Hillsborough County Florida

PUBLIC UTILITIES
PO Box 1110
Tampa, FL 33601-1110

October 17, 2018

Mr. Steve Tafuni
Florida Department of Environmental Protection
Waste Permitting Section
13051 Telecom Parkway
Temple Terrace, FL 33637

SUBJECT: **Southeast County Class I Landfill**
WACS Facility ID No. 41193
Supplemental Groundwater Sampling Report – July 2018
Consent Agreement, OGC File No. 17-0058

Dear Mr. Tafuni:

The Hillsborough County Public Utilities Department (County) has prepared this supplemental groundwater data report in accordance with part 9(g) of the referenced Consent Agreement and Rule 62-701.510(8)(a), F.A.C. This water quality sampling event was conducted at the Southeast County Landfill (SCLF) to address groundwater impacts of the surficial aquifer on the east side of the Phase II waste filled area.

Representative groundwater samples were collected by SCS Engineers, Inc. on July 25-26, 2018 from each of the nine (9) surficial aquifer monitoring wells identified as TH-20B, TH-38B, TH-66A, TH-67, TH-79, TH-80, TH-81, TH-82, and TH-83 for TDS, chloride, sodium, and ammonia. Laboratory analyses was performed by SGS North America, Inc. (SGS). A site map is provided depicting the well locations within the landfill property and the following paragraphs detail the specific findings from the groundwater laboratory results.

Surficial Aquifer Groundwater Monitoring Wells

pH

Each surficial aquifer monitoring well east of the Phase II waste filled area continued to exhibit pH below the Secondary Drinking Water Standard (SDWS) acceptable criteria of 6.5 to 8.5 pH units. The pH during this monitoring period ranged from 5.70 to 6.44 pH units, with the exception of TH-66A and TH-80 at 6.89 and 6.63 pH units. Background water quality recorded within the surficial aquifer prior to construction and operation of the landfill established naturally occurring pH below the SDWS and has been consistent over the period of record.

Total Dissolved Solids (TDS)

Each of the detection and compliance surficial aquifer monitoring wells well exhibited TDS below the SDWS of 500 mg/l during this monitoring event. A pattern of elevated groundwater parameters throughout seasonal low periods and a decrease in parameter concentrations as the site reaches the seasonal high has been consistent as the corrective actions continue to be implemented. A TDS value of 128 and 238 mg/l was exhibited in detection wells TH-67 and TH-79. These monitoring locations are regarded as the closest points to the source and are a significant decrease since the last monitoring event.

Monitoring wells at the site exhibited naturally occurring seasonal fluctuations of the surficial aquifer prior to any water quality changes exhibited during the February 2016 monitoring event. Tabulated data dating back to 2010 for TH-67 is provided within this submittal to demonstrate the seasonality exhibited in the water quality prior to impacts of groundwater in the area east of Phase II. Even with the corrective actions functioning as designed, the County believes these seasonal fluctuations shall continue in the near future as water quality continue to slowly attenuate below the respective standards.

Chloride

Concentrations of chloride were detected from 5.7 to 94.9 mg/l during this water quality monitoring event with the highest value exhibited in detection well TH-83. Water quality changes since corrective actions continue to correspond with seasonal high and seasonal low water level elevations. Concentrations of chloride in the groundwater have been well below the SDWS during the rainy or wet months of the year. As the dryer season follows, the chloride exhibits and increases but overall continues below the SDWS.

In addition, the County has identified the seasonal changes over the period of record prior to February 2016 and are evident in the semi-annual groundwater data reports submitted in accordance with the operations permit. Any exceedance of parameters are due to seasonal

fluctuations of the water table elevation and not a repeat of accidental leachate discharge. The remaining groundwater monitoring wells did not indicate chloride exceeding the SDWS during this monitoring event and continue to attenuate.

Sodium

Sodium was detected at each monitoring location below the Primary Drinking Water Standard (PDWS) of 160 mg/l during this water quality monitoring event. Monitoring locations TH-67, TH-79, and TH-81, previously exceeding the PDWS, continue to exhibit substantial water quality improvements since implementation of the corrective actions. These improvements continue to be seasonality driven; however, the sodium trend has continued to decrease over the last year and this pattern should continue as the area continues to attenuate.

Groundwater Elevations and Flow Direction

Groundwater elevations were recorded prior to sampling the surficial aquifer groundwater monitoring wells on July 25, 2018. A surficial aquifer groundwater contour diagram was prepared to evaluate the general direction of flow at and around the affected area. The direction of flow in the surficial aquifer continues toward the Mine Cut to the east and southeast directions and is consistent with the historical evaluations in this general area. The surface water elevation in Mine Cut 1 is the primary influence on the direction of flow in this area, and is clearly demonstrated by the elevation data recorded.

Conclusions

Water quality in surficial aquifer monitoring wells along the east side of Phase II continue to exhibit improvements from the original impacts of leachate originating from the landfill. The most impacted wells over the period of record, detection wells TH-67, TH-79, and TH-83 exhibited TDS and chloride within their SDWS and sodium within the PDWS. The only SDWS violation continues to be pH at the site; however, it has been well documented to be naturally occurring prior to landfilling.

Ongoing evaluation and implementation of the corrective actions shall continue along the Phase II area of the landfill. Improved water quality generated from the combination of these remedial processes and natural attenuation of the surficial aquifer are supported by the representative groundwater data. As depicted in the seasonality trends of the groundwater, future seasonal fluctuation may result in the rebound of constituents of concern. This trend is expected for the near future; however, the County believes that the overall reduction in parameter concentrations shall continue.

Should you have any questions, require any additional information, or would like to discuss the information provided within this submittal, please feel free to contact us at (813) 663-3222 or (813) 612-7757.

Respectfully submitted,

Michael D. Townsel 10/17/2018
Senior Hydrologist
Environmental Services
Public Utilities Department

Jeffry Greenwell, P.E.
Section Manager – GM III
Environmental Services
Public Utilities Department

#48157
10/17/18

Enclosures

xc: Larry Ruiz, Landfill Manager, Solid Waste Management Division
Kimberly Byer, Director, Solid Waste Management Division
Joe O'Neill, Professional Engineer II, Solid Waste Management Division
Kelly Boatwright, Florida Department of Environmental Protection
Justin Chamberlain, P.G., Florida Department of Environmental Protection
Melissa Madden, Florida Department of Environmental Protection
Ken Guilbeault, P.G., Project Director, SCS Engineers, Inc.
Clark Moore, Florida Department of Environmental Protection
Andy Schipfer, HC Environmental Protection Commission
Bob Curtis, P.E., SCS Engineers, Inc.

SOUTHEAST COUNTY LANDFILL
SURFICIAL AQUIFER GROUNDWATER CONTOUR MAP
FEBRUARY 7,2018

2016 AERIAL PHOTO

Legend

- Existing Monitoring Wells
- Direction Of Flow

Hillsborough County Florida
EST. 1834
SM

Southeast County Landfill
Supplemental Site Assessment Data
July 25-26, 2018

General Parameters Detected	Surficial Aquifer Wells									MCL Standard
	TH-20B	TH-38B	TH-66A	TH-67	TH-79	TH-80	TH-81	TH-82	TH-83	
well type	Background	Background	Detection	Detection	Detection	Detection	Detection	Background	Detection	
conductivity (umhos/cm) (field)	257	51	263	180	397	482	275	63	498	NS
dissolved oxygen (mg/l) (field)	0.11	0.57	0.2	0.08	0.15	0.5	1.33	2.84	2.19	NS
ORP (mV)	32	22.91	125.4	2.4	54	2.3	149.9	30.3	140.7	NS
temperature (°C) (field)	25.90	27.53	27.30	27.94	29.40	26.68	28.89	27.95	26.48	NS
turbidity (NTU) (field)	19	21.9	3.05	10.4	3.2	0.49	6.09	0.99	3.56	NS
pH (SU) (field)	**5.92**	**5.70**	6.89	**6.44**	**6.04**	6.63	**5.88**	**5.58**	**6.44**	(6.5 - 8.5)**
Field Parameters Detected										**MCL Standard**
total dissolved solids (mg/l)	206	50 i	164	128	238	276	164	80	352	500**
chloride (mg/l)	25.7	5.7	12	7.6	15.4	53.9	9.4	6.5	94.9	250**
ammonia nitrogen (mg/l as N)	1.8	0.59	0.54	0.28	1.3	0.65	0.15	0.039 i	1.1	NS
Metals Detected (mg/l)										**MCL Standard**
sodium	11.5	2.48 i	7.15 i	1.94 i	14.4	38	6.89 i	2.08 i	87.7	160*

Notes: Reference Groundwater Guidance Concentrations, FDEP 2012

NS=No Standard

MCL=Maximum Contaminant Level (Groundwater Standards)

*= Primary Drinking Water Standards as per Cahpter 62-550.310, F.A.C.

**=Secondary Drinking Water Standards as per Chapter 62-550.320, F.A.C.

5.92 Exceeds Standard

NTU=Nephelometric Turbidity Units

i = reported value is between the laboratory method detection limit and the laboratory practical quantitation limit.

u = parameter was analyzed but not detected.

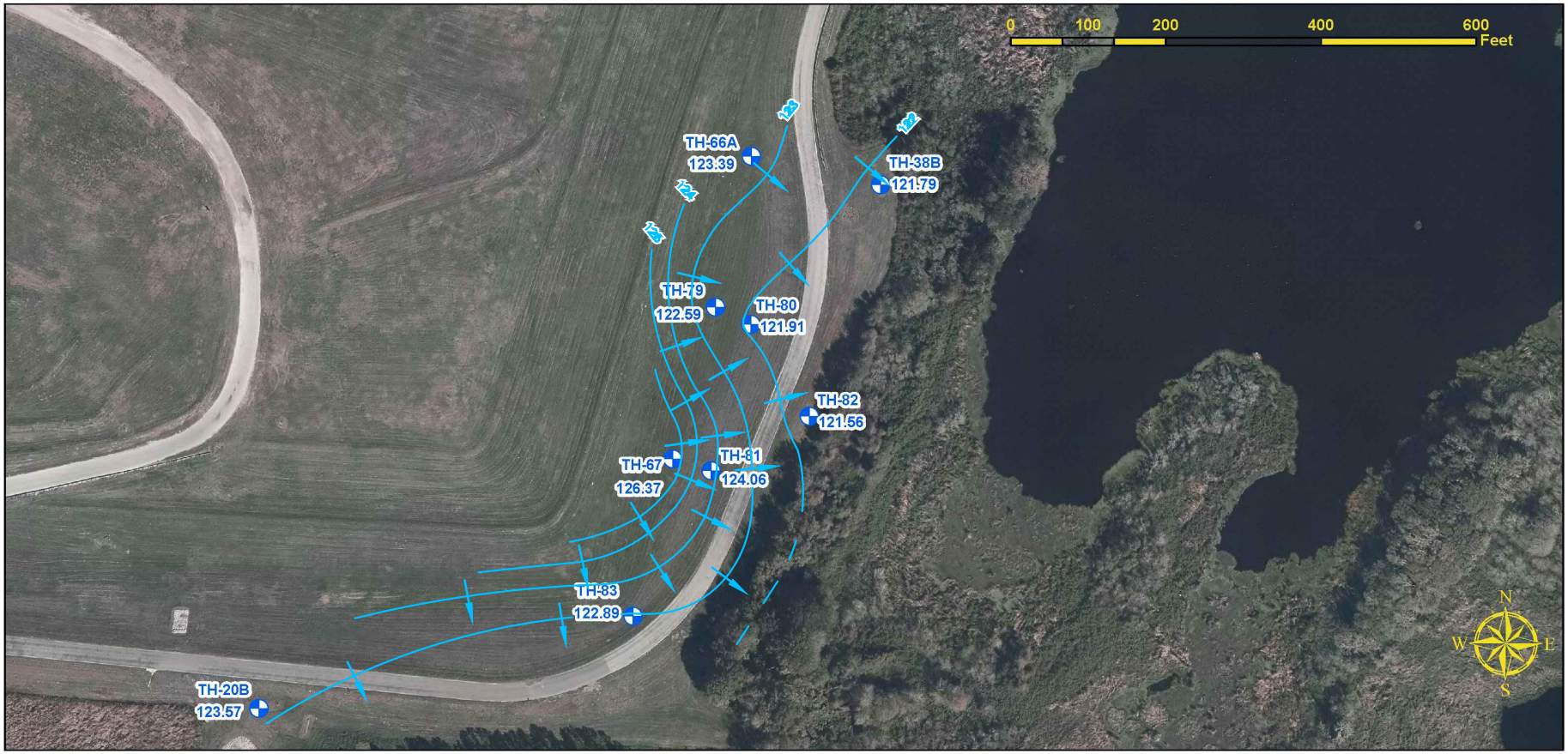
ug/l=micrograms per liter

mg/l=milligrams per liter

mV = millivolts

Southeast County Landfill
Surficial Aquifer Groundwater Elevations
July 25, 2018

Measuring Point I.D.	T.O.C. Elevations (NGVD)	W.L. B.T.O.C.	W.L. (NGVD)
TH-20B	132.57	9.00	123.57
TH-38B	131.81	10.02	121.79
TH-66A	130.66	7.27	123.39
TH-67	129.51	3.14	126.37
TH-79	129.60	7.01	122.59
TH-80	129.52	7.61	121.91
TH-81	130.26	6.20	124.06
TH-82	131.24	9.68	121.56
TH-83	130.23	7.34	122.89
NGVD	**= National Geodetic Vertical Datum**		
T.O.C.	**= Top of Casing**		
B.T.O.C.	**= Below Top of Casing**		
W.L.	**= Water Level**		



