kg
34594	2-Nitrophenol	64	UQ	ug/kg
34649	4-Nitrophenol	64	UQ	ug/kg
78873	Pentachlorophenol	64	UQ	ug/kg
34695	Phenol	64	UQ	ug/kg
78401	2,4,5-Trichlorophenol	64	UQ	ug/kg

	34624	2,4,6-Trichlorophenol	64	UQ	ug/kg

Lab ID: 408353	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in solid matrices (EPA 335.2 mod.)					
	00721	Cyanide	0.53	U	mg/kg

Lab ID: 408361	Storet Code	Component	Result	Code	Units
Test: Mercury in solid samples using cold vapor AA spectroscopy. (EPA 245.5)					
	71921	Mercury	0.0051	U	mg/kg

Lab ID: 408371	Storet Code	Component	Result	Code	Units
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy. (EPA 6010 mod.)					

Comments:
Please refer to the QC Report for parameters observed to exceed control limits. The Al and Ca recoveries could not be assessed.

01108	Aluminum	2.05E+03		mg/Kg
01003	Arsenic	4.2	U	mg/Kg
01098	Antimony	4.2	U	mg/Kg
01008	Barium	18.1		mg/Kg
01013	Beryllium	0.11	U	mg/Kg
01028	Cadmium	1.3	U	mg/Kg
00917	Calcium	1.02E+03	J	mg/Kg
01029	Chromium	2.7	I	mg/Kg
01038	Cobalt	0.84	U	mg/Kg
01043	Copper	2.1	U	mg/Kg
01170	Iron	874		mg/Kg
01052	Lead	6.3	U	mg/Kg
00924	Magnesium	79		mg/Kg
01053	Manganese	22.6		mg/Kg
01068	Nickel	1.3	U	mg/Kg
00938	Potassium	52	I	mg/Kg
01148	Selenium	7.4	U	mg/Kg
01078	Silver	0.84	U	mg/Kg
00934	Sodium	21	U	mg/Kg
34480	Thallium	11	U	mg/Kg
01088	Vanadium	1.8	I	mg/Kg
01093	Zinc	20	I	mg/Kg

Lab ID: 408381	Storet Code	Component	Result	Code	Units
Test: Organochlorine pesticides in sediment matrices by GC/ECD. (EPA 8080 mod.)					
	39333	Aldrin	0.43	U	ug/kg
	39076	Alpha-BHC	0.43	U	ug/kg
	34257	Beta-BHC	0.43	U	ug/kg
	34262	Delta-BHC	0.75	U	ug/kg
	39343	Gamma-BHC	0.43	U	ug/kg
	39351	Chlordane	5.4	U	ug/kg
	39311	DDD-p,p'	0.75	U	ug/kg
	39321	DDE-p,p'	0.75	U	ug/kg

recycled paper

39301	DDT-p,p'	1.1	U	ug/kg
39383	Dieldrin	0.43	U	ug/kg
34364	Endosulfan I	0.43	U	ug/kg
34359	Endosulfan II	0.43	U	ug/kg
34354	Endosulfan Sulfate	0.75	U	ug/kg
39393	Endrin	1.5	U	ug/kg
82633	Endrin Aldehyde	0.75	U	ug/kg
75044	Heptachlor	0.43	U	ug/kg
39423	Heptachlor Epoxide	0.43	U	ug/kg
39481	Methoxychlor	1.8	U	ug/kg
39403	Toxaphene	27	U	ug/kg
39514	PCB-1016	11	U	ug/kg
39491	PCB-1221	7.5	U	ug/kg
39495	PCB-1232	16	U	ug/kg
39499	PCB-1242	11	U	ug/kg
39503	PCB-1248	7.5	U	ug/kg
39507	PCB-1254	7.5	U	ug/kg
39511	PCB-1260	11	U	ug/kg

Lab ID: 408421 **Storet Code** **Component** **Result** **Code** **Units**

Test: Volatile organic pollutants in sediment matrices by GC/MS. (EPA 8260)

Comments:
Please refer to QC report for parameters exceeding limits.

75059	Acetone	13	U	ug/kg
34237	Benzene	2.5	U	ug/kg
34330	Bromodichloromethane	2.5	U	ug/kg
34290	Bromoform	2.5	U	ug/kg
34416	Bromomethane	2.5	U	ug/kg
75078	2-Butanone	13	U	ug/kg
78544	Carbon disulfide	2.5	U	ug/kg
34299	Carbon tetrachloride	2.5	U	ug/kg
34304	Chlorobenzene	2.5	U	ug/kg
34314	Chloroethane	2.5	U	ug/kg
34318	Chloroform	2.5	U	ug/kg
34421	Chloromethane	2.5	U	ug/kg
34309	Dibromochloromethane	2.5	U	ug/kg
34499	1,1-Dichloroethane	2.5	U	ug/kg
34534	1,2-Dichloroethane	2.5	U	ug/kg
34504	1,1-Dichloroethene	2.5	U	ug/kg
78497	cis-1,2-Dichloroethene	2.5	U	ug/kg
34549	trans-1,2-Dichloroethene	2.5	U	ug/kg
34544	1,2-Dichloropropane	2.5	U	ug/kg
34702	cis-1,3-Dichloropropene	2.5	U	ug/kg
34697	trans-1,3-Dichloropropene	2.5	U	ug/kg
34374	Ethylbenzene	2.5	U	ug/kg
75166	2-Hexanone	2.5	U	ug/kg
75169	4-Methyl-2-Pentanone	2.5	U	ug/kg
34426	Methylene chloride	2.5	U	ug/kg
75192	Styrene	2.5	U	ug/kg
34519	1,1,2,2-Tetrachloroethane	2.5	U	ug/kg

34478	Tetrachloroethene	2.5	U	ug/kg
34483	Toluene	2.5	U	ug/kg
34509	1,1,1-Trichloroethane	2.5	U	ug/kg
34514	1,1,2-Trichloroethane	2.5	U	ug/kg
34487	Trichloroethene	2.5	U	ug/kg
34495	Vinyl chloride	2.5	U	ug/kg
45510	Xylenes (total)	2.5	U	ug/kg

Sample Location: WHITES MEATS

Field ID: WMSS-3

Collection Date/Time: 9/20/1999 11:50 AM

Matrix: S-SOIL

Lab ID: 408346 **Storet Code** **Component** **Result** **Code** **Units**

Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments by GC/MS. (EPA 8270 mod.)

*** Preparation exceeds holding time ***

Comments:
Please refer to QC report for parameters exceeding limits. Sample re-extracted after expiration. J due to sample preparation exceeding holding time. MDL and PQL for Di-n-butyl phthalate and Butyl benzyl phthalate elevated due to their detection in extraction blank.

34208	Acenaphthene	400	JQ	ug/kg
34203	Acenaphthylene	65	UQ	ug/kg
34223	Anthracene	670	JQ	ug/kg
34529	Benzo(a)anthracene	1600	JQ	ug/kg
34250	Benzo(a)pyrene	1300	JQ	ug/kg
34233	Benzo(b)fluoranthene	2000	JQ	ug/kg
34245	Benzo(k)fluoranthene	570	JQ	ug/kg
78828	Benzo(g,h,i)perylene	830	JQ	ug/kg
34281	Bis(2-chloroethoxy)methane	65	UQ	ug/kg
34276	Bis(2-chloroethyl)ether	65	UQ	ug/kg
34286	Bis(2-chloroisopropyl)ether	65	UQ	ug/kg
39102	Bis(2-ethylhexyl)phthalate	510	IQ	ug/kg
78800	Butyl benzyl phthalate	280	UQ	ug/kg
34639	4-Bromophenyl phenyl ether	65	UQ	ug/kg
78547	4-Chloroaniline	180	UQ	ug/kg
34584	2-Chloronaphthalene	65	UQ	ug/kg
34644	4-Chlorophenyl phenyl ether	65	UQ	ug/kg
78543	Carbazole	380	JQ	ug/kg
34323	Chrysene	1500	JQ	ug/kg
73133	m,p-Cresols	65	UQ	ug/kg
78872	o-Cresol	65	UQ	ug/kg
39112	Di-n-butyl phthalate	1600	UQ	ug/kg
34599	Di-n-octyl phthalate	65	UQ	ug/kg
34559	Dibenzo(a,h)anthracene	210	IQ	ug/kg
75647	Dibenzofuran	150	IQ	ug/kg
34539	1,2-Dichlorobenzene	140	UQ	ug/kg
34569	1,3-Dichlorobenzene	140	UQ	ug/kg
34574	1,4-Dichlorobenzene	140	UQ	ug/kg
34634	3,3'-Dichlorobenzidine	3700	UQ	ug/kg

recycled paper

34339	Diethyl phthalate	65	UQ	ug/kg
34344	Dimethyl phthalate	65	UQ	ug/kg
34614	2,4-Dinitrotoluene	65	UQ	ug/kg
34629	2,6-Dinitrotoluene	65	UQ	ug/kg
34379	Fluoranthene	3400	JQ	ug/kg
34384	Fluorene	270	JQ	ug/kg
75042	Hexachlorobenzene	65	UQ	ug/kg
34394	Hexachlorobutadiene	140	UQ	ug/kg
78329	Hexachlorocyclopentadiene	65	UQ	ug/kg
34399	Hexachloroethane	140	UQ	ug/kg
34406	Indeno(1,2,3-cd)pyrene	760	JQ	ug/kg
34411	Isophorone	65	UQ	ug/kg
78868	2-Methylnaphthalene	78	IQ	ug/kg
34445	Naphthalene	170	IQ	ug/kg
78299	2-Nitroaniline	65	UQ	ug/kg
78869	3-Nitroaniline	65	UQ	ug/kg
78870	4-Nitroaniline	65	UQ	ug/kg
34450	Nitrobenzene	65	UQ	ug/kg
34431	N-Nitrosodi-n-propylamine	65	UQ	ug/kg
34436	N-Nitrosodiphenylamine	65	UQ	ug/kg
34464	Phenanthrene	2700	JQ	ug/kg
34472	Pyrene	3100	JQ	ug/kg
75039	1,2,4-Trichlorobenzene	140	UQ	ug/kg
34455	4-Chloro-3-methylphenol	65	UQ	ug/kg
34589	2-Chlorophenol	140	UQ	ug/kg
34604	2,4-Dichlorophenol	65	UQ	ug/kg
79402	2,4-Dimethylphenol	1800	UQ	ug/kg
34619	2,4-Dinitrophenol	370	UQ	ug/kg
34660	2-Methyl-4,6-dinitrophenol	65	UQ	ug/kg
34594	2-Nitrophenol	65	UQ	ug/kg
34649	4-Nitrophenol	65	UQ	ug/kg
78873	Pentachlorophenol	65	UQ	ug/kg
34695	Phenol	65	UQ	ug/kg
78401	2,4,5-Trichlorophenol	65	UQ	ug/kg
34624	2,4,6-Trichlorophenol	65	UQ	ug/kg

Lab ID: 408354	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in solid matrices (EPA 335.2 mod.)					
	00721	Cyanide	0.54	U	mg/kg

Lab ID: 408362	Storet Code	Component	Result	Code	Units
Test: Mercury in solid samples using cold vapor AA spectroscopy. (EPA 245.5)					
	71921	Mercury	0.014	I	mg/kg

Lab ID: 408372	Storet Code	Component	Result	Code	Units
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy. (EPA 6010 mod.)					

Comments:
Please refer to the QC Report for parameters observed to exceed control limits. The Al and Ca recoveries could not be assessed.

01108	Aluminum	3.25E+03		mg/Kg
01003	Arsenic	4.2	U	mg/Kg
01098	Antimony	4.2	U	mg/Kg
01008	Barium	35.1		mg/Kg
01013	Beryllium	0.16	I	mg/Kg
01028	Cadmium	1.3	U	mg/Kg
00917	Calcium	6.65E+03	J	mg/Kg
01029	Chromium	6.0	I	mg/Kg
01038	Cobalt	0.84	U	mg/Kg
01043	Copper	3.5	I	mg/Kg
01170	Iron	1.85E+03		mg/Kg
01052	Lead	22		mg/Kg
00924	Magnesium	211		mg/Kg
01053	Manganese	63.7		mg/Kg
01068	Nickel	3.0	I	mg/Kg
00938	Potassium	100	I	mg/Kg
01148	Selenium	7.4	U	mg/Kg
01078	Silver	0.84	U	mg/Kg
00934	Sodium	30	I	mg/Kg
34480	Thallium	11	U	mg/Kg
01088	Vanadium	2.8	I	mg/Kg
01093	Zinc	36	I	mg/Kg

Lab ID: 408382 **Storet Code** **Component** **Result** **Code** **Units**

Test: Organochlorine pesticides in sediment matrices by GC/ECD. (EPA 8080 mod.)

Comments:
Estimated value for DDD-p,p' is due to matrix interference.

39333	Aldrin	0.43	U	ug/kg
39076	Alpha-BHC	0.43	U	ug/kg
34257	Beta-BHC	0.43	U	ug/kg
34262	Delta-BHC	0.76	U	ug/kg
39343	Gamma-BHC	0.43	U	ug/kg
39351	Chlordane	44		ug/kg
39311	DDD-p,p'	10	J	ug/kg
39321	DDE-p,p'	87		ug/kg
39301	DDT-p,p'	210		ug/kg
39383	Dieldrin	0.43	U	ug/kg
34364	Endosulfan I	0.43	U	ug/kg
34359	Endosulfan II	0.43	U	ug/kg
34354	Endosulfan Sulfate	0.76	U	ug/kg
39393	Endrin	1.5	U	ug/kg
82633	Endrin Aldehyde	0.76	U	ug/kg
75044	Heptachlor	0.43	U	ug/kg
39423	Heptachlor Epoxide	0.43	U	ug/kg
39481	Methoxychlor	1.8	U	ug/kg
39403	Toxaphene	27	U	ug/kg
39514	PCB-1016	11	U	ug/kg
39491	PCB-1221	7.6	U	ug/kg
39495	PCB-1232	16	U	ug/kg
39499	PCB-1242	11	U	ug/kg

39503	PCB-1248	7.6	U	ug/kg
39507	PCB-1254	7.6	U	ug/kg
39511	PCB-1260	19	I	ug/kg

Lab ID: 408422 **Storet Code** **Component** **Result** **Code** **Units**

Test: Volatile organic pollutants in sediment matrices by GC/MS. (EPA 8260)

Comments:
Please refer to QC report for parameters exceeding limits.

75059	Acetone	11	U	ug/kg
34237	Benzene	2.2	U	ug/kg
34330	Bromodichloromethane	2.2	U	ug/kg
34290	Bromoform	2.2	U	ug/kg
34416	Bromomethane	2.2	U	ug/kg
75078	2-Butanone	11	U	ug/kg
78544	Carbon disulfide	2.2	U	ug/kg
34299	Carbon tetrachloride	2.2	U	ug/kg
34304	Chlorobenzene	2.2	U	ug/kg
34314	Chloroethane	2.2	U	ug/kg
34318	Chloroform	2.2	U	ug/kg
34421	Chloromethane	2.2	U	ug/kg
34309	Dibromochloromethane	2.2	U	ug/kg
34499	1,1-Dichloroethane	2.2	U	ug/kg
34534	1,2-Dichloroethane	2.2	U	ug/kg
34504	1,1-Dichloroethene	2.2	U	ug/kg
78497	cis-1,2-Dichloroethene	2.2	U	ug/kg
34549	trans-1,2-Dichloroethene	2.2	U	ug/kg
34544	1,2-Dichloropropane	2.2	U	ug/kg
34702	cis-1,3-Dichloropropene	2.2	U	ug/kg
34697	trans-1,3-Dichloropropene	2.2	U	ug/kg
34374	Ethylbenzene	2.2	U	ug/kg
75166	2-Hexanone	2.2	U	ug/kg
75169	4-Methyl-2-Pentanone	2.2	U	ug/kg
34426	Methylene chloride	2.2	U	ug/kg
75192	Styrene	2.2	U	ug/kg
34519	1,1,2,2-Tetrachloroethane	2.2	U	ug/kg
34478	Tetrachloroethene	2.2	U	ug/kg
34483	Toluene	2.2	U	ug/kg
34509	1,1,1-Trichloroethane	2.2	U	ug/kg
34514	1,1,2-Trichloroethane	2.2	U	ug/kg
34487	Trichloroethene	2.2	U	ug/kg
34495	Vinyl chloride	2.2	U	ug/kg
45510	Xylenes (total)	2.2	U	ug/kg

Sample Location: WHITES MEATS

Field ID: WMSS-4

Collection Date/Time: 9/20/1999 2:50 PM

Matrix: S-SOIL

Lab ID: 408347 **Storet Code** **Component** **Result** **Code** **Units**

Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments by GC/MS. (EPA 8270 mod.)

*** Preparation exceeds holding time ***

Comments:
Please refer to QC report for parameters exceeding limits. Sample re-extracted after expiration. J due to sample preparation exceeding holding time. MDL and PQL for Di-n-butyl phthalate and Butyl benzyl phthalate elevated due to their detection in extraction blank.

34208	Acenaphthene	63	UQ	ug/kg
34203	Acenaphthylene	63	UQ	ug/kg
34223	Anthracene	85	UQ	ug/kg
34529	Benzo(a)anthracene	63	UQ	ug/kg
34250	Benzo(a)pyrene	63	UQ	ug/kg
34233	Benzo(b)fluoranthene	63	UQ	ug/kg
34245	Benzo(k)fluoranthene	63	UQ	ug/kg
78828	Benzo(g,h,i)perylene	63	UQ	ug/kg
34281	Bis(2-chloroethoxy)methane	63	UQ	ug/kg
34276	Bis(2-chloroethyl)ether	63	UQ	ug/kg
34286	Bis(2-chloroisopropyl)ether	63	UQ	ug/kg
39102	Bis(2-ethylhexyl)phthalate	450	IQ	ug/kg
78800	Butyl benzyl phthalate	270	UQ	ug/kg
34639	4-Bromophenyl phenyl ether	63	UQ	ug/kg
78547	4-Chloroaniline	180	UQ	ug/kg
34584	2-Chloronaphthalene	63	UQ	ug/kg
34644	4-Chlorophenyl phenyl ether	63	UQ	ug/kg
78543	Carbazole	63	UQ	ug/kg
34323	Chrysene	63	UQ	ug/kg
73133	m,p-Cresols	63	UQ	ug/kg
78872	o-Cresol	63	UQ	ug/kg
39112	Di-n-butyl phthalate	1600	UQ	ug/kg
34599	Di-n-octyl phthalate	63	UQ	ug/kg
34559	Dibenzo(a,h)anthracene	63	UQ	ug/kg
75647	Dibenzofuran	63	UQ	ug/kg
34539	1,2-Dichlorobenzene	140	UQ	ug/kg
34569	1,3-Dichlorobenzene	140	UQ	ug/kg
34574	1,4-Dichlorobenzene	140	UQ	ug/kg
34634	3,3'-Dichlorobenzidine	3600	UQ	ug/kg
34339	Diethyl phthalate	63	UQ	ug/kg
34344	Dimethyl phthalate	63	UQ	ug/kg
34614	2,4-Dinitrotoluene	63	UQ	ug/kg
34629	2,6-Dinitrotoluene	63	UQ	ug/kg
34379	Fluoranthene	63	UQ	ug/kg
34384	Fluorene	63	UQ	ug/kg
75042	Hexachlorobenzene	63	UQ	ug/kg
34394	Hexachlorobutadiene	140	UQ	ug/kg
78329	Hexachlorocyclopentadiene	63	UQ	ug/kg
34399	Hexachloroethane	140	UQ	ug/kg
34406	Indeno(1,2,3-cd)pyrene	63	UQ	ug/kg
34411	Isophorone	63	UQ	ug/kg
78868	2-Methylnaphthalene	63	UQ	ug/kg
34445	Naphthalene	63	UQ	ug/kg
78299	2-Nitroaniline	63	UQ	ug/kg

78869	3-Nitroaniline	63	UQ	ug/kg
78870	4-Nitroaniline	63	UQ	ug/kg
34450	Nitrobenzene	63	UQ	ug/kg
34431	N-Nitrosodi-n-propylamine	63	UQ	ug/kg
34436	N-Nitrosodiphenylamine	63	UQ	ug/kg
34464	Phenanthrene	63	UQ	ug/kg
34472	Pyrene	63	UQ	ug/kg
75039	1,2,4-Trichlorobenzene	140	UQ	ug/kg
34455	4-Chloro-3-methylphenol	63	UQ	ug/kg
34589	2-Chlorophenol	140	UQ	ug/kg
34604	2,4-Dichlorophenol	63	UQ	ug/kg
79402	2,4-Dimethylphenol	1800	UQ	ug/kg
34619	2,4-Dinitrophenol	360	UQ	ug/kg
34660	2-Methyl-4,6-dinitrophenol	63	UQ	ug/kg
34594	2-Nitrophenol	63	UQ	ug/kg
34649	4-Nitrophenol	63	UQ	ug/kg
78873	Pentachlorophenol	63	UQ	ug/kg
34695	Phenol	63	UQ	ug/kg
78401	2,4,5-Trichlorophenol	63	UQ	ug/kg
34624	2,4,6-Trichlorophenol	63	UQ	ug/kg

Lab ID: 408355	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in solid matrices (EPA 335.2 mod.)					
	00721	Cyanide	0.52	U	mg/kg

Lab ID: 408363	Storet Code	Component	Result	Code	Units
Test: Mercury in solid samples using cold vapor AA spectroscopy. (EPA 245.5)					
	71921	Mercury	0.0056	I	mg/kg

Lab ID: 408373	Storet Code	Component	Result	Code	Units
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy. (EPA 6010 mod.)					

