

**SUMTER COUNTY  
(CLOSED) LANDFILL  
QUARTERLY GROUNDWATER  
MONITORING REPORT  
Quarter IV (November) 2009**

*Prepared for:*

**SUMTER COUNTY  
SOLID WASTE DEPARTMENT  
SUMTER COUNTY, FLORIDA**

*Prepared by:*

**THE COLINAS GROUP, INC.  
509 N. Virginia Avenue  
Winter Park, Florida 32789**

**December 2009**

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**THE COLINAS GROUP, INC.**  
HYDROGEOLOGISTS & ENGINEERS

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December 17, 2009

**Mr. John Morris, P.G.**  
Florida Department of Environmental Protection  
13051 N. Telecom Parkway  
Temple Terrace, Florida 33637

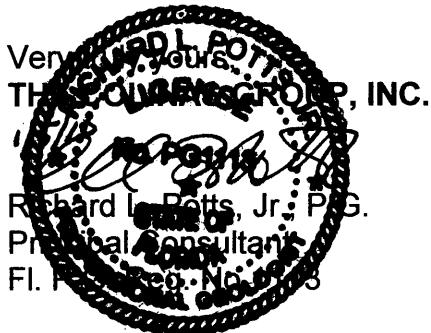
**Subj: Quarter IV 2009 Groundwater Monitoring Report**  
**Sumter County Closed Class I Landfill**  
**Sumter County, Florida**  
**FDEP Permit No. 22926-003-SF**

Dear Mr. Morris:

On behalf of Sumter County Board of County Commissioners, The Colinas Group, Inc. (TCG) herewith submits one (1) copy of the report prepared by TCG entitled:

**Sumter County (Closed) Landfill Quarterly Groundwater Monitoring Report,  
Quarter IV (November) 2009**

The report was prepared and is submitted in satisfaction of part of the requirements of the Sumter County Closed Landfill Long-Term Care Permit. If you have any questions concerning the contents of the report please do not hesitate to contact me at your convenience.



cc: Ms. Miram Zimms (KCI)  
Ms. Denise Warnock (Sumter County)  
Mr. Jimmy Wise (Sumter County)

**SUMTER COUNTY (CLOSED) LANDFILL  
GROUNDWATER MONITORING REPORT,  
SUMTER COUNTY, FLORIDA  
Quarter IV (November) 2009**

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2. Laboratory Analytical Report
3. Field Data and Testing Logs
4. Chain-of-Custody Forms
5. Laboratory/Field Quality Control Reports
6. FDEP ADaPT/pdf Disc - (In Pocket)

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**Sumter County (Closed) Landfill  
Quarterly Groundwater Monitoring Report  
Quarter IV (November) 2009**

**INTRODUCTION**

The Colinas Group, Inc. (TCG) has reviewed the groundwater monitoring well sampling and analytical results for the Quarter IV (November) 2009 sampling event at the Sumter County (Closed) Landfill near Lake Panasoffkee in Sumter County. The sampling event was completed in accordance with the quarterly water quality monitoring and reporting requirements of the closed landfill FDEP Long-Term Care Permit #22926-003-SF.

In accordance with Specific Condition 16d of the facility Long-Term Care Permit, sampling and analytical chemical parameters for this sampling event included the parameters listed in 40 CFR Part 228, Appendix I. The expanded list of analytical parameters is required by permit for the fourth quarter of each year.

**SAMPLING EVENT**

The Quarter IV 2009 sampling event at the Sumter County Landfill occurred on November 17 - 20, 2009. All sampling was performed in accordance with the Florida Department of Environmental Protection (FDEP) Standard Operating Procedures (SOP) for Field Activities. Water samples collected from the facility groundwater monitoring wells were tested for the required field parameters. Monitoring wells were purged and the groundwater discharge allowed to stabilize prior to sample collection. The results of field testing were recorded as part of the Field Reports (Attachment 3 ) and are listed in Table I. All samples were preserved and stored as required prior to shipment to the analytical laboratory.

Laboratory analytical services were provided by Environmental Conservation Laboratories, Inc. (ENCO) in accordance with the laboratory's NELAC and FDHRS Certification No. E83182. The original analytical reports prepared by ENCO are presented in Attachment 2 to this report.

Water table depth measurements in each facility groundwater monitoring well and piezometer were recorded on November 17, 2009. These measurements were used to develop the Groundwater Contour Map shown on Figure 1 (Attachment 1) for the uppermost receiving groundwater aquifer beneath the site. Depth to water table measurements and corresponding groundwater elevations are listed in Table II.

## RESULTS

### Field Tested Parameters

Results of field testing completed at groundwater monitoring wells for the Quarter IV 2009 sampling event are summarized in Table I. Field tests were completed in strict accordance with the FDEP SOP requirements.

#### pH

The field testing results indicate pH of groundwater in the uppermost aquifer was within the FDEP secondary standard (6.5 - 8.5 pH units) at seven (7) of the nine (9) groundwater monitoring wells sampled during the November 2009 event. The nearly neutral to slightly basic pH values measured are consistent across the landfill property and appear normal considering the monitoring well screen intervals at and near the top of carbonate rocks and sediments. One well (**MW-11**) reported pH slightly below the FDEP range. One well (**MW-4B**) produced water with a pH above the upper FDEP range at 9.34 pH units. This well has produced pH values above 8.5 since sampling of this well began in Quarter II of 2006.

#### Fluid Temperature

Temperature of each water sample was measured in the field immediately following discharge into the flow cell used to accept flow from the purging pump. Temperature measurements of groundwater from the nine (9) monitoring wells varied through a narrow range from a low of 24.51 C at well **MW-8** to 27.06 C at **MW-4A**.

#### Dissolved Oxygen

Dissolved oxygen (DO) exceeded the FDEP sampling guidance level of 20% saturation at six (6) of the nine (9) monitoring wells sampled, including the facility background monitoring well **MW-6A**. Most of these wells typically produce groundwater with dissolved oxygen levels above 20% saturation.

#### Specific Conductance

Specific conductance of groundwater samples collected during this sampling event are included in Table I. Specific conductance values varied through a relatively narrow range of 291 umhos/cm to 1,010 umhos/cm.

#### Turbidity

The FDEP recommends attainment of turbidity values less than 10 to 20 NTUs in groundwater samples obtained from monitoring wells. As shown in Table I, groundwater samples collected had measured turbidity values less than 20 NTUs at each of the nine (9) wells. Fluid turbidity exceeded 10 NTUs at two (2) wells (**MW-6A** and **MW-10**).

## **Regulatory Exceedances**

A summary of groundwater laboratory analytical results that exceeded the regulatory level for the particular parameter in the November 2009 sample set is presented in Table III. As shown, five (5) parameters were reported for certain monitoring wells at concentrations that exceed applicable regulatory levels. Exceeded parameters were aluminum, iron, manganese, nitrate nitrogen and total dissolved solids (TDS).

### **Aluminum**

Aluminum was measured in water samples from monitoring wells **MW-4, MW-4B, MW-9A, MW-10** and **MW-11** at concentrations slightly above the Florida Secondary Drinking Water Standards (FSDWS) MCL of 200 ug/l. The highest aluminum concentration is reported for **MW-10** at 367 ug/l.

### **Iron**

Dissolved iron was detected in two (2) monitoring wells at concentrations above the FSDWS MCL of 300 ug/l. Iron was reported at 357 ug/l for well **MW-9A** and 1,190 ug/l for **MW-10**. Iron was detected below 300 ug/l at three (3) monitoring wells and was not detected above the laboratory method detection limit at four (4) wells.

### **Manganese**

Manganese was measured at a concentration above the FSDWS MCL of 50 ug/l in monitoring well **MW-9A** at 76.6 ug/l. Manganese was detected in six (6) other monitoring wells at concentrations less than 50 ug/l.

### **Nitrate Nitrogen**

Nitrate nitrogen was measured above the Florida Primary Drinking Water Standards (FPDWS) MCL of 10 mg/l in groundwater samples from monitoring well **MW-4A** (11 mg/l). While not exceeding the FPDWS MCL, groundwater from the facility background monitoring well (**MW-6A**) and six (6) of the other detection wells produced nitrate levels considered to be elevated above typical naturally-occurring concentrations.

### **Radionuclides**

Gross alpha radioactivity, including the sum of radium 226/228, exceeded the 15 pCi/l MCL in groundwater samples from well **MW-11**, reported at a range of 17.6 - 23.4 pCi/l. Gross alpha individually ranged from 14.5 - 18.5 pCi/l.

### **Total Dissolved Solids (TDS)**

TDS concentration was reported slightly above the 500 mg/l FSDWS MCL at monitoring well **MW-9A** at 510 mg/l. Past analytical data from the monitoring network indicates that dissolved calcium carbonate accounts for a large part of the TDS load in groundwater at the landfill.

No other exceedance of a parameter regulatory concentration level was reported in the laboratory analytical results for samples from groundwater monitoring wells at the Sumter County Closed Landfill.

#### **Other Significant Detected Parameters**

Chloride concentrations reported for seven(7) of the nine (9) monitoring wells, including the facility background monitoring well **MW-6A**, appear consistent between individual wells and typical for natural shallow groundwaters in Florida. Chloride concentrations at detection wells **MW-4** (28 mg/l) and **MW-4A** (28 mg/l) appear somewhat elevated as compared to the other wells. The SDWS MCL for chloride in groundwater is 250 mg/l.

Sodium appears higher at detection wells **MW-4** and **MW-4A** (50.1 mg/l and 26.1 mg/l, respectively) as compared to background and other detection wells

#### **40 CFR Part 228 Appendix I Volatiles**

Annual analyses for 40 CFR Part 228 Appendix I parameters were completed for this sampling event. As indicated on the attached laboratory reports of analyses from ENCO, other than **acetone** and **carbon disulfide**, no Appendix I volatile organic compounds were detected above the laboratory method detection limits in groundwater samples from any of the facility groundwater monitoring wells.

Acetone and carbon disulfide detections appear to be the result of either contamination of the distilled water used to decontaminate sampling equipment or artifacts from laboratory sample bottle cleaning and preparation. Both constituents are reported in the sampling event equipment blank.

#### **SUMMARY**

Chemical characteristics of groundwater monitored at the Sumter County Landfill are reported for the Quarter IV (November) 2009 sampling event. Exceedances of specific constituent regulatory maximum concentration levels (MCLs) are reported at specific monitoring wells for aluminum, iron, manganese, nitrate nitrogen, radionucleides and total dissolved solids (TDS).

Elevated **dissolved oxygen** (DO) levels were measured in six of the nine groundwater monitoring wells, including the facility background monitoring well. Four of these wells routinely produce groundwater with elevated DO levels. The other two wells reported DO slightly above 20% saturation.

**Aluminum** was reported by the laboratory slightly above the FSDWS MCL (200 ug/l) at wells **MW-4**, **MW-4B**, **MW-9A**, **MW-10** and **MW-11**. Aluminum has routinely been reported above the MCL in monitoring wells at the Sumter County closed landfill, including background well **MW-6A**. The most likely source of dissolved aluminum in groundwater is naturally-occurring aluminum-silicate clay minerals occurring near the top of rock throughout the landfill property.

