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INTERNATIONAL PAPER

RIEGELWOOD MILL
JOHN L. RIEGEL ROAD
RIEGELWOOD NC 28456
PHONE 910 655 2211

October 26, 2007

Mr. Mark Poindexter
North Carolina Division of Environmental Management
Solid Waste Section
1646 Mail Service Center
Raleigh, NC 27699-1646

Subject: Quarterly Groundwater Monitoring
International Paper – Riegelwood – Columbus County
Landfill Permit No. 24-02

Certified Mail: 7005 1820 0007 8389 3322

Dear Mr. Poindexter:

Enclosed please find the results of laboratory analyses performed on six groundwater monitoring wells and three additional landfill samples, as specified in our new landfill permit No. 24-02, issued February 17, 2005. The samples were collected by Mactec, Inc. on September 5, 2007, from existing monitoring wells MW-1A, MW-1B, MW-4A, MW-5A, MW-7A, MW-8A, and from the new Landfill Cell-1 primary sump, secondary sump, and underdrain. Field sampling data, raw sheets, raw laboratory data and a drawing indicating the locations of the wells are also included in the report.

If you have any questions or comments regarding this report, please contact me at (910)362-4590.

Sincerely,

Wallace Coverdale

Wallace Coverdale
Environmental Coordinator

Enclosure
cc: Ms. Ginny Henderson, Wilmington Regional Office

Received
OCT 2007
Solid Waste Section

MACTEC

engineering and constructing a better tomorrow

October 22, 2007

Mr. Edward Kreul
Environmental Performance Manager
International Paper
Riegelwood Mill
865 John L. Riegel Road
Riegelwood, North Carolina 28456

Subject: **Semi-Annual Groundwater Compliance Monitoring Results (SEPTEMBER 2007) Permit No. 24-02 International Paper, Riegelwood, North Carolina MACTEC Project No. 6550-07-0402**

Dear Mr. Kreul:

MACTEC Engineering and Consulting, Inc. (MACTEC), is pleased to provide the attached results of the 2007 initial semi-annual groundwater compliance-monitoring event in the vicinity of International Paper's solid waste landfill. These activities were conducted in general accordance with those outlined in MACTEC's Proposal No. PROP07WILM14, dated February 26, 2007. International Paper authorized this work with Purchase Order No. S066112561, dated March 4, 2007.

The sampling event was conducted on September 5, 2007. This work consisted of collecting samples for analysis from six monitoring wells: MW-1A, MW-1B, MW-4A, MW-5A, MW-7A, and MW-8A; and three water samples, designated as: Primary, Secondary and Under-Drain, obtained from the New Landfill Cell 1. These samples were submitted to Environmental Science Corporation, Inc. (a North Carolina certified laboratory) for analysis of select compounds.

In addition to copies of the original laboratory reports and chain-of-custody documentation (Appendix A), we have provided summary data tables of the following: Table 1 - groundwater analytical results; Table 2 – historical groundwater sample results;

MACTEC Engineering and Consulting, Inc.
5710 Oleander Drive, Suite 110 • Wilmington, NC 28403 • Phone: 910.452.1185 • Fax: 910.791.1338 www.mactec.com

and Table 3 – landfill Cell 1 sample results. The documentation of field activities including measurements of water levels, pH, specific conductance, and temperature are contained in the field sampling reports (Appendix B). A vicinity location map is provided as Figure 1. A plan-view map showing well locations is attached as Figure 2.

It continues to be our pleasure to serve as International Paper's environmental consultant for this project. Should you have questions concerning the enclosed information, please contact us.

Sincerely,

MACTEC ENGINNERING AND CONSULTING, INC.

Luke A. Davis
Staff Geologist

BY _____
WITH PERMISSION

B. Walker Jones, REM
Principal Scientist

Attachments

TABLES

TABLE 1
SEMI-ANNUAL GROUNDWATER ANALYSIS RESULTS
INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA
MACTEC JOB NO. 6550-07-0402
SEPTEMBER 2007 EVENT

Montioring Well			MW 1A		MW 1B		MW 4A		MW 5A		MW 7A		MW 8A		NCAC STD.
Collect Date			9/5/07		9/5/07		9/5/07		9/5/07		9/5/07		9/5/07		
Method	Parameter	Units	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	Value	Qual	
SM5210B	BOD	mg/l	<5.0	J4	<5.0	J4	<5.0	J4	<5.0	J4	<5.0	J4	<5.0	J4	NS
410.4	COD	mg/l	<20		<20		<20		92		120		<20		NS
9020	TOX	mg/l	<0.10		<0.10		<0.10	J5	<2.0	O	<20	O	<0.10		NS
415.1	TOC	mg/l	3.7		4.0		7.3		37		43		9		NS
160.1	Dissolved Solids	mg/l	200		110		88		**980**		**1000**		370		500
9040A	pH	su	6.7	T8	**4.4**	T8	**3.9**	T8	6.8	T8	6.9	T8	7	T8	6.5-8.5
120.1	Conductance	umhos/cm	320		160		230		1700		1700		640		NS
300	Sulfate	mg/l	21		48		75		<5.0		41		20		250
300	Chloride	mg/l	4.8		11		16		170		200		5.1		250
300	Fluoride	mg/l	0.15		0.15		<0.10		<0.10		0.12		0.21		2
300	Nitrate	mg/l	<0.10		<0.10		<0.10		<0.10		<0.10		<0.10		10
200.7	Arsenic	mg/l	<0.020		**0.31**		<0.020		<0.020		<0.020		0.022		0.05
200.7	Barium	mg/l	<0.0050		0.2		<0.0050		0.011		0.07		0.089		2
200.7	Cadmium	mg/l	<0.0050		<0.0050		<0.0050		<0.0050		<0.0050		<0.0050		0.00175
200.7	Chromium	mg/l	<0.010		<0.010		<0.010		<0.010		<0.010		0.015		0.05
200.7	Copper	mg/l	0.021		<0.020		0.062	J3	0.021		0.18		0.32		1
200.7	Iron	mg/l	<0.10		**11**		<0.10		**0.31**		**12**		**5.7**		0.3
200.7	Lead	mg/l	<0.0050		<0.0050		<0.0050		<0.0050		0.0057		<0.0050		0.015
200.7	Manganese	mg/l	0.026		**1.2**		0.025		<0.010		**0.079**		**0.077**		0.05
245.1	Mercury	mg/l	<0.00020		<0.00020		<0.00020		<0.00020		<0.00020		<0.00020		0.00105
200.7	Selenium	mg/l	<0.020		<0.020		<0.020		<0.020		<0.020		<0.020		0.05
200.7	Silver	mg/l	<0.010		<0.010		<0.010		<0.010		**0.022**		<0.010		0.0175
200.7	Vanadium	mg/l	<0.010		<0.010		<0.010		<0.010		<0.010		<0.010		NS
200.7	Zinc	mg/l	<0.030		<0.030		<0.030		1.0		0.67		0.4		1.05

Notes

Samples were collected on 09/05/07.

A less than symbol (<) indicates the parameter was not detected above laboratory quanitation limits.

NCAC STD. - Title 15, North Carolina Administrative Code, Subchapter 2L, class GA groundwater standards

NS = No Standard

Bold values indicate values in excess of the 15A NCAC 2L standards

Shaded cells with no bold are laboratory detection limits above the 2L Standards

PREPARED BY: LAD 9/21/07

CHECKED BY: WJM 10/2/07

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Qualifiers (Q):

J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high
O	Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated to reflect the necessary dilution
T8	Samples received past/too closet to holding time expiration
J3	The associated batch QC was outside the established quality control range for precision

ESC Note: Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable unless qualified as 'R' (Rejected).

TABLE 2
ANNUAL GROUNDWATER ANALYSIS RESULTS
INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA
MACTEC JOB NO. 6550-07-0402

PARAMETER	MONITORING WELL MW-1A																					NCAC STD
	1997	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		
	SEPT	APRIL	SEPT	MAR	NOV	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	
BOD, mg/L	<2	<2	<2	<2	5	12	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	< 5	< 2	<5	<2.00	<5.0	<5.0	<5.0	<5.0	NS
COD, mg/L	<5	6.34	6.27	<5	46	<5.0	<5.0	<5.0	<5.0	25	<5.0	7	<20.0	< 20	< 20	<20	21	<20	<20	<20	<20	NS
TOX, mg/L	0.0179	0.0119	0.02	<0.005	0.015	<0.010	0.022	0.0271	0.0173	0.0299	0.0156	0.022	<.010	0.013	< 0.100	<0.100	<0.100	<0.10	<0.10	<0.10	<0.10	NS
TOC, as C, mg/L	4.99	2.01	2.46	1.72	7	3.3	2.1	3.64	3.40	2.90	<0.5	4.3	2.3	2.6	1.3	1.8	3.8	2.3	2.8	1.9	3.7	NS
TDS, mg/L	90	110	110	113	96.4	31	103	123	116	112	133	111	110	100	99	94	210	62	90	86	200	500
pH	**4.75**	**4.37**	**4.22**	**4.19**	**4.34**	**3.97**	**4.23**	**4.03**	**3.82**	**3.90**	**4.02**	**3.72**	**4.20**	6.6	**4.1**	**4.4**	6.8	**3.9**	**5.2**	**4.4**	6.7	6.5-8.5
Conductivity, umohs/cm	159	189	194	188	178	187.5	176	190	193	188	198	194	190	200	170	170	320	170	150	170	320	NS
Sulfate, mg/L	29.2	52.2	53.9	61.7	63.5	39	36	61	58	35	59	49	62	55	50	54	38	40	33	42	21	250.0
Chloride, as Cl, mg/L	20.8	12.9	19.7	13.3	14.5	20.5	22.5	9.2	8.2	11.0	8.4	8.8	6.2	9.6	8.3	10.0	11.0	13	12	15	4.8	250.0
Fluoride, as F, mg/L	<0.1	<0.1	<0.1	<0.1	0.14	0.49	0.17	<0.2	0.17	0.16	0.12	0.2	0.2	< 0.100	0.11	<0.100	<0.100	<0.10	0.32	<0.10	0.15	2.0
Nitrate, as NO3-N, mg/L	<0.1	<0.5	<0.5	<0.1	0.09	0.17	0.15	<0.2	<0.2	<0.2	<0.2	<0.2	<0.1	< 0.100	< 0.100	<0.100	<0.100	<0.10	<0.10	<0.10	<0.10	10.0
Arsenic, as As, mg/L	<0.025	<0.025	<0.025	<0.025	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<.01	< 0.010	< 0.010	**0.026**	**0.031**	<0.020	<0.020	<0.020	<0.020	0.05
Barium, as Ba, mg/L	0.082	0.129	0.114	0.152	0.141	0.121	<0.1	0.148	0.156	0.148	0.148	0.139	0.16	0.150	0.140	0.120	0.020	0.11	0.12	0.12	<0.0050	2.0
Cadmium, as Cd, mg/L	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0050	<0.005	<0.0100	<0.005	< 0.0050	< 0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.005
Chromium, as Cr, mg/L	0.01	<0.010	<0.010	<0.010	<0.01	<0.01	<0.02	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	< 0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.05
Copper, as Cu, mg/L	0.009	<0.005	<0.005	<0.005	<0.02	<0.02	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	< 0.010	<0.020	<0.020	<0.020	<0.020	<0.020	0.021	1.0
Iron, as Fe, mg/L	**0.834**	**1.5**	**1.96**	**2.52**	**2.28**	**1.97**	**2.63**	**2.73**	**3.31**	**2.35**	**2.34**	**2.56**	**2.6**	**2.80**	**1.90**	**1.60**	**12.00**	**0.34**	**1.2**	**1.7**	<0.10	0.3
Lead, as Pb, mg/L	<0.020	<0.020	<0.020	<0.020	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.005	< 0.005	< 0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.015
Manganese, as Mn, mg/l	<0.010	0.017	0.0225	0.0212	0.0244	0.0169	0.017	**0.0757**	0.0249	0.0208	0.0195	0.0201	0.03	0.020	0.017	0.018	**0.330**	0.016	0.02	0.014	0.026	0.05
Mercury, as Hg, mg/L	<0.0002	<0.0002	<0.0002	<0.001	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	0	<0.00020	<0.00020	0.0011
Selenium, as Se, mg/L	<0.100	<0.100	<0.100	<0.100	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	0.01	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.05
Silver, as Ag, mg/L	<0.015	<0.015	<0.015	<0.015	<0.01	<0.02	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.005	< 0.0050	< 0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.018
Vanadium, mg/L	NA	NA	NA	NA	NA	<0.05	<0.05	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.010	< 0.010	< 0.010	<0.010	<0.010	<0.010	<0.010	0.012	<0.010	NS
Zinc, as Zn, mg/L	0.01	0.01	<0.100	0.0218	<0.02	<0.02	<0.02	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	**0.044**	0.032	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	2.1

NOTES:
NCAC STD. - Title 15, North Carolina Administrative Code, Subchapter 2L, class GA groundwater standard.
< Symbol = Below Laboratory Detectable Limits
Bold text denotes results that exceed NC ground-water standards
Data is reported in milligrams per liter (mg/L) unless otherwise noted
NA = Not Analyzed
Refer to laboratory reports for actual sample dates

PREPARED BY: LAD 9/21/07
CHECKED BY: WJM 10/2/07
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TABLE 2 Continued
ANNUAL GROUNDWATER ANALYSIS RESULTS
INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA
MACTEC JOB NO. 6550-07-0402

PARAMETER	MONITORING WELL MW-1B																					NCAC STD
	1997	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		
	SEPT	APRIL	SEPT	MAR	NOV	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	
BOD, mg/L	<2	<2	<2	<2	>27*	2	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	< 5	< 2	<5	<2.00	<5.0	<5.0	<5.0	<5.0	NS
COD, mg/L	9.47	8.46	6.55	5.18	6.00	9	5	<5.0	<5.0	<5.0	27	6	<20	< 20	94	<20	<20	<20	<20	<20	<20	NS
TOX, mg/L	0.007	0.0	0.01	<0.005	<0.01	<0.020	<0.01	0.0463	0.0171	0.0443	0.0195	0.03	<0.010	NR	< 0.100	<0.100	<0.100	<0.10	<0.10	<0.10	<0.10	NS
TOC, as C, mg/L	8.19	1.54	<0.100	1.02	8.40	5.3	1.7	3.18	16.80	<0.5	<0.5	5.50	1.90	2.3	1.3	1.0	2.1	1.6	2.4	1.5	4	NS
TDS, mg/L	293	367	352	391	387	290	411	360	394	339	364	293	320	280	320	310	100	160	190	180	110	500
pH	7.38	7.42	7.19	7.35	7.27	7.37	7.26	7.47	7.64	7.35	7.42	7.41	7.30	**6.4**	6.9	7.4	**5.0**	6.5	6.8	6.8	**4.4**	6.5-8.5
Conductivity, umohs/cm	449	499	554	564	543	583	599	501	610	513	596	442	540	480	540	500	160	310	280	290	160	NS
Sulfate Turbidimetric, mg/	30	48.2	55.2	56.7	49.0	50.0	44.5	49	51	38	60.0	35	42	39	40	34	38	20	15	20	48	250.0
Chloride, as Cl, mg/L	9.01	7.40	12.60	10.00	12.90	13.5	14.0	7.9	6.1	8.1	6.4	12.0	8.0	6.4	5.6	6.4	11.0	6.5	4.2	4.8	11	250.0
Fluoride, as F, mg/L	0.138	0.155	0.145	0.162	0.150	0.44	0.15	<0.2	0.15	0.13	0.12	0.19	0.15	0.18	0.18	0.14	<0.100	<0.10	0.11	0.12	0.15	2.0
Nitrate, as NO3-N, mg/L	0.11	<0.5	<0.5	<0.1	0.08	0.33	0.13	<0.2	<0.2	0.38	0.2	0.45	<0.1	< 0.100	0.22	<0.100	<0.100	<0.10	<0.10	<0.10	<0.10	10.0
Arsenic, as As, mg/L	<0.025	<0.025	<0.025	<0.025	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	<0.010	<0.020	<0.020	<0.020	<0.020	<0.020	**0.31**	0.05
Barium, as Ba, mg/L	0.054	0.041	0.044	0.038	<0.1	<0.1	<0.1	<0.100	<0.100	<0.100	<0.100	<0.0100	0.022	0.016	0.049	0.024	0.095	0.013	0.018	0.016	0.2	2.0
Cadmium, as Cd, mg/L	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0050	<0.005	<0.0100	<0.005	< 0.005	< 0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.005
Chromium, as Cr, mg/L	0.012	<0.010	<0.010	<0.010	<0.01	<0.01	<0.02	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	0.028	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.05
Copper, as Cu, mg/L	<0.005	<0.005	<0.005	<0.005	<0.02	<0.02	<0.01	<0.0100	<0.0100	<0.0100	<0.0101	<0.0100	<0.010	< 0.010	< 0.010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	1.0
Iron, as Fe, mg/L	**1.30**	**0.665**	**1.79**	**0.37**	<0.1	**1.28**	<0.1	0.212	**0.508**	**1.37**	<0.0102	**0.38**	**0.38**	0.29	**11.00**	**3.70**	**5.40**	**3.00**	**3.1**	**3.5**	**11**	0.3
Lead, as Pb, mg/L	**0.023**	<0.020	<0.020	<0.020	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0103	<0.0100	<0.005	< 0.0050	< 0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.015
Manganese, as Mn, mg/L	**0.077**	0.046	**0.072**	0.028	0.026	0.0486	<0.01	<0.0100	0.0161	0.0429	<0.0104	0.0136	<0.01	0.010	**0.130**	**0.300**	0.015	0.047	**0.16**	0.05	**1.2**	0.05
Mercury, as Hg, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003	<0.0105	<0.0003	<0.0002	< 0.0002	< 0.00020	<0.00020	<0.00020	<0.00020	0	<0.00020	<0.00020	0.0011
Selenium, as Se, mg/L	<0.100	<0.100	<0.100	<0.100	<0.01	<0.01	<0.01	<0.0100	0.0142	<0.0100	<0.0106	<0.0100	<0.010	< 0.010	< 0.010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.05
Silver, as Ag, mg/L	<0.015	<0.015	<0.015	<0.015	<0.01	<0.02	<0.01	<0.0100	<0.0100	<0.0100	<0.0107	<0.0100	<0.005	< 0.005	< 0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.018
Vanadium, mg/L	NA	NA	NA	NA	NA	<0.05	<0.05	<0.0500	<0.0500	<0.0500	<0.0108	<0.0500	<0.010	< 0.010	< 0.010	<0.010	0.015	<0.010	<0.010	<0.010	<0.010	NS
Zinc, as Zn, mg/L	0.021	0.012	<0.100	0.0149	<0.02	<0.02	<0.02	<0.0200	<0.0200	<0.0200	<0.0109	<0.0200	<0.030	< 0.030	0.054	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	2.1

