Task 2.3

Quarterly Status Report #3

For the Project entitled

Lamb Island Dairy Remediation

SFWMD Contract No. C-13410

Submitted by
HSA Engineers & Scientists

HSA Project No. 8005-7106-00
October 2005

Introduction

This is the third of the six required quarterly status reports for the Lamb Island Dairy Remediation project. The Contract requires quarterly status reports beginning concurrently with the construction of the remedial alternatives. A Contract Amendment (Amendment No. 1 to Contract No. C-13410) was entered into on March 21, 2004, which set in-place the design conditions included in the Final Detailed Design and Specifications Package. The construction of the remedial alternative is complete and water quality monitoring activities have begun. This report covers the period of October 1, 2004 to December 31, 2004. The primary activities completed during this reporting period have been the submittal of the Project Performance Monitoring Plan, and the required quarterly water quality sampling trip.

Site Condition

The Lamb Island Dairy site is in good general condition. The areas seeded with bahia grass have grown in well with a few areas of spotty growth. In all other areas the vegetation has grown extremely fast. All major constructed features remain in good condition. No major rain events have taken place during this seasonally dry quarter with only occasional frontal systems dropping a negligible amount of rain. All stormwater runoff appears to be retained on-site and no runoff has been observed leaving the site.

Quarterly Sampling Event

On November 18, 2004 the first of the six quarterly scheduled sampling events was completed. **Figure 1** shows the location of the six surface water sampling location and the one ground water monitoring location just south of Pond 3. **Table 1** shows water quality results for all sampling locations and GPS coordinates for each location. **Appendix A** contains laboratory results and sample chain of custody. **Appendix B** contains field sampling notes. All sampling was conducted in accordance with FDEP Quality Assurance Rule, Chapter 62-160.210 F.A.C., the associated FDEP SOPs, and HSA's Quality Assurance Manual.

Table 1. Quarterly Sampling Results for 11/18/04

	SW-1	SW-2	SW-3	SW-4	SW-6	GW-1
TP	2.1	1.6	2.5	4.4	0.82	0.085
Ortho-P (OPO)	2	1.4	2.4	4.2	0.62	--
Total Aluminum						3.1

Note: All values shown in mg/L

Sampling location SW-1 was collected for Total Phosphorus (TP) and Ortho-Phosphorus (OPO) analysis. At the time of sampling there was no flow through this sampling location and a sample was obtained in the ponded water just in front of the upstream side of the culvert. Results for TP and OPO were reported at 2.1 parts per million (ppm) and

2.0 ppm, respectively. An equipment blank sample was also collected and results for TP and OPO analysis were reported Below Detection Limit (BDL) for both analysis.

Sampling location SW-2 was collected for TP and OPO analysis. At the time of sampling there was no flow through this sampling location and a sample was obtained in the ponded water just in front of the upstream side of the culvert. Results for TP and OPO were 1.6 ppm and 1.4 ppm, respectively.

Sampling location SW-3 was collected for TP and OPO analysis. At the time of sampling there was no flow through this sampling location and a sample was obtained in the ponded water just in front of the upstream side of the culvert. Results for TP and OPO were 2.5 ppm and 2.4 ppm, respectively.

Sampling location SW-4 was collected for TP and OPO analysis. At the time of sampling there was no flow through this sampling location and no ponded water. A sample was collected from the north side of the wetland to the south of SW-4 which is directly fed by water from this sampling location. Results for TP and OPO were 4.4 ppm and 4.2 ppm, respectively.

Sampling location SW-5 was completely dry and therefore no sample was taken at all.

Sampling location SW-6 is located in Pond 3 and was collected and analyzed for TP and OPO analysis. The sample was collected on the north side of the pond approximately midway between the east and west end of the pond. Results for TP and OPO were 0.82 ppm and 0.62 ppm, respectively. Previous sampling in Pond 3 after alum treatment yielded results less than the latest phosphorus value. The elevated results are likely the result of storm water runoff into the pond from HIA area.

