

p87-0001

Land O'Lakes, Inc.

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JOHN T. HOWE

CON 12-15
Doc # 11163

November 30, 2000

VIA CERTIFIED MAIL

Mr. John Vedder
Iowa Department of Natural Resources
Wallace State Office Building
Des Moines, Iowa 50319

Subject: Environmental Site Assessment Report – Review Request
Former Agro Distribution Facility
Lenox, Iowa

Dear John:

Taylor Co

I have enclosed a copy of the Seneca Environmental Services Environmental Site Assessment Report for our facility in Lenox. The assessment was completed as part of a proposed sale of the facility which did not go through.

We request at this time that you review the enclosed report and respond as to what the Iowa Department of Natural Resources recommends. Please contact me at your earliest convenience after completing your review of the information for this site. If you have questions regarding the information in the enclosed report, please contact me at (952) 974-8376.

Sincerely,

Land O' Lakes, Inc.



John T. Howe
Corporate Environmental, Health & Safety

Enclosure

DEPT. OF
NATURAL RESOURCES

2000 DEC -6 P 1:00



Seneca Environmental Services
Des Moines • Bettendorf

PROJECT NO. 6158306
DRILLING AND SAMPLING
FOR THE AGRICULTURAL COOP
LOCATED AT 701 E. VAN BUREN
LENOX, IOWA

PREPARED FOR:
Mr. Dan Truckenmiller
Crestland Cooperative
300 Osage Street, PO Box 329
Creston, Iowa 50801

PREPARED BY:
Beth Kephart, Chemical Engineer
Julie Mills, Geologist
Seneca Environmental Services
P. O. Box 3360
Des Moines, Iowa 50316

DEPT. OF
NATURAL RESOURCES

2000 DEC - 6 - 1:00

REPORT OF DRILLING AND SAMPLING

CONDUCTED AT

701 E. VAN BUREN

LENOX, IOWA

Prepared for:

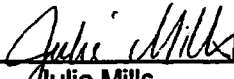
**Mr. Dan Truckenmiller
Crestland Cooperative
300 Osage Street, PO Box 3295
Creston, Iowa 50801**

Seneca Project No. 6159306

**by
SENECA Environmental Services**



**Beth Kephart
Chemical Engineer, EIT**



**Julie Mills
Geologist**

June 22, 2000

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**REPORT OF DRILLING AND SAMPLING
CONDUCTED AT
701 E. VAN BUREN
LENOX, IOWA**

Introduction:

This report summarizes the data, observations, and conclusions of drilling and sampling activities conducted for the agricultural coop located at 701 E. Van Buren in Lenox, Iowa. The scope of work consisted of drilling three boreholes for the acquisition and analysis of soil and groundwater samples. This report was prepared for Mr. Dan Truckenmiller and Crestland Cooperative, Creston, Iowa.

Module I. Site History:

The drilling and sampling strategy was developed at the request of the report user, who also provided a site summary report describing potential environmental concerns on the property. This strategy included the drilling of three boreholes to a depth of 15-20 feet for the acquisition of soil and groundwater samples. Please refer to the site map provided by the user (included as Appendix A) for borehole locations.

Module II. Drilling and Sampling:

The resulting scope of work consisted of drilling three boreholes on the subject property between the facility buildings and an off-site stream located north of the property border. Please refer to Appendix B for a topographic map of the region depicting the off-site stream and general drainage pattern. BH1 was drilled near an active containment basin. There is a dirt dike north of the basin, and BH1 was drilled at the bottom of a hill on the north side of this dike. BH2 was drilled north of the dry fertilizer storage area near a surficial drainageway to the containment basin. BH3 was

drilled north of two anhydrous ammonia bulk storage tanks and the indoor liquid chemical storage area. BH3 is also located in the vicinity of a former containment basin that has been filled in. The boreholes were drilled on May 19, 2000, with a truck-mounted drilling rig equipped with a 6-½ inch outside diameter hollow stem auger and core barrel capable of providing a continuous soil sample at five-foot intervals. Boreholes were drilled to 15-20 feet below the surface, at which depth it was determined that groundwater had been sufficiently penetrated. Sediments encountered were dominated by silty clays. BH1 also contained various sand seams. Detailed borelogs describing the lithologies are included as Appendix C.

All soil and groundwater samples were analyzed for petroleum compounds utilizing IA Method OA1/OA2, pesticides utilizing IA Method 8141, and nitrates/nitrites utilizing IA Method SM 4500 NO3 D. A photoionization detector (PID) was used for field screening of soil samples at one-foot intervals. Soil samples from various depths were collected and placed in labeled zip-lock baggies. Following sufficient time for vapor equilibration, the PID was used to detect volatile organic compounds inside the soil sample bags. There were no indications of VOCs from BH1, BH2, or BH3 using this method. Considering that volatile organic compounds were not indicated using the PID, soil samples for BH1 were collected 14 feet below the surface. Soil samples for BH2 were collected 6 feet below the surface, and soil samples for BH3 were collected 5 feet below the surface of the ground. These depths correlate to depths near expected static ground water level. Additional samples were collected from each borehole from 1 foot below the surface for analysis of pesticides and nitrates/nitrites. Each soil sample was placed in a clean four-ounce glass jar, placed on ice and sent with a Chain of Custody to a certified laboratory for analysis.

Following the completion of the borings, all boreholes were converted into temporary monitoring wells using 2" PVC casing. BH1 and BH2 had 15-foot screens and BH3 had a 10-foot screen. The wells were developed by purging them until they were dry. The wells were then allowed time to fully recover and return to a static water level. Water samples were collected on May 30, 2000 using a disposable bailer and poly-line. Contents of the bailers were transferred into appropriate sampling containers, and were labeled, placed on ice, and sent with a Chain of Custody to a certified laboratory for analysis of petroleum compounds utilizing IA Method OA1/OA2, pesticides utilizing IA Method 8141 and nitrates/nitrites utilizing IA Method SM4500-NO3 D. Method SM 4500-NO3 D, utilized to analyze fertilizer in soil and groundwater, converts the existing nitrite into nitrate for analysis. Therefore, the resulting concentration represents the accumulation of both nitrates and nitrites in the media of concern. This method of analysis was chosen because of the natural tendency of nitrite to convert into nitrate over time. Therefore, Statewide Standard regulatory limits for nitrate in soil and groundwater will be observed.

After all groundwater samples had been collected, the boreholes were plugged and abandoned with bentonite as required by the Iowa Department of Natural Resource's rule 567-39.8 of the Iowa Administrative Code (IAC). Copies of the abandoned water well plugging records for the boreholes are included in Appendix D.

Module III. Results of Drilling:

The analytical results of the soil and groundwater samples and the chain-of-custody form are included in Appendix E. The groundwater sample from BH3 was found to contain nitrates and pesticide compounds at concentrations above the current State of Iowa regulatory standards. The groundwater sample from BH2 also contained amounts

of nitrates above applicable regulatory standards. Petroleum compounds in the form of Total Extractable Hydrocarbons (TEH) were detected below regulatory limits in the groundwater sample from BH1. Soil samples from all three boreholes did contain pesticides in concentrations above minimum quantitation limits for the analytical methods utilized, but well below applicable regulatory standards. In addition, nitrates were detected in the shallow soil samples from BH2 and BH3, and TEH was detected in the soil sample from BH2 at a six-foot depth, all below statewide regulatory limits. A summary of the contaminants detected by the laboratory is listed in Table 1 on the following page.

Table 1: Analytical Results of Detected Compounds

Sample Location	Media	Compound	Detected Concentration	Statewide Standard
W-BH1	Groundwater	Total Extractable Hydrocarbons (TEH)	538 ppb	1,200 ppb
BH1-1'	Soil	Atrazine	0.0071 ppm	2700 ppm
	Soil	Simazine	0.011 ppm	390 ppm
W-BH2	Groundwater	Nitrogen (as Nitrate)	* 230 ppm	10 ppm
BH2-1'	Soil	Nitrate Nitrogen	570 ppm	130,000 ppm
	Soil	Alachlor (Lasso)	0.23 ppm	27 ppm
	Soil	Atrazine	5.1 ppm	2700 ppm
	Soil	Chlorpyrifos (Dursban)	0.046 ppm	230 ppm
	Soil	Cyanazine (Bladex)	0.092 ppm	160 ppm
	Soil	Metolachlor (Dual)	13.0 ppm	12,000 ppm
	Soil	Pendimethalin (Prowl)	0.20 ppm	3,100 ppm
	Soil	Simazine	0.049 ppm	390 ppm
	Soil	Trifluralin (Treflan)	0.16 ppm	590 ppm
BH2-6'	Soil	Total Extractable Hydrocarbons (TEH)	298.9 ppm	3,800 ppm
W-BH3	Groundwater	Nitrogen (as Nitrate)	* 200 ppm	10 ppm
	Groundwater	Alachlor (Lasso)	* 56 ppb	2 ppb
	Groundwater	Atrazine	* 680 ppb	3 ppb
	Groundwater	Metolachlor (Dual)	* 610 ppb	70 ppb
BH3-1'	Soil	Nitrate Nitrogen	200 ppm	130,000 ppm
	Soil	Alachlor (Lasso)	0.5 ppm	27 ppm
	Soil	Atrazine	0.68 ppm	2700 ppm
	Soil	Cyanazine (Bladex)	0.24 ppm	160 ppm
	Soil	Metolachlor (Dual)	15.0 ppm	12,000 ppm
	Soil	Metribuzin (Sencor)	0.037 ppm	2,000 ppm
	Soil	Simazine	0.014 ppm	390 ppm
	Soil	Trifluralin (Treflan)	0.56 ppm	590 ppm

Statewide Standard regulatory limits obtained from Chapter 137 IAC: Iowa Land Recycling Program and Response Action Standards (1998), except for except for the TEH regulatory limit which was obtained from the State of Iowa Tier I Lookup Table.