NOTES:
NCAC STD. - Title 15, North Carolina Administrative Code, Subchapter 2L, class GA groundwater standard.
< Symbol = Below Laboratory Detectable Limits
Bold text denotes results that exceed NC ground-water standards
Data is reported in milligrams per liter (mg/L) unless otherwise noted
* = The QC requirement of having a final DO of at least 1mg/l was not met.
NA = Not Analyzed
NS = No current NCAC STAN is available

PREPARED BY: LAD 9/21/07
CHECKED BY: WJM 10/2/07
h:\CLIENTS\IP\LANDFILL\07DATA\07SeptTBLS.XLS

TABLE 2 Continued
ANNUAL GROUNDWATER ANALYSIS RESULTS
INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA
MACTEC JOB NO. 6550-07-0402

PARAMETER	MONITORING WELL MW-4A																					NCAC STD
	1997	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		
	SEPT	APRIL	SEPT	MAR	NOV	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	
BOD, mg/L	<2	<2	<2	<2	4	4	<1.0	<2.0	<2.0	<2.0	<2.0	<2.0	<2.0	< 5	<2	<5	<2.00	<5.0	<5.0	<5.0	<5.0	NS
COD, mg/L	16.7	9.52	11.3	14.5	10	16	9.8	12	6	22	41	<5.0	<20	< 20	27	24	< 20	<20	<20	<20	<20	NS
TOX, mg/L	0.047	0.039	0.041	0.013	<0.01	0.037	0.019	0.0329	0.0297	0.0255	0.0215	0.027	<0.010	0.018	<0.100	<0.100	<0.100	<0.10	<0.10	<0.10	<0.10	NS
TOC, as C, mg/L	6.33	4.65	2.06	3.24	7.2	5.3	5	4.99	4.7	3.1	2.7	3.4	4.4	6.7	6.2	6.3	3.4	6.7	5.7	5.6	7.3	NS
TDS, mg/L	104	155	131	170	117	35	108	153	112	104	186	77	120	190	160	200	200	180	210	110	88	500
pH	**5.00**	**5.72**	**5.31**	**5.08**	**5.60**	**5.17**	**4.72**	**5.05**	**4.64**	**4.65**	**4.61**	**4.66**	**5.40**	**5.9**	**4.7**	**4.8**	**4.8**	**5.0**	**4.7**	**5.2**	**3.9**	6.5-8.5
Conductivity, umohs/cm	158	224	202	269	222	198.4	157	216.7	179	152	125	122	200	270	280	310	240	320	310	190	230	NS
Sulfate Turbidimetric, mg	30.6	36.4	40	72.4	48.8	39	34	60	41	35	28	29	46	60	51	75	52	82	77	54	75	250.0
Chloride, as Cl, mg/L	20.2	28.9	29	29	26.5	25.5	29.5	19	17	16	13	9.8	19	24	34	34	24	31	28	10	16	250.0
Fluoride, as F, mg/L	<0.1	<0.1	<0.1	<0.1	0.29	0.42	0.2	<0.2	0.15	0.11	<0.10	0.18 -	<0.10	< 0.100	< 0.100	0.110	0.120	0.180	0.12	<0.10	<0.10	2.0
Nitrate, as NO3-N, mg/L	<0.1	<0.1	<0.1	<0.1	0.06	0.22	0.26	<0.2	<0.2	0.38	<0.2	<0.2	<0.1	< 0.100	< 0.100	<0.100	<0.100	<0.10	<0.10	<0.10	<0.10	10.0
Arsenic, as As, mg/L	<0.025	<0.025	<0.025	<0.025	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	< 0.010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.05
Barium, as Ba, mg/L	0.093	0.04	0.0344	0.0683	<0.1	<0.1	<0.1	<0.100	<0.100	<0.100	<0.100	<0.0100	0.043	0.075	0.066	0.081	0.074	0.071	0.087	0.039	<0.0050	2.0
Cadmium, as Cd, mg/L	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0050	<0.005	<0.0100	<0.005	< 0.0050	< 0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.005
Chromium, as Cr, mg/L	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.02	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	0.02	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.05
Copper, as Cu, mg/L	0.005	<0.005	<0.005	<0.005	<0.02	<0.02	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	< 0.010	<0.020	<0.020	<0.020	<0.020	<0.020	0.062	1.0
Iron, as Fe, mg/L	**13.3**	**1.67**	**5.32**	**2.09**	**2.59**	**5.61**	**1.2**	**3.51**	**0.345**	0.239	<0.100	**0.519**	**6.1**	**10**	**9.2**	**9.3**	**3.8**	**11.0**	**9**	**8.6**	<0.10	0.3
Lead, as Pb, mg/L	<0.020	<0.020	<0.020	<0.020	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.005	< 0.0050	< 0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.015
Manganese, as Mn, mg/L	**0.076**	**0.096**	**0.053**	**0.058**	**0.055**	0.0472	0.0397	0.0480	0.0394	0.0423	0.0301	0.0276	**0.054**	**0.078**	**0.120**	**0.110**	0.048	**0.061**	**0.064**	0.04	0.025	0.05
Mercury, as Hg, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	<0.00020	0	<0.00020	<0.00020	0.0011
Selenium, as Se, mg/L	<0.100	<0.100	<0.100	<0.100	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	< 0.010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.05
Silver, as Ag, mg/L	<0.015	<0.015	<0.015	<0.015	<0.01	<0.02	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.005	< 0.0050	< 0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.018
Vanadium, mg/L	NA	NA	NA	NA	NA	<0.05	<0.05	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.010	< 0.010	< 0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NS
Zinc, as Zn, mg/L	0.035	0.038	<0.100	0.019	<0.02	0.0473	<0.02	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.030	< 0.030	< 0.030	<0.030	<0.030	<0.030	<0.030	<0.030	<0.030	2.1

NOTES:
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Refer to laboratory reports for actual sample dates

PREPARED BY: LAD 9/21/07
CHECKED BY: WJM 10/2/07
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TABLE 2 Continued
ANNUAL GROUNDWATER ANALYSIS RESULTS
INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA
MACTEC JOB NO. 6550-07-0402

PARAMETER	MONITORING WELL MW-5A																					NCAC STD
	1997	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		
	SEPT.	APRIL	SEPT	MAR	NOV	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	
BOD, mg/L	11.5	4.23	8.96	10.9	9	12	4	4	<2.0	3	**10**	16	4	< 5	<5	<5	3	<5.0	<5.0	6.3	<5.0	NS
COD, mg/L	203	193	99.9	181	107	212	125	222	171	93	166	66	160	110	190	52	93	95	120	120	92	NS
TOX, mg/L	3.58	2.5	1.4	3.37	0.099	2.46	1.22	2.68	1.4	0.502	0.574	0.25	1.6	0.870	<4.0	0.170	< 1.00	<5.0	<5.0	<0.10	<2.0	NS
TOC, as C, mg/L	105	62.2	23	46.3	23.5	81.5	22.3	90.3	75.6	7.5	<0.5	30.1	49	40	56	16	13	27	33	<1.0	37	NS
TDS, mg/L	**2390**	**1700**	**954**	**1820**	**1116**	**1599**	**1216**	**2220**	**1847**	**1540**	**879**	**704**	**1400**	160	**1,600**	**640**	**970**	**850**	**960**	**1100**	**980**	500
pH	6.81	6.87	6.51	6.72	6.67	6.71	6.61	6.71	6.96	7.53	7.24	7.54	6.9	**6.4**	6.5	7.3	6.9	6.8	6.7	6.7	6.8	6.5-8.5
Conductivity, umohs/cm	3260	2880	1590	3170	1703	3146	1792	2581	2564	1557	1808	1126	2300	1,900	2,900	1,100	1,800	1,500	1700	1900	1700	NS
Sulfate Turbidimetric, mg/	25.6	65.2	55.9	26.7	42	62.0	78.0	49	29	21	43.0	32	57	110	<5.0	9.5	<5.00	<5.0	5	<5.0	<5.0	250.0
Chloride, as Cl, mg/L	**600**	**265**	249	479	**119**	**396**	211	**440**	**300**	130	150	95	**280**	170	**410**	64	180	170	170	220	170	250.0
Fluoride, as F, mg/L	0.104	<0.1	<0.1	<0.1	0.17	0.34	0.21	<0.2	0.27	<0.10	0.1	0.46	0.13	< 0.100	< 0.100	<0.100	<0.100	<0.10	<0.10	<0.10	<0.10	2.0
Nitrate, as NO3-N, mg/L	0.835	0.948	0.344	5.09	0.57	0.13	0.22	<0.2	<0.2	<0.2	<0.2	<0.2	<0.100	< 0.100	< 0.100	<0.100	0.26	<0.10	<0.10	<0.10	<0.10	10.0
Arsenic, as As, mg/L	<0.025	<0.025	<0.025	<0.025	<0.01	<0.01	<0.01	<0.0100	<0.0100	**0.0113**	<0.0100	<0.0100	<0.010	< 0.010	< 0.010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.05
Barium, as Ba, mg/L	0.181	0.193	0.0583	0.032	<0.1	0.139	<0.1	0.112	0.159	<0.100	0.111	<0.0100	0.18	0.140	0.190	0.052	0.032	0.088	0.12	0.13	0.011	2.0
Cadmium, as Cd, mg/L	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0050	<0.005	<0.0100	<.005	< 0.0050	< 0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.005
Chromium, as Cr, mg/L	0.014	0.012	<0.010	<0.010	<0.01	<0.01	<0.02	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	0.015	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.05
Copper, as Cu, mg/L	0.005	<0.005	<0.005	<0.010	<0.02	<0.02	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	< 0.010	<0.020	<0.020	<0.020	<0.020	<0.020	0.021	1.0
Iron, as Fe, mg/L	**3.01**	**6.05**	**2.6**	**1.93**	**1.36**	**3.79**	**0.805**	**5.15**	**17.9**	**1.71**	**4.21**	0.248	**1.8**	**21**	**4.7**	**0.6**	0.1	**1.5**	**2**	**1.5**	**0.31**	0.3
Lead, as Pb, mg/L	**0.036**	<0.020	<0.020	<0.020	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.005	< 0.0050	< 0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.015
Manganese, as Mn, mg/L	**0.650**	**0.745**	**0.183**	**0.386**	**0.273**	**0.279**	**0.166**	**0.995**	**0.572**	**0.252**	**0.259**	**0.235**	**0.730**	**0.540**	**0.730**	**0.190**	0.016	**0.270**	**0.37**	**0.45**	<0.010	0.05
Mercury, as Hg, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	<0.0002	<0.0002	0.0011
Selenium, as Se, mg/L	<0.100	<0.100	<0.100	<0.100	<0.01	<0.01	<0.01	0.0117	0.0159	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	< 0.010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.05
Silver, as Ag, mg/L	<0.015	<0.015	<0.015	<0.015	<0.01	<0.02	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.005	< 0.0050	< 0.0050	<0.010	<0.010	<0.010	**0.046**	<0.010	<0.010	0.018
Vanadium, mg/L	NA	NA	NA	NA	NA	<0.05	<0.05	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.010	0.014	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NS
Zinc, as Zn, mg/L	<0.010	0.029	<0.100	<0.01	<0.02	<0.02	<0.02	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	<0.030	< 0.030	0.063	<0.030	<0.030	<0.030	<0.030	<0.030	1.0	2.1

NOTES:

NCAC STD. - Title 15, North Carolina Administrative Code, Subchapter 2L, class GA groundwater standard.

< Symbol = Below Laboratory Detectable Limits

Bold text denotes results that exceed NC ground-water standards

Data is reported in milligrams per liter (mg/L) unless otherwise noted

NA = Not Analyzed

Refer to laboratory reports for actual sample dates

PREPARED BY: LAD 9/21/07

CHECKED BY: WJM 10/2/07

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TABLE 2 Continued
ANNUAL GROUNDWATER ANALYSIS RESULTS
INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA
MACTEC JOB NO. 6550-07-0402

PARAMETER	MONITORING WELL MW-7A																					NCAC STD
	1997	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		
	SEPT	APRIL	SEPT	MAR	NOV	MAR	SEPT	MAR.	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	
BOD, mg/L	4.02	6.02	<2	<2	3	2	<1.0	2	<2.0	<2.0	<2.0	3	<2.0	< 5	<5	<5	<2.00	<5.0	<5.0	<5.0	<5.0	NS
COD, mg/L	115	179	156	154	108	118	114	154	96	132	157	61	110	110	120	130	130	120	120	140	120	NS
TOX, mg/L	2.560	2.28	1.97	2.21	0.540	1.02	1.4	1.79	0.976	0.914	0.964	0.91	1.5	1.30	12.00	1.60	< 5.0	<5.0	<5.0	0.51	<20	NS
TOC, as C, mg/L	47.2	35	28.6	25.8	43.1	31.3	50.2	55.8	41.4	22.4	<0.5	29.7	32	42	34	37	50	35	35	35	43	NS
TDS, mg/L	**1370**	**1390**	**1190**	**1230**	**1200**	**832**	**1596**	**1740**	**1501**	**2110**	**1354**	**1168**	**1100**	**1400**	**1200**	**1400**	**1100**	**1000**	**1200**	**1200**	**1000**	500
pH	6.79	6.83	6.59	6.7	6.74	6.94	6.79	6.86	7.07	6.86	6.84	6.66	6.9	6.7	6.9	6.8	6.9	6.9	7.2	7.0	6.9	6.5-8.5
Conductivity, umohs/cm	2190	2520	2290	2160	2250	1456	1445	2096	1628	1546	1928	1784	1800	2,200	2,100	2,200	1,600	1,800	2000	2000	1700	NS
Sulfate Turbidimetric, mg	0.395	2.26	0.824	7.22	<5.0	<5.0	<5.0	31	38	23	36	28	61	81	71	78	61	45	59	41	41	250.0
Chloride, as Cl, mg/L	**515**	**527**	**550**	**437**	**477**	**274**	**281**	**360**	230	**260**	**330**	**320**	250	**290**	250	**260**	180	170	200	200	200	250.0
Fluoride, as F, mg/L	0.134	0.101	0.108	0.103	0.58	0.49	0.26	0.28	0.32	0.27	0.1	0.25	<0.100	0.140	0.120	<0.100	<0.100	0.110	0.13	<0.10	0.12	2.0
Nitrate, as NO3-N, mg/L	<0.1	<0.1	<0.1	<0.1	0.03	0.16	0.39	<0.2	<0.2	<0.2	<0.2	<0.2	<0.100	< 0.100	< 0.100	<0.100	0.17	<0.10	<0.10	<0.10	<0.10	10.0
Arsenic, as As, mg/L	<0.025	<0.025	<0.025	**0.0338**	<0.01	**0.0191**	**0.0105**	**0.017**	<0.0100	**0.0109**	**0.0136**	<0.0100	**0.016**	**0.013**	<0.010	<0.020	**0.035**	<0.020	**0.024**	**0.026**	<0.020	0.05
Barium, as Ba, mg/L	0.073	0.075	0.0704	0.0876	<0.1	<0.1	<0.1	<0.100	<0.100	<0.100	<0.100	<0.0100	0.052	0.062	0.042	0.059	0.065	0.037	0.054	0.056	0.07	2.0
Cadmium, as Cd, mg/L	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0050	<0.005	<0.0100	<0.005	< 0.0050	< 0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.005
Chromium, as Cr, mg/L	<0.010	<0.010	0.0106	0.0288	<0.01	<0.01	<0.02	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	0.032	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.05
Copper, as Cu, mg/L	<0.005	<0.005	<0.005	<0.005	<0.02	<0.02	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	< 0.010	<0.020	<0.020	<0.020	<0.020	<0.020	0.18	1.0
Iron, as Fe, mg/L	**39.8**	**40.9**	**37**	**57.4**	**23.2**	**21.4**	**11.4**	**24.4**	**16.1**	**15.6**	**17.3**	**33.7**	**23**	**30**	**15**	**22.0**	**31.0**	**14.0**	**21**	**30**	**12**	0.3
Lead, as Pb, mg/L	0.027	<0.020	<0.020	<0.020	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.005	< 0.0050	< 0.0050	<0.0050	<0.0050	<0.0050	0.0051	0.0072	0.0057	0.015
Manganese, as Mn, mg/l	**0.795**	**0.794**	**0.691**	**0.759**	**0.522**	**0.352**	**0.267**	**0.404**	**0.402**	**0.396**	**0.463**	**0.447**	**0.490**	**0.610**	**0.360**	**0.520**	**0.230**	**0.340**	**0.34**	**0.51**	**0.079**	0.05
Mercury, as Hg, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	<0.0002	<0.0002	<0.0002	0.0011
Selenium, as Se, mg/L	<0.100	<0.100	<0.100	<0.100	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	< 0.010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.05
Silver, as Ag, mg/L	<0.015	<0.015	<0.015	<0.015	<0.02	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	0.0064	< 0.0050	< 0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	**0.022**	0.018
Vanadium, mg/L	NA	NA	NA	NA	NA	<0.05	<0.05	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	0.011	0.022	0.01	0.014	0.017	0.014	0.014	0.028	<0.010	NS
Zinc, as Zn, mg/L	<0.010	0.017	<0.100	0.0348	<0.02	<0.02	<0.02	<0.0200	<0.0200	<0.0200	<0.0200	<0.0200	0.072	< 0.030	< 0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.67	2.1