**Gross alpha** radioactivity, including the sum of radium 226/228, exceeded the 15 pCi/l MCL in groundwater samples from well **MW-11**, reported at a range of 17.6 - 23.4 pCi/l. Gross alpha individually is reported to range from 14.5 - 18.5 pCi/l in the groundwater sample.

**Nitrate nitrogen** dissolved in groundwater was reported just above the FPDWS MCL of 10 mg/l at monitoring well **MW-4A** (11 mg/l). Elevated concentrations of nitrate nitrogen below the MCL were reported at seven other landfill monitoring wells including background well **MW-6A** (6.7 mg/l). Available site data suggest that nitrate exceedances at **MW-4A** may be related to discharges from nearby septic tank systems. Elevated nitrate levels are also noted in groundwater flowing beneath the landfill property from agricultural areas to the east.

Concentrations of **iron** above the FSDWS MCL (300 ug/l) were reported for monitoring wells **MW-9A** and **MW-10**. **Manganese** was reported above the FSDWS MCL (50 ug/l) at **MW-9A**. Both iron and manganese occur naturally in sediments and carbonate rocks penetrated by the monitoring wells.

**TDS** concentration was reported slightly above the FSDWS MCL of 500 mg/l at monitoring well **MW-9A**. Historical analytical data for well **MW-9A** indicates that dissolved calcium carbonate (limestone) accounts for a large part of the TDS load at this well.

Trace concentrations of **acetone** and **carbon disulfide** were detected by the laboratory at six monitoring wells, including background well **MW-6A**. Detected in the field equipment blank, these analyte detections appear to be sampling artifacts.

\* \* \* \* \*

**TABLE I**  
**FIELD PARAMETER RESULTS SUMMARY,**  
**SUMTER COUNTY (CLOSED) LANDFILL**  
**SUMTER COUNTY, FLORIDA**  
**Quarter IV (November) 2009**

Sampling Point	Temp. (C)	Dissolved Oxygen (mg/l)	pH	Specific Conductance (umhos/cm)	Turbidity (NTU)
<b>MW-2</b>	26.87	<b>4.26</b>	7.20	324	3.23
<b>MW-4</b>	26.59	1.37	7.11	741	7.51
<b>MW-4A</b>	27.06	1.05	6.99	773	7.76
<b>MW-4B</b>	26.45	<b>6.08</b>	<b>9.34</b>	158	4.39
<b>MW-6A</b>	24.62	<b>7.04</b>	7.80	291	16.1
<b>MW-8</b>	24.51	<b>3.22</b>	7.03	551	5.54
<b>MW-9A</b>	25.65	1.31	6.52	1,010	10.03
<b>MW-10</b>	25.32	<b>1.77</b>	6.83	673	13.2
<b>MW-11</b>	26.15	<b>1.73</b>	<b>6.47</b>	617	9.43

Notes: **Bold** lettering indicates:  
 Exceedance of FDEP 20% saturation dissolved oxygen limit  
 Exceedance of pH range (6.5 - 8.5)  
 Exceedance of FDEP-recommended turbidity (20 NTU)

**TABLE II**  
**QUARTER IV 2009**  
**SUMMARY OF GROUNDWATER LEVELS**  
**SUMTER COUNTY (CLOSED) LANDFILL**  
**SUMTER COUNTY, FLORIDA**  
**(November 17, 2009)**

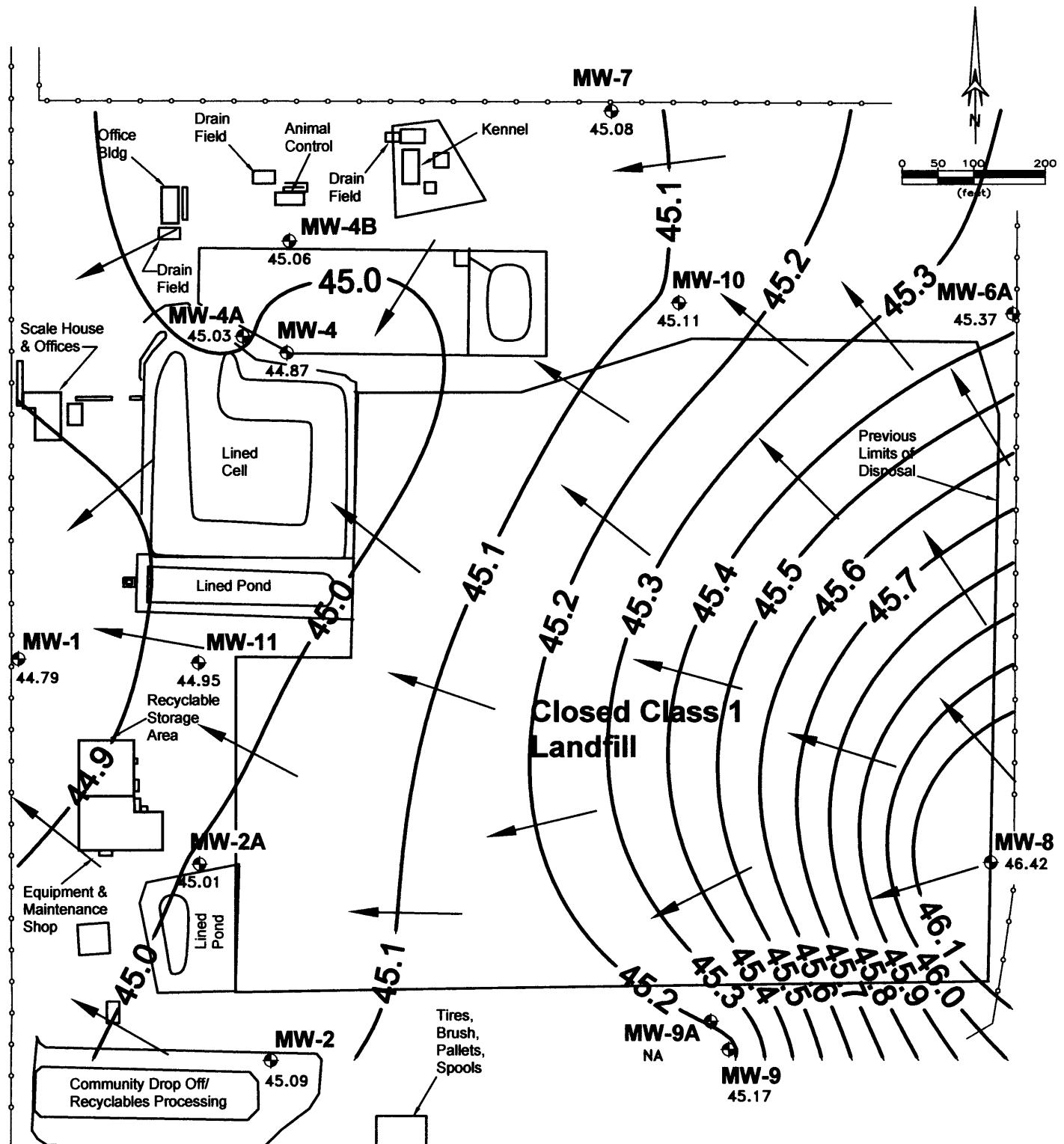
<b>Well No.</b>	<b>Measuring Point Elevation (ft. +NGVD)</b>	<b>Depth to Water (ft. - MP)</b>	<b>Groundwater Elevation (ft. +NGVD)</b>
<b>MW-1</b>	70.17	25.38	44.79
<b>MW-2</b>	69.13	24.04	45.09
<b>MW-2A</b>	72.11	27.10	45.01
<b>MW-4</b>	70.36	25.49	44.87
<b>MW-4A</b>	75.73	30.70	45.03
<b>MW-4B</b>	73.83	28.77	45.06
<b>MW-6A</b>	77.54	32.17	45.37
<b>MW-7</b>	73.14	28.06	45.08
<b>MW-8</b>	69.26	22.84	46.42
<b>MW-9</b>	71.95	26.78	45.17
<b>MW-9A</b>	74.26	30.10	43.16
<b>MW-10</b>	68.28	23.17	45.11
<b>MW-11</b>	70.21	25.26	44.95

Notes: 1. Measuring Point is top of PVC well casing.  
 2. Water levels recorded on November 17, 2009.

**TABLE III**  
**SUMMARY OF LABORATORY RESULTS**  
**SUMTER COUNTY (CLOSED) LANDFILL**  
**QUARTER IV (November) 2009**

Parameter	units	MW-2	MW-4	MW-4A	MW-4B	MW-6A	MW-8	MW-9A	MW-10	MW-11	MCL
<b>Ammonia</b>	mg/l	BDL	BDL	BDL	BDL	BDL	0.011	0.18	0.018	BDL	<b>2.8</b>
<b>Aluminum</b>	ug/l	BDL	<b>268</b>	75.7	<b>266</b>	73.6	BDL	<b>290</b>	<b>367</b>	<b>342</b>	<b>200</b>
<b>Antimony</b>	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	<b>6</b>
<b>Arsenic</b>	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	<b>10</b>
<b>Barium</b>	ug/l	12.6	BDL	12.4	BDL	BDL	BDL	12.0	13.1	BDL	<b>2,000</b>
<b>Beryllium</b>	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	<b>4</b>
<b>Cadmium</b>	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	2.01	BDL	3.34	<b>5</b>
<b>Cobalt</b>	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	20.8	BDL	BDL	<b>420</b>
<b>Copper</b>	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	3.42	<b>1,000</b>
<b>Chloride</b>	mg/l	10	28	28	4.3	8.9	16	18	8.1	3.8	<b>250</b>
<b>Chromium</b>	ug/l	BDL	6.27	BDL	BDL	4.58	BDL	BDL	7.85	7.16	<b>100</b>
<b>Fluoride</b>	mg/l	0.04	0.08	BDL	0.03	BDL	BDL	BDL	BDL	0.20	<b>4</b>
<b>Gross Alpha</b>	pCi/l	$<1.6 \pm 1.0$	<b>5.6 \pm 1.6</b>	$<1.8 \pm 1.2$	$2.6 \pm 1.0$	$<1.5 \pm 0.9$	$1.5 \pm 0.9$	$8.6 \pm 2.0$	$9.7 \pm 1.7$	<b>16.5 \pm 2.0</b>	<b>15</b>
<b>Iron</b>	ug/l	BDL	<b>40.7</b>	BDL	BDL	BDL	125	<b>357</b>	<b>1,190</b>	72.5	<b>300</b>
<b>Lead</b>	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	<b>15</b>
<b>Manganese</b>	ug/l	2.36	9.07	<b>5.67</b>	BDL	BDL	3.80	<b>76.6</b>	33.9	2.99	<b>50</b>
<b>Mercury</b>	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	0.708	BDL	0.0578	<b>2</b>
<b>Nickel</b>	ug/l	BDL	<b>5.48</b>	3.10	BDL	BDL	BDL	12.6	5.06	5.49	<b>100</b>
<b>Nitrate, as N</b>	mg/l	3.3	9.5	<b>11</b>	4.2	6.7	3.3	0.73	2.2	4.7	<b>10</b>
<b>pH</b>	s.u.	7.20	7.11	6.99	<b>9.34</b>	7.80	7.03	6.52	6.83	<b>6.47</b>	<b>6.5-8.5</b>
<b>Radium 226</b>	pCi/l	$0.3 \pm 0.2$	$1.3 \pm 0.2$	$1.0 \pm 0.2$	$0.2 \pm 0.1$	$0.2 \pm 0.1$	$1.1 \pm 0.2$	$3.4 \pm 0.3$	$2.2 \pm 0.3$	$3.2 \pm 0.3$	---
<b>Radium 228</b>	pCi/l	$1.1 \pm 0.7$	$<0.9 \pm 0.6$	$<0.9 \pm 0.5$	$<0.8 \pm 0.5$	$<1.0 \pm 0.6$	$<0.8 \pm 0.5$	$0.9 \pm 0.6$	$<0.8 \pm 0.5$	$0.8 \pm 0.6$	---
<b>Selenium</b>	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	<b>50</b>
<b>Silver</b>	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	<b>100</b>
<b>Sodium</b>	mg/l	5.08	50.1	26.1	11.0	3.15	9.94	18.9	8.26	10.2	<b>160</b>
<b>TDS</b>	mg/l	180	380	380	82	190	280	<b>510</b>	310	320	<b>500</b>
<b>Thallium</b>	ug/l	BDL	0.293	0.462	BDL	BDL	BDL	0.321	BDL	BDL	<b>2</b>
<b>Vanadium</b>	ug/l	1.01	11.3	<b>5.72</b>	18.7	7.48	9.48	2.08	8.16	9.42	<b>49</b>
<b>Zinc</b>	ug/l	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	BDL	<b>5,000</b>