SOUTHEAST COUNTY LANDFILL
SURFICIAL AQUIFER GROUNDWATER
CONTOUR MAP
JULY 25, 2018

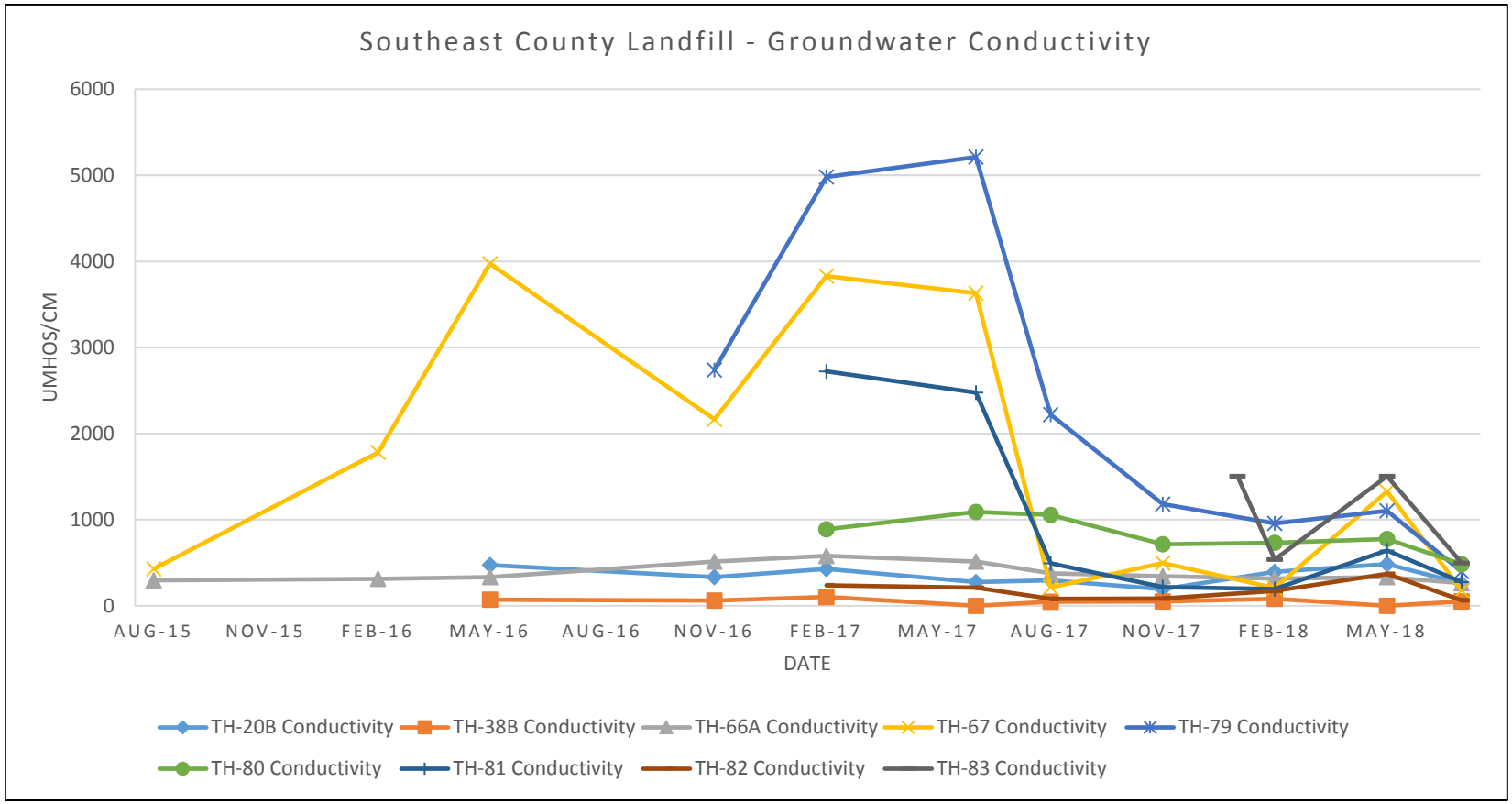
2016 AERIAL PHOTO

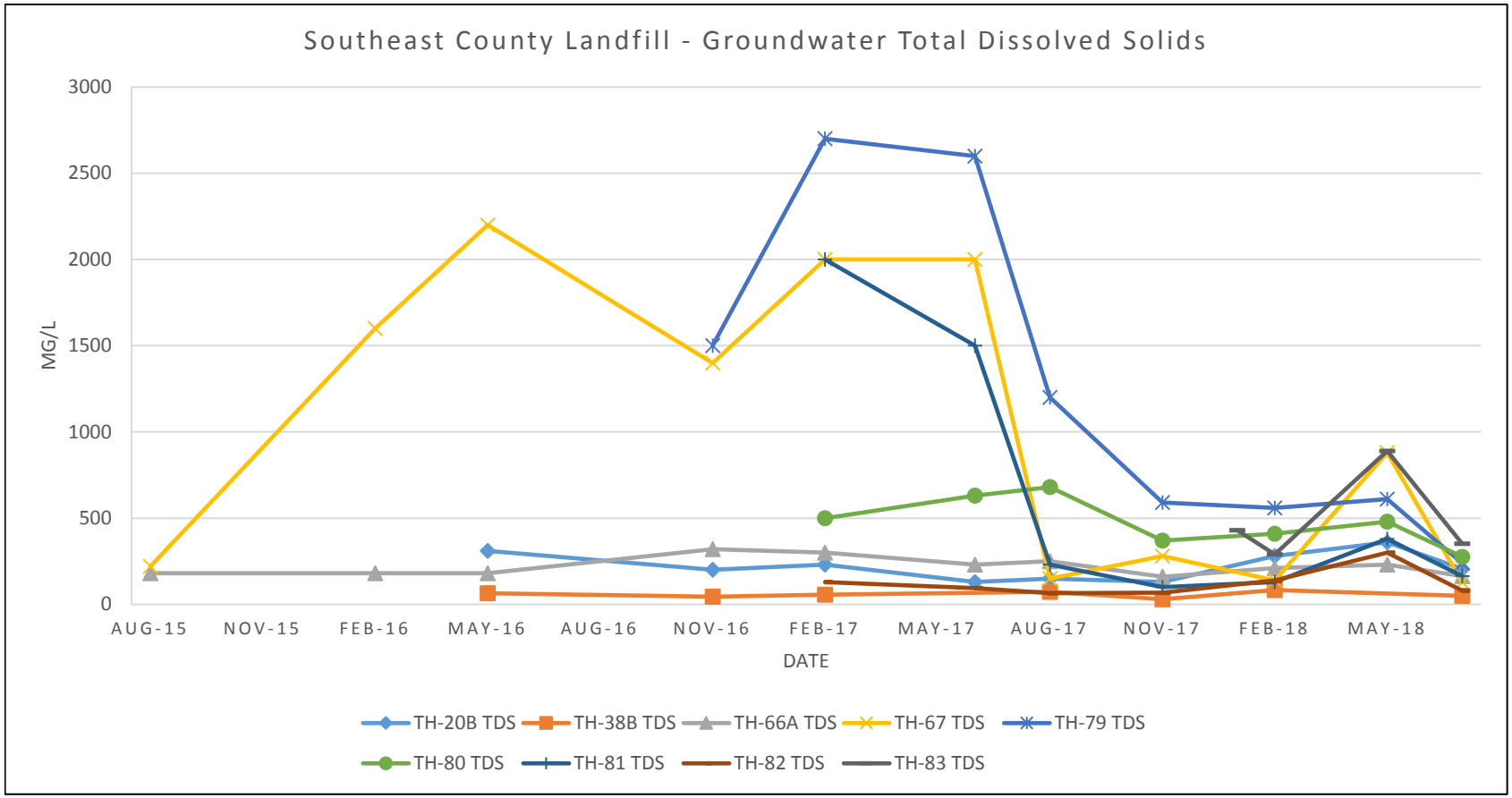
Legend

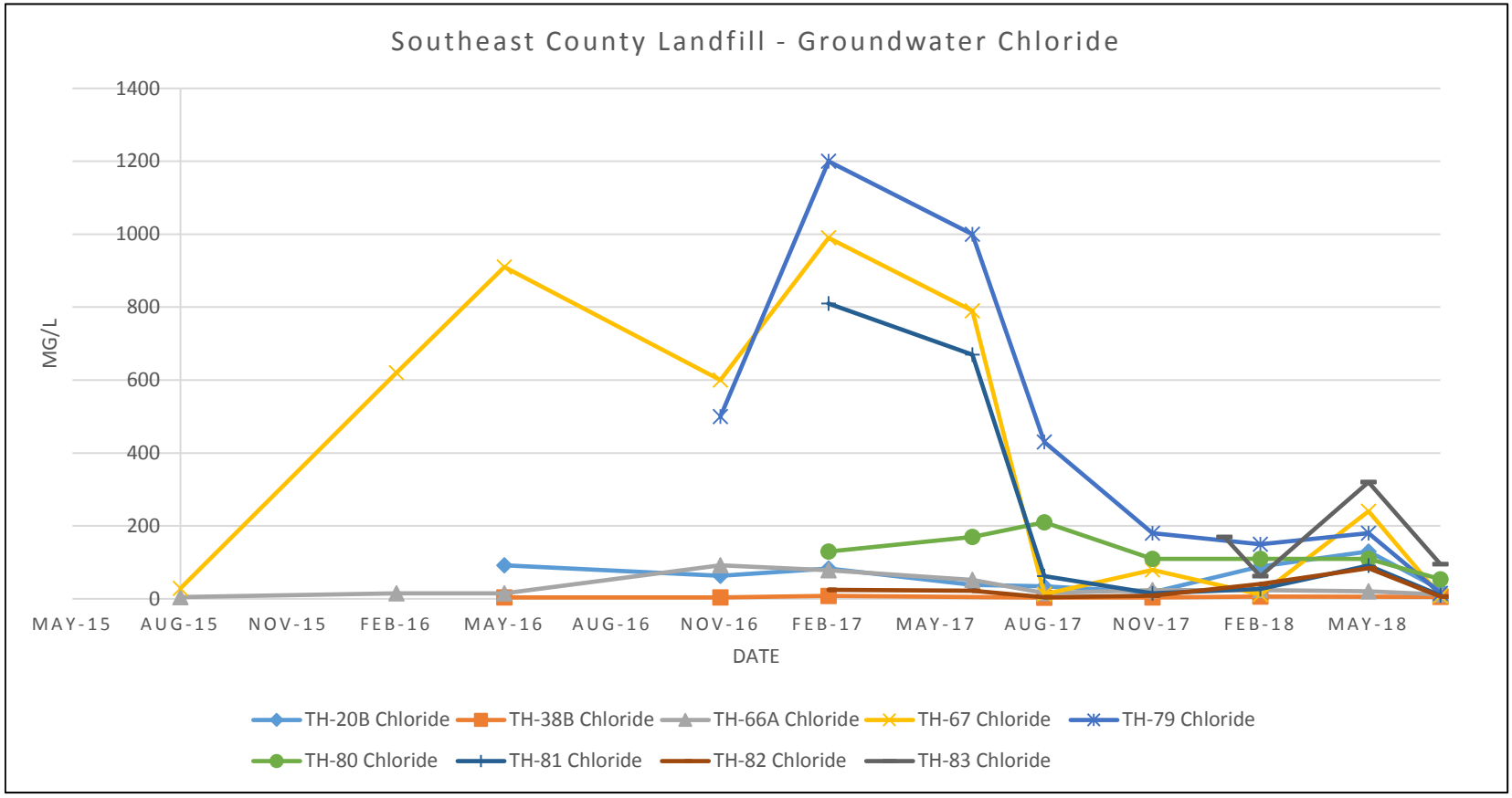
Existing Monitoring Wells

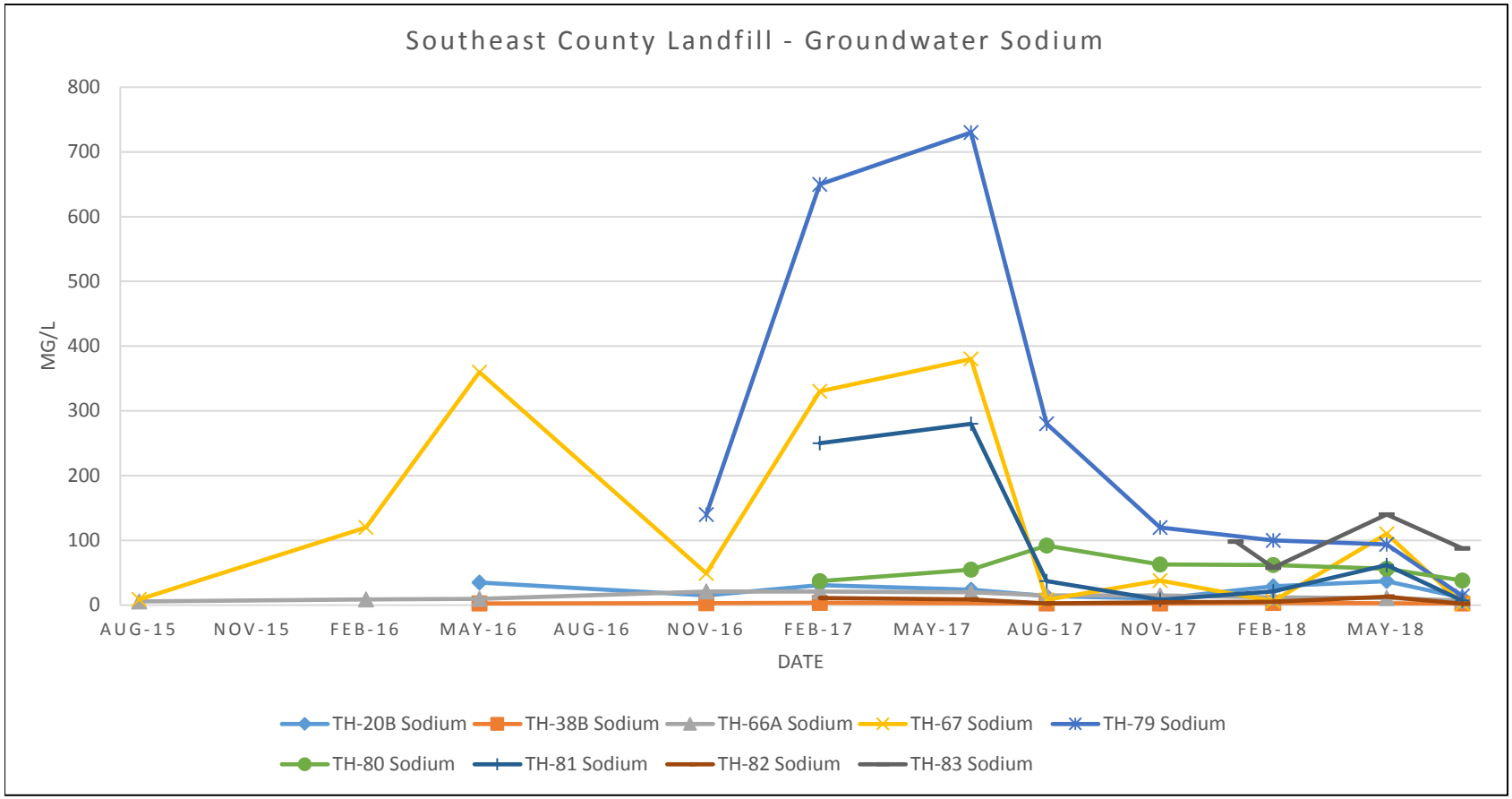
Direction Of Flow

Hillsborough County Florida


Southeast County Landfill - Groundwater Conductivity
6000
5000
4000
3000
2000
1000
0
UMHOS/CM
AUG-15
NOV-15
FEB-16
MAY-16
AUG-16
NOV-16
FEB-17
MAY-17
AUG-17
NOV-17
FEB-18
MAY-18
DATE
TH-20B Conductivity
TH-38B Conductivity
TH-66A Conductivity
TH-67 Conductivity
TH-79 Conductivity
TH-80 Conductivity
TH-81 Conductivity
TH-82 Conductivity
TH-83 Conductivity


Southeast County Landfill - Groundwater Total Dissolved Solids
3000
2500
2000
1500
1000
500
0
MG/L
AUG-15
NOV-15
FEB-16
MAY-16
AUG-16
NOV-16
FEB-17
MAY-17
AUG-17
NOV-17
FEB-18
MAY-18
DATE
TH-20B TDS
TH-38B TDS
TH-66A TDS
TH-67 TDS
TH-79 TDS
TH-80 TDS
TH-81 TDS
TH-82 TDS
TH-83 TDS


Southeast County Landfill - Groundwater Chloride
1400
1200
1000
800
600
400
200
0
MG/L
MAY-15
AUG-15
NOV-15
FEB-16
MAY-16
AUG-16
NOV-16
FEB-17
MAY-17
AUG-17
NOV-17
FEB-18
MAY-18
DATE
TH-20B Chloride
TH-38B Chloride
TH-66A Chloride
TH-67 Chloride
TH-79 Chloride
TH-80 Chloride
TH-81 Chloride
TH-82 Chloride
TH-83 Chloride


Southeast County Landfill - Groundwater Sodium
800
700
600
500
400
300
200
100
0
MG/L
AUG-15
NOV-15
FEB-16
MAY-16
AUG-16
NOV-16
FEB-17
MAY-17
AUG-17
NOV-17
FEB-18
MAY-18
DATE
TH-20B Sodium
TH-38B Sodium
TH-66A Sodium
TH-67 Sodium
TH-79 Sodium
TH-80 Sodium
TH-81 Sodium
TH-82 Sodium
TH-83 Sodium

Southeast County Landfill
Historical Supplemental Assessment Groundwater Data
TH-20B

Field Parameters	May-16	Nov-16	Feb-17	Jun-17	Aug-17	Nov-17	Feb-18	May-18	Jul-18	MCL Standard
conductivity (umhos/cm) (field)	473	332	427	275	294	192.9	394.8	484.6	257	NS
dissolved oxygen (mg/l) (field)	0.23	0.27	0.18	0.19	0.1	2	0.37	1.81	0.11	NS
ORP (mV)	-9.6	-31.2	-41.7	36.9	-34	-26.7	-2.4	11.4	32	NS
temperature (°C) (field)	23.47	25.47	23.77	23.92	25.51	25.90	22.90	23.10	25.90	NS
turbidity (NTU) (field)	2.39	4.14	3.77	1.37	2.82	4.3	2.99	1.35	19	NS
pH (field)	**5.67**	**5.43**	**5.82**	**5.52**	**5.72**	**5.95**	**5.68**	**5.54**	**5.92**	(6.5 - 8.5)**
General Parameters										**MCL Standard**
total dissolved solids (mg/l)	310	200	230	130	150	130	280	360	206	500**
chloride (mg/l)	92	63	83	38	34	18	89	130	25.7	250**
ammonia nitrogen (mg/l as N)	2.2	1.5	1.2	1.2	1.7	1.3	1.2	1.3	1.8	NS
Metals Detected (mg/l)										**MCL Standard**
sodium	35	15	31	24	14	10	29	37	11.5	160*

Note: Reference FDEP Groundwater Guidance Concentrations
NS = No Standard
MCL = Maximum Contaminant Level
* = Primary Drinking Water Standard
** = Secondary Drinking Water Standard
5.67 = Exceeds Standard
mV = millivolts
NTU = Nephelometric Turbidity Units
