State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Solid Waste Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
William L. Meyer, Director

DEHNR

August 9, 1995

Mr. David Plott
Public Works Director
Davie County Administration Building
123 South Main Street
Mocksville, NC 27028

Fac/Perm/Co ID #	Date	Doc ID#
3003	08/02/2011	DIN 14647

RE: Location of proposed 3 additional monitoring wells: C&D permit #30-03

Dear Mr. Plott,

The three proposed monitoring well locations, as shown on Attachment 1 of your July 6, 1995 letter, are acceptable to the Solid Waste Section. Installation of these wells needs to be done in accordance with the conditions of permit #30-03, issued May 16, 1995.

Sincerely,

Jim Bateson

Jim Bateson
Hydrogeologist
Solid Waste Section

cc: Bobby Lutfy; Solid Waste Section
Jan McHargue; "

P.O. Box 27687, Raleigh, North Carolina 27611-7687 Telephone 919-733-4996 FAX 919-715-3605
An Equal Opportunity Affirmative Action Employer 50% recycled/ 10% post-consumer paper

TABLE 1
DAVIE COUNTY LANDFILL
MONITORING WELL VOLATILES
EPA METHOD 8260
S&ME PROJECT No. 1584-95-030

Compound	MW-1	MW-2	MW-3	MW-4	MW-5	2L std
Acetone	20	BQL	BQL	BQL	BQL	700
Benzene	BQL	BQL	BQL	1	BQL	1
Chloroethane	22	BQL	BQL	3.8	BQL	1*
Chloromethane	1.2	BQL	BQL	BQL	BQL	1*
Chloroform	BQL	BQL	BQL	BQL	1.8	0.19
1,1 Dichloroethane	5.2	BQL	BQL	8.6	1.8	70
cis- 1,2 Dichloroethene	BQL	BQL	BQL	13	BQL	70
Dichlorodifluoromethane	3.9	BQL	1.4	19	7.2	1400
Tetrachloroethene	2	BQL	BQL	7.7	1.7	0.7
Trichloroethene	BQL	BQL	BQL	3.3	BQL	2.8
1,1,1-Trichloroethane	1.7	BQL	BQL	1.8	BQL	200
Trichlorofluoromethane	BQL	BQL	BQL	1.4	BQL	2100

BQL - Below Quanitation Limit
* - For this compound, there are no class GA Standards currently enforced; therefore the lab PQL is substituted for the 2L Standard.

Note: Concentrations are listed in micrograms per liter (ug/l)

Davie County Administration Building
Suite 303
123 South Main Street
Mocksville, NC 27028

RESPECT THE RESOURCE

James David Plott
Public Works Director

Telephone: 704-634-5513
FAX: 704-634-7408

6 July, 1995

TO: Jim Bateson, Hydrogeologist
Solid Waste Section

FR: David Plott, DPW
County of Davie

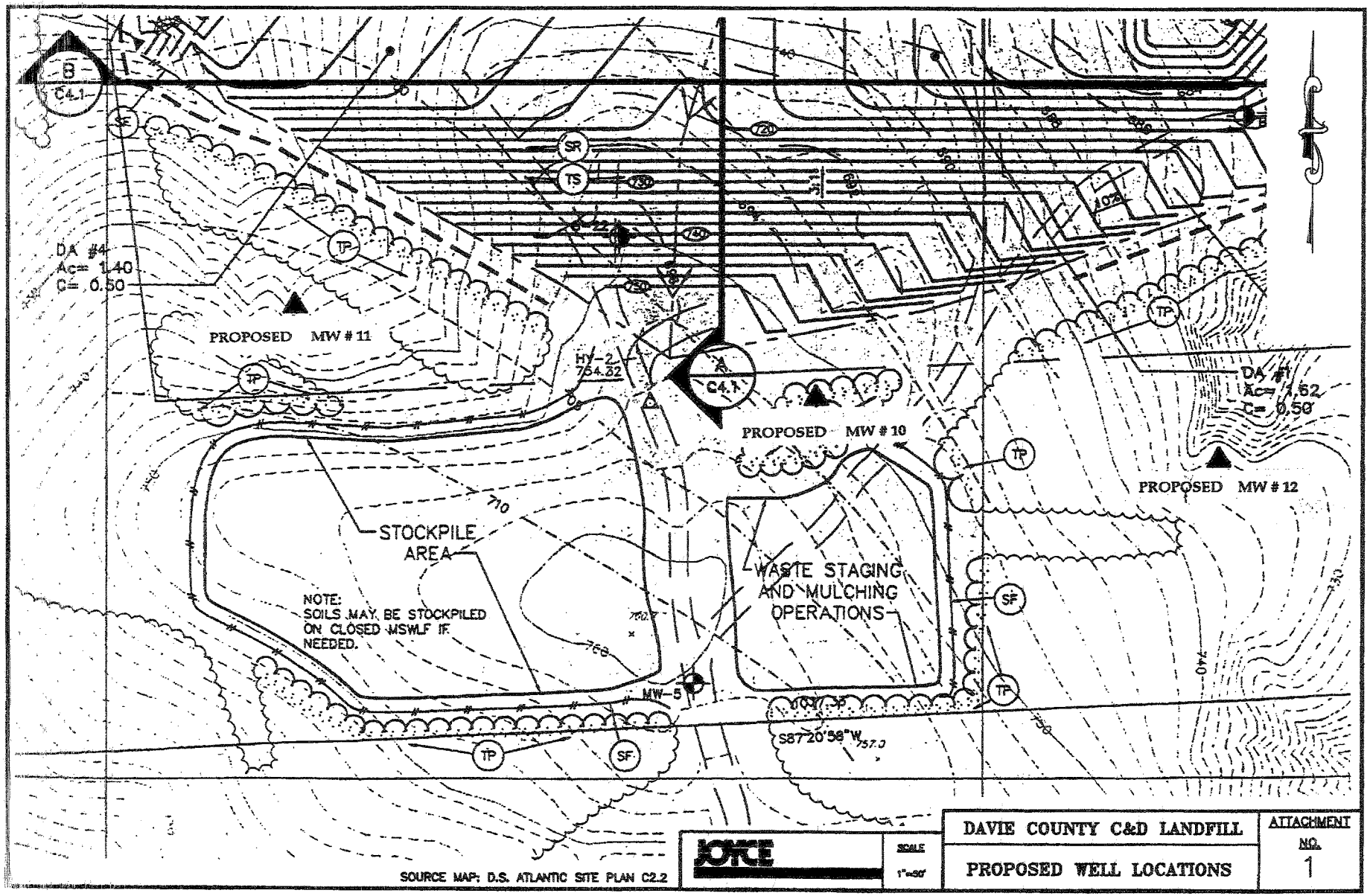
RE: Location of proposed 3 additional monitoring wells CD permit # 30-03

Please find enclosed an overlay to be used with sheet C 2.1 of the approved plans for the Davie County Construction and Demolition Landfill permit # 30-03, showing the location of proposed mw 11, 12, 13.

If you have any comments please feel free to call me at (704) 634-7407.

Thanks.

DJP



DAVIE COUNTY C&D LANDFILL	ATTACHMENT NO.
PROPOSED WELL LOCATIONS	1

Date: 08-16-95

DS*Atlantic* Corporation
5511 Capital Center Drive
Suite P-100
Raleigh, NC 27606
919/851-6866
Fax 919/851-7024

ENGINEERS ♦ ARCHITECTS ♦ SURVEYORS

March 20, 1995

Mr. Jim Bateson, Hydrogeologist
NC Department of Environment, Health,
and Natural Resources
Division of Solid Waste Management
Solid Waste Section
401 Oberlin Road
P.O. Box 27687
Raleigh, NC 27611-7687

SUBJECT: SUBMITTAL OF WELL MW-5A INFORMATION
CONSTRUCTION & DEMOLITION LANDFILL PERMIT APPLICATION
DAVIE COUNTY, NC
DS*Atlantic* Corporation Project No.: 93070.08

Dear Mr. Bateson:

Provided herewith is information on the upgradient ground water monitoring well for the proposed C&D landfill. Davie County has indicated they will perform another sample event soon.

If you have any questions, please advise.

With best regards,

Gerald W. Horton, P.E.
Vice President, Environmental/Civil Engineering

/gwh

cc: Mr. Kenneth Windley, Davie County Manager, with Enclosures
Mr. David Plott, Davie County Public Works Director
Mr. Bobby Lufty, NCDSWM-Solid Waste Section Hydrogeologist
Ms. Jan McHargue, NCDSWM-Solid Waste Section Regional Engineer
Dr. Nick Bogen, Trigon, Raleigh
Mr. Mark Acuri, Trigon, Charlotte
File

MAR 1995
Received
Solid Waste
Section

TRIGON
ENGINEERING CONSULTANTS, INC.
6003 Chapel Hill Road, Suite 109 · Raleigh, NC 27607 · (919) 859-0232 · FAX (919) 859-1168

AR 16 1995

March 16, 1995

Mr. Gerald W. Horton, P.E.
DSAtlantic
5511 Capital Center Drive, Suite P-100
Raleigh, NC 27606

Subject: Reconstruction of MW-5, Sampling and Chemical Analysis
Davie County C&D Landfill
Mocksville, NC
Trigon Project No. 035-95-012

DSAtlantic Project # 93070.07

Dear Mr. Horton:

Trigon Engineering Consultants has completed the work on MW-5 referenced above. A new log, completion form and schematic diagram are attached. These documents refer to the new well as MW-5A. The results of chemical analysis, also attached, refer to the well as MW-5, which is the same well.