Comments:
Please refer to the QC Report for parameters observed to exceed control limits. The Al and Ca recoveries could not be assessed.

01108	Aluminum	3.38E+03		mg/Kg
01003	Arsenic	4.0	U	mg/Kg
01098	Antimony	4.0	U	mg/Kg
01008	Barium	24.9		mg/Kg
01013	Beryllium	0.11	I	mg/Kg
01028	Cadmium	1.2	U	mg/Kg
00917	Calcium	930	J	mg/Kg
01029	Chromium	4.5	I	mg/Kg
01038	Cobalt	0.80	U	mg/Kg
01043	Copper	2.0	U	mg/Kg
01170	Iron	1.15E+03		mg/Kg
01052	Lead	6.0	U	mg/Kg
00924	Magnesium	122		mg/Kg
01053	Manganese	19.9		mg/Kg
01068	Nickel	1.8	I	mg/Kg

00938	Potassium	47	I	mg/Kg
01148	Selenium	7.0	U	mg/Kg
01078	Silver	0.80	U	mg/Kg
00934	Sodium	20	U	mg/Kg
34480	Thallium	10	U	mg/Kg
01088	Vanadium	2.6	I	mg/Kg
01093	Zinc	16	U	mg/Kg

Lab ID: 408383

Storet Code	Component	Result	Code	Units
Test: Organochlorine pesticides in sediment matrices by GC/ECD. (EPA 8080 mod.)				
39333	Aldrin	0.42	U	ug/kg
39076	Alpha-BHC	0.42	U	ug/kg
34257	Beta-BHC	0.42	U	ug/kg
34262	Delta-BHC	0.74	U	ug/kg
39343	Gamma-BHC	0.42	U	ug/kg
39351	Chlordane	5.3	U	ug/kg
39311	DDD-p,p'	0.74	U	ug/kg
39321	DDE-p,p'	0.74	U	ug/kg
39301	DDT-p,p'	1.1	U	ug/kg
39383	Dieldrin	0.42	U	ug/kg
34364	Endosulfan I	0.42	U	ug/kg
34359	Endosulfan II	0.42	U	ug/kg
34354	Endosulfan Sulfate	0.74	U	ug/kg
39393	Endrin	1.5	U	ug/kg
82633	Endrin Aldehyde	0.74	U	ug/kg
75044	Heptachlor	0.42	U	ug/kg
39423	Heptachlor Epoxide	0.42	U	ug/kg
39481	Methoxychlor	1.8	U	ug/kg
39403	Toxaphene	26	U	ug/kg
39514	PCB-1016	11	U	ug/kg
39491	PCB-1221	7.4	U	ug/kg
39495	PCB-1232	16	U	ug/kg
39499	PCB-1242	11	U	ug/kg
39503	PCB-1248	7.4	U	ug/kg
39507	PCB-1254	7.4	U	ug/kg
39511	PCB-1260	11	U	ug/kg

Lab ID: 408423

Storet Code	Component	Result	Code	Units
Test: Volatile organic pollutants in sediment matrices by GC/MS. (EPA 8260)				

Comments:
Please refer to QC report for parameters exceeding limits.

75059	Acetone	12	U	ug/kg
34237	Benzene	2.4	U	ug/kg
34330	Bromodichloromethane	2.4	U	ug/kg
34290	Bromoform	2.4	U	ug/kg
34416	Bromomethane	2.4	U	ug/kg
75078	2-Butanone	12	U	ug/kg
78544	Carbon disulfide	2.4	U	ug/kg
34299	Carbon tetrachloride	2.4	U	ug/kg

recycled paper

34304	Chlorobenzene	2.4	U	ug/kg
34314	Chloroethane	2.4	U	ug/kg
34318	Chloroform	2.4	U	ug/kg
34421	Chloromethane	2.4	U	ug/kg
34309	Dibromochloromethane	2.4	U	ug/kg
34499	1,1-Dichloroethane	2.4	U	ug/kg
34534	1,2-Dichloroethane	2.4	U	ug/kg
34504	1,1-Dichloroethene	2.4	U	ug/kg
78497	cis-1,2-Dichloroethene	2.4	U	ug/kg
34549	trans-1,2-Dichloroethene	2.4	U	ug/kg
34544	1,2-Dichloropropane	2.4	U	ug/kg
34702	cis-1,3-Dichloropropene	2.4	U	ug/kg
34697	trans-1,3-Dichloropropene	2.4	U	ug/kg
34374	Ethylbenzene	2.4	U	ug/kg
75166	2-Hexanone	2.4	U	ug/kg
75169	4-Methyl-2-Pentanone	2.4	U	ug/kg
34426	Methylene chloride	2.4	U	ug/kg
75192	Styrene	2.4	U	ug/kg
34519	1,1,2,2-Tetrachloroethane	2.4	U	ug/kg
34478	Tetrachloroethene	2.4	U	ug/kg
34483	Toluene	2.4	U	ug/kg
34509	1,1,1-Trichloroethane	2.4	U	ug/kg
34514	1,1,2-Trichloroethane	2.4	U	ug/kg
34487	Trichloroethene	2.4	U	ug/kg
34495	Vinyl chloride	2.4	U	ug/kg
45510	Xylenes (total)	2.4	U	ug/kg

Sample Location: WHITES MEATS

Field ID: WMSS-4DUP

Collection Date/Time: 9/20/1999 2:50 PM

Matrix: S-SOIL

Lab ID: 408348 **Storet Code** **Component** **Result** **Code** **Units**

Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments by GC/MS. (EPA 8270 mod.)

*** Preparation exceeds holding time ***

Comments:
Please refer to QC report for parameters exceeding limits. Sample re-extracted after expiration. J due to sample preparation exceeding holding time. MDL and PQL for Di-n-butyl phthalate and Butyl benzyl phthalate elevated due to their detection in extraction blank.

34208	Acenaphthene	63	UQ	ug/kg
34203	Acenaphthylene	63	UQ	ug/kg
34223	Anthracene	85	UQ	ug/kg
34529	Benzo(a)anthracene	63	UQ	ug/kg
34250	Benzo(a)pyrene	63	UQ	ug/kg
34233	Benzo(b)fluoranthene	63	UQ	ug/kg
34245	Benzo(k)fluoranthene	63	UQ	ug/kg
78828	Benzo(g,h,i)perylene	63	UQ	ug/kg
34281	Bis(2-chloroethoxy)methane	63	UQ	ug/kg
34276	Bis(2-chloroethyl)ether	63	UQ	ug/kg

34286	Bis(2-chloroisopropyl)ether	63	UQ	ug/kg
39102	Bis(2-ethylhexyl)phthalate	370	IQ	ug/kg
78800	Butyl benzyl phthalate	270	UQ	ug/kg
34639	4-Bromophenyl phenyl ether	63	UQ	ug/kg
78547	4-Chloroaniline	180	UQ	ug/kg
34584	2-Chloronaphthalene	63	UQ	ug/kg
34644	4-Chlorophenyl phenyl ether	63	UQ	ug/kg
78543	Carbazole	63	UQ	ug/kg
34323	Chrysene	63	UQ	ug/kg
73133	m,p-Cresols	63	UQ	ug/kg
78872	o-Cresol	63	UQ	ug/kg
39112	Di-n-butyl phthalate	1600	UQ	ug/kg
34599	Di-n-octyl phthalate	63	UQ	ug/kg
34559	Dibenzo(a,h)anthracene	63	UQ	ug/kg
75647	Dibenzofuran	63	UQ	ug/kg
34539	1,2-Dichlorobenzene	140	UQ	ug/kg
34569	1,3-Dichlorobenzene	140	UQ	ug/kg
34574	1,4-Dichlorobenzene	140	UQ	ug/kg
34634	3,3'-Dichlorobenzidine	3600	UQ	ug/kg
34339	Diethyl phthalate	63	UQ	ug/kg
34344	Dimethyl phthalate	63	UQ	ug/kg
34614	2,4-Dinitrotoluene	63	UQ	ug/kg
34629	2,6-Dinitrotoluene	63	UQ	ug/kg
34379	Fluoranthene	63	UQ	ug/kg
34384	Fluorene	63	UQ	ug/kg
75042	Hexachlorobenzene	63	UQ	ug/kg
34394	Hexachlorobutadiene	140	UQ	ug/kg
78329	Hexachlorocyclopentadiene	63	UQ	ug/kg
34399	Hexachloroethane	140	UQ	ug/kg
34406	Indeno(1,2,3-cd)pyrene	63	UQ	ug/kg
34411	Isophorone	63	UQ	ug/kg
78868	2-Methylnaphthalene	63	UQ	ug/kg
34445	Naphthalene	63	UQ	ug/kg
78299	2-Nitroaniline	63	UQ	ug/kg
78869	3-Nitroaniline	63	UQ	ug/kg
78870	4-Nitroaniline	63	UQ	ug/kg
34450	Nitrobenzene	63	UQ	ug/kg
34431	N-Nitrosodi-n-propylamine	63	UQ	ug/kg
34436	N-Nitrosodiphenylamine	63	UQ	ug/kg
34464	Phenanthrene	63	UQ	ug/kg
34472	Pyrene	63	UQ	ug/kg
75039	1,2,4-Trichlorobenzene	140	UQ	ug/kg
34455	4-Chloro-3-methylphenol	63	UQ	ug/kg
34589	2-Chlorophenol	140	UQ	ug/kg
34604	2,4-Dichlorophenol	63	UQ	ug/kg
79402	2,4-Dimethylphenol	1800	UQ	ug/kg
34619	2,4-Dinitrophenol	360	UQ	ug/kg
34660	2-Methyl-4,6-dinitrophenol	63	UQ	ug/kg
34594	2-Nitrophenol	63	UQ	ug/kg
34649	4-Nitrophenol	63	UQ	ug/kg
78873	Pentachlorophenol	63	UQ	ug/kg
34695	Phenol	63	UQ	ug/kg

	78401	2,4,5-Trichlorophenol	63	UQ	ug/kg
	34624	2,4,6-Trichlorophenol	63	UQ	ug/kg

Lab ID: 408356	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in solid matrices (EPA 335.2 mod.)					
	00721	Cyanide	0.53	U	mg/kg

Lab ID: 408364	Storet Code	Component	Result	Code	Units
Test: Mercury in solid samples using cold vapor AA spectroscopy. (EPA 245.5)					
	71921	Mercury	0.0055	I	mg/kg

Lab ID: 408374	Storet Code	Component	Result	Code	Units
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy. (EPA 6010 mod.)					

Comments:
Please refer to the QC Report for parameters observed to exceed control limits. The Al and Ca recoveries could not be assessed.

01108	Aluminum	3.35E+03		mg/Kg
01003	Arsenic	4.1	U	mg/Kg
01098	Antimony	4.1	U	mg/Kg
01008	Barium	25.7		mg/Kg
01013	Beryllium	0.12	I	mg/Kg
01028	Cadmium	1.2	U	mg/Kg
00917	Calcium	910	J	mg/Kg
01029	Chromium	4.5	I	mg/Kg
01038	Cobalt	0.83	U	mg/Kg
01043	Copper	2.1	U	mg/Kg
01170	Iron	1.15E+03		mg/Kg
01052	Lead	6.2	U	mg/Kg
00924	Magnesium	118		mg/Kg
01053	Manganese	19.6		mg/Kg
01068	Nickel	1.3	I	mg/Kg
00938	Potassium	47	I	mg/Kg
01148	Selenium	7.2	U	mg/Kg
01078	Silver	0.83	U	mg/Kg
00934	Sodium	21	U	mg/Kg
34480	Thallium	10	U	mg/Kg
01088	Vanadium	2.5	I	mg/Kg
01093	Zinc	18	I	mg/Kg

Lab ID: 408384	Storet Code	Component	Result	Code	Units
Test: Organochlorine pesticides in sediment matrices by GC/ECD. (EPA 8080 mod.)					
	39333	Aldrin	0.42	U	ug/kg
	39076	Alpha-BHC	0.42	U	ug/kg
	34257	Beta-BHC	0.42	U	ug/kg
	34262	Delta-BHC	0.74	U	ug/kg
	39343	Gamma-BHC	0.42	U	ug/kg
	39351	Chlordane	5.3	U	ug/kg
	39311	DDD-p,p'	0.74	U	ug/kg

39321	DDE-p,p'	0.74	U	ug/kg
39301	DDT-p,p'	1.1	U	ug/kg
39383	Dieldrin	0.42	U	ug/kg
34364	Endosulfan I	0.42	U	ug/kg
34359	Endosulfan II	0.42	U	ug/kg
34354	Endosulfan Sulfate	0.74	U	ug/kg
39393	Endrin	1.5	U	ug/kg
82633	Endrin Aldehyde	0.74	U	ug/kg
75044	Heptachlor	0.42	U	ug/kg
39423	Heptachlor Epoxide	0.42	U	ug/kg
39481	Methoxychlor	1.8	U	ug/kg
39403	Toxaphene	26	U	ug/kg
39514	PCB-1016	11	U	ug/kg
39491	PCB-1221	7.4	U	ug/kg
39495	PCB-1232	16	U	ug/kg
39499	PCB-1242	11	U	ug/kg
39503	PCB-1248	7.4	U	ug/kg
39507	PCB-1254	7.4	U	ug/kg
39511	PCB-1260	11	U	ug/kg

Lab ID: 408424	Storet Code	Component	Result	Code	Units

Test: Volatile organic pollutants in sediment matrices by GC/MS. (EPA 8260)

Comments:
Please refer to QC report for parameters exceeding limits.

75059	Acetone	11	U	ug/kg
34237	Benzene	2.3	U	ug/kg
34330	Bromodichloromethane	2.3	U	ug/kg
34290	Bromoform	2.3	U	ug/kg
34416	Bromomethane	2.3	U	ug/kg
75078	2-Butanone	11	U	ug/kg
78544	Carbon disulfide	2.3	U	ug/kg
34299	Carbon tetrachloride	2.3	U	ug/kg
34304	Chlorobenzene	2.3	U	ug/kg
34314	Chloroethane	2.3	U	ug/kg
34318	Chloroform	2.3	U	ug/kg
34421	Chloromethane	2.3	U	ug/kg
34309	Dibromochloromethane	2.3	U	ug/kg
34499	1,1-Dichloroethane	2.3	U	ug/kg
34534	1,2-Dichloroethane	2.3	U	ug/kg
34504	1,1-Dichloroethene	2.3	U	ug/kg
78497	cis-1,2-Dichloroethene	2.3	U	ug/kg
34549	trans-1,2-Dichloroethene	2.3	U	ug/kg
34544	1,2-Dichloropropane	2.3	U	ug/kg
34702	cis-1,3-Dichloropropene	2.3	U	ug/kg
34697	trans-1,3-Dichloropropene	2.3	U	ug/kg
34374	Ethylbenzene	2.3	U	ug/kg
75166	2-Hexanone	2.3	U	ug/kg
75169	4-Methyl-2-Pentanone	2.3	U	ug/kg
34426	Methylene chloride	2.3	U	ug/kg
75192	Styrene	2.3	U	ug/kg

recycled paper

34519	1,1,2,2-Tetrachloroethane	2.3	U	ug/kg
34478	Tetrachloroethene	2.3	U	ug/kg
34483	Toluene	2.3	U	ug/kg
34509	1,1,1-Trichloroethane	2.3	U	ug/kg
34514	1,1,2-Trichloroethane	2.3	U	ug/kg
34487	Trichloroethene	2.3	U	ug/kg
34495	Vinyl chloride	2.3	U	ug/kg
45510	Xylenes (total)	2.3	U	ug/kg

Sample Location: WHITES MEATS

Field ID: WMSS-5

Collection Date/Time: 9/20/1999 3:10 PM

Matrix: S-SOIL

Lab ID: 408349 **Storet Code** **Component** **Result** **Code** **Units**

Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments by GC/MS. (EPA 8270 mod.)

*** Preparation exceeds holding time ***

Comments:
Please refer to QC report for parameters exceeding limits. Sample re-extracted after expiration. J due to sample preparation exceeding holding time. MDL and PQL for Di-n-butyl phthalate and Butyl benzyl phthalate elevated due to their detection in extraction blank.