mg/l = milligrams per liter
NGVD = National Geodedic Vertical Datum

Southeast County Landfill
Historical Supplemental Assessment Groundwater Data
TH-38B

Field Parameters	May-16	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Jul-18	MCL Standard
conductivity (umhos/cm) (field)	70	61	103	ND	46	49.6	79.2	ND	51	NS
dissolved oxygen (mg/l) (field)	1.5	0.76	2.02	ND	0.96	1.27	0.86	ND	0.57	NS
ORP (mV)	175.5	-22.9	6.2	ND	158	28.1	70.7	ND	22.7	NS
temperature (°C) (field)	24.78	25.37	23.93	ND	26.66	26.10	23.50	ND	27.53	NS
turbidity (NTU) (field)	8.75	16	16.5	ND	46.6	11.2	3.6	ND	21.9	NS
pH (field)	**4.95**	**4.73**	**5.45**	ND	**4.69**	**5.16**	**5.22**	ND	5.70	(6.5 - 8.5)**
General Parameters										**MCL Standard**
total dissolved solids (mg/l)	65	45	57	ND	73	30	83	ND	50 i	500**
chloride (mg/l)	4.2 i	4.2 i	8.2	ND	3.4 i	3.9 i	6.4	ND	12	250**
ammonia nitrogen (mg/l as N)	0.79	0.66	1.4	ND	0.14	0.23	2.2	ND	0.59	NS
Metals Detected (mg/l)										**MCL Standard**
sodium	2.8	3	3.6	ND	2.7	2.8	3.4	ND	7.15 i	160*

Note: Reference FDEP Groundwater Guidance Concentrations
NS = No Standard
MCL = Maximum Contaminant Level
ND = No Data, well was dry
* = Primary Drinking Water Standard
** = Secondary Drinking Water Standard
4.95 = Exceeds Standard
mV = millivolts
NTU = Nephelometric Turbidity Units
mg/l = milligrams per liter
NGVD = National Geodedic Vertical Datum

Southeast County Landfill
Historical Supplemental Assessment Groundwater Data
TH-66A

Field Parameters	Aug-15	Feb-16	May-16	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Jul-18	MCL Standard
conductivity (umhos/cm) (field)	295	313	334	512	580	513	376	342.1	315.6	333	263	NS
dissolved oxygen (mg/l) (field)	0.38	0.5	0.65	0.33	0.64	1.13	0.09	1.93	0.46	0.69	0.2	NS
ORP (mV)	ND	ND	69.7	-3	-69.2	30.3	-102.9	-158.7	-43.6	-124.8	125.4	NS
temperature (°C) (field)	27.01	21.5	24.55	25.44	23.68	27.67	26.63	25.90	22.50	25.10	27.30	NS
turbidity (NTU) (field)	3.17	1.35	0.86	0.49	1.06	2.17	1.81	1.89	0.89	0.78	3.65	NS
pH (field)	**6.00**	**6.12**	**6.03**	**5.82**	**6.18**	**6.09**	**5.88**	**6.09**	**5.87**	**5.99**	**6.89**	(6.5 - 8.5)**
General Parameters												**MCL Standard**
total dissolved solids (mg/l)	180	180	180	320	300	230	250	160	210	230	164	500**
chloride (mg/l)	4.9 i	15	15	92	78	52	16	24	24	21	12	250**
ammonia nitrogen (mg/l as N)	0.22	0.12	0.34	0.44	0.5	0.57	0.02 u	0.88	0.09 i	0.8	0.54	NS
Metals Detected (mg/l)												**MCL Standard**
sodium	5.7	8.7	9.5	21	21	20	15	15	12	11	7.15 i	160*

Note: Reference FDEP Groundwater Guidance Concentrations
NS = No Standard
MCL = Maximum Contaminant Level
* = Primary Drinking Water Standard
** = Secondary Drinking Water Standard
6.00 = Exceeds Standard
mV = millivolts
NTU = Nephelometric Turbidity Units
mg/l = milligrams per liter
NGVD = National Geodedic Vertical Datum

