



Seneca Environmental Services

CON 12-15

Doc # 5692

Thel _____ *set*

February 25, 2005

Mr. Lambert Nnadi
Senior Environmental Specialist, Contaminated Sites Section
Iowa Department of Natural Resources
Wallace State Office Building
Des Moines, IA 50319

Subject: Submittal of the 2004 Analytical data for the former Thermogas facility in Northwood, IA

Dear Mr. Nnadi:

Enclosed for your review is a copy of the April 13th, 2004 analytical data for the above referenced facility. The 2004 site monitoring activities have shown a relatively steady or decreasing trend in the N-Nitrogen concentrations at the Northwood site. At this time only one monitoring well, MW-1, has chemical concentrations that slightly exceed the MCL for N-Nitrogen. All other nutrient and pesticide concentrations are less than the target levels. In the DNR letter dated May 24th, 2004, it was stated that no further action was required at this site.

A 500-foot radius visual survey, along with a one-mile radius search conducted by the Iowa Geological Survey Bureau, were utilized to identify water well locations in the site vicinity. The current site receptor survey has identified several private wells that were not previously included in the site assessment report. All wells are located at a significant distance (>1,000') from the site and not considered a risk at this time given the distance and limited chemical concentrations.

Retail sale of bulk and/or packaged row crop production products ceased in 1990; the site is presently operated as a propane distributorship. The slightly elevated nitrate-nitrite nitrogen concentrations that are observed in groundwater at the site may be the result of adjacent row crop activities. Current receptor surveys did not reveal any designated use water bodies in the immediate site vicinity. Seneca concurs with the 5/25/04 letter that further action is not warranted at the Northwood site at this time. The monitoring wells will be plugged in accordance with the IDNR requirements for plugging abandoned wells during the spring of 2005. All required information will be submitted at that time.

If you have any questions regarding this data, please call me at 515-261-7722.

Sincerely,
Seneca Environmental Services

Ray Widder, CGP# 1624
Senior Hydrogeologist

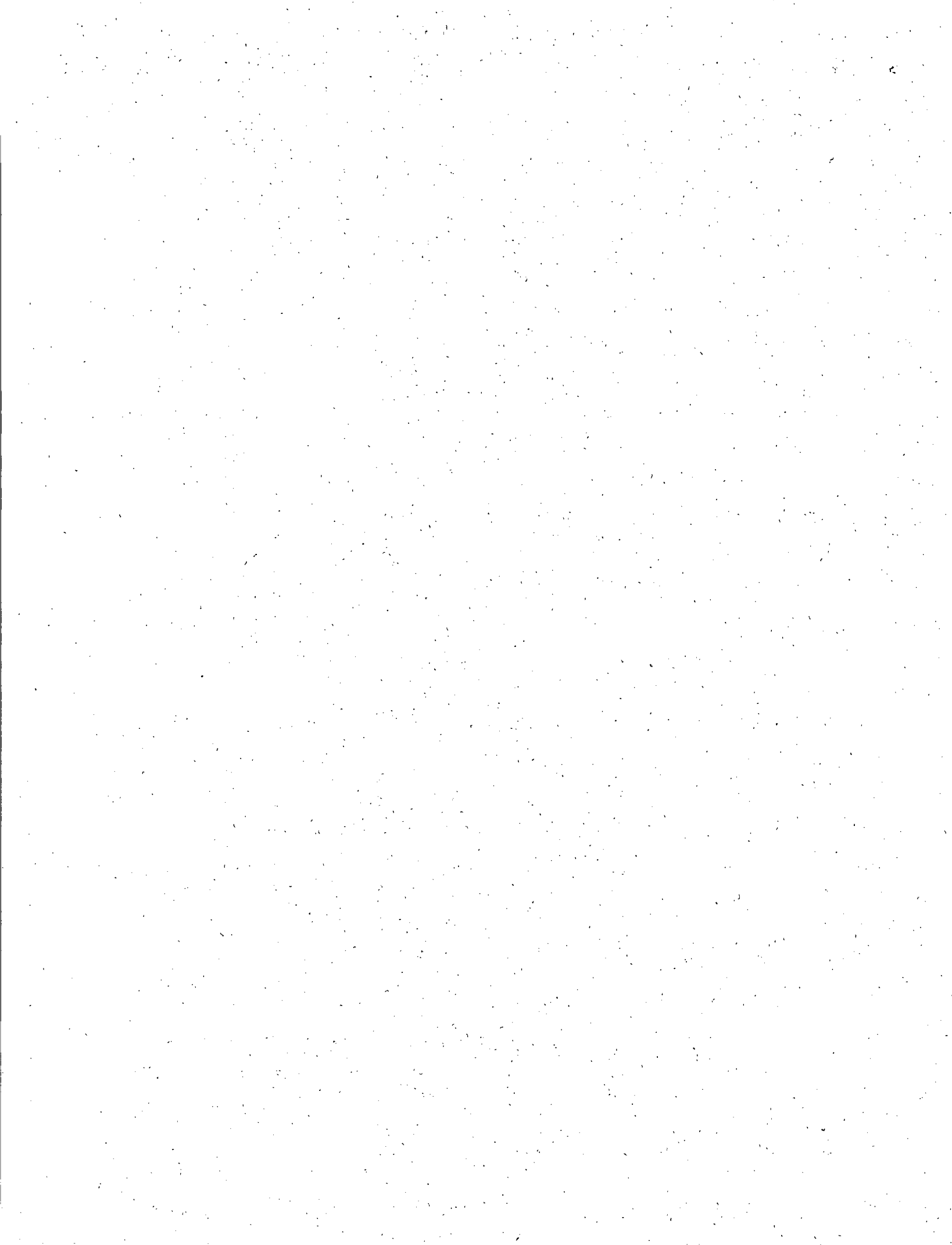
cc: CHS Inc., St. Paul, MN
File: 6235003

Enclosed: Scaled Site Map, Analytical Data Table, Analytical Results, Well Survey Results

Des Moines
P.O. Box 3360
4140 N.E. 14th Street
Des Moines, Iowa 50316-0360
515-262-3500
800-369-3500
515-262-2469 FAX

