9606-MSWLF-1998

96-06

2-18-04

Carmen Johnson

Fac/Perm/Co ID 96-06 | Date 7/24/12 | Doc ID# | DIN

Semi-Annual Groundwater Sampling and Analysis Report

Prepared for

Wayne Co. Subtitle D Landfill
Dudley, North Carolina

February 2004

Received
APR 2004
Waste
Management

eceived
PR 2004
Waste
Management

MESCO Project Number: G04016.0

Completed on April 26, 2004

Municipal Services Garner, NC
Engineering Company, P.A. Boone, NC

Municipal Engineering Services Company, P.A.
Garner, Boone and Morehead City, North Carolina

OPERATION/CONSTRUCTION MANAGERS

Municipal Services

CIVIL/SANITARY ENGINEERS

Engineering Company, P.A.

April 26, 2004

Mr. Larry Rose
Solid Waste Section
Division of Waste Management
North Carolina Department of Environment and Natural Resources
401 Oberlin Road, Suite 150
Raleigh, NC 27605

Re: Groundwater Sampling and Analysis
Wayne County Subtitle D Landfill
MESCO Project No. G04016.0

Dear Mr. Rose:

The Wayne County Subtitle D Lined Landfill was sampled and analyzed for the Appendix I list of constituents by Environment 1, Inc. of Greenville on February 18, 2004. The results of the laboratory analyses are included herein.

All detected constituents were analyzed for regulatory exceedance with reference to North Carolina Groundwater Standards. The results are shown in the enclosed table titled "Exceedance Scan". The following table summarizes those constituents that exceeded the Standard.

Table 1. Exceedance Summary

Well	Lead
MW-2	x

x=concentration greater than Standard

A few metals continue to be detected within the monitoring locations. Lead was detected within MW-2 in exceedance of the Standard. However lead among other metals have historically been detected within the background well MW-1. The presence of metals within the background and the complete lack of VOCs makes it very unlikely that the metals are waste related but rather naturally occurring.

Three new monitoring wells have recently been installed surrounding the phase 2 subtitle D landfill which is currently under construction. These wells (MW-11, MW-12, and MW-13) are scheduled to be sampled the week of May 3, 2004 as part of the pre-operational baseline sampling requirement. The results will be submitted when the 4 independent baseline sampling events are completed.

PO Box 97, Garner, North Carolina 27529 (919) 772-5393
PO Box 828, Morehead City, NC 28557 (252) 726-9481
PO Box 349, Boone, North Carolina 28607 (828) 262-1767

MESCO completed the groundwater report including a potentiometric map with groundwater flow rates and direction for the sampling event. Statistical analyses will be conducted shortly on all detected constituents for inter-well and intra-well comparisons, and the results will be submitted to the Section upon completion. Also the landfill will continue detection monitoring and will be sampled for the Appendix I list of constituents in August 2004. If you have any questions regarding this report, please contact me by phone at (919) 772-5393 or by email at jpfohl@meco.com.

Sincerely,
MUNICIPAL ENGINEERING SERVICES CO., P.A.

Jonathan Pfohl
Environmental Specialist

Enclosures

cc: Mr. Lloyd Cook
Wayne County

Exceedance Scan
Wayne Co. Subtitle D Landfill

Well ID	Parameter Name [1]	Sample Date	Result	Unit	PQL [2]	MCL [3]	Exceedance
MW-1	Chromium, total	2/18/2004	0.047	mg/l	0.01	0.05	
MW-1	Vanadium	2/18/2004	0.081	mg/l	0.04	-	
MW-10	Chromium, total	2/18/2004	0.011	mg/l	0.01	0.05	
MW-2	Chromium, total	2/18/2004	0.036	mg/l	0.01	0.05	
MW-2	**Lead, total**	**2/18/2004**	**0.023**	**mg/l**	**0.01**	**0.015**	**0.008**
MW-2	Vanadium	2/18/2004	0.047	mg/l	0.04	-	
MW-5	Chromium, total	2/18/2004	0.022	mg/l	0.01	0.05	
MW-7	Arsenic, total	2/18/2004	0.013	mg/l	0.01	0.05	

[1] Table only contains detected constituents.

