0302gw 080393

03-02

Fac/Perm/Co ID # Doc ID#
pc 08/16/93 DIN

GeoScience & Technology, P. A.
"PRACTICAL ENVIRONMENTAL SOLUTIONS"
2050 Northpoint Drive • Suite A • Winston-Salem, NC 27106
(919) 896-1300 • FAX (919) 896-1020

SOLID WASTE SECTION
AUG 03 1993

July 19, 1993

North Carolina Department of Environment, Health and Natural Resources
Division of Health Services
P.O. Box 2091
Raleigh, N.C. 27602

To whom it may concern:

Enclosed are results of analyses performed on samples collected at the Alleghany County Sanitary Landfill on June 14, 1993.

Should you have any questions concerning this, please do not hesitate to contact us.

Sincerely,
GEOSCIENCE & TECHNOLOGY, P.A.

R. Jeff Wyatt
Senior Hydrogeologic Technician

03-02

AnalytiKEM

Analytical Results for Metals

Method Number	Parameter	Method Blank	A60740-1 MW-1	A60740-2 MW-2	A60740-3 MW-3
		Sample Designation			
3010/200/200.7	Cadmium, total	5.0 U	5.0 U	5.0 U	5.0 U
3020/245.1	Mercury, total	0.20 U	0.20 U	0.20 U	0.067 J
	Units	(ug/l)	(ug/l)	(ug/l)	(ug/l)

U - Compound was analyzed for but not detected. The preceding number is the practical quantitation limit for the compound.

J - Compound was detected at levels below the practical quantitation limit. The level reported is approximate.

Case Narrative

The samples for this project were digested using SW846 Method 3010 and not Method 3030C as required. Method 3010 is a more aggressive digestion than Method 3030C. Therefore, the concentrations reported should reflect the maximum amount of metals in the sample.

03-02

AnalytiKEM *An American NuKEM Company*

AnalytiKEM Inc.
454 S. Anderson Road, BTC 532
Rock Hill, SC 29730
803/329-9690

6-14-93

TEST REPORT NO. A83754

July 6, 1993

Prepared for:

Geo Science & Technology
2050 North Point Road
Suite A
Winston-Salem, NC 27106

Attention: Jeffrey Wyatt

Project: Alleghany Co. L.F.

Reviewed &
Approved by: _____

Name: Carmine M. Fioriglio

Title: QA/QC Manager

AnalytiKEM

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AnalytiKEM

I. Certification

AnalytiKEM, Inc.
Current Certifications/Regulatory Approvals

Tabulated below are the current laboratory certifications that are held by each AnalytiKEM Laboratory.

Cherry Hill, NJ		Rock Hill, SC		Houston Analytical, TX	
State	Cert #	State	Cert #	State	Cert #
Arkansas	*	S. Carolina	46067	N. Dakota	R-006
Connecticut	PH-0715	N. Carolina	316	Oklahoma	8403
Florida	880985G	New Jersey	79795	Texas Water Commission *	
Massachusetts	NJ117			Louisiana	92-07
New Jersey	04012			S. Carolina	82011
New York	10815			N. Carolina	367
N. Carolina	258			Wisconsin	998010530
N. Dakota	R-038			New Jersey	82869
Pennsylvania	68366			West Virginia	*
S. Carolina	94004			Alaska UST	AKL008
Tennessee	02908				
Vermont	*				
Oklahoma	9107				

* No certification numbers are issued for these states.

AnalytiKEM

II. Definition of Terms

Term	Definition
D	Detected; result must be greater than zero.
DI	Deionized Water
J	Compound was detected at levels below the practical quantitation limit. The level reported is approximate.
MS/MSD	Matrix Spike/Matrix Spike Duplicate.
NA	Analysis not applicable to the sample matrix.
ND	Not Detected
NR	Not Requested
NTU	Nephelometric Turbidity Units
RPD	Relative Percent Difference
RSD	Relative Standard Deviation
U	Compound was analyzed for but not detected. The preceding number is the practical quantitation limit for the compound.
ppb	Parts-per-billion; may be converted to ppm by dividing by 1,000.
ppm	Parts-per-million; may be converted to ppb by multiplying by 1,000.
ug/l	Micrograms of constituent per liter of sample; equivalent to parts-per-billion.
ug/kg	Micrograms of constituent per kilogram of sample; equivalent to parts-per-billion.
ug/kg dw	Micrograms of constituent per kilogram of sample reported on a dry weight basis.
CCC	Calibration Check Compound; used to verify the precision of a GC/MS calibration curve.
SPCC	System Performance Check Compound; used to verify the correct operation of a GC/MS instrument.
PQL	Practical Quantitation Limit; the minimum level at which compounds can be dependably quantitated.
B	Analyte detected in associated blank as well as the sample. It indicates possible/probable blank contamination.