34208	Acenaphthene	64	UQ	ug/kg
34203	Acenaphthylene	100	IQ	ug/kg
34223	Anthracene	85	UQ	ug/kg
34529	Benzo(a)anthracene	1100	JQ	ug/kg
34250	Benzo(a)pyrene	1300	JQ	ug/kg
34233	Benzo(b)fluoranthene	2000	JQ	ug/kg
34245	Benzo(k)fluoranthene	590	JQ	ug/kg
78828	Benzo(g,h,i)perylene	790	JQ	ug/kg
34281	Bis(2-chloroethoxy)methane	64	UQ	ug/kg
34276	Bis(2-chloroethyl)ether	64	UQ	ug/kg
34286	Bis(2-chloroisopropyl)ether	64	UQ	ug/kg
39102	Bis(2-ethylhexyl)phthalate	600	IQ	ug/kg
78800	Butyl benzyl phthalate	270	UQ	ug/kg
34639	4-Bromophenyl phenyl ether	64	UQ	ug/kg
78547	4-Chloroaniline	180	UQ	ug/kg
34584	2-Chloronaphthalene	64	UQ	ug/kg
34644	4-Chlorophenyl phenyl ether	64	UQ	ug/kg
78543	Carbazole	64	UQ	ug/kg
34323	Chrysene	1200	JQ	ug/kg
73133	m,p-Cresols	64	UQ	ug/kg
78872	o-Cresol	64	UQ	ug/kg
39112	Di-n-butyl phthalate	1600	UQ	ug/kg
34599	Di-n-octyl phthalate	64	UQ	ug/kg
34559	Dibenzo(a,h)anthracene	240	IQ	ug/kg
75647	Dibenzofuran	64	UQ	ug/kg
34539	1,2-Dichlorobenzene	140	UQ	ug/kg
34569	1,3-Dichlorobenzene	140	UQ	ug/kg
34574	1,4-Dichlorobenzene	140	UQ	ug/kg

34634	3,3'-Dichlorobenzidine	3600	UQ	ug/kg
34339	Diethyl phthalate	64	UQ	ug/kg
34344	Dimethyl phthalate	64	UQ	ug/kg
34614	2,4-Dinitrotoluene	64	UQ	ug/kg
34629	2,6-Dinitrotoluene	64	UQ	ug/kg
34379	Fluoranthene	830	JQ	ug/kg
34384	Fluorene	64	UQ	ug/kg
75042	Hexachlorobenzene	64	UQ	ug/kg
34394	Hexachlorobutadiene	140	UQ	ug/kg
78329	Hexachlorocyclopentadiene	64	UQ	ug/kg
34399	Hexachloroethane	140	UQ	ug/kg
34406	Indeno(1,2,3-cd)pyrene	760	JQ	ug/kg
34411	Isophorone	64	UQ	ug/kg
78868	2-Methylnaphthalene	64	UQ	ug/kg
34445	Naphthalene	64	UQ	ug/kg
78299	2-Nitroaniline	64	UQ	ug/kg
78869	3-Nitroaniline	64	UQ	ug/kg
78870	4-Nitroaniline	64	UQ	ug/kg
34450	Nitrobenzene	64	UQ	ug/kg
34431	N-Nitrosodi-n-propylamine	64	UQ	ug/kg
34436	N-Nitrosodiphenylamine	64	UQ	ug/kg
34464	Phenanthrene	51	TQ	ug/kg
34472	Pyrene	1100	JQ	ug/kg
75039	1,2,4-Trichlorobenzene	140	UQ	ug/kg
34455	4-Chloro-3-methylphenol	64	UQ	ug/kg
34589	2-Chlorophenol	140	UQ	ug/kg
34604	2,4-Dichlorophenol	64	UQ	ug/kg
79402	2,4-Dimethylphenol	1800	UQ	ug/kg
34619	2,4-Dinitrophenol	360	UQ	ug/kg
34660	2-Methyl-4,6-dinitrophenol	64	UQ	ug/kg
34594	2-Nitrophenol	64	UQ	ug/kg
34649	4-Nitrophenol	64	UQ	ug/kg
78873	Pentachlorophenol	64	UQ	ug/kg
34695	Phenol	64	UQ	ug/kg
78401	2,4,5-Trichlorophenol	64	UQ	ug/kg
34624	2,4,6-Trichlorophenol	64	UQ	ug/kg

Lab ID: 408357	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in solid matrices (EPA 335.2 mod.)					
	00721	Cyanide	0.53	U	mg/kg

Lab ID: 408365	Storet Code	Component	Result	Code	Units
Test: Mercury in solid samples using cold vapor AA spectroscopy. (EPA 245.5)					
	71921	Mercury	0.0053	I	mg/kg

Lab ID: 408375	Storet Code	Component	Result	Code	Units
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy. (EPA 6010 mod.)					

Comments:
Please refer to the QC Report for parameters observed to exceed control limits. The Al and Ca recoveries could not be assessed.

recycled paper

01108	Aluminum	3.23E+03		mg/Kg
01003	Arsenic	3.5	U	mg/Kg
01098	Antimony	3.5	U	mg/Kg
01008	Barium	49.3		mg/Kg
01013	Beryllium	0.12	I	mg/Kg
01028	Cadmium	1.1	U	mg/Kg
00917	Calcium	5.57E+03	J	mg/Kg
01029	Chromium	3.9	I	mg/Kg
01038	Cobalt	0.70	U	mg/Kg
01043	Copper	2.2	I	mg/Kg
01170	Iron	1.14E+03		mg/Kg
01052	Lead	6.0	I	mg/Kg
00924	Magnesium	259		mg/Kg
01053	Manganese	35.3		mg/Kg
01068	Nickel	1.7	I	mg/Kg
00938	Potassium	88	I	mg/Kg
01148	Selenium	6.1	U	mg/Kg
01078	Silver	0.70	U	mg/Kg
00934	Sodium	18	U	mg/Kg
34480	Thallium	8.8	U	mg/Kg
01088	Vanadium	2.4	I	mg/Kg
01093	Zinc	47	I	mg/Kg

Lab ID: 408385	Storet Code	Component	Result	Code	Units
Test: Organochlorine pesticides in sediment matrices by GC/ECD. (EPA 8080 mod.)					
	39333	Aldrin	0.43	U	ug/kg
	39076	Alpha-BHC	0.43	U	ug/kg
	34257	Beta-BHC	0.43	U	ug/kg
	34262	Delta-BHC	0.75	U	ug/kg
	39343	Gamma-BHC	0.43	U	ug/kg
	39351	Chlordane	5.3	U	ug/kg
	39311	DDD-p,p'	5.1		ug/kg
	39321	DDE-p,p'	29		ug/kg
	39301	DDT-p,p'	12		ug/kg
	39383	Dieldrin	0.43	U	ug/kg
	34364	Endosulfan I	0.43	U	ug/kg
	34359	Endosulfan II	0.43	U	ug/kg
	34354	Endosulfan Sulfate	0.75	U	ug/kg
	39393	Endrin	1.5	U	ug/kg
	82633	Endrin Aldehyde	0.75	U	ug/kg
	75044	Heptachlor	0.43	U	ug/kg
	39423	Heptachlor Epoxide	0.43	U	ug/kg
	39481	Methoxychlor	1.8	U	ug/kg
	39403	Toxaphene	27	U	ug/kg
	39514	PCB-1016	11	U	ug/kg
	39491	PCB-1221	7.5	U	ug/kg
	39495	PCB-1232	16	U	ug/kg
	39499	PCB-1242	11	U	ug/kg
	39503	PCB-1248	7.5	U	ug/kg
	39507	PCB-1254	7.5	U	ug/kg

	39511	PCB-1260	11	U	ug/kg

Lab ID: 408425	Storet Code	Component	Result	Code	Units

Test: Volatile organic pollutants in sediment matrices by GC/MS. (EPA 8260)

Comments:
Please refer to QC report for parameters exceeding limits.

75059	Acetone	11	U	ug/kg
34237	Benzene	2.3	U	ug/kg
34330	Bromodichloromethane	2.3	U	ug/kg
34290	Bromoform	2.3	U	ug/kg
34416	Bromomethane	2.3	U	ug/kg
75078	2-Butanone	11	U	ug/kg
78544	Carbon disulfide	2.3	U	ug/kg
34299	Carbon tetrachloride	2.3	U	ug/kg
34304	Chlorobenzene	2.3	U	ug/kg
34314	Chloroethane	2.3	U	ug/kg
34318	Chloroform	2.3	U	ug/kg
34421	Chloromethane	2.3	U	ug/kg
34309	Dibromochloromethane	2.3	U	ug/kg
34499	1,1-Dichloroethane	2.3	U	ug/kg
34534	1,2-Dichloroethane	2.3	U	ug/kg
34504	1,1-Dichloroethene	2.3	U	ug/kg
78497	cis-1,2-Dichloroethene	2.3	U	ug/kg
34549	trans-1,2-Dichloroethene	2.3	U	ug/kg
34544	1,2-Dichloropropane	2.3	U	ug/kg
34702	cis-1,3-Dichloropropene	2.3	U	ug/kg
34697	trans-1,3-Dichloropropene	2.3	U	ug/kg
34374	Ethylbenzene	2.3	U	ug/kg
75166	2-Hexanone	2.3	U	ug/kg
75169	4-Methyl-2-Pentanone	2.3	U	ug/kg
34426	Methylene chloride	2.3	U	ug/kg
75192	Styrene	2.3	U	ug/kg
34519	1,1,2,2-Tetrachloroethane	2.3	U	ug/kg
34478	Tetrachloroethene	2.3	U	ug/kg
34483	Toluene	2.3	U	ug/kg
34509	1,1,1-Trichloroethane	2.3	U	ug/kg
34514	1,1,2-Trichloroethane	2.3	U	ug/kg
34487	Trichloroethene	2.3	U	ug/kg
34495	Vinyl chloride	2.3	U	ug/kg
45510	Xylenes (total)	2.3	U	ug/kg

Sample Location: WHITES MEATS

Field ID: WMSS-6

Collection Date/Time: 9/20/1999 3:20 PM

Matrix: S-SOIL

Lab ID: 408350	Storet Code	Component	Result	Code	Units

Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments by GC/MS. (EPA 8270 mod.)

*** Preparation exceeds holding time ***

Comments:
Please refer to QC report for parameters exceeding limits. Sample re-extracted after expiration. J due to sample preparation exceeding holding time. MDL and PQL for Di-n-butyl phthalate and Butyl benzyl phthalate elevated due to their detection in extraction blank.

34208	Acenaphthene	70	UQ	ug/kg
34203	Acenaphthylene	160	IQ	ug/kg
34223	Anthracene	170	IQ	ug/kg
34529	Benzo(a)anthracene	290	JQ	ug/kg
34250	Benzo(a)pyrene	560	JQ	ug/kg
34233	Benzo(b)fluoranthene	930	JQ	ug/kg
34245	Benzo(k)fluoranthene	260	IQ	ug/kg
78828	Benzo(g,h,i)perylene	480	JQ	ug/kg
34281	Bis(2-chloroethoxy)methane	70	UQ	ug/kg
34276	Bis(2-chloroethyl)ether	70	UQ	ug/kg
34286	Bis(2-chloroisopropyl)ether	70	UQ	ug/kg
39102	Bis(2-ethylhexyl)phthalate	830	IQ	ug/kg
78800	Butyl benzyl phthalate	300	UQ	ug/kg
34639	4-Bromophenyl phenyl ether	70	UQ	ug/kg
78547	4-Chloroaniline	200	UQ	ug/kg
34584	2-Chloronaphthalene	70	UQ	ug/kg
34644	4-Chlorophenyl phenyl ether	70	UQ	ug/kg
78543	Carbazole	70	UQ	ug/kg
34323	Chrysene	340	JQ	ug/kg
73133	m,p-Cresols	70	UQ	ug/kg
78872	o-Cresol	70	UQ	ug/kg
39112	Di-n-butyl phthalate	1700	UQ	ug/kg
34599	Di-n-octyl phthalate	70	UQ	ug/kg
34559	Dibenzo(a,h)anthracene	94	IQ	ug/kg
75647	Dibenzofuran	70	UQ	ug/kg
34539	1,2-Dichlorobenzene	160	UQ	ug/kg
34569	1,3-Dichlorobenzene	160	UQ	ug/kg
34574	1,4-Dichlorobenzene	160	UQ	ug/kg
34634	3,3'-Dichlorobenzidine	4000	UQ	ug/kg
34339	Diethyl phthalate	70	UQ	ug/kg
34344	Dimethyl phthalate	70	UQ	ug/kg
34614	2,4-Dinitrotoluene	70	UQ	ug/kg
34629	2,6-Dinitrotoluene	70	UQ	ug/kg
34379	Fluoranthene	450	JQ	ug/kg
34384	Fluorene	70	UQ	ug/kg
75042	Hexachlorobenzene	70	UQ	ug/kg
34394	Hexachlorobutadiene	160	UQ	ug/kg
78329	Hexachlorocyclopentadiene	70	UQ	ug/kg
34399	Hexachloroethane	160	UQ	ug/kg
34406	Indeno(1,2,3-cd)pyrene	340	JQ	ug/kg
34411	Isophorone	70	UQ	ug/kg
78868	2-Methylnaphthalene	70	UQ	ug/kg
34445	Naphthalene	70	UQ	ug/kg
78299	2-Nitroaniline	70	UQ	ug/kg
78869	3-Nitroaniline	70	UQ	ug/kg

78870	4-Nitroaniline	70	UQ	ug/kg
34450	Nitrobenzene	70	UQ	ug/kg
34431	N-Nitrosodi-n-propylamine	70	UQ	ug/kg
34436	N-Nitrosodiphenylamine	70	UQ	ug/kg
34464	Phenanthrene	220	IQ	ug/kg
34472	Pyrene	480	JQ	ug/kg
75039	1,2,4-Trichlorobenzene	160	UQ	ug/kg
34455	4-Chloro-3-methylphenol	70	UQ	ug/kg
34589	2-Chlorophenol	160	UQ	ug/kg
34604	2,4-Dichlorophenol	70	UQ	ug/kg
79402	2,4-Dimethylphenol	1900	UQ	ug/kg
34619	2,4-Dinitrophenol	400	UQ	ug/kg
34660	2-Methyl-4,6-dinitrophenol	70	UQ	ug/kg
34594	2-Nitrophenol	70	UQ	ug/kg
34649	4-Nitrophenol	70	UQ	ug/kg
78873	Pentachlorophenol	70	UQ	ug/kg
34695	Phenol	70	UQ	ug/kg
78401	2,4,5-Trichlorophenol	70	UQ	ug/kg
34624	2,4,6-Trichlorophenol	70	UQ	ug/kg

Lab ID: 408358	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in solid matrices (EPA 335.2 mod.)					

Comments:
The MDL was elevated due to sample matrix interference.

00721	Cyanide	2.9	U	mg/kg

Lab ID: 408366	Storet Code	Component	Result	Code	Units
Test: Mercury in solid samples using cold vapor AA spectroscopy. (EPA 245.5)					
	71921	Mercury	0.12		mg/kg

Lab ID: 408376	Storet Code	Component	Result	Code	Units
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy. (EPA 6010 mod.)					

Comments:
Please refer to the QC Report for parameters observed to exceed control limits. The Al and Ca recoveries could not be assessed.

01108	Aluminum	4.08E+03		mg/Kg
01003	Arsenic	4.5	U	mg/Kg
01098	Antimony	6.1	I	mg/Kg
01008	Barium	35.0		mg/Kg
01013	Beryllium	0.11	U	mg/Kg
01028	Cadmium	1.6	I	mg/Kg
00917	Calcium	1.81E+05	J	mg/Kg
01029	Chromium	20.7		mg/Kg
01038	Cobalt	2.6	I	mg/Kg
01043	Copper	23.7		mg/Kg
01170	Iron	6.32E+03		mg/Kg
01052	Lead	21	I	mg/Kg

recycled paper

00924	Magnesium	1.59E+03		mg/Kg
01053	Manganese	66.5		mg/Kg
01068	Nickel	14.4		mg/Kg
00938	Potassium	190		mg/Kg
01148	Selenium	7.8	U	mg/Kg
01078	Silver	0.90	U	mg/Kg
00934	Sodium	120		mg/Kg
34480	Thallium	11	U	mg/Kg
01088	Vanadium	20.3		mg/Kg
01093	Zinc	186		mg/Kg

Lab ID: 408386

Storet Code	Component	Result	Code	Units

Test: Organochlorine pesticides in sediment matrices by GC/ECD. (EPA 8080 mod.)

Comments:
Estimated value for PCB-1260 due to calibration check standrard exceeding control limits.

39333	Aldrin	0.47	U	ug/kg
39076	Alpha-BHC	0.47	U	ug/kg
34257	Beta-BHC	0.47	U	ug/kg
34262	Delta-BHC	0.82	U	ug/kg
39343	Gamma-BHC	0.47	U	ug/kg
39351	Chlordane	33	I	ug/kg
39311	DDD-p,p'	6.6		ug/kg
39321	DDE-p,p'	9.0		ug/kg
39301	DDT-p,p'	8.5		ug/kg
39383	Dieldrin	0.47	U	ug/kg
34364	Endosulfan I	0.47	U	ug/kg
34359	Endosulfan II	0.47	U	ug/kg
34354	Endosulfan Sulfate	0.82	U	ug/kg
39393	Endrin	1.6	U	ug/kg
82633	Endrin Aldehyde	0.82	U	ug/kg
75044	Heptachlor	0.47	U	ug/kg
39423	Heptachlor Epoxide	0.47	U	ug/kg
39481	Methoxychlor	2.0	U	ug/kg
39403	Toxaphene	29	U	ug/kg
39514	PCB-1016	12	U	ug/kg
39491	PCB-1221	8.2	U	ug/kg
39495	PCB-1232	17	U	ug/kg
39499	PCB-1242	12	U	ug/kg
39503	PCB-1248	8.2	U	ug/kg
39507	PCB-1254	8.2	U	ug/kg
39511	PCB-1260	55	J	ug/kg

Lab ID: 408426

Storet Code	Component	Result	Code	Units

Test: Volatile organic pollutants in sediment matrices by GC/MS. (EPA 8260)

Comments:
Please refer to QC report for parameters exceeding limits.

75059	Acetone	11	U	ug/kg

34237	Benzene	2.2	U	ug/kg
34330	Bromodichloromethane	2.2	U	ug/kg
34290	Bromoform	2.2	U	ug/kg
34416	Bromomethane	2.2	U	ug/kg
75078	2-Butanone	11	U	ug/kg
78544	Carbon disulfide	2.2	U	ug/kg
34299	Carbon tetrachloride	2.2	U	ug/kg
34304	Chlorobenzene	2.2	U	ug/kg
34314	Chloroethane	2.2	U	ug/kg
34318	Chloroform	2.2	U	ug/kg
34421	Chloromethane	2.2	U	ug/kg
34309	Dibromochloromethane	2.2	U	ug/kg
34499	1,1-Dichloroethane	2.2	U	ug/kg
34534	1,2-Dichloroethane	2.2	U	ug/kg
34504	1,1-Dichloroethene	2.2	U	ug/kg
78497	cis-1,2-Dichloroethene	2.2	U	ug/kg
34549	trans-1,2-Dichloroethene	2.2	U	ug/kg
34544	1,2-Dichloropropane	2.2	U	ug/kg
34702	cis-1,3-Dichloropropene	2.2	U	ug/kg
34697	trans-1,3-Dichloropropene	2.2	U	ug/kg
34374	Ethylbenzene	2.2	U	ug/kg
75166	2-Hexanone	2.2	U	ug/kg
75169	4-Methyl-2-Pentanone	2.2	U	ug/kg
34426	Methylene chloride	2.2	U	ug/kg
75192	Styrene	2.2	U	ug/kg
34519	1,1,2,2-Tetrachloroethane	2.2	U	ug/kg
34478	Tetrachloroethene	2.2	U	ug/kg
34483	Toluene	2.2	U	ug/kg
34509	1,1,1-Trichloroethane	2.2	U	ug/kg
34514	1,1,2-Trichloroethane	2.2	U	ug/kg
34487	Trichloroethene	2.2	U	ug/kg
34495	Vinyl chloride	2.2	U	ug/kg
45510	Xylenes (total)	2.2	U	ug/kg

Sample Location: WHITES MEATS

Field ID: WMSS-7

Collection Date/Time: 9/20/1999 4:35 PM

Matrix: S-SOIL

Lab ID: 408351 **Storet Code** **Component** **Result** **Code** **Units**

Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments by GC/MS. (EPA 8270 mod.)

*** Preparation exceeds holding time ***

Comments:
Please refer to QC report for parameters exceeding limits. Sample re-extracted after expiration. J due to sample preparation exceeding holding time. MDL and PQL for Di-n-butyl phthalate and Butyl benzyl phthalate elevated due to their detection in extraction blank.

