Drummond

DENR USE ONLY: ☐ Paper Report ☐ Electronic Data - Email CD (data loaded: Yes / No) Doc/Event #:

NC DENR
Division of Waste Management - Solid Waste

Environmental Monitoring Reporting Form

Notice: This form and any information attached to it are "Public Records" as defined in NC General Statute 132-1. As such, these documents are available for inspection and examination by any person upon request (NC General Statute 132-6).

Instructions:

- **Prepare one form for each individually monitored unit.**
- **Please type or print legibly.**
- Attach a notification table with values that attain or exceed NC 2L groundwater standards or NC 2B surface water standards. The notification must include a preliminary analysis of the cause and significance of each value. (e.g. naturally occurring, off-site source, pre-existing condition, etc.).
- Attach a notification table of any groundwater or surface water values that equal or exceed the reporting limits.
- Attach a notification table of any methane gas values that attain or exceed explosive gas levels. This includes any structures on or nearby the facility (NCAC 13B .1629 (4)(a)(i).
- Send the original signed and sealed form, any tables, and Electronic Data Deliverable to: Compliance Unit, NCDENR-DWM, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

Solid Waste Monitoring Data Submittal Information

Name of entity submitting data (laboratory, consultant, facility owner):

Quible & Associates, P.C. on behalf of Currituck County

Contact for questions about data formatting. Include data preparer's name, telephone number and E-mail address:

Name: Steve Jones (Environment 1) Phone: 252.756.6208

E-mail:

AUG - 1 2012

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
Currituck County Landfill	216 Airport Road	27-01	.0500	06/04/2012

Environmental Status: (Check all that apply)

☐ Initial/Background Monitoring ☒ Detection Monitoring ☐ Assessment Monitoring ☐ Corrective Action

Type of data submitted: (Check all that apply)

☒ Groundwater monitoring data from monitoring wells
☐ Groundwater monitoring data from private water supply wells
☐ Leachate monitoring data
☒ Surface water monitoring data
☐ Methane gas monitoring data
☐ Corrective action data (specify)
☐ Other(specify)

Notification attached?

☐ No. No groundwater or surface water standards were exceeded.
☒ Yes, a notification of values exceeding a groundwater or surface water standard is attached. It includes a list of groundwater and surface water monitoring points, dates, analytical values, NC 2L groundwater standard, NC 2B surface water standard or NC Solid Waste GWPS and preliminary analysis of the cause and significance of any concentration.
☐ Yes, a notification of values exceeding an explosive methane gas limit is attached. It includes the methane monitoring points, dates, sample values and explosive methane gas limits.

Certification

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. Furthermore, I have attached complete notification of any sampling values meeting or exceeding groundwater standards or explosive gas levels, and a preliminary analysis of the cause and significance of concentrations exceeding groundwater standards. I am aware that there are significant penalties for making any false statement, representation, or certification including the possibility of a fine and imprisonment.

Warren D. Eadus — Agent — 252.261.3300

Facility Representative Name (Print) — Title — (Area Code) Telephone Number

Signature — 07/17/12 Date

Affix NC Licensed/Professional Geologist Seal

NORTH CAROLINA LICENSED SEAL 1954 GEOLOGIST WARREN DENNIS EADUS

PO Drawer 870 Kitty Hawk NC 27949

Facility Representative Address

NC PE Firm License Number (if applicable effective May 1, 2009)

Revised 6/2009

Quible

Quible & Associates, P.C.

ENGINEERING • ENVIRONMENTAL SCIENCES • PLANNING • SURVEYING

SINCE 1959

P.O. Drawer 870
Kitty Hawk, NC 27949
Phone: 252-261-3300
Fax: 252-261-1260
Web: quible.com

July 17, 2012

Donald Herndon
NC DENR-Division of Waste Mgt-Solid Waste Section
1646 Mail Service Center
Raleigh, NC 27699-1646

Re: Environmental Reporting Form
Currituck County MSW Landfill
Permit #27-01

Mr. Herndon:

Please find enclosed an Environmental Monitoring Reporting Form and associated data and documentation related to the groundwater and surface water sampling activities conducted at the above referenced facility on June 4, 2012 by Environment 1, Incorporated (Environment 1). Quible & Associates, P.C. (Quible) was asked to review the laboratory analytical data and provide the appropriate technical assistance in fulfilling the Division of Waste Management Solid Waste Sections' (Division) reporting requirements.

Based on the groundwater analytical results reported in the June 4, 2012 laboratory analytical report, the concentrations of arsenic reported in the groundwater samples collected from Well #1 (27 µg/L) exceed the 2L GQS. Concentrations of arsenic reported in the groundwater samples collected from Well #6 (57 µg/L) exceed the 2L GQS.

Concentrations of barium reported in the groundwater samples collected from Well #8 (444 µg/L) exceed the SWSL.