Southeast County Landfill
Historical Supplemental Assessment Groundwater Data
TH-67

Field Parameters	Aug-15	Feb-16	May-16	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Jul-18	MCL Standard
conductivity (umhos/cm) (field)	429	1780	3973	2166	3830	3630	215	497.4	207.7	1329	180	NS
dissolved oxygen (mg/l) (field)	0.55	1.05	0.42	3.04	2.13	0.26	0.31	2.06	5.97	0.39	0.08	NS
ORP (mV)	ND	ND	-7.9	-100	-41.7	-12.1	43.2	-9.5	103.7	-46.1	2.4	NS
temperature (°C) (field)	28.32	20.81	24.63	25.23	24.52	25.25	26.79	25.40	22.20	24.80	27.94	NS
turbidity (NTU) (field)	1.13	10.11	7.64	5.29	8.72	7.64	16.5	5.05	7.76	2.71	10.4	NS
pH (field)	**6.41**	**5.98**	**6.18**	**6.21**	**6.44**	**6.32**	**6.29**	**6.43**	6.54	**6.39**	**6.44**	**(6.5 - 8.5)****
General Parameters												**MCL Standard**
total dissolved solids (mg/l)	220	**1600**	**2200**	**1400**	**2000**	**2000**	150	280	140	**880**	**128**	**500****
chloride (mg/l)	29	**620**	**910**	**600**	**990**	**790**	13	79	12	240	76	**250****
ammonia nitrogen (mg/l as N)	0.12	1.5	36	11	14	14	0.02 u	1.5	0.025 u	4.2	0.28	NS
Metals Detected (mg/l)												**MCL Standard**
sodium	8.7	120	**360**	49	**330**	**380**	8.4	38	6.3	110	1.94 i	**160***

Note: Reference FDEP Groundwater Guidance Concentrations
NS = No Standard
MCL = Maximum Contaminant Level
* = Primary Drinking Water Standard
** = Secondary Drinking Water Standard
6.41 = Exceeds Standard
mV = millivolts
NTU = Nephelometric Turbidity Units
mg/l = milligrams per liter
NGVD = National Geodedic Vertical Datum

Southeast County Landfill
Historical Supplemental Assessment Groundwater Data
TH-79

General Parameters	Nov-16	Feb-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Jul-18	MCL Standard
conductivity (umhos/cm) (field)	2740	4980	5212	2221	1183	956	1102	397	NS
dissolved oxygen (mg/l) (field)	0.25	1.73	1.23	1.67	4.39	3.33	1.63	0.15	NS
ORP (mV)	1.4	-20.3	-40.6	-30.8	-27.7	-15.0	-95.4	54.0	NS
temperature (°C) (field)	24.03	21.77	25.49	28.04	24.90	20.70	24.60	29.40	NS
turbidity (NTU) (field)	27.6	60.2	12	2.66	2.81	7.97	3.28	3.2	NS
pH (field)	**6.09**	**6.40**	**6.29**	**6.19**	**6.28**	**6.11**	**5.85**	**6.04**	(6.5 - 8.5)**
Field Parameters									**MCL Standard**
total dissolved solids (mg/l)	**1500**	**2700**	**2600**	**1200**	**590**	**560**	**610**	**238**	500**
chloride (mg/l)	500	**1200**	**1000**	**430**	180 j4	150	180	15.4	250**
ammonia nitrogen (mg/l as N)	30	35	32	8.8	4.5	3.8	5	1.3	NS
Metals Detected (mg/l)									**MCL Standard**
sodium	140	**650**	**730**	**280**	120	100	94	14.4	160*

Note: Reference FDEP Groundwater Guidance Concentrations
NS = No Standard
MCL = Maximum Contaminant Level
* = Primary Drinking Water Standard
** = Secondary Drinking Water Standard
6.09 = Exceeds Standard
mV = millivolts
NTU = Nephelometric Turbidity Units
mg/l = milligrams per liter
NGVD = National Geodedic Vertical Datum

Southeast County Landfill
Historical Groundwater Assessment Groundwater Data
TH-80

Field Parameters	Mar-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Jul-18	MCL Standard
conductivity (umhos/cm) (field)	889	1090	1055	714	733	777	462	NS
dissolved oxygen (mg/l) (field)	0.38	0.16	0.05	3.24	0.79	0.22	0.50	NS
ORP (mV)	-10.7	34.2	-120.4	-100.7	13.8	11.8	2.3	NS
temperature (°C) (field)	24.49	25.26	25.17	25.70	24.90	25.50	26.68	NS
turbidity (NTU) (field)	16	10.6	37	17.3	2.49	0.98	0.52	NS
pH (field)	**5.67**	**5.63**	**5.69**	**5.95**	**5.69**	**5.70**	**6.63**	**(6.5 - 8.5)****
General Parameters								**MCL Standard**
total dissolved solids (mg/l)	500	**630**	**680**	370	410	480	276	**500****
chloride (mg/l)	130 j4	170	210	110	110	110	53.9	**250****
ammonia nitrogen (mg/l as N)	1.5	0.74	0.64	0.36	0.52	0.79 j4	0.65	NS
Metals Detected (mg/l)								**MCL Standard**
sodium	37	55	92	63	62	56	38	**160***

Note: Reference FDEP Groundwater Guidance Concentrations
NS = No Standard
MCL = Maximum Contaminant Level
* = Primary Drinking Water Standard
** = Secondary Drinking Water Standard
5.67 = Exceeds Standard
mV = millivolts
NTU = Nephelometric Turbidity Units
mg/l = milligrams per liter
NGVD = National Geodedic Vertical Datum

Southeast County Landfill
Historical Supplemental Assessment Groundwater Data
TH-81

Field Parameters	Mar-17	May-17	Aug-17	Nov-17	Feb-18	May-18	Jul-18	MCL Standard
conductivity (umhos/cm) (field)	2723	2476	493	216.8	194.9	644	275	NS
dissolved oxygen (mg/l) (field)	0.53	0.72	1.77	1.73	2.12	0.24	1.33	NS
ORP (mV)	24.9	17.7	68.5	76	71.7	-28.3	150	NS
temperature (°C) (field)	23.7	25.81	28.68	26.50	22.10	25.90	28.89	NS
turbidity (NTU) (field)	16.1	27.5	22.7	13	14.5	3.07	6.09	NS
pH (field)	**6.00**	**6.05**	**6.12**	**5.95**	**6.15**	**6.32**	**5.88**	**(6.5 - 8.5)****
General Parameters								**MCL Standard**
total dissolved solids (mg/l)	**2000**	**1500**	230	100	130	380	164	**500****
chloride (mg/l)	**810**	**670**	62	15	27	91	9.4	**250****
ammonia nitrogen (mg/l as N)	4.1	2.3	0.52	0.025 u	0.33	1.8	0.15	NS
Metals Detected (mg/l)								**MCL Standard**
sodium	**250**	**280**	37	8.2	21	62	6.89 i	**160***

Note: Reference FDEP Groundwater Guidance Concentrations
NS = No Standard
MCL = Maximum Contaminant Level
* = Primary Drinking Water Standard
** = Secondary Drinking Water Standard
6.00 = Exceeds Standard
mV = millivolts
NTU = Nephelometric Turbidity Units
mg/l = milligrams per liter
NGVD = National Geodedic Vertical Datum

Southeast County Landfill
Historical Supplemental Assessment Groundwater Data
TH-82

Field Parameters	Mar-17	Jun-17	Aug-17	Nov-17	Feb-18	May-18	Jul-18	MCL Standard
conductivity (umhos/cm) (field)	239	210	82	83	174.3	370.9	63	NS
dissolved oxygen (mg/l) (field)	0.23	0.70	4.11	1.28	1.17	0.49	2.84	NS
ORP (mV)	-147.1	41.9	177.2	-17.5	107.3	2.5	30.3	NS
temperature (°C) (field)	26.16	25.5	27.84	27.40	24.10	26.50	27.95	NS
turbidity (NTU) (field)	ND	33.4	34.3	27.4	4.56	2.85	0.99	NS
pH (field)	**5.69**	**5.48**	**4.73**	**5.30**	**5.07**	**5.51**	**5.58**	(6.5 - 8.5)**
General Parameters								**MCL Standard**
total dissolved solids (mg/l)	130	94	65	68	140	300	80	500**
chloride (mg/l)	25	22	4.3 i	8.4	41	84	6.5	250**
ammonia nitrogen (mg/l as N)	4.9	4.7	0.02 u	1.4	0.69	5	0.039 i	NS
Metals Detected (mg/l)								**MCL Standard**
sodium	11	9	2.8	4.5	5.4	13	2.08 i	160*

Note: Reference FDEP Groundwater Guidance Concentrations
NS = No Standard
MCL = Maximum Contaminant Level
* = Primary Drinking Water Standard
** = Secondary Drinking Water Standard
5.69 = Exceeds Standard
mV = millivolts
NTU = Nephelometric Turbidity Units
mg/l = milligrams per liter
NGVD = National Geodedic Vertical Datum

Southeast County Landfill
Historical Supplemental Assessment Groundwater Data
TH-83

Field Parameters	Jan-18	Feb-18	May-18	Jul-18	MCL Standard
conductivity (umhos/cm) (field)	1504	537	1505	498	NS
dissolved oxygen (mg/l) (field)	1.12	1.02	0.70	2.14	NS
ORP (mV)	6.7	10.6	-16.1	140.7	NS
temperature (°C) (field)	22.7	23.10	23.90	26.48	NS
turbidity (NTU) (field)	5.05	4.78	1.63	3.56	NS
pH (field)	6.90	6.55	**6.46**	**6.44**	(6.5 - 8.5)**
General Parameters					**MCL Standard**
total dissolved solids (mg/l)	430	290	**890**	352	500**
chloride (mg/l)	170	62	**320**	94.9	250**
ammonia nitrogen (mg/l as N)	6.5	4.7	15	1.1	NS
Metals Detected (mg/l)					**MCL Standard**
sodium	98	58	140	87.7	160*

Note: Reference FDEP Groundwater Guidance Concentrations
NS = No Standard
MCL = Maximum Contaminant Level
* = Primary Drinking Water Standard
** = Secondary Drinking Water Standard
6.46 = Exceeds Standard
mV = millivolts
NTU = Nephelometric Turbidity Units
mg/l = milligrams per liter
NGVD = National Geodedic Vertical Datum

TH-67 Groundwater Quality

Date	Conductivity	ORP	TDS	Chloride (mg/l)	Sodium (mg/l)	Ammonia (N) (mg/l)	Static Water Level Elev (ft BTOC)
2/12/12	597	NA	280	39	29	1.5	7.45
8/12/12	312	NA	200	24	12	0.64	5.38
2/13/13	684	NA	350	41	27	1.4	7.10
8/13/13	285	NA	190	25	19	0.91	5.85
2/14/14	634	NA	310	34	27	1.8	6.54
8/14/14	390	NA	170	9.1	5.7	0.33	5.61
2/15/15	428	NA	250	31	8.7	0.05i	4.04
8/15/15	429	NA	220	29	8.7	0.12	4.50
2/16/16	1780	NA	1600	620	120	1.5	3.82
4/5/16	3932	NA	2400	1100	440	NA	5.05
4/15/16	4463	NA	NA	NA	NA	NA	NA
5/16/16	3973	-7.9	2200	910	360	36	6.04
8/9/16	1864	63	980	400	190 v	5.8 j4	3.19
8/30/16	3472	-179.6	NA	NA	NA	NA	5.23
9/9/16	1666	-8.6	NA	NA	NA	NA	4.1
9/27/16	1732	-146.4	NA	NA	NA	NA	4.25
10/26/16	2857	-120	NA	NA	NA	NA	5.4
11/29/16	2166	-99.5	1400	600	49	11	6.07
12/21/16	3600	-109.7	NA	NA	NA	NA	6.27
1/17/17	4412	-122	NA	NA	NA	NA	6.5
2/8/17	3830	-41.7	2000	990	330	14	6.58
3/31/17	3653	-40.6	NA	NA	NA	NA	6.85
4/26/17	3468	-27.8	NA	NA	NA	NA	6.9
5/31/17	3630	-12.1	2000	790	380	14	7.63
8/2/17	215	43.2	150	13	8.4	0.02 u	3.73
11/8/17	497.4	-9.5	280	79	38	1.5	6.02
12/19/17	1071	-31.3	NA	NA	NA	NA	6.74
1//18/18	1301	-37.2	NA	NA	NA	NA	6.55
2/7/18	207.7	103.7	140	12	6.3	0.025 u	4.64
4/3/18	1047	-31	NA	NA	NA	NA	7.11
5/7/18	1329	-46.1	880	240	110	4.2	7.27
6/19/18	182.9	106.3	NA	NA	NA	NA	4.72
7/25/18	180	2.4	128	7.6	1.94 i	0.28	3.14

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

SCS Engineers

Southeast County Landfill; Lithia, FL

09215600.06

SGS Job Number: FA56132

Sampling Date: 07/25/18

Report to:

SCS Engineers

KGuilbeault@SCSEngineers.com

ATTN: Ken Guilbeault

Total number of pages in report: 34

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Caitlin Brice, M.S.
General Manager

Client Service contact: Jean Dent-Smith 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

May 18, 2018

Mr. Ken Guilbeault
SCS Engineers
3922 Coconut Palm Dr
Suite 102,
Tampa, Florida 33619

RE: Accutest job FA56132 Reissue

Dear Mr. Guilbeault,

The final report for job number FA56132 has been revised as per your recent change request. These following edit(s) have been incorporated into the revised report.