[2] PQL = Practical Quantitation Limit

[3] MCL = Maximum Contaminant Level (North Carolina Groundwater Standard)

Hydrologic Properties at Monitoring Well Locations
Wayne County Subtitle D Landfill

Monitoring Well	Hydraulic Conductivity (cm/sec)	Effective Porosity (%)	Hydraulic Gradient	Flow Rate (ft/yr)	Flow Direction
MW-1	3.21E-04	31%	0.012	12.75	S81W
MW-2	1.37E-03	31%	0.020	93.22	S35W
MW-3	9.72E-04	31%	0.059	190.35	S7E
MW-4	2.33E-04	9%	0.004	10.98	S60W
MW-5	1.45E-04	9%	0.004	6.48	S82W
MW-6	8.38E-05	31%	0.015	4.19	N88W
MW-7	6.84E-05	9%	0.020	15.80	N63W
MW-8	1.68E-04	9%	0.005	9.20	N54W
MW-9	6.37E-04	31%	0.007	14.76	S68W
MW-10	4.74E-04	31%	0.016	24.94	S65W

NOTE: Data for effective porosity obtained from Design Hydrogeologic Study for Wayne County.
Hydraulic Conductivity values were obtained from slug tests performed on each monitoring well.
Hydrologic Gradient taken from the February 18, 2004 sampling event.
Flow rate (Q) is defined by the equation:

where

$$Q = -\frac{K}{n_e} \cdot \frac{dh}{dl}$$

K = hydraulic conductivity
n_e = effective porosity
dh = head difference
dl = horizontal distance

Laboratory Data

Environment 1, Incorporated

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

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

MUNICIPAL ENGINEERING
RECEIVED
MAR 24 2004
SERVICES COMPANY

March 23, 2004

Mr. Lloyd Cook
Wayne County Landfill
460B Landfill Road
Dudley, NC 28333

Dear Mr. Cook:

Enclosed are results for samples collected during February, 2003 at the lined facility. A copy of this data has been sent to Municipal Engineers. If you have any questions please give me a call.

Sincerely,

Steve Jones

cc: Municipal Engineers

Environment 1, Incorporated

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

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

MUNICIPAL ENGINEERING
RECEIVED
MAR 24 2004
SERVICES COMPANY

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6029

WAYNE CO. LANDFILL (LINED)
MR. LLOYD COOK
460B LANDFILL ROAD
DUDLEY ,NC 28333

DATE COLLECTED: 02/18/04
DATE REPORTED : 03/23/04

REVIEWED BY:

PARAMETERS	Monitoring Well #1	Monitoring Well #2	Monitoring Well #3	Monitoring Well #4	Monitoring Well #5	Analysis Date	Analyst	Method Code
PH (field measurement), Units	5.0	5.1	4.5	4.5	4.7	02/18/04	RJH	EPA150.1
Antimony, mg/l	<0.030	<0.030	<0.030	<0.030	<0.030	02/26/04	CMF	EPA7041
Arsenic, mg/l	<0.010	<0.010	<0.010	<0.010	<0.010	03/01/04	CMF	EPA7060
Barium, mg/l	<0.500	<0.500	<0.500	<0.500	<0.500	02/25/04	WNG	EPA200.7
Beryllium, mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	02/25/04	WNG	EPA200.7
Cadmium, mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	03/02/04	CMF	EPA7131
Cobalt, mg/l	<0.010	<0.010	<0.010	<0.010	<0.010	02/25/04	WNG	EPA200.7
Copper, mg/l	<0.200	<0.200	<0.200	<0.200	<0.200	02/26/04	AEL	EPA7210
Total Chromium, mg/l	0.047	0.036	<0.010	<0.010	0.022	02/25/04	WNG	EPA200.7
Lead, mg/l	<0.010					03/18/04	CMF	EPA7421
		0.023	<0.010	<0.010	<0.010	03/03/04	CMF	EPA7421
Nickel, mg/l	<0.050	<0.050	<0.050	<0.050	<0.050	02/25/04	WNG	EPA200.7
Selenium, mg/l	<0.020	<0.020	<0.020	<0.020	<0.020	02/26/04	CMF	EPA7740
Silver, mg/l	<0.010	<0.010	<0.010	<0.010	<0.010	02/25/04	WNG	EPA200.7
Thallium, mg/l	<0.010	<0.010	<0.010	<0.010	<0.010	03/02/04	CMF	EPA7841
Vanadium, mg/l	0.081	0.047	<0.040	<0.040	<0.040	02/25/04	WNG	EPA200.7
Zinc, mg/l	<0.050	<0.050	<0.050	<0.050	<0.050	02/24/04	AEL	EPA7950
Conductivity (at 25c), uMhos	22	114	76	31	29	02/18/04	RJH	SM2510B
Temperature, °C	16	14	14	16	16	02/18/04	RJH	SM2550B
Static Water Level, Feet	12.87	9.28	4.64	15.84	16.22	02/18/04	RJH	
Well Depth, feet	25.03	21.98	22.58	27.35	26.15	02/18/04	RJH	

Environment 1, Incorporated

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

PHONE (252) 756-6208
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Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6029

WAYNE CO. LANDFILL (LINED)
MR. LLOYD COOK
460B LANDFILL ROAD
DUDLEY ,NC 28333

DATE COLLECTED: 02/18/04
DATE REPORTED : 03/23/04

REVIEWED BY:

PARAMETERS	Monitoring Well #6	Monitoring Well #7	Monitoring Well #8	Monitoring Well #9	Monitoring Well #10	Analysis Date	Analyst	Method Code
PH (field measurement), Units	4.7	5.7	5.1	4.5	4.4	02/18/04	RJH	EPA150.1
Antimony, mg/l	<0.030	<0.030	<0.030	<0.030	<0.030	02/26/04	CMF	EPA7041
Arsenic, mg/l	<0.010	0.013	<0.010	<0.010	<0.010	03/01/04	CMF	EPA7060
Barium, mg/l	<0.500	<0.500	<0.500	<0.500	<0.500	02/25/04	WNG	EPA200.7
Beryllium, mg/l	<0.002	<0.002	<0.002	<0.002	<0.002	02/25/04	WNG	EPA200.7
Cadmium, mg/l	<0.001	<0.001	<0.001	<0.001	<0.001	03/02/04	CMF	EPA7131
Cobalt, mg/l	<0.010	<0.010	<0.010	<0.010	<0.010	02/25/04	WNG	EPA200.7
Copper, mg/l	<0.200	<0.200	<0.200	<0.200	<0.200	02/26/04	AEL	EPA7210
Total Chromium, mg/l	<0.010	<0.010	<0.010	<0.010	0.011	02/25/04	WNG	EPA200.7
Lead, mg/l	<0.010	<0.010	<0.010	<0.010	<0.010	03/03/04	CMF	EPA7421
Nickel, mg/l	<0.050	<0.050	<0.050	<0.050	<0.050	02/25/04	WNG	EPA200.7
Selenium, mg/l	<0.020	<0.020	<0.020	<0.020	<0.020	02/26/04	CMF	EPA7740
Silver, mg/l	<0.010	<0.010	<0.010	<0.010	<0.010	02/25/04	WNG	EPA200.7
Thallium, mg/l	<0.010	<0.010	<0.010	<0.010	<0.010	03/02/04	CMF	EPA7841
Vanadium, mg/l	<0.040	<0.040	<0.040	<0.040	<0.040	02/25/04	WNG	EPA200.7
Zinc, mg/l	<0.050	<0.050	<0.050	<0.050	<0.050	02/24/04	AEL	EPA7950
Conductivity (at 25c), uMhos	27	164	41	32	34	02/18/04	RJH	SM2510B
Temperature, °C	17	15	17	15	17	02/18/04	RJH	SM2550B
Static Water Level, Feet	16.03	6.06	7.67	10.81	12.25	02/18/04	RJH	
Well Depth, feet	27.19	22.63	22.69	24.03	25.19	02/18/04	RJH	

Environment 1, Incorporated

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

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

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6029

WAYNE CO. LANDFILL (LINED)
MR. LLOYD COOK
460B LANDFILL ROAD
DUDLEY ,NC 28333

DATE COLLECTED: 02/18/04
DATE REPORTED : 03/23/04

REVIEWED BY:

PARAMETERS	Leachate Canal	Equipment Blank	Trip Blank	Duplicate (WELL 3)	Analysis Date	Analyst	Method Code
PH (field measurement), Units	Missing				/ /		
BOD, mg/l	Missing				/ /		
COD, mg/l	Missing				/ /		
Nitrate-Nitrite, mg/l	Missing				/ /		
Total Phosphorus, mg/l	Missing				/ /		
Antimony, mg/l	Missing	<0.030		<0.030	02/26/04	CMF	EPA7041
Arsenic, mg/l	Missing	<0.010		<0.010	03/01/04	CMF	EPA7060
Barium, mg/l	Missing	<0.500		<0.500	02/25/04	WNG	EPA200.7
Beryllium, mg/l	Missing	<0.002		<0.002	02/25/04	WNG	EPA200.7
Cadmium, mg/l	Missing	<0.001		<0.001	03/02/04	CMF	EPA7131
Cobalt, mg/l	Missing	<0.010		<0.010	02/25/04	WNG	EPA200.7
Copper, mg/l	Missing	<0.200		<0.200	02/26/04	AEL	EPA7210
Total Chromium, mg/l	Missing	<0.010		<0.010	02/25/04	WNG	EPA200.7
Lead, mg/l	Missing	<0.010		<0.010	03/03/04	CMF	EPA7421
Nickel, mg/l	Missing	<0.050		<0.050	02/25/04	WNG	EPA200.7
Selenium, mg/l	Missing	<0.020		<0.020	02/26/04	CMF	EPA7740
Silver, mg/l	Missing	<0.010		<0.010	02/25/04	WNG	EPA200.7
Thallium, mg/l	Missing	<0.010		<0.010	03/02/04	CMF	EPA7841
Vanadium, mg/l	Missing	<0.040		<0.040	02/25/04	WNG	EPA200.7
Zinc, mg/l	Missing	<0.050		<0.050	02/24/04	AEL	EPA7950
Sulfate, mg/l	Missing				/ /		
EPA Method 8260B Volatiles	Missing				02/24/04		
8260 (Duplicate)	Missing				/ /		

