MWH.

BUILDING A BETTER WORLD

February 8, 2011

Ms. Diana Engeman
Remedial Project Manager
Superfund Division
U.S. Environmental Protection Agency, Region VII
901 North 5th Street
Kansas City, KS 66101

MWH #1007802.0103

RE: 2010 Annual Report
Former Peoples Natural Gas Site
Dubuque, Iowa

Dear Ms. Engeman:

On behalf of MidAmerican Energy Company (MidAmerican), MWH has prepared this Annual Report for the former Peoples Natural Gas (PNG) site located at 925 Kerper Boulevard in Dubuque, Iowa (Figure 1). This Annual Report summarizes activities performed in 2010.

The City of Dubuque (City) constructed a new off-site facility in 2006 for the City Street Division, which formerly operated out of the public works garage built on the site. The building continues to be used by the City for storage of seasonal items and other City equipment. The yard surrounding the building is currently used for storage of various municipal supplies and equipment, as well as a training area by local law enforcement. The City is currently storing snow in the yard during the winter months. The City maintains access to all wells located within the property's perimeter fencing. The City's fueling system at the PNG site is no longer in use. The canopy, fuel pumps, associated piping, and fuel tanks were removed in August 2010. The City is not actively searching for a new tenant for the property; however, the possibility of finding a new tenant for the property remains.

CITY OF DUBUQUE UNDERGROUND STORAGE TANK (UST) CLOSURE

The City contracted Seneca Environmental Services (Seneca) to complete the UST closure tasks. On August 25, 2010, the canopy, fuel pumps, and associated piping, were removed. The two, 10,000-gallon fuel tanks were filled in place with flowable concrete fill. A UST Closure Report was submitted to the Iowa Department of Natural Resources (IDNR). Prior to the UST tank closure activities, confirmation soil and groundwater samples were collected in March 2010. The groundwater sample exceeded the Tier 1 Iowa Department of Natural Resources (IDNR) target level for the groundwater ingestion exposure pathway for waste oil, requiring the City to complete and submit a Tier 1 Report. The Tier 1 Report was submitted in

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December 2010 and was assigned a No Action Required status on December 16, 2010 by the IDNR.

SUMMARY OF GROUNDWATER RESTORATION

No active treatment was completed during 2010. The proposed alternative remedial strategy identified in the May 2006 Technical Impracticability (TI) Report is a technically practicable alternative that incorporates access restrictions, previous soil removal actions, and monitored natural attenuation (MNA) to achieve the site groundwater chemical-specific remediation goals outside of the TI zone. The alternative remedial strategy is protective of human health and the environment. The petition to the United States Environmental Protection Agency (EPA) for approval of the TI Waiver was submitted by MidAmerican on December 1, 2006 and is currently pending EPA approval.

ACTIVITIES COMPLETED DURING THE REPORTING PERIOD

Semiannual Groundwater Sampling Activities

Groundwater sampling at the site of the compliance monitoring wells and other selected wells was conducted during the weeks of March 3 and September 7, 2010. A resampling event was also conducted on May 5, 2010, because samples from the March 3, 2010 sampling event were inadvertently contaminated by the laboratory and required select wells to be resampled for polynuclear aromatic hydrocarbon (PAH) analysis. The laboratory analytical reports for all events were previously provided to the EPA under separate cover. During the 2010 sampling events the groundwater analyte list at selected wells included key MNA parameters in addition to the contaminants of concern (PAHs; and benzene, toluene, ethylbenzene, and xylenes [BTEX]). The groundwater analytical database is included in Attachment A. Water elevation data is provided in Table 1. Groundwater flow and contaminant plume maps for the 2010 monitoring events are illustrated in Figures 2 through 14. The concentrations of BTEX and naphthalene detected in monitoring well P-112 over time are graphed in Figure 15.

Stable Isotope Probing Bio-Trap® Study using Electron Acceptor Solution™ (EAS™)

MidAmerican evaluated a number of remedial options to address groundwater impact in the vicinity of monitoring well P-112. MidAmerican submitted a Work Plan for a Stable Isotope Probing Bio-Trap® Study using EAS™, which was subsequently approved by the EPA. The study employed test and control Bio-Trap® units to evaluate sulfate-enhanced microbial degradation of both benzene and naphthalene in monitoring well P-112. The ^{13}C-labeled benzene Bio-Traps® were deployed on July 23 and retrieved on September 14, 2010. Following removal of the ^{13}C-labeled benzene Bio-Traps®, the well was purged and sampled. The

^{13}C-labeled naphthalene Bio-Traps® were then deployed, with retrieval on November 9, 2010. The laboratory analytical reports are provided in Attachment B.

A summary of the Bio-Trap® analyses is provided below:

- **^{13}C-Labeled Benzene and Naphthalene.** A 48 percent (%) reduction in ^{13}C-labeled benzene concentration was observed in the EAS™-containing Bio-Trap® unit, while a 29% reduction in ^{13}C-labeled benzene concentration was observed in the control Bio-Trap® unit.

  Lower reductions in ^{13}C-labeled naphthalene concentrations were observed in both the EAS™-containing and control Bio-Trap® units, with an 11% reduction in ^{13}C-labeled naphthalene concentration observed in the EAS™-containing Bio-Trap® unit and an 18% reduction observed in the control Bio-Trap® unit.

- **^{13}C-Enriched Phospholipid Fatty Acids (PLFA).** Quantification of ^{13}C-enriched PLFA indicated ^{13}C uptake in the microbial biomass within the benzene Bio-Traps®, a definitive indicator of microbial degradation, with 2,640 cells ^{13}C-enriched biomass per bead measured in the EAS™-containing Bio-Trap® unit and 3,000 cells ^{13}C-enriched biomass per bead measured in the control Bio-Trap® unit. ^{13}C enrichment data is often reported as a del value, which is the difference between the sample and naturally occurring isotopic ratios (^{13}C/^{12}C), normalized to the naturally occurring isotopic ratio, and multiplied by 1,000. Considering the specific PLFA with the greatest ^{13}C incorporation, a del value of 143 parts per thousand was measured in the EAS™-containing Bio-Trap® unit, and a del value of 146 parts per thousand was measured in the control Bio-Trap® unit, both considered moderate levels of incorporation.

  Less ^{13}C uptake was observed in the naphthalene Bio-Traps®, with 184 cells ^{13}C-enriched biomass per bead and a maximum PLFA del value of 38 parts per thousand measured in the EAS™-containing Bio-Trap® unit, and 44.5 cells ^{13}C-enriched biomass per bead and a maximum PLFA del value of 29 parts per thousand measured in the control Bio-Trap® unit. The del values indicate a low level of ^{13}C incorporation.

