DF FEB 2001 Con 12-15

Pella Coal Gas

CON 12-15
Doc #12512

ALLIANT ENERGY.

Alliant Energy Corporation
Alliant Tower
200 First Street SE
P.O. Box 351
Cedar Rapids, IA 52406-0351

Office: 319.398.4411
www.alliant-energy.com

March 14, 2001
EA-01-020

Mr. Michael Leat
Iowa Department of Natural Resources
Wallace State Office Building
502 E. 9th Street
Des Moines, Iowa 50319

Proj: Pella Former Manufactured Gas Plant Site
Subj: Submittal of Final Report
File: SPF-116.A06J

Dear Mr. Leat:

Enclosed are three (3) copies of Final Report for the Pella former manufactured gas plant site work plan.

Please contact me at (319) 398-4568 if you have any questions or comments.

Sincerely,

Dean A. Hargens

Dean A. Hargens, P.E.
Environmental Engineer
FMGP Project Coordinator

Enclosure

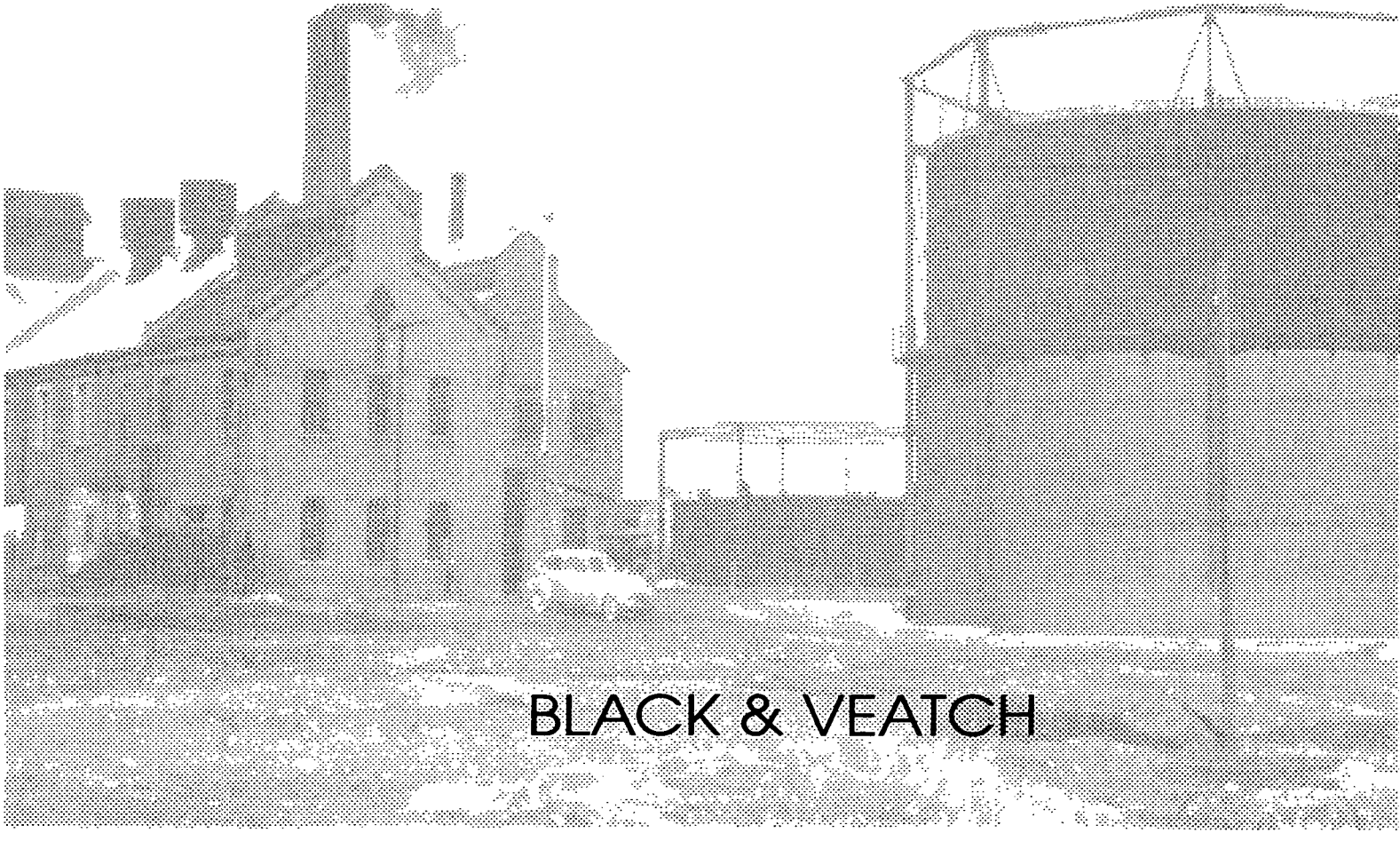
cc: J. Golchin - IDNR w/o
B. Greer - MSN w/e
D. English - B&V w/o

Final Report
Pella, Iowa
Gas Storage and Distribution Site

Prepared for

Alliant Energy

February 2001



BLACK & VEATCH

FINAL REPORT

PELLA, IOWA
GAS STORAGE AND DISTRIBUTION SITE

Prepared for
Alliant Energy

Prepared by

BLACK & VEATCH
Corporation

February 2001

I hereby certify that this engineering document was prepared by me or under my direct personal supervision and that I am a duly licensed Professional Engineer under the laws of the State of Iowa.