NOTES:
NCAC STD. - Title 15, North Carolina Administrative Code, Subchapter 2L, class GA groundwater standard.
< Symbol = Below Laboratory Detectable Limits
Bold text denotes results that exceed NC ground-water standards
Data is reported in milligrams per liter (mg/L) unless otherwise noted
NA = Not Analyzed
Refer to laboratory reports for actual sample dates

PREPARED BY: LAD 9/21/07
CHECKED BY: WJM 10/2/07
h:\CLIENTS\IP\LANDFILL\07DATA\07SeptTBLS.XLS

TABLE 2 Continued
ANNUAL GROUNDWATER ANALYSIS RESULTS
INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA
MACTEC JOB NO. 6550-07-0402

PARAMETER	MONITORING WELL MW-8A																					NCAC STD
	1997	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		
	SEPT.	APRIL	SEPT	MAR	NOV	MAR	SEPT	MAR.	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	
BOD, mg/L	3.48	<2	<2	<2	4	4	<1.0	<2.0	<2.0	6	<2.0	<2.0	<2.0	< 5	<5	<5	<2.00	<5.0	<5.0	<5.0	<5.0	NS
COD, mg/L	110	19.3	12.6	9.96	46	8	<5.0	6	<5.0	7	59	8	<20	< 20	30	<20	<20	<20	<20	<20	<20	NS
TOX, mg/L	0.012	0.028	0.014	0.028	<0.01	<0.010	0.018	0.0217	0.0198	0.0397	0.041	0.014	<0.01	< 0.010	<100	<0.100	<0.100	<5.0	<0.10	0.56	<0.10	NS
TOC, as C, mg/L	5.04	4.65	3.42	2.11	8.4	3.4	3.9	4	3.3	<0.5	<0.5	4.4	5.9	4	5.2	3.4	6.5	3.0	4	2.9	9	NS
TDS, mg/L	448	407	464	346	337	256	448	295	480	418	**862**	399	**500**	**1,100**	**580**	400	480	330	350	300	370	500
pH	7.32	7.24	7.02	7.03	6.86	7.13	6.89	7.39	7.49	7.44	7.04	7.47	7.1	6.5	6.5	6.9	7.0	6.8	6.8	7.0	7	6.5-8.5
Conductivity, umohs/cm	662	634	701	547	526	619	667	505	670	602	965	442	790	710	830	670	780	600	600	600	640	NS
Sulfate Turbidimetric, mg/l	134	26.5	111	80.3	33	43	74	32	100	30	**290**	28	91	70	130	68	38	21	9.8	13	20	250.0
Chloride, as Cl, mg/L	9.6	3.82	12.2	6.76	11	13.5	8.5	2.0	3.9	3.9	4.0	2.1	4.4	3	3.0	3.0	4.4	3.8	1.7	2.8	5.1	250.0
Fluoride, as F, mg/L	0.118	0.183	0.168	0.187	0.23	0.45	0.26	<0.2	0.35	0.17	<0.10	0.3	<0.100	0.220	0.320	0.240	0.360	0.220	0.16	0.2	0.21	2.0
Nitrate, as NO3-N, mg/L	<0.1	<0.1	<0.1	<0.1	0.07	0.19	0.37	<0.2	<0.2	0.38	0.22	<0.2	<0.100	< 0.100	< 0.100	<0.100	<0.100	<0.10	<0.10	<0.10	<0.10	10.0
Arsenic, as As, mg/L	<0.025	<0.025	<0.025	<0.025	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0100	0.011	<0.0100	<0.010	< 0.010	< 0.010	<0.020	0.021	<0.020	<0.020	<0.020	0.022	0.05
Barium, as Ba, mg/L	0.09	0.054	0.0601	0.0691	<0.1	<0.1	<0.1	<0.100	<0.100	<0.100	0.164	<0.0100	0.081	0.080	0.110	0.072	0.100	0.079	0.13	0.1	0.089	2.0
Cadmium, as Cd, mg/L	<0.005	<0.005	<0.005	<0.005	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0050	<0.005	<0.0100	<0.005	< 0.0050	< 0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.005
Chromium, as Cr, mg/L	<0.010	<0.010	<0.010	<0.010	<0.01	<0.01	<0.02	<0.0100	<0.0100	<0.0100	0.0259	<0.0100	<0.010	< 0.010	0.012	<0.010	<0.010	<0.010	<0.010	<0.010	0.015	0.05
Copper, as Cu, mg/L	<0.005	<0.005	<0.005	<0.005	<0.02	<0.02	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	< 0.010	<0.020	<0.020	<0.020	<0.020	<0.020	0.32	1.0
Iron, as Fe, mg/L	**0.832**	**4.24**	**0.68**	**0.85**	**0.25**	0.258	0.198	0.230	0.289	**0.310**	**4.33**	0.190	**0.390**	**0.68**	**5.50**	**2.30**	**8.40**	**0.47**	**1**	**0.82**	**5.7**	0.3
Lead, as Pb, mg/L	0.02	<0.020	<0.020	<0.020	<0.01	<0.01	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.005	< 0.0050	< 0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	<0.0050	0.015
Manganese, as Mn, mg/L	**0.123**	**0.171**	**0.172**	**0.016**	0.035	0.0109	**0.066**	0.0134	0.0231	0.0158	**2.29**	**0.275**	**0.500**	**0.280**	**2.000**	**0.068**	**0.800**	**0.180**	**0.1**	0.04	**0.077**	0.05
Mercury, as Hg, mg/L	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0002	<0.0003	<0.0003	<0.0003	<0.0003	<0.0003	<0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	< 0.0002	<0.00020	<0.00020	<0.00020	0.0011
Selenium, as Se, mg/L	<0.100	<0.100	<0.100	<0.100	<0.01	<0.01	<0.01	<0.0100	0.0114	<0.0100	<0.0100	<0.0100	<0.010	< 0.010	< 0.010	<0.020	<0.020	<0.020	<0.020	<0.020	<0.020	0.05
Silver, as Ag, mg/L	<0.015	<0.015	<0.015	<0.015	<0.01	<0.02	<0.01	<0.0100	<0.0100	<0.0100	<0.0100	<0.0100	<0.005	< 0.0050	< 0.0050	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	0.018
Vanadium, mg/L	NA	NA	NA	NA	NA	<0.05	<0.05	<0.0500	<0.0500	<0.0500	<0.0500	<0.0500	<0.010	< 0.010	< 0.010	<0.010	<0.010	<0.010	<0.010	<0.010	<0.010	NS
Zinc, as Zn, mg/L	<0.010	0.015	<0.100	<0.01	<0.02	<0.02	<0.02	<0.0200	<0.0200	<0.0200	0.0244	<0.0200	<0.030	< 0.030	< 0.030	<0.030	<0.030	<0.030	<0.030	<0.030	0.4	2.1

NOTES:
NCAC STD. - Title 15, North Carolina Administrative Code, Subchapter 2L, class GA groundwater standard.
< Symbol = Below Laboratory Detectable Limits
Bold text denotes results that exceed NC ground-water standards
Data is reported in milligrams per liter (mg/L) unless otherwise noted
NA = Not Analyzed
Refer to laboratory reports for actual sample dates

PREPARED BY: LAD 9/21/07
CHECKED BY: WJM 10/2/07
h:\CLIENTS\IPL\ANDFILL\07DATA\07Sept\TBLS.XLS

TABLE 3
NEW LANDFILL CELL 1 ANALYSIS RESULTS
INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA
MACTEC JOB NO. 6550-07-0402

		Client Sample ID	Primary Leachate Collection System		Secondary Leachate Collection System		Under-Drain Leachate Collection System		NCAC STD.
		Collect Date	9/5/07		9/5/07		9/5/07		
Method	Parameter	Units	Value	Q	Value	Q	Value	Q	
SM5210B	BOD	mg/l	10	J4	5.6	J4	11	J4	NS
410.4	COD	mg/l	300		120		250		NS
9020	TOX	mg/l	<0.10		<0.10		<0.10		NS
9060	TOC	mg/l	470		62		360		NS
160.1	Dissolved Solids	mg/l	**3500**		**2400**		**2700**		500
9040A	pH	su	7.0	T8	6.8	T8	6.8	O	6.8-8.5
9050A	Specific Conductance	umhos/cm	5300		3400		4200		NS
9056	Sulfate	mg/l	150		**310**		160		250.0
9056	Chloride	mg/l	140		63		240		250.0
9056	Fluoride	mg/l	<0.10		0.54		<0.10		2.0
9056	Nitrate	mg/l	<0.10		<0.10		<0.10		10.0
4500P-E	Phosphate,Ortho*	mg/l	0.087		2.1		0.33		NS
6010B	Arsenic	mg/l	<0.020		<0.020		<0.020		0.050
6010B	Barium	mg/l	0.028		0.096		0.032		2.0
6010B	Cadmium	mg/l	<0.0050		<0.0050		<0.0050		0.005
6010B	Chromium	mg/l	<0.010		<0.010		<0.010		0.05
6010B	Copper	mg/l	<0.020		0.18		0.034		1.0
6010B	Iron	mg/l	<0.10		0.13		0.1		0.3
6010B	Lead	mg/l	<0.0050		<0.0050		<0.0050		0.015
6010B	Manganese	mg/l	0.022		<0.010		<0.010		0.05
7470A	Mercury	mg/l	<0.00020		<0.00020		<0.00020		0.0011
6010B	Selenium	mg/l	<0.020		<0.020		<0.020		0.05
6010B	Silver	mg/l	<0.010		<0.010		<0.010		0.018
6010B	Vanadium	mg/l	<0.010		<0.010		<0.010		NS
6010B	Zinc	mg/l	0.014		0.11		<0.030		2.1

NOTES:

Samples were collected on 9/5/07

A less than symbol (<) indicates the parameter was not detected above laboratory quanitation limits.

NCAC STD. - Title 15, North Carolina Administrative Code, Subchapter 2L, class GA groundwater standards

NS = No Standard

Bold values exceed the NCAC STD.

Shaded cells with no bold are laboratory detection limits above the 2L Standards

* Phosphate, Ortho

PREPARED BY: LAD 9/21/07

CHECKED BY: WJM 10/2/07

h:\CLIENTS\IP\LANDFILL\07DATA\07SeptTBLS.XLS

Qualifiers (Q):

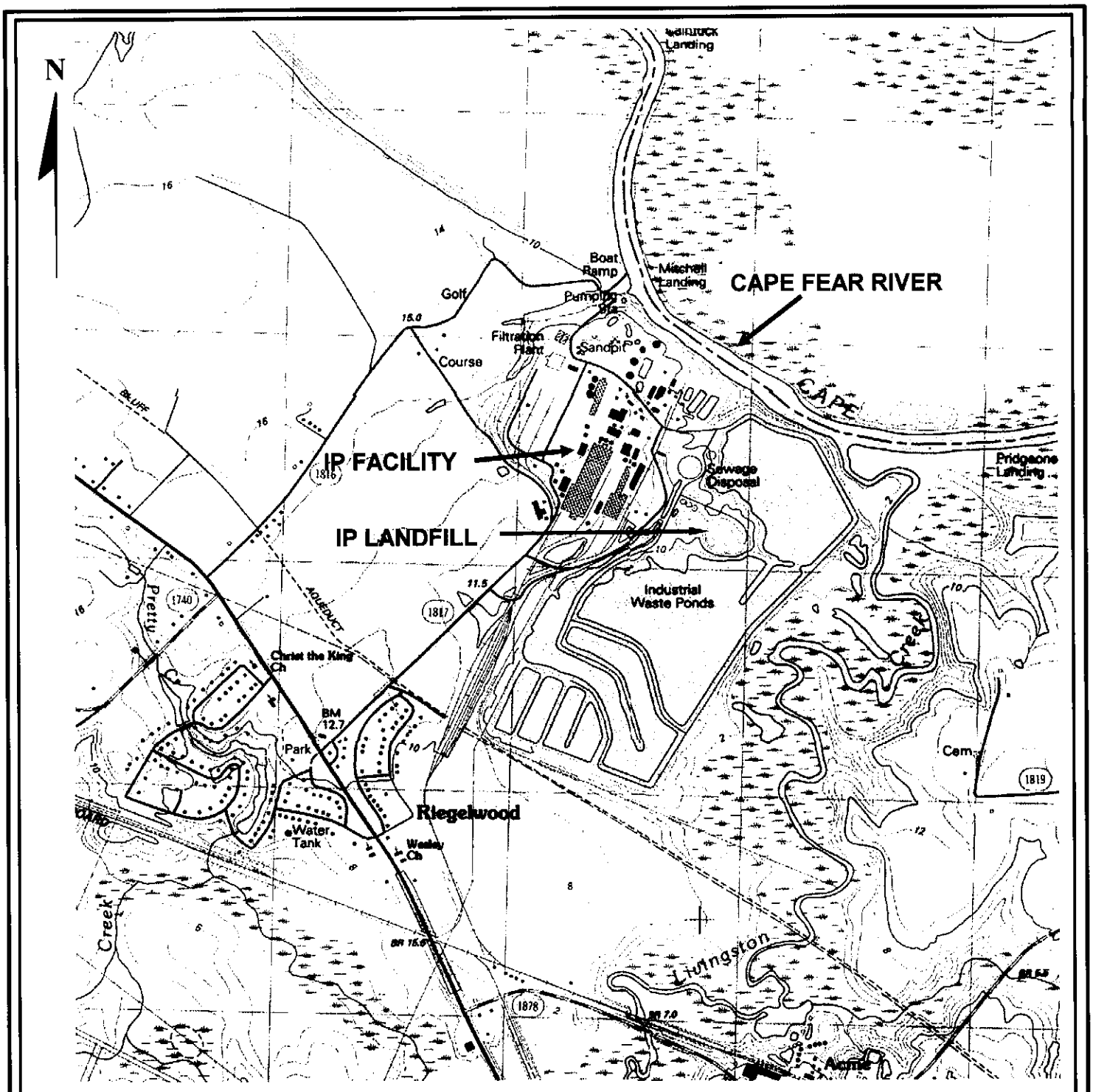
J4 The associated batch QC was outside the established quality control range for accuracy.

T8 Samples received past/too closet to holding time expiration

O (ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.

ESC Note: Because of the wide range of constituents and variety of matrices incorporated by most EPA methods, it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable unless qualified as 'R' (Rejected).

FIGURES



0 2000' 4000'

APPROX. SCALE IN FEET

MACTEC

ENGINEERING & CONSULTING SERVICES, INC.
5710 OLEANDER DRIVE, SUITE 110
WILMINGTON, NC 28403
PHONE (910) 452-1185
FAX (910) 791-1338

TOPOGRAPHIC SITE MAP

INTERNATIONAL PAPER

REIGLEWOOD, NC

USGS - ACME TOPOGRAPHIC MAP, 1984

DRAWN: WBM	JOB #: 6550-06-0311
APPROVAL: BNJ	DATE: 10/22/07
SCALE: AS SHOWN	FIG. NO. 1

APPENDIX A

ENVIRONMENTAL
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Fax (615) 758-5859

Tax I.D. 62-0814289

Est. 1970

Mr. B. Walker Jones
MACTEC - Wilmington, NC
5710 Oleander Drive, Suite 110

Wilmington, NC 28403

Report Summary

Monday September 17, 2007

Report Number: L309499
Samples Received: 09/06/07
Client Project: 6550-07-0402-01

Description: IP Landfill

The analytical results in this report are based upon information supplied by you, the client, and are for your exclusive use. If you have any questions regarding this data package, please do not hesitate to call.