* Indicates compounds in concentrations above the applicable statewide standard.

MODULE IV. Data Review and Recommendations:

As a result of drilling and sampling performed at the subject site, we have concluded that the groundwater sample from BH3 did contain amounts of nitrates and pesticide compounds above applicable statewide regulatory limits. The groundwater sample from BH2 also contained amounts of nitrates above applicable regulatory standards. In addition, soil samples collected from all three boreholes and the groundwater sample from BH1 did contain amounts of various chemicals above the laboratory minimum detection limits but below statewide regulatory limits.

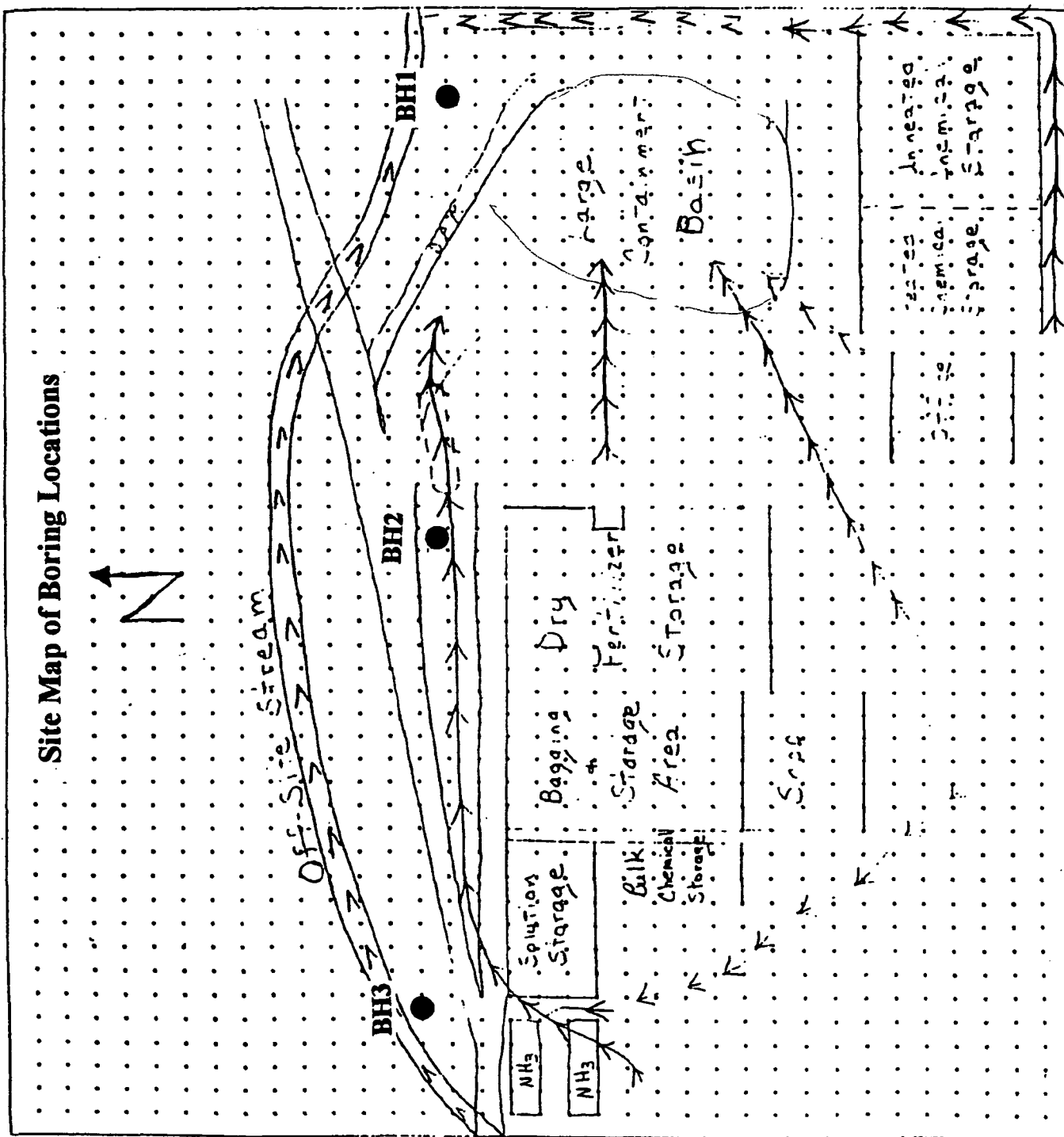
Upon receipt of this report, the property owner should be instructed to call John Vetter at (515) 242-5087 and provide verbal notification of the findings. A copy of this report should be forwarded to the IDNR at the following address:

Mr. John Vetter
Iowa Department of Natural Resources
Wallace State Office Building
Des Moines, IA 50319

The information contained in this report is based on a limited number of boreholes and a limited analytical suite. The samples that were collected are assumed to be representative of the small area surrounding the borehole. Failure to discover hazardous substances or conditions at the time of this report through appropriate techniques does not guarantee that hazardous materials or substances do not exist at the site. We make no warranty, expressed or implied, for this property nor make certification of the suitability of future use of the property based on the results of this assessment, except that our services were performed in accordance with the level of care and skill ordinarily practiced by members of the profession in this area at this time under similar budget and time constraints.

This report has been prepared on behalf of and exclusively for the use Mr. Dan Truckenmiller and Crestland Cooperative, Creston, Iowa. This report and the findings contained herein shall not, in whole or part, be disseminated or conveyed to any other party or be used or relied upon by any other party, in whole or in part, without the consultant's prior written consent.