III. Sample Designations

AnalytiKEM

AnalytiKEM Designation	Client Designation	Matrix	Date Sampled
A83754-1	MW-1	Aqueous	6/14/93
A83754-2	MW-2	Aqueous	6/14/93
A83754-3	MW-3	Aqueous	6/14/93

Note 1: Samples will be held for 30 days beyond the test report date unless otherwise requested.

Note 2: The Biochemical Oxygen Demand was subcontracted to Aquachem Laboratories. Please see an attached copy of their report.

Note 3: The Total Organic Halides analysis was subcontracted to Savannah Laboratories. Please see an attached copy of their report.

AnalytiKEM

IV. Methodology

Metals

Method 3030C, Preliminary Treatment for Acid-Extractable Metals, Standard Methods for the Examination of Water and Wastewater, APHA, 18th Edition, 1992.

Method 3020, Acid Digestion of Aqueous Samples and Extracts for Total Metals for Analysis by Furnace Atomic Absorption Spectroscopy, Test Methods for Evaluating Solid Waste. Physical/Chemical Methods, SW846, Third Edition, USEPA, 1986, with all promulgated revisions.

Method 200, Metals, Methods for Chemical Analysis of Water and Wastes, EPA-600/4/020, USEPA, 1979.

- Method 200.7, Inductively Coupled Plasma - Atomic Emission Spectrometric Method for Trace Element Analysis of Water and Wastes.
- Method 206.2, Arsenic, AA, Furnace
- Method 239.2, Lead, AA, Furnace
- Method 245.1, Mercury, Cold Vapor, Manual
- Method 270.2, Selenium, AA, Furnace

IV. Methodology (Cont'd)

AnalytiKEM

General Chemistry

Methods 410.1, 410.2, 410.3, Chemical Oxygen Demand, Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, 1979.

Method 325.3, Chloride (Titrimetric, Mercuric Nitrate), Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, December, 1982.

Method 120.1, Conductance (Specific Conductance, umhos at 25 degrees C), Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, 1982.

Method 340.2, Fluoride (Potentiomentric, Ion Selective Electrode), Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, 1979.

Method 350.2, Nitrogen, Ammonia (Colorimetric; Titrimetric; Potentiometric-Distillation Procedure), Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, 1979.

Method 350.3, Nitrogen, Ammonia (Potentiometric, Ion/Selective Electrode), Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, 1979.

Method 150.1, pH (Electrometric), Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, 1982.

Method 375.4, Sulfate (Turbidimetric), Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, 1979.

Method 160.1, Total Dissolved Solids (Dried at 180 degrees C), Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, 1979.

Method 415.1, Organic Carbon, Total (Combustion - Infrared Method), Methods for Chemical Analysis of Water and Wastes, EPA-600/4-79-020, USEPA, 1979.

V. Analytical Results

AnalytiKEM

Metals

Sample Designation

Parameter	Method Blank		A83754-1 MW-1		A83754-1 (Duplicate) MW-1		
Arsenic, total	10	U	10	U	10	U	
Barium, total	200	U	63	J	63	J	
Cadmium, total	10	U	10	U	10	U	MDL
Chromium, total	50	U	50	U	50	U	
Copper, total	50	U	50	U	50	U	
Iron, total	18	J	95,000		97,000		
Lead, total	50	U	50	U	50	U	
Manganese, total	12	J	13,000		13,000		
Mercury, total	2.0	U	2.0	U	2.0	U	MDL
Selenium, total	10	U	10	U	10	U	
Silver, total	50	U	50	U	50	U	
Zinc, total	20	U	33		28		
Units	(ug/l)		(ug/l)		(ug/l)		

B-543

—Called Jeff Wyatt about MDL for Cd + Hg

—Asked to be resample for Cd + Hg

Sample De

Parameter	Method Blank		A831 MW-2		MW-3	
Arsenic, total	10	U	10	U	10	U
Barium, total	200	U	24	J	28	J
Cadmium, total	10	U	10	U	10	U
Chromium, total	50	U	50	U	50	U
Copper, total	50	U	50	U	50	U
Iron, total	18	J	750		130	
Lead, total	50	U	6.1	J	50	U
Manganese, total	12	J	67		20	
Mercury, total	2.0	U	2.0	U	2.0	U
Selenium, total	10	U	10	U	10	U
Silver, total	50	U	50	U	50	U
Zinc, total	20	U	13	J	10	J
Units	(ug/l)		(ug/l)		(ug/l)	