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: WAYNE CO. LANDFILL (LINED)
MR. LLOYD COOK
460B LANDFILL ROAD
DUDLEY, NC 28333

CLIENT ID: 6029

ANALYST: MAO
DATE COLLECTED: 02/18/04
DATE REPORTED: 03/23/04

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B

Date Analyzed: / PARAMETERS, ug/l	02/24/04 Monitoring Well #1	02/24/04 Monitoring Well #2	02/24/04 Monitoring Well #3	02/24/04 Monitoring Well #4	02/24/04 Monitoring Well #5
1. Chloromethane	<10.00	<10.00	<10.00	<10.00	<10.00
2. Vinyl Chloride	<10.00	<10.00	<10.00	<10.00	<10.00
3. Bromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
4. Chloroethane	<10.00	<10.00	<10.00	<10.00	<10.00
5. Trichlorofluoromethane	<5.00	<5.00	<5.00	<5.00	<5.00
6. 1,1-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
7. Acetone	<100.00	<100.00	<100.00	<100.00	<100.00
8. Iodomethane	<10.00	<10.00	<10.00	<10.00	<10.00
9. Carbon Disulfide	<100.00	<100.00	<100.00	<100.00	<100.00
10. Methylene Chloride	<10.00	<10.00	<10.00	<10.00	<10.00
11. trans-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
12. 1,1-Dichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
13. Vinyl Acetate	<50.00	<50.00	<50.00	<50.00	<50.00
14. Cis-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
15. 2-Butanone	<100.00	<100.00	<100.00	<100.00	<100.00
16. Bromochloromethane	<5.00	<5.00	<5.00	<5.00	<5.00
17. Chloroform	<5.00	<5.00	<5.00	<5.00	<5.00
18. 1,1,1-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
19. Carbon Tetrachloride	<10.00	<10.00	<10.00	<10.00	<10.00
20. Benzene	<5.00	<5.00	<5.00	<5.00	<5.00
21. 1,2-Dichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
22. Trichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
23. 1,2-Dichloropropane	<5.00	<5.00	<5.00	<5.00	<5.00
24. Bromodichloromethane	<5.00	<5.00	<5.00	<5.00	<5.00
25. Cis-1,3-Dichloropropene	<10.00	<10.00	<10.00	<10.00	<10.00
26. 4-Methyl-2-Pentanone	<100.00	<100.00	<100.00	<100.00	<100.00
27. Toluene	<5.00	<5.00	<5.00	<5.00	<5.00
28. trans-1,3-Dichloropropene	<10.00	<10.00	<10.00	<10.00	<10.00
29. 1,1,2-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
30. Tetrachloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
31. 2-Hexanone	<50.00	<50.00	<50.00	<50.00	<50.00
32. Dibromochloromethane	<5.00	<5.00	<5.00	<5.00	<5.00
33. 1,2-Dibromoethane	<5.00	<5.00	<5.00	<5.00	<5.00
34. Chlorobenzene	<5.00	<5.00	<5.00	<5.00	<5.00
35. 1,1,1,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
36. Ethylbenzene	<5.00	<5.00	<5.00	<5.00	<5.00
37. Xylenes	<5.00	<5.00	<5.00	<5.00	<5.00
38. Dibromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
39. Styrene	<10.00	<10.00	<10.00	<10.00	<10.00
40. Bromoform	<5.00	<5.00	<5.00	<5.00	<5.00
41. 1,1,2,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
42. 1,2,3-Trichloropropane	<15.00	<15.00	<15.00	<15.00	<15.00
43. 1,4-Dichlorobenzene	<5.00	<5.00	<5.00	<5.00	<5.00
44. 1,2-Dichlorobenzene	<5.00	<5.00	<5.00	<5.00	<5.00
45. 1,2-Dibromo-3-Chloropropane	<25.00	<25.00	<25.00	<25.00	<25.00
46. Acrylonitrile	<200.00	<200.00	<200.00	<200.00	<200.00
47. trans-1,4-Dichloro-2-Butene	<100.00	<100.00	<100.00	<100.00	<100.00

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: WAYNE CO. LANDFILL (LINED)
MR. LLOYD COOK
460B LANDFILL ROAD
DUDLEY, NC 28333