The sample IDs for FA56132-4 and FA56132-5 have been edited as per your instructions

Please feel free to contact us if we can be of any further assistance.

Sincerely,

SGS - Orlando

Cc: Darryl Paul, SCS Engineers

September 25, 2018

Mr. Ken Guilbeault
SCS Engineers
3922 Coconut Palm Dr
Suite 102
Tampa, Florida 33619

RE: SGS North America, Inc – Orlando job FA56132 Reissue

Dear Mr. Guilbeault,

The final report for job number FA56132 has been revised as per your recent change request. These following edit(s) have been incorporated into the revised report.

The Sample ID for FA56132-5 has been edited to TH-81 as per your instructions

Please feel free to contact us if we can be of any further assistance.

Sincerely,

SGS North America, Inc - Orlando

Cc: Darryl Paul, SCS Engineers

Table of Contents

SGS North America Inc.

Sample Summary

SCS Engineers

Job No: FA56132

Southeast County Landfill; Lithia, FL
Project No: 09215600.06

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA56132-1	07/25/18	11:30	DP	07/26/18	AQ	Ground Water	TH-83
FA56132-2	07/25/18	12:48	DP	07/26/18	AQ	Ground Water	TH-79
FA56132-3	07/25/18	13:25	DP	07/26/18	AQ	Ground Water	TH-67
FA56132-4	07/25/18	14:59	DP	07/26/18	AQ	Ground Water	TH-20B
FA56132-5	07/25/18	15:48	DP	07/26/18	AQ	Ground Water	TH-81

Summary of Hits

Job Number: FA56132
Account: SCS Engineers
Project: Southeast County Landfill; Lithia, FL
Collected: 07/25/18

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
FA56132-1	**TH-83**					
Sodium		87700	20000	1000	ug/l	SW846 6010C
Chloride		94.9	2.0	0.80	mg/l	EPA 300/SW846 9056A
Nitrogen, Ammonia		1.1	0.10	0.030	mg/l	EPA 350.1
Solids, Total Dissolved		352	50	50	mg/l	SM2540 C-11
FA56132-2	**TH-79**					
Sodium		14400	10000	500	ug/l	SW846 6010C
Chloride		15.4	2.0	0.80	mg/l	EPA 300/SW846 9056A
Nitrogen, Ammonia		1.3	0.10	0.030	mg/l	EPA 350.1
Solids, Total Dissolved		238	50	50	mg/l	SM2540 C-11
FA56132-3	**TH-67**					
Sodium		1940 I	10000	500	ug/l	SW846 6010C
Chloride		7.6	2.0	0.80	mg/l	EPA 300/SW846 9056A
Nitrogen, Ammonia		0.28	0.10	0.030	mg/l	EPA 350.1
Solids, Total Dissolved		128	50	50	mg/l	SM2540 C-11
FA56132-4	**TH-20B**					
Sodium		11500	10000	500	ug/l	SW846 6010C
Chloride		25.7	2.0	0.80	mg/l	EPA 300/SW846 9056A
Nitrogen, Ammonia		1.8	0.10	0.030	mg/l	EPA 350.1
Solids, Total Dissolved		206	50	50	mg/l	SM2540 C-11
FA56132-5	**TH-81**					
Sodium		6890 I	10000	500	ug/l	SW846 6010C
Chloride		9.4	2.0	0.80	mg/l	EPA 300/SW846 9056A
Nitrogen, Ammonia		0.15	0.10	0.030	mg/l	EPA 350.1
Solids, Total Dissolved		164	50	50	mg/l	SM2540 C-11

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	TH-83		
Lab Sample ID:	FA56132-1	**Date Sampled:**	07/25/18
Matrix:	AQ - Ground Water	**Date Received:**	07/26/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

Total Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	87700	20000	1000	ug/l	2	07/27/18	07/27/18	LM	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA15076
(2) Prep QC Batch: MP34079

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-83		
Lab Sample ID:	FA56132-1	**Date Sampled:**	07/25/18
Matrix:	AQ - Ground Water	**Date Received:**	07/26/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

General Chemistry

Analyte	Result	PQL	MDL	Units	DF	Analyzed	By	Method
Chloride	94.9	2.0	0.80	mg/l	1	07/27/18 13:28	CH	EPA 300/SW846 9056A
Nitrogen, Ammonia	1.1	0.10	0.030	mg/l	1	07/26/18 14:59	KH	EPA 350.1
Solids, Total Dissolved	352	50	50	mg/l	1	07/26/18 18:15	BR	SM2540 C-11

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-79		
Lab Sample ID:	FA56132-2	**Date Sampled:**	07/25/18
Matrix:	AQ - Ground Water	**Date Received:**	07/26/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

Total Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	14400	10000	500	ug/l	1	07/27/18	07/27/18	LM	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA15076
(2) Prep QC Batch: MP34079

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-79		
Lab Sample ID:	FA56132-2	**Date Sampled:**	07/25/18
Matrix:	AQ - Ground Water	**Date Received:**	07/26/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

General Chemistry

Analyte	Result	PQL	MDL	Units	DF	Analyzed	By	Method
Chloride	15.4	2.0	0.80	mg/l	1	07/27/18 14:32	CH	EPA 300/SW846 9056A
Nitrogen, Ammonia	1.3	0.10	0.030	mg/l	1	07/26/18 15:04	KH	EPA 350.1
Solids, Total Dissolved	238	50	50	mg/l	1	07/26/18 18:15	BR	SM2540 C-11

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-67		
Lab Sample ID:	FA56132-3	**Date Sampled:**	07/25/18
Matrix:	AQ - Ground Water	**Date Received:**	07/26/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

Total Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	1940 I	10000	500	ug/l	1	07/27/18	07/27/18	LM	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA15076
(2) Prep QC Batch: MP34079

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-67		
Lab Sample ID:	FA56132-3	**Date Sampled:**	07/25/18
Matrix:	AQ - Ground Water	**Date Received:**	07/26/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

General Chemistry

Analyte	Result	PQL	MDL	Units	DF	Analyzed	By	Method
Chloride	7.6	2.0	0.80	mg/l	1	07/27/18 14:45	CH	EPA 300/SW846 9056A
Nitrogen, Ammonia	0.28	0.10	0.030	mg/l	1	07/26/18 15:05	KH	EPA 350.1
Solids, Total Dissolved	128	50	50	mg/l	1	07/26/18 18:15	BR	SM2540 C-11

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-20B		
Lab Sample ID:	FA56132-4	**Date Sampled:**	07/25/18
Matrix:	AQ - Ground Water	**Date Received:**	07/26/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

Total Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	11500	10000	500	ug/l	1	07/27/18	07/27/18	LM	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA15076
(2) Prep QC Batch: MP34079

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-20B		
Lab Sample ID:	FA56132-4	**Date Sampled:**	07/25/18
Matrix:	AQ - Ground Water	**Date Received:**	07/26/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

General Chemistry

Analyte	Result	PQL	MDL	Units	DF	Analyzed	By	Method
Chloride	25.7	2.0	0.80	mg/l	1	07/27/18 14:58	CH	EPA 300/SW846 9056A
Nitrogen, Ammonia	1.8	0.10	0.030	mg/l	1	07/26/18 15:07	KH	EPA 350.1
Solids, Total Dissolved	206	50	50	mg/l	1	07/26/18 18:15	BR	SM2540 C-11

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-81		
Lab Sample ID:	FA56132-5	**Date Sampled:**	07/25/18
Matrix:	AQ - Ground Water	**Date Received:**	07/26/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

Total Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	6890 I	10000	500	ug/l	1	07/27/18	07/27/18	LM	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA15076
(2) Prep QC Batch: MP34079

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-81		
Lab Sample ID:	FA56132-5	**Date Sampled:**	07/25/18
Matrix:	AQ - Ground Water	**Date Received:**	07/26/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

General Chemistry

Analyte	Result	PQL	MDL	Units	DF	Analyzed	By	Method
Chloride	9.4	2.0	0.80	mg/l	1	07/27/18 15:11	CH	EPA 300/SW846 9056A
Nitrogen, Ammonia	0.15	0.10	0.030	mg/l	1	07/26/18 15:08	KH	EPA 350.1
Solids, Total Dissolved	164	50	50	mg/l	1	07/26/18 18:15	BR	SM2540 C-11

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS North America Inc - Orlando

Chain of Custody

FA56132

SGS - ORLANDO JOB # : PAGE_____OF_____

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO Quote # | SKIFF #

Client / Reporting Information

Company Name: SCS Engineers
Address:
City: Tampa State: FL Zip: 33619
Project Contact: Ken Gilbeault Email:
Phone #: 8132904568
Sampler(s) Name(s) (Printed)
Sampler 1: Sampler 2:

Project Information

Project Name: Southeast County Landfill
Street:
City: Lithia State: FL
Project # 09215600.06
Fax #
Client Purchase Order #

Analytical Information

TDS, Cl, Na, Mn

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY:	CONTAINER INFORMATION MATRIX	TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NAOH+ZNA	DI WATER	MEOH	LAB USE ONLY
1	TH-83	07/25	1130	DP	GW	3		X				X				
2	TH-79	07/25	1248	DP	GW	3		X				X				
3	TH-67	07/25	1325	DP	GW	3		X				X				
4	TH-83B	07/25	1459	DP	GW	3		X				X				
5	TH-81	07/25	1548	DP	GW	3		X				X				

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH* DP 07/25/18
Other

Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [ ] FULLT1 (EPA LEVEL 4)
- [ ] EDD'S

Comments / Remarks

Rush TH-83, TH-79 and TH-67

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1		07/26/18	2	3	1253 07/26/18	4 07/26/18 1253
	Relinquished by/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
			6	7		8

Cooler Only : Cooler Temperature (s) Celsius (corrected): 3.9

http://www.sgs.com/en/terms-and-conditions

ORLD-SMT-0001-03-FORM-COC (1) Rev 031318

FA56132: Chain of Custody
Page 1 of 4

SGS Sample Receipt Summary

Job Number: FA56132 **Client:** SCS ENG. **Project:** SOUTHEAST COUNTY LANDFILL

Date / Time Received: 7/26/2018 12:53:00 PM **Delivery Method:** SGS **Airbill #'s:**

Therm ID: IR 1; **Therm CF:** 0.1; **# of Coolers:** 1

Cooler Temps (Raw Measured) °C: Cooler 1: (3.8);

Cooler Temps (Corrected) °C: Cooler 1: (3.9);

Cooler Information	Y	or	N
1. Custody Seals Present	☑		☐
2. Custody Seals Intact	☑		☐
3. Temp criteria achieved	☑		☐
4. Cooler temp verification	IR Gun		
5. Cooler media	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler	☐		☐	☑
2. Trip Blank listed on COC	☐		☐	☑

	W	or	S	N/A
3. Type Of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles	☑		☐	
2. Samples preserved properly	☑		☐	
3. Sufficient volume/containers recvd for analysis:	☑		☐	
4. Condition of sample	Intact			
5. Sample recvd within HT	☑		☐	
6. Dates/Times/IDs on COC match Sample Label	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____ _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: SHAYLAP Date: 7/26/2018 12:53:00 P Reviewer: SP Date: 7/26/2018

Job Change Order: FA56132

Requested Date:	8/13/2018	**Received Date:**	7/26/2018
Account Name:	SCS Engineers	**Due Date:**	7/30/2018
Project Description:	Southeast County Landfill; Lithia, FL	**Deliverable:**	COMMB
CSR:	jeans	**TAT (Days):**	1

==========

Sample #: FA56132-4

Dept:

TAT: 1

TH-23

Change:
Per client please change sample ID for TH-23 to Th-20B. Thank you.