Notes: 1). BDL means below laboratory method detection limit  
 2). Bold lettering indicates result exceeds MCL/Guidance concentration  
 3). NA - laboratory test data not available



**FIELD LOG**  
Well Water Levels

**PROJ #** \_\_\_\_\_

NAME: Dale Claytor

## **PROJECT**

**PROJECT** NAME: Sunstar Co. Landfill

**DATE:**

**DATE:** 11/12/09

# PROJECT LOGISTICS

**PROJECT** Sumterville Rd  
**LOCATION:** Sumterville Rd

## GROUNDWATER SAMPLING LOG

SITE NAME: Sumter County Landfill	SITE LOCATION: Sumterville, FL	DATE: 11/19/09
WELL NO: MW-2	SAMPLE ID: MW-2	DATE: 11/20/09

## PURGING DATA

24-14

WELL 2" PVC DIAMETER (inches):	TUBING 3/8", 1/4"	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH feet to water (feet):	PURGE PUMP TYPE OR BAILER: ESP PP
-----------------------------------	-------------------	---	------------------------------------	--------------------------------------

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY  
 only fill out if applicable

$$= (31.92' \text{ feet} - \text{feet}) \times \text{gallons/foot} = \text{gallons}$$

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME  
 (only fill out if applicable)

$$1 \text{ Equip Vol} = .02 \text{ gallons} + (.0026 \text{ gallons/foot} \times 31') + .125 \text{ gallons} = .345 \text{ gallons}$$

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): ~26' FINAL PUMP OR TUBING DEPTH IN WELL (feet): ~26' PURGING INITIATED AT: 1247 PURGING ENDED AT: 1301 TOTAL VOLUME PURGED (gallons): 70

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (mS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1257	.50	.50	.05	24.21	7.24	26.9d	326	4.40	4.87	Clear	None
1259	.10	.60	.05	24.21	7.21	26.95	326	4.33	3.55	Clear	None
1301	.10	.70	.05	24.21	7.20	26.87	324	4.26	3.23	(Clear)	None
No shear											

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  
 TUBING INSIDE DIA. CAPACITY (Gal./ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

## SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: <b>H. L. Claytor, Colinas Group, Inc.</b>	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 1302	SAMPLING ENDED AT: 1315					
PUMP OR TUBING DEPTH IN WELL (feet): ~26'	SAMPLE PUMP FLOW RATE (mL per minute): < 250 mL	TUBING	MATERIAL CODE: PE					
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N FILTER SIZE: _____ μm Filtration Equipment Type:	DUPPLICATE: Y N						
SAMPLE CONTAINER SPECIFICATION	SAMPLE PRESERVATION							
SAMPLE ID CODE	CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD <i>Applic's</i>	SAMPLING EQUIPMENT CODE <i>RPP</i>
MW-2	2	PE	1 Ltr	HN03	None	—	GrossAlpha, RA226RA228	ESP APP
"	1	PE	250 mL	H2SO4	None	—	Total Ammonia	ESP APP
"	1	PE	250 mL	HN03	None	—	Al,Fe,Mn,Hg,Na	ESP APP
"	1	PE	500 mL	None	None	—	Chloride,Fluoride, Nitrate, TDS	ESP APP

## REMARKS:

Obstruction in well ~6' 6" to ~26' 6" appears to be a piece of 3/8" PE tubing that has slipped down into well. unable to get ESP part that point. Attempted to remove tubing, but can't get a grip on it.

11/20/09 - Returned with a PP, should be able to set part obstruction with 1/4" PE tubing.

1247: Inserted new 1/4" PE tubing to ~26' 6" and began purging @ 0.05 gpm with a PP.

1253: WL 24.20 @ 0.05 gpm, GW is clear. DO is high @ 4.63 mg/L. Will we optional stabilization criteria below.

Notes: 1) Used a graduated 5 gallon bucket and timed to measure purge volumes  
 2) Packed samples on ice immediately upon collection

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)	APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump
EQUIPMENT CODES: RPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; O = Other (Specify)	

Notes: 1. The above do not constitute all the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3): H: ± 0.2 units; Temperature: ± 0.2 degrees C; Specific Conductance: ± 5%; Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2), optionally, ± .02 mg/L or ± 10% (whichever is greater); Turbidity: all readings ≤ 20 NTU, optionally ± 5 NTU or ± 10% (whichever is greater)

## **GROUNDWATER SAMPLING LOG**

5-85

### **SAMPLING DATA**

SAMPLED BY (PRINT) / AFFILIATION: <b>H. L. Claytor, Colinas Group, Inc.</b>		SAMPLER(S) SIGNATURES: 		SAMPLING INITIATED AT: <b>1505</b>	SAMPLING ENDED AT: <b>1515</b>			
PUMP OR TUBING DEPTH IN WELL (feet): <b>~31'</b>		SAMPLE PUMP FLOW RATE (mL per minute): <b>&lt; 250 mL</b>		TUBING MATERIAL CODE: <b>PE</b>				
FIELD DECONTAMINATION: <b>Y</b> <input checked="" type="checkbox"/> N		FIELD-FILTERED: <b>Y</b> <input checked="" type="checkbox"/> N FILTER SIZE: _____ μm Filtration Equipment Type: _____			DUPLICATE: <b>Y</b> <input checked="" type="checkbox"/> N			
SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD <i>App IVoc's</i>	SAMPLING EQUIPMENT CODE	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	<b>GrossAlpha, RA226RA228</b>	<b>ESP</b>
<b>MW-4</b>	<b>2</b>	<b>PE</b>	<b>1 Ltr</b>	<b>HN03</b>	<b>None</b>	<b>--</b>	<b>Ammonia</b>	<b>ESP</b>
"	1	PE	250 mL	H2SO4	None	--	Al,Fe,Mn,Hg,Na	ESP
"	1	PE	250 mL	HN03	None	--	Chloride,Fluoride, Nitrate, TDS	ESP
"	1	PE	500 mL	None	None	--		

**REMARKS:**

**REMARKS:**  
1445: Set dedicated 3/8" PE tubing and sr ESP @ ~31' 6 to 1 and began purging @ ~175 gpm.  
1452: WL 26-52 @ .75 gpm, GW is clear. Reduced flow to .d gpm.  
1455: WL 25-90 @ .2 gpm, GW is clear. Drawdown is stable.  
1459: WL 25-90 @ .2 gpm.

**Notes:** 1) Used a graduated 5 gallon bucket and timed to measure purge volumes  
2) Packed samples on ice immediately upon collection

**MATERIAL CODES:** AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

**SAMPLING/PURGING** APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump  
**EQUIPMENT CODES:** RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; O = Other /Specify

**Notes:** 1. The above do not constitute all the information required by Chapter 62-160 F.A.C.

**2. STABILIZATION CRITERIA FOR RANGE VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3H):  $\pm 0.2$  units; Temperature:  $\pm 0.2$  degrees C; Specific Conductance:  $\pm 5\%$ ; Dissolved Oxygen: all readings < 20% saturation (see Table FS 2200-2), optionally  $\pm 0.02$  mg/l or  $\pm 10\%$  (whichever is greater);**

Turbidity: all readings < 20 NTU, optionally + 5 NTU or + 10% (whichever is greater)

Turbidity: all readings  $\leq$  20 NTU, optionally  $\leq$  5 NTU or  $\leq$  10% (whichever is greater)

**GROUNDWATER SAMPLING LOG**

5.00  
8.90

SITE NAME: <b>Sumter County Landfill</b>	SITE LOCATION: <b>Sumterville, FL</b>	
WELL NO: <b>MW-4A</b>	SAMPLE ID: <b>MW-4A</b>	DATE: <b>11/18/09</b>

**PURGING DATA**

WELL 2" PVC DIAMETER (inches):	TUBING 3/8" DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH 30.73 TO WATER (feet):	PURGE PUMP TYPE OR BAILER: ESP
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WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY  
(only fill out if applicable)

$$= (45.23' \text{ feet} - 30.73' \text{ feet}) \times \text{gallons/foot} = \text{gallons}$$

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME  $\times 3 = 1.245$   
(only fill out if applicable)

$$1 \text{ Equip Vol} = .02 \text{ gallons} + (.006 \text{ gallons/foot} \times 45' \text{ feet}) + .105 \text{ gallons} = .415 \text{ gallons}$$

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
$\sim 40$	$\sim 40$	1431	1509	15.60

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (mS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1505	14.80	14.80	.20	30.82	7.02	22.01	770	1.22	8.46	Clear	None
1507	.40	15.20	.20	30.82	6.99	27.02	723	1.11	7.25	Clear	None
1509	.40	15.60	.20	30.82	6.99	27.06	723	1.05	7.76	Clear	None
<i>No Sheen</i>											