34208	Acenaphthene	64	UQ	ug/kg
34203	Acenaphthylene	64	UQ	ug/kg
34223	Anthracene	85	UQ	ug/kg

34529	Benzo(a)anthracene	64	UQ	ug/kg
34250	Benzo(a)pyrene	64	UQ	ug/kg
34233	Benzo(b)fluoranthene	64	UQ	ug/kg
34245	Benzo(k)fluoranthene	64	UQ	ug/kg
78828	Benzo(g,h,i)perylene	64	UQ	ug/kg
34281	Bis(2-chloroethoxy)methane	64	UQ	ug/kg
34276	Bis(2-chloroethyl)ether	64	UQ	ug/kg
34286	Bis(2-chloroisopropyl)ether	64	UQ	ug/kg
39102	Bis(2-ethylhexyl)phthalate	710	IQ	ug/kg
78800	Butyl benzyl phthalate	270	UQ	ug/kg
34639	4-Bromophenyl phenyl ether	64	UQ	ug/kg
78547	4-Chloroaniline	180	UQ	ug/kg
34584	2-Chloronaphthalene	64	UQ	ug/kg
34644	4-Chlorophenyl phenyl ether	64	UQ	ug/kg
78543	Carbazole	64	UQ	ug/kg
34323	Chrysene	64	UQ	ug/kg
73133	m,p-Cresols	64	UQ	ug/kg
78872	o-Cresol	64	UQ	ug/kg
39112	Di-n-butyl phthalate	1600	UQ	ug/kg
34599	Di-n-octyl phthalate	64	UQ	ug/kg
34559	Dibenzo(a,h)anthracene	64	UQ	ug/kg
75647	Dibenzofuran	64	UQ	ug/kg
34539	1,2-Dichlorobenzene	140	UQ	ug/kg
34569	1,3-Dichlorobenzene	140	UQ	ug/kg
34574	1,4-Dichlorobenzene	140	UQ	ug/kg
34634	3,3'-Dichlorobenzidine	3600	UQ	ug/kg
34339	Diethyl phthalate	64	UQ	ug/kg
34344	Dimethyl phthalate	64	UQ	ug/kg
34614	2,4-Dinitrotoluene	64	UQ	ug/kg
34629	2,6-Dinitrotoluene	64	UQ	ug/kg
34379	Fluoranthene	64	UQ	ug/kg
34384	Fluorene	64	UQ	ug/kg
75042	Hexachlorobenzene	64	UQ	ug/kg
34394	Hexachlorobutadiene	140	UQ	ug/kg
78329	Hexachlorocyclopentadiene	64	UQ	ug/kg
34399	Hexachloroethane	140	UQ	ug/kg
34406	Indeno(1,2,3-cd)pyrene	64	UQ	ug/kg
34411	Isophorone	64	UQ	ug/kg
78868	2-Methylnaphthalene	64	UQ	ug/kg
34445	Naphthalene	64	UQ	ug/kg
78299	2-Nitroaniline	64	UQ	ug/kg
78869	3-Nitroaniline	64	UQ	ug/kg
78870	4-Nitroaniline	64	UQ	ug/kg
34450	Nitrobenzene	64	UQ	ug/kg
34431	N-Nitrosodi-n-propylamine	64	UQ	ug/kg
34436	N-Nitrosodiphenylamine	64	UQ	ug/kg
34464	Phenanthrene	64	UQ	ug/kg
34472	Pyrene	64	UQ	ug/kg
75039	1,2,4-Trichlorobenzene	140	UQ	ug/kg
34455	4-Chloro-3-methylphenol	64	UQ	ug/kg
34589	2-Chlorophenol	140	UQ	ug/kg
34604	2,4-Dichlorophenol	64	UQ	ug/kg

79402	2,4-Dimethylphenol	1800	UQ	ug/kg
34619	2,4-Dinitrophenol	360	UQ	ug/kg
34660	2-Methyl-4,6-dinitrophenol	64	UQ	ug/kg
34594	2-Nitrophenol	64	UQ	ug/kg
34649	4-Nitrophenol	64	UQ	ug/kg
78873	Pentachlorophenol	64	UQ	ug/kg
34695	Phenol	64	UQ	ug/kg
78401	2,4,5-Trichlorophenol	64	UQ	ug/kg
34624	2,4,6-Trichlorophenol	64	UQ	ug/kg

Lab ID: 408359

Test: Cyanide, total, in solid matrices (EPA 335.2 mod.)

Storet Code	Component	Result	Code	Units
00721	Cyanide	0.53	U	mg/kg

Lab ID: 408367

Test: Mercury in solid samples using cold vapor AA spectroscopy. (EPA 245.5)

Storet Code	Component	Result	Code	Units
71921	Mercury	0.0085	I	mg/kg

Lab ID: 408377

Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy. (EPA 6010 mod.)

Comments:
Please refer to the QC Report for parameters observed to exceed control limits. The Al and Ca recoveries could not be assessed.

Storet Code	Component	Result	Code	Units
01108	Aluminum	3.77E+03		mg/Kg
01003	Arsenic	3.7	U	mg/Kg
01098	Antimony	3.7	U	mg/Kg
01008	Barium	27.9		mg/Kg
01013	Beryllium	0.14	I	mg/Kg
01028	Cadmium	1.1	U	mg/Kg
00917	Calcium	5.85E+03	J	mg/Kg
01029	Chromium	4.7	I	mg/Kg
01038	Cobalt	0.74	U	mg/Kg
01043	Copper	1.9	U	mg/Kg
01170	Iron	1.20E+03		mg/Kg
01052	Lead	5.6	U	mg/Kg
00924	Magnesium	176		mg/Kg
01053	Manganese	49.0		mg/Kg
01068	Nickel	2.1	I	mg/Kg
00938	Potassium	53	I	mg/Kg
01148	Selenium	6.5	U	mg/Kg
01078	Silver	0.74	U	mg/Kg
00934	Sodium	19	U	mg/Kg
34480	Thallium	9.3	U	mg/Kg
01088	Vanadium	2.6	I	mg/Kg
01093	Zinc	19	I	mg/Kg

Lab ID: 408387

Test: Organochlorine pesticides in sediment matrices by GC/ECD. (EPA 8080 mod.)

Storet Code	Component	Result	Code	Units

recycled paper

39333	Aldrin	0.43	U	ug/kg
39076	Alpha-BHC	0.43	U	ug/kg
34257	Beta-BHC	0.43	U	ug/kg
34262	Delta-BHC	0.75	U	ug/kg
39343	Gamma-BHC	0.43	U	ug/kg
39351	Chlordane	5.3	U	ug/kg
39311	DDD-p,p'	0.75	U	ug/kg
39321	DDE-p,p'	0.75	U	ug/kg
39301	DDT-p,p'	1.1	U	ug/kg
39383	Dieldrin	0.43	U	ug/kg
34364	Endosulfan I	0.43	U	ug/kg
34359	Endosulfan II	0.43	U	ug/kg
34354	Endosulfan Sulfate	0.75	U	ug/kg
39393	Endrin	1.5	U	ug/kg
82633	Endrin Aldehyde	0.75	U	ug/kg
75044	Heptachlor	0.43	U	ug/kg
39423	Heptachlor Epoxide	0.43	U	ug/kg
39481	Methoxychlor	1.8	U	ug/kg
39403	Toxaphene	27	U	ug/kg
39514	PCB-1016	11	U	ug/kg
39491	PCB-1221	7.5	U	ug/kg
39495	PCB-1232	16	U	ug/kg
39499	PCB-1242	11	U	ug/kg
39503	PCB-1248	7.5	U	ug/kg
39507	PCB-1254	7.5	U	ug/kg
39511	PCB-1260	11	U	ug/kg

Lab ID: 408427	Storet Code	Component	Result	Code	Units

Test: Volatile organic pollutants in sediment matrices by GC/MS. (EPA 8260)

Comments:
Please refer to QC report for parameters exceeding limits.

75059	Acetone	12	U	ug/kg
34237	Benzene	2.4	U	ug/kg
34330	Bromodichloromethane	2.4	U	ug/kg
34290	Bromoform	2.4	U	ug/kg
34416	Bromomethane	2.4	U	ug/kg
75078	2-Butanone	12	U	ug/kg
78544	Carbon disulfide	2.4	U	ug/kg
34299	Carbon tetrachloride	2.4	U	ug/kg
34304	Chlorobenzene	2.4	U	ug/kg
34314	Chloroethane	2.4	U	ug/kg
34318	Chloroform	2.4	U	ug/kg
34421	Chloromethane	2.4	U	ug/kg
34309	Dibromochloromethane	2.4	U	ug/kg
34499	1,1-Dichloroethane	2.4	U	ug/kg
34534	1,2-Dichloroethane	2.4	U	ug/kg
34504	1,1-Dichloroethene	2.4	U	ug/kg
78497	cis-1,2-Dichloroethene	2.4	U	ug/kg
34549	trans-1,2-Dichloroethene	2.4	U	ug/kg
34544	1,2-Dichloropropane	2.4	U	ug/kg

34702	cis-1,3-Dichloropropene	2.4	U	ug/kg
34697	trans-1,3-Dichloropropene	2.4	U	ug/kg
34374	Ethylbenzene	2.4	U	ug/kg
75166	2-Hexanone	2.4	U	ug/kg
75169	4-Methyl-2-Pentanone	2.4	U	ug/kg
34426	Methylene chloride	2.4	U	ug/kg
75192	Styrene	2.4	U	ug/kg
34519	1,1,2,2-Tetrachloroethane	2.4	U	ug/kg
34478	Tetrachloroethene	2.4	U	ug/kg
34483	Toluene	2.4	U	ug/kg
34509	1,1,1-Trichloroethane	2.4	U	ug/kg
34514	1,1,2-Trichloroethane	2.4	U	ug/kg
34487	Trichloroethene	2.4	U	ug/kg
34495	Vinyl chloride	2.4	U	ug/kg
45510	Xylenes (total)	2.4	U	ug/kg

Sample Location: WHITES MEATS

Field ID: WMSS-RB1

Collection Date/Time: 9/20/1999 2:00 PM

Matrix: W-EQPMT-BK

Lab ID: 408432 **Storet Code** **Component** **Result** **Code** **Units**

Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water matrices by GC/MS. (EPA 625/ 8270 mod.)

Comments:
Insufficient sample to prepare a duplicate matrix spike.

34205	Acenaphthene	1.1	U	ug/L
34200	Acenaphthylene	1.1	U	ug/L
34220	Anthracene	1.1	U	ug/L
34526	Benzo(a)anthracene	1.1	U	ug/L
34247	Benzo(a)pyrene	1.1	U	ug/L
34230	Benzo(b)fluoranthene	1.1	U	ug/L
34242	Benzo(k)fluoranthene	1.1	U	ug/L
34521	Benzo(g,h,i)perylene	1.1	U	ug/L
34278	Bis(2-chloroethoxy)methane	1.1	U	ug/L
34273	Bis(2-chloroethyl)ether	1.1	U	ug/L
34283	Bis(2-chloroisopropyl)ether	3.2	U	ug/L
34292	Butyl benzyl phthalate	5.3	U	ug/L
77954	4-Chloroaniline	1.1	U	ug/L
34581	2-Chloronaphthalene	1.1	U	ug/L
34641	4-Chlorophenyl phenyl ether	2.1	U	ug/L
77571	Carbazole	1.1	U	ug/L
34320	Chrysene	1.1	U	ug/L
77151	m,p-Cresols	2.1	U	ug/L
77152	o-Cresol	2.1	U	ug/L
39110	Di-n-butyl phthalate	5.3	U	ug/L
34596	Di-n-octyl phthalate	1.1	U	ug/L
34556	Dibenzo(a,h)anthracene	1.1	U	ug/L
81302	Dibenzofuran	1.1	U	ug/L
34536	1,2-Dichlorobenzene	1.1	U	ug/L

recycled paper

34566	1,3-Dichlorobenzene	1.1	U	ug/L
34571	1,4-Dichlorobenzene	1.1	U	ug/L
34631	3,3'-Dichlorobenzidine	42	U	ug/L
34336	Diethyl phthalate	1.1	U	ug/L
34341	Dimethyl phthalate	1.1	U	ug/L
34611	2,4-Dinitrotoluene	1.1	U	ug/L
34626	2,6-Dinitrotoluene	1.1	U	ug/L
34376	Fluoranthene	1.1	U	ug/L
34381	Fluorene	1.1	U	ug/L
39700	Hexachlorobenzene	1.1	U	ug/L
34391	Hexachlorobutadiene	3.2	U	ug/L
34386	Hexachlorocyclopentadiene	3.2	U	ug/L
34396	Hexachloroethane	3.2	U	ug/L
34403	Indeno(1,2,3-cd)pyrene	1.1	U	ug/L
34408	Isophorone	1.1	U	ug/L
77416	2-Methylnaphthalene	1.1	U	ug/L
34696	Naphthalene	1.1	U	ug/L
78142	2-Nitroaniline	1.1	U	ug/L
78300	3-Nitroaniline	1.1	U	ug/L
73605	4-Nitroaniline	1.1	U	ug/L
34447	Nitrobenzene	2.1	U	ug/L
34428	N-Nitrosodi-n-propylamine	2.1	U	ug/L
34433	N-Nitrosodiphenylamine	3.2	U	ug/L
34461	Phenanthrene	1.1	U	ug/L
34469	Pyrene	1.1	U	ug/L
34551	1,2,4-Trichlorobenzene	1.1	U	ug/L
34452	4-Chloro-3-methylphenol	1.1	U	ug/L
34586	2-Chlorophenol	1.1	U	ug/L
34601	2,4-Dichlorophenol	1.1	U	ug/L
34606	2,4-Dimethylphenol	3.2	U	ug/L
34616	2,4-Dinitrophenol	16	U	ug/L
34657	2-Methyl-4,6-dinitrophenol	3.2	U	ug/L
34591	2-Nitrophenol	1.1	U	ug/L
34646	4-Nitrophenol	4.2	U	ug/L
39032	Pentachlorophenol	3.2	U	ug/L
34694	Phenol	1.1	U	ug/L
77687	2,4,5-Trichlorophenol	1.1	U	ug/L
34621	2,4,6-Trichlorophenol	1.1	U	ug/L

Lab ID: 408440	Storet Code	Component	Result	Code	Units
Test: Cyanide, total, in aqueous matrices (EPA 335.2)					
	00720	Cyanide	0.010	U	mg/L

Lab ID: 408448	Storet Code	Component	Result	Code	Units
Test: Mercury in aqueous samples using cold vapor AA spectroscopy. (EPA 245.2)					
	71900	Mercury	0.10	U	ug/L

Lab ID: 408456	Storet Code	Component	Result	Code	Units

Test: Metals, total recoverable, in aqueous samples using trace-ICP emission spectroscopy. (EPA 200.7 mod.)

Comments:

Please refer to the QC Report for parameters observed to exceed control limits. The Ag, Ni, and Zn MDLs were adjusted.

01005	Aluminum_308	50	U	ug/L
01002	Arsenic	4.0	U	ug/L
01097	Antimony	4.0	U	ug/L
01007	Barium	0.70	U	ug/L
01012	Beryllium	0.40	U	ug/L
01027	Cadmium	0.40	U	ug/L
00916	Calcium	0.10	U	mg/L
01034	Chromium	0.70	U	ug/L
01037	Cobalt	0.70	U	ug/L
01042	Copper	2.0	U	ug/L
01045	Iron_259	10	U	ug/L
01051	Lead	2.0	U	ug/L
00927	Magnesium	0.012	U	mg/L
01055	Manganese	0.25	U	ug/L
01067	Nickel	3.0	U	ug/L
00937	Potassium	0.010	U	mg/L
01147	Selenium	3.0	U	ug/L
01077	Silver	2.0	U	ug/L
00929	Sodium_330	0.30	U	mg/L
01059	Thallium	6.0	U	ug/L
01087	Vanadium	0.50	U	ug/L
01092	Zinc	20	U	ug/L

Lab ID: 408457	Storet Code	Component	Result	Code	Units

Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD. (EPA 608 mod.)

Comments:
Please refer to the QC Report for parameters observed to exceed control limits.

39330	Aldrin	0.0095	U	ug/L
39337	Alpha-BHC	0.0095	U	ug/L
39338	Beta-BHC	0.0095	U	ug/L
34259	Delta-BHC	0.0095	U	ug/L
39340	Gamma-BHC	0.0095	U	ug/L
39350	Chlordane	0.19	U	ug/L
39310	DDD-p,p'	0.019	U	ug/L
39320	DDE-p,p'	0.019	U	ug/L
39300	DDT-p,p'	0.029	U	ug/L
39380	Dieldrin	0.019	U	ug/L
34361	Endosulfan I	0.019	U	ug/L
34356	Endosulfan II	0.019	U	ug/L
34351	Endosulfan Sulfate	0.019	U	ug/L
39390	Endrin	0.048	U	ug/L
34366	Endrin Aldehyde	0.029	U	ug/L
39410	Heptachlor	0.0095	U	ug/L
39420	Heptachlor Epoxide	0.019	U	ug/L
39480	Methoxychlor	0.048	U	ug/L
39400	Toxaphene	0.71	U	ug/L

34671	PCB-1016	0.19	U	ug/L
39488	PCB-1221	0.19	U	ug/L
39492	PCB-1232	0.19	U	ug/L
39496	PCB-1242	0.29	U	ug/L
39500	PCB-1248	0.19	U	ug/L
39504	PCB-1254	0.29	U	ug/L
39508	PCB-1260	0.19	U	ug/L

Lab ID: 408459	Storet Code	Component	Result	Code	Units
Test: Volatile organic pollutants in acid preserved water matrices by GC/MS. (EPA 624/8260 mod.)					
	81552	Acetone	10	U	ug/L
	78124	Benzene	0.20	U	ug/L
	32101	Bromodichloromethane	0.20	U	ug/L
	32104	Bromoform	0.50	U	ug/L
	34413	Bromomethane	0.50	U	ug/L
	81595	2-Butanone	10	U	ug/L
	77041	Carbon disulfide	0.50	U	ug/L
	32102	Carbon tetrachloride	0.20	U	ug/L
	34301	Chlorobenzene	0.20	U	ug/L
	34311	Chloroethane	0.50	U	ug/L
	32106	Chloroform	0.20	U	ug/L
	34418	Chloromethane	0.50	U	ug/L
	32105	Dibromochloromethane	0.20	U	ug/L
	34496	1,1-Dichloroethane	0.20	U	ug/L
	34531	1,2-Dichloroethane	0.20	U	ug/L
	34501	1,1-Dichloroethene	0.20	U	ug/L
	77093	cis-1,2-Dichloroethene	0.50	U	ug/L
	34546	trans-1,2-Dichloroethene	0.50	U	ug/L
	34541	1,2-Dichloropropane	0.20	U	ug/L
	34704	cis-1,3-Dichloropropene	0.50	U	ug/L
	34699	trans-1,3-Dichloropropene	0.20	U	ug/L
	34371	Ethylbenzene	0.50	U	ug/L
	77103	2-Hexanone	10	U	ug/L
	78133	4-Methyl-2-Pentanone	10	U	ug/L
	34423	Methylene chloride	1.4	I	ug/L
	77128	Styrene	0.50	U	ug/L
	34516	1,1,2,2-Tetrachloroethane	0.20	U	ug/L
	34475	Tetrachloroethene	0.20	U	ug/L
	78131	Toluene	0.73	I	ug/L
	34506	1,1,1-Trichloroethane	0.20	U	ug/L
	34511	1,1,2-Trichloroethane	0.20	U	ug/L
	39180	Trichloroethene	0.20	U	ug/L
	39175	Vinyl chloride	0.50	U	ug/L
	81551	Xylenes (total)	0.80	I	ug/L