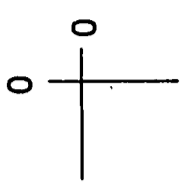
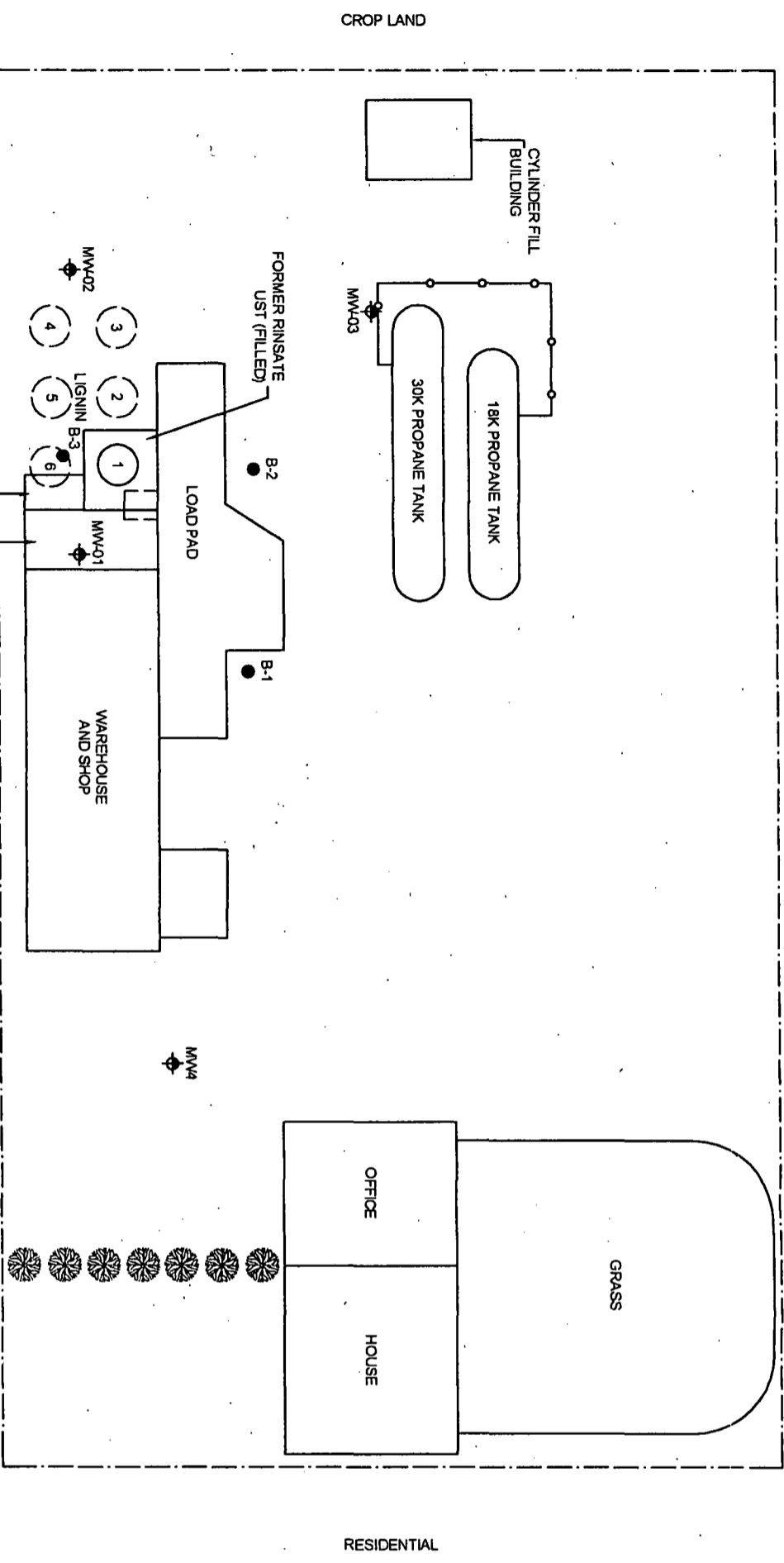
Bettendorf
17851 244th Avenue
Bettendorf, Iowa 52722
563-332-2272
800-728-6900
563-332-9465 FAX

5692



Scaled Site Map

HIGHWAY 105



TANK NUMBER	TANK SIZE	HISTORICAL STORAGE
1	20K	26-35
2	25K	28-40
3	20K	28-40
4	25K	28-40
5	25K	10-34.0
6	25K	10-34.0

- LEGEND:**
- MONITORING WELL LOCATION
 - SOIL BORING LOCATION
 - PROPERTY LINE
 - FENCE LINE
 - REMOVED STRUCTURES
 - TREES



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<p>DATE: 9/29/03</p> <p>JOB DESCRIPTION: Northern Cooperative Services Former Thermogas property Hwy 105 East NORTHWOOD, IOWA</p> <p>SHEET TITLE: SCALED SITE PLAN</p>	<p>SENECA ENVIRONMENTAL SERVICES DES MOINES, IA 50313 (800) 369-3500</p>		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 50%;">DRAWN BY: DARRICK MORRALL</td> <td style="width: 50%;">REVISION:</td> </tr> <tr> <td>DESIGNED BY: MIKE STEENHOEK</td> <td>DATE:</td> </tr> <tr> <td>SCALE: 1" = 30'</td> <td>PROJECT NO: 6235000</td> </tr> <tr> <td>DATE PLOTTED: NORTHWOOD</td> <td>SHEET NO:</td> </tr> <tr> <td colspan="2" style="text-align: center;">1 OF 1</td> </tr> </table>	DRAWN BY: DARRICK MORRALL	REVISION:	DESIGNED BY: MIKE STEENHOEK	DATE:	SCALE: 1" = 30'	PROJECT NO: 6235000	DATE PLOTTED: NORTHWOOD	SHEET NO:	1 OF 1	
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DESIGNED BY: MIKE STEENHOEK	DATE:												
SCALE: 1" = 30'	PROJECT NO: 6235000												
DATE PLOTTED: NORTHWOOD	SHEET NO:												
1 OF 1													

Analytical Data Table

Table 1: Summary of Groundwater Monitoring Data
Northwood Cooperative Services (Former Thermogas Co. Facility)