WELL CAPACITY (Gallons Per Foot):  $0.75'' = 0.02$ ;  $1'' = 0.04$ ;  $1.25'' = 0.06$ ;  $2'' = 0.16$ ;  $3'' = 0.37$ ;  $4'' = 0.65$ ;  $5'' = 1.02$ ;  $6'' = 1.47$ ;  $12'' = 5.88$   
TUBING INSIDE DIA. CAPACITY (Gal./Ft):  $1/8'' = 0.0008$ ;  $3/16'' = 0.0014$ ;  $1/4'' = 0.0028$ ;  $5/16'' = 0.004$ ;  $3/8'' = 0.006$ ;  $1/2'' = 0.010$ ;  $5/8'' = 0.016$

**SAMPLING DATA**

SAMPLED BY (PRINT) / AFFILIATION: <b>H. L. Claytor, Colinas Group, Inc.</b>	SAMPLER(S) SIGNATURES:			SAMPLING INITIATED AT: 1510	SAMPLING ENDED AT: 1520			
PUMP OR TUBING DEPTH IN WELL (feet): $\sim 40$	SAMPLE PUMP FLOW RATE (mL per minute) < 250 mL			TUBING	MATERIAL CODE: PE			
FIELD DECONTAMINATION: <input checked="" type="radio"/> Y <input type="radio"/> N	FIELD-FILTERED: <input checked="" type="radio"/> Y <input type="radio"/> N FILTER SIZE: _____ μm Filtration Equipment Type: _____			DUPPLICATE: <input checked="" type="radio"/> Y <input type="radio"/> N				
SAMPLE CONTAINER SPECIFICATION		SAMPLE PRESERVATION						
SAMPLE ID CODE	# CONTAINERS	MATERI AL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD <i>Ago I VOCs</i>	SAMPLING EQUIPMENT CODE
MW-4A	2	PE	1 Ltr	HN03	None	—	GrossAlpha, RA226RA228	ESP
"	1	PE	250 mL	H2S04	None	—	Total Ammonia	ESP
"	1	PE	250 mL	HN03	None	—	Al,Fe,Mn,Hg,Na	ESP
"	1	PE	500 mL	None	None	—	Chloride,Fluoride, Nitrate, TDS	ESP

REMARKS:

1431: Set dedicated 3/8" PE tubing and stainless steel ESP @  $\sim 40$ ' to and began purging @ .5 gpm.

1436: WL 30.9d @ .5 gpm, GW is extremely turbid.

1441: GW is still turbid @ 60 NTU's, continuing to purge.

1446: GW is still turbid @ 90 NTU's, reduced flow to .2 gpm.

1451: WL 30.8d @ .2 gpm, turbidity is @ 29 NTU's and slowly dropping.

1500: WL 30.8d @ .2 gpm, turbidity has dropped to 12 NTU's. Drawdown is stable.

Notes: 1) Used a graduated 5 gallon bucket and timed to measure purge volumes

2) Packed samples on ice immediately upon collection

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump  
EQUIPMENT CODES: RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; O = Other (Specify)

Notes: 1. The above do not constitute all the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3)H:  $\pm 0.2$  units; Temperature:  $\pm 0.2$  degrees C; Specific Conductance:  $\pm 5\%$ ; Dissolved Oxygen: all readings  $< 20\%$  saturation (see Table FS 2200-2), optionally,  $\pm .02$  mg/L or  $\pm 10\%$  (whichever is greater);

## GROUNDWATER SAMPLING LOG

SITE NAME: Sumter County Landfill	SITE LOCATION: Sumterville, FL	
WELL NO: MW-4B	SAMPLE ID: MW-4B	DATE: 11/18/09

## PURGING DATA

WELL 2" PVC DIAMETER (inches):	TUBING 3/8" DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER: ESP
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WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY  
only fill out if applicable)

$$= (38.49' \text{ feet} - \text{feet}) \times \text{gallons/foot} = \text{gallons}$$

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME X 3 = 1.19  
(only fill out if applicable)

$$1 \text{ Equip Vol} = .02 \text{ gallons} + (.006 \text{ gallons/foot} \times 38' \text{ feet}) + .125 \text{ gallons} = .323 \text{ gallons}$$

INITIAL PUMP OR TUBING DEPTH IN WELL (feet):	FINAL PUMP OR TUBING DEPTH IN WELL (feet):	PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):
~33'	~33'	1308	1308	4.00

TIME	VOLUME PURGED (gallons)	CUMUL VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (mS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1304	3.20	3.20	.2	28.87	9.34	26.45	1158	6.03	5.8	Clear	None
1306	.4	3.60	.2	28.87	9.34	26.45	1158	6.10	4.95	Clear	None
1308	.4	4.00	.2	28.87	9.34	26.45	1158	6.08	4.39	Clear	None
<i>No shear</i>											

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  
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

## SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: <b>H. L. Claytor, Colinas Group, Inc.</b>	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 1308	SAMPLING ENDED AT: 1308
PUMP OR TUBING DEPTH IN WELL (feet): ~33'	SAMPLE PUMP FLOW RATE (mL per minute): < 250 mL	TUBING MATERIAL CODE: PE	
FIELD DECONTAMINATION: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	FIELD-FILTERED: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N Filtration Equipment Type: _____	FILTER SIZE: _____ μm	DUPLICATE: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD <i>Ag+ VOC's</i>	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERI AL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		
MW-4B	2	PE	1 Ltr	HN03	None	—	GrossAlpha, RA228RA228	ESP
"	1	PE	250 mL	H2S04	None	—	Total Ammonia	ESP
"	1	PE	250 mL	HN03	None	—	Al,Fe,Mn,Hg,Na	ESP
"	1	PE	500 mL	None	None	—	Chloride,Fluoride, Nitrate, TDS	ESP

## REMARKS:

- 1308: Set dedicated 3/8" PE tubing and stainless steel ESP @ ~33' to C and began purging @ 1.2 gpm.
- 1318: WL 28.87' @ 1.2 gpm, water is clear. DO is extremely high @ 6.34 mg/L. It appears to be stable. Will use optional stabilization criteria below.
- 1302: WL 28.87' @ 1.2 gpm, draw down is stable. DO is slowly dropping. Will continue to purge until it stabilizes.

Notes: 1) Used a graduated 5 gallon bucket and timed to measure purge volumes  
2) Packed samples on ice immediately upon collection

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump  
EQUIPMENT CODES: RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; O = Other (Specify)

Notes: 1. The above do not constitute all the information required by Chapter 62-160, F.A.C.  
2. STABILIZATION CRITERIA FOR RANGE VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3): ± 0.2 units; Temperature: ± 0.2 degrees C; Specific Conductance: ± 5%; Dissolved Oxygen: all readings < 20% saturation (see Table FS 2200-2), optionally, ± .02 mg/L or ± 10% (whichever is greater); Turbidity: all readings < 20 NTU, optionally + 5 NTU or + 10% (whichever is greater)

## GROUNDWATER SAMPLING LOG

SITE NAME: Sumter County Landfill	SITE LOCATION: Sumterville, FL	
WELL NO: MW-6A	SAMPLE ID: MW-6A	DATE: 11/19/03

## PURGING DATA

WELL 2" PVC DIAMETER (inches):	TUBING 3/8" DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER: ESP
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WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY  
only fill out if applicable)

$$= (50.84' \text{ feet} - \text{feet}) \times \text{gallons/foot} = \text{gallons}$$

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME X 3 = 1.335  
(only fill out if applicable)

$$1 \text{ Equip Vol} = .02 \text{ gallons} + (.006 \text{ gallons/foot} \times 50' \text{ feet}) + .125 \text{ gallons} = .375 \text{ gallons}$$

INITIAL PUMP OR TUBING DEPTH IN WELL (feet): ~45' FINAL PUMP OR TUBING DEPTH IN WELL (feet): ~45' PURGING INITIATED AT: 0945 PURGING ENDED AT: 1029 TOTAL VOLUME PURGED (gallons): 31.90

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (mS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1025	28.90	28.90	.75	3d.2d.	7.80	24.61	.291	7.07	19.2	Clear	None
1027	1.50	30.40	.75	3d.3d.	7.80	24.62	.291	7.04	17.7	Clear	None
1029	1.50	31.90	.75	3d.3d.	7.80	24.62	.291	7.04	16.1	Clear	None
<i>No Stewas</i>											

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  
TUBING INSIDE DIA. CAPACITY (Gal/Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

## SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: <b>H. L. Claytor, Colinas Group, Inc.</b>	SAMPLER(S) SIGNATURES:	SAMPLING INITIATED AT: 1030	SAMPLING ENDED AT: 1040
PUMP OR TUBING DEPTH IN WELL (feet): ~45'	SAMPLE PUMP FLOW RATE (mL per minute): < 250 mL	TUBING	MATERIAL CODE: PE
FIELD DECONTAMINATION: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	FIELD-FILTERED: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N FILTER SIZE: _____ μm Filtration Equipment Type: _____	DUPLICATE: <input checked="" type="checkbox"/> Y <input type="checkbox"/> N	

SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD <i>App Iloc's</i>	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		
MW-6A	2	PE	1 Ltr	HN03	None	—	GrossAlpha, RA226RA228	ESP
"	1	PE	250 mL	H2S04	None	—	Total Ammonia	ESP
"	1	PE	250 mL	HN03	None	—	Al,Fe,Mn,Hg,Na	ESP
"	1	PE	500 mL	None	None	—	Chloride,Fluoride, Nitrate, TDS	ESP

REMARKS:  
0945: Set dedicated 3/8" PE tubing and 55 ESP @ ~45' depth and began purging @ .75 gpm.

0950: GW is extremely turbid, cloudy milky white.

0957: GW has cleared up nicely, reduced flow to .25 gpm.

0959: GW is getting turbid again @ lower flow rate. Increased flow to .75 gpm

1007: Turbidity @ 34 NTUs, continuing to purge.

1014: Turbidity @ 25 NTUs.

1023: Turbidity @ 19 NTUs, w/ 3d.3d' and stable.