Entire Report Reviewed By: Jimmy Hunt

Jimmy Hunt, ESC Representative

Laboratory Certification Numbers

A2LA - 1461-01, AIHA - 09227, AL - 40660, CA - I-2327, CT - PH-0197, FL - E87487
GA - 923, IN - C-TN-01, KY - 90010, KYUST - 0016, NC - ENV375,DW21704, ND - R-140
NJ - TN002, SC - 84004, TN - 2006, VA - 00109, WV - 233
AZ - 0612, MN - 047-999-395, NY - 11742, WI - 998093910

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9 Samples Reported: 09/14/07 16:40 Revised: 09/17/07 08:05

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REPORT OF ANALYSIS

Mr. B. Walker Jones
MACTEC - Wilmington, NC
5710 Oleander Drive, Suite 110
Wilmington, NC 28403

September 17, 2007

ESC Sample # : L309499-01

Site ID :

Project # : 6550-07-0402-01

Date Received : September 06, 2007
Description : IP Landfill

Sample ID : MW-1A

Collected By : B Mabie
Collection Date : 09/05/07 14:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	4.8	1.0	mg/l	300.0	09/06/07	1
Fluoride	0.15	0.10	mg/l	300.0	09/06/07	1
Nitrate	BDL	0.10	mg/l	300.0	09/06/07	1
Sulfate	21.	5.0	mg/l	300.0	09/06/07	1
BOD	BDL	5.0	mg/l	SM5210B	09/06/07	1
COD	BDL	20.	mg/l	410.4	09/08/07	1
pH	6.7		su	9040A	09/06/07	1
Specific Conductance	320		umhos/cm	120.1	09/08/07	1
TOC (Total Organic Carbon)	3.7	1.0	mg/l	415.1	09/10/07	1
TOX	BDL	0.10	mg/l	5320B	09/13/07	1
Dissolved Solids	200	10.	mg/l	160.1	09/08/07	1
Mercury	BDL	0.00020	mg/l	245.1	09/10/07	1
Arsenic	BDL	0.020	mg/l	200.7	09/07/07	1
Barium	BDL	0.0050	mg/l	200.7	09/07/07	1
Cadmium	BDL	0.0050	mg/l	200.7	09/07/07	1
Chromium	BDL	0.010	mg/l	200.7	09/07/07	1
Copper	0.021	0.020	mg/l	200.7	09/07/07	1
Iron	BDL	0.10	mg/l	200.7	09/07/07	1
Lead	BDL	0.0050	mg/l	200.7	09/07/07	1
Manganese	0.026	0.010	mg/l	200.7	09/07/07	1
Selenium	BDL	0.020	mg/l	200.7	09/07/07	1
Silver	BDL	0.010	mg/l	200.7	09/07/07	1
Vanadium	BDL	0.010	mg/l	200.7	09/07/07	1
Zinc	BDL	0.030	mg/l	200.7	09/07/07	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.
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REPORT OF ANALYSIS

Mr. B. Walker Jones
MACTEC - Wilmington, NC
5710 Oleander Drive, Suite 110
Wilmington, NC 28403

September 17, 2007

ESC Sample # : L309499-02

Site ID :

Project # : 6550-07-0402-01

Date Received : September 06, 2007
Description : IP Landfill

Sample ID : MW-1B

Collected By : B Mabie
Collection Date : 09/05/07 14:10

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	11.	1.0	mg/l	300.0	09/06/07	1
Fluoride	0.15	0.10	mg/l	300.0	09/06/07	1
Nitrate	BDL	0.10	mg/l	300.0	09/06/07	1
Sulfate	48.	5.0	mg/l	300.0	09/06/07	1
BOD	BDL	5.0	mg/l	SM5210B	09/06/07	1
COD	BDL	20.	mg/l	410.4	09/08/07	1
pH	4.4		su	9040A	09/11/07	1
Specific Conductance	160		umhos/cm	120.1	09/08/07	1
TOC (Total Organic Carbon)	4.0	1.0	mg/l	415.1	09/10/07	1
TOX	BDL	0.10	mg/l	5320B	09/13/07	1
Dissolved Solids	110	10.	mg/l	160.1	09/10/07	1
Mercury	BDL	0.00020	mg/l	245.1	09/10/07	1
Arsenic	0.31	0.020	mg/l	200.7	09/07/07	1
Barium	0.20	0.0050	mg/l	200.7	09/07/07	1
Cadmium	BDL	0.0050	mg/l	200.7	09/07/07	1
Chromium	BDL	0.010	mg/l	200.7	09/07/07	1
Copper	BDL	0.020	mg/l	200.7	09/07/07	1
Iron	11.	0.10	mg/l	200.7	09/07/07	1
Lead	BDL	0.0050	mg/l	200.7	09/07/07	1
Manganese	1.2	0.010	mg/l	200.7	09/07/07	1
Selenium	BDL	0.020	mg/l	200.7	09/07/07	1
Silver	BDL	0.010	mg/l	200.7	09/07/07	1
Vanadium	BDL	0.010	mg/l	200.7	09/07/07	1
Zinc	BDL	0.030	mg/l	200.7	09/07/07	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
The reported analytical results relate only to the sample submitted.
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REPORT OF ANALYSIS

Mr. B. Walker Jones
MACTEC - Wilmington, NC
5710 Oleander Drive, Suite 110
Wilmington, NC 28403

September 17, 2007

ESC Sample # : L309499-03

Site ID :

Project # : 6550-07-0402-01

Date Received : September 06, 2007
Description : IP Landfill

Sample ID : MW-4A

Collected By : B Mabie
Collection Date : 09/05/07 10:30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	16.	1.0	mg/l	300.0	09/06/07	1
Fluoride	BDL	0.10	mg/l	300.0	09/06/07	1
Nitrate	BDL	0.10	mg/l	300.0	09/06/07	1
Sulfate	75.	5.0	mg/l	300.0	09/06/07	1
BOD	BDL	5.0	mg/l	SM5210B	09/06/07	1
COD	BDL	20.	mg/l	410.4	09/08/07	1
pH	3.9		su	9040A	09/06/07	1
Specific Conductance	230		umhos/cm	120.1	09/08/07	1
TOC (Total Organic Carbon)	7.3	1.0	mg/l	415.1	09/10/07	1
TOX	BDL	0.10	mg/l	5320B	09/13/07	1
Dissolved Solids	88.	10.	mg/l	160.1	09/08/07	1
Mercury	BDL	0.00020	mg/l	245.1	09/10/07	1
Arsenic	BDL	0.020	mg/l	200.7	09/06/07	1
Barium	BDL	0.0050	mg/l	200.7	09/06/07	1
Cadmium	BDL	0.0050	mg/l	200.7	09/06/07	1
Chromium	BDL	0.010	mg/l	200.7	09/06/07	1
Copper	0.062	0.020	mg/l	200.7	09/06/07	1
Iron	BDL	0.10	mg/l	200.7	09/06/07	1
Lead	BDL	0.0050	mg/l	200.7	09/06/07	1
Manganese	0.025	0.010	mg/l	200.7	09/06/07	1
Selenium	BDL	0.020	mg/l	200.7	09/06/07	1
Silver	BDL	0.010	mg/l	200.7	09/06/07	1
Vanadium	BDL	0.010	mg/l	200.7	09/06/07	1
Zinc	BDL	0.030	mg/l	200.7	09/06/07	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
Note:
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Est. 1970

REPORT OF ANALYSIS

Mr. B. Walker Jones
MACTEC - Wilmington, NC
5710 Oleander Drive, Suite 110
Wilmington, NC 28403

September 17, 2007

ESC Sample # : L309499-04

Site ID :

Project # : 6550-07-0402-01

Date Received : September 06, 2007
Description : IP Landfill

Sample ID : MW-5A

Collected By : B Mabie
Collection Date : 09/05/07 12:00

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	170	1.0	mg/l	300.0	09/06/07	1
Fluoride	BDL	0.10	mg/l	300.0	09/06/07	1
Nitrate	BDL	0.10	mg/l	300.0	09/06/07	1
Sulfate	BDL	5.0	mg/l	300.0	09/06/07	1
BOD	BDL	5.0	mg/l	SM5210B	09/06/07	1
COD	92.	20.	mg/l	410.4	09/08/07	1
pH	6.8		su	9040A	09/06/07	1
Specific Conductance	1700		umhos/cm	120.1	09/08/07	1
TOC (Total Organic Carbon)	37.	1.0	mg/l	415.1	09/10/07	1
TOX	BDL	2.0	mg/l	5320B	09/14/07	20
Dissolved Solids	980	10.	mg/l	160.1	09/08/07	1
Mercury	BDL	0.00020	mg/l	245.1	09/10/07	1
Arsenic	BDL	0.020	mg/l	200.7	09/06/07	1
Barium	0.011	0.0050	mg/l	200.7	09/06/07	1
Cadmium	BDL	0.0050	mg/l	200.7	09/06/07	1
Chromium	BDL	0.010	mg/l	200.7	09/06/07	1
Copper	0.021	0.020	mg/l	200.7	09/06/07	1
Iron	0.31	0.10	mg/l	200.7	09/06/07	1
Lead	BDL	0.0050	mg/l	200.7	09/06/07	1
Manganese	BDL	0.010	mg/l	200.7	09/06/07	1
Selenium	BDL	0.020	mg/l	200.7	09/06/07	1
Silver	BDL	0.010	mg/l	200.7	09/06/07	1
Vanadium	BDL	0.010	mg/l	200.7	09/06/07	1
Zinc	1.0	0.030	mg/l	200.7	09/06/07	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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REPORT OF ANALYSIS

Mr. B. Walker Jones
MACTEC - Wilmington, NC
5710 Oleander Drive, Suite 110
Wilmington, NC 28403

September 17, 2007

ESC Sample # : L309499-05

Site ID :

Project # : 6550-07-0402-01

Date Received : September 06, 2007
Description : IP Landfill

Sample ID : MW-7A

Collected By : B Mabie
Collection Date : 09/05/07 10:15

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	200	1.0	mg/l	300.0	09/06/07	1
Fluoride	0.12	0.10	mg/l	300.0	09/06/07	1
Nitrate	BDL	0.10	mg/l	300.0	09/06/07	1
Sulfate	41.	5.0	mg/l	300.0	09/06/07	1
BOD	BDL	5.0	mg/l	SM5210B	09/06/07	1
COD	120	20.	mg/l	410.4	09/08/07	1
pH	6.9		su	9040A	09/06/07	1
Specific Conductance	1700		umhos/cm	120.1	09/08/07	1
TOC (Total Organic Carbon)	43.	1.0	mg/l	415.1	09/10/07	1
TOX	BDL	20.	mg/l	5320B	09/14/07	200
Dissolved Solids	1000	10.	mg/l	160.1	09/08/07	1
Mercury	BDL	0.00020	mg/l	245.1	09/10/07	1
Arsenic 10	BDL	0.020	mg/l	200.7	09/06/07	1
Barium	0.070	0.0050	mg/l	200.7	09/06/07	1
Cadmium 1	BDL	0.0050	mg/l	200.7	09/06/07	1
Chromium	BDL	0.010	mg/l	200.7	09/06/07	1
Copper 10	0.18	0.020	mg/l	200.7	09/06/07	1
Iron	12.	0.10	mg/l	200.7	09/06/07	1
Lead	0.0057	0.0050	mg/l	200.7	09/06/07	1
Manganese	0.079	0.010	mg/l	200.7	09/06/07	1
Selenium 10	BDL	0.020	mg/l	200.7	09/06/07	1
Silver	0.022	0.010	mg/l	200.7	09/06/07	1
Vanadium	BDL	0.010	mg/l	200.7	09/06/07	1
Zinc 10	0.67	0.030	mg/l	200.7	09/06/07	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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REPORT OF ANALYSIS

Mr. B. Walker Jones
MACTEC - Wilmington, NC
5710 Oleander Drive, Suite 110
Wilmington, NC 28403

September 17, 2007

ESC Sample # : L309499-06

Date Received : September 06, 2007
Description : IP Landfill

Site ID :

Sample ID : MW-8A

Project # : 6550-07-0402-01

Collected By : B Mabie
Collection Date : 09/05/07 10:45

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	5.1	1.0	mg/l	300.0	09/06/07	1
Fluoride	0.21	0.10	mg/l	300.0	09/06/07	1
Nitrate	BDL	0.10	mg/l	300.0	09/06/07	1
Sulfate	20.	5.0	mg/l	300.0	09/06/07	1
BOD	BDL	5.0	mg/l	SM5210B	09/06/07	1
COD	BDL	20.	mg/l	410.4	09/08/07	1
pH	7.0		su	9040A	09/06/07	1
Specific Conductance	640		umhos/cm	120.1	09/08/07	1
TOC (Total Organic Carbon)	9.0	1.0	mg/l	415.1	09/10/07	1
TOX	BDL	0.10	mg/l	5320B	09/13/07	1
Dissolved Solids	370	10.	mg/l	160.1	09/08/07	1
Mercury	BDL	0.00020	mg/l	245.1	09/10/07	1
Arsenic	0.022	0.020	mg/l	200.7	09/06/07	1
Barium	0.089	0.0050	mg/l	200.7	09/06/07	1
Cadmium	BDL	0.0050	mg/l	200.7	09/06/07	1
Chromium	0.015	0.010	mg/l	200.7	09/06/07	1
Copper	0.32	0.020	mg/l	200.7	09/06/07	1
Iron	5.7	0.10	mg/l	200.7	09/06/07	1
Lead	BDL	0.0050	mg/l	200.7	09/06/07	1
Manganese	0.077	0.010	mg/l	200.7	09/06/07	1
Selenium	BDL	0.020	mg/l	200.7	09/06/07	1
Silver	BDL	0.010	mg/l	200.7	09/06/07	1
Vanadium	BDL	0.010	mg/l	200.7	09/06/07	1
Zinc	0.40	0.030	mg/l	200.7	09/06/07	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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REPORT OF ANALYSIS

Mr. B. Walker Jones
MACTEC - Wilmington, NC
5710 Oleander Drive, Suite 110
Wilmington, NC 28403

September 17, 2007

ESC Sample # : L309499-07

Site ID :

Project # : 6550-07-0402-01

Date Received : September 06, 2007
Description : IP Landfill

Sample ID : PRIMARY

Collected By : B Mabie
Collection Date : 09/05/07 11:15

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	140	1.0	mg/l	300.0	09/06/07	1
Fluoride	BDL	0.10	mg/l	300.0	09/06/07	1
Nitrate	BDL	0.10	mg/l	300.0	09/06/07	1
Sulfate	150	5.0	mg/l	300.0	09/06/07	1
BOD	10.	5.0	mg/l	SM5210B	09/06/07	1
COD	300	20.	mg/l	410.4	09/08/07	1
pH	7.0		su	9040A	09/06/07	1
Phosphate,Ortho	0.087	0.025	mg/l	300.0	09/07/07	1
Specific Conductance	5300		umhos/cm	120.1	09/08/07	1
TOC (Total Organic Carbon)	470	100	mg/l	415.1	09/10/07	100
TOX	BDL	0.10	mg/l	5320B	09/13/07	1
Dissolved Solids	3500	10.	mg/l	160.1	09/08/07	1
Mercury	BDL	0.00020	mg/l	245.1	09/10/07	1
Arsenic	BDL	0.020	mg/l	200.7	09/06/07	1
Barium	0.028	0.0050	mg/l	200.7	09/06/07	1
Cadmium	BDL	0.0050	mg/l	200.7	09/06/07	1
Chromium	BDL	0.010	mg/l	200.7	09/06/07	1
Copper	BDL	0.020	mg/l	200.7	09/06/07	1
Iron	BDL	0.10	mg/l	200.7	09/06/07	1
Lead	BDL	0.0050	mg/l	200.7	09/06/07	1
Manganese	0.022	0.010	mg/l	200.7	09/06/07	1
Selenium	BDL	0.020	mg/l	200.7	09/06/07	1
Silver	BDL	0.010	mg/l	200.7	09/06/07	1
Vanadium	BDL	0.010	mg/l	200.7	09/06/07	1
Zinc	0.14	0.030	mg/l	200.7	09/06/07	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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REPORT OF ANALYSIS

Mr. B. Walker Jones
MACTEC - Wilmington, NC
5710 Oleander Drive, Suite 110
Wilmington, NC 28403

September 17, 2007

ESC Sample # : L309499-08

Date Received : September 06, 2007
Description : IP Landfill

Site ID :

