



May 16, 2016

North Carolina Department of Environmental Quality  
Division of Waste Management, Pre-Regulatory Landfill Unit  
1646 Mail Service Center  
Raleigh, North Carolina 27699

Attn: Ms. Katie Tatum  
Project Manager

Re: **Potable Well Sampling Report**  
**Keener Landfill**  
**Clinton, Sampson County, North Carolina**  
**ID# NCD981031693 – Task Order 1693MON1**

Dear Ms. Tatum:

URS Corporation – North Carolina (URS) is pleased to provide the results of potable well sampling performed in the vicinity of the Keener Landfill (the Site) in Clinton, North Carolina. This report describes the details for potable well sampling conducted in accordance with the March 31, 2016 authorization associated with Task Order 1693MON1 by the North Carolina Department of Environmental Quality (NCDEQ) Pre-Regulatory Landfill Unit (the Unit).

On February 10, 2016, URS was able to access and collect water samples from a residential potable well located near the Site at 10 Tanglewood Lane in Clinton. One field duplicate sample was also collected from this potable well during the sampling event. As shown on **Table 1**, nitrate exceeded the EPA Maximum Contaminant Level (MCL) and North Carolina 2L (NC 2L) groundwater standard. Therefore, URS returned to the residence on April 19, 2016, to recollect a water sample from the residential potable well located at 10 Tanglewood Lane for nitrate analysis only. One field duplicate sample was also collected. Permission to sample the well from the property owner was obtained by the Unit. Field procedures were performed in accordance with the URS *Standard Operating Procedures/Quality Assurance Manual* (SOP/QAM), dated June 21, 2010. Field notes from the sampling event are included as **Attachment 1**. A site map showing the location of the potable well is provided on **Figure 1**.

Water samples were collected into laboratory-supplied containers and submitted to the laboratory for the analysis of volatile organic compounds (VOCs) by SW-846 8260B, 1,4-dioxane by SW-846 8260B Select Ion Monitoring (SIM), semi-volatile organic compounds (SVOCs) by SW-846 8270D, metals by Environmental Protection Agency (EPA) Methods 200.8 and 245.1, nitrate and sulfate by EPA Method 300/SW-846 9056A, and ammonia by EPA Method 350.1. Samples collected in the field were placed on ice in an insulated cooler and transported to the laboratory via courier as expeditiously as possible. A chain-of-custody record accompanied the shipment of samples to the laboratory. The analytical laboratory report is included as **Attachment 2**.

URS Corporation – North Carolina  
1600 Perimeter Park Drive, Suite 400  
Morrisville, NC 27560  
Tel: 919-461-1100  
Fax: 919-461-1415

May 16, 2016

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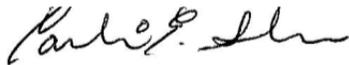
URS has conducted a completeness check for the analytical results reported by SGS Accutest Inc.- Orlando for the Site. All documentation required by the project was included in the laboratory report. The reported detection limits for undiluted samples were less than standards that are greater than the practical quantitation limit. Samples were analyzed in accordance with laboratory protocols and analytical methods. Quality control results that did not meet laboratory specifications are discussed in the Case Narrative of the laboratory report, and the effect on reported sample results discussed. Water sample results, as reported by the laboratory, are presented in **Table 1**. Laboratory data are usable for the samples collected for their intended purpose.

Sample results for nitrate were compared to EPA MCL and NC 2L groundwater standards. Analytical results from the confirmatory water sample collected at 10 Tanglewood Lane indicated that nitrate concentrations exceeded both the MCL and NC 2L standard, as shown on **Figure 1**. The Unit was notified of this exceedance on April 26, 2016 via email. Results are summarized for the two sampling events (February and April 2016) in **Table 1**.

If you have any questions or require additional information, please do not hesitate to contact me at 919-461-1341.

Sincerely,

**URS CORPORATION-NORTH CAROLINA**



Carlin Slusher  
Project Manager

Attachments:

- Table 1 – Summary of Potable Well Analytical Results
- Figure 1 – Site Map
- Attachment 1 – Field Notes
- Attachment 2 – Laboratory Report

**Table 1**  
**Summary of Potable Well Analytical Results**  
**Keener Landfill, NCD981031693**

Client Sample ID:	NC 2L	MCL	WELL-10 TANGLE	DUP-3	WELL-10 TANGLEWOOD-2	DUP-1	WELL-100 TANGLE
Date Sampled:			2/10/2016	2/10/2016	4/19/2016	4/19/2016	2/10/2016
Analytes:				DUP (1)		DUP (2)	
<b>Volatiles (SW-846 8260B Full Scan)</b>	NA	NA	ND	ND	NA	NA	ND
<b>Volatiles (SW-846 8260B SIM)</b>							
1,4-Dioxane	0.003	NG	ND	ND	NA	NA	ND
<b>Semivolatiles (SW-846 8270D)</b>	NA	NA	ND	ND	NA	NA	ND
<b>Metals (EPA 200.8 and 245.1)</b>							
Antimony	0.001 (I)	0.006	0.00026 J	0.00026 J	NA	NA	0.000062 J
Arsenic	0.010	0.010	0.00019 J	0.00024 J	NA	NA	0.00019 J
Beryllium	0.004	0.004	0.00021 J	0.00022 J	NA	NA	0.00011 J
Cadmium	0.002	0.005	0.000069 J	ND	NA	NA	0.000081 J
Chromium	0.010	0.100	ND	0.000086 J	NA	NA	ND
Copper	1	1.300	0.157	0.166	NA	NA	0.0235
Iron	0.300	NG	<b>2.03</b>	<b>2.32</b>	NA	NA	0.199
Lead	0.015	0.015	0.0134	0.0144	NA	NA	0.0029
Manganese	0.050	NG	<b>0.0517</b>	<b>0.0552</b>	NA	NA	0.0288
Nickel	0.100	NG	0.0048	0.0049	NA	NA	0.0011 J
Selenium	0.020	0.050	0.000091 J	0.00014 J	NA	NA	0.00014 J
Silver	0.020	NG	0.000032 J	0.000040 J	NA	NA	ND
Thallium	0.0002 (I)	0.002	0.000060 J	0.000062 J	NA	NA	0.000067 J
Zinc	1	NG	0.0375	0.0402	NA	NA	0.0271
<b>Miscellaneous Chemistry (EPA 300 and 350.1)</b>							
Ammonia (EPA 350.1)	1.5	NG	0.067 J	ND	NA	NA	ND
Nitrate as N (EPA 300)	10	10	<b>13.3</b>	<b>13.3</b>	<b>11.3</b>	<b>11.4</b>	7.7
Sulfate (EPA 300)	250	NG	5.5	5.5	NA	NA	6.0