Notes: 1) Used a graduated 5 gallon bucket and timed to measure purge volumes

2) Packed samples on ice immediately upon collection

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump  
EQUIPMENT CODES: RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; O = Other (Specify)

Notes: 1. The above do not constitute all the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3H): ± 0.2 units; Temperature: ± 0.2 degrees C; Specific Conductance: ± 5%; Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2), optionally, ± .02 mg/L or ± 10% (whichever is greater); Turbidity: all readings ≤ 20 NTU, optionally ± 5 NTU or ± 10% (whichever is greater)

## GROUNDWATER SAMPLING LOG

SITE NAME: Sumter County Landfill		SITE LOCATION: Sumterville, FL									
WELL NO: MW-8	SAMPLE ID: MW-8	DATE: 11/18/09									
PURGING DATA											
WELL 2" PVC DIAMETER (inches):	TUBING 3/8" DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): 20.89 OR BAILER: ESP								
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)											
= ( 43.24' feet - feet) X gallons/foot = x 3 = 130.9 gallons											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)											
1 Equip Vol = .02 gallons + (.006 gallons/foot X 43' 38" feet) + .125 gallons = .403 gallons											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): ~38	FINAL PUMP OR TUBING DEPTH IN WELL (feet): ~38	PURGING INITIATED AT: 1104	PURGING ENDED AT: 1117								
		TOTAL VOLUME PURGED (gallons): 2.60									
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (mS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1113	1.80	1.80	.2	22.96	7.01	24.46	549	3.23	2.71	Clear	None
1115	.4	2.20	.2	22.95	7.03	24.45	550	3.22	5.95	Clear	None
1117	.4	2.60	.2	22.96	7.03	24.51	551	3.22	5.54	Clear	None
<i>No Sheen</i>											

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  
TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

### SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: <b>H. L. Claytor, Colinas Group, Inc.</b>			SAMPLER(S) SIGNATURES:			SAMPLING INITIATED AT: 1118	SAMPLING ENDED AT: 1126	
PUMP OR TUBING DEPTH IN WELL (feet): ~38			SAMPLE PUMP FLOW RATE (ml per minute): < 250 mL			TUBING MATERIAL CODE: PE		
FIELD DECONTAMINATION: <input checked="" type="radio"/> Y <input type="radio"/> N			FIELD-FILTERED: <input checked="" type="radio"/> Y <input type="radio"/> N FILTER SIZE: μm Filtration Equipment Type:			DUPLICATE: <input checked="" type="radio"/> Y <input type="radio"/> N		
SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	<i>Ag I VOC's</i>	
MW-8	2	PE	1 Ltr	HN03	None	—	GrossAlpha, RA226RA228	ESP
"	1	PE	250 mL	H2S04	None	—	Total Ammonia	ESP
"	1	PE	250 mL	HN03	None	—	Al,Fe,Mn,Hg,Na	ESP
"	1	PE	500 mL	None	None	—	Chloride,Fluoride, Nitrate, TDS	ESP

REMARKS:

- 1104: Set dedicated 3/8" PE tubing and 55 ESP @ ~38' depth and began purging @ 2:30pm.
- 1108: WL 22.96' @ 2:30pm, water is clear except for suspended cont parts (there are ants living in well).
- 1112: WL 22.96' @ 2:30pm, DO is high but stable around 3.21 mg/L. Will use optional stabilization criteria below. Drawdown is stable.

Notes: 1) Used a graduated 5 gallon bucket and timed to measure purge volumes  
2) Packed samples on ice immediately upon collection

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump  
EQUIPMENT CODES: RFP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; O = Other (Specify)

Notes: 1. The above do not constitute all the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3): ± 0.2 units; Temperature: ± 0.2 degrees C; Specific Conductance: ± 5%; Dissolved Oxygen: all readings < 20% saturation (see Table FS 2200-2), optionally, ± .02 mg/L or ± 10% (whichever is greater); Total Dissolved Solids: all readings < 20 NTU, optionally ± 5 NTU or ± 10% (whichever is greater)

## **GROUNDWATER SAMPLING LOG**

## **SAMPLING DATA**

SAMPLED BY (PRINT) / AFFILIATION: <b>H. L. Claytor, Colinas Group, Inc.</b>			SAMPLER(S) SIGNATURES:		SAMPLING INITIATED AT: <u>1225</u>	SAMPLING ENDED AT: <u>1235</u>		
PUMP OR TUBING DEPTH IN WELL (feet):			SAMPLE PUMP FLOW RATE (mL per minute):		TUBING MATERIAL CODE: PE			
FIELD DECONTAMINATION: <u>Y</u> <u>N</u>			FIELD-FILTERED: <u>Y</u> <u>N</u> FILTER SIZE: _____ μm Filtration Equipment Type: _____		DUPLICATE: <u>Y</u> <u>N</u>			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD <i>App VOC</i>	SAMPLING EQUIPMENT CODE
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH		
MW-9A	2	PE	1 Ltr	HN03	None	—	GrossAlpha, RA226RA228	ESP
"	1	PE	250 mL	H2S04	None	—	Total Ammonia	ESP
"	1	PE	250 mL	HN03	None	—	Al,Fe,Mn,Hg,Na	ESP
"	1	PE	500 mL	None	None	—	Chloride,Fluoride, Nitrate, TDS	ESP

REMARKS: set dedicated 318' P2 tubing and 55 ESP @ ~45° to c and began purging  
1116: @ 175 gpm.

② 175 gpm.  
HHR: GIN is extremely turbid, cloudy milky white. Will purge until clear.

② 175 gpm.  
HHR: GIN is extremely turbid, cloudy milky white. Will purge until clear.

115d: Turbidity is @ 43 NTUs, continuing to surge.

1210: Turbidity is at 44 NTUs, reduced flow to 2 gpm.

1215: Turbidity has dropped to 18 NTUs. WL 34.23' and stable.

**Notes:** 1) Used a graduated 5 gallon bucket and timed to measure purge volumes  
2) Packed samples on ice immediately upon collection

**MATERIAL CODES:** AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; U = Other (Specify)

**SAMPLING/PURGING EQUIPMENT CODES:** APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump  
PFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; O = Other (Specify)

EQUIPMENT CODES: RPPF = Reverse Flow Peristaltic Pump, shall not constitute all the information required by Chapter 62-160, F.A.C.

**NOTES:** 1. The above do not constitute all the information required by Chapter 02-1007, 5 CFR.

**2. STABILIZATION CRITERIA FOR RANGE VARIATION:** Dissolved Oxygen: all readings  $\leq$  20% saturation (see Table FS 2200-2), optionally,  $\pm .02$  mg/L or  $\pm 10\%$  (whichever is greater);

degrees C; Specific Conductance.  $\pm 5\%$ ; Dissolved Oxygen,  $\text{mg/l}$ ; pH.

## GROUNDWATER SAMPLING LOG

SITE NAME: Sumter County Landfill	SITE LOCATION: Sumterville, FL
WELL NO: MW-10	SAMPLE ID: MW-10

DATE: 11/18/09

## PURGING DATA

WELL 2" PVC DIAMETER (inches):	TUBING 3/8" DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet): 23.11	PURGE PUMP TYPE OR BAILER: ESP
-----------------------------------	-----------------------------------	---	-------------------------------------	-----------------------------------

WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY  
(only fill out if applicable)

$$= (45.35' \text{ feet} - 23.11' \text{ feet}) \times \text{gallons/foot} = \text{gallons}$$

EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME  
(only fill out if applicable)

$$1 \text{ Equip Vol} = .02 \text{ gallons} + (.006 \text{ gallons/foot} \times 45' \text{ feet}) + .125 \text{ gallons} = .415 \text{ gallons}$$

INITIAL PUMP OR TUBING  
DEPTH IN WELL (feet): ~40' FINAL PUMP OR TUBING  
DEPTH IN WELL (feet): ~40' PURGING  
INITIATED AT: 1205 PURGING  
ENDED AT: 1230 TOTAL VOLUME  
PURGED (gallons): 11.30

TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (mS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1206	9.30	9.30	.50	25.16	6.84	25.39	682	1.70	16.3	clear	None
1208	1.00	10.30	.50	25.16	6.84	25.33	675	1.74	13.5	clear	None
1230	1.00	11.30	.50	25.16	6.83	25.32	673	1.77	13.2	clear	None

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  
TUBING INSIDE DIA. CAPACITY (Gal./ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

## SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: <b>H. L. Claytor, Colinas Group, Inc.</b>	SAMPLER(S) SIGNATURES: 	SAMPLING INITIATED AT: 1231	SAMPLING ENDED AT: 1240					
PUMP OR TUBING DEPTH IN WELL (feet): ~40'	SAMPLE PUMP FLOW RATE (ml. per minute): < 250 mL	TUBING MATERIAL CODE: PE						
FIELD DECONTAMINATION: Y N	FIELD-FILTERED: Y N Filtration Equipment Type:	FILTER SIZE: ____ μm	DUPLICATE: Y N					
SAMPLE CONTAINER SPECIFICATION		SAMPLE PRESERVATION						
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH	INTENDED ANALYSIS AND/OR METHOD <i>Appl Vol's</i>	SAMPLING EQUIPMENT CODE
MW-10	2	PE	1 Ltr	HN03	None	--	GrossAlpha, RA226RA228	ESP
"	1	PE	250 mL	H2S04	None	--	Total Ammonia	ESP
"	1	PE	250 mL	HN03	None	--	Al,Fe,Mn,Hg,Na	ESP
"	1	PE	500 mL	None	None	--	Chloride,Fluoride, Nitrate, TDS	ESP

## REMARKS:

1205: Set dedicated 3/8" PE tubing and 55 ESP @ ~40' to GC and began purging @ 2.8pm.

1209: WL 23.93' @ 2.8pm, GW is extremely turbid. Increased flow to 5 gpm.

1218: GW has cleared up nicely, restored flow to 2.8pm. Turbidity @ 2 NTU's.

1224: WL 25.16' @ 2.8pm, turbidty @ 19 NTU's.

Notes: 1) Used a graduated 5 gallon bucket and timed to measure purge volumes

2) Packed samples on ice immediately upon collection

MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

SAMPLING/PURGING APP = After Peristaltic Pump; B = Baile; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump

EQUIPMENT CODES: RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; O = Other (Specify)

Notes: 1. The above do not constitute all the information required by Chapter 62-160, F.A.C.

2. STABILIZATION CRITERIA FOR RANGE VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3): H: ± 0.2 units; Temperature: ± 0.2 degrees C; Specific Conductance: ± 5%; Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2), optionally, ± .02 mg/L or ± 10% (whichever is greater);

Turbidity: all readings ≤ 20 NTU, optionally ± 5 NTU or ± 10% (whichever is greater)

## GROUNDWATER SAMPLING LOG

SITE NAME: Sumter County Landfill	SITE LOCATION: Sumterville, FL	
WELL NO: MW-11	SAMPLE ID: MW-11	DATE: 11/19/09

## PURGING DATA

WELL 2" PVC DIAMETER (inches):	TUBING 3/8" DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER: ESP							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY only fill out if applicable											
= ( 40.15' feet - 25.33 feet) X .006 gallons/foot = .125 gallons											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)											
1 Equip Vol = .02 gallons + (.006 gallons/foot X 40' feet) + .125 gallons = .185 gallons											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet): ~ 35'	FINAL PUMP OR TUBING DEPTH IN WELL (feet): ~ 30'	PURGING INITIATED AT: 1351	PURGING ENDED AT: 1411	TOTAL VOLUME PURGED (gallons): 6.75							
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	pH (standard units)	TEMP. (°C)	COND. (mS/cm)	DISSOLVED OXYGEN (mg/L)	TURBIDITY (NTUs)	COLOR (describe)	ODOR (describe)
1407	5.95	5.95	.20	25.45	6.46	26.16	1613	1.82	2-5	Clear	None
1409	.40	6.35	.20	26.45	6.46	26.15	1614	1.78	10-08	Clear	None
1411	.40	6.75	.20	25.45	6.47	26.15	1617	1.73	7-43	Clear	None
No Shown.											

