

Appendix 1: QAPP

Section 1.0
Date: 11/15/00
Page 1 of 1

Land Application of Residuals and Chicken Manure in the Lake Okeechobee Watershed: Phosphorus Considerations SFWMD Contract No. C-11653

Prepared by: Dr. J.C. Capece,
Southern DataStream, Inc.
PO Box 1577 LaBelle FL 33975
Tel: (863) 674-5727, Fax: (863) 675-1233

Dr. John Capece, Project Director

Date

Dr. Claudia Perlongo, Project QA Officer

Date

Dr. Tom Obreza, UF-IFAS SWFRL Project Officer

Date

Mr. Benno Eidus, UF-IFAS SWFRL QA Officer

Date

Dr. George O'Connor, UF-IFAS SCL Project Officer

Date

Ms. Angela Choate, UF-IFAS SCL QA Officer

Date

Dr. Donald Graetz, WBL-UF Project Officer

Date

Ms. Dawn Lucas, WBL-UF QA Officer

Date

Dr. Rao Mylavarapu, ARL-UF Project Officer

Date

Mr. Jim Bartos, ARL-UF QA Officer

Date

Mr. Jim Laing, SFWMD Project Manager

Date

Mr. Maurice Barker, FDEP Project Manager

Date

Mr. Andrew Tintle, FDEP Technical/QA Officer

Date

Section 2.0 TABLE OF CONTENTS

QUALITY ASSURANCE ELEMENTS

Section	Title	No.of Pages	Rev. Date
1.0	Title Page	1	
2.0	Table of Contents	2	
3.0	Project Description	9	
3.1	Site Identification and History		
3.1.1	Site History		
3.1.2	Summary of the Historical Data		
3.2	Project Scope and Purpose		
3.2.1	Purpose of the Project		
3.2.2	Intended end use of the data		
3.2.3	Projected Schedule and Scope of Work		
3.3	Project Organization		
3.3.1	Project Organization		
3.3.2	Personnel Modifications or Additions		
3.4	Project Objectives		
3.4.1	Data Quality Objectives		
3.4.2	Proposed samples for project		
3.4.3	Summary of Matrix Types, Analytical Methods and QA Targets		
4.0	Field Procedures and Quality Control	3	
4.1	Sampling Equipment		
4.2	Field Activities		
4.2.1	Sampling Protocols		
4.2.2	Disposal Protocols		
4.3	Field Measurements		
5.0	Laboratory Procedures and Quality Control	4	
5.1	Laboratory QC Checks		
6.0	Quality Assurance Management	1	
6.1	Corrective Action		
6.2	Performance and Systems Audits		
6.2.1	Field Activities		
6.2.2	Laboratory Activities		
6.3	Quality Assurance Reports		

LIST OF FIGURES

<u>Figure Number and Name</u>	<u>Page</u>	<u>Rev.</u> <u>Date</u>
3.1 Kirton Ranch Water Quality Data	3-3	
3.2 Project Organization	3-4	
3.3 Site Map – State of Florida	3-5	
3.4 Site Map – Site Location	3-5	
3.5 Site Map – Plot Orientation	3-6	

LIST OF TABLES

<u>Table Number and Name</u>	<u>Page</u>	<u>Rev.</u> <u>Date</u>
3.1 Summary of Data	3-3	
3.2 Proposed Samples, Matrices and Analytical Methods for the Project	3-8 to 3-10	
4.1 Proposed Sampling Equipment	4-2	
4.2 Field Activities	4-3	

LIST OF APPENDICES

<u>Appendix Name</u>	<u>No. of</u> <u>Pages</u>	<u>Rev.</u> <u>Date</u>
Field Sampling and Preparation Protocols not in CompQAPs	1	

Section 3.0 PROJECT DESCRIPTION

3.1 Site Identification and History

Site Name: Kirton Ranch

Site Address: NE 80th Ave, Okeechobee, FL 34972

3.1.1 Site history:

The project site is Kirton Ranch, located on the eastern boarder of Okeechobee County, Florida, (Sections 29, Township 36S, Range 36E). The ranch is situated 7 miles northeast of Okeechobee, and accessible from SR 70 on NE 80th Ave. The Ranch is located north of the Lake Okeechobee. Elevations range from 17 to 21 feet. The ranch is dominated by improved pastures. The properties is owned and managed by Dudley Kirton.

3.1.2 Summary of the historical data:

The South Florida Water Management District has collected nutrient concentration and loading data at Kirton Ranch during the past years. Representative data are presented in Table 3.1. The table also includes citations to source documents.

3.2 Project Scope and Purpose

3.2.1 Purpose of this project:

This plan is submitted as a requirement of Contract No. C-11653. The objective of the proposed project is to assess the water quality (phosphorus) implications of land application of three waste materials: waste water treatment plant residuals, potable water treatment plant residuals, and chicken manure.