Sample ID : SECONDARY

Project # : 6550-07-0402-01

Collected By : B Mabie
Collection Date : 09/05/07 11:20

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	63.	1.0	mg/l	300.0	09/06/07	1
Fluoride	0.54	0.10	mg/l	300.0	09/06/07	1
Nitrate	BDL	0.10	mg/l	300.0	09/06/07	1
Sulfate	310	50.	mg/l	300.0	09/07/07	10
BOD	5.6	5.0	mg/l	SM5210B	09/06/07	1
COD	120	20.	mg/l	410.4	09/08/07	1
pH	6.8		su	9040A	09/06/07	1
Phosphate,Ortho	2.1	0.25	mg/l	300.0	09/07/07	10
Specific Conductance	3400		umhos/cm	120.1	09/08/07	1
TOC (Total Organic Carbon)	62.	1.0	mg/l	415.1	09/10/07	1
TOX	BDL	0.10	mg/l	5320B	09/13/07	1
Dissolved Solids	2400	10.	mg/l	160.1	09/08/07	1
Mercury	BDL	0.00020	mg/l	245.1	09/10/07	1
Arsenic	BDL	0.020	mg/l	200.7	09/07/07	1
Barium	0.096	0.0050	mg/l	200.7	09/07/07	1
Cadmium	BDL	0.0050	mg/l	200.7	09/07/07	1
Chromium	BDL	0.010	mg/l	200.7	09/07/07	1
Copper	0.18	0.020	mg/l	200.7	09/07/07	1
Iron	0.13	0.10	mg/l	200.7	09/07/07	1
Lead	BDL	0.0050	mg/l	200.7	09/07/07	1
Manganese	BDL	0.010	mg/l	200.7	09/07/07	1
Selenium	BDL	0.020	mg/l	200.7	09/07/07	1
Silver	BDL	0.010	mg/l	200.7	09/07/07	1
Vanadium	BDL	0.010	mg/l	200.7	09/07/07	1
Zinc	0.11	0.030	mg/l	200.7	09/07/07	1

BDL - Below Detection Limit
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REPORT OF ANALYSIS

Mr. B. Walker Jones
MACTEC - Wilmington, NC
5710 Oleander Drive, Suite 110
Wilmington, NC 28403

September 17, 2007

ESC Sample # : L309499-09

Site ID :

Project # : 6550-07-0402-01

Date Received : September 06, 2007
Description : IP Landfill

Sample ID : UNDERDRAIN

Collected By : B Mabie
Collection Date : 09/05/07 11:30

Parameter	Result	Det. Limit	Units	Method	Date	Dil.
Chloride	240	10.	mg/l	300.0	09/07/07	10
Fluoride	BDL	0.10	mg/l	300.0	09/06/07	1
Nitrate	BDL	0.10	mg/l	300.0	09/06/07	1
Sulfate	160	50.	mg/l	300.0	09/07/07	10
BOD	11.	5.0	mg/l	SM5210B	09/06/07	1
COD	250	20.	mg/l	410.4	09/08/07	1
pH	6.8		su	9040A	09/06/07	1
Phosphate,Ortho	0.33	0.12	mg/l	300.0	09/07/07	5
Specific Conductance	4200		umhos/cm	120.1	09/08/07	1
TOC (Total Organic Carbon)	360	100	mg/l	415.1	09/10/07	100
TOX	BDL	20.	mg/l	5320B	09/14/07	200
Dissolved Solids	2700	10.	mg/l	160.1	09/08/07	1
Mercury	BDL	0.00020	mg/l	245.1	09/10/07	1
Arsenic	BDL	0.020	mg/l	200.7	09/07/07	1
Barium	0.032	0.0050	mg/l	200.7	09/07/07	1
Cadmium	BDL	0.0050	mg/l	200.7	09/07/07	1
Chromium	BDL	0.010	mg/l	200.7	09/07/07	1
Copper	0.034	0.020	mg/l	200.7	09/07/07	1
Iron	0.10	0.10	mg/l	200.7	09/07/07	1
Lead	BDL	0.0050	mg/l	200.7	09/07/07	1
Manganese	BDL	0.010	mg/l	200.7	09/07/07	1
Selenium	BDL	0.020	mg/l	200.7	09/07/07	1
Silver	BDL	0.010	mg/l	200.7	09/07/07	1
Vanadium	BDL	0.010	mg/l	200.7	09/07/07	1
Zinc	BDL	0.030	mg/l	200.7	09/07/07	1

BDL - Below Detection Limit
Det. Limit - Practical Quantitation Limit(PQL)
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Attachment A
List of Analytes with QC Qualifiers

Sample #	Analyte	Qualifier
L309499-01	BOD	J4
	pH	T8
L309499-02	BOD	J4
	pH	T8
L309499-03	BOD	J4
	TOX	J5
	pH	T8
	Copper	J3
L309499-04	BOD	J4
	TOX	O
	pH	T8
L309499-05	BOD	J4
	TOX	O
	pH	T8
L309499-06	BOD	J4
	pH	T8
L309499-07	BOD	J4
	pH	T8
L309499-08	BOD	J4
	pH	T8
L309499-09	BOD	J4
	TOX	T3,O
	pH	T8

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J3	The associated batch QC was outside the established quality control range for precision.
J4	The associated batch QC was outside the established quality control range for accuracy.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high
O	(ESC) Sample diluted due to matrix interferences that impaired the ability to make an accurate analytical determination. The detection limit is elevated in order to reflect the necessary dilution.
T3	(ESC) - Additional method/sample information: TOX analysis. Greater than 10% Breakthrough
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.

Qualifier Report Information

ESC utilizes sample and result qualifiers as set forth by the EPA Contract Laboratory Program and as required by most certifying bodies including NELAC. In addition to the EPA qualifiers adopted by ESC, we have implemented ESC qualifiers to provide more information pertaining to our analytical results. Each qualifier is designated in the qualifier explanation as either EPA or ESC. Data qualifiers are intended to provide the ESC client with more detailed information concerning the potential bias of reported data. Because of the wide range of constituents and variety of matrices incorporated by most EPA methods,it is common for some compounds to fall outside of established ranges. These exceptions are evaluated and all reported data is valid and useable unless qualified as 'R' (Rejected).

Definitions

Accuracy - The relationship of the observed value of a known sample to the true value of a known sample. Represented by percent recovery and relevant to samples such as: control samples, matrix spike recoveries, surrogate recoveries, etc.

Precision - The agreement between a set of samples or between duplicate samples. Relates to how close together the results are and is represented by Relative Percent Differrence.

Surrogate - Organic compounds that are similar in chemical composition, extraction, and chromotography to analytes of interest. The surrogates are used to determine the probable response of the group of analytes that are chemically related to the surrogate compound. Surrogates are added to the sample and carried through all stages of preparation and analyses.

	Control Limits				(AQ)	(SS)
2-Fluorophenol	31-119	Nitrobenzene-d5	43-118	Dibromfluoromethane	68-128	64-125
Phenol-d5	12-134	2-Fluorobiphenyl	45-128	Toluene-d8	76-115	69-118
2,4,6-Tribromophenol	51-141	Terphenyl-d14	43-137	4-Bromofluorobenzene	79-127	61-134

TIC - Tentatively Identified Compound: Compounds detected in samples that are not target compounds, internal standards, system monitoring compounds, or surrogates.

Summary of Remarks For Samples Printed
09/17/07 at 08:07:41

TSR Signing Reports: 350
R5 - Desired TAT

All invoices need PO number- jeh 7/16/02 No "E" qualifiers - jeh 10/23/02; Send blank chains with kits - jeh 7/24/06

Sample: L309499-01 Account: LAWENGWN Received: 09/06/07 09:00 Due Date: 09/13/07 00:00 RPT Date: 09/14/07 16:40

Sample: L309499-02 Account: LAWENGWN Received: 09/06/07 09:00 Due Date: 09/13/07 00:00 RPT Date: 09/14/07 16:40

Sample: L309499-03 Account: LAWENGWN Received: 09/06/07 09:00 Due Date: 09/13/07 00:00 RPT Date: 09/14/07 16:40

Sample: L309499-04 Account: LAWENGWN Received: 09/06/07 09:00 Due Date: 09/13/07 00:00 RPT Date: 09/14/07 16:40

Sample: L309499-05 Account: LAWENGWN Received: 09/06/07 09:00 Due Date: 09/13/07 00:00 RPT Date: 09/14/07 16:40

Sample: L309499-06 Account: LAWENGWN Received: 09/06/07 09:00 Due Date: 09/13/07 00:00 RPT Date: 09/14/07 16:40

Sample: L309499-07 Account: LAWENGWN Received: 09/06/07 09:00 Due Date: 09/13/07 00:00 RPT Date: 09/14/07 16:40

Sample: L309499-08 Account: LAWENGWN Received: 09/06/07 09:00 Due Date: 09/13/07 00:00 RPT Date: 09/14/07 16:40

Sample: L309499-09 Account: LAWENGWN Received: 09/06/07 09:00 Due Date: 09/13/07 00:00 RPT Date: 09/14/07 16:40

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Quality Assurance Report
Level II

L309499

September 17, 2007

Laboratory Blank

Analyte	Result	Units	Date Analyzed	Batch
Chloride	< 1	mg/l	09/06/07 10:21	WG318974
Fluoride	< .1	mg/l	09/06/07 10:21	WG318974
Nitrate	< .1	mg/l	09/06/07 10:21	WG318974
Sulfate	< 5	mg/l	09/06/07 10:21	WG318974
Chloride	< 1	mg/l	09/06/07 16:06	WG318975
Fluoride	< .1	mg/l	09/06/07 16:06	WG318975
Nitrate	< .1	mg/l	09/06/07 16:06	WG318975
Sulfate	< 5	mg/l	09/06/07 16:06	WG318975
BOD	0.00	mg/l	09/06/07 12:15	WG319010
Phosphate,Ortho	< .025	mg/l	09/07/07 10:24	WG319041
Dissolved Solids	< 10	mg/l	09/08/07 10:01	WG319106
Dissolved Solids	< 10	mg/l	09/08/07 10:23	WG319110
pH	7.30	su	09/06/07 15:50	WG319118
pH	7.80	su	09/11/07 11:10	WG319119
Arsenic	< .02	mg/l	09/07/07 00:44	WG319123
Barium	< .005	mg/l	09/07/07 00:44	WG319123
Cadmium	< .005	mg/l	09/07/07 00:44	WG319123
Chromium	< .01	mg/l	09/07/07 00:44	WG319123
Copper	< .02	mg/l	09/07/07 12:26	WG319123
Iron	< .1	mg/l	09/07/07 00:44	WG319123
Lead	< .005	mg/l	09/07/07 00:44	WG319123
Manganese	< .01	mg/l	09/07/07 00:44	WG319123
Selenium	< .02	mg/l	09/07/07 00:44	WG319123
Silver	< .01	mg/l	09/07/07 00:44	WG319123
Vanadium	< .01	mg/l	09/07/07 00:44	WG319123
Zinc	< .03	mg/l	09/07/07 00:44	WG319123
Arsenic	< .02	mg/l	09/06/07 21:18	WG319124
Barium	< .005	mg/l	09/06/07 21:18	WG319124
Cadmium	< .005	mg/l	09/06/07 21:18	WG319124
Chromium	< .01	mg/l	09/06/07 21:18	WG319124
Copper	< .02	mg/l	09/06/07 21:18	WG319124
Iron	< .1	mg/l	09/06/07 21:18	WG319124
Lead	< .005	mg/l	09/06/07 21:18	WG319124
Manganese	< .01	mg/l	09/06/07 21:18	WG319124
Selenium	< .02	mg/l	09/06/07 21:18	WG319124
Silver	< .01	mg/l	09/06/07 21:18	WG319124
Vanadium	< .01	mg/l	09/06/07 21:18	WG319124
Zinc	< .03	mg/l	09/06/07 21:18	WG319124
COD	< 20	mg/l	09/08/07 07:03	WG319227
Specific Conductance	0.540	umhos/cm	09/08/07 06:30	WG319229
Chloride	< 1	mg/l	09/07/07 10:27	WG319241
Sulfate	< 5	mg/l	09/07/07 10:27	WG319241
TOX	< .1	mg/l	09/12/07 01:27	WG319314
TOC (Total Organic Carbon)	< 1	mg/l	09/10/07 12:09	WG319315
Dissolved Solids	< 10	mg/l	09/10/07 12:07	WG319405

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Level II

L309499

September 17, 2007

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Analyte	Result	Units	Date Analyzed	Batch
Mercury	< .0002	mg/l	09/10/07 21:42	WG319462

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Chloride	mg/l	4.03	4.50	11.0	20	L309472-02	WG318974
Chloride	mg/l	153.	153.	0.00	20	L309513-04	WG318974
Fluoride	mg/l	0.159	0.177	10.7	20	L309472-02	WG318974
Fluoride	mg/l	0.525	0.724	31.9	20	L309513-04	WG318974
Nitrate	mg/l	0.00	0.00	0.00	20	L309472-02	WG318974
Nitrate	mg/l	15.7	16.0	1.89	20	L309513-04	WG318974
Sulfate	mg/l	68.9	71.0	3.00	20	L309472-02	WG318974
Sulfate	mg/l	104.	104.	0.00	20	L309513-04	WG318974
Chloride	mg/l	165.	160.	3.08	20	L309591-04	WG318975
Fluoride	mg/l	0.913	0.858	6.21	20	L309591-04	WG318975
Nitrate	mg/l	10.9	11.0	0.913	20	L309591-04	WG318975
Sulfate	mg/l	93.6	93.5	0.107	20	L309591-04	WG318975
BOD	mg/l	0.00	0.00	0.00	10	L309474-02	WG319010
BOD	mg/l	0.00	0.00	0.00	10	L309499-01	WG319010
BOD	mg/l	387.	360.	7.23	10	L309585-01	WG319010
Phosphate,Ortho	mg/l	0.969	0.980	1.13	20	L309461-01	WG319041
Dissolved Solids	mg/l	198.	190.	4.12	20	L309472-01	WG319106
pH	su	7.80	7.20	8.00	20	L309246-03	WG319118
pH	su	8.70	8.70	0.00	20	L309554-02	WG319118
pH	su	4.40	4.40	0.00	20	L309499-02	WG319119
pH	su	7.00	7.00	0.00	20	L309897-09	WG319119
Arsenic	mg/l	0.00	0.00920	NA	20	L309508-01	WG319123
Barium	mg/l	0.0486	0.0493	1.43	20	L309508-01	WG319123
Cadmium	mg/l	0.00	0.00260	NA	20	L309508-01	WG319123
Chromium	mg/l	0.00	0.00020	NA	20	L309508-01	WG319123
Copper	mg/l	0.00	0.0148	NA	20	L309508-01	WG319123
Iron	mg/l	6.59	6.38	3.24	20	L309508-01	WG319123
Lead	mg/l	0.00520	0.00600	14.3	20	L309508-01	WG319123
Manganese	mg/l	0.0446	0.0432	3.19	20	L309508-01	WG319123
Selenium	mg/l	0.00	0.00040	NA	20	L309508-01	WG319123
Silver	mg/l	0.00	0.00240	NA	20	L309508-01	WG319123
Vanadium	mg/l	0.00	0.00380	NA	0	L309508-01	WG319123
Zinc	mg/l	0.00	0.0220	NA	20	L309508-01	WG319123
Arsenic	mg/l	0.00	0.00	0.00	20	L309499-03	WG319124
Barium	mg/l	0.00	0.00	0.00	20	L309499-03	WG319124
Cadmium	mg/l	0.00	0.00	0.00	20	L309499-03	WG319124
Chromium	mg/l	0.0105	0.00	NA	20	L309499-03	WG319124
Copper	mg/l	0.0358	0.0620	53.6	20	L309499-03	WG319124
Iron	mg/l	0.00	0.00	0.00	20	L309499-03	WG319124
Lead	mg/l	0.00	0.00	0.00	20	L309499-03	WG319124
Manganese	mg/l	0.0257	0.0250	2.76	20	L309499-03	WG319124
Selenium	mg/l	0.00	0.00	0.00	20	L309499-03	WG319124
Silver	mg/l	0.00	0.00	0.00	20	L309499-03	WG319124
Vanadium	mg/l	0.00	0.00	0.00	0	L309499-03	WG319124
Zinc	mg/l	0.00	0.00	0.00	20	L309499-03	WG319124

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Level II

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September 17, 2007

COD	mg/l	397	380.	4.38	20	L309484-01	WG319227

Analyte	Units	Duplicate Result	Duplicate	RPD	Limit	Ref Samp	Batch
COD	mg/l	254.	250.	1.59	20	L309499-09	WG319227
Specific Conductance	umhos	313.	310.	0.963	20	L308812-01	WG319229
Specific Conductance	umhos	4150	4200	1.20	20	L309499-09	WG319229
Chloride	mg/l	76.3	76.3	0.00	20	L309711-02	WG319241
Chloride	mg/l	21.1	21.0	0.475	20	L309688-01	WG319241
Sulfate	mg/l	42.6	42.8	0.468	20	L309711-02	WG319241
Sulfate	mg/l	22.6	23.1	2.19	20	L309688-01	WG319241
TOX	mg/l	0.00	0.00	0.00	20	L309499-02	WG319314
TOC (Total Organic Carbon)	mg/l	3.32	3.70	10.8	20	L309499-01	WG319315
TOC (Total Organic Carbon)	mg/l	2.12	2.50	16.5	20	L309542-02	WG319315
Dissolved Solids	mg/l	110.	110.	0.00	20	L309499-02	WG319405
Mercury	mg/l	0.00	0.00	0.00	20	L309499-03	WG319462

