State of North Carolina
Department of Environment, Health, and Natural Resources
Division of Solid Waste Management
P.O. Box 27687 · Raleigh, North Carolina 27611-7687

James G. Martin, Governor
William W. Cobey, Jr., Secretary

William L. Meyer
Director

May 19, 1992

Mr. Daniel McMillan
Alleghany County Manager
County Office Building
Sparta, North Carolina 28675

Re: Review Of Ground Water Compliance Monitoring Data From The Alleghany County Sanitary Landfill (Permit #03-02)

Dear Mr. McMillan,

A review of the routine detection monitoring data from the 1991 sampling of the ground water monitoring wells at the Alleghany County Sanitary Landfill indicates the presence of chemical constituents at levels that exceed the State's Groundwater Standards (NCAC Title 15 Subchapter 2L). A copy of this data is enclosed for your review.

Since this data indicates the presence of possible ground water contamination at the site, additional investigation is necessary in order to confirm and better define the types of chemical contaminants found. Therefore this year's annual sampling event should include analysis for volatile and semi-volatile organic compounds in addition to the routine list of 23 standard landfill parameters. The volatile organic analysis should be done using EPA Method 8240 or 8260. The semi-volatile organic analysis should be done using EPA Method 8270. ON ALL 8 WELLS 625

All private and public water supply wells within a half mile's radius of the landfill site should be identified and a map locating these wells should be submitted along with this year's ground water monitoring data. The nearest downstream surface water intake should also be identified and reported.

Thank you for your cooperation. If you have any questions or comments, please contact the Solid Waste Section at (919) 733-0692.

Sincerely,

Bobby Lutfy

Bobby Lutfy, Hydrogeologist
Solid Waste Section

cc: Brent Rockett
Attachment

NOTIFY SOLID WASTE BY 7/1/92 OF SAMPLING DATES IN 1993

SHEALY ENVIRONMENTAL SERVICES, INC.

BIOLOGISTS, TOXICOLOGISTS & CHEMISTS

03-02

400 GRAYMONT AVENUE
COLUMBIA, SOUTH CAROLINA 29205
(803) 254-9915

SC DHEC CERTIFICATION NO. 26103
NC DEM NO. 001
Fax (803) 254-9107

CERTIFICATE OF ANALYSIS

Client: ENGINEERING TECTONICS
P.O. Box 4798
Winston-Salem, NC 27115

Attention: Mr. Tom Cahill

Laboratory No.	Sample Description
91-4148	MW-1; Collected 06/05/91 at 1330
91-4149	MW-2; Collected 06/05/91 at 1349
91-4150	MW-3; Collected 06/05/91 at 1400

Date Received: 06/06/91
Date Reported: 06/25/91

QA/QC Officer: MWH

RESULTS

PARAMETER	MW-1 91-4148	91-4149	91-4150	Analyst	Date Analyzed	
BOD (mg/l)	42	2.2	5.0	CAW		
Chloride (mg/l)	<5.0	<5.0	<5.0	CAW/VTB	06/10/91	
COD (mg/l)	168	5.57	3.98	RRR	06/07/91	
Fluoride (mg/l)	<0.10	<0.10	<0.10	RRR	06/10/91	
Nitrate (mg/l)	0.042	0.698	0.985	MAW	06/11/91	
pH (SU)	5.58	6.09	5.20	CAW	06/06/91	TRIGGER WELLS.
Specific Conductance (umhos/cm @ 25 C)	237	27.1	15.2	CAW/VTB	06/10/91	
Sulfate (mg/l)	<5.0	<5.0	<5.0	CAW	06/12/91	
TDS (mg/l)	180	24	16	RRR	06/07/91	
TOC (mg/l)	34.4	<1.0	<1.0	MAW	06/12/91	10 mG/L.
TOX (mg/l) ug/l	141	<10	21	MAW	06/19/91	100 uG/L.
METALS (mg/l)				VTB	06/14/91	
Arsenic	0.013	<0.009	<0.009			
Barium	0.087	0.013	0.032			
Cadmium	<0.001	<0.001	<0.001			
Chromium	0.003	<0.003	0.005			
Copper	<0.002	<0.002	<0.002			
Iron	63.9	0.374	0.128			
Lead	<0.011	<0.011	<0.011			
Manganese	5.40	0.027	0.012			
Mercury	<0.001	<0.001	<0.001	VTB	06/18/91	
Selenium	<0.016	<0.016	<0.016			
Silver	<0.002	<0.002	<0.002			
Zinc	0.066	0.027	0.013			

as per Michael Woodrum 7-16-91 1:30

Reported By: Michael A. Woodrum
Michael A. Woodrum, Laboratory Director

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. Daniel F. McMillan
County Manager, Alleghany County
P.O. Box 366
Sparta, N.C. 28675

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

Dear Mr. McMillan,

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 Alleghany County landfill, there are already documented violations of North Carolina Groundwater Quality Standards at some of the detection monitoring wells. A copy of 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, Alleghany 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

P.O. Box 27687, Raleigh, North Carolina 27611-7687 Telephone 919-733-4984 Fax # 919-733-0513

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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 Alleghany 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. As requested in the letter dated May 19, 1992, all private and public water supply wells within a half mile's radius of the landfill site should be identified and a map locating these wells should submitted immediately. The nearest downstream surface water intake should also be identified and reported.

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 Alleghany 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: Brent Rockett

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

N. C. Department of Human Resources
Division of Health Services

organic

SAMPLE ANALYSES REQUEST

State Laboratory of Public He
P. O. Box 28
306 N. Wilmington S
Raleigh, 27

Site Number 03-02 Field Sample Number 4925

Name of Site Alleghany Co. LF. Site Location SR 1138

Collected By L. Rose ID# 062 Date Collected 9-18-91 Time 10:00

Type of Sample:

Environmental	Concentrate	Comments
✓ Groundwater (1)	Solid (5)	MW #1
Surface Water (2)	Liquid (6)	
Soil (3)	Sludge (7)	
Other (4)	Other (8)	

INORGANIC CHEMISTRY

Extractables		Total			
Parameter	Results mg/l	Parameter	Results mg/l	Parameter	Results mg/l
Arsenic		Arsenic		Silver	
Barium		Barium		Sulfates	
Cadmium		Cadmium		Zinc	
Chromium		Chloride		Ph	
Lead		Chromium		Conductivity	
Mercury		Copper		TDS	
Selenium		Fluoride		TOC	
Silver		Iron			
		Lead			
		Manganese			
		Mercury			
		Nitrate			
		Selenium			

ORGANIC CHEMISTRY

Parameter	Results mg/l	Parameter	Results mg/l	Parameter	Results mg/l
✓ P&T:GC/MS		EDB		Methoxychlor	
✓ Acid:B/N Ext.		PCB's		Toxaphene	
TOX		Petroleum		2,4-D	
		Endrin		2,4,5-TP (silvex)	
		Lindane			

MICROBIOLOGY

Parameter
(MF) Coliform Colonies/100mls
(MPN) Coliform Colonies/100mls

RADIOCHEMISTRY

Parameter	Results PCi/l
Gross Alpha	
Gross Beta	

Date Received 9-18-91 AA Date Reported 10-23-91

Date Extracted 9-26-91 BN, WG Date Analyzed BNA 10-8-91 RD PT 10-23-91 TW

Reported By John R. Neal Lab Number 313480

DHS 3191 (Revised 7/85)

#913480

STATE LABORATORY OF PUBLIC HEALTH
DIVISION OF HEALTH SERVICES, N.C. DEPARTMENT OF HUMAN RESOURCES
P.O. BOX 28047 - 306 N. WILMINGTON, ST., RALEIGH, N.C. 27611

ORGANIC CHEMICAL ANALYSIS

PURGEABLE COMPOUNDS	LAB NO	913480					
	FIELD #	4925					
COMPOUND	TYPE	( )	( )	( )	( )	( )	( )
	UNITS	(µg/l) µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg	µg/l µg/kg
chloromethane	10 ppb	u					
bromomethane	↓	↓					
dichlorodifluoromethane	5 ppb						
vinyl chloride							
chloroethane		↓					
methylene chloride		63					
trichlorofluoromethane		9					
ethene, 1,1-dichloro		u					
ethane, 1,1-dichloro-		7					
1,2-trans-dichloroethene		u					
chloroform		↓					
ethane, 1,2-dichloro-							
ethane, 1,1,1-trichloro-							
carbontetrachloride							
bromodichloromethane							
propane, 1,2-dichloro-							
1,3-trans-dichloropropene							
trichloroethylene							
chlorodibromomethane		↓					
benzene		3J					
ethane, 1,1,2-trichloro-	↓	u					
1,3-cis-dichloropropene	10 ppb	↓					
2-chloroethyl vinyl ether	↓						
bromoform	5 ppb						
ethane, 1,1,2,2-tetrachloro-	↓						
ethene, tetrachloro-		↓					
toluene		139					
chlorobenzene		u					
ethylbenzene	↓	13					
acetone	10 ppb	426					
2-butanone (MEK)	10	406					
carbondisulfide	5	u					
2-hexanone	10	↓					
4-methyl-2-pentanone (MIBK)	10	40					
styrene	5	u					
vinyl acetate	10	↓					
xylenes (total)	5 ↓	36					
	↑MDL↑						

J - Estimated value.
K - Actual value is known to be less than value given.
L - Actual value is known to be greater than value given.
U - Material was analyzed for but not detected. The number is the Minimum Detection Limit.
NA - Not analyzed.
1/ - Tentative identification.
2/ - On NRDC List of Priority Pollutants.
C - SUSPECT LAB CONTAMINATION.

N.C. Division of Health Services

DHS 3068-O (4/86 Laboratory)

Need ½ mile radius
map

(919) 372-4179

I called 6/21. They are
to call back.

included this request again
in sub 'D' memo 7/6/93