

53008

2014-02

Sumter Class I

21212

4557

4592

21211

4535

21213

21975

28670

28669

Well Type

MW-10

MW-6A

MW-8

MW-9A

MW-2

MW-11

MW-4A

MW-4D

MW-4C

Adjacent to Landfill

Shallow

GW Sid

SW Sid

Units

Ammonia or unionized

2.8

0.02

mg/L

Arsenic

10.0

50

ug/L

Benzene

1

ug/L

Manganese

50

ug/L

Nitrate

10

mg/L

Floridan

GW Sid

SW Sid

Units

Ammonia or unionized

2.8

0.02

mg/L

Arsenic

10.0

50

ug/L

Benzene

1

ug/L

Manganese

50

ug/L

Nitrate

10

mg/L

JED #

1

2

3

4

5

6

7

8

9

MW-10

MW-6A

MW-8

MW-9A

MW-2

MW-11

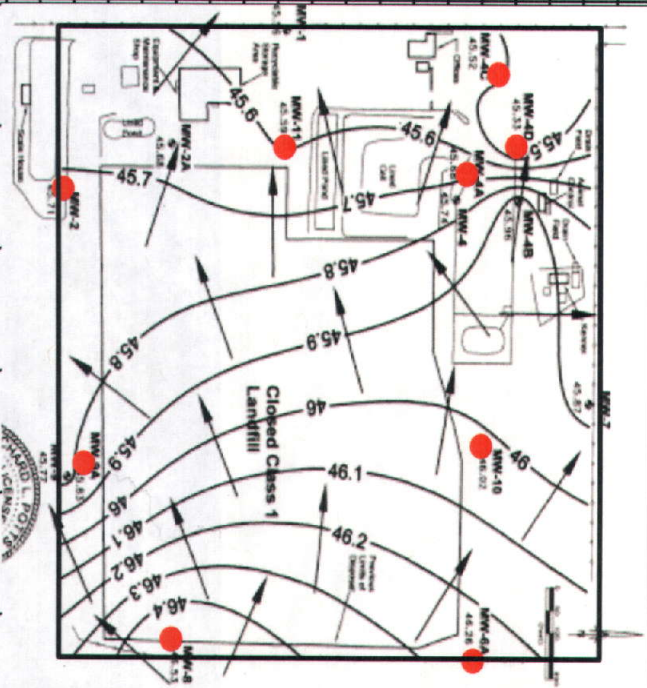
MW-4A

MW-4D

MW-4C

100

12





Sumter

Emerson

Co

see Bot

• ACMS

IR  
shelf

• CR4 BGA

12  
Fcu  
Room

• Cast Rod plch

• Sumter CA 9 53020 - very wet  
• " class1 clver 53008 have and HC



prop per Fedn  
53008

5/28/2014

App 14 is CFR 40 list	Count Class & III List	Class I	Current Sumter Closed I	Current Sumter Closed I		Proposed Sumter Closed I	Proposed Sumter Closed I
		Std Semi Parameter List	Quarterly?-Yes	Annually		Quarterly?-Yes	Annual
	1	Water Elevation (NGVD)	Water Elevation (NGVD)	Water Elevation (NGVD)	1	Water Elevation (NGVD)	
	2	Temperature (field)	Temperature (field)	Temperature (field)	2	Temperature (field)	
	3	Dissolved Oxygen (field)	Dissolved Oxygen (field)	Dissolved Oxygen (field)	3	Dissolved Oxygen (field)	
	4	pH (field)	pH (field)	pH (field)	4	pH (field)	
	5	Spec. Conductance (field)	Spec. Conductance (field)	Spec. Conductance (field)	5	Spec. Conductance (field)	
	6	Turbidity (field)	Turbidity (field)	Turbidity (field)	6	Turbidity (field)	
	7	Total Ammonia as N	Total Ammonia as N	Total Ammonia as N			
	8	Chlorides	Chlorides	Chlorides			
	9	Nitrate as N	Nitrate as N	Nitrate as N	7	Nitrate as N	
	10	Total Dissolved Solids	Total Dissolved Solids	Total Dissolved Solids	8	Total Dissolved Solids	
	11	Antimony	Antimony	Antimony	9	Aluminum	
	12	Arsenic	Arsenic	Arsenic	10	Antimony	
	13	Barium	Barium	Barium	11	Arsenic	
	14	Beryllium	Beryllium	Beryllium	12	Barium	
	15	Cadmium	Cadmium	Cadmium	13	Beryllium	
	16	Chromium	Chromium	Chromium	14	Cadmium	
	17	Cobalt	Cobalt	Cobalt	15	Cobalt	
	18	Copper	Copper	Copper	16	Copper	
	19	Iron	Iron	Iron	17	Iron	
	20	Lead	Lead	Lead			
	21	Mercury	Mercury	Mercury			
	22	Nickel	Nickel	Nickel	18	Nickel	
	23	Selenium	Selenium	Selenium	19	Selenium	
	24	Silver	Silver	Silver			
	25	Sodium	Sodium	Sodium			
	26	Thallium	Thallium	Thallium			
	27	Vanadium	Vanadium	Vanadium	20	Vanadium	
	28	Zinc	Zinc	Zinc	21	Zinc	
	29	Acetone	Acetone	Acetone			
	30	Acrylonitrile	Acrylonitrile	Acrylonitrile			
	31	Benzene	Benzene	Benzene			
	32	Bromochloromethane	Bromochloromethane	Bromochloromethane			
	33	Bromodichloromethane	Bromodichloromethane	Bromodichloromethane			
	34	Bromoform	Bromoform	Bromoform			
	35	Carbon Disulfide	Carbon Disulfide	Carbon Disulfide			
	36	Carbon Tetrachloride	Carbon Tetrachloride	Carbon Tetrachloride			
	37	Chlorobenzene	Chlorobenzene	Chlorobenzene			
	38	Chloroethane	Chloroethane	Chloroethane			
	39	Chloroform	Chloroform	Chloroform			
	40	Dibromochloromethane	Dibromochloromethane	Dibromochloromethane			
	41	1,2-Dibromo-3-chloropropane	1,2-Dibromo-3-chloropropane	1,2-Dibromo-3-chloropropane			
	42	1,2-Dibromoethane (EDB)	1,2-Dibromoethane (EDB)	1,2-Dibromoethane (EDB)			
	43	1,2-Dichlorobenzene	1,2-Dichlorobenzene	1,2-Dichlorobenzene			
	44	1,4-Dichlorobenzene	1,4-Dichlorobenzene	1,4-Dichlorobenzene			
	45	trans-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene	trans-1,4-Dichloro-2-butene			
	46	1,1-Dichloroethane	1,1-Dichloroethane	1,1-Dichloroethane			
	47	1,2-Dichloroethane	1,2-Dichloroethane	1,2-Dichloroethane			
	48	1,1-Dichloroethene	1,1-Dichloroethene	1,1-Dichloroethene			
	49	cis-1,2-Dichloroethene	cis-1,2-Dichloroethene	cis-1,2-Dichloroethene			
	50	trans-1,2-Dichloroethene	trans-1,2-Dichloroethene	trans-1,2-Dichloroethene			
	51	1,2-Dichloropropane	1,2-Dichloropropane	1,2-Dichloropropane			
	52	cis-1,3-Dichloropropene	cis-1,3-Dichloropropene	cis-1,3-Dichloropropene			
	53	trans-1,3-Dichloropropene	trans-1,3-Dichloropropene	trans-1,3-Dichloropropene			
	54	Ethylbenzene	Ethylbenzene	Ethylbenzene			
	55	Iodomethane (Methyl iodide)	Iodomethane (Methyl iodide)	Iodomethane (Methyl iodide)			
	56	Methyl butyl ketone	Methyl butyl ketone	Methyl butyl ketone			
	57	Methyl ethyl ketone	Methyl ethyl ketone	Methyl ethyl ketone			
	58	Methylene Bromide	Methylene Bromide	Methylene Bromide			
	59	Methylene Chloride	Methylene Chloride	Methylene Chloride			
	60	Methyl isobutyl ketone	Methyl isobutyl ketone	Methyl isobutyl ketone			
	61	Styrene	Styrene	Styrene			
	62	1,1,1,2-Tetrachloroethane	1,1,1,2-Tetrachloroethane	1,1,1,2-Tetrachloroethane			
	63	1,1,2,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane	1,1,2,2-Tetrachloroethane			
	64	Tetrachloroethene	Tetrachloroethene	Tetrachloroethene			
	65	Toluene	Toluene	Toluene			
	66	1,1,1-Trichloroethane	1,1,1-Trichloroethane	1,1,1-Trichloroethane			
	67	1,1,2-Trichloroethane	1,1,2-Trichloroethane	1,1,2-Trichloroethane			
	68	Trichloroethene	Trichloroethene	Trichloroethene			
	69	Trichlorofluoromethane	Trichlorofluoromethane	Trichlorofluoromethane			
	70	1,2,3-Trichloropropane	1,2,3-Trichloropropane	1,2,3-Trichloropropane			
	71	Vinyl Acetate	Vinyl Acetate	Vinyl Acetate			
	72	Vinyl Chloride	Vinyl Chloride	Vinyl Chloride			
	73	Xylenes	Xylenes	Xylenes			
			MANGANESE (MN)		22	MANGANESE (MN)	
			RA-226, ERROR		23	RA-226, ERROR	
			RA-228, ERROR		24	RA-228, ERROR	
			RADIATION, GROSS ALPHA		25	RADIATION, GROSS ALPHA	



<p>2. Routine monitoring parameters either never detected or consistently detected at concentrations well below appropriate regulatory standards at the SCCL should be discontinued from future monitoring. Parameters recommended for -16- deletion from the landfill monitoring plan include: ammonia-nitrogen, chloride, chromium, fluoride, lead, mercury, silver, sodium and thallium.</p>	<ol style="list-style-type: none"> <li>1. ammonia-</li> <li>2. chloride,</li> <li>3. chromium,</li> <li>4. fluoride,</li> <li>5. lead,</li> <li>6. mercury,</li> <li>7. silver,</li> <li>8. sodium and</li> <li>9. thallium.</li> </ol>	
<p>3. For the same reasons, sampling for the parameters included in the expanded annual sampling event list should be eliminated. Those parameters recommended for deletion include the voes listed in <i>40 CFR Part 258, Appendix I</i> and the following metals: arsenic, barium, beryllium, cobalt, copper, nickel, selenium, vanadium and zinc. In short, the permit requirement for annual monitoring of the expanded parameter list should be deleted.</p>	<ol style="list-style-type: none"> <li>1. VOCs listed in <i>40 CFR Part 258, Appendix I</i></li> <li>2. arsenic,</li> <li>3. barium,</li> <li>4. beryllium,</li> <li>5. cobalt,</li> <li>6. copper,</li> <li>7. nickel,</li> <li>8. selenium,</li> <li>9. vanadium and</li> <li>10. zinc.</li> </ol>	



5/28/2014

Computer Notes:

I am confused.

It seems like Tom is confused, but 9 times out of 10 Tom is fine and I am the one confused:

- Here he say "I am thinking of no water monitoring when we extend the LTC period."
- But he also says he added attachment 2 which says that we will do with reduced parms.

I am going to check the list of "reduced parms"—Looks like an Oviedo sports list....

5/28/2014

Marjorie

Based on our proviso discussions I added an attachment 2 to the following letter. Please review Attachment 2 to the letter. Make sure it is what we agreed upon. I am thinking of no water monitoring when we extend the LTC period. Does that trouble you?

L:\Sites\Sumter\SW\Sumter -SWTPF 53008\Stabilization Assessment Report\Response to stabilization report.doc

The groundwater report is at:

L:\Sites\Sumter\SW\Sumter -SWTPF 53008\Stabilization Assessment Report\SumterCountyLF.FID53008.StabilizationAssessmentReport.Attachment II.pdf

Tom

Attachment 2:

Comments regarding Attachment II: Sumter County Closed Class I Landfill Water Quality Evaluation Report (Technical Report) Quarter II 2011 – Quarter I 2014

Note that all references to "technical report" in the following text refer to the document entitled, "Attachment II: Sumter County Closed Class I Landfill Water Quality Evaluation Report (Technical Report) Quarter II 2011 – Quarter I 2014," prepared by Mr. Richard L. Potts, Jr., P.G., of The Colinas group, Inc., dated April 2014.

3. Comments about the Summary and Conclusion section:

- a. The Department agrees previous Consent Order was deemed satisfied and the case was closed.
- b. The Department agrees that the Sumter County Closed Landfill (SCCL) is considered to be an "existing installation." It is exempt from compliance with secondary drinking water standards at the facility property boundary. However, it is prohibited "from causing a violation of the secondary drinking water standards at any private or public water supply well outside the zone of discharge." (Rule 62-520, F.A.C.)

4. Comments about the Recommendations section: If the groundwater monitoring is continued, the reductions recommended are acceptable for routine sampling events.



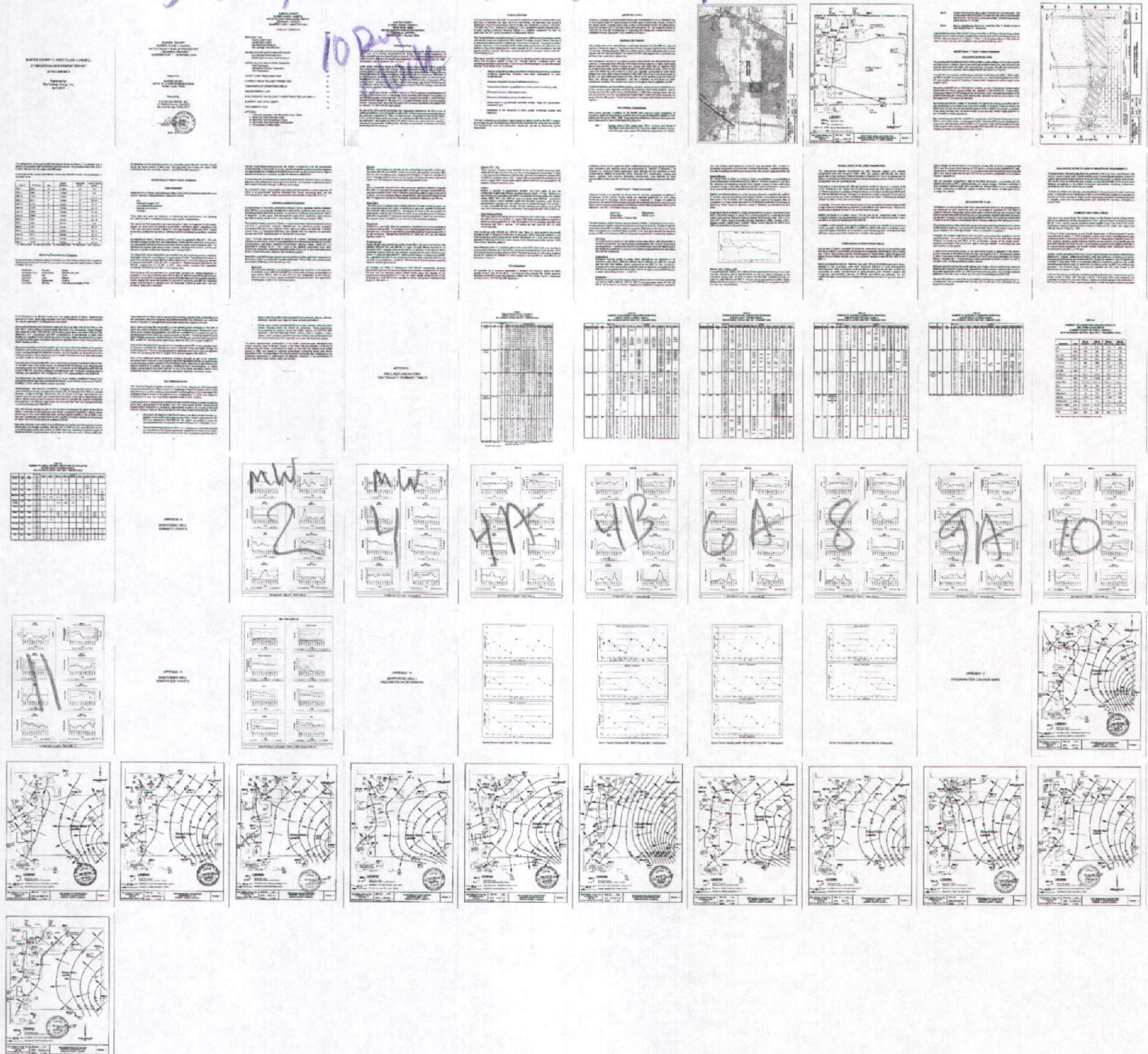
2- Stability Rpt 50

Summary

TR

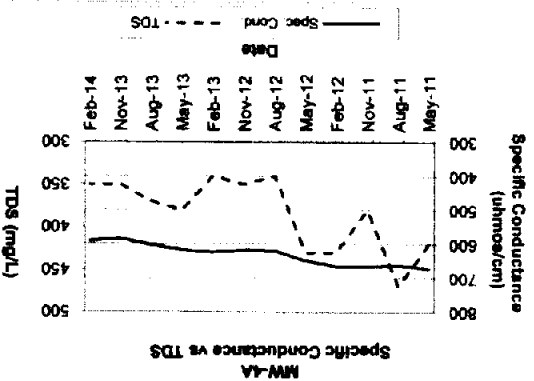
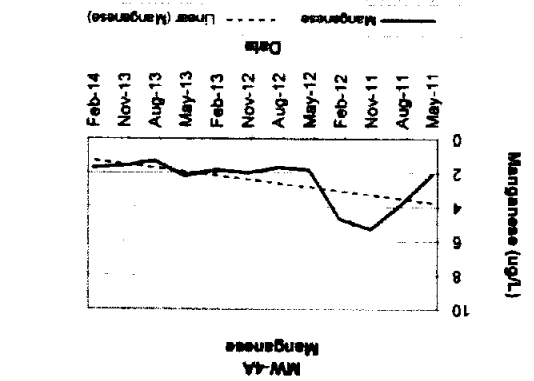
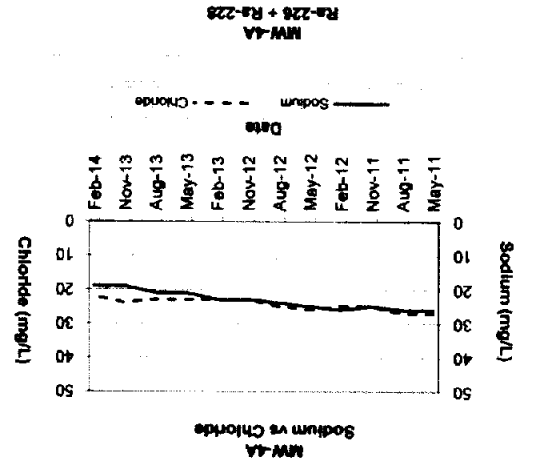
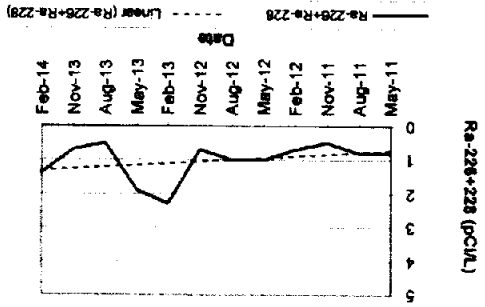
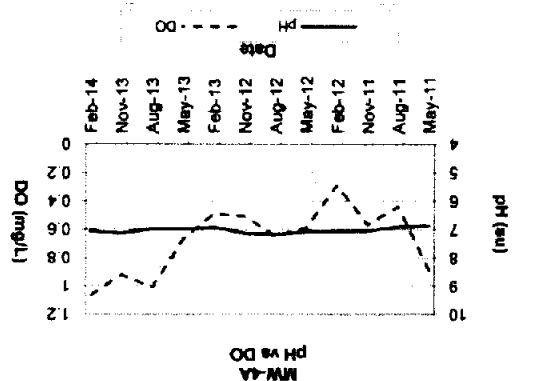
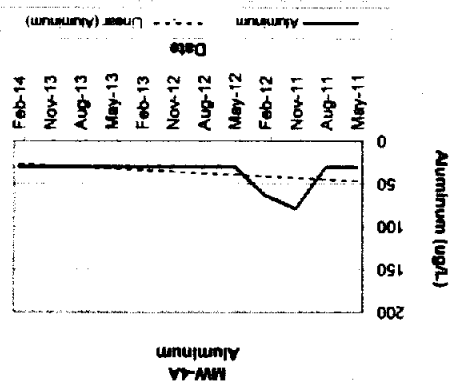
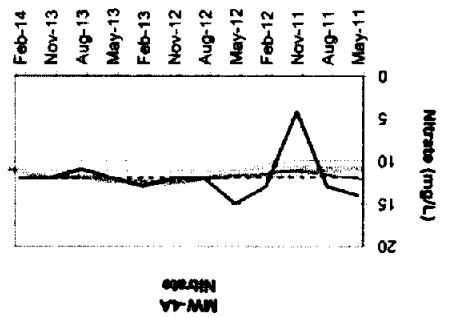
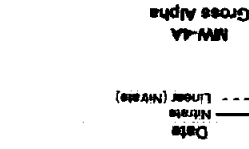
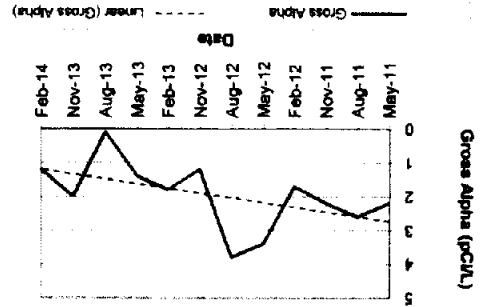
2014-04