V. Analytical Results (Cont'd)

AnalytiKEM

General Chemistry

Sample Designation

Parameter	Method Blank		A83574-1 MW-1		A83574-2 MW-2	
Chemical Oxygen Demand	10,000	U	110,000		18,000	
Chloride	1,000	U	11,000		1,000	U
Conductivity, umhos/cm @ 25°C	NA		40,000		250	
Fluoride	50	U	56		81	
Nitrate-N	100	U	180		370	
pH, units	NA		5.65		6.09	
Sulfate	10,000	U	10,000	U	10,000	U
Total Dissolved Solids	10,000	U	300,000		47,000	
Total Organic Carbon	500	U	46,000		2,100	
Units	(ug/l)		(ug/l)		(ug/l)	

Sample Designation

Parameter	Method Blank		A83574-3 MW-3	
Chemical Oxygen Demand	10,000	U	47,000	
Chloride	1,000	U	1,000	U
Conductivity, umhos/cm @ 25°C	NA		140	
Fluoride	50	U	50	U
Nitrate-N	100	U	130	
pH, units	NA		5.24	
Sulfate	10,000	U	10,000	U
Total Dissolved Solids	10,000	U	38,000; 35,000	*
Total Organic Carbon	500	U	10,000	
Units	(ug/l)		(ug/l)	

* Duplicate Analysis.

Note 1: Sample A83754-1 (MW-1), A83754-2 (MW-2), A83754-3 (MW-3) were submitted improperly preserved for Chemical Oxygen Demand.

Note 2: Sample A83754-1 (MW-1), A83754-2 (MW-2), A83754-3 (MW-3) were submitted after holding time had expired for pH analysis.

VI. Quality Control Data

AnalytiKEM

Metals

Aqueous Matrix Spike/Matrix Spike Duplicate Recovery Data

Parameter	Sample Spiked	Amount of Spike	Recovery MS	Recovery MSD	RPD	Control Limits Recovery	Control Limits Max. RPD
Arsenic	A83754-3	100	110	114	4	80-109	10
Barium	A83754-2	300	96	102	6	70-116	10
Barium	DI Water	300	98	--	--	70-116	10
Cadmium	A83754-2	300	103	105	2	60-119	5
Chromium	A83754-2	300	100	100	0	66-110	4
Copper	A83754-2	300	101	104	3	71-111	20
Iron	A83754-2	300	105	109	4	65-109	15
Lead	A83754-3	100	98	100	2	65-110	4
Manganese	A83754-2	300	106	108	2	28-136	13
Mercury	A83754-3	20	110	111	1	63-129	5
Selenium	A83754-3	100	112	112	0	75-125	30
Silver	A83754-2	300	59	74	23	10-131	30
Zinc	A83754-2	300	104	110	6	76-100	6
Zinc	DI Water	300	102	--	--	76-100	6
Units		(ppb)	(%)	(%)	(%)	(%)	(%)

Recovery: 3 out of 26 outside control limits

RPD: 1 out of 12 outside control limits

VI. Quality Control Data (Cont'd)

AnalytiKEM

General Chemistry

Aqueous Matrix Spike/Matrix Spike Duplicate Recovery Data

Parameter	Sample Spiked	Amount of Spike	Recovery MS	Recovery MSD	RPD	Control Limits Recovery	Control Limits Max. RPD
Chemical Oxygen Demand	A83742-1	50,000	98	99	1	70-118	11
Chloride	A75605-Comp	20,000	99	99	0	49-146	18
Fluoride	A83681-6	133	79	85	7	75-120	20
Nitrate-N	A83754-3	500	108	112	4	75-120	20
Total Organic Carbon	A83745-3	20+	103	109	6	29-180	36
Sulfate	A83754-1	20,000	118	119	1	67-133	19
Units		(ppb)	(%)	(%)	(%)	(%)	(%)

+ (ug)

Recovery: 0 out of 12 outside control limits

RPD: 0 out of 6 outside control limits

AnalytiKEM An American NuKEM Company

JOB # 83154

☐ 28 Springdale Road
Cherry Hill, New Jersey 08003
(609) 751-1122 • (215) 923-2068
Fax: (609) 751-0824

☐ 2925 Richmond Avenue
Houston, Texas 77098
(713) 520-1495
Fax: (713) 523-7107

Analysis Request and Chain-of-Custody

☐ 2324 Vernsdale Road
Rock Hill, South Carolina 29730
(803) 324-5310
Fax: (803) 324-3982

Client GEOSCIENCE + TECH

Project: ALLEGHANY Co. L.F.