==========

==========

Sample #: FA56132-5

Dept:

TAT: 1

TH-69

Change:
Per client please change sample ID for TH-69 to Th-69A. Thank you.

==========

Above Changes Per: client, Ken Guilbeault, via e-mail r **Date/Time:** 8/13/2018 12:11:36 PM

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 1 of 1

Job Change Order: FA56132

Requested Date:	9/25/2018	**Received Date:**	7/26/2018
Account Name:	SCS Engineers	**Due Date:**	7/30/2018
Project	Southeast County Landfill; Lithia, FL	**Deliverable:**	COMMB
CSR:	JDS	**TAT (Days):**	2

Sample #:
FA56132-5

Change: Per request of client, please change the Well ID for TH-69 to TH-81.
Thank you.

TH-69A

Above Changes Per: client, Ken Guilbeault, via e-mail request **Date:** 9/25/2018

To Client: This Change Order is confirmation of the revisions, previously discussed with the Client Service Representative.

Page 1 of 1

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: FA56132
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34079
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/27/18

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	14	14		
Antimony	6.0	1	1		
Arsenic	10	1.3	1.3		
Barium	200	1	1		
Beryllium	4.0	.2	.2		
Cadmium	5.0	.2	.2		
Calcium	1000	50	50		
Chromium	10	1	1		
Cobalt	50	.2	.2		
Copper	25	1	1		
Iron	300	17	17		
Lead	5.0	1	1.1		
Magnesium	5000	35	35		
Manganese	15	.5	1		
Molybdenum	50	.3	.3		
Nickel	40	.4	.4		
Potassium	10000	200	200		
Selenium	10	2.4	2.9		
Silver	10	.7	.7		
Sodium	10000	500	500	18.6	<10000
Strontium	10	.5	.5		
Thallium	10	1.1	1.4		
Tin	50	.9	1		
Titanium	10	.5	1		
Vanadium	50	.5	.6		
Zinc	20	3	4.4		

Associated samples MP34079: FA56132-1, FA56132-2, FA56132-3, FA56132-4, FA56132-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA56132
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34079
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/27/18 07/27/18

Metal	FA56103-26 Original DUP		RPD	QC Limits	FA56103-26 Original MS		Spikelot MPFLICP2	% Rec	QC Limits
Aluminum	anr								
Antimony	anr								
Arsenic	anr								
Barium	anr								
Beryllium	anr								
Cadmium	anr								
Calcium	anr								
Chromium	anr								
Cobalt	anr								
Copper	anr								
Iron	anr								
Lead	anr								
Magnesium	anr								
Manganese	anr								
Molybdenum									
Nickel	anr								
Potassium	anr								
Selenium	anr								
Silver	anr								
Sodium	1030	1010	2.0	0-20	1030	26000	25000	99.9	80-120
Strontium									
Thallium	anr								
Tin									
Titanium									
Vanadium	anr								
Zinc	anr								

Associated samples MP34079: FA56132-1, FA56132-2, FA56132-3, FA56132-4, FA56132-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA56132
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34079 Methods: SW846 6010C
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 07/27/18

Metal	FA56103-26 Original MSD		Spikelot MPFLICP2	% Rec	MSD RPD	QC Limit
Aluminum	anr					
Antimony	anr					
Arsenic	anr					
Barium	anr					
Beryllium	anr					
Cadmium	anr					
Calcium	anr					
Chromium	anr					
Cobalt	anr					
Copper	anr					
Iron	anr					
Lead	anr					
Magnesium	anr					
Manganese	anr					
Molybdenum						
Nickel	anr					
Potassium	anr					
Selenium	anr					
Silver	anr					
Sodium	1030	24600	25000	94.3	5.5	20
Strontium						
Thallium	anr					
Tin						
Titanium						
Vanadium	anr					
Zinc	anr					

Associated samples MP34079: FA56132-1, FA56132-2, FA56132-3, FA56132-4, FA56132-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: FA56132
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34079
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/27/18

Metal	BSP Result	Spikelot MPFLICP2	% Rec	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium	anr			
Selenium	anr			
Silver	anr			
Sodium	24200	25000	96.8	80-120
Strontium				
Thallium	anr			
Tin				
Titanium				
Vanadium	anr			
Zinc	anr			

Associated samples MP34079: FA56132-1, FA56132-2, FA56132-3, FA56132-4, FA56132-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: FA56132
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34079
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/27/18

Metal	FA56103-26 Original	SDL 1:5	%DIF	QC Limits
Aluminum	anr			
Antimony	anr			
Arsenic	anr			
Barium	anr			
Beryllium	anr			
Cadmium	anr			
Calcium	anr			
Chromium	anr			
Cobalt	anr			
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium	anr			
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium	anr			
Selenium	anr			
Silver	anr			
Sodium	1030	0.00	100.0(a)	0-10
Strontium				
Thallium	anr			
Tin				
Titanium				
Vanadium	anr			
Zinc	anr			

Associated samples MP34079: FA56132-1, FA56132-2, FA56132-3, FA56132-4, FA56132-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested
(a) Percent difference acceptable due to low initial sample concentration (< 50 times IDL).

POST DIGESTATE SPIKE SUMMARY

Login Number: FA56132
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34079
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/27/18

Metal	Sample ml	Final ml	FA56103-26 Raw	Corr.**	PS ug/l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
Aluminum										
Antimony										
Arsenic										
Barium										
Beryllium										
Cadmium										
Calcium										
Chromium										
Cobalt										
Copper										
Iron										
Lead										
Magnesium										
Manganese										
Molybdenum										
Nickel										
Potassium										
Selenium										
Silver										
Sodium	9.8	10	1026	1005.48	10350	0.2	500	10000	93.4	80-120
Strontium										
Thallium										
Tin										
Titanium										
Vanadium										
Zinc										

Associated samples MP34079: FA56132-1, FA56132-2, FA56132-3, FA56132-4, FA56132-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(**) Corr. sample result = Raw * (sample volume / final volume)
(anr) Analyte not requested

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA56132
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP31818/GN79302	2.0	0.0	mg/l	50	48.6	97.2	90-110%
Nitrogen, Ammonia	GP31812/GN79294	0.10	0.0	mg/l	5	5.02	100.4	90-110%
Solids, Total Dissolved	GN79289	50	0.00	mg/l				

Associated Samples:
Batch GN79289: FA56132-1, FA56132-2, FA56132-3, FA56132-4, FA56132-5
Batch GP31812: FA56132-1, FA56132-2, FA56132-3, FA56132-4, FA56132-5
Batch GP31818: FA56132-1, FA56132-2, FA56132-3, FA56132-4, FA56132-5
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA56132
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN79289	FA55967-6	mg/l	250	226	10.1(a)	0-5%

Associated Samples:
Batch GN79289: FA56132-1, FA56132-2, FA56132-3, FA56132-4, FA56132-5
(*) Outside of QC limits
(a) RPD acceptable due to low duplicate and sample concentrations.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA56132
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP31818/GN79302	FA56132-1	mg/l	94.9	50	146	102.2	90-110%
Nitrogen, Ammonia	GP31812/GN79294	FA56132-1	mg/l	1.1	5	5.8	94.0	90-110%

Associated Samples:
Batch GP31812: FA56132-1, FA56132-2, FA56132-3, FA56132-4, FA56132-5
Batch GP31818: FA56132-1, FA56132-2, FA56132-3, FA56132-4, FA56132-5
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA56132
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chloride	GP31818/GN79302	FA56132-1	mg/l	94.9	50	145	0.7	20%
Nitrogen, Ammonia	GP31812/GN79294	FA56132-1	mg/l	1.1	5	5.8	0.0	20%

Associated Samples:
Batch GP31812: FA56132-1, FA56132-2, FA56132-3, FA56132-4, FA56132-5
Batch GP31818: FA56132-1, FA56132-2, FA56132-3, FA56132-4, FA56132-5
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits

The results set forth herein are provided by SGS North America Inc.

e-Hardcopy 2.0
Automated Report

Technical Report for

SCS Engineers

Southeast County Landfill; Lithia, FL

09215600.06

SGS Job Number: FA56183

Sampling Date: 07/26/18

Report to:

SCS Engineers
4041 Park Oaks Blvd Suite 100
Tampa, FL 33610
KGuilbeault@SCSEngineers.com

ATTN: Ken Guilbeault

Total number of pages in report: **38**

Test results contained within this data package meet the requirements of the National Environmental Laboratory Accreditation Program and/or state specific certification programs as applicable.

Caitlin Brice, M.S.
General Manager

Client Service contact: Jean Dent-Smith 407-425-6700

Certifications: FL(E83510), LA(03051), KS(E-10327), IL(200063), NC(573), NJ(FL002), NY(12022), SC(96038001) DoD ELAP(ANAB L2229), AZ(AZ0806), CA(2937), TX(T104704404), PA(68-03573), VA(460177), AK, AR, IA, KY, MA, MS, ND, NH, NV, OK, OR, UT, WA, WV

Sections: 1 2 3 4 5 6

Table of Contents

SGS North America Inc.

Sample Summary

SCS Engineers

Job No: FA56183

Southeast County Landfill; Lithia, FL
Project No: 09215600.06

Sample Number	Collected Date	Time	By	Received	Matrix Code	Type	Client Sample ID
FA56183-1	07/26/18	13:30	DPDP	07/27/18	AQ	Ground Water	TH-80
FA56183-2	07/26/18	14:05	DPDP	07/27/18	AQ	Ground Water	TH-66A
FA56183-3	07/26/18	15:31	DPDP	07/27/18	AQ	Ground Water	TH-38B
FA56183-4	07/26/18	16:20	DPDP	07/27/18	AQ	Ground Water	TH-82
FA56183-5	07/26/18	00:00	DPDP	07/27/18	AQ	Ground Water	DUPLICATE
FA56183-6	07/26/18	15:40	DPDP	07/27/18	AQ	Equipment Blank	EQUIPMENT BLANK

Summary of Hits

Job Number: FA56183
Account: SCS Engineers
Project: Southeast County Landfill; Lithia, FL
Collected: 07/26/18

Lab Sample ID / Analyte	Client Sample ID	Result/ Qual	PQL	MDL	Units	Method
FA56183-1	**TH-80**					
Sodium		38000	10000	500	ug/l	SW846 6010C
Chloride		53.9	2.0	0.80	mg/l	EPA 300/SW846 9056A
Nitrogen, Ammonia		0.65	0.10	0.030	mg/l	EPA 350.1
Solids, Total Dissolved		276	50	50	mg/l	SM2540 C-11
FA56183-2	**TH-66A**					
Sodium		7150 I	10000	500	ug/l	SW846 6010C
Chloride		12.0	2.0	0.80	mg/l	EPA 300/SW846 9056A
Nitrogen, Ammonia		0.54	0.10	0.030	mg/l	EPA 350.1
Solids, Total Dissolved		164	50	50	mg/l	SM2540 C-11
FA56183-3	**TH-38B**					
Sodium		2480 I	10000	500	ug/l	SW846 6010C
Chloride		5.7	2.0	0.80	mg/l	EPA 300/SW846 9056A
Nitrogen, Ammonia		0.59	0.10	0.030	mg/l	EPA 350.1
Solids, Total Dissolved		50.0 I	50	50	mg/l	SM2540 C-11
FA56183-4	**TH-82**					
Sodium		2080 I	10000	500	ug/l	SW846 6010C
Chloride		6.5	2.0	0.80	mg/l	EPA 300/SW846 9056A
Nitrogen, Ammonia		0.039 I	0.10	0.030	mg/l	EPA 350.1
Solids, Total Dissolved		80.0	50	50	mg/l	SM2540 C-11
FA56183-5	**DUPLICATE**					
Sodium		38000	10000	500	ug/l	SW846 6010C
Chloride		53.8	2.0	0.80	mg/l	EPA 300/SW846 9056A
Nitrogen, Ammonia		0.62	0.10	0.030	mg/l	EPA 350.1
Solids, Total Dissolved		326	50	50	mg/l	SM2540 C-11
FA56183-6	**EQUIPMENT BLANK**					

No hits reported in this sample.

