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State of North Carolina
Department of Environment, Health, and Natural Resources
512 North Salisbury Street • Raleigh, North Carolina 27604
DIVISION OF SOLID WASTE MANAGEMENT
James B. Hunt, Jr., Governor TELEPHONE: (919) 733-0692 Jonathan B. Howes, Secretary

July 6, 1993

Mr. Lex Jones
County Manager, Bladen County
Courthouse
Elizabethtown, N.C. 28337

Re: Implementation Of Subtitle 'D' Ground-water Monitoring Program

Dear Mr. Jones,

The purpose of this correspondence is to provide information and clarification on the changes in ground-water monitoring requirements for MSWLF facilities that remain in operation after October 9, 1993. The proposed North Carolina Solid Waste Management Rules reflect significant changes for ground-water monitoring based on requirements of the E.P.A. Subtitle D Rules.

Attachment A to this letter provides a summary of important dates and significant activities that must be accomplished in order to be in compliance with the new rules. Attachment B contrasts existing and proposed ground-water monitoring and assessment requirements based on changes in the rules. Because of significant increases in costs that will be incurred in order to operate a MSWLF under the new Subtitle D Rules, including financial assurance and increased costs for ground-water monitoring and assessment, you may wish to seriously consider closing your sanitary landfill prior to October 9,1993, when the new rules become effective.

Based on past ground-water monitoring data for the Bladen County landfill, there are already documented violations of North Carolina Groundwater Quality Standards at some of the detection monitoring wells. A copy of your most recent sampling analytical data is attached on which highlighting has been done for the Appendix I constituents that exceed the Groundwater Quality Standards. Therefore, when the new rules take effect, Bladen County will quickly be required to implement assessment monitoring for all Appendix II constituents. Since the Groundwater Quality Standards are also used in establishing the ground-water protection standards, you may also rapidly move into assessment of corrective action

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alternatives based on a full-scale ground-water investigation to determine the nature and extent of contamination at the site.

If Bladen County chooses to continue to operate their MSWLF facility after October 9, 1993, then you need to begin planning and budgeting immediately for the activities outlined in Attachment A. A revised Water Quality Monitoring Plan must be submitted as part of the Transition Plan on or before April 9, 1994. All background sampling and related activities for the upgraded monitoring system must be completed and reported to the Division in order to demonstrate compliance with the new water quality monitoring requirements on or before October 9, 1994.

Please note that the goals and objectives for ground-water assessment monitoring and ground-water contamination investigations are the same under both the current and the proposed rules and shall be accomplished in a way that is protective of human health and the environment. However, current rules allow for greater flexibility in the assessment and investigation activities and the sample analytical costs could be substantially less using the constituent list required under current rules and policy as compared to analytical costs required by the new rules based on Subtitle D, which require sampling for the Appendix II list of constituents.

I hope this letter has been helpful in providing you more insight into the actions that will be required by Bladen County to maintain compliance with the water quality monitoring requirements of the Solid Waste Management Rules as we make the transition to the new rules growing out of the E.P.A. Subtitle D Regulations. If you have any questions or comments regarding this letter, please contact the Solid Waste Section at (919) 733-0692.

Sincerely,

Bobby Lutfy

Bobby Lutfy, Hydrogeologist

Solid Waste Section

cc: Isaiah Guyton

Attachments

ATTACHMENT A

Important dates and significant activities that must be accomplished in order to be in compliance with the new rules on ground-water monitoring at MSWLF facilities:

April 9, 1994: A Water Quality Monitoring Plan that fulfills the requirements of the new Solid Waste Management Rules must be submitted to the Division as part of the Transition Plan on or before April 9, 1994.

October 9, 1994: Compliance with the new ground-water monitoring requirements must be demonstrated to the Division on or before October 9, 1994. In order to demonstrate compliance, the MSWLF owner or operator must perform the following activities and provide documentation to the Division.