- **^{13}C-Enriched Dissolved Inorganic Carbon.** Quantification of ^{13}C-enriched dissolved inorganic carbon within the benzene Bio-Traps® provided indication of contaminant mineralization, another definitive indicator of microbial degradation. Under natural conditions, approximately 1% of naturally-occurring carbon is ^{13}C. Analysis of the Bio-Trap® units indicated 2.83% ^{13}C in the EAS™-containing Bio-Trap® unit (or, reported as a del value, 1,630 parts per thousand), considered a high level of mineralization, and 1.73% ^{13}C (del value of 593 parts per

thousand) in the control Bio-Trap® unit, considered a moderate level of mineralization.

Greater contaminant mineralization was observed in the naphthalene Bio-Traps®, with 8.70% ^{13}C (del value of 7,622 parts per thousand) measured in the EAS™-containing Bio-Trap® unit, and 9.09% ^{13}C (del value of 8,042) measured in the control Bio-Trap® unit; both considered high levels of mineralization.

- **Anions.** A maximum background sulfate concentration of 165 milligrams per liter (mg/l) was measured in monitoring well P-112 in March 2010. Analysis of the benzene Bio-Traps® indicated 1,309 mg/l sulfate in the EAS™-containing Bio-Trap® unit and 422 mg/l sulfate in the control Bio-Trap® unit.

  Analysis of the naphthalene Bio-Traps® indicated lower sulfate concentrations, with 186 mg/l sulfate measured in the EAS™-containing Bio-Trap® unit and 69 mg/l sulfate measured in the control Bio-Trap® unit. Elevated nitrate concentrations of 4.7 mg/l in the EAS™-containing Bio-Trap® unit and 0.18 mg/l in the control Bio-Trap® unit were also observed.

- **Benzyl Succinate Synthase Gene.** The benzyl succinate synthase gene is involved in toluene and xylene degradation. Analysis of the benzene and naphthalene Bio-Traps® indicated microbial cells containing the benzyl succinate synthase gene were below 50 cells per bead in both the EAS™-containing and control Bio-Trap® units.

- **Iron reducing/sulfate reducing bacteria.** Although analysis cannot differentiate between iron-reducing and sulfate-reducing bacteria, it provides a general indication of their presence. Iron and sulfate reducing bacteria were measured at 2,540 cells per bead in the EAS™-containing Bio-Trap® unit and 1,500 cells per bead in the control Bio-Trap® unit. Evaluation of the microbial community structure did not identify PLFA structural groups associated with sulfate-reducing bacteria in either the EAS™-containing or control Bio-Trap® units.

  Analysis of the naphthalene Bio-Traps® indicated 1,650 cells iron and sulfate reducing bacteria per bead in the EAS™-containing Bio-Trap® unit and less than 37.5 cells iron and sulfate reducing bacteria per bead in the control Bio-Trap® unit. Evaluation of the microbial community structure indicated, of total PLFA, 0.9% structural groups associated with sulfate-reducing bacteria in the EAS™-containing Bio-Trap® unit and 0.7 % in the control Bio-Trap® unit.

EAS™ Bio-Trap® Results Evaluation. Reduced concentrations of ^{13}C-labeled benzene, microbial biomass uptake of ^{13}C, and elevated levels of ^{13}C dissolved inorganic carbon in both the EAS™-containing and control Bio-Trap® units suggest potential microbial degradation of

benzene in the vicinity of monitoring well P-112, with the presence of iron- and sulfate-reducing bacteria suggesting possible degradation by a sulfate-reducing microbial community. Comparison of residual ^{13}C-labeled benzene concentrations in the EAS™-containing and control Bio-Trap® units suggests contaminant degradation is enhanced by increased levels of available sulfate. This is further supported by an increased level of contaminant mineralization, and higher levels of iron- and sulfate-reducing bacteria in the EAS™-containing Bio-Trap® unit. Although the EAS™-containing and control Bio-Trap® units were separated by a baffle during deployment, a sulfate concentration measured above historical background levels in the control Bio-Trap® unit suggests possible cross-talk between the EAS™-containing and control Bio-Trap® units.

Reduced concentrations of ^{13}C-labeled naphthalene, microbial biomass uptake of ^{13}C, and elevated levels of ^{13}C dissolved inorganic carbon in both the EAS™-containing and control Bio-Trap® units also suggest potential microbial degradation of naphthalene in the vicinity of monitoring well P-112, although apparently at a lower rate than benzene degradation. The presence of iron- and sulfate-reducing bacteria suggest possible degradation by sulfate-reducing bacteria. Comparison of residual ^{13}C-labeled naphthalene concentrations and ^{13}C mineralization levels in the EAS™-containing and control Bio-Trap® units suggests contaminant degradation is not enhanced by increased levels of available sulfate. However, increased microbial biomass uptake of ^{13}C and higher levels of iron- and sulfate reducing bacteria were observed in the EAS™-containing Bio-Trap® unit. Lower microbial biomass update of ^{13}C and higher ^{13}C mineralization observed in the naphthalene Bio-Traps® as compared to the benzene Bio-Traps® suggests preferential microbial utilization of naphthalene as an energy source (electron acceptor) rather than as a carbon source for cell growth.

Based on the apparent preferential degradation of benzene prior to naphthalene, further evaluation of EAS™ as a remedial option for the P-112 area is not proposed. Because of the significant mass of contaminants remaining on site, there will be a continuing source of contaminant flux through the P-112 area, suggesting no significant degradation of naphthalene and other less preferred contaminants will occur due to the preferential utilization of benzene.

Five-Year Review Report

The EPA issued the Third Five-Year Report in July 2010. The report recommends the completion of a treatability study and, if necessary, modifications to a Focused Feasibility Study to evaluate remedial alternatives, followed by a Record of Decision Amendment; implementation of uniform environmental covenants to supplant existing deed restrictions; modification of the remediation level for naphthalene in groundwater; and inspection of monitoring wells.

SAMPLING DATA

Copies of the laboratory analytical reports for semiannual monitoring data obtained during 2010 have previously been provided to the EPA.

ACTIVITIES ANTICIPATED DURING THE UPCOMING REPORTING PERIOD

MidAmerican will continue to evaluate remedial options to address groundwater impact in the vicinity of P-112, and will provide recommendations for further testing during the first quarter of 2011.

At the request of the EPA, the site monitoring wells will be inspected and evaluated using a down well video camera. Monitoring wells displaying evidence of damage or corrosion will be abandoned following EPA approval.

Semiannual groundwater monitoring events are scheduled in 2010. MidAmerican proposes to postpone the March 2011 event to late April 2011 to allow for the on-site snow stockpile to melt and dissipate from the area if needed. The second semiannual monitoring event is scheduled for September 2011.