Concentrations of benzene reported in the groundwater samples collected from Well #6 (2.10 µg/L) and Well #8 (1.20 µg/L) exceed the 2L GQS and the SWSL.

Concentrations of Total Xylenes (0.8 µg/L) that do not exceed either of the 2L GQS or the SWS Limits were detected in the groundwater samples collected and analyzed from Monitoring Well #6.

Concentrations of chlorobenzene reported in the groundwater samples collected from Well #8 (3.40 µg/L) exceed the SWSL.

Concentrations of vinyl chloride reported in the groundwater samples collected from Well #6 (0.70 µg/L) exceed the 2L GQS.

Based on the groundwater analytical results reported in the June 4, 2012 laboratory analytical report, no concentrations of any metals or volatile organic compounds were reported above the 2L GQS or the SWSL in the surface water sample collected.

A table summarizing the groundwater analytical data for groundwater and surface water samples with detectable concentrations of metals and volatile organic constituents from the last twelve sampling events (six years) has been included with this submission. A copy of the most recent laboratory analytical report and a table entitled; *Table of Values Which Exceed Established Standards And/Or Exceed Reporting Levels,* submitted to Currituck County by Environment 1 have also been included.

Arsenic and barium are naturally occurring metals that are both readily found in measurable quantities in both groundwater and soils in the coastal plain of North Carolina. Conventional metals analysis (EPA

Method 200.8) in groundwater requires acid preservation. The acid preservation dissolves sediments and otherwise insoluble metals suspended in the groundwater sample, potentially elevating the concentrations of dissolved metals in the samples. The turbidity of the samples at the time of preservation is not known, nor required to be known. Therefore, it is not clear if suspended sediments influence the metals concentrations reported in the groundwater samples.

A review of the last six years of groundwater and surface water sampling data indicates that concentrations of all metals analyzed are generally stable and the concentrations that have or currently do exceed the 2L GQS are likely or at least potentially naturally occurring. Analytical data will continue to be monitored and any future irregularities or sharp increases in reported metal concentrations will be considered and addressed, as each case may warrant.

Benzene, toluene and xylenes are typically associated with petroleum and/or petroleum based products. Concentrations of benzene that exceed the 2L GQS have been reported in the groundwater samples collected from Well# 5 and Well #6 over the last several years and within the last two years concentrations of benzene have risen slightly in Well #8 and now consistently exceed the 2L GQS while benzene concentrations reported in the groundwater samples collected from MW#5 have decreased slightly. This trend coupled with an analysis of shallow water table surface maps indicates that there is some migration of petroleum constituents occurring. A map showing the locations of the wells with groundwater contours based on depth to water measurements taken during the June 4, 2012 sampling event has been included with this analysis.

Concentrations of chlorobenzene (3.40 µg/L) that exceed the SWSL but not the 2L GQS were reported in the groundwater samples collected and analyzed from Well# 8. Chlorobenzene is commonly used in the manufacture of pesticides, dyes and rubber and degrades only very slowly once dissolved in groundwater. Reported concentrations of chlorobenzene are relatively low and do not appear to pose a significant threat to human health or the environment.

There is continued migration of volatile organics occurring. However, concentrations are relatively low and none of the concentrations reported warrant additional assessment activities at this time as they do not currently seem to threaten any environmental receptors.

The next scheduled sampling event at the Currituck County Landfill is in December of 2012.

Please do not hesitate to contact the undersigned at 252.261.3300, if you have any questions or require any additional information in this matter.

Sincerely,

Quible & Associates, P.C.

Warren Eadus, P.G.

enc As stated
pdf copy of all documentation

cc Brenda McQueen
file

Table of Values Which Exceed Established Standards And/Or Exceed Reporting Levels

Facility Name: CURRITUCK COUNTY LANDFILL Permit #: 2701 Lab ID# 6028

Location	Collection Date	Exceeds Std	Parameter	CAS #	Result, ug/l	NC 2L STD **	NC GWP STD **	NC 2B SWS **
Well #1	06/04/2012	Y	Arsenic	7440-38-2	27	10		
Well #6	06/04/2012	Y	Arsenic	7440-38-2	57	10		
Well #6	06/04/2012	Y	Benzene	71-43-2	2.10	1		
Well #8	06/04/2012		Barium	7440-39-3	444	700		
Well #8	06/04/2012	Y	Benzene	71-43-2	1.20	1		
Well #8	06/04/2012		Chlorobenzene	108-90-7	3.40	50		

** Note: NC 2L STD = NC 2L Ground Water Standard
NC GWP STD = NC Solid Waste Groundwater Protection Standard
NC 2B SWS = NC 2B Surface Water Standard

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6203
FAX (252) 756-0633

ID#: 6028

CURRITUCK COUNTY LANDFILL
PUBLIC WORKS DEPARTMENT
153 COURTHOUSE RD SUITE 302
CURRITUCK ,NC 27929

DATE COLLECTED: 06/04/12
DATE REPORTED : 06/20/12

REVIEWED BY:

PARAMETERS	MDL	SWSL	Well #1	Well #2	Well #3	Well #4	Well #5	Analysis Date	Analyst	Method Code
PH (field measurement), Units			4.5	6.4	6.0	5.5	6.2	06/04/12	RJH	SM4500HB
Arsenic, ug/l	0.13	10.0	27	5.5 J	4.3 J	0.20 J	0.38 J	06/07/12	MEL	EPA200.8
Barium, ug/l	0.07	100.0	40.1 J	76..5 J	9.5 J	31.5 J	16.9 J	06/07/12	MEL	EPA200.8
Cadmium, ug/l	0.03	1.0	0.08 J	0.33 J	0.16 J	0.13 J	0.04 J	06/15/12	LPJ	EPA200.8
Total Chromium, ug/l	0.18	10.0	1.2 J	1.1 J	0.25 J	0.40 J	1.3 J	06/07/12	MEL	EPA200.8
Lead, ug/l	0.08	10.0	0.81 J	0.73 J	0.44 J	1.1 J	0.33 J	06/07/12	MEL	EPA200.8
Mercury, ug/l	0.02	0.20	--- U	0.08 J	0.02 J	--- U	--- U	06/07/12	MEL	EPA200.8
Selenium, ug/l	0.17	10.0	0.45 J	1.6 J	0.54 J	--- U	0.52 J	06/07/12	MEL	EPA200.8
Silver, ug/l	0.10	10.0	--- U	--- U	--- U	--- U	--- U	06/07/12	MEL	EPA200.8
Conductivity (at 25c), uMhos/cm	1.0	1.0	131	653	216	208	258	06/04/12	RJH	SM2510B
Temperature, °C			17	17	18	18	18	06/04/12	RJH	SM2550B
Static Water Level, feet			3.15	2.58	4.34	6.91	7.00	06/04/12	RJH	
Well Depth, foot			21.15	18.63	21.34	23.60	20.34	06/04/12	RJH	

J = Between MDL and SWSL, U = Below ALL Quanititation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

ID#: 6028

CURRITUCK COUNTY LANDFILL
PUBLIC WORKS DEPARTMENT
153 COURTHOUSE RD SUITE 302
CURRITUCK ,NC 27929

DATE COLLECTED: 06/04/12
DATE REPORTED : 06/20/12

REVIEWED BY:

PARAMETERS	MDL	SWSL	Well #6	Well #7	Well #8	Pond	Analysis Date	Analyst	Method Code
PH (field measurement), Units			5.5	6.2	6.5	6.7	06/04/12	RJH	SM4500HB
Arsenic, ug/l	0.13	10.0	57	9 J	2.1 J	0.74 J	06/07/12	MEL	EPA200.8
Barium, ug/l	0.07	100.0	22.6 J	16.7 J	444	113	06/07/12	MEL	EPA200.8
Cadmium, ug/l	0.03	1.0	0.11 J	0.06 J	0.67 J	0.03 J	06/15/12	LFJ	EPA200.8
Total Chromium, ug/l	0.18	10.0	0.34 J	0.66 J	2.4 J	0.42 J	06/07/12	MEL	EPA200.8
Lead, ug/l	0.08	10.0	0.20 J	0.16 J	0.72 J	0.43 J	06/07/12	MEL	EPA200.8
Mercury, ug/l	0.02	0.20	--- U	- - U	--- U	--- U	06/07/12	MEL	EPA200.8
Selenium, ug/l	0.17	10.0	1.1 J	0.60 J	3.7 J	0.45 J	06/07/12	MEL	EPA200.8
Silver, ug/l	0.10	10.0	--- U	- - U	--- U	--- U	06/07/12	MEL	EPA200.8
Conductivity (at 25c), uMhos/cm	1.0	1.0	273	513	1599	126	06/04/12	RJH	SM2510B
Temperature, °C			19	19	16	30	06/04/12	RJH	SM2550B
Static Water Level, feet			4.33	4.96	3.34		06/04/12	RJH	
Well Depth, feet			20.92	20.40	20.88		06/04/12	RJH	

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Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 758-0633

CLIENT: CURRITUCK COUNTY LANDFILL
PUBLIC WORKS DEPARTMENT
153 COURTHOUSE RD SUITE 302
CURRITUCK, NC 27929

CLIENT ID: 6028

ANALYST: MAO
DATE COLLECTED: 06/04/12
DATE REPORTED: 06/20/12

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	MDL	SWSL	Date Analyzed: 06/07/12 Well #1	06/07/12 Well #2	06/07/12 Well #3	06/07/12 Well #4	06/07/12 Well #5
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	--- U	--- U	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	--- U	--- U	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U	--- U	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	--- U	--- U	--- U	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	--- U	--- U	--- U	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- U	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.29	1.0	--- U	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	--- U	2.70 J	--- U	--- U	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	--- U	--- U	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	--- U	--- U
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	--- U	--- U	--- U	--- U	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U	--- U	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quanititation Limits.