3.2.2 Intended end use of the data:

- Permit Compliance
- Feasibility Study
- Consent Order Compliance
- Remedial Action
- Contamination Assessment
- Water Quality Data Base (specify database)
- Facility Operating Report
- Other: water quality monitoring to assess residuals management practice effectiveness

3.2.3 Projected schedule and scope of work:

Projected Beginning Date: July 13, 2000

Projected Ending Date: July 13, 2003

Major Project Tasks

Task	Deliverable	Weeks	Date
	Project Execution Date	0	13-Jul-00
1	PROJECT WORK PLAN		
1.1	Draft Work Plan	6	24-Aug-00
1.2	Final Work Plan	12	5-Oct-00
2	FATE & TRANSPORT OF P IN SOILS		
2.1	Initiate lab characterization	12	5-Oct-00
2.2	Begin construction	16	2-Nov-00
2.3	Complete lab characterization	24	28-Dec-00
2.4	Complete construction	28	25-Jan-01
3	EDUCATION OF LANDOWNERS		
3.1	Initial Workshop		Oct-00
3.2	Final Workshop		Jul-03
4	REPORTING ACTIVITIES		
4.1.1	Quarterly Report	36	22-Mar-01
4.1.2	Quarterly Report	49	21-Jun-01
4.1.3	Quarterly Report	62	20-Sep-01
4.1.4	Quarterly Report	88	21-Mar-02
4.1.5	Quarterly Report	101	20-Jun-02
4.1.6	Quarterly Report	114	19-Sep-02
4.2	Year 1 Annual Report	75	20-Dec-01
4.3	Year 2 Annual Report	127	19-Dec-02
4.4	Draft manuscript	150	29-May-03
4.5	Draft final report	150	29-May-03
4.6	All data, spreadsheets and programs	156	10-Jul-03
4.7	Final report	156	10-Jul-03
4.8	Final manuscript	156	10-Jul-03

Table 3.1

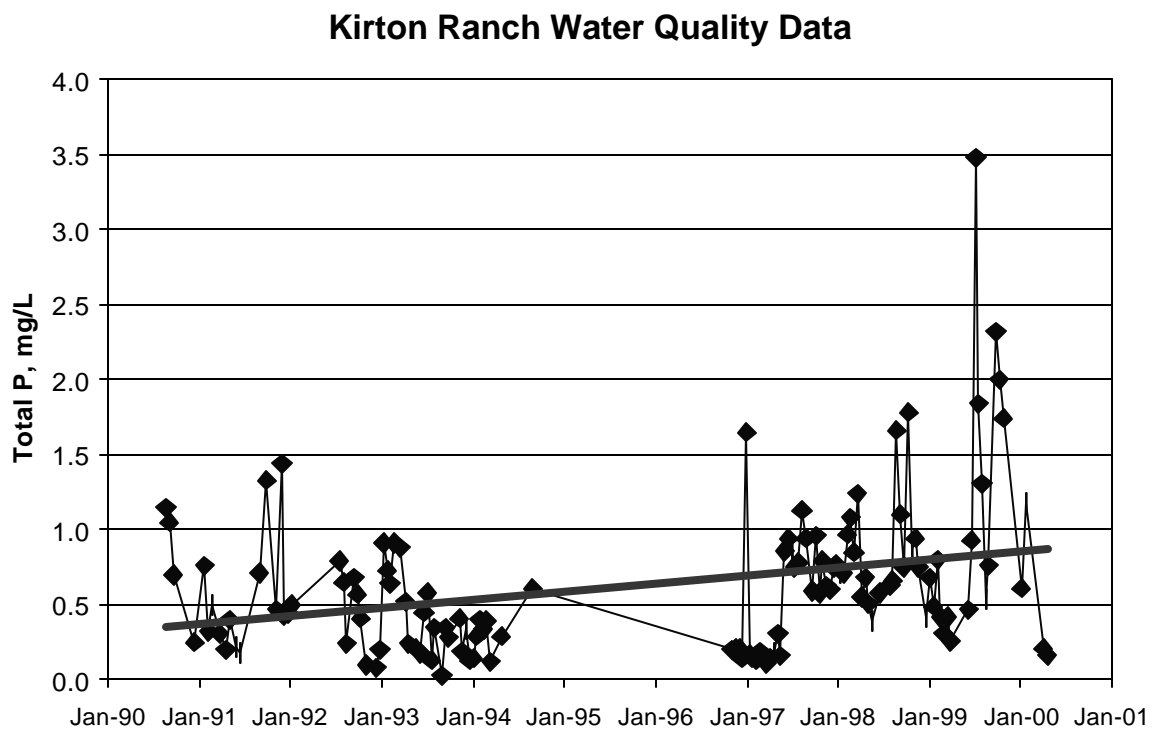
Summary of Historical Data.

Previous research conducted at Kirton Ranch shows mean total phosphorus concentration ranging from 0.03 mg/L to 3.48 mg/L.

Site	Average P Concentration [mg/L]	Standard Deviation [mg/L]	Maximum P Concentration [mg/L]	Minimum P Concentration [mg/L]
1	0.12	0.04	0.18	0.08
2	0.64	0.50	3.48	0.03
3	0.37	0.41	1.81	0.06

Figure 3.1

Kirton Ranch Water Quality Data. (SFWMD Monitoring Site 2)



3.3 Project Organization

3.3.1 Project organization:

Sample collection activities will be conducted by personnel under the supervision of the Project Director and the Project QA Officer. The laboratory analytical work will be performed by the Analytical Research Lab (UF-ARL), Soil Chemistry Laboratory (UF-SCL) Southwest Florida Research Laboratory (UF-SWFRL) and Wetland Biogeochemistry Laboratory (UF-WBL). Refer to Figure 3.1. for the specific organization of this project.

