REPORT OF

SEMI-ANNUAL GROUNDWATER COMPLIANCE MONITORING (MARCH 2008) SOLID WASTE LANDFILL INTERNATIONAL PAPER RIEGELWOOD, NORTH CAROLINA

Prepared for

INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA

Prepared by

MACTEC ENGINEERING AND CONSULTING, INC.
WILMINGTON, NORTH CAROLINA

MACTEC Project No. 6550-08-0479
April 29, 2008

MACTEC

engineering and constructing a better tomorrow

April 29, 2008

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 (March 2008) Permit No. 24-02 International Paper, Riegelwood, North Carolina MACTEC Project No. 6550-08-0479**

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. PROP08WILM23, dated February 29, 2008. International Paper authorized this work with Purchase Order No. S066115470, dated March 19, 2008. The sampling activities were conducted to comply with the North Carolina Department of Environment and Natural Resources (NCDENR) Division of Waste Management – Solid Waste Section requirements for groundwater monitoring.

The sampling event was conducted on March 5, 2008. 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.

MACTEC Engineering and Consulting, Inc.
5710 Oleander Drive, Suite 110
Wilmington, North Carolina 28403
(910) 452-1185 p • (910) 791-1338 f

The attachments to this document include the following:

- NCDENR Environmental Monitoring Reporting Form
- NCDENR Electronic Data Deliverable (EDD)
- Table 1 - Groundwater analytical results;
- Table 2 – Historical groundwater sample results;
- Table 3 – Landfill Cell 1 sample results;
- Figure – 1 Vicinity location map;
- Figure 2 – Plan-view map showing well locations;
- Copies of the original laboratory reports and chain-of-custody documentation (Appendix A); and
- Documentation of field activities including measurements of water levels, pH, specific conductance, and temperature are contained in the field sampling reports (Appendix B).

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.

B. Walker Jones, REM
Principal Scientist

J. Chris Pruneau, L.G.
Principal Hydrogeologist

Attachments

NCDENR ENVIRONMENTAL
MONITORING REPORTING FORM
ELECTRONIC DATA DELIVERABLE

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

NC DENR
Division of Waste Management - Solid Waste

Environmental Monitoring Reporting Form

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

Instructions:

- **Prepare one form for each individually monitored unit.**
- **Please type or print legibly.**
- Attach a notification table with values that attain or exceed NC 2L groundwater standards or NC 2B surface water standards. The notification must include a preliminary analysis of the cause and significance of each value. (e.g. naturally occurring, off-site source, pre-existing condition, etc.).
- Attach a notification table of any groundwater or surface water values that equal or exceed the reporting limits.
- Attach a notification table of any methane gas values that attain or exceed explosive gas levels. This includes any structures on or nearby the facility (NCAC 13B .1629 (4)(a)(i).
- In accordance with NC General Statutes Chapter 89C and 89E and NC Solid Waste Management Rules 15A NCAC 13B, be sure to affix a seal to the bottom of this page, when applicable.
- Send the original signed and sealed form, any tables, and Electronic Data Deliverable to: Compliance Unit, NCDENR-DWM, Solid Waste Section, 1646 Mail Service Center, Raleigh, NC 27699-1646.

Solid Waste Monitoring Data Submittal Information

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

International Paper

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

Name: Walker Jones Phone: 910 452-1185

E-mail: bwjones@mactec.com

Facility name:	Facility Address:	Facility Permit #	NC Landfill Rule: (.0500 or .1600)	Actual sampling dates (e.g., October 20-24, 2006)
International Paper	Riegelwood Mill 865 John L. Riegel Road Riegelwood, North Carolina 28456	24-02	.0500	March 5, 2008

Environmental Status: (Check all that apply)

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

Type of data submitted: (Check all that apply)

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

Notification attached?

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

Certification

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

J. Chris Pruneau, LG Principal Hydrogeologist 910 452-1185

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

Signature 4/29/08 Date

Affix NC Licensed/ Professional Geologist/Engineer Seal here:

NORTH CAROLINA LICENSED SEAL 1003 GEOLOGIST J. CHRIS PRUNEAU

Revised 01/2007

FACILITY PERMIT
WASTE UNIT
CLASS

SAMPLE ID	SWS ID	CAS Number	PARAMETER	RESULT	Q	UNITS	DILUTION FACTOR	COLLECT DATE	METHOD	MDL	SWSL	EXTRACTED	ANALYZED
MW-1A	301	16887-00-6	Chloride	5.8		mg/l	1	5-Mar-08	300	1		6-Mar-08	6-Mar-08
MW-1A	312	16984-48-8	Fluoride	0.069	J	mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
MW-1A	303	14797-55-8	Nitrate	0.097	J	mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
MW-1A	315	14808-79-8	Sulfate	51		mg/l	1	5-Mar-08	300	5		6-Mar-08	6-Mar-08
MW-1A	311		Dissolved Solids	260		mg/l	1	5-Mar-08	2540C	10		8-Mar-08	11-Mar-08
MW-1A	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	245.1	0.0002		6-Mar-08	10-Mar-08
MW-1A	316		BOD	5	U	mg/l	1	5-Mar-08	SM5210B	5			6-Mar-08
MW-1A	321	000010-29-7	pH	7.9	T8	su	1	5-Mar-08	4500H-B				11-Mar-08
MW-1A	317	E-10117	COD	20	U	mg/l	1	5-Mar-08	410.4	20		7-Mar-08	12-Mar-08
MW-1A	15	7440-39-3	Barium	0.028		mg/l	1	5-Mar-08	200.7	0.005		6-Mar-08	10-Mar-08
MW-1A	51	7440-47-3	Chromium	0.01	U	mg/l	1	5-Mar-08	200.7	0.01		6-Mar-08	10-Mar-08
MW-1A	340	7439-89-6	Iron	14		mg/l	1	5-Mar-08	200.7	0.1		6-Mar-08	10-Mar-08
MW-1A	131	7439-92-1	Lead	0.005	U	mg/l	1	5-Mar-08	200.7	0.005		6-Mar-08	10-Mar-08
MW-1A	342	7439-96-5	Manganese	0.32		mg/l	1	5-Mar-08	200.7	0.01		6-Mar-08	10-Mar-08
MW-1A	184	7440-22-4	Silver	0.032		mg/l	1	5-Mar-08	200.7	0.01		6-Mar-08	10-Mar-08
MW-1A	209	7440-62-2	Vanadium	0.0044	J	mg/l	1	5-Mar-08	200.7	0.01		6-Mar-08	10-Mar-08
MW-1A	357		TOC	43		mg/l	1	5-Mar-08	5310B	1		7-Mar-08	11-Mar-08
MW-1A	34	7440-43-9	Cadmium	0.0005	U	mg/l	1	5-Mar-08	6020	0.0005		10-Mar-08	11-Mar-08
MW-1A	14	7440-38-2	Arsenic	0.018		mg/l	5	5-Mar-08	6020	0.005		10-Mar-08	11-Mar-08
MW-1A	54	7440-50-8	Copper	0.005	U	mg/l	5	5-Mar-08	6020	0.005		10-Mar-08	11-Mar-08
MW-1A	183	7782-49-2	Selenium	0.005	U	mg/l	5	5-Mar-08	6020	0.005		10-Mar-08	11-Mar-08
MW-1A	213	7440-66-6	Zinc	0.05	U	mg/l	5	5-Mar-08	6020	0.05		10-Mar-08	11-Mar-08
MW-1A	15	7440-39-3	Barium	0.028		mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	10-Mar-08
MW-1A	51	7440-47-3	Chromium	0.01	U	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-1A	340	7439-89-6	Iron	14		mg/l	1	5-Mar-08	6010B	0.1		10-Mar-08	10-Mar-08
MW-1A	131	7439-92-1	Lead	0.005	U	mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	10-Mar-08
MW-1A	342	7439-96-5	Manganese	0.32		mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-1A	184	7440-22-4	Silver	0.032		mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-1A	209	7440-62-2	Vanadium	0.0044	J	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-1A	324		Specific Conductance	410		umhos/cm	1	5-Mar-08	120.1				13-Mar-08
MW-1A	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	7470A	0.0002		10-Mar-08	13-Mar-08
MW-1A	396		TOX	0.0092	J	mg/l	1	5-Mar-08	5320B	0.1		7-Mar-08	12-Mar-08
MW-1B	301	16887-00-6	Chloride	14		mg/l	1	5-Mar-08	300	1		6-Mar-08	6-Mar-08
MW-1B	312	16984-48-8	Fluoride	0.13		mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
MW-1B	303	14797-55-8	Nitrate	0.1	U	mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
MW-1B	315	14808-79-8	Sulfate	48		mg/l	1	5-Mar-08	300	5		6-Mar-08	6-Mar-08
MW-1B	357		TOC	2.4		mg/l	1	5-Mar-08	5310B	1		6-Mar-08	7-Mar-08
MW-1B	311		Dissolved Solids	76		mg/l	1	5-Mar-08	2540C	10		8-Mar-08	11-Mar-08
MW-1B	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	245.1	0.0002		6-Mar-08	10-Mar-08
MW-1B	316		BOD	5	U	mg/l	1	5-Mar-08	SM5210B	5			6-Mar-08
MW-1B	321	000010-29-7	pH	4.8	T8	su	1	5-Mar-08	4500H-B				11-Mar-08
MW-1B	317	E-10117	COD	20	U	mg/l	1	5-Mar-08	410.4	20		7-Mar-08	12-Mar-08
MW-1B	34	7440-43-9	Cadmium	0.0005	U	mg/l	1	5-Mar-08	6020	0.0005		10-Mar-08	11-Mar-08
MW-1B	14	7440-38-2	Arsenic	0.005	U	mg/l	5	5-Mar-08	6020	0.005		10-Mar-08	11-Mar-08
MW-1B	54	7440-50-8	Copper	0.005	U	mg/l	5	5-Mar-08	6020	0.005		10-Mar-08	11-Mar-08
MW-1B	183	7782-49-2	Selenium	0.005	U	mg/l	5	5-Mar-08	6020	0.005		10-Mar-08	11-Mar-08
MW-1B	213	7440-66-6	Zinc	0.05	U	mg/l	5	5-Mar-08	6020	0.05		10-Mar-08	11-Mar-08
MW-1B	15	7440-39-3	Barium	0.12		mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	10-Mar-08
MW-1B	51	7440-47-3	Chromium	0.0035	J	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-1B	340	7439-89-6	Iron	1.9		mg/l	1	5-Mar-08	6010B	0.1		10-Mar-08	10-Mar-08
MW-1B	131	7439-92-1	Lead	0.005	U	mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	10-Mar-08
MW-1B	342	7439-96-5	Manganese	0.015		mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-1B	184	7440-22-4	Silver	0.0061	J	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-1B	209	7440-62-2	Vanadium	0.015		mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-1B	324		Specific Conductance	160		umhos/cm	1	5-Mar-08	120.1				13-Mar-08
MW-1B	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	7470A	0.0002		10-Mar-08	13-Mar-08
MW-1B	396		TOX	0.015	J	mg/l	1	5-Mar-08	5320B	0.1		7-Mar-08	12-Mar-08
MW-4A	301	16887-00-6	Chloride	22		mg/l	1	5-Mar-08	300	1		6-Mar-08	6-Mar-08
MW-4A	312	16984-48-8	Fluoride	0.1	U	mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
MW-4A	303	14797-55-8	Nitrate	0.1	U	mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08

SAMPLE ID	SWS ID	CAS Number	PARAMETER	RESULT	Q	UNITS	DILUTION FACTOR	COLLECT DATE	METHOD	MDL	SWSL	EXTRACTED	ANALYZED
MW-4A	315	14808-79-8	Sulfate	76		mg/l	1	5-Mar-08	300	5		6-Mar-08	6-Mar-08
MW-4A	357		TOC	4.7		mg/l	1	5-Mar-08	5310B	1		6-Mar-08	7-Mar-08
MW-4A	311		Dissolved Solids	160		mg/l	1	5-Mar-08	2540C	10		7-Mar-08	10-Mar-08
MW-4A	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	245.1	0.0002		6-Mar-08	10-Mar-08
MW-4A	316		BOD	5	U	mg/l	1	5-Mar-08	SM5210B	5			6-Mar-08
MW-4A	321	000010-29-7	pH	4.2	T8	su	1	5-Mar-08	4500H-B				11-Mar-08
MW-4A	317	E-10117	COD	18	J	mg/l	1	5-Mar-08	410.4	20		7-Mar-08	12-Mar-08
MW-4A	14	7440-38-2	Arsenic	0.001	U	mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
MW-4A	34	7440-43-9	Cadmium	0.0005	U	mg/l	1	5-Mar-08	6020	0.0005		10-Mar-08	11-Mar-08
MW-4A	54	7440-50-8	Copper	0.001	U	mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
MW-4A	183	7782-49-2	Selenium	0.00066	J	mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
MW-4A	213	7440-66-6	Zinc	0.0035	J	mg/l	1	5-Mar-08	6020	0.01		10-Mar-08	11-Mar-08
MW-4A	15	7440-39-3	Barium	0.051		mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	10-Mar-08
MW-4A	51	7440-47-3	Chromium	0.01	U	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-4A	340	7439-89-6	Iron	6.6	V	mg/l	1	5-Mar-08	6010B	0.1		10-Mar-08	10-Mar-08
MW-4A	131	7439-92-1	Lead	0.005	U	mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	10-Mar-08
MW-4A	342	7439-96-5	Manganese	0.062		mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-4A	184	7440-22-4	Silver	0.01	U	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-4A	209	7440-62-2	Vanadium	0.01	U	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-4A	324		Specific Conductance	250		umhos/cm	1	5-Mar-08	120.1				13-Mar-08
MW-4A	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	7470A	0.0002		10-Mar-08	13-Mar-08
MW-4A	396		TOX	0.019	J	mg/l	1	5-Mar-08	5320B	0.1		7-Mar-08	12-Mar-08
MW-5A	301	16887-00-6	Chloride	130		mg/l	1	5-Mar-08	300	1		6-Mar-08	6-Mar-08
MW-5A	312	16984-48-8	Fluoride	0.1	U	mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
MW-5A	303	14797-55-8	Nitrate	0.1	U	mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
MW-5A	315	14808-79-8	Sulfate	4.1	J	mg/l	1	5-Mar-08	300	5		6-Mar-08	6-Mar-08
MW-5A	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	245.1	0.0002		6-Mar-08	8-Mar-08
MW-5A	357		TOC	31		mg/l	1	5-Mar-08	5310B	1		6-Mar-08	7-Mar-08
MW-5A	311		Dissolved Solids	1100		mg/l	1	5-Mar-08	2540C	10		7-Mar-08	10-Mar-08
MW-5A	316		BOD	5	U	mg/l	1	5-Mar-08	SM5210B	5			6-Mar-08
MW-5A	321	000010-29-7	pH	7.6	T8	su	1	5-Mar-08	4500H-B				11-Mar-08
MW-5A	317	E-10117	COD	74		mg/l	1	5-Mar-08	410.4	20		7-Mar-08	12-Mar-08
MW-5A	14	7440-38-2	Arsenic	0.00059	J	mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
MW-5A	34	7440-43-9	Cadmium	0.0005	U	mg/l	1	5-Mar-08	6020	0.0005		10-Mar-08	11-Mar-08
MW-5A	54	7440-50-8	Copper	0.001	U	mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
MW-5A	183	7782-49-2	Selenium	0.0018		mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
MW-5A	213	7440-66-6	Zinc	0.0042	J	mg/l	1	5-Mar-08	6020	0.01		10-Mar-08	11-Mar-08
MW-5A	15	7440-39-3	Barium	0.11		mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	10-Mar-08
MW-5A	51	7440-47-3	Chromium	0.01	U	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-5A	340	7439-89-6	Iron	0.46		mg/l	1	5-Mar-08	6010B	0.1		10-Mar-08	10-Mar-08
MW-5A	131	7439-92-1	Lead	0.005	U	mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	10-Mar-08
MW-5A	342	7439-96-5	Manganese	0.34		mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-5A	184	7440-22-4	Silver	0.01	U	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-5A	209	7440-62-2	Vanadium	0.0041	J	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-5A	324		Specific Conductance	1800		umhos/cm	1	5-Mar-08	120.1				13-Mar-08
MW-5A	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	7470A	0.0002		10-Mar-08	13-Mar-08
MW-5A	396		TOX	0.35	JO T3	mg/l	10	5-Mar-08	5320B	1		7-Mar-08	13-Mar-08
MW-7A	312	16984-48-8	Fluoride	0.05	J	mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
MW-7A	303	14797-55-8	Nitrate	0.1	U	mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
MW-7A	315	14808-79-8	Sulfate	53		mg/l	1	5-Mar-08	300	5		6-Mar-08	6-Mar-08
MW-7A	301	16887-00-6	Chloride	270		mg/l	2	5-Mar-08	300	2		7-Mar-08	7-Mar-08
MW-7A	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	245.1	0.0002		6-Mar-08	8-Mar-08
MW-7A	357		TOC	28		mg/l	1	5-Mar-08	5310B	1		6-Mar-08	7-Mar-08
MW-7A	311		Dissolved Solids	1100		mg/l	1	5-Mar-08	2540C	10		7-Mar-08	10-Mar-08
MW-7A	316		BOD	5	U	mg/l	1	5-Mar-08	SM5210B	5			6-Mar-08
MW-7A	321	000010-29-7	pH	7.4	T8	su	1	5-Mar-08	4500H-B				11-Mar-08
MW-7A	317	E-10117	COD	63		mg/l	1	5-Mar-08	410.4	20		7-Mar-08	12-Mar-08
MW-7A	14	7440-38-2	Arsenic	0.016		mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
MW-7A	34	7440-43-9	Cadmium	0.0005	U	mg/l	1	5-Mar-08	6020	0.0005		10-Mar-08	11-Mar-08
MW-7A	54	7440-50-8	Copper	0.001	U	mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
MW-7A	183	7782-49-2	Selenium	0.0045		mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
MW-7A	213	7440-66-6	Zinc	0.01	U	mg/l	1	5-Mar-08	6020	0.01		10-Mar-08	11-Mar-08
MW-7A	15	7440-39-3	Barium	0.062		mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	10-Mar-08