AnalytiKEM Contact J. NEAL

LAB I.D. NO.	FIELD SAMPLE I.D. NO.	DATE	USE 24 HR. CLOCK TIME	MATRIX	40 ml vials	950 ml Org. Pres.	950 ml Unpres.	250 ml Unpres.	ml HNO_3	ml H_2SO_4	ml H_2SO_4	ml NaOH			ANALYSIS REQUESTED PARAMETERS
#1	MW-1			H_2O			6	3							ARSENIC BARIUM CADMIUM CHROMIUM
#2	MW-2			H_2O			6	3							COPPER IRON MANGANESE MERCURY
#3	MW-3			H_2O			6	3							LEAD SILVER SELENIUM ZINC
															BOD COD TOC TOX TDS
															NITRATE SULFATE CHLORIDE
															FLOURIDE SPECIFIC COND. pH
															ALL 3 SAMPLES

1. Field Measurements:
   Data Sheets: Y N
   Filtered: Y Not Required
2. Chain of Custody
   Seal No. _____

II. Field Conditions/Comments: _____

III. Special Instructions: 5.0 ppb DET LIMIT ON CADMIUM
(Detection Limits, Data Package, etc.) 1.1 ppb DET. LIMIT ON MERCURY

client aware we can not meet DL - pH. Hancock

Relinquished By:	Date/Time (use 24 hr. clock)	Received By:	Date/Time (use 24 hr. clock)
Print Name: R. Jeff Wyatt	6-15 1155	Print Name: Dennis Williams	6/15/93 1155
Signature:		Signature: Dennis Williams	
Print Name: Dennis Williams	6-15-93 1405	Print Name: SKIP SAWYER	6/15/93 1405
Signature: Dennis Williams		Signature: Skip Sawyer	

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-43486

Received: 17 JUN 93

Purchase Order: RH3243

Ms. Patty deAndino
AnalytiKEM
2324 Vernsdale Rd.
Rock Hill, SC 29731

CC: Sharon Burrell

Project: 83754
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , LIQUID SAMPLES	DATE/ TIME SAMPLED
43486-1	83754-1	06-14-93/1400
43486-2	83754-2	06-14-93/1450
43486-3	83754-3	06-14-93/1555

PARAMETER	43486-1	43486-2	43486-3
Total Organic Halogen, mg/l	0.25	<0.010	<0.010

SL SAVANNAH LABORATORIES
& ENVIRONMENTAL SERVICES, INC.

5102 LaRoche Avenue • Savannah, GA 31404 • (912) 354-7858 • Fax (912) 352-0165

LOG NO: S3-43486

Received: 17 JUN 93

Purchase Order: RH3243

Ms. Patty deAndino
AnalytiKEM
2324 Vernsdale Rd.
Rock Hill, SC 29731

CC: Sharon Burrell

Project: 83754
Sampled By: Client

REPORT OF RESULTS

LOG NO	SAMPLE DESCRIPTION , QC REPORT FOR LIQUID SAMPLES
43486-4	Method Blank
43486-5	LCS (Mean % Recovery)
43486-6	LCS % RPD
43486-7	Date Analyzed

PARAMETER	43486-4	43486-5	43486-6	43486-7
Total Organic Halogen, mg/l	<0.010	110 %	15 %	07.06.93

Methods: EPA 40 CFR Part 136

Linda A. Wolfe

Linda A. Wolfe

Final Page Of Report

AnalytiKEM An American NuKEM Company AB# 7125344693 **JOB #** 83754

☐ 28 Springdale Road
Cherry Hill, New Jersey 08003
(609) 751-1122 • (215) 923-2068
Fax: (609) 751-0824

☐ 2925 Richmond Avenue
Houston, Texas 77098
(713) 520-1495
Fax: (713) 523-7107

Analysis Request and Chain-of-Custody

☑ 2324 Vernsdale Road
Rock Hill, South Carolina 29730
(803) 324-5310
Fax: (803) 324-3982

Client: ANALYTIKEM Project: 83754 AnalytiKEM Contact: Patti de ANDINO

LAB I.D. NO.	FIELD SAMPLE I.D. NO.	DATE	USE 24 HR. CLOCK TIME	MATRIX	40 ml vials	950 ml Org. Pres.	250 ml Unpres. ~~Septa~~	ml Unpres.	ml HNO_3	ml H_2SO_4	ml H_2SO_4	ml NaOH			ANALYSIS REQUESTED PARAMETERS
	83754 -1	6/14/93	1400	Water			1								TOX
	-2		1450				1								
	-3		1555				1								
															Results Due By 6/29/93

6/17 per Holly Glossock these are standard TAT BH

1. Field Measurements:
   Data Sheets: Y N
   Filtered: Y Not Required
2. Chain of Custody
   Seal No. _____

II. Field Conditions/Comments: _____

III: Special Instructions: _____
(Detection Limits, Data Package, etc.)

Relinquished By:	Date/Time (use 24 hr. clock)	Received By:	Date/Time (use 24 hr. clock)
Print Name: SKIP SAWYER	6/16/93 1700	Print Name: Fed Ex	6/16/93 1700
Signature: Skip Sawyer		Signature: C. Bonds	
Print Name: Fed Ex	6/17/93	Print Name: 53-434816	6/17/93 10:25 am
Signature:		Signature:	

AquaChem
ENVIRONMENTAL LABORATORIES, INC.
11176 Downs Road
Pineville, NC 28134
704/588-5076
FAX 704/588-2454

NC Certification Number: 305
SC Certification Number: 99032

Date of Report: 06/22/93
Date Received : 06/15/93

Approved By: Tyler H. Garber
Laboratory Director

Client: Analytikem
2324 Vernsdale Road
Rock Hill, South Carolina 29731

Contact: Mr. Tom Smith

Customer Number: 2087

LABORATORY REPORT

Parameter	Result	Det. Limit	Unit	Method	Analysis Time	Analysis Date	Anal
LAB ID: 921G01 SAMPLE ID: MW-2 83754-2							
BOD-5 Day	88	1	PPM	SM 507	14:20	06/15/93	RCD
LAB ID: 921G02 SAMPLE ID: MW-1 83754-1							
BOD-5 Day	BDL	1	PPM	SM 507	14:25	06/15/93	RCD
LAB ID: 921G03 SAMPLE ID: MW-3 83754-3							
BOD-5 Day	9	1	PPM	SM 507	14:30	06/15/93	RCD

AquaChem
ENVIRONMENTAL LABORATORIES, INC.
11176 Downs Road
Pineville, NC 28134
704/588-5076
FAX 704/588-2454

June 25, 1993

Patsy Pope
Analytikem, Inc.
425 South Anderson Rd.
Rock Hill, S.C. 29730

Dear Patsy:

The following are the stop dates and times for the indicated samples received from Analytikem for BOD-5 Day analysis.

Analytikem I.D.	AquaChem I.D.	Stop
MW-2 83754	921G01	6/20/93-1250
MW-1 83754	921G02	6/20/93-1255
MW-3 83754	921G03	6/20/93-1300

Please call me at 1-704-588-5076 if you have any further questions.

Sincerely,

Ty H. Garber
Laboratory Director

AquaChem
ENVIRONMENTAL LABORATORIES, INC.
11176 DOWNS ROAD
PINEVILLE, NC 28134

704/588-5076
FAX 704/588-2454

CHAIN OF CUSTODY

Client: AnalytiKEM
Address:
City: State: Zip:
Contact Person
Sampled By:

Phone Number: ( )
Fax Number: ( )
Purchase Order Number: 843231
Certification Requirement:
Requested Completion Date:
Rush Charges Authorized ☐ Yes ☐ No

By relinquishing this sample(s) to Laboratory Personnel, I warrant that I am authorized to enter into this agreement for the Client named above and that I authorize the below analysis subject to the terms and conditions on the reverse hereof. This agreement is governed by the terms and conditions on the reverse side hereof. Analysis charges shall be as included in the Laboratories fee schedule in effect at the time of the analysis.

Relinquished By: [signature] Date: 6-15-93 Time: 1335
Received By: Sara J Johnson Date: 6-15-93 Time: 1335
Relinquished By: Date: Time:
Received By: Date: Time:

Sample ID	PLASTIC	GLASS	Date & Time Sampled	COMPOSITE	GRAB	Lab ID	BOD	COD	TSS	pH	Ammonia	Oil & Grease	Cyanide	Phenol	Arsenic	Selenium	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Mercury	Silver	Barium	TCLP (Complete)	TPH (3550)	TPH (5030)	TPH (9071)	Other Analysis	Preservative
83754 mw-2			6-14-93 1450			92161	X																								ICE
83754 mw-1			6-14-93 1400			92162	X																								ICE
83754 mw-3			6-14-93 1555			92163	X																								ICE

Autosampler
Date Installed: Time Installed:
Date Picked Up: Time Picked Up:

Please sign and return the white and yellow copies to the Laboratory.