Sampling location GW-1 is a shallow groundwater well located near the south side of Pond 3. This well was installed and sampled prior to alum treatment in Pond 3 to assess the impact of Alum treatment of Pond 3 water to the regional groundwater as well as groundwater TP concentration. The well has total depth of 8.8 feet from the top of casing and at the time of sampling the depth to water was 4.5 feet. Background values of Total Aluminum prior to alum treatment of Pond 3 for sampling on June 15, 2004 and June 22, 2004 were 1.13 ppm and 3.32 ppm respectively and for TP the value were 0.33 ppm and 0.25ppm. Results for Total Aluminum analysis of the ground water during the quarterly sampling event was 3.1 ppm and TP results were 0.085 ppm.

Fourth Quarter Activities

Task to be completed next quarter are:

- Scheduled Quarterly Sampling Trip
- Rainfall driven sampling events
- Staff Gage Installation

GW Monitoring Well

SW6

Culvert

Staff Gauge
No. 1

SW1

HIA Containment Berm

New culvert and
cross-over

Culvert

Overflow Culvert

Eco-Reactor

SW2

Terrace Berm

Culvert

Terrace Berm

Edge of Farm
Containment
Berm

Staff Gauge
No. 2

Discharge
Culvert

SW3

SW4

Terrace Berm

Staff Gauge No. 3

Discharge Culvert

SW5

North

Scale: 1" = 500'

Figure 1 Site Plan and Monitoring Stations

LEGEND

SW5 Surface Water Sampling Location

Surface Water Flow Direction

Alum Amended Pond Waters

Pond 1 & 2 Backfilled With Soil
After Alum Amending Animal
Wastes

Culvert

Invoicing Status Sheet

SFWMD Contract No. C-13410	Q-3 Report			December 31, 2004
TASKS / DELIVERABLES DESCRIPTION	**Task Budget**	**Invoiced this Period**	**Invoiced to Date**	**Retainage Not Invoiced**
TASK 1 - Detailed Design for Selected Alternatives				
1.1 Project kick-off meeting	$1,500	$0	$1,500	
1.2 Draft Preliminary 30% Design Package	$21,223	$0	$21,223	
1.3 Final Preliminary 30% Design Package	$3,975	$0	$3,975	
1.4 Detailed 90% Design Package	$7,603	$0	$7,603	
1.5 Final Detailed Design and Specifications Package	$4,227	$0	$4,227	
1.6 Construction Completion	$282,493	$58,763	$245,998	
TASK 2 - Project Implementation and Performance Monitoring				
2.1 Draft Performance Monitoring Plan	$4,507	$0	$4,507	
2.2a Final Performance Monitoring Plan	$2,100	$0	$0	
2.2b One (1) Year of Monitoring (15 events)	$10,033	$0	$0	
2.3 Quarterly Reports	$17,770	$0	$0	
2.4 Quarterly Site Meetings	$4,060	$0	$0	
TASK 3 - Project Performance Evalutation				
3.1 Draft O&M Plan	$3,985	$0	$0	
3.2 Final O&M Plan	$1,933	$0	$0	
3.3 Draft Final Report	$11,715	$0	$0	
3.4 Final Project Report	$4,856	$0	$0	
Totals	**$381,980**	**$58,763**	**$289,033**	

MWBE Participation:

Amount to date = $ 41,611.40
MWBE Goal = 7.0%
Target Project Goal = $ 26,738.60

APPENDIX A

Client #: FTL-95-060107
Address: HSA Engineers & Scientists
1486-A Skees Road
West Palm Beach, FL 33411
Attn: Terry Horan

Page: Page 1 of 1
Date: 11/30/2004
Log #: L101534-3

Sample Description:

Lamb Island Dairy Remediation
Proj.#: 80057106

Analytical Report: SW-3
Date Sampled: 11/18/04
Time Sampled: 00:00
Date Received: 11/19/04
Collected By: Client

Parameter	Results	Units	Method	Report Limit	Extr. Date	Analysis Date	Analyst
General Chemistry							
Orthophosphate as P	2.4	mg/l	365.1	0.050	11/19 18:10	11/19 18:10	MS
Total Phosphorus as P	2.5	mg/l	365.1	0.050	11/22 17:00	11/23 10:11	EF