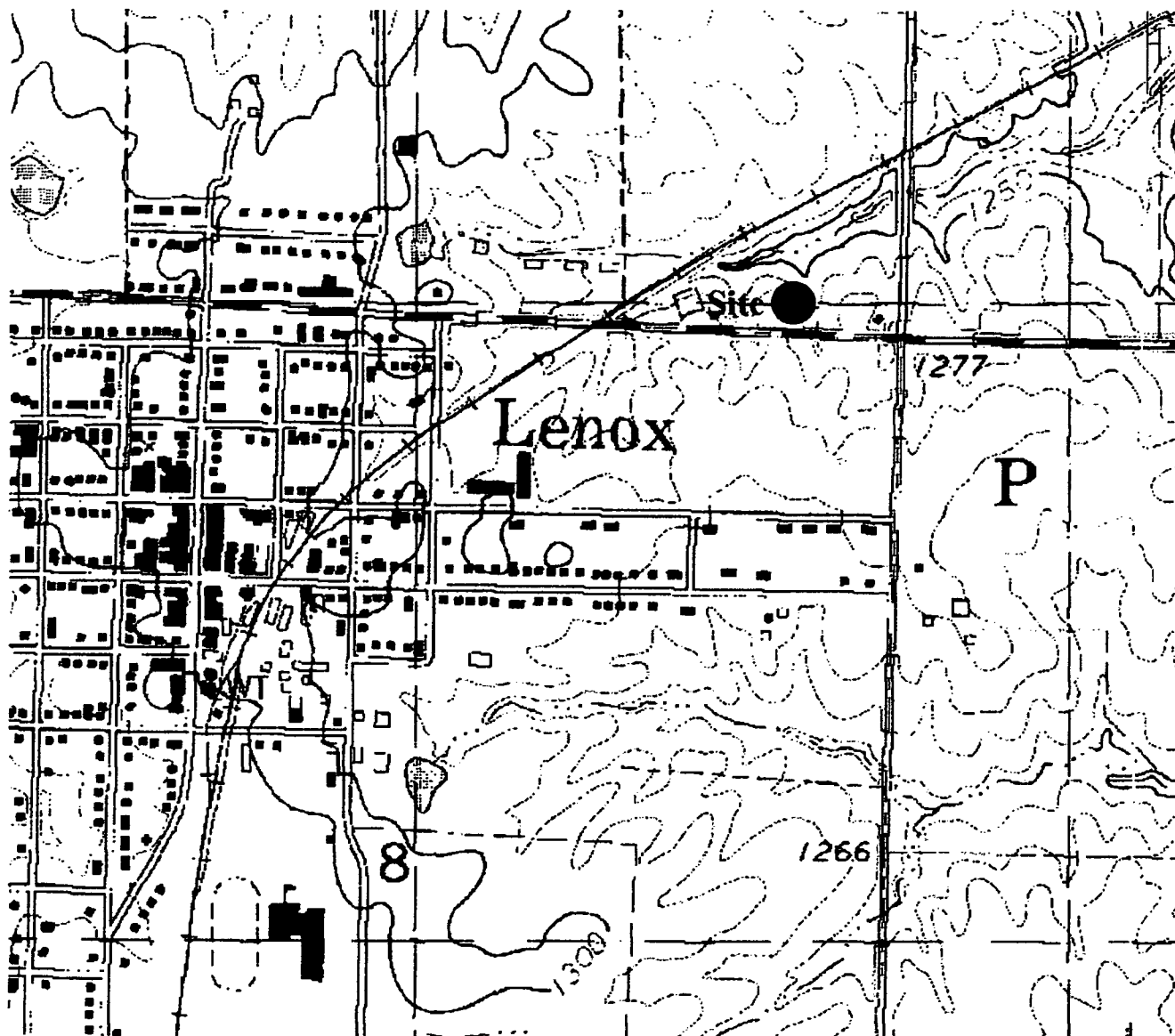
APPENDIX A
SITE MAP OF BORING LOCATIONS

Run-Off Retention Plan:

Sketch area surface drainage at and from the site. With arrows, indicate direction of flow. Show all nearby environmentally sensitive areas such as ditches, underground drains, creeks, rivers, etc. Use arrows to indicate drainage direction. If run-off does reach these waterways during an emergency, call the National Response Center 800-424-8802. Illustrate where and how water may be blocked by dams, dikes or storm drain covers both upstream and downstream. If symbols are used, also include a legend or key. Show north arrow.

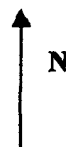
Denote any control strategy equipment and its location (i.e. tarps for sewers - in shop, sand piled to block ditch, etc.).

APPENDIX B
USGS TOPOGRAPHIC MAP



USGS Topographic Map

Lenox, Iowa Quadrangle



Scale: 1 in = 880 ft (1/6 mi)

APPENDIX C
LITHOLOGIC LOGS

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: BH1	Facility: Crestland Coop	Facility Street Address: 701 E. Van Buren
Boring Depth (ft) X Diameter (in): 20'x 6.25"		Drilling Method: HSA
Well contractor Name: Rewerts		Logged By: Julie Mills
Registration Number: 40480		

Ground Surface Elevation (ASL):	Top of Casing Elevation (ASL):
------------------------------------	-----------------------------------

Date: 5/19/00	Date: 5/19/00	UST Number:	LUST Number:
Start Time: 1030	End Time: 1120		

Depth (feet)	Well Construction Details	Blow Count	Sample No.	Type	PID/FID Reading	USCS Class.	Soil Classification
0							Overlay Material vegetation
1					0		black silty clay
2					0		
3					0		slightly damp
4					0		
5					0		black and gray mottled silty clay
6					0		
7					0		gray and brown mottled silty clay, some oxide nodules
8					0		
9					0		
10					0		
11					0		gray uniform silty clay, wet
12					0		
13					0		slight odor
14			S-14'		0		wet, small sand seam, slight odor
15					0		gray silty clay, some brown sand
16					0		hard dry brown silty clay, some pebbles
17					0		
18					0		
19					0		
20	TD = 20'				0		
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

* SS (Split Spoon) HSA (Hollow Stem Auger) DP (Direct Push)

Observations	Date:					
Water Levels (ASL)	Level:					
Static Water Level v	Time:					

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number:

BH2

Facility:

Crestland Coop

Facility Street Address:

701 E. Van Buren

Boring Depth (ft) X Diameter (in): 20'x 6.25"

Drilling Method: HSA

Well contractor Name: Rewerts

Logged By: Julie Mills

Registration Number: 40480

Ground Surface

Elevation (ASL):

Top of Casing

Elevation (ASL):

Date: 5/19/00

Date: 5/19/00

UST

LUST

Start Time: 1130

End Time: 1220

Number:

Number:

Depth (feet)	Well Construction Details	Blow Count	Sample No.	Sample Type	PID/FID Reading	USCS Class.	Soil Classification
0							Overlay Material -
1					0		black loose silty clay
2					0		dark black and brown mottled silty clay, wet, odd odor
3					0		
4					0		
5					0		dark black silty clay, damp
6			S-6'		0		black silty clay, damp
7					0		tan silty clay, very dense, dry
8					0		
9					0		
10					0		
11					0		
12					0		
13					0		
14					0		
15					0		
16					0		
17					0		
18					0		
19					0		
20	TD = 20'				0		
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

* SS (Split Spoon) HSA (Hollow Stem Auger) DP (Direct Push)

Observations	Date:					
Water Levels (ASL)	Level:					
Static Water Level v	Time:					

SOIL BORING LOG AND MONITORING WELL CONSTRUCTION DIAGRAM

Boring/Well Number: BH3		Facility: Crestland Coop		Facility Street Address: 701 E. Van Buren			
Boring Depth (ft) X Diameter (in): 15'x 6.25"		Drilling Method: HSA					
Well contractor Name: Rewerts				Logged By: Julie Mills			
Registration Number: 40480							
Ground Surface Elevation (ASL):			Top of Casing Elevation (ASL):				
Date: 5/19/00		Date: 5/19/00		UST			
Start Time: 1330		End Time: 1420		Number:			
LUST		Number:					
Depth (feet)	Well Construction Details	Blow Count	Sample No.	Type	PID/FID Reading	USCS Class.	Soil Classification
0							Overlay Material -
1					0		black uniform silty clay, loose
2					0		
3					0		
4					0		damp, slight odor
5			S-5'		0		wet
6					0		damp, black silty clay
7					0		brown black mottled silty clay, dense, high plasticity
8					0		
9					0		
10					0		brown dense uniform silty clay, dry
11					0		
12					0		
13					0		
14					0		
15	TD = 15'				0		
16							
17							
18							
19							
20							
21							
22							
23							
24							
25							
26							
27							
28							
29							
30							

* SS (Split Spoon) HSA (Hollow Stem Auger) DP (Direct Push)

Observations	Date:					
Water Levels (ASL)	Level:					
Static Water Level v	Time:					

APPENDIX D
COPIES OF ABANDONED WELL PLUGGING FORMS

Iowa Department of Natural Resources

Abandoned Water Well Plugging Record

1. Owner:

Name: _____	City: _____	State: _____
Address: _____	Zip: _____	Phone: () _____

2. Well (Cistern) Location:

1/4 of SE 1/4 of SE 1/4 of Section 5, Twp. 70 N., Range 32 West (circle one)
Taylor County, Describe well location on property: BH1

3. Description:

Well depth: <u>20</u> ft	Casing material: <u>steel</u> , <u>elastic</u> concrete, clay, brick, stone
Depth to water: _____ ft	(circle one)
Casing diameter: _____ in	Type of construction: drilled, driven, bored, dug, <u>augered</u>
Yr. or decade constd.: _____	(circle one)
Depth of casing: _____ ft	Check ☐ if this is a Monitoring Well
Check ☐ if Cistern depth: _____ ft diameter: _____ ft	

~~For this well to be plugged as required by rule 567-39.8 of the Iowa Administrative Code (IAC), the owner must provide an additional signature of the county agent or department may need to concern this well.~~
 Signature of Owner: _____ Date Plugged: 5-30-00

If plugged by certified well contractor, complete this box:

I have plugged this well as required by rule 567-39.8 of the Iowa Administrative Code (IAC).	
Signature of Contractor: <u>Nick</u>	Cert. No.: <u>40450</u>

OR, If plugged by well owner, complete this box:

The property owner has plugged this well following requirements in rule 567-39.8 of the Iowa Administrative Code with the oversight and assistance of the designated county agent.	
Signature of County Agent: _____	Date Approved: _____

~~For this well to be plugged as required by rule 567-39.8 of the Iowa Administrative Code (IAC), the owner must provide an additional signature of the county agent or department may need to concern this well.~~

Complete one form for each well plugged and submit within 30 days to the local county agent:

or, only if no county agent is available, to:

Water Supply Section
Department of Natural Resources

Iowa Department of Natural Resources

Abandoned Water Well Plugging Record

1. Owner:

Name: _____	City: _____	State: _____
Address: _____	Zip: _____	Phone: () _____

2. Well (Cistern) Location:

1/4 of SE 1/4 of SE 1/4 of Section 5, Twp. 70 N., Range 32 West (circle one)
Taylor County. Describe well location on property: NE corner
BH2

3. Description:

Well depth: <u>20</u> ft	Casing material: steel, <u>plastic</u> , concrete, clay, brick, stone
Depth to water: _____ ft	(circle one)
Casing diameter: _____ in	Type of construction: drilled, driven, bored, dug, <u>augered</u>
Yr. or decade constd.: _____	(circle one)
Depth of casing: _____ ft	Check ☐ if this is a Monitoring Well

Check ☐ if Cistern depth: _____ ft diameter: _____ ft

I hereby certify that this well has been plugged in accordance with rule 567-39.8 of the Iowa Administrative Code (IAC). I agree to provide any additional information the County or Department may need concerning this well.
 Signature of O'Byrne Date Plugged: 5-30-00

If plugged by certified well contractor, complete this box:

I have plugged this well as required by rule 567-39.8 of the Iowa Administrative Code (IAC).