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  
TUBING INSIDE DIA. CAPACITY (Gal./ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016

## SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION: <b>H. L. Claytor, Colinas Group, Inc.</b>	SAMPLER SIGNATURES:	SAMPLING INITIATED AT: 1412	SAMPLING ENDED AT: 1422					
PUMP OR TUBING DEPTH IN WELL (feet): ~ 35'	SAMPLE PUMP FLOW RATE (ml. per minute): < 250 mL	TUBING MATERIAL CODE: PE						
FIELD DECONTAMINATION: <input checked="" type="radio"/> Y <input type="radio"/> N	FIELD-FILTERED: <input checked="" type="radio"/> Y <input type="radio"/> N FILTER SIZE: _____ μm Filtration Equipment Type: _____	DUPPLICATE: <input checked="" type="radio"/> Y <input type="radio"/> N						
SAMPLE CONTAINER SPECIFICATION		SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD <i>Appl VOC's</i>	SAMPLING EQUIPMENT CODE		
SAMPLE ID CODE	# CONTAINERS	MATERI AL CODE	VOLUME	PRESERVATIVE USED			TOTAL VOL ADDED IN FIELD (mL)	FINAL pH
MW-11	2	PE	1 Ltr	HN03	None	—	GrossAlpha, RA226, RA228	ESP
"	1	PE	250 mL	H2S04	None	—	Total Ammonia	ESP
"	1	PE	250 mL	HN03	None	—	Al, Fe, Mn, Hg, Na	ESP
"	1	PE	500 mL	None	None	—	Chloride, Fluoride, Nitrate, TDS	ESP

REMARKS:  
1351: Set dedicated 3/8" PE tub: y and 55 ESP @ ~ 35'. 6 sec and began purging @ .75 gpm. GW is extremely turbid, cloudy ton.

1356: WL 25.76 @ .75 gpm, GW is clearing up nicely. Reduced flow to .2 gpm.

1400: WL 25.40 @ .2 gpm, GW is clear.

1406: DO is slightly high @ 1.91 mg/L. Will use optional stabilization criteria below.

Notes: 1) Used a graduated 5 gallon bucket and timed to measure purge volumes

2) Packed samples on ice immediately upon collection

MATERIAL CODES:	AG = Amber Glass;	CG = Clear Glass;	PE = Polyethylene;	PP = Polypropylene;	SC = Silicous;	T = Teflon;	O = Other (Specify)
SAMPLING/PURGING EQUIPMENT CODES:	APP = After Peristaltic Pump;	B = Bailer;	BP = Bladder Pump;	ESP = Electric Submersible Pump;	PP = Peristaltic Pump		

Notes: 1. The above do not constitute all the information required by Chapter 62-160, F.A.C.

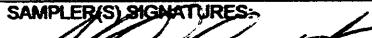
2. STABILIZATION CRITERIA FOR RANGE VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3): H: ± 0.2 units; Temperature: ± 0.2

degrees C; Specific Conductance: ± 5%; Dissolved Oxygen: all readings ≤ 20% saturation (see Table FS 2200-2), optionally, ± .02 mg/L or ± 10% (whichever is greater);

Turbidity: all readings ≤ 20 NTU, optionally ± 5 NTU or ± 10% (whichever is greater)

# **GROUNDWATER SAMPLING LOG**

## **SAMPLING DATA**

SAMPLED BY (PRINT) / AFFILIATION: <b>H. L. Claytor, Colinas Group, Inc.</b>		SAMPLER(S) SIGNATURES: 		SAMPLING INITIATED AT: <b>1030</b>	SAMPLING ENDED AT: <b>1045</b>			
PUMP OR TUBING DEPTH IN WELL (feet):		SAMPLE PUMP FLOW RATE (mL per minute): <b>&lt; 250 mL</b>		TUBING MATERIAL CODE: <b>PE</b>				
FIELD DECONTAMINATION: <b>Y</b> <input checked="" type="radio"/> N		FIELD-FILTERED: <b>N</b> <input type="radio"/> FILTER SIZE: _____ μm Filtration Equipment Type: 			DUPPLICATE: <b>Y</b> <input type="radio"/>  <b>N</b>			
SAMPLE CONTAINER SPECIFICATION			SAMPLE PRESERVATION			INTENDED ANALYSIS AND/OR METHOD	SAMPLING EQUIPMENT CODE	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)			FINAL pH
EQB	2	PE	1 Ltr	HN03	None	—	GrossAlpha, RA226RA228	ESP
"	1	PE	250 mL	H2S04	None	—	Total Ammonia	ESP
"	1	PE	250 mL	HN03	None	—	Al,Fe,Mn,Hg,Na	ESP
"	1	PE	500 mL	None	None	—	Chloride,Fluoride, Nitrate, TDS	ESP
"		Various	Various	Various	None	—	Appendix I Parameters 8/26/03	ESP

**REMARKS:**

Field cleaned 5 gallon PE bucket, SS ESP, and WL probe IAW D&P-  
SOP-001/01, FC1000. Poured 1 gallon of DI water into bucket,  
inserted SS ESP and WL probe and circulated DI Water over  
WL probe and over and through SS ESP for about 3 minutes.  
Then collected samples.

**Notes:** 1) Used a graduated 5 gallon bucket and timed to measure purge volumes  
2) Packed samples on ice immediately upon collection

**MATERIAL CODES:** AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)

**SAMPLING/PURGING EQUIPMENT CODES:** APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump  
 RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); VT = Vacuum Trap; O = Other (Specify)

Notes: 1. The above do not constitute all the information required by Chapter 62-160 F.A.C.

## **2 STABILIZATION CRITERIA FOR RANGE VARIATION OF LAST THREE CONSECUTIVE READINGS (SEE FS 2212, SECTION 3H): + 0.2 units; Temperature: + 0.2**

degrees C; Specific Conductance: + 5%; Dissolved Oxygen: all readings < 20% sat.



[www.enclabs.com](http://www.enclabs.com)



**ENVIRONMENTAL CONSERVATION LABORATORIES CHAIN-OF-CUSTODY RECORD**

10775 Central Post Dr.  
Orlando, FL 32824  
(407) 828-5314 Fax (407) 450-0945

4810 Executive Park Court, Suite 211  
Jacksonville, FL 32216-6069  
(904) 295-3007 Fax (904) 295-4210

102-A Woodward Industrial Ct.  
Cary, NC 27511  
(919) 463-2000 Fax: (919) 463-2416

Page 1 of 1

Client Name <b>The Colinas Group (CO016)</b>		Project Number <b>53008</b>		Requested Analyses										Page _____ of _____	
Address <b>509 N. Virginia Ave.</b>		Project Name/Desc <b>SUMTER COUNTY VOL. RED. &amp; LANDFILL</b>													
City/ST/Zip <b>Winter Park, FL 32789</b>		PO # / Billing Info												Requested Turnaround Times <input checked="" type="checkbox"/> Standard <input type="checkbox"/> Expedited	
Tel <b>(407) 622-8176</b>	Fax <b>(407) 622-8196</b>	Reporting Contact <b>Rick Potts</b>												Due <b>1/1</b>	
Sampler(s) Name, Affiliation (Print) <b>RICK POTTS</b>		Billing Contact <b>RICK POTTS</b>												Lab Identification <b>A905524</b>	
Sampler(s) Signature		Facility # (if required)													
Preservation (See Codes) (Combine as necessary)															
Item #	Sample ID (Field Identification)	Collection Date	Collection Time	Comp / Grab	Matrix (see codes)	Total # of Containers	I	IK	IN	IS	I	IN	—	Sample Comments	
MW-4	11/18/09	1515	G	GW	9	X X X X X X X X X									
MW-4A	11/18/09	1520	G	GW	9	X X X X X X X X X									
MW-4B		1338	G	GW	9	X X X X X X X X X									
MW-6A	11/19/09	1040	G	GW	9	X X X X X X X X X									
MW-8	11/19/09	1126	G	GW	9	X X X X X X X X X									
MW-9A	11/19/09	1235	G	GW	9	X X X X X X X X X									
MW-10	11/19/09	1249	G	GW	9	X X X X X X X X X									
MW-11	11/19/09	1422	G	GW	9	X X X X X X X X X									
EQB	11/19/09	1045	G	GW	9	X X X X X X X X X									
				GW	9	X X X X X X X X X									
Total # of Containers															

Sample Kit Prepared By	SP	Date/Time	10-35 11/10/09	Distinguished By	hand	Date/Time	10-35 11/10/09	Received By	Holly	Date/Time	11/10/09 10:35	
Comments		Distinguished By	Holly	Distinguished By		Date/Time	18:10 11/19/09	Received By		Date/Time	11/19/09 18:10	
		Distinguished By	*	Distinguished By		Date/Time		Received By		Date/Time	10:00 11/10/09	
Container # & Temp on Receipt						0° TR-07, 10			Condition Upon Receipt			
									<input checked="" type="checkbox"/>	Acceptable	<input type="checkbox"/>	Unacceptable

Model: GM Communication PC-Part EXP-G-5000-RM-D-A, Rev. 00000000000000000000000000000000

ACCEPTED

Preservation: 11% HCl N-NDI S-NDSO4 NO-NaOH D-OHC



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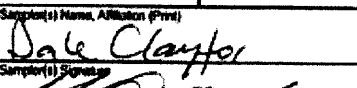


**ENVIRONMENTAL CONSERVATION LABORATORIES CHAIN-OF-CUSTODY RECORD**

10775 Central Park Dr. 4810 Executive Park Court, Suite 2  
Orlando, FL 32824 Jacksonville, FL 32216-4099  
(407) 820-5314 Fax (407) 850-6945 (904) 268-3007 Fax (904) 268-4621

102-A Woodwinds Industrial Co.  
Cary, NC 27511  
(919) 467-3000 Fax: (919) 467-3551

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Client Name <b>The Cotinas Group (CO016)</b>	Project Number <b>53008</b>	Requested Analyses	Requested Turnaround Times
Address <b>509 N. Virginia Ave.</b>	Project Name/Desc <b>SUMTER COUNTY VOL. RED. &amp; LANDFILL</b>		Note : Rush requests subject to acceptance by the facility
CrySTaL# <b>Winter Park, FL 32789</b>	PO # / Billing Info		<input checked="" type="checkbox"/> Standard
Tel <b>(407) 622-8176</b>	Fax <b>(407) 622-8196</b>	Reporting Contact <b>Rick Potts</b>	<input type="checkbox"/> Expedited
Sampler(s) Name, Affiliation (Print) <b>Dale Clayton</b>	Billing Contact <b>Rick Potts</b>		Due <u>  /  /  </u>
Sampler(s) Signature 	Facility # (if required)	FIELD PARAMETERS	
8011	8260B Appendix 1 FL	Ammonia 350.1	
Ag, Al, As, Ba, Cd, Cr, Cu, Fe, Mn, Ni, Pb, Sb, Se, Ti, V, Zn, Hg	Chloride 300 Fluoride 300 Nitrate 300 N-300 TDS 300 Turbidity 300	Gross Alpha Radium 226 Radium 228	