SAMPLE ID	SWS ID	CAS Number	PARAMETER	RESULT	Q	UNITS	DILUTION FACTOR	COLLECT DATE	METHOD	MDL	SWSL	EXTRACTED	ANALYZED
MW-7A	51	7440-47-3	Chromium	0.01	U	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-7A	340	7439-89-6	Iron	28		mg/l	1	5-Mar-08	6010B	0.1		10-Mar-08	10-Mar-08
MW-7A	131	7439-92-1	Lead	0.005	U	mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	10-Mar-08
MW-7A	342	7439-96-5	Manganese	0.68		mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-7A	184	7440-22-4	Silver	0.01	U	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-7A	209	7440-62-2	Vanadium	0.0091	J	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	10-Mar-08
MW-7A	324		Specific Conductance	1900		umhos/cm	1	5-Mar-08	120.1				13-Mar-08
MW-7A	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	7470A	0.0002		10-Mar-08	13-Mar-08
MW-7A	396		TOX	1.1	T3	mg/l	10	5-Mar-08	5320B	1		7-Mar-08	13-Mar-08
MW-8A	301	16887-00-6	Chloride	3.2		mg/l	1	5-Mar-08	300	1		6-Mar-08	6-Mar-08
MW-8A	312	16984-48-8	Fluoride	0.12		mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
MW-8A	303	14797-55-8	Nitrate	0.1	U	mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
MW-8A	315	14808-79-8	Sulfate	370		mg/l	5	5-Mar-08	300	25		7-Mar-08	7-Mar-08
MW-8A	357		TOC	3.9		mg/l	1	5-Mar-08	5310B	1		6-Mar-08	7-Mar-08
MW-8A	311		Dissolved Solids	730		mg/l	1	5-Mar-08	2540C	10		7-Mar-08	10-Mar-08
MW-8A	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	245.1	0.0002		6-Mar-08	10-Mar-08
MW-8A	316		BOD	5	U	mg/l	1	5-Mar-08	SM5210B	5			6-Mar-08
MW-8A	321	000010-29-7	pH	7.6	T8	su	1	5-Mar-08	4500H-B				11-Mar-08
MW-8A	317	E-10117	COD	20	U	mg/l	1	5-Mar-08	410.4	20		7-Mar-08	12-Mar-08
MW-8A	14	7440-38-2	Arsenic	0.001	U	mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
MW-8A	34	7440-43-9	Cadmium	0.0005	U	mg/l	1	5-Mar-08	6020	0.0005		10-Mar-08	11-Mar-08
MW-8A	54	7440-50-8	Copper	0.0021		mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
MW-8A	183	7782-49-2	Selenium	0.001	U	mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
MW-8A	213	7440-66-6	Zinc	0.017		mg/l	1	5-Mar-08	6020	0.01		10-Mar-08	11-Mar-08
MW-8A	15	7440-39-3	Barium	0.074		mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	11-Mar-08
MW-8A	51	7440-47-3	Chromium	0.01	U	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
MW-8A	340	7439-89-6	Iron	0.33		mg/l	1	5-Mar-08	6010B	0.1		10-Mar-08	11-Mar-08
MW-8A	131	7439-92-1	Lead	0.005	U	mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	11-Mar-08
MW-8A	342	7439-96-5	Manganese	0.015		mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
MW-8A	184	7440-22-4	Silver	0.0033	J	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
MW-8A	209	7440-62-2	Vanadium	0.01	U	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
MW-8A	324		Specific Conductance	990		umhos/cm	1	5-Mar-08	120.1				13-Mar-08
MW-8A	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	7470A	0.0002		10-Mar-08	13-Mar-08
MW-8A	396		TOX	0.03	J	mg/l	1	5-Mar-08	5320B	0.1		7-Mar-08	13-Mar-08
PRIMARY	301	16887-00-6	Chloride	110		mg/l	1	5-Mar-08	300	1		6-Mar-08	6-Mar-08
PRIMARY	312	16984-48-8	Fluoride	0.1	U	mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
PRIMARY	303	14797-55-8	Nitrate	0.033	J	mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
PRIMARY			Phosphate,Ortho	0.038		mg/l	1	5-Mar-08	300	0.025		6-Mar-08	7-Mar-08
PRIMARY	315	14808-79-8	Sulfate	640		mg/l	10	5-Mar-08	300	50		7-Mar-08	7-Mar-08
PRIMARY	132	7439-97-6	Mercury	0.00006	J	mg/l	1	5-Mar-08	245.1	0.0002		6-Mar-08	8-Mar-08
PRIMARY	357		TOC	72		mg/l	1	5-Mar-08	5310B	1		6-Mar-08	7-Mar-08
PRIMARY	311		Dissolved Solids	2800		mg/l	1	5-Mar-08	2540C	10		8-Mar-08	11-Mar-08
PRIMARY	316		BOD	5	U	mg/l	1	5-Mar-08	SM5210B	5			6-Mar-08
PRIMARY	321	000010-29-7	pH	7.1	T8	su	1	5-Mar-08	4500H-B				11-Mar-08
PRIMARY	317	E-10117	COD	170		mg/l	1	5-Mar-08	410.4	20		7-Mar-08	12-Mar-08
PRIMARY	14	7440-38-2	Arsenic	0.0098		mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
PRIMARY	34	7440-43-9	Cadmium	0.0005	U	mg/l	1	5-Mar-08	6020	0.0005		10-Mar-08	11-Mar-08
PRIMARY	54	7440-50-8	Copper	0.002		mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
PRIMARY	183	7782-49-2	Selenium	0.0031		mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
PRIMARY	213	7440-66-6	Zinc	0.027		mg/l	1	5-Mar-08	6020	0.01		10-Mar-08	11-Mar-08
PRIMARY	15	7440-39-3	Barium	0.16		mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	11-Mar-08
PRIMARY	51	7440-47-3	Chromium	0.01	U	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
PRIMARY	340	7439-89-6	Iron	10		mg/l	1	5-Mar-08	6010B	0.1		10-Mar-08	11-Mar-08
PRIMARY	131	7439-92-1	Lead	0.005	U	mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	11-Mar-08
PRIMARY	342	7439-96-5	Manganese	0.64		mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
PRIMARY	184	7440-22-4	Silver	0.01	U	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
PRIMARY	209	7440-62-2	Vanadium	0.015		mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
PRIMARY	324		Specific Conductance	3900		umhos/cm	1	5-Mar-08	120.1				13-Mar-08
PRIMARY	132	7439-97-6	Mercury	0.00009	J	mg/l	1	5-Mar-08	7470A	0.0002		10-Mar-08	13-Mar-08
PRIMARY	396		TOX	0.51	JO	mg/l	10	5-Mar-08	5320B	1		7-Mar-08	14-Mar-08
SECONDARY	301	16887-00-6	Chloride	56		mg/l	1	5-Mar-08	300	1		6-Mar-08	6-Mar-08
SECONDARY	312	16984-48-8	Fluoride	0.48		mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
SECONDARY	303	14797-55-8	Nitrate	0.1	U	mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08

SAMPLE ID	SWS ID	CAS Number	PARAMETER	RESULT	Q	UNITS	DILUTION FACTOR	COLLECT DATE	METHOD	MDL	SWSL	EXTRACTED	ANALYZED
SECONDARY			Phosphate,Ortho	1.2		mg/l	10	5-Mar-08	300	0.25		6-Mar-08	7-Mar-08
SECONDARY	315	14808-79-8	Sulfate	300		mg/l	5	5-Mar-08	300	25		7-Mar-08	7-Mar-08
SECONDARY	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	245.1	0.0002		6-Mar-08	8-Mar-08
SECONDARY	311		Dissolved Solids	2200		mg/l	1	5-Mar-08	2540C	10		8-Mar-08	11-Mar-08
SECONDARY	316		BOD	13	J4	mg/l	1	5-Mar-08	SM5210B	5			6-Mar-08
SECONDARY	321	000010-29-7	pH	6.6	T8	su	1	5-Mar-08	4500H-B				11-Mar-08
SECONDARY	317	E-10117	COD	92		mg/l	1	5-Mar-08	410.4	20		7-Mar-08	12-Mar-08
SECONDARY	357		TOC	200		mg/l	50	5-Mar-08	5310B	50		7-Mar-08	11-Mar-08
SECONDARY	14	7440-38-2	Arsenic	0.00046	J	mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
SECONDARY	34	7440-43-9	Cadmium	0.0005	U	mg/l	1	5-Mar-08	6020	0.0005		10-Mar-08	11-Mar-08
SECONDARY	54	7440-50-8	Copper	0.001	U	mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
SECONDARY	183	7782-49-2	Selenium	0.002		mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
SECONDARY	213	7440-66-6	Zinc	0.0092	J	mg/l	1	5-Mar-08	6020	0.01		10-Mar-08	11-Mar-08
SECONDARY	15	7440-39-3	Barium	0.093		mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	11-Mar-08
SECONDARY	51	7440-47-3	Chromium	0.0084	J	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
SECONDARY	340	7439-89-6	Iron	6.1		mg/l	1	5-Mar-08	6010B	0.1		10-Mar-08	11-Mar-08
SECONDARY	131	7439-92-1	Lead	0.005	U	mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	11-Mar-08
SECONDARY	342	7439-96-5	Manganese	0.82		mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
SECONDARY	184	7440-22-4	Silver	0.01	U	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
SECONDARY	209	7440-62-2	Vanadium	0.01		mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
SECONDARY	324		Specific Conductance	3300		umhos/cm	1	5-Mar-08	120.1				13-Mar-08
SECONDARY	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	7470A	0.0002		10-Mar-08	13-Mar-08
SECONDARY	396		TOX	0.044	J	mg/l	1	5-Mar-08	5320B	0.1		7-Mar-08	14-Mar-08
UNDERDRAIN	312	16984-48-8	Fluoride	0.1	U	mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
UNDERDRAIN	303	14797-55-8	Nitrate	0.1	U	mg/l	1	5-Mar-08	300	0.1		6-Mar-08	6-Mar-08
UNDERDRAIN	315	14808-79-8	Sulfate	140		mg/l	1	5-Mar-08	300	5		6-Mar-08	6-Mar-08
UNDERDRAIN			Phosphate,Ortho	0.43		mg/l	2	5-Mar-08	300	0.05		6-Mar-08	7-Mar-08
UNDERDRAIN	301	16887-00-6	Chloride	230		mg/l	2	5-Mar-08	300	2		7-Mar-08	7-Mar-08
UNDERDRAIN	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	245.1	0.0002		6-Mar-08	8-Mar-08
UNDERDRAIN	131	7439-92-1	Lead	0.025	U	mg/l	5	5-Mar-08	200.7	0.025		6-Mar-08	7-Mar-08
UNDERDRAIN	311		Dissolved Solids	2800		mg/l	1	5-Mar-08	2540C	10		8-Mar-08	11-Mar-08
UNDERDRAIN	316		BOD	5	U	mg/l	1	5-Mar-08	SM5210B	5			6-Mar-08
UNDERDRAIN	321	000010-29-7	pH	6.8	T8	su	1	5-Mar-08	4500H-B				11-Mar-08
UNDERDRAIN	317	E-10117	COD	250		mg/l	1	5-Mar-08	410.4	20		7-Mar-08	12-Mar-08
UNDERDRAIN	357		TOC	76		mg/l	20	5-Mar-08	5310B	20		7-Mar-08	11-Mar-08
UNDERDRAIN	14	7440-38-2	Arsenic	0.0031		mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
UNDERDRAIN	34	7440-43-9	Cadmium	0.0005	U	mg/l	1	5-Mar-08	6020	0.0005		10-Mar-08	11-Mar-08
UNDERDRAIN	54	7440-50-8	Copper	0.00054	J	mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
UNDERDRAIN	183	7782-49-2	Selenium	0.0058		mg/l	1	5-Mar-08	6020	0.001		10-Mar-08	11-Mar-08
UNDERDRAIN	213	7440-66-6	Zinc	0.0062	J	mg/l	1	5-Mar-08	6020	0.01		10-Mar-08	11-Mar-08
UNDERDRAIN	15	7440-39-3	Barium	0.13		mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	11-Mar-08
UNDERDRAIN	51	7440-47-3	Chromium	0.026		mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
UNDERDRAIN	340	7439-89-6	Iron	10		mg/l	1	5-Mar-08	6010B	0.1		10-Mar-08	11-Mar-08
UNDERDRAIN	131	7439-92-1	Lead	0.005	U	mg/l	1	5-Mar-08	6010B	0.005		10-Mar-08	11-Mar-08
UNDERDRAIN	342	7439-96-5	Manganese	0.81		mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
UNDERDRAIN	184	7440-22-4	Silver	0.01	U	mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
UNDERDRAIN	209	7440-62-2	Vanadium	0.071		mg/l	1	5-Mar-08	6010B	0.01		10-Mar-08	11-Mar-08
UNDERDRAIN	324		Specific Conductance	4200		umhos/cm	1	5-Mar-08	120.1				13-Mar-08
UNDERDRAIN	132	7439-97-6	Mercury	0.0002	U	mg/l	1	5-Mar-08	7470A	0.0002		10-Mar-08	13-Mar-08
UNDERDRAIN	396		TOX	1.2		mg/l	10	5-Mar-08	5320B	1		7-Mar-08	14-Mar-08

TABLES

TABLE 1
SEMI-ANNUAL GROUNDWATER ANALYSIS RESULTS
INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA
MACTEC JOB NO. 6550-08-0479
MARCH 2008 EVENT