CLIENT ID: 6029

ANALYST: MAO
DATE COLLECTED: 02/18/04
DATE REPORTED: 03/23/04

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B

Date Analyzed: / PARAMETERS, ug/l	02/25/04 Monitoring Well #6	02/25/04 Monitoring Well #7	02/25/04 Monitoring Well #8	02/25/04 Monitoring Well #9	02/25/04 Monitoring Well #10
1. Chloromethane	<10.00	<10.00	<10.00	<10.00	<10.00
2. Vinyl Chloride	<10.00	<10.00	<10.00	<10.00	<10.00
3. Bromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
4. Chloroethane	<10.00	<10.00	<10.00	<10.00	<10.00
5. Trichlorofluoromethane	<5.00	<5.00	<5.00	<5.00	<5.00
6. 1,1-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
7. Acetone	<100.00	<100.00	<100.00	<100.00	<100.00
8. Iodomethane	<10.00	<10.00	<10.00	<10.00	<10.00
9. Carbon Disulfide	<100.00	<100.00	<100.00	<100.00	<100.00
10. Methylene Chloride	<10.00	<10.00	<10.00	<10.00	<10.00
11. trans-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
12. 1,1-Dichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
13. Vinyl Acetate	<50.00	<50.00	<50.00	<50.00	<50.00
14. Cis-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
15. 2-Butanone	<100.00	<100.00	<100.00	<100.00	<100.00
16. Bromochloromethane	<5.00	<5.00	<5.00	<5.00	<5.00
17. Chloroform	<5.00	<5.00	<5.00	<5.00	<5.00
18. 1,1,1-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
19. Carbon Tetrachloride	<10.00	<10.00	<10.00	<10.00	<10.00
20. Benzene	<5.00	<5.00	<5.00	<5.00	<5.00
21. 1,2-Dichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
22. Trichloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
23. 1,2-Dichloropropane	<5.00	<5.00	<5.00	<5.00	<5.00
24. Bromodichloromethane	<5.00	<5.00	<5.00	<5.00	<5.00
25. Cis-1,3-Dichloropropene	<10.00	<10.00	<10.00	<10.00	<10.00
26. 4-Methyl-2-Pentanone	<100.00	<100.00	<100.00	<100.00	<100.00
27. Toluene	<5.00	<5.00	<5.00	<5.00	<5.00
28. trans-1,3-Dichloropropene	<10.00	<10.00	<10.00	<10.00	<10.00
29. 1,1,2-Trichloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
30. Tetrachloroethene	<5.00	<5.00	<5.00	<5.00	<5.00
31. 2-Hexanone	<50.00	<50.00	<50.00	<50.00	<50.00
32. Dibromochloromethane	<5.00	<5.00	<5.00	<5.00	<5.00
33. 1,2-Dibromoethane	<5.00	<5.00	<5.00	<5.00	<5.00
34. Chlorobenzene	<5.00	<5.00	<5.00	<5.00	<5.00
35. 1,1,1,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
36. Ethylbenzene	<5.00	<5.00	<5.00	<5.00	<5.00
37. Xylenes	<5.00	<5.00	<5.00	<5.00	<5.00
38. Dibromomethane	<10.00	<10.00	<10.00	<10.00	<10.00
39. Styrene	<10.00	<10.00	<10.00	<10.00	<10.00
40. Bromoform	<5.00	<5.00	<5.00	<5.00	<5.00
41. 1,1,2,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00	<5.00
42. 1,2,3-Trichloropropane	<15.00	<15.00	<15.00	<15.00	<15.00
43. 1,4-Dichlorobenzene	<5.00	<5.00	<5.00	<5.00	<5.00
44. 1,2-Dichlorobenzene	<5.00	<5.00	<5.00	<5.00	<5.00
45. 1,2-Dibromo-3-Chloropropane	<25.00	<25.00	<25.00	<25.00	<25.00
46. Acrylonitrile	<200.00	<200.00	<200.00	<200.00	<200.00
47. trans-1,4-Dichloro-2-Butene	<100.00	<100.00	<100.00	<100.00	<100.00

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: WAYNE CO. LANDFILL (LINED)
MR. LLOYD COOK
460B LANDFILL ROAD
DUDLEY, NC 28333