Sample Kit Prepared By	SP	Date/Time	10:35 11/10/09	Relinquished By	<i>[Signature]</i>	Date/Time	10:35 11/10/09	Received By	<i>[Signature]</i>	Date/Time	10:35 11/10/09		
Comments						Relinquished By	<i>[Signature]</i>	Date/Time	10:35 11/10/09	Received By	<i>[Signature]</i>	Date/Time	10:35 11/10/09
Relinquished By						Date/Time		Received By	<i>[Signature]</i>	Date/Time			
Copier #'s & Temps on Receipt						<i>G-45,20</i>			Condition Upon Receipt				
									Acceptable				
									Unacceptable				

Matric - 2014 Date submitted: 20.01.2015 Department: 2014-2015 Subject: Mathematics Period: 1st Period: 1st

 Accepted

Preservation: 1-ice H-HCl NHNO<sub>3</sub> S H<sub>2</sub>SO<sub>4</sub> HO NaOH D-OH

## **Field Instrument Calibration Records**

**INSTRUMENT (MAKE/MODEL#) YSI 556/Lamotte 2020e INSTRUMENT #** \_\_\_\_\_

## **PARAMETERS:**

TEMPERATURE       CONDUCTIVITY       SALINITY       pH       ORP  
 TURBIDITY       RESIDUAL CL       DO       OTHER \_\_\_\_\_

**STANDARDS:** [Bracket calibrated meters pH 4 – 7 and Turbidity 1 – 10 NTU's]

Standard A Horiba pH Standard 4.00 Units Exp: 10/2010

Standard B      Oakton pH Standard 7.00 Units    Exp: 10/2010

Standard C Oakton Conductivity Standard .447 mS/cm Exp: 4/2010

Standard D Lamotte 1 NTU Standard Exp: 12/2009

Standard E Lamotte 10 NTU Standard Exp: 12/2009

## **Field Instrument Calibration Records**

**INSTRUMENT (MAKE/MODEL#)** YSI 556/Lamotte 2020e **INSTRUMENT #** \_\_\_\_\_

## **PARAMETERS:**

TEMPERATURE     CONDUCTIVITY     SALINITY     pH     ORP  
 TURBIDITY     RESIDUAL CL     DO     OTHER \_\_\_\_\_

**STANDARDS:** [Bracket calibrated meters pH 4 – 7 and Turbidity 1 – 10 NTU's ]

Standard A Horiba pH Standard 4.00 Units Exp: 10/2010

Standard B Oakton pH Standard 7.00 Units Exp: 10/2010

Standard C Oakton Conductivity Standard .447 mS/cm Exp: 4/2010

Standard D Lamotte 1 NTU Standard Exp: 12/2009

Standard E Lamotte 10 NTU Standard Exp: 12/2009

Cyclone Instruments  
73 W. Colonial Drive  
Orlando, FL 32801  
(407) 246-7276

## CALIBRATION CERTIFICATE

RAE Systems  
QRAE Toxic Gas Monitor

SERVICE DATE: 11/17/09

TECHNICIAN: Tim Elly

SERIAL #: 101710    417556

417538

### CALIBRATION CHECK

Calibration Gas Standards Used: Certified Gas

Accuracy +/- 5% Certified

Lot #LTF 206 cm exp 6/2010

#### Instrument Response

Oxygen	20.9 %	<u>20.9</u>
Hydrogen Sulfide	25 ppm	<u>24</u>
Carbon Monoxide	50 ppm	<u>50</u>
LEL (methane 2.5%)	50 %	<u>49</u>
	= 1pp	

The calibration results were obtained by following the manufacturer's standard Calibration Procedures.

All measurement standards are calibrated at scheduled intervals as prescribed by the NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST) or are measured against certified standards which are traceable to the National Institute of Standards and Technology, formerly the National Bureau of Standards (NBS).

**SAMPLE SUMMARY/LABORATORY CHRONICLE**

Client ID:	Label No.: 2009770-01		Date:	Time:	Date:	Time:
Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)	
EPA 300.0	11/22/09	13:15	11/20/09	17:00	11/20/2009	18:13
EPA 300.0	12/18/09		11/20/09	17:00	11/20/2009	18:13
EPA 350.1	12/18/09		11/24/09	08:03	11/24/2009	10:13
EPA 6020A	05/19/10		11/23/09	10:26	11/23/2009	22:44
EPA 7470A	12/18/09		11/24/09	11:41	11/25/2009	07:54
EPA 8011	12/04/09	12/08/09	11/24/09	08:49	11/24/2009	17:30
EPA 8260B	12/04/09		11/22/09	17:34	11/22/2009	19:56
Field	11/20/09	13:29	11/20/09	13:15	11/20/2009	13:15
Field	11/21/09	13:15	11/21/09	13:15	11/20/2009	13:15
Field	11/22/09	13:15	11/20/09	13:15	11/20/2009	13:15
SM18 2540C	11/27/09		11/24/09	21:10	11/25/2009	20:40

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
EPA 6020A	05/19/10	11/23/09 10:26	11/24/2009 16:23

SAMPLE SUMMARY/LABORATORY CHRONICLE

Chrom ID:	PPV-A	Lab ID:	Analysis Date/Time(s)	Sample Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
<b>Parameter</b>	<b>Hold Date/Time(s)</b>				<b>Prep Date/Time(s)</b>	<b>Analysis Date/Time(s)</b>
EPA 300.0	11/21/09 15:15				11/19/09 18:59	11/20/2009 02:56
EPA 300.0	12/17/09				11/19/09 18:59	11/20/2009 02:56
EPA 350.1	12/17/09				11/24/09 08:04	11/24/2009 10:15
EPA 6020A	05/18/10				11/23/09 10:26	11/23/2009 18:20
EPA 7470A	12/17/09				11/24/09 11:41	11/25/2009 06:57
EPA 8011	12/03/09	12/08/09			11/24/09 08:49	11/24/2009 15:18
EPA 8260B	12/03/09				11/23/09 14:51	11/23/2009 17:35
Field	11/19/09 15:29				11/19/09 15:15	11/19/2009 15:15
Field	11/20/09 15:15	11/20/09	15:15		11/19/09 15:15	11/19/2009 15:15
Field	11/21/09 15:15				11/19/09 15:15	11/19/2009 15:15
SM18 2540C	11/26/09				11/24/09 21:10	11/25/2009 20:40

Chrom ID:	PPV-A	Lab ID:	Analysis Date/Time(s)	Sample Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
<b>Parameter</b>	<b>Hold Date/Time(s)</b>				<b>Prep Date/Time(s)</b>	<b>Analysis Date/Time(s)</b>
EPA 6020A	05/18/10				11/23/09 10:26	11/24/2009 13:40

Chrom ID:	PPV-A	Lab ID:	Analysis Date/Time(s)	Sample Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
<b>Parameter</b>	<b>Hold Date/Time(s)</b>				<b>Prep Date/Time(s)</b>	<b>Analysis Date/Time(s)</b>
EPA 300.0	11/20/09 15:20				11/19/09 18:59	11/20/2009 00:27
EPA 300.0	12/16/09				11/19/09 18:59	11/20/2009 00:27
EPA 350.1	12/16/09				11/24/09 08:04	11/24/2009 10:25
EPA 6020A	05/17/10				11/23/09 10:26	11/23/2009 20:08
EPA 7470A	12/16/09				11/24/09 11:41	11/25/2009 07:13
EPA 8011	12/02/09	12/08/09			11/24/09 08:49	11/24/2009 15:32
EPA 8260B	12/02/09				11/23/09 14:51	11/23/2009 18:05
Field	11/18/09 15:34				11/18/09 15:20	11/18/2009 15:20
Field	11/19/09 15:20	11/19/09	15:20		11/18/09 15:20	11/18/2009 15:20
Field	11/20/09 15:20				11/18/09 15:20	11/18/2009 15:20
SM18 2540C	11/25/09				11/24/09 21:10	11/25/2009 20:40

Chrom ID:	PPV-A	Lab ID:	Analysis Date/Time(s)	Sample Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
<b>Parameter</b>	<b>Hold Date/Time(s)</b>				<b>Prep Date/Time(s)</b>	<b>Analysis Date/Time(s)</b>
EPA 6020A	05/17/10				11/23/09 10:26	11/24/2009 15:28

Client ID#	MW-ID#	Lab ID#	Sample ID#	Prepared By	Analysis By	Comments
Parameter	Hold Date/Time(s)			Prep Date/Time(s)	Analysis Date/Time(s)	
EPA 300.0	11/20/09 13:38			11/19/09 18:59	11/19/2009 23:50	
EPA 300.0	12/16/09			11/19/09 18:59	11/19/2009 23:50	
EPA 350.1	12/16/09			11/24/09 08:04	11/24/2009 10:27	
EPA 6020A	05/17/10			11/23/09 10:26	11/23/2009 20:15	
EPA 7470A	12/16/09			11/24/09 11:41	11/25/2009 07:16	
EPA 8011	12/02/09		12/08/09	11/24/09 08:49	11/24/2009 15:45	
EPA 8260B	12/02/09			11/23/09 14:51	11/23/2009 18:35	
Field	11/18/09 13:52			11/18/09 13:38	11/18/2009 13:38	
Field	11/19/09 13:38		11/19/09 13:38	11/18/09 13:38	11/18/2009 13:38	
Field	11/20/09 13:38			11/18/09 13:38	11/18/2009 13:38	
SM18 2540C	11/25/09			11/24/09 21:10	11/25/2009 20:40	

Client ID#	MW-ID#	Lab ID#	Sample ID#	Prepared By	Analysis By	Comments
Parameter	Hold Date/Time(s)			Prep Date/Time(s)	Analysis Date/Time(s)	
EPA 6020A	05/17/10			11/23/09 10:26	11/24/2009 15:35	

Client ID#	MW-ID#	Lab ID#	Sample ID#	Prepared By	Analysis By	Comments
Parameter	Hold Date/Time(s)			Prep Date/Time(s)	Analysis Date/Time(s)	
EPA 300.0	11/21/09 10:40			11/19/09 18:59	11/20/2009 01:23	
EPA 300.0	12/17/09			11/19/09 18:59	11/20/2009 01:23	
EPA 350.1	12/17/09			11/24/09 08:04	11/24/2009 10:28	
EPA 6020A	05/18/10			11/23/09 10:26	11/23/2009 20:25	
EPA 7470A	12/17/09			11/24/09 11:41	11/25/2009 07:19	
EPA 8011	12/03/09		12/08/09	11/24/09 08:49	11/24/2009 15:58	
EPA 8260B	12/03/09			11/23/09 14:51	11/23/2009 19:05	
Field	11/19/09 10:54			11/19/09 10:40	11/19/2009 10:40	
Field	11/20/09 10:40		11/20/09 10:40	11/19/09 10:40	11/19/2009 10:40	
Field	11/21/09 10:40			11/19/09 10:40	11/19/2009 10:40	
SM18 2540C	11/26/09			11/24/09 21:10	11/25/2009 20:40	