Environment 1, Incorporated

Drinking Water ID: 37715
Wastewater ID: 10

P.O. BOX 7085, 114 OAKMONT DRIVE
GREENVILLE, N.C. 27835-7085

PHONE (252) 756-6208
FAX (252) 756-0633

CLIENT: CURRITUCK COUNTY LANDFILL
PUBLIC WORKS DEPARTMENT
153 COURTHOUSE RD SUITE 302
CURRITUCK, NC 27929

CLIENT ID: 6028

ANALYST: MAO
DATE COLLECTED: 06/04/12
DATE REPORTED: 06/20/12

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	Date Analyzed: MDL	SWSL	06/08/12 Well #6	06/08/12 Well #7	06/08/12 Well #8	06/08/12 Pond
1. Chloromethane	0.77	1.0	--- U	--- U	--- U	--- U
2. Vinyl Chloride	0.63	1.0	0.70 J	--- U	--- U	--- U
3. Bromomethane	0.67	10.0	--- U	--- U	--- U	--- U
4. Chloroethane	0.48	10.0	--- U	--- U	1.20 J	--- U
5. Trichlorofluoromethane	0.24	1.0	--- U	--- U	--- U	--- U
6. 1,1-Dichloroethene	0.17	5.0	--- U	--- U	--- U	--- U
7. Acetone	9.06	100.0	--- U	--- U	--- U	--- U
8. Iodomethane	0.26	10.0	--- U	--- U	--- U	--- U
9. Carbon Disulfide	0.23	100.0	--- U	--- U	--- U	--- U
10. Methylene Chloride	0.64	1.0	--- U	--- U	--- U	--- U
11. trans-1,2-Dichloroethene	0.23	5.0	--- U	--- U	--- U	--- U
12. 1,1-Dichloroethane	0.20	5.0	--- U	--- U	0.70 J	--- U
13. Vinyl Acetate	0.20	50.0	--- U	--- U	--- U	--- U
14. Cis-1,2-Dichloroethene	0.25	5.0	0.40 J	--- U	--- U	--- U
15. 2-Butanone	2.21	100.0	--- U	--- U	--- U	--- U
16. Bromochloromethane	0.27	3.0	--- U	--- U	--- U	--- U
17. Chloroform	0.25	5.0	--- U	--- U	--- U	--- U
18. 1,1,1-Trichloroethane	0.19	1.0	--- U	--- U	--- U	--- U
19. Carbon Tetrachloride	0.22	1.0	--- U	--- U	--- U	--- U
20. Benzene	0.24	1.0	3.10	--- U	1.20	--- U
21. 1,2-Dichloroethane	0.27	1.0	--- U	--- U	--- U	--- U
22. Trichloroethene	0.23	1.0	--- U	--- U	--- U	--- U
23. 1,2-Dichloropropane	0.21	1.0	--- U	--- U	--- U	--- U
24. Bromodichloromethane	0.21	1.0	--- U	--- U	--- U	--- U
25. Cis-1,3-Dichloropropene	0.24	1.0	--- U	--- U	--- U	--- U
26. 4-Methyl-2-Pentanone	1.19	100.0	--- U	--- U	--- U	--- U
27. Toluene	0.23	1.0	--- U	--- U	--- U	--- U
28. trans-1,3-Dichloropropene	0.28	1.0	--- U	--- U	--- U	--- U
29. 1,1,2-Trichloroethane	0.25	1.0	--- U	--- U	--- U	--- U
30. Tetrachloroethene	0.17	1.0	--- U	--- U	--- U	--- U
31. 2-Hexanone	1.57	50.0	--- U	--- U	--- U	--- U
32. Dibromochloromethane	0.24	3.0	--- U	--- U	--- U	--- U
33. 1,2-Dibromoethane	0.26	1.0	--- U	--- U	--- U	--- U
34. Chlorobenzene	0.30	3.0	0.40 J	--- U	3.40	--- U
35. 1,1,1,2-Tetrachloroethane	0.22	5.0	--- U	--- U	--- U	--- U
36. Ethylbenzene	0.21	1.0	--- U	--- U	--- U	--- U
37. Xylenes	0.68	5.0	0.80 J	--- U	--- U	--- U
38. Dibromomethane	0.28	10.0	--- U	--- U	--- U	--- U
39. Styrene	0.19	1.0	--- U	--- U	--- U	0.30 J
40. Bromoform	0.20	3.0	--- U	--- U	--- U	--- U
41. 1,1,2,2-Tetrachloroethane	0.26	3.0	--- U	--- U	--- U	--- U
42. 1,2,3-Trichloropropane	0.43	1.0	--- U	--- U	--- U	--- U
43. 1,4-Dichlorobenzene	0.39	1.0	--- U	--- U	0.60 J	--- U
44. 1,2-Dichlorobenzene	0.32	5.0	--- U	--- U	--- U	--- U
45. 1,2-Dibromo-3-Chloropropane	0.34	13.0	--- U	--- U	--- U	--- U
46. Acrylonitrile	2.72	200.0	--- U	--- U	--- U	--- U
47. trans-1,4-Dichloro-2-Butene	0.42	100.0	--- U	--- U	--- U	--- U

J = Between MDL and SWSL, U = Below ALL Quanititation Limits.