**Table 1**  
**Summary of Potable Well Analytical Results**  
**Keener Landfill, NCD981031693**

**Notes:**

I - NC Interim Maximum Allow Concentration (IMAC) established under 15A NCAC 2L.0202

MCL - EPA National Primary Drinking Water Standard Maximum Contaminant Level

NC 2L - 15A NCAC 02L .0202, effective April 1, 2013

(1) DUP-3 is a field duplicate of WELL-10 TANGLE

(2) DUP-1 is a field duplicate of WELL-10 TANGLEWOOD-2

J - Estimated Value

EPA - Environmental Protection Agency

MDL - Method Detection Limit

NA - Not applicable

ND - Analyzed for but not detected at the MDL

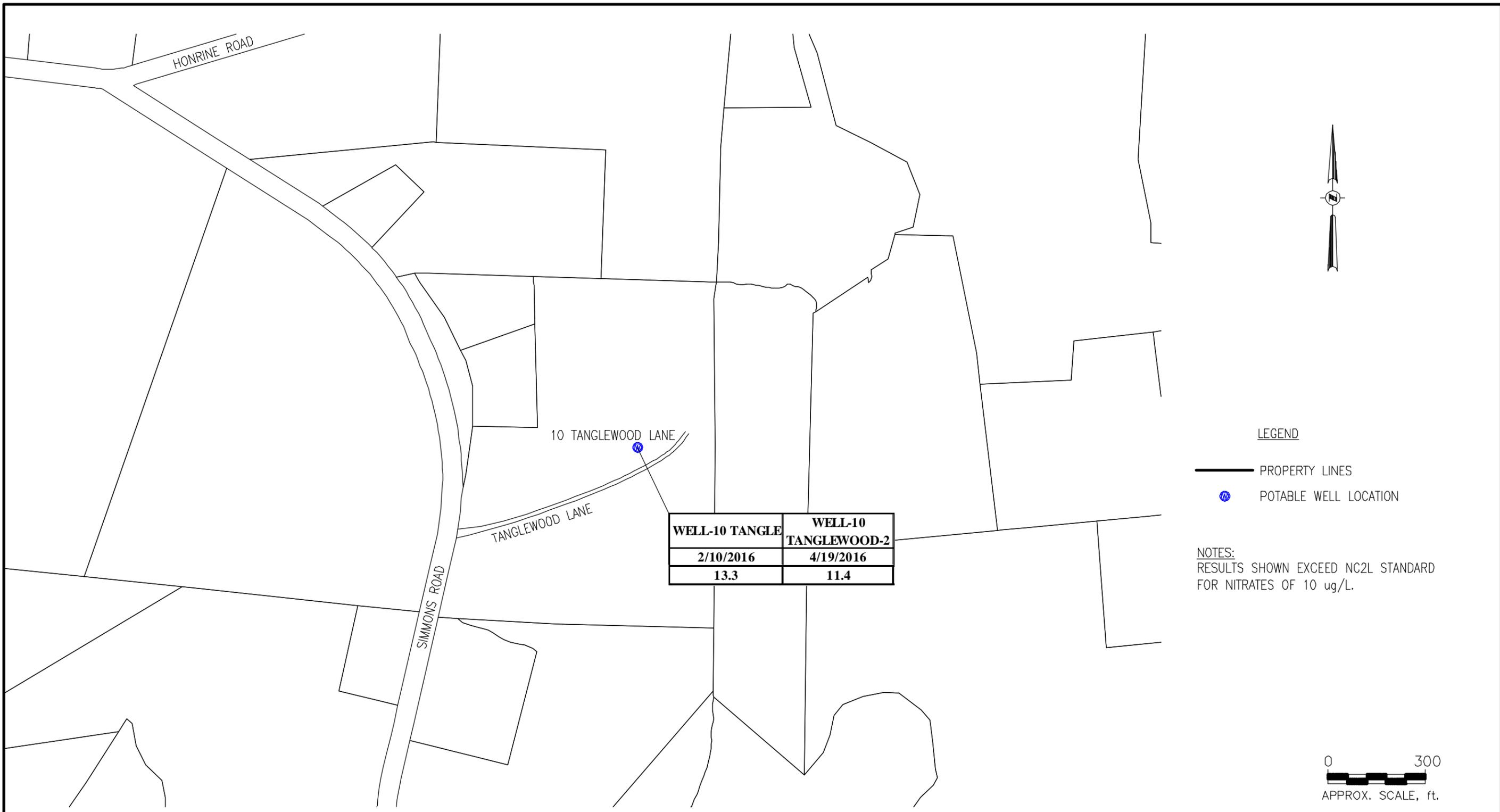
NG - No goal established

SIM - Selective Ion Monitoring

SW-846 - Test Methods for Evaluating Solid Waste, Physical/Chemical Methods (EPA)

This table presents the results of all detected analytes. All results are reports in milligrams per liter (mg/L).