3.3.2 Personnel modifications or additions:

All project personnel are included in the CompQAPs of the referenced organizations.

3.4 Project Objectives

3.4.1. Data quality objectives:

- The data quality objectives for this project are the routine QA targets listed in the laboratory CompQAP.
- The minimum detection limits to be achieved for this study differ from the routine detection limits specified in the laboratory CompQAP and are included as a part of Table 3.2.
- The precision and accuracy requirements differ from the routine targets specified in the laboratory CompQAP and are included as a part of Table 3.2

3.4.2. Proposed samples for project:

- a. See Figure 3.2 for a map of the project site.
- b. See Table 3.2 of this Section for a summary the sampling and analysis activities.

3.4.3. Summary of matrix types, analytical methods and QA targets:

Field and laboratory analytical measurements are presented in Table 3.2.

Figure 3.1

Project Organization

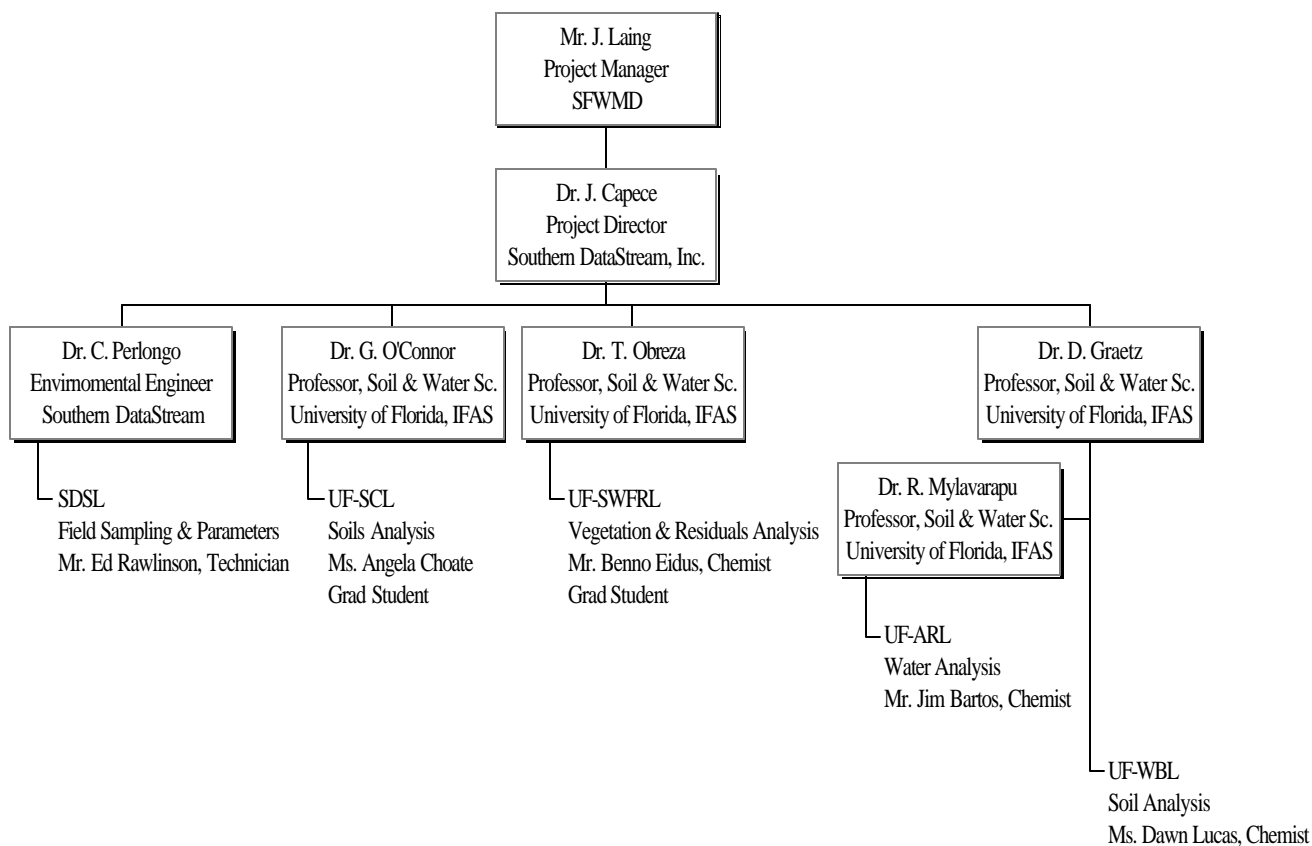


Figure 3.3

Site Map – State of Florida



Figure 3.4

Site Map – Site Location

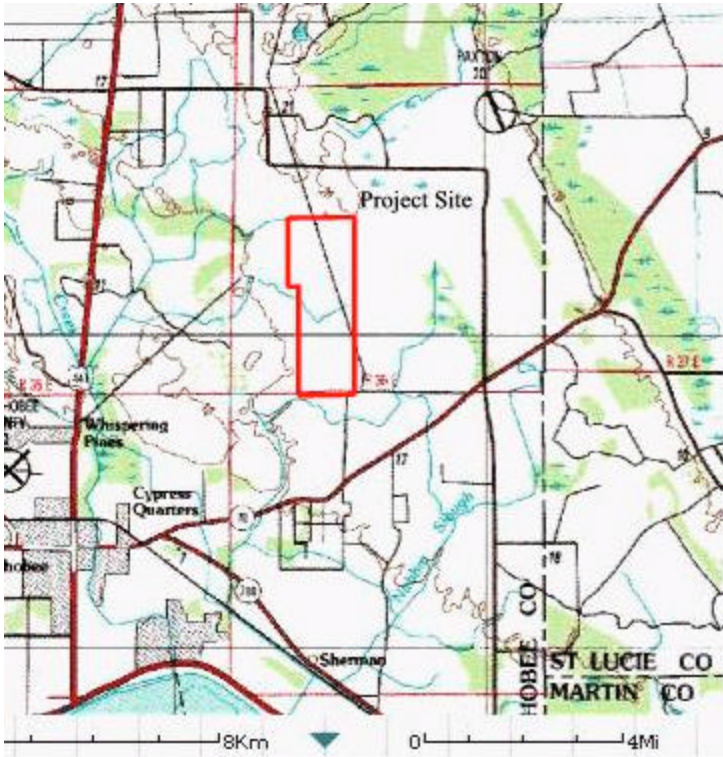


Figure 3.5

Site Map – Plot Orientation

Samples will be taken at each plot flume location and at shallow wells on each plot.

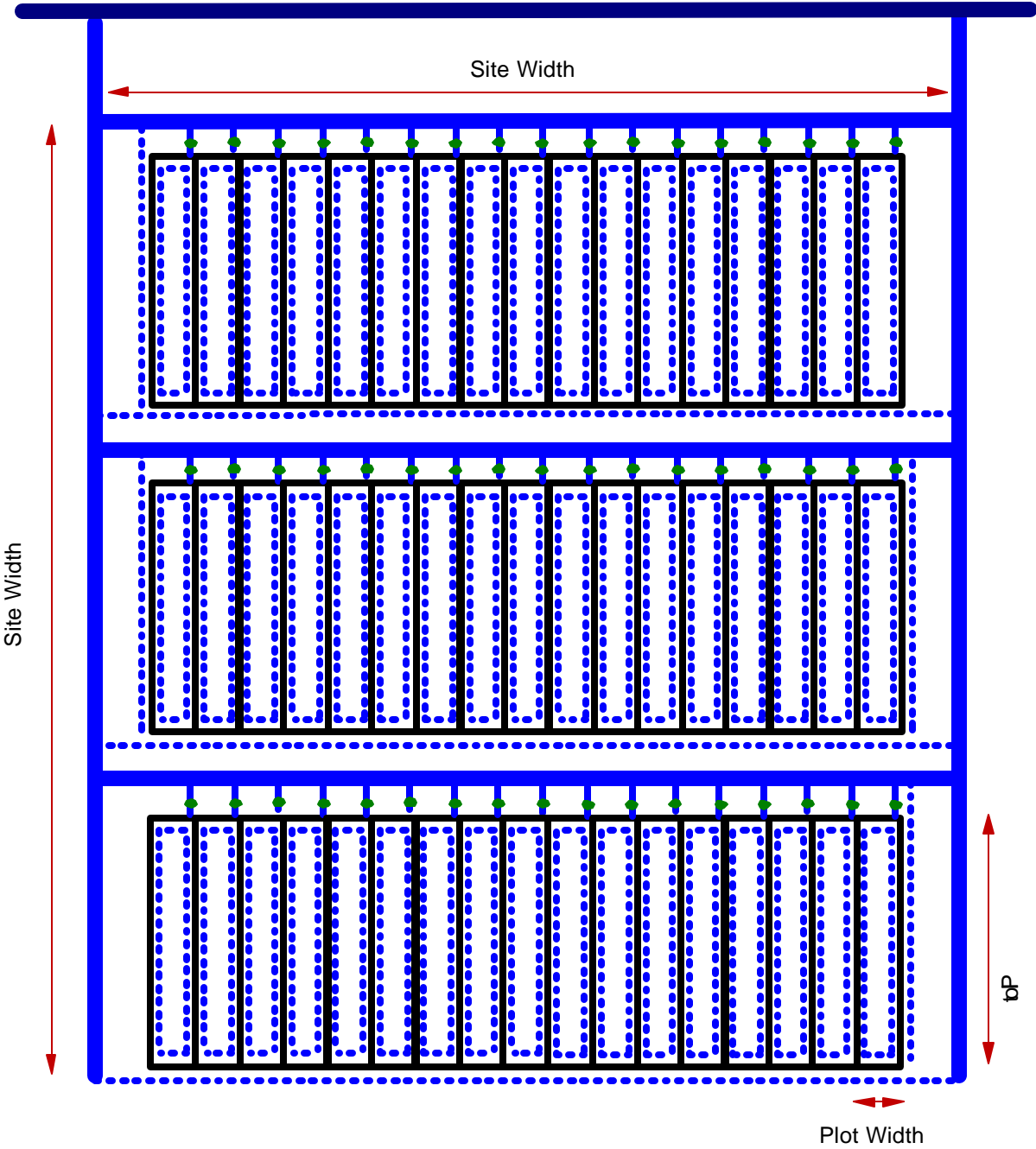


TABLE 3.2

PROPOSED SAMPLES, MATRICES AND ANALYTICAL METHODS FOR THE PROJECT

The standards criteria outlined in DEP Rule 62-550 are the detection limit criteria for this project. **The detection limits reported for this project shall at least meet, or be lower than the stated standards.**

FIELD MEASUREMENTS WILL BE PERFORMED BY: Southern Data Stream Laboratory (SDSL), whose CompQAP # is _____ dated _____.