As agreed with representatives of the Solid Waste Section, the original well was reamed to four inches in diameter to a depth of 81 feet. The old borehole below 81 feet was plugged with bentonite and a standard two-inch monitor well with 15 feet of screen was installed in the enlarged borehole. Construction details are as shown on the attached documents.

After completion, the well was developed with a submersible electric pump. In order to remove approximately 200 gallons of water introduced during reaming of the bedrock, more than six hundred gallons of water were removed during development. The well was then sampled with a laboratory-cleaned bailer.

Results indicate that four purgeable compounds and several metals are present in the groundwater sample. An equipment blank revealed only copper at the detection limit. The purgeable compounds include chloroform, methylene chloride, 1,1-dichloroethane and tetrachloroethene. Metals include barium, cobalt, copper and zinc but concentrations do not exceed state standards. The cobalt concentration exceeds the PQL slightly (9 μg/L vs 5 μg/L).

Among the purgeable compounds, chloroform is probably an artifact resulting from the potable water used in reaming the well. Methylene chloride is probably a laboratory artifact, as well, even though it does not occur in the blank. The other two purgeable compounds, 1,1-dichloroethane and tetrachloroethene, occur at concentrations less than the PQL (5 μg/L) and therefore the results shown are estimates.

Should you have questions about these results or any aspect of the project, please let me know.

Very truly yours,

TRIGON ENGINEERING CONSULTANTS, INC.

Nicholas L. Bogen

Nicholas L. Bogen, Ph.D., P.G.
Director of Groundwater Services.

NLB:ccb
Enclosures

TRIGON

NORTH CAROLINA DEPARTMENT OF ENVIRONMENT, HEALTH AND NATURAL RESOURCES
DIVISION OF ENVIRONMENTAL MANAGEMENT - GROUNDWATER SECTION
P.O. BOX 27687 - RALEIGH, NC 27611-7687
PHONE (919) 733-3221

FOR OFFICE USE ONLY
Quad No. _____ Serial No. _____
Lat. _____ Long. _____ Pc _____
Minor Basin _____
Basin Code _____
Header Ent. _____ GW-1 Ent. _____

WELL CONSTRUCTION RECORD MW-5A

DRILLER CONTRACTOR Trigon Engineering

STATE WELL CONSTRUCTION PERMIT NUMBER: _____

DRILLER REGISTRATION NUMBER: 813

1. WELL LOCATION (Show sketch of the location below)

Nearest Town: Mocksville

County: Davie

Davie County Landfill, S.R. 1605
(Road, Community, or Subdivision and Lot No.)

2. OWNER Davie County

ADDRESS 123 S. Main Street
(Street or Route No)

Mocksville, NC
City or Town State Zip Code

3. DATE DRILLED 2/13-20/95 USE OF WELL Monitor

4. TOTAL DEPTH 81 ft CUTTINGS COLLECTED ☐ Yes ■ No

5. DOES WELL REPLACE EXISTING WELL? ■ Yes ☐ No

6. STATIC WATER LEVEL: 65.4 FT. ☐ above ■ below TOP OF CASING,

TOP OF CASING IS 2.2 FT. ABOVE LAND SURFACE.

7. YIELD (gpm): _____ METHOD OF TEST _____

8. WATER ZONES (depth): Bedrock only

9. CHLORINATION: Type _____ Amount _____

10. CASING:

	Depth			Diameter	Wall Thickness or Weight/Ft.	Material
From	0	To 46	Ft.	2 in.		
From		To	Ft.			
From		To	Ft.			

11. GROUT:

	Depth			Material	Method
From	0	To 61	Ft.	neat cement grout	pour
From	61	To 64	Ft.	bentonite	pour

12. SCREEN:

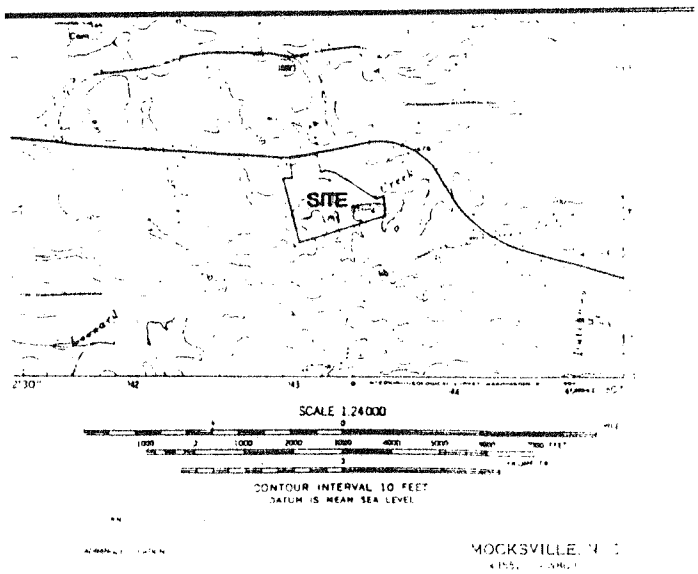
	Depth			Diameter		Slot Size		Material
From	66	To 81	Ft.	2	in.	0.01	in.	PVC
From		To	Ft.		in.		in.	
From		To	Ft.		in.		in.	

13. GRAVEL PACK:

	Depth			Size	Material
From	64	To 81	Ft.	fine	quartz filter sand

DEPTH FROM TO	DRILLING LOG FORMATION DESCRIPTION
0.0 - 32.0	Sandy Silt
32.0 - 46.1	Partially Weathered Rock
46.1 - 81.0	Biotite Gneiss

If additional space is needed use back of form.



14. REMARKS: Original drilled to 86.1 ft; 3-in. dia. in bedrock. New well reamed to 4 in. dia. to 81 ft. 86.1 to 81 ft plugged with bentonite

I DO BY HEREBY CERTIFY THAT THIS WELL WAS CONSTRUCTED IN ACCORDANCE WITH 15 NCAC 2C, WELL CONSTRUCTION STANDARDS, AND THAT A COPY OF THIS RECORD HAS BEEN PROVIDED TO THE WELL OWNER.

SIGNATURE OF CONTRACTOR OR AGENT DATE

Submit original to Division of Environmental Management and copy to well owner.

GW-1 REVISED 2/90

DEPTH, FT.	DESCRIPTION	Blow Count	● PENETRATION - BLOWS PER FT. 5 10 20 30 40 60 80 100
0.0	Probed to 43.5 Feet		

Continued Next Page

TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D-1586

CORE DRILLING MEETS ASTM D-2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN, I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE
50% ROCK CORE RECOVERY
◄ LOSS OF DRILLING WATER
WATER TABLE-24 HR.
WATER TABLE-1 HR.
CAVE-IN DEPTH

BORING NO. MW-5A
DATE DRILLED 05/02/94
JOB NO. 035-94-019
PAGE 1 of 3

TRIGON

DEPTH, FT.	DESCRIPTION (continued)	Elev. =	Blow Count	PENETRATION - BLOWS PER FT. (5 10 20 30 40 60 80 100)
40.0	Probed to 43.5 Feet and Started Wash Drilling			
46.0	Wash Drill Refusal at 46.1 Feet Biotite Gneiss, Slightly Weathered	RC 100 RQD 66	50/.25"	
51.1	Biotite Gneiss	RC 100 RQD 83		
	Horizontal Fracture at 56.9 Feet Encountered Soft Seam 57.1' to 57.2'	REC 96 RQD 96		
	Fracture Along Foliation, Angle of 55-60 Degrees at 63.0 Feet	REC 98 RQD 88		
		RC 103 RQ 100		
	100% Water Loss at 71.1 Feet, Fracture with Angle of 50 Degrees Fracture with Angle of 40 Degrees at 73.4 Feet	RC 100 RQD 92		
		RC 100 RQ 100		

Continued Next Page

TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D-1586

CORE DRILLING MEETS ASTM D-2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN, I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE — WATER TABLE-24 HR.

50% ROCK CORE RECOVERY — WATER TABLE-1 HR.