Deborah A. English

2/27/01
Date

License Number: 12922
Pages or sheets covered by this seal: Entire document

My license renewal date is December 31, 2001.

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Pella, Iowa

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1.0 Introduction

The Pella gas distribution site was originally identified by the Iowa Department of Natural Resources (IDNR) as a former manufactured gas plant (MGP) site requiring further study under Consent Order 90-HC-12 between Iowa Electric Light and Power Company, now Alliant Energy, and the IDNR. However, historical information indicated that gas was never manufactured in Pella, but was stored and distributed there from gas manufacturing operations in Knoxville, Iowa. Therefore, Alliant Energy has sought to eliminate the Pella site from further consideration and study under Consent Order 90-HC-12. At the request of the IDNR, a limited investigation conducted at the site in October 2000. IDNR issued a certificate of no further action for the site on November 6, 2000 (IDNR 2000).

This report documents the site background and presents the results of the field investigation conducted at the Pella, Iowa, manufactured gas distribution and storage site in October 2000. The limited investigation was conducted at the site at the request of the IDNR to evaluate shallow soil conditions in the vicinity of piping and remnants of above ground gas storage tanks previously located on the property.

This report was prepared for Alliant Energy by Black & Veatch and includes a description of site background information, the field activities, a discussion of the analytical results of the sampling, summary, and references used to prepare the report.

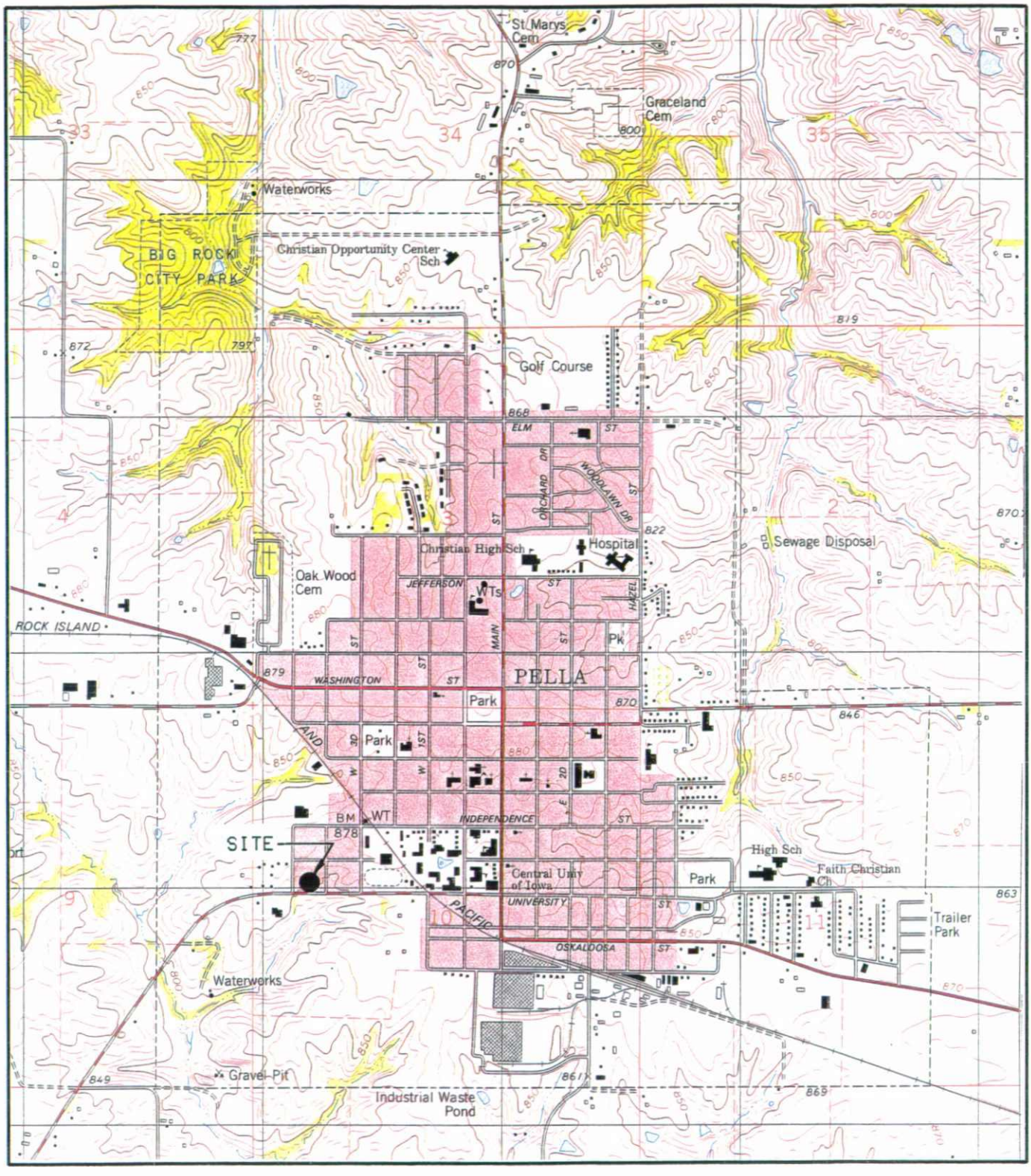
2.0 Site Background

The city of Pella is located in the south central portion of Iowa, about 40 miles southeast of Des Moines in Marion County. The property is located near the intersection of University Avenue and Peace Street in the southwestern portion of the city, as shown on Figure 1. The site is located in the southwest quarter of the northwest quarter of Section 10, Township 76 North, Range 18 West and the legal description of the property is as follows:

> The north 92 feet of the west 25 feet of lot seven (7), and the north 92 feet of the east thirty-five feet of lot six (6), all in Block seventy-eight (78) in the City of Pella, Iowa.