		Montioring Well	MW-1A		MW-1B		MW-4A		MW-5A		MW-7A		MW-8A		*2L Standard*	*GWP Standard*	*SWSL*
		Collection Date	3/5/08		3/5/08		3/5/08		3/5/08		3/5/08		3/5/08				
Method	Parameter	Units	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q	Value	Q			
SM5210B	BOD	mg/l	<5.0	J4	<5.0	J4	<5.0	J4	<5.0	J4	<5.0	J4	<5.0	J4	NE	NE	NE
410.4	COD	mg/l	<20		<20		18	J	74		63		<20		NE	NE	NE
5320B	TOX	mg/l	0.0092	J	0.015	J	0.019	J	0.35	J, O,	1.1	T3	0.03	J	NE	NE	NE
5310B	TOC (Total Organic	mg/l	43		2.4		4.7		31		28		3.9		NE	NE	NE
2540C	Dissolved Solids	mg/l	260		76		160		1100		1100		730		500	--	NE
4500H-B	pH	su	7.9	T8	4.8	T8	4.2	T8	7.6	T8	7.4	T8	7.6	T8	6.5-8.5	--	NE
120.1	Specific Conductance	umhos/cm	410		160		250		1800		1900		990		NE	NE	NE
300	Sulfate	mg/l	51		48		76		4.1	J	53		370		250	--	250
300	Chloride	mg/l	5.8		14		22		130		270		3.2		250	--	NE
300	Fluoride	mg/l	0.069	J	0.13		<0.10		<0.10		0.05	J	0.12		2	--	2
300	Nitrate	mg/l	0.097	J	<0.10		<0.10		<0.10		<0.10		<0.10		10	--	10
6020	Arsenic	mg/l	0.018		<0.0050	O	<0.0010		0.00059	J	0.016		<0.0010		0.05	--	0.01
6010B	Barium	mg/l	0.028		0.12		0.051		0.11		0.062		0.074		2	--	0.1
6020	Cadmium	mg/l	<0.00050		<0.00050		<0.00050		<0.00050		<0.00050		<0.00050		0.00175	--	0.001
6010B	Chromium	mg/l	<0.010		0.0035	J	<0.010		<0.010		<0.010		<0.010		0.05	--	0.01
6020	Copper	mg/l	<0.0050	O	<0.0050	O	<0.0010		<0.0010		<0.0010		0.0021		1	--	0.01
6010B	Iron	mg/l	14		1.9		6.6	V	0.46		28		0.33		0.3	--	0.3
6010B	Lead	mg/l	<0.0050		<0.0050		<0.0050		<0.0050		<0.0050		<0.0050		0.015	--	0.01
6010B	Manganese	mg/l	0.32		0.015		0.062		0.34		0.68		0.015		0.05	--	0.05
7470A	Mercury	mg/l	<0.00020		<0.00020		<0.00020		<0.00020		<0.00020		<0.00020		0.00105	--	0.0002
6020	Selenium	mg/l	<0.0050	O	<0.0050	O	0.00066	J	0.0018		0.0045		<0.0010		0.05	--	0.01
6010B	Silver	mg/l	0.032		0.0061	J	<0.010	J6, J3	<0.010		<0.010		0.0033	J	0.0175	--	0.01
6010B	Vanadium	mg/l	0.0044	J	0.015		<0.010		0.0041	J	0.0091	J	<0.010		NE	0.0035	0.025
6020	Zinc	mg/l	<0.050	O	<0.050	O	0.0035	J	0.0042	J	<0.010		0.017		1.05	--	0.01

Notes

Samples were collected on 03/05/08.

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

2L Standard - Title 15, North Carolina Administrative Code, Subchapter 2L, class GA groundwater standards

GWP Standard - Ground Water Protection Standard (used when no 2L Standards are established)

SWSL - Solid Waste Section Limits

Bold values indicate concentrations in excess of the 2L N.C. Ground-Water Standards

NE = Not Established

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

PREPARED BY: BWJ 3/24/08

CHECKED BY: BDG 3/24/08

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Qualifiers (Q):

T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
J4	The associated batch QC was outside the established quality control range for accuracy.
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.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
V	(ESC) - Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.
T3	(ESC) - Additional method/sample information: TOX analysis. Greater than 10% Breakthrough
J3	The associated batch QC was outside the established quality control range for precision.
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.

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. 6550-08-0479

PARAMETER	MONITORING WELL MW-1A																						2L Std	GWP Std	SWSL
	1997	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008			
	SEPT	APRIL	SEPT	MAR	NOV	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR			
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	<5.0	NE	NE	NE
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	<20	NE	NE	NE
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	0.0092	NE	NE	NE
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	43	NE	NE	NE
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	260	500	--	NE
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	7.9	6.5-8.5	--	NE
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	410	NE	NE	NE
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	51	250	--	250
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	5.8	250	--	NE
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	0.069	2	--	2
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	0.097	10	--	10
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	0.018	0.05	--	0.01
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	0.028	2	--	0.1
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	<0.00050	0.00175	--	0.001
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	<0.010	0.05	--	0.01
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	<0.0050	1	--	0.01
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	14	0.3	--	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	<0.0050	0.015	--	0.01
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	0.32	0.05	--	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	<0.00020	<0.00020	<0.00020	<0.00020	0.00105	--	0.0002
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	<0.0050	0.05	--	0.01
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	0.032	0.0175	--	0.01
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	0.0044	NE	0.0035	0.025
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	<0.050	1.05	--	0.01

NOTES:
< Symbol = Below Laboratory Detectable Limits
2L Std - Title 15, North Carolina Administrative Code, Subchapter 2L, class GA groundwater standard.
GWP Std - Ground Water Protection Standard (used when no 2L Standards are established)
SWSL - Solid Waste Section Limits - target laboratory method detection 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
NE = Not Established
Refer to laboratory reports for actual sample dates

PREPARED BY: BWJ 3/24/08
CHECKED BY: BDG 3/24/08
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TABLE 2 Continued
ANNUAL GROUNDWATER ANALYSIS RESULTS
INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA
MACTEC JOB NO. 6550-08-0479

PARAMETER	MONITORING WELL MW-1B																						2L Std	GWP Std	SWSL
	1997	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008			
	SEPT	APRIL	SEPT	MAR	NOV	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR			
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	<5.0	NE	NE	NE
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	<20	NE	NE	NE
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	0.015	NE	NE	NE
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	2.4	NE	NE	NE
TDS, mg/L	293	367	352	391	387	290	411	360	394	339	364	293	320	280	320	310	100	160	190	180	110	76	500	--	NE
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	4.8	6.5-8.5	--	NE
Conductivity, umohs/cm	449	499	554	564	543	583	599	501	610	513	596	442	540	480	540	500	160	310	280	290	160	160	NE	NE	NE
Sulfate Turbidimetric, mg/L	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	48	250	--	250
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	14	250	--	NE
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	0.13	2	--	2
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	<0.10	10	--	10
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	<0.0050	0.05	--	0.01
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	0.12	2	--	0.1
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	<0.00050	0.00175	--	0.001
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	0.0035	0.05	--	0.01
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	<0.0050	1	--	0.01
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	1.9	0.3	--	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	<0.0050	0.015	--	0.01
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	0.015	0.05	--	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	<0.00020	<0.00020	<0.00020	<0.00020	0.00105	--	0.0002
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	<0.0050	0.05	--	0.01
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	0.0061	0.0175	--	0.01
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	0.015	NE	0.0035	0.025
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	<0.050	1.05	--	0.01

NOTES:
< Symbol = Below Laboratory Detectable Limits
2L Std - Title 15, North Carolina Administrative Code, Subchapter 2L, class GA groundwater standard.
GWP Std - Ground Water Protection Standard (used when no 2L Standards are established)
SWSL - Solid Waste Section Limits - target laboratory method detection 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
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Refer to laboratory reports for actual sample dates

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TABLE 2 Continued
ANNUAL GROUNDWATER ANALYSIS RESULTS
INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA
MACTEC JOB NO. 6550-08-0479

PARAMETER	MONITORING WELL MW-4A																						2L Std	GWP Std	SWSL
	1997	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008			
	SEPT	APRIL	SEPT	MAR	NOV	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR			
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	<5.0	NE	NE	NE
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	18	NE	NE	NE
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	0.019	NE	NE	NE
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	4.7	NE	NE	NE
TDS, mg/L	104	155	131	170	117	35	108	153	112	104	186	77	120	190	160	200	200	180	210	110	88	160	500	--	NE
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	4.2	6.5-8.5	--	NE
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	250	NE	NE	NE
Sulfate Turbidimetric, mg/L	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	76	250	--	250
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	22	250	--	NE
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	<0.10	2	--	2
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	<0.10	10	--	10
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	<0.0010	0.05	--	0.01
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	0.051	2	--	0.1
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	0.00175	--	0.001
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	<0.010	0.05	--	0.01
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	<0.0010	1	--	0.01
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	6.6	0.3	--	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	<0.0050	0.015	--	0.01
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	0.062	0.05	--	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	< 0.00020	< 0.00020	< 0.00020	<0.00020	<0.00020	<0.00020	<0.00020	0	0.00105	--	0.0002
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	0.0007	0.05	--	0.01
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	<0.010	0.0175	--	0.01
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	<0.010	NE	0.0035	0.025
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	0.0035	1.05	--	0.01

NOTES:
< Symbol = Below Laboratory Detectable Limits
2L Std - Title 15, North Carolina Administrative Code, Subchapter 2L, class GA groundwater standard.
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Bold text denotes results that exceed NC ground-water standards
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Refer to laboratory reports for actual sample dates

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TABLE 2 Continued
ANNUAL GROUNDWATER ANALYSIS RESULTS
INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA
MACTEC JOB NO. 6550-08-0479

PARAMETER	MONITORING WELL MW-5A																						2L Std	GWP Std	SWSL
	1997	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008			
	SEPT.	APRIL	SEPT	MAR	NOV	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR			
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	<5.0	NE	NE	NE
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	74	NE	NE	NE
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	0.35	NE	NE	NE
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	31	NE	NE	NE
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	1100	500	--	NE
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	7.6	6.5-8.5	--	NE
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	1800	NE	NE	NE
Sulfate Turbidimetric, mg/L	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	4.1	250	--	250
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	130	250	--	NE
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	<0.10	2	--	2
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	<0.10	10	--	10
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	0.00059	0.05	--	0.01
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	0.11	2	--	0.1
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	<0.00050	0.0018	--	0.001
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	<0.010	0.05	--	0.01
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	<0.0010	1	--	0.01
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	0.46	0.3	--	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	<0.0050	0.015	--	0.01
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	0.34	0.05	--	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	<0.00020	0.0011	--	0.0002
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	0.0018	0.05	--	0.01
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	<0.010	0.0175	--	0.01
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	0.0041	NE	0.0035	0.025
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	0.0042	1.05	--	0.01

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TABLE 2 Continued
ANNUAL GROUNDWATER ANALYSIS RESULTS
INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA
MACTEC JOB NO. 6550-08-0479

PARAMETER	MONITORING WELL MW-7A																						2L Std	GWP Std	SWSL
	1997	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008			
	SEPT	APRIL	SEPT	MAR	NOV	MAR	SEPT	MAR.	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR			
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	<5.0	NE	NE	NE
COD, mg/L	115	179	156	154	108	118	114	154	96	132	157	61	110	110	120	130	130	120	120	140	120	63	NE	NE	NE
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	1.1	NE	NE	NE
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	28	NE	NE	NE
TDS, mg/L	1370	1390	1190	1230	1200	832	1596	1740	1501	2110	1354	1168	1100	1400	1200	1400	1100	1000	1200	1200	1000	1100	500	--	NE
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	7.4	6.5-8.5	--	NE
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	1900	NE	NE	NE
Sulfate Turbidimetric, mg/L	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	53	250	--	250
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	270	250	--	NE
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	0.05	2	--	2
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	<0.10	10	--	10
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	0.016	0.05	--	0.01
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	0.062	2	--	0.1
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	<0.00050	0.00175	--	0.001
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	<0.010	0.05	--	0.01
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	<0.0010	1	--	0.01
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	28	0.3	--	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	<0.0050	0.015	--	0.01
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	0.68	0.05	--	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	<0.00020	<0.00020	<0.00020	0.00105	--	0.0002
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	0.0045	0.05	--	0.01
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	<0.010	0.0175	--	0.01
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	0.0091	NE	0.0035	0.025
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	<0.010	1.05	--	0.01

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TABLE 2 Continued
ANNUAL GROUNDWATER ANALYSIS RESULTS
INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA
MACTEC JOB NO. 6550-08-0479

PARAMETER	MONITORING WELL MW-8A																						2L Std	GWP Std	SWSL
	1997	1998		1999		2000		2001		2002		2003		2004		2005		2006		2007		2008			
	SEPT.	APRIL	SEPT	MAR	NOV	MAR	SEPT	MAR.	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR	SEPT	MAR			
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	<5.0	NE	NE	NE
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	<20	NE	NE	NE
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	0.03	NE	NE	NE
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	3.9	NE	NE	NE
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	730	500	--	NE
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	7.6	6.5-8.5	--	NE
Conductivity, umohs/cm	662	634	701	547	526	619	667	505	670	602	965	442	790	710	830	670	780	600	600	600	640	990	NE	NE	NE
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	370	250	--	250
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	3.2	250	--	NE
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	0.12	2	--	2
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	<0.10	10	--	10
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	<0.0010	0.05	--	0.01
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	0.074	2	--	0.1
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	<0.00050	0.00175	--	0.001
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	<0.010	0.05	--	0.01
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	0.0021	1	--	0.01
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	0.33	0.3	--	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	<0.0050	0.015	--	0.01
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	0.015	0.05	--	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	<0.00020	0.00105	--	0.0002
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	<0.0010	0.05	--	0.01
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	0.0033	0.0175	--	0.01
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	<0.010	NE	0.0035	0.025
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	0.017	1.05	--	0.01

NOTES:
< Symbol = Below Laboratory Detectable Limits
2L Std - Title 15, North Carolina Administrative Code, Subchapter 2L, class GA groundwater standard.
GWP Std - Ground Water Protection Standard (used when no 2L Standards are established)
SWSL - Solid Waste Section Limits - target laboratory method detection 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
NE = Not Established
Refer to laboratory reports for actual sample dates

PREPARED BY: BWJ 3/24/08
CHECKED BY: BDG 3/24/08
h:\CLIENTS\IP\LANDFILL\08DATA\08MarTBLS.XLS

TABLE 3
NEW LANDFILL CELL 1 ANALYSIS RESULTS
INTERNATIONAL PAPER
RIEGELWOOD, NORTH CAROLINA
MACTEC JOB NO. 6550-08-0479

		Client Sample ID	Primary Leachate Collection System		Secondary Leachate Collection System		Under-Drain Leachate Collection System		*2L Standard*	*GWP Standard*	*SWSL*
		Collect Date	3/5/08		3/5/08		3/5/08				
Method	Parameter	Units	Value	Q	Value	Q	Value	Q			
SM5210B	BOD	mg/l	<5.0	J4	13	J4	<5.0	J4	NE	NE	NE
410.4	COD	mg/l	170		92		250		NE	NE	NE
5320B	TOX	mg/l	0.51	J, O	0.044	J	1.2		NE	NE	NE
5310B	TOC	mg/l	72		200		76		NE	NE	NE
2540C	Dissolved Solids	mg/l	2800		2200		2800		500	--	NE
4500H-B	pH	su	7.1	T8	6.6	T8	6.8	T8	6.5-8.5	--	NE
120.1	Specific Conductance	umhos/cm	3900		3300		4200		NE	NE	NE
300	Sulfate	mg/l	640		300		140		250	--	250
300	Chloride	mg/l	110		56		230		250	--	NE
300	Fluoride	mg/l	<0.10		0.48		<0.10		2	--	2
300	Nitrate	mg/l	0.033	J	<0.10		<0.10		10	--	10
300	Phosphate,Ortho*	mg/l	0.038		1.2		0.43		NE	NE	NE
6020	Arsenic	mg/l	0.0098		0.00046	J	0.0031		0.05	--	0.01
6010B	Barium	mg/l	0.16		0.093		0.13		2	--	0.1
6020	Cadmium	mg/l	<0.00050		<0.00050		<0.00050		0.00175	--	0.001
6010B	Chromium	mg/l	<0.010		0.0084	J	0.026		0.05	--	0.01
6020	Copper	mg/l	0.002		<0.0010		0.00054	J	1	--	0.01
6010B	Iron	mg/l	10		6.1		10		0.3	--	0.3
6010B	Lead	mg/l	<0.0050		<0.0050		<0.0050		0.015	--	0.01
6010B	Manganese	mg/l	0.64		0.82		0.81		0.05	--	0.05
7470A	Mercury	mg/l	0.00009	J	<0.00020		<0.00020		0.00105	--	0.0002
6020	Selenium	mg/l	0.0031		0.002		0.0058		0.05	--	0.01
6010B	Silver	mg/l	<0.010		<0.010		<0.010		0.0175	--	0.01
6010B	Vanadium	mg/l	0.015		0.01		0.071		NE	0.0035	0.025
6020	Zinc	mg/l	0.027		0.0092	J	0.0062	J	1.05	--	0.01

Notes

Samples were collected on 03/05/07.