Bold and outlined results indicate the concentration is greater than the MCL standard or the 2L standard in absence of the MCL.



**LEGEND**

- PROPERTY LINES
- POTABLE WELL LOCATION

NOTES:  
RESULTS SHOWN EXCEED NC2L STANDARD  
FOR NITRATES OF 10 ug/L.



<b>WELL-10 TANGLE</b>	<b>WELL-10 TANGLEWOOD-2</b>
2/10/2016	4/19/2016
13.3	11.4

SCALE	AS SHOWN	DESIGNED BY	DATE	Sample Results Keener Landfill NCD981031693		
<b>URS</b> <small>RDU, NORTH CAROLINA 27560</small>		DRAWN BY	DATE	CONTRACT NO.	DRAWING NO.	REV.
		TSH	11MAY16			
		CHECKED BY	DATE			
		CS	11MAY16			
		APPROVED BY	DATE			
		CS	11MAY16			

# Daily Activity Log

Page 1 of 1

Project Name: Keener Landfill

Task Order: 1693MON1

Field Personnel: J. Abbassi ; J. Corbin

Project Manager: C. Slusher

Date: 4/19/2016

Weather: sunny ~ 85°F

Daily Objective: WSW sampling

- 1225 URS arrives onsite at 10 Tanglewood Lane.  
1227 URS knocks on door - no answer  
1230 Begin calibration of field equipment and purging of well. Will sample from standing spigot in back of house.  
1300 Collect sample well-10 Tanglewood-2 and field duplicate sample (Dup-1 @ 1305)  
1307 Complete sampling activities and perform calibration verification.  
1315 URS offsite

*J. Corbin*

# Water Sample Collection Field Sheet

Project Name: Keener Landfill Task No: 1693MON1  
 Sample ID: Well-10 Tanglewood - 2  
 Date/Time Collected: 4/19/16 @ 1300 Personnel: J Abbassi  
 Sample Method: spigot J Corbin  
 SAMPLE MEDIA: Groundwater  Potable Well Surface Water

### SAMPLE CONTAINERS, PRESERVATIVES, ANALYSIS

Sample Container	Preservative	Analysis
<u>250 mL</u>	<u>None</u>	<u>Nitrate</u>

### WELL PURGING DATA

Date: 4/19/16 Well Depth (ft. BTOC) 7  
 Time Started: 1244 Depth to Water (ft BTOC) 7  
 Time Completed: 1307 Actual Purge (liters) 7  
 Purge rate (liters/min) 7

### FIELD MEASUREMENTS

Time	Amount Purged (Liters)	Depth to Water (ft)	pH	Temperature (°C)	Conductivity (mS/cm)	Turbidity (NTUs)	DB Comments	
<u>1250</u>	<u>-</u>	<u>-</u>	<u>4.17</u>	<u>19.87</u>	<u>0.468</u>	<u>0.00</u>	<u>5.54</u>	<u>ORP</u>
<u>1253</u>	<u>-</u>	<u>-</u>	<u>2.89</u>	<u>17.82</u>	<u>0.145</u>	<u>0</u>	<u>5.97</u>	<u>258.1</u>
<u>1256</u>	<u>-</u>	<u>-</u>	<u>3.04</u>	<u>17.50</u>	<u>0.135</u>	<u>0</u>	<u>6.00</u>	<u>296.3</u>
<u>1259</u>	<u>-</u>	<u>-</u>	<u>2.90</u>	<u>17.46</u>	<u>0.130</u>	<u>0</u>	<u>5.87</u>	<u>283.0</u>
								<u>289.5</u>

### FIELD EQUIPMENT AND CALIBRATION

	Make/Model	Serial No	Calibration
Water Level Probe			
Pump			
Water Quality Meter			
Turbidity Meter			

### GENERAL COMMENTS

DUP-1 @ 1305

4/19/16 DAILY INSTRUMENT CALIBRATION CHECK SHEET (CONT.)

MANUFACTURER	MODEL # & SERIAL #	FACTORY CALIBRATION DATE	DETECTION LIMIT	PARAMETERS CALIBRATED	SUMMARY OF FIELD CALIBRATIONS (what methods, manufacturer's specifications, type of calibration gas, expiration date, etc.)
YSI	07X106323	-	-	PH ORP COND	PH 4.40 cal to 4.00 ORP 156.0 cal to 200 9.62 " " 10.00 COND 1.85H " " 1.413
LAMORTE		-	-	Turbidity	(*) NO PH7 soln 9.9 cal to 10.0 5.1 cal to 1.0
YSI		-	-	PH ORP COND	PH 4.02 ± 0.20 ORP ± 20% 10.03 ± 0.20 COND ± 20%
"		-	-	PH ORP COND	PH 4.12 ± 0.20 ORP ± 20% 9.85 ± 0.20 COND ± 20%
"		-	-	PH ORP COND	PH 4.08 ± 0.20 ORP ± 20% 10.05 ± 0.20 COND ± 20%

12/12:30  
JA

1307

1410

1530

Notes:  
Field instruments must be calibrated in accordance with manufacturer specifications.  
Bump calibration tests should be completed before, during, and after field evaluation to confirm calibration.  
If field conditions change (e.g. barometric, temperature, humidity changes), recalibration should be completed and documented.  
All field calibrations need to be documented, otherwise, the data could be rejected by NCDENR.