Grass and trees cover the property, which is located in a residential-zoned area. The site is bordered to the north, west, south, and southeast by residential properties and to the northeast by a church and its parking lot. A site drawing is presented as Figure 2 and shows the above ground structures present at the Pella site, including 10 concrete tank cradles and a brick governor house. The site is currently covered with vegetation and the governor house is being used by the property owner to store lawn care equipment. There are no known underground structures at the site.

Historical investigative reports conducted by Tuthill and McDonald (Tuthill 1990; McDonald 1986) indicate that Central States Electric Company purchased a portion of the property in 1928 and the remainder of the property in 1939. Company records do not indicate that gas was ever manufactured at the site, but was manufactured in Knoxville, Iowa, and piped under pressure to the Pella facility for storage and distribution. Gas related structures constructed at the site include the governor house and two above ground tanks that were used to store gas from the Knoxville operations. An engineering drawing of the governor house and horizontal gas storage tanks is included with this report as Appendix C. According to Brown's Directory of American Gas Companies, manufactured gas service to Pella from Knoxville began around 1930, and the Knoxville system was converted to natural gas in April 1942. The Brown's Directories contain no references that indicate gas was ever manufactured in Pella.



QUADRANGLE LOCATION

N

1000 0 1000 2000 FEET

SOURCE: USGS, 1980

FIGURE 1
SITE LOCATION
PELLA GAS DISTRIBUTION CENTER
CN000233

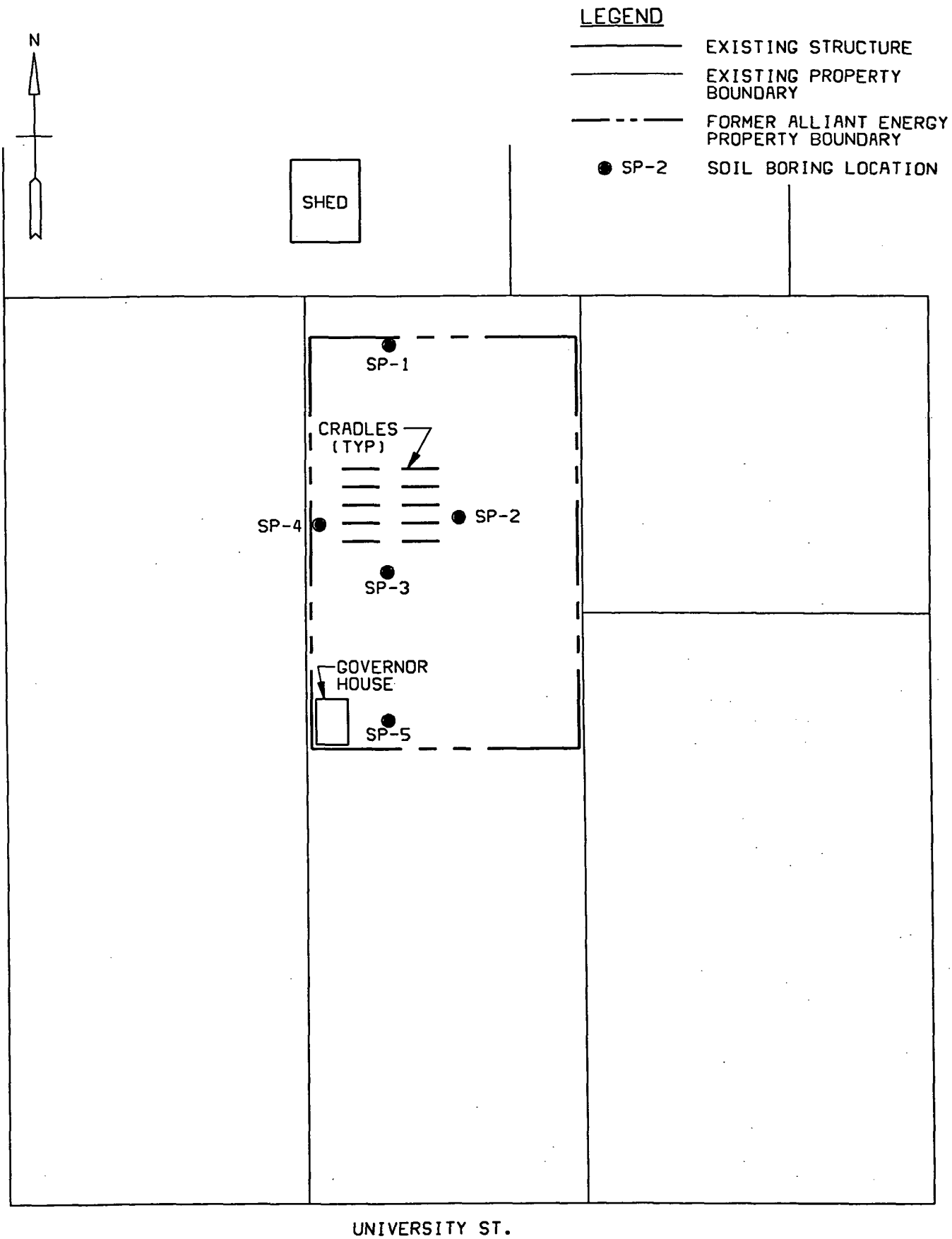


FIGURE 2
SITE DRAWING
PELLA GAS DISTRIBUTION CENTER
40492-1000-GENUP-C-T000007BM

In 1951, the site was conveyed to Iowa Electric Light and Power Company as part of a merger of the two companies. In 1967, the property was purchased by Central College of Pella, Iowa and then was sold in 1987 to Larry and Evelyn Lautenbach.