CLIENT ID: 6029

ANALYST: MAO
DATE COLLECTED: 02/18/04
DATE REPORTED: 03/23/04

REVIEWED BY: _____

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l — Date Analyzed:	02/24/04 Equipment Blank	02/24/04 Trip Blank	02/25/04 Duplicate ( )
1. Chloromethane	<10.00	<10.00	<10.00
2. Vinyl Chloride	<10.00	<10.00	<10.00
3. Bromomethane	<10.00	<10.00	<10.00
4. Chloroethane	<10.00	<10.00	<10.00
5. Trichlorofluoromethane	<5.00	<5.00	<5.00
6. 1,1-Dichloroethene	<5.00	<5.00	<5.00
7. Acetone	<100.00	<100.00	<100.00
8. Iodomethane	<10.00	<10.00	<10.00
9. Carbon Disulfide	<100.00	<100.00	<100.00
10. Methylene Chloride	<10.00	<10.00	<10.00
11. trans-1,2-Dichloroethene	<5.00	<5.00	<5.00
12. 1,1-Dichloroethane	<5.00	<5.00	<5.00
13. Vinyl Acetate	<50.00	<50.00	<50.00
14. Cis-1,2-Dichloroethene	<5.00	<5.00	<5.00
15. 2-Butanone	<100.00	<100.00	<100.00
16. Bromochloromethane	<5.00	<5.00	<5.00
17. Chloroform	<5.00	<5.00	<5.00
18. 1,1,1-Trichloroethane	<5.00	<5.00	<5.00
19. Carbon Tetrachloride	<10.00	<10.00	<10.00
20. Benzene	<5.00	<5.00	<5.00
21. 1,2-Dichloroethane	<5.00	<5.00	<5.00
22. Trichloroethene	<5.00	<5.00	<5.00
23. 1,2-Dichloropropane	<5.00	<5.00	<5.00
24. Bromodichloromethane	<5.00	<5.00	<5.00
25. Cis-1,3-Dichloropropene	<10.00	<10.00	<10.00
26. 4-Methyl-2-Pentanone	<100.00	<100.00	<100.00
27. Toluene	<5.00	<5.00	<5.00
28. trans-1,3-Dichloropropene	<10.00	<10.00	<10.00
29. 1,1,2-Trichloroethane	<5.00	<5.00	<5.00
30. Tetrachloroethene	<5.00	<5.00	<5.00
31. 2-Hexanone	<50.00	<50.00	<50.00
32. Dibromochloromethane	<5.00	<5.00	<5.00
33. 1,2-Dibromoethane	<5.00	<5.00	<5.00
34. Chlorobenzene	<5.00	<5.00	<5.00
35. 1,1,1,2-Tetrachloroethane	<5.00	<5.00	<5.00
36. Ethylbenzene	<5.00	<5.00	<5.00
37. Xylenes	<5.00	<5.00	<5.00
38. Dibromomethane	<10.00	<10.00	<10.00
39. Styrene	<10.00	<10.00	<10.00
40. Bromoform	<5.00	<5.00	<5.00
41. 1,1,2,2-Tetrachloroethane	<5.00	<5.00	<5.00
42. 1,2,3-Trichloropropane	<15.00	<15.00	<15.00
43. 1,4-Dichlorobenzene	<5.00	<5.00	<5.00
44. 1,2-Dichlorobenzene	<5.00	<5.00	<5.00
45. 1,2-Dibromo-3-Chloropropane	<25.00	<25.00	<25.00
46. Acrylonitrile	<200.00	<200.00	<200.00
47. trans-1,4-Dichloro-2-Butene	<100.00	<100.00	<100.00

Environment 1, Incorporated

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

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

Drinking Water ID: 37715
Wastewater ID: 10

ID#: 6029 A

WAYNE CO. LANDFILL (LINED)
MR. LLOYD COOK
460B LANDFILL ROAD
DUDLEY ,NC 28333

DATE COLLECTED: 02/18/04
DATE REPORTED : 03/08/04

REVIEWED BY:

PARAMETERS	Surface Water #1	Surface Water #2	Surface Water #3	Surface Water #4	Analysis Date	Analyst	Method Code
PH (field measurement), Units	3.7	6.0	6.5	4.4	02/18/04	RJH	EPA150.1
Antimony, mg/l	<0.030	<0.030	<0.030	<0.030	02/26/04	CMF	EPA7041
Arsenic, mg/l	<0.010	<0.010	<0.010	<0.010	03/01/04	CMF	EPA7060
Barium, mg/l	<0.500	<0.500	<0.500	<0.500	02/25/04	WNG	EPA200.7
Beryllium, mg/l	<0.002	<0.002	<0.002	<0.002	02/25/04	WNG	EPA200.7
Cadmium, mg/l	<0.001	<0.001	<0.001	<0.001	03/02/04	CMF	EPA7131
Cobalt, mg/l	<0.010	<0.010	<0.010	<0.010	02/25/04	WNG	EPA200.7
Copper, mg/l	<0.200	<0.200	<0.200	<0.200	02/26/04	AEL	EPA7210
Total Chromium, mg/l	<0.010	<0.010	<0.010	<0.010	02/25/04	WNG	EPA200.7
Lead, mg/l	<0.010	<0.010	<0.010	<0.010	03/03/04	CMF	EPA7421
Nickel, mg/l	<0.050	<0.050	<0.050	<0.050	02/25/04	WNG	EPA200.7
Selenium, mg/l	<0.020	<0.020	<0.020	<0.020	02/26/04	CMF	EPA7740
Silver, mg/l	<0.010	<0.010	<0.010	<0.010	02/25/04	WNG	EPA200.7
Thallium, mg/l	<0.010	<0.010	<0.010	<0.010	03/02/04	CMF	EPA7841
Vanadium, mg/l	<0.040	<0.040	<0.040	<0.040	02/25/04	WNG	EPA200.7
Zinc, mg/l	<0.050	<0.050	<0.050	<0.050	02/24/04	AEL	EPA7950
Conductivity (at 25c), uMhos	204	66	433	107	02/18/04	RJH	SM2510B
Temperature, °C	9	9	6	5	02/18/04	RJH	SM2550B