LOSS OF DRILLING WATER — CAVE-IN DEPTH

BORING NO. MW-5A

DATE DRILLED 05/02/94

JOB NO. 035-94-019

PAGE 2 of 3

TRIGON

DEPTH, FT.	DESCRIPTION (continued)	Elev. =	Blow Count	● PENETRATION - BLOWS PER FT. 5 10 20 30 40 60 80 100
80.0		RC 100 RQD 88		
86.1	Coring Terminated at 86.1 Feet			

TEST BORING RECORD

BORING AND SAMPLING MEETS ASTM D-1586

CORE DRILLING MEETS ASTM D-2113

PENETRATION IS THE NUMBER OF BLOWS OF 140 LB. HAMMER FALLING 30 IN. REQUIRED TO DRIVE 1.4 IN. I.D. SAMPLER 1 FT.

UNDISTURBED SAMPLE

50% ROCK CORE RECOVERY

◄ LOSS OF DRILLING WATER

WATER TABLE-24 HR.

WATER TABLE-1 HR.

CAVE-IN DEPTH

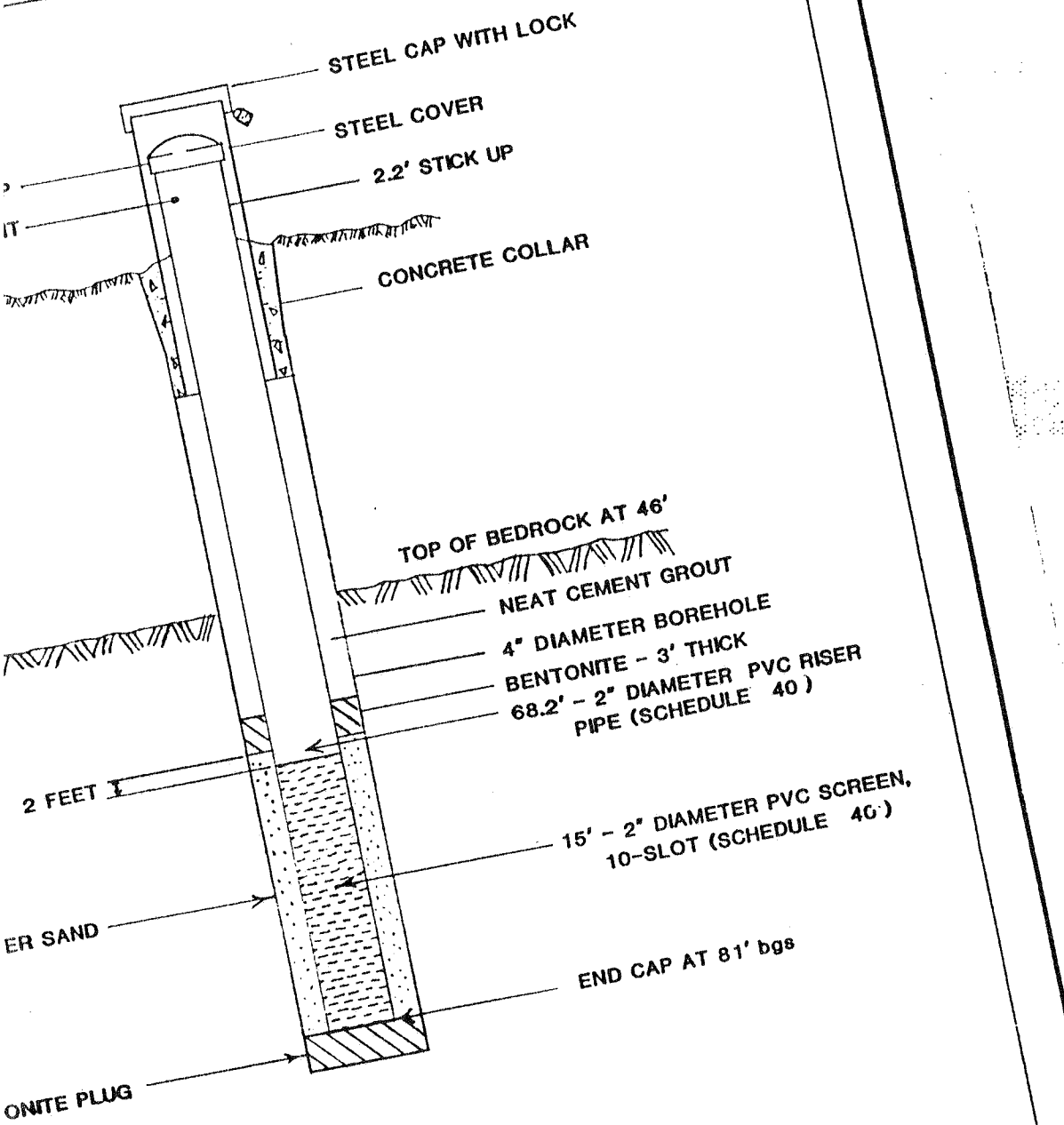
BORING NO. MW-5A

DATE DRILLED 05/02/94

JOB NO. 035-94-019

PAGE 3 of 3

TRIGON



DAVIE COUNTY C+D LANDFILL
NORTH CAROLINA

MW-5A

DATE: 2/27/95	SCALE: NO SCALE
JOB NO. 035-95-012	DRAWN BY CAB

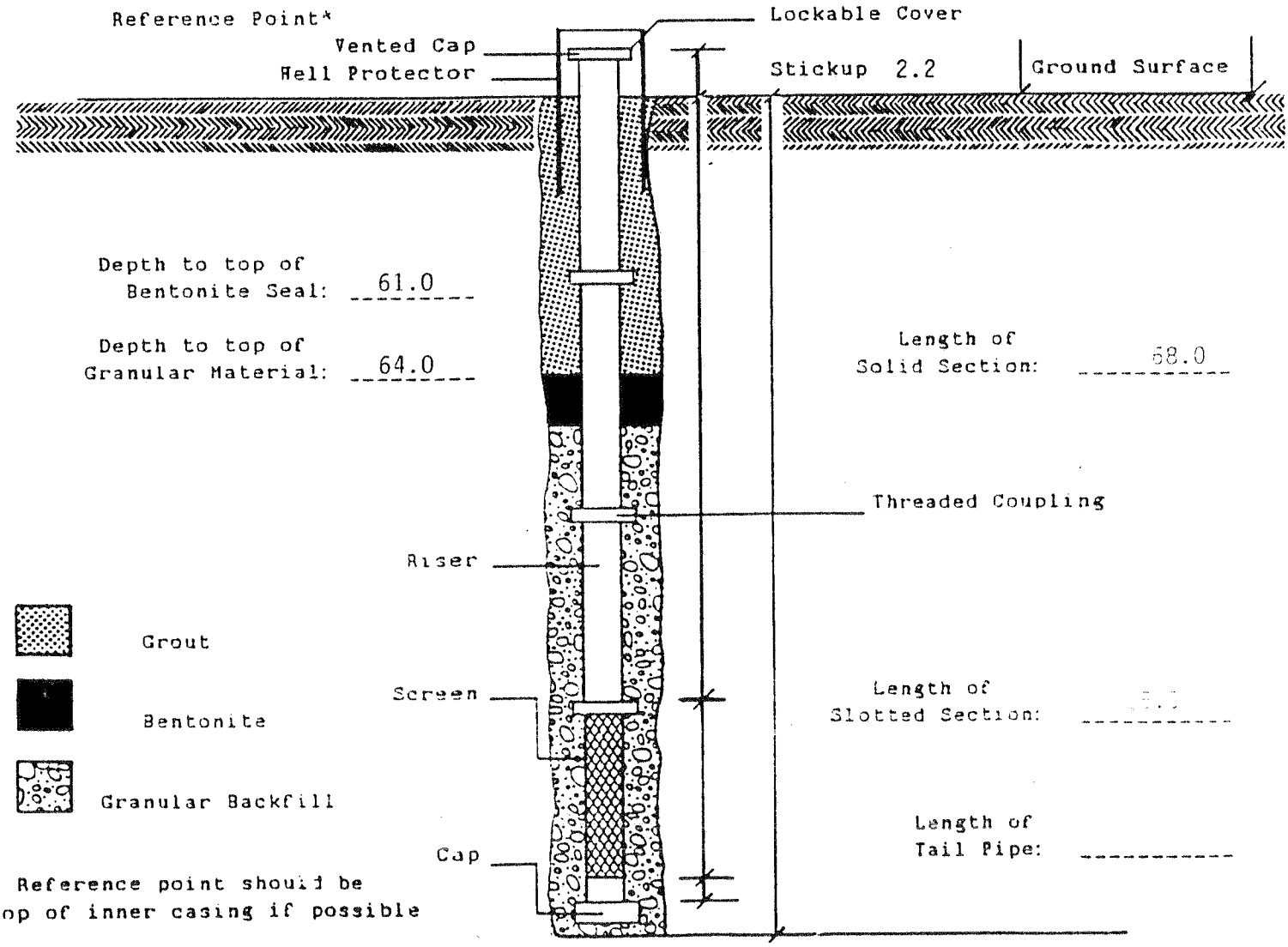
TRIGON
ENGINEERING CONSULTANTS, INC.