If you have any questions regarding the site, please contact Kevin Dodson of MidAmerican at (515) 281-2692 or me at (515) 253-0830.

Sincerely,

Kevin G Armstrong

Kevin G. Armstrong, C.P.G.
Project Manager

/cwo:kga:vas
Enclosures:
Table 1 - Water Level Elevation Data
Figure 1 - Site Map
Figure 2 - Groundwater Flow Direction Map, Water Table Aquifer, March 30, 2010
Figure 3 - Groundwater Flow Direction Map, Silty Sand Aquifer, March 30, 2010
Figure 4 - Groundwater Flow Direction Map, Alluvial Aquifer, March 30, 2010
Figure 5 - Groundwater Flow Direction Map, Water Table Aquifer, May 5, 2010
Figure 6 - Groundwater Flow Direction Map, Silty Sand Aquifer, May 5, 2010
Figure 7 - Groundwater Flow Direction Map, Alluvial Aquifer, March 5, 2010

Enclosures (continued):

Figure 8 - Groundwater Flow Direction Map, Water Table Aquifer, September 15, 2010
Figure 9 - Groundwater Flow Direction Map, Silty Sand Aquifer, September 15, 2010
Figure 10 - Groundwater Flow Direction Map, Alluvial Aquifer, September 15, 2010
Figure 11 - Benzene and Naphthalene Concentrations in Silty Sand Aquifer, Spring 2010
Figure 12 - Benzene and Naphthalene Concentrations in Alluvial Aquifer, Spring 2010
Figure 13 - Benzene and Naphthalene Concentrations in Silty Sand Aquifer, September 2010
Figure 14 - Benzene and Naphthalene Concentrations in Alluvial Aquifer, September 2010
Figure 15 - P-112 Concentrations
Attachment A - Groundwater Analytical Database
Attachment B - EAS™ Bio-Trap® Laboratory Analytical Reports

cc: Kevin Dodson, MidAmerican Energy Company
Jess Vilsack, MidAmerican Energy Company
Dan Cook, Iowa Department of Natural Resources
Jim Rost, Iowa Department of Transportation
Barry Lindahl, City of Dubuque
Don Vogt, City of Dubuque

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TABLES

TABLE 1
WATER LEVEL ELEVATION DATA
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Location	Reference Elevation (NAVD 1988)	Total Well Depth (feet btoc)	04-Dec-02	09-Jun-03	29-Mar-04	09-Jul-04	14-Sep-04	10-Jan-05	14-Mar-05	10-Oct-05	14-Mar-06	11-Sep-06	17-Apr-07	19-Sep-07	5-May-08	30-Sep-08	28-Apr-09	15-Sep-09	30-Mar-10	5-May-10	14-Sep-10
Water Table Wells																					
W-2	613.30	22.7	598.87	598.71	598.68	600.03	599.17	598.33	598.46	598.30	597.30	599.36	600.09	599.80	601.72	599.49	600.38	599.92	599.19	600.13	600.35
W-4	613.07	23.4	594.72	597.10	594.22	597.21	593.96	593.65	594.13	594.02	593.69	594.09	597.90	595.27	600.52	593.66	596.16	594.39	596.91	595.90	595.69
W-7	609.11	22.5	---	---	600.22	596.79	596.75	595.83	594.46	---	---	---	---	---	---	---	---	---	---	---	---
D-1	609.64	20.0	601.61	601.19	609.64	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
D-2	609.48	20.0	602.47	601.90	602.98	---	601.19	600.55	601.67	602.24	602.49	602.16	603.26	601.06	603.17	600.83	602.84	600.69	600.14	602.04	602.03
D-3	609.17	20.0	600.96	599.77	601.17	601.58	599.96	599.39	599.50	600.09	599.30	600.87	602.04	600.17	602.61	601.96	601.58	600.29	599.78	600.44	603.73
D-7	609.16	22.3	598.09	598.57	598.10	599.51	598.22	597.53	597.74	597.81	597.25	598.76	596.52	598.81	601.05	598.46	595.26	598.81	598.41	598.91	599.34
Silty Sand Aquifer Wells																					
SI-2	612.66	39.6	593.60	595.28	594.35	595.52	593.05	593.48	593.60	594.11	593.71	592.60	597.25	593.17	600.06	592.79	596.08	592.46	598.55	594.52	594.61
SE-2	608.90	32.5	---	595.31	594.48	595.61	593.09	593.51	593.62	594.21	593.70	592.65	597.32	593.20	599.93	592.80	596.08	592.47	598.42	594.87	594.68