Well ID	Date	Top of Casing	Static Water Level	Alachlor	Atrazine	Butylate	Cyanazine	EPTC	Metolachlor	Metribuzin	Pendimthalin	Prometon	Trifluralin	Nitrogen (NH ₃)	Nitrate (NO ₂ + NO ₃)
MW-1	11/20/1996	101.46	90.22	1.3	1.5	NA	19	0.63	67	NA	NA	1.3	3	1.98	30.7
	2/24/1997	101.46	89.57	<0.5	<0.50	<1.0	<1.0	<5.0	<0.50	NA	NA	<1.0	<0.50	2.03	35.9
	6/16/1997	101.46	91.59	2.3	1.7	<1.1	1.4	<0.55	360	NA	NA	2.8	<0.55	0.433	34.5
	8/4/1997	101.46	91.82	1.7	1.7	<1.0	4	2.7	180	NA	NA	2.2	2.2	0.5	63.4
	5/21/2003	101.46	90.64	1.2	0.5	<0.1	<0.1	<0.1	411	<0.1	11.7	NA	0.9	<1.0	212
	9/24/2003	101.46	90.66	<0.1	0.7	<0.1	<0.1	<0.1	37.8	<0.1	1.5	NA	<0.1	<1.0	16.4
	4/13/2004	101.46	88.85	<0.1	0.6	<0.1	<0.1	<0.1	5.5	<0.1	<0.5	NA	<0.1	<1.0	15
MW-2	11/20/1996	101.63	90.26	<0.5	<0.5	NA	1.7	<0.5	1.5	NA	NA	<1.0	<0.5	0.46	4.6
	2/24/1997	101.63	89.60	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	NA	NA	<1.0	<0.5	0.4	3.9
	6/16/1997	101.63	91.61	<0.56	<0.56	<1.1	<1.1	<0.56	0.69	NA	NA	<1.1	<0.56	<0.10	4.7
	8/4/1997	101.63	91.84	<0.51	<0.51	<1.0	<1.0	<0.51	1.3	NA	NA	<1.0	<0.51	1.0	5.52
	5/21/2003	Well Damaged, no sample taken													
	4/13/2004	Well Damaged, no sample taken													
MW-3	11/20/1996	101.35	90.32	<0.5	<0.5	NA	1.6	<0.5	5.1	NA	NA	<1.0	<0.5	0.19	11.6
	2/24/1997	101.35	89.66	<0.5	<0.5	<1.0	<1.0	<0.5	<0.5	NA	NA	<1.0	<0.5	0.18	3.88
	6/16/1997	101.35	91.67	<0.83	<0.83	<1.7	<1.7	<0.83	<0.83	NA	NA	<1.7	<0.83	<0.10	4.85
	8/4/1997	101.35	91.90	<0.52	<0.52	<1.0	<1.0	<0.52	<0.52	NA	NA	<1.0	<0.51	0.2	7.47
	5/21/2003	101.35	90.72	<0.1	0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.5	NA	<0.1	<1.0	8.0
	9/24/2003	101.35	90.70	<0.1	0.3	<0.1	<0.1	<0.1	0.6	<0.1	<0.5	NA	<0.1	<1.0	2.0
	4/13/2004	101.35	88.97	<0.1	0.2	<0.1	<0.1	<0.1	<0.5	<0.1	<0.5	NA	<0.1	<1.0	4.0
MW-4	5/21/2003	105.38	98.27	<0.1	0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.5	NA	<0.1	<1.0	1.0
	9/24/2003	105.38	99.65	<0.1	0.1	<0.1	<0.1	<0.1	<0.5	<0.1	<0.5	NA	<0.1	<1.0	7.0
	4/13/2004	105.38	96.53	<0.1	0.2	<0.1	<0.1	<0.1	<0.5	<0.1	<0.5	NA	<0.1	<1.0	8.2
EPA - Maximum Contaminant Level (MCL)				2	3	SNA	SNA	SNA	SNA	SNA	SNA	SNA	SNA	SNA	10
EPA - Health Advisory Limit (HAL)				SNA	SNA	400	1	SNA	100	200	SNA	SNA	5	30	10

**Table 1: Summary of Groundwater Monitoring Data
Northwood Cooperative Services (Former Thermogas Co. Facility)**

Well ID	Date	Top of Casing	Static Water Level	Alachlor	Atrazine	Butylate	Cyanazine	EPTC	Metolachlor	Metribuzin	Pendimthalin	Prometon	Trifluralin	Nitrogen (NH ₃)	Nitrate (NO ₂ + NO ₃)
MW-5	5/21/2003	101.57	90.68	<0.1	0.1	<0.1	<0.1	<0.1	4	<0.1	<0.5	NA	<0.1	<1.0	16
	9/24/2003	101.57	91.71	<0.1	0.2	<0.1	<0.1	<0.1	6.6	<0.1	<0.5	NA	<0.1	<1.0	6.4
	4/13/2004	101.57	88.97	<0.1	0.2	<0.1	<0.1	<0.1	3.7	<0.1	<0.5	NA	<0.1	<1.0	5
EPA - Maximum Contaminant Level (MCL)				2	3	SNA	SNA	SNA	SNA	SNA	SNA	SNA	SNA	SNA	10
EPA - Health Advisory Limit (HAL)				SNA	SNA	400	1	SNA	100	200	SNA	SNA	5	30	10

* - the relative standard deviation (RSD) for this analyte failed to meet the % RSD acceptance criteria for the initial calibration.

** - Internal standard area outside acceptable QC criteria on duplicate analysis.

Concentrations of pesticides are stated in ppb (ug/L). Concentrations of Ammonia nitrogen and N-nitrogen are stated in ppm (mg/L).

N/A - Not Analyzed for COC. SNA- Standard not available

Analytical Results

28 April 2004

Michael Steenhoek
Seneca Environmental Services
4140 NE. 14th St.
Des Moines, IA 50316

APR 30 2004

RE: Cenex
Northwood

Enclosed are the results of analyses for samples received by the laboratory on 04/16/04 11:15. If you have any questions concerning this report, please feel free to contact me at 1-800-858-5227.

Sincerely,



Jeffrey King, Ph.D.
Laboratory Director

Seneca Environmental Services
4140 NE. 14th St.
Des Moines IA, 50316

Project: Cenex
Project Number: Northwood
Project Manager: Michael Steenhoek

Reported:
04/28/04 13:29

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
MW-4	14D0846-01	Water	04/13/04 07:40	04/16/04 11:15
MW-3	14D0846-02	Water	04/13/04 08:10	04/16/04 11:15
MW-1	14D0846-03	Water	04/13/04 08:25	04/16/04 11:15
MW-5	14D0846-04	Water	04/13/04 08:40	04/16/04 11:15

Keystone Laboratories, Inc. - Newton

The results in this report apply to the samples analyzed in accordance with the chain of custody document. This analytical report must be reproduced in its entirety.



Jeffrey King, Ph.D., Laboratory Director

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Seneca Environmental Services
 4140 NE. 14th St.
 Des Moines IA, 50316

Project: Cenex
 Project Number: Northwood
 Project Manager: Michael Steenhoek

Reported:
 04/28/04 13:29

MW-4
14D0846-01 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Keystone Laboratories, Inc. - Newton

Determination of Nitrogen/Phosphorus Herbicides & Insecticides

EPTC	ND	0.1	ug/l	1	1D41937	04/19/04	04/23/04	EPA 8141	
Butylate	ND	0.1	"	"	"	"	"	"	
Propachlor	ND	0.1	"	"	"	"	"	"	
Trifluralin	ND	0.1	"	"	"	"	"	"	
Terbufos	ND	0.1	"	"	"	"	"	"	
Atrazine	0.2	0.1	"	"	"	"	"	"	
Simazine	ND	0.1	"	"	"	"	"	"	
Atrazine Desethyl	ND	0.2	"	"	"	"	"	"	
Alachlor	ND	0.1	"	"	"	"	"	"	
Metribuzin	ND	0.1	"	"	"	"	"	"	
Atrazine Desisopropyl	ND	0.2	"	"	"	"	"	"	
Metolachlor	ND	0.5	"	"	"	"	"	"	
Pendimethalin	ND	0.5	"	"	"	"	"	"	
Butachlor	ND	0.5	"	"	"	"	"	"	
Cyanazine	ND	0.1	"	"	"	"	"	"	
Acetochlor	ND	0.2	"	"	"	"	"	"	

Surrogate: 2-Nitro-m-xylene 112 % 50-117 " " " "