ENGINEERING CONSULTANTS, INC. Greensboro, N.C.

Date: 3-15-95
Job Number: 035-95-012
Project Name: Davie County Landfill
Location: Davie County Landfill

Ground Surface Elevation: --
Well Number: MW-5A
Total Depth of Well: 81 "
Date Installed: 2-20-95
Granular Backfill Material: fine filter sand
Slot Size: 0.01"
Screen Material: PVC
Screen Diameter: 2"
Riser Material: PVC
Riser Diameter: 2"
Drilling Technique: Wash Drill & Coring
Driller: Steve Williams
Borehole Diameter: 3 7/8"
Lock Data: Master
Key Code/Combination: 3247

Stabilized Water Level: 62.0 feet below ground surface. Measured on: 5-7-94
Depth to top of Bedrock: 46.1



* Reference point should be top of inner casing if possible

Chemical & Environmental Technology, Inc.

ENVIRONMENTAL LABORATORY AND CONSULTING SERVICES

JOHN M. OGLE
PRESIDENT

P. O. BOX 12298
RESEARCH TRIANGLE PARK, N. C. 27709
PHONE (919) 467-3090
FAX (919) 467-3515

FINAL REPORT OF ANALYSES

TRIGON ENGINEERING CONSULTANTS
6003 CHAPEL HILL RD.
SUITE 109
RALEIGH, NC 27607-
Attn: NICK BOGEN

REPORT DATE: 03/13/95

035-95-012

SAMPLE NUMBER- 97636 SAMPLE ID- MW-5-FIELD BLANK SAMPLE MATRIX- GW
DATE SAMPLED- 02/22/95 TIME SAMPLED- 1650
DATE RECEIVED- 02/24/95 SAMPLER- T.J. ROBERSON RECEIVED BY- DLD
TIME RECEIVED- 1000 DELIVERED BY- UPS

 PROJECT NAME : 035-95-012

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	PQL
PURGEABLE ORGANICS	8240			02/28/95	ALT			
ACETONE	8240					< 100.0	ug/L	100.0
ACRYLONITRILE	8240					< 100.0	ug/L	100.0
BENZENE	8240					< 5.0	ug/L	5.0
BROMOCHLOROMETHANE	8240					< 5.0	ug/L	5.0
BROMODICHLOROMETHANE	8240					< 5.0	ug/L	5.0
BROMOFORM	8240					< 5.0	ug/L	5.0
BROMOMETHANE	8240					< 10.0	ug/L	10.0
2-BUTANONE	8240					< 100.0	ug/L	100.0
CARBON DISULFIDE	8240					< 5.0	ug/L	5.0
CARBON TETRACHLORIDE	8240					< 5.0	ug/L	5.0
CHLOROBENZENE	8240					< 5.0	ug/L	5.0
CHLOROETHANE	8240					< 10.0	ug/L	10.0
CHLOROFORM	8240					< 5.0	ug/L	5.0
CHLOROMETHANE	8240					< 10.0	ug/L	10.0
DIBROMOCHLOROMETHANE	8240					< 5.0	ug/L	5.0
1,2-DIBROMO-3-CHLOROPROPANE	8240					< 10.0	ug/L	10.0
1,2-DIBROMOETHANE (EDB)	8240					< 5.0	ug/L	5.0
DIBROMOMETHANE	8240					< 5.0	ug/L	5.0
1,2-DICHLOROBENZENE	8240					< 5.0	ug/L	5.0
1,4-DICHLOROBENZENE	8240					< 5.0	ug/L	5.0

AMERICAN COUNCIL OF INDEPENDENT LABORATORIES, INC.

Chemical & Environmental Technology, Inc.

ENVIRONMENTAL LABORATORY AND CONSULTING SERVICES

JOHN M. OGLE
PRESIDENT

P. O. BOX 12298
RESEARCH TRIANGLE PARK, N. C. 27709
PHONE (919) 467-3090
FAX (919) 467-3515

 PROJECT NAME : 035-95-012

CONTINUATION OF DATA FOR SAMPLE NUMBER 97636

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	PQL
trans-1,4-DICHLORO-2-BUTENE	8240					< 5.0	ug/L	5.0
1,1-DICHLOROETHANE	8240					< 5.0	ug/L	5.0
1,2-DICHLOROETHANE	8240					< 5.0	ug/L	5.0
1,1-DICHLOROETHENE	8240					< 5.0	ug/L	5.0
cis-1,2-DICHLOROETHENE	8240					< 5.0	ug/L	5.0
trans-1,2-DICHLOROETHENE	8240					< 5.0	ug/L	5.0
1,2-DICHLOROPROPANE	8240					< 5.0	ug/L	5.0
cis-1,3-DICHLOROPROPENE	8240					< 5.0	ug/L	5.0
trans-1,3-DICHLOROPROPENE	8240					< 5.0	ug/L	5.0
ETHYL BENZENE	8240					< 5.0	ug/L	5.0
2-HEXANONE	8240					< 50.0	ug/L	50.0
IODOMETHANE	8240					< 5.0	ug/L	5.0
METHYLENE CHLORIDE	8240					< 5.0	ug/L	5.0
4-METHYL-2-PENTANONE	8240					< 50.0	ug/L	50.0
STYRENE	8240					< 5.0	ug/L	5.0
1,1,1,2-TETRACHLOROETHANE	8240					< 5.0	ug/L	5.0
1,1,2,2-TETRACHLOROETHANE	8240					< 5.0	ug/L	5.0
TETRACHLOROETHENE	8240					< 5.0	ug/L	5.0
TOLUENE	8240					< 5.0	ug/L	5.0
1,1,1-TRICHLOROETHANE	8240					< 5.0	ug/L	5.0
1,1,2-TRICHLOROETHANE	8240					< 5.0	ug/L	5.0
TRICHLOROETHENE	8240					< 5.0	ug/L	5.0
TRICHLOROFLUOROMETHANE	8240					< 5.0	ug/L	5.0
1,2,3-TRICHLOROPROPANE	8240					< 5.0	ug/L	5.0
VINYL ACETATE	8240					< 50.0	ug/L	50.0
VINYL CHLORIDE	8240					< 10.0	ug/L	10.0
XYLENES	8240					< 5.0	ug/L	5.0
SURROGATES:	8240					--------		-
4-BROMOFLUOROBENZENE	8240					104	percent	-
1,2-DICHLOROETHANE-d4	8240					96.0	percent	-
TOLUENE-d8	8240					98.4	percent	-

CTE

Chemical & Environmental Technology, Inc.

ENVIRONMENTAL LABORATORY AND CONSULTING SERVICES

JOHN M. OGLE
PRESIDENT

P. O. BOX 12298
RESEARCH TRIANGLE PARK, N. C. 27709
PHONE (919) 467-3090
FAX (919) 467-3515

 PROJECT NAME : 035-95-012

CONTINUATION OF DATA FOR SAMPLE NUMBER 97636

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	PQL
ANTIMONY, TOTAL	7041	02/28/95	JLB	03/09/95	JMM	<0.005	mg/L	0.005
ARSENIC, TOTAL	7060	02/28/95	JLB	03/01/95	JMM	<0.005	mg/L	0.005
BARIUM, TOTAL	6010	02/28/95	JLB	03/03/95	JMM	<0.005	mg/L	0.005
BERYLLIUM, TOTAL	7091	02/28/95	JLB	03/02/95	JMM	<0.001	mg/L	0.001
CADMIUM, TOTAL	7131	02/28/95	JLB	03/06/95	JMM	<0.001	mg/L	0.001
CHROMIUM, TOTAL	7191	02/28/95	JLB	03/01/95	JMM	<0.002	mg/L	0.002
COBALT, TOTAL	7201	02/28/95	JLB	03/02/95	JMM	<0.005	mg/L	0.005
COPPER, TOTAL	6010	02/28/95	JLB	03/03/95	JMM	0.005	mg/L	0.005
LEAD, TOTAL	7421	02/28/95	JLB	03/07/95	JMM	<0.002	mg/L	0.002
NICKEL, TOTAL	6010	02/28/95	JLB	03/03/95	JMM	<0.01	mg/L	0.01
SELENIUM, TOTAL	7741	02/28/95	JLB	03/01/95	JMM	<0.002	mg/L	0.002
SILVER, TOTAL	7761	02/28/95	JLB	03/02/95	JMM	<0.001	mg/L	0.001
THALLIUM, TOTAL	7841	02/28/95	JLB	03/08/95	JMM	<0.005	mg/L	0.005
VANADIUM, TOTAL	7911	02/28/95	JLB	03/10/95	JMM	<0.02	mg/L	0.02
ZINC, TOTAL	6010	02/28/95	JLB	03/03/95	JMM	<0.005	mg/L	0.005

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.
All results for soil and sludge samples are reported on a dry weight basis as required by the NC DEM Laboratory Certification Section. Wet Weight Concentration = (dry weight conc.)(percent solids)/100.