Sample Results

Report of Analysis

Report of Analysis

Client Sample ID:	TH-80		
Lab Sample ID:	FA56183-1	**Date Sampled:**	07/26/18
Matrix:	AQ - Ground Water	**Date Received:**	07/27/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

Total Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	38000	10000	500	ug/l	1	07/31/18	07/31/18	LM	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA15085
(2) Prep QC Batch: MP34099

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-80		
Lab Sample ID:	FA56183-1	**Date Sampled:**	07/26/18
Matrix:	AQ - Ground Water	**Date Received:**	07/27/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

General Chemistry

Analyte	Result	PQL	MDL	Units	DF	Analyzed	By	Method
Chloride	53.9	2.0	0.80	mg/l	1	08/03/18 19:36	CH	EPA 300/SW846 9056A
Nitrogen, Ammonia	0.65	0.10	0.030	mg/l	1	08/04/18 13:59	JK	EPA 350.1
Solids, Total Dissolved	276	50	50	mg/l	1	08/02/18 15:00	BR	SM2540 C-11

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-66A		
Lab Sample ID:	FA56183-2	**Date Sampled:**	07/26/18
Matrix:	AQ - Ground Water	**Date Received:**	07/27/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

Total Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	7150 I	10000	500	ug/l	1	07/31/18	07/31/18	LM	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA15085
(2) Prep QC Batch: MP34099

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-66A		
Lab Sample ID:	FA56183-2	**Date Sampled:**	07/26/18
Matrix:	AQ - Ground Water	**Date Received:**	07/27/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

General Chemistry

Analyte	Result	PQL	MDL	Units	DF	Analyzed	By	Method
Chloride	12.0	2.0	0.80	mg/l	1	08/03/18 19:49	CH	EPA 300/SW846 9056A
Nitrogen, Ammonia	0.54	0.10	0.030	mg/l	1	08/04/18 14:12	JK	EPA 350.1
Solids, Total Dissolved	164	50	50	mg/l	1	08/02/18 15:00	BR	SM2540 C-11

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-38B		
Lab Sample ID:	FA56183-3	**Date Sampled:**	07/26/18
Matrix:	AQ - Ground Water	**Date Received:**	07/27/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

Total Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	2480 I	10000	500	ug/l	1	07/31/18	07/31/18	LM	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA15085
(2) Prep QC Batch: MP34099

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-38B		
Lab Sample ID:	FA56183-3	**Date Sampled:**	07/26/18
Matrix:	AQ - Ground Water	**Date Received:**	07/27/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

General Chemistry

Analyte	Result	PQL	MDL	Units	DF	Analyzed	By	Method
Chloride	5.7	2.0	0.80	mg/l	1	08/03/18 20:02	CH	EPA 300/SW846 9056A
Nitrogen, Ammonia	0.59	0.10	0.030	mg/l	1	08/04/18 14:14	JK	EPA 350.1
Solids, Total Dissolved	50.0 I	50	50	mg/l	1	08/02/18 15:00	BR	SM2540 C-11

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-82		
Lab Sample ID:	FA56183-4	**Date Sampled:**	07/26/18
Matrix:	AQ - Ground Water	**Date Received:**	07/27/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

Total Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	2080 I	10000	500	ug/l	1	07/31/18	07/31/18	LM	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA15085
(2) Prep QC Batch: MP34099

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	TH-82		
Lab Sample ID:	FA56183-4	**Date Sampled:**	07/26/18
Matrix:	AQ - Ground Water	**Date Received:**	07/27/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

General Chemistry

Analyte	Result	PQL	MDL	Units	DF	Analyzed	By	Method
Chloride	6.5	2.0	0.80	mg/l	1	08/03/18 20:14	CH	EPA 300/SW846 9056A
Nitrogen, Ammonia	0.039 I	0.10	0.030	mg/l	1	08/04/18 14:15	JK	EPA 350.1
Solids, Total Dissolved	80.0	50	50	mg/l	1	08/02/18 15:00	BR	SM2540 C-11

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	DUPLICATE		
Lab Sample ID:	FA56183-5	**Date Sampled:**	07/26/18
Matrix:	AQ - Ground Water	**Date Received:**	07/27/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

Total Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	38000	10000	500	ug/l	1	07/31/18	07/31/18	LM	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA15085
(2) Prep QC Batch: MP34099

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	DUPLICATE		
Lab Sample ID:	FA56183-5	**Date Sampled:**	07/26/18
Matrix:	AQ - Ground Water	**Date Received:**	07/27/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

General Chemistry

Analyte	Result	PQL	MDL	Units	DF	Analyzed	By	Method
Chloride	53.8	2.0	0.80	mg/l	1	08/03/18 20:27	CH	EPA 300/SW846 9056A
Nitrogen, Ammonia	0.62	0.10	0.030	mg/l	1	08/04/18 14:25	JK	EPA 350.1
Solids, Total Dissolved	326	50	50	mg/l	1	08/02/18 15:00	BR	SM2540 C-11

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	EQUIPMENT BLANK		
Lab Sample ID:	FA56183-6	**Date Sampled:**	07/26/18
Matrix:	AQ - Equipment Blank	**Date Received:**	07/27/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

Total Metals Analysis

Analyte	Result	PQL	MDL	Units	DF	Prep	Analyzed	By	Method	Prep Method
Sodium	500 U	10000	500	ug/l	1	07/31/18	07/31/18	LM	SW846 6010C [1]	SW846 3010A [2]

(1) Instrument QC Batch: MA15085
(2) Prep QC Batch: MP34097

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Report of Analysis

Client Sample ID:	EQUIPMENT BLANK		
Lab Sample ID:	FA56183-6	**Date Sampled:**	07/26/18
Matrix:	AQ - Equipment Blank	**Date Received:**	07/27/18
		Percent Solids:	n/a
Project:	Southeast County Landfill; Lithia, FL		

General Chemistry

Analyte	Result	PQL	MDL	Units	DF	Analyzed	By	Method
Chloride	0.80 U	2.0	0.80	mg/l	1	08/03/18 20:40	CH	EPA 300/SW846 9056A
Nitrogen, Ammonia	0.030 U	0.10	0.030	mg/l	1	08/04/18 14:17	JK	EPA 350.1
Solids, Total Dissolved	50 U	50	50	mg/l	1	08/02/18 15:00	BR	SM2540 C-11

PQL = Practical Quantitation Limit
MDL = Method Detection Limit

U = Indicates a result < MDL
I = Indicates a result > = MDL but < PQL

Misc. Forms

Custody Documents and Other Forms

Includes the following where applicable:

- Chain of Custody

SGS North America Inc - Orlando
Chain of Custody

4405 Vineland Road, Suite C-15 Orlando, Fl 32811
TEL. 407-425-6700 FAX: 407-425-0707
www.sgs.com

SGS - ORLANDO JOB # : FA56183 PAGE 1 OF 1

SGS - ORLANDO Quote # | SKIFF #

Client / Reporting Information

Company Name: SCS Engineers
Address:
City: Tampa State: FL Zip: 33619
Project Contact: Ken G Email:
Phone #: 813-240-4566
Sampler(s) Name(s) (Printed)
Sampler 1: Dave, Phil Sampler 2: Donovan, Ricky

Project Information

Project Name: Southeast Landfill
Street
City Lithia State
Project #
Fax #
Client Purchase Order #

Analytical Information

TDS, Chloride, Ammonia, Sulfate

Matrix Codes

DW - Drinking Water
GW - Ground Water
WW - Water
SW - Surface Water
SO - Soil
SL- Sludge
OI - Oil
LIQ - Other Liquid
AIR - Air
SOL - Other Solid

SGS Orlando Sample #	Field ID / Point of Collection	COLLECTION DATE	TIME	SAMPLED BY:	MATRIX	CONTAINER INFORMATION TOTAL # OF BOTTLES	OTHER	NONE	HCl	NaOH	HNO3	H2SO4	NaOH+ZnAc	DI WATER	MeOH	LAB USE ONLY
1	TH-8D	07/26/18	1330	DP	GW	3		X				X				
2	TH-6D	07/26/18	1405	DP	GW	3		X				X				
3	TH-3D	07/26/18	1534	DP	GW	3		X				X				
4	TH-8S	07/26/18	1025	DP	GW	3		X				X				
5	Duplicate	07/26/18	N/A	DP	GW	3		X				X				
6	Equipment Blank	07/26/18	1540	DP	GW	3		X				X				

Turnaround Time (Business days)

10 Day (Business) Approved By: / Date:
7 Day
5 Day
3 Day *RUSH*
2 Day *RUSH*
1 Day *RUSH*
Other
Rush T/A Data Available VIA Email or Lablink

Data Deliverable Information

- [ ] COMMERCIAL "A" (RESULTS ONLY)
- [ ] COMMERCIAL "B" (RESULTS PLUS QC)
- [ ] REDT1 (EPA LEVEL 3)
- [ ] FULLT1 (EPA LEVEL 4)
- [ ] EDD'S

Comments / Remarks

Sample Custody must be documented below each time samples change possession, including courier delivery.

	Relinquished by Sampler/Affiliation	Date Time:	Received By/Affiliation	Relinquished By/Affiliation	Date Time:	Received By/Affiliation
1		07/27/18	2	3 1408	07/27/18	4 07/27/18 1408
5	Relinquished by/Affiliation	Date Time:	6 Received By/Affiliation	7 Relinquished By/Affiliation	Date Time:	8 Received By/Affiliation

Lab Use Only : Cooler Temperature (s) Celsius (corrected): 3.4

http://www.sgs.com/en/terms-and-conditions

ORLD-SMT-0001-03-FORM-COC (1) Rev 031318

FA56183: Chain of Custody
Page 1 of 2

SGS Sample Receipt Summary

Job Number: FA56183 **Client:** SCS ENG. **Project:** SOUTHEAST LANDFILL

Date / Time Received: 7/27/2018 2:08:00 PM **Delivery Method:** SGS **Airbill #'s:**

Therm ID: IR 1; **Therm CF:** 0.1; **# of Coolers:** 1

Cooler Temps (Raw Measured) °C: Cooler 1: (3.3);

Cooler Temps (Corrected) °C: Cooler 1: (3.4);

Cooler Information	Y	or	N
1. Custody Seals Present	☑		☐
2. Custody Seals Intact	☑		☐
3. Temp criteria achieved	☑		☐
4. Cooler temp verification	IR Gun		
5. Cooler media	Ice (Bag)		

Trip Blank Information	Y	or	N	N/A
1. Trip Blank present / cooler	☐		☐	☑
2. Trip Blank listed on COC	☐		☐	☑

	W	or	S	N/A
3. Type Of TB Received	☐		☐	☑

Sample Information	Y	or	N	N/A
1. Sample labels present on bottles	☑		☐	
2. Samples preserved properly	☑		☐	
3. Sufficient volume/containers recvd for analysis:	☑		☐	
4. Condition of sample	Intact			
5. Sample recvd within HT	☑		☐	
6. Dates/Times/IDs on COC match Sample Label	☑		☐	
7. VOCs have headspace	☐		☐	☑
8. Bottles received for unspecified tests	☐		☑	
9. Compositing instructions clear	☐		☐	☑
10. Voa Soil Kits/Jars received past 48hrs?	☐		☐	☑
11. % Solids Jar received?	☐		☐	☑
12. Residual Chlorine Present?	☐		☐	☑

Misc. Information

Number of Encores: 25-Gram _____ 5-Gram _____ Number of 5035 Field Kits: _____ Number of Lab Filtered Metals: _____

Test Strip Lot #s: pH 0-3 230315 pH 10-12 219813A Other: (Specify) _____ _____

Residual Chlorine Test Strip Lot #: _____

Comments

SM001
Rev. Date 05/24/17

Technician: SHAYLAP Date: 7/27/2018 2:08:00 PM Reviewer: SP Date: 7/27/2018

FA56183: Chain of Custody
Page 2 of 2

5

Metals Analysis

QC Data Summaries

Includes the following where applicable:

- Method Blank Summaries
- Matrix Spike and Duplicate Summaries
- Blank Spike and Lab Control Sample Summaries
- Serial Dilution Summaries