10 Days  
10/10/14





# SUMMARY CHART: Well MW-4A

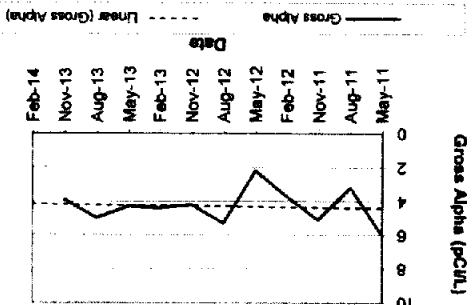


MW-4A

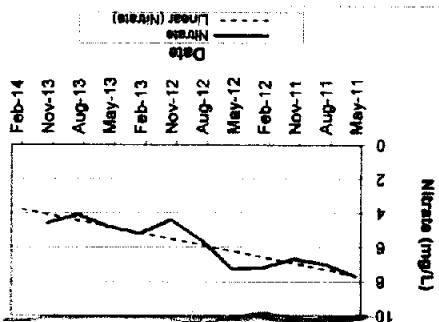
MW-4A



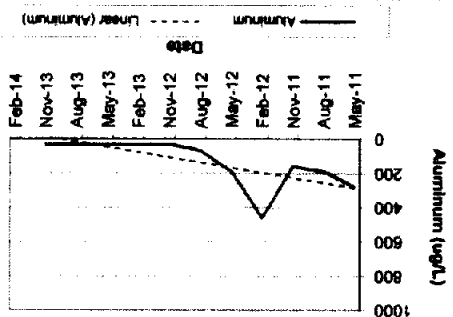
# SUMMARY CHART: Well MW-4



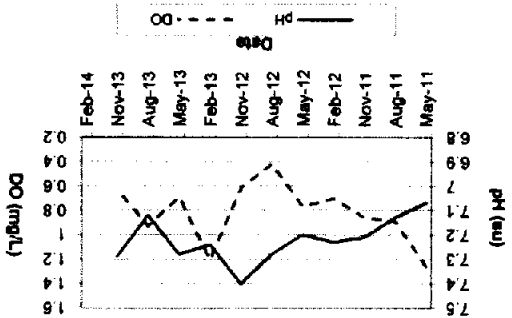
MW-4  
Gross Alpha



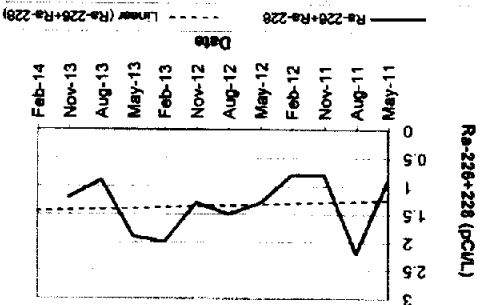
MW-4  
Nitrate



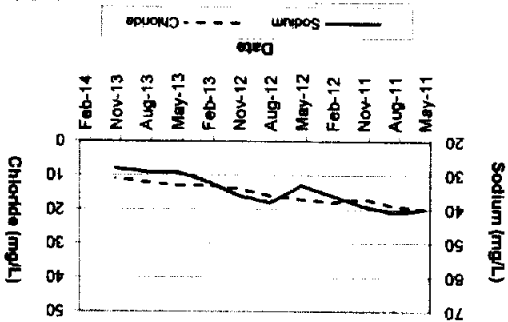
MW-4  
Aluminum



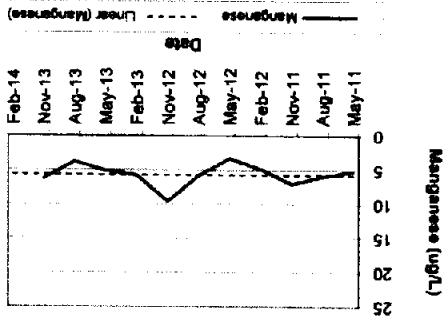
MW-4  
pH vs DO



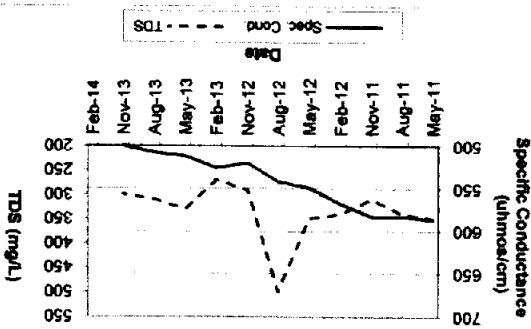
MW-4  
Ra-226 + Ra-228



MW-4  
Sodium vs Chloride



MW-4  
Manganese



MW-4  
Specific Conductance vs TDS

MW-4

MW-4



waste disposal area. Near-surface geologic characteristics, namely a thick unsaturated zone and deep water table and slopes on the underlying bedded clay sediments, are conducive to lateral migration of nitrogen-bearing recharge waters from the point of origin.

Gross alpha exceeded the primary MCL in one sampling event at Detection Well MW-10 and in one event at Detection Well MW-11 over the monitoring period. Background gross alpha levels reported at up-gradient wells MW-6A and MW-8 are increasing through the monitoring period but at fairly low values compared to the MCL. Increasing trends for gross alpha at higher values are noted at Detection Well MW-9A and, at values approaching the MCL, at MW-10. Declining gross alpha levels below the MCL are forecast at MW-11.

Radium 226 and radium 228 exceeded the composite primary MCL in one sampling event at Detection Well MW-9A. Background radium 226/228 levels are stable through the monitoring period. Trends of increasing levels to values approaching the MCL are apparent at MW-9A, exceeding the MCL in August 2013, and at Detection Well MW-11.

None of the additional metals parameters analyzed annually as part of the expanded sampling list were detected at concentrations approaching respective MCLs during the three annual sampling events included in this Technical Report. Apart from a few spurious and suspect detections of acetone and carbon disulfide at trace concentrations, no volatile organic compounds (VOCs) were detected at any of the facility monitoring wells in three consecutive annual monitoring events over the nearly three-year monitoring period.

## RECOMMENDATIONS

This Technical Report should be submitted to the Florida Department of Environmental Protection Central District Office as part of a Stabilization Report for determination by the Department as to whether continued groundwater monitoring at the SCL is warranted. The Stabilization Report is due to the Department on or before April 15, 2014, sixty days prior to the Landfill's Long-Term Care Permit expiration date of June 15, 2014.

In the event that the Department determines the need for continued groundwater monitoring at the SCL and renewal of the facility Long-Term Care permit, Sumter County should request certain reductions in monitoring requirements based on the results of this and previous Technical Reports. Recommended modifications to the monitoring plan include:

1. Elimination of Detection Well MW-8 owing to its demonstrated location up-gradient of the landfill solid waste disposal area. Located approximately 750 feet from Background Well MW-6A, the well is not needed to meet the spacing requirement for background wells in Rule 62-701.410(3)(d)3, F.A.C.
2. Routine monitoring parameters either never detected or consistently detected at concentrations well below appropriate regulatory standards at the SCL should be discontinued from future monitoring. Parameters recommended for



\* \* \* \* \*

The above recommended modifications to the landfill monitoring plan will significantly reduce recurring costs to Sumter County in the event that groundwater monitoring is continued into the future. Considering the length of time that has passed since landfill closure in 1990, and based on historical groundwater monitoring results and results presented in this Technical Report, the recommended monitoring plan modifications are considered appropriate in maintenance of adequate protection to the environment in general and to the public health, safety and welfare.

3. For the same reasons, sampling for the parameters included in the expanded annual sampling event list should be eliminated. Those parameters recommended for deletion include the VOCs listed in 40 CFR Part 258, Appendix I and the following metals: arsenic, barium, beryllium, cobalt, copper, nickel, selenium, vanadium and zinc. In short, the permit requirement for annual monitoring of the expanded parameter list should be deleted.

deletion from the landfill monitoring plan include: ammonia-nitrogen, chloride, chromium, fluoride, lead, mercury, silver, sodium and thallium.

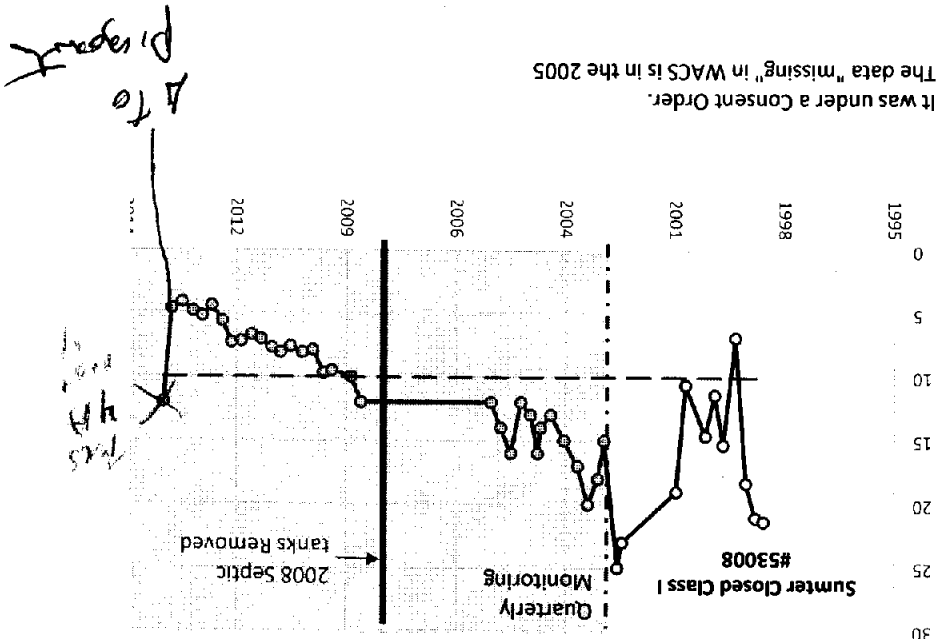
**TABLE II**  
**SUMMARY OF QUARTERLY LABORATORY DETECTIONS**  
**SUMTER COUNTY (CLOSED) LANDFILL**  
**2014 TECHNICAL REPORT (MAY 2011 - FEBRUARY 2014)**

Parameter	Units	MCL	Sample Date	Location											
Manganese	ug/L	50		MW-11	3.60	4.0	4.1	5.6	3.6	2.5	1.2	2.1	2.1	1.9	6.4
				MW-10	23	20	20	17	13	21	24	97	97	17	5.1
				MW-9A	91	96	88	91	81	96	97	96	96	100	100
				MW-8	0.57	0.46	0.87	0.58						0.94	0.49
				MW-6A	0.89	0.87	1.1	0.73						1.3	0.41
				MW-4B		0.33		0.27						0.5	
				MW-4A	2.1	3.6	5.3	4.7						1.6	1.7
				MW-4	5.2	6.0	7.1	4.9						6.3	3.8
				MW-2	0.26	1.7	8.3	0.48						0.6	3.3
														3.3	1.7
														0.6	1.6
														1.0	2.2
														5.1	1.8
														ns	2.0
														5.1	1.8
														8/13	2.2
														2/13	1.8
														11/12	2.0
														8/12	1.8
														5/12	2.0
														2/12	1.9
														11/11	2.1
														8/11	1.7
														5/11	3.3
														2/14	7.7
														11/13	14
														8/13	13
														5/13	15
														2/13	4.4
														11/12	5.6
														8/12	7.3
														5/12	7.2
														2/12	6.7
														11/11	7.0
														8/11	3.3
														5/11	2.8
														2/14	1.5
														11/13	2.0
														8/13	4.1
														5/13	4.8
														2/13	5.2
														11/12	4.4
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2/1/2014	12	10	MG/L
11/18/2013	4.6	10	MG/L
8/13/2013	4.1	10	MG/L
5/8/2013	4.8	10	MG/L
2/12/2013	5.2	10	MG/L
11/20/2012	4.4	10	MG/L
8/14/2012	5.6	10	MG/L
5/22/2012	7.3	10	MG/L
2/21/2012	7.2	10	MG/L
11/22/2011	6.7	10	MG/L
8/29/2011	7	10	MG/L
5/17/2011	7.7	10	MG/L
3/2/2011	8.1	10	MG/L
11/30/2010	7.6	10	MG/L
8/13/2010	8.1	10	MG/L
5/12/2010	7.9	10	MG/L
2/4/2010	9.7	10	MG/L
11/19/2009	9.5	10	MG/L
5/29/2009	10	10	MG/L
2/24/2009	12	10	MG/L
Dec-05	12	10	MG/L
Sep-05	14	10	MG/L
Jun-05	16	10	MG/L
Mar-05	12	10	MG/L
Dec-04	13	10	MG/L
Oct-04	16	10	MG/L
Sep-04	14	10	MG/L
Jun-04	13	10	MG/L
Feb-04	15	10	MG/L
Oct-03	17	10	MG/L
Jul-03	20	10	MG/L
Apr-03	18	10	MG/L
Feb-03	15	10	MG/L
Oct-02	25	10	MG/L
8/23/2002	23	10	MG/L
4/12/2001	19	10	MG/L
1/18/2001	10.6	10	MG/L
7/19/2000	14.6	10	MG/L
4/26/2000	11.4	10	MG/L
2/7/2000	15.3	10	MG/L
10/19/1999	6.87	10	MG/L
7/14/1999	18.3	10	MG/L
4/20/1999	21	10	MG/L
2/2/1999	21.3	10	MG/L

NOTED



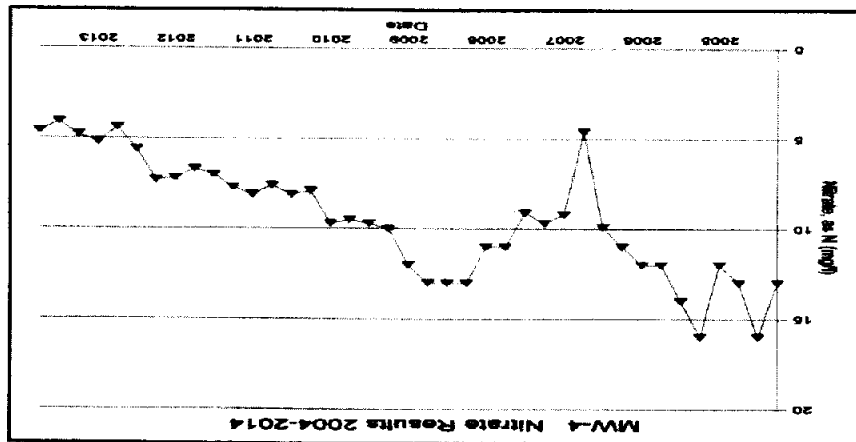
very low at these wells compared to the 50 mg/l secondary MCL. A trend of increasing manganese at concentrations exceeding the MCL is noted for MW-9A. A similar increasing trend through a range of very low values is apparent at MW-4B.

#### Nitrate Nitrogen

An overall trend of stable to declining nitrate concentrations in groundwater is evident throughout the landfill monitoring network. The lone exception is well MW-9A, exhibiting an increasing forecast trend through a range of very small nitrate values (0.10 mg/l - 0.82 mg/l) well below the MCL and concentrations reported in other up-gradient and down-gradient monitoring wells at the SCCL.

Slightly increasing trends shown on the Summary Charts for wells MW-4A and MW-11 are the result of anomalous, and suspect, nitrate concentrations reported for both wells in the November 2011 sampling event. Ignoring the suspect data, or substitution of nitrate values equivalent to immediately preceding and subsequent laboratory values results in apparent trends of declining concentrations at both wells.

A significant trend of declining nitrate concentrations at former Compliance Well MW-4, the prime impetus for earlier PCA actions at the SCCL, continues the trend noted in the previous Technical Report prepared for the period 2008 - 2011 (TCG, July 2011: Water Quality Evaluation Report (Quarter IV 2008 - Quarter I 2011) Sumter County Closed Class I Landfill). Nitrate values reported for MW-4 since 2004 are presented in the graph below.



#### Radium 226 + Radium 228

Forecast trends for radium 226 + radium 228 are generally increasing at most wells over the monitoring period, typically at low to very low values compared to the composite primary MCL (5 pCi/l) for these radionuclides. Increasing trends are noted for wells MW-9A and MW-11 through values approaching the MCL. Stable forecast trends are apparent at Background Well MW-6A and up-gradient well MW-8 at very low concentrations.



### Chloride

Chloride concentrations at all wells are low and well below the MCL of 250 mg/l. Two wells, MW-4A and MW-9A, produced samples with chloride nominally higher than the other monitoring wells, ranging from 20 mg/l to 27 mg/l over the period of record. Average chloride concentrations reported for these two wells is somewhat higher than at background wells and remaining detection wells.

### Iron

Iron is consistently reported below either the laboratory minimum detection limit (MDL) or less than the secondary MCL of 300 ug/l in background well MW-6A, upgradient well MW-8 and most of the other monitoring wells throughout the period of record. Iron concentrations slightly above the MCL are reported for detection well MW-10. Higher iron values are consistently reported for detection well MW-9A.

### Gross Alpha

This radiological constituent was routinely detected at most monitoring wells over the monitoring period with higher concentrations generally reported at Detection Wells MW-9A, MW-10 and MW-11. As indicated in Table II, the primary MCL for gross alpha (15 pCi/l) was nominally exceeded in one sampling event at detection wells MW-10 and MW-11. Laboratory results presented in Table II are corrected for the negative range of analytical error inherent in the laboratory analyses.

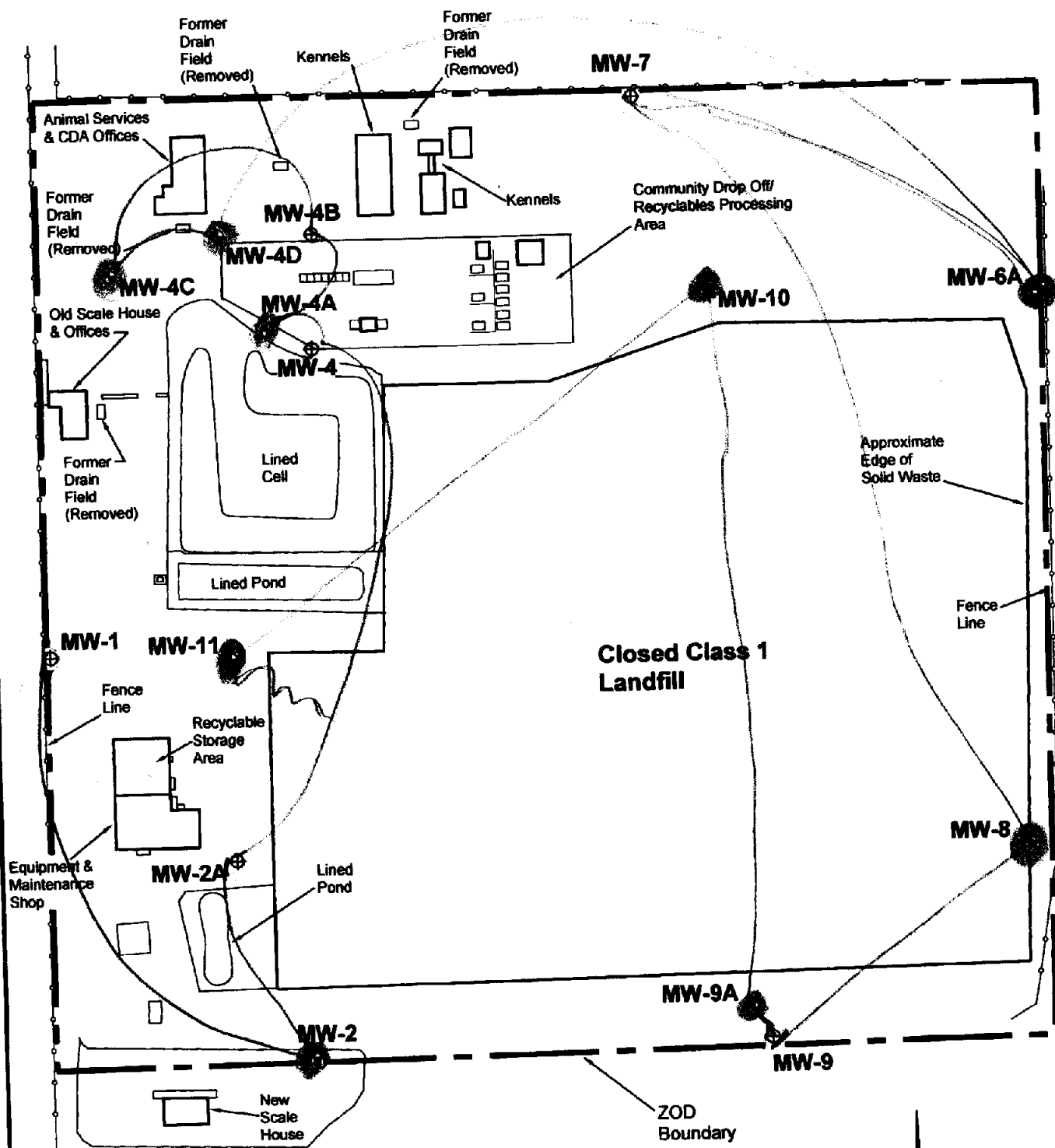
### Manganese

Manganese is generally either not detected or detected at very low concentrations at most monitoring wells. The exceptions are monitoring wells MW-9A and MW-10. Manganese is consistently reported at concentrations above the secondary MCL of 50 ug/l at MW-9A. Manganese concentrations below the MCL are consistently reported at MW-10.

### Nitrate Nitrogen

Nitrate nitrogen was reported above the primary MCL (10 mg/l) in all but one of the samples collected from well MW-4A (11 mg/l - 15 mg/l). Nitrate reported for the November 2011 sampling event at this well is an anomaly in the data set and is considered suspect, as is the concentration reported for the same sampling event at MW-11. Although below the MCL, nitrate concentrations in background well MW-6A, upgradient well MW-8 and remaining detection wells, excepting MW-9A, are reported at concentrations considered elevated above typical naturally-occurring levels of nitrate in groundwater.

As indicated on Table II, Background Well MW-6A consistently produced groundwater samples with elevated nitrate concentrations, ranging from 5.0 mg/l to 6.6 mg/l over the monitoring period. Lower nitrate values are reported for up-gradient monitoring well MW-8 (1.7 mg/l - 2.1 mg/l). Nitrate values similar to those at Background Well MW-6A are reported for former Compliance Well MW-4 and Detection Well MW-11.