All analyses were performed using EPA, ASTM, NIOSH, USGS, or Standard Methods and certified to meet NELAC requirements.
Flags: BDL or U-below reporting limit; DL-diluted out; IL-meets internal lab limits; MI-matrix interference; NA-not appl.
Flags: CFR-Pb/Cu rule; ND-non detect(RL estimated); NFL-no free liquids; dw-dry wt; ww-wet wt; C(#)-see attached USB code
FLDEP Flags: J(#)-estimated 1:surr. fail 2:no known QC req. 3:QC fail %R or %RPD; 4:matrix int. 5:improper fld. protocol
FLDEP Flags: L-exceeds calibration; Q-holding time exceeded; T-value < MDL; V-present in blank
FLDEP Flags: Y-improper preservation; B-colonies exceed range; I-result between MDL and PQL

FLDOH/NELAC# E86240
NC CERT# 444
SC CERT# 96031001
IL/NELAC CERT# 200020
VA CERT# 00395
KS/NELAC# E-10360
ADEM ID# 40850
TN CERT# 02985
GA CERT# 917
USDA Soil Permit# S-35240

Respectfully submitted,

LouAnn Jones
Project Manager

Client #: FTL-95-060107
Address: HSA Engineers & Scientists
1486-A Skees Road
West Palm Beach, FL 33411
Attn: Terry Horan

Page: Page 1 of 1
Date: 11/30/2004
Log #: L101534-2

Sample Description:

Lamb Island Dairy Remediation
Proj.#: 80057106

Analytical Report: SW-2
Date Sampled: 11/18/04
Time Sampled: 00:00
Date Received: 11/19/04
Collected By: Client

Parameter	Results	Units	Method	Report Limit	Extr. Date	Analysis Date	Analyst
General Chemistry							
Orthophosphate as P	1.4	mg/l	365.2	0.010	11/19 15:38	11/19 15:38	MS
Total Phosphorus as P	1.6	mg/l	365.1	0.010	11/22 17:00	11/23 10:11	EF

All analyses were performed using EPA, ASTM, NIOSH, USGS, or Standard Methods and certified to meet NELAC requirements.
Flags: BDL or U-below reporting limit; DL-diluted out; IL-meets internal lab limits; MI-matrix interference; NA-not appl.
Flags: CFR-Pb/Cu rule; ND-non detect(RL estimated); NFL-no free liquids; dw-dry wt; ww-wet wt; C(#)-see attached USB code
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FLDEP Flags: Y-improper preservation; B-colonies exceed range; I-result between MDL and PQL

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Respectfully submitted,

LouAnn Jones
Project Manager

USBIOSYSTEMS

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Address: HSA Engineers & Scientists
1486-A Skees Road
West Palm Beach, FL 33411
Attn: Terry Horan

Page: Page 1 of 1
Date: 11/30/2004
Log #: L101534-1

Sample Description:

Lamb Island Dairy Remediation
Proj.#: 80057106

Analytical Report: SW-1
Date Sampled: 11/18/04
Time Sampled: 09:32
Date Received: 11/19/04
Collected By: Client

Parameter	Results	Units	Method	Report Limit	Extr. Date	Analysis Date	Analyst
General Chemistry							
Orthophosphate as P	2.0	mg/l	365.2	0.010	11/19 15:38	11/19 15:38	MS
Total Phosphorus as P	2.1 C8	mg/l	365.1	0.050	11/22 17:00	11/23 10:11	EF

All analyses were performed using EPA, ASTM, NIOSH, USGS, or Standard Methods and certified to meet NELAC requirements.
Flags: BDL or U-below reporting limit; DL-diluted out; IL-meets internal lab limits; MI-matrix interference; NA-not appl.
Flags: CFR-Pb/Cu rule; ND-non detect(RL estimated); NFL-no free liquids; dw-dry wt; ww-wet wt; C(#)-see attached USB code
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ADEM ID# 40850
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USDA Soil Permit# S-35240

Respectfully submitted,

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Project Manager

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Page: Page 1 of 1
Date: 11/30/2004
Log #: L101534-4

Sample Description:

Lamb Island Dairy Remediation
Proj.#: 80057106

Analytical Report: SW-4
Date Sampled: 11/18/04
Time Sampled: 00:00
Date Received: 11/19/04
Collected By: Client