Signature of Contractor: Wick Cert. No.: 40480

OR, If plugged by well owner, complete this box:

The property owner has plugged this well following requirements in rule 567-39.8 of the Iowa Administrative Code with the oversight and assistance of the designated county agent.

Signature of County Agent: _____ Date Approved: _____

Print the name of the County agent who supervised the plugging of the well: _____

Complete one form for each well plugged and submit within 30 days to the local county agent:

or, only if no county agent is available, to:

Water Supply Section
 Department of Natural Resources

Iowa Department of Natural Resources

Abandoned Water Well Plugging Record

1. Owner:

Name: _____	City: _____	State: _____
Address: _____	Zip: _____	Phone: () _____

2 Well (Cistern) Location:

1/4 of SE 1/4 of SE 1/4 of Section 5 Twp. 70 N., Range 32 West (circle one)
Taylor County, Describe well location on property: BH3

3. Description:

Well depth: <u>15</u> ft	Casing material: steel, <u>plastic</u> , concrete, clay, brick, stone
Depth to water: _____ ft	(circle one)
Casing diameter: _____ in	Type of construction: drilled, driven, bored, dug, <u>augered</u>
Yr. or decade constrd.: _____	(circle one)
Depth of casing: _____ ft	Check ☐ if this is a Monitoring Well
Check ☐ if Cistern depth: _____ ft diameter: _____ ft	

~~I certify this well has been plugged as required by rule 567-39.8 of the Iowa Administrative Code (IAC) and I agree to provide any additional information the county or department may need concerning this well.~~
 Signature of Owner: _____ Date Plugged: 5-30-00

If plugged by certified well contractor, complete this box:

I have plugged this well as required by rule 567-39.8 of the Iowa Administrative Code (IAC).

Signature of Contractor: Nick B Cert. No.: 40950

OR, If plugged by well owner, complete this box:

The property owner has plugged this well following requirements in rule 567-39.8 of the Iowa Administrative Code with the oversight and assistance of the designated county agent.

Signature of County Agent: _____ Date Approved: _____

~~I hereby certify that this well has been plugged as required by rule 567-39.8 of the Iowa Administrative Code (IAC) and I agree to provide any additional information the county or department may need concerning this well.~~

Complete one form for each well plugged and submit within 30 days to the local county agent

or, only if no county agent is available, to:

Water Supply Section
Department of Natural Resources

APPENDIX E
LABORATORY ANALYSIS OF SOIL SAMPLES
CHAIN OF CUSTODY FORM

Handwritten initials and date: 6/8/00



ANALYTICAL REPORT

Julie Mills
SENECA ENVIRONMENTAL
SERVICES, INC.
4140 N.E. 14th St.
Des Moines, IA 50313

06/06/2000

Job Number: 00.06229

Sample Number: 565526

Project ID: 6159306 Crestland Co-Op

Sample ID: W-BH1 Crestland Co-Op

Date Taken: 05/19/2000

Date Received: 05/20/2000

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Result</u> <u>Flag</u>	<u>Analyst</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>Quantitation</u> <u>Limit</u>
Extraction Prep	COMPLETE			dxk	05/22/2000	IOWA-0A2	
EXTRACTABLE HYDROCARBONS-WATER							
Total Extractable Hydrocarbons	538	ug/L		mpc	05/24/2000	IA-OA2/S-8015	380
Diesel	<380	ug/L		mpc	05/24/2000	IA-OA2/S-8015	380
Gasoline	<380	ug/L		mpc	05/24/2000	IA-OA2/S-8015	380
Motor Oil	538	ug/L		mpc	05/24/2000	IA-OA2/S-8015	380

R.L. Bindert
Operations Manager

TestAmerica

INCORPORATED

ANALYTICAL REPORT

Julie Mills
SENECA ENVIRONMENTAL
SERVICES, INC.
4140 N.E. 14th St.
Des Moines, IA 50313

06/21/2000

Job Number: 00.06641

Sample Number: 566880

Project ID: 6159306 Crestland

Sample ID: W-BH1 Project #6159306

Date Taken: 05/30/2000

Date Received: 05/31/2000

Analyte	Result	Units	Plac	Analyst	Date Analyzed	Method	Quantitation Limit
NO3+NO2 Nitrogen (electrode)	<1.0	ug/L		jcp	06/05/2000	SM 4500-NO3 D	1.0
VOLATILES - STEK (WATER)							
Benzene	<2.0	ug/L		ake	06/05/2000	IA-OA1	2.0
Toluene	<2.0	ug/L		ake	06/05/2000	IA-OA1	2.0
Ethylbenzene	<2.0	ug/L		ake	06/05/2000	IA-OA1	2.0
Xylenes, Total	<3.0	ug/L		ake	06/05/2000	IA-OA1	3.0
Prep - Method 8141	Complete			rlb	06/02/2000	SW 3510	
Method 8141 - Aqueous			SA				
Alachlor (Lasso)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5
Atrazine	<1.0	ug/L		rlb	06/18/2000	SW 8141	1.0
Butylate (Sutan)	<1.0	ug/L		rlb	06/18/2000	SW 8141	1.0
Chlorpyrifos (Duraban)	<1.0	ug/L		rlb	06/18/2000	SW 8141	1.0
Cyanazine (Bladex)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5
Metolachlor (Dual)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5
Metribuzin (Sencor)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5
Parathion, Ethyl	<1.0	ug/L		rlb	06/18/2000	SW 8141	1.0
Pendimethalin (Prowl)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5
Simazine	<1.0	ug/L		rlb	06/18/2000	SW 8141	1.0
Trifluralin (Treflan)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5

SA - Analysis subcontracted to TestAmerica Nashville Division


 R.L. Bindert
 Operations Manager

TestAmerica

INCORPORATED

ANALYTICAL REPORT

Julie Mills
SENECA ENVIRONMENTAL
SERVICES, INC.
4140 N.E. 14th St.
Des Moines, IA 50313

06/21/2000

Job Number: 00.06641

Sample Number: 566881

Project ID: 6159306 Crestland

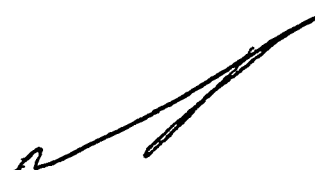
Sample ID: W-BH2 Project #6159306

Date Taken: 05/30/2000

Date Received: 05/31/2000

Analyte	Result	Units	Result Flag	Analyst	Date Analyzed	Method	Quantitation Limit
NO3-NO2 Nitrogen (electrode)	230	ug/L		jcp	06/05/2000	SM 4500-NO3 D	1.0
Extraction Prep	complete			kak	06/01/2000	IOWA-0A2	
EXTRACTABLE HYDROCARBONS-WATER							
Total Extractable Hydrocarbons	<380	ug/L		mpc	06/05/2000	IA-0A2/S-8015	380
Diesel	<380	ug/L		mpc	06/05/2000	IA-0A2/S-8015	380
Gasoline	<380	ug/L		mpc	06/05/2000	IA-0A2/S-8015	380
Motor Oil	<380	ug/L		mpc	06/05/2000	IA-0A2/S-8015	380
VOLATILES - BTEX (WATER)							
Benzene	<2.0	ug/L		ake	06/05/2000	IA-0A1	2.0
Toluene	<2.0	ug/L		ake	06/05/2000	IA-0A1	2.0
Ethylbenzene	<2.0	ug/L		ake	06/05/2000	IA-0A1	2.0
Xylenes, Total	<3.0	ug/L		ake	06/05/2000	IA-0A1	3.0
Prep - Method 8141	Complete			rlb	06/02/2000	SW 3510	
Method 8141 - Aqueous			SA				
Alachlor (Lasso)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5
Atrazine	<1.0	ug/L		rlb	06/18/2000	SW 8141	1.0
Burylate (Sutan)	<10	ug/L		rlb	06/18/2000	SW 8141	10
Chlorpyrifos (Dursban)	<1.0	ug/L		rlb	06/18/2000	SW 8141	1.0
Cyanazine (Bladex)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5
Metolachlor (Dual)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5
Metribusin (Sencor)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5
Parathion, Ethyl	<1.0	ug/L		rlb	06/18/2000	SW 8141	1.0
Pendimethalin (Prowl)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5
Sinazine	<1.0	ug/L		rlb	06/18/2000	SW 8141	1.0