Environment 1, Inc.
P.O. Box 7085, 114 Oakmont Dr.
Greenville, NC 27858

Phone (252) 756-6208 • Fax (252) 756-0633

CHAIN OF CUSTODY RECORD

CLIENT: 6028 Week: 26

CURRITUCK COUNTY LANDFILL
PUBLIC WORKS DEPARTMENT
153 COURTHOUSE RD SUITE 302
CURRITUCK NC 27929

(252) 232-2769

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

SAMPLE LOCATION		COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE °C AT COLLECTION	# OF CONTAINERS	Field pH	Metals	Conductivity	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2
CHLORINE NEUTRALIZED AT COLLECTION														
pH CHECK (LAB)								12				12	12	12
CONTAINER TYPE P/G							P	P	P	P		G	G	G
CHEMICAL PRESERVATION							A	A	A	A		E	E	E
Well #1	06	04/12	1125		17	5	G	G	G	G	G	G	G	G
Well #2	06	04/12	1110		17	4	G	G	G	G	G	G	G	
Well #3	06	04/12	1140		18	4	G	G	G	G	G	G	G	
Well #4	06	04/12	1135		18	4	G	G	G	G	G	G	G	
Well #5	06	04/12	1220		18	4	G	G	G	G	G	G	G	
Well #6	06	04/12	1155		19	4	G	G	G	G	G	G	G	
Well #7	06	04/12	1215		19	4	G	G	G	G	G	G	G	
Well #8	06	04/12	1035		16	4	G	G	G	G	G	G	G	
Pond	06	04/12	1205		30	4	G	G	G	G		G	G	

PARAMETERS: A - NONE; B - HNO_3; C - H_2SO_4; D - NaOH; E - HCL; F - ZINC ACETATE; G - NA THIOSULFATE

CLASSIFICATION:
- ☐ WASTEWATER (NPDES)
- ☐ DRINKING WATER
- ☐ DWQ GW
- ☒ SOLID WASTE SECTION

CHAIN OF CUSTODY MAINTAINED DURING SHIPMENT/DELIVERY: (Y) N

SAMPLES COLLECTED BY: (Please Print) Hope Hafer

SAMPLES RECEIVED IN LAB AT 02 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Brec Hafer 06	04/12	[illegible]	04/12 3:30 pm
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

PLEASE READ Instructions for completing this form on the reverse side

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blank above for each sample

№ 233006

Summary of Groundwater and Surface Water Analytical Data-Volatile Organics
Currituck County Landfill #27-24