### Technical Report for

**AECOM, INC.**

**Keener Landfill; Clinton, NC**

**60482357**

**SGS Accutest Job Number: FA33242**

**Sampling Date: 04/19/16**

#### Report to:

**AECOM, INC  
1600 Perimeter Park Dr Suite 400  
Morrisville, NC 27560  
ncchemists@urs.com**

**ATTN: Martha Meyers-Lee**

**Total number of pages in report: 24**



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.

**Norm Farmer  
Technical Director**

**Client Service contact: Heather Wandrey 407-425-6700**

Certifications: FL (E83510), LA (03051), KS (E-10327), IA (366), IL (200063), NC (573), NJ (FL002), SC (96038001)  
DoD ELAP (L-A-B L2229), CA (2937), TX (T104704404), PA (68-03573), VA (460177),  
AK, AR, GA, KY, MA, NV, OK, UT, WA

This report shall not be reproduced, except in its entirety, without the written approval of SGS Accutest.  
Test results relate only to samples analyzed.

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### Sample Summary

AECOM, INC.

Job No: FA33242

Keener Landfill; Clinton, NC  
Project No: 60482357

Sample Number	Collected		Received	Matrix		Client Sample ID
	Date	Time By		Code	Type	
FA33242-1	04/19/16	13:00 JA	04/20/16	AQ	Water	WELL-10 TANGLEWOOD-2
FA33242-2	04/19/16	13:05 JA	04/20/16	AQ	Water	DUP-1

## SAMPLE DELIVERY GROUP CASE NARRATIVE

**Client:** AECOM, INC.

**Job No:** FA33242

**Site:** Keener Landfill; Clinton, NC

**Report Date** 4/25/2016 11:33:45 AM

2 Samples were collected on 04/19/2016 and were received at SGS Accutest Southeast (SASE) on 04/20/2016 properly preserved, at 2.8 Deg. C and intact. These Samples received an SASE job number of FA33242. A listing of the Laboratory Sample ID, Client Sample ID and dates of collection are presented in the Results Summary Section.

Except as noted below, all method specified calibrations and quality control performance criteria were met for this job. For more information, please refer to QC summary pages.

### Wet Chemistry By Method EPA 300/SW846 9056A

**Matrix:** AQ

**Batch ID:** GP27811

All samples were prepped within the recommended method holding time.

All samples were analyzed within the recommended method holding time.

All method blanks for this batch meet method specific criteria.

Sample(s) FA33211-3MS, FA33211-3MSD were used as the QC samples for Nitrogen, Nitrate.

SGS Accutest (SASE) certifies that this report meets the project requirements for analytical data produced for the samples as received at SASE and as stated on the COC. SASE certifies that the data meets the Data Quality Objectives for precision, accuracy and completeness as specified in the SASE Quality Manual except as noted above. This report is to be used in its entirety. SASE is not responsible for any assumptions of data quality if partial data packages are used

Narrative prepared by:



Lovelie Metzgar, QA Officer

Date: April 25, 2016

## Laboratory Report Glossary

**Client Sample ID:** Normally refers to a point of collection – a monitoring well, discharge outfall, treatment facility intake, soil core grid location and depth, or any other identification client assigns to a sample.

**Lab Sample ID:** Letter prefix identifies one of Accutest laboratories and the rest is a consecutive number of the job (or SDG) received. Number after dash is a sample number and it is unequivocally linked in the LIMS to the Client Sample ID (see above).

**Matrix (Matrix Code):**

- AQ- Water Samples
- SO- Soil/Solid Samples
- LIQ- Non-Water Liquid Samples
- OIL- Oil Samples

**Matrix Type:**

- SW for Surface Water
- SO for Soil/Sediment
- GW for Ground Water
- DW for Drinking Water

All available definitions are found on Chain of Custody form.

**Deg. C:** Degrees Celsius, measurement of temperature.

**Method:** Analytical and preparation methods used for the analysis, with the version or revision identified.

**Date Sampled:** This information is entered from Chain of Custody at the time of login for every sample.

**Date Received:** When the job was received by Accutest Laboratories.

**Percent Solids:** Applicable only to SO matrix. For other matrices this field defaults to “n/a”.

**Run #:** Provides information how many attempts were made in the analysis of the sample. LIMS can merge information from several attempts and lists all of them, including dilution, confirmation, etc. #1 designation is assigned to the analytical run with majority of analytes reported from it, not necessarily in chronological order.

**File ID:** Actual instrument data acquisition file that produced the final result. Letter prefix identifies the instrument; the rest is a consecutive injection number for that instrument.

**DF (Dilution Factor):** Most common reasons are either to fit into the range of the calibration, or alleviate matrix interference. DF other than 1 are accompanied with a comment at the end of the sample report.

**Analyzed:** Date of analysis.

**By:** Field Technician or Analyst uniquely identified by initials.

**Prep Date:** Date of sample preparation. If hold time is 72 hours or less, time of preparation is also indicated.

**Prep Batch:** Letter prefix OP followed by a consecutive number. For VOC analysis preparation happens at the time of analysis, therefore analytical batch and preparation batch are the same. Size of prep batch is limited to 20 field samples of similar matrix and the entire batch should be completed within 12 hour time.

**Analytical Batch:** Letter prefix identifies the instrument and is followed by a consecutive number. Not limited by a number of samples.

**Initial Weight or Initial Volume:** Raw sample size used for preparation.

**Final Volume:** Final volume of extract. If different from method-prescribed volume, reasons are reflected in the comments at the end of the report form.