3.0 Scope of Work

Investigative activities were conducted at the site on October 24th, 2000, and consisted of collecting subsurface soil samples with a bucket mouth hand auger. The soil samples were collected in the field by Black & Veatch and Alliant Energy personnel. The samples were hand-delivered to an Pace Analytical Services of Lenexa, Kansas, for chemical analysis of benzene, toluene, ethylbenzene, and total xylenes (BTEXs) by SW-846 Method 8021 and for polynuclear aromatic hydrocarbons (PAHs) by SW-846 Method 8310. These types of compounds are typically associated with MGP sites. The sampling and analytical procedures were performed in accordance with the Alliant Energy MGP Quality Assurance Project Plan (QAPP) (B&V 1999a).

As shown on Figure 2, a total of 5 boreholes were hand-augered and sampled to evaluate shallow subsurface soil conditions at the site. Sampling locations were selected on the basis of known locations of former site structures. All boreholes were probed continuously to a maximum depth of 9 feet below ground surface (bgs). A composite soil sample was collected from approximately 4 to 9 feet bgs from each boring. No visible hydrocarbon contamination was observed in the soil removed from any of the borings.

The field investigation work plan for the site also detailed procedures to identify any residential wells or basement sumps in the area. It was proposed that a well and sump survey would be conducted at a later date if visible soil contamination were encountered during the augering activities. However, no visible soil contamination was identified at the site during the soil sampling activities, therefore, the well and sump survey was not completed. Three surface soil samples were also proposed for collection at borehole locations SP-2, SP-3, and SP-4 as discussed in the work plan for the site. However, with concurrence of the IDNR, these samples were not collected during the field investigation.

4.0 Investigation Results

The field investigation was conducted to provide details on subsurface conditions at the Pella site through the collection of soil samples from hand-augered borings. The results of the investigation are presented in the following subsections.

Subsurface Geology

The city of Pella is located within the Southern Iowa Drift Plain, which is a topographical area characterized by alternating ridges and valleys. These ridges and valleys are the result of local streams and rivers cutting through successive layers of loess and pre-Illinoian or early Illinoian glacial till. Unconsolidated loess, residuum, and glacial till overlie the Pennsylvanian age bedrock present throughout the area (USDA 1980; Prior 1991).

Five borings were hand-augered at the Pella site during the field investigation. The subsurface soil units and their corresponding depths were noted, but were not geologically logged. The borings were not advanced any deeper than 9 feet bgs due to the length of the hand auger. A fill unit consisting of clay and silty clay was encountered up to 3 feet bgs in each of the borings. Native soil consisting of a cohesive dark brown to dark gray silty clay was encountered directly below this fill unit. This native material continued to the bottom of the borings. No odors or visible contamination was noted in any of the borings. Ground water also was not encountered in any of the borings.

Soil Sampling Analytical Results

Soil samples collected from the hand-augered borings were analyzed for BTEXs and PAHs by SW-846 Methods 8021 and 8310, respectively. Sampling locations are shown on Figure 2.

No BTEX or PAH compounds were detected in the soil samples collected from borings SP-1, SP-2, SP-3, or SP-4. These samples were collected around the outside of the tank cradles. No BTEX compounds were detected in sample SP-5. However, four PAH compounds were detected at concentrations slightly above their reporting limits in the sample. Benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, and benzo(g,h,i) perylene were detected in the sample from SP-5 at concentrations of 2.6, 1.2, 2.7, and 1.7

micrograms per kilogram (µg/kg), respectively. The analytical results for the samples are presented in Appendix A.

All chemical analytical results received from the laboratory were reviewed and evaluated by Black & Veatch. Data validation was performed by Black & Veatch using the U.S. Environmental Protection Agency (EPA) *Laboratory Data Validation Functional Guidelines for Evaluating Organics/Inorganics Analyses* (EPA 1994a and 1994b) and the quality assurance and data evaluation guidelines listed in the QAPP. The data validation results are presented in Appendix B. No qualifications were required for the analytical data.

5.0 Summary

This final report for the Pella manufactured gas storage and distribution site supports the IDNR certificate of no Further Action issued in November 2000. Historical information indicates that gas was never manufactured at this site, which conclusion is also supported by the results of the investigation conducted in October 2000. The purpose of this investigation was to evaluate shallow soil conditions in the vicinity of existing above ground gas-related structures.

Field activities included hand-augering 5 borings around the structures and collecting soil samples for BTEX and PAH analysis. No compounds were detected in four of the borings, however, trace concentrations of four PAH compounds were detected in the sample from boring SP-5. The total detected concentration of these four compounds was less than 10 µg/kg. These extremely low concentrations are within or below background concentrations typically found in rural soil (ATSDR 1990) and are therefore not considered to be significant. Ground water was not encountered in any of the borings. On the basis of the historical evidence and the results of this investigation, no further action is planned for the Pella gas distribution site.

6.0 References

ATSDR 1990. Agency for Toxic Substance and Disease Registry, *Toxicological Profile for Polycyclic Aromatic Hydrocarbons*, December 1990.

B&V 1999a. Black & Veatch, *Former Manufactured Gas Plant Program Quality Assurance Project Plan*, prepared for Alliant Energy, May 1999.