Sample ID	Date	Well #1	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #8	Pond	2L GQS[2]	SWSL[3]
Benzene	12/7/2006	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	1.0	1.0
	6/27/2007	<0.16	0.8	<0.16	<1.0	**1.8**	0.8	<0.16	<0.16	<0.16		
	12/6/2007	<0.16	0.4	<0.16	<0.16	**1.6**	0.7	<0.16	0.9	<0.16		
	6/27/2008	<0.16	0.5	<0.16	<0.16	**1.5**	0.7	<0.16	0.8	<0.16		
	12/10/2008	<0.16	0.6	<0.16	<0.16	**1.4**	0.5	<0.16	0.7	<0.16		
	6/16/2009	<0.16	0.7	<0.16	<0.16	**1.6**	0.6	<0.16	0.7	<0.16		
	12/7/2009	<0.24	<0.24	<0.24	<0.24	**1.1**	**1.3**	<0.24	0.8	<0.24		
	6/14/2010	<0.24	0.4	<0.24	<0.24	0.9	**1.8**	<0.24	0.9	<0.24		
	12/21/2010	<0.24	<0.24	<0.24	<0.24	<0.24	0.6	<0.24	**1.4**	<0.24		
	6/9/2011	<0.24	<0.24	<0.24	<0.24	0.6	**1.6**	<0.24	**1.2**	<0.24		
	12/8/2011	<0.24	<0.24	<0.24	<0.24	0.5	**2.0**	<0.24	**1.9**	<0.24		
	6/4/2012	<0.24	<0.24	<0.24	<0.24	<0.24	**2.10**	<0.24	**1.20**	<0.24		
Sample ID	Date	Well #1	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #8	Pond	2L GQS[2]	SWSL[3]
2-butanone	12/7/2006	<50.00	<50.00	<50.00	<50.00	<50.00	<50.00	<50.00	<50.00	<50.00	4,000	2L GQS
	6/27/2007	1.5	1.4	2.2	2.1	2.1	1.8	5.3	2.1	2.8		
	12/6/2007	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85		
	6/27/2008	1.5	2.3	1.5	1.6	4.4	1.4	2.2	2.6	2		
	12/10/2008	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85	<0.85		
	6/16/2009	6.9	5.4	5.8	6.6	7.9	2.6	3.6	5	10.6		
	12/7/2009	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21		
	6/14/2010	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21		
	12/21/2010	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21		
	6/9/2011	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	2.4		
	12/8/2011	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21		
	6/4/2012	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21	<2.21		
Sample ID	Date	Well #1	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #8	Pond	2L GQS[2]	SWSL[3]
Chlorobenzene	12/7/2006	<3.00	**15.3**	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	50.0	3.0
	6/27/2007	<0.13	**34.9**	<0.13	<0.13	1	<0.13	<0.13	<0.13	<0.13		
	12/6/2007	<0.13	**10.5**	<0.13	<0.13	1.4	0.2	<0.13	0.9	<0.13		
	6/27/2008	<0.13	**6**	<0.13	<0.13	1.3	<0.13	<0.13	1	<0.13		
	12/10/2008	<0.13	**5.7**	<0.13	<0.13	1	<0.13	<0.13	**1.4**	<0.13		
	6/16/2009	<0.13	**5.3**	<0.13	<0.13	1.7	<0.13	0.3	0.8	<0.13		
	12/7/2009	<0.30	1.2	<0.30	<0.30	1.1	<0.30	<0.30	0.8	<0.30		
	6/14/2010	<0.30	**7.8**	<0.30	<0.30	0.6	<0.30	<0.30	**1.2**	<0.30		
	12/21/2010	<0.30	2.8	<0.30	<0.30	0.4	<0.30	<0.30	**3.4**	<0.30		
	6/9/2011	<0.30	**5**	<0.30	<0.30	0.6	<0.30	<0.30	**3.7**	<0.30		
	12/8/2011	<0.30	**4.2**	<0.30	<0.30	<0.30	0.6	0.3	**6.7**	<0.30		
	6/4/2012	<0.30	2.7	<0.30	<0.30	<0.30	0.40	<0.30	**3.40**	<0.30		

Summary of Groundwater and Surface Water Analytical Data-Volatile Organics
Currituck County Landfill #27-24

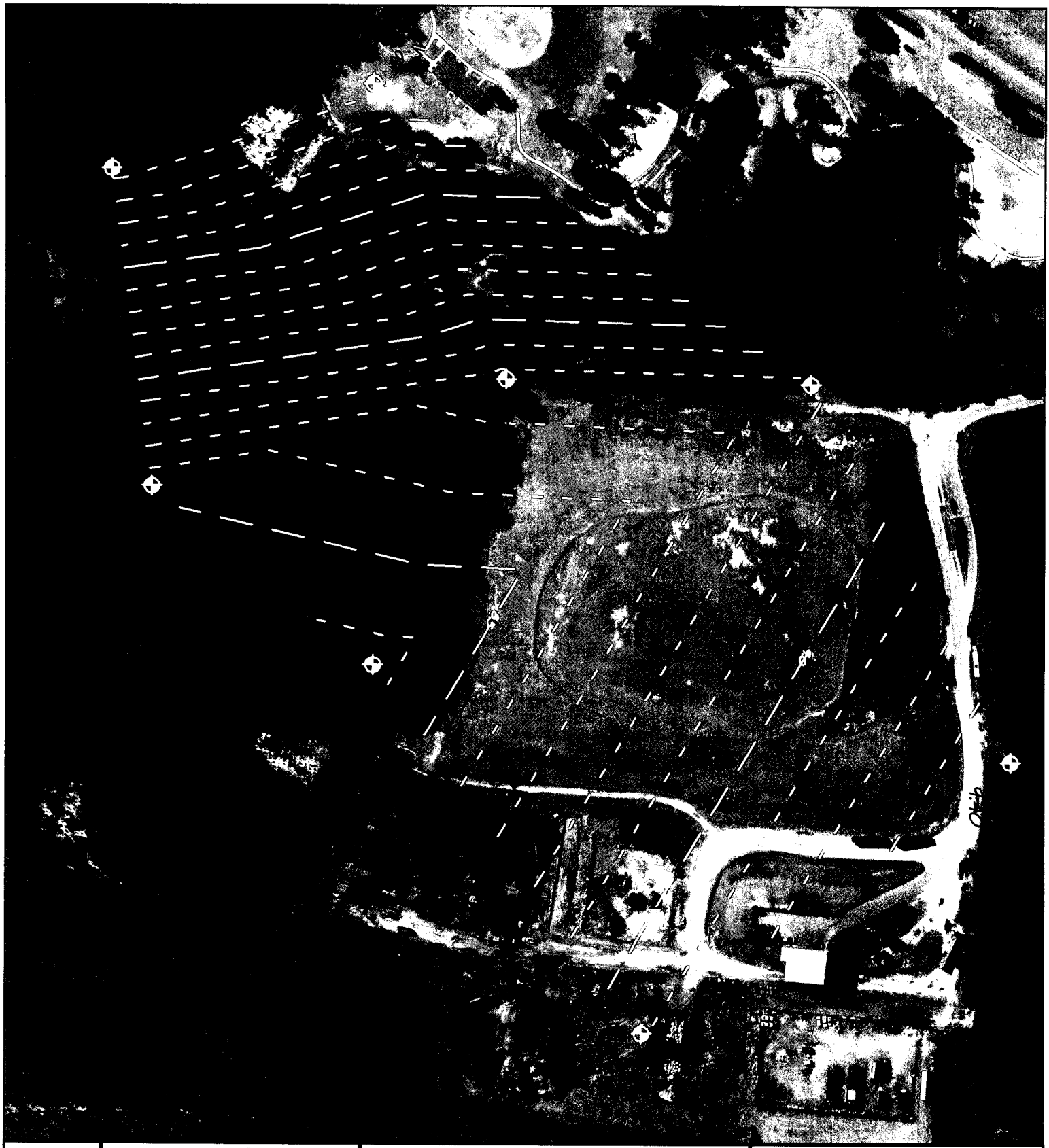
Sample ID	Date	Well #1	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #8	Pond	2L GQS[2]	SWSL[3]
1,4-dichlorobenzene	12/7/2006	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	6	2L GQS
	6/27/2007	<0.21	0.4	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21		
	12/6/2007	<0.21	0.3	<0.21	<0.21	<0.21	<0.21	<0.21	0.3	<0.21		
	6/27/2008	<0.21	0.3	<0.21	<0.21	<0.21	<0.21	<0.21	0.3	<0.21		
	12/10/2008	<0.21	0.3	<0.21	<0.21	<0.21	<0.21	<0.21	0.3	<0.21		
	6/16/2009	<0.21	0.4	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21	<0.21		
	12/7/2009	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39		
	6/14/2010	<0.39	0.5	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39		
	12/21/2010	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	0.8	<0.39		
	6/9/2011	<0.39	0.4	<0.39	<0.39	<0.39	<0.39	<0.39	0.7	<0.39		
	12/8/2011	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	1	<0.39		
	6/4/2012	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	<0.39	0.60	<0.39		
Sample ID	Date	Well #1	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #8	Pond	2L GQS[2]	SWSL[3]
Vinyl chloride	12/7/2006	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	0.03	1.0
	6/27/2007	<0.34	<0.34	<0.34	<0.34	**0.604**	**0.5**	<0.34	<0.34	<0.34		
	12/6/2007	<0.34	<0.34	<0.34	<0.34	**0.9**	<0.34	<0.34	<0.34	<0.34		
	6/27/2008	<0.34	<0.34	<0.34	<0.34	**1.1**	**0.4**	<0.34	<0.34	<0.34		
	12/10/2008	<0.34	<0.34	<0.34	<0.34	**0.4**	<0.34	<0.34	<0.34	<0.34		
	6/16/2009	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34	<0.34		
	12/7/2009	<0.63	<0.63	<0.63	<0.63	<0.63	**0.9**	<0.63	<0.63	<0.63		
	6/14/2010	<0.77	<0.77	<0.77	<0.77	<0.77	**1.1**	<0.77	<0.77	<0.77		
	12/21/2010	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63	<0.63		
	6/9/2011	<0.63	<0.63	<0.63	<0.63	<0.63	**0.9**	<0.63	<0.63	<0.63		
	12/8/2011	<0.63	<0.63	<0.63	<0.63	<0.63	**0.9**	<0.63	<0.63	<0.63		
	6/4/2012	<0.63	<0.63	<0.63	<0.63	<0.63	**0.70**	<0.63	<0.63	<0.63		
Sample ID	Date	Well #1	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #8	Pond	2L GQS[2]	SWSL[3]
Acetone	12/7/2006	<50.00	<50.00	<50.00	<50.00	<50.00	<50.00	<50.00	<50.00	<50.00	600	100
	6/27/2007	<1.21	<1.21	1.7	1.4	1.7	<1.21	3.2	1.5	2.4		
	12/6/2007	<1.21	<1.21	<1.21	<1.21	1.3	<1.21	<1.21	<1.21	<1.21		
	6/27/2008	2.4	3.8	3	2.6	7.5	2.5	3.4	4.4	3.8		
	12/10/2008	<1.21	<1.21	<1.21	<1.21	<1.21	<1.21	<1.21	<1.21	<1.21		
	6/16/2009	3.2	3	3.6	3.4	4	1.5	2.2	3.1	5.6		
	12/7/2009	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06		
	6/14/2010	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06		
	12/21/2010	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06		
	6/9/2011	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	11.2		
	12/8/2011	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06		
	6/4/2012	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06	<9.06		