Analyte	Units	Laboratory Control Sample Known Val	Result	% Rec	Limit	Batch
Chloride	mg/l	40	37.7	94.3	90-110	WG318974
Fluoride	mg/l	8	7.94	99.3	90-110	WG318974
Nitrate	mg/l	8	7.97	99.6	90-110	WG318974
Sulfate	mg/l	40	38.5	96.3	90-110	WG318974
Chloride	mg/l	40	37.8	94.5	90-110	WG318975
Fluoride	mg/l	8	7.98	99.8	90-110	WG318975
Nitrate	mg/l	8	8.09	101.	90-110	WG318975
Sulfate	mg/l	40	37.8	94.5	90-110	WG318975
BOD	mg/l	198	201.	102.	85-115	WG319010
BOD	mg/l	198	190.	96.0	85-115	WG319010
BOD	mg/l	198	324.	164.	85-115	WG319010
Phosphate,Ortho	mg/l	.75	0.760	101.	85-115	WG319041
Dissolved Solids	mg/l	8800	8470	96.3	85-115	WG319106
Dissolved Solids	mg/l	8800	8580	97.5	85-115	WG319110
pH	su	8.25	7.90	95.8	85-115	WG319118
pH	su	8.25	8.00	97.0	85-115	WG319119
Arsenic	mg/l	1	1.03	103.	85-115	WG319123
Barium	mg/l	1	1.02	102.	85-115	WG319123
Cadmium	mg/l	1	1.06	106.	85-115	WG319123
Chromium	mg/l	1	1.00	100.	85-115	WG319123
Copper	mg/l	1	1.05	105.	85-115	WG319123
Iron	mg/l	1	1.06	106.	85-115	WG319123
Lead	mg/l	1	1.01	101.	85-115	WG319123
Manganese	mg/l	1	1.02	102.	85-115	WG319123
Selenium	mg/l	1	0.992	99.2	85-115	WG319123
Silver	mg/l	1	0.984	98.4	85-115	WG319123
Vanadium	mg/l	1	1.02	102.	85-115	WG319123
Zinc	mg/l	1	0.984	98.4	85-115	WG319123

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September 17, 2007

Arsenic	mg/l	1	1.03	103.	85-115	WG319124

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Barium	mg/l	1	1.02	102.	85-115	WG319124
Cadmium	mg/l	1	1.04	104.	85-115	WG319124
Chromium	mg/l	1	1.01	101.	85-115	WG319124
Copper	mg/l	1	1.12	112.	85-115	WG319124
Iron	mg/l	1	1.05	105.	85-115	WG319124
Lead	mg/l	1	1.03	103.	85-115	WG319124
Manganese	mg/l	1	1.01	101.	85-115	WG319124
Selenium	mg/l	1	1.01	101.	85-115	WG319124
Silver	mg/l	1	1.00	100.	85-115	WG319124
Vanadium	mg/l	1	1.03	103.	85-115	WG319124
Zinc	mg/l	1	0.989	98.9	85-115	WG319124
COD	mg/l	383	387.	101.	90-110	WG319227
Specific Conductance	umhos/cm	559	580.	104.	85-115	WG319229
Chloride	mg/l	40	37.9	94.8	90-110	WG319241
Sulfate	mg/l	40	37.8	94.5	90-110	WG319241
TOX	mg/l	.2	0.215	108.	85-115	WG319314
TOC (Total Organic Carbon)	mg/l	75	77.9	104	85-115	WG319315
Dissolved Solids	mg/l	8800	8500	96.6	85-115	WG319405
Mercury	mg/l	.003	0.00268	89.3	85-115	WG319462

Laboratory Control Sample Duplicate

Analyte	Units	LCSD Res	Ref Res	RPD	Limit	%Rec	Batch
Chloride	mg/l	37.7	37.7	0.00	20	94	WG318974
Fluoride	mg/l	7.97	7.94	0.377	20	100	WG318974
Nitrate	mg/l	7.99	7.97	0.251	20	100	WG318974
Sulfate	mg/l	38.6	38.5	0.259	20	97	WG318974
Chloride	mg/l	37.8	37.8	0.00	20	95	WG318975
Fluoride	mg/l	7.94	7.98	0.503	20	99	WG318975
Nitrate	mg/l	8.09	8.09	0.00	20	101	WG318975
Sulfate	mg/l	37.8	37.8	0.00	20	95	WG318975
Phosphate,Ortho	mg/l	0.756	0.760	0.528	20	101	WG319041
Dissolved Solids	mg/l	8460	8470	0.189	20	96	WG319106
Dissolved Solids	mg/l	8500	8580	0.890	20	97	WG319110
pH	su	7.90	7.90	0.00	20	96	WG319118
pH	su	8.00	8.00	0.00	20	97	WG319119
COD	mg/l	386.	387.	0.259	20	101	WG319227
Specific Conductance	umhos	580.	580.	0.00	20	104	WG319229
Chloride	mg/l	37.9	37.9	0.00	20	95	WG319241
Sulfate	mg/l	37.8	37.8	0.00	20	95	WG319241
TOX	mg/l	0.222	0.215	3.25	20	111	WG319314

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TOC (Total Organic Carbon)	mg/l	74.0	77.9	5.10	20	99	WG319315

Laboratory Control Sample Duplicate

Analyte	Units	LCSD Res	Ref Res	RPD	Limit	%Rec	Batch
Dissolved Solids	mg/l	8620	8500	1.35	20	98	WG319405

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch
Chloride	mg/l	82.2	34.0	50	96.4	80-120	L309472-04	WG318974
Fluoride	mg/l	5.36	0.165	5	104.	80-120	L309472-04	WG318974
Nitrate	mg/l	4.69	0.00	5	93.8	80-120	L309472-04	WG318974
Sulfate	mg/l	80.0	32.0	50	96.0	80-120	L309472-04	WG318974
Chloride	mg/l	227.	190.	50	74.0	80-120	L309591-01	WG318975
Fluoride	mg/l	5.31	0.783	5	90.5	80-120	L309591-01	WG318975
Nitrate	mg/l	4.66	0.00	5	93.2	80-120	L309591-01	WG318975
Sulfate	mg/l	141.	95.5	50	91.0	80-120	L309591-01	WG318975
Phosphate,Ortho	mg/l	3.45	0.980	.5	98.8	80-120	L309461-01	WG319041
Arsenic	mg/l	1.08	0.0092	1	107.	75-125	L309508-01	WG319123
Barium	mg/l	1.08	0.0493	1	103.	75-125	L309508-01	WG319123
Cadmium	mg/l	1.06	0.0026	1	106.	75-125	L309508-01	WG319123
Chromium	mg/l	1.01	0.0002	1	101.	75-125	L309508-01	WG319123
Copper	mg/l	1.03	0.0148	1	102.	75-125	L309508-01	WG319123
Iron	mg/l	7.72	6.38	1	134.	75-125	L309508-01	WG319123
Lead	mg/l	1.06	0.0060	1	105.	75-125	L309508-01	WG319123
Manganese	mg/l	1.07	0.0432	1	103.	75-125	L309508-01	WG319123
Selenium	mg/l	1.04	0.0004	1	104.	75-125	L309508-01	WG319123
Silver	mg/l	1.00	0.0024	1	99.8	75-125	L309508-01	WG319123
Vanadium	mg/l	1.04	0.0038	1	104.	75-125	L309508-01	WG319123
Zinc	mg/l	1.01	0.0220	1	98.8	75-125	L309508-01	WG319123
Arsenic	mg/l	1.13	0.00	1	113.	75-125	L309499-03	WG319124
Barium	mg/l	1.04	0.00	1	104.	75-125	L309499-03	WG319124
Cadmium	mg/l	1.05	0.00	1	105.	75-125	L309499-03	WG319124
Chromium	mg/l	0.992	0.00	1	99.2	75-125	L309499-03	WG319124
Copper	mg/l	1.25	0.0620	1	119.	75-125	L309499-03	WG319124
Iron	mg/l	1.03	0.00	1	103.	75-125	L309499-03	WG319124
Lead	mg/l	1.00	0.00	1	100.	75-125	L309499-03	WG319124
Manganese	mg/l	1.03	0.0250	1	101.	75-125	L309499-03	WG319124
Selenium	mg/l	1.14	0.00	1	114.	75-125	L309499-03	WG319124
Silver	mg/l	1.10	0.00	1	110.	75-125	L309499-03	WG319124
Vanadium	mg/l	1.04	0.00	1	104.	75-125	L309499-03	WG319124
Zinc	mg/l	1.12	0.00	1	112.	75-125	L309499-03	WG319124
COD	mg/l	512.	120.	400	98.0	80-120	L309499-08	WG319227
TOX	mg/l	0.355	0.00	.3	118.	80-120	L309499-03	WG319314
TOC (Total Organic Carbon)	mg/l	50.3	2.70	50	95.2	80-120	L309542-01	WG319315
Mercury	mg/l	0.0026	0.00	.003	88.3	70-130	L309499-03	WG319462

Matrix Spike Duplicate

Analyte	Units	MSD Res	Ref Res	RPD	Limit	%Rec	Ref Samp	Batch
Chloride	mg/l	83.4	82.2	1.45	20	98.8	L309472-04	WG318974
Fluoride	mg/l	5.51	5.36	2.76	20	107.	L309472-04	WG318974
Nitrate	mg/l	4.75	4.69	1.27	20	95.0	L309472-04	WG318974
Sulfate	mg/l	81.6	80.0	1.98	20	99.2	L309472-04	WG318974

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Chloride	mg/l	229.	227.	0.877	20	78.0	L309591-01	WG318975

Matrix Spike Duplicate

Analyte	Units	MSD Res	Ref Res	RPD	Limit	%Rec	Ref Samp	Batch
Fluoride	mg/l	5.62	5.31	5.67	20	96.7	L309591-01	WG318975
Nitrate	mg/l	5.04	4.66	7.84	20	101.	L309591-01	WG318975
Sulfate	mg/l	143.	141.	1.41	20	95.0	L309591-01	WG318975
Phosphate,Ortho	mg/l	3.37	3.45	2.35	20	95.6	L309461-01	WG319041
Arsenic	mg/l	1.08	1.08	0.00	20	107.	L309508-01	WG319123
Barium	mg/l	1.09	1.08	0.922	20	104.	L309508-01	WG319123
Cadmium	mg/l	1.08	1.06	1.87	20	108.	L309508-01	WG319123
Chromium	mg/l	1.03	1.01	1.96	20	103.	L309508-01	WG319123
Copper	mg/l	1.00	1.03	2.96	20	98.5	L309508-01	WG319123
Iron	mg/l	7.82	7.72	1.29	20	144.	L309508-01	WG319123
Lead	mg/l	1.05	1.06	0.948	20	104.	L309508-01	WG319123
Manganese	mg/l	1.06	1.07	0.939	20	102.	L309508-01	WG319123
Selenium	mg/l	1.04	1.04	0.00	20	104.	L309508-01	WG319123
Silver	mg/l	1.01	1.00	0.995	20	101.	L309508-01	WG319123
Vanadium	mg/l	1.06	1.04	1.90	20	106.	L309508-01	WG319123
Zinc	mg/l	1.03	1.01	1.96	20	101.	L309508-01	WG319123
Arsenic	mg/l	1.07	1.13	5.45	20	107.	L309499-03	WG319124
Barium	mg/l	0.981	1.04	5.84	20	98.1	L309499-03	WG319124
Cadmium	mg/l	0.986	1.05	6.29	20	98.6	L309499-03	WG319124
Chromium	mg/l	0.952	0.992	4.12	20	95.2	L309499-03	WG319124
Copper	mg/l	1.19	1.25	4.92	20	113.	L309499-03	WG319124
Iron	mg/l	0.987	1.03	4.26	20	98.7	L309499-03	WG319124
Lead	mg/l	0.959	1.00	4.19	20	95.9	L309499-03	WG319124
Manganese	mg/l	0.974	1.03	5.59	20	94.9	L309499-03	WG319124
Selenium	mg/l	1.07	1.14	6.33	20	107.	L309499-03	WG319124
Silver	mg/l	1.04	1.10	5.61	20	104.	L309499-03	WG319124
Vanadium	mg/l	0.988	1.04	5.13	20	98.8	L309499-03	WG319124
Zinc	mg/l	1.06	1.12	5.50	20	106.	L309499-03	WG319124
COD	mg/l	515.	512.	0.584	20	98.8	L309499-08	WG319227
TOX	mg/l	0.368	0.355	3.70	20	123.	L309499-03	WG319314
TOC (Total Organic Carbon)	mg/l	51.4	50.3	2.11	20	97.3	L309542-01	WG319315
Mercury	mg/l	0.0026	0.0026	0.752	20	89.0	L309499-03	WG319462

Batch number /Run number / Sample number cross reference

WG319118: R332819: L309499-01 03 04 05 06 07 08 09
WG319123: R332838: L309499-01 02
WG319124: R332839: L309499-03 04 05 06 07 08 09
WG318975: R332867: L309499-01 02 04 09
WG319041: R332869: L309499-07 08 09
WG319227: R332981: L309499-01 02 03 04 05 06 07 08 09
WG318974: R333005: L309499-03 05 06 07 08
WG319241: R333009: L309499-08 09
WG319229: R333036: L309499-01 02 03 04 05 06 07 08 09
WG319405: R333154: L309499-02
WG319106: R333163: L309499-03 05 06 07 08 09
WG319110: R333166: L309499-01 04
WG319462: R333202: L309499-01 02 03 04 05 06 07 08 09
WG319315: R333243: L309499-01 02 03 04 05 06 07 08 09
WG319010: R333274: L309499-01 02 03 04 05 06 07 08 09
WG319119: R333277: L309499-02

ENVIRONMENTAL
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1-800-767-5859
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Tax I.D. 62-0814289

Est. 1970

MACTEC - Wilmington, NC
Mr. B. Walker Jones
5710 Oleander Drive, Suite 110

Wilmington, NC 28403

Quality Assurance Report
Level II

L309499

September 17, 2007

WG319314: R333782: L309499-01 02 03 04 05 06 07 08 09

* * Calculations are performed prior to rounding of reported values .

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Wilmington, NC 28403

Quality Assurance Report
Level II

L309499

September 17, 2007

The data package includes a summary of the analytic results of the quality control samples required by the SW-846 or CWA methods. The quality control samples include a method blank, a laboratory control sample, and the matrix spike/matrix spike duplicate analysis. If a target parameter is outside the method limits, every sample that is effected is flagged with the appropriate qualifier in Appendix B of the analytic report.

Method Blank - an aliquot of reagent water carried through the entire analytic process. The method blank results indicate if any possible contamination exposure during the sample handling, digestion or extraction process, and analysis. Concentrations of target analytes above the reporting limit in the method blank are qualified with the "B" qualifier.

Laboratory Control Sample - is a sample of known concentration that is carried through the digestion/extraction and analysis process. The percent recovery, expressed as a percentage of the theoretical concentration, has statistical control limits indicating that the analytic process is "in control". If a target analyte is outside the control limits for the laboratory control sample or any other control sample, the parameter is flagged with a "J4" qualifier for all effected samples.

Matrix Spike and Matrix Spike Duplicate - is two aliquots of an environmental sample that is spiked with known concentrations of target analytes. The percent recovery of the target analytes also has statistical control limits. If any recoveries that are outside the method control limits, the sample that was selected for matrix spike/matrix spike duplicate analysis is flagged with either a "J5" or a "J6". The relative percent difference (%RPD) between the matrix spike and the matrix spike duplicate recoveries is all calculated. If the RPD is above the method limit, the effected samples are flagged with a "J3" qualifier.