SA - Analysis subcontracted to TestAmerica Nashville Division



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Operations Manager

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Des Moines, IA 50313

06/21/2000

Job Number: 00.06641

Sample Number: 566881

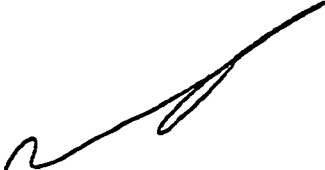
Project ID: 6159306 Crestland

Sample ID: W-BH2 Project #6159306

Date Taken: 05/30/2000

Date Received: 05/31/2000

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Result</u> <u>Flag</u>	<u>Analyst</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>Quantitation</u> <u>Limit</u>
Trifluralin (Treflan)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5



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ANALYTICAL REPORT

Julie Mills
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4140 N.E. 14th St.
Des Moines, IA 50313

06/21/2000

Job Number: 00.06641

Sample Number: 566882

Project ID: 6159306 Crestland

Sample ID: W-BH3 Project #6159306

Date Taken: 05/30/2000

Date Received: 05/31/2000

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Result</u> <u>Flag</u>	<u>Analyst</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>Quantitation</u> <u>Limit</u>
NO3+NO2 Nitrogen (electrode)	200	mg/L		jcp	06/05/2000	SM 4500-NO3 D	1.0
Extraction Prep	complete			kak	06/01/2000	IOWA-0A2	
EXTRACTABLE HYDROCARBONS-WATER							
Total Extractable Hydrocarbons	<380	ug/L		mpc	06/05/2000	IA-QA2/S-8015	380
Diesel	<380	ug/L		mpc	06/05/2000	IA-QA2/S-8015	380
Gasoline	<380	ug/L		mpc	06/05/2000	IA-QA2/S-8015	380
Motor Oil	<380	ug/L		mpc	06/05/2000	IA-QA2/S-8015	380
VOLATILES - BTEX (WATER)							
Benzene	<2.0	ug/L		ake	06/05/2000	IA-QA1	2.0
Toluene	<2.0	ug/L		ake	06/05/2000	IA-QA1	2.0
Ethylbenzene	<2.0	ug/L		ake	06/05/2000	IA-QA1	2.0
Xylenes, Total	<3.0	ug/L		ake	06/05/2000	IA-QA1	3.0
Prep - Method 8141	Complete			rlb	06/02/2000	SW 8141	
Method 8141 - Aqueous			SA				
Alachlor (Lasso)	56	ug/L		rlb	06/18/2000	SW 8141	0.5
Atrazine	680	ug/L		rlb	06/18/2000	SW 8141	1.0
Butylate (Sutan)	<10	ug/L		rlb	06/18/2000	SW 8141	10
Chlorpyrifos (Dursban)	<1.0	ug/L		rlb	06/18/2000	SW 8141	1.0
Cyanazine (Bladex)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5
Metolachlor (Dual)	610	ug/L		rlb	06/18/2000	SW 8141	0.5
Metribuzin (Sencor)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5
Parathion, Ethyl	<1.0	ug/L		rlb	06/18/2000	SW 8141	1.0
Pendimethalin (Prowl)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5
Simazine	<1.0	ug/L		rlb	06/18/2000	SW 8141	1.0

SA - Analysis subcontracted to TestAmerica Nashville Division


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 Operations Manager

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ANALYTICAL REPORT

Julie Mills
SENECA ENVIRONMENTAL
SERVICES, INC.
4140 N.E. 14th St.
Des Moines, IA 50313

06/21/2000

Job Number: 00.06641

Sample Number: 566882

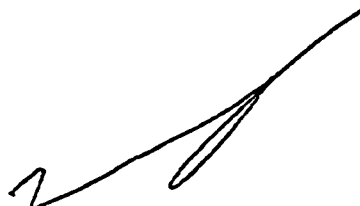
Project ID: 6159306 Crestland

Sample ID: W-BH3 Project #6159306

Date Taken: 05/30/2000

Date Received: 05/31/2000

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Result</u> <u>Flag</u>	<u>Analyst</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>Quantitation</u> <u>Limit</u>
Trifluralin (Treflan)	<0.5	ug/L		rlb	06/18/2000	SW 8141	0.5



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ANALYTICAL REPORT

Julie Mills
SENECA ENVIRONMENTAL
SERVICES, INC.
4140 N.E. 14th St.
Des Moines, IA 50313

06/06/2000

Job Number: 00.06229

Sample Number: 565527

Project ID: 6159306 Crestland Co-Op

Sample ID: S-BH1-1' Crestland Co-Op

Date Taken: 05/19/2000

Date Received: 05/20/2000

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Result</u>		<u>Date</u>		<u>Quantitation</u>
			<u>Flag</u>	<u>Analyst</u>	<u>Analyzed</u>	<u>Method</u>	
Nitrate Nitrogen	<5.0	mg/kg		jcp	05/23/2000	SM 4500-NO3.D	5.0
Prep - Method 8141 Non Aqueous	Complete			rlb	05/25/2000	SW 3550	
Method 8141 - Non Aqueous			ECCS				
Alachlor (Lasso)	<38	ug/kg		rlb	05/27/2000	SW 8141	5.0
Atrazine	7.1	ug/kg		rlb	05/27/2000	SW 8141	5.0
Butylate (Sutan)	<17	ug/kg		rlb	05/27/2000	SW 8141	5.0
Chlorpyrifos (Dursban)	<5.0	ug/kg		rlb	05/27/2000	SW 8141	5.0
Cyanazine (Bladex)	<14	ug/kg		rlb	05/27/2000	SW 8141	5.0
Ethalfuralin (Sonolan)	<48	ug/kg		rlb	05/27/2000	SW 8141	5.0
Metolachlor (Dual)	<20	ug/kg		rlb	05/27/2000	SW 8141	5.0
Metribuzin (Sencor)	<30	ug/kg		rlb	05/27/2000	SW 8141	5.0
Parathion, Ethyl	<5.0	ug/kg		rlb	05/27/2000	SW 8141	5.0
Pendimethalin (Prowl)	<12	ug/kg		rlb	05/27/2000	SW 8141	5.0
Simazine	11	ug/kg		rlb	05/27/2000	SW 8141	5.0
Trifluralin (Treflan)	<11	ug/kg		rlb	05/27/2000	SW 8141	5.0

ECCS - Pesticides were analyzed by Environmental Chemistry Consulting Services located in Madison, WI


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ANALYTICAL REPORT

Julie Mills
SENECA ENVIRONMENTAL
SERVICES, INC.
4140 N.E. 14th St.
Des Moines, IA 50313

06/06/2000

Job Number: 00.06229

Sample Number: 565530

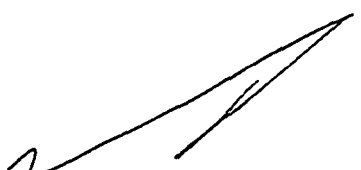
Project ID: 6159306 Crestland Co-Op

Sample ID: S-BH1-14' Crestland Co-Op

Date Taken: 05/19/2000

Date Received: 05/20/2000

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Result</u> <u>Flag</u>	<u>Analyst</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>Quantitation</u> <u>Limit</u>
Extraction Prep, soil	COMPLETE			jdm	05/25/2000	IOWA-OA2	
EXTRACTABLE HYDROCARBONS-SOIL							
Total Extractable Hydrocarbons	<10	mg/kg		mpc	05/26/2000	IA-OA2/S-8015	10
Diesel	<10	mg/kg		mpc	05/26/2000	IA-OA2/S-8015	10
Gasoline	<10	mg/kg		mpc	05/26/2000	IA-OA2/S-8015	10
Motor Oil	<10	mg/kg		mpc	05/26/2000	IA-OA2/S-8015	10
VOLATILES - BTEX (NONAQUEOUS)							
Benzene	<0.25	ug/g		dmd	05/24/2000	IA-OA1	0.25
Toluene	<0.5	ug/g		dmd	05/24/2000	IA-OA1	0.5
Ethylbenzene	<0.5	ug/g		dmd	05/24/2000	IA-OA1	0.5
Xylenes, Total	<0.5	ug/g		dmd	05/24/2000	IA-OA1	0.5