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

2L Standard - 15A NCAC 2L Groundwater Standards

GWP Standard - Ground Water Protection Standard (used when no 2L Standards are established)

SWSL - Solid Waste Section Limits

Bold values indicate concentrations in excess of N.C. Ground-Water Standards

NE = Not Established

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

PREPARED BY: BWJ 3/24/08

CHECKED BY: BDG 3/24/08

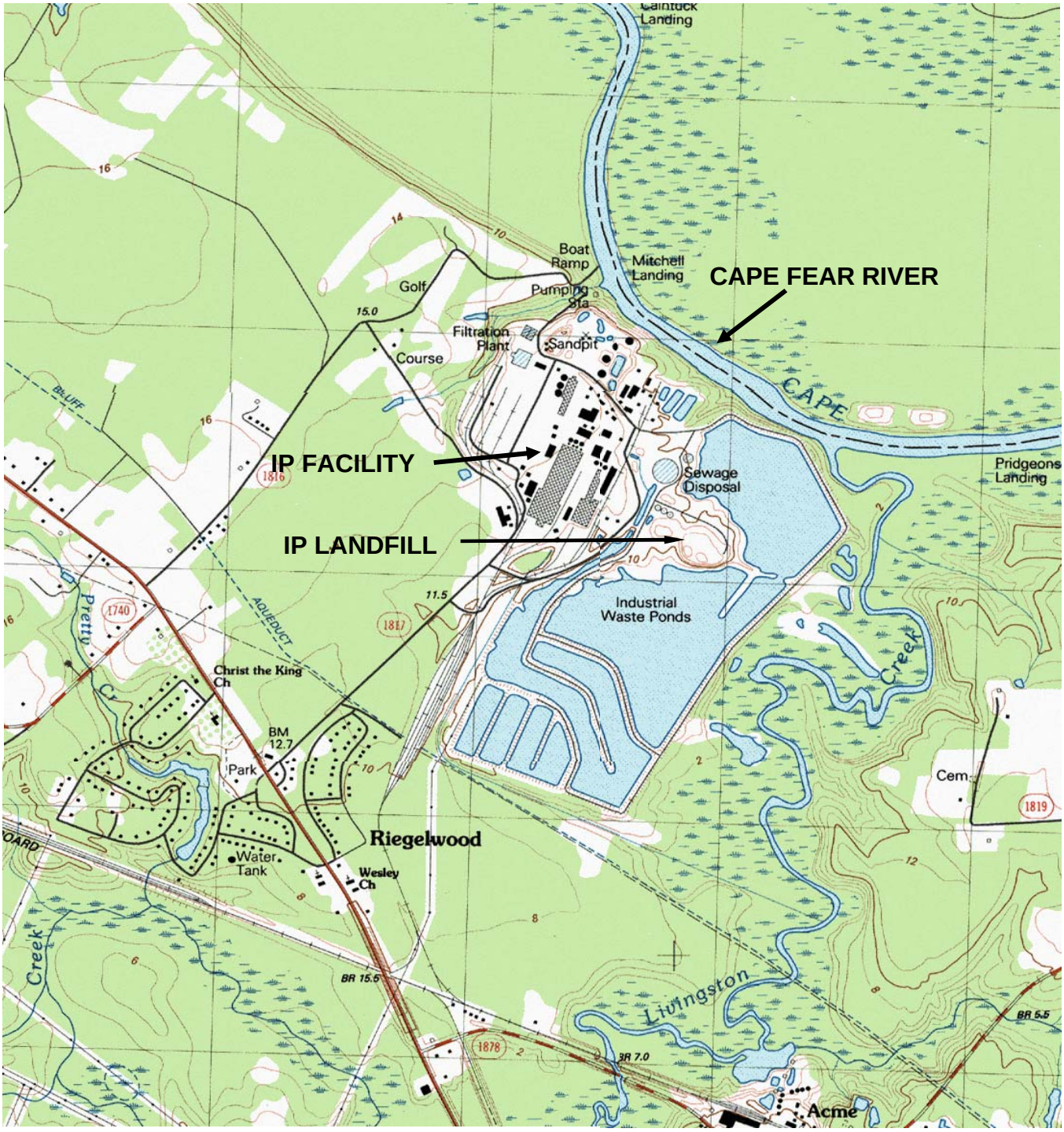
h:\CLIENTS\IP\LANDFILL\08DATA\08MarTBLS.XLS

Qualifiers (Q):

T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
J4	The associated batch QC was outside the established quality control range for accuracy.
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.
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.

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

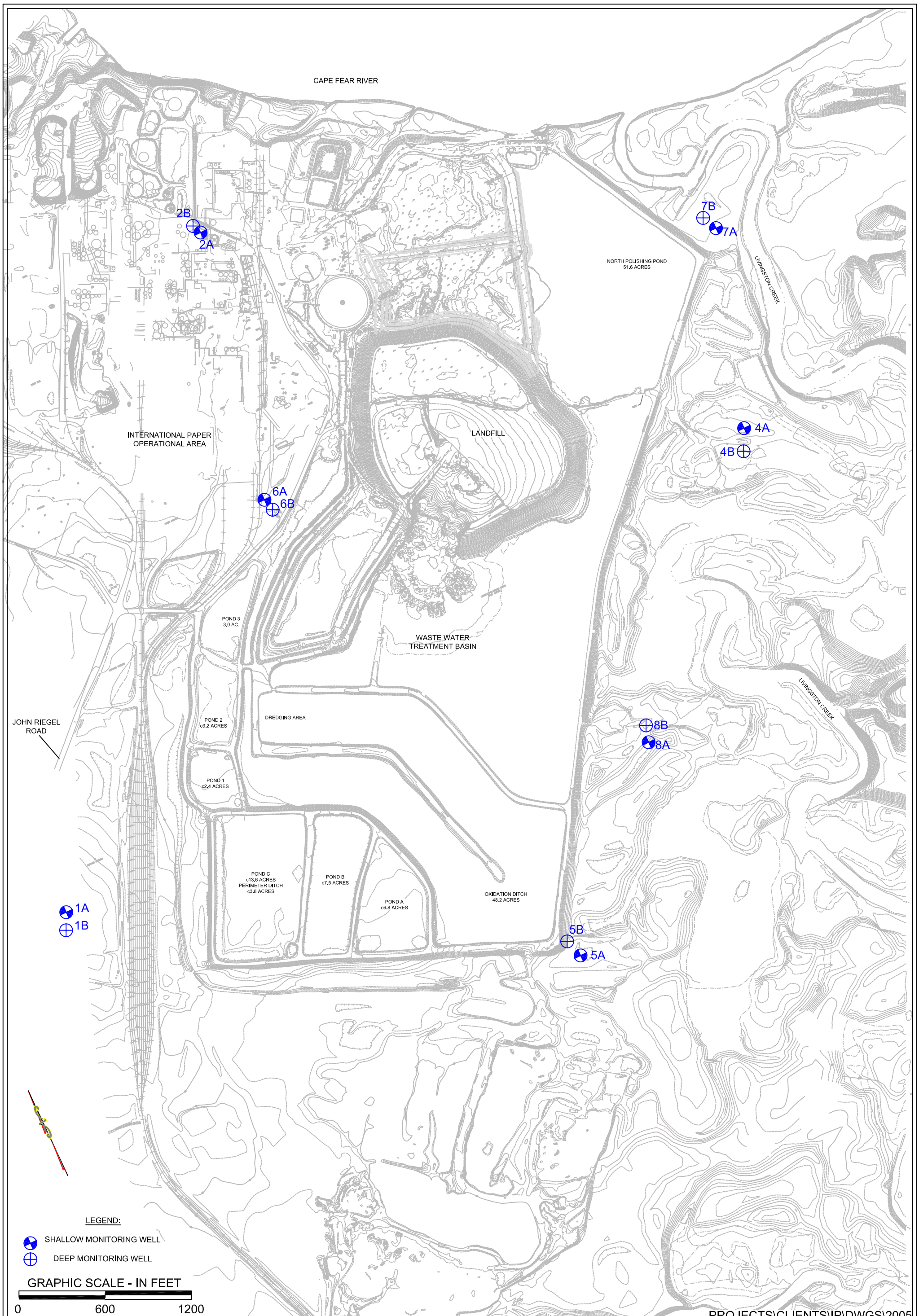
TOPOGRAPHIC SITE MAP

INTERNATIONAL PAPER

REIGLEWOOD, NC

USGS - ACME TOPOGRAPHIC MAP, 1984

DRAWN:	WBM	JOB #:	6550-06-0311
APPROVAL:		DATE:	
SCALE: AS SHOWN		FIG. NO.	1



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:		DATE:	
SCALE:	AS SHOWN	FIG:	2

APPENDIX A

ENVIRONMENTAL
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Est. 1970

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

Wilmington, NC 28403

Report Summary

Monday March 17, 2008

Report Number: L334801
Samples Received: 03/06/08
Client Project:

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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REPORT OF ANALYSIS

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

March 17, 2008

ESC Sample # : L334801-01

Date Received : March 06, 2008
Description : IP Landfill

Site ID :

Sample ID : MW-1A

Project # :

Collected By : B. Mabie
Collection Date : 03/05/08 11:35

Parameter	Result	MDL	RDL	Units	Q	Method	Date	Dil.
Chloride	5800	220	1000	ug/l		300.0	03/06/08	1
Fluoride	69.	32.	100	ug/l	J	300.0	03/06/08	1
Nitrate	97.	15.	100	ug/l	J	300.0	03/06/08	1
Sulfate	51000	170	5000	ug/l		300.0	03/06/08	1
BOD	U	1600	5000	ug/l	J4	SM5210B	03/06/08	1
COD	U	2700	20000	ug/l		410.4	03/12/08	1
pH	7.9			su	T8	4500H-B	03/11/08	1
Specific Conductance	410			umhos/cm		120.1	03/13/08	1
TOC (Total Organic Carbon)	43000	180	1000	ug/l		5310B	03/11/08	1
TOX	9.2	4.3	100	ug/l	J	5320B	03/12/08	1
Dissolved Solids	260000	3300	10000	ug/l		2540C	03/11/08	1
Arsenic	18.	0.75	5.0	ug/l		6020	03/11/08	5
Cadmium	U	0.24	0.50	ug/l		6020	03/11/08	1
Copper	U	2.2	5.0	ug/l	O	6020	03/11/08	5
Selenium	U	2.2	5.0	ug/l	O	6020	03/11/08	5
Zinc	U	15.	50.	ug/l	O	6020	03/11/08	5
Mercury	U	0.044	0.20	ug/l		7470A	03/13/08	1
Barium	28.	1.0	5.0	ug/l		6010B	03/10/08	1
Chromium	U	2.3	10.	ug/l		6010B	03/10/08	1
Iron	14000	32.	100	ug/l		6010B	03/10/08	1
Lead	U	2.4	5.0	ug/l		6010B	03/10/08	1
Manganese	320	9.0	10.	ug/l		6010B	03/10/08	1
Silver	32.	2.5	10.	ug/l		6010B	03/10/08	1
Vanadium	4.4	2.9	10.	ug/l	J	6010B	03/10/08	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL
MDL = Minimum Detection Limit = LOD = SQL(TRRP)
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

March 17, 2008

ESC Sample # : L334801-02

Date Received : March 06, 2008
Description : IP Landfill

Site ID :

Sample ID : MW-1B

Project # :

Collected By : B. Mabie
Collection Date : 03/05/08 11:40

Parameter	Result	MDL	RDL	Units	Q	Method	Date	Dil.
Chloride	14000	220	1000	ug/l		300.0	03/06/08	1
Fluoride	130	32.	100	ug/l		300.0	03/06/08	1
Nitrate	U	15.	100	ug/l		300.0	03/06/08	1
Sulfate	48000	170	5000	ug/l		300.0	03/06/08	1
BOD	U	1600	5000	ug/l	J4	SM5210B	03/06/08	1
COD	U	2700	20000	ug/l		410.4	03/12/08	1
pH	4.8			su	T8	4500H-B	03/11/08	1
Specific Conductance	160			umhos/cm		120.1	03/13/08	1
TOC (Total Organic Carbon)	2400	180	1000	ug/l		5310B	03/07/08	1
TOX	15.	4.3	100	ug/l	J	5320B	03/12/08	1
Dissolved Solids	76000	3300	10000	ug/l		2540C	03/11/08	1
Arsenic	U	0.75	5.0	ug/l	O	6020	03/11/08	5
Cadmium	U	0.24	0.50	ug/l		6020	03/11/08	1
Copper	U	2.2	5.0	ug/l	O	6020	03/11/08	5
Selenium	U	2.2	5.0	ug/l	O	6020	03/11/08	5
Zinc	U	15.	50.	ug/l	O	6020	03/11/08	5
Mercury	U	0.044	0.20	ug/l		7470A	03/13/08	1
Barium	120	1.0	5.0	ug/l		6010B	03/10/08	1
Chromium	3.5	2.3	10.	ug/l	J	6010B	03/10/08	1
Iron	1900	32.	100	ug/l		6010B	03/10/08	1
Lead	U	2.4	5.0	ug/l		6010B	03/10/08	1
Manganese	15.	9.0	10.	ug/l		6010B	03/10/08	1
Silver	6.1	2.5	10.	ug/l	J	6010B	03/10/08	1
Vanadium	15.	2.9	10.	ug/l		6010B	03/10/08	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL
MDL = Minimum Detection Limit = LOD = SQL(TRRP)
Note:
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REPORT OF ANALYSIS

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

March 17, 2008

ESC Sample # : L334801-03

Date Received : March 06, 2008
Description : IP Landfill

Site ID :

Sample ID : MW-4A

Project # :

Collected By : B. Mabie
Collection Date : 03/05/08 10:05

Parameter	Result	MDL	RDL	Units	Q	Method	Date	Dil.
Chloride	22000	220	1000	ug/l		300.0	03/06/08	1
Fluoride	U	32.	100	ug/l		300.0	03/06/08	1
Nitrate	U	15.	100	ug/l		300.0	03/06/08	1
Sulfate	76000	170	5000	ug/l		300.0	03/06/08	1
BOD	U	1600	5000	ug/l	J4	SM5210B	03/06/08	1
COD	18000	2700	20000	ug/l	J	410.4	03/12/08	1
pH	4.2			su	T8	4500H-B	03/11/08	1
Specific Conductance	250			umhos/cm		120.1	03/13/08	1
TOC (Total Organic Carbon)	4700	180	1000	ug/l		5310B	03/07/08	1
TOX	19.	4.3	100	ug/l	J	5320B	03/12/08	1
Dissolved Solids	160000	3300	10000	ug/l		2540C	03/10/08	1
Arsenic	U	0.15	1.0	ug/l		6020	03/11/08	1
Cadmium	U	0.24	0.50	ug/l		6020	03/11/08	1
Copper	U	0.45	1.0	ug/l		6020	03/11/08	1
Selenium	0.66	0.43	1.0	ug/l	J	6020	03/11/08	1
Zinc	3.5	3.0	10.	ug/l	J	6020	03/11/08	1
Mercury	U	0.044	0.20	ug/l		7470A	03/13/08	1
Barium	51.	1.0	5.0	ug/l		6010B	03/10/08	1
Chromium	U	2.3	10.	ug/l		6010B	03/10/08	1
Iron	6600	32.	100	ug/l	V	6010B	03/10/08	1
Lead	U	2.4	5.0	ug/l		6010B	03/10/08	1
Manganese	62.	9.0	10.	ug/l		6010B	03/10/08	1
Silver	U	2.5	10.	ug/l	J6J3	6010B	03/10/08	1
Vanadium	U	2.9	10.	ug/l		6010B	03/10/08	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL
MDL = Minimum Detection Limit = LOD = SQL(TRRP)
Note:
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Tax I.D. 62-0814289