MACTEC - Wilmington, NC

5710 Oleander Drive. Suite 110
Wilmington,NC 28403

Alternate billing information:

Chain of Custody
Page 1 of ___

Prepared by:
ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (800) 767-5859
FAX (615) 758-5859

Report to: Mr. B. Walker Jones
Email: bwjones@mactec.com
Project Description: IP Landfill
City/State Collected: Wilmington, NC
Phone: (910) 452-1185
FAX: (910) 791-1338
Client Project #: 6550-07-0402-01
Lab Project #: LAWENGWN-6550060311
Collected by (print): B. MABIE
Site/Facility ID#:
P.O.#:
Collected by (signature):
Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day.....100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed: STANDARD
Email? ___No X Yes
FAX? ___No ___Yes

Acct.Num: LAWENGWN (lab use only)
Template/Prelogin: 138584/P218678
Cooler #: 5
Shipped Via: FedEx Ground

Analysis/Container/Preservative

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	BOD-1L HDPE-NoPres	COD 250mlHDPE-H2SO4	CLF-NO3-pH-SO4 125mlHDPE-NoPres	Metals 500mlHDPE-HNO3	PORTHO 250mlHDPE-NoPres	SPCON 250mlHDPE-NoPres	TDS-250mlHDPE-NoPres	TOC 250mlAmb-Septa-HCl	Remarks/Contaminant	Sample # (lab only)
MW-1A	GRAB	WW	–	9.5.07	1400	8	X	X	X	X		X	X	X		L389499-01
MW-1B		WW	–		1410	8	X	X	X	X		X	X	X		02
MW-4A		WW	–		1030	8	X	X	X	X		X	X	X		03
MW-5A		WW	–		1200	8	X	X	X	X		X	X	X		04
MW-7A		WW	–		1015	8	X	X	X	X		X	X	X		05
MW-8A		WW	–		1045	8	X	X	X	X		X	X	X		06
PRIMARY		WW	–		1115	9	X	X	X	X	X	X	X	X		07
SECONDARY		WW	–		1120	9	X	X	X	X	X	X	X	X		08
UNDERDRAIN		WW	–		1130	9	X	X	X	X	X	X	X	X		09

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

pH _____ Temp _____ 10
Flow _____ Other _____ 12

Remarks: Metals = As, Hg, Ba, Cd, Cr, Cu, Fe, Pb, Mn, Se, Ag, V, Zn
9446 7862 8073 / 9446 7862 8121 / 9446 7862 8084
9446 7862 8110 / 9446 7862 8100

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐ ___	Condition: (lab use only)
	9/5/07	1530			
Relinquished by: [redacted]	Date:	Time:	Received by: (Signature) [redacted]	Temp: 2.4	Bottles Received: 72 + 5TB
Relinquished by: [redacted]	Date:	Time:	Received for lab by: (Signature)	Date: 9/6/07	Time: 0900

pH Checked: ___ NCF: ___

MACTEC - Wilmington, NC

5710 Oleander Drive. Suite 110
Wilmington,NC 28403

Alternate billing information:

Analysis/Container/Preservative

Chain of Custody
Page ___ of ___

Prepared by:
ENVIRONMENTAL SCIENCE CORP.
12065 Lebanon Road
Mt. Juliet, TN 37122
Phone (800) 767-5859
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Report to: Mr. B. Walker Jones
Email: bwjones@mactec.com
Project Description: IP Landfill
City/State Collected: Wilmington, NC
Phone: (910) 452-1185
FAX: (910) 791-1338
Client Project #: 6550-07-0402-01
Lab Project #: LAWENGWN-6550060311
Collected by (print): B. MABLE
Site/Facility ID#:
P.O.#:
Collected by (signature):
Immediately Packed on Ice N ___ Y X

Rush? (Lab MUST Be Notified)
___ Same Day 200%
___ Next Day 100%
___ Two Day 50%
___ Three Day 25%

Date Results Needed: STANDARD
Email? ___No X Yes
FAX? ___No ___Yes

Acctnum: LAWENGWN (lab use only)
Template/Prelogin: T38584/P218678
Cooler: 3 (4°C)
Shipped Via: FedEx Ground

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	HOXT, Amb Add H2SO4					Remarks/Contaminant	Sample # (lab only)
MW-1A	Grab	WW	—	9.5.07	1400	8	X						L309499-01
MW-1B		WW	—		1410	8	X						02
MW-4A		WW	—		1030	8	X						03
MW-5A		WW	—		1200	8	X						04
MW-7A		WW	—		1045	8	X						05
MW-8A		WW	—		1045	8	X						06
PRIMARY		WW	—		1115	9	X						07
SECONDARY		WW	—		1120	9	X						08
UNDERDRAIN		WW	—		1130	9	X						09

*Matrix: SS - Soil GW - Groundwater WW - WasteWater DW - Drinking Water OT - Other_____

Remarks: Metals = As, Hg, Ba, Cd, Cr, Cu, Fe, Pb, Mn, Se, Ag, V, Zn

pH _____ Temp _____
Flow _____ Other _____

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☑ FedEx ☐ Courier ☐ ____	Condition: (lab use only)
	9.5.07	1530			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 2.4° Bottles Received: 72+178	
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 9/12/07 Time: 0700	pH Checked: NCF:

APPENDIX B

FIELD SAMPLING REPORT	MACTEC ENGINEERING & CONSULTING SERVICES, INC. 5710 OLEANDER DRIVE, SUITE 110 WILMINGTON, NC 28403 PHONE (910) 452-1185 FAX (910) 791-1338	JOB NAME: IP - LANDFILL JOB NUMBER: 6550-07-0402

SAMPLING INFORMATION

SOIL SAMPLING DATA

SAMPLE ID NUMBER: NA HAZARDOUS: UNKNOWN

SAMPLING DATE / TIME: NA / NA

SAMPLER TYPE & MATERIAL: NA

SAMPLE DESCRIPTION: NA

WELL SAMPLING DATA

SAMPLE ID NUMBER: MW-1A HAZARDOUS: UNKNOWN

SAMPLING DATE / TIME: 9/5/2007 / 1400

SAMPLER TYPE & MATERIAL: LOW FLOW PERISTALTIC PUMP & DEDICATED CLEAN TUBING

SAMPLE DESCRIPTION: CLEAR

TOTAL WELL DEPTH (FT): 29.50 DEPTH TO WATER (FT): 17.07

ONE WELL PURGE VOLUME: 2.5 GAL

VOLUME OF WATER PURGED: 7.5 GAL

PURGE DATE: 9/4/2007 START TIME: 1430 END TIME: 1445

LABORATORY/CONTAINER INFORMATION

CONTAINER TYPE	CONTAINER VOLUME	NUMBER	PRESERVATIVE /PREPARATION	COMMENTS		
PLASTIC -HDPE	1L	1	No Pres	BOD	SM 5210B	
PLASTIC -HDPE	250 ML	1	H2SO4	COD	410.4	
PLASTIC -HDPE	125 ML	1	No Pres	Cl,F,NO3,Ph,SO4	9056	
PLASTIC -HDPE	500 ML	1	HNO3	METALS	7470A/6010B	
PLASTIC -HDPE	250 ML	1	No Pres	SP COND	9050A	
PLASTIC -HDPE	250 ML	1	No Pres	TDS	160.1	
AMBER GLASS	250 ML	1	No Pres	TOC	9060	
AMBER GLASS	1L	1	H2SO4	TOX	9020	

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	PURGE DATA 1st READING	2nd READING	3rd READING	4th READING	SAMPLE DATA
TEMP. (°C)	HANNA	23.2	22.1	22.4	22.2	23.0
pH (STD)	"	7.77	7.56	7.59	7.60	7.57
SPEC. COND (uS/cm)	"	331	309	300	301	300
APPEARANCE	-	CLOUDY	CLOUDY	CLOUDY	CLOUDY	CLEAR
TIME	-	1430	1435	1440	1445	1400
DATE	-	9/4/2007	9/4/2007	9/4/2007	9/4/2007	9/5/2007

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (°F): 90

SAMPLES COLLECTED BY: W. Mabie/W. Moore

SPECIAL HANDLING: PACKAGED ON ICE

MODE OF SHIPMENT: FEDEX

HANNA METER CALIBRATED 09/04/07 AND 09/5/07 PRIOR TO PURGING AND SAMPLING.

Prepared by: LAD 10/01/07 **Checked by: WJM 10/02/07**

Clients/IP/Landfill/Fieldrpt/SEPT07.xls wjm 10/2/07

FIELD SAMPLING REPORT	MACTEC ENGINEERING & CONSULTING SERVICES, INC. 5710 O LEANDER DRIVE, SUITE 110 WILMINGTON, NC 28403 PHONE (910) 452-1185 FAX (910) 791-1338	JOB NAME: IP - LANDFILL JOB NUMBER: 6550-07-0402

SAMPLING INFORMATION

SOIL SAMPLING DATA

SAMPLE ID NUMBER: NA HAZARDOUS: YES NO UNKNOWN

SAMPLING DATE / TIME: NA / NA

SAMPLER TYPE & MATERIAL: NA

SAMPLE DESCRIPTION: NA

WELL SAMPLING DATA

SAMPLE ID NUMBER: MW-1B HAZARDOUS: YES NO UNKNOWN

SAMPLING DATE / TIME: 9/5/2007 / 1410

SAMPLER TYPE & MATERIAL: LOW FLOW PERISTALTIC PUMP & DEDICATED CLEAN TUBING

SAMPLE DESCRIPTION: CLEAR

TOTAL WELL DEPTH (FT): 50.00 DEPTH TO WATER (FT): 17.55

ONE WELL PURGE VOLUME: 5.5 GAL

VOLUME OF WATER PURGED: 22.1 GAL

PURGE DATE: 9/4/2007 START TIME: 1500 END TIME: 1515

LABORATORY CONTAINER INFORMATION

CONTAINER		NUMBER	PRESERVATIVE /PREPARATION	COMMENTS		
TYPE	VOLUME					
PLASTIC -HDPE	1L	1	No Pres	BOD	SM 5210B	
PLASTIC -HDPE	250 ML	1	H2SO4	COD	410.4	
PLASTIC -HDPE	125 ML	1	No Pres	Cl,F,NO3,Ph,SO4	9056	
PLASTIC -HDPE	250 ML	1	HNO3	METALS	7470A/6010B	
PLASTIC -HDPE	250 ML	1	No Pres	SP COND	9050A	
PLASTIC -HDPE	250 ML	1	No Pres	TDS	160.1	
AMBER GLASS	250 ML	1	No Pres	TOC	9060	
AMBER GLASS	1L	1	H2SO4	TOX	9020	

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	PURGE DATA				SAMPLE DATA
		1st READING	2nd READING	3rd READING	4th READING	
TEMP. (°C)	HANNA	20.7	19.7	19.7	19.5	20.3
pH (STD)	"	6.32	5.85	5.88	5.81	5.87
SPEC. COND (uS/cm)	"	155	157	157	159	162
APPEARANCE	-	CLOUDY	CLOUDY	CLOUDY	CLOUDY	CLEAR
TIME	-	1500	1505	1510	1515	1410
DATE	-	9/4/2007	9/4/2007	9/4/2007	9/4/2007	9/5/2007

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (°F): 90

SAMPLES COLLECTED BY: W. Mabie/W. Moore

SPECIAL HANDLING: PACKAGED ON ICE

MODE OF SHIPMENT: FEDEX

HANNA METER CALIBRATED 09/04/07 AND 09/5/07 PRIOR TO PURGING AND SAMPLING.

Prepared by: LAD 10/01/07 **Checked by: WJM 10/02/07**

Clients/IP/Landfill/Fieldrpt/SEPT07.xls

FIELD SAMPLING REPORT	MACTEC ENGINEERING & CONSULTING SERVICES, INC. 5710 OLEANDER DRIVE, SUITE 110 WILMINGTON, NC 28403 PHONE (910) 452-1185 FAX (910) 791-1338	JOB NAME: IP - LANDFILL JOB NUMBER: 6550-07-0402

SAMPLING INFORMATION

SOIL SAMPLING DATA

SAMPLE ID NUMBER: NA HAZARDOUS: YES NO UNKNOWN

SAMPLING DATE / TIME: NA / NA

SAMPLER TYPE & MATERIAL: NA

SAMPLE DESCRIPTION: NA

WELL SAMPLING DATA

SAMPLE ID NUMBER: MW-4A HAZARDOUS: YES NO UNKNOWN

SAMPLING DATE / TIME: 9/5/2007 / 1030

SAMPLER TYPE & MATERIAL: LOW FLOW PERISTALTIC PUMP & DEDICATED CLEAN TUBING

SAMPLE DESCRIPTION: CLEAR

TOTAL WELL DEPTH (FT): 12.00 DEPTH TO WATER (FT): 8.95

ONE WELL PURGE VOLUME: 0.5 GAL

VOLUME OF WATER PURGED: 2.1 GAL

PURGE DATE: 9/4/2007 START TIME: 1315 END TIME: 1330

LABORATORY CONTAINER INFORMATION

CONTAINER		NUMBER	PRESERVATIVE /PREPARATION	COMMENTS		
TYPE	VOLUME					
PLASTIC -HDPE	1L	1	No Pres	BOD	SM 5210B	
PLASTIC -HDPE	250 ML	1	H2SO4	COD	410.4	
PLASTIC -HDPE	125 ML	1	No Pres	Cl,F,NO3,Ph,SO4	9056	
PLASTIC -HDPE	250 ML	1	HNO3	METALS	7470A/6010B	
PLASTIC -HDPE	250 ML	1	No Pres	SP COND	9050A	
PLASTIC -HDPE	250 ML	1	No Pres	TDS	160.1	
AMBER GLASS	250 ML	1	No Pres	TOC	9060	
AMBER GLASS	1L	1	H2SO4	TOX	9020	

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	PURGE DATA				SAMPLE DATA
		1st READING	2nd READING	3rd READING	4th READING	
TEMP. (°C)	HANNA	22.9	22.8	22.8	22.7	23.9
pH (STD)	"	6.45	5.38	5.04	5.01	6.62
SPEC. COND (uS/cm)	"	229	226	222	237	244
APPEARANCE	-	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
TIME	-	1315	1320	1325	1330	1030
DATE	-	9/4/2007	9/4/2007	9/4/2007	9/4/2007	9/5/2007

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (°F): 90

SAMPLES COLLECTED BY: W. Mabie/W. Moore

SPECIAL HANDLING: PACKAGED ON ICE

MODE OF SHIPMENT: FEDEX

HANNA METER CALIBRATED 09/04/07 AND 09/5/07 PRIOR TO PURGING AND SAMPLING.

Prepared by: LAD 10/01/07 **Checked by: WJM 10/02/07**

Clients/IP/Landfill/Fieldrpt/SEPT07.xls

FIELD SAMPLING REPORT	MACTEC ENGINEERING & CONSULTING SERVICES, INC. 5710 OLEANDER DRIVE, SUITE 110 WILMINGTON, NC 28403 PHONE (910) 452-1185 FAX (910) 791-1338	JOB NAME: IP - LANDFILL JOB NUMBER: 6550-07-0402

SAMPLING INFORMATION

SOIL SAMPLING DATA

SAMPLE ID NUMBER: NA HAZARDOUS: YES NO UNKNOWN

SAMPLING DATE / TIME: NA / NA

SAMPLER TYPE & MATERIAL: NA

SAMPLE DESCRIPTION: NA

WELL SAMPLING DATA

SAMPLE ID NUMBER: MW-5A HAZARDOUS: YES NO UNKNOWN

SAMPLING DATE / TIME: 9/5/2007 / 1200

SAMPLER TYPE & MATERIAL: LOW FLOW PERISTALTIC PUMP & DEDICATED CLEAN TUBING

SAMPLE DESCRIPTION: CLEAR

TOTAL WELL DEPTH (FT): 20.11 DEPTH TO WATER (FT): 10.27

ONE WELL PURGE VOLUME: 1.7 GAL

VOLUME OF WATER PURGED: 6.7 GAL

PURGE DATE: 9/4/2007 START TIME: 1405 END TIME: 1420

LABORATORY CONTAINER INFORMATION

CONTAINER TYPE	CONTAINER VOLUME	NUMBER	PRESERVATIVE /PREPARATION	COMMENTS		
PLASTIC -HDPE	1L	1	No Pres	BOD	SM 5210B	
PLASTIC -HDPE	250 ML	1	H2SO4	COD	410.4	
PLASTIC -HDPE	125 ML	1	No Pres	Cl,F,NO3,Ph,SO4	9056	
PLASTIC -HDPE	250 ML	1	HNO3	METALS	7470A/6010B	
PLASTIC -HDPE	250 ML	1	No Pres	SP COND	9050A	
PLASTIC -HDPE	250 ML	1	No Pres	TDS	160.1	
AMBER GLASS	250 ML	1	No Pres	TOC	9060	
AMBER GLASS	1L	1	H2SO4	TOX	9020	

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	PURGE DATA				SAMPLE DATA
		1st READING	2nd READING	3rd READING	4th READING	
TEMP. (°C)	HANNA	23.2	22.7	23.2	23.4	23.6
pH (STD)	"	6.78	6.77	6.75	6.79	6.59
SPEC. COND (uS/cm)	"	1623	1590	1550	1559	1642
APPEARANCE	-	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
TIME	-	1405	1410	1415	1420	1200
DATE	-	9/4/2007	9/4/2007	9/4/2007	9/4/2007	9/5/2007

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (°F): 90

SAMPLES COLLECTED BY: W. Mabie/W. Moore

SPECIAL HANDLING: PACKAGED ON ICE

MODE OF SHIPMENT: FEDEX

HANNA METER CALIBRATED 09/04/07 AND 09/5/07 PRIOR TO PURGING AND SAMPLING.