<u>PARAMETER</u>	<u>*METHOD #</u>
pH	AOAC 973.41
Oxygen Dissolved	EPA 360.1
Temperature	SM 2550B
Specific Conductance	AOAC 973.40

*see web page for links to these methods (<http://www.SouthernDataStream.com/SDSL>)

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED BY THE ABOVE NAMED ORGANIZATION.

LABORATORY WATER ANALYSES WILL BE PERFORMED BY: Analytical Research Laboratory (UF-ARL), whose CompQAP # is 900007G/5 with annual amendments approved on 06/01/00.

FREQUENCY	SAMPLE MATRIX	SAMPLE SOURCE	# SAMPLES	QUALITY CONTROL SUMMARY			ANALYTICAL METHOD #	COMPONENT	QA TARGETS*		
				TB	EB	FD			P	A	MDL
Event-basis composite samples	Water	Ditch	2720	0	136	272	EPA 200.7	TPO4			
Bi-weekly and event-based grab samples	Water	Ditch	2720	0	136	272	EPA 365.1	TPO4			
	Water	Ditch	2720	0	136	272	EPA 365.1	TDPO4			
	Water	Ditch	2720	0	136	272	EPA 200.7	OPO4			
	Water	Ditch	2720	0	136	272	EPA 200.7	Total Al			
Monthly and event-based grab samples	Water	Wells	2720	0	136	272	EPA 365.1	TDPO4			
	Water	Wells	2720	0	136	272	EPA 365.1	OPO4			
	Water	Wells	2720	0	136	272	EPA 200.7	Total Al			

TB - Trip Blank EB - Equipment Blank FD - Field duplicate P - Precision A - Accuracy MDL - Method Detection Limit

*These values need to be completed if the Data Quality Objectives stated in the project description are different from the routine QA objectives cited in the CompQAP(s) or are not included in the CompQAP(s).

TABLE 3.2a

PROPOSED SAMPLES, MATRICES AND ANALYTICAL METHODS FOR THE PROJECT

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED BY THE ABOVE NAMED ORGANIZATION.

LABORATORY SOIL ANALYSES WILL BE PERFORMED BY: Soil Chemistry Laboratory (UF-SCL), whose CompQAP # is 970022 with annual amendments approved on 04/07/2000.

FREQUENCY	SAMPLE MATRIX	SAMPLE SOURCE	# SAMPLES	QUALITY CONTROL SUMMARY			ANALYTICAL METHOD #	COMPONENT	QA TARGETS*		
				TB	EB	FD			P	A	MDL
Quarterly	Soil	Pasture	680	n.m.	n/a	272	Mehlich I	Plant Available Phosphorus			
	Soil	Pasture	680	n.m.	n/a	272	Fe-oxide strip	Plant Available Phosphorus			
	Soil	Pasture	680	n.m.	n/a	272	EPA 365.1	Total P			
	Soil	Pasture	680	n.m.	n/a	272	EPA 9045c	pH			
	Soil	Pasture	680	n.m.	n/a	272	EPA 6010B	Extractable Al			
	Soil	Pasture	680	n.m.	n/a	272	EPA 6010B	Extractable Fe			
	Soil	Pasture	680	n.m.	n/a	272	EPA 160.3	Total Solid			

TB - Trip Blank EB - Equipment Blank FD - Field duplicate P - Precision A - Accuracy MDL - Method Detection Limit

*These values need to be completed if the Data Quality Objectives stated in the project description are different from the routine QA objectives cited in the CompQAP(s) or are not included in the CompQAP(s).

TABLE 3.2b

PROPOSED SAMPLES, MATRICES AND ANALYTICAL METHODS FOR THE PROJECT

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED BY THE ABOVE NAMED ORGANIZATION.

LABORATORY VEGETATION ANALYSES WILL BE PERFORMED BY: Southwest Florida Research Laboratory (UF-SWFRL), whose CompQAP # is 950266 with annual amendments approved on 09/29/1999.

FREQUENCY	SAMPLE MATRIX	SAMPLE SOURCE	# SAMPLES	QUALITY CONTROL SUMMARY			ANALYTICAL METHOD #	COMPONENT	QA TARGETS*		
				TB	EB	FD			P	A	MDL
Quarterly	Tissue extract	Tissue	570	n.m.	n/a	57	SM 4500-PE	Plant Phosphorus			
	Tissue extract	Tissue	570	n.m.	n/a	57	UF-IFAS SFRLT-AI	Total AI			
	Tissue extract	Tissue	570	n.m.	n/a	57	UF-IFAS SFRL DW	Dry Weight			

TB - Trip Blank EB - Equipment Blank FD - Field duplicate P – Precision A – Accuracy MDL - Method Detection Limit

*These values need to be completed if the Data Quality Objectives stated in the project description are different from the routine QA objectives cited in the CompQAP(s) or are not included in the CompQAP(s).

TABLE 3.2c

PROPOSED SAMPLES, MATRICES AND ANALYTICAL METHODS FOR THE PROJECT

FIELD SAMPLE COLLECTION ACTIVITIES WILL BE PERFORMED BY THE ABOVE NAMED ORGANIZATION.

LABORATORY SOIL ANALYSES WILL BE PERFORMED BY: Wetland Biogeochemistry Laboratory (UF-WBL), whose CompQAP # is 910051 with annual amendments approved on 04/07/2000.

FREQUENCY	SAMPLE MATRIX	SAMPLE SOURCE	# SAMPLES	QUALITY CONTROL SUMMARY			ANALYTICAL METHOD #	COMPONENT	QA TARGETS*		
				TB	EB	FD			P	A	MDL
Quarterly	Soil	Pasture	680	n.m.	n/a	68	Mehlich I	Plant Available Phosphorus			
	Soil	Pasture	680	n.m.	n/a	68	EPA 9045c	pH			

TB - Trip Blank EB - Equipment Blank FD - Field duplicate P - Precision A - Accuracy MDL - Method Detection Limit

*These values need to be completed if the Data Quality Objectives stated in the project description are different from the routine QA objectives cited in the CompQAP(s) or are not included in the CompQAP(s).

Section 4.0 FIELD PROCEDURES AND QUALITY CONTROL

This section specifies the protocols and procedures to be used by the **Southern DataStream Laboratory** when conducting sampling activities for this project.

4.1 Sampling Equipment

See Table 4.1 for a list of the equipment to be used for this project.

4.2 Field Activities - See Table 4.2.

4.2.1 Sampling protocols:

Sampling protocols for this project that are not specified by the CompQAP specified in Table 4.2 include the following: See Appendix A.

4.2.2 Disposal protocols:

Disposal protocols for handling wastes differ from those specified by the CompQAP. Wastes will be handled according to the following protocols: **N/A**

4.3 Field Measurements

Field measurements are listed in Table 3.2 of this QAPP.

TABLE 4.1
PROPOSED SAMPLING EQUIPMENT

The following equipment will be used by the **Southern DataStream Laboratory** for this project. With the exception of the additional equipment, discussions on use and restrictions are included in CompQAP# ?????? dated ??????.

Equipment Description	Construction Materials	Use
<i>Purging Equipment</i> (include construction of tubing, tail pipes, etc.)		
1. Peristaltic Pump	Vinyl Tubing (LPV)	Ground Water Collection
<i>Sampling Equipment</i>		
1. QED Post-filter 0.45 micron	Teflon	Ortho P Sample Filtration
2. Composite Sampler	HDPE bottles (5 gal)	Surface Water Collection
3. Dipper	HDPE	Surface Water Collection
4. Soil Auger	SS	Soil Sampling
Additional equipment not addressed in the CompQAP includes ¹ : Not applicable		
Field Measurement Equipment (construction does not need to be specified)		
1. pHTestr 2		
2. YSI 55 Dissolved Oxygen Meter		
3. TDSTestrs 3		
4. pH buffers (4, 7 and 10)		
5. Conductivity Standards 100 and 1000 uS/cm		

¹If the sampling protocols for using this equipment are not included in the cited CompQAP, the sampling protocols must be discussed in Section 4.2.1 of this Quality Assurance Project Plan.

TABLE 4.2

FIELD ACTIVITIES

The following field protocols will be used by the **Southern DataStream Laboratory**. The Comprehensive QA Plan number for this organization is _____ dated _____.

All protocols, procedures and policies in the above-mentioned document which are pertinent to this Quality Assurance Project Plan will be followed and are summarized below:

	VOCs	Extractable Organic	Metals	Inorganic Anion	Organic	Physical Property	Micro	Other
Groundwater				X		X		
Groundwater (in-place-plumbing)								
Potable Water								
Surface Water				X		X		
Soil								
Sediment/Sludges								
Automatic Samplers				X				
Field Filtration				X				
Wastewater								
Stormwater Runoff				X				
Pore Water/ Soil Extracts				X				

SAMPLE CONTAINERS

Sample containers will be supplied by the Southern DataStream Laboratory.

 Sample containers will be prepreserved by the above-referenced organization and additional acid will be provided; **OR**

X Field organizations will preserve samples on site using protocols outlined in the CompQAP.

EQUIPMENT DECONTAMINATION

Equipment decontamination will follow protocols outlined in the **Southern DataStream Laboratory** CompQAP.*

EQUIPMENT SHALL BE PRECLINED PRIOR TO ON-SITE ARRIVAL

*** If more than one organization is involved with these activities, this QAPP must specifically identify the equipment and/or sample containers to be provided by each organization.**

WASTE DISPOSAL

X The procedures for handling wastes from equipment cleaning and from sampling are discussed in the above-referenced CompQAP.

The disposal procedures for handling wastes for this project differ from those outlined in the above referenced CompQAP and are outlined in Section 4.2.2.

Section 5.0. LABORATORY PROCEDURES AND QUALITY CONTROL

Southern DataStream Laboratory (SDSL)

Field parameters and samples collection shall be conducted by the **Southern DataStream Laboratory (SDSL)**.
CompQAP dated .

All protocols, procedures and policies in the above-mentioned document which are pertinent to this Quality Assurance Project Plan shall be followed. The laboratory shall analyze the samples for this project by the methods specified in Table 3.2 of the QAPP.

5.1 Quality Control Checks

The types of laboratory control checks that will be used when analyzing samples for this project are:

Chemical:

<input checked="" type="checkbox"/> Reagent Blanks	<input type="checkbox"/> Matrix Spikes
<input checked="" type="checkbox"/> Duplicate Samples	<input checked="" type="checkbox"/> QC Check Samples
<input type="checkbox"/> Duplicate Matrix Spikes	<input checked="" type="checkbox"/> QC Check Standards
<input checked="" type="checkbox"/> Continuing Calibration Standards	
<input type="checkbox"/> Other: _____	

Microbiology:

<input type="checkbox"/> Duplicates	<input type="checkbox"/> Control Blanks (MF)
<input type="checkbox"/> Carry over blanks (MF)	<input type="checkbox"/> Dilution Blanks (MPN)
<input type="checkbox"/> Positive & Negative Controls	
<input type="checkbox"/> Other: _____	

Section 5.0 LABORATORY PROCEDURES AND QUALITY CONTROL

Soil Chemistry Laboratory (UF-SCL)

The laboratory analyses for soils and residuals samples shall be conducted by the **UF-Soil Chemistry Laboratory (UF-SCL)**. CompQAP 970022 with annual amendments approved on 04/07/00.

All protocols, procedures and policies in the above-mentioned document which are pertinent to this Quality Assurance Project Plan shall be followed. The laboratory shall analyze the samples for this project by the methods specified in Table 3.2 of the QAPP.

5.1 Quality Control Checks

The types of laboratory control checks that will be used when analyzing samples for this project are:

Chemical:

<input checked="" type="checkbox"/> Reagent Blanks	<input checked="" type="checkbox"/> Matrix Spikes
<input checked="" type="checkbox"/> Duplicate Samples	<input checked="" type="checkbox"/> QC Check Samples
<input checked="" type="checkbox"/> Duplicate Matrix Spikes	<input checked="" type="checkbox"/> QC Check Standards
<input checked="" type="checkbox"/> Continuing Calibration Standards	
<input type="checkbox"/> Other: _____	

Microbiology:

<input type="checkbox"/> Duplicates	<input type="checkbox"/> Control Blanks (MF)
<input type="checkbox"/> Carry over blanks (MF)	<input type="checkbox"/> Dilution Blanks (MPN)
<input type="checkbox"/> Positive & Negative Controls	
<input type="checkbox"/> Other: _____	

Section 5.0. LABORATORY PROCEDURES AND QUALITY CONTROL

Southwest Florida Research Laboratory (UF-SWFRL)

The laboratory analyses for vegetation samples shall be conducted by the **UF-IFAS Southwest Florida Research Laboratory (UF-IFAS SWFRL)**. CompQAP 950266 with annual amendments approved on 9/29/99.

All protocols, procedures and policies in the above-mentioned document which are pertinent to this Quality Assurance Project Plan shall be followed. The laboratory shall analyze the samples for this project by the methods specified in Table 3.2 of the QAPP.

5.1 Quality Control Checks

The types of laboratory control checks that will be used when analyzing samples for this project are:

Chemical:

<input checked="" type="checkbox"/> Reagent Blanks	<input type="checkbox"/> Matrix Spikes
<input checked="" type="checkbox"/> Duplicate Samples	<input checked="" type="checkbox"/> QC Check Samples
<input type="checkbox"/> Duplicate Matrix Spikes	<input checked="" type="checkbox"/> QC Check Standards
<input checked="" type="checkbox"/> Continuing Calibration Standards	
<input type="checkbox"/> Other: _____	

Microbiology:

<input type="checkbox"/> Duplicates	<input type="checkbox"/> Control Blanks (MF)
<input type="checkbox"/> Carry over blanks (MF)	<input type="checkbox"/> Dilution Blanks (MPN)
<input type="checkbox"/> Positive & Negative Controls	
<input type="checkbox"/> Other: _____	

Section 5.0. LABORATORY PROCEDURES AND QUALITY CONTROL

Wetland Biogeochemistry Laboratory (UF-WBL)

Laboratory analysis for site reconnaissance soil samples shall be conducted by the **Wetland Biogeochemistry Laboratory (UF-WBL)**. CompQAP 910051 with annual amendments approved on 8/02/00.

All protocols, procedures and policies in the above-mentioned document which are pertinent to this Quality Assurance Project Plan shall be followed. The laboratory shall analyze the samples for this project by the methods specified in Table 3.2 of the QAPP.

5.1 Quality Control Checks

The types of laboratory control checks that will be used when analyzing samples for this project are:

Chemical:

<input checked="" type="checkbox"/> Reagent Blanks	<input type="checkbox"/> Matrix Spikes
<input checked="" type="checkbox"/> Duplicate Samples	<input checked="" type="checkbox"/> QC Check Samples
<input type="checkbox"/> Duplicate Matrix Spikes	<input checked="" type="checkbox"/> QC Check Standards
<input checked="" type="checkbox"/> Continuing Calibration Standards	
<input type="checkbox"/> Other: _____	

Microbiology:

<input type="checkbox"/> Duplicates	<input type="checkbox"/> Control Blanks (MF)
<input type="checkbox"/> Carry over blanks (MF)	<input type="checkbox"/> Dilution Blanks (MPN)
<input type="checkbox"/> Positive & Negative Controls	
<input type="checkbox"/> Other: _____	

Section 5.0 LABORATORY PROCEDURES AND QUALITY CONTROL

Analytical Research Laboratory (UF-ARL)

The laboratory analyses for water samples shall be conducted by the **B. Analytical Research Laboratory (UF-ARL)**. CompQAP 900007G/5 with annual amendments approved on 6/01/00.