Summary of Groundwater and Surface Water Analytical Data-Volatile Organics
Currituck County Landfill #27-24

Sample ID	Date	Well #1	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #8	Pond	2L GQS[2]	SWSL[3]
1,1-dichloroethane	12/7/2006	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	6	2L GQS
	6/27/2007	<0.16	<0.16	<0.16	<0.16	0.2	<0.16	<0.16	<0.16	<0.16		
	12/6/2007	<0.16	<0.16	<0.16	<0.16	0.4	<0.16	<0.16	<0.16	<0.16		
	6/27/2008	<0.16	<0.16	<0.16	<0.16	0.2	<0.16	<0.16	0.2	<0.16		
	12/10/2008	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	1.1	<0.16		
	6/16/2009	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	<0.16	0.4	<0.16		
	12/7/2009	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20		
	6/14/2010	<0.20	<0.20	<0.20	<0.20	<0.20	0.4	<0.20	<0.20	<0.20		
	12/21/2010	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.4	<0.20		
	6/9/2011	<0.20	<0.20	<0.20	<0.20	<0.20	0.5	<0.20	0.7	<0.20		
	12/8/2011	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.4	<0.20		
	6/4/2012	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	<0.27	0.70	<0.27		
Sample ID	Date	Well #1	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #8	Pond	2L GQS[2]	SWSL[3]
Chloroethane	12/7/2006	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	<5.00	3,000	10
	6/27/2007	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29		
	12/6/2007	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	0.4	<0.29		
	6/27/2008	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29		
	12/10/2008	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	3.8	<0.29		
	6/16/2009	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	<0.29	0.8	<0.29		
	12/7/2009	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	1.1	<0.48		
	6/14/2010	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	0.8	<0.48		
	12/21/2010	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48		
	6/9/2011	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	0.9	<0.48		
	12/8/2011	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.70	<0.48		
	6/4/2012	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	<0.48	1.20	<0.48		
Sample ID	Date	Well #1	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #8	Pond	2L GQS[2]	SWSL[3]
Cis-1,2 Dichloroethene	12/7/2006	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	<3.00	70	5
	6/27/2007	<0.14	<0.14	<0.14	<0.14	0.2	0.8	<0.14	<0.14	<0.14		
	12/6/2007	<0.14	<0.14	<0.14	<0.14	0.2	0.3	<0.14	<0.14	<0.14		
	6/27/2008	<0.14	<0.14	<0.14	<0.14	0.2	0.8	<0.14	<0.14	<0.14		
	12/10/2008	<0.14	<0.14	<0.14	<0.14	<0.14	0.2	<0.14	<0.14	<0.14		
	6/16/2009	<0.14	<0.14	<0.14	<0.14	<0.14	0.5	<0.14	<0.14	<0.14		
	12/7/2009	<0.25	<0.25	<0.25	<0.25	<0.25	0.8	<0.25	<0.25	<0.25		
	6/14/2010	<0.25	<0.25	<0.25	<0.25	<0.25	0.7	<0.25	<0.25	<0.25		
	12/21/2010	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25	<0.25		
	6/9/2011	<0.25	<0.25	<0.25	<0.25	<0.25	0.7	<0.25	<0.25	<0.25		
	12/8/2011	<0.25	<0.25	<0.25	<0.25	<0.25	0.6	<0.25	<0.25	<0.25		
	6/4/2012	<0.25	<0.25	<0.25	<0.25	<0.25	0.40	<0.25	<0.25	<0.25		

Summary of Groundwater and Surface Water Analytical Data-Volatile Organics
Currituck County Landfill #27-24

Sample ID	Date	Well #1	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #8	Pond	2L GQS[2]	SWSL[3]
Toluene	12/8/2011	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	0.3	<0.23	600	1
	6/4/2012	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23	<0.23		
Sample ID	Date	Well #1	Well #2	Well #3	Well #4	Well #5	Well #6	Well #7	Well #8	Pond	2L GQS[2]	SWSL[3]
Xylenes	12/8/2011	<0.25	<0.25	<0.25	<0.25	<0.25	0.6	<0.25	<0.25	<0.25	500	5
	6/4/2012	<0.68	<0.68	<0.68	<0.68	<0.68	0.80	<0.68	<0.68	<0.68		



PROJECT	07014.1
DRAWN BY	CADD
CHECKED BY	WDE
DATE	07/18/12

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SHALLOW WATER TABLE SURFACE MAP

CURRITUCK COUNTY
MSW LANDFILL 27-03

MAPLE TOWNSHIP — CURRITUCK

NORTH CAROLINA

0 — 300 — 600

GRAPHIC SCALE IN FEET 1"=300

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