Est. 1970

REPORT OF ANALYSIS

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

March 17, 2008

ESC Sample # : L334801-04

Date Received : March 06, 2008
Description : IP Landfill

Site ID :

Sample ID : MW-5A

Project # :

Collected By : B. Mabie
Collection Date : 03/05/08 10:40

Parameter	Result	MDL	RDL	Units	Q	Method	Date	Dil.
Chloride	130000	220	1000	ug/l		300.0	03/06/08	1
Fluoride	U	32.	100	ug/l		300.0	03/06/08	1
Nitrate	U	15.	100	ug/l		300.0	03/06/08	1
Sulfate	4100	170	5000	ug/l	J	300.0	03/06/08	1
BOD	U	1600	5000	ug/l	J4	SM5210B	03/06/08	1
COD	74000	2700	20000	ug/l		410.4	03/12/08	1
pH	7.6			su	T8	4500H-B	03/11/08	1
Specific Conductance	1800			umhos/cm		120.1	03/13/08	1
TOC (Total Organic Carbon)	31000	180	1000	ug/l		5310B	03/07/08	1
TOX	350	43.	1000	ug/l	JO T	5320B	03/13/08	10
Dissolved Solids	1100000	3300	10000	ug/l		2540C	03/10/08	1
Arsenic	0.59	0.15	1.0	ug/l	J	6020	03/11/08	1
Cadmium	U	0.24	0.50	ug/l		6020	03/11/08	1
Copper	U	0.45	1.0	ug/l		6020	03/11/08	1
Selenium	1.8	0.43	1.0	ug/l		6020	03/11/08	1
Zinc	4.2	3.0	10.	ug/l	J	6020	03/11/08	1
Mercury	U	0.044	0.20	ug/l		7470A	03/13/08	1
Barium	110	1.0	5.0	ug/l		6010B	03/10/08	1
Chromium	U	2.3	10.	ug/l		6010B	03/10/08	1
Iron	460	32.	100	ug/l		6010B	03/10/08	1
Lead	U	2.4	5.0	ug/l		6010B	03/10/08	1
Manganese	340	9.0	10.	ug/l		6010B	03/10/08	1
Silver	U	2.5	10.	ug/l		6010B	03/10/08	1
Vanadium	4.1	2.9	10.	ug/l	J	6010B	03/10/08	1

U = ND (Not Detected)
RDL = Reported Detection Limit = LOQ = PQL = EQL
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REPORT OF ANALYSIS

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

March 17, 2008

ESC Sample # : L334801-05

Date Received : March 06, 2008
Description : IP Landfill

Site ID :

Sample ID : MW-7A

Project # :

Collected By : B. Mabie
Collection Date : 03/05/08 09:45

Parameter	Result	MDL	RDL	Units	Q	Method	Date	Dil.
Chloride	270000	440	2000	ug/l		300.0	03/07/08	2
Fluoride	50.	32.	100	ug/l	J	300.0	03/06/08	1
Nitrate	U	15.	100	ug/l		300.0	03/06/08	1
Sulfate	53000	170	5000	ug/l		300.0	03/06/08	1
BOD	U	1600	5000	ug/l	J4	SM5210B	03/06/08	1
COD	63000	2700	20000	ug/l		410.4	03/12/08	1
pH	7.4			su	T8	4500H-B	03/11/08	1
Specific Conductance	1900			umhos/cm		120.1	03/13/08	1
TOC (Total Organic Carbon)	28000	180	1000	ug/l		5310B	03/07/08	1
TOX	1100	43.	1000	ug/l	T3	5320B	03/13/08	10
Dissolved Solids	1100000	3300	10000	ug/l		2540C	03/10/08	1
Arsenic	16.	0.15	1.0	ug/l		6020	03/11/08	1
Cadmium	U	0.24	0.50	ug/l		6020	03/11/08	1
Copper	U	0.45	1.0	ug/l		6020	03/11/08	1
Selenium	4.5	0.43	1.0	ug/l		6020	03/11/08	1
Zinc	U	3.0	10.	ug/l		6020	03/11/08	1
Mercury	U	0.044	0.20	ug/l		7470A	03/13/08	1
Barium	62.	1.0	5.0	ug/l		6010B	03/10/08	1
Chromium	U	2.3	10.	ug/l		6010B	03/10/08	1
Iron	28000	32.	100	ug/l		6010B	03/10/08	1
Lead	U	2.4	5.0	ug/l		6010B	03/10/08	1
Manganese	680	9.0	10.	ug/l		6010B	03/10/08	1
Silver	U	2.5	10.	ug/l		6010B	03/10/08	1
Vanadium	9.1	2.9	10.	ug/l	J	6010B	03/10/08	1

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REPORT OF ANALYSIS

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

March 17, 2008

ESC Sample # : L334801-06

Date Received : March 06, 2008
Description : IP Landfill

Site ID :

Sample ID : MW-8A

Project # :

Collected By : B. Mabie
Collection Date : 03/05/08 10:20

Parameter	Result	MDL	RDL	Units	Q	Method	Date	Dil.
Chloride	3200	220	1000	ug/l		300.0	03/06/08	1
Fluoride	120	32.	100	ug/l		300.0	03/06/08	1
Nitrate	U	15.	100	ug/l		300.0	03/06/08	1
Sulfate	370000	830	25000	ug/l		300.0	03/07/08	5
BOD	U	1600	5000	ug/l	J4	SM5210B	03/06/08	1
COD	U	2700	20000	ug/l		410.4	03/12/08	1
pH	7.6			su	T8	4500H-B	03/11/08	1
Specific Conductance	990			umhos/cm		120.1	03/13/08	1
TOC (Total Organic Carbon)	3900	180	1000	ug/l		5310B	03/07/08	1
TOX	30.	4.3	100	ug/l	J	5320B	03/13/08	1
Dissolved Solids	730000	3300	10000	ug/l		2540C	03/10/08	1
Arsenic	U	0.15	1.0	ug/l		6020	03/11/08	1
Cadmium	U	0.24	0.50	ug/l		6020	03/11/08	1
Copper	2.1	0.45	1.0	ug/l		6020	03/11/08	1
Selenium	U	0.43	1.0	ug/l		6020	03/11/08	1
Zinc	17.	3.0	10.	ug/l		6020	03/11/08	1
Mercury	U	0.044	0.20	ug/l		7470A	03/13/08	1
Barium	74.	1.0	5.0	ug/l		6010B	03/11/08	1
Chromium	U	2.3	10.	ug/l		6010B	03/11/08	1
Iron	330	32.	100	ug/l		6010B	03/11/08	1
Lead	U	2.4	5.0	ug/l		6010B	03/11/08	1
Manganese	15.	9.0	10.	ug/l		6010B	03/11/08	1
Silver	3.3	2.5	10.	ug/l	J	6010B	03/11/08	1
Vanadium	U	2.9	10.	ug/l		6010B	03/11/08	1

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RDL = Reported Detection Limit = LOQ = PQL = EQL
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REPORT OF ANALYSIS

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

March 17, 2008

ESC Sample # : L334801-07

Date Received : March 06, 2008
Description : IP Landfill

Site ID :

Sample ID : PRIMARY

Project # :

Collected By : B. Mabie
Collection Date : 03/05/08 11:15

Parameter	Result	MDL	RDL	Units	Q	Method	Date	Dil.
Chloride	110000	220	1000	ug/l		300.0	03/06/08	1
Fluoride	U	32.	100	ug/l		300.0	03/06/08	1
Nitrate	33.	15.	100	ug/l	J	300.0	03/06/08	1
Sulfate	640000	1700	50000	ug/l		300.0	03/07/08	10
BOD	U	1600	5000	ug/l	J4	SM5210B	03/06/08	1
COD	170000	2700	20000	ug/l		410.4	03/12/08	1
pH	7.1			su	T8	4500H-B	03/11/08	1
Phosphate,Ortho	38.	4.1	25.	ug/l		300.0	03/07/08	1
Specific Conductance	3900			umhos/cm		120.1	03/13/08	1
TOC (Total Organic Carbon)	72000	180	1000	ug/l		5310B	03/07/08	1
TOX	510	43.	1000	ug/l	OJ	5320B	03/14/08	10
Dissolved Solids	2800000	3300	10000	ug/l		2540C	03/11/08	1
Arsenic	9.8	0.15	1.0	ug/l		6020	03/11/08	1
Cadmium	U	0.24	0.50	ug/l		6020	03/11/08	1
Copper	2.0	0.45	1.0	ug/l		6020	03/11/08	1
Selenium	3.1	0.43	1.0	ug/l		6020	03/11/08	1
Zinc	27.	3.0	10.	ug/l		6020	03/11/08	1
Mercury	0.090	0.044	0.20	ug/l	J	7470A	03/13/08	1
Barium	160	1.0	5.0	ug/l		6010B	03/11/08	1
Chromium	U	2.3	10.	ug/l		6010B	03/11/08	1
Iron	10000	32.	100	ug/l		6010B	03/11/08	1
Lead	U	2.4	5.0	ug/l		6010B	03/11/08	1
Manganese	640	9.0	10.	ug/l		6010B	03/11/08	1
Silver	U	2.5	10.	ug/l		6010B	03/11/08	1
Vanadium	15.	2.9	10.	ug/l		6010B	03/11/08	1

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RDL = Reported Detection Limit = LOQ = PQL = EQL
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REPORT OF ANALYSIS

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

March 17, 2008

ESC Sample # : L334801-08

Date Received : March 06, 2008
Description : IP Landfill

Site ID :

Sample ID : SECONDARY

Project # :

Collected By : B. Mabie
Collection Date : 03/05/08 11:25

Parameter	Result	MDL	RDL	Units	Q	Method	Date	Dil.
Chloride	56000	220	1000	ug/l		300.0	03/06/08	1
Fluoride	480	32.	100	ug/l		300.0	03/06/08	1
Nitrate	U	15.	100	ug/l		300.0	03/06/08	1
Sulfate	300000	830	25000	ug/l		300.0	03/07/08	5
BOD	13000	1600	5000	ug/l	J4	SM5210B	03/06/08	1
COD	92000	2700	20000	ug/l		410.4	03/12/08	1
pH	6.6			su	T8	4500H-B	03/11/08	1
Phosphate,Ortho	1200	41.	250	ug/l		300.0	03/07/08	10
Specific Conductance	3300			umhos/cm		120.1	03/13/08	1
TOC (Total Organic Carbon)	200000	9100	50000	ug/l		5310B	03/11/08	50
TOX	44.	4.3	100	ug/l	J	5320B	03/14/08	1
Dissolved Solids	2200000	3300	10000	ug/l		2540C	03/11/08	1
Arsenic	0.46	0.15	1.0	ug/l	J	6020	03/11/08	1
Cadmium	U	0.24	0.50	ug/l		6020	03/11/08	1
Copper	U	0.45	1.0	ug/l		6020	03/11/08	1
Selenium	2.0	0.43	1.0	ug/l		6020	03/11/08	1
Zinc	9.2	3.0	10.	ug/l	J	6020	03/11/08	1
Mercury	U	0.044	0.20	ug/l		7470A	03/13/08	1
Barium	93.	1.0	5.0	ug/l		6010B	03/11/08	1
Chromium	8.4	2.3	10.	ug/l	J	6010B	03/11/08	1
Iron	6100	32.	100	ug/l		6010B	03/11/08	1
Lead	U	2.4	5.0	ug/l		6010B	03/11/08	1
Manganese	820	9.0	10.	ug/l		6010B	03/11/08	1
Silver	U	2.5	10.	ug/l		6010B	03/11/08	1
Vanadium	10.	2.9	10.	ug/l		6010B	03/11/08	1

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REPORT OF ANALYSIS

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

March 17, 2008

ESC Sample # : L334801-09

Date Received : March 06, 2008
Description : IP Landfill

Site ID :

Sample ID : UNDERDRAIN

Project # :

Collected By : B. Mabie
Collection Date : 03/05/08 11:35

Parameter	Result	MDL	RDL	Units	Q	Method	Date	Dil.
Chloride	230000	440	2000	ug/l		300.0	03/07/08	2
Fluoride	U	32.	100	ug/l		300.0	03/06/08	1
Nitrate	U	15.	100	ug/l		300.0	03/06/08	1
Sulfate	140000	170	5000	ug/l		300.0	03/06/08	1
BOD	U	1600	5000	ug/l	J4	SM5210B	03/06/08	1
COD	250000	2700	20000	ug/l		410.4	03/12/08	1
pH	6.8			su	T8	4500H-B	03/11/08	1
Phosphate,Ortho	430	8.2	50.	ug/l		300.0	03/07/08	2
Specific Conductance	4200			umhos/cm		120.1	03/13/08	1
TOC (Total Organic Carbon)	76000	3600	20000	ug/l		5310B	03/11/08	20
TOX	1200	43.	1000	ug/l		5320B	03/14/08	10
Dissolved Solids	2800000	3300	10000	ug/l		2540C	03/11/08	1
Arsenic	3.1	0.15	1.0	ug/l		6020	03/11/08	1
Cadmium	U	0.24	0.50	ug/l		6020	03/11/08	1
Copper	0.54	0.45	1.0	ug/l	J	6020	03/11/08	1
Selenium	5.8	0.43	1.0	ug/l		6020	03/11/08	1
Zinc	6.2	3.0	10.	ug/l	J	6020	03/11/08	1
Mercury	U	0.044	0.20	ug/l		7470A	03/13/08	1
Barium	130	1.0	5.0	ug/l		6010B	03/11/08	1
Chromium	26.	2.3	10.	ug/l		6010B	03/11/08	1
Iron	10000	32.	100	ug/l		6010B	03/11/08	1
Lead	U	2.4	5.0	ug/l		6010B	03/11/08	1
Manganese	810	9.0	10.	ug/l		6010B	03/11/08	1
Silver	U	2.5	10.	ug/l		6010B	03/11/08	1
Vanadium	71.	2.9	10.	ug/l		6010B	03/11/08	1

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Attachment A
List of Analytes with QC Qualifiers

Sample #	Analyte	Qualifier
L334801-01	Fluoride	J
	Nitrate	J
	TOX	J
	pH	T8
	BOD	J4
	Vanadium	J
	Copper	O
	Selenium	O
	Zinc	O
L334801-02	TOX	J
	pH	T8
	BOD	J4
	Chromium	J
	Silver	J
	Arsenic	O
	Copper	O
	Selenium	O
	Zinc	O
L334801-03	TOX	J
	pH	T8
	COD	J
	BOD	J4
	Iron	V
	Silver	J6J3
	Selenium	J
	Zinc	J
L334801-04	Sulfate	J
	TOX	JO T3
	pH	T8
	BOD	J4
	Vanadium	J
	Arsenic	J
	Zinc	J
L334801-05	Fluoride	J
	TOX	T3
	pH	T8
	BOD	J4
	Vanadium	J
L334801-06	TOX	J
	pH	T8
	BOD	J4
	Silver	J
L334801-07	Nitrate	J
	TOX	OJ
	pH	T8
	BOD	J4
	Mercury	J
L334801-08	TOX	J
	pH	T8
	BOD	J4
	Chromium	J
	Arsenic	J
	Zinc	J
L334801-09	pH	T8
	BOD	J4
	Copper	J
	Zinc	J

Attachment B
Explanation of QC Qualifier Codes

Qualifier	Meaning
J	(EPA) - Estimated value below the lowest calibration point. Confidence correlates with concentration.
J4	The associated batch QC was outside the established quality control range for accuracy.
J3	The associated batch QC was outside the established quality control range for precision.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low
T3	(ESC) - Additional method/sample information: TOX analysis. Greater than 10% Breakthrough
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.
T8	(ESC) - Additional method/sample information: Sample(s) received past/too close to holding time expiration.
V	(ESC) - Additional QC Info: The sample concentration is too high to evaluate accurate spike recoveries.