Drain Sur	610.20	27.9	---	595.14	595.20	591.65	594.33	594.75	594.64	595.32	594.62	---	598.10	594.48	600.83	594.09	597.18	593.55	599.25	595.89	595.87
MP-10-D	612.12	36.8	---	598.67	593.99	599.53	597.98	597.82	597.72	597.38	597.06	596.74	596.83	595.34	599.67	599.24	596.31	596.08	598.89	598.81	598.87
P-110	612.64	33.5	594.54	595.36	594.35	595.57	593.09	593.67	593.63	594.12	593.76	592.61	597.18	593.25	599.99	592.90	596.06	592.55	598.42	594.62	594.73
P-112	612.15	38.8	593.30	595.25	594.50	595.50	592.98	593.45	593.58	594.19	593.73	592.57	597.13	593.10	600.17	592.64	596.08	592.33	598.61	594.39	594.53
W-113	610.36	34.8	---	---	---	---	---	---	---	594.00	593.79	592.51	597.05	593.18	599.85	592.82	596.01	592.39	598.36	594.61	594.74
W-117	612.93	35.0	593.68	595.37	594.44	595.62	593.12	593.51	593.66	---	---	---	---	---	---	---	---	---	---	---	---
W-117R	612.91	35.7	---	---	---	---	---	---	---	594.09	593.79	592.68	597.22	593.29	600.10	592.86	592.23	592.52	598.56	594.59	594.63
W-118	607.23	28.5	593.73	595.59	594.44	595.78	593.41	---	595.19	---	---	---	---	---	---	---	---	---	---	---	---
W-118R	607.85	29.0	---	---	---	---	---	---	---	594.10	593.81	592.75	595.38	593.37	599.93	593.14	596.02	592.70	598.34	594.79	594.94
W-119	612.60	35.0	593.45	595.50	594.74	595.78	593.31	593.70	593.82	594.42	593.95	592.90	597.34	593.45	600.15	593.00	596.34	592.67	597.62	594.71	594.94
W-120	613.64	38.0	593.67	595.51	594.73	595.78	593.34	593.69	593.82	594.40	593.96	592.94	597.31	594.54	599.99	593.04	596.33	592.74	598.56	594.80	594.78
W-121	611.24	32.9	594.16	594.77	594.83	596.03	593.62	593.92	594.04	594.49	594.19	593.13	597.33	593.74	600.05	593.38	596.37	593.01	599.07	595.06	595.19
W-122	612.49	38.1	593.47	595.29	594.94	596.06	593.30	593.64	593.72	594.38	593.94	592.92	597.38	592.38	599.79	592.97	596.34	592.69	598.40	594.72	594.97
W-126	610.01	30.0	---	---	---	---	---	---	---	593.98	593.53	592.76	596.75	593.29	599.69	593.03	595.98	592.46	598.46	594.81	594.92
W-127	607.83	26.0	---	---	---	---	---	---	---	593.93	593.72	593.43	596.94	593.59	598.80	593.78	595.21	592.75	598.17	595.71	595.48
W-128	608.10	24.8	---	---	---	---	---	---	---	---	---	---	---	593.45	---	592.26	592.22	592.73	598.07	595.00	595.20
SS-4	608.46	33.0	---	595.57	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---
SS-6	608.05	31.5	---	---	---	---	---	593.49	593.58	594.05	593.62	592.57	597.11	593.19	600.03	592.76	596.07	592.42	598.42	594.49	594.95
SS-7	608.73	33.2	---	---	---	---	---	593.52	593.61	594.12	593.78	593.43	597.13	593.33	600.05	592.95	596.68	592.50	598.45	594.58	594.74
SS-8	609.97	33.4	---	---	---	---	---	593.64	593.75	594.23	593.82	592.82	597.32	593.39	599.95	592.97	596.16	592.67	598.15	594.67	594.87
SS-9	606.45	28.0	---	---	---	---	---	593.43	592.59	593.75	593.70	592.56	596.90	593.24	599.45	593.02	595.90	592.59	597.98	594.69	594.63
SS-10	611.40	35.1	---	---	---	---	---	593.74	593.75	594.42	594.03	592.91	597.31	593.49	600.37	593.07	596.34	592.74	598.67	594.78	594.96
D-4	608.62	37.0	593.44	595.28	594.49	595.53	593.03	592.47	593.57	594.22	593.71	592.76	597.25	593.12	600.10	592.68	596.10	592.33	598.51	594.40	594.53
D-5	609.54	37.5	593.19	595.28	594.47	595.52	593.00	593.51	589.86	594.19	593.69	592.72	597.24	593.09	600.09	592.68	596.07	592.16	598.48	594.36	594.49
D-6	609.59	37.0	593.22	595.26	594.46	595.50	592.99	---	593.58	594.18	594.85	592.76	597.24	593.05	600.14	592.63	596.05	592.34	598.53	594.34	594.47
D-8	608.64	37.8	593.30	595.27	594.47	595.52	592.99	593.45	593.58	594.16	593.70	592.68	597.06	592.04	600.22	592.66	596.10	592.34	598.66	594.39	594.52