All protocols, procedures and policies in the above-mentioned document which are pertinent to this Quality Assurance Project Plan shall be followed. The laboratory shall analyze the samples for this project by the methods specified in Table 3.2 of the QAPP.

5.1 Quality Control Checks

The types of laboratory control checks that will be used when analyzing samples for this project are:

Chemical:

<input checked="" type="checkbox"/> Reagent Blanks	<input checked="" type="checkbox"/> Matrix Spikes
<input checked="" type="checkbox"/> Duplicate Samples	<input type="checkbox"/> QC Check Samples
<input type="checkbox"/> Duplicate Matrix Spikes	<input checked="" type="checkbox"/> QC Check Standards
<input checked="" type="checkbox"/> Continuing Calibration Standards	
<input checked="" type="checkbox"/> Other: Method Blanks _____	

Microbiology:

<input type="checkbox"/> Duplicates	<input type="checkbox"/> Control Blanks (MF)
<input type="checkbox"/> Carry over blanks (MF)	<input type="checkbox"/> Dilution Blanks (MPN)
<input type="checkbox"/> Positive & Negative Controls	
<input type="checkbox"/> Other: _____	

Section 6.0 QUALITY ASSURANCE MANAGEMENT

6.1 Corrective Actions

In addition to corrective actions cited in the approved Comprehensive QA Plans, **ALL INVOLVED PARTIES WILL INITIATE ANY CORRECTIVE ACTION DEEMED NECESSARY BY DEP.**

6.2 Performance and Systems Audits

6.2.1 Field activities:

Specific audits planned for this project are: **n/a**

6.2.2 Laboratory activities:

Specific audits planned for this project are: **n/a**

ALL INVOLVED PARTIES WILL CONSENT TO AUDITS BY DEP IF DEEMED NECESSARY.

6.3 Quality Assurance Reports

Project specific QA Reports will be submitted to Mr. Taufiqul Aziz, DEP, Bureau of Surface Water Management, 2600 Blair Stone Road, NS 2510, Tallahassee, FL 32399 – 2400 (Project Manager) and to the **DEP QA Section** at a frequency of once per quarter per Table 6 of 17-160, FAC, for direct contracts.

Note: Frequency must comply with Table V, Appendix D of the DEP Manual for Preparing Quality Assurance Plans or Table 6 of Chapter 62-160, F.A.C., Quality Assurance.

APPENDIX 1. Field Sampling and Protocols not in CompQAPs

Residuals Project Soil Samples

Sampling¹

1. Sampling equipment will be decontaminated per Section 4.1 of the DEP SOP Manual.
2. Use a standard, stainless steel soil sampling tube to take the samples.
3. Remove one 20-cm long soil core, 2 cm in diameter.
4. Composite the cores in a paper bag and transport to the laboratory at ambient temperature for preparation.

Preparation

1. Dry the soil samples in paper bags in a heated drying room.
2. Pass the dried soil through a 1-mm diameter stainless steel screen to remove any small rocks, shells, or undecomposed pieces of organic matter.
3. Discard the debris, and return the screened soil to the paper bag for storage at ambient temperature.

Extraction of Phosphorus²

1. Weigh 5.00 g of soil in a 50-mL extracting bottle.
2. Dispense 20 mL of Mehlich-1 extracting solution (0.0125 M H₂SO₄ and 0.050 M HCl) into each extracting bottle using an automatic pipette.
3. Shake each sample for 5 min. on a reciprocating shaker, then filter through an 11-cm, Whatman No. 42 filter paper into a 90 mL (3 oz) plastic cup.
4. Transfer the filtrate to a 20-mL plastic scintillation vial.

¹ From Citrus Grove Leaf-Tissue and Soil Testing: Sampling, Analysis, and Interpretation, by T. A. Obreza, A. K. Alva, E. A. Hanlon, and R. E. Rouse (Univ. of Florida-IFAS, Soil and Water Science Dept. Fact Sheet SL 115).

² From IFAS Extension Soil Testing Laboratory Chemical Procedures and Training Manual, by E. A. Hanlon, J. G. Gonzales, and J. M. Bartos (Univ. of Florida-IFAS Circular 812).

Appendix 2: CompQAP Example



COMPREHENSIVE QUALITY ASSURANCE PLAN

For

Southern DataStream Laboratory

P.O. Box 1577, LaBelle, Florida 33975

Dr. John C. Capece, SDSL Manager

Dr. Claudia Perlongo, SDSL QA Officer

October 1, 2000

**NOTE: DEP NOW REQUIRES ELECTRONIC SUBMISSION OF
COMPQAP...no hardcopy available**

PA Plan Elements

- 1.0 Key Personnel
- 2.0 SDSL Abilities – Sampling and Analytical
- 3.0 Sampling Equipment and Analytical Instrumentation

1.0 Key Personnel

Figure 1.1 Organization Chart