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: WAYNE CO. LANDFILL (LINED)
MR. LLOYD COOK
460B LANDFILL ROAD
DUDLEY, NC 28333

CLIENT ID: 6029 A

ANALYST: MAO
DATE COLLECTED: 02/18/04
DATE ANALYZED: 02/25/04
DATE REPORTED: 03/08/04

REVIEWED BY:

VOLATILE ORGANICS
EPA METHOD 8260B

PARAMETERS, ug/l	Surface Water #1	Surface Water #2	Surface Water #3	Surface Water #4
1. Chloromethane	<10.00	<10.00	<10.00	<10.00
2. Vinyl Chloride	<10.00	<10.00	<10.00	<10.00
3. Bromomethane	<10.00	<10.00	<10.00	<10.00
4. Chloroethane	<10.00	<10.00	<10.00	<10.00
5. Trichlorofluoromethane	<5.00	<5.00	<5.00	<5.00
6. 1,1-Dichloroethene	<5.00	<5.00	<5.00	<5.00
7. Acetone	<100.00	<100.00	<100.00	<100.00
8. Iodomethane	<10.00	<10.00	<10.00	<10.00
9. Carbon Disulfide	<100.00	<100.00	<100.00	<100.00
10. Methylene Chloride	<10.00	<10.00	<10.00	<10.00
11. trans-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00
12. 1,1-Dichloroethane	<5.00	<5.00	<5.00	<5.00
13. Vinyl Acetate	<50.00	<50.00	<50.00	<50.00
14. Cis-1,2-Dichloroethene	<5.00	<5.00	<5.00	<5.00
15. 2-Butanone	<100.00	<100.00	<100.00	<100.00
16. Bromochloromethane	<5.00	<5.00	<5.00	<5.00
17. Chloroform	<5.00	<5.00	<5.00	<5.00
18. 1,1,1-Trichloroethane	<5.00	<5.00	<5.00	<5.00
19. Carbon Tetrachloride	<10.00	<10.00	<10.00	<10.00
20. Benzene	<5.00	<5.00	<5.00	<5.00
21. 1,2-Dichloroethane	<5.00	<5.00	<5.00	<5.00
22. Trichloroethene	<5.00	<5.00	<5.00	<5.00
23. 1,2-Dichloropropane	<5.00	<5.00	<5.00	<5.00
24. Bromodichloromethane	<5.00	<5.00	<5.00	<5.00
25. Cis-1,3-Dichloropropene	<10.00	<10.00	<10.00	<10.00
26. 4-Methyl-2-Pentanone	<100.00	<100.00	<100.00	<100.00
27. Toluene	<5.00	<5.00	<5.00	<5.00
28. trans-1,3-Dichloropropene	<10.00	<10.00	<10.00	<10.00
29. 1,1,2-Trichloroethane	<5.00	<5.00	<5.00	<5.00
30. Tetrachloroethene	<5.00	<5.00	<5.00	<5.00
31. 2-Hexanone	<50.00	<50.00	<50.00	<50.00
32. Dibromochloromethane	<5.00	<5.00	<5.00	<5.00
33. 1,2-Dibromoethane	<5.00	<5.00	<5.00	<5.00
34. Chlorobenzene	<5.00	<5.00	<5.00	<5.00
35. 1,1,1,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00
36. Ethylbenzene	<5.00	<5.00	<5.00	<5.00
37. Xylenes	<5.00	<5.00	<5.00	<5.00
38. Dibromomethane	<10.00	<10.00	<10.00	<10.00
39. Styrene	<10.00	<10.00	<10.00	<10.00
40. Bromoform	<5.00	<5.00	<5.00	<5.00
41. 1,1,2,2-Tetrachloroethane	<5.00	<5.00	<5.00	<5.00
42. 1,2,3-Trichloropropane	<15.00	<15.00	<15.00	<15.00
43. 1,4-Dichlorobenzene	<5.00	<5.00	<5.00	<5.00
44. 1,2-Dichlorobenzene	<5.00	<5.00	<5.00	<5.00
45. 1,2-Dibromo-3-Chloropropane	<25.00	<25.00	<25.00	<25.00
46. Acrylonitrile	<200.00	<200.00	<200.00	<200.00
47. trans-1,4-Dichloro-2-Butene	<100.00	<100.00	<100.00	<100.00