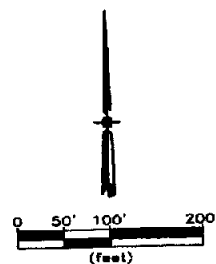


### LEGEND

MW-2 Monitor Well Location

MW-1 Piezometer Location

--- Modified ZOD Boundary (Dec. 2013)



The Colinas Group, Inc.  
377 Maitland Avenue  
Suite 2012  
Altamonte Springs, Florida 32701

PROJ. NO.: P-483  
DATE: DECEMBER 2013  
SCALE: 1" = 200'


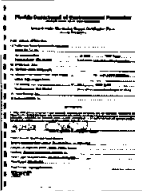
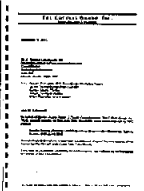

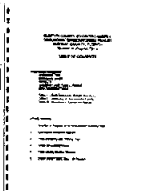
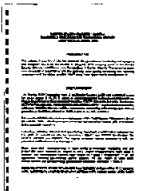
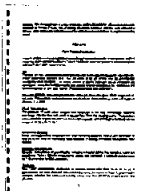
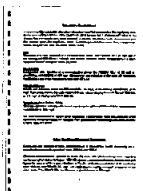
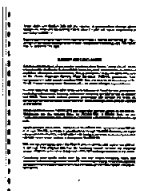
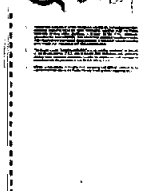
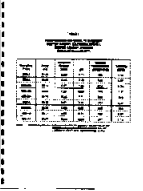
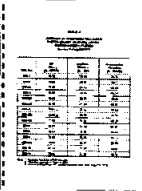
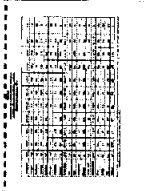
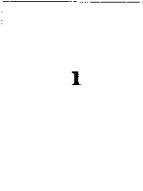
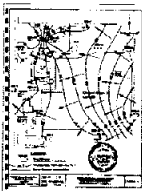

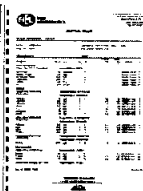
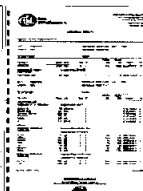
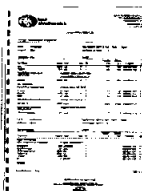
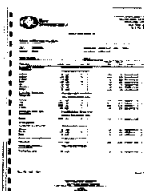

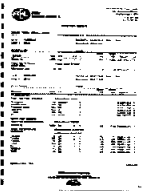

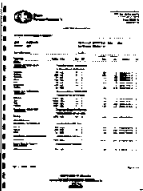
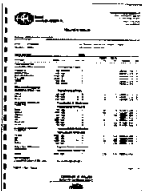
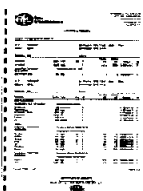
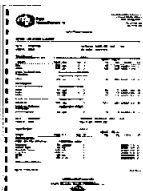
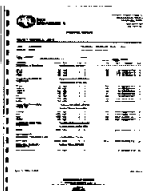

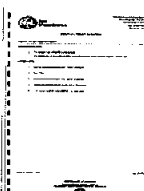


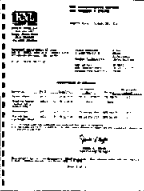
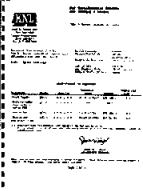

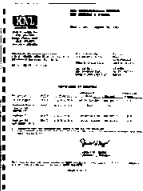
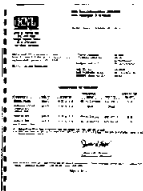
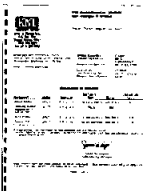
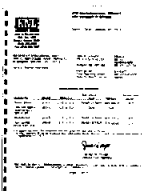

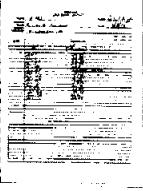
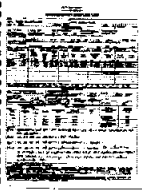
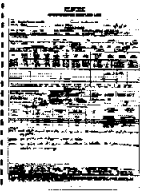
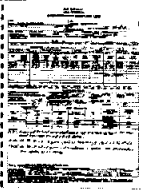
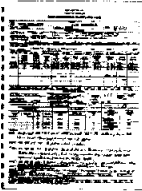
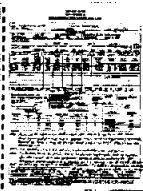
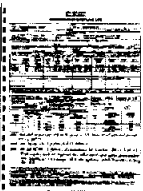

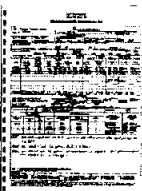
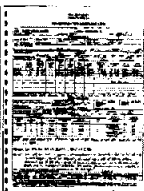

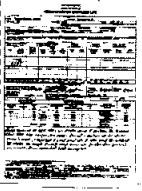



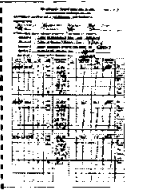
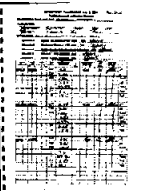



MONITORING WELL LOCATIONS AND  
MODIFIED ZONE OF DISCHARGE BOUNDARY  
SUMTER COUNTY CLOSED LANDFILL

FIGURE 1



Closed Case I Sumter 53008

2013-08 Quat

**SPECIFIC CONDITIONS:**

**10. Gas Migration Monitoring. (continued)**

- e. The Department may require the installation of additional gas probes and/or ambient monitoring locations within any structures that may be associated with future uses of the property.

**11. Gas Remediation.** Gas concentrations exceeding 100% LEL in perimeter locations (GP-1 through GP-4, and M-1 through M-29) or 25% LEL in any on-site structure shall be reported to the Department **within 7 days of detection**, and shall be accompanied by a remediation plan describing the nature and extent of the gas migration problem and the proposed remedy. The remedy shall be completed **within 60 days of detection** unless otherwise approved by the Department.

**12. Water Quality Requirements.** The landfill shall be monitored throughout its design period (which includes long-term care) to control the movement of waste and waste constituents into the environment so that ground water and surface water quality standards and criteria of Chapters 62-4, 62-302, and 62-520, F.A.C., will not be violated beyond the zone of discharge specified for the landfill.

**13. Water Quality Monitoring Quality Assurance.**

- a. All field work done in connection with the facility's Water Quality Monitoring Plan shall be conducted in accordance with the Standard Operating Procedures (SOPs) described in DEP-SOP-001/01 (March 31, 2008) [or as replaced by successor SOPs], as referenced in Rule 62-160.210(1), F.A.C. All laboratory analyses done in connection with the facility's Water Quality Monitoring Plan shall be conducted by firms that hold certificates from the Department of Health Environmental Laboratory Certification Program under Chapter 64E-1, F.A.C., as referenced in Rule 62-160.300(1), F.A.C. The SOPs utilized and the laboratory's list of certified test methods and analytes must specifically address the types of sampling and analytical work that are required by the permit and shall be implemented by all persons performing sample collection or analysis related to this permit. Alternate field procedures and laboratory methods may be used if approved according to the requirements of Rules 62-160.220 and 62-160.330, F.A.C., respectively.

**Amended 02/06/2009.**

- b. The field testing, sample collection and preservation, and laboratory testing, including the collection of quality control samples, shall be in accordance with the requirements of and methods approved by the Department in accordance with Rule 62-4.246 and Chapter 62-160, F.A.C. Approved methods published by the Department or as published in Standard Methods, or by A.S.T.M., or EPA methods shall be used.

**14. Zone of Discharge.**

- a. The zone of discharge for this facility shall extend horizontally 100 feet from the limits of the landfill phase edges or to the property boundary, whichever is less, and shall extend vertically through the surficial aquifer to the bottom of the first confining unit.

- b. The permittee shall ensure that the water quality standards and minimum criteria for Class G-II ground waters will not be exceeded at the boundary of the zone of discharge according to Rule 62-520.420, F.A.C., and that the minimum criteria listed in Rule 62-520.400, F.A.C., will not be exceeded outside the footprint of the landfill.



**SPECIFIC CONDITIONS:**

15. **Ground Water Monitor Well Locations.** The ground water monitor wells shall be located as shown on Figure 1 entitled "Monitoring Well Map", prepared by SEI, received June 24, 2004 (attached), as follow:

Well No.	WACS Testsite No.	Aquifer	Designation	Location
1 MW-2	4535	Floridan	Lateral detection/ Vertical compliance	See Figure 1
2 MW-4	4537	Floridan	Lateral detection/ Vertical compliance	↓
3 MW-6A	4557	Floridan	Background	↓
4 MW-8	4592	Floridan	Lateral detection/ Vertical compliance	↓
5 MW-9A *	21211	Floridan	Lateral detection/ Vertical compliance	↓
6 MW-10 *	21212	Floridan	Lateral detection/ Vertical compliance	↓
7 MW-11 *	21213	Floridan	Lateral detection/ Vertical compliance	↓
8 MW-1	4534	Floridan	Piezometer	↓
9 MW-7	4564	Floridan	Piezometer	↓
10 MW-9	4593	Floridan	Piezometer	↓

\* = to be installed **within 60 days of permit issuance** in accordance with the construction details provided in Section 6.0 and Appendix IX of the document entitled "Ground Water Monitoring Plan Evaluation, 1998 - 2002", prepared by CTL, revised April 8, 2004, received April 28, 2004; documentation of well construction details as indicated in Specific Condition Nos. 17.a. and 17.c. shall be submitted **within 30 days of well installation**; an initial sampling event as indicated in Specific Condition No. 16.b. shall be conducted **within 7 days of well installation and development**; results of initial sampling event shall be submitted to the Department **within 60 days of sample collection**.

All monitor wells are to be clearly labeled and easily visible at all times. The permittee should keep all wells locked to minimize unauthorized access.

16. **Ground Water Sampling.** The locations, parameters, and frequencies specified herein represent the minimum requirements for ground water monitoring. Additional samples, wells, and parameters may be required based upon subsequent analysis. Method Detection Limits must be reported at or below the Maximum Contaminant Levels established for the individual parameters to demonstrate compliance with Class G-II ground water standards referenced in Chapter 62-520, F.A.C. Compliance with ground water standards will be based on analysis of unfiltered samples.

a. Ground water levels shall be measured for all sampling events described in Specific Condition Nos. 16.b., 16.c., and 16.d., at all active wells and piezometers listed in Specific Condition No. 15 to a precision of 0.01 foot. Ground water surface contour maps prepared for each sampling event shall include water elevations (using a consistent, nationally recognized datum) calculated for each well and piezometer.

Amended 02/06/2009.

**SPECIFIC CONDITIONS:**

**16. Ground Water Sampling. (continued)**

b. An initial sampling event shall be conducted at wells MW-9A, MW-10 and MW-11 within 7 days of well installation and development for analysis of the following parameters:

Field Parameters	Laboratory Parameters	
Static water levels	Total ammonia	Iron
before purging	Chlorides	Mercury
Specific conductivity	Nitrate	Sodium
pH	Total dissolved solids (TDS)	
Temperature	Parameters listed in 40 CFR	
Turbidity	Part 258, Appendix II	
Dissolved oxygen		
Colors & sheens (by observation)		

c. Wells MW-2, MW-4, MW-6A, MW-8, MW-9A, MW-10 and MW-11 shall be sampled quarterly for analysis of the following parameters:

Field Parameters	Laboratory Parameters		
Static water levels	Chlorides	Aluminum	Manganese
before purging	Fluoride	Antimony	Mercury
Specific conductivity	Nitrate	Cadmium	Silver
pH	Total ammonia	Chromium	Sodium
Temperature	Gross alpha	Iron	Thallium
Turbidity	Radium 226 + 228	Lead	
Dissolved oxygen	Total dissolved solids (TDS)		
Colors & sheens			
(by observation)			

d. To demonstrate that the reduced list of parameters listed in Specific Condition No. 16.c. remains appropriate, wells MW-2, MW-4, MW-6A, MW-8, MW-9A, MW-10 and MW-11 shall be sampled during the fourth quarter of each year for analysis of the parameters listed in Rule 62-701.510(8)(a), F.A.C., as follow:

Field Parameters	Laboratory Parameters	
Static water levels	Chlorides	Aluminum
before purging	Fluoride	Iron
Specific conductivity	Nitrate	Manganese
pH	Total ammonia	Mercury
Temperature	Total dissolved solids (TDS)	Sodium
Turbidity	Parameters listed in 40 CFR	
Dissolved oxygen	Part 258, Appendix I	
Colors & sheens	Gross alpha	
(by observation)	Radium 226 + 228	

**17. Ground Water Monitor Well Construction.** Prior to construction of any new or replacement wells (excluding wells MW-9A, MW-10 and MW-11), the permittee shall request and receive Department approval of a minor permit modification. The following information is required to be submitted within 90 days of new or replacement well installation, or as stated below:

a. Construction details for all new or replacement wells shall be provided to the Department's Southwest District Office on Department Form No. 62-522.900(3), Monitor Well Completion Form (see Attachment 4).

b. Within one week of well completion and development, each new or replacement well shall be sampled for the parameters listed in Rules 62-701.510(8)(a), and 62-701.510(8)(d), F.A.C.



**SPECIFIC CONDITIONS:**

**17. Ground Water Monitor Well Construction. (continued)**

c. A surveyed drawing shall be submitted in accordance with Rule 62-701.510(3)(d)(1), F.A.C., showing the location of all monitoring wells (active and abandoned) horizontally located in degrees, minutes and seconds of latitude and longitude, and the elevation of the top of the well casing to the nearest 0.01 foot, using a consistent, nationally recognized datum. The surveyed drawing shall include the monitor well identification number, locations and elevations of all permanent benchmarks and/or corner monument markers at the site. The survey shall be conducted by a Florida Registered Surveyor.

**Amended 02/06/2009.**

**18. Well Abandonment.** All wells not a part of the approved Water Quality Monitoring Plan shall be plugged and abandoned in accordance with Rule 62-532.440, F.A.C., and the Southwest Florida Water Management District. The permittee shall submit a written report to the Department within 90 days of well abandonment documenting verification of the well abandonment. A written request for exemption to the abandonment of a well must be submitted to the Department's Solid Waste Section for approval.

**19. Verification/Evaluation Monitoring.** If at any time monitoring parameters are detected at concentrations significantly above background water quality, or exceed the Department's water quality standards or criteria at the edge of the zone of discharge, the permittee has 30 days within receipt of the laboratory data to resample the monitor well(s) to verify the original analysis. Should the permittee choose not to resample, the Department will consider the water quality analysis to be representative of current ground water conditions at the facility. If the data is confirmed, or if the permittee chooses not to resample, the permittee shall notify the Department within 14 days of this finding. Upon notification by the Department, the permittee shall initiate evaluation monitoring, prevention measures and corrective action as described in Rule 62-701.510(7), F.A.C.

**20. Water Quality Reporting Requirements.** The results of each ground water sampling event conducted at the facility to comply with the Specific Conditions of this permit shall be included in reports that provide the following:

Electronic Data Deliverable (EDD) Portions of Report:

- An EDD on compact disk or flash drive media readable by Microsoft Windows in a format consistent with the requirements for evaluating the data and importing it into the Department databases that includes both field sampling data and laboratory data. The requirements for preparation of the EDD can be obtained on the Department's website at: <http://www.dep.state.fl.us/labs/dqa/adaptedms.htm>. The EDD shall provide the information required by Rules 62-701.510(9)(a)1 through 62-701.510(9)(a)7, F.A.C.

Hard Copy Portions of Report:

- Department Form 62-701.900(31) ["Water Quality Monitoring Certification"], certifying that the permittee has reviewed and approved the laboratory results;
- Certified laboratory report of results;
- Chain-of-custody documentation;
- Department SOP Form FD 9000-24 ["Ground Water Sampling Log"] for ground water sampling events; and,
- The information required by Rules 62-701.510(9)(a)8 through 62-701.510(9)(a)10, F.A.C.

**SPECIFIC CONDITIONS:**

**20. Water Quality Reporting Requirements. (continued)**

The permittee shall submit to the Department the results of analyses conducted for each sampling event conducted at the facility by the following due dates:

a. Specific Condition No. 16.b. - results of ground water "initial sampling events" shall be submitted **within 60 days from completion of laboratory analyses;**

b. Specific Condition Nos. 16.c., and 16.d. - results of ground water routine quarterly sampling events shall be submitted **within 60 days from completion of laboratory analyses and no later than January 15<sup>th</sup>, April 15<sup>th</sup>, July 15<sup>th</sup> and October 15<sup>th</sup> of each year** for the periods October 1-December 31, January 1-March 31, April 1-June 30, and July 1-September 30, respectively;

c. Specific Condition No. 19. - results of ground water verification events shall be submitted **within 60 days from completion of laboratory analyses;**

The results shall be sent to: Solid Waste Section, Department of Environmental Protection, Southwest District Office, 13051 North Telecom Parkway, Temple Terrace, Florida 33637-0926.

**Amended 02/06/2009.**

**21. Ground Water Monitoring Plan Evaluation.**

a. An evaluation of the adequacy of existing wells MW-2 and MW-4 shall be submitted to the Department **within 30 days of receipt of Department approval** of the Preliminary Contamination Assessment Report (PCAR) prepared in accordance with Consent Order No. 04-0131. This evaluation shall be the basis for determining the need to install additional detection and/or compliance wells in the vicinity of wells MW-2 and MW-4. In the event that additional wells are required and upon receipt of Department approval of the recommendations of the PCAR, the permittee shall submit a request for minor permit modification to revise the approved monitoring plan (Specific Condition Nos. 15 and 16) and establish the routine list of parameters and sampling frequency at the additional wells.

b. **By June 15, 2006 and no later than one hundred and eighty (180) days before permit expiration (by December 15, 2008),** the permittee shall submit an evaluation of the water quality monitoring data. The due dates and time periods to be covered by the evaluations are summarized below:

<u>Ground Water Monitoring Evaluation Due Date</u>	<u>Starting Sampling Event</u>	<u>Ending Sampling Event</u>
June 15, 2006	First quarter 2003	First quarter 2006
December 15, 2008	Second quarter 2006	Third quarter 2008
June 15, 2011	Fourth quarter 2008	First quarter 2011
December 15, 2013	Second quarter 2011	Third quarter 2013

The evaluations shall include the applicable information as listed in Rule 62-701.510(9)(b), F.A.C., and shall include assessment of the effectiveness of the existing landfill design and operation as related to the prevention of ground water contamination. Any ground water contamination that may exist shall be addressed as part of a ground water investigation for the landfill assessment.

**Amended 02/06/2009.**



**SPECIFIC CONDITIONS:**

22. **Permit Renewal Requirements.** No later than one hundred eighty (180) days prior to permit expiration (by December 15, 2013), the permittee shall apply for renewal of this long-term care permit on forms and in a manner prescribed by the Department, to assure conformance with all applicable Department rules. Applicants for permit renewal shall demonstrate how they will comply with any applicable new or revised laws or rules relating to construction, operation, or closure, monitoring and maintenance of landfills. Long-term care plans shall be updated at the time of permit renewal to reflect changes in closure design and long-term care requirements. The application must include an engineering report that evaluates the landfill cover, subsidence, gas generation and migration, stormwater control, and the status of other landfill systems. Alternately, the permittee may submit a Stabilization Assessment Report to demonstrate that the facility has "stabilized" as defined in Rule 17-701.020(61), F.A.C. (described in Specific Condition No. 2, above), and request that the Department authorize the termination of long-term care, monitoring and maintenance activities at the Sumter County Landfill. In the event that the provided data does not demonstrate that the facility has met the definition of "stabilized", renewal of the long-term care permit shall be required.

Amended 02/06/2009.

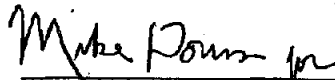
23. **Professional Certification.** Where required by Chapter 471 (P.E.) or Chapter 492 (P.G.), Florida Statutes, applicable portions of permit applications, permit modifications and supporting documents which are submitted to the Department for public record shall be signed and sealed by the professional(s) who prepared or approved them.

24. **General Conditions.** The permittee shall be aware of and operate under the "General Conditions." General Conditions are binding upon the permittee and enforceable pursuant to Chapter 403, Florida Statutes.

25. **Permit Acceptance.** By acceptance of this Permit, the permittee certifies that he/she has read and understands the obligations imposed by the Specific and General Conditions contained herein, including the dates of permit expiration and renewal deadlines. It is a violation of this permit to fail to comply with all permit conditions and deadlines.

Executed in Hillsborough County, Florida

STATE OF FLORIDA  
DEPARTMENT OF ENVIRONMENTAL PROTECTION



Deborah A. Getzoff  
District Director  
Southwest District

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perm  
1000000s

1987  
perm

PERMITTEE:

Mr. Garry Breeden

GMS ID NO.: 4060C00092

SUMTER COUNTY VOLUME REDUCTION  
AND CLASS I SANITARY LANDFILL

PERMIT NO.: SC60-132071

SPECIFIC CONDITIONS (con't):

15. Prior to sixty days before the expiration of the Department Permit, the permittee shall apply for a renewal of a permit on forms and in a manner prescribed by the Department, in order to assure conformance with all applicable Department rules.

16. At least 90 days prior to the date when wastes will no longer be accepted for active portions of the landfill, the landfill owner or operator shall submit a closure permit application to the Department. The final cover shall be placed over the entire surface of each completed portion of the filled areas within 180 days after final waste deposit date.

17. In accordance with Chapter 17-4, Florida Administrative Code (F.A.C.), the Groundwater Monitoring System shall be constructed and sampled by the permittee within ninety (90) days of the issuance of this permit. The Groundwater Monitoring System shall be designed and constructed in accordance with the plans submitted on June 18, 1984 by Springstead Engineering, Inc. and the additional information submitted January 28, 1985 and March 16, 1987.

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"extra"  
for them

18. The groundwater monitoring wells are located as per 3/16/87 submittal, as follows:

<u>Well Number</u>	<u>Aquifer</u>	<u>Location</u>
MW-1	Surficial	As per Permit Figure 1.
MW-2	Surficial	As per Permit Figure 1.
MW-3 (Inactive)		As per Permit Figure 1.
MW-4	Surficial	As per Permit Figure 1.
MW-5	Floridan	As per Permit Figure 1.
MW-6 (Abandon)		As per Permit Figure 1.
MW-6A	Surficial	As per Permit Figure 1.
MW-7	Surficial	As per Permit Figure 1.

A surveyed drawing shall be submitted showing the location of all monitoring wells (active and abandoned) which will be horizontally located by metes and bounds or equivalent surveying techniques. The surveyed drawing shall include the monitor well identification number, location and elevation of all permanent benchmark(s) and/or corner monument marker(s) at the site. The survey shall be conducted by a Florida Registered Surveyor.

**SPECIFIC CONDITIONS:**

**20. Water Quality Reporting Requirements. (continued)**

The permittee shall submit to the Department the results of analyses conducted for each sampling event conducted at the facility by the following due dates:

a. Specific Condition No. 16.b. - results of ground water "initial sampling events" shall be submitted **within 60 days from completion of laboratory analyses;**

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The results shall be sent to: Solid Waste Section, Department of Environmental Protection, Southwest District Office, 13051 North Telecom Parkway, Temple Terrace, Florida 33637-0926.

**Amended 02/06/2009.**

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b. **By June 15, 2006 and no later than one hundred and eighty (180) days before permit expiration (by December 15, 2008),** the permittee shall submit an evaluation of the water quality monitoring data. The due dates and time periods to be covered by the evaluations are summarized below:

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**Amended 02/06/2009.**



Sum 53009 part file 2001-2012



SECRET  
1. The following information was obtained from a confidential source who has provided reliable information in the past.

2. The source has provided information that is of a confidential nature and is being provided to you for your information only.

3. The source has provided information that is of a confidential nature and is being provided to you for your information only.

4. The source has provided information that is of a confidential nature and is being provided to you for your information only.

5. The source has provided information that is of a confidential nature and is being provided to you for your information only.

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9. The source has provided information that is of a confidential nature and is being provided to you for your information only.