Parameter	Results	Units	Method	Report Limit	Extr. Date	Analysis Date	Analyst
General Chemistry							
Orthophosphate as P	4.2	mg/l	365.1	0.050	11/19 18:10	11/19 18:10	MS
Total Phosphorus as P	4.4	mg/l	365.1	0.050	11/22 17:00	11/23 10:11	EF

All analyses were performed using EPA, ASTM, NIOSH, USGS, or Standard Methods and certified to meet NELAC requirements.
Flags: BDL or U-below reporting limit; DL-diluted out; IL-meets internal lab limits; MI-matrix interference; NA-not appl.
Flags: CFR-Pb/Cu rule; ND-non detect(RL estimated); NFL-no free liquids; dw-dry wt; ww-wet wt; C(#)-see attached USB code
FLDEP Flags: J(#)-estimated 1:surr. fail 2:no known QC req. 3:QC fail %R or %RPD; 4:matrix int. 5:improper fld. protocol
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Project Manager

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Attn: Terry Horan

Page: Page 1 of 1
Date: 11/30/2004
Log #: L101534-5

Sample Description:

Lamb Island Dairy Remediation
Proj.#: 80057106

Analytical Report: SW-6
Date Sampled: 11/18/04
Time Sampled: 11:34
Date Received: 11/19/04
Collected By: Client

Parameter	Results	Units	Method	Report Limit	Extr. Date	Analysis Date	Analyst
General Chemistry							
Orthophosphate as P	0.62	mg/l	365.1	0.010	11/19 15:30	11/19 15:30	MS
Total Phosphorus as P	0.82	mg/l	365.1	0.010	11/22 17:00	11/23 10:11	EF

All analyses were performed using EPA, ASTM, NIOSH, USGS, or Standard Methods and certified to meet NELAC requirements.
Flags: BDL or U-below reporting limit; DL-diluted out; IL-meets internal lab limits; MI-matrix interference; NA-not appl.
Flags: CFR-Pb/Cu rule; ND-non detect(RL estimated); NFL-no free liquids; dw-dry wt; ww-wet wt; C(#)-see attached USB code
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FLDEP Flags: L-exceeds calibration; Q-holding time exceeded; T-value < MDL; V-present in blank
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ADEM ID# 40850
TN CERT# 02985
GA CERT# 917
USDA Soil Permit# S-35240

Respectfully submitted,

LouAnn Jones
Project Manager

CHAIN OF CUSTODY RECORD

USBIOSYSTEMS
3231NW 7th Ave, Boca Raton, FL 33431
www.usbiosystems.com

Log# 101534 T#S 7 Quote:_____ Page 1 of 1

SHORT HOLD

Container Type Codes			
AV	Amber Vial	ES	Encore Sampler
CV	Clear Vial	PPV	Prepreserved vial
P	Plastic	PL C	Plastic container
AL	Amber Liter	PL J	Plastic Jar
CL	Clear Liter	Ziploc	Ziploc bag
AP	Amber Plastic	TEDLAR B	Tedlar bag
AG	Amber Glass	WHIRL P	Whirl pak
SJ	Soil Jar	G	Gallon Jug
Other_____			

Size(s): 2oz, 4oz, 8oz, 16oz, 32oz or 1L, 40ml other_____
Example: 4ozP = 4oz Plastic, 8ozSJ= 8oz Soil Jar

Matrix Codes*			
SD	Solid Waste	OL	Oil
GW	Ground Water	SL	Sludge
EFF	Effluent	SO	Soil Sediment
AFW	Analyte Free H20	AQ	Aqueous
WW	Waste Water	NA	Nonaqueous
DW	Drinking Water	PE	Petroleum
SW	Surface Water	O	Other_____ (Please specify)
ML	Misc. Liquid		

Pres/Codes		
A. None	E. HCL	I. Ice
B. HNO3	F. MeOH	J. MCAA
C. H2SO4	G. Na2S2O3	K. Zn Acetate
D. NaOH	H. NaHSO4	O. Other

Company Name: HSA Engineers PO#
Address: 14906-A Skees Rd.
City: West Palm Beach State: FL Zip: 33411
Attn: Terry Horan Fax# 561-688-9225
email: THoran@HSA-ENV.com
Project Name: Lamb Island Dairy Remediation Proj # 8605 7106
Sampler Signature Phone#

LAB ANALYSIS

#	Sample Label (Client ID)	Collect Date	Collect Time	Matrix Code*	Field Filtered	Lab Filtered	QA/QC	Total # of containers	Parameters										# of Containers Size/Type
									Sample	1		4							1 16ozP
									TRC										
									pH	2	7	2							
									Pres. Codes	C	A	B							
										TPO4	ortho-P	Total AL							
i.e.	MW-1	6/16/2004	11:35	GW	X			1											
1	SW-1	11/18/04	932	SW	✓			2		1 4ozP	1 8ozP		1AP 1SJ						
2	SW-2	11/18/04		SW	✓			2											
3	SW-3	11/18/04		SW	✓			2											
4	SW-4	11/18/04		SW	✓			2											
5	SW-6	11/18/04	1134	SW	✓			2											
6	GW-1	11/18/04	1115 1034	GW				2		1 4oz		1 4oz	2AP						
7	EB-1	111804	932	AFW				2		4P	8P		1AP 1SJ						
8																			
9																			
0																			

EXAMPLE Diss. 8RCRA 6010

REMARKS

17

8 111904

ORIGINAL

Standard / RUSH: Y/N Date Required
Short Hold: Y ✓ N
QA/QC Report Level: None 1 2 3 Other
COC OK: Y ✓ N
Initials: 8
Required State Certification:

Coolers #s: 198

Item	Relinquished by	Affiliation	Date	Time	Received by	Affiliation	Date	Time
	[signature]	USB	11-12-04	0818	[signature]	USB	11/19/04	11:14
	[signature]	HSA	11/19/04	11:14				
	[signature]	USB	11/18/04	12:36	[signature]	USB	111904	1445

Lab Use Only

	Yes	No	N/A
Sample INTACT upon arrival?	✓		
Received on Wet Ice? Temp ___ °C			
Proper Preservatives Indicated?			
Received within holding time?			
Custody seals Intact?			
Volatile rec'd without headspace?			
Proper Containers Used?			1

C.O.C.# 92818

Client #: FTL-95-060107
Address: HSA Engineers & Scientists
1486-A Skees Road
West Palm Beach, FL 33411
Attn: Terry Horan

Page: Page 1 of 1
Date: 11/30/2004
Log #: L101534-7

Sample Description:

Lamb Island Dairy Remediation
Proj.#: 80057106

Analytical Report: Equipment Blank
Date Sampled: 11/18/04
Time Sampled: 09:32
Date Received: 11/19/04
Collected By: Client

Parameter	Results	Units	Method	Report Limit	Extr. Date	Analysis Date	Analyst
General Chemistry							
Orthophosphate as P	BDL	mg/l	365.1	0.010	11/19 15:38	11/19 15:38	MS
Total Phosphorus as P	BDL	mg/l	365.1	0.010	11/22 17:00	11/23 10:11	EF

All analyses were performed using EPA, ASTM, NIOSH, USGS, or Standard Methods and certified to meet NELAC requirements.
Flags: BDL or U-below reporting limit; DL-diluted out; IL-meets internal lab limits; MI-matrix interference; NA-not appl.
Flags: CFR-Pb/Cu rule; ND-non detect(RL estimated); NFL-no free liquids; dw-dry wt; ww-wet wt; C(#)-see attached USB code
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USDA Soil Permit# S-35240

Respectfully submitted,

LouAnn Jones
Project Manager

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Address: HSA Engineers & Scientists
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West Palm Beach, FL 33411
Attn: Terry Horan

Page: Page 1 of 1
Date: 11/30/2004
Log #: L101534-6

Sample Description:

Lamb Island Dairy Remediation
Proj.#: 80057106

Analytical Report: GW-1
Date Sampled: 11/18/04
Time Sampled: 11:15
Date Received: 11/19/04
Collected By: Client

Parameter	Results	Units	Method	Report Limit	Extr. Date	Analysis Date	Analyst
Metals							
Aluminum	3.1	mg/l	3010/6010	0.050	11/23 11:25	11/29 21:41	EB
General Chemistry							
Total Phosphorus as P	0.085	mg/l	365.1	0.010	11/22 17:00	11/23 10:11	EF