1. Upgrade the ground-water monitoring system so that it meets the criteria of the new rules for monitoring systems. Rule .1631

   (a) Monitoring wells shall be installed at the relevant point of compliance based upon the waste boundaries established on October 9, 1993. - Rule .1631(a)(2)

   (b) Monitoring wells shall be designed and constructed in accordance with the applicable North Carolina Well Construction Standards as codified in 15A NCAC 2C. - Rule .1631(b)

2. In order to accurately determine ground-water elevations for each monitoring well, the wells shall have been accurately surveyed by a North Carolina Registered Land Surveyor. - Rule .1632(d)(1)

3. In order to determine the rate of ground-water flow, the owner or operator shall provide data for hydraulic conductivity and porosity for the formation materials at each of the well locations. - Rule .1632(d)(2)

4. A minimum of four independent samples from each well (background and downgradient) shall be collected and analyzed for the Appendix I constituents during the first semiannual sampling event. - Rule .1633(b)

5. The owner or operator shall determine whether or not there is a statistically significant increase over background values for each parameter or constituent required in the particular ground-water monitoring program that applies to the MSWLF unit. - .1632(i)

ATTACHMENT B

Contrasts between the existing and proposed ground-water monitoring and assessment requirements based on changes in the Solid Waste Management Rules. All MSWLF units that are in operation on or after October 9, 1993, will be subject to the new rules.

EXISTING RULES	NEW RULES
Detection monitoring:	
Monitoring frequency: Semiannual monitoring	Monitoring frequency: Semiannual monitoring
Monitoring parameters: 23 landfill constituents	Monitoring parameters: Appendix I constituents
Data evaluation based on: N.C. Groundwater Quality Standards	Data evaluation based on: N.C. Groundwater Quality Standards and statistical increase over background levels
Post Closure Monitoring:	
Length of time: 5 years and reevaluate need for further monitoring	Length of time: 30 years and reevaluate need for further monitoring
Monitoring parameters: 23 landfill constituents & occasional VOCs	Monitoring parameters: Appendix I constituents
Data evaluation based on: N.C. Groundwater Quality Standards	Data evaluation based on: N.C. Groundwater Quality Standards and statistical increase over background levels
Assessment monitoring and ground-water investigations:	
Monitoring parameters: 23 landfill constituents, VOCs, semi-VOCs	Monitoring parameters: Appendix II constituents (213 constituents)
Data evaluation based on: N.C. Groundwater Quality Standards	Data evaluation based on: N.C. Groundwater Quality Standards and statistical increase over background levels
Greater flexibility	Flexibility more limited

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ENVIRONMENTAL LABORATORY AND CONSULTING SERVICES

JOHN M. OGLE
PRESIDENT

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RESEARCH TRIANGLE PARK, N. C. 27709
PHONE (919) 467-3090
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PROJECT NAME : BLADEN COUNTY

CONTINUATION OF DATA FOR SAMPLE NUMBER 70295

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	DET. LIMIT
sec-BUTYLBENZENE	8260					< 0.5	ug/L	0.5
tert-BUTYLBENZENE	8260					< 0.5	ug/L	0.5
CARBON TETRACHLORIDE	8260					< 0.5	ug/L	0.5
CHLOROBENZENE	8260					< 0.5	ug/L	0.5
CHLOROETHANE	8260					1.4	ug/L	0.5
CHLOROFORM	8260					< 0.5	ug/L	0.5
CHLOROMETHANE	8260					< 0.5	ug/L	0.5
2-CHLOROTOLUENE	8260					< 0.5	ug/L	0.5
4-CHLOROTOLUENE	8260					< 0.5	ug/L	0.5
DIBROMOCHLOROMETHANE	8260					< 0.5	ug/L	0.5
1,2-DIBROMO-3-CHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,2-DIBROMOETHANE	8260					< 0.5	ug/L	0.5
DIBROMOMETHANE	8260					< 0.5	ug/L	0.5
1,2-DICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,3-DICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,4-DICHLOROBENZENE	8260					< 0.5	ug/L	0.5
DICHLORODIFLUOROMETHANE	8260					< 0.5	ug/L	0.5
1,1-DICHLOROETHANE	8260					1.2	ug/L	0.5
1,2-DICHLOROETHANE	8260					< 0.5	ug/L	0.5
1,1 DICHLOROETHENE	8260					< 0.5	ug/L	0.5
cis-1,2-DICHLORETHENE	8260					< 0.5	ug/L	0.5
trans-1,2-DICHLOROETHENE	8260					< 0.5	ug/L	0.5
1,2-DICHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,3-DICHLOROPROPANE	8260					< 0.5	ug/L	0.5
2,2-DICHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,1-DICHLOROPROPENE	8260					< 0.5	ug/L	0.5
cis-1,3-DICHLOROPROPENE	8260					< 0.5	ug/L	0.5
trans-1,3-DICHLOROPROPENE	8260					< 0.5	ug/L	0.5
ETHYLBENZENE	8260					< 0.5	ug/L	0.5
HEXACHLOROBUTADIENE	8260					< 0.5	ug/L	0.5
ISOPROPYLBENZENE	8260					< 0.5	ug/L	0.5