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 6029 **Week: 7**

WAYNE CO. LANDFILL (LINED)
MR. LLOYD COOK
460B LANDFILL ROAD
DUDLEY NC 28333

(919) 689-2994

DISINFECTION
- ☐ CHLORINE
- ☐ UV
- ☐ NONE
- ☐ _____

								L2	L2	L2	L2					L2	L2	L2	L2	
						P	P	P	P	P	P	P	P	P		G	G	G	G	
						A	A	C	C	C	B	A	A	A		E	E	E	E	
SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field pH	BOD	COD	Nitrate-Nitrite	PO4	Metals	Sulfate	Conductivity	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2	8260 Dup. 3	
Monitoring Well #1	02 18 04	1325		16	6	G					G		G	G	G	G	G	G	G	
Monitoring Well #2	02 18 04	1415		14	4	G					G		G	G	G	G	G			
Monitoring Well #3	02 18 04	0945		14	4	G					G		G	G	G	G	G			
Monitoring Well #4	02 18 04	1100		16	4	G					G		G	G	G	G	G			
Monitoring Well #5	02 18 04	1125		16	4	G					G		G	G	G	G	G			
Monitoring Well #6	02 18 04	1145		17	4	G					G		G	G	G	G	G			
Monitoring Well #7	02 18 04	1205		15	4	G					G		G	G	G	G	G			
Monitoring Well #8	02 18 04	1225		17	4	G					G		G	G	G	G	G			
Monitoring Well #9	02 18 04	1000		15	4	G					G		G	G	G	G	G			
Monitoring Well #10	02 18 04	1040		17	6	G					G		G	G	G	G	G	G	G	
~~Leachate Canal~~	~~02 18 04~~				~~9~~															

PARAMETERS

CHLORINE NEUTRALIZED AT COLLECTION

pH CHECK (LAB)

CONTAINER TYPE, P/G

CHEMICAL PRESERVATION

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 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)
H Logal

SAMPLES RECEIVED IN LAB AT <4.0 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bob H Logal	02 18 04 3:46	Arnetha Sudler	2-18-04 3:46
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:
LEACHATE CANAL MISSING

Instructions for completing this form are on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

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 6029 **Week: 7**

WAYNE CO. LANDFILL (LINED)
MR. LLOYD COOK
460B LANDFILL ROAD
DUDLEY NC 28333

(919) 689-2994

DISINFECTION: ☐ CHLORINE ☐ UV ☐ NONE ☐ _____

SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field pH	BOD	COD	Nitrate-Nitrite	PO4	Metals	Sulfate	Conductivity	Temperature	Field Parameter	EPA 8260B	8260 Dup. 1	8260 Dup. 2	8260 Dup. 3
CHLORINE NEUTRALIZED AT COLLECTION																			
pH CHECK (LAB)								LR	LR	LR	LR					LR	LR		
CONTAINER TYPE, P/G						P	P	P	P	P	P	P	P	P		G	G	G	G
CHEMICAL PRESERVATION						A	A	C	C	C	B	A	A	A		E	E	E	E
Equipment Blank	02/18/04				3						G					G	G		
Trip Blank					2														
Duplicate (W-3	02/18/04				3						G					G	G		

PARAMETERS

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 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) H Page

SAMPLES RECEIVED IN LAB AT 4.0 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
Bob H Page	02/18/04 3:46	Amutha Sadler	2-18-04 3:46
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS: DUP W-3

Instructions for completing this form are on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5

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: 6029 A **Week:** 7

WAYNE CO. LANDFILL (LINED)
MR. LLOYD COOK
460B LANDFILL ROAD
DUDLEY NC 28333

(919) 689-2994

DISINFECTION
- ☐ CHLORINE
- ☐ UV
- ☐ NONE
- ☐ _____

																						CHLORINE NEUTRALIZED AT COLLECTION
							L2			L2	L2	L2	L2									pH CHECK (LAB)
						P	P	P	P	G	G	G	G									CONTAINER TYPE, P/G
						A	B	A	A	E	E	E	E									CHEMICAL PRESERVATION
SAMPLE LOCATION	COLLECTION DATE	COLLECTION TIME	TOTAL CHLORINE, mg/l AT COLLECTION	TEMPERATURE, °C AT COLLECTION	# OF CONTAINERS	Field pH	Metals	Conductivity	Temperature	EPA 8260B	8260 Dup. 1	8260 Dup. 2	8260 Dup. 3									PARAMETERS
Surface Water #1	02 18 04	1300		9	4	G	G	G	G	G	G											
Surface Water #2	02 18 04	1410		9	4	G	G	G	G	G	G											
Surface Water #3	02 18 04	1045		6	4	G	G	G	G	G	G											
Surface Water #4	02 18 04	1110		5	6	G	G	G	G	G	G	G	G									

A - NONE D - NAOH
B - HNO_3 E - HCL
C - H_2SO_4 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)
[signature]

SAMPLES RECEIVED IN LAB AT <4.0 °C

RELINQUISHED BY (SIG.) (SAMPLER)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
[signature]	02 18 04 3:46	Anetha Sadler	2-18-04 3:46
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME
RELINQUISHED BY (SIG.)	DATE/TIME	RECEIVED BY (SIG.)	DATE/TIME

COMMENTS:

Instructions for completing this form are on the reverse side.

Sampler must place a "C" for composite sample or a "G" for Grab sample in the blocks above for each parameter requested.

FORM #5