Quality Control Report

TLH-1999-09-21-15

Test	Analyte	LFB %Recovery		MS %Recovery		Precision %RPD	Precision %RSD
S-BNA							
	1,2,4-Trichlorobenzene	58.0	86.9	69.6	76.6	39.9	9.63
	1,4-Dichlorobenzene	47.6	78.0	55.0	66.9	19.6	48.5*
	2,4-Dinitrotoluene	105	95.0	90.0	92.9	3.19	10.0
	2-Chlorophenol	57.5	87.9	75.1	76.0	1.16	41.7*
	4-Chloro-3-methylphenol	69.8	83.0	75.2	76.3	1.40	17.3
	4-Nitrophenol	85.0	90.4	80.1	87.2	6.13	8.39
	Acenaphthene	79.8	96.1	87.2	91.4	18.6	4.71
	N-Nitrosodi-n-propylamine	52.5	75.3	61.5	64.4	35.6	4.58
	Pentachlorophenol	97.1	99.7	62.6	70.6	12.1	2.62
	Phenol	51.6	72.6	61.8	62.3	0.774	33.8
	Pyrene	112	119	109	75.8	36.3*	5.97

TLH-1999-09-21-16

Test	Analyte	LFB %Recovery	MS %Recovery	Precision %RPD	Precision %RSD
S-CN					
	Cyanide		89.3 90.4	1.22	

TLH-1999-09-21-17

Test	Analyte	LFB %Recovery	MS %Recovery	Precision %RPD	Precision %RSD
S-HG-H					
	Mercury	100 97.7	87.8 89.1	1.47	2.43

TLH-1999-09-21-20

Test	Analyte	LFB %Recovery	MS %Recovery	Precision %RPD	Precision %RSD
S-ICP					
	Aluminum	92.6		1.54	
	Antimony	95.7	91.4 92.7	1.51	
	Arsenic	95.8	94.7 96.3	1.64	
	Barium	99.1	100 101	4.46	
	Beryllium	94.7	95.2 96.3	8.93	
	Cadmium	89.9	87.2 87.7	0.584	
	Calcium	95.3		23.9*	
	Chromium	95.0	91.3 94.2	13.6	
	Cobalt	93.7	90.6 91.5	0.956	
	Copper	93.9	92.0 93.8	1.84	
	Iron	94.9	80.4	8.28	
	Lead	94.2	94.9 95.5	0.529	
	Magnesium	92.8	94.0	4.55	
	Manganese	95.9	94.3 98.5	8.80	
	Nickel	96.3	89.4 92.6	6.46	
	Potassium	92.7	88.1 94.0	4.83	
	Selenium	93.9	101 99.6	1.21	
	Silver	95.8	95.3 95.7	0.393	
	Sodium	96.9	98.2 99.5	6.72	
	Thallium	86.2	83.7 86.5	3.30	
	Vanadium	97.7	104 96.7	10.4	
	Zinc	114	95.9 98.2	2.44	

* – Item failed QC

(LFB - Laboratory Fortified Blank; MS - Matrix Spike; RPD - Relative Percent Difference; RSD - Relative Standard Deviation)

TLH-1999-09-21-23

Test	Analyte	LFB %Recovery	MS %Recovery		Precision %RPD	Precision %RSD
S-PSCL-PCB						
	Aldrin	74.6	102	102	0.0060	
	Alpha-BHC	61.9	77.0	77.7	0.845	
	Beta-BHC	90.4	89.9	90.8	1.00	
	DDD-p,p'	81.8	104	104	0.302	
	DDE-p,p'	78.6	98.1	98.5	0.477	
	DDT-p,p'	89.5	136	136	0.560	
	Delta-BHC	73.3	81.3	81.6	0.324	
	Dieldrin	78.2	91.9	93.5	1.68	
	Endosulfan I	80.3	89.7	91.3	1.71	
	Endosulfan II	91.5	100	101	0.347	
	Endosulfan Sulfate	77.8	100	100	0.0810	
	Endrin	124	135	137	1.32	
	Endrin Aldehyde	64.8	80.5	81.0	0.577	
	Gamma-BHC	89.9	78.1	78.2	0.168	
	Heptachlor	91.9	107	109	1.18	
	Heptachlor Epoxide	81.2	107	109	1.83	
	Methoxychlor	103	117	120	2.64	

TLH-1999-09-21-27

Test	Analyte	LFB %Recovery	MS %Recovery		Precision %RPD	Precision %RSD
S-VOC-MS						
	1,1,1-Trichloroethane	94.3	92.8	93.0	0.135	
	1,1,2,2-Tetrachloroethane	114	107	114	5.78	
	1,1,2-Trichloroethane	104	90.6	98.7	8.53	
	1,1-Dichloroethane	122	120	122	1.44	
	1,1-Dichloroethene	111	110	112	2.05	
	1,2-Dichloroethane	108	102	103	1.80	
	1,2-Dichloropropane	105	100	102	2.10	
	Benzene	114	111	112	0.626	
	Bromodichloromethane	105	95.2	98.9	3.81	
	Bromoform	94.5	81.2	87.0	6.89	
	Carbon tetrachloride	91.9	89.7	89.8	0.139	
	Chlorobenzene	104	91.4	97.3	6.31	
	Chloroform	107	102	103	0.709	
	Dibromochloromethane	99.9	85.7	92.1	7.23	
	Ethylbenzene	108	102	105	3.28	
	Methylene chloride	112	108	108	0.0463	
	Tetrachloroethene	96.2	87.0	92.5	6.16	
	Toluene	112	147*	152*	3.38	
	Trichloroethene	106	101	97.1	4.38	
	Xylenes (total)	86.0	80.9	83.6	3.29	
	cis-1,3-Dichloropropene	110	102	97.0	5.20	
	trans-1,2-Dichloroethene	108	107	110	2.45	
	trans-1,3-Dichloropropene	105	89.3	96.6	7.77	

TLH-1999-09-21-31

Test	Analyte	LFB %Recovery		MS %Recovery	Precision %RPD	Precision %RSD
W-BNA						
	1,2,4-Trichlorobenzene	74.0	83.5	77.9	12.0	

* – Item failed QC

recycled paper ecology and environment

(LFB - Laboratory Fortified Blank; MS - Matrix Spike; RPD - Relative Percent Difference; RSD - Relative Standard Deviation)

1,4-Dichlorobenzene	73.0	82.1	80.0		11.7
2,4-Dinitrotoluene	100	98.1	98.2		2.10
2-Chlorophenol	104	94.1	92.2		9.69
4-Chloro-3-methylphenol	103	98.8	91.5		3.85
4-Nitrophenol	39.4	40.6	43.1		2.95
Acenaphthene	101	93.2	93.1		7.95
N-Nitrosodi-n-propylamine	106	112	104		5.72
Pentachlorophenol	93.9	99.2	98.1		5.57
Phenol	46.0	46.8	42.8		1.68
Pyrene	113	114	112		0.778

TLH-1999-09-21-33

Test	Analyte	LFB %Recovery	MS %Recovery		Precision %RPD	Precision %RSD
W-CN						
	Cyanide	92.2	102	105	3.19	

TLH-1999-09-21-34

Test	Analyte	LFB %Recovery	MS %Recovery		Precision %RPD	Precision %RSD
W-HG-H						
	Mercury	91.3	81.0	83.6	3.21	

TLH-1999-09-21-36

Test	Analyte	LFB %Recovery	MS %Recovery		Precision %RPD	Precision %RSD
W-ICP-TR						
	Aluminum_308	99.8	109	109	0.0203	
	Antimony	99.5	101	103	1.46	
	Arsenic	97.3	99.0	99.4	0.373	
	Barium	101	102	102	2.69	
	Beryllium	98.4	95.9	96.1	0.144	
	Cadmium	97.9	98.7	98.8	0.153	
	Calcium	106	93.6		4.11	
	Chromium	97.0	96.9	97.2	0.882	
	Cobalt	98.9	101	101	0.259	
	Copper	99.1	104	104	0.229	
	Iron_259				1.42	
	Lead	99.0	102	102	0.135	
	Magnesium	106	94.2		1.00	
	Manganese	98.5	98.8	98.9	1.35	
	Nickel	99.2	103	104	2.97	
	Potassium	106	95.5		1.35	
	Selenium	97.1	98.8	98.9	0.0740	
	Silver	96.4	99.0	99.6	0.641	
	Sodium_330	108	91.7		2.13	
	Thallium	99.6	100	101	0.582	
	Vanadium	98.2	98.1	98.1	2.38	
	Zinc	130*	109	120*	10.1	

TLH-1999-09-21-37

Test	Analyte	LFB %Recovery		MS %Recovery	Precision %RPD	Precision %RSD
W-PEST-CL						
	Aldrin	103	104	107	0.434	
	Alpha-BHC	104	106	104	2.31	
	Beta-BHC	112	115	117	2.00	
	DDD-p,p'	120	122	117	1.50	

* – Item failed QC

(LFB - Laboratory Fortified Blank; MS - Matrix Spike; RPD - Relative Percent Difference; RSD - Relative Standard Deviation)

DDE-p,p'	106	106	105	0.299
DDT-p,p'	115	120	122	4.58
Delta-BHC	109	110	113	1.44
Dieldrin	104	104	105	0.163
Endosulfan I	107	107	106	0.708
Endosulfan II	108	108	107	0.604
Endosulfan Sulfate	109	109	110	0.154
Endrin	110	112	123	1.65
Endrin Aldehyde	109	109	108	0.164
Gamma-BHC	106	108	107	1.79
Heptachlor	117	122	124	4.00
Heptachlor Epoxide	109	110	109	0.727
Methoxychlor	143	148	159*	3.36

TLH-1999-09-21-38

Test	Analyte	LFB %Recovery		MS %Recovery		Precision %RPD	Precision %RSD
W-VOC-MS-A							
	1,1,1-Trichloroethane	90.6	95.2	112	118	4.95	5.40
	1,1,2,2-Tetrachloroethane	123	125	120	123	0.968	2.64
	1,1,2-Trichloroethane	111	114	110	114	2.84	3.94
	1,1-Dichloroethane	123	126	123	127	2.41	2.72
	1,1-Dichloroethene	113	95.0	125	129	17.7	2.83
	1,2-Dichloroethane	115	119	115	118	1.89	3.43
	1,2-Dichloropropane	112	115	112	117	2.81	4.53
	Benzene	115	120	110	114	4.11	4.77
	Bromodichloromethane	106	108	106	115	1.69	7.77
	Bromoform	92.0		100	87.0	0.0	13.9
	Carbon tetrachloride	86.6	90.6	108	116	4.51	6.98
	Chlorobenzene	107	107	110	116	0.186	5.47
	Chloroform	110	113	116	120	3.23	3.74
	Dibromochloromethane	101	99.2	105	94.4	1.40	10.4
	Ethylbenzene	112	115	110	119	2.29	8.20
	Methylene chloride	123	124	115	117	0.647	2.07
	Tetrachloroethene	101	96.0	111	116	4.57	4.68
	Toluene	119	124	113	119	4.44	5.34
	Trichloroethene	110	113	112	117	2.87	4.36
	Xylenes (total)	77.1	80.5	103	120	15.4	4.23
	cis-1,3-Dichloropropene	108	113	113	120	4.16	5.85
	trans-1,2-Dichloroethene	119	123	115	121	3.31	5.25
	trans-1,3-Dichloropropene	101	103	103	115	10.8	2.35

TLH-1999-09-22-14

Test	Analyte	LFB %Recovery		MS %Recovery	Precision %RPD	Precision %RSD
W-BNA						
	1,2,4-Trichlorobenzene	74.0	83.5	77.9	12.0	
	1,4-Dichlorobenzene	73.0	82.1	80.0	11.7	
	2,4-Dinitrotoluene	100	98.1	98.2	2.10	
	2-Chlorophenol	104	94.1	92.2	9.69	
	4-Chloro-3-methylphenol	103	98.8	91.5	3.85	
	4-Nitrophenol	39.4	40.6	43.1	2.95	
	Acenaphthene	101	93.2	93.1	7.95	
	N-Nitrosodi-n-propylamine	106	112	104	5.72	
	Pentachlorophenol	93.9	99.2	98.1	5.57	

* – Item failed QC

recycled paper

(LFB - Laboratory Fortified Blank; MS - Matrix Spike; RPD - Relative Percent Difference; RSD - Relative Standard Deviation)

	Phenol	46.0	46.8	42.8		1.68
	Pyrene	113	114	112		0.778

TLH-1999-09-22-15

Test	Analyte	LFB %Recovery	MS %Recovery		Precision %RPD	Precision %RSD
W-CN						
	Cyanide	92.2	102	105	3.19	

TLH-1999-09-22-17

Test	Analyte	LFB %Recovery	MS %Recovery		Precision %RPD	Precision %RSD
W-HG-H						
	Mercury	91.3	81.0	83.6	3.21	

TLH-1999-09-22-18

Test	Analyte	LFB %Recovery	MS %Recovery		Precision %RPD	Precision %RSD
W-ICP-TR						
	Aluminum_308	99.8	109	109	0.0203	
	Antimony	99.5	101	103	1.46	
	Arsenic	97.3	99.0	99.4	0.373	
	Barium	101	102	102	2.69	
	Beryllium	98.4	95.9	96.1	0.144	
	Cadmium	97.9	98.7	98.8	0.153	
	Calcium	106	93.6		4.11	
	Chromium	97.0	96.9	97.2	0.882	
	Cobalt	98.9	101	101	0.259	
	Copper	99.1	104	104	0.229	
	Iron_259				1.42	
	Lead	99.0	102	102	0.135	
	Magnesium	106	94.2		1.00	
	Manganese	98.5	98.8	98.9	1.35	
	Nickel	99.2	103	104	2.97	
	Potassium	106	95.5		1.35	
	Selenium	97.1	98.8	98.9	0.0740	
	Silver	96.4	99.0	99.6	0.641	
	Sodium_330	108	91.7		2.13	
	Thallium	99.6	100	101	0.582	
	Vanadium	98.2	98.1	98.1	2.38	
	Zinc	130*	109	120*	10.1	

TLH-1999-09-22-19

Test	Analyte	LFB %Recovery	MS %Recovery		Precision %RPD	Precision %RSD
W-PEST-CL						
	Aldrin	91.2	82.4	83.7	1.60	
	Alpha-BHC	92.8	84.2	85.5	1.52	
	Beta-BHC	115	105	106	1.68	
	DDD-p,p'	114	108	96.1	11.5	
	DDE-p,p'	94.9	85.9	87.2	1.55	
	DDT-p,p'	112	102	103	1.23	
	Delta-BHC	92.8	84.7	85.2	0.569	
	Dieldrin	89.5	80.1	84.9	5.80	
	Endosulfan I	97.4	88.8	89.4	0.674	
	Endosulfan II	98.6	89.1	92.2	3.47	
	Endosulfan Sulfate	100	90.3	92.5	2.39	
	Endrin	114	105	109	3.73	

* – Item failed QC

(LFB - Laboratory Fortified Blank; MS - Matrix Spike; RPD - Relative Percent Difference; RSD - Relative Standard Deviation)

Endrin Aldehyde	99.3		91.0	92.0	1.02
Gamma-BHC	93.7		85.3	86.3	1.15
Heptachlor	100		92.3	93.1	0.886
Heptachlor Epoxide	91.8		89.7	95.6	6.37
Methoxychlor	109		101	124	20.5

TLH-1999-09-22-20

Test	Analyte	LFB %Recovery		MS %Recovery		Precision %RPD	Precision %RSD
W-VOC-MS-A							
	1,1,1-Trichloroethane	103	108	112	113	0.408	5.17
	1,1,2,2-Tetrachloroethane	88.2	90.9	85.1	90.8	3.08	6.43
	1,1,2-Trichloroethane	93.7	97.6	96.5	99.2	2.78	4.04
	1,1-Dichloroethane	101	103	103	106	1.45	2.87
	1,1-Dichloroethene	104	106	111	112	1.02	1.62
	1,2-Dichloroethane	95.2	97.1	96.1	98.7	1.98	2.73
	1,2-Dichloropropane	89.2	96.0	101	107	5.55	7.39
	Benzene	91.2	93.2	89.3	89.4	0.0224	2.23
	Bromodichloromethane	102	96.1	101	95.2	5.85	6.35
	Bromoform	93.8	96.1	93.1	97.3	2.36	4.35
	Carbon tetrachloride	104	107	114	115	0.960	2.90
	Chlorobenzene	93.8	98.6	104	99.9	4.41	4.95
	Chloroform	100	98.0	98.2	98.9	0.690	2.40
	Dibromochloromethane	92.4	98.6	91.8	96.3	4.74	6.54
	Ethylbenzene	107	97.5	103	106	2.89	9.22
	Methylene chloride	101	102	100	102	0.805	1.80
	Tetrachloroethene	102	92.8	106	110	3.71	9.11
	Toluene	91.8	99.2	96.8	99.0	2.31	7.79
	Trichloroethene	103	93.3	103	105	1.31	9.75
	Xylenes (total)	103	98.6	103	103	0.407	4.48
	cis-1,3-Dichloropropene	100	107	104	106	1.53	6.97
	trans-1,2-Dichloroethene	95.2	97.6	101	101	0.634	2.53
	trans-1,3-Dichloropropene	105	109	109	112	2.92	4.10

Appendix 1: Preparation and Analysis Log

Received Date	Prep Date/Time	Prepared by	Analysis Date/Time	Analyzed by	Associated Samples
Test: Cyanide, total, in aqueous matrices					
9/21/1999	9/23/1999 11:00 AM	Christa Kinyon	9/27/1999 3:11 PM	Virginia Leavell	408440, 408715, 408716, 408717, 408718, 408719, 408720, 408721, 408722
9/22/1999	9/23/1999 11:00 AM	Christa Kinyon	9/27/1999 3:11 PM	Virginia Leavell	408440, 408715, 408716, 408717, 408718, 408719, 408720, 408721, 408722
Test: Cyanide, total, in solid matrices					
9/21/1999	9/24/1999 2:00 PM	Christa Kinyon	9/27/1999 3:11 PM	Virginia Leavell	408352, 408353, 408354, 408355, 408356, 408357, 408358, 408359
Test: Mercury in aqueous samples using cold vapor AA spectroscopy.					
9/21/1999	9/23/1999 1:30 PM	Vijayalakshmi Reddy	9/24/1999 12:13 PM	Martin Acosta	408448
9/22/1999	9/23/1999 1:30 PM	Vijayalakshmi Reddy	9/24/1999 11:56 AM	Martin Acosta	408724
9/22/1999	9/23/1999 1:30 PM	Vijayalakshmi Reddy	9/24/1999 12:36 PM	Martin Acosta	408723
9/22/1999	9/23/1999 1:30 PM	Vijayalakshmi Reddy	9/24/1999 12:38 PM	Martin Acosta	408725
9/22/1999	9/23/1999 1:30 PM	Vijayalakshmi Reddy	9/24/1999 12:46 PM	Martin Acosta	408726
9/22/1999	9/23/1999 1:30 PM	Vijayalakshmi Reddy	9/24/1999 12:48 PM	Martin Acosta	408727
9/22/1999	9/23/1999 1:30 PM	Vijayalakshmi Reddy	9/24/1999 12:51 PM	Martin Acosta	408728
9/22/1999	9/23/1999 1:30 PM	Vijayalakshmi Reddy	9/24/1999 12:53 PM	Martin Acosta	408729
9/22/1999	9/23/1999 1:30 PM	Vijayalakshmi Reddy	9/24/1999 12:55 PM	Martin Acosta	408730
Test: Mercury in solid samples using cold vapor AA spectroscopy.					
9/21/1999	9/22/1999 2:00 PM	Vijayalakshmi Reddy	9/23/1999 10:52 AM	Martin Acosta	408360
9/21/1999	9/22/1999 2:00 PM	Vijayalakshmi Reddy	9/23/1999 10:59 AM	Martin Acosta	408361
9/21/1999	9/22/1999 2:00 PM	Vijayalakshmi Reddy	9/23/1999 11:07 AM	Martin Acosta	408362
9/21/1999	9/22/1999 2:00 PM	Vijayalakshmi Reddy	9/23/1999 11:09 AM	Martin Acosta	408363
9/21/1999	9/22/1999 2:00 PM	Vijayalakshmi Reddy	9/23/1999 11:12 AM	Martin Acosta	408364
9/21/1999	9/22/1999 2:00 PM	Vijayalakshmi Reddy	9/23/1999 11:14 AM	Martin Acosta	408365
9/21/1999	9/22/1999 2:00 PM	Vijayalakshmi Reddy	9/23/1999 11:17 AM	Martin Acosta	408366
9/21/1999	9/22/1999 2:00 PM	Vijayalakshmi Reddy	9/23/1999 11:22 AM	Martin Acosta	408367
Test: Metals, total recoverable, in aqueous samples using trace-ICP emission spectroscopy.					
9/21/1999	9/30/1999 9:15 AM	Mary Meisiek	10/4/1999 7:45 PM	Brett Organ	408456
9/21/1999	9/30/1999 9:15 AM	Mary Meisiek	10/6/1999 6:48 PM	Brett Organ	408456
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/4/1999 6:59 PM	Brett Organ	408732
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/4/1999 7:59 PM	Brett Organ	408738
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/4/1999 8:19 PM	Brett Organ	408731
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/4/1999 9:45 PM	Brett Organ	408733
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/4/1999 9:53 PM	Brett Organ	408734
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/4/1999 10:00 PM	Brett Organ	408735
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/4/1999 10:14 PM	Brett Organ	408736
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/4/1999 10:22 PM	Brett Organ	408737
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/6/1999 7:02 PM	Brett Organ	408738
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/6/1999 7:56 PM	Brett Organ	408731
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/6/1999 8:10 PM	Brett Organ	408731
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/6/1999 8:42 PM	Brett Organ	408732
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/6/1999 8:49 PM	Brett Organ	408733