Client ID#	MW-ID#	Lab ID#	Sample ID#	Prepared By	Analysis By	Comments
Parameter	Hold Date/Time(s)			Prep Date/Time(s)	Analysis Date/Time(s)	
EPA 6020A	05/18/10			11/23/09 10:26	11/24/2009 15:45	

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)	
EPA 300.0	11/20/09	11:26		11/19/09	18:59	11/20/2009 00:46
EPA 300.0	12/16/09			11/19/09	18:59	11/20/2009 00:46
EPA 350.1	12/16/09			11/24/09	08:04	11/24/2009 10:29
EPA 6020A	05/17/10			11/23/09	10:26	11/23/2009 20:32
EPA 7470A	12/16/09			11/24/09	11:41	11/25/2009 07:29
EPA 8011	12/02/09	12/08/09		11/24/09	08:49	11/24/2009 16:11
EPA 8260B	12/02/09			11/23/09	14:51	11/23/2009 19:35
Field	11/18/09	11:40		11/18/09	11:26	11/18/2009 11:26
Field	11/19/09	11:26	11/19/09 11:26	11/18/09	11:26	11/18/2009 11:26
Field	11/20/09	11:26		11/18/09	11:26	11/18/2009 11:26
SM18 2540C	11/25/09			11/24/09	21:10	11/25/2009 20:40

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)	
EPA 6020A	05/17/10			11/23/09	10:26	11/24/2009 15:52

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)	
EPA 300.0	11/21/09	12:35		11/19/09	18:59	11/20/2009 01:05
EPA 300.0	12/17/09			11/19/09	18:59	11/20/2009 01:05
EPA 350.1	12/17/09			11/24/09	08:04	11/24/2009 10:31
EPA 6020A	05/18/10			11/23/09	10:26	11/23/2009 20:39
EPA 7470A	12/17/09			11/24/09	11:41	11/25/2009 07:32
EPA 8011	12/03/09	12/08/09		11/24/09	08:49	11/24/2009 16:24
EPA 8260B	12/03/09			11/23/09	14:51	11/23/2009 20:05
Field	11/19/09	12:49		11/19/09	12:35	11/19/2009 12:35
Field	11/20/09	12:35	11/20/09 12:35	11/19/09	12:35	11/19/2009 12:35
Field	11/21/09	12:35		11/19/09	12:35	11/19/2009 12:35
SM18 2540C	11/26/09			11/24/09	21:10	11/25/2009 20:40

Parameter	Hold Date/Time(s)		Prep Date/Time(s)		Analysis Date/Time(s)	
EPA 6020A	05/18/10			11/23/09	10:26	11/24/2009 15:59

Sample ID:	MW-10	Last Edit:	2009-11-25 10:47	Created:	2009-11-25 10:47	Last:	2009-11-25 10:47	
Parameter	Hold Date/Time(s)			Prep Date/Time(s)		Analysis Date/Time(s)		
EPA 300.0	11/20/09	12:40		11/19/09	18:59	11/20/2009	00:09	
EPA 300.0	12/16/09			11/19/09	18:59	11/20/2009	00:09	
EPA 350.1	12/16/09			11/24/09	08:04	11/24/2009	10:33	
EPA 6020A	05/17/10			11/23/09	10:26	11/23/2009	20:49	
EPA 7470A	12/16/09			11/24/09	11:41	11/25/2009	07:35	
EPA 8011	12/02/09		12/08/09	11/24/09	08:49	11/24/2009	16:37	
EPA 8260B	12/02/09			11/23/09	14:51	11/23/2009	20:34	
Field	11/18/09	12:54		11/18/09	12:40	11/18/2009	12:40	
Field	11/19/09	12:40	11/19/09	12:40	11/18/09	12:40	11/18/2009	12:40
Field	11/20/09	12:40		11/18/09	12:40	11/18/2009	12:40	
SM18 2540C	11/25/09			11/24/09	21:10	11/25/2009	20:40	

Sample ID:	MW-10	Last Edit:	2009-11-25 07:55	Created:	2009-11-25 07:55	Last:	2009-11-25 07:55
Parameter	Hold Date/Time(s)			Prep Date/Time(s)		Analysis Date/Time(s)	
EPA 6020A	05/17/10			11/23/09	10:26	11/24/2009	16:09

Sample ID:	MW-10	Last Edit:	2009-11-25 10:47	Created:	2009-11-25 10:47	Last:	2009-11-25 10:47	
Parameter	Hold Date/Time(s)			Prep Date/Time(s)		Analysis Date/Time(s)		
EPA 300.0	11/21/09	14:22		11/19/09	18:59	11/20/2009	02:37	
EPA 300.0	12/17/09			11/19/09	18:59	11/20/2009	02:37	
EPA 350.1	12/17/09			11/24/09	08:04	11/24/2009	10:34	
EPA 6020A	05/18/10			11/23/09	10:26	11/23/2009	20:56	
EPA 7470A	12/17/09			11/24/09	11:41	11/25/2009	07:38	
EPA 8011	12/03/09		12/08/09	11/24/09	08:49	11/24/2009	16:51	
EPA 8260B	12/03/09			11/23/09	14:51	11/23/2009	21:04	
Field	11/19/09	14:36		11/19/09	14:22	11/19/2009	14:22	
Field	11/20/09	14:22	11/20/09	14:22	11/19/09	14:22	11/19/2009	14:22
Field	11/21/09	14:22		11/19/09	14:22	11/19/2009	14:22	
SM18 2540C	11/26/09			11/24/09	21:10	11/25/2009	20:40	

Sample ID:	MW-10	Last Edit:	2009-11-25 10:47	Created:	2009-11-25 10:47	Last:	2009-11-25 10:47
Parameter	Hold Date/Time(s)			Prep Date/Time(s)		Analysis Date/Time(s)	
EPA 6020A	05/18/10			11/23/09	10:26	11/24/2009	16:16

Sample ID:	MW-10	Last Edit:	2009-11-25 10:47	Created:	2009-11-25 10:47	Last:	2009-11-25 10:47
Parameter	Hold Date/Time(s)			Prep Date/Time(s)		Analysis Date/Time(s)	
EPA 300.0	11/20/09	10:45		11/19/09	18:59	11/20/2009	02:19
EPA 300.0	12/16/09			11/19/09	18:59	11/20/2009	02:19
EPA 350.1	12/16/09			11/24/09	08:04	11/24/2009	10:37
EPA 6020A	05/17/10			11/23/09	10:26	11/23/2009	20:01
EPA 7470A	12/16/09			11/24/09	11:41	11/25/2009	07:42
EPA 8011	12/02/09		12/08/09	11/24/09	08:49	11/24/2009	17:17
EPA 8260B	12/02/09			11/23/09	14:51	11/23/2009	21:34
SM18 2540C	11/25/09			11/24/09	21:10	11/25/2009	20:40

Client ID	Sample Name	Lab ID	Measurement	Method	Unit	Date	Time
Parameter EPA 6020A	Hold Date/Time(s) 05/17/10		Prep Date/Time(s) 11/23/09 10:26			Analysis Date/Time(s) 11/24/2009 15:21	

Parameter	Hold Date/Time(s)	Prep Date/Time(s)	Analysis Date/Time(s)
Parameter EPA 8260B	Hold Date/Time(s) 12/03/09	Prep Date/Time(s) 11/23/09 14:51	Analysis Date/Time(s) 11/23/2009 22:04



Florida Radiochemistry Services, Inc.

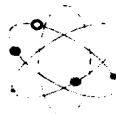
**QA Page**

Analyte	Sample #	Date Analyzed	Sample Result	Amount Spiked	Spike Result	Spike /Dup Result	Spike % Rec.	Spike Dup % Rpd
Gross Alpha	0911245-01	12/08/09	2.8	10.2	12.5	12.3	95	1.6
Radium 226	0911273-04	12/14/09	0.8	25.2	24.1	28.5	92	16.7
Radium 228	0911273-04	12/14/09	2.2	5.6	8.3	8.1	109	2.4

**Quality Control Limits**

**% RPD**                   **% Rec.**

Gross Alpha	25.0	60-125
Radium 226	23.4	78-125
Radium 228	23.9	67-125

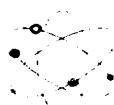


## Florida Radiochemistry Services, Inc.

### Sample Login

<b>Client:</b>	<b>Enco-Orlando</b>	<b>Date / Time Received</b>	<b>Work order #</b>
		<b>11/20/09 12:17</b>	<b>0911189</b>
<b>Client Contact:</b>	<b>Marcia Colon</b>		
<b>Client P.O.</b>			
<b>Project I.D.</b>	<b>A905524</b>		

<b>Lab Sample I.D.</b>	<b>Client Sample I.D.</b>	<b>Sample Date/Time</b>	<b>Analysis Requested</b>
0911189-01	<b>MW-4</b>	<b>11/19/09 15:15</b>	<b>Ga, Ra226, Ra228</b>
0911189-02	<b>MW-4A</b>	<b>11/18/09 15:20</b>	<b>Ga, Ra226, Ra228</b>
0911189-03	<b>MW-4B</b>	<b>11/18/09 13:38</b>	<b>Ga, Ra226, Ra228</b>
0911189-04	<b>MW-6A</b>	<b>11/19/09 10:40</b>	<b>Ga, Ra226, Ra228</b>
0911189-05	<b>MW-8</b>	<b>11/18/09 11:26</b>	<b>Ga, Ra226, Ra228</b>
0911189-06	<b>MW-9A</b>	<b>11/19/09 12:35</b>	<b>Ga, Ra226, Ra228</b>
0911189-07	<b>MW-10</b>	<b>11/18/09 12:40</b>	<b>Ga, Ra226, Ra228</b>
0911189-08	<b>MW-11</b>	<b>11/19/09 14:22</b>	<b>Ga, Ra226, Ra228</b>
0911189-09	<b>EQUIPMENT BLANK</b>	<b>11/18/09 10:45</b>	<b>Ga, Ra226, Ra228</b>



Florida Radiochemistry Services, Inc.

**QA Page**

Analyte	Sample #	Date Analyzed	Sample Result	Amount Spiked	Spike Result	Spike /Dup Result	Spike % Rec.	Spike Dup % Rpd
Gross Alpha	0911195-01	12/03/09	<0.6	10.2	9.6	9.5	94	1.0
Radium 226	0911189-04	12/07/09	0.2	25.2	24.9	26.6	98	6.6
Radium 228	0911189-04	12/07/09	<1.0	5.6	6.0	6.0	107	0.0

**Quality Control Limits**

**% RPD**                   **% Rec.**

<b>Gross Alpha</b>	<b>25.0</b>	<b>60-125</b>
<b>Radium 226</b>	<b>23.4</b>	<b>78-125</b>
<b>Radium 228</b>	<b>23.9</b>	<b>67-125</b>