Determination of Conventional Chemistry Parameters

Nitrogen, Ammonia	ND	1.0	mg/l	1	1D42315	04/23/04	04/23/04	SM 4500-NH3 F	PH-2
Nitrogen, Nitrate+Nitrite	8.2	0.2	"	"	1D42015	04/20/04	04/20/04	EPA 353.2	

Keystone Laboratories, Inc. - Newton

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Jeffrey King, Ph.D., Laboratory Director

Seneca Environmental Services
 4140 NE. 14th St.
 Des Moines IA, 50316

Project: Cenex
 Project Number: Northwood
 Project Manager: Michael Steenhoek

Reported:
 04/28/04 13:29

MW-3
14D0846-02 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Keystone Laboratories, Inc. - Newton

Determination of Nitrogen/Phosphorus Herbicides & Insecticides

EPTC	ND	0.1	ug/l	1	1D41937	04/19/04	04/23/04	EPA 8141	
Butylate	ND	0.1	"	"	"	"	"	"	
Propachlor	ND	0.1	"	"	"	"	"	"	
Trifluralin	ND	0.1	"	"	"	"	"	"	
Terbufos	ND	0.1	"	"	"	"	"	"	
Atrazine	0.2	0.1	"	"	"	"	"	"	
Simazine	ND	0.1	"	"	"	"	"	"	
Atrazine Desethyl	ND	0.2	"	"	"	"	"	"	
Alachlor	ND	0.1	"	"	"	"	"	"	
Metribuzin	ND	0.1	"	"	"	"	"	"	
Atrazine Desisopropyl	ND	0.2	"	"	"	"	"	"	
Metolachlor	ND	0.5	"	"	"	"	"	"	
Pendimethalin	ND	0.5	"	"	"	"	"	"	
Butachlor	ND	0.5	"	"	"	"	"	"	
Cyanazine	ND	0.1	"	"	"	"	"	"	
Acetochlor	ND	0.2	"	"	"	"	"	"	
<i>Surrogate: 2-Nitro-m-xylene</i>		108 %	50-117		"	"	"	"	

Determination of Conventional Chemistry Parameters

Nitrogen, Ammonia	ND	1.0	mg/l	1	1D42315	04/23/04	04/23/04	SM 4500-NH3 F	
Nitrogen, Nitrate+Nitrite	4.0	0.2	"	"	1D42015	04/20/04	04/20/04	EPA 353.2	

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Jeffrey King, Ph.D., Laboratory Director

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Seneca Environmental Services
 4140 NE. 14th St.
 Des Moines IA, 50316

Project: Cenex
 Project Number: Northwood
 Project Manager: Michael Steenhoek

Reported:
 04/28/04 13:29

MW-1
14D0846-03 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Keystone Laboratories, Inc. - Newton

Determination of Nitrogen/Phosphorus Herbicides & Insecticides

EPTC	ND	0.1	ug/l	1	1D41937	04/19/04	04/23/04	EPA 8141	
Butylate	ND	0.1	"	"	"	"	"	"	
Propachlor	ND	0.1	"	"	"	"	"	"	
Trifluralin	ND	0.1	"	"	"	"	"	"	
Terbufos	ND	0.1	"	"	"	"	"	"	
Atrazine	0.6	0.1	"	"	"	"	"	"	
Simazine	ND	0.1	"	"	"	"	"	"	
Atrazine Desethyl	0.2	0.2	"	"	"	"	"	"	
Alachlor	ND	0.1	"	"	"	"	"	"	
Metribuzin	ND	0.1	"	"	"	"	"	"	
Atrazine Desisopropyl	ND	0.2	"	"	"	"	"	"	
Metolachlor	5.5	0.5	"	"	"	"	"	"	
Pendimethalin	ND	0.5	"	"	"	"	"	"	
Butachlor	ND	0.5	"	"	"	"	"	"	
Cyanazine	ND	0.1	"	"	"	"	"	"	
Acetochlor	ND	0.2	"	"	"	"	"	"	
Surrogate: 2-Nitro-m-xylene		116 %	50-117		"	"	"	"	

Determination of Conventional Chemistry Parameters

Nitrogen, Ammonia	ND	1.0	mg/l	1	1D42315	04/23/04	04/23/04	SM 4500-NH3 F	
Nitrogen, Nitrate+Nitrite	15.0	10.0	"	50	1D42015	04/20/04	04/20/04	EPA 353.2	

Keystone Laboratories, Inc. - Newton

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Jeffrey King, Ph.D., Laboratory Director

Seneca Environmental Services
 4140 NE. 14th St.
 Des Moines IA, 50316

Project: Cenex
 Project Number: Northwood
 Project Manager: Michael Steenhoek

Reported:
 04/28/04 13:29

MW-5
14D0846-04 (Water)

Analyte	Result	Reporting Limit	Units	Dilution	Batch	Prepared	Analyzed	Method	Notes
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Keystone Laboratories, Inc. - Newton

Determination of Nitrogen/Phosphorus Herbicides & Insecticides

EPTC	ND	0.1	ug/l	1	1D41937	04/19/04	04/23/04	EPA 8141	
Butylate	ND	0.1	"	"	"	"	"	"	
Propachlor	ND	0.1	"	"	"	"	"	"	
Trifluralin	ND	0.1	"	"	"	"	"	"	
Terbufos	ND	0.1	"	"	"	"	"	"	
Atrazine	0.2	0.1	"	"	"	"	"	"	
Simazine	ND	0.1	"	"	"	"	"	"	
Atrazine Desethyl	ND	0.2	"	"	"	"	"	"	
Alachlor	ND	0.1	"	"	"	"	"	"	
Metribuzin	ND	0.1	"	"	"	"	"	"	
Atrazine Desisopropyl	ND	0.2	"	"	"	"	"	"	
Metolachlor	3.7	0.5	"	"	"	"	"	"	
Pendimethalin	ND	0.5	"	"	"	"	"	"	
Butachlor	ND	0.5	"	"	"	"	"	"	
Cyanazine	ND	0.1	"	"	"	"	"	"	
Acetochlor	ND	0.2	"	"	"	"	"	"	
<i>Surrogate: 2-Nitro-m-xylene</i>		112 %	50-117		"	"	"	"	

Determination of Conventional Chemistry Parameters

Nitrogen, Ammonia	ND	1.0	mg/l	1	1D42315	04/23/04	04/23/04	SM 4500-NH3 F	PH-2
Nitrogen, Nitrate+Nitrite	5.0	0.4	"	2	1D42015	04/20/04	04/20/04	EPA 353.2	

Keystone Laboratories, Inc. - Newton

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Jeffrey King, Ph.D., Laboratory Director

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Seneca Environmental Services 4140 NE. 14th St. Des Moines IA, 50316	Project: Cenex Project Number: Northwood Project Manager: Michael Steenhoek	Reported: 04/28/04 13:29
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Determination of Nitrogen/Phosphorus Herbicides & Insecticides - Quality Control
Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1D41937 - 3510C NP/OC Sep Fnl

Blank (1D41937-BLK1)				Prepared: 04/19/04 Analyzed: 04/22/04						
EPTC	ND	0.1	ug/l							
Butylate	ND	0.1	"							
Propachlor	ND	0.1	"							
Trifluralin	ND	0.1	"							
Terbufos	ND	0.1	"							
Atrazine	ND	0.1	"							
Simazine	ND	0.1	"							
Atrazine Desethyl	ND	0.2	"							
Alachlor	ND	0.1	"							
Metribuzin	ND	0.1	"							
Atrazine Desisopropyl	ND	0.2	"							
Metolachlor	ND	0.5	"							
Pendimethalin	ND	0.5	"							
Butachlor	ND	0.5	"							
Cyanazine	ND	0.1	"							
Acetochlor	ND	0.2	"							
<i>Surrogate: 2-Nitro-m-xylene</i>	10.36		"	10.10		103	50-117			

LCS (1D41937-BS1)				Prepared: 04/19/04 Analyzed: 04/22/04						
EPTC	5.09	0.1	ug/l	5.20		97.9	53-115			
Butylate	5.67	0.1	"	5.55		102	58-116			
Propachlor	5.76	0.1	"	5.30		109	52-127			
Trifluralin	5.46	0.1	"	5.60		97.5	51-116			
Terbufos	5.84	0.1	"	6.55		89.2	51-137			
Atrazine	5.80	0.1	"	5.15		113	60-124			
Simazine	5.30	0.1	"	4.88		109	50-135			
Alachlor	6.10	0.1	"	5.70		107	61-123			
Metribuzin	5.96	0.1	"	5.10		117	50-121			
Metolachlor	6.64	0.5	"	6.10		109	58-123			
Pendimethalin	5.99	0.5	"	5.65		106	53-124			
Butachlor	5.38	0.5	"	4.96		108	55-126			
Cyanazine	6.76	0.1	"	5.15		131	54-134			
Acetochlor	5.64	0.2	"	5.15		110	55-120			
<i>Surrogate: 2-Nitro-m-xylene</i>	10.64		"	10.10		105	50-117			

Keystone Laboratories, Inc. - Newton

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Jeffrey King, Ph.D., Laboratory Director

Seneca Environmental Services
 4140 NE. 14th St.
 Des Moines IA, 50316

Project: Cenex
 Project Number: Northwood
 Project Manager: Michael Steenhoek

Reported:
 04/28/04 13:29

Determination of Nitrogen/Phosphorus Herbicides & Insecticides - Quality Control
Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1D41937 - 3510C NP/OC Sep Fnl

LCS Dup (1D41937-BSD1)

Prepared: 04/19/04 Analyzed: 04/22/04

EPTC	5.10	0.1	ug/l	5.20		98.1	53-115	0.196	18	
Butylate	5.64	0.1	"	5.55		102	58-116	0.531	18	
Propachlor	5.74	0.1	"	5.30		108	52-127	0.348	15	
Trifluralin	5.44	0.1	"	5.60		97.1	51-116	0.367	19	
Terbufos	5.84	0.1	"	6.55		89.2	51-137	0.00	17	
Atrazine	5.77	0.1	"	5.15		112	60-124	0.519	15	
Simazine	5.25	0.1	"	4.88		108	50-135	0.948	16	
Alachlor	6.21	0.1	"	5.70		109	61-123	1.79	16	
Metribuzin	6.00	0.1	"	5.10		118	50-121	0.669	18	
Metolachlor	7.02	0.5	"	6.10		115	58-123	5.56	16	
Pendimethalin	5.88	0.5	"	5.65		104	53-124	1.85	14	
Butachlor	5.74	0.5	"	4.96		116	55-126	6.47	18	
Cyanazine	6.74	0.1	"	5.15		131	54-134	0.296	17	
Acetochlor	5.64	0.2	"	5.15		110	55-120	0.00	19	
<i>Surrogate: 2-Nitro-m-xylene</i>	<i>10.70</i>		<i>"</i>	<i>10.10</i>		<i>106</i>	<i>50-117</i>			

Calibration Check (1D41937-CCV1)

Prepared: 04/19/04 Analyzed: 04/21/04

EPTC	0.56		ug/l	0.624		89.7	75-125			
Butylate	0.62		"	0.666		93.1	75-125			
Propachlor	0.60		"	0.636		94.3	75-125			
Trifluralin	0.62		"	0.672		92.3	75-125			
Terbufos	0.76		"	0.786		96.7	75-125			
Atrazine	0.60		"	0.618		97.1	75-125			
Simazine	0.55		"	0.586		93.9	75-125			
Alachlor	0.66		"	0.684		96.5	75-125			
Metribuzin	0.65		"	0.612		106	75-125			
Metolachlor	0.70		"	0.732		95.6	75-125			
Pendimethalin	0.68		"	0.678		100	75-125			
Butachlor	0.57		"	0.595		95.8	75-125			
Cyanazine	0.70		"	0.618		113	75-125			
Acetochlor	0.60		"	0.618		97.1	75-125			
<i>Surrogate: 2-Nitro-m-xylene</i>	<i>0.772</i>		<i>"</i>	<i>0.808</i>		<i>95.5</i>	<i>50-117</i>			

Keystone Laboratories, Inc. - Newton

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Seneca Environmental Services 4140 NE. 14th St. Des Moines IA, 50316	Project: Cenex Project Number: Northwood Project Manager: Michael Steenhoek	Reported: 04/28/04 13:29
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Determination of Nitrogen/Phosphorus Herbicides & Insecticides - Quality Control
Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC %REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1D41937 - 3510C NP/OC Sep Fnl

Reference (1D41937-SRM1)	Prepared: 04/19/04 Analyzed: 04/22/04									
EPTC	5.63	0.1	ug/l	5.20		108	75-125			
Butylate	6.20	0.1	"	5.55		112	75-125			
Propachlor	6.40	0.1	"	5.30		121	75-125			
Trifluralin	5.67	0.1	"	5.60		101	75-125			
Terbufos	7.41	0.1	"	6.55		113	75-125			
Atrazine	5.74	0.1	"	5.15		111	75-125			
Simazine	5.04	0.1	"	4.88		103	75-125			
Alachlor	5.96	0.1	"	5.70		105	75-125			
Metribuzin	5.75	0.1	"	5.10		113	75-125			
Metolachlor	6.60	0.5	"	6.10		108	75-125			
Pendimethalin	6.16	0.5	"	5.65		109	75-125			
Butachlor	5.12	0.5	"	4.96		103	75-125			
Cyanazine	5.85	0.1	"	5.15		114	75-125			
Acetochlor	6.00	0.2	"	5.15		117	75-125			
Surrogate: 2-Nitro-m-xylene	11.06		"	10.10		110	50-117			

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Seneca Environmental Services
 4140 NE. 14th St.
 Des Moines IA, 50316

Project: Cenex
 Project Number: Northwood
 Project Manager: Michael Steenhoek

Reported:
 04/28/04 13:29

Determination of Conventional Chemistry Parameters - Quality Control
Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1D42015 - Wet Chem Preparation

Blank (1D42015-BLK1)				Prepared & Analyzed: 04/20/04						
Nitrogen, Nitrate+Nitrite	ND	0.2	mg/l							
LCS (1D42015-BS1)				Prepared & Analyzed: 04/20/04						
Nitrogen, Nitrate+Nitrite	0.914	0.2	mg/l	0.800		114	71-125			
Calibration Check (1D42015-CCV1)				Prepared & Analyzed: 04/20/04						
Nitrogen, Nitrate+Nitrite	2.88	0.2	mg/l	2.50		115	85-115			
Calibration Check (1D42015-CCV2)				Prepared & Analyzed: 04/20/04						
Nitrogen, Nitrate+Nitrite	2.90	0.2	mg/l	2.50		116	85-115			C-11
Matrix Spike (1D42015-MS1)		Source: 14D0845-04		Prepared & Analyzed: 04/20/04						
Nitrogen, Nitrate+Nitrite	3.01	0.2	mg/l	0.800	2.3	88.8	76-129			
Matrix Spike Dup (1D42015-MSD1)		Source: 14D0845-04		Prepared & Analyzed: 04/20/04						
Nitrogen, Nitrate+Nitrite	3.02	0.2	mg/l	0.800	2.3	90.0	76-129	0.332	22	

Batch 1D42315 - Wet Chem Preparation

Blank (1D42315-BLK1)				Prepared & Analyzed: 04/23/04						
Nitrogen, Ammonia	ND	1.0	mg/l							
Calibration Check (1D42315-CCV1)				Prepared & Analyzed: 04/23/04						
Nitrogen, Ammonia	10.7	1.0	mg/l	10.0		107	80-120			
Calibration Check (1D42315-CCV2)				Prepared & Analyzed: 04/23/04						
Nitrogen, Ammonia	10.6	1.0	mg/l	10.0		106	80-120			

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Seneca Environmental Services
 4140 NE. 14th St.
 Des Moines IA, 50316

Project: Cenex
 Project Number: Northwood
 Project Manager: Michael Steenhoek

Reported:
 04/28/04 13:29

Determination of Conventional Chemistry Parameters - Quality Control
Keystone Laboratories, Inc. - Newton

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
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Batch 1D42315 - Wet Chem Preparation

Matrix Spike (1D42315-MS1)		Source: 14D0847-07		Prepared & Analyzed: 04/23/04						
Nitrogen, Ammonia	10.3	1.0	mg/l	10.0	ND	103	70-136			
Matrix Spike Dup (1D42315-MSD1)		Source: 14D0847-07		Prepared & Analyzed: 04/23/04						
Nitrogen, Ammonia	10.1	1.0	mg/l	10.0	ND	101	70-136	1.96	17	
Reference (1D42315-SRM1)		Prepared & Analyzed: 04/23/04								
Nitrogen, Ammonia	5.51	1.0	mg/l	5.00		110	77-123			

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Seneca Environmental Services
4140 NE. 14th St.
Des Moines IA, 50316

Project: Cenex
Project Number: Northwood
Project Manager: Michael Steenhoek

Reported:
04/28/04 13:29

Notes and Definitions

- C-11 The CCV was outside established acceptance limits. Batch was accepted based on acceptable LCS and MS/MSD recoveries.
- PH-2 Insufficient preservative to adjust the sample pH to less than 2 or greater than 10.
- DET Analyte DETECTED
- ND Analyte NOT DETECTED at or above the reporting limit
- NR Not Reported
- dry Sample results reported on a dry weight basis
- RPD Relative Percent Difference

Keystone Laboratories, Inc. - Newton

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Jeffrey King

Jeffrey King, Ph.D., Laboratory Director

CHAIN OF CUSTODY RECORD



600 E. 17th St. S. 3012 Ansbrough Ave. 1304 Adams
 Newton, IA 50208 Waterloo, IA 50701 Kansas City, KS 66103
 Phone: 641-792-8451 Phone: 319-235-4440 Phone: 913-321-7856
 Fax: 641-792-7989 Fax: 319-235-2480 Fax: 913-321-7937

PAGE _____ OF _____

PRINT OR TYPE INFORMATION BELOW
 SAMPLER: DAVID PHEPPS
 SITE NAME: GENEX-NORTHWOOD 62350003
 ADDRESS: _____
 CITY/ST/ZIP: NORTHWOOD, IA
 PHONE: _____

REPORT TO:
 NAME: MIKE STEENHOEK
 COMPANY NAME: SENECA
 ADDRESS: 4140 NE 14TH ST.
 CITY/ST/ZIP: DES MOINES, IA 50613
 PHONE: 515-262-3500
 FAX: 515-262-2469

BILL TO:
 NAME: _____
 COMPANY NAME: -SAME-
 ADDRESS: _____
 CITY/ST/ZIP: _____
 PHONE: _____
 Keystone Quote No.: _____ (If Applicable)

CLIENT SAMPLE NUMBER	DATE	TIME	SAMPLE LOCATION	NO. OF CONTAINERS	MATRIX	GRAB/COMPOSITE	ANALYSES REQUIRED										LAB USE ONLY		
							Asstac-Des 8/41	Ammonia Nitrogen SM 4500 B/E	NITRATE, NITRITE EPA 300										LABORATORY WORK ORDER NO.
62350003 NORTHWOOD - MW4	4/13/04	7:40	MW4	2	H ₂ O	G	X	X	X									1400846	
62350003 NORTHWOOD - MW3	↓	8:10	MW3	↓	↓	↓	↓	↓	↓										02
62350003 NORTHWOOD - MW1	↓	8:25	MW1	↓	↓	↓	↓	↓	↓										03
62350003 NORTHWOOD - MW5	↓	8:40	MW5	↓	↓	↓	↓	↓	↓										04

Relinquished by: (Signature) <u>David Phepps</u>	Date <u>4/16/04</u> Time <u>11:00</u>	Received by: (Signature) 	Date 	Turn-Around: <input type="checkbox"/> Standard <input type="checkbox"/> Rush
Relinquished by: (Signature) 	Date 	Received for Lab by: (Signature) <u>Bill</u>	Date <u>4/16/04</u> Time <u>11:15 AM</u>	Remarks:

Well Survey Results

Iowa Department of Natural Resources
 109 Trowbridge Hall
 Iowa City, IA 52242-1319
 319-335-1575
 319-335-2754 (fax)



To: Leslie L. Nagel
 Seneca Environmental Services
 4140 NE 14th Street
 Des Moines, IA 50313
 515-261-7733/515-262-2469 (fax)

From: Paul VanDorpe

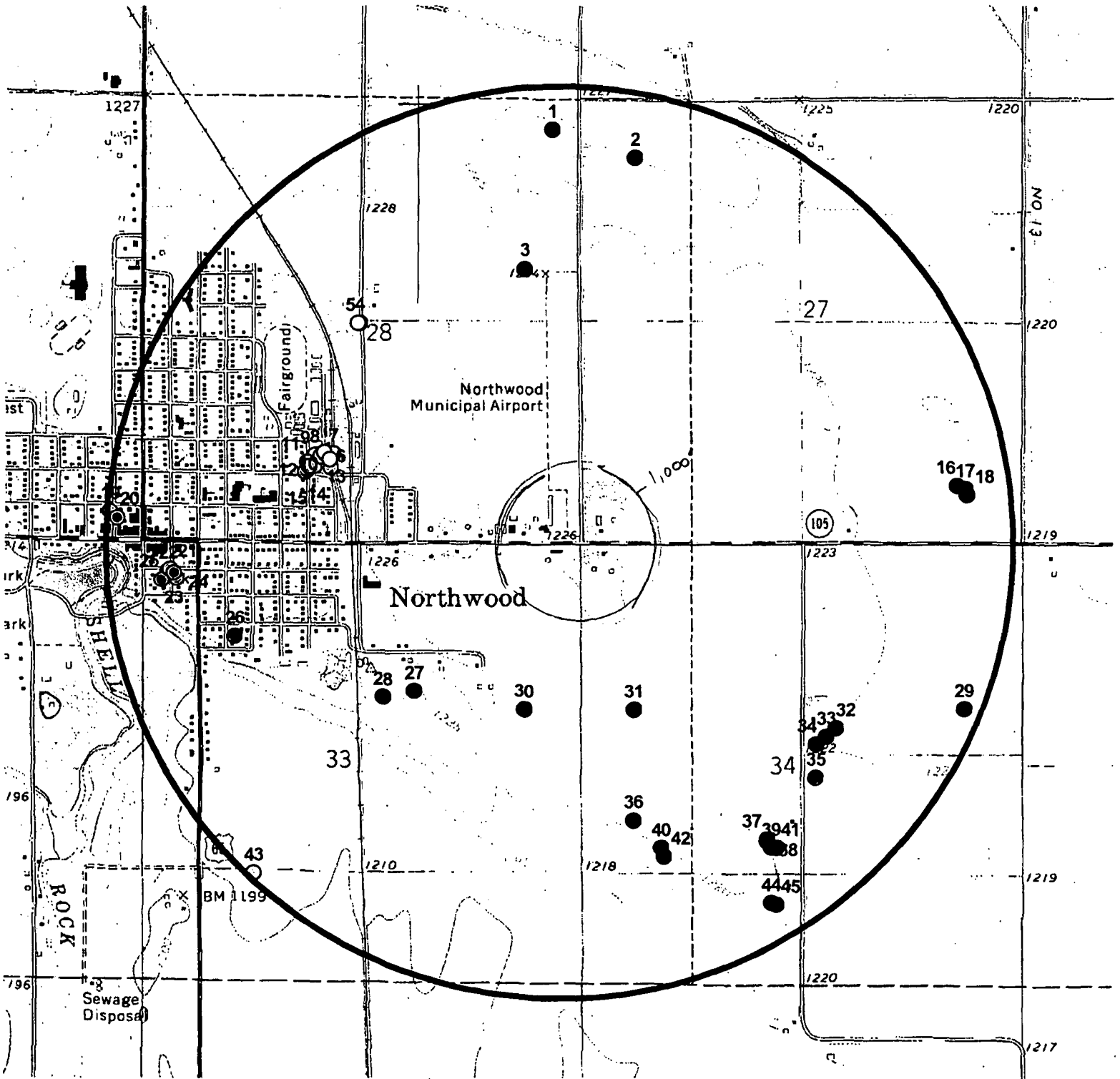
Date: 1/28/2005

Subject: Well search results
 Seneca Project # 6235000

Included in search	No. of wells	Database
X	7	IGS well database general well database maintained by IGS, location accuracy varies 3,730 to 25 ft., last updated 12/2004.
X	0	Public wells (municipal) municipal well database maintained by IGS, location accuracy varies 3,730 to 25 ft., under development
X	4	Public wells (non-municipal) municipal well database maintained by IGS, location accuracy varies 3,730 to 25 ft., under development
X	4	Private well tracking system IDNR database management system for Grants-to-counties-covered wells. Locational accuracy unknown, assumed to be +/-17m., Last update 12/2004.
X	21	Wells registered for testing wells <i>tested</i> under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned.
	2	Permitted private wells wells <i>permitted</i> under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned.
X	6	Registered abandoned wells wells <i>abandoned</i> under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned.
X	0	Public water supply wells and intakes locational accuracy 220 m., last updated 8/96
X	1	Water use permit facilities facilities permitted to withdraw >25,000 gallons per day, locational accuracy is +/- 3,750 ft.; last updated 10/96
X	0	Agricultural drainage wells locational accuracy 100m., last updated 4/98

IGS Well Search Results For Northern Cooperative Services

Search Radius: 5280 ft.



Well search results

- IGS well database
- Public wells (non-municipal)
- Registered abandoned wells
- Permitted private wells
- Private well tracking system wells
- Wells registered for testing
- Water use permit facilities

1000 0 1000 2000 Feet

*Note: wells with identical locations have been shifted from their original locations for the purpose of preparing this map.



Iowa Geological Survey
 109 Trowbridge Hall
 Iowa City, IA 52242-1319
 319-335-1575
 319-335-2754 (fax)
 January 28, 2005

Well Search Results For Northern Cooperative Services Northwood, IA; Search Radius: 5280 ft.

IGS well database

monitoring
> 1 milc

Map Id	Well No.	Location	Well depth	Construction/ Permit date	Owner/Permittee	Other Information
8	45806	T. 100 N., R. 20 W., Sec. 28, SW, SE, NE, NE	25	unkn	Former Amoco Bulk Storage Fac	Bedrock depth unkn
13	45803	T. 100 N., R. 20 W., Sec. 28, SW, SE, NE, SW, NW	25	unkn	Former Amoco Bulk Storage	Bedrock depth unkn
14	45804	T. 100 N., R. 20 W., Sec. 28, SW, SE, NE, SW	25	unkn	Former Amoco Bulk Storage Fac	Bedrock depth unkn
19	41104	T. 100 N., R. 20 W., Sec. 29, SE, SE, SE	unkn	1/1/1931	Northwood, City Of	Bedrock depth unkn
20	41105	T. 100 N., R. 20 W., Sec. 29, SE, SE, SE	unkn	1/1/1931	Northwood, City Of	Bedrock depth unkn
43	26864	T. 100 N., R. 20 W., Sec. 33, SW	60	8/2/1979	Crom, Dwight	Bedrock depth 45 ft.; scanned log available

Public wells (non-municipal)

repeats

Map Id	Well No.	Location	Well depth	Construction/ Permit date	Owner/Permittee	Other Information
9	45806	T. 100 N., R. 20 W., Sec. 28, SW, SE, NE, NE	25	unkn	Former Amoco Bulk Storage Fac	Bedrock depth unkn; Well status: Primary
11	45803	T. 100 N., R. 20 W., Sec. 28, SW, SE, NE, SW, NW	25	unkn	Former Amoco Bulk Storage	Bedrock depth unkn; Well status: Primary
12	45805	T. 100 N., R. 20 W., Sec. 28, SW, SE, NE, SW	25	unkn	Former Amoco Bulk Storage Fac	Bedrock depth unkn; Well status: Primary
15	45804	T. 100 N., R. 20 W., Sec. 28, SW, SE, NE, SW	25	unkn	Former Amoco Bulk Storage Fac	Bedrock depth unkn; Well status: Primary

Private well tracking system wells

Map Id	Well No.	Location	Well depth	Construction/ Permit date	Owner/Permittee	Other Information
26	2093509	T. 100 N., R. 20 W., Sec. 33, NW NW NE SE NW	111	1/1/1920	Daleske, Donna	Status: Active Use: Household Program source: Well testing
27	2082647	T. 100 N., R. 20 W., Sec. 33, NE NW SW SE NE	111	1/1/1930	Ryan, Sheryl	Status: Active Use: Household Program source: Well testing
28	2083389	T. 100 N., R. 20 W., Sec. 33, NE NW SW SW NE	111	1/1/1930	Roe, Andrea	Status: Active Use: Household, Irrigation Program source: Well testing
35	2081455	unkn	55	1/1/1920	Sampson, Herb	Status: Active Use: Household Program source: Well testing

Wells registered for testing

Map Id	Well No.	Location	Well depth	Construction/ Permit date	Owner/Permittee	Other Information
1	21853	T. 100 N., R. 20 W., Sec. 28, NE, NE, NE	16	unkn	Reeder, Harry	Drilling method: Drilled;
2	67542	T. 100 N., R. 20 W., Sec. 27, NW, NW	65	1977	Robb, Albert	Drilling method: Drilled; Estimated well depth
3	68192	T. 100 N., R. 20 W., Sec. 28, NE, SE	20	unkn	Hammes, Lolita	Drilling method: Driven; Known well depth
16	69542	T. 100 N., R. 20 W., Sec. 27, SE, SE	unkn	unkn	Akemon, Paul	Drilling method: Drilled; Well depth is uncertain
17	18103	T. 100 N., R. 20 W., Sec. 27, SE, SE	19	unkn	Colbertern, William A	Drilling method: Drilled;
18	69552	T. 100 N., R. 20 W., Sec. 27, SE, SE	unkn	unkn	Colberston, Bill	Drilling method: Drilled; Well depth is uncertain
29	67623	T. 100 N., R. 20 W., Sec. 34, NE, SE	unkn	unkn	Walsen, Ernest	Drilling method: Drilled; Well depth is uncertain
30	67554	T. 100 N., R. 20 W., Sec. 33, NE, SE	unkn	unkn	Millarb, Roger T.	Drilling method: Drilled; Well depth is uncertain
31	69550	T. 100 N., R. 20 W., Sec. 34, NW, SW	unkn	unkn	Walser, Dennis	Drilling method: Drilled; Well depth is uncertain
32	64098	T. 100 N., R. 20 W., Sec. 34, NE, SW, SW	12	1905	Walser, Dennis	Drilling method: Driven; Known well depth
33	40893	T. 100 N., R. 20 W., Sec. 34, NE, SW, SW	12	1905	Walser, Dennis	Drilling method: Driven;
34	57263	T. 100 N., R. 20 W., Sec. 34, NE, SW, SW	12	1905	Walser, Dennis	Drilling method: Driven;
36	67621	T. 100 N., R. 20 W., Sec. 34, SW, NW	unkn	unkn	Halverson, Allen	Drilling method: Drilled; Well depth is uncertain
37	45346	T. 100 N., R. 20 W., Sec. 34, SW, NE, SE	15	unkn	Low, Rocky	Drilling method: Unknown;

38	71280	T. 100 N., R. 20 W., Sec. 34, SW, NE, SE	15	unkn	Low, Rocky	Drilling method: Sandpoint; Known well depth
39	45322	T. 100 N., R. 20 W., Sec. 34, SW, NE, SE	15	unkn	Low, Rocky	Drilling method: Unknown;
40	55957	T. 100 N., R. 20 W., Sec. 34, SW, NW, SE	15	unkn	Low, Rocky	Drilling method: Unknown; Known well depth
41	45323	T. 100 N., R. 20 W., Sec. 34, SW, NE, SE	15	unkn	Low, Rocky	Drilling method: Unknown;
42	55958	T. 100 N., R. 20 W., Sec. 34, SW, NW, SE	15	unkn	Low, Rocky	Drilling method: Unknown; Known well depth
44	45321	T. 100 N., R. 20 W., Sec. 34, SW, SE, NE	unkn	unkn	Moretz, Scott	Drilling method: Unknown; Well depth is uncertain
45	71278	T. 100 N., R. 20 W., Sec. 34, SW, SE, NE	unkn	unkn	Walser, Ernie	Drilling method: Unknown; Well depth is uncertain

Permitted private wells

Map Id	Well No.	Location	Well depth	Construction/ Permit date	Owner/Permittee	Other Information
6	2204	T. 100 N., R. 20 W., Sec. 28, SWSE	30	unkn	Amoco Corp	Primary use: Dewatering
10	16247	T. 100 N., R. 20 W., Sec. 28, SW, SE, NE	30	unkn	Unkn	Primary use: Dewatering

Registered abandoned wells

Map Id	Well No.	Location	Well depth	Construction/ Permit date	Owner/Permittee	Other Information
4	41784	T. 100 N., R. 20 W., Sec. 28	22	n.a.	Julson, Keith	Well plugged: 7/6/2000; Well type: < 18" dia.
21	22422	T. 100 N., R. 20 W., Sec. 33, NW, NW, NW	24	n.a.	Us West Communications, Environme	Well plugged: 12/7/1995; Well type: < 18" dia.
22	22420	T. 100 N., R. 20 W., Sec. 33, NW, NW, NW	26	n.a.	Us West Communications, Environme	Well plugged: 12/7/1995; Well type: < 18" dia.
23	22424	T. 100 N., R. 20 W., Sec. 33, NW, NW, NW	26	n.a.	Us West Communications, Environme	Well plugged: 12/7/1995; Well type: < 18" dia.
24	22423	T. 100 N., R. 20 W., Sec. 33, NW, NW, NW	26	n.a.	Us West Communications, Environme	Well plugged: 12/7/1995; Well type: < 18" dia.
25	22421	T. 100 N., R. 20 W., Sec. 33, NW, NW, NW	26	n.a.	Us West Communications, Environme	Well plugged: 12/7/1995; Well type: < 18" dia.

Water use permit facilities

Map Id	Well No.	Location	Well depth	Construction/ Permit date	Owner/Permittee	Other Information
5	7571	T. 100 N., R. 20 W., Sec. 28	n.a.	n.a.	Amoco Corporation	Source: Well, 4 wells authorized, Use: Aquifer Remediation