**CAS Number:** *Chemical Abstracts Service* (CAS), a division of the *American Chemical Society*.

**Compound:** Most commonly used names of chemical compounds.

**Result:** Depending on project requirements, this field could be set up as text, such as ND (for Non Detected) or a number. The number may be reported with a qualifier.

**MDL (Method Detection Limit):** This value is defined as 99% probability that analyte above this concentration is positively (qualitatively) identified.

**RL (Reporting Limit):** This value is supported by the low calibration standard and defines lowest point of quantitative identification of analyte.

**DL (Detection Limit):** The smallest analyte concentration that can be demonstrated to be different from zero or a blank concentration with 99% confidence. At the DL, the false positive rate (Type I error) is 1%.

**LOD (Limit of Detection):** The smallest concentration of a substance that must be present in a sample in order to be detected at the DL with 99% confidence. At the LOD, the false negative rate (Type II error) is 1%.

**LOQ (Limit of Quantitation):** The smallest concentration that produces a quantitative result with known and recorded precision and bias.

**Units:** ug/l (micrograms per liter) for aqueous samples and ug/kg (micrograms per kilogram) for solids (or ppb – parts per billion). The units could be set according to project or state-specific requirements, such as mg/l (milligrams per liter), or mg/kg (milligrams per kilogram).

**Qualifiers (Q):** Definitions of most often used qualifiers are found at the bottom of each result page. Applied depending on the program – state-specific (Florida A.C. 62-160), CLP-like, AFCEE, DOD QSM, etc.

**Tentatively Identified Compound (TIC):** Used when client requests a search for analytes that are not part of instrument calibration. Unknown peaks are compared with published spectral libraries and best match is reported as TIC.

**Surrogate (S1, S2, S3 etc.):** are positive controls that are used in most organics methods to ascertain preparation efficiency and matrix effect in individual samples. These chemicals mimic common method constituents but are unlikely to be found in real samples. Recoveries can be reported for every analytical run used in the analysis.

**IS (Internal Standard IS1, IS2, IS3, etc):** quantitative reference used to adjust for instrument performance fluctuations.

**Area (of chromatographic peak):** signal intensity directly related to compound concentration.

**RT (Retention Time):** time required for analyte to traverse the length of analytical column. Used for compound identification.

**ICAL (Initial Calibration):** Must pass calibration criteria established by method.

**ICV (Independent Calibration Verification):** Used to verify ICAL preparation and concentration of calibration points.

**CCV (Continuing Calibration Verification):** Used to assess calibration status of the instrument and must recover within established acceptance criteria.

**MB (Method Blank):** is a negative batch control. MB is an aliquot of matrix free of analyte of interest (either ASTM Type II water or appropriate solid substance) that is put through all the preparation and possible clean-up steps alongside investigative (field) samples. MB should be free of interferences above a set level.

**BS (Blank Spike, Laboratory Fortified Blank - LFB, Laboratory Control Sample - LCS):** is a positive control used to determine method accuracy - in clean matrix, i.e. matrix free of analytes of interest.

**BSD (Blank Spike Duplicate):** Used to assess recovery reproducibility - method precision – per analytical method requirement. %Recovery and Relative Percent Difference (%RPD) are compared with the established acceptance criteria.

**MS and/or MSD (Matrix Spike and Matrix Spike Duplicate):** positive batch controls which indicate matrix effect on the precision and accuracy of the method in given sample matrix. Results are expressed in %Recovery and Relative Percent Difference (%RPD), and compared with the established acceptance criteria.

**DUP (Matrix Duplicate):** Positive batch control, a way of assessing laboratory's precision; however, the composition of the samples is unknown and may not yield meaningful results.

**REC (Recovery in Percent):** expresses method accuracy.

**RPD (Relative Percent Difference):** expresses method precision.

**Limits:** Recovery limits for surrogates and spikes

## Summary of Hits

**Job Number:** FA33242  
**Account:** AECOM, INC.  
**Project:** Keener Landfill; Clinton, NC  
**Collected:** 04/19/16



Lab Sample ID	Client Sample ID	Result/ Qual	RL	MDL	Units	Method
FA33242-1	WELL-10 TANGLEWOOD-2					
Nitrogen, Nitrate		11.3	0.20	0.10	mg/l	EPA 300/SW846 9056A
FA33242-2	DUP-1					
Nitrogen, Nitrate		11.4	0.20	0.10	mg/l	EPA 300/SW846 9056A

**Sample Results**

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**Report of Analysis**

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## Report of Analysis

<b>Client Sample ID:</b> WELL-10 TANGLEWOOD-2	<b>Date Sampled:</b> 04/19/16
<b>Lab Sample ID:</b> FA33242-1	<b>Date Received:</b> 04/20/16
<b>Matrix:</b> AQ - Water	<b>Percent Solids:</b> n/a
<b>Project:</b> Keener Landfill; Clinton, NC	

4.1  
4

### General Chemistry

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate	11.3	0.20	0.10	mg/l	2	04/21/16 09:31 LJ	EPA	300/SW846 9056A

RL = Reporting Limit  
MDL = Method Detection Limit

ND = Not detected  
J = Indicates a result > = MDL but < RL

## Report of Analysis

<b>Client Sample ID:</b> DUP-1		<b>Date Sampled:</b> 04/19/16
<b>Lab Sample ID:</b> FA33242-2		<b>Date Received:</b> 04/20/16
<b>Matrix:</b> AQ - Water		<b>Percent Solids:</b> n/a
<b>Project:</b> Keener Landfill; Clinton, NC		