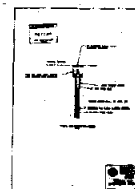
10. The source has provided information that is of a confidential nature and is being provided to you for your information only.

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15. The source has provided information that is of a confidential nature and is being provided to you for your information only.

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19. The source has provided information that is of a confidential nature and is being provided to you for your information only.

20. The source has provided information that is of a confidential nature and is being provided to you for your information only.

Item	Quantity	Unit
1	100	lb
2	50	lb
3	25	lb
4	10	lb
5	5	lb

Sumpter Permit 12/20/2023

<p>SECTION 1: PROJECT INFORMATION</p> <p>Project Name: [REDACTED]</p> <p>Location: [REDACTED]</p> <p>Permit Number: [REDACTED]</p>	<p>SECTION 2: SUBMITTER INFORMATION</p> <p>Company Name: [REDACTED]</p> <p>Contact Person: [REDACTED]</p> <p>Phone: [REDACTED]</p> <p>Email: [REDACTED]</p>	<p>SECTION 3: PROJECT DESCRIPTION</p> <p>Project Description: [REDACTED]</p> <p>Scope of Work: [REDACTED]</p> <p>Estimated Cost: [REDACTED]</p>	<p>SECTION 4: SITE PLAN</p> <p>Site Plan: [REDACTED]</p> <p>Site Plan: [REDACTED]</p> <p>Site Plan: [REDACTED]</p>	<p>SECTION 5: TECHNICAL SPECIFICATIONS</p> <p>Technical Specifications: [REDACTED]</p> <p>Technical Specifications: [REDACTED]</p> <p>Technical Specifications: [REDACTED]</p>	<p>SECTION 6: PERMIT REQUIREMENTS</p> <p>Permit Requirements: [REDACTED]</p> <p>Permit Requirements: [REDACTED]</p> <p>Permit Requirements: [REDACTED]</p>	<p>SECTION 7: ENVIRONMENTAL IMPACT</p> <p>Environmental Impact: [REDACTED]</p> <p>Environmental Impact: [REDACTED]</p> <p>Environmental Impact: [REDACTED]</p>	<p>SECTION 8: PUBLIC COMMENT</p> <p>Public Comment: [REDACTED]</p> <p>Public Comment: [REDACTED]</p> <p>Public Comment: [REDACTED]</p>	<p>SECTION 9: FINAL REVIEW</p> <p>Final Review: [REDACTED]</p> <p>Final Review: [REDACTED]</p> <p>Final Review: [REDACTED]</p>
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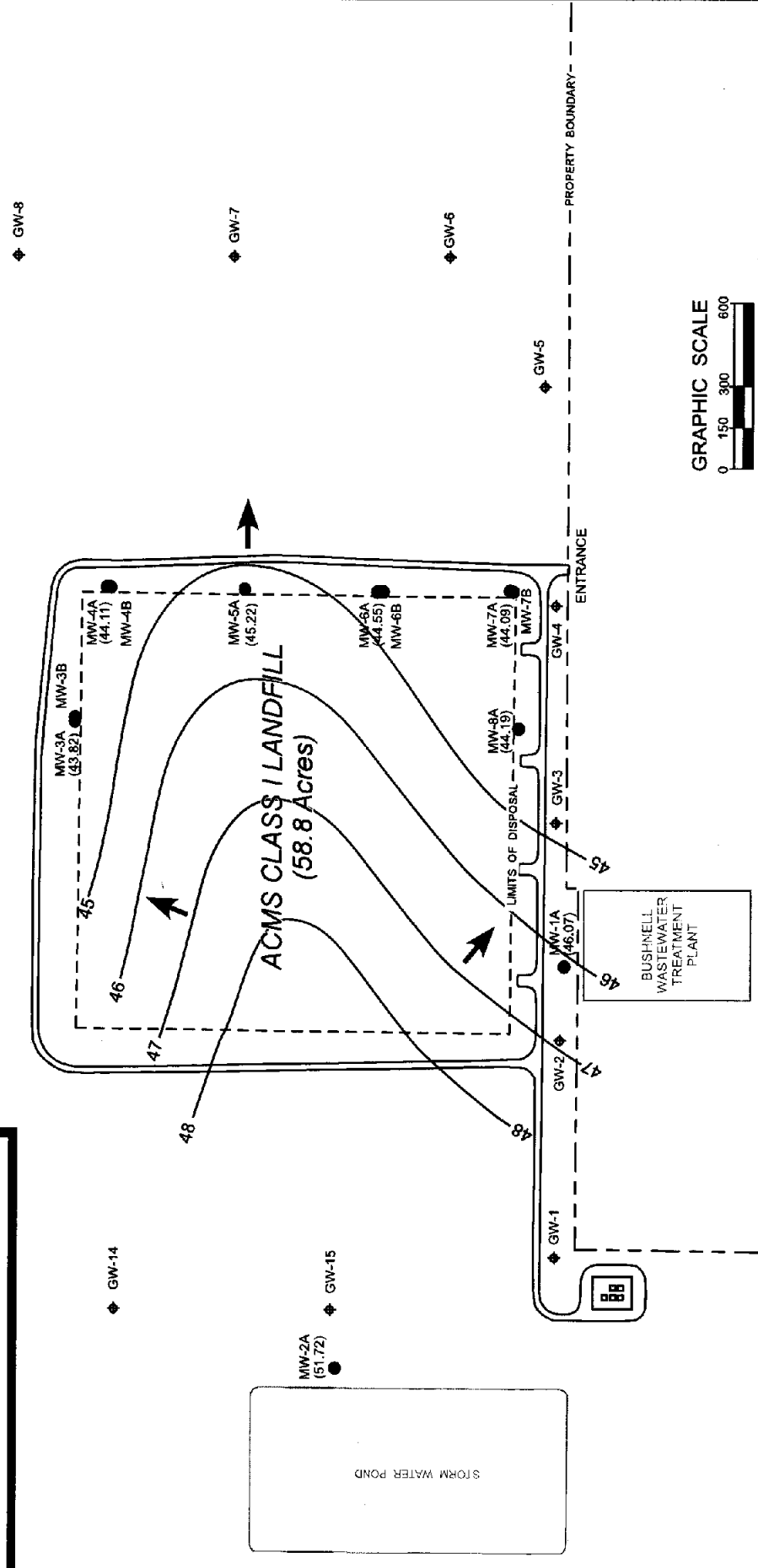
<p>SECTION 10: ADDITIONAL INFORMATION</p> <p>Additional Information: [REDACTED]</p> <p>Additional Information: [REDACTED]</p> <p>Additional Information: [REDACTED]</p>	<p>SECTION 11: SIGNATURES</p> <p>Signature: [REDACTED]</p> <p>Signature: [REDACTED]</p> <p>Signature: [REDACTED]</p>	<p>SECTION 12: NOTES</p> <p>Notes: [REDACTED]</p> <p>Notes: [REDACTED]</p> <p>Notes: [REDACTED]</p>	<p>SECTION 13: ATTACHMENTS</p> <p>Attachments: [REDACTED]</p> <p>Attachments: [REDACTED]</p> <p>Attachments: [REDACTED]</p>	<p>SECTION 14: COMMENTS</p> <p>Comments: [REDACTED]</p> <p>Comments: [REDACTED]</p> <p>Comments: [REDACTED]</p>	<p>SECTION 15: REVISIONS</p> <p>Revisions: [REDACTED]</p> <p>Revisions: [REDACTED]</p> <p>Revisions: [REDACTED]</p>	<p>SECTION 16: APPROVALS</p> <p>Approvals: [REDACTED]</p> <p>Approvals: [REDACTED]</p> <p>Approvals: [REDACTED]</p>	<p>SECTION 17: DISTRIBUTION</p> <p>Distribution: [REDACTED]</p> <p>Distribution: [REDACTED]</p> <p>Distribution: [REDACTED]</p>	<p>SECTION 18: CLOSING</p> <p>Closing: [REDACTED]</p> <p>Closing: [REDACTED]</p> <p>Closing: [REDACTED]</p>
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**LEGEND**

- MW-1A  
(48.00)
- ◆ GW-1
- 48 —
- 
- GROUND WATER MONITORING WELL
- GROUND WATER ELEVATION (FEET NGVD)
- GAS MONITORING WELL LOCATION
- GROUND WATER CONTOUR (FEET NGVD)
- GROUND WATER FLOW DIRECTION



**FIGURE 1. Ground Water Table Contour Map - January 22, 2013**  
**ACMS Class I Landfill**  
**Sumterville, Florida**

Sumto 53004

2003-2006 Enfranch F.L

ATTENTION

Blueprints were removed from this location in the file and inserted separately.

OFFICIAL USE

Mr. Richard D. County Clerk  
Sumter County, FL  
200 North Florida Street  
Tallahassee, FL 32301

ATTENTION

Blueprints were removed from this location in the file and inserted separately.

OFFICIAL USE

Mr. Richard D. County Clerk  
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Tallahassee, FL 32301

OFFICIAL USE

Mr. Richard D. County Clerk  
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OFFICIAL USE

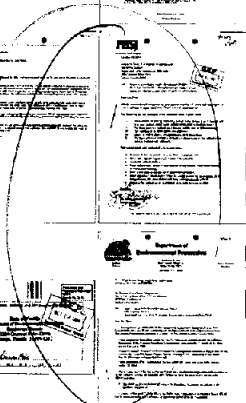
Mr. Richard D. County Clerk  
Sumter County, FL  
200 North Florida Street  
Tallahassee, FL 32301

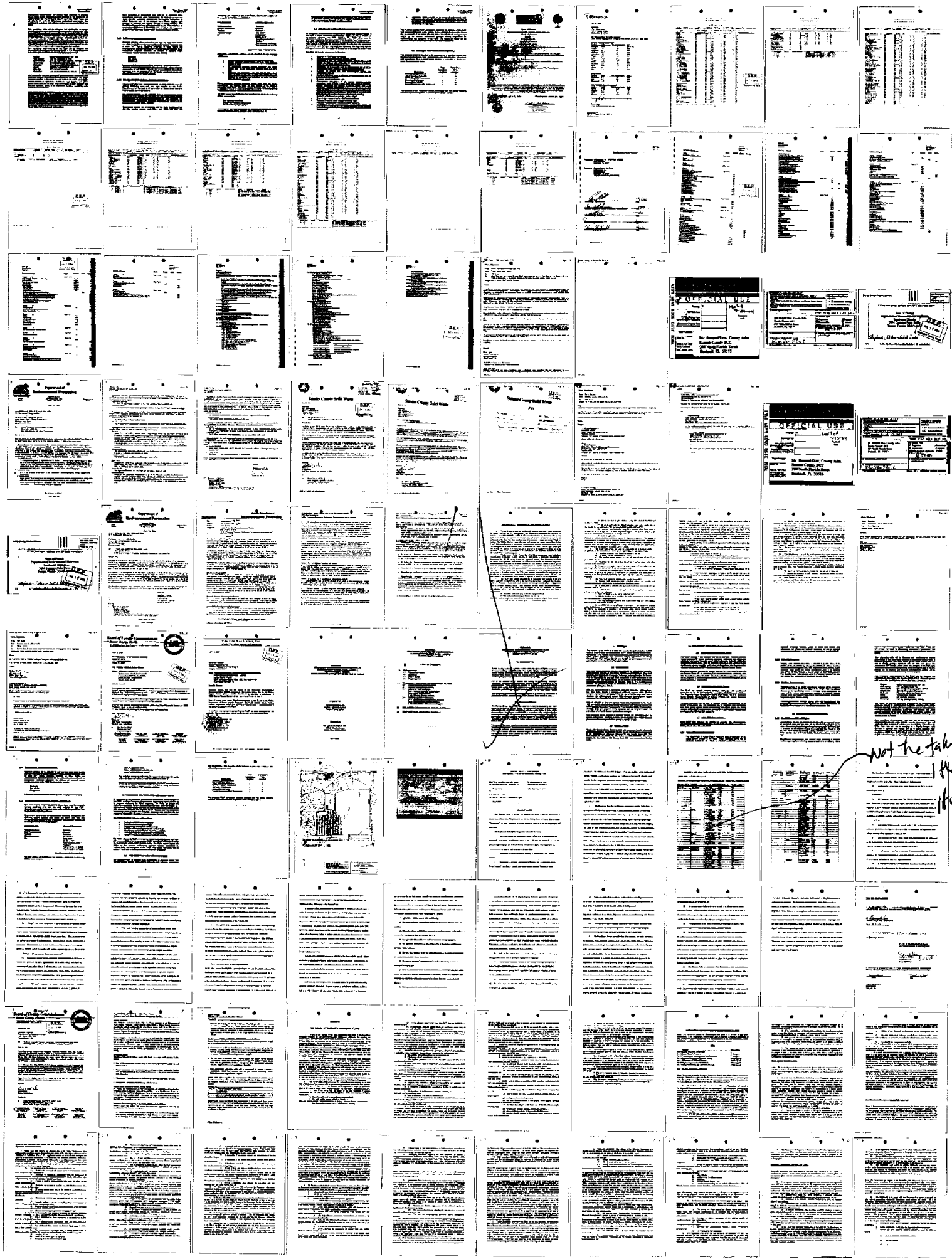
OFFICIAL USE

Mr. Richard D. County Clerk  
Sumter County, FL  
200 North Florida Street  
Tallahassee, FL 32301

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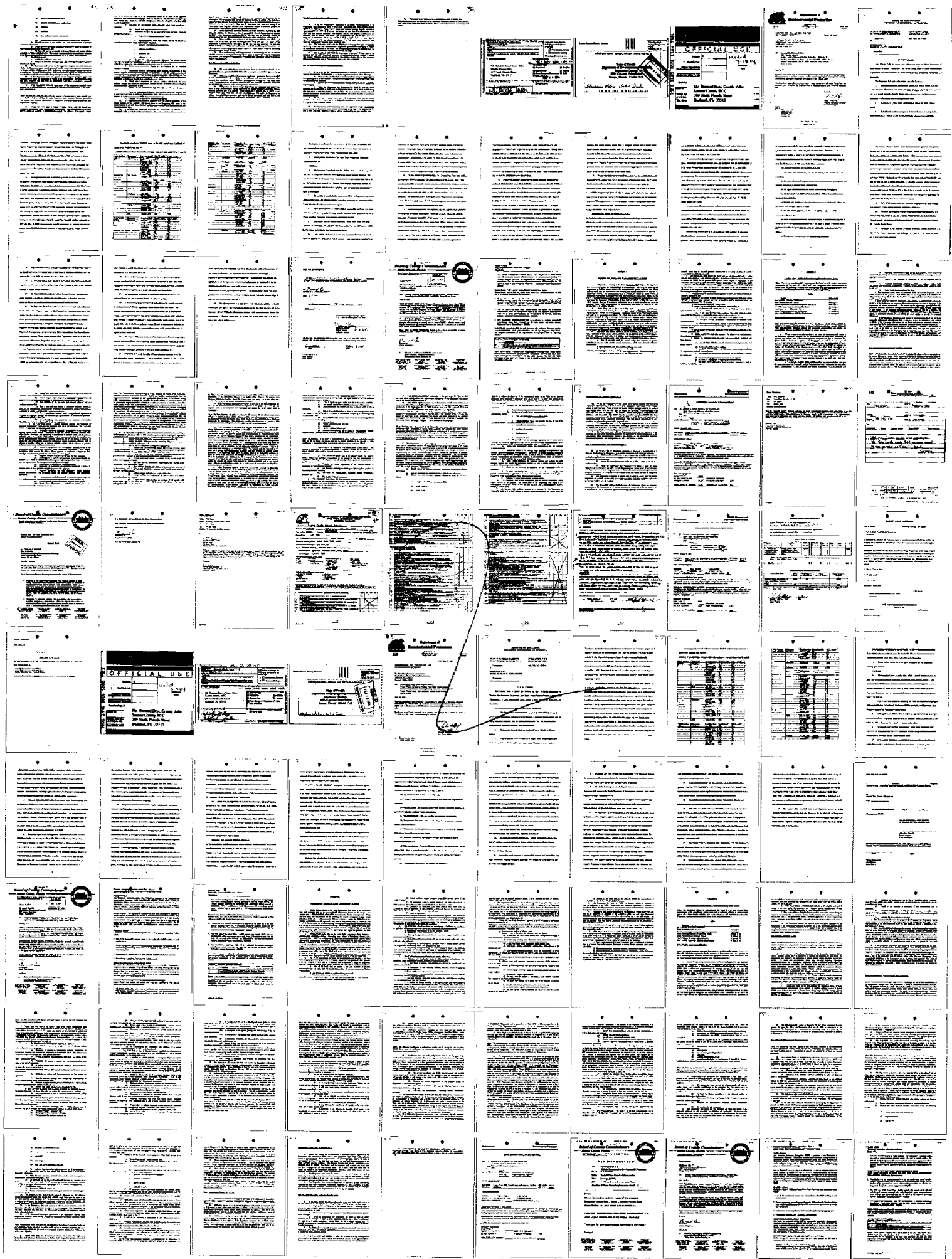
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10/29/2013

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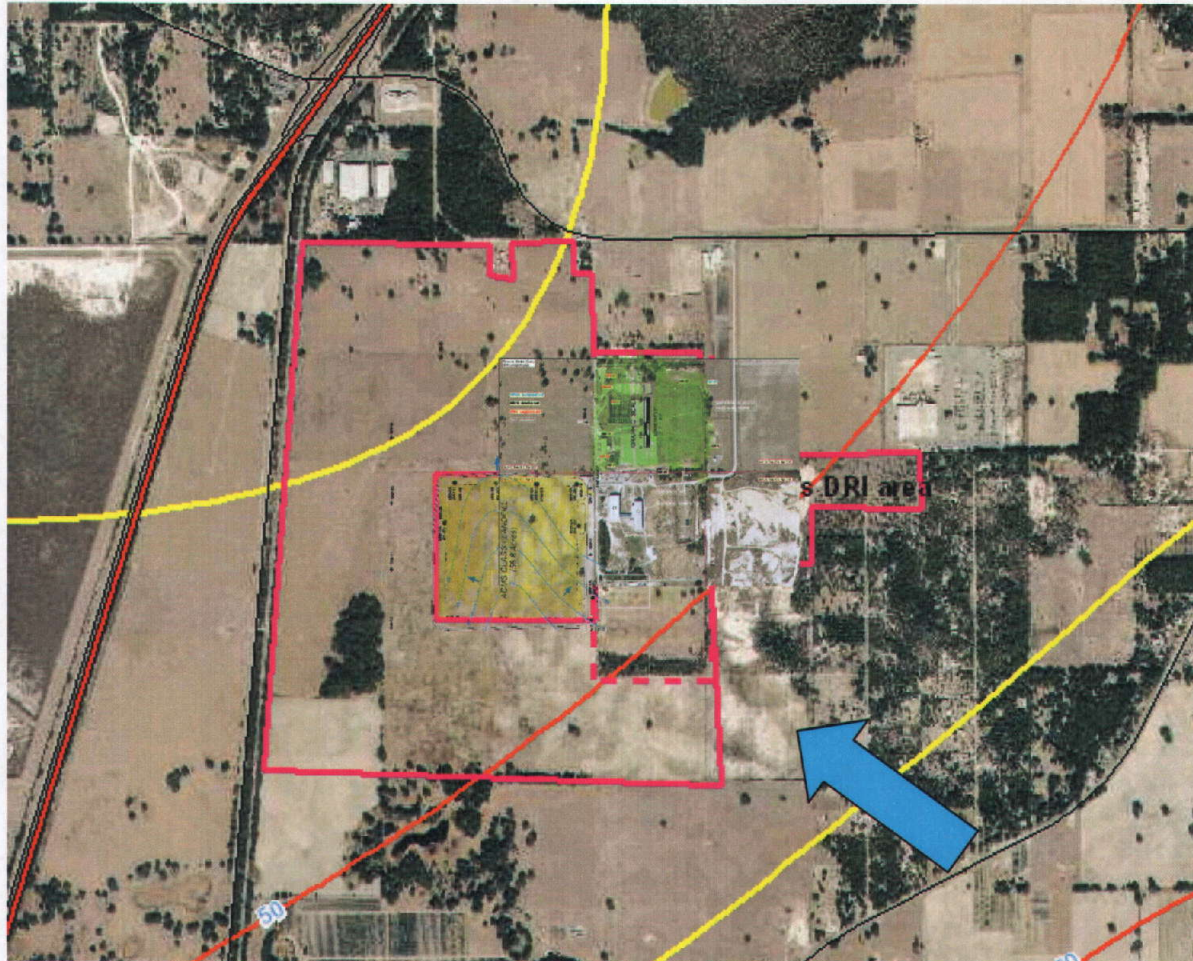
Acms

+

Smith 100  
LTC

53008

EE came to me with a question about a DRI—Where is it in relation to Sumpter Landfill:





MU-6A - background well

MU-11 - detection well

MU-4 - compliance well

MU-7 - piezometer

Sect 15, Twp 20 S, Rge 22 E

Sect 22, Twp 20 S, Rge 22 E

Sect 14, Twp 20 S, Rge 22 E

Sect 23, Twp 20 S, Rge 22 E

SUMTER CO. CLASS I LF  
W/ACS facility #33008

SUMTER CO. WTC

SUMTER CO. COMPOST

SUMTER CO. MRF

#53008  
Sumter  
100 LTC







Permit Mod

USP

**FLORIDA DEPARTMENT OF  
ENVIRONMENTAL PROTECTION**

Southwest District  
13051 North Telecom Parkway  
Temple Terrace, Florida 33637-0926  
Telephone: 813-470-5700

RICK SCOTT  
GOVERNOR

HERSCHEL T. VINYARD JR.  
SECRETARY

December 20, 2013

**NOTICE OF PERMIT MODIFICATION**

Transmitted via e-mail only to: [bradley.arnold@sumtercountyfl.gov](mailto:bradley.arnold@sumtercountyfl.gov)

Sumter County Board of County Commissioners  
910 North Main Street, Room 201  
Bushnell, FL 33513  
Attn: Mr. Bradley S. Arnold, County Administrator

Re: Sumter County Closed Class I Landfill  
Modification #22926-005-SF/MM to Permit #22926-003-SF/14  
WACS Facility #53008, Sumter County

Dear Mr. Arnold:

Attached is modified Permit #22926-003-SF/14, issued pursuant to Section 403.087(1), Florida Statutes (F.S.), to conduct long-term care, monitoring, and maintenance of the subject facility. The following revisions have been provided in modification #22926-005-SF/MM:

<u>Specific Condition</u>	<u>Type of Modification</u>
Cover Page (Amended)	Revises the WACS facility identification number to indicate the Department's Central District and references modification #22926-005-SF/MM.
#1. (Amended)	Refers to Chapter 62-701, F.A.C., amended August 12, 2012.
#3. (Amended)	Lists documents submitted in support of the application for permit modification.
#5., #8.g., #16.d., #17.b., and #19. (Amended)	Revises rule citations to Chapter 62-701, F.A.C., amended August 12, 2012
#9.a., #9.b. (Deleted)	Deletes the requirements to submit financial assurance cost estimate updates and proof of funding.
#14.a. (Amended)	Revises the description of the zone of discharge lateral extent.
#14.b. (Amended)	Identifies the Sumter County Closed Class I Landfill as an existing installation.
#15. (Amended)	Designates MW-4A as a detection well; designates MW-4C and MW-4D as compliance wells; designates MW-2A, MW-4 and MW-4B as piezometers. Refers to a new site map that identifies monitor well and piezometer locations, and depicts the revised zone of discharge.
#16.c., #16.d. (Amended)	Revises the list of monitor wells to be included in quarterly ground water sampling events.
#17.a. (Amended)	Refers to Department Form #62-701.900(30) - Monitoring Well Completion Report.
#18. (Amended)	Revises rule citation to Chapter 62-532, F.A.C., amended February 16, 2012.
#20. (Amended)	Revises the reporting requirements for results of ground water sampling events; provides e-mail addresses for the Department's Central District and Tallahassee offices for submittal of electronic data deliverables.