Prepared by: LAD 10/01/07 **Checked by: WJM 10/02/07**

Clients/IP/Landfill/Fieldrpt/SEPT07.xls

FIELD SAMPLING REPORT	MACTEC ENGINEERING & CONSULTING SERVICES, INC. 5710 OLEANDER DRIVE, SUITE 110 WILMINGTON, NC 28403 PHONE (910) 452-1185 FAX (910) 791-1338	JOB NAME: IP - LANDFILL JOB NUMBER: 6550-07-0402

SAMPLING INFORMATION

SOIL SAMPLING DATA

SAMPLE ID NUMBER: NA HAZARDOUS: YES NO UNKNOWN

SAMPLING DATE / TIME: NA / NA

SAMPLER TYPE & MATERIAL: NA

SAMPLE DESCRIPTION: NA

WELL SAMPLING DATA

SAMPLE ID NUMBER: MW-7A HAZARDOUS: YES **NO** UNKNOWN

SAMPLING DATE / TIME: 9/5/2007 / 1015

SAMPLER TYPE & MATERIAL: LOW FLOW PERISTALTIC PUMP & DEDICATED CLEAN TUBING

SAMPLE DESCRIPTION: CLEAR

TOTAL WELL DEPTH (FT): 13.17 DEPTH TO WATER (FT): 7

ONE WELL PURGE VOLUME: 1.0 GAL

VOLUME OF WATER PURGED: 4.2 GAL

PURGE DATE: 9/4/2007 START TIME: 1250 END TIME: 1305

LABORATORY CONTAINER INFORMATION

CONTAINER		NUMBER	PRESERVATIVE /PREPARATION	COMMENTS		
TYPE	VOLUME					
PLASTIC -HDPE	1L	1	No Pres	BOD	SM 5210B	
PLASTIC -HDPE	250 ML	1	H2SO4	COD	410.4	
PLASTIC -HDPE	125 ML	1	No Pres	Cl,F,NO3,Ph,SO4	9056	
PLASTIC -HDPE	250 ML	1	HNO3	METALS	7470A/6010B	
PLASTIC -HDPE	250 ML	1	No Pres	SP COND	9050A	
PLASTIC -HDPE	250 ML	1	No Pres	TDS	160.1	
AMBER GLASS	250 ML	1	No Pres	TOC	9060	
AMBER GLASS	1L	1	H2SO4	TOX	9020	

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	PURGE DATA				SAMPLE DATA
		1st READING	2nd READING	3rd READING	4th READING	
TEMP. (°C)	HANNA	22.1	22.3	22.4	22.4	21.8
pH (STD)	"	6.94	6.9	6.94	6.90	6.84
SPEC. COND (uS/cm)	"	1683	1564	1536	1539	1733
APPEARANCE	-	CLEAR	CLEAR	CLEAR	CLOUDY	CLEAR
TIME	-	1250	1255	1300	1305	1015
DATE	-	9/4/2007	9/4/2007	9/4/2007	9/4/2007	9/5/2007

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (°F): 90

SAMPLES COLLECTED BY: W. Mabie/W. Moore

SPECIAL HANDLING: PACKAGED ON ICE

MODE OF SHIPMENT: FEDEX

HANNA METER CALIBRATED 09/04/07 AND 09/5/07 PRIOR TO PURGING AND SAMPLING.

Prepared by: LAD 10/01/07 **Checked by: WJM 10/02/07**

Clients/IP/Landfill/Fieldrpt/SEPT07.xls

FIELD SAMPLING REPORT

MACTEC
ENGINEERING & CONSULTING SERVICES, INC.
5710 OLEANDER DRIVE, SUITE 110
WILMINGTON, NC 28403
PHONE (910) 452-1185
FAX (910) 791-1338

JOB NAME: IP - LANDFILL
JOB NUMBER: 6550-07-0402

SAMPLING INFORMATION

SOIL SAMPLING DATA

SAMPLE ID NUMBER: NA HAZARDOUS: YES NO UNKNOWN
SAMPLING DATE / TIME: NA / NA
SAMPLER TYPE & MATERIAL: NA
SAMPLE DESCRIPTION: NA

WELL SAMPLING DATA

SAMPLE ID NUMBER: MW-8A HAZARDOUS: YES NO UNKNOWN
SAMPLING DATE / TIME: 9/5/2007 / 1045
SAMPLER TYPE & MATERIAL: LOW FLOW PERISTALTIC PUMP & DEDICATED CLEAN TUBING
SAMPLE DESCRIPTION: CLEAR
TOTAL WELL DEPTH (FT): 12.67 DEPTH TO WATER (FT): 11.75
ONE WELL PURGE VOLUME: 0.2 GAL
VOLUME OF WATER PURGED: 0.6 GAL
PURGE DATE: 9/4/2007 START TIME: 1345 END TIME: 1400

LABORATORY CONTAINER INFORMATION

CONTAINER TYPE	CONTAINER VOLUME	NUMBER	PRESERVATIVE /PREPARATION	COMMENTS		
PLASTIC -HDPE	1L	1	No Pres	BOD	SM 5210B	
PLASTIC -HDPE	250 ML	1	H2SO4	COD	410.4	
PLASTIC -HDPE	125 ML	1	No Pres	Cl,F,NO3,Ph,SO4	9056	
PLASTIC -HDPE	250 ML	1	HNO3	METALS	7470A/6010B	
PLASTIC -HDPE	250 ML	1	No Pres	SP COND	9050A	
PLASTIC -HDPE	250 ML	1	No Pres	TDS	160.1	
AMBER GLASS	250 ML	1	No Pres	TOC	9060	
AMBER GLASS	1L	1	H2SO4	TOX	9020	

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	PURGE DATA 1st READING	2nd READING	3rd READING	4th READING	SAMPLE DATA
TEMP. (°C)	HANNA	22.6	24.0	23.0	22.8	21.8
pH (STD)	"	5.92	6.30	6.65	6.83	6.14
SPEC. COND (uS/cm	"	629	639	650	644	622
APPEARANCE	-	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
TIME	-	1345	1350	1355	1400	1045
DATE	-	9/4/2007	9/4/2007	9/4/2007	9/4/2007	9/5/2007

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (°F): 90
SAMPLES COLLECTED BY: W. Mabie/W. Moore
SPECIAL HANDLING: PACKAGED ON ICE
MODE OF SHIPMENT: FEDEX
HANNA METER CALIBRATED 09/04/07 AND 09/5/07 PRIOR TO PURGING AND SAMPLING.

Prepared by: LAD 10/01/07 **Checked by: WJM 10/02/07**
Clients/IP/Landfill/Fieldrpt/SEPT07.xls

FIELD SAMPLING REPORT	MACTEC ENGINEERING & CONSULTING SERVICES, INC. 3710 OLEANDER DRIVE, SUITE 110 WILMINGTON, NC 28403 PHONE (910) 452-1185 FAX (910) 793-1338	JOB NAME: IP - LANDFILL JOB NUMBER: 6550-07-0402

SAMPLING INFORMATION

SOIL SAMPLING DATA

SAMPLE ID NUMBER: NA HAZARDOUS: YES NO UNKNOWN

SAMPLING DATE / TIME: NA / NA

SAMPLER TYPE & MATERIAL: NA

SAMPLE DESCRIPTION: NA

WATER SAMPLING DATA

SAMPLE ID NUMBER: Primary HAZARDOUS: YES NO UNKNOWN

SAMPLING DATE / TIME: 9/5/2007 / 1115

SAMPLER TYPE & MATERIAL: Collected directly from a sample port - from an existing pumping system

SAMPLE DESCRIPTION: CLEAR

PURGING: Sample port was purged for several minutes prior to sample collection

PURGE DATE 9/5/2007

LABORATORY CONTAINER INFORMATION

CONTAINER		NUMBER	PRESERVATIVE /PREPARATION	COMMENTS	
TYPE	VOLUME				
PLASTIC -HDPE	1L	1	No Pres	BOD	SM 5210B
PLASTIC -HDPE	250 ML	1	H2SO4	COD	410.4
PLASTIC -HDPE	125 ML	1	No Pres	Cl,F,NO3,Ph,SO4	9056
PLASTIC -HDPE	500 ML	1	HNO3	METALS	7470A/6010B
PLASTIC -HDPE	250 ML	1	No Pres	SPCON,POORTE	9050A,4500P-E
PLASTIC -HDPE	250 ML	1	No Pres	TDS	160.1
AMBER GLASS	250 ML	1	No Pres	TOC	9060
AMBER GLASS	1 L	1	H2SO4	TOX	9020

INITIAL MEASUREMENTS

PARAMETER	EQUIP ID	SAMPLE DATA			
TEMP. (°C)	HANNA	27.5			
pH (STD)	"	6.81			
SPEC. COND (uS/cm)	"	0			
APPEARANCE	-	CLEAR			
TIME	-	1115			
DATE	-	09/05/07			

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (°F): 90

SAMPLES COLLECTED BY: W. Mabie/W. Moore

SPECIAL HANDLING: PACKAGED ON ICE

MODE OF SHIPMENT: FEDEX

HANNA METER CALIBRATED 09/04/07 AND 09/5/07 PRIOR TO PURGING AND SAMPLING.

Prepared by: LAD 10/01/07 Checked by: WJM 10/02/07

Clients/IP/Landfill/Fieldrpt/SEPT07.xls

FIELD SAMPLING REPORT	MACTEC ENGINEERING & CONSULTING SERVICES, INC. 5710 OLEANDER DRIVE, SUITE 110 WILMINGTON, NC 28403 PHONE (910) 452-1185 FAX (910) 791-1338	JOB NAME: IP - LANDFILL JOB NUMBER: 6550-07-0402

SAMPLING INFORMATION

SOIL SAMPLING DATA

SAMPLE ID NUMBER: NA HAZARDOUS: YES NO UNKNOWN

SAMPLING DATE / TIME: NA / NA

SAMPLER TYPE & MATERIAL: NA

SAMPLE DESCRIPTION: NA

WELL SAMPLING DATA

SAMPLE ID NUMBER: Secondary HAZARDOUS: YES NO UNKNOWN

SAMPLING DATE / TIME: 9/5/2007 / 1120

SAMPLER TYPE & MATERIAL: Collected directly from a sample port - from an existing pumping system

SAMPLE DESCRIPTION: CLEAR

PURGING: Sample port was purged for several minutes prior to sample collection

PURGE DATE 9/5/2007

LABORATORY CONTAINER INFORMATION

CONTAINER		NUMBER	PRESERVATIVE /PREPARATION	COMMENTS	
TYPE	VOLUME				
PLASTIC -HDPE	1L	1	No Pres	BOD	SM 5210B
PLASTIC -HDPE	250 ML	1	H2SO4	COD	410.4
PLASTIC -HDPE	125 ML	1	No Pres	Cl,F,NO3,Ph,SO4	9056
PLASTIC -HDPE	250 ML	1	HNO3	METALS	7470A/6010B
PLASTIC -HDPE	250 ML	1	No Pres	SPCON,POORTH	9050A,4500P-E
PLASTIC -HDPE	250 ML	1	No Pres	TDS	160.1
AMBER GLASS	250 ML	1	No Pres	TOC	9060
AMBER GLASS	1 L	1	H2SO4	TOX	9020

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	SAMPLE DATA			
TEMP. (°C)	HANNA	25.5			
pH (STD)	"	6.61			
SPEC. COND (uS/cm)	"	0			
APPEARANCE	-	CLEAR			
TIME	-	1120			
DATE	-	09/05/07			

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (°F): 90

SAMPLES COLLECTED BY: W. Mabie/W. Moore

SPECIAL HANDLING: PACKAGED ON ICE

MODE OF SHIPMENT: FEDEX

HANNA METER CALIBRATED 09/04/07 AND 09/5/07 PRIOR TO PURGING AND SAMPLING.

Prepared by: LAD 10/01/07 **Checked by: WJM 10/02/07**

Clients/IP/Landfill/Fieldrpt/SEPT07.xls

FIELD SAMPLING REPORT	MACTEC ENGINEERING & CONSULTING SERVICES, INC. 5710 OLEANDER DRIVE, SUITE 110 WILMINGTON, NC 28403 PHONE (910) 452-1185 FAX (910) 791-1338	JOB NAME: IP - LANDFILL JOB NUMBER: 6550-07-0402

SAMPLING INFORMATION

SOIL SAMPLING DATA

SAMPLE ID NUMBER: NA HAZARDOUS: YES NO UNKNOWN

SAMPLING DATE / TIME: NA / NA

SAMPLER TYPE & MATERIAL: NA

SAMPLE DESCRIPTION: NA

WELL SAMPLING DATA

SAMPLE ID NUMBER: Under-Drain HAZARDOUS: YES **NO** UNKNOWN

SAMPLING DATE / TIME: 9/5/2007 / 1130

SAMPLER TYPE & MATERIAL: Collected directly from a discharge pipe into the underdrain vault

SAMPLE DESCRIPTION: CLEAR

PURGING: Under-Drain sample pipe was discharging into the vault at the time of sampling

PURGE DATE 9/5/2007

LABORATORY CONTAINER INFORMATION

CONTAINER		NUMBER	PRESERVATIVE /PREPARATION	COMMENTS	
TYPE	VOLUME				
PLASTIC -HDPE	1L	1	No Pres	BOD	SM 5210B
PLASTIC -HDPE	250 ML	1	H2SO4	COD	410.4
PLASTIC -HDPE	125 ML	1	No Pres	Cl,F,NO3,Ph,SO4	9056
PLASTIC -HDPE	250 ML	1	HNO3	METALS	7470A/6010B
PLASTIC -HDPE	250 ML	1	No Pres	SPCON,POORTH	9050A,4500P-E
PLASTIC -HDPE	250 ML	1	No Pres	TDS	160.1
AMBER GLASS	250 ML	1	No Pres	TOC	9060
AMBER GLASS	1 L	1	H2SO4	TOX	9020

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	SAMPLE DATA			
TEMP. (°C)	HANNA	25.2			
pH (STD)	"	6.94			
SPEC. COND (uS/cm)	"	3854			
APPEARANCE	-	CLEAR			
TIME	-	1130			
DATE	-	09/05/07			

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (°F): 90

SAMPLES COLLECTED BY: W. Mabie/W. Moore

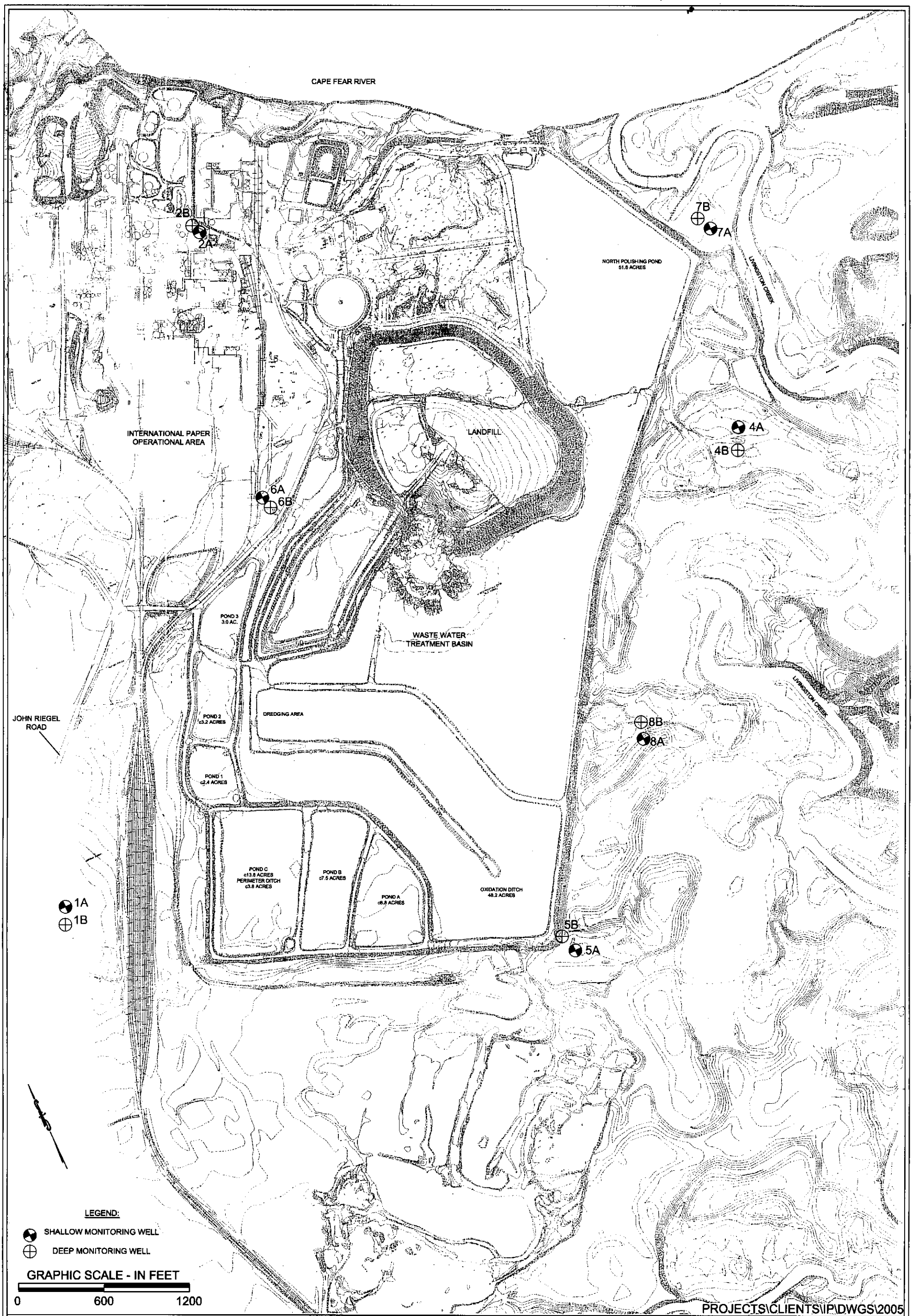
SPECIAL HANDLING: PACKAGED ON ICE

MODE OF SHIPMENT: FEDEX

HANNA METER CALIBRATED 09/04/07 AND 09/5/07 PRIOR TO PURGING AND SAMPLING.

Prepared by: LAD 10/01/07 **Checked by: WJM 10/02/07**

Clients/IP/Landfill/Fieldrpt/SEPT07.xls



SITE MAP
LANDFILL COMPLIANCE MONITORING
INTERNATIONAL PAPER, RIEGELWOOD MILL
RIEGELWOOD, NORTH CAROLINA

MACTEC
5710 OLEANER DRIVE
SUITE 110
WILMINGTON, NORTH CAROLINA

DRAWN:	WBM	JOB:	6550-05-0250
APPROVAL:	BWJ	DATE:	10/22/07
SCALE:	AS SHOWN	FIG:	2