All analyses were performed using EPA, ASTM, NIOSH, USGS, or Standard Methods and certified to meet NELAC requirements.
Flags: BDL or U-below reporting limit; DL-diluted out; IL-meets internal lab limits; MI-matrix interference; NA-not appl.
Flags: CFR-Pb/Cu rule; ND-non detect(RL estimated); NFL-no free liquids; dw-dry wt; ww-wet wt; C(#)-see attached USB code
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FLDOH/NELAC# E86240
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ADEM ID# 40850
TN CERT# 02985
GA CERT# 917
USDA Soil Permit# S-35240

Respectfully submitted,

LouAnn Jones
Project Manager

APPENDIX B

SUNNY RON + DAVE

11-18-04 SW-5
NO WATER ON ARRIVAL
INSTALLED ID STAKES + MARKERS
TOOK PHOTOS
GPS COORDINATES - 27° 22' 52.8" N
080° 58' 20.9" W
NO SAMPLE TAKEN

SW-4 DRY (NO WATER)
GPS COORDINATES N 27° 22' 59.5"
W 080° 58' 19.2"
TEMP - 68.52 DO - 4.48 ORP - 62.3
COND - 189 PH - 7.26
COLLECTED SAMPLE FROM WETLAND SOUTH OF IT
NO FLOW
INSTALLED STAKES + MARKERS FOR ID
SAMPLED FOR TP + OPO

SUNNY

RON + DAVE

11-18-04

SW-6

GPS Coordinates 27° 23' 22.4" N
80° 58' 28.1 W

Temp 70.93 DO - 8.10 ORP - 43.1
Cond 878 PH - 7.11

Sample collected @ 1134 for TP, + OPO
Installed ID stakes + markers

SW-3

Noticed three cows grazing ??

GPS Coordinates 27° 23' 01.6" N
80 58' 29.0" W

Temp - 69.97 DO - 2.21 ORP - 23.7
Cond - 262 mS/cm PH - 7.43
Water looks like ice tea (Note)
No flow
Installed stakes + markers
Took Photos
Collected Sample for TP, + OPO

11-18-04

RON + DAVE

CONTINUE PURGE @ GW-1

@ 10:42 Temp - 75.73 PH - 6.14
Cond - 143 ~~uS~~ ORP - 20.0
DO - 0.22

@ 10:45
Temp - 75.70 PH - 5.73
Cond. - 146 US ORP - 28.1
DO - 0.33

@ 10:48
Temp - 75.77 PH - 5.73
Cond - 143 US ORP - 32.1
DO - 0.26

@ 10:51
Temp - 75.76 PH - 5.73
Cond - 147 ORP - 32.1
DO - 0.23

11:15 - 8 NTU
Collected Sample for TP, + Alum.
Total depth = 8.78
Installed stakes + markers + Photos

Partly Cloudy 78°

RON + DAVE

11-18-04

Lamb Island Monitoring Plan

Collected sample from SW-1 @ 0932
Standing water (No flow).
sampled for TP, + OPO
installed ~~STEAKS~~ RODS to mark sample location.
STAKES
* Took equipment blank

GPS Coordinates: (27° 23' 18.3" N
80° 58' 19.2 W)
Temp - 68.10 DO - 2.54 ORP - -17.7
Cond - 365 US PH - 6.53
Took Photos

Collected sample from GW-1 @
Sampled for TP + Aluminum

GPS Coordinates: 27° 23' 19.8"
80° 58' 29.9"

well diameter 1 1/4"
DTW: 4.50 feet
Well Depth:

~~Started purge @ 10.25~~

@1039 75.76 - Temp PH - 6.41
146 - ~~US~~(Cond) ORP - 16.5
DO - 0.35 mgL

RON + DAVE

11-18-04 SW-2
GPS Coordinates N 27°23'13.9"
W080°58'23.6"

Temp - 71.24 DO - 43.0 ORP - 48.0
Cond - 552 PH - 6.99
Collected Sample for TP, + OPO (NO Flow)
Installed ID markers + Stakes
Took Photos