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PROJECT NAME : BLADEN COUNTY

CONTINUATION OF DATA FOR SAMPLE NUMBER 70295

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	DET. LIMIT
p-ISOPROPYLTOLUENE	8260					< 0.5	ug/L	0.5
METHLYENE CHLORIDE	8260					< 0.5	ug/L	0.5
NAPHTHALENE	8260					< 0.5	ug/L	0.5
n-PROPYLBENZENE	8260					< 0.5	ug/L	0.5
STYRENE	8260					< 0.5	ug/L	0.5
1,1,1,2-TETRACHLOROETHANE	8260					< 0.5	ug/L	0.5
1,1,2,2-TETRACHLOROETHANE	8260					< 0.5	ug/L	0.5
TETRACHLOROETHENE	8260					< 0.5	ug/L	0.5
TOLUENE	8260					< 0.5	ug/L	0.5
1,2,3-TRICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,2,4-TRICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,1,1-TRICHLOROETHANE	8260					< 0.5	ug/L	0.5
1,1,2-TRICHLOROETHANE	8260					< 0.5	ug/L	0.5
TRICHLOROETHENE	8260					< 0.5	ug/L	0.5
TRICHLOROFLUOROMETHANE	8260					< 0.5	ug/L	0.5
1,2,3-TRICHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,2,4-TRIMETHYLBENZENE	8260					< 0.5	ug/L	0.5
1,3,5-TRIMETHYLBENZENE	8260					< 0.5	ug/L	0.5
VINYL CHLORIDE	8260					< 0.5	ug/L	0.5
o-XYLENE	8260					0.8	ug/L	0.5
m,p-XYLENES	8260					< 0.5	ug/L	0.5
ARSENIC IN GROUNDWATER	7060	04/16/93	SDL	04/27/93	JMM	0.04	mg/L	0.01
BARIUM IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	0.04	mg/L	0.01
CADMIUM IN GROUNDWATER	7131	04/16/93	SDL	04/28/93	JMM	0.001	mg/L	0.001
CHROMIUM IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	<0.01	mg/L	0.01
COPPER IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	<0.01	mg/L	0.01
IRON IN GROUNDWATER	6010	04/16/93	SDL	04/28/93	JMM	39.7	mg/L	0.02
LEAD IN GROUNDWATER	7421	04/16/93	SDL	04/19/93	JMM	<0.004	mg/L	0.004
MAGNESIUM IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	0.51	mg/L	0.01
MERCURY IN GROUNDWATER	7470	04/16/93	SDL	04/16/93	SDL	<0.0002	mg/L	0.0002
SELENIUM IN GROUNDWATER	7740	04/16/93	SDL	04/20/93	JMM	< 0.01	mg/L	0.01

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PROJECT NAME : BLADEN COUNTY

CONTINUATION OF DATA FOR SAMPLE NUMBER 70296

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	DET. LIMIT
sec-BUTYLBENZENE	8260					< 0.5	ug/L	0.5
tert-BUTYLBENZENE	8260					< 0.5	ug/L	0.5
CARBON TETRACHLORIDE	8260					< 0.5	ug/L	0.5
CHLOROBENZENE	8260					< 0.5	ug/L	0.5
CHLOROETHANE	8260					24.1	ug/L	0.5
CHLOROFORM	8260					< 0.5	ug/L	0.5
CHLOROMETHANE	8260					< 0.5	ug/L	0.5
2-CHLOROTOLUENE	8260					< 0.5	ug/L	0.5
4-CHLOROTOLUENE	8260					< 0.5	ug/L	0.5
DIBROMOCHLOROMETHANE	8260					< 0.5	ug/L	0.5
1,2-DIBROMO-3-CHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,2-DIBROMOETHANE	8260					< 0.5	ug/L	0.5
DIBROMOMETHANE	8260					< 0.5	ug/L	0.5
1,2-DICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,3-DICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,4-DICHLOROBENZENE	8260					< 0.5	ug/L	0.5
DICHLORODIFLUOROMETHANE	8260					< 0.5	ug/L	0.5
1,1-DICHLOROETHANE	8260					5.5	ug/L	0.5
1,2-DICHLOROETHANE	8260					1.5	ug/L	0.5
1,1 DICHLOROETHENE	8260					< 0.5	ug/L	0.5
cis-1,2-DICHLORETHENE	8260					< 0.5	ug/L	0.5
trans-1,2-DICHLOROETHENE	8260					< 0.5	ug/L	0.5
1,2-DICHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,3-DICHLOROPROPANE	8260					< 0.5	ug/L	0.5
2,2-DICHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,1-DICHLOROPROPENE	8260					< 0.5	ug/L	0.5
cis-1,3-DICHLOROPROPENE	8260					< 0.5	ug/L	0.5
trans-1,3-DICHLOROPROPENE	8260					< 0.5	ug/L	0.5
ETHYLBENZENE	8260					< 0.5	ug/L	0.5
HEXACHLOROBUTADIENE	8260					< 0.5	ug/L	0.5
ISOPROPYLBENZENE	8260					< 0.5	ug/L	0.5

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PROJECT NAME : BLADEN COUNTY

CONTINUATION OF DATA FOR SAMPLE NUMBER 70296

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	DET. LIMIT
p-ISOPROPYLTOLUENE	8260					< 0.5	ug/L	0.5
METHLYENE CHLORIDE	8260					< 0.5	ug/L	0.5
NAPHTHALENE	8260					< 0.5	ug/L	0.5
n-PROPYLBENZENE	8260					< 0.5	ug/L	0.5
STYRENE	8260					< 0.5	ug/L	0.5
1,1,1,2-TETRACHLOROETHANE	8260					< 0.5	ug/L	0.5
1,1,2,2-TETRACHLOROETHANE	8260					< 0.5	ug/L	0.5
TETRACHLOROETHENE	8260					< 0.5	ug/L	0.5
TOLUENE	8260					< 0.5	ug/L	0.5
1,2,3-TRICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,2,4-TRICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,1,1-TRICHLOROETHANE	8260					< 0.5	ug/L	0.5
1,1,2-TRICHLOROETHANE	8260					< 0.5	ug/L	0.5
TRICHLOROETHENE	8260					< 0.5	ug/L	0.5
TRICHLOROFLUOROMETHANE	8260					< 0.5	ug/L	0.5
1,2,3-TRICHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,2,4-TRIMETHYLBENZENE	8260					< 0.5	ug/L	0.5
1,3,5-TRIMETHYLBENZENE	8260					< 0.5	ug/L	0.5
VINYL CHLORIDE	8260					3.3	ug/L	0.5
o-XYLENE	8260					< 0.5	ug/L	0.5
m,p-XYLENES	8260					< 0.5	ug/L	0.5
ARSENIC IN GROUNDWATER	7060	04/16/93	SDL	04/27/93	JMM	<0.01	mg/L	0.01
BARIUM IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	0.04	mg/L	0.01
CADMIUM IN GROUNDWATER	7131	04/16/93	SDL	04/28/93	JMM	0.001	mg/L	0.001
CHROMIUM IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	<0.01	mg/L	0.01
COPPER IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	<0.01	mg/L	0.01
IRON IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	1.75	mg/L	0.02
LEAD IN GROUNDWATER	7421	04/16/93	SDL	04/19/93	JMM	<0.004	mg/L	0.004
MAGNESIUM IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	0.66	mg/L	0.01
MERCURY IN GROUNDWATER	7470	04/16/93	SDL	04/16/93	SDL	<0.0002	mg/L	0.0002
SELENIUM IN GROUNDWATER	7740	04/16/93	SDL	04/20/93	JMM	< 0.01	mg/L	0.01

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FAX (919) 467-3515

PROJECT NAME : BLADEN COUNTY

CONTINUATION OF DATA FOR SAMPLE NUMBER 70300

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	DET. LIMIT
p-ISOPROPYLTOLUENE	8260					< 0.5	ug/L	0.5
METHLYENE CHLORIDE	8260					< 0.5	ug/L	0.5
NAPHTHALENE	8260					< 0.5	ug/L	0.5
n-PROPYLBENZENE	8260					< 0.5	ug/L	0.5
STYRENE	8260					< 0.5	ug/L	0.5
1,1,1,2-TETRACHLOROETHANE	8260					< 0.5	ug/L	0.5
1,1,2,2-TETRACHLOROETHANE	8260					< 0.5	ug/L	0.5
TETRACHLOROETHENE	8260					< 0.5	ug/L	0.5
TOLUENE	8260					< 0.5	ug/L	0.5
1,2,3-TRICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,2,4-TRICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,1,1-TRICHLOROETHANE	8260					< 0.5	ug/L	0.5
1,1,2-TRICHLOROETHANE	8260					< 0.5	ug/L	0.5
TRICHLOROETHENE	8260					< 0.5	ug/L	0.5
TRICHLOROFLUOROMETHANE	8260					< 0.5	ug/L	0.5
1,2,3-TRICHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,2,4-TRIMETHYLBENZENE	8260					< 0.5	ug/L	0.5
1,3,5-TRIMETHYLBENZENE	8260					< 0.5	ug/L	0.5
VINYL CHLORIDE	8260					< 0.5	ug/L	0.5
o-XYLENE	8260					< 0.5	ug/L	0.5
m,p-XYLENES	8260					< 0.5	ug/L	0.5
ARSENIC IN GROUNDWATER	7060	04/16/93	SDL	04/27/93	JMM	<0.01	mg/L	0.01
BARIUM IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	0.32	mg/L	0.01
CADMIUM IN GROUNDWATER	6010	04/16/93	SDL	04/30/93	JMM	7.12	mg/L	0.001
CHROMIUM IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	<0.01	mg/L	0.01
COPPER IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	0.01	mg/L	0.01
IRON IN GROUNDWATER	6010	04/16/93	SDL	04/28/93	JMM	32.6	mg/L	0.02
LEAD IN GROUNDWATER	7421	04/16/93	SDL	04/19/93	JMM	0.004	mg/L	0.004
MAGNESIUM IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	0.84	mg/L	0.01
MERCURY IN GROUNDWATER	7470	04/16/93	SDL	04/16/93	SDL	0.0016	mg/L	0.0002
SELENIUM IN GROUNDWATER	7740	04/16/93	SDL	04/20/93	JMM	< 0.01	mg/L	0.01

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 PROJECT NAME : BLADEN COUNTY

CONTINUATION OF DATA FOR SAMPLE NUMBER 70301

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	DET. LIMIT
sec-BUTYLBENZENE	8260					< 0.5	ug/L	0.5
tert-BUTYLBENZENE	8260					< 0.5	ug/L	0.5
CARBON TETRACHLORIDE	8260					< 0.5	ug/L	0.5
CHLOROBENZENE	8260					< 0.5	ug/L	0.5
CHLOROETHANE	8260					4.1	ug/L	0.5
CHLOROFORM	8260					< 0.5	ug/L	0.5
CHLOROMETHANE	8260					< 0.5	ug/L	0.5
2-CHLOROTOLUENE	8260					< 0.5	ug/L	0.5
4-CHLOROTOLUENE	8260					< 0.5	ug/L	0.5
DIBROMOCHLOROMETHANE	8260					< 0.5	ug/L	0.5
1,2-DIBROMO-3-CHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,2-DIBROMOETHANE	8260					< 0.5	ug/L	0.5
DIBROMOMETHANE	8260					< 0.5	ug/L	0.5
1,2-DICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,3-DICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,4-DICHLOROBENZENE	8260					< 0.5	ug/L	0.5
DICHLORODIFLUOROMETHANE	8260					3.7	ug/L	0.5
1,1-DICHLOROETHANE	8260					1.9	ug/L	0.5
1,2-DICHLOROETHANE	8260					< 0.5	ug/L	0.5
1,1 DICHLOROETHENE	8260					< 0.5	ug/L	0.5
cis-1,2-DICHLORETHENE	8260					21.6	ug/L	0.5
trans-1,2-DICHLOROETHENE	8260					< 0.5	ug/L	0.5
1,2-DICHLOROPROPANE	8260					1.3	ug/L	0.5
1,3-DICHLOROPROPANE	8260					< 0.5	ug/L	0.5
2,2-DICHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,1-DICHLOROPROPENE	8260					< 0.5	ug/L	0.5
cis-1,3-DICHLOROPROPENE	8260					< 0.5	ug/L	0.5
trans-1,3-DICHLOROPROPENE	8260					< 0.5	ug/L	0.5
ETHYLBENZENE	8260					< 0.5	ug/L	0.5
HEXACHLOROBUTADIENE	8260					< 0.5	ug/L	0.5
ISOPROPYLBENZENE	8260					< 0.5	ug/L	0.5

Chemical & Environmental Technology, Inc.

ENVIRONMENTAL LABORATORY AND CONSULTING SERVICES

JOHN M. OGLE
PRESIDENT

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PHONE (919) 467-3090
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PROJECT NAME : BLADEN COUNTY

ONTINUATION OF DATA FOR SAMPLE NUMBER 70301

NALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	DET. LIMIT
p-ISOPROPYLTOLUENE	8260					< 0.5	ug/L	0.5
METHLYENE CHLORIDE	8260					< 0.5	ug/L	0.5
NAPHTHALENE	8260					< 0.5	ug/L	0.5
n-PROPYLBENZENE	8260					< 0.5	ug/L	0.5
STYRENE	8260					< 0.5	ug/L	0.5
1,1,1,2-TETRACHLOROETHANE	8260					< 0.5	ug/L	0.5
1,1,2,2-TETRACHLOROETHANE	8260					< 0.5	ug/L	0.5
TETRACHLOROETHENE	8260					0.7	ug/L	0.5
TOLUENE	8260					< 0.5	ug/L	0.5
1,2,3-TRICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,2,4-TRICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,1,1-TRICHLOROETHANE	8260					< 0.5	ug/L	0.5
1,1,2-TRICHLOROETHANE	8260					< 0.5	ug/L	0.5
TRICHLOROETHENE 2.8	8260					0.7	ug/L	0.5
TRICHLOROFLUOROMETHANE	8260					< 0.5	ug/L	0.5
1,2,3-TRICHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,2,4-TRIMETHYLBENZENE	8260					< 0.5	ug/L	0.5
1,3,5-TRIMETHYLBENZENE	8260					< 0.5	ug/L	0.5
VINYL CHLORIDE	8260					5.4	ug/L	0.5
o-XYLENE	8260					< 0.5	ug/L	0.5
m,p-XYLENES	8260					< 0.5	ug/L	0.5
RSENIC IN GROUNDWATER	7060	04/16/93	SDL	04/27/93	JMM	<0.01	mg/L	0.01
ARIUM IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	0.08	mg/L	0.01
ADMIUM IN GROUNDWATER	7131	04/16/93	SDL	04/28/93	JMM	0.001	mg/L	0.001
IROMIUM IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	<0.01	mg/L	0.01
OPPER IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	<0.01	mg/L	0.01
ON IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	4.06	mg/L	0.02
AD IN GROUNDWATER	7421	04/16/93	SDL	04/19/93	JMM	<0.004	mg/L	0.004
GNESIUM IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	2.82	mg/L	0.01
RCURY IN GROUNDWATER	7470	04/16/93	SDL	04/16/93	SDL	0.0004	mg/L	0.0002
LENIUM IN GROUNDWATER	7740	04/16/93	SDL	04/20/93	JMM	< 0.01	mg/L	0.01

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PROJECT NAME : BLADEN COUNTY

CONTINUATION OF DATA FOR SAMPLE NUMBER 70302

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	DET. LIMIT
METHLYENE CHLORIDE	8260					< 0.5	ug/L	0.5
NAPHTHALENE	8260					< 0.5	ug/L	0.5
n-PROPYLBENZENE	8260					< 0.5	ug/L	0.5
STYRENE	8260					< 0.5	ug/L	0.5
1,1,1,2-TETRACHLOROETHANE	8260					< 0.5	ug/L	0.5
1,1,2,2-TETRACHLOROETHANE	8260					< 0.5	ug/L	0.5
TETRACHLOROETHENE	8260					< 0.5	ug/L	0.5
TOLUENE	8260					< 0.5	ug/L	0.5
1,2,3-TRICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,2,4-TRICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,1,1-TRICHLOROETHANE	8260					< 0.5	ug/L	0.5
1,1,2-TRICHLOROETHANE	8260					< 0.5	ug/L	0.5
TRICHLOROETHENE	8260					< 0.5	ug/L	0.5
TRICHLOROFLUOROMETHANE	8260					< 0.5	ug/L	0.5
1,2,3-TRICHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,2,4-TRIMETHYLBENZENE	8260					< 0.5	ug/L	0.5
1,3,5-TRIMETHYLBENZENE	8260					< 0.5	ug/L	0.5
VINYL CHLORIDE	8260					< 0.5	ug/L	0.5
o-XYLENE	8260					1.3	ug/L	0.5
m,p-XYLENES	8260					< 0.5	ug/L	0.5
ARSENIC IN GROUNDWATER	7060	04/16/93	SDL	04/27/93	JMM	0.01	mg/L	0.01
BARIUM IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	0.07	mg/L	0.01
CADMIUM IN GROUNDWATER	7131	04/16/93	SDL	04/28/93	JMM	<0.001	mg/L	0.001
CHROMIUM IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	<0.01	mg/L	0.01
COPPER IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	0.03	mg/L	0.01
IRON IN GROUNDWATER	6010	04/16/93	SDL	04/28/93	JMM	13.8	mg/L	0.02
LEAD IN GROUNDWATER	7421	04/16/93	SDL	04/29/93	JMM	<0.004	mg/L	0.004
MAGNESIUM IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	5.36	mg/L	0.01
MERCURY IN GROUNDWATER	7470	04/16/93	SDL	04/16/93	SDL	<0.0002	mg/L	0.0002
SELENIUM IN GROUNDWATER	7740	04/16/93	SDL	04/20/93	JMM	< 0.01	mg/L	0.01
SILVER IN GROUNDWATER	6010	04/16/93	SDL	04/24/93	JMM	<0.01	mg/L	0.01

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 PROJECT NAME : BLADEN COUNTY

CONTINUATION OF DATA FOR SAMPLE NUMBER 70302

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	DET. LIMIT
tert-BUTYLBENZENE	8260					< 0.5	ug/L	0.5
CARBON TETRACHLORIDE	8260					< 0.5	ug/L	0.5
CHLOROBENZENE	8260					< 0.5	ug/L	0.5
CHLOROETHANE	8260					2.2	ug/L	0.5
CHLOROFORM	8260					< 0.5	ug/L	0.5
CHLOROMETHANE	8260					< 0.5	ug/L	0.5
2-CHLOROTOLUENE	8260					< 0.5	ug/L	0.5
4-CHLOROTOLUENE	8260					< 0.5	ug/L	0.5
DIBROMOCHLOROMETHANE	8260					< 0.5	ug/L	0.5
1,2-DIBROMO-3-CHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,2-DIBROMOETHANE	8260					< 0.5	ug/L	0.5
DIBROMOMETHANE	8260					< 0.5	ug/L	0.5
1,2-DICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,3-DICHLOROBENZENE	8260					< 0.5	ug/L	0.5
1,4-DICHLOROBENZENE	8260					< 0.5	ug/L	0.5
DICHLORODIFLUOROMETHANE	8260					1.4	ug/L	0.5
1,1-DICHLOROETHANE	8260					0.9	ug/L	0.5
1,2-DICHLOROETHANE	8260					< 0.5	ug/L	0.5
1,1 DICHLOROETHENE	8260					< 0.5	ug/L	0.5
cis-1,2-DICHLORETHENE	8260					0.6	ug/L	0.5
trans-1,2-DICHLOROETHENE	8260					< 0.5	ug/L	0.5
1,2-DICHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,3-DICHLOROPROPANE	8260					< 0.5	ug/L	0.5
2,2-DICHLOROPROPANE	8260					< 0.5	ug/L	0.5
1,1-DICHLOROPROPENE	8260					< 0.5	ug/L	0.5
cis-1,3-DICHLOROPROPENE	8260					< 0.5	ug/L	0.5
trans-1,3-DICHLOROPROPENE	8260					< 0.5	ug/L	0.5
ETHYLBENZENE	8260					< 0.5	ug/L	0.5
HEXACHLOROBUTADIENE	8260					< 0.5	ug/L	0.5
ISOPROPYLBENZENE	8260					< 0.5	ug/L	0.5
p-ISOPROPYLTOLUENE	8260					< 0.5	ug/L	0.5