TABLE 1
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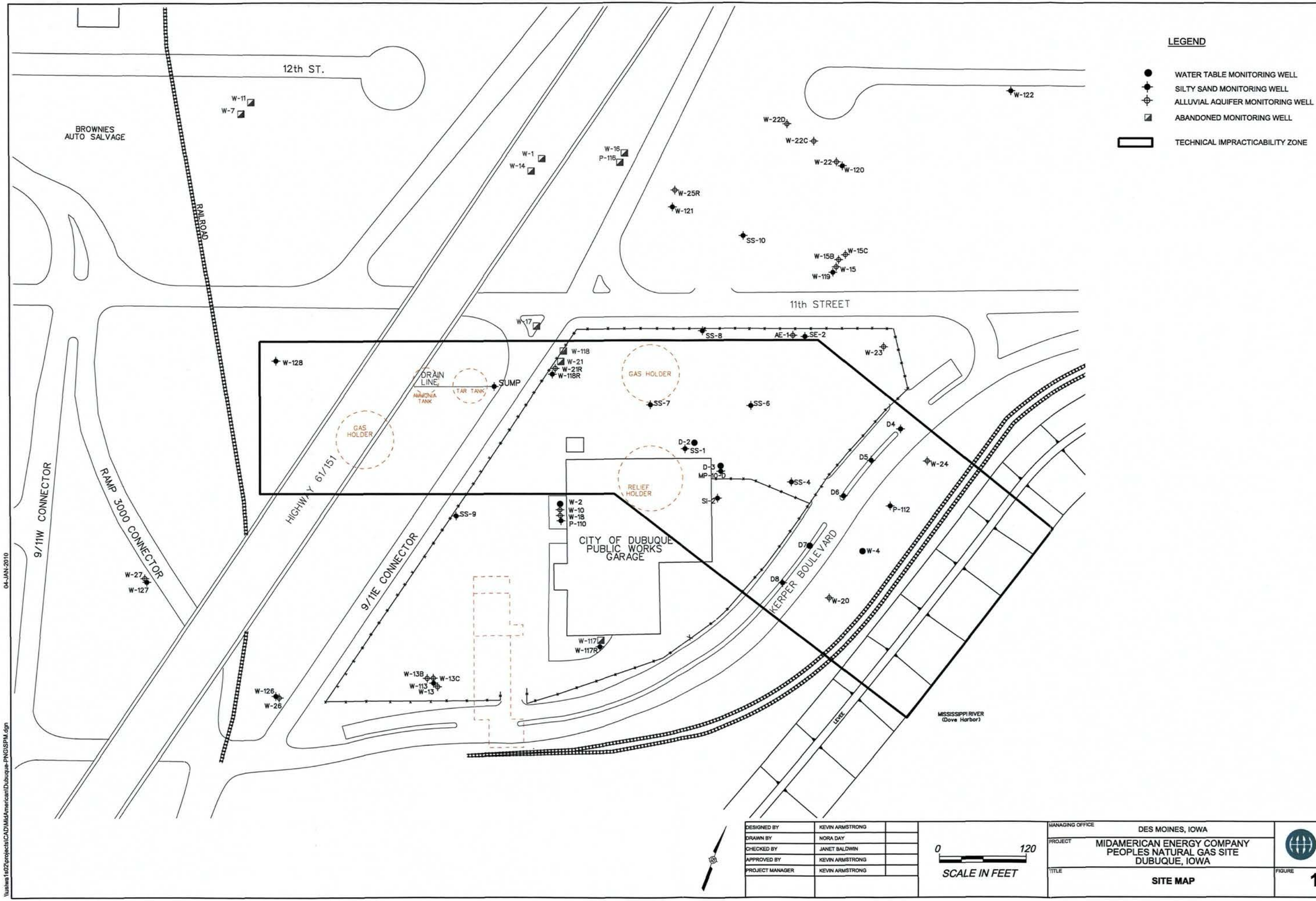
Alluvial Aquifer Wells																					
AE-1	610.46	87.7	---	595.38	594.51	595.62	593.03	594.27	593.63	594.25	593.79	592.57	597.27	593.19	600.26	592.78	596.17	592.44	598.70	594.53	594.65
W-10	612.49	47.2	593.69	595.52	594.42	595.64	593.07	593.49	593.67	594.12	593.80	592.55	597.24	593.21	600.06	592.85	596.09	592.46	598.49	594.64	592.73
W-11	608.99	47.5	---	---	594.87	600.19	594.09	594.23	599.76	---	---	---	---	---	---	---	---	---	---	---	---
W-13	609.46	48.0	593.82	595.62	594.42	595.71	593.10	593.54	593.69	594.08	593.85	592.63	597.16	593.26	599.97	592.88	596.08	592.52	598.41	594.68	594.78
W-13B	609.61	102.7	593.51	595.52	594.38	595.66	593.03	593.46	593.61	594.00	593.78	592.47	597.02	593.06	599.81	592.69	592.05	592.27	598.16	594.54	594.56
W-13C	609.52	186.6	593.87	595.65	594.47	595.78	590.20	593.60	593.77	594.12	593.90	592.54	598.21	592.30	600.95	593.14	595.92	592.67	597.41	596.29	596.12
W-15	612.69	53.0	593.74	595.53	594.74	595.75	593.22	593.63	593.78	594.38	594.01	592.78	597.33	597.34	600.43	592.90	596.34	592.67	598.83	594.67	594.77
W-15B	612.23	141.9	593.71	595.61	594.82	595.80	593.30	593.74	593.90	594.48	594.08	592.87	597.42	593.42	600.50	593.00	596.42	592.67	598.93	594.76	594.87
W-15C	612.80	262.5	593.87	595.70	594.93	595.91	593.39	593.82	594.30	594.58	594.20	592.97	596.53	593.55	600.62	593.12	596.54	592.80	599.06	594.85	594.98
W-18	612.44	50.9	593.69	595.55	599.48	595.68	593.11	593.53	593.70	594.19	593.86	592.63	597.23	593.24	600.10	592.88	596.13	592.51	598.54	594.65	594.75
W-20	611.92	51.0	593.35	595.20	594.49	595.46	592.90	593.37	593.49	594.14	593.80	592.47	597.10	593.02	600.30	592.56	596.05	592.19	598.73	594.29	594.43
W-21	607.03	50.0	---	595.59	594.52	---	593.15	---	593.65	---	---	---	---	---	---	---	---	---	---	---	---
W-21R	607.64	49.5	---	---	---	---	---	---	---	594.12	593.80	592.60	597.08	593.24	600.00	592.89	596.09	592.49	598.37	594.63	595.36
W-22	613.95	69.0	593.80	595.58	594.74	595.78	593.26	593.68	590.10	594.42	594.04	592.84	597.35	593.40	600.40	592.98	596.37	592.64	598.92	594.75	594.86
W-22C	613.68	218.9	593.98	595.74	594.88	594.96	593.44	593.86	594.01	594.56	594.20	593.90	597.53	593.58	600.61	593.12	596.51	592.82	599.03	594.91	594.99
W-22D	614.08	276.4	593.88	595.70	594.87	595.90	593.39	593.79	593.94	594.55	594.17	592.96	597.49	593.53	600.54	593.30	596.50	592.78	599.03	594.90	594.97
W-23	609.75	73.0	593.48	595.31	594.50	595.55	592.96	593.44	593.60	594.18	593.75	592.53	597.15	593.13	600.30	592.66	596.14	592.34	598.82	594.41	594.53
W-24	612.18	76.5	593.38	595.27	594.54	595.49	592.98	592.44	589.85	594.23	593.79	592.62	597.17	593.08	600.35	592.60	596.15	592.31	598.77	594.40	594.51
W-25R	611.81	72.4	593.99	595.71	594.73	595.86	593.36	593.75	593.87	593.40	594.10	592.90	598.41	593.50	600.29	593.12	596.37	592.75	598.75	594.86	595.00
W-26	610.41	49.7	---	---	---	---	---	---	---	594.01	594.30	592.78	596.98	593.31	599.71	593.06	596.06	592.47	598.43	594.83	594.95
W-27	607.70	49.7	---	---	---	---	---	---	---	594.02	594.04	592.90	596.81	593.45	599.40	593.33	596.42	592.72	598.15	595.15	595.33
Mississippi River[a]	584.80	NA	592.4	594.2	594.1	595.1	592.7	593.2	593.4	594.2	593.5	591.9	597.7	592.6	601.8	592.0	596.5	592.0	600.1	593.6	593.7