LABORATORY DIRECTOR Jerrie Ltzenberger

Chemical & Environmental Technology, Inc.
102-A Woodwinds Industrial Ct. Cary, NC 27511
(919) 467-3090 FAX: (919) 467-3515

CHAIN OF CUSTODY

CLIENT NAME: TRIGON ENGINEERING CONSULTANTS, INC.
ADDRESS: 6003 CHAPEL HILL RD., SUITE 109
RALEIGH, NC 27607
ATTENTION: NICK BOGEN
PHONE: 919-859-0232
FAX: 919-859-1168
PROJECT NO: 035-95-012
PROJECT NAME:
COLLECTED BY: (Signature)
PRINTED NAME: T.J. ROBERSON

Turnaround Time:
- [x] Normal (2 weeks)
- [ ] Rush (1 week)*
- [ ] Rush (48 hours)*
- [ ] Rush (24 hours)*

BILL TO: SAME
ADDRESS:
PURCHASE ORDER NO: 035-95-012

PRESERVED IN FIELD [ ]
PRESERVED IN LAB [X]
RECEIVED ON ICE [X]

ANALYSES REQUIRED: APPENDIX I TOTAL METALS; APPENDIX I VOLATILES 8260

CET SAMPLE #	DATE	TIME	SAMPLE TYPE COM	SAMPLE TYPE GRAB	SAMPLE I.D.	SAMPLE MATRIX	# OF CONTAINERS	APPENDIX I TOTAL METALS	APPENDIX I VOLATILES 8260	REMARKS	NONE	ASCORBIC	NaS_2O_3	NaOH	H_2SO_4	HNO_3	HCl
MW-5	2/22	5:05		X	MW-5	H_2O	1	X		#97635						X	
MW-5	2/22	4:50		X	MW-5 FIELD BLANK	H_2O	1	X		97636						X	
MW-5	2/22	5:05		X	MW-5	H_2O	2		X	~~97637~~ 97635							X
MW-5	2/22	4:51		X	MW-5 FIELD BLANK	H_2O	2		X	~~97638~~ 97636							X

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)	RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)
	2/23/95	2:51					

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED FOR LABORATORY BY:	DATE	TIME
			Debra Davis	2/24/95	10:00

ADDITIONAL INSTRUCTIONS:
CONTACT NICK BOGEN WITH RESULTS
Delivered by UPS 2-24-95 10:00

*Rush work requires laboratory approval prior to sample submission. Additional charges may apply.

CTE **Chemical & Environmental Technology, Inc.**

ENVIRONMENTAL LABORATORY AND CONSULTING SERVICES

JOHN M. OGLE
PRESIDENT

P. O. BOX 12298
RESEARCH TRIANGLE PARK, N. C. 27709
PHONE (919) 467-3090
FAX (919) 467-3515

METHOD REFERENCES

Federal Register, Vol. 59, 40 CFR Part 136.3, January 31, 1994

--Metals, Inorganics, and Organics for groundwater and wastewater

Federal Register, Vol. 56, 40 CFR Parts 141-143, January 30, 1991

--Metals, Inorganics, and Organics for drinking water

"Groundwater Section Guidelines for the Investigation and Remediation of Soils and Groundwater", NCDEHNR, DEM, March 1993.

--High Fraction Hydrocarbon and Low Fraction Hydrocarbon for groundwater and soil

SW-846, Third Edition, Revision I, July 1992

--Inorganics and Organics in soil or sludges. Metals in soil, sludge, or groundwater. (Metals in groundwater are digested by **Method 3030C, Standard Methods, 18th Edition**)

40 CFR Part 261, Appendix II and III

--Toxic Characteristic Leaching Procedure

Standard Methods, 18th Edition, 1992

--Total and Fecal Coliform in wastewater, streams, and lakes

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FAX (919) 467-3515

FINAL REPORT OF ANALYSES

TRIGON ENGINEERING CONSULTANTS
6003 CHAPEL HILL RD.
SUITE 109
RALEIGH, NC 27607-
Attn: NICK BOGEN

REPORT DATE: 03/13/95

035-95-012

SAMPLE NUMBER- 97635 SAMPLE ID- MW-5
DATE SAMPLED- 02/22/95
DATE RECEIVED- 02/24/95 SAMPLER- T.J. ROBERSON
TIME RECEIVED- 1000 DELIVERED BY- UPS

SAMPLE MATRIX- GW
TIME SAMPLED- 1705
RECEIVED BY- DLD

 PROJECT NAME : 035-95-012

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	PQL
PURGEABLE ORGANICS	8240			02/28/95	ALT			
ACETONE	8240					< 100.0	ug/L	100.0
ACRYLONITRILE	8240					< 100.0	ug/L	100.0
BENZENE	8240					< 5.0	ug/L	5.0
BROMOCHLOROMETHANE	8240					< 5.0	ug/L	5.0
BROMODICHLOROMETHANE	8240					< 5.0	ug/L	5.0
BROMOFORM	8240					< 5.0	ug/L	5.0
BROMOMETHANE	8240					< 10.0	ug/L	10.0
2-BUTANONE	8240					< 100.0	ug/L	100.0
CARBON DISULFIDE	8240					< 5.0	ug/L	5.0
CARBON TETRACHLORIDE	8240					< 5.0	ug/L	5.0
CHLOROBENZENE	8240					< 5.0	ug/L	5.0
CHLOROETHANE	8240					< 10.0	ug/L	10.0
CHLOROFORM	8240					9.5	ug/L	5.0
CHLOROMETHANE	8240					< 10.0	ug/L	10.0
DIBROMOCHLOROMETHANE	8240					< 5.0	ug/L	5.0
1,2-DIBROMO-3-CHLOROPROPANE	8240					< 10.0	ug/L	10.0
1,2-DIBROMOETHANE (EDB)	8240					< 5.0	ug/L	5.0
DIBROMOMETHANE	8240					< 5.0	ug/L	5.0
1,2-DICHLOROBENZENE	8240					< 5.0	ug/L	5.0
1,4-DICHLOROBENZENE	8240					< 5.0	ug/L	5.0

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ENVIRONMENTAL LABORATORY AND CONSULTING SERVICES

JOHN M. OGLE
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RESEARCH TRIANGLE PARK, N. C. 27709
PHONE (919) 467-3090
FAX (919) 467-3515

 PROJECT NAME : 035-95-012

CONTINUATION OF DATA FOR SAMPLE NUMBER 97635

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	PQL
trans-1,4-DICHLORO-2-BUTENE	8240					< 5.0	ug/L	5.0
1,1-DICHLOROETHANE	8240					3.7 J	ug/L	5.0
1,2-DICHLOROETHANE	8240					< 5.0	ug/L	5.0
1,1-DICHLOROETHENE	8240					< 5.0	ug/L	5.0
cis-1,2-DICHLOROETHENE	8240					< 5.0	ug/L	5.0
trans-1,2-DICHLOROETHENE	8240					< 5.0	ug/L	5.0
1,2-DICHLOROPROPANE	8240					< 5.0	ug/L	5.0
cis-1,3-DICHLOROPROPENE	8240					< 5.0	ug/L	5.0
trans-1,3-DICHLOROPROPENE	8240					< 5.0	ug/L	5.0
ETHYL BENZENE	8240					< 5.0	ug/L	5.0
2-HEXANONE	8240					< 50.0	ug/L	50.0
IODOMETHANE	8240					< 5.0	ug/L	5.0
METHYLENE CHLORIDE	8240					7.7	ug/L	5.0
4-METHYL-2-PENTANONE	8240					< 50.0	ug/L	50.0
STYRENE	8240					< 5.0	ug/L	5.0
1,1,1,2-TETRACHLOROETHANE	8240					< 5.0	ug/L	5.0
1,1,2,2-TETRACHLOROETHANE	8240					< 5.0	ug/L	5.0
TETRACHLOROETHENE	8240					2.4 J	ug/L	5.0
TOLUENE	8240					< 5.0	ug/L	5.0
1,1,1-TRICHLOROETHANE	8240					< 5.0	ug/L	5.0
1,1,2-TRICHLOROETHANE	8240					< 5.0	ug/L	5.0
TRICHLOROETHENE	8240					< 5.0	ug/L	5.0
TRICHLOROFLUOROMETHANE	8240					< 5.0	ug/L	5.0
1,2,3-TRICHLOROPROPANE	8240					< 5.0	ug/L	5.0
VINYL ACETATE	8240					< 50.0	ug/L	50.0
VINYL CHLORIDE	8240					< 10.0	ug/L	10.0
XYLENES	8240					< 5.0	ug/L	5.0
SURROGATES:	8240					--------		-
4-BROMOFLUOROBENZENE	8240					105	percent	-
1,2-DICHLOROETHANE-d4	8240					107	percent	-
TOLUENE-d8	8240					101	percent	-

Chemical & Environmental Technology, Inc.