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.

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
03/17/08 at 14:50:44

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: L334801-01 Account: LAWENGWN Received: 03/06/08 09:00 Due Date: 03/14/08 00:00 RPT Date: 03/17/08 14:50
EDD=SWSL. Added : ASG, HG, BAICP, CDG, CRICP, CUG, FEICP, PBICP, MNICP, SEG, AGICP, VICP, and
ZNG. as GW and changed due date per Jimmy email. MS 3/10
Sample: L334801-02 Account: LAWENGWN Received: 03/06/08 09:00 Due Date: 03/14/08 00:00 RPT Date: 03/17/08 14:50
EDD=SWSL. Added : ASG, HG, BAICP, CDG, CRICP, CUG, FEICP, PBICP, MNICP, SEG, AGICP, VICP, and
ZNG. as GW and changed due date per Jimmy email. MS 3/10
Sample: L334801-03 Account: LAWENGWN Received: 03/06/08 09:00 Due Date: 03/14/08 00:00 RPT Date: 03/17/08 14:50
EDD=SWSL. Added : ASG, HG, BAICP, CDG, CRICP, CUG, FEICP, PBICP, MNICP, SEG, AGICP, VICP, and
ZNG. as GW and changed due date per Jimmy email. MS 3/10
Sample: L334801-04 Account: LAWENGWN Received: 03/06/08 09:00 Due Date: 03/14/08 00:00 RPT Date: 03/17/08 14:50
EDD=SWSL. Added : ASG, HG, BAICP, CDG, CRICP, CUG, FEICP, PBICP, MNICP, SEG, AGICP, VICP, and
ZNG. as GW and changed due date per Jimmy email. MS 3/10
Sample: L334801-05 Account: LAWENGWN Received: 03/06/08 09:00 Due Date: 03/14/08 00:00 RPT Date: 03/17/08 14:50
EDD=SWSL. Added : ASG, HG, BAICP, CDG, CRICP, CUG, FEICP, PBICP, MNICP, SEG, AGICP, VICP, and
ZNG. as GW and changed due date per Jimmy email. MS 3/10
Sample: L334801-06 Account: LAWENGWN Received: 03/06/08 09:00 Due Date: 03/14/08 00:00 RPT Date: 03/17/08 14:50
EDD=SWSL. Added : ASG, HG, BAICP, CDG, CRICP, CUG, FEICP, PBICP, MNICP, SEG, AGICP, VICP, and
ZNG. as GW and changed due date per Jimmy email. MS 3/10
Sample: L334801-07 Account: LAWENGWN Received: 03/06/08 09:00 Due Date: 03/14/08 00:00 RPT Date: 03/17/08 14:50
EDD=SWSL. Added : ASG, HG, BAICP, CDG, CRICP, CUG, FEICP, PBICP, MNICP, SEG, AGICP, VICP, and
ZNG. as GW and changed due date per Jimmy email. MS 3/10
Sample: L334801-08 Account: LAWENGWN Received: 03/06/08 09:00 Due Date: 03/14/08 00:00 RPT Date: 03/17/08 14:50
EDD=SWSL. Added : ASG, HG, BAICP, CDG, CRICP, CUG, FEICP, PBICP, MNICP, SEG, AGICP, VICP, and
ZNG. as GW and changed due date per Jimmy email. MS 3/10
Sample: L334801-09 Account: LAWENGWN Received: 03/06/08 09:00 Due Date: 03/14/08 00:00 RPT Date: 03/17/08 14:50
EDD=SWSL. Added : ASG, HG, BAICP, CDG, CRICP, CUG, FEICP, PBICP, MNICP, SEG, AGICP, VICP, and
ZNG. as GW and changed due date per Jimmy email. MS 3/10

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Mr. B. Walker Jones
5710 Oleander Drive, Suite 110

Wilmington, NC 28403

Quality Assurance Report
Level II

L334801

March 17, 2008

Laboratory Blank

Analyte	Result	Units	Date Analyzed	Batch
TOC (Total Organic Carbon)	< 1	mg/l	03/07/08 12:24	WG348463
BOD	-0.200	mg/l	03/06/08 11:00	WG348596
Chloride	< 1	mg/l	03/06/08 11:08	WG348598
Fluoride	< .1	mg/l	03/06/08 11:08	WG348598
Nitrate	< .1	mg/l	03/06/08 11:08	WG348598
Sulfate	< 5	mg/l	03/06/08 11:08	WG348598
Phosphate,Ortho	< .025	mg/l	03/07/08 10:46	WG348633
Barium	< .005	mg/l	03/06/08 19:54	WG348649
Chromium	< .01	mg/l	03/06/08 19:54	WG348649
Iron	< .1	mg/l	03/06/08 19:54	WG348649
Lead	< .005	mg/l	03/06/08 19:54	WG348649
Manganese	< .01	mg/l	03/06/08 19:54	WG348649
Silver	< .01	mg/l	03/06/08 19:54	WG348649
Vanadium	< .01	mg/l	03/06/08 19:54	WG348649
pH	6.80	su	03/11/08 08:10	WG348695
Mercury	< .0002	mg/l	03/10/08 14:10	WG348715
COD	< 20	mg/l	03/12/08 03:56	WG348791
Chloride	< 1	mg/l	03/07/08 11:19	WG348816
Sulfate	< 5	mg/l	03/07/08 11:19	WG348816
Dissolved Solids	< 10	mg/l	03/10/08 11:17	WG348874
TOC (Total Organic Carbon)	< 1	mg/l	03/11/08 09:37	WG348915
TOX	< .1	mg/l	03/12/08 11:04	WG348916
Dissolved Solids	< 10	mg/l	03/11/08 10:23	WG348975
Barium	< .005	mg/l	03/10/08 20:11	WG349126
Chromium	< .01	mg/l	03/10/08 20:11	WG349126
Iron	< .1	mg/l	03/10/08 20:11	WG349126
Lead	< .005	mg/l	03/10/08 20:11	WG349126
Manganese	< .01	mg/l	03/10/08 20:11	WG349126
Silver	< .01	mg/l	03/10/08 20:11	WG349126
Vanadium	< .01	mg/l	03/10/08 20:11	WG349126
Barium	< .005	mg/l	03/11/08 12:54	WG349164
Chromium	< .01	mg/l	03/11/08 12:54	WG349164
Iron	< .1	mg/l	03/11/08 12:54	WG349164
Lead	< .005	mg/l	03/11/08 12:54	WG349164
Manganese	< .01	mg/l	03/11/08 12:54	WG349164
Silver	< .01	mg/l	03/11/08 12:54	WG349164
Vanadium	< .01	mg/l	03/11/08 12:54	WG349164
Arsenic	< .001	mg/l	03/11/08 10:20	WG349175
Cadmium	< .0005	mg/l	03/11/08 10:20	WG349175
Copper	< .001	mg/l	03/11/08 10:20	WG349175
Selenium	< .001	mg/l	03/11/08 10:20	WG349175
Zinc	< .01	mg/l	03/11/08 10:20	WG349175
Mercury	< .0002	mg/l	03/13/08 19:58	WG349184

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Quality Assurance Report
Level II

L334801

March 17, 2008

Specific Conductance 0.440 umhos/cm 03/13/08 09:30 WG349508

Analyte	Units	Result	Duplicate Duplicate	RPD	Limit	Ref Samp	Batch
TOC (Total Organic Carbon)	mg/l	2.21	2.00	9.98	20	L333904-01	WG348463
TOC (Total Organic Carbon)	mg/l	12.3	14.0	13.1	20	L334522-01	WG348463
BOD	mg/l	0.00	0.00	0.00	10	L334726-02	WG348596
BOD	mg/l	0.00	0.00	0.00	10	L334801-01	WG348596
BOD	mg/l	0.00	0.00	0.00	10	L334801-03	WG348596
Chloride	mg/l	197.	195.	1.02	20	L334747-04	WG348598
Chloride	mg/l	3.00	3.20	6.45	20	L334801-06	WG348598
Fluoride	mg/l	0.110	0.0710	43.1	20	L334747-04	WG348598
Fluoride	mg/l	0.116	0.120	3.39	20	L334801-06	WG348598
Nitrate	mg/l	1.38	1.40	1.44	20	L334747-04	WG348598
Nitrate	mg/l	0.00	0.00	0.00	20	L334801-06	WG348598
Sulfate	mg/l	201.	202.	0.496	20	L334747-04	WG348598
Sulfate	mg/l	310.	308.	0.647	20	L334801-06	WG348598
Phosphate,Ortho	mg/l	0.0417	0.0380	9.28	20	L334801-07	WG348633
Barium	mg/l	0.0736	0.0740	0.542	20	L334801-06	WG348649
Chromium	mg/l	0.00	0.00	0.00	20	L334801-06	WG348649
Iron	mg/l	0.333	0.330	0.905	20	L334801-06	WG348649
Lead	mg/l	0.00	0.00	0.00	20	L334801-06	WG348649
Manganese	mg/l	0.0159	0.0150	5.83	20	L334801-06	WG348649
Silver	mg/l	0.00	0.00330	NA	20	L334801-06	WG348649
Vanadium	mg/l	0.00	0.00	0.00	0	L334801-06	WG348649
pH	su	9.40	9.30	1.07	20	L334770-02	WG348695
pH	su	6.90	6.80	1.46	20	L334801-09	WG348695
Mercury	mg/l	0.00	0.00	0.00	20	L334801-06	WG348715
COD	mg/l	739.	750.	1.48	20	L334774-01	WG348791
COD	mg/l	493.	500.	1.41	20	L334896-01	WG348791
Chloride	mg/l	92.1	93.6	1.62	20	L334801-07	WG348816
Chloride	mg/l	0.00	2.73	NA	20	L334801-06	WG348816
Sulfate	mg/l	644.	640.	0.623	20	L334801-07	WG348816
Sulfate	mg/l	336.	370.	9.63	20	L334801-06	WG348816
Dissolved Solids	mg/l	722.	720.	0.277	5	L334989-01	WG348874
TOC (Total Organic Carbon)	mg/l	42.5	43.0	1.08	20	L334801-01	WG348915
TOC (Total Organic Carbon)	mg/l	0.00	0.00	0.00	20	L334888-07	WG348915
TOX	mg/l	0.00	0.0150	NA	20	L334801-02	WG348916
Dissolved Solids	mg/l	40300	40000	0.799	5	L335154-02	WG348975
Barium	mg/l	0.0540	0.0510	5.71	20	L334801-03	WG349126
Barium	mg/l	0.0514	0.0510	0.781	20	L334801-03	WG349126
Chromium	mg/l	0.00	0.00	0.00	20	L334801-03	WG349126
Chromium	mg/l	0.00	0.00	0.00	20	L334801-03	WG349126
Iron	mg/l	6.79	6.60	2.84	20	L334801-03	WG349126
Iron	mg/l	6.69	6.60	1.35	20	L334801-03	WG349126
Lead	mg/l	0.00	0.00	0.00	20	L334801-03	WG349126
Lead	mg/l	0.00	0.00	0.00	20	L334801-03	WG349126
Manganese	mg/l	0.0625	0.0620	0.803	20	L334801-03	WG349126
Manganese	mg/l	0.0626	0.0620	0.963	20	L334801-03	WG349126
Silver	mg/l	0.00	0.00	0.00	20	L334801-03	WG349126

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Level II

L334801

March 17, 2008

Silver	mg/l	0.00	0.00	0.00	20	L334801-03	WG349126

Duplicate

Analyte	Units	Result	Duplicate	RPD	Limit	Ref Samp	Batch
Vanadium	mg/l	0.00	0.00	0.00	20	L334801-03	WG349126
Vanadium	mg/l	0.00	0.00	0.00	20	L334801-03	WG349126
Barium	mg/l	0.281	0.278	1.07	20	L335339-03	WG349164
Chromium	mg/l	0.00	0.00	0.00	20	L335339-03	WG349164
Iron	mg/l	0.00	0.250	NA	20	L335339-03	WG349164
Lead	mg/l	0.00	0.00	0.00	20	L335339-03	WG349164
Manganese	mg/l	0.00	0.0126	NA	20	L335339-03	WG349164
Silver	mg/l	0.00	0.00	0.00	20	L335339-03	WG349164
Vanadium	mg/l	0.00	0.00020	NA	20	L335339-03	WG349164
Arsenic	mg/l	0.00	0.00014	NA	20	L335349-03	WG349175
Cadmium	mg/l	0.00	0.00	0.00	20	L335349-03	WG349175
Copper	mg/l	0.0395	0.0364	8.17	20	L335349-03	WG349175
Selenium	mg/l	0.00	0.00063	NA	20	L335349-03	WG349175
Zinc	mg/l	0.315	0.284	10.4	20	L335349-03	WG349175
Mercury	mg/l	0.00	0.00	0.00	20	L335339-06	WG349184
Specific Conductance	umhos	411.	410.	0.244	20	L334801-01	WG349508

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
TOC (Total Organic Carbon)	mg/l	75	75.6	101.	85-115	WG348463
BOD	mg/l	198	199.	101.	85-115	WG348596
BOD	mg/l	198	101.	51.0	85-115	WG348596
BOD	mg/l	198	181.	91.4	85-115	WG348596
BOD	mg/l	198	144.	72.7	85-115	WG348596
Chloride	mg/l	40	37.6	94.0	90-110	WG348598
Fluoride	mg/l	8	8.00	100.	90-110	WG348598
Nitrate	mg/l	8	7.96	99.5	90-110	WG348598
Sulfate	mg/l	40	37.3	93.3	90-110	WG348598
Phosphate,Ortho	mg/l	.75	0.746	99.5	85-115	WG348633
Barium	mg/l	1	1.06	106.	85-115	WG348649
Chromium	mg/l	1	1.03	103.	85-115	WG348649
Iron	mg/l	1	1.07	107.	85-115	WG348649
Lead	mg/l	1	1.02	102.	85-115	WG348649
Manganese	mg/l	1	1.08	108.	85-115	WG348649
Silver	mg/l	1	1.05	105.	85-115	WG348649
Vanadium	mg/l	1	1.05	105.	85-115	WG348649
pH	su	5.92	5.90	99.7	85-115	WG348695
Mercury	mg/l	.003	0.00295	98.3	85-115	WG348715
COD	mg/l	383	382.	99.7	90-110	WG348791
Chloride	mg/l	40	37.8	94.5	90-110	WG348816
Sulfate	mg/l	40	37.1	92.8	90-110	WG348816
Dissolved Solids	mg/l	8800	8610	97.9	85-115	WG348874
TOC (Total Organic Carbon)	mg/l	75	74.2	99.0	85-115	WG348915

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L334801

March 17, 2008

TOX	mg/l	.2	0.215	108.	85-115	WG348916

Laboratory Control Sample

Analyte	Units	Known Val	Result	% Rec	Limit	Batch
Dissolved Solids	mg/l	8800	8760	99.6	85-115	WG348975
Barium	mg/l	1.13	1.18	104.	85-115	WG349126
Chromium	mg/l	1.13	1.15	102.	85-115	WG349126
Iron	mg/l	1.13	1.16	103.	85-115	WG349126
Lead	mg/l	1.13	1.17	104.	85-115	WG349126
Manganese	mg/l	1.13	1.19	105.	85-115	WG349126
Silver	mg/l	1.13	1.12	99.1	85-115	WG349126
Vanadium	mg/l	1.13	1.14	101.	85-115	WG349126
Barium	mg/l	1.13	1.15	102.	85-115	WG349164
Chromium	mg/l	1.13	1.14	101.	85-115	WG349164
Iron	mg/l	1.13	1.13	100.	85-115	WG349164
Lead	mg/l	1.13	1.16	103.	85-115	WG349164
Manganese	mg/l	1.13	1.15	102.	85-115	WG349164
Silver	mg/l	1.13	1.07	94.7	85-115	WG349164
Vanadium	mg/l	1.13	1.11	98.2	85-115	WG349164
Arsenic	mg/l	.0567	0.0508	89.6	85-115	WG349175
Cadmium	mg/l	.0567	0.0485	85.5	85-115	WG349175
Copper	mg/l	.0567	0.0538	94.9	85-115	WG349175
Selenium	mg/l	.0567	0.0492	86.8	85-115	WG349175
Zinc	mg/l	.0567	0.0519	91.5	85-115	WG349175
Mercury	mg/l	.003	0.00271	90.3	85-115	WG349184
Specific Conductance	umhos/cm	519	540.	104.	85-115	WG349508