B&V 1999b. Black & Veatch, *Field Investigation Work Plan*, prepared for Alliant Energy, March 1999.

Brown 1930-1942. Brown's Directory of American Gas Companies, 1930-1942.

EPA 1994a. U.S. Environmental Protection Agency, *Laboratory Data Validation Functional Guidelines for Evaluating Organics Analyses*, February 1994.

EPA 1994b. U.S. Environmental Protection Agency, *Laboratory Data Validation for Evaluating Inorganics Analyses*, February 1994.

IDNR 2000. Iowa Department of Natural Resources, letter from Lyle Asell to Dean Hargens of Alliant Energy, November 6, 2000.

IDNR 1990. Iowa Department of Natural Resources, Consent Order 90-HC-12, signed by Iowa Electric Light and Power Company, July 30, 1990.

McDonald 1986. D. B. McDonald Research Associates, *Preliminary Investigation of the Pella and Knoxville Manufactured Gas Plant Sites*, prepared for Iowa Electric Light and Power Company, July, 1986.

Prior 1991. Jean C. Prior, *Landforms of Iowa*, University of Iowa Press, Iowa City, Iowa, 1991.

Tuthill 1990. Tuthill, Inc., *Historical Investigation Report, Gas Storage and Distribution Site at Pella, Iowa*, prepared for Iowa Electric Light and Power Company, April, 1990.

USDA 1980. U.S. Department of Agriculture Soil Conservation Service, *Soil Survey of Marion County, Iowa*, January 1980.

APPENDIX A

SOIL SAMPLING
ANALYTICAL RESULTS

Pace Analytical™
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Phone: 913.599.5665
Fax: 913.599.1759

DATE: 11/13/00

BLACK & VEATCH
8400 WARD PARKWAY
KANSAS CITY, MO 64114

Pace Project Number: 6045996
Client Project ID: PELLA FMGP SITE

Attn: Ms. DEBORAH ENGLISH
Phone: (913)458-6505

Solid results are reported on a dry weight basis

Pace Sample No: 603928045 Date Collected: 10/24/00 Matrix: Soil
Client Sample ID: PL-SP1-S01-102400-P Date Received: 10/26/00

Parameters	Results	Units	PRL	App. DF	Analyzed	Analyst	CAS#	Footnotes
Organics Prep								
Percent Moisture	Method:				Prep Method:			
Percent Moisture	13.5	%		0.86	10/30/00	DCKI		
GC Volatiles								
Aromatic Volatile Organics	Method: EPA 8021				Prep Method: EPA 5030 Medium Soi			
Benzene	ND	ug/kg	23	0.40	11/06/00	MJW	71-43-2	
Ethylbenzene	ND	ug/kg	23	0.40	11/06/00	MJW	100-41-4	
Toluene	ND	ug/kg	23	0.40	11/06/00	MJW	108-88-3	
Xylene (Total)	ND	ug/kg	58	0.40	11/06/00	MJW	1330-20-7	
a,a,a-Trifluorotoluene (S)	112	%		0.86	11/06/00	MJW	2164-17-2	
HPLC								
PAHs in Soil	Method: EPA 8310				Prep Method: EPA 3550			
Naphthalene	ND	ug/kg	11	1.00	11/09/00	TGH	91-20-3	
Acenaphthylene	ND	ug/kg	31	1.00	11/09/00	TGH	208-96-8	
Acenaphthene	ND	ug/kg	4.9	1.00	11/09/00	TGH	83-32-9	
Fluorene	ND	ug/kg	1.4	1.00	11/09/00	TGH	86-73-7	
Phenanthrene	ND	ug/kg	9.7	1.00	11/09/00	TGH	85-01-8	
Anthracene	ND	ug/kg	1.6	1.00	11/09/00	TGH	120-12-7	
Fluoranthene	ND	ug/kg	4.4	1.00	11/09/00	TGH	206-44-0	
Pyrene	ND	ug/kg	6.1	1.00	11/09/00	TGH	129-00-0	
Benzo(a)anthracene	ND	ug/kg	2.5	1.00	11/09/00	TGH	56-55-3	
Chrysene	ND	ug/kg	2.8	1.00	11/09/00	TGH	218-01-9	
Benzo(b)fluoranthene	ND	ug/kg	2.1	1.00	11/09/00	TGH	205-99-2	
Benzo(k)fluoranthene	ND	ug/kg	0.98	1.00	11/09/00	TGH	207-08-9	

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Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Phone: 913.599.5665
Fax: 913.599.1759

Pace Project Number: 6045996
Client Project ID: PELLA FMGP SITE

Pace Sample No: 603928045 Date Collected: 10/24/00 Matrix: Soil
Client Sample ID: PL-SP1-S01-102400-P Date Received: 10/26/00

Parameters	Results	Units	PRL	App. DF	Analyzed	Analyst	CAS#	Footnotes
Benzo(a)pyrene	ND	ug/kg	2.3	1.00	11/09/00	TGH	50-32-8	
Dibenz(a,h)anthracene	ND	ug/kg	1.4	1.00	11/09/00	TGH	53-70-3	
Benzo(g,h,i)perylene	ND	ug/kg	0.98	1.00	11/09/00	TGH	191-24-2	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1.6	1.00	11/09/00	TGH	193-39-5	
Carbazole (S)	88	%		0.86	11/09/00	TGH	86-74-8	
Terphenyl-d14 (S)	78	%		0.86	11/09/00	TGH	1718-51-0	
Date Extracted					11/06/00			

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Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Phone: 913.599.5665
Fax: 913.599.1759