ENVIRONMENTAL LABORATORY AND CONSULTING SERVICES

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PHONE (919) 467-3090
FAX (919) 467-3515

 PROJECT NAME : 035-95-012

CONTINUATION OF DATA FOR SAMPLE NUMBER 97635

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	PQL
ANTIMONY, TOTAL	7041	02/28/95	JLB	03/09/95	JMM	<0.005	mg/L	0.005
ARSENIC, TOTAL	7060	02/28/95	JLB	03/01/95	JMM	<0.005	mg/L	0.005
BARIUM, TOTAL	6010	02/28/95	JLB	03/03/95	JMM	0.013	mg/L	0.005
BERYLLIUM, TOTAL	7091	02/28/95	JLB	03/02/95	JMM	<0.001	mg/L	0.001
CADMIUM, TOTAL	7131	02/28/95	JLB	03/06/95	JMM	<0.001	mg/L	0.001
CHROMIUM, TOTAL	7191	02/28/95	JLB	03/01/95	JMM	0.002	mg/L	0.002
COBALT, TOTAL	7201	02/28/95	JLB	03/02/95	JMM	0.009	mg/L	0.005
COPPER, TOTAL	6010	02/28/95	JLB	03/03/95	JMM	0.008	mg/L	0.005
LEAD, TOTAL	7421	02/28/95	JLB	03/07/95	JMM	<0.002	mg/L	0.002
NICKEL, TOTAL	6010	02/28/95	JLB	03/03/95	JMM	<0.01	mg/L	0.01
SELENIUM, TOTAL	7741	02/28/95	JLB	03/01/95	JMM	<0.002	mg/L	0.002
SILVER, TOTAL	7761	02/28/95	JLB	03/02/95	JMM	<0.001	mg/L	0.001
THALLIUM, TOTAL	7841	02/28/95	JLB	03/08/95	JMM	<0.005	mg/L	0.005
VANADIUM, TOTAL	7911	02/28/95	JLB	03/10/95	JMM	<0.02	mg/L	0.02
ZINC, TOTAL	6010	02/28/95	JLB	03/03/95	JMM	0.032	mg/L	0.005

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.
All results for soil and sludge samples are reported on a dry weight basis as required by the NC DEM Laboratory Certification Section. Wet Weight Concentration = (dry weight conc.)(percent solids)/100.

LABORATORY DIRECTOR Irene Litzenberger

AMERICAN COUNCIL OF INDEPENDENT LABORATORIES, INC.

Chemical & Environmental Technology, Inc.

ENVIRONMENTAL LABORATORY AND CONSULTING SERVICES

JOHN M. OGLE
PRESIDENT

P. O. BOX 12298
RESEARCH TRIANGLE PARK, N. C. 27709
PHONE (919) 467-3090
FAX (919) 467-3515

FINAL REPORT OF ANALYSES

TRIGON ENGINEERING CONSULTANTS
6003 CHAPEL HILL RD.
SUITE 109
RALEIGH, NC 27607-
Attn: NICK BOGEN

REPORT DATE: 03/13/95

035-95-012

SAMPLE NUMBER- 97636 SAMPLE ID- MW-5-FIELD BLANK SAMPLE MATRIX- GW
DATE SAMPLED- 02/22/95 TIME SAMPLED- 1650
DATE RECEIVED- 02/24/95 SAMPLER- T.J. ROBERSON RECEIVED BY- DLD
TIME RECEIVED- 1000 DELIVERED BY- UPS

 PROJECT NAME : 035-95-012

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	PQL
PURGEABLE ORGANICS	8240			02/28/95	ALT			
ACETONE	8240					< 100.0	ug/L	100.0
ACRYLONITRILE	8240					< 100.0	ug/L	100.0
BENZENE	8240					< 5.0	ug/L	5.0
BROMOCHLOROMETHANE	8240					< 5.0	ug/L	5.0
BROMODICHLOROMETHANE	8240					< 5.0	ug/L	5.0
BROMOFORM	8240					< 5.0	ug/L	5.0
BROMOMETHANE	8240					< 10.0	ug/L	10.0
2-BUTANONE	8240					< 100.0	ug/L	100.0
CARBON DISULFIDE	8240					< 5.0	ug/L	5.0
CARBON TETRACHLORIDE	8240					< 5.0	ug/L	5.0
CHLOROBENZENE	8240					< 5.0	ug/L	5.0
CHLOROETHANE	8240					< 10.0	ug/L	10.0
CHLOROFORM	8240					< 5.0	ug/L	5.0
CHLOROMETHANE	8240					< 10.0	ug/L	10.0
DIBROMOCHLOROMETHANE	8240					< 5.0	ug/L	5.0
1,2-DIBROMO-3-CHLOROPROPANE	8240					< 10.0	ug/L	10.0
1,2-DIBROMOETHANE (EDB)	8240					< 5.0	ug/L	5.0
DIBROMOMETHANE	8240					< 5.0	ug/L	5.0
1,2-DICHLOROBENZENE	8240					< 5.0	ug/L	5.0
1,4-DICHLOROBENZENE	8240					< 5.0	ug/L	5.0

AMERICAN COUNCIL OF INDEPENDENT LABORATORIES, INC.

Chemical & Environmental Technology, Inc.

ENVIRONMENTAL LABORATORY AND CONSULTING SERVICES

JOHN M. OGLE
PRESIDENT

P. O. BOX 12298
RESEARCH TRIANGLE PARK, N. C. 27709
PHONE (919) 467-3090
FAX (919) 467-3515

 PROJECT NAME : 035-95-012

CONTINUATION OF DATA FOR SAMPLE NUMBER 97636

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	PQL
trans-1,4-DICHLORO-2-BUTENE	8240					< 5.0	ug/L	5.0
1,1-DICHLOROETHANE	8240					< 5.0	ug/L	5.0
1,2-DICHLOROETHANE	8240					< 5.0	ug/L	5.0
1,1-DICHLOROETHENE	8240					< 5.0	ug/L	5.0
cis-1,2-DICHLOROETHENE	8240					< 5.0	ug/L	5.0
trans-1,2-DICHLOROETHENE	8240					< 5.0	ug/L	5.0
1,2-DICHLOROPROPANE	8240					< 5.0	ug/L	5.0
cis-1,3-DICHLOROPROPENE	8240					< 5.0	ug/L	5.0
trans-1,3-DICHLOROPROPENE	8240					< 5.0	ug/L	5.0
ETHYL BENZENE	8240					< 5.0	ug/L	5.0
2-HEXANONE	8240					< 50.0	ug/L	50.0
IODOMETHANE	8240					< 5.0	ug/L	5.0
METHYLENE CHLORIDE	8240					< 5.0	ug/L	5.0
4-METHYL-2-PENTANONE	8240					< 50.0	ug/L	50.0
STYRENE	8240					< 5.0	ug/L	5.0
1,1,1,2-TETRACHLOROETHANE	8240					< 5.0	ug/L	5.0
1,1,2,2-TETRACHLOROETHANE	8240					< 5.0	ug/L	5.0
TETRACHLOROETHENE	8240					< 5.0	ug/L	5.0
TOLUENE	8240					< 5.0	ug/L	5.0
1,1,1-TRICHLOROETHANE	8240					< 5.0	ug/L	5.0
1,1,2-TRICHLOROETHANE	8240					< 5.0	ug/L	5.0
TRICHLOROETHENE	8240					< 5.0	ug/L	5.0
TRICHLOROFLUOROMETHANE	8240					< 5.0	ug/L	5.0
1,2,3-TRICHLOROPROPANE	8240					< 5.0	ug/L	5.0
VINYL ACETATE	8240					< 50.0	ug/L	50.0
VINYL CHLORIDE	8240					< 10.0	ug/L	10.0
XYLENES	8240					< 5.0	ug/L	5.0
SURROGATES:	8240					--------		-
4-BROMOFLUOROBENZENE	8240					104	percent	-
1,2-DICHLOROETHANE-d4	8240					96.0	percent	-
TOLUENE-d8	8240					98.4	percent	-

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Chemical & Environmental Technology, Inc.

ENVIRONMENTAL LABORATORY AND CONSULTING SERVICES

JOHN M. OGLE
PRESIDENT

P. O. BOX 12298
RESEARCH TRIANGLE PARK, N. C. 27709
PHONE (919) 467-3090
FAX (919) 467-3515

 PROJECT NAME : 035-95-012

CONTINUATION OF DATA FOR SAMPLE NUMBER 97636

ANALYSIS	METHOD	SAMPLE PREP DATE	BY	ANALYSIS DATE	BY	RESULT	UNITS	PQL
ANTIMONY, TOTAL	7041	02/28/95	JLB	03/09/95	JMM	<0.005	mg/L	0.005
ARSENIC, TOTAL	7060	02/28/95	JLB	03/01/95	JMM	<0.005	mg/L	0.005
BARIUM, TOTAL	6010	02/28/95	JLB	03/03/95	JMM	<0.005	mg/L	0.005
BERYLLIUM, TOTAL	7091	02/28/95	JLB	03/02/95	JMM	<0.001	mg/L	0.001
CADMIUM, TOTAL	7131	02/28/95	JLB	03/06/95	JMM	<0.001	mg/L	0.001
CHROMIUM, TOTAL	7191	02/28/95	JLB	03/01/95	JMM	<0.002	mg/L	0.002
COBALT, TOTAL	7201	02/28/95	JLB	03/02/95	JMM	<0.005	mg/L	0.005
COPPER, TOTAL	6010	02/28/95	JLB	03/03/95	JMM	0.005	mg/L	0.005
LEAD, TOTAL	7421	02/28/95	JLB	03/07/95	JMM	<0.002	mg/L	0.002
NICKEL, TOTAL	6010	02/28/95	JLB	03/03/95	JMM	<0.01	mg/L	0.01
SELENIUM, TOTAL	7741	02/28/95	JLB	03/01/95	JMM	<0.002	mg/L	0.002
SILVER, TOTAL	7761	02/28/95	JLB	03/02/95	JMM	<0.001	mg/L	0.001
THALLIUM, TOTAL	7841	02/28/95	JLB	03/08/95	JMM	<0.005	mg/L	0.005
VANADIUM, TOTAL	7911	02/28/95	JLB	03/10/95	JMM	<0.02	mg/L	0.02
ZINC, TOTAL	6010	02/28/95	JLB	03/03/95	JMM	<0.005	mg/L	0.005

PQL = Practical Quantitation Limit
Results followed by the letter J are estimated concentrations.
All results for soil and sludge samples are reported on a dry weight basis as required by the NC DEM Laboratory Certification Section. Wet Weight Concentration = (dry weight conc.)(percent solids)/100.

LABORATORY DIRECTOR Irene Litzenberger

AMERICAN COUNCIL OF INDEPENDENT LABORATORIES, INC.

Chemical & Environmental Technology, Inc.
102-A Woodwinds Industrial Ct. Cary, NC 27511
(919) 467-3090 FAX: (919) 467-3515

CHAIN OF CUSTODY

CLIENT NAME: TRIGON ENGINEERING CONSULTANTS, INC.
ADDRESS: 6003 CHAPEL HILL RD., SUITE 109
RALEIGH, NC 27607
ATTENTION: NICK BOGEN
PHONE: 919-859-0232
FAX: 919-859-1168
PROJECT NO: 035-95-012
PROJECT NAME:
COLLECTED BY: (Signature)
PRINTED NAME: T.J. ROBERSON

Turnaround Time:
- [x] Normal (2 weeks)
- [ ] Rush (1 week)*
- [ ] Rush (48 hours)*
- [ ] Rush (24 hours)*

BILL TO: SAME
ADDRESS:
PURCHASE ORDER NO: 035-95-012

PRESERVED IN FIELD [ ]
PRESERVED IN LAB [X]
RECEIVED ON ICE [X]

ANALYSES REQUIRED: APPENDIX I TOTAL METALS; APPENDIX I VOLATILES 8260

CET SAMPLE #	DATE	TIME	SAMPLE COM	TYPE GRAB	SAMPLE I.D.	SAMPLE MATRIX	# OF CONTAINERS	APPENDIX I TOTAL METALS	APPENDIX I VOLATILES 8260					REMARKS	NONE	ASCORBIC	NaS_2O_3	NaOH	H_2SO_4	HNO_3	HCl
MW-5	2/22	5:05		X	MW-5	H_2O	1	X						#97635						X	
MW-5	2/22	4:50		X	MW-5 FIELD BLANK	H_2O	1	X						97636						X	
MW-5	2/22	5:05		X	MW-5	H_2O	2		X					PVC ~~97637~~ 97635							X
MW-5	2/22	4:51		X	MW-5 FIELD BLANK	H_2O	2		X					DV ~~97638~~ 97636							X

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)	RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED BY (Signature)
	2/23/95	2:51					

RELINQUISHED BY (Signature)	DATE	TIME	RECEIVED FOR LABORATORY BY:	DATE	TIME
			Debra Davis	2/24/95	10:00

ADDITIONAL INSTRUCTIONS: CONTACT NICK BOGEN WITH RESULTS
Delivered by UPS 2-24-95 10:00

REPORT COPY

*Rush work requires laboratory approval prior to sample submission. Additional charges may apply.

Chemical & Environmental Technology, Inc.

ENVIRONMENTAL LABORATORY AND CONSULTING SERVICES

JOHN M. OGLE
PRESIDENT

P. O. BOX 12298
RESEARCH TRIANGLE PARK, N. C. 27709
PHONE (919) 467-3090
FAX (919) 467-3515

METHOD REFERENCES

Federal Register, Vol. 59, 40 CFR Part 136.3, January 31, 1994

--Metals, Inorganics, and Organics for groundwater and wastewater

Federal Register, Vol. 56, 40 CFR Parts 141-143, January 30, 1991

--Metals, Inorganics, and Organics for drinking water

"Groundwater Section Guidelines for the Investigation and Remediation of Soils and Groundwater", NCDEHNR, DEM, March 1993.

--High Fraction Hydrocarbon and Low Fraction Hydrocarbon for groundwater and soil

SW-846, Third Edition, Revision I, July 1992

--Inorganics and Organics in soil or sludges. Metals in soil, sludge, or groundwater. (Metals in groundwater are digested by **Method 3030C, Standard Methods, 18th Edition)**

40 CFR Part 261, Appendix II and III

--Toxic Characteristic Leaching Procedure

Standard Methods, 18th Edition, 1992

--Total and Fecal Coliform in wastewater, streams, and lakes

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Solid Waste Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
William L. Meyer, Director

DEHNR

March 16, 1995

Mr. Gerald Horton, P.E.
DSAtlantic Corporation
5511 Capital Center Drive
Suite P-100
Raleigh, NC 27606

RE: Permit Application for the Davie County Construction and Demolition Landfill

Dear Mr. Horton,

The Solid Waste Section Hydrogeologic Unit has reviewed your letters of February 24, 1995 and March 10, 1995, and the accompanying revised permit application materials. Those revisions adequately address all items 1 through 11 in the Solid Waste Section's January 5, 1995 letter. As such, the application materials satisfy the requirements of the Solid Waste Management Rules.

The March 10 submittal contains analytical results of a volatile organic scan of water from well MW-5A, which was upgraded and sampled as requested by the Solid Waste Section. The laboratory reported values for three constituents which exceed the North Carolina Groundwater Standards. Handwritten notations on the laboratory report suggest that at least some of the constituents detected could be laboratory artifacts. During two sampling events in 1994, several of the other monitoring wells and surface water sampling points for the closed municipal landfill on the site showed levels exceeding the North Carolina Groundwater Standards for some of the same constituents. Assessment monitoring of the site will probably be necessary.

Because the proposed C&D landfill is directly downgradient from the existing municipal fill, any need to assess and remediate contamination from the existing fill will affect the design and buffer requirements for the proposed unit. Final review of the permit application will not be possible until the extent of any possible contamination of the site is better understood.

The Solid Waste Section requests that MW-5A be resampled:

- In order to test the possibility that the values reported for MW-5A are the result of laboratory artifacts, the sampling event should include trip and equipment blanks, plus a full complement of laboratory QA/QC procedures.

- Well construction details and static water levels for MW-5A, as upgraded, need to be provided.

- The Solid Waste Section suggests that the other monitoring wells and surface water sampling points for the closed municipal landfill be included in the same sampling event. Since earlier samples were analyzed by a different laboratory, and were collected during a different time of year, inclusion of all sample locations in the new sampling event will allow direct comparison of data. This may be in the operator's best interest, given their suggestion that contaminant migration may be slowing, due to recent improvements in the cap over existing fill. This sampling event may serve as the first semiannual sampling event required for the closed municipal unit.

- In addition to a volatile organic scan, samples need to be analyzed for inorganic constituents. This was requested previously in the Section's letter of January 5, 1995, which contained the *Sampling and Analysis Requirements* for *Construction and Demolition Landfills.* However, in the interest of direct comparability, the constituent list contained in the Section's letter of February 3, 1994, attached here, should be used for the next sampling event. The *Sampling and Analysis Requirements* for *Construction and Demolition Landfills* would still apply for detection monitoring of the proposed C&D landfill, in the event that construction and operation were to proceed.

It is my understanding that Mr. Mark Poindexter of the Solid Waste Section has already arranged a visit to the landfill to discuss the apparent contamination and to obtain samples from some of the existing monitoring wells on the site. The operators may wish to contact him so that he may coordinate his visit with the sampling contractor and obtain splits of their samples. Feel free to contact the Solid Waste Section if you have any questions.

Sincerely,

Jim Bateson

Jim Bateson,
Hydrogeologist
Solid Waste Section

cc: Mr. David Plott, Davie County Public Works Director
Jan McHargue, Solid Waste Section
Brent Rockett, "
Bobby Lutfy, "

DSAtlantic

DSAtlantic Corporation
5511 Capital Center Drive
Suite P-100
Raleigh, NC 27606
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ENGINEERS ♦ ARCHITECTS ♦ SURVEYORS

February 24, 1995

Mr. Jim Bateson, Hydrogeologist
NC Department of Environment, Health,
and Natural Resources
Division of Solid Waste Management
Solid Waste Section
401 Oberlin Road
P.O. Box 27687
Raleigh, NC 27611-7687

SUBJECT: RESPONSE TO COMMENTS ON THE CONSTRUCTION & DEMOLITION LANDFILL APPLICATION FOR DAVIE COUNTY, NC
DSAtlantic Corporation Project No.: 93070.08

Dear Mr. Bateson:

We are again writing to respond to comments made on the subject project by the Section most recently dated January 5, 1995. With this submission, we respectfully request a final review and approval by the Solid Waste Section regarding this important project. We have made every effort to respond to the Section's concerns, including expenditures of effort and money for a field survey of the facility boundary.

Included in this response are three (3) copies of the following items:

- Revised Water Quality Monitoring Plan (dated Jan. 24, 1995)
- Revised Geological & Hydrogeological Report (dated Jan. 24, 1995)
- Existing Conditions Plan
- Aerial map of 1/4 mile radius with annotations
- New Facility Boundary Survey

The following comments are offered on the eleven comments of the January 5 review letter:

Comment 1.

We have revised the submittal by providing a facility boundary by bearing and distance, delineated along natural hydrogeologic features. The description of the facility boundary is shown on the attached survey.

Comment 2.

Well MW-5 has been reconstructed with a shorter screen length. Sample results will be provided to you as soon as available. By copy of this letter we are directing Trigon to send those results to you and to us.

Comment 3. through 8.

Refer to information included in the Revised Water Quality Monitoring Plan and in the Revised Geological & Hydrogeological Report.

Comment 9. and 10.

New aerial photography has been obtained and provided.

Comment 11.

A statement is included now in Section 3 of the Geological & Hydrogeological Report.

We have appreciated the states assistance on this matter and look forward to receiving a permit for the C&D landfill.

Sincerely,

Gerald W. Horton, P.E.
Vice President, Environmental/Civil Engineering

/gwh

Enclosures: Three (3) copies as annotated in body of letter

cc: Mr. Kenneth Windley, Davie County Manager, with Enclosures
Mr. David Plott, Davie County Public Works Director
Mr. Norman E. Divers, III, DS*Atlantic* Corporation
Mr. Bobby Lufty, NCDSWM-Solid Waste Section Hydrogeologist
Ms. Jan McHargue, NCDSWM-Solid Waste Section Regional Engineer
Dr. Nick Bogen, Trigon
Mr. Mark Acuri, Trigon
File

DSAtlantic

MEMORANDUM

DATE: January 24, 1995

TO: David Plott, Public Works Director

FROM: Gerald W. Horton, PE

SUBJECT: Davie County C&D Landfill
DSAtlantic Proj. # 93070.08

Enclosed please find drawing C.1.1 of the C&D landfill plans. You will need to have a survey done and a description prepared for the facility permitted boundary as indicated. It should be suitable for recording. This is necessary in order to satisfy the NC Division of Solid Waste Sections Comment No. 1 of their January 5, 1995 review letter.

Please provide us the description and plat when completed so we can prepare the response to the sections latest review and hopefully make one last submittal.

By copy of this memorandum to Mr. Bobby Lutfy, I am notifying him that Davie County is field surveying the facility boundary and that we understand that this is now required of all applicants for their facility boundaries at all landfills in North Carolina.

cc: Bobby Lutfy, Ground water Hydrogeologist, NC Division of Solid Waste Management
Jim Bateson, Ground water Hydrogeologist, NC Division of Solid Waste Management

Davie County C & D Landfill
Response to Comments of 1/5/95

2. No comment

3. Boring numbers and bulk sample depth intervals have been added to Table 2. The locations of the EMA borings are shown on an aerial photo copied from SWS files and added to our report as Appendix F. This appendix is referenced in the text and on Table 2.

4. A statement has been added to 4.1, paragraph 4, indicating that these data are estimates based on measured grain-size distributions. An EPA document is referenced as the source of the tables and graphs used to make the estimates. For bedrock parameters (4.2) and effective porosities (4.3), we have added citations of the same reference.

5. A statement has been added to 3.0, paragraph 4, indicating that two 24-hour water levels were not obtained on two Saturdays and that these are not critical because only stabilized water levels are meaningful, in our opinion.

6. The inferred top of partially weathered rock has been dashed in on Section B-B', as requested.

7. A legible copy of Figure 2 is provided.

8. Section 3.2 and Table 2 now indicate that all screen lengths will be 15 feet. This fully defines the proposed screened interval.

11. The third paragraph of 3.0 now reads, "All piezometers will be drilled out and abandoned in accordance with ...."

MEMORANDUM

DATE: January 24, 1995

TO: David Plott, Public Works Director

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DSAtlantic Proj. # 93070.08

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cc: Bobby Lutfy, Ground water Hydrogeologist, NC Division of Solid Waste Management
Jim Bateson, Ground water Hydrogeologist, NC Division of Solid Waste Management

JAN 1995
Received
Solid Waste
Section

State of North Carolina
Department of Environment,
Health and Natural Resources
Division of Solid Waste Management

James B. Hunt, Jr., Governor
Jonathan B. Howes, Secretary
William L. Meyer, Director

DEHNR

January 5, 1995

Mr. Gerald Horton
DSAtlantic Corporation
5511 Capital Center Drive, Suite P-100
Raleigh, North Carolina 27606

RE: Permit Application For The Davie County Construction and Demolition Landfill

Dear Mr. Horton,

The Solid Waste Section Hydrogeologic Unit has reviewed your letter of December 20, 1994, and the accompanying revised permit application materials. The application submittal still does not meet all the requirements of the Solid Waste Management Rules, 15A NCAC 13B .0504. The following comments and questions need to be addressed before the technical review can be completed:

1. During our November 22, 1994, meeting, the Solid Waste Section explained the need for Davie County to do additional site subsurface characterization or revise their facility boundaries to include only that portion of the property that has been investigated. You were instructed, that if the County decided to revise the facility boundaries, then the boundaries were to be along natural hydrogeologic features, i.e. Leonard Creek to the north and the drainage feature to the east. The proposed revised facility boundaries do not meet this condition, and are in need of further revision.

2. Once well MW-5 has been reconstructed with a shorter screen length in order to conform to Solid Waste Section standards, groundwater from the well must be sampled and analyzed for **all** metals and organic constituents listed in the *Sampling and Analysis Requirements*. Because possible contamination from the existing municipal landfill affects the design and buffer requirements of the proposed construction and demolition landfill, results of the resampling of upgraded well MW-5 must be reviewed by the Solid Waste Section in order to complete our technical review of the permit application.

3. The sample locations and depths need to be provided for the data in Table 2.

4. With regard to hydraulic properties of each hydrogeologic unit, documentation needs to be provided for the additional data in Table 3 submitted for hydraulic conductivity, volume percent water, and porosity.

5. The revised report still provides no explanation for the lack of 24 hour water level data for piezometers B-19 and B-22. (Reference Table 4.)

6. The two cross-sections are still somewhat inconsistent with each other and need further revisions. For example the partially weathered rock that appears on cross-section A-*A* between borings B-21 and B-17 is not present on cross-section B-*B* between borings B-15 and B-19.

7. The topography is not legible on Figure No. 2, the Boring Locations diagram. A legible copy of Figure No. 2 must be provided in the report.

8. Well construction specifications in the proposed water quality monitoring plan need to include proposed screened intervals. Note that the Section generally expects 15 foot screens to be used for shallow monitoring wells designed to screen the water table. The top of the well screen should be set just above the seasonal high water table.

9. A separate 1"=400 foot scale topographic blueline version of the quarter mile radius map is required by the Solid Waste Management Rules, .0504(1)(a). This has still not been provided.

10. The quarter mile radius aerial photo is not legible and needs to be resubmitted in a legible form.

11. Because the piezometers were constructed with soil cuttings in the annular space (which does not to conform to N.C. Well construction standards), when the hydrogeologic study is completed and the piezometers are abandoned, they must be drilled out prior to backfilling with cement-bentonite grout. A statement to this effect must be put in the report along with the statement that "All the piezometers will be abandoned in accordance with 15A NCAC 2C .0113(2)(F)".

If you have any questions regarding this letter, please contact the Solid Waste Section at (919) 733-0692.

Sincerely,

Jim Bateson

Jim Bateson
Hydrogeologist
Solid Waste Section

cc: Bobby Lutfy, Solid Waste Section
Jan McHargue, Solid Waste Section
Brent Rockett, Solid Waste Section
David Plott, Public Works Director-Davie County
Robert Price, County Attorney for Davie County
Nick Bogen, Trigon Engineering