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34097
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/31/18

Metal	RL	IDL	MDL	MB raw	final
Aluminum	200	14	14		
Antimony	6.0	1	1		
Arsenic	10	1.3	1.3		
Barium	200	1	1		
Beryllium	4.0	.2	.2		
Cadmium	5.0	.2	.2		
Calcium	1000	50	50		
Chromium	10	1	1		
Cobalt	50	.2	.2		
Copper	25	1	1		
Iron	300	17	17		
Lead	5.0	1	1.1		
Magnesium	5000	35	35		
Manganese	15	.5	1		
Molybdenum	50	.3	.3		
Nickel	40	.4	.4		
Potassium	10000	200	200		
Selenium	10	2.4	2.9		
Silver	10	.7	.7		
Sodium	10000	500	500	4.7	<10000
Strontium	10	.5	.5		
Thallium	10	1.1	1.4		
Tin	50	.9	1		
Titanium	10	.5	1		
Vanadium	50	.5	.6		
Zinc	20	3	4.4		

Associated samples MP34097: FA56183-6

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34097
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date:			07/31/18					07/31/18	
Metal	FA56213-1 Original DUP		RPD	QC Limits	FA56213-1 Original MS		Spikelot MPFLICP2 % Rec		QC Limits
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper	anr								
Iron	anr								
Lead	anr								
Magnesium									
Manganese	anr								
Molybdenum	anr								
Nickel	anr								
Potassium									
Selenium	anr								
Silver	anr								
Sodium	46100	47100	2.1	0-20	46100	72800	25000	106.8	80-120
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc	anr								

Associated samples MP34097: FA56183-6

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34097 Methods: SW846 6010C
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 07/31/18

Metal	FA56213-1 Original MSD		Spikelot MPFLICP2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron	anr					
Lead	anr					
Magnesium						
Manganese	anr					
Molybdenum	anr					
Nickel	anr					
Potassium						
Selenium	anr					
Silver	anr					
Sodium	46100	72500	25000	105.6	0.4	20
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc	anr					

Associated samples MP34097: FA56183-6

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34097
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/31/18

Metal	BSP Result	Spikelot MPFLICP2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium				
Manganese	anr			
Molybdenum	anr			
Nickel	anr			
Potassium				
Selenium	anr			
Silver	anr			
Sodium	24800	25000	99.2	80-120
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	anr			

Associated samples MP34097: FA56183-6

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34097 Methods: SW846 6010C
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 07/31/18

Metal	FA56213-1 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron	anr			
Lead	anr			
Magnesium				
Manganese	anr			
Molybdenum	anr			
Nickel	anr			
Potassium				
Selenium	anr			
Silver	anr			
Sodium	46100	46300	0.4	0-10
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	anr			

Associated samples MP34097: FA56183-6

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

POST DIGESTATE SPIKE SUMMARY

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34097
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/31/18

Metal	Sample ml	Final ml	FA56213-1 Raw	Corr.**	PS ug/l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
Aluminum										
Antimony										
Arsenic										
Barium										
Beryllium										
Cadmium										
Calcium										
Chromium										
Cobalt										
Copper										
Iron										
Lead										
Magnesium										
Manganese										
Molybdenum										
Nickel										
Potassium										
Selenium										
Silver										
Sodium	9.8	10	46100	45178	55370	0.2	500	10000	101.9	80-120
Strontium										
Thallium										
Tin										
Titanium										
Vanadium										
Zinc										

Associated samples MP34097: FA56183-6

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(**) Corr. sample result = Raw * (sample volume / final volume)
(anr) Analyte not requested

BLANK RESULTS SUMMARY
Part 2 - Method Blanks

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34099
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date:					07/31/18		07/31/18
Metal	RL	IDL	MDL	MB raw	final	MB raw	final
Aluminum	200	14	14				
Antimony	6.0	1	1				
Arsenic	10	1.3	1.3				
Barium	200	1	1				
Beryllium	4.0	.2	.2				
Cadmium	5.0	.2	.2				
Calcium	1000	50	50				
Chromium	10	1	1				
Cobalt	50	.2	.2				
Copper	25	1	1				
Iron	300	17	17				
Lead	5.0	1	1.1				
Magnesium	5000	35	35				
Manganese	15	.5	1				
Molybdenum	50	.3	.3				
Nickel	40	.4	.4				
Potassium	10000	200	200				
Selenium	10	2.4	2.9				
Silver	10	.7	.7				
Sodium	10000	500	500	11.2	<10000	20.4	<10000
Strontium	10	.5	.5				
Thallium	10	1.1	1.4				
Tin	50	.9	1				
Titanium	10	.5	1				
Vanadium	50	.5	.6				
Zinc	20	3	4.4				

Associated samples MP34099: FA56183-1, FA56183-2, FA56183-3, FA56183-4, FA56183-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34099
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/31/18 07/31/18

Metal	FA56158-8 Original	DUP	RPD	QC Limits	FA56158-8 Original	MS	Spikelot MPFLICP2	% Rec	QC Limits
Aluminum									
Antimony									
Arsenic	anr								
Barium	anr								
Beryllium									
Cadmium	anr								
Calcium									
Chromium	anr								
Cobalt									
Copper	anr								
Iron									
Lead	anr								
Magnesium									
Manganese	anr								
Molybdenum									
Nickel	anr								
Potassium									
Selenium	anr								
Silver	anr								
Sodium	68100	67800	0.4	0-20	68100	94200	25000	104.4	80-120
Strontium									
Thallium									
Tin									
Titanium									
Vanadium									
Zinc	anr								

Associated samples MP34099: FA56183-1, FA56183-2, FA56183-3, FA56183-4, FA56183-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

MATRIX SPIKE AND DUPLICATE RESULTS SUMMARY

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34099 Methods: SW846 6010C
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 07/31/18

Metal	FA56158-8 Original MSD		Spikelot MPFLICP2	% Rec	MSD RPD	QC Limit
Aluminum						
Antimony						
Arsenic	anr					
Barium	anr					
Beryllium						
Cadmium	anr					
Calcium						
Chromium	anr					
Cobalt						
Copper	anr					
Iron						
Lead	anr					
Magnesium						
Manganese	anr					
Molybdenum						
Nickel	anr					
Potassium						
Selenium	anr					
Silver	anr					
Sodium	68100	93300	25000	100.8	0.0	20
Strontium						
Thallium						
Tin						
Titanium						
Vanadium						
Zinc	anr					

Associated samples MP34099: FA56183-1, FA56183-2, FA56183-3, FA56183-4, FA56183-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(anr) Analyte not requested

SPIKE BLANK AND LAB CONTROL SAMPLE SUMMARY

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34099
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/31/18

Metal	BSP Result	Spikelot MPFLICP2	% Rec	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron				
Lead	anr			
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium				
Selenium	anr			
Silver	anr			
Sodium	24100	25000	96.4	80-120
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	anr			

Associated samples MP34099: FA56183-1, FA56183-2, FA56183-3, FA56183-4, FA56183-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

SERIAL DILUTION RESULTS SUMMARY

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34099
Matrix Type: AQUEOUS

Methods: SW846 6010C
Units: ug/l

Prep Date: 07/31/18

Metal	FA56158-8 Original	SDL 1:5	%DIF	QC Limits
Aluminum				
Antimony				
Arsenic	anr			
Barium	anr			
Beryllium				
Cadmium	anr			
Calcium				
Chromium	anr			
Cobalt				
Copper	anr			
Iron				
Lead	anr			
Magnesium				
Manganese	anr			
Molybdenum				
Nickel	anr			
Potassium				
Selenium	anr			
Silver	anr			
Sodium	68100	72100	5.9	0-10
Strontium				
Thallium				
Tin				
Titanium				
Vanadium				
Zinc	anr			

Associated samples MP34099: FA56183-1, FA56183-2, FA56183-3, FA56183-4, FA56183-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(anr) Analyte not requested

POST DIGESTATE SPIKE SUMMARY

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

QC Batch ID: MP34099 Methods: SW846 6010C
Matrix Type: AQUEOUS Units: ug/l

Prep Date: 07/31/18

Metal	Sample ml	Final ml	FA56158-8 Raw	Corr.**	PS ug/l	Spike ml	Spike ug/ml	Spike ug/l	% Rec	QC Limits
Aluminum										
Antimony										
Arsenic										
Barium										
Beryllium										
Cadmium										
Calcium										
Chromium										
Cobalt										
Copper										
Iron										
Lead										
Magnesium										
Manganese										
Molybdenum										
Nickel										
Potassium										
Selenium										
Silver										
Sodium	9.8	10	68060	66698.8	75430	0.2	500	10000	87.3	80-120
Strontium										
Thallium										
Tin										
Titanium										
Vanadium										
Zinc										

Associated samples MP34099: FA56183-1, FA56183-2, FA56183-3, FA56183-4, FA56183-5

Results < IDL are shown as zero for calculation purposes
(*) Outside of QC limits
(**) Corr. sample result = Raw * (sample volume / final volume)
(anr) Analyte not requested

General Chemistry

QC Data Summaries

Includes the following where applicable:

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries

METHOD BLANK AND SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Chloride	GP31845/GN79375	2.0	0.0	mg/l	50	51.0	102.0	90-110%
Nitrogen, Ammonia	GP31848/GN79386	0.10	0.0	mg/l	5	5.16	103.2	90-110%
Nitrogen, Nitrate	GP31845/GN79375	0.10	0.0	mg/l	2.5	2.57	102.8	90-110%
Solids, Total Dissolved	GN79344	50	78.0*	mg/l				
Sulfate	GP31845/GN79375	2.0	0.0	mg/l	50	50.0	100.0	90-110%

Associated Samples:
Batch GN79344: FA56183-1, FA56183-2, FA56183-3, FA56183-4, FA56183-5, FA56183-6
Batch GP31845: FA56183-1, FA56183-2, FA56183-3, FA56183-4, FA56183-5, FA56183-6
Batch GP31848: FA56183-1, FA56183-2, FA56183-3, FA56183-4, FA56183-5, FA56183-6
(*) Outside of QC limits

DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

Analyte	Batch ID	QC Sample	Units	Original Result	DUP Result	RPD	QC Limits
Solids, Total Dissolved	GN79344	FA56183-1	mg/l	276	220	22.6*(a)	0-5%

Associated Samples:
Batch GN79344: FA56183-1, FA56183-2, FA56183-3, FA56183-4, FA56183-5, FA56183-6
(*) Outside of QC limits
(a) High RPD due to possible sample non-homogeneity.

MATRIX SPIKE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Chloride	GP31845/GN79375	FA56363-1	mg/l	6.6	50	56.0	98.8	90-110%
Nitrogen, Ammonia	GP31848/GN79386	FA56183-5	mg/l	0.62	5	5.6	99.6	90-110%
Nitrogen, Nitrate	GP31845/GN79375	FA56363-1	mg/l	0.72	2.5	3.2	99.2	90-110%
Sulfate	GP31845/GN79375	FA56363-1	mg/l	154	50	215	122.0N(a)	90-110%

Associated Samples:
Batch GP31845: FA56183-1, FA56183-2, FA56183-3, FA56183-4, FA56183-5, FA56183-6
Batch GP31848: FA56183-1, FA56183-2, FA56183-3, FA56183-4, FA56183-5, FA56183-6
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits
(a) Spike recovery indicates possible matrix interference.

MATRIX SPIKE DUPLICATE RESULTS SUMMARY
GENERAL CHEMISTRY

Login Number: FA56183
Account: SCSFLTAM - SCS Engineers
Project: Southeast County Landfill; Lithia, FL

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Chloride	GP31845/GN79375	FA56363-1	mg/l	6.6	50	55.3	1.3	20%
Nitrogen, Ammonia	GP31848/GN79386	FA56183-5	mg/l	0.62	5	5.6	0.0	20%
Nitrogen, Nitrate	GP31845/GN79375	FA56363-1	mg/l	0.72	2.5	3.2	0.0	20%
Sulfate	GP31845/GN79375	FA56363-1	mg/l	154	50	211	1.9	20%

Associated Samples:
Batch GP31845: FA56183-1, FA56183-2, FA56183-3, FA56183-4, FA56183-5, FA56183-6
Batch GP31848: FA56183-1, FA56183-2, FA56183-3, FA56183-4, FA56183-5, FA56183-6
(*) Outside of QC limits
(N) Matrix Spike Rec. outside of QC limits