Received Date	Prep Date/Time	Prepared by	Analysis Date/Time	Analyzed by	Associated Samples
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/6/1999 8:56 PM	Brett Organ	408734
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/6/1999 9:42 PM	Brett Organ	408735
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/6/1999 9:49 PM	Brett Organ	408736
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/6/1999 9:56 PM	Brett Organ	408737
9/22/1999	9/30/1999 9:15 AM	Mary Meisiek	10/8/1999 2:24 PM	Brett Organ	408737
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy.					
9/21/1999	9/22/1999 4:00 PM	Markeista Brown	9/24/1999 6:45 PM	David M. Headly	408370
9/21/1999	9/22/1999 4:00 PM	Markeista Brown	9/24/1999 6:48 PM	David M. Headly	408371
9/21/1999	9/22/1999 4:00 PM	Markeista Brown	9/24/1999 6:52 PM	David M. Headly	408372
9/21/1999	9/22/1999 4:00 PM	Markeista Brown	9/24/1999 6:56 PM	David M. Headly	408373
9/21/1999	9/22/1999 4:00 PM	Markeista Brown	9/24/1999 6:59 PM	David M. Headly	408374
9/21/1999	9/22/1999 4:00 PM	Markeista Brown	9/24/1999 7:13 PM	David M. Headly	408375
9/21/1999	9/22/1999 4:00 PM	Markeista Brown	9/24/1999 7:17 PM	David M. Headly	408376
9/21/1999	9/22/1999 4:00 PM	Markeista Brown	9/24/1999 7:20 PM	David M. Headly	408377
9/21/1999	9/22/1999 4:00 PM	Markeista Brown	9/27/1999 2:15 PM	David M. Headly	408376
Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD.					
9/21/1999	9/21/1999 2:30 PM	Jason Porter	9/28/1999 5:05 PM	Susanne Smith	408457
9/22/1999	9/23/1999 1:30 PM	Jason Porter	10/1/1999 6:05 AM	Susanne Smith	408739
9/22/1999	9/23/1999 1:30 PM	Jason Porter	10/1/1999 6:46 AM	Susanne Smith	408740
9/22/1999	9/23/1999 1:30 PM	Jason Porter	10/1/1999 7:28 AM	Susanne Smith	408741
9/22/1999	9/23/1999 1:30 PM	Jason Porter	10/1/1999 8:09 AM	Susanne Smith	408742
9/22/1999	9/23/1999 1:30 PM	Jason Porter	10/1/1999 8:51 AM	Susanne Smith	408743
9/22/1999	9/23/1999 1:30 PM	Jason Porter	10/1/1999 9:32 AM	Susanne Smith	408744
9/22/1999	9/23/1999 1:30 PM	Jason Porter	10/1/1999 1:41 PM	Susanne Smith	408745
9/22/1999	9/23/1999 1:30 PM	Jason Porter	10/1/1999 2:22 PM	Susanne Smith	408746
Test: Organochlorine pesticides in sediment matrices by GC/ECD.					
9/21/1999	9/29/1999 9:00 AM	Rasheda Ghaffari	10/8/1999 5:13 PM	Joel Bonenfant	408380
9/21/1999	9/29/1999 9:00 AM	Rasheda Ghaffari	10/8/1999 5:55 PM	Joel Bonenfant	408381
9/21/1999	9/29/1999 9:00 AM	Rasheda Ghaffari	10/8/1999 6:37 PM	Joel Bonenfant	408382
9/21/1999	9/29/1999 9:00 AM	Rasheda Ghaffari	10/8/1999 7:19 PM	Joel Bonenfant	408383
9/21/1999	9/29/1999 9:00 AM	Rasheda Ghaffari	10/8/1999 8:01 PM	Joel Bonenfant	408384
9/21/1999	9/29/1999 9:00 AM	Rasheda Ghaffari	10/8/1999 8:42 PM	Joel Bonenfant	408385
9/21/1999	9/29/1999 9:00 AM	Rasheda Ghaffari	10/8/1999 9:25 PM	Joel Bonenfant	408386
9/21/1999	9/29/1999 9:00 AM	Rasheda Ghaffari	10/8/1999 10:06 PM	Joel Bonenfant	408387
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments by GC/MS.					
9/21/1999	10/15/1999 12:30 PM	Jason Porter	10/19/1999 10:27 PM	Joel Nagle	408347
9/21/1999	10/15/1999 12:30 PM	Jason Porter	10/19/1999 11:12 PM	Joel Nagle	408348
9/21/1999	10/15/1999 12:30 PM	Jason Porter	10/19/1999 11:58 PM	Joel Nagle	408351
9/21/1999	10/15/1999 12:30 PM	Jason Porter	10/20/1999 12:43 AM	Joel Nagle	408344
9/21/1999	10/15/1999 12:30 PM	Jason Porter	10/20/1999 1:28 AM	Joel Nagle	408345
9/21/1999	10/15/1999 12:30 PM	Jason Porter	10/20/1999 2:14 AM	Joel Nagle	408349
9/21/1999	10/15/1999 12:30 PM	Jason Porter	10/20/1999 5:21 PM	Joel Nagle	408346
9/21/1999	10/15/1999 12:30 PM	Jason Porter	10/20/1999 6:17 PM	Joel Nagle	408350
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water matrices by GC/MS.					
9/21/1999	9/24/1999 8:00 AM	Hoor Shaik	9/30/1999 7:25 AM	Joel Nagle	408432
9/22/1999	9/24/1999 8:00 AM	Hoor Shaik	9/30/1999 1:22 AM	Joel Nagle	408682

Received Date	Prep Date/Time	Prepared by	Analysis Date/Time	Analyzed by	Associated Samples
9/22/1999	9/24/1999 8:00 AM	Hoor Shaik	9/30/1999 2:07 AM	Joel Nagle	408683
9/22/1999	9/24/1999 8:00 AM	Hoor Shaik	9/30/1999 2:52 AM	Joel Nagle	408684
9/22/1999	9/24/1999 8:00 AM	Hoor Shaik	9/30/1999 3:38 AM	Joel Nagle	408685
9/22/1999	9/24/1999 8:00 AM	Hoor Shaik	9/30/1999 4:23 AM	Joel Nagle	408686
9/22/1999	9/24/1999 8:00 AM	Hoor Shaik	9/30/1999 5:09 AM	Joel Nagle	408687
9/22/1999	9/24/1999 8:00 AM	Hoor Shaik	9/30/1999 5:54 AM	Joel Nagle	408688
9/22/1999	9/24/1999 8:00 AM	Hoor Shaik	9/30/1999 6:39 AM	Joel Nagle	408689
Test: Volatile organic pollutants in acid preserved water matrices by GC/MS.					
9/21/1999			9/22/1999 8:16 PM	Myriam Gomez	408458
9/21/1999			9/22/1999 10:45 PM	Myriam Gomez	408459
9/22/1999			9/27/1999 5:44 PM	Myriam Gomez	408750
9/22/1999			9/27/1999 6:33 PM	Myriam Gomez	408747
9/22/1999			9/27/1999 7:21 PM	Myriam Gomez	408755
9/22/1999			9/27/1999 8:10 PM	Myriam Gomez	408748
9/22/1999			9/27/1999 8:58 PM	Myriam Gomez	408749
9/22/1999			9/27/1999 9:47 PM	Myriam Gomez	408751
9/22/1999			9/27/1999 10:35 PM	Myriam Gomez	408752
9/22/1999			9/27/1999 11:24 PM	Myriam Gomez	408753
9/22/1999			9/28/1999 12:13 AM	Myriam Gomez	408754
Test: Volatile organic pollutants in sediment matrices by GC/MS.					
9/21/1999			9/28/1999 7:28 AM	Farzad Booeshaghi	408421
9/21/1999			9/28/1999 10:45 AM	Farzad Booeshaghi	408420
9/21/1999			9/28/1999 11:34 AM	Farzad Booeshaghi	408422
9/21/1999			9/28/1999 12:24 PM	Farzad Booeshaghi	408423
9/21/1999			9/28/1999 1:13 PM	Farzad Booeshaghi	408424
9/21/1999			9/28/1999 2:03 PM	Farzad Booeshaghi	408425
9/21/1999			9/28/1999 2:53 PM	Farzad Booeshaghi	408426
9/21/1999			9/28/1999 3:43 PM	Farzad Booeshaghi	408427

Appendix 2: Authorization Log

Job / Sample	Authorized by	Authorized date
TLH-1999-09-21-15	Liang Lin	10/27/1999
408344	Tong Xuan	10/27/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments	Tong Xuan	10/27/1999
408345	Tong Xuan	10/27/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments	Tong Xuan	10/27/1999
408346	Tong Xuan	10/27/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments	Tong Xuan	10/27/1999
408347	Tong Xuan	10/27/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments	Tong Xuan	10/27/1999
408348	Tong Xuan	10/27/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments	Tong Xuan	10/27/1999
408349	Tong Xuan	10/27/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments	Tong Xuan	10/27/1999
408350	Tong Xuan	10/27/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments	Tong Xuan	10/27/1999
408351	Tong Xuan	10/27/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in soil/sediments	Tong Xuan	10/27/1999
TLH-1999-09-21-16	Julio Arrecis	10/1/1999
408352	Julio Arrecis	10/1/1999
Test: Cyanide, total, in solid matrices	Matthew D. Curran	9/29/1999
408353	Julio Arrecis	10/1/1999
Test: Cyanide, total, in solid matrices	Matthew D. Curran	9/29/1999
408354	Julio Arrecis	10/1/1999
Test: Cyanide, total, in solid matrices	Matthew D. Curran	9/29/1999
408355	Julio Arrecis	10/1/1999
Test: Cyanide, total, in solid matrices	Matthew D. Curran	9/29/1999
408356	Julio Arrecis	10/1/1999
Test: Cyanide, total, in solid matrices	Matthew D. Curran	9/29/1999
408357	Julio Arrecis	10/1/1999
Test: Cyanide, total, in solid matrices	Matthew D. Curran	9/29/1999
408358	Julio Arrecis	10/1/1999
Test: Cyanide, total, in solid matrices	Matthew D. Curran	9/29/1999
408359	Julio Arrecis	10/1/1999
Test: Cyanide, total, in solid matrices	Matthew D. Curran	9/29/1999
TLH-1999-09-21-17	Thekkekalathil	9/27/1999
408360	Thekkekalathil	9/27/1999
Test: Mercury in solid samples using cold vapor AA spectroscopy.	Thekkekalathil	9/23/1999
408361	Thekkekalathil	9/27/1999
Test: Mercury in solid samples using cold vapor AA spectroscopy.	Thekkekalathil	9/23/1999

Job	Sample	Authorized by	Authorized date
	408362	Thekkekalathil	9/27/1999
Test: Mercury in solid samples using cold vapor AA spectroscopy.			
	408363	Thekkekalathil	9/23/1999
Test: Mercury in solid samples using cold vapor AA spectroscopy.			
	408364	Thekkekalathil	9/27/1999
Test: Mercury in solid samples using cold vapor AA spectroscopy.			
	408365	Thekkekalathil	9/23/1999
Test: Mercury in solid samples using cold vapor AA spectroscopy.			
	408366	Thekkekalathil	9/27/1999
Test: Mercury in solid samples using cold vapor AA spectroscopy.			
	408367	Thekkekalathil	9/23/1999
Test: Mercury in solid samples using cold vapor AA spectroscopy.			
TLH-1999-09-21-20		Chris Morgan	10/1/1999
	408370	Chris Morgan	10/1/1999
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy.			
	408371	Chris Morgan	10/1/1999
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy.			
	408372	Chris Morgan	10/1/1999
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy.			
	408373	Chris Morgan	10/1/1999
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy.			
	408374	Chris Morgan	10/1/1999
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy.			
	408375	Chris Morgan	10/1/1999
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy.			
	408376	Chris Morgan	10/1/1999
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy.			
	408377	Chris Morgan	10/1/1999
Test: Metals, total recoverable, in solid samples using ICP emission spectroscopy.			
TLH-1999-09-21-23		Liang Lin	10/22/1999
	408380	Marek Topolski	10/21/1999
Test: Organochlorine pesticides in sediment matrices by GC/ECD.			
	408381	Marek Topolski	10/21/1999
Test: Organochlorine pesticides in sediment matrices by GC/ECD.			
	408382	Marek Topolski	10/21/1999
Test: Organochlorine pesticides in sediment matrices by GC/ECD.			
	408383	Marek Topolski	10/21/1999
Test: Organochlorine pesticides in sediment matrices by GC/ECD.			
	408384	Marek Topolski	10/21/1999
Test: Organochlorine pesticides in sediment matrices by GC/ECD.			
	408385	Marek Topolski	10/21/1999

recycled paper

Job / Sample	Authorized by	Authorized date
Test: Organochlorine pesticides in sediment matrices by GC/ECD.	Marek Topolski	10/21/1999
408386		
Test: Organochlorine pesticides in sediment matrices by GC/ECD.	Marek Topolski	10/21/1999
408387		
Test: Organochlorine pesticides in sediment matrices by GC/ECD.	Marek Topolski	10/21/1999
TLH-1999-09-21-27		
408420	Liang Lin	10/13/1999
Test: Volatile organic pollutants in sediment matrices by GC/MS.	Kerry Tate	10/13/1999
408421		
Test: Volatile organic pollutants in sediment matrices by GC/MS.	Kerry Tate	10/13/1999
408422		
Test: Volatile organic pollutants in sediment matrices by GC/MS.	Kerry Tate	10/13/1999
408423		
Test: Volatile organic pollutants in sediment matrices by GC/MS.	Kerry Tate	10/13/1999
408424		
Test: Volatile organic pollutants in sediment matrices by GC/MS.	Kerry Tate	10/13/1999
408425		
Test: Volatile organic pollutants in sediment matrices by GC/MS.	Kerry Tate	10/13/1999
408426		
Test: Volatile organic pollutants in sediment matrices by GC/MS.	Kerry Tate	10/13/1999
408427		
Test: Volatile organic pollutants in sediment matrices by GC/MS.	Kerry Tate	10/13/1999
TLH-1999-09-21-31		
408432	Liang Lin	10/5/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water	Tong Xuan	10/1/1999
TLH-1999-09-21-33		
408440	Tong Xuan	10/1/1999
Test: Cyanide, total, in aqueous matrices	Julio Arrecis	10/1/1999
TLH-1999-09-21-34		
408448	Julio Arrecis	10/1/1999
Test: Mercury in aqueous samples using cold vapor AA spectroscopy.	Matthew D. Curran	9/29/1999
TLH-1999-09-21-36		
408456	Thekkekalathil	9/27/1999
Test: Metals, total recoverable, in aqueous samples using trace-ICP emission	Thekkekalathil	9/27/1999
TLH-1999-09-21-37		
408457	Thekkekalathil	9/24/1999
Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD.	Chris Morgan	10/7/1999
TLH-1999-09-21-38		
408458	Chris Morgan	10/7/1999
Test: Volatile organic pollutants in acid preserved water matrices by GC/MS.	Chris Morgan	10/7/1999
408459	Liang Lin	10/27/1999
	Adrian Niculescu	10/26/1999
	Adrian Niculescu	10/26/1999
	Liang Lin	10/1/1999
	Kerry Tate	9/28/1999
	Kerry Tate	9/28/1999
	Kerry Tate	9/28/1999

Job	Sample	Authorized by	Authorized date
Test: Volatile organic pollutants in acid preserved water matrices by GC/MS.		Kerry Tate	9/28/1999
TLH-1999-09-22-14		Liang Lin	10/5/1999
	408682	Tong Xuan	10/1/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water		Tong Xuan	10/1/1999
	408683	Tong Xuan	10/1/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water		Tong Xuan	10/1/1999
	408684	Tong Xuan	10/1/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water		Tong Xuan	10/1/1999
	408685	Tong Xuan	10/1/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water		Tong Xuan	10/1/1999
	408686	Tong Xuan	10/1/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water		Tong Xuan	10/1/1999
	408687	Tong Xuan	10/1/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water		Tong Xuan	10/1/1999
	408688	Tong Xuan	10/1/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water		Tong Xuan	10/1/1999
	408689	Tong Xuan	10/1/1999
Test: Semi-volatile organic pollutants, excluding PCBs and Toxaphene, in water		Tong Xuan	10/1/1999
TLH-1999-09-22-15		Julio Arrecis	10/4/1999
	408715	Julio Arrecis	10/4/1999
Test: Cyanide, total, in aqueous matrices		Matthew D. Curran	9/29/1999
	408716	Julio Arrecis	10/4/1999
Test: Cyanide, total, in aqueous matrices		Matthew D. Curran	9/29/1999
	408717	Julio Arrecis	10/4/1999
Test: Cyanide, total, in aqueous matrices		Matthew D. Curran	9/29/1999
	408718	Julio Arrecis	10/4/1999
Test: Cyanide, total, in aqueous matrices		Matthew D. Curran	9/29/1999
	408719	Julio Arrecis	10/4/1999
Test: Cyanide, total, in aqueous matrices		Matthew D. Curran	9/29/1999
	408720	Julio Arrecis	10/4/1999
Test: Cyanide, total, in aqueous matrices		Matthew D. Curran	9/29/1999
	408721	Julio Arrecis	10/4/1999
Test: Cyanide, total, in aqueous matrices		Matthew D. Curran	9/29/1999
	408722	Julio Arrecis	10/4/1999
Test: Cyanide, total, in aqueous matrices		Matthew D. Curran	9/29/1999
TLH-1999-09-22-17		Thekkekalathil	9/27/1999
	408723	Thekkekalathil	9/27/1999
Test: Mercury in aqueous samples using cold vapor AA spectroscopy.		Thekkekalathil	9/24/1999
	408724	Thekkekalathil	9/27/1999
Test: Mercury in aqueous samples using cold vapor AA spectroscopy.		Thekkekalathil	9/24/1999
	408725	Thekkekalathil	9/27/1999

recycled paper

Job	Sample	Authorized by	Authorized date
	Test: Mercury in aqueous samples using cold vapor AA spectroscopy.	Thekkekalathil	9/24/1999
	408726	Thekkekalathil	9/27/1999
	Test: Mercury in aqueous samples using cold vapor AA spectroscopy.	Thekkekalathil	9/24/1999
	408727	Thekkekalathil	9/27/1999
	Test: Mercury in aqueous samples using cold vapor AA spectroscopy.	Thekkekalathil	9/24/1999
	408728	Thekkekalathil	9/27/1999
	Test: Mercury in aqueous samples using cold vapor AA spectroscopy.	Thekkekalathil	9/24/1999
	408729	Thekkekalathil	9/27/1999
	Test: Mercury in aqueous samples using cold vapor AA spectroscopy.	Thekkekalathil	9/24/1999
	408730	Thekkekalathil	9/27/1999
	Test: Mercury in aqueous samples using cold vapor AA spectroscopy.	Thekkekalathil	9/24/1999
TLH-1999-09-22-18		Chris Morgan	10/14/1999
	408731	Chris Morgan	10/14/1999
	Test: Metals, total recoverable, in aqueous samples using trace-ICP emission	Chris Morgan	10/14/1999
	408732	Chris Morgan	10/14/1999
	Test: Metals, total recoverable, in aqueous samples using trace-ICP emission	Chris Morgan	10/14/1999
	408733	Chris Morgan	10/14/1999
	Test: Metals, total recoverable, in aqueous samples using trace-ICP emission	Chris Morgan	10/14/1999
	408734	Chris Morgan	10/14/1999
	Test: Metals, total recoverable, in aqueous samples using trace-ICP emission	Chris Morgan	10/14/1999
	408735	Chris Morgan	10/14/1999
	Test: Metals, total recoverable, in aqueous samples using trace-ICP emission	Chris Morgan	10/14/1999
	408736	Chris Morgan	10/14/1999
	Test: Metals, total recoverable, in aqueous samples using trace-ICP emission	Chris Morgan	10/14/1999
	408737	Chris Morgan	10/14/1999
	Test: Metals, total recoverable, in aqueous samples using trace-ICP emission	Chris Morgan	10/14/1999
	408738	Chris Morgan	10/14/1999
	Test: Metals, total recoverable, in aqueous samples using trace-ICP emission	Chris Morgan	10/14/1999
TLH-1999-09-22-19		Liang Lin	10/22/1999
	408739	Marek Topolski	10/22/1999
	Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD.	Marek Topolski	10/22/1999
	408740	Marek Topolski	10/22/1999
	Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD.	Marek Topolski	10/22/1999
	408741	Marek Topolski	10/22/1999
	Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD.	Marek Topolski	10/22/1999
	408742	Marek Topolski	10/22/1999
	Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD.	Marek Topolski	10/22/1999
	408743	Marek Topolski	10/22/1999
	Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD.	Marek Topolski	10/22/1999
	408744	Marek Topolski	10/22/1999
	Test: Organochlorine pesticides and PCBs in water matrices by GC/ECD.	Marek Topolski	10/22/1999

Job	Sample	Authorized by	Authorized date
	408745	Marek Topolski	10/22/1999
Test:	Organochlorine pesticides and PCBs in w ater matrices by GC/ECD.	Marek Topolski	10/22/1999
	408746	Marek Topolski	10/22/1999
Test:	Organochlorine pesticides and PCBs in w ater matrices by GC/ECD.	Marek Topolski	10/22/1999
TLH-1999-09-22-20		Liang Lin	10/1/1999
	408747	Kerry Tate	9/29/1999
Test:	Volatile organic pollutants in acid preserved w ater matrices by GC/MS.	Kerry Tate	9/29/1999
	408748	Kerry Tate	9/29/1999
Test:	Volatile organic pollutants in acid preserved w ater matrices by GC/MS.	Kerry Tate	9/29/1999
	408749	Kerry Tate	9/29/1999
Test:	Volatile organic pollutants in acid preserved w ater matrices by GC/MS.	Kerry Tate	9/29/1999
	408750	Kerry Tate	9/29/1999
Test:	Volatile organic pollutants in acid preserved w ater matrices by GC/MS.	Kerry Tate	9/29/1999
	408751	Kerry Tate	9/29/1999
Test:	Volatile organic pollutants in acid preserved w ater matrices by GC/MS.	Kerry Tate	9/29/1999
	408752	Kerry Tate	9/29/1999
Test:	Volatile organic pollutants in acid preserved w ater matrices by GC/MS.	Kerry Tate	9/29/1999
	408753	Kerry Tate	9/29/1999
Test:	Volatile organic pollutants in acid preserved w ater matrices by GC/MS.	Kerry Tate	9/29/1999
	408754	Kerry Tate	9/29/1999
Test:	Volatile organic pollutants in acid preserved w ater matrices by GC/MS.	Kerry Tate	9/29/1999
	408755	Kerry Tate	9/29/1999
Test:	Volatile organic pollutants in acid preserved w ater matrices by GC/MS.	Kerry Tate	9/29/1999

Login Authorisation Report for SSSS-1999-09-21-01 on 27-SEP-1999 08:13

White's Meats Site

Project: SSSS
Request ID: RQ-1999-09-20-19

Job ID: *TLH-1999-09-21-15* **Job Status:** *V*

Sample	St	Field ID	Sampling Location
408344 S-BNA	V	WMSS-1	WHITES MEATS
408345 S-BNA	V	WMSS-2	WHITES MEATS
408346 S-BNA	V	WMSS-3	WHITES MEATS
408347 S-BNA	V	WMSS-4	WHITES MEATS
408348 S-BNA	V	WMSS-4DUP	WHITES MEATS
408349 S-BNA	V	WMSS-5	WHITES MEATS
408350 S-BNA	V	WMSS-6	WHITES MEATS
408351 S-BNA	V	WMSS-7	WHITES MEATS

Job ID: *TLH-1999-09-21-16* **Job Status:** *V*

Sample	St	Field ID	Sampling Location
408352 S-CN	V	WMSS-1	WHITES MEATS
408353 S-CN	V	WMSS-2	WHITES MEATS
408354 S-CN	V	WMSS-3	WHITES MEATS
408355 S-CN	V	WMSS-4	WHITES MEATS
408356 S-CN	V	WMSS-4DUP	WHITES MEATS
408357 S-CN	V	WMSS-5	WHITES MEATS
408358 S-CN	V	WMSS-6	WHITES MEATS
408359 S-CN	V	WMSS-7	WHITES MEATS

Job ID: *TLH-1999-09-21-17* **Job Status:** *C*

Sample	St	Field ID	Sampling Location
408360 S-HG-H	C	WMSS-1	WHITES MEATS
408361 S-HG-H	C	WMSS-2	WHITES MEATS
408362 S-HG-H	C	WMSS-3	WHITES MEATS
408363 S-HG-H	C	WMSS-4	WHITES MEATS
408364 S-HG-H	C	WMSS-4DUP	WHITES MEATS
408365 S-HG-H	C	WMSS-5	WHITES MEATS
408366 S-HG-H	C	WMSS-6	WHITES MEATS
408367 S-HG-H	C	WMSS-7	WHITES MEATS

Login Authorisation Report for SSSS-1999-09-21-01 on 27-SEP-1999 08:13

White's Meats Site

Project: SSSS
Request ID: RQ-1999-09-20-19

Job ID: *TLH-1999-09-21-20* **Job Status:** *V*

Sample	St	Field ID	Sampling Location
408370 S-ICP	V	WMSS-1	WHITES MEATS
408371 S-ICP	V	WMSS-2	WHITES MEATS
408372 S-ICP	V	WMSS-3	WHITES MEATS
408373 S-ICP	V	WMSS-4	WHITES MEATS
408374 S-ICP	V	WMSS-4DUP	WHITES MEATS
408375 S-ICP	V	WMSS-5	WHITES MEATS
408376 S-ICP	V	WMSS-6	WHITES MEATS
408377 S-ICP	V	WMSS-7	WHITES MEATS

Job ID: *TLH-1999-09-21-23* **Job Status:** *V*

Sample	St	Field ID	Sampling Location
408380 S-PSCL-PCB	V	WMSS-1	WHITES MEATS
408381 S-PSCL-PCB	V	WMSS-2	WHITES MEATS
408382 S-PSCL-PCB	V	WMSS-3	WHITES MEATS
408383 S-PSCL-PCB	V	WMSS-4	WHITES MEATS
408384 S-PSCL-PCB	V	WMSS-4DUP	WHITES MEATS
408385 S-PSCL-PCB	V	WMSS-5	WHITES MEATS
408386 S-PSCL-PCB	V	WMSS-6	WHITES MEATS
408387 S-PSCL-PCB	V	WMSS-7	WHITES MEATS

Job ID: *TLH-1999-09-21-27* **Job Status:** *V*

Sample	St	Field ID	Sampling Location
408420 S-VOC-MS	V	WMSS-1	WHITES MEATS
408421 S-VOC-MS	V	WMSS-2	WHITES MEATS
408422 S-VOC-MS	V	WMSS-3	WHITES MEATS
408423 S-VOC-MS	V	WMSS-4	WHITES MEATS
408424 S-VOC-MS	V	WMSS-4DUP	WHITES MEATS
408425 S-VOC-MS	V	WMSS-5	WHITES MEATS
408426 S-VOC-MS	V	WMSS-6	WHITES MEATS
408427 S-VOC-MS	V	WMSS-7	WHITES MEATS

recycled paper

Login Authorisation Report for SSSS-1999-09-21-01 on 27-SEP-1999 08:13

White's Meats Site

Project: SSSS
Request ID: RQ-1999-09-20-19

Job ID: *TLH-1999-09-21-31* **Job Status:** *V*

Sample	St	Field ID	Sampling Location
408432	V	WMSS-RB1	WHITES MEATS
W-BNA			

Job ID: *TLH-1999-09-21-33* **Job Status:** *V*

Sample	St	Field ID	Sampling Location
408440	V	WMSS-RB1	WHITES MEATS
W-CN			

Job ID: *TLH-1999-09-21-34* **Job Status:** *C*

Sample	St	Field ID	Sampling Location
408448	C	WMSS-RB1	WHITES MEATS
W-HG-H			

Job ID: *TLH-1999-09-21-36* **Job Status:** *V*

Sample	St	Field ID	Sampling Location
408456	V	WMSS-RB1	WHITES MEATS
W-ICP-TR			

Job ID: *TLH-1999-09-21-37* **Job Status:** *V*

Sample	St	Field ID	Sampling Location
408457	V	WMSS-RB1	WHITES MEATS
W-PSCL-PCB			

Job ID: *TLH-1999-09-21-38* **Job Status:** *V*

Sample	St	Field ID	Sampling Location
408458	V	TRIP BLK	WHITES MEATS
W-VOC-MS-A			
408459	V	WMSS-RB1	WHITES MEATS
W-VOC-MS-A			

Job ID: *TLH-1999-09-22-14* **Job Status:** *V*

Sample	St	Field ID	Sampling Location
408682	V	WMGW-1	WHITE'S MEATS
W-BNA			
408683	V	WMGW-2	WHITE'S MEATS
W-BNA			
408684	V	WMGW-3	WHITE'S MEATS
W-BNA			
408685	V	WMGW-4	WHITE'S MEATS
W-BNA			
408686	V	WMGW-4 DUP	WHITE'S MEATS
W-BNA			
408687	V	WMGW-5	WHITE'S MEATS
W-BNA			
408688	V	WMGW-6	WHITE'S MEATS
W-BNA			
408689	V	WMGW-RB1	WHITE'S MEATS
W-BNA			

Job ID: *TLH-1999-09-22-15* **Job Status:** *V*

Sample	St	Field ID	Sampling Location
408715	V	WMGW-1	WHITE'S MEATS
W-CN			

Login Authorisation Report for SSSS-1999-09-21-01 on 27-SEP-1999 08:13

White's Meats Site

Project: SSSS
Request ID: RQ-1999-09-20-19

408716 W-CN	V	WMGW-2	WHITE'S MEATS
408717 W-CN	V	WMGW-3	WHITE'S MEATS
408718 W-CN	V	WMGW-4	WHITE'S MEATS
408719 W-CN	V	WMGW-4 DUP	WHITE'S MEATS
408720 W-CN	V	WMGW-5	WHITE'S MEATS
408721 W-CN	V	WMGW-6	WHITE'S MEATS
408722 W-CN	V	WMGW-RB1	WHITE'S MEATS

Job ID: *TLH-1999-09-22-17* ***Job Status:*** *C*

Sample	St	Field ID	Sampling Location
408723 W-HG-H	C	WMGW-1	WHITE'S MEATS
408724 W-HG-H	C	WMGW-2	WHITE'S MEATS
408725 W-HG-H	C	WMGW-3	WHITE'S MEATS
408726 W-HG-H	C	WMGW-4	WHITE'S MEATS
408727 W-HG-H	C	WMGW-4 DUP	WHITE'S MEATS
408728 W-HG-H	C	WMGW-5	WHITE'S MEATS
408729 W-HG-H	C	WMGW-6	WHITE'S MEATS
408730 W-HG-H	C	WMGW-RB1	WHITE'S MEATS

Job ID: *TLH-1999-09-22-18* ***Job Status:*** *V*

Sample	St	Field ID	Sampling Location
408731 W-ICP-TR	V	WMGW-1	WHITE'S MEATS
408732 W-ICP-TR	V	WMGW-2	WHITE'S MEATS
408733 W-ICP-TR	V	WMGW-3	WHITE'S MEATS
408734 W-ICP-TR	V	WMGW-4	WHITE'S MEATS
408735 W-ICP-TR	V	WMGW-4 DUP	WHITE'S MEATS
408736 W-ICP-TR	V	WMGW-5	WHITE'S MEATS
408737 W-ICP-TR	V	WMGW-6	WHITE'S MEATS
408738 W-ICP-TR	V	WMGW-RB1	WHITE'S MEATS

Job ID: *TLH-1999-09-22-19* ***Job Status:*** *V*

Sample	St	Field ID	Sampling Location
408739 W-PSCL-PCB	V	WMGW-1	WHITE'S MEATS

Recycled paper

Login Authorisation Report for SSSS-1999-09-21-01 on 27-SEP-1999 08:13

White's Meats Site

Project: SSSS
Request ID: RQ-1999-09-20-19

4(0	V	WMGW-2	WHITE'S MEATS
W-PSCL-PCB			
408741	V	WMGW-3	WHITE'S MEATS
W-PSCL-PCB			
408742	V	WMGW-4	WHITE'S MEATS
W-PSCL-PCB			
408743	V	WMGW-4 DUP	WHITE'S MEATS
W-PSCL-PCB			
408744	V	WMGW-5	WHITE'S MEATS
W-PSCL-PCB			
408745	V	WMGW-6	WHITE'S MEATS
W-PSCL-PCB			
408746	V	WMGW-RB1	WHITE'S MEATS
W-PSCL-PCB			

Job ID: *TLH-1999-09-22-20* ***Job Status:*** *V*

Sample	St	Field ID	Sampling Location
408747	V	WMGW-TB1	WHITE'S MEATS
W-VOC-MS-A			
408748	V	WMGW-1	WHITE'S MEATS
W-VOC-MS-A			
408749	V	WMGW-2	WHITE'S MEATS
W-VOC-MS-A			
408750	V	WMGW-3	WHITE'S MEATS
W-VOC-MS-A			
4(51	V	WMGW-4	WHITE'S MEATS
W-[illegible]C-MS-A			
408752	V	WMGW-4 DUP	WHITE'S MEATS
W-VOC-MS-A			
408753	V	WMGW-5	WHITE'S MEATS
W-VOC-MS-A			
408754	V	WMGW-6	WHITE'S MEATS
W-VOC-MS-A			
408755	V	WMGW-RB1	WHITE'S MEATS
W-VOC-MS-A			

Log-in Checklist

RQ ID: RQ-1999-09-20-19

Cooler Check

Cooler ID	Ice Present? Yes	Ice Present? No	If No, Temperature	Evidence Tape Present? Yes	Evidence Tape Present? No	Evidence Tape Intact? Yes	Evidence Tape Intact? No	Tracking Number
DEP133	✓			✓	✓	✓		809394167776
[illegible]	✓			✓				[illegible]
134	✓			✓		✓		809394167779
536	✓			✓		✓		809394167770
Blue	✓			✓		✓		811466256315
288	✓			✓		✓		809394167788
573	✓			✓		✓		809394167860

Note: If the the temperature of a cooler is above 6° C or an evidence seal is damaged then identify the bottles, in the affected cooler(s), on back of form.

Shipping Method: Fed Ex Date/Time of Receipt: 9-22-99 10:00

Acid Preserved Samples pH Checked: pH </=2 ? Yes ✓ No____ NA____ HW

If No, fill out back of form.

Base Preserved Samples pH Checked: All OK? Yes ✓ No____ NA____ HW

(W-CN, OV-CN - pH >/= 12), (W-SULFDE-F, W-SULFIDE - pH >/= 9)

If No, fill out back of form.

Evidence Tape on Bottles Present: Yes ✓ No____

If Yes, is it intact? Yes ✓ No____

If not intact then fill out back of form.

Condition of Containers: ✓

Loose Caps: Yes____ No____

If Yes, fill out back of form.

✓

Broken Containers: Yes____ No____

If Yes, fill out back of form.

Chain Of Custody Form Included? Yes ✓ No____ Field Sheet(s) Included? Yes ✓ No____

If Yes verify receipt of all containers listed then sign custody form. Document discrepancies (i.e. missing containers) on COC form.

Event ID: SSSS-1999-09-21-01

Coolers Unpacked/Checked by: HW Date: 9-22-99

Event Logged in by: HW

NA - Not Applicable (i.e. sediment samples)

Florida Department of Environmental Protection
Central Laboratory Sample Submittal Form

Request Number: RQ-1999-09-20-19

White's Meats Site

Customer: SSSS

Project ID: SSSS

PMAS: 0436

Event ID *

Requester: Hank Cheng

Collected By: R. Stephens / J. Day / P. Cheney

Field Parameters Measured By: R. Stephens / P. Cheney

Field Report Prepared By: R. Stephens

Send Final Report To: J. Day

Lab ID *

Location: Whites Meats

Field ID: WMGW-TB1

Matrix (Include type e.g. Salt, Fresh, etc): Water

Temp (C): —

pH: —

Latitude: ° ' " NA

Longitude: ° ' " NA

☐ Comp ☑ Grab | Collection (begin) Date 9/21/99 Time 0730

Collection (end) Date — Time —

Tot Res Chlorine (mg/L): —

Diss Oxygen (mg/L): —

Storet Station Number: —

Sample Depth: — ☐ m ☐ ft

☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm): —

NPDES Number: —

Comments: —

Bottle Group(s) **: VOCs. A

Lab ID *

Location: Whites Meats

Field ID: WMRSGW-1

Matrix (Include type e.g. Salt, Fresh, etc): Water / Fresh

Temp (C): 25.6

pH: 6.72

Latitude: 29 ° 12 ' 02 " N

Longitude: 82 ° 08 ' 02 " W

☐ Comp ☑ Grab | Collection (begin) Date 9/21/99 Time 1215 1145

Collection (end) Date 9/21/99 Time 1230

Tot Res Chlorine (mg/L): —

Diss Oxygen (mg/L): —

Storet Station Number: —

Sample Depth: 22-32 ☐ m ☑ ft

☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm): 545

NPDES Number: —

Comments: Turbidity = 2.47 NTUs

Bottle Group(s) **: A

Lab ID *

Location: Whites Meats

Field ID: WMRSGW-2

Matrix (Include type e.g. Salt, Fresh, etc): Water / Fresh

Temp (C): 25.5

pH: 6.60

Latitude: ° ' " as above

Longitude: ° ' "

☐ Comp ☑ Grab | Collection (begin) Date 9/21/99 Time 1120

Collection (end) Date 9/21/99 Time 1230

Tot Res Chlorine (mg/L): —

Diss Oxygen (mg/L): —

Storet Station Number: —

Sample Depth: 18-28 ☐ m ☐ ft

☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm): 1394

NPDES Number:

Comments: Turbidity = 9.74 NTUs

Bottle Group(s) **: A

Lab ID *

Location: Whites Meats

Field ID: WMRSGW-3RS

Matrix (Include type e.g. Salt, Fresh, etc): Water / Fresh

Temp (C): 25.4

pH: 7.32

Latitude: ° ' " as above

Longitude: ° ' "

☐ Comp ☑ Grab | Collection (begin) Date 9/21/99 Time 1030

Collection (end) Date 9/21/99 Time 1100

Tot Res Chlorine (mg/L): —

Diss Oxygen (mg/L): —

Storet Station Number: —

Sample Depth: 18-28 ☐ m ☐ ft

☐ Salinity (PPTh) ☑ Sp Conductance (umho/cm): 678

NPDES Number:

Comments: Turbidity = 9.07 NTUs

Bottle Group(s) **: A

Relinquished By:	Date/Time	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
	9/21/99 1730						

* Shaded Areas for Lab use only.

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Request Number: RQ-1999-09-20-19

White's Meats Site

Event ID *

Customer: SSSS

Project ID: SSSS

PMAS: 0436

Requester: Hank Cheng

Collected By: R. Stephens / P. Cheney / T. Dai

Field Parameters Measured By: R. Stephens / P. Cheney

Field Report Prepared By: R. Stephens

Send Final Report To: T. Dias

Lab ID *	Location	Field ID	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Latitude	Longitude	Comp / Grab	Collection (begin) Date Time	Collection (end) Date Time	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	Sample Depth m / ft	Salinity (PPTh) / Sp Conductance (umho/cm)	NPDES Number	Bottle Group(s) **	Comments
	Whites Meat	~~MW~~ WMSW-4	Fresh Water	26.0	6.90	29 ° 12 ' 02 " N	82 ° 08 ' 02 " W	☐ Comp ☑ Grab	9/21/99 1305	9/21/99 1420	—	—	—	18-28 ☐ m ☑ ft	451 ☐ Salinity (PPTh) ☑ ~~Sp~~ Conductance (umho/cm)	—	A	Turbidity = 6.07
	Whites Meats	WMSW-4DUP	Fresh Water	26	6.90	° ' " as above	° ' "	☐ Comp ☑ Grab	9/21/99 1305	9/21/99 1420	—	—	—	18-28 ☐ m ☑ ~~ft~~	451 ☐ Salinity (PPTh) ☑ ~~Sp~~ Conductance (umho/cm)		A	Turbidity = 6.07 NTUs
	Location: WMSW-5 ↓ Whites Meats		Fresh Water	24.8	7.25	° ' " as above	° ' "	☐ Comp ☑ ~~Grab~~	9/21/99 1340	9/21/99 1430	—	—	—	18-28 ☐ m ☑ ~~ft~~	562 ☐ Salinity (PPTh) ☑ ~~Sp~~ Conductance (umho/cm)	—	A	Turbidity = 4.63 NTUs
	Whites Meats	WMSW-6	Fresh Water	27.6		° ' " as above	° ' "	☐ Comp ☑ Grab	9/21/99 1430	9/21/99 1600	—	—	—	18-28 ☐ m ☑ ~~ft~~	4.08 ☐ Salinity (PPTh) MS ☑ ~~Sp~~ Conductance (~~umho~~/cm)	—	A	Turbidity = 6.67 NTUs

Relinquished By:	Date/Time	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	9/21/99 1730						

* Shaded areas for Lab use only.

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-1999-09-20-19

White's Meats Site

Customer: SSSS

Project ID: SSSS

PMAS: 0436

Requester: Hank Cheng

Collected By: R. Stephens / J. Diaz / P. Cheney

Field Parameters Measured By: R. Stephens / P. Cheney

Field Report Prepared By: R. Stephens

Send Final Report To: J. Diaz

Lab ID *	Location	Comp / Grab	Collection (begin) Date / Time	Collection (end) Date / Time	Bottle Group(s) **
	Whites Meats	☐ Comp ☐ Grab	Date 9/ Time 1540	Date 9/21/99 Time 1615	A
	Field ID: WMGW-RB1	Tot Res Chlorine (mg/L): —	Diss Oxygen (mg/L): —	Storet Station Number: —	
	Matrix (Include type e.g. Salt, Fresh, etc): Water	Temp (C): —	pH: —	Sample Depth ☐ m ☐ ft: NA	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm): —
	Latitude ° ' " : NA	Longitude ° ' "		NPDES Number	
	Comments: Rinse Blank				

Lab ID *	Location	Comp / Grab	Collection (begin) Date / Time	Collection (end) Date / Time	Bottle Group(s) **
		☐ Comp ☐ Grab	Date Time	Date Time	
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)
	Latitude ° ' "	Longitude ° ' "		NPDES Number	
	Comments				

Lab ID *	Location	Comp / Grab	Collection (begin) Date / Time	Collection (end) Date / Time	Bottle Group(s) **
		☐ Comp ☐ Grab	Date Time	Date Time	
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)
	Latitude ° ' "	Longitude ° ' "		NPDES Number	
	Comments				

Lab ID *	Location	Comp / Grab	Collection (begin) Date / Time	Collection (end) Date / Time	Bottle Group(s) **
		☐ Comp ☐ Grab	Date Time	Date Time	
	Field ID	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	
	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)
	Latitude ° ' "	Longitude ° ' "		NPDES Number	
	Comments				

Relinquished By:	Date/Time	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	1730 9/21/99						

* Shaded Areas for Lab use only.

CHAIN OF CUSTODY RECORD

ASC analytical services center

Ecology and Environment, Inc., Analytical Services Center
4493 Walden Avenue, Lancaster, New York, 14086, Tel: 716/685-8080, Fax 716/685-0852
Where Scientific Excellence and Efficiency Meet

Cooler No: _____
Lab: _____

Page: ____ of ____

PROJECT No:	SITE NAME:	LOCATION: (Include State)
	Whites Mats	

CLIENT: FDEP

PROJECT MANAGER: Richard Stephens — OFFICE No: Tallahassee

FIELD TEAM LEADER: Richard Stephens — PHONE No: (850) 574-1400

SAMPLERS: (PRINT): R. Stephens / P. Cherey / J. Diaz.

CONTAINER TYPE AND PRESERVATIVE: 40ml HCl; 1 liter Ice; 1 liter Ice; 1 liter HNO_3; 500ml NaOH

REQUESTED ANALYSIS: VOCs; BNAs; Pest/PCBs; Metals; Cyanide

TURNAROUND TIME: 24-HOUR; 48-HOUR; 1-WEEK; STANDARD; RUSH _____ days; OTHER _____

(FOR LAB USE ONLY): Lab Job No: ; Report type: ; Batch QC: Yes No

DATE	TIME	SAMPLE ID	SAMPLE MATRIX	CHECK FOR MS/MSD	SAMPLE TYPE	No. OF CONTAINERS	VOCs	BNAs	Pest/PCBs	Metals	Cyanide	OVA/HNU READINGS (PPM)	BEGINNING DEPTH (FEET BGS)	ENDING DEPTH (FEET BGS)	REMARKS
9/21/99	0730	wmgw-TB1	W		T	2	2								
9/21/99	1340	wmgw-RB1	W		R	10	4	2	2	1	1				
9/21/99	~~1115~~ 1215 MS	wmgw-1	W		O	10	4	2	2	1	1				Turbidity = 2.47 NTUs
9/21/99	1120	wmgw-2	W		O	10	4	2	2	1	1				Turbidity = 9.74 NTUs
9/21/99	1030	wmgw-3	W		O	10	4	2	2	1	1				Turbidity = 9.07 NTUs
9/21/99	1305	wmgw-4	W		O	10	4	2	2	2	1				Turbidity = 6.07 NTUs
9/21/99	1305	wmgw-4DUP	W	✓	D	10	4	2	2	2	1				
9/21/99	1340	wmgw-5	W		O	10	4	2	2	2	1				Turbidity = 4.63 NTUs
9/21/99	1430	wmgw-6	W		O	10	4	2	2	2	1				Turbidity = 6.67 NTUs

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	Ship Via:	Date:
[signature]	1730 9/21/99	H Walker	10:00 9-22-99		
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	BL/Airbill Number:	

Temperature Blank Info. Enclosed: Yes No

(FOR LAB USE ONLY) Date: _____ Time: _____ Temperature: _____ °C

Distribution: White - Lab original Yellow - Field team leader

Log-in Checklist

RQ ID: 1999-09-20-19

Cooler Check

Cooler ID	Ice Present? Yes	Ice Present? No	If No, Temperature	Evidence Tape Present? Yes	Evidence Tape Present? No	Evidence Tape Intact? Yes	Evidence Tape Intact? No	Tracking Number
9S Rump	✓				✓			811465256407
BW 2	✓				✓			4
SW 2	✓				✓			4

Note: If the the temperature of a cooler is above 6° C or an evidence seal is damaged then identify the bottles, in the affected cooler(s), on back of form.

Shipping Method: FED Exp Date/Time of Receipt: 9-21-99 9:30

Acid Preserved Samples pH Checked: pH </=2 ? Yes ✓ No____ NA____ ABR
If No, fill out back of form.

Base Preserved Samples pH Checked: All OK? Yes ✓ No____ NA ~~ABR~~ ABR
(W-CN, OV-CN - pH >/= 12), (W-SULFDE-F, W-SULFIDE - pH >/= 9)
If No, fill out back of form.

Evidence Tape on Bottles Present: Yes ✓ No ~~ABR~~
If Yes, is it intact? Yes ✓ No_____
If not intact then fill out back of form.

Condition of Containers:
Loose Caps: Yes_____ No ✓
If Yes, fill out back of form.

Broken Containers: Yes_____ No ✓
If Yes, fill out back of form.

Chain Of Custody Form Included? Yes ✓ No___ Field Sheet(s) Included? Yes ✓ No___
If Yes verify receipt of all containers listed then sign custody form. Document discrepancies (i.e. missing containers) on COC form.

Event ID: SSSS-1999-09-21-01

Coolers Unpacked/Checked by: ABR Date: 9/21/99

Event Logged in by: ABR

NA - Not Applicable (i.e. sediment samples)

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-1999-09-20-19

White's Meats Site

Customer: SSSS

Project ID: SSSS

PMAS: 0436

Requester: Hank Cheng

Collected By: R. Stephens / J Diaz / P. Cherey

Field Parameters Measured By: NA

Field Report Prepared By: R. Stephens

Send Final Report To: J. Diaz

Lab ID *	Location	Field ID	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Latitude	Longitude	Comments	Bottle Group(s) **
	Whites Meats	WMSS-TB1	Water	—	—	— NA	— NA	Trip Blank	B Trip

Lab ID *	Location	Field ID	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Latitude	Longitude	Comments	Bottle Group(s) **
	Whites Meats	WMSS-1	Soil ~~Water / Fro~~ RS	—	—	29° 12' 02" N	82° 08' 02" W	Background. 3 CC soil	B

Lab ID *	Location	Field ID	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Latitude	Longitude	Comments	Bottle Group(s) **
	Whites Meats	WMSS-2	Soil	—	—	as above		— 3 cc soil	B

Lab ID *	Location	Field ID	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Latitude	Longitude	Comments	Bottle Group(s) **
	Whites Meats	WMSS-2	Soil	—	—	as above		— 3 cc soil	B

Relinquished By:	Date/Time	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	9/26/99 1800					[signature]	9-21-99 19:30

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised September 25,1998

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Number: RQ-1999-09-20-19

White's Meats Site

Customer: SSSS

Project ID: SSSS

PMAS: 0436

Requester: Hank Cheng

Collected By: R. Stephens / J. Diaz

Field Parameters Measured By:

Field Report Prepared By: R. Stephens

Send Final Report To: J. Diaz

Lab ID *

Location: Whites Meats

Field ID: WMSS-3

Matrix (Include type e.g. Salt, Fresh, etc): Soil

Temp (C): —

pH: —

Latitude: 29 ° 12 ' 02 " N

Longitude: 82 ° 08 ' 02 " W

☐ Comp ☒ Grab

Collection (begin) Date 9/20/99 Time 1150

Collection (end) Date 9/20/99 Time 1200

Bottle Group(s) **: B

Tot Res Chlorine (mg/L): —

Diss Oxygen (mg/L): —

Storet Station Number: —

Sample Depth: 0-2 ☐ m ☒ ft

☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm): —

NPDES Number: —

Comments: 3 CC Soil

Lab ID *

Location: Whites Meats.

Field ID: WMSS-RB1 (RB)

Matrix (Include type e.g. Salt, Fresh, etc): Water

Temp (C): NA

pH: NA

Latitude: ° ' " NA

Longitude: NA ° ' "

☐ Comp ☒ Grab

Collection (begin) Date 9/20/99 Time 1400

Collection (end) Date 9/20/99 Time 1410

Bottle Group(s) **: B

Tot Res Chlorine (mg/L): —

Diss Oxygen (mg/L): —

Storet Station Number: —

Sample Depth: — ☐ m ☐ ft

☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm): —

NPDES Number: —

Comments: Rinse Blank.

Lab ID *

Location: Whites Meats

Field ID: WMSS-4

Matrix (Include type e.g. Salt, Fresh, etc): Soil

Temp (C): —

pH: —

Latitude: ° ' " as above

Longitude: ° ' "

☐ Comp ☒ Grab

Collection (begin) Date 9/20/99 Time 1450

Collection (end) Date 9/20/99 Time 1505

Bottle Group(s) **: B

Tot Res Chlorine (mg/L): —

Diss Oxygen (mg/L): —

Storet Station Number: —

Sample Depth: 0-2 ☐ m ☒ ft

☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm): —

NPDES Number: —

Comments: 3 cc Soil

Lab ID *

Location: Whites Meats

Field ID: WMSS-4DUP

Matrix (Include type e.g. Salt, Fresh, etc): Soil

Temp (C): —

pH: —

Latitude: ° ' " as above.

Longitude: ° ' "

☐ Comp ☒ Grab

Collection (begin) Date 9/20/99 Time 1450

Collection (end) Date 9/20/99 Time 1505

Bottle Group(s) **: B

Tot Res Chlorine (mg/L): —

Diss Oxygen (mg/L): —

Storet Station Number: —

Sample Depth: 0-2 ☐ m ☒ ft

☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm): —

NPDES Number: —

Comments: Duplicate

Relinquished By:	Date/Time	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	9/20/99 1800					ABS	

Florida Department of Environmental Protection

Central Laboratory Sample Submittal Form

Event ID *

Request Num : RQ-1999-09-20-19

White's Meats Site

Customer: SSSS

Project ID: SSSS

PMAS: 0436

Requester: Hank Cheng

Collected By: R. Stephens / J. Diaz

Field Parameters Measured By: —

Field Report Prepared By: R. Stephens

Send Final Report To: J. Diaz

Lab ID *	Location	Field ID	Matrix (Include type e.g. Salt, Fresh, etc)	Temp (C)	pH	Latitude	Longitude	Comp / Grab	Collection (begin) Date Time	Collection (end) Date Time	Tot Res Chlorine (mg/L)	Diss Oxygen (mg/L)	Storet Station Number	Sample Depth	Salinity (PPTh) / Sp Conductance (umho/cm)	NPDES Number	Comments	Bottle Group(s) **
	Whites Meats	~~AW~~ NS WMSS-5	Soil	—	—	29 12 02 N	82 08 02 W	☐ Comp ☐ ~~Grab~~	9/20/99 1510	9/20/99 1515	—	—	—	0-2 ☐ m ☒ ~~ft~~	—	—	3cc soil	B
	Whites Meats	WMSS-6	Soil	—	—	as above		☐ Comp ☐ Grab	9/20/99 1520	9/20/99 1525	—	—	—	0-2 ☐ m ☒ ~~ft~~	—	—	3cc soil	B
	Whites Meats	WMSB~~T~~SS-7	Soil	—	—	as above		☐ Comp ☐ ~~Grab~~	9/20/99 1635	9/20/99 1640	—	—	—	☐ m ☒ ~~ft~~	—	—	Subsurface Soil	B
								☐ Comp ☐ Grab	Date Time	Date Time				Sample Depth ☐ m ☐ ft	☐ Salinity (PPTh) ☐ Sp Conductance (umho/cm)			

Relinquished By:	Date/Time	Received By:	Date/Time	Relinquished By:	Date/Time	Received By:	Date/Time
[signature]	9/20/99 1900					ARS	

* Shaded Areas for Lab use only.

** Please see reverse side for Bottle Group information.

last revised September 25,1998

*5035 kit: 2 40ml Sodium bisulfate 1 500ml glass.
1 25g Encore

CHAIN OF CUSTODY RECORD

ASC analytical services center

Ecology and Environment, Inc., Analytical Services Center
4493 Walden Avenue, Lancaster, New York, 14086, Tel: 716/685-8080, Fax 716/685-0852
Where Scientific Excellence and Efficiency Meet

Cooler No: _____
Lab: _____
Page: ____ of ____

PROJECT No:
SITE NAME: Whites Meats
LOCATION: (Include State) Ocala, Fl.
CLIENT: FDEP
PROJECT MANAGER: Richard Slephers
OFFICE No: Tallahassee
FIELD TEAM LEADER: Richard Slephers
PHONE No: (850) 574-1400
SAMPLERS: (PRINT) R. Slephers / P. Cherey

CONTAINER TYPE AND PRESERVATIVE: 40ml HCl; 5035 kit; 1 l. None; 1 liter Ice; 1 liter Ice; 1 l HNO3; 500ml NaOH

REQUESTED ANALYSIS

TURNAROUND TIME: 24-HOUR ☐ 48-HOUR ☐ 1-WEEK ☐ STANDARD ☑ RUSH ____ days OTHER ____

(FOR LAB USE ONLY)
Lab Job No:
Report type:
Batch QC: Yes No

DATE	TIME	SAMPLE ID	SAMPLE MATRIX	CHECK FOR MS/MSD	SAMPLE TYPE	No. OF CONTAINERS	VOCs	VOCs	metal/CN BNAs/Pest PCBs	BNAs	Pest/PCBs	Metals	Cyanide	OVA/HNU READINGS (PPM)	BEGINNING DEPTH (FEET BGS)	ENDING DEPTH (FEET BGS)	REMARKS
9/20/99	1020	WMSS-TB1	W	–	T	2	2										
9/20/99	1030	WMSS-1	S	–	O	2*		1	1								3cc soil
9/20/99	~~10~~ 1140	WMSS-2	S	–	O	2*		1	1								↓
9/20/99	1150	WMSS-3	S	–	O	2*		1	1								↓
9/20/99	1400	WMSS-RB1	W	–	R	9	3			2	2	1	1				
9/20/99	1450	WMSS-4	S	–	O	2*		1	1								3cc soil
9/20/99	1450	WMSS-4DUP	S	✓	D	2*		1	1								↓
9/20/99	1510	WMSS-5	S	–	O	2*		1	1								↓
9/20/99	1520	WMSS-6	S	–	O	2*		1	1								↓
9/20/99	1635	WM ~~SB-1~~ RS SS-7	S	–	O	2*		1	1								↓

Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	Ship Via:	Date:
[signature]	1800 9/20/99	Amzad B. Shaik	9-21-99 09:30		
Relinquished By: (Signature)	Date/Time:	Received By: (Signature)	Date/Time:	BL/Airbill Number:	

Temperature Blank Info.
Enclosed: Yes No

(FOR LAB USE ONLY)
Date: _____ Time: _____
Temperature: _____ °C

Distribution: White - Lab original Yellow - Field team leader