PERMITTEE: Sumter County BOCC  
Sumter County Closed Class I Landfill  
Attn: Mr. Bradley S. Arnold, County Administrator

PERMIT #22926-003-SF/14  
MODIFICATION #22926-005-SF/MM  
Page 2 of 4

<u>Specific Condition</u>	<u>Type of Modification</u>
#21.b. (Amended)	Revises the due date for submittal of the final monitoring plan evaluation report to 60 days prior to permit expiration (by April 15, 2014).
#22. (Amended)	Revises the due date for submittal of the permit renewal application or Stabilization Assessment Report to 60 days prior to permit expiration (by April 15, 2014).

This letter and its attachments constitute a **complete permit and replace** all previous permits and modifications for the referenced facility.

The Department's proposed agency action shall become final unless a timely petition for an administrative hearing is filed under Sections 120.569 and 120.57, F.S., before the deadline for filing a petition. The procedures for petitioning for a hearing are set forth below.

A person whose substantial interests are affected by this modification of permit may petition for an administrative proceeding (hearing) under Sections 120.569 and 120.57, F.S. The petition must contain the information set forth below and must be filed (received) in the Office of General Counsel of the Department at 3900 Commonwealth Boulevard, Mail Station 35, Tallahassee, Florida 32399-3000.

Petitions by the applicant or any of the parties listed below must be filed within 14 days of receipt of this written notice. Petitions filed by other persons must be filed within 14 days of publication of the notice or receipt of the written notice, whichever occurs first. Under Section 120.60(3), F.S., however, any person who asked the Department for notice of agency action may file a petition within fourteen days of receipt of such notice, regardless of the date of publication. The petitioner shall mail a copy of the petition to the applicant at the address indicated above at the time of filing. The failure of any person to file a petition within the appropriate time period shall constitute a waiver of that person's right to request an administrative determination (hearing) under Sections 120.569 and 120.57, F.S., or to intervene in this proceeding and participate as a party to it. Any subsequent intervention (in a proceeding initiated by another party) will be only at the discretion of the presiding officer upon the filing of a motion in compliance with Rule 28-106.205, F.A.C.

A petition that disputes the material facts on which the Department's action is based must contain the following information:

- (a) The name and address of each agency affected and each agency's file or identification number, if known;
- (b) The name, address, and telephone number of the petitioner; the name, address, and telephone number of the petitioner's representative, if any, which shall be the address for service purposes during the course of the proceeding; and an explanation of how the petitioner's substantial interests will be affected by the agency determination;
- (c) A statement of when and how the petitioner received notice of the agency decision;
- (d) A statement of all disputed issues of material fact. If there are none, the petition must so indicate;

**SPECIFIC CONDITIONS:**

**10. Gas Migration Monitoring. (continued)**

c. Ambient gas monitoring locations shall be sampled before the buildings are opened and in enclosed areas (i.e., electrical boxes, closets and restrooms, etc.), and included in the annual monitoring events at the following structures:

- "old" materials recovery building
- "new" materials recovery facility tipping area
- scale house/office building
- kennel for animal control
- Sheriff Department building

d. The annual gas monitoring event conducted prior to permit renewal shall also include the gas vents located within the closed landfill to determine if the buried wastes remain biologically active and continue to generate significant concentrations of landfill gases.

e. The Department may require the installation of additional gas probes and/or ambient monitoring locations within any structures that may be associated with future uses of the property.

**11. Gas Remediation.** Gas concentrations exceeding 100% LEL in perimeter locations (GP-1 through GP-4, and M-1 through M-29) or 25% LEL in any on-site structure shall be reported to the Department **within 7 days of detection**, and shall be accompanied by a remediation plan describing the nature and extent of the gas migration problem and the proposed remedy. The remedy shall be completed **within 60 days of detection** unless otherwise approved by the Department.

**12. Water Quality Requirements.** The landfill shall be monitored throughout its design period (which includes long-term care) to control the movement of waste and waste constituents into the environment so that ground water and surface water quality standards and criteria of Chapters 62-4, 62-302, and 62-520, F.A.C., will not be violated beyond the zone of discharge specified for the landfill.

**13. Water Quality Monitoring Quality Assurance.**

a. All field work done in connection with the facility's Water Quality Monitoring Plan shall be conducted in accordance with the Standard Operating Procedures (SOPs) described in DEP-SOP-001/01 (March 31, 2008) [or as replaced by successor SOPs], as referenced in Rule 62-160.210(1), F.A.C. All laboratory analyses done in connection with the facility's Water Quality Monitoring Plan shall be conducted by firms that hold certificates from the Department of Health Environmental Laboratory Certification Program under Chapter 64E-1, F.A.C., as referenced in Rule 62-160.300(1), F.A.C. The SOPs utilized and the laboratory's list of certified test methods and analytes must specifically address the types of sampling and analytical work that are required by the permit and shall be implemented by all persons performing sample collection or analysis related to this permit. Alternate field procedures and laboratory methods may be used if approved according to the requirements of Rules 62-160.220 and 62-160.330, F.A.C., respectively.  
Amended 02/06/2009.

**SPECIFIC CONDITIONS:**

**13. Water Quality Monitoring Quality Assurance. (continued)**

b. The field testing, sample collection and preservation, and laboratory testing, including the collection of quality control samples, shall be in accordance with the requirements of and methods approved by the Department in accordance with Rule 62-4.246 and Chapter 62-160, F.A.C. Approved methods published by the Department or as published in Standard Methods, or by A.S.T.M., or EPA methods shall be used.

**14. Zone of Discharge.**

a. The zone of discharge for this facility shall extend to the property boundary to the west, north and east of the landfill footprint, and horizontally 100 feet south from the limits of the landfill footprint, ~~phase edges, or to the property boundary, whichever is less~~, and shall extend vertically through the surficial aquifer to the bottom of the first confining unit.

**Amended 12/20/2013.**

~~b. The permittee shall ensure that the water quality standards and minimum criteria for Class G-II ground waters will not be exceeded at the boundary of the zone of discharge according to Rule 62-520.420, F.A.C., and that the minimum criteria listed in Rule 62-520.400, F.A.C., will not be exceeded outside the footprint of the landfill.~~ The Permittee shall ensure that the primary standards for Class G-II ground waters referenced in Rule 62-520.420(1), F.A.C., will not be exceeded at the boundary of the zone of discharge, and that the ground water minimum criteria referenced in Rule 62-520.400(1), F.A.C., will not be exceeded outside the footprint of the landfill disposal area. In accordance with Rule 62-520.520(1), F.A.C., the Department considers the Sumter County Closed Class I Landfill to be an "existing installation" that is exempt from compliance with the secondary standards for Class G-II ground water referenced in Rule 62-520.420(1), F.A.C., at the property boundary. In accordance with Rule 62-520.520(6), F.A.C., all installations discharging to Class G-II ground water are prohibited from causing a violation of the secondary drinking water standards at any private or potable well outside the zone of discharge.

**Amended 12/20/2013.**



**SPECIFIC CONDITIONS:**

**15. Ground Water Monitor Well Locations.** The ground water monitor wells shall be located as shown on Figure 1 entitled "Monitoring Well Locations and Modified Zone of Discharge Boundary", prepared by The Colinas Group, dated December 2013, received December 13, 2013 (**attached**), as follow:

Well No.	WACS Testsite No.	Aquifer	Designation	Location
1 MW-2	4535	Floridan	Detection	See Figure 1
2 MW-4A	21975	Floridan	Detection	↓
3 MW-4C	28669	Floridan	Compliance	↓
4 MW-4D	28670	Floridan	Compliance	↓
5 MW-6A	4557	Floridan	Background	↓
6 MW-8	4592	Floridan	Detection	↓
7 MW-9A *	21211	Floridan	Detection	↓
8 MW-10 *	21212	Floridan	Detection	↓
9 MW-11 *	21213	Floridan	Detection	↓
MW-1	4534	Floridan	Piezometer	See Figure 1
MW-2A	21974	Floridan	Piezometer	↓
MW-4	4537	Floridan	Piezometer	↓
MW-4B	21976	Floridan	Piezometer	↓
MW-7	4564	Floridan	Piezometer	↓
MW-9	4593	Floridan	Piezometer	↓

\* = to be installed **within 60 days of permit issuance** in accordance with the construction details provided in Section 6.0 and Appendix IX of the document entitled "Ground Water Monitoring Plan Evaluation, 1998 - 2002", prepared by CTL, revised April 8, 2004, received April 28, 2004; documentation of well construction details as indicated in Specific Condition Nos. 17.a. and 17.c. shall be submitted **within 30 days of well installation**; an initial sampling event as indicated in Specific Condition No. 16.b. shall be conducted **within 7 days of well installation and development**; results of initial sampling event shall be submitted to the Department **within 60 days of sample collection**.

All monitor wells are to be clearly labeled and easily visible at all times. The permittee should keep all wells locked to minimize unauthorized access.

**Amended 12/20/2013.**

**16. Ground Water Sampling.** The locations, parameters, and frequencies specified herein represent the minimum requirements for ground water monitoring. Additional samples, wells, and parameters may be required based upon subsequent analysis. Method Detection Limits must be reported at or below the Maximum Contaminant Levels established for the individual parameters to demonstrate compliance with Class G-II ground water standards referenced in Chapter 62-520, F.A.C. Compliance with ground water standards will be based on analysis of unfiltered samples.

a. Ground water levels shall be measured for all sampling events described in Specific Condition Nos. 16.b., 16.c., and 16.d., at all active wells and piezometers listed in Specific Condition No. 15 to a precision of 0.01 foot. Ground water surface contour maps prepared for each sampling event shall include water elevations (using a consistent, nationally recognized datum) calculated for each well and piezometer.

Amended 02/06/2009.

**SPECIFIC CONDITIONS:**

**16. Ground Water Sampling. (continued)**

b. An initial sampling event shall be conducted at wells MW-9A, MW-10 and MW-11 **within 7 days of well installation and development** for analysis of the following parameters:

<u>Field Parameters</u>	<u>Laboratory Parameters</u>	
Static water levels	Total ammonia	Iron
before purging	Chlorides	Mercury
Specific conductivity	Nitrate	Sodium
pH	Total dissolved solids (TDS)	
Temperature	Parameters listed in 40 CFR	
Turbidity	<u>Part 258, Appendix II</u>	
Dissolved oxygen		
Colors & sheens		
(by observation)		

c. Wells MW-2, ~~MW-4~~, MW-4A, MW-4C, MW-4D, MW-6A, MW-8, MW-9A, MW-10 and MW-11 shall be sampled **quarterly** for analysis of the following parameters:

<u>Field Parameters</u>	<u>Laboratory Parameters</u>		
Static water levels	Chlorides	Aluminum	Manganese
before purging	Fluoride	Antimony	Mercury
Specific conductivity	Nitrate	Cadmium	Silver
pH	Total ammonia	Chromium	Sodium
Temperature	Gross alpha	Iron	Thallium
Turbidity	Radium 226 + 228	Lead	
Dissolved oxygen	Total dissolved solids (TDS)		
Colors & sheens			
(by observation)			

**Amended 12/20/2013.**

d. To demonstrate that the reduced list of parameters listed in Specific Condition No. 16.c. remains appropriate, wells MW-2, ~~MW-4~~, MW-4A, MW-4C, MW-4D, MW-6A, MW-8, MW-9A, MW-10 and MW-11 shall be sampled **during the fourth quarter of each year** for analysis of the parameters listed in Rule 62-701.510(7)(a), F.A.C., as follow:

<u>Field Parameters</u>	<u>Laboratory Parameters</u>	
Static water levels	Chlorides	Aluminum
before purging	Fluoride	Iron
Specific conductivity	Nitrate	Manganese
pH	Total ammonia	Mercury
Temperature	Total dissolved solids (TDS)	Sodium
Turbidity	Parameters listed in 40 CFR	
Dissolved oxygen	<u>Part 258, Appendix I</u>	
Colors & sheens	Gross alpha	
(by observation)	Radium 226 + 228	

**Amended 12/20/2013.**

**17. Ground Water Monitor Well Construction.** Prior to construction of any new or replacement wells (excluding wells MW-9A, MW-10 and MW-11), the permittee shall request and receive Department approval of a minor permit modification. The following information is required to be submitted within 90 days of new or replacement well installation, or as stated below:

a. Construction details for all new or replacement wells shall be provided to the Department's ~~Southwest~~ Central District Office on Department Form No. 62-701.900(30), Monitoring Well Completion Report (see Attachment 4).

**SPECIFIC CONDITIONS:**

**17. Ground Water Monitor Well Construction. (continued)**

b. Within one week of well completion and development, each new or replacement well shall be sampled for the parameters listed in Rules 62-701.510(7)(a), and 62-701.510(7)(c), F.A.C.

Amended 12/20/2013.

c. A surveyed drawing shall be submitted in accordance with Rule 62-701.510(3)(d)(1), F.A.C., showing the location of all monitoring wells (active and abandoned) horizontally located in degrees, minutes and seconds of latitude and longitude, and the elevation of the top of the well casing to the nearest 0.01 foot, using a consistent, nationally recognized datum. The surveyed drawing shall include the monitor well identification number, locations and elevations of all permanent benchmarks and/or corner monument markers at the site. The survey shall be conducted by a Florida Registered Surveyor.

Amended 02/06/2009.

**18. Well Abandonment.** All wells not a part of the approved Water Quality Monitoring Plan shall be plugged and abandoned in accordance with Rule 62-532.500(5), F.A.C., and the Southwest Florida Water Management District. The permittee shall submit a written report to the Department within 90 days of well abandonment documenting verification of the well abandonment. A written request for exemption to the abandonment of a well must be submitted to the Department's Central District Office ~~Solid Waste Section~~ for approval.

Amended 12/20/2013.

**19. Verification/Evaluation Monitoring.** If at any time monitoring parameters are detected at concentrations significantly above background water quality, or exceed the Department's water quality standards or criteria at the edge of the zone of discharge, the permittee has 30 days within receipt of the laboratory data to resample the monitor well(s) to verify the original analysis. Should the permittee choose not to resample, the Department will consider the water quality analysis to be representative of current ground water conditions at the facility. If the data is confirmed, or if the permittee chooses not to resample, the permittee shall notify the Department within 14 days of this finding. Upon notification by the Department, the permittee shall initiate evaluation monitoring, prevention measures and corrective action as described in Rule 62-701.510(6), F.A.C.

Amended 12/20/2013.

**SPECIFIC CONDITIONS:**

**20. Water Quality Reporting Requirements.**

a. The results of each ground water sampling event conducted at the Sumter County Closed Class I landfill shall be submitted electronically. Water quality monitoring reports shall be submitted in Adobe pdf format. The water quality data Electronic Data Deliverable (EDD) shall be provided to the Department in a comma separated text file electronic format consistent with requirements for importing the data into the Department's databases as summarized at:

<http://www.dep.state.fl.us/waste/categories/shw/pages/ADaPT.htm>. Water quality monitoring reports shall be signed and sealed by a Florida registered professional geologist or professional engineer with experience in hydrogeological investigations and shall include the following:

- 1) Cover letter;
- 2) Summary of exceedances and recommendations;
- 3) Ground water contour maps;
- 4) Chain of custody forms;
- 5) Water levels, water elevation table;
- 6) Water Quality Monitoring Certification using Form Rule 62-701.900(31), F.A.C.;
- 7) Appropriate information using the Groundwater Sampling Log, Form FD 9000-24 (DEP-SOP-001/01); and,
- 8) Laboratory and Field EDDs and error logs, as applicable.

b. The permittee shall submit to the Department the results of analyses conducted for each sampling event conducted at the facility by the following due dates:

- 1) Specific Condition No. 16.b. - results of ground water "initial sampling events" shall be submitted **within 60 days from completion of laboratory analyses;**
- 2) Specific Condition Nos. 16.c., and 16.d. - results of ground water routine quarterly sampling events shall be submitted **within 60 days from completion of laboratory analyses and no later than January 15<sup>th</sup>, April 15<sup>th</sup>, July 15<sup>th</sup> and October 15<sup>th</sup> of each year** for the periods October 1-December 31, January 1-March 31, April 1-June 30, and July 1-September 30, respectively; and,
- 3) Specific Condition No. 19. - results of ground water verification events shall be submitted **within 60 days from completion of laboratory analyses.**

All submittals in response to this specific condition shall be sent both to:

- Department of Environmental Protection, Central District Office at:  
[DEP\\_CD@dep.state.fl.us](mailto:DEP_CD@dep.state.fl.us)
- Department of Environmental Protection, Tallahassee Office at:  
[ADaPT.EDDs.and.Reports@dep.state.fl.us](mailto:ADaPT.EDDs.and.Reports@dep.state.fl.us)

**Amended 02/06/2009 and 12/20/2013.**



**SPECIFIC CONDITIONS:**

**21. Ground Water Monitoring Plan Evaluation.**

a. An evaluation of the adequacy of existing wells MW-2 and MW-4 shall be submitted to the Department **within 30 days of receipt of Department approval** of the Preliminary Contamination Assessment Report (PCAR) prepared in accordance with Consent Order No. 04-0131. This evaluation shall be the basis for determining the need to install additional detection and/or compliance wells in the vicinity of wells MW-2 and MW-4. In the event that additional wells are required and upon receipt of Department approval of the recommendations of the PCAR, the permittee shall submit a request for minor permit modification to revise the approved monitoring plan (Specific Condition Nos. 15 and 16) and establish the routine list of parameters and sampling frequency at the additional wells.

b. **By June 15, 2006 and no later than sixty (60) ~~one hundred and eighty (180)~~ days before permit expiration (by April 15, 2014 ~~December 15, 2008~~)**, the permittee shall submit an evaluation of the water quality monitoring data. The due dates and time periods to be covered by the evaluations are summarized below:

<u>Ground Water Monitoring Evaluation Due Date</u>	<u>Starting Sampling Event</u>	<u>Ending Sampling Event</u>
<b>June 15, 2006</b>	First quarter 2003	First quarter 2006
<b>December 15, 2006</b>	Second quarter 2006	Third quarter 2008
<b>June 15, 2011</b>	Fourth quarter 2008	First quarter 2011
<b>April 15, 2014</b>	Second quarter 2011	First quarter 2014

The evaluations shall include the applicable information as listed in Rule 62-701.510(8)(b), F.A.C., and shall include assessment of the effectiveness of the existing landfill design and operation as related to the prevention of ground water contamination. Any ground water contamination that may exist shall be addressed as part of a ground water investigation for the landfill assessment.

**Amended 02/06/2009 and 12/20/2013.**

**22. Permit Renewal Requirements.** No later than **sixty (60) ~~one hundred and eighty (180)~~ days prior to permit expiration (by April 15, 2014 ~~December 15, 2013~~)**, the permittee shall apply for renewal of this long-term care permit on forms and in a manner prescribed by the Department, to assure conformance with all applicable Department rules. Applicants for permit renewal shall demonstrate how they will comply with any applicable new or revised laws or rules relating to construction, operation, or closure, monitoring and maintenance of landfills. Long-term care plans shall be updated at the time of permit renewal to reflect changes in closure design and long-term care requirements. The application must include an engineering report that evaluates the landfill cover, subsidence, gas generation and migration, stormwater control, and the status of other landfill systems. Alternately, the permittee may submit a Stabilization Assessment Report to demonstrate that the facility has "stabilized" as defined in Rule 17-701.020(61), F.A.C. (described in Specific Condition No. 2, above), and request that the Department authorize the termination of long-term care, monitoring and maintenance activities at the Sumter County Landfill. In the event that the provided data does not demonstrate that the facility has met the definition of "stabilized", renewal of the long-term care permit shall be required.

**Amended 02/06/2009.**

2014-04 Tech Rpt  
(with Stabilization)

**SUMTER COUNTY  
CLOSED CLASS I LANDFILL  
WACS ID No. 53008  
WATER QUALITY EVALUATION REPORT  
(TECHNICAL REPORT)  
Quarter II 2011 - Quarter I 2014**

**INTRODUCTION**

Sumter County currently maintains an unlined closed Class I landfill as authorized in Long-Term Care (LTC) Permit No. 22926-003-SF issued by the Florida Department of Environmental Protection (Department) on June 28, 2004. Solid waste disposal operations were ceased in 1988 and the landfill was capped and officially closed on May 24, 1990. The permit is due to expire on June 15, 2014.

Water quality monitoring issues at the Sumter County Closed Landfill (SCCL) were the focus of a Consent Order (OGC File No. 04-0131) issued to Sumter County in 2004. The primary concern was groundwater with nitrate-nitrogen exceeding the Primary Drinking Water Standards MCL at two monitoring wells, primarily at one Compliance Well (MW-4) located along the northwest margin of the solid waste disposal area. As directed by the Department, Sumter County completed Preliminary Contamination Assessment (PCA) actions in 2011. In addressing specific Consent Order issues, additional monitoring wells were added to the facility monitoring network as a result of the PCA findings and included in the regular quarterly monitoring program.

The LTC permit was recently modified in December 2013 to address lateral expansion of portions of the landfill Zone of Discharge (ZOD) boundary and deletion and addition of specific groundwater monitoring wells. With these changes the landfill is, as of the latest quarterly monitoring event in February 2014, compliant with water quality-based regulatory criteria. Consent Order terms and conditions were deemed satisfied by the Department on January 14, 2014 and the case closed.

As part of the 2013 permit modification the Department determined the SCCL to be an "existing installation" (permit Specific Condition No. 14) that is exempt from compliance with the secondary standards for Class G-II groundwater referenced in Rule 62-520.420(1), F.A.C. at the facility property boundaries. In accordance with Rule 62-520.520(6), F.A.C. all installations discharging to Class G-II groundwaters are prohibited from causing a violation of the secondary drinking water standards at any private or potable well outside the facility zone of discharge.

### Purpose and Scope

LTC permit Specific Condition No. 22 provides for application of permit renewal within sixty (60) days of expiration (by April 15, 2014). Alternatively, the permittee may submit a Stabilization Report to demonstrate that the facility has "stabilized" as defined in Rule 62-701.200(114), F.A.C., Rule 62-701.620(3),(6), F.A.C. and permit Specific Condition No. 2. A water quality monitoring Technical Report is a required component for both an application for LTC permit renewal and a Stabilization Report. 12

This Technical Report has been prepared to summarize and interpret groundwater quality and elevation data and trends at the SCCL located in Sumter County, Florida. This report is intended to satisfy Specific Condition No. 21b of the LTC permit. The permit condition requires submission of an evaluation of the water quality monitoring data collected at the landfill for the period beginning the second quarter of 2011 and extending to the first quarter of 2014, inclusive. The report provides applicable information listed in Rule 62-701.510(9)(b), F.A.C.

This report presents information from twelve (12) sampling events that occurred at the SCCL over the period Quarter II (May) 2011 through Quarter I (February) 2014. Site monitoring information is presented, in the form of a Technical Report, in accordance with Rule 62-701.510(8)(b) F.A.C. to include:

- Tabular and graphical data presentations that identify detected groundwater monitoring parameters, including water level hydrographs for each monitoring well;
- Analyses of apparent trends of detected parameters;
- Comparisons between up-gradient and down-gradient monitoring wells;
- Correlation between related parameters;
- Discussion of erratic or poorly-correlated data;
- Interpretation of groundwater elevation contour maps and groundwater movement, and;
- Evaluation of the adequacy of water quality monitoring location and frequency.

The report presents an evaluation of water quality monitoring results at the SCCL suitable for inclusion as part of a Stabilization Report or an application for renewal of the landfill's LTC permit in the event that stabilization criteria are not met as determined by the Department.

### Landfill Site Location

The SCCL is situated in central Sumter County near the intersection of U.S. Interstate Hwy. 75 and County Road 470 approximately two miles west of Sumterville, Florida. Access to the closed landfill, including the County's active Citizens Drop-Off and Recycling facility, is by C.R.529 south off C.R.470 about one-half mile east of I-75. The location of the SCCL in the SE 1/4 of the SE 1/4 of Section 15, Township 20S, Range 22E is shown on the U.S. Geological Survey topographic map presented as Figure 1.

### Significant Site Features

The configuration of the closed Class I solid waste disposal area (landfill) and adjacent facilities is shown on Figure 2. The waste disposal area occupies approximately 30 acres of land area. Officially closed in 1990, the western portion of the waste disposal area was capped with soil base and asphalt; the eastern portion was capped with a synthetic liner and soil cover supporting a grass crop.

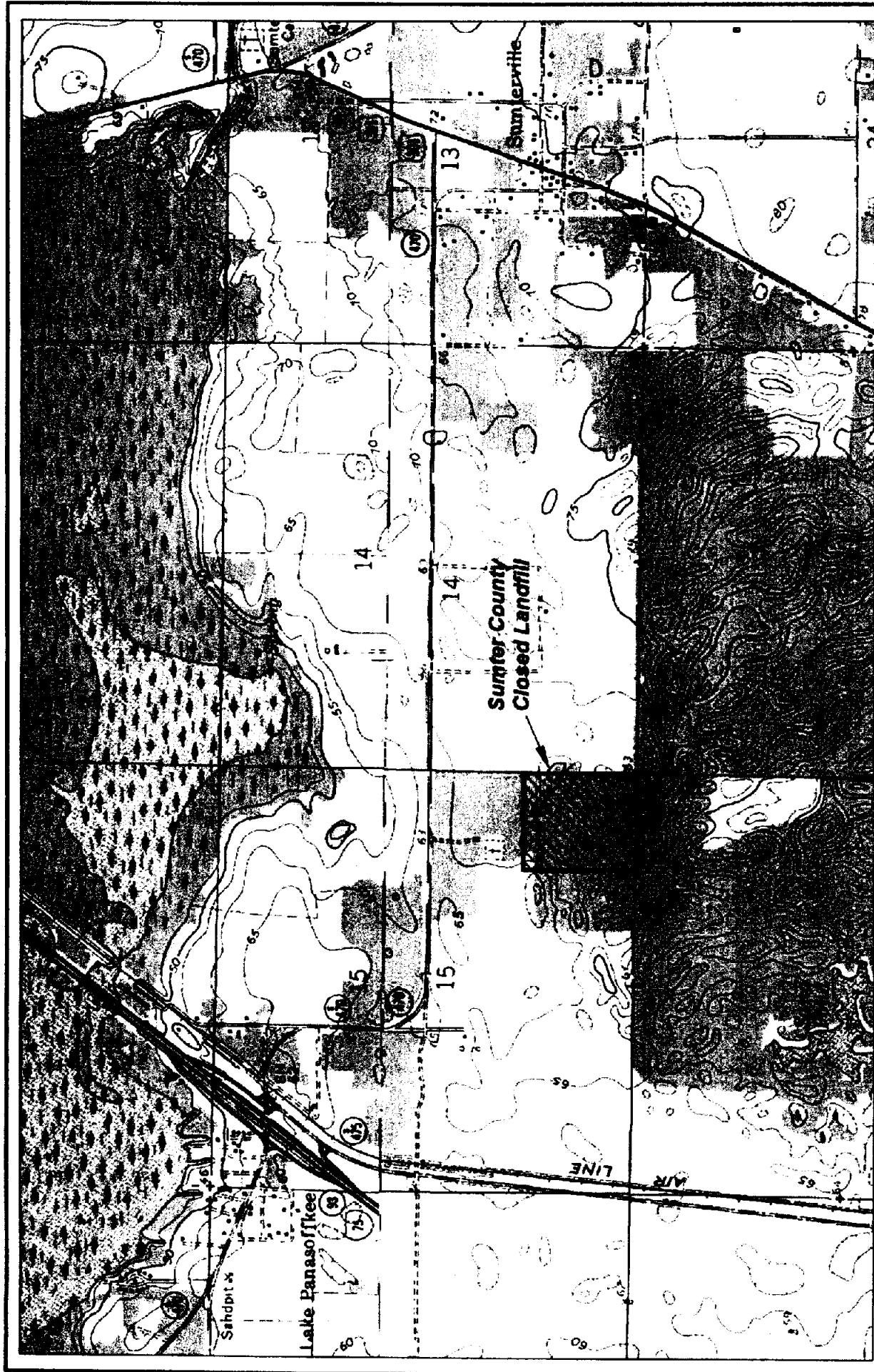
The northwestern portion of the asphalt-covered closed landfill and the paved area now used for a Community Drop-Off Area (CDA) were formerly used for a Class I solid waste composting operation. Stored compost was sprayed with water from an adjacent lined pond with excess water and stormwater allowed to drain back to the pond. When full the lined pond drains by surface flow to a lined cell, originally constructed for solid waste disposal but never used, lying immediately to the north. According to recent observations by S2L, Inc. (see Stabilization Report by S2Li, March 2014) the lined pond and lined cell show liner damage and deterioration and are considered non-functional as water containment systems. The unused lined waste cell supports heavy vegetation growth.

The former landfill scale house/offices building and other nearby county services buildings to the northeast were originally served by five separate septic tanks systems. Sumter County removed the septic tanks and drainfields in 2008 when sanitary sewer service became available from the City of Bushnell Waste Water Treatment Facility located to the south of the landfill property. The former locations of the septic tank facilities are shown on Figure 2.

### Site Geologic Characteristics

Near-surface geologic conditions at the landfill were explored during installation of monitoring wells and piezometers provided as part of site investigations related to PCA actions over the period 2004 - 2006. Three distinct and laterally-continuous lithologic beds were encountered at each of the test boring locations:

- Bed 1: Surficial layer of fine quartz sand. Minor stringers and lenses of silty/clayey sand less than 2 to 3 feet thick noted at several borings within the upper sand section. Unit thickness ranges from 18 - 25 feet.



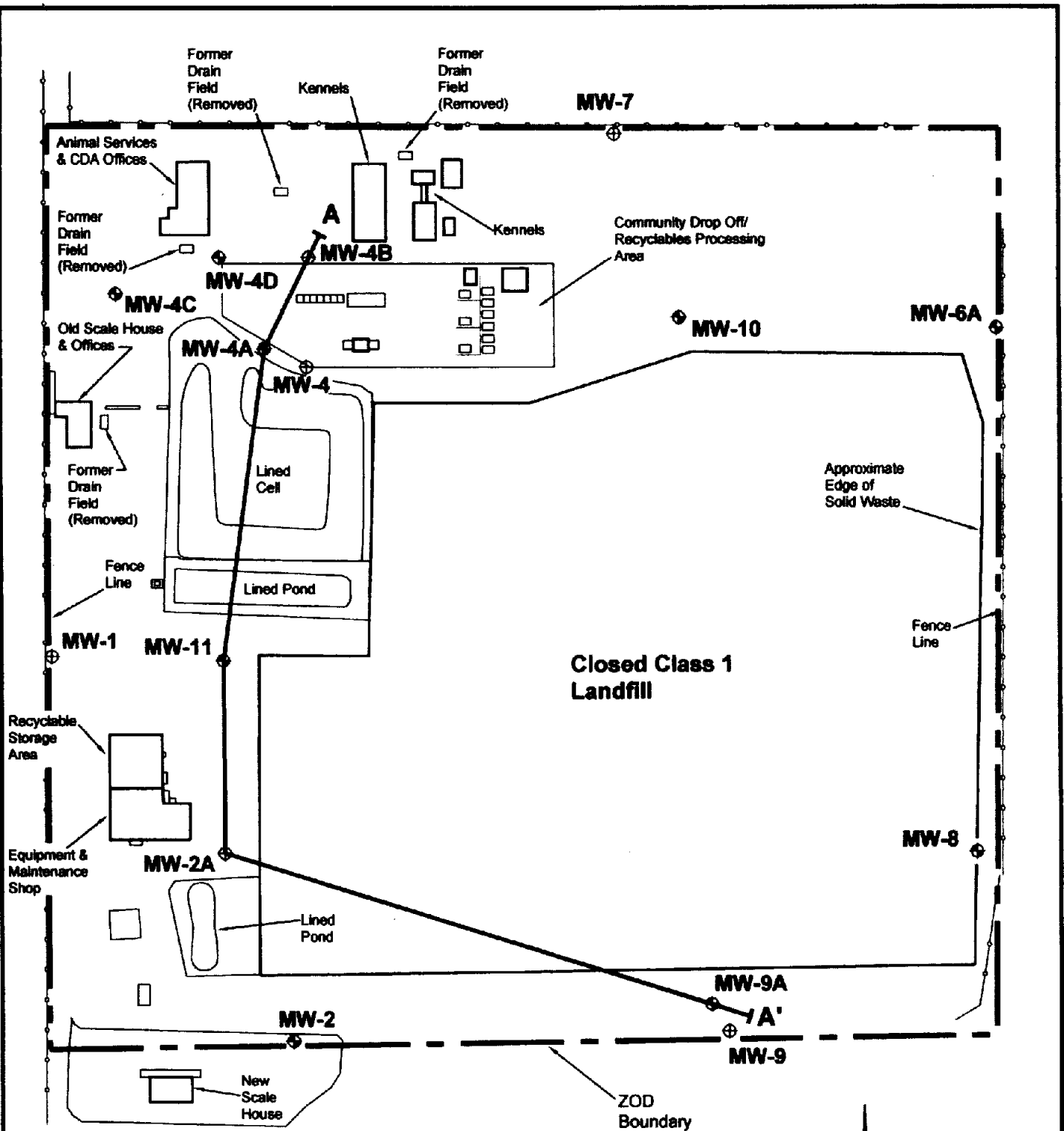
**The Collins Group, Inc.**  
377 Maitland Avenue  
Suite 2012  
Altamonte Springs, Florida 32701

**PROJ. NO.:** P-505  
**DATE:** APRIL 2014  
**SCALE:** 1" = 1000'

**SITE LOCATION MAP  
SUMTER COUNTY CLOSED LANDFILL**

2





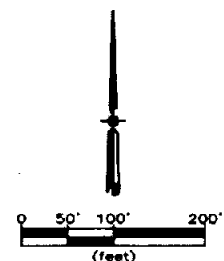
## LEGEND

MW-2 ⊕ Monitor Well Location

MW-1 ⊕ Piezometer Location

--- Modified ZOD Boundary (Dec. 2013)

A—A' Geologic Cross Section (See Figure 3)



**The Colinas Group, Inc.**  
377 Maitland Avenue  
Suite 2012  
Altamonte Springs, Florida 32701

PROJ. NO.: P-505  
DATE: MARCH 2014  
SCALE: 1" = 200'

**MONITORING WELL LOCATIONS AND  
MODIFIED ZONE OF DISCHARGE BOUNDARY  
SUMTER COUNTY CLOSED LANDFILL**

**FIGURE 2**

Bed 2: Clayey sand to sandy clay to clay underlying the surficial sands. Test boring at MW-4B encountered a 5-foot thick lens of fine sand between depths of 20 - 25 feet below land surface (bls). Unit thickness ranging approximately 10 - 15 feet.

Bed 3: Micritic, fossiliferous limestone underlying Bed 2. Depths to top of rock ranging from 32 - 40 feet bls.

A generalized geologic cross-section along transect line A-A' (Figure 2) depicting geologic formations encountered at wells installed under the direction of The Colinas Group as part of PCA actions is presented on Figure 3. Water level elevations shown in the wells are taken from the February 2014 quarterly water quality monitoring report.

— pit & WMS. yr 4/17/2011

## **WATER QUALITY MONITORING PROGRAM**

### Groundwater Monitoring Wells

The groundwater monitoring network at the landfill consists of fifteen (15) monitoring wells and piezometers. Of these, nine (9) are active groundwater monitoring wells and six (6) are used as piezometers for water level measurement. Locations of wells and piezometers arrayed around the perimeter of the closed landfill, are shown on Figure 2.

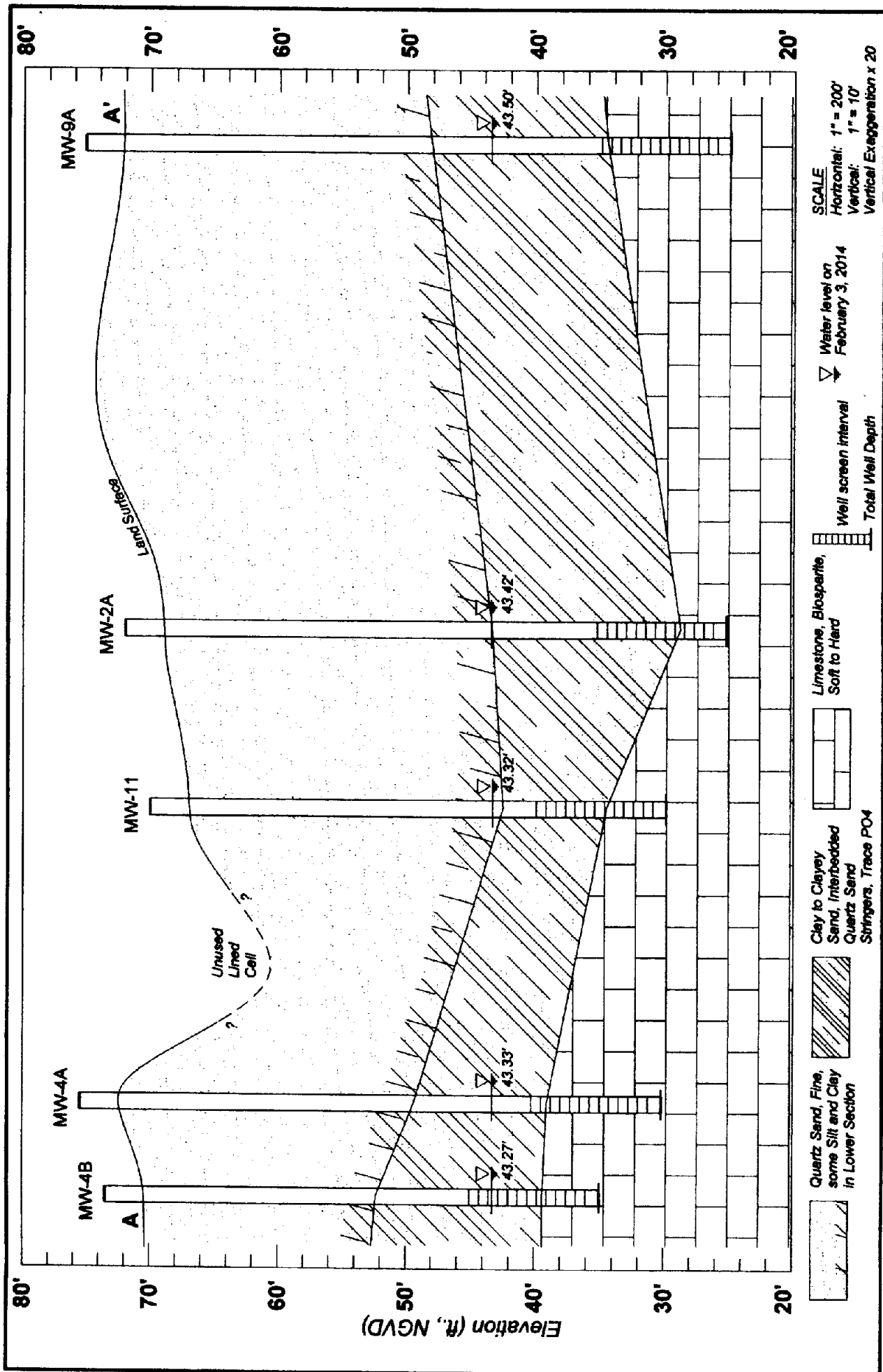
Five (5) of the piezometers are former groundwater monitoring wells (MW-1, MW-4, MW-4B, MW-7 and MW-9) since converted to piezometer use. The remaining piezometer (MW-2A) was installed as part of Preliminary Contamination Assessment actions begun at the landfill in 2004.

Monitoring wells MW-4A and MW-4B were installed as part of Preliminary Contamination Assessment actions in January 2006 and reported in the Preliminary Contamination Assessment Report (PCAR) prepared for the landfill in 2006. The wells were added to the landfill monitoring plan in May 2006 and recently converted to use as piezometers in the December 2013 LTC permit modification.

Monitoring well MW-6A is listed in the landfill LTC permit as a Background Well. MW-8, also situated along the eastern perimeter of the landfill, is listed as a Detection Well in the permit even though the well consistently appears to be located hydraulically up-gradient of the waste disposal area, as demonstrated by groundwater contour maps prepared as part of quarterly monitoring reports.

New monitoring wells MW-4C and MW-4D, constructed in 2011 as the final phase of PCA actions, were added to the monitoring plan in the December 2013 permit modification in conjunction with expansion of the landfill's ZOD boundary to the north and west of the solid waste disposal area. Existing monitoring wells MW-4 and MW-4B were discontinued for sampling purposes and designated as piezometers.

2011  
A



<b>The Colinas Group, Inc.</b> 377 Matland Avenue Suite 2012 Altamonte Springs, Florida 32701		<b>PROJ. NO.:</b> P-505 <b>DATE:</b> MARCH 2014 <b>SCALE:</b> NOTED		<b>GEOLOGIC CROSS-SECTION</b> <b>SUMTER COUNTY CLOSED LANDFILL</b>		<b>FIGURE 3</b>
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20

The configuration of the current ZOD boundary is shown on Figure 2. The western limit of the ZOD is coincident with the landfill property boundary. The southern limit of the ZOD is located 100 feet from the edge of landfill waste.

A summary of the current groundwater monitoring network of wells and piezometers is tabulated below:

Well ID	WACS No.	Use	Aquifer Monitored	Total Depth (ft.bls)	Screen Interval (ft.bls)
MW-1	4534	P	Floridan	unk	unk
MW-2	4535	D	Floridan	40	unk
MW-2A	21974	P	Floridan	47	37 - 47
MW-4	4537	P	Floridan	37	32 - 37
MW-4A	21975	D	Floridan	41	31 - 41
MW-4B	21976	P	Floridan	37	27 - 37
MW-4C	28669	C	Floridan	42	32 - 42
MW-4D	28670	C	Floridan	42	32 - 42
MW-6A	4557	B	Floridan	48	43 - 48
MW-7	4564	P	Floridan	unk	unk
MW-8	4592	D	Floridan	41	36 - 41
MW-9	4593	P	Floridan	46	41 - 46
MW-9A	21211	D	Floridan	47	37 - 47
MW-10	21212	D	Floridan	42	32 - 42
MW-11	21213	D	Floridan	42	32 - 42

D - Detection Well    B - Background Well    C - Compliance Well    P - Piezometer    Unk - Unknown

### Monitoring Parameters and Frequency

The groundwater monitoring network is sampled on a recurring quarterly basis. Analytical chemical parameters for the first three quarters of each year are listed in permit Specific Condition No.16c:

Aluminum	Fluoride	Nitrate
Ammonia, total	Gross alpha	Radium 226+228
Antimony	Iron	Silver
Cadmium	Lead	Sodium
Chloride	Manganese	Thallium
Chromium	Mercury	Total dissolved solids (TDS)

An expanded list of analytical parameters is required by permit Specific Condition No. 16d during the fourth quarter of each year. The expanded list includes the above listed constituents plus the parameters listed in 40 CFR Part 258, Appendix I.

## **WATER QUALITY MONITORING SUMMARY**

### Field Parameters

Measurements of certain parameters are taken in the field by sampling personnel during sample collection. Field parameters measured include:

- pH
- Dissolved oxygen (DO)
- Groundwater temperature
- Specific conductance
- Turbidity

These data are useful as indicators of monitoring well performance and sampling procedure as well as indicators of general water quality characteristics.

Test results for field parameters are summarized in Table I in Appendix I to this report. Results are taken from the quarterly groundwater monitoring reports submitted to the FDEP over the period Quarter II (May) 2011 through Quarter I (February) 2014. Graphs of selected constituents over time at individual monitoring wells are presented in Appendix II.

As indicated on Table I, monitoring well MW-2 was not sampled in May 2013. The well, finished in a below-grade vault, was inadvertently covered by new pavement during recent site improvement activities and could not be located during the routine sampling event. The wellhead was located later using a metal detector, the pavement removed and the well returned to service for the next sampling event in August 2013. *found over MW-2*

The range of pH values measured in groundwater from the monitoring wells is considered reasonably typical for groundwaters in west-central Florida. Groundwater produced by most of the monitoring wells is slightly acidic to slightly basic. Lower pH values are reported for detection wells MW-2, MW-9A, MW-10 and MW-11. Higher values are reported for well MW-4B, ranging from pH of 8.61 to 9.27. Groundwater samples from upgradient monitoring wells MW-6A and MW-8 were slightly basic.

Field-measured DO concentrations in groundwater samples are plotted graphically in Appendix II. Four (4) monitoring wells (MW-2, MW-4B, MW-6A and MW-8) demonstrate consistent elevated DO concentrations above 20% saturation over the quarterly sampling events. Highest DO levels are reported for upgradient monitoring well MW-6A. Dissolved oxygen concentrations in samples from the remaining monitoring wells were, with one exception, below 20% saturation.



Specific conductance measurements are plotted in Appendix II for the groundwater monitoring wells at the landfill. As shown, specific conductance varies somewhat between monitoring wells and is relatively consistent at each well over the period of record. Highest specific conductance is routinely reported for detection well MW-9A.

For the most part, the temperatures reported for groundwater samples appear consistent between wells and between sampling event data sets. Groundwater temperatures varied from season to season through a relatively small range.

As indicated in Table I, fluid turbidity was measured and reported at values less than 20 NTUs in all groundwater samples collected from facility monitoring wells over the monitoring period. Most turbidity measurements are reported at less than 10 NTUs.

### Laboratory Analytical Parameters

Concentrations of monitoring parameters detected above laboratory method detection limits (MDLs) in groundwater samples from each of the monitoring wells are taken from monitoring reports submitted by Sumter County to the FDEP and summarized in Table II in Appendix I to this report. The summary for each of the monitoring wells includes quarterly sampling results for the period Quarter II 2011 through Quarter I 2014.

The analytical results summary in Table II includes parameters that were detected at least one time in groundwater samples collected over the monitoring period. Analytical constituents that were never reported above laboratory MDLs are excluded. Analytical results shown in highlighted bold-face type indicate that the reported concentration exceeds the FDEP regulatory level for that specific parameter.

Table II includes laboratory results of analyses for eighteen individual chemical and radiological parameters. Most of these parameters were detected by the laboratory at low concentrations, well below respective Groundwater Cleanup Target Levels (GCTLs) presented in Chapter 62-777, F.A.C. Eight of the eighteen parameters were either consistently detected or exceeded regulatory levels during one or more sampling events at one or more monitoring wells over the monitoring period.

Wells MW-4 and MW-4B were deleted from the facility monitoring plan and designated as piezometers in the December 2013 permit modification. These wells were not sampled in the Quarter I (February) 2014 monitoring event.

#### Aluminum

Aluminum was detected in groundwater samples from six of the monitoring wells; consistently at two (MW-4B and MW-9A), at generally declining concentrations at three others (MW-4, MW-10 and MW-11), and infrequently at well MW-4A. Aluminum concentrations regularly exceeded the secondary MCL (200 ug/l) at MW-9A throughout most of the monitoring period.

### Chloride

Chloride concentrations at all wells are low and well below the MCL of 250 mg/l. Two wells, MW-4A and MW-9A, produced samples with chloride nominally higher than the other monitoring wells, ranging from 20 mg/l to 27 mg/l over the period of record. Average chloride concentrations reported for these two wells is somewhat higher than at background wells and remaining detection wells.

Cl

### Iron

Iron is consistently reported below either below the laboratory minimum detection limit (MDL) or less than the secondary MCL of 300 ug/l in background well MW-6A, upgradient well MW-8 and most of the other monitoring wells throughout the period of record. Iron concentrations slightly above the MCL are reported for detection well MW-10. Higher iron values are consistently reported for detection well MW-9A.

Fe

### Gross Alpha

This radiological constituent was routinely detected at most monitoring wells over the monitoring period with higher concentrations generally reported at Detection Wells MW-9A, MW-10 and MW-11. As indicated in Table II, the primary MCL for gross alpha (15 pCi/l) was nominally exceeded in one sampling event at detection wells MW-10 and MW-11. Laboratory results presented in Table II are corrected for the negative range of analytical error inherent in the laboratory analyses.

Gross Alpha

### Manganese

Manganese is generally either not detected or detected at very low concentrations at most monitoring wells. The exceptions are monitoring wells MW-9A and MW-10. Manganese is consistently reported at concentrations above the secondary MCL of 50 ug/l at MW-9A. Manganese concentrations below the MCL are consistently reported at MW-10.

Mn

### Nitrate Nitrogen

Nitrate nitrogen was reported above the primary MCL (10 mg/l) in all but one of the samples collected from well MW-4A (11 mg/l - 15 mg/l). Nitrate reported for the November 2011 sampling event at this well is an anomaly in the data set and is considered suspect, as is the concentration reported for the same sampling event at MW-11. Although below the MCL, nitrate concentrations in background well MW-6A, upgradient well MW-8 and remaining detection wells, excepting MW-9A, are reported at concentrations considered elevated above typical naturally-occurring levels of nitrate in groundwater.

Nitrate

As indicated on Table II, Background Well MW-6A consistently produced groundwater samples with elevated nitrate concentrations, ranging from 5.0 mg/l to 6.6 mg/l over the monitoring period. Lower nitrate values are reported for up-gradient monitoring well MW-8 (1.7 mg/l - 2.1 mg/l). Nitrate values similar to those at Background Well MW-6A are reported for former Compliance Well MW-4 and Detection Well MW-11.

1 mg/l  
5.0 mg/l  
6.6 mg/l  
W-6A

14

#### Radium 226 + 228

These isotopes of radium were detected at each of the landfill monitoring wells, either periodically or consistently, over the monitoring period as indicated in Table II. One sample from Detection Well MW-9A nominally exceeded the primary MCL (5 pCi/l) for combined radium 226 + radium 228 at a reported concentration of 5.8 pCi/l in August 2013. As with gross alpha, values presented are corrected for the negative range of laboratory error. *Rad*

#### Sodium

Sodium is reported in groundwater samples from most wells at very low concentrations generally between ranging between 2 mg/l - 11 mg/l. Background well MW-6A and upgradient well MW-8 consistently produced similar low sodium values. Wells MW-4 and MW-4A, and to a lesser extent MW-9A, consistently produce sodium values markedly higher than the other monitoring wells. Sodium concentrations reported over the period of record at MW-4 ranged from 28 mg/l - 41 mg/l, and at MW-4A from 19 mg/l - 26 mg/l, well below the primary MCL of 160 mg/l, but considered somewhat elevated for natural groundwater in the landfill area. *NG*

#### Total Dissolved Solids

TDS was measured slightly above the secondary MCL (500 mg/l) in ten samples from MW-9A and once at MW-10. Lowest TDS levels are consistently reported at former monitoring well MW-4B. With the exception of one sampling event at former monitoring well MW-4, reported TDS values are less than the MCL at other monitoring wells. *TDS*

New monitoring wells MW-4C and MW-4D (see Figure 2) were added to the landfill monitoring plan in the permit modification in December 2013. Originally installed as part of the final phase of PCA actions at the landfill in November 2011, both wells were initially sampled in February 2012 and results reported to the Department in the Quarter I 2012 Groundwater Monitoring Report.

Upon inclusion in the LTC monitoring plan at the end of 2013, both wells were sampled a second time in February 2014 and results reported to the Department in the Quarter I 2014 Groundwater Monitoring Report for the SCCL. Field testing results and laboratory analytical results for constituents detected in either sampling event at MW-4C and MW-4D are presented in Table III.

#### VOC Parameters

An expanded list of analytical parameters is sampled and analyzed during the fourth quarter of each year at the SCCL. The expanded list includes the normal quarterly sampling constituents plus nine additional metals and the volatile organic compounds (VOCs) listed in 40 CFR Part 258, Appendix I.

Laboratory results for the expanded list of constituents sampled during Quarter IV of each year included in this reporting period are summarized in Table IV in Appendix I. As indicated the additional metals parameters were detected by the laboratory at trace concentrations relative to respective MCLs. Only two VOC constituents, acetone and carbon disulfide, both common laboratory contaminants, were detected at trace concentrations in four separate samples from three wells, including Background Well MW-6A.

### CONSTITUENT TREND ANALYSES

Apparent trends of concentrations versus time for selected parameters monitored in groundwater at the Sumter County landfill are depicted graphically for each active monitoring well in Summary Charts attached in Appendix II. Graphs of individual parameters include a trend line through the plotted data calculated by linear regression and depicting the orientation (increasing or decreasing) and the slope (magnitude of flux) of the data trend over time. Constituent graphs include:

Aluminum	Manganese
Gross Alpha	Nitrate, as N
Radium 226 + Radium 228	

The trend analysis graphs indicate apparent trends of stable, increasing and decreasing concentrations of specific analyzed constituents over time at the SCCL. Trends for specific parameters at specific monitoring wells are apparent. Data plots on the Summary Charts when constituents were reported below detection limits were approximated by assigning a value of 50% of the laboratory MDL for the particular parameter for graphing purposes.

#### Aluminum

Forecast trends for aluminum are stable at three wells (MW-2, MW-6A and MW-8) where the constituent was reported below the laboratory MDL in each of the twelve sampling events. Trends for aluminum at the remaining six wells are declining over the monitoring period with projected concentrations expected below the secondary MCL for this constituent. A1

#### Gross Alpha

Increasing forecast trends for gross alpha radioactivity are apparent at six monitoring wells (MW-2, MW-4B, MW-6A, MW-8, MW-9A and MW-10), through both low and high relative values compared to the MCL for this constituent. Increasing low-value gross alpha trends are noted at upgradient wells MW-6A and MW-8. Increasing forecast trends at higher values are apparent at well MW-9A and, at levels approaching the MCL, at MW-10. Gross Alpha

#### Manganese

Stable to declining trends for manganese are noted at seven of the nine monitoring wells (MW-2, MW-4, MW-4A, MW-10, MW-11 and up-gradient wells MW-6A and MW-8). As shown on the charts in Appendix II, values for manganese are low to M2

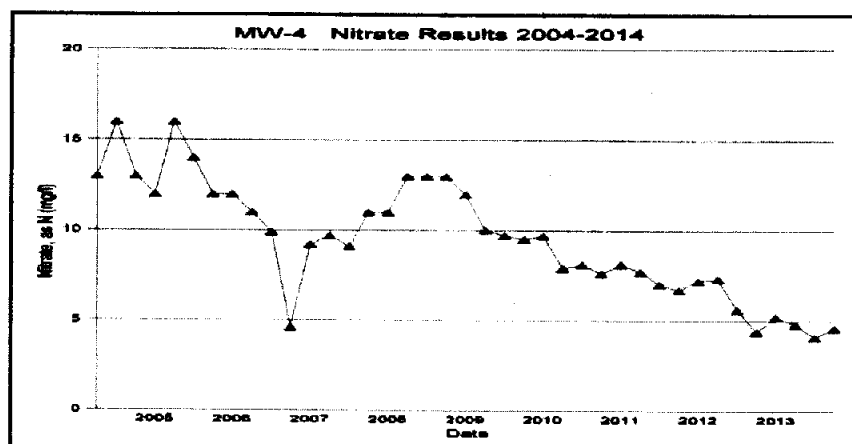
very low at these wells compared to the 50 mg/l secondary MCL. A trend of increasing manganese at concentrations exceeding the MCL is noted for MW-9A. A similar increasing trend through a range of very low values is apparent at MW-4B.

#### Nitrate Nitrogen

An overall trend of stable to declining nitrate concentrations in groundwater is evident throughout the landfill monitoring network. The lone exception is well MW-9A, exhibiting an increasing forecast trend through a range of very small nitrate values (0.10 mg/l - 0.82 mg/l) well below the MCL and concentrations reported in other up-gradient and down-gradient monitoring wells at the SCCL.

Slightly increasing trends shown on the Summary Charts for wells MW-4A and MW-11 are the result of anomalous, and suspect, nitrate concentrations reported for both wells in the November 2011 sampling event. Ignoring the suspect data, or substitution of nitrate values equivalent to immediately preceding and subsequent laboratory values results in apparent trends of declining concentrations at both wells.

A significant trend of declining nitrate concentrations at former Compliance Well MW-4, the prime impetus for earlier PCA actions at the SCCL, continues the trend noted in the previous Technical Report prepared for the period 2008 - 2011 (TCG, July 2011: Water Quality Evaluation Report (Quarter IV 2008 - Quarter I 2011) Sumter County Closed Class I Landfill). Nitrate values reported for MW-4 since 2004 are presented in the graph below.



#### Radium 226 + Radium 228

Forecast trends for radium 226 + radium 228 are generally increasing at most wells over the monitoring period, typically at low to very low values compared to the composite primary MCL (5 pCi/l) for these radionuclides. Increasing trends are noted for wells MW-9A and MW-11 through values approaching the MCL. Stable forecast trends are apparent at Background Well MW-6A and up-gradient well MW-8 at very low concentrations.

## **CORRELATION OF RELATED PARAMETERS**

The relationships between groundwater pH and dissolved oxygen (DO), specific conductance and total dissolved solids (TDS) and sodium and chloride are shown graphically on the Summary Charts presented in Appendix II for each monitoring well. As shown, consistent correlative trends between these parameters, either directly or inversely, are apparent over the reporting period.

Fluctuations in groundwater pH, although generally small, are apparent on graphs of pH vs. DO. Variations in pH values over the period of record are likely related to periods of rainfall and subsequent recharge to the groundwater monitoring zone at the landfill. Periods of relatively high groundwater recharge from rainfall tend to decrease pH in the monitoring zone at and near the top of the underlying limestone formation. Increasing pH probably reflects the effect of reduced local recharge.

Conversely, DO concentrations in groundwater can be expected to increase during periods of high rainfall and decline during extended dry periods and reduced recharge. This inverse relationship is apparent at most of the landfill monitoring wells.

Specific conductance is plotted versus TDS for each of the monitoring wells. A direct correlation between the two parameters is noted for most of the monitoring wells. A poor correlation is noted for Background Well MW-6A.

Correlation of the typically associated constituents sodium and chloride is good at most monitoring wells, including wells MW-4 and MW-4A which both report comparably higher values for these constituents as compared to other monitoring wells. Correlation at wells with lower values reported for sodium and chloride is less apparent.

## **COMPARISON OF MONITORING WELLS**

As indicated in Table II, elevated DO levels are consistently reported at up-gradient wells MW-6A and MW-8. Groundwater pH at these wells is typically slightly slightly basic, ranging from 7.00 to 7.92 pH units over the monitoring period. Slightly lower, acidic pH values are typical for groundwater samples from down-gradient detection wells MW-9A, MW-10 and MW-11.

Metals constituents aluminum, cadmium, iron, lead, mercury and thallium are rarely, if ever, detected at the up-gradient wells while frequently detected at most down-gradient monitoring wells. Other constituents, such as antimony, chromium and fluoride, are detected up-gradient at similar concentrations to down-gradient wells. Chloride, sodium and manganese concentrations reported at MW-6A and MW-8 are generally low with significantly higher levels of these constituents detected at several down-gradient detection wells.



Nitrate-nitrogen at concentrations exceeding the primary MCL at former Compliance Well MW-4 was the primary factor leading to PCA actions ordered by the Department in 2004. Comparisons of selected constituent concentrations over time reported for monitoring well MW-4 and nearby wells MW-4A and MW-4B are presented graphically on Comparison Charts in Appendix III.

With the exception of aluminum, plots of the other parameters, groundwater pH, DO, specific conductance/TDS, sodium/chloride and nitrate nitrogen, illustrate a similarity in water chemistry between wells MW-4 and MW-4A. Marked differences in concentrations of these constituents at MW-4B suggest a nearby local source of fresh groundwater recharge from rainfall.

## **GROUNDWATER FLOW**

Hydrographs, constructed from water level measurements taken over the reporting period, are presented for each monitoring well and piezometer in Appendix IV. The trend of seasonal rising and falling water levels in the wells is consistent across the 12-quarter data set and between individual monitoring wells and piezometers. Highest water table elevations are reported in August of each year at each well/piezometer. The magnitude and duration of water level fluctuations is remarkably similar between wells over the hydrograph period.

Groundwater contour maps have been prepared for each sampling event as part of routine monitoring and reporting requirements for the landfill. Copies of the contour maps for the period Quarter II 2011 through Quarter I 2014 are included in Appendix V.

Generally, the contour maps depict relatively stable groundwater flow conditions over the reporting period. The maps consistently indicate a local high on the water table surface centered on monitoring well MW-8 at the southeastern margin of the closed landfill. Apparent groundwater flow is from this high to lower groundwater levels toward the west and northwest of the landfill.

A slight northeast-trending trough on the water table surface is apparent in the western portion of the site on the contour maps for May and August of 2011. This feature ceased to exist in subsequent maps upon re-surveying of top of well casing elevations by Sumter County in October 2011. Casing elevations were corrected by factors of 0.03 ft. to 0.67 ft. throughout the monitoring well/piezometer network.

Hydraulic gradients across the landfill site are very shallow, with head difference measured between wells along the eastern side (upgradient) and the western (downgradient) side of the landfill ranging from 0.78 ft. to 1.66 ft. over the monitoring period. The average hydraulic gradient on the water table surface over the period is calculated at 0.0007 ft/ft.

Site-specific hydraulic conductivity, or permeability, test data are not available for the SCCL. Consequently, bulk groundwater flow velocity at the landfill cannot be estimated with any degree of confidence.

## **EVALUATION OF WATER QUALITY MONITORING REQUIREMENTS**

The groundwater monitoring requirements specified in the Long-Term Care Permit for the Sumter County Closed Class I Landfill and the array of monitoring wells appear to allow for a good assessment of groundwater movement and water quality conditions at the facility. The current array of monitoring well locations around the perimeter of the closed waste disposal cell appears to be suitable to intercept groundwater containing contaminants generated by the closed waste disposal facility.

Evaluations of field and laboratory analytical data for the previous 2.75 -year monitoring period indicate that current sampling procedures and field testing methods are suitable for the site and facility conditions. Water quality data appear consistent from sampling event to sampling event over the reporting period with relatively few spurious, anomalous or suspect data.

## **SUMMARY AND CONCLUSIONS**

This report was prepared by The Colinas Group for the Sumter County Closed Landfill (SCCL) in compliance with the requirements of the Technical Report set forth in Chapter 62-701, F.A.C. and the specific conditions of the landfill's Long-Term Care (LTC) permit. Solid waste disposal operations were ceased in 1988 and the landfill was capped and officially closed on May 24, 1990.

A Consent Order was issued by the Florida Department of Environmental Protection (Department) on March 17, 2004 to address, among other issues, exceedances of water quality standards at monitoring wells MW-2 and MW-4. Groundwater monitoring data from prior quarterly sampling events indicated that the primary concern at the landfill was the persistent detection of nitrate nitrogen in groundwater samples from Compliance Well MW-4 at concentrations exceeding the Florida Primary Drinking Water Standards Maximum Contaminant Level (MCL) of 10 mg/l.

Sumter County completed Preliminary Contamination Assessment actions ordered by the Department, installed additional monitoring wells and continued quarterly groundwater monitoring and reporting in accordance with the LTC permit conditions. The LTC permit was modified in December 2013 to incorporate additional monitoring wells into the facility monitoring plan and provide for expansion of portions of the landfill Zone of Discharge boundary. The Consent Order was deemed satisfied and the case closed by the Department on January 14, 2014.

Field and laboratory groundwater monitoring results and water level measurements for the period Quarter II (May) 2011 through Quarter I (February) 2014 were compiled and evaluated to prepare this Technical Report. Analytical and hydrographic data presented in this report were gathered from quarterly groundwater monitoring reports routinely submitted

to the Department by Sumter County over the subject period of record. Supplemental geologic and water quality data are taken from Well Completion Report records and other site reports submitted to the Department since 2004.

WCR

Monitored constituents that exceeded respective MCLs at least once at any well over the 2011-2014 Technical Report period include: Aluminum, iron, manganese, nitrate-nitrogen, total dissolved solids (TDS) and the radionuclides gross alpha and radium 226 and 228. Aluminum, iron, manganese and TDS concentrations in groundwater at solid waste facilities are regulated by the Florida Secondary Drinking Water Standards MCLs; nitrate-nitrogen and gross alpha and radium 226/228 are regulated by the Florida Primary Drinking Water Standards MCLs.

detur

Aluminum exceeding the secondary MCL was detected at five of the facility down-gradient (Detection and Compliance) monitoring wells in the early portion of the reporting period with levels declining through the remainder to either less than the MCL or below the laboratory minimum detection limit at all but one well. Forecast trends for aluminum at all wells project sub-MCL results for this constituent.

A

Exceedances of the secondary MCL for iron are limited to Detection Wells MW-9A and MW-10, installed close to the buried waste. Iron levels at MW-9A appear to be rising over the monitoring period and decreasing at MW-10. Exceedances for manganese and TDS are limited to MW-9A, with minor increases forecast at this well. In the last sampling event in February 2014 aluminum, iron, manganese and TDS exceeded MCLs only at MW-9A.

F 1

The Department has determined the SCCL to be an "existing installation" exempt from compliance with the secondary standards for Class G-II groundwater referenced in Rule 62-520.420(1), F.A.C. at the facility property boundary.

stf  
in 6/20

Nitrate-nitrogen was reported persistently, excluding one suspect sample result, at concentrations nominally exceeding the primary MCL at Detection Well MW-4A, ranging between 11 mg/l to 15 mg/l. the primary MCL for nitrate is 10 mg/l. Excluding the one suspect (low) sample result, the forecast trend for nitrate at the well is declining to lower values. Nitrate levels at new Compliance Wells MW-4C and MW-4D, located immediately down-gradient from MW-4A, were below the MCL and near historical background levels reported at Background Well MW-6A.

Nit

Well MW-4A was installed as part of PCA actions to investigate the extent of exceeding nitrate concentrations down-gradient from former Compliance Well MW-4. Nitrate values exceeding the MCL have historically been routinely reported at MW-4. Since 2009 nitrate has been consistently reported below the MCL at MW-4 through a steadily declining range of values now reported at and near background levels.

Reduction of nitrate levels at MW-4 since 2004 may well be the result of cessation of waste composting and storage practices near the well in 2005 and the discontinued use and removal of nearby septic tank systems in 2008. Both are considered potential sources of nitrate enrichment to groundwaters at and near the northwest portion of the landfill solid

waste disposal area. Near-surface geologic characteristics, namely a thick unsaturated zone and deep water table and slopes on the underlying bedded clay sediments, are conducive to lateral migration of nitrogen-bearing recharge waters from the point of origin.