Laboratory Control Sample Duplicate

Analyte	Units	LCSD Res	Ref Res	RPD	Limit	%Rec	Batch
TOC (Total Organic Carbon)	mg/l	75.4	75.6	0.225	20	101	WG348463
Chloride	mg/l	37.5	37.6	0.266	20	94	WG348598
Fluoride	mg/l	7.83	8.00	2.15	20	98	WG348598
Nitrate	mg/l	7.95	7.96	0.126	20	99	WG348598
Sulfate	mg/l	37.2	37.3	0.268	20	93	WG348598
Phosphate,Ortho	mg/l	0.779	0.746	4.33	20	104	WG348633
pH	su	5.90	5.90	0.00	20	100	WG348695
COD	mg/l	387.	382.	1.30	20	101	WG348791
Chloride	mg/l	37.9	37.8	0.264	20	95	WG348816
Sulfate	mg/l	37.1	37.1	0.00	20	93	WG348816
Dissolved Solids	mg/l	8660	8610	0.510	20	98	WG348874
TOC (Total Organic Carbon)	mg/l	74.5	74.2	0.296	20	99	WG348915
TOX	mg/l	0.204	0.215	5.43	20	102	WG348916
Dissolved Solids	mg/l	8720	8760	0.457	20	99	WG348975
Specific Conductance	umhos	540.	540.	0.00	20	104	WG349508

Matrix Spike

Analyte	Units	MS Res	Ref Res	TV	% Rec	Limit	Ref Samp	Batch

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TOC (Total Organic Carbon)	mg/l	50.6	1.30	50	98.5	80-120	L333904-02	WG348463
Chloride	mg/l	91.1	37.9	50	106.	80-120	L334786-02	WG348598
Fluoride	mg/l	6.30	0.629	5	113.	80-120	L334786-02	WG348598
Nitrate	mg/l	18.6	14.0	5	92.0	80-120	L334786-02	WG348598
Sulfate	mg/l	93.6	40.4	50	106.	80-120	L334786-02	WG348598
Phosphate,Ortho	mg/l	6.25	1.20	.5	101.	80-120	L334801-08	WG348633
Barium	mg/l	1.09	0.0740	1	102.	75-125	L334801-06	WG348649
Chromium	mg/l	1.01	0.00	1	101.	75-125	L334801-06	WG348649
Iron	mg/l	1.37	0.330	1	104.	75-125	L334801-06	WG348649
Lead	mg/l	1.02	0.00	1	102.	75-125	L334801-06	WG348649
Manganese	mg/l	1.06	0.0150	1	105.	75-125	L334801-06	WG348649
Silver	mg/l	1.02	0.0033	1	102.	75-125	L334801-06	WG348649
Vanadium	mg/l	1.03	0.00	1	103.	75-125	L334801-06	WG348649
Mercury	mg/l	0.0029	0.00	.003	97.3	70-130	L334801-06	WG348715
COD	mg/l	573.	170.	400	101.	80-120	L334935-01	WG348791
Chloride	mg/l	53.5	3.88	50	99.2	80-120	L335028-02	WG348816
Sulfate	mg/l	48.5	0.679	50	95.6	80-120	L335028-02	WG348816
TOC (Total Organic Carbon)	mg/l	50.3	0.00	50	101.	80-120	L334888-06	WG348915
TOX	mg/l	0.346	0.0190	.3	109.	80-120	L334801-03	WG348916
Barium	mg/l	1.27	0.0510	1.13	108.	75-125	L334801-03	WG349126
Barium	mg/l	1.26	0.0510	1.13	107.	75-125	L334801-03	WG349126
Chromium	mg/l	1.19	0.00	1.13	105.	75-125	L334801-03	WG349126
Chromium	mg/l	1.19	0.00	1.13	105.	75-125	L334801-03	WG349126
Iron	mg/l	8.09	6.60	1.13	132.	75-125	L334801-03	WG349126
Iron	mg/l	8.03	6.60	1.13	127.	75-125	L334801-03	WG349126
Lead	mg/l	1.25	0.00	1.13	111.	75-125	L334801-03	WG349126
Lead	mg/l	1.22	0.00	1.13	108.	75-125	L334801-03	WG349126
Manganese	mg/l	1.30	0.0620	1.13	110.	75-125	L334801-03	WG349126
Manganese	mg/l	1.31	0.0620	1.13	110.	75-125	L334801-03	WG349126
Silver	mg/l	0.288	0.00	1.13	25.5	75-125	L334801-03	WG349126
Silver	mg/l	0.732	0.00	1.13	64.8	75-125	L334801-03	WG349126
Vanadium	mg/l	1.19	0.00	1.13	105.	75-125	L334801-03	WG349126
Vanadium	mg/l	1.18	0.00	1.13	104.	75-125	L334801-03	WG349126
Barium	mg/l	1.34	0.278	1.13	94.0	75-125	L335339-03	WG349164
Chromium	mg/l	1.06	0.00	1.13	93.8	75-125	L335339-03	WG349164
Iron	mg/l	1.11	0.250	1.13	76.1	75-125	L335339-03	WG349164
Lead	mg/l	1.06	0.00	1.13	93.8	75-125	L335339-03	WG349164
Manganese	mg/l	1.10	0.0126	1.13	96.2	75-125	L335339-03	WG349164
Silver	mg/l	1.10	0.00	1.13	97.3	75-125	L335339-03	WG349164
Vanadium	mg/l	1.10	0.0002	1.13	97.3	75-125	L335339-03	WG349164
Arsenic	mg/l	0.0550	0.0001	.0567	96.8	75-125	L335349-03	WG349175
Cadmium	mg/l	0.0556	0.00	.0567	98.1	75-125	L335349-03	WG349175
Copper	mg/l	0.0956	0.0364	.0567	104.	75-125	L335349-03	WG349175
Selenium	mg/l	0.0488	0.0006	.0567	85.0	75-125	L335349-03	WG349175
Zinc	mg/l	0.368	0.284	.0567	148.	75-125	L335349-03	WG349175
Mercury	mg/l	0.0028	0.00	.003	95.7	70-130	L335339-06	WG349184

Matrix Spike Duplicate

Analyte	Units	MSD Res	Ref Res	RPD	Limit	%Rec	Ref Samp	Batch
TOC (Total Organic Carbon)	mg/l	50.6	50.6	0.0593	20	98.6	L333904-02	WG348463

ENVIRONMENTAL
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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

L334801

March 17, 2008

Analyte	Units	Matrix Spike Duplicate MSD Res	Ref Res	RPD	Limit	%Rec	Ref Samp	Batch
Chloride	mg/l	88.5	91.1	2.90	20	101.	L334786-02	WG348598
Fluoride	mg/l	5.96	6.30	5.55	20	107.	L334786-02	WG348598
Nitrate	mg/l	18.5	18.6	0.539	20	90.0	L334786-02	WG348598
Sulfate	mg/l	91.9	93.6	1.83	20	103.	L334786-02	WG348598
Phosphate,Ortho	mg/l	6.72	6.25	7.25	20	110.	L334801-08	WG348633
Barium	mg/l	1.09	1.09	0.00	20	102.	L334801-06	WG348649
Chromium	mg/l	1.04	1.01	2.93	20	104.	L334801-06	WG348649
Iron	mg/l	1.36	1.37	0.733	20	103.	L334801-06	WG348649
Lead	mg/l	1.04	1.02	1.94	20	104.	L334801-06	WG348649
Manganese	mg/l	1.07	1.06	0.939	20	106.	L334801-06	WG348649
Silver	mg/l	1.02	1.02	0.00	20	102.	L334801-06	WG348649
Vanadium	mg/l	1.03	1.03	0.00	20	103.	L334801-06	WG348649
Mercury	mg/l	0.0029	0.0029	0.687	20	96.7	L334801-06	WG348715
COD	mg/l	577.	573.	0.696	20	102.	L334935-01	WG348791
Chloride	mg/l	55.6	53.5	3.85	20	103.	L335028-02	WG348816
Sulfate	mg/l	50.9	48.5	4.83	20	100.	L335028-02	WG348816
TOC (Total Organic Carbon)	mg/l	49.7	50.3	1.18	20	99.4	L334888-06	WG348915
TOX	mg/l	0.343	0.346	0.952	20	108.	L334801-03	WG348916
Barium	mg/l	1.25	1.27	1.59	20	106.	L334801-03	WG349126
Barium	mg/l	1.25	1.27	1.59	20	106.	L334801-03	WG349126
Chromium	mg/l	1.23	1.19	3.31	20	109.	L334801-03	WG349126
Chromium	mg/l	1.18	1.19	0.844	20	104.	L334801-03	WG349126
Iron	mg/l	7.89	8.09	2.50	20	114.	L334801-03	WG349126
Iron	mg/l	7.92	8.09	2.12	20	117.	L334801-03	WG349126
Lead	mg/l	1.29	1.25	3.15	20	114.	L334801-03	WG349126
Lead	mg/l	1.21	1.25	3.25	20	107.	L334801-03	WG349126
Manganese	mg/l	1.27	1.30	2.33	20	107.	L334801-03	WG349126
Manganese	mg/l	1.28	1.30	1.55	20	108.	L334801-03	WG349126
Silver	mg/l	0.270	0.288	6.45	20	23.9	L334801-03	WG349126
Silver	mg/l	0.652	0.288	77.4	20	57.7	L334801-03	WG349126
Vanadium	mg/l	1.16	1.19	2.55	20	103.	L334801-03	WG349126
Vanadium	mg/l	1.17	1.19	1.69	20	104.	L334801-03	WG349126
Barium	mg/l	1.35	1.34	0.743	20	94.9	L335339-03	WG349164
Chromium	mg/l	1.04	1.06	1.90	20	92.0	L335339-03	WG349164
Iron	mg/l	1.11	1.11	0.00	20	76.1	L335339-03	WG349164
Lead	mg/l	1.04	1.06	1.90	20	92.0	L335339-03	WG349164
Manganese	mg/l	1.10	1.10	0.00	20	96.2	L335339-03	WG349164
Silver	mg/l	1.13	1.10	2.69	20	100.	L335339-03	WG349164
Vanadium	mg/l	1.11	1.10	0.905	20	98.2	L335339-03	WG349164
Arsenic	mg/l	0.0548	0.0550	0.364	20	96.4	L335349-03	WG349175
Cadmium	mg/l	0.0554	0.0556	0.360	20	97.7	L335349-03	WG349175
Copper	mg/l	0.0976	0.0956	2.07	20	108.	L335349-03	WG349175
Selenium	mg/l	0.0514	0.0488	5.19	20	89.5	L335349-03	WG349175
Zinc	mg/l	0.374	0.368	1.62	20	159.	L335349-03	WG349175
Mercury	mg/l	0.0029	0.0028	1.04	20	96.7	L335339-06	WG349184

ENVIRONMENTAL
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Mr. B. Walker Jones
5710 Oleander Drive, Suite 110

Wilmington, NC 28403

Quality Assurance Report
Level II

L334801

March 17, 2008

Batch number /Run number / Sample number cross reference

WG348598: R356039: L334801-01 02 03 04 05 06 07 08 09
WG348633: R356050: L334801-07 08 09
WG348816: R356184: L334801-05 06 07 08 09
WG348715: R356220: L334801-01 02 03 04 05 06 07 08 09
WG348649: R356247: L334801-01 02 03 04 05 06 07 08 09
WG348463: R356338: L334801-02 03 04 05 06 07
WG348874: R356350: L334801-03 04 05 06
WG348975: R356518: L334801-01 02 07 08 09
WG348596: R356553: L334801-01 02 03 04 05 06 07 08 09
WG348695: R356555: L334801-01 02 03 04 05 06 07 08 09
WG348791: R356664: L334801-01 02 03 04 05 06 07 08 09
WG349126: R356713: L334801-01 02 03 04 05
WG349164: R356715: L334801-06 07 08 09
WG348915: R356755: L334801-01 08 09
WG349175: R356801: L334801-01 02 03 04 05 06 07 08 09
WG349508: R357012: L334801-01 02 03 04 05 06 07 08 09
WG349184: R357043: L334801-01 02 03 04 05 06 07 08 09
WG348916: R357263: L334801-01 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

L334801

March 17, 2008

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

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Alternate billing information:

Chain of Custody
Page 1 of 2

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: Riegelwood, NC
Phone: (910) 452-1185
FAX: (910) 791-1338
Client Project #: ~~6220-07-0402-01~~
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 ___Yes
FAX? ___No ___Yes

Acctnum: LAWENGWN (lab use only)
Template/Prelogin: T38584/ P236095
Cooler #: 2/27
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	Cl, F, 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	-	3.5.08	1135	8	X	X	X	X		X	X	X		L33480/01
MW-1B	↓	WW	-	↓	1140	8	X	X	X	X		X	X	X		02
MW-4A	↓	WW	-	↓	1005	8	X	X	X	X		X	X	X		03
MW-5A	↓	WW	-	↓	1040	8	X	X	X	X		X	X	X		04
MW-7A	↓	WW	-	↓	0945	8	X	X	X	X		X	X	X		05
MW-8A	↓	WW	-	↓	1030	8	X	X	X	X		X	X	X		06
PRIMARY	↓	WW	-	↓	1115	9	X	X	X	X	X	X	X	X		07
SECONDARY	↓	WW	-	↓	1125	9	X	X	X	X	X	X	X	X		08
UNDERDRAIN	↓	WW	-	↓	1135	9	X	X	X	X	X	X	X	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 _____

9446 7881 3970
9446 7881 3959
9446 7881 3960
9446 7881 3948

Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Samples returned via: ☐ UPS ☐ FedEx ☐ Courier ☐	Condition: (lab use only)
	3.5.08	1600			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.2°C Bottles Received: 75	COC Seal Intact: ___Y ___N ___NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3.6.08 Time: 0900	pH Checked: LL / NCF:

MACTEC - Wilmington, NC

5710 Oleander Drive. Suite 110
Wilmington,NC 28403

Alternate billing information:

Analysis/Container/Preservative

Chain of Custody
Page 2 of 2

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: Ridgewood, NC
Phone: (910) 452-1185
FAX: (910) 791-1338
Client Project #: [redacted]
Lab Project #: LAWENGWN-6550060311
Collected by (print): B. Mabe
Site/Facility ID#:
P.O.#:
Collected by (signature): [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 ___Yes
FAX? ___No ___Yes

Acctnum: LAWENGWN (lab use only)
Template/Prelogin: T38584/ P236095
Cooler #: CE 2/27
Shipped Via: FedEx Ground

Sample ID	Comp/Grab	Matrix*	Depth	Date	Time	No. of Cntrs	TOX 1L-Amb-Add H2SO4	Remarks/Contaminant	Sample # (lab only)
MW-1A	Grab	WW	—	3.5.08	1135	8	X		L334801-01
MW-1B		WW	—		1140	8	X		-02
MW-4A		WW	—		1005	8	X		-03
MW-5A		WW	—		1040	8	X		-04
MW-7A		WW	—		0945	8	X		-05
MW-8A		WW	—		1020	8	X		-06
PRIMARY		WW	—		1115	9	X		-07
SECONDARY		WW	—		1125	9	X		-08
UNDERDRAIN		WW	—		1135	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)
[signature]	3.5.08	1600			
Relinquished by: (Signature)	Date:	Time:	Received by: (Signature)	Temp: 3.2° Bottles Received: 75	COC Seal Intact: ___Y ___N ___NA
Relinquished by: (Signature)	Date:	Time:	Received for lab by: (Signature)	Date: 3.6.08 Time: 0900	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: 6550-08-0479

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: 3/5/2008 / 1135
SAMPLER TYPE & MATERIAL: LOW FLOW PERISTALTIC PUMP & DEDICATED CLEAN TUBING
SAMPLE DESCRIPTION: CLOUDY
TOTAL WELL DEPTH (FT): 29.50 DEPTH TO WATER (FT): 16.47
PURGE & SAMPLE PROCEDURES: Well was purged under low-flow conditions until field parameters stabilized. A quiescent low-flow grab sample was collected the following day (within a 24-hr period of purging).
PURGE DATE: 3/4/2008 START TIME: 1140 END TIME: 1155

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	300	
PLASTIC -HDPE	500 ML	1	HNO3	METALS	7470A/6010B	
PLASTIC -HDPE	250 ML	1	No Pres	SP COND	120.1	
PLASTIC -HDPE	250 ML	1	No Pres	TDS	2540C	
AMBER GLASS	250 ML	1	HCL	TOC	5310B	
AMBER GLASS	1L	1	H2SO4	TOX	5320B	

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	PURGE DATA 1st READING	2nd READING	3rd READING	4th READING	SAMPLE DATA
TEMP. (ºC)	HANNA	20.0	20.2	19.5	19.5	17.9
pH (STD)	"	7.90	7.79	7.83	7.84	7.15
SPEC. COND (uS/cm)	"	373	356	357	357	397
APPEARANCE	-	CLOUDY	CLOUDY	CLOUDY	CLOUDY	CLOUDY
TIME	-	1140	1145	1150	1155	1135
DATE	-	3/4/2008	3/4/2008	3/4/2008	3/4/2008	3/5/2008

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (ºF): 65
SAMPLES COLLECTED BY: W. Mabie/W. Moore
SPECIAL HANDLING: PACKAGED ON ICE
MODE OF SHIPMENT: FEDEX
HANNA METER CALIBRATED 03/04/08 AND 03/05/08 PRIOR TO PURGING AND SAMPLING.