Pace Project Number: 6045996
Client Project ID: PELLA FMGP SITE

Pace Sample No: 603928052 Date Collected: 10/24/00 Matrix: Soil
Client Sample ID: PL-SP2-S01-102400-P Date Received: 10/26/00

Parameters	Results	Units	PRL	App. DF	Analyzed	Analyst	CAS#	Footnotes
Organics Prep								
Percent Moisture	Method:				Prep Method:			
Percent Moisture	14.2	%		0.86	10/30/00	DCKI		
GC Volatiles								
Aromatic Volatile Organics	Method: EPA 8021				Prep Method: EPA 5030 Medium Soi			
Benzene	ND	ug/kg	23	0.40	11/06/00	MJW	71-43-2	
Ethylbenzene	ND	ug/kg	23	0.40	11/06/00	MJW	100-41-4	
Toluene	ND	ug/kg	23	0.40	11/06/00	MJW	108-88-3	
Xylene (Total)	ND	ug/kg	58	0.40	11/06/00	MJW	1330-20-7	
a,a,a-Trifluorotoluene (S)	112	%		0.86	11/06/00	MJW	2164-17-2	
PAHs in Soil	Method: EPA 8310				Prep Method: EPA 3550			
Naphthalene	ND	ug/kg	11	1.00	11/09/00	TGH	91-20-3	
Acenaphthylene	ND	ug/kg	31	1.00	11/09/00	TGH	208-96-8	
Acenaphthene	ND	ug/kg	4.9	1.00	11/09/00	TGH	83-32-9	
Fluorene	ND	ug/kg	1.4	1.00	11/09/00	TGH	86-73-7	
Phenanthrene	ND	ug/kg	9.8	1.00	11/09/00	TGH	85-01-8	
Anthracene	ND	ug/kg	1.6	1.00	11/09/00	TGH	120-12-7	
Fluoranthene	ND	ug/kg	4.4	1.00	11/09/00	TGH	206-44-0	
Pyrene	ND	ug/kg	6.2	1.00	11/09/00	TGH	129-00-0	
Benzo(a)anthracene	ND	ug/kg	2.6	1.00	11/09/00	TGH	56-55-3	
Chrysene	ND	ug/kg	2.8	1.00	11/09/00	TGH	218-01-9	
Benzo(b)fluoranthene	ND	ug/kg	2.1	1.00	11/09/00	TGH	205-99-2	
Benzo(k)fluoranthene	ND	ug/kg	0.99	1.00	11/09/00	TGH	207-08-9	
Benzo(a)pyrene	ND	ug/kg	2.3	1.00	11/09/00	TGH	50-32-8	
Dibenz(a,h)anthracene	ND	ug/kg	1.4	1.00	11/09/00	TGH	53-70-3	
Benzo(g,h,i)perylene	ND	ug/kg	0.99	1.00	11/09/00	TGH	191-24-2	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1.6	1.00	11/09/00	TGH	193-39-5	
Carbazole (S)	87	%		0.86	11/09/00	TGH	86-74-8	
Terphenyl-d14 (S)	78	%		0.86	11/09/00	TGH	1718-51-0	
Date Extracted					11/06/00			

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Lenexa, KS 66219
Phone: 913.599.5665
Fax: 913.599.1759

Pace Project Number: 6045996
Client Project ID: PELLA FMGP SITE

Pace Sample No: 603928060 Date Collected: 10/24/00 Matrix: Soil
Client Sample ID: PL-SP3-S01-102400-P Date Received: 10/26/00

Parameters	Results	Units	PRL	App. DF	Analyzed	Analyst	CAS#	Footnotes
Organics Prep								
Percent Moisture	Method:				Prep Method:			
Percent Moisture	17.4	%		0.83	10/30/00	DCKI		
GC Volatiles								
Aromatic Volatile Organics	Method: EPA 8021				Prep Method: EPA 5030 Medium Soi			
Benzene	ND	ug/kg	24	0.39	11/06/00	MJW	71-43-2	
Ethylbenzene	ND	ug/kg	24	0.39	11/06/00	MJW	100-41-4	
Toluene	ND	ug/kg	24	0.39	11/06/00	MJW	108-88-3	
Xylene (Total)	ND	ug/kg	60	0.39	11/06/00	MJW	1330-20-7	
a,a,a-Trifluorotoluene (S)	112	%		0.83	11/06/00	MJW	2164-17-2	
PAHs in Soil	Method: EPA 8310				Prep Method: EPA 3550			
Naphthalene	ND	ug/kg	11	1.00	11/09/00	TGH	91-20-3	
Acenaphthylene	ND	ug/kg	33	1.00	11/09/00	TGH	208-96-8	
Acenaphthene	ND	ug/kg	5.1	1.00	11/09/00	TGH	83-32-9	
Fluorene	ND	ug/kg	1.5	1.00	11/09/00	TGH	86-73-7	
Phenanthrene	ND	ug/kg	10	1.00	11/09/00	TGH	85-01-8	
Anthracene	ND	ug/kg	1.7	1.00	11/09/00	TGH	120-12-7	
Fluoranthene	ND	ug/kg	4.6	1.00	11/09/00	TGH	206-44-0	
Pyrene	ND	ug/kg	6.4	1.00	11/09/00	TGH	129-00-0	
Benzo(a)anthracene	ND	ug/kg	2.7	1.00	11/09/00	TGH	56-55-3	
Chrysene	ND	ug/kg	2.9	1.00	11/09/00	TGH	218-01-9	
Benzo(b)fluoranthene	ND	ug/kg	2.2	1.00	11/09/00	TGH	205-99-2	
Benzo(k)fluoranthene	ND	ug/kg	1	1.00	11/09/00	TGH	207-08-9	
Benzo(a)pyrene	ND	ug/kg	2.4	1.00	11/09/00	TGH	50-32-8	
Dibenz(a,h)anthracene	ND	ug/kg	1.5	1.00	11/09/00	TGH	53-70-3	
Benzo(g,h,i)perylene	ND	ug/kg	1	1.00	11/09/00	TGH	191-24-2	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1.7	1.00	11/09/00	TGH	193-39-5	
Carbazole (S)	87	%		0.83	11/09/00	TGH	86-74-8	
Terphenyl-d14 (S)	81	%		0.83	11/09/00	TGH	1718-51-0	
Date Extracted					11/06/00			

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Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Phone: 913.599.5665
Fax: 913.599.1759

Pace Project Number: 6045996
Client Project ID: PELLA FMGP SITE

Pace Sample No: 603928078 Date Collected: 10/24/00 Matrix: Soil
Client Sample ID: PL-SP4-S01-102400-P Date Received: 10/26/00

Parameters	Results	Units	PRL	App. DF	Analyzed	Analyst	CAS#	Footnotes
Organics Prep								
Percent Moisture		Method:			Prep Method:			
Percent Moisture	14.8	%		0.85	10/30/00	DCKI		
GC Volatiles								
Aromatic Volatile Organics		Method: EPA 8021			Prep Method: EPA 5030 Medium Soi			
Benzene	ND	ug/kg	23	0.40	11/06/00	MJW	71-43-2	
Ethylbenzene	ND	ug/kg	23	0.40	11/06/00	MJW	100-41-4	
Toluene	ND	ug/kg	23	0.40	11/06/00	MJW	108-88-3	
Xylene (Total)	ND	ug/kg	59	0.40	11/06/00	MJW	1330-20-7	
a,a,a-Trifluorotoluene (S)	113	%		0.85	11/06/00	MJW	2164-17-2	
HPLC								
PAHs in Soil		Method: EPA 8310			Prep Method: EPA 3550			
Naphthalene	ND	ug/kg	11	1.00	11/09/00	TGH	91-20-3	
Acenaphthylene	ND	ug/kg	32	1.00	11/09/00	TGH	208-96-8	
Acenaphthene	ND	ug/kg	4.9	1.00	11/09/00	TGH	83-32-9	
Fluorene	ND	ug/kg	1.4	1.00	11/09/00	TGH	86-73-7	
Phenanthrene	ND	ug/kg	9.9	1.00	11/09/00	TGH	85-01-8	
Anthracene	ND	ug/kg	1.6	1.00	11/09/00	TGH	120-12-7	
Fluoranthene	ND	ug/kg	4.5	1.00	11/09/00	TGH	206-44-0	
Pyrene	ND	ug/kg	6.2	1.00	11/09/00	TGH	129-00-0	
Benzo(a)anthracene	ND	ug/kg	2.6	1.00	11/09/00	TGH	56-55-3	
Chrysene	ND	ug/kg	2.8	1.00	11/09/00	TGH	218-01-9	
Benzo(b)fluoranthene	ND	ug/kg	2.1	1.00	11/09/00	TGH	205-99-2	
Benzo(k)fluoranthene	ND	ug/kg	1	1.00	11/09/00	TGH	207-08-9	
Benzo(a)pyrene	ND	ug/kg	2.3	1.00	11/09/00	TGH	50-32-8	
Dibenz(a,h)anthracene	ND	ug/kg	1.4	1.00	11/09/00	TGH	53-70-3	
Benzo(g,h,i)perylene	ND	ug/kg	1	1.00	11/09/00	TGH	191-24-2	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1.6	1.00	11/09/00	TGH	193-39-5	
Carbazole (S)	92	%		0.85	11/09/00	TGH	86-74-8	
Terphenyl-d14 (S)	78	%		0.85	11/09/00	TGH	1718-51-0	
Date Extracted					11/06/00			

REPORT OF LABORATORY ANALYSIS

Pace Analytical™
www.pacelabs.com

Pace Analytical Services, Inc.
9608 Loiret Blvd.
Lenexa, KS 66219
Phone: 913.599.5665
Fax: 913.599.1759

Pace Project Number: 6045996
Client Project ID: PELLA FMGP SITE

Pace Sample No: 603928086 Date Collected: 10/24/00 Matrix: Soil
Client Sample ID: PL-SP5-S01-102400-P Date Received: 10/26/00

Parameters	Results	Units	PRL	App. DF	Analyzed	Analyst	CAS#	Footnotes
Organics Prep								
Percent Moisture		Method:			Prep Method:			
Percent Moisture	15.4	%		0.85	10/30/00	DCKI		
GC Volatiles								
Aromatic Volatile Organics		Method: EPA 8021			Prep Method: EPA 5030 Medium Soi			
Benzene	ND	ug/kg	24	0.40	11/06/00	MJW	71-43-2	
Ethylbenzene	ND	ug/kg	24	0.40	11/06/00	MJW	100-41-4	
Toluene	ND	ug/kg	24	0.40	11/06/00	MJW	108-88-3	
Xylene (Total)	ND	ug/kg	59	0.40	11/06/00	MJW	1330-20-7	
a,a,a-Trifluorotoluene (S)	112	%		0.85	11/06/00	MJW	2164-17-2	
HPLC								
PAHs in Soil		Method: EPA 8310			Prep Method: EPA 3550			
Naphthalene	ND	ug/kg	11	1.00	11/09/00	TGH	91-20-3	
Acenaphthylene	ND	ug/kg	32	1.00	11/09/00	TGH	208-96-8	
Acenaphthene	ND	ug/kg	5	1.00	11/09/00	TGH	83-32-9	
Fluorene	ND	ug/kg	1.4	1.00	11/09/00	TGH	86-73-7	
Phenanthrene	ND	ug/kg	9.9	1.00	11/09/00	TGH	85-01-8	
Anthracene	ND	ug/kg	1.7	1.00	11/09/00	TGH	120-12-7	
Fluoranthene	ND	ug/kg	4.5	1.00	11/09/00	TGH	206-44-0	
Pyrene	ND	ug/kg	6.3	1.00	11/09/00	TGH	129-00-0	
Benzo(a)anthracene	ND	ug/kg	2.6	1.00	11/09/00	TGH	56-55-3	
Chrysene	ND	ug/kg	2.8	1.00	11/09/00	TGH	218-01-9	
Benzo(b)fluoranthene	2.6	ug/kg	2.1	1.00	11/09/00	TGH	205-99-2	
Benzo(k)fluoranthene	1.2	ug/kg	1	1.00	11/09/00	TGH	207-08-9	
Benzo(a)pyrene	2.7	ug/kg	2.4	1.00	11/09/00	TGH	50-32-8	
Dibenz(a,h)anthracene	ND	ug/kg	1.4	1.00	11/09/00	TGH	53-70-3	
Benzo(g,h,i)perylene	1.7	ug/kg	1	1.00	11/09/00	TGH	191-24-2	
Indeno(1,2,3-cd)pyrene	ND	ug/kg	1.7	1.00	11/09/00	TGH	193-39-5	
Carbazole (S)	94	%		0.85	11/09/00	TGH	86-74-8	
Terphenyl-d14 (S)	83	%		0.85	11/09/00	TGH	1718-51-0	
Date Extracted					11/06/00			

REPORT OF LABORATORY ANALYSIS

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Pace Project Number: 6045996
Client Project ID: PELLA FMGP SITE

PARAMETER FOOTNOTES

ND	Not Detected
NC	Not Calculable
PRL	Pace Reporting Limit
(S)	Surrogate
App. DF	Applied Dilution Factor

REPORT OF LABORATORY ANALYSIS

APPENDIX B

ANALYTICAL DATA VALIDATION RESULTS

DATA ASSESSMENT NARRATIVE
METHOD 8021 BTEX

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, GC performance, calibration results and internal standard performance. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8021; the National Functional Guidelines for Organic Data Validation, 1994, where applicable; and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 6045996

A validation was performed on the BTEX Data from SDG 6045996. The data was evaluated based on the following parameters:

- * Data Completeness
- * Holding Times
- * Calibration
- * Blanks
- * Surrogate Recoveries
- * Matrix Spike/Matrix Spike Duplicates
- * Field Duplicates
- * Internal Standard Performance
- * Compound Identification
- * Compound Quantitation

* - All criteria were met for this parameter.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U	=	Not detected
J	=	Estimated value
UJ	=	Reported Quantitation limit is qualified as estimated
UR	=	Result is rejected and unusable
D	=	Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL	The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.
U	The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non detected at the compound value reported.
No Action	The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL

No qualifications are required.

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
\+ in the DL column denotes a positive result
\- in the DL column denotes a non detect result

DATA ASSESSMENT NARRATIVE
METHOD 8310 PAH

General

The organic findings offered in this screening report assumes that all analytical results are correct as reported and is based upon the examination of the reported holding times, blank analysis results, surrogate and matrix spike recoveries, HPLC performance, and calibration results. This report was prepared in compliance relative to the analytical and deliverable requirements specified in the SW-846 Method 8310; the National Functional Guidelines for Organic Data Validation, 1994, where applicable; and DQO Level IV requirements. All comments made within this report should be considered when examining the analytical results. Please refer the specific findings found in each category to the Summary of Data Qualification table.

SDG # 6045996

A validation was performed on the PAH Data from SDG 6045996. The data was evaluated based on the following parameters:

- * Data Completeness
- * Holding Times
- * Calibration
- * Blanks
- * Surrogate Recoveries
- * Matrix Spike/Matrix Spike Duplicates
- * Field Duplicates
- * Compound Identification
- * Compound Quantitation

* - All criteria were met for this parameter.

GLOSSARY OF DATA QUALIFIERS

QUALIFICATION CODES

U = Not detected

J = Estimated value

UJ = Reported Quantitation limit is qualified as estimated

UR = Result is rejected and unusable

D = Result value is based on dilution analysis

METHOD BLANK QUALIFICATION CODES

CRQL The sample result for the blank contaminant is less than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is rejected and the CRQL for that compound is reported.

U The sample result for the blank contaminant is greater than the sample CRQL and is less than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is qualified as non-detected at the compound value reported.

No Action The sample result for the blank contaminant is greater than the sample CRQL and is greater than 5X (10X for common laboratory contaminants) the method blank value. The sample result for the blank contaminant is not qualified with any blank qualifiers.

SUMMARY OF DATA QUALIFICATIONS

SAMPLE ID	COMPOUND ID	DL	QL

No qualifications are required.

* DL denotes the Form I qualifier supplied by the laboratory
QL denotes the qualifier used by the data validation firm
+ in the DL column denotes a positive result
- in the DL column denotes a non detect result

APPENDIX C

ENGINEERING DRAWINGS