Gross alpha exceeded the primary MCL in one sampling event at Detection Well MW-10 and in one event at Detection Well MW-11 over the monitoring period. Background gross alpha levels reported at up-gradient wells MW-6A and MW-8 are increasing through the monitoring period but at fairly low values compared to the MCL. Increasing trends for gross alpha at higher values are noted at Detection Well MW-9A and, at values approaching the MCL, at MW-10. Declining gross alpha levels below the MCL are forecast at MW-11. *radon*

Radium 226 and radium 228 exceeded the composite primary MCL in one sampling event at Detection Well MW-9A. Background radium 226/228 levels are stable through the monitoring period. Trends of increasing levels to values approaching the MCL are apparent at MW-9A, exceeding the MCL in August 2013, and at Detection Well MW-11.

None of the additional metals parameters analyzed annually as part of the expanded sampling list were detected at concentrations approaching respective MCLs during the three annual sampling events included in this Technical Report. Apart from a few spurious and suspect detections of acetone and carbon disulfide at trace concentrations, no volatile organic compounds (VOCs) were detected at any of the facility monitoring wells in three consecutive annual monitoring events over the nearly three-year monitoring period.

## RECOMMENDATIONS

This Technical Report should be submitted to the Florida Department of Environmental Protection Central District Office as part of a Stabilization Report for determination by the Department as to whether continued groundwater monitoring at the SCCL is warranted. The Stabilization Report is due to the Department on or before April 15, 2014, sixty days prior to the Landfill's Long-Term Care Permit expiration date of June 15, 2014.

In the event that the Department determines the need for continued groundwater monitoring at the SCCL and renewal of the facility Long-Term Care permit, Sumter County should request certain reductions in monitoring requirements based on the results of this and previous Technical Reports. Recommended modifications to the monitoring plan include:

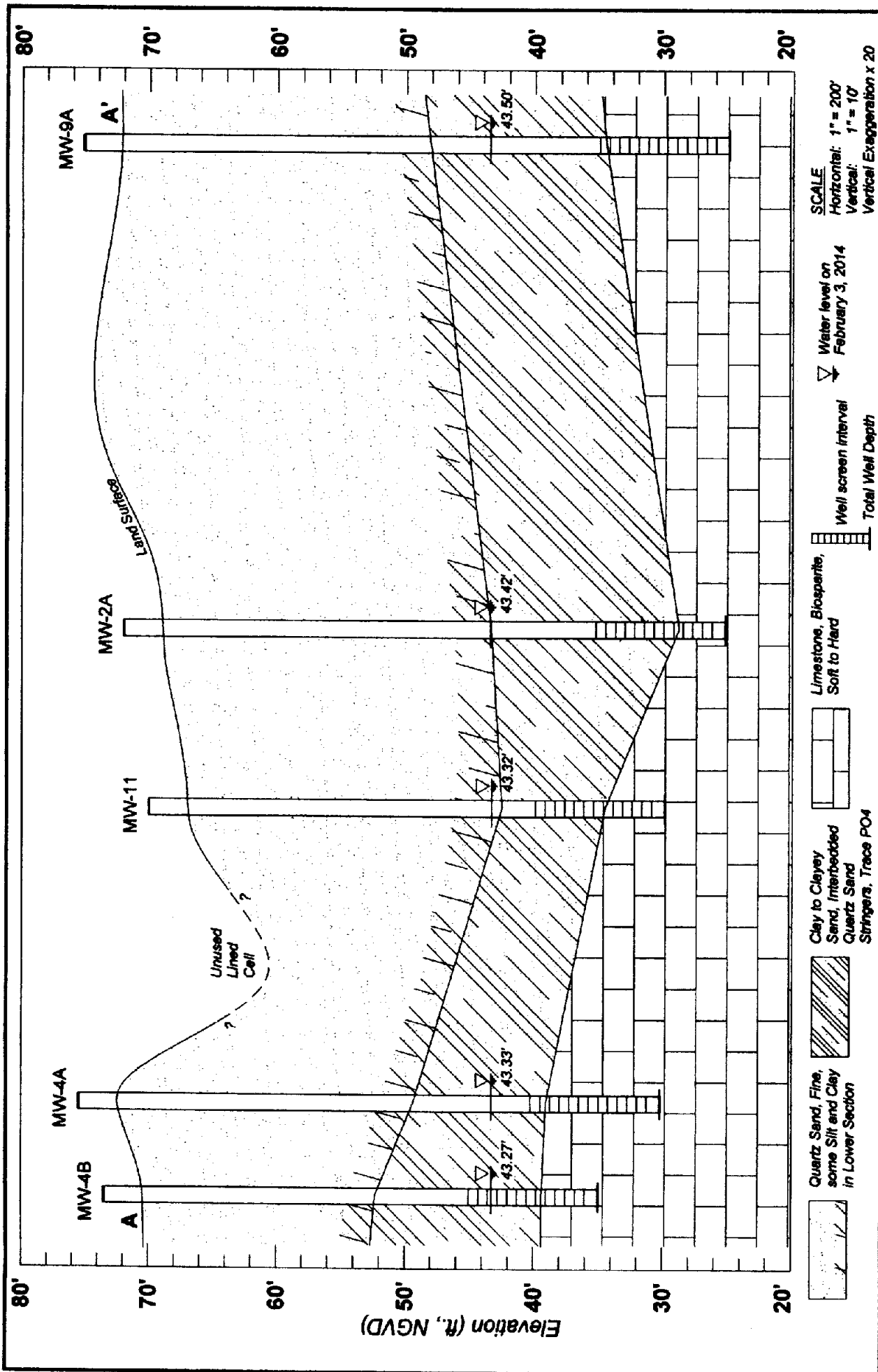
1. Elimination of Detection Well MW-8 owing to its demonstrated location up-gradient of the landfill solid waste disposal area. Located approximately 750 feet from Background Well MW-6A, the well is not needed to meet the spacing requirement for background wells in Rule 62-701.410(3)(d)3, F.A.C.
2. Routine monitoring parameters either never detected or consistently detected at concentrations well below appropriate regulatory standards at the SCCL should be discontinued from future monitoring. Parameters recommended for

deletion from the landfill monitoring plan include: ammonia-nitrogen, chloride, chromium, fluoride, lead, mercury, silver, sodium and thallium.

3. For the same reasons, sampling for the parameters included in the expanded annual sampling event list should be eliminated. Those parameters recommended for deletion include the VOCs listed in *40 CFR Part 258, Appendix I* and the following metals: arsenic, barium, beryllium, cobalt, copper, nickel, selenium, vanadium and zinc. In short, the permit requirement for annual monitoring of the expanded parameter list should be deleted.

The above recommended modifications to the landfill monitoring plan will significantly reduce recurring costs to Sumter County in the event that groundwater monitoring is continued into the future. Considering the length of time that has passed since landfill closure in 1990, and based on historical groundwater monitoring results and results presented in this Technical Report, the recommended monitoring plan modifications are considered appropriate in maintenance of adequate protection to the environment in general and to the public health, safety and welfare.

\* \* \* \* \*



**SCALE**  
 Horizontal: 1" = 200'  
 Vertical: 1" = 10'  
 Vertical Exaggeration x 20

Water level on February 3, 2014

Well screen interval  
 Total Well Depth

Limestone, Biosparite, Soft to Hard

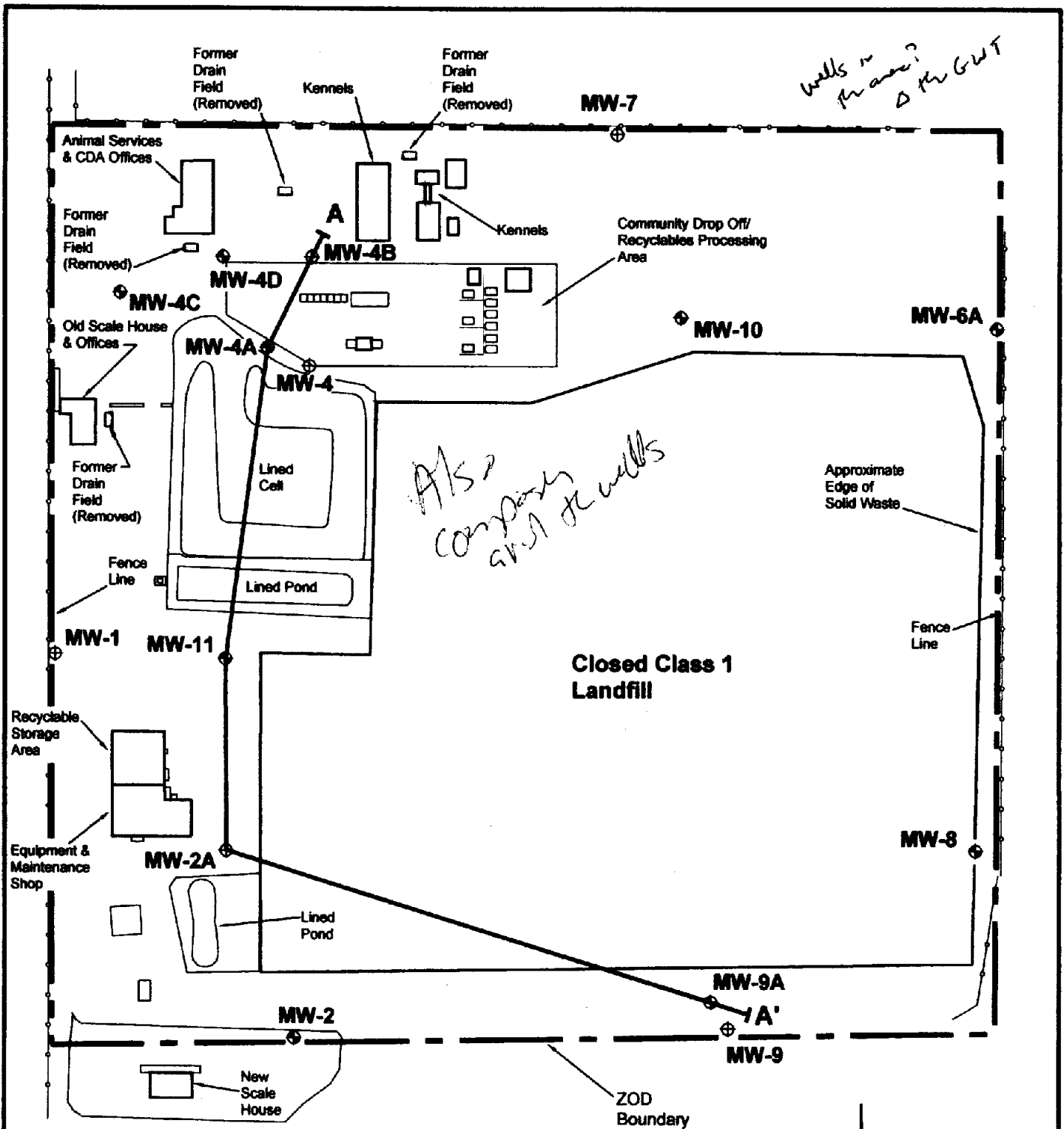
Clay to Clayey Sand, interbedded Quartz Sand Stringers, Trace PO4

Quartz Sand, Fine, some Silt and Clay in Lower Section

<b>The Colinas Group, Inc.</b> 377 Matland Avenue Suite 2012 Altamonte Springs, Florida 32701		PROJ. NO.: P-506	<b>FIGURE 3</b>
		DATE: MARCH 2014	
		SCALE: NOTED	

**GEOLOGIC CROSS-SECTION  
 SUMTER COUNTY CLOSED LANDFILL**





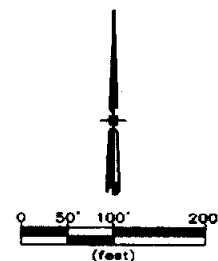
### LEGEND

MW-2 ⊕ Monitor Well Location

MW-1 ⊕ Piezometer Location

— — — — — Modified ZOD Boundary (Dec. 2013)

A ————— A' Geologic Cross Section (See Figure 3)



The Colinas Group, Inc.  
377 Maitland Avenue  
Suite 2012  
Altamonte Springs, Florida 32701

PROJ. NO.: P-505

DATE: MARCH 2014

SCALE: 1" = 200'

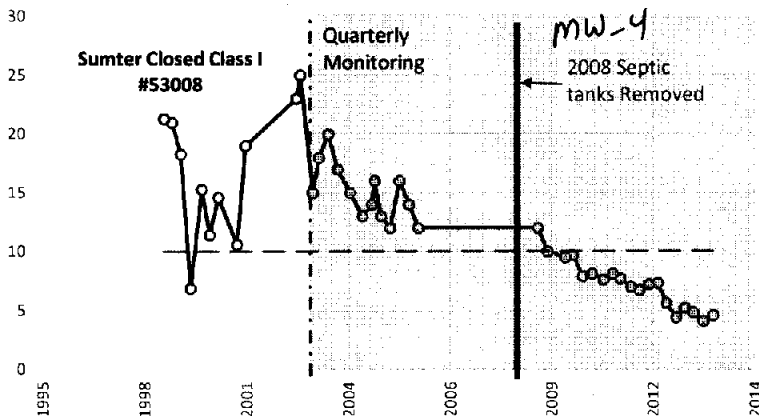
MONITORING WELL LOCATIONS AND  
MODIFIED ZONE OF DISCHARGE BOUNDARY  
SUMTER COUNTY CLOSED LANDFILL

FIGURE 2

Sumter  
Nitrate

2014-09  
w/ TR  
stab. log

	NITRATE (MG/L)	
11/18/2013	4.6	10 MG/L
8/13/2013	4.1	10 MG/L
5/8/2013	4.8	10 MG/L
2/12/2013	5.2	10 MG/L
11/20/2012	4.4	10 MG/L
8/14/2012	5.6	10 MG/L
5/22/2012	7.3	10 MG/L
2/21/2012	7.2	10 MG/L
11/22/2011	6.7	10 MG/L
8/29/2011	7	10 MG/L
5/17/2011	7.7	10 MG/L
3/2/2011	8.1	10 MG/L
11/30/2010	7.6	10 MG/L
8/13/2010	8.1	10 MG/L
5/12/2010	7.9	10 MG/L
2/4/2010	9.7	10 MG/L
11/19/2009	9.5	10 MG/L
5/29/2009	10	10 MG/L
2/24/2009	12	10 MG/L
Dec-05	12	10 MG/L
Sep-05	14	10 MG/L
Jun-05	16	10 MG/L
Mar-05	12	10 MG/L
Dec-04	13	10 MG/L
Oct-04	16	10 MG/L
Sep-04	14	10 MG/L
Jun-04	13	10 MG/L
Feb-04	15	10 MG/L
Oct-03	17	10 MG/L
Jul-03	20	10 MG/L
Apr-03	18	10 MG/L
Feb-03	15	10 MG/L
Oct-02	25	10 MG/L
8/23/2002	23	10 MG/L
4/12/2001	19	10 MG/L
1/18/2001	10.6	10 MG/L
7/19/2000	14.6	10 MG/L
4/26/2000	11.4	10 MG/L
2/7/2000	15.3	10 MG/L
10/19/1999	6.87	10 MG/L
7/14/1999	18.3	10 MG/L
4/20/1999	21	10 MG/L
2/2/1999	21.3	10 MG/L



It was under a Consent Order.  
The data "missing" in WACS is in the 2005

MW-4  
N.D. @ 12 ... and  
1 is do-5-1  
1 M. 10-21

(SW)	South TR = Stablon				County South
HZ	Permit App Mod Renewal Biennial _____ 1 <sup>st</sup> RRAI 2 <sup>nd</sup> RRAI 3 <sup>rd</sup> RRAI RRAI				Date 4/17/2017
(23)	M W - 4 ↓ N, M may be residual cessant of waste completely & stop by the well also see foot Rens				
(24)	Rcomer If moment here to center				

SW HZ	South TR establishment Permit App Mod Renewal Biennial _____ 1 <sup>st</sup> RRAI 2 <sup>nd</sup> RRAI 3 <sup>rd</sup> RRAI _ RRAI	County South Date 4/17/2014	
12	11	(13) Parate (basin VOCs Annual)	(1) Repunk CAP/Per
12		(14) May 2013 MW-2 cover by new parent was vacuum for 2013-08	(2) WCR mentions
13		(15) Parents History	(4)
15		(16) <del>Atto</del> MW-4 A & 4C history 2011 but added to mpis 2013	
15		(17) VOCs	
18		(18) Correlation Relations	
19		(19) N. hum PCA section	(PCN) (2) Probable, Current Asset
19		(20) Res TOC 2011-10	
20		(21) Summ stacks	
20		(22) Q prim Cam with MW-2 SAMW-1	

21

T 205 R 22E Sec 15  
TR 2041-2019

SW	Sumter Class I 53008				County Sumter
HZ	Permit	App	Mod	Renewal	Date
	1 <sup>st</sup> RRAI	2 <sup>nd</sup> RRAI	3 <sup>rd</sup> RRAI	Biennial with stable	4/17/2019

4	① end work 1988 / April 1990	① April 1988
		② April 1990
4	② Sept 2010 2013	
4	③ As per the 2013 Module 1F Declass "exists installer" → 20D to LP	③ only near 20 years it is 24 yrs now
6	④ Loc	
6	⑤ Sept 2008 Roman	④ is "exists, installer" 21
6, 9	⑥ Geology Site	⑤ 20D is LP per #1.6
9	⑦ 9 MW 6 per	⑥
9	⑧ Topo USGS [M]	
8	⑨ MW Loc [::]	
9	⑩ MW- <del>6</del> <sup>8</sup> DE <del>BE</del> in MPIS bit Colman Suis BG	
10	⑪ X sec [X]	
11	⑫ ATTA [X]	



Container  
of  
Coke

Mission  
12 W/ES  
PRAC EXERCISE  
11/29/04

Prach  
Senth  
Kandam

2006-2013  
~~2005-2006~~  
Enfant F.V.  
PS  
~~100~~ 100

4/9/06

Analytical Summary for Sumter County Closed Class I Landfill -- Parameters of Concern

Sampling Events	IRON (mg/L)										Ground water Standard
	WELL ID NUMBER										
	MW-2 D/F	MW-4 D/F	MW-6A B/F	MW-7 D/F	MW-8 D/F	MW-9 D/F	MW-9A D/F	MW-10 D/F	MW-11 D/F		
7/14/1999		0.254								0.3	
10/19/1999		0.24			0.0666					0.3	
2/7/2000	0.176	0.065		0.166	0.0374					0.3	
4/26/2000	0.0223	0.005	0.171	0.156						0.3	
7/19/2000		0.159								0.3	
10/17/2000	0.0567	0.0402	0.112							0.3	
1/18/2001		0.005	0.005	0.0203	0.005					0.3	
4/12/2001	0.025	0.025	0.052	0.025	0.025	0.025				0.3	
7/23/2001	0.05	0.052			0.05					0.3	
10/11/2001	0.18	0.21	0.22		0.05					0.3	
1/22/2002				0.05	0.05					0.3	
5/22/2002	0.05	0.05	0.05	0.05	0.05					0.3	
8/22/2002	0.13	0.05	0.05	0.05	0.11					0.3	
10/30/2002	0.025	0.076	0.025	0.18	0.025	0.19				0.3	
2/20/2003	0.16	0.025	0.025	0.025	0.13					0.3	
4/8/2003	0.025	0.025	0.025	0.025	0.025					0.3	
7/10/2003	0.025	0.075	0.29	0.025	0.025					0.3	
10/14/2003	0.036	0.032	0.0115	0.0115	0.0115	0.16				0.3	
2/18/2004	0.043	0.052	0.03	0.0115	0.0115	0.098				0.3	
6/24/2004	0.0185	0.0185	0.0185							0.3	
8/26/2004							0.072	0.05	0.13	0.3	
9/8/2004	0.0185	0.089	0.0185	0.0185	0.0185					0.3	
10/4/2004	0.063	0.025	0.025		0.025					0.3	
12/28/2004	0.05	0.05	0.05		0.16				0.05	0.3	
3/9/2005	0.05	0.05	0.05		0.05				0.05	0.3	
6/14/2005	0.095	0.025	0.025		0.12				0.025	0.3	
9/9/2005	0.2	0.18	0.04		0.062		0.29		0.086	0.3	
12/16/2005	0.23	0.11	0.081		0.071				0.079	0.3	

Sampling Events	MANGANESE (mg/L)										Ground water Standard
	WELL ID NUMBER										
	MW-2 D/F	MW-4 D/F	MW-6A B/F	MW-7 D/F	MW-8 D/F	MW-9 D/F	MW-9A D/F	MW-10 D/F	MW-11 D/F		
7/14/1999		0.0194	0.0253	0.0367						0.05	
10/19/1999		0.0244		0.0199	0.0137					0.05	
2/7/2000	0.0261	0.00615	0.0152	0.00615	0.00615	0.0287				0.05	
4/26/2000	0.0025	0.0025	0.0025	0.0025	0.0025	0.0025				0.05	
7/19/2000		0.0123	0.0482	0.0226		0.0206				0.05	
10/17/2000	0.0025	0.00644	0.00911	0.0192		0.0397				0.05	
1/18/2001	0.0025	0.0025	0.0025	0.0025	0.0025	0.0213				0.05	
4/12/2001	0.01	0.005	0.01	0.005	0.005	0.005				0.05	
7/23/2001	0.005	0.005		0.013	0.005					0.05	
10/11/2001	0.039	0.005	0.005	0.005	0.005	0.047				0.05	
1/22/2002		0.014		0.005	0.005					0.05	
5/22/2002	0.005	0.005	0.005	0.005	0.005	0.005				0.05	
8/22/2002	0.028	0.005	0.005	0.005	0.005					0.05	
10/30/2002	0.005	0.005	0.005	0.005	0.005	0.043				0.05	
2/20/2003	0.034	0.005	0.005	0.005	0.005					0.05	
4/8/2003	0.005	0.005	0.005	0.005	0.005					0.05	
7/10/2003	0.005	0.005	0.005	0.005	0.005					0.05	
10/14/2003	0.0036	0.0018	0.0007	0.0007	0.0041	0.032				0.05	
2/18/2004	0.0049	0.0044	0.0007	0.0007	0.0007	0.028				0.05	
6/24/2004	0.0042	0.0007	0.0007							0.05	
8/26/2004										0.05	
9/8/2004	0.0029	0.02	0.0007	0.0007	0.014					0.05	
10/4/2004	0.005	0.011	0.005		0.005					0.05	
12/28/2004	0.025	0.025	0.025		0.025				0.025	0.05	
3/9/2005	0.025	0.025	0.025		0.025				0.025	0.05	
6/14/2005	0.01	0.005	0.005		0.005				0.01	0.05	
9/9/2005	0.019	0.025	0.0011		0.0034				0.0092	0.05	
12/16/2005	0.02	0.015	0.0018		0.0018				0.013	0.05	

NOTE: for the purposes of this table, parameters reported as BDL are presented at HALF the detection limit

169107

Enfance Portfolio 2006-2013