Prepared by: BWJ 3/28/08 Checked by: WJM 3/28/08

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: 6550-08-0479

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: 3/5/2008 / 1140
SAMPLER TYPE & MATERIAL: LOW FLOW PERISTALTIC PUMP & DEDICATED CLEAN TUBING
SAMPLE DESCRIPTION: CLEAR
TOTAL WELL DEPTH (FT): 50.00 DEPTH TO WATER (FT): 16.94
PURGE & SAMPLE PROCEDURES: Well was purged under low-flow conditions until field parameters stabilized. A quiescent low-flow grab sample was collected the following day (within a 24-hr period of purging).
PURGE DATE: 3/4/2008 START TIME: 1205 END TIME: 1220

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	300	
PLASTIC -HDPE	250 ML	1	HNO3	METALS	7470A/6010B	
PLASTIC -HDPE	250 ML	1	No Pres	SP COND	120.1	
PLASTIC -HDPE	250 ML	1	No Pres	TDS	2540C	
AMBER GLASS	250 ML	1	HCL	TOC	5310B	
AMBER GLASS	1L	1	H2SO4	TOX	5320B	

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	PURGE DATA				SAMPLE DATA
		1st READING	2nd READING	3rd READING	4th READING	
TEMP. (ºC)	HANNA	19.1	19.0	18.9	18.9	17.7
pH (STD)	"	5.94	5.89	5.84	5.81	6.14
SPEC. COND (uS/cm)	"	165	153	155	151	191
APPEARANCE	-	CLOUDY	CLOUDY	CLOUDY	CLOUDY	CLEAR
TIME	-	1205	1210	1215	1220	1140
DATE	-	3/4/2008	3/4/2008	3/4/2008	3/4/2008	3/5/2008

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (ºF): 65
SAMPLES COLLECTED BY: W. Mabie/W. Moore
SPECIAL HANDLING: PACKAGED ON ICE
MODE OF SHIPMENT: FEDEX
HANNA METER CALIBRATED 03/04/08 AND 03/05/08 PRIOR TO PURGING AND SAMPLING.

Prepared by: BWJ 3/28/08 Checked by: WJM 3/28/08

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: 6550-08-0479

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: 3/5/2008 / 1030
SAMPLER TYPE & MATERIAL: LOW FLOW PERISTALTIC PUMP & DEDICATED CLEAN TUBING
SAMPLE DESCRIPTION: CLEAR
TOTAL WELL DEPTH (FT): 12.00 DEPTH TO WATER (FT): 5.91
PURGE & SAMPLE PROCEDURES: Well was purged under low-flow conditions until field parameters stabilized. A quiescent low-flow grab sample was collected the following day (within a 24-hr period of purging).
PURGE DATE: 3/4/2008 START TIME: 1025 END TIME: 1040

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	300	
PLASTIC -HDPE	250 ML	1	HNO3	METALS	7470A/6010B	
PLASTIC -HDPE	250 ML	1	No Pres	SP COND	120.1	
PLASTIC -HDPE	250 ML	1	No Pres	TDS	2540C	
AMBER GLASS	250 ML	1	HCL	TOC	5310B	
AMBER GLASS	1L	1	H2SO4	TOX	5320B	

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	PURGE DATA 1st READING	2nd READING	3rd READING	4th READING	SAMPLE DATA
TEMP. (ºC)	HANNA	18.4	18.0	18.3	18.5	16.3
pH (STD)	"	6.76	5.36	4.60	4.59	6.62
SPEC. COND (uS/cm)	"	227	212	221	215	247
APPEARANCE	-	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
TIME	-	1025	1030	1035	1040	1005
DATE	-	3/4/2008	3/4/2008	3/4/2008	3/4/2008	3/5/2008

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (ºF): 65
SAMPLES COLLECTED BY: W. Mabie/W. Moore
SPECIAL HANDLING: PACKAGED ON ICE
MODE OF SHIPMENT: FEDEX
HANNA METER CALIBRATED 03/04/08 AND 03/05/08 PRIOR TO PURGING AND SAMPLING.

Prepared by: BWJ 3/28/08 Checked by: WJM 3/28/08

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: 6550-08-0479

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: 3/5/2008 / 1200
SAMPLER TYPE & MATERIAL: LOW FLOW PERISTALTIC PUMP & DEDICATED CLEAN TUBING
SAMPLE DESCRIPTION: CLEAR
TOTAL WELL DEPTH (FT): 20.11 DEPTH TO WATER (FT): 8.20
PURGE & SAMPLE PROCEDURES: Well was purged under low-flow conditions until field parameters stabilized. A quiescent low-flow grab sample was collected the following day (within a 24-hr period of purging).
PURGE DATE: 3/4/2008 START TIME: 1110 END TIME: 1125

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	300	
PLASTIC -HDPE	250 ML	1	HNO3	METALS	7470A/6010B	
PLASTIC -HDPE	250 ML	1	No Pres	SP COND	120.1	
PLASTIC -HDPE	250 ML	1	No Pres	TDS	2540C	
AMBER GLASS	250 ML	1	HCL	TOC	5310B	
AMBER GLASS	1L	1	H2SO4	TOX	5320B	

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	PURGE DATA 1st READING	2nd READING	3rd READING	4th READING	SAMPLE DATA
TEMP. (ºC)	HANNA	18.0	17.7	17.6	17.4	16.9
pH (STD)	"	6.87	7.16	7.38	7.41	6.48
SPEC. COND (uS/cm)	"	702	1562	1591	1592	1595
APPEARANCE	-	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
TIME	-	1110	1115	1120	1125	1040
DATE	-	9/4/2007	9/4/2007	9/4/2007	9/4/2007	3/5/2008

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (ºF): 65
SAMPLES COLLECTED BY: W. Mabie/W. Moore
SPECIAL HANDLING: PACKAGED ON ICE
MODE OF SHIPMENT: FEDEX
HANNA METER CALIBRATED 03/04/08 AND 03/05/08 PRIOR TO PURGING AND SAMPLING.

Prepared by: BWJ 3/28/08 Checked by: WJM 3/28/08

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: 6550-08-0479

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: 3/5/2008 / 1015
SAMPLER TYPE & MATERIAL: LOW FLOW PERISTALTIC PUMP & DEDICATED CLEAN TUBING
SAMPLE DESCRIPTION: CLEAR
TOTAL WELL DEPTH (FT): 13.17 DEPTH TO WATER (FT): 2.85
PURGE & SAMPLE PROCEDURES: Well was purged under low-flow conditions until field parameters stabilized. A quiescent low-flow grab sample was collected the following day (within a 24-hr period of purging).
PURGE DATE: 3/4/2008 START TIME: 1005 END TIME: 1020

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	300	
PLASTIC -HDPE	250 ML	1	HNO3	METALS	7470A/6010B	
PLASTIC -HDPE	250 ML	1	No Pres	SP COND	120.1	
PLASTIC -HDPE	250 ML	1	No Pres	TDS	2540C	
AMBER GLASS	250 ML	1	HCL	TOC	5310B	
AMBER GLASS	1L	1	H2SO4	TOX	5320B	

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	PURGE DATA 1st READING	2nd READING	3rd READING	4th READING	SAMPLE DATA
TEMP. (ºC)	HANNA	18.3	17.5	17.3	17.2	17.3
pH (STD)	"	6.80	6.55	6.68	6.60	6.13
SPEC. COND (uS/cm)	"	1907	1764	1760	1763	1714
APPEARANCE	-	CLEAR	CLEAR	CLEAR	CLOUDY	CLOUDY
TIME	-	1005	1010	1015	1020	945
DATE	-	9/4/2007	9/4/2007	9/4/2007	9/4/2007	3/5/2008

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (ºF): 65
SAMPLES COLLECTED BY: W. Mabie/W. Moore
SPECIAL HANDLING: PACKAGED ON ICE
MODE OF SHIPMENT: FEDEX
HANNA METER CALIBRATED 03/04/08 AND 03/05/08 PRIOR TO PURGING AND SAMPLING.

Prepared by: BWJ 3/28/08 Checked by: WJM 3/28/08

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: 6550-08-0479

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: 3/5/2008 / 1045
SAMPLER TYPE & MATERIAL: LOW FLOW PERISTALTIC PUMP & DEDICATED CLEAN TUBING
SAMPLE DESCRIPTION: CLEAR
TOTAL WELL DEPTH (FT): 12.67 DEPTH TO WATER (FT): 4.09
PURGE & SAMPLE PROCEDURES: Well was purged under low-flow conditions until field parameters stabilized. A quiescent low-flow grab sample was collected the following day (within a 24-hr period of purging).
PURGE DATE: 3/4/2008 START TIME: 1050 END TIME: 1105

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	300	
PLASTIC -HDPE	250 ML	1	HNO3	METALS	7470A/6010B	
PLASTIC -HDPE	250 ML	1	No Pres	SP COND	120.1	
PLASTIC -HDPE	250 ML	1	No Pres	TDS	2540C	
AMBER GLASS	250 ML	1	HCL	TOC	5310B	
AMBER GLASS	1L	1	H2SO4	TOX	5320B	

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	PURGE DATA 1st READING	2nd READING	3rd READING	4th READING	SAMPLE DATA
TEMP. (ºC)	HANNA	19.9	16.4	16.7	16.1	15.8
pH (STD)	"	5.36	5.82	5.92	6.01	5.62
SPEC. COND (uS/cm)	"	845	834	832	830	872
APPEARANCE	-	CLEAR	CLEAR	CLEAR	CLEAR	CLEAR
TIME	-	1050	1055	1100	1105	1020
DATE	-	9/4/2007	9/4/2007	9/4/2007	9/4/2007	3/5/2008

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (ºF): 65
SAMPLES COLLECTED BY: W. Mabie/W. Moore
SPECIAL HANDLING: PACKAGED ON ICE
MODE OF SHIPMENT: FEDEX
HANNA METER CALIBRATED 03/04/08 AND 03/05/08 PRIOR TO PURGING AND SAMPLING.

Prepared by: BWJ 3/28/08 Checked by: WJM 3/28/08

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: 6550-08-0479

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: Primary HAZARDOUS: YES NO UNKNOWN

SAMPLING DATE / TIME: 3/5/2008 / 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 3/5/2008

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	300
PLASTIC -HDPE	500 ML	1	HNO3	METALS	7470A/6010B
PLASTIC -HDPE	250 ML	1	No Pres	SPCON	120.1
PLASTIC -HDPE	250 ML	1	No Pres	TDS	2540C
AMBER GLASS	250 ML	1	HCL	TOC	5310B
AMBER GLASS	1 L	1	H2SO4	TOX	5320B
PLASTIC -HDPE	250 ML	1	No Pres	POTHO PHOS	300

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	SAMPLE DATA			
TEMP. (ºC)	HANNA	17.9			
pH (STD)	"	7.06			
SPEC. COND (uS/cm)	"	3576			
APPEARANCE	-	CLEAR			
TIME	-	1115			
DATE	-	03/05/08			

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (ºF): 65

SAMPLES COLLECTED BY: W. Mabie/W. Moore

SPECIAL HANDLING: PACKAGED ON ICE

MODE OF SHIPMENT: FEDEX

HANNA METER CALIBRATED 03/04/08 AND 03/05/08 PRIOR TO PURGING AND SAMPLING.

Prepared by: BWJ 3/28/08 Checked by: WJM 3/28/08

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: 6550-08-0479

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: 3/5/2008 / 1125

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 3/5/2008

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	300
PLASTIC -HDPE	500 ML	1	HNO3	METALS	7470A/6010B
PLASTIC -HDPE	250 ML	1	No Pres	SPCON	120.1
PLASTIC -HDPE	250 ML	1	No Pres	TDS	2540C
AMBER GLASS	250 ML	1	HCL	TOC	5310B
AMBER GLASS	1 L	1	H2SO4	TOX	5320B
PLASTIC -HDPE	250 ML	1	No Pres	POTHO PHOS	300

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	SAMPLE DATA			
TEMP. (ºC)	HANNA	16.4			
pH (STD)	"	6.78			
SPEC. COND (uS/cm)	"	2997			
APPEARANCE	-	CLEAR			
TIME	-	1125			
DATE	-	03/05/08			

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (ºF): 65

SAMPLES COLLECTED BY: W. Mabie/W. Moore

SPECIAL HANDLING: PACKAGED ON ICE

MODE OF SHIPMENT: FEDEX

HANNA METER CALIBRATED 03/04/08 AND 03/05/08 PRIOR TO PURGING AND SAMPLING.

Prepared by: BWJ 3/28/08 Checked by: WJM 3/28/08

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: 6550-08-0479

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: 3/5/2008 / 1135

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 3/5/2008

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	300
PLASTIC -HDPE	500 ML	1	HNO3	METALS	7470A/6010B
PLASTIC -HDPE	250 ML	1	No Pres	SPCON	120.1
PLASTIC -HDPE	250 ML	1	No Pres	TDS	2540C
AMBER GLASS	250 ML	1	HCL	TOC	5310B
AMBER GLASS	1 L	1	H2SO4	TOX	5320B
PLASTIC -HDPE	250 ML	1	No Pres	POTHO PHOS	300

FIELD MEASUREMENTS

PARAMETER	EQUIP ID	SAMPLE DATA			
TEMP. (ºC)	HANNA	18.7			
pH (STD)	"	7			
SPEC. COND (uS/cm)	"	3824			
APPEARANCE	-	CLEAR			
TIME	-	1135			
DATE	-	03/05/08			

GENERAL INFORMATION

WEATHER: SUNNY AIR TEMP (ºF): 65

SAMPLES COLLECTED BY: W. Mabie/W. Moore

SPECIAL HANDLING: PACKAGED ON ICE

MODE OF SHIPMENT: FEDEX

HANNA METER CALIBRATED 03/04/08 AND 03/05/08 PRIOR TO PURGING AND SAMPLING.

Prepared by: BWJ 3/28/08 Checked by: WJM 3/28/08

Clients/IP/Landfill/Fieldrpt/SEPT07.xls