4.2  
4

**General Chemistry**

Analyte	Result	RL	MDL	Units	DF	Analyzed	By	Method
Nitrogen, Nitrate	11.4	0.20	0.10	mg/l	2	04/21/16 09:49 LJ		EPA 300/SW846 9056A

RL = Reporting Limit  
MDL = Method Detection Limit

ND = Not detected  
J = Indicates a result > = MDL but < RL

**Misc. Forms**

**Custody Documents and Other Forms**

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**Includes the following where applicable:**

- Chain of Custody
- Analyst Legend



**ACCUTEST LABORATORIES SAMPLE RECEIPT CONFIRMATION**

ACCUTEST'S JOB NUMBER: FA33242 CLIENT: URS PROJECT: Keener Landfill  
 DATE/TIME RECEIVED: 4/20/16 1015 (MM/DD/YY 24:00) NUMBER OF COOLERS RECEIVED: 1  
 METHOD OF DELIVERY: FEDEX UPS ACCUTEST COURIER DELIVERY OTHER: \_\_\_\_\_  
 AIRBILL NUMBERS: 7761 4185 8254

**COOLER INFORMATION**

- CUSTODY SEAL NOT PRESENT OR NOT INTACT
- CHAIN OF CUSTODY NOT RECEIVED (COC)
- ANALYSIS REQUESTED IS UNCLEAR OR MISSING
- SAMPLE DATES OR TIMES UNCLEAR OR MISSING
- TEMPERATURE CRITERIA NOT MET

**TEMPERATURE INFORMATION**

- IR THERM ID 1 CORR. FACTOR 10.2
- OBSERVED TEMPS: 2.6
- CORRECTED TEMPS: 2.8 (USED FOR LIMS)

**SAMPLE INFORMATION**

- INCORRECT NUMBER OF CONTAINERS USED
- SAMPLE RECEIVED IMPROPERLY PRESERVED
- INSUFFICIENT VOLUME FOR ANALYSIS
- DATES/TIMES ON COC DO NOT MATCH SAMPLE LABEL
- ID'S ON COC DO NOT MATCH LABEL
- VOC VIALS HAVE HEADSPACE (MACRO BUBBLES)
- BOTTLES RECEIVED BUT ANALYSIS NOT REQUESTED
- NO BOTTLES RECEIVED FOR ANALYSIS REQUESTED
- UNCLEAR FILTERING OR COMPOSITING INSTRUCTIONS
- SAMPLE CONTAINER(S) RECEIVED BROKEN
- 5035 FIELD KITS NOT RECEIVED WITHIN 48 HOURS
- BULK VOA SOIL JARS NOT RECEIVED WITHIN 48 HOURS
- % SOLIDS JAR NOT RECEIVED
- RESIDUAL CHLORINE PRESENT LOT# \_\_\_\_\_

**TRIP BLANK INFORMATION**

- TRIP BLANK PROVIDED
- TRIP BLANK NOT PROVIDED
- TRIP BLANK NOT ON COC
- TRIP BLANK INTACT
- TRIP BLANK NOT INTACT
- RECEIVED WATER TRIP BLANK
- RECEIVED SOIL TRIP BLANK

**MISC. INFORMATION**

NUMBER OF ENCORES ? 25-GRAM \_\_\_\_\_ 5-GRAM \_\_\_\_\_  
 NUMBER OF 5035 FIELD KITS ? \_\_\_\_\_  
 NUMBER OF LAB FILTERED METALS ? \_\_\_\_\_

(APPLICABLE TO EPA 600 SERIES OR NORTH CAROLINA ORGANICS)

TEST STRIP LOT#s pH 0-3 230315 pH 10-12 219813A OTHER (specify) \_\_\_\_\_

SUMMARY OF COMMENTS: \_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

TECHNICIAN SIGNATURE/DATE [Signature] 4/20/16 REVIEWER SIGNATURE/DATE [Signature] 4/20/16  
 NF 11/15 RECEIPTLOG040416.xls

51  
5

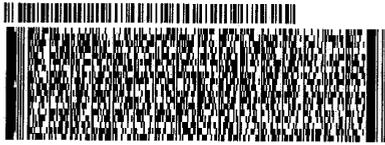
ORIGIN ID:RZZA (919) 208-7171  
TERRI RIVENBARK  
ACCUTEST LABS SOUTHEAST  
6306 - C ANGUS DRIVE  
RALEIGH, NC 27617  
UNITED STATES US

SHIP DATE: 19APR16  
ACTWGT: 50.00 LB  
CAD: 9858222/NET3730  
BILL SENDER

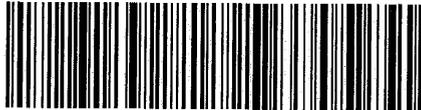
TO **SAMPLE RECEIVING**  
**ACCUTEST SE**  
**4405 VINELAND RD.**  
**STE. C15**  
**ORLANDO FL 32811**

(407) 425-6700 REF:  
INV: DEPT:  
PO:

540J110C07ZF



1 of 14  
TRK# 7761 4185 8254  
0201  
## MASTER ##  
**XH TIXA**  
FL-US  
WED - 20 APR 10:30A  
PRIORITY OVERNIGHT  
32811  
MCO



**After printing this label:**

1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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# Analyst Legend

**Job Number:** FA33242  
**Account:** URSNCM AECOM, INC.  
**Project:** Keener Landfill; Clinton, NC

Initials	Full Name	Analysis Type
LJ	Luis Jimenez	General Chemistry

5.2  
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**General Chemistry****QC Data Summaries****Includes the following where applicable:**