Notes:
btoc = Below top of casing.
NA = Not applicable.
--- = Not gauged.
NAVD 1988 = North American Vertical Datum of 1988.
[a] River gage reading at station DBQI4 (corrected to NAVD 1988).

FIGURES



04-JAN-2010

\\ustws1s02\projects\CAD\MidAmerican\Dubuque-PNG\SPM.dgn

DESIGNED BY	KEVIN ARMSTRONG	
DRAWN BY	NORA DAY	
CHECKED BY	JANET BALDWIN	
APPROVED BY	KEVIN ARMSTRONG	
PROJECT MANAGER	KEVIN ARMSTRONG	

0 120

SCALE IN FEET

MANAGING OFFICE: DES MOINES, IOWA

PROJECT: MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

TITLE: **SITE MAP**

MWH

FIGURE: 1

12th ST.

BROWNIES AUTO SALVAGE

RAILROAD

W-11
W-7
W-1
W-14
W-16
P-116
W-25R
W-121
SS-10
W-122
W-22D
W-22C
W-22
W-120
W-15B
W-15C
W-119
W-15

11th STREET

W-17
SS-8
AE-1
SE-2
W-23
W-128
W-118
W-21
W-21R
W-118R
DRAIN LINE
AMMONIA TANK
TAR TANK
SUMP
GAS HOLDER
SS-2
SS-6
SS-7
SS-3
D4
(600.14)
D-2
600.0
(599.78)
D-3
MP-1
D
599.0
SS-4
D5
W-24
D6
598.0
597.0
P-112
RELIEF HOLDER
SI-2
(599.19)
W-2
W-10
W-18
P-110
SS-9
(598.41)
D7
(596.91)
W-4
D8
W-20
KERPER BOULEVARD
HIGHWAY 61/151
RAMP 3000 CONNECTOR
9/11E CONNECTOR
W-27
W-127
CITY OF DUBUQUE PUBLIC WORKS GARAGE
W-117R
W-13B
W-13C
W-113
W-13
W-126
W-26
MISSISSIPPI RIVER (Dave Harbor)
(600.1)
LEVEE

LEGEND

- WATER TABLE MONITORING WELL
- SILTY SAND MONITORING WELL
- ALLUVIAL AQUIFER MONITORING WELL
- ABANDONED MONITORING WELL
- TECHNICAL IMPRACTICABILITY ZONE
- (594.39) GROUNDWATER ELEVATION (FT ASL)
- × GROUNDWATER ELEVATION NOT USED IN CONTOURING
- GROUNDWATER ELEVATION CONTOUR (FT ASL)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

DESIGNED BY	JANET BALDWIN	
DRAWN BY	NORA DAY	
CHECKED BY	JANET BALDWIN	
APPROVED BY	KEVIN ARMSTRONG	
PROJECT MANAGER	KEVIN ARMSTRONG	

0 120
SCALE IN FEET

MANAGING OFFICE: DES MOINES, IOWA
PROJECT: MIDAMERICAN ENERGY COMPANY PEOPLES NATURAL GAS SITE DUBUQUE, IOWA
TITLE: **GROUNDWATER FLOW DIRECTION MAP WATER TABLE AQUIFER MARCH 30, 2010**

MWH

FIGURE 2

27-DEC-2010

\\Ukiws1s02\Projects\CAD\MidAmerican\Dubuque-PNG\gfdm-wta-0310.dgn

12th ST.

BROWNIES AUTO SALVAGE

RAILROAD

W-11
W-7
W-1
W-14
W-16
P-116
W-25R
W-121
(599.07)
W-22D
W-22C
599.0
W-22
(598.56)
W-120
598.5
W-122
(598.40)
SS-10
(598.67)
W-15B
W-15C
W-15
W-119
(597.62)
11th STREET
W-17
(598.15*)
SS-8
AS-1
SE-2
(598.42)
W-23
W-128
(598.07)
W-118
W-21
W-21R
W-118R
(598.34)
DRAIN LINE
(599.25)
SUMP
AMMONIA TANK
TAR TANK
GAS HOLDER
SS-7
(598.45)
SS-6
(598.42)
D-2
SS-1
D-3
MP-10
D-1
(598.89*)
SS-4
(598.53)
D5
(598.51)
D5A
(598.48)
W-24
SI-2
(598.55)
D6
P-112
(598.61)
RELIEF HOLDER
W-2
W-10
W-18
P-110
(598.42)
(597.98*)
SS-9
D7
W-4
(598.66)
D8
W-20
KERPER BOULEVARD
CITY OF DUBUQUE PUBLIC WORKS GARAGE
W-117
W-117R
(598.56)
W-27
W-127
(598.17)
RAMP 3000 CONNECTOR
HIGHWAY 61/151
9/11E CONNECTOR
W-13B
W-13C
(598.36)
W-113
W-13
(598.46)
W-126
W-26
598.5
599.0
598.5
598.5
598.5
MISSISSIPPI RIVER (Dove Harbor)
(600.1)
LEVEE

LEGEND

- WATER TABLE MONITORING WELL
- SILTY SAND MONITORING WELL
- ALLUVIAL AQUIFER MONITORING WELL
- ABANDONED MONITORING WELL
- TECHNICAL IMPRACTICABILITY ZONE
- (598.07) GROUNDWATER ELEVATION (FT ASL)
- * GROUNDWATER ELEVATION NOT USED IN CONTOURING
- GROUNDWATER ELEVATION CONTOUR (FT ASL)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

DESIGNED BY	JANET BALDWIN	
DRAWN BY	NORA DAY	
CHECKED BY	JANET BALDWIN	
APPROVED BY	KEVIN ARMSTRONG	
PROJECT MANAGER	KEVIN ARMSTRONG	

0 120
SCALE IN FEET

MANAGING OFFICE: DES MOINES, IOWA
PROJECT: MIDAMERICAN ENERGY COMPANY PEOPLES NATURAL GAS SITE DUBUQUE, IOWA
TITLE: **GROUNDWATER FLOW DIRECTION MAP SILTY SAND AQUIFER MARCH 30, 2010**

MWH

FIGURE 3

27-DEC-2010

\\Ukiws1s02\Projects\CAD\MidAmerican\Dubuque-PNG\gfdm-saa-0310.dgn

12th ST.

BROWNIES AUTO SALVAGE

RAILROAD

11th STREET

599.0

598.8

598.6

598.4

598.2

(599.03) W-22D

(599.03) W-22C

W-22

W-120

(598.92)

(598.75) W-25R

W-121

SS-10

(598.93) W-15B

(599.06) W-15C

W-119

W-15

(598.83)

W-122

W-1

W-14

W-16

P-116

W-11

W-7

W-128

DRAIN LINE

SUMP

AMMONIA TANK

TAR TANK

GAS HOLDER

W-118

W-21

W-21R

W-118R

(598.37)

SS-8

AE-1

SE-2

(598.70)

W-23

(598.82)

SS-7

SS-6

D-2

SS-1

D-1

MP-1

D

SS-4

SI-2

RELIEF HOLDER

D4

D5

D6

D7

D8

(598.77) W-24

P-112

W-4

W-20

(598.73)

W-2

W-10 (598.49)

W-18 (598.54)

P-110

SS-9

CITY OF DUBUQUE PUBLIC WORKS GARAGE

W-117

W-117R

(598.16*) W-13B

(597.41*) W-13C

W-113

W-13

(598.41)

W-126

W-26

(598.43)

(598.15) W-27

W-127

9/11W CONNECTOR

RAMP 3000 CONNECTOR

HIGHWAY 61/151

9/11E CONNECTOR

KERPER BOULEVARD

LEVEE

MISSISSIPPI RIVER (Dove Harbor)

(600.1)

LEGEND

- WATER TABLE MONITORING WELL
- SILTY SAND MONITORING WELL
- ALLUVIAL AQUIFER MONITORING WELL
- ABANDONED MONITORING WELL
- TECHNICAL IMPRACTICABILITY ZONE
- (599.70) GROUNDWATER ELEVATION (FT ASL)
- * GROUNDWATER ELEVATION NOT USED IN CONTOURING
- GROUNDWATER ELEVATION CONTOUR (FT ASL)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

DESIGNED BY	JANET BALDWIN	
DRAWN BY	NORA DAY	
CHECKED BY	JANET BALDWIN	
APPROVED BY	KEVIN ARMSTRONG	
PROJECT MANAGER	KEVIN ARMSTRONG	