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ANALYTICAL REPORT

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Des Moines, IA 50313

06/06/2000

Job Number: 00.06229

Sample Number: 565528

Project ID: 6159306 Crestland Co-Op

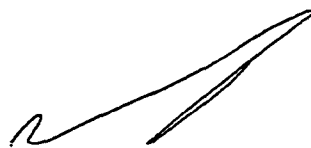
Sample ID: S-BH2-1' Crestland Co-Op

Date Taken: 05/19/2000

Date Received: 05/20/2000

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Result</u> <u>Flag</u>	<u>Analyst</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>Quantitation</u> <u>Limit</u>
Nitrate Nitrogen	570	mg/kg		jcp	05/23/2000	SM 4500-NO3:D	5.0
Prep - Method 8141 Non Aqueous	Complete			rlb	05/25/2000	SW 3550	
Method 8141 - Non Aqueous			ECCS				
Alachlor (Lasso)	230	ug/kg		rlb	05/27/2000	SW 8141	5.0
Atrazine	5,100	ug/kg		rlb	05/27/2000	SW 8141	5.0
Butylate (Sutan)	<17	ug/kg		rlb	05/27/2000	SW 8141	5.0
Chlorpyrifos (Dursban)	46	ug/kg		rlb	05/27/2000	SW 8141	5.0
Cyanazine (Bladex)	92	ug/kg		rlb	05/27/2000	SW 8141	5.0
Ethalfuralin (Sonolan)	<48	ug/kg		rlb	05/27/2000	SW 8141	5.0
Metolachlor (Dual)	13,000	ug/kg		rlb	05/27/2000	SW 8141	5.0
Metribuzin (Sencor)	<30	ug/kg		rlb	05/27/2000	SW 8141	5.0
Parathion, Ethyl	<5.0	ug/kg		rlb	05/27/2000	SW 8141	5.0
Pendimethalin (Prowl)	200	ug/kg		rlb	05/27/2000	SW 8141	5.0
Simazine	49	ug/kg		rlb	05/27/2000	SW 8141	5.0
Trifluralin (Treflan)	160	ug/kg		rlb	05/27/2000	SW 8141	5.0

ECCS - Pesticides were analyzed by Environmental Chemistry Consulting Services located in Madison, WI



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ANALYTICAL REPORT

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SENECA ENVIRONMENTAL
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Des Moines, IA 50313

06/06/2000

Job Number: 00.06229

Sample Number: 565531

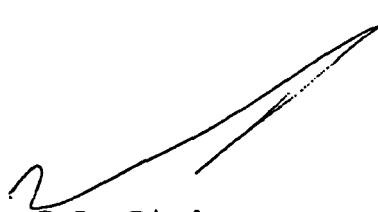
Project ID: 6159306 Crestland Co-Op

Sample ID: S-BH2-6' Crestland Co-Op

Date Taken: 05/19/2000

Date Received: 05/20/2000

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Flag</u>	<u>Analyst</u>	<u>Date Analyzed</u>	<u>Method</u>	<u>Quantitation Limit</u>
Extraction Prep, soil	COMPLETE			jdm	05/25/2000	ICMA-0A2	
EXTRACTABLE HYDROCARBONS-SOIL							
Total Extractable Hydrocarbons	298.9	mg/kg		mpc	05/30/2000	IA-0A2/S-8015	10
Diesel	30.9	mg/kg		mpc	05/30/2000	IA-0A2/S-8015	10
Gasoline	<10	mg/kg		mpc	05/30/2000	IA-0A2/S-8015	10
Motor Oil	268	mg/kg		mpc	05/30/2000	IA-0A2/S-8015	10
VOLATILES - BTEX (NONAQUEOUS)							
Benzene	<0.25	ug/g		dmd	05/24/2000	IA-0A1	0.25
Toluene	<0.5	ug/g		dmd	05/24/2000	IA-0A1	0.5
Ethylbenzene	<0.5	ug/g		dmd	05/24/2000	IA-0A1	0.5
Xylenes, Total	<0.5	ug/g		dmd	05/24/2000	IA-0A1	0.5


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Des Moines, IA 50313

06/06/2000

Job Number: 00.06229

Sample Number: 565529

Project ID: 6159306 Crestland Co-Op

Sample ID: S-BH3-1' Crestland Co-Op

Date Taken: 05/19/2000

Date Received: 05/20/2000

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Result</u>		<u>Date</u>	<u>Method</u>	<u>Quantitation</u>
			<u>Flag</u>	<u>Analyst</u>			<u>Limit</u>
Nitrate Nitrogen	200	mg/kg	MSO	jcp	05/23/2000	SM 4500-NO3.D	5.0
Prep - Method 8141 Non Aqueous	Complete			rlb	05/25/2000	SW 3550	
Method 8141 - Non Aqueous			ECCS				
Alachlor (Lasso)	500	ug/kg		rlb	05/27/2000	SW 8141	5.0
Atrazine	680	ug/kg		rlb	05/27/2000	SW 8141	5.0
Butylate (Sutan)	<17	ug/kg		rlb	05/27/2000	SW 8141	5.0
Chlorpyrifos (Dursban)	<5.0	ug/kg		rlb	05/27/2000	SW 8141	5.0
Cyanazine (Bladex)	240	ug/kg		rlb	05/27/2000	SW 8141	5.0
Ethalfuralin (Sonolan)	<48	ug/kg		rlb	05/27/2000	SW 8141	5.0
Metolachlor (Dual)	15,000	ug/kg		rlb	05/27/2000	SW 8141	5.0
Metribuzin (Sencor)	37	ug/kg		rlb	05/27/2000	SW 8141	5.0
Parathion, Ethyl	<5.0	ug/kg		rlb	05/27/2000	SW 8141	5.0
Pendimethalin (Prowl)	<12	ug/kg		rlb	05/27/2000	SW 8141	5.0
Simazine	14	ug/kg		rlb	05/27/2000	SW 8141	5.0
Trifluralin (Treflan)	560	ug/kg		rlb	05/27/2000	SW 8141	5.0

ECCS - Pesticides were analyzed by Environmental Chemistry Consulting Services located in Madison, WI


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Des Moines, IA 50313

06/06/2000

Job Number: 00.06229

Sample Number: 565532

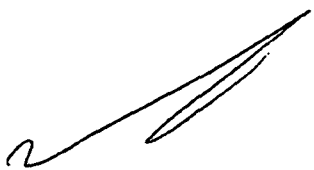
Project ID: 6159306 Crestland Co-Op

Sample ID: S-BH3-5' Crestland Co-Op

Date Taken: 05/19/2000

Date Received: 05/20/2000

<u>Analyte</u>	<u>Result</u>	<u>Units</u>	<u>Result</u> <u>Flag</u>	<u>Analyst</u>	<u>Date</u> <u>Analyzed</u>	<u>Method</u>	<u>Quantitation</u> <u>Limit</u>
Extraction Prep. soil	COMPLETE			jdm	05/25/2000	IOWA-0A2	
EXTRACTABLE HYDROCARBONS-SOIL							
Total Extractable Hydrocarbons	<10	mg/kg		mpc	05/26/2000	IA-0A2/S-8015	10
Diesel	<10	mg/kg		mpc	05/26/2000	IA-0A2/S-8015	10
Gasoline	<10	mg/kg		mpc	05/26/2000	IA-0A2/S-8015	10
Motor Oil	<10	mg/kg		mpc	05/26/2000	IA-0A2/S-8015	10
VOLATILES - BTEX (NONAQUEOUS)							
Benzene	<0.25	ug/g		dmd	05/24/2000	IA-0A1	0.25
Toluene	<0.5	ug/g		dmd	05/24/2000	IA-0A1	0.5
Ethylbenzene	<0.5	ug/g		dmd	05/24/2000	IA-0A1	0.5
Xylenes, Total	<0.5	ug/g		dmd	05/24/2000	IA-0A1	0.5



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Operations Manager



QUALITY CONTROL REPORT

SENECA ENVIRONMENTAL
SERVICES, INC.
4140 N.E. 14th St.
Des Moines, IA 50313
Julie Mills

06/06/2000

Job Number: 00.06229

Enclosed is the Quality Control data for the following samples submitted to TestAmerica, Inc. - Cedar Falls for analysis:

Sample Number	Sample Description	Date Taken	Date Received
565526	W-BH1 Crestland Co-Op	05/19/2000	05/20/2000
565527	S-BH1-1' Crestland Co-Op	05/19/2000	05/20/2000
565528	S-BH2-1' Crestland Co-Op	05/19/2000	05/20/2000
565529	S-BH3-1' Crestland Co-Op	05/19/2000	05/20/2000
565530	S-BH1-14' Crestland Co-Op	05/19/2000	05/20/2000
565531	S-BH2-6' Crestland Co-Op	05/19/2000	05/20/2000
565532	S-BH3-5' Crestland Co-Op	05/19/2000	05/20/2000

This Quality Control report is generated on a batch basis. All information contained in this report is for the analytical batch(es) in which your sample(s) were analyzed.

Iowa Laboratory Certification number - 7



QUALITY CONTROL REPORT

SENECA ENVIRONMENTAL
SERVICES, INC.
4140 N.E. 14th St.
Des Moines, IA 50313
Julie Mills

06/06/2000

Job Number: 00.06229

Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Analysis Method	Quantitation Limit
565526 W-BH1 Crestland Co-Op 05/19/2000						
Extraction Prep	COMPLETE	05/22/2000	1440		IOWA-0A2	
EXTRACTABLE HYDROCARBONS-WATER						
Total Extractable Hydrocarbons	538 ug/L	05/24/2000	1440	2387	IA-0A2/S-8015	380
Diesel	<380 ug/L	05/24/2000	1440	2387	IA-0A2/S-8015	380
Gasoline	<380 ug/L	05/24/2000	1440	2387	IA-0A2/S-8015	380
Motor Oil	538 ug/L	05/24/2000	1440	2387	IA-0A2/S-8015	380
N-Octacosane (Surr.)	99 %	05/24/2000	1440	2387	IA-0A2/S-8015	100
565527 S-BH1-1' Crestland Co-Op 05/19/2000						
Nitrate Nitrogen	<5.0 mg/kg	05/23/2000		513	SM 4500-NO3 D	5.0
Prep - Method 8141 Non Aqueous	Complete	05/25/2000		67	SW 3550	
Method 8141 - Non Aqueous						
Alachlor (Lasso)	<38 ug/kg	05/27/2000		74	SW 8141	5.0
Atrazine	7.1 ug/kg	05/27/2000		74	SW 8141	5.0
Butylate (Sutan)	<17 ug/kg	05/27/2000		74	SW 8141	5.0
Chlorpyrifos (Dursban)	<5.0 ug/kg	05/27/2000		74	SW 8141	5.0
Cyanazine (Bladex)	<14 ug/kg	05/27/2000		74	SW 8141	5.0
Ethalfuralin (Sonolan)	<48 ug/kg	05/27/2000		74	SW 8141	5.0
Metolachlor (Dual)	<20 ug/kg	05/27/2000		74	SW 8141	5.0
Metribuzin (Sencor)	<30 ug/kg	05/27/2000		74	SW 8141	5.0
Parathion, Ethyl	<5.0 ug/kg	05/27/2000		74	SW 8141	5.0
Pendimethalin (Prowl)	<12 ug/kg	05/27/2000		74	SW 8141	5.0
Simazine	11 ug/kg	05/27/2000		74	SW 8141	5.0
Trifluralin (Treflan)	<11 ug/kg	05/27/2000		74	SW 8141	5.0
Triphenyl Phosphate (Surr.)	87.8 %	05/27/2000		74	SW 8141	5.0
565528 S-BH2-1' Crestland Co-Op 05/19/2000						
Nitrate Nitrogen	570 mg/kg	05/23/2000		513	SM 4500-NO3 D	5.0



QUALITY CONTROL REPORT

SENECA ENVIRONMENTAL
SERVICES, INC.
4140 N.E. 14th St.
Des Moines, IA 50313
Julie Mills

06/06/2000

Job Number: 00.06229

Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Analysis Method	Quantitation Limit
565528 S-BH2-1' Crestland Co-Op 05/19/2000						
Prep - Method 8141 Non Aqueous	Complete	05/25/2000		67	SW 3550	
Method 8141 - Non Aqueous						
Alachlor (Lasso)	230 ug/kg	05/27/2000		74	SW 8141	5.0
Atrazine	5,100 ug/kg	05/27/2000		74	SW 8141	5.0
Butylate (Sutan)	<17 ug/kg	05/27/2000		74	SW 8141	5.0
Chlorpyrifos (Dursban)	46 ug/kg	05/27/2000		74	SW 8141	5.0
Cyanazine (Bladex)	92 ug/kg	05/27/2000		74	SW 8141	5.0
Ethalfuralin (Sonolan)	<48 ug/kg	05/27/2000		74	SW 8141	5.0
Metolachlor (Dual)	13,000 ug/kg	05/27/2000		74	SW 8141	5.0
Metribuzin (Sencor)	<30 ug/kg	05/27/2000		74	SW 8141	5.0
Parathion, Ethyl	<5.0 ug/kg	05/27/2000		74	SW 8141	5.0
Pendimethalin (Prowl)	200 ug/kg	05/27/2000		74	SW 8141	5.0
Simazine	49 ug/kg	05/27/2000		74	SW 8141	5.0
Trifluralin (Treflan)	160 ug/kg	05/27/2000		74	SW 8141	5.0
Triphenyl Phosphate (Surr.)	81.4 %	05/27/2000		74	SW 8141	5.0
565529 S-BH3-1' Crestland Co-Op 05/19/2000						
Nitrate Nitrogen	200 mg/kg	05/23/2000		513	SM 4500-NO3 D	5.0
Prep - Method 8141 Non Aqueous	Complete	05/25/2000		67	SW 3550	
Method 8141 - Non Aqueous						
Alachlor (Lasso)	500 ug/kg	05/27/2000		74	SW 8141	5.0
Atrazine	680 ug/kg	05/27/2000		74	SW 8141	5.0
Butylate (Sutan)	<17 ug/kg	05/27/2000		74	SW 8141	5.0
Chlorpyrifos (Dursban)	<5.0 ug/kg	05/27/2000		74	SW 8141	5.0
Cyanazine (Bladex)	240 ug/kg	05/27/2000		74	SW 8141	5.0
Ethalfuralin (Sonolan)	<48 ug/kg	05/27/2000		74	SW 8141	5.0
Metolachlor (Dual)	15,000 ug/kg	05/27/2000		74	SW 8141	5.0
Metribuzin (Sencor)	37 ug/kg	05/27/2000		74	SW 8141	5.0
Parathion, Ethyl	<5.0 ug/kg	05/27/2000		74	SW 8141	5.0



QUALITY CONTROL REPORT

SENECA ENVIRONMENTAL
SERVICES, INC.
4140 N.E. 14th St.
Des Moines, IA 50313
Julie Mills

06/06/2000

Job Number: 00.06229

Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Analysis Method	Quantitation Limit
565529 S-BK3-1' Crestland Co-Op 05/19/2000						
Pendimethalin (Prowl)	<12	ug/kg	05/27/2000	74	SW 8141	5.0
Simazine	14	ug/kg	05/27/2000	74	SW 8141	5.0
Trifluralin (Treflan)	560	ug/kg	05/27/2000	74	SW 8141	5.0
Triphenyl Phosphate (Surr.)	44.4	†	05/27/2000	74	SW 8141	5.0
565530 S-BH1-14' Crestland Co-Op 05/19/2000						
Extraction Prep, soil	COMPLETE	05/25/2000	2243		IOWA-OA2	
EXTRACTABLE HYDROCARBONS-SOIL						
Total Extractable Hydrocarbons	<10	mg/kg	05/26/2000	2243	3550 IA-OA2/S-8015	10
Diesel	<10	mg/kg	05/26/2000	2243	3550 IA-OA2/S-8015	10
Gasoline	<10	mg/kg	05/26/2000	2243	3550 IA-OA2/S-8015	10
Motor Oil	<10	mg/kg	05/26/2000	2243	3550 IA-OA2/S-8015	10
N-Octacosane (Surr.)	88	†	05/26/2000	2243	3550 IA-OA2/S-8015	1.0
VOLATILES - BTEX (NONAQUEOUS)						
Benzene	<0.25	ug/g	05/24/2000	3730	IA-OA1	0.25
Toluene	<0.5	ug/g	05/24/2000	3730	IA-OA1	0.5
Ethylbenzene	<0.5	ug/g	05/24/2000	3730	IA-OA1	0.5
Xylenes, Total	<0.5	ug/g	05/24/2000	3730	IA-OA1	0.5
4-Bromofluorobenzene (surr.)	100	†	05/24/2000	3730	IA-OA1	1
565531 S-BH2-6' Crestland Co-Op 05/19/2000						
Extraction Prep, soil	COMPLETE	05/25/2000	2243		IOWA-OA2	
EXTRACTABLE HYDROCARBONS-SOIL						
Total Extractable Hydrocarbons	298.9	mg/kg	05/30/2000	2243	3555 IA-OA2/S-8015	10
Diesel	30.9	mg/kg	05/30/2000	2243	3555 IA-OA2/S-8015	10
Gasoline	<10	mg/kg	05/30/2000	2243	3555 IA-OA2/S-8015	10
Motor Oil	268	mg/kg	05/30/2000	2243	3555 IA-OA2/S-8015	10
N-Octacosane (Surr.)	139	†	05/30/2000	2243	3555 IA-OA2/S-8015	1.0



QUALITY CONTROL REPORT

SENECA ENVIRONMENTAL
SERVICES, INC.
4140 N.E. 14th St.
Des Moines, IA 50313
Julie Mills

06/06/2000

Job Number: 00.06229

Result	Units	Date Analyzed	Prep Batch Number	Run Batch Number	Analysis Method	Quantitation Limit
565531 S-BH2-6' Crestland Co-Op		05/19/2000				
VOLATILES - BTEX (NONAQUEOUS)						
Benzene	<0.25 ug/g	05/24/2000		3730	IA-OA1	0.25
Toluene	<0.5 ug/g	05/24/2000		3730	IA-OA1	0.5
Ethylbenzene	<0.5 ug/g	05/24/2000		3730	IA-OA1	0.5
Xylenes, Total	<0.5 ug/g	05/24/2000		3730	IA-OA1	0.5
4-Bromofluorobenzene (surr.)	98 %	05/24/2000		3730	IA-OA1	1
565532 S-BH3-5' Crestland Co-Op		05/19/2000				
Extraction Prep, soil	COMPLETE	05/25/2000	2243		IOWA-OA2	
EXTRACTABLE HYDROCARBONS-SOIL						
Total Extractable Hydrocarbons	<10 mg/kg	05/26/2000	2243	3553	IA-OA2/S-8015	10
Diesel	<10 mg/kg	05/26/2000	2243	3553	IA-OA2/S-8015	10
Gasoline	<10 mg/kg	05/26/2000	2243	3553	IA-OA2/S-8015	10
Motor Oil	<10 mg/kg	05/26/2000	2243	3553	IA-OA2/S-8015	10
N-Octacosane (Surr.)	77 %	05/26/2000	2243	3553	IA-OA2/S-8015	1.0
VOLATILES - BTEX (NONAQUEOUS)						
Benzene	<0.25 ug/g	05/24/2000		3730	IA-OA1	0.25
Toluene	<0.5 ug/g	05/24/2000		3730	IA-OA1	0.5
Ethylbenzene	<0.5 ug/g	05/24/2000		3730	IA-OA1	0.5
Xylenes, Total	<0.5 ug/g	05/24/2000		3730	IA-OA1	0.5
4-Bromofluorobenzene (surr.)	100 %	05/24/2000		3730	IA-OA1	1



QUALITY CONTROL REPORT CONTINUING CALIBRATION VERIFICATION

SENECA ENVIRONMENTAL
SERVICES, INC.
4140 N.E. 14th St.
Des Moines, IA 50313
Julie Mills

06/06/2000

Job Number: 00.06229

Analyte	Prep	Run	CCV	Concentration Found	Percent Recovery
	Batch Number	Batch Number	True Concentration		
Nitrate Nitrogen		513	50.0	48.7	97.4
Nitrate Nitrogen		513	50.0	48.8	97.6
EXTRACTABLE HYDROCARBONS-WATER					
Diesel		2387	2500	2,426	97.0
Motor Oil		2387	2500	2,360	94.4
EXTRACTABLE HYDROCARBONS-SOIL					
Diesel		3550	2500	2,234	89.4
Motor Oil		3550	2500	2,452	98.1
EXTRACTABLE HYDROCARBONS-SOIL					
Diesel		3553	2500	2,493	99.7
Motor Oil		3553	2500	2,288	91.5
EXTRACTABLE HYDROCARBONS-SOIL					
Diesel		3555	2500	2,466	98.6
Motor Oil		3555	2500	2,723	108.9
VOLATILES - BTEX (NONAQUEOUS)					
Benzene		3730	100.	101	101.0
Toluene		3730	100.	99.9	99.9
Ethylbenzene		3730	100.	102	102.0
Xylenes, Total		3730	300.	307	102.3
4-Bromofluorobenzene (surr.)		3730	100.	102	102.0

CCV - Continuing Calibration Verification



QUALITY CONTROL REPORT BLANKS

SENECA ENVIRONMENTAL
SERVICES, INC.
4140 N.E. 14th St.
Des Moines, IA 50313
Julie Mills

06/06/2000

Job Number: 00.06229

Analyte	Prep	Run	Blank	Units
	Batch	Batch		
	Number	Number	Analysis	
Nitrate Nitrogen		513	<5.0	mg/kg
Nitrate Nitrogen		513	<5.0	mg/kg
EXTRACTABLE HYDROCARBONS-WATER				
Total Extractable Hydrocarbons	1440	2387	<380	ug/L
Diesel	1440	2387	<380	ug/L
Motor Oil	1440	2387	<380	ug/L
N-Octacosane (Surr.)	1440	2387	99	%
EXTRACTABLE HYDROCARBONS-SOIL				
Total Extractable Hydrocarbons	2243	3550	<10	mg/kg
Diesel	2243	3550	<10	mg/kg
Motor Oil	2243	3550	<10	mg/kg
N-Octacosane (Surr.)	2243	3550	94	%
VOLATILES - BTEX (NONAQUEOUS)				
Benzene		3730	<0.25	ug/g
Toluene		3730	<0.5	ug/g
Ethylbenzene		3730	<0.5	ug/g
Xylenes, Total		3730	<0.5	ug/g
4-Bromofluorobenzene (surr.)		3730	100	%

Advisory Control Limits for Blanks:

Metals/Wet Chemistry/ Conventional/GC - all compounds should be less than the Reporting Limit.

GC/MS - Semi-Volatiles - all compounds should be less than the Reporting Limit except for phthalates which should be less than 5 times the reporting limit.

Volatiles - Toluene, methylene chloride, acetone and chloroform should be less than 5 times the Reporting Limit. All other volatile compounds should be less than the Reporting Limit.



QUALITY CONTROL REPORT MATRIX SPIKE/MATRIX SPIKE DUPLICATE

SENECA ENVIRONMENTAL
SERVICES, INC.
4140 N.E. 14th St.
Des Moines, IA 50313
Julie Mills

06/06/2000

Job Number: 00.06229

Analyte	Prep	Run	Matrix	Sample Result	Spike Amount	Units	Percent Recovery	MSD Result	MSD		Percent Recovery	MS/MSD RPD
	Batch Number	Batch Number	Spike Result						Spike Amount	Units		
Nitrate Nitrogen		513	300	200	47.4	mg/kg	211.0	300	49.9	mg/kg	200.4	0.0
EXTRACTABLE HYDROCARBONS-SOIL												
Diesel	2243	3550	57.8	<10	64.9	mg/kg	89.1	60.8	66.2	mg/kg	91.8	5.1
VOLATILES - BTEX (NONAQUEOUS)												
Benzene		3730	11.9	<0.25	12.0	ug/g	99.2	11.8	11.5	ug/g	102.6	0.8
Toluene		3730	12.0	<0.5	12.0	ug/g	100.0	11.9	11.5	ug/g	103.5	0.8
Ethylbenzene		3730	12.5	<0.5	12.0	ug/g	104.2	12.4	11.5	ug/g	107.8	0.8
Xylenes, Total		3730	25.1	<0.5	23.9	ug/g	105.0	24.8	22.9	ug/g	108.3	1.2

NOTE: Matrix Spike Samples may not be samples from this job.

Advisory Control Limits for MS/MSDs

Inorganic Parameters and GC Volatiles

The spike recovery should be 75 - 125% if the spike added value was greater than or equal to one fourth of the sample result value. If not, the control limits are not established. The RPD for the MS/MSD pair should be less than 20.

RPD = Relative Percent Difference

QUALITY CONTROL REPORT LABORATORY CONTROL STANDARD

3CA ENVIRONMENTAL
SERVICES, INC.
0 N.E. 14th St.
Moines, IA 50313
ie Mills

06/06/2000

Number: 00.06229

Analyte	Prep	Run	LCS	LCS % Recovery
	Batch Number	Batch Number	True Concentration	
EXTRACTABLE HYDROCARBONS-WATER				
Diesel	1440	2387	2,000	80.0
N-Octacosane (Surr.)	1440	2387	100	99.0
EXTRACTABLE HYDROCARBONS-WATER				
Diesel	1440	2387	2,000	78.8
N-Octacosane (Surr.)	1440	2387	100	96.0
EXTRACTABLE HYDROCARBONS-SOIL				
Diesel	2243	3550	66.7	100.0
N-Octacosane (Surr.)	2243	3550	100	93.0
VOLATILES - BTEX (NONAQUEOUS)				
Benzene		3730	11.5	100.0
Toluene		3730	11.5	100.0
Ethylbenzene		3730	11.5	100.0
Xylenes, Total		3730	23.0	100.0
4-Bromofluorobenzene (surr.)		3730	100	100.0

LCS - Laboratory Control Standard

Advisory Control Limits - Inorganics - LCS recovery should be 80 - 120%.



Phone 319-277-2401 or 1-800-750-2401
FAX 319-277-2425

Invoice to:

NET Quote #:

Company: Seneca Environmental Services

Send Report To: TURK ALI

Address: 4140 NE 14th Street

City/State/Zip Code: Des Moines, IA 50313

Telephone Number: 515-262-3500

Fax: 515-202-2469

Sampled By: (Print Name)

(Signature)

Project Number:

Project Manager.

NOTE: All turn around times are calculated from the time of receipt at NET.

NOTE: There may be a charge for NET disposing of sample

NOTES:

NOTE: PRE-ARRANGEMENTS MUST BE MADE AT LEAST 48 HOURS IN ADVANCE TO RECEIVE

RESULTS WITH THESE TURN AROUND TIME COMMITMENTS. ADDITIONAL CHARGES MAY BE ASSESSED.

...and a dog 1/11

UNQUOTED BY:	DATE	TIME	RECEIVED BY:	DATE	TIME	DATE	TIME
Deborah Keplart	7/31/01	1:00					
CEIVED FOR NET BY:	DATE	TIME	COC SEALS PRESENT AND INTACT? YES NO NA			SHIPPED VIA:	
✓ Samuel	8/31/01	11:00	TEMPERATURE UPON RECEIPT			ARE THESE SAMPLES FOR NPDES COMPLIANCE? YES NO	