- Method Blank and Blank Spike Summaries
- Duplicate Summaries
- Matrix Spike Summaries
- Instrument Runlogs/QC

METHOD BLANK AND SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: FA33242  
Account: URSNCM - AECOM, INC.  
Project: Keener Landfill; Clinton, NC

Analyte	Batch ID	RL	MB Result	Units	Spike Amount	BSP Result	BSP %Recov	QC Limits
Bromide	GP27811/GN70621	0.50	0.0	mg/l	12.5	12.8	102.4	90-110%
Chloride	GP27811/GN70621	2.0	0.0	mg/l	50	51.7	103.4	90-110%
Fluoride	GP27811/GN70621	0.20	0.0	mg/l	2.5	2.55	102.0	90-110%
Nitrogen, Nitrate	GP27811/GN70621	0.10	0.0	mg/l	2.5	2.47	98.8	90-110%
Nitrogen, Nitrite	GP27811/GN70621	0.10	0.0	mg/l	2.5	2.73	109.2	90-110%
Sulfate	GP27811/GN70621	2.0	0.0	mg/l	50	50.7	101.4	90-110%

Associated Samples:

Batch GP27811: FA33242-1, FA33242-2

(\*) Outside of QC limits

6.1

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MATRIX SPIKE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: FA33242  
Account: URSNCM - AECOM, INC.  
Project: Keener Landfill; Clinton, NC

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MS Result	%Rec	QC Limits
Bromide	GP27811/GN70621	FA33211-3	mg/l	0.12 U	12.5	12.5	100.0	90-110%
Chloride	GP27811/GN70621	FA33211-3	mg/l	6.0	50	56.2	100.4	90-110%
Fluoride	GP27811/GN70621	FA33211-3	mg/l	0.11	2.5	2.6	99.6	90-110%
Nitrogen, Nitrate	GP27811/GN70621	FA33211-3	mg/l	0.20	2.5	2.5	92.0	90-110%
Nitrogen, Nitrite	GP27811/GN70621	FA33211-3	mg/l	0.050 U	2.5	2.7	108.0	90-110%
Sulfate	GP27811/GN70621	FA33211-3	mg/l	31.2	50	81.1	99.8	90-110%

Associated Samples:

Batch GP27811: FA33242-1, FA33242-2

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

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6

MATRIX SPIKE DUPLICATE RESULTS SUMMARY  
GENERAL CHEMISTRY

Login Number: FA33242  
Account: URSNCM - AECOM, INC.  
Project: Keener Landfill; Clinton, NC

Analyte	Batch ID	QC Sample	Units	Original Result	Spike Amount	MSD Result	RPD	QC Limit
Bromide	GP27811/GN70621	FA33211-3	mg/l	0.12 U	12.5	12.5	0.0	20%
Chloride	GP27811/GN70621	FA33211-3	mg/l	6.0	50	56.2	0.0	20%
Fluoride	GP27811/GN70621	FA33211-3	mg/l	0.11	2.5	2.6	0.0	20%
Nitrogen, Nitrate	GP27811/GN70621	FA33211-3	mg/l	0.20	2.5	2.5	0.0	20%
Nitrogen, Nitrite	GP27811/GN70621	FA33211-3	mg/l	0.050 U	2.5	2.7	0.0	20%
Sulfate	GP27811/GN70621	FA33211-3	mg/l	31.2	50	81.2	0.1	20%

Associated Samples:

Batch GP27811: FA33242-1, FA33242-2

(\*) Outside of QC limits

(N) Matrix Spike Rec. outside of QC limits

6.3

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SGS Accutest Instrument Runlog  
Inorganics Analyses

Login Number: FA33242  
Account: URSNCM - AECOM, INC.  
Project: Keener Landfill; Clinton, NC

File ID: 316042001.TXT Date Analyzed: 04/20/16 Methods: EPA 300/SW846 9056A  
Analyst: LJ Run ID: GN70621  
Parameters: Nitrogen, Nitrate

Time	Sample Description	Dilution Factor	PS Recov	Comments
08:46	GN70621-CCV1	1		
09:04	GP27811-MB1	1		
09:21	GP27811-B1	1		
09:39	ZZZZZZ	1		
09:57	ZZZZZZ	1		
10:15	FA33211-3	1		(sample used for QC only; not part of login FA33242)
10:33	GP27811-S1	1		
10:51	GP27811-S2	1		
11:45	ZZZZZZ	1		
12:02	GN70621-CCV2	1		
12:20	GN70621-CCB1	1		
12:38	ZZZZZZ	1		
12:56	ZZZZZZ	1		
13:14	ZZZZZZ	1		
13:32	FA33207-1	10		(sample used for QC only; not part of login FA33242)
13:50	GP27811-S3	10		
14:08	GP27811-S4	10		
14:26	ZZZZZZ	500		
14:44	ZZZZZZ	200		
15:01	ZZZZZZ	200		
15:19	ZZZZZZ	1		
15:37	GN70621-CCV3	1		
15:55	GN70621-CCB2	1		
16:13	ZZZZZZ	1		
16:31	ZZZZZZ	1		
16:49	ZZZZZZ	1		
17:07	ZZZZZZ	1		
18:00	ZZZZZZ	1		
18:18	ZZZZZZ	1		
18:36	GN70621-CCV4	1		
18:54	GP27812-MB1	1		
19:12	GP27812-B1	1		
19:30	ZZZZZZ	20		

SGS Accutest Instrument Runlog  
Inorganics Analyses

Login Number: FA33242  
Account: URSNCM - AECOM, INC.  
Project: Keener Landfill; Clinton, NC

File ID: 316042001.TXT      Date Analyzed: 04/20/16      Methods: EPA 300/SW846 9056A  
Analyst: LJ      Run ID: GN70621  
Parameters: Nitrogen, Nitrate

Time	Sample Description	Dilution Factor	PS Recov	Comments
19:48	FA33238-2	1		(sample used for QC only; not part of login FA33242)
20:06	GP27812-S1	1		
20:24	GP27812-S2	1		
20:42	ZZZZZZ	1		
21:00	ZZZZZZ	1		
21:18	ZZZZZZ	1		
21:36	ZZZZZZ	1		
21:54	GN70621-CCV5	1		
22:11	GN70621-CCB3	1		
22:29	ZZZZZZ	1		
22:47	ZZZZZZ	1		
23:05	GN70621-CCV6	1		
23:23	GN70621-CCB4	1		

Refer to raw data for calibration curve and standards.

Instrument QC Summary  
Inorganics Analyses

Login Number: FA33242  
Account: URSNCM - AECOM, INC.  
Project: Keener Landfill; Clinton, NC

File ID: 316042001.TXT

Date Analyzed: 04/20/16  
Run ID: GN70621

Methods: EPA 300/SW846 9056A  
Units: mg/l

Sample Number	Parameter	Result	RL	IDL/MDL	True Value	% Recov.	QC Limits
GN70621-CCV1	Nitrogen, Nitrate	2.5	0.10	0.050	2.5	100.0	90-110
GN70621-CCV2	Nitrogen, Nitrate	2.5	0.10	0.050	2.5	100.0	90-110
GN70621-CCB1	Nitrogen, Nitrate	0.050 U	0.10	0.050			
GN70621-CCV3	Nitrogen, Nitrate	2.4	0.10	0.050	2.5	96.0	90-110
GN70621-CCB2	Nitrogen, Nitrate	0.050 U	0.10	0.050			
GN70621-CCV4	Nitrogen, Nitrate	2.4	0.10	0.050	2.5	96.0	90-110
GN70621-CCV5	Nitrogen, Nitrate	2.4	0.10	0.050	2.5	96.0	90-110
GN70621-CCB3	Nitrogen, Nitrate	0.050 U	0.10	0.050			
GN70621-CCV6	Nitrogen, Nitrate	2.4	0.10	0.050	2.5	96.0	90-110
GN70621-CCB4	Nitrogen, Nitrate	0.050 U	0.10	0.050			

(!) Outside of QC limits

6.4  
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SGS Accutest Instrument Runlog  
Inorganics Analyses

Login Number: FA33242  
Account: URSNCM - AECOM, INC.  
Project: Keener Landfill; Clinton, NC

File ID: 316042101.TXT Date Analyzed: 04/21/16 Methods: EPA 300/SW846 9056A  
Analyst: LJ Run ID: GN70632  
Parameters: Nitrogen, Nitrate

Time	Sample Description	Dilution Factor	PS Recov	Comments
08:39	GN70632-CCV1	1		
08:56	GP27816-MB1	1		
09:13	GP27816-B1	1		
09:31	FA33242-1	2		
09:49	FA33242-2	2		
11:16	FA33280-1	25		(sample used for QC only; not part of login FA33242)
11:34	GP27816-S1	25		
11:52	GP27816-S2	25		
12:10	GN70632-CCV2	1		
12:27	GN70632-CCB1	1		
12:45	ZZZZZZ	1		
13:03	ZZZZZZ	1		
13:21	ZZZZZZ	1		
13:39	ZZZZZZ	1		
13:57	ZZZZZZ	1		
14:15	ZZZZZZ	1		
14:33	ZZZZZZ	1		
14:50	ZZZZZZ	1		
15:08	FA33287-7	1		(sample used for QC only; not part of login FA33242)
15:26	GP27816-S3	1		
15:44	GN70632-CCV3	1		
16:02	GN70632-CCB2	1		
16:20	GP27816-S4	1		
16:38	ZZZZZZ	5		
16:56	ZZZZZZ	200		
17:14	ZZZZZZ	200		
17:32	ZZZZZZ	100		
17:50	ZZZZZZ	200		
18:08	ZZZZZZ	200		
18:25	ZZZZZZ	200		
18:43	GN70632-CCV4	1		
19:01	GN70632-CCB3	1		

Refer to raw data for calibration curve and standards.

Instrument QC Summary  
Inorganics Analyses

Login Number: FA33242  
Account: URSNCM - AECOM, INC.  
Project: Keener Landfill; Clinton, NC

File ID: 316042101.TXT

Date Analyzed: 04/21/16  
Run ID: GN70632

Methods: EPA 300/SW846 9056A  
Units: mg/l

Sample Number	Parameter	Result	RL	IDL/MDL	True Value	% Recov.	QC Limits
GN70632-CCV1	Nitrogen, Nitrate	2.4	0.10	0.050	2.5	96.0	90-110
GN70632-CCV2	Nitrogen, Nitrate	2.5	0.10	0.050	2.5	100.0	90-110
GN70632-CCB1	Nitrogen, Nitrate	0.050 U	0.10	0.050			
GN70632-CCV3	Nitrogen, Nitrate	2.4	0.10	0.050	2.5	96.0	90-110
GN70632-CCB2	Nitrogen, Nitrate	0.050 U	0.10	0.050			
GN70632-CCV4	Nitrogen, Nitrate	2.4	0.10	0.050	2.5	96.0	90-110
GN70632-CCB3	Nitrogen, Nitrate	0.050 U	0.10	0.050			

(!) Outside of QC limits

6.5  
6