0 120

SCALE IN FEET

MANAGING OFFICE: DES MOINES, IOWA

PROJECT: MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

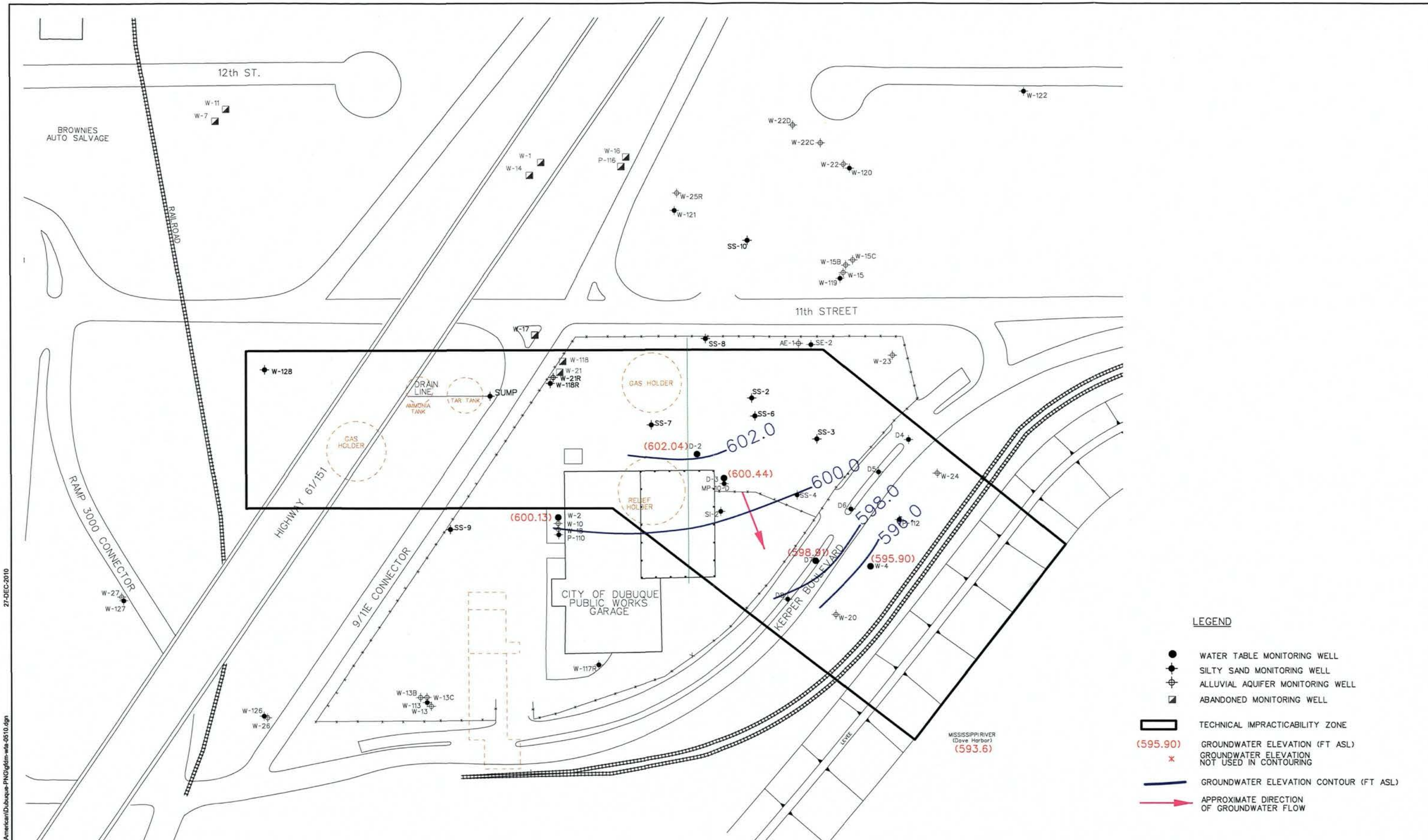
TITLE: **GROUNDWATER FLOW DIRECTION MAP**
ALLUVIAL AQUIFER
MARCH 30, 2010

MWH

FIGURE 4

27-DEC-2010

\\Jalwa1s02\Projects\CAD\MidAmerican\Dubuque-PNG\gfdm-Aa-0310.dgn


12th ST.
11th STREET
BROWNIES AUTO SALVAGE
RAILROAD
HIGHWAY 61/151
9/11E CONNECTOR
RAMP 3000 CONNECTOR
KERPER BOULEVARD
CITY OF DUBUQUE PUBLIC WORKS GARAGE
GAS HOLDER
DRAIN LINE
AMMONIA TANK
TAR TANK
SUMP
RELIEF HOLDER
LEVEE
MISSISSIPPI RIVER (Dove Harbor)
(593.6)
W-11
W-7
W-1
W-14
W-16
P-116
W-122
W-22D
W-22C
W-22
W-120
W-25R
W-121
SS-10
W-15B
W-15C
W-15
W-119
W-17
SS-8
AE-1
SE-2
W-23
W-118
W-21
W-21R
W-118R
W-128
SS-2
SS-6
SS-7
SS-3
D4
(602.04) D-2
602.0
D-3 (600.44)
MP-10-D
SS-4
600.0
D5
D6
598.0
596.0
SI-2
D-12
(600.13)
W-2
W-10
W-18
P-110
SS-9
W-24
(598.91) D7
(595.90) W-4
D8
W-20
W-27
W-127
W-117R
W-13B
W-13C
W-113
W-13
W-126
W-26
LEGEND
WATER TABLE MONITORING WELL
SILTY SAND MONITORING WELL
ALLUVIAL AQUIFER MONITORING WELL
ABANDONED MONITORING WELL
TECHNICAL IMPRACTICABILITY ZONE
(595.90) GROUNDWATER ELEVATION (FT ASL)
GROUNDWATER ELEVATION NOT USED IN CONTOURING
GROUNDWATER ELEVATION CONTOUR (FT ASL)
APPROXIMATE DIRECTION OF GROUNDWATER FLOW
0
120
SCALE IN FEET

DESIGNED BY	JANET BALDWIN
DRAWN BY	NORA DAY
CHECKED BY	JANET BALDWIN
APPROVED BY	KEVIN ARMSTRONG
PROJECT MANAGER	KEVIN ARMSTRONG

MANAGING OFFICE: DES MOINES, IOWA

PROJECT: MIDAMERICAN ENERGY COMPANY PEOPLES NATURAL GAS SITE DUBUQUE, IOWA

TITLE: **GROUNDWATER FLOW DIRECTION MAP WATER TABLE AQUIFER MAY 5, 2010**

MWH

FIGURE **5**

27-DEC-2010

\\Usiwa1s02\Projects\CAD\MidAmerican\Dubuque-PNG\gfdm-wta-0510.dgn

12th ST.

BROWNIES AUTO SALVAGE

RAILROAD

W-11
W-7

W-1
W-14

W-16
P-116

W-25R
W-121
(595.06)

W-22D
W-22C
W-22
W-120
(594.80)

W-122
(594.72)

SS-10
(594.78)

W-15B
W-15C
W-15
W-119
(594.71)

11th STREET

W-17

(594.67)
SS-8

AE-1
SE-2
(594.87)
W-23

W-128
(595.00)

DRAIN LINE
AMMONIA TANK
TAR TANK
(595.89)
SUMP

W-118
W-21
W-21R
W-118R
(594.79)

GAS HOLDER

SS-7
(594.58)

SS-6
(594.49)

D4
(594.40)

D5
(594.36)

W-24

D6
(594.34)

P-112
(594.39)

D-2
SS-1

D-3
MP-10-D
(598.81*)

SS-4

SI-2
(594.52)

RELIEF HOLDER

(594.69)
SS-9

W-2
W-10
W-18
P-110
(594.62)

HIGHWAY 61/151

RAMP 3000 CONNECTOR

9/11E CONNECTOR

CITY OF DUBUQUE PUBLIC WORKS GARAGE

W-117
W-117R
(594.59)

D7
W-4

D8
(594.39)

W-20

KERPER BOULEVARD

W-27
W-127
(595.71)

595.0

(594.81)
W-126
W-26

(594.61)
W-138
W-13C
W-113
W-13

594.5

MISSISSIPPI RIVER
(Dove Harbor)
(593.6)

LEVEE

LEGEND

- WATER TABLE MONITORING WELL
- SILTY SAND MONITORING WELL
- ALLUVIAL AQUIFER MONITORING WELL
- ABANDONED MONITORING WELL
- TECHNICAL IMPRACTICABILITY ZONE
- (594.52) GROUNDWATER ELEVATION (FT ASL)
- * GROUNDWATER ELEVATION NOT USED IN CONTOURING
- GROUNDWATER ELEVATION CONTOUR (FT ASL)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

DESIGNED BY	JANET BALDWIN	
DRAWN BY	NORA DAY	
CHECKED BY	JANET BALDWIN	
APPROVED BY	KEVIN ARMSTRONG	
PROJECT MANAGER	KEVIN ARMSTRONG	

0 120
SCALE IN FEET

MANAGING OFFICE: DES MOINES, IOWA

PROJECT: MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

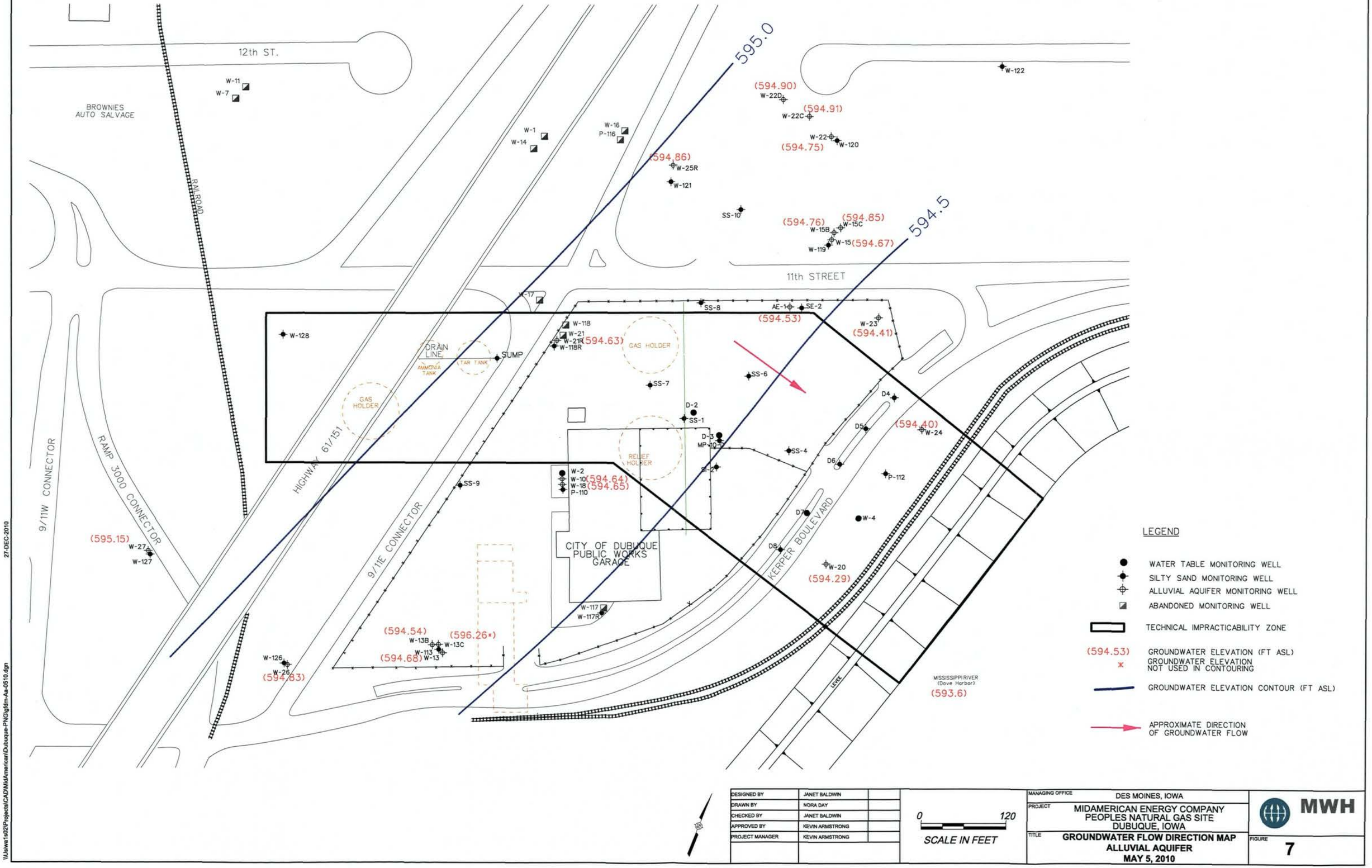
TITLE: **GROUNDWATER FLOW DIRECTION MAP**
SILTY SAND AQUIFER
MAY 5, 2010

MWH

FIGURE 6

27-DEC-2010

\\Jsiwa1sd02\Projects\CAD\MidAmerican\Dubuque-PNG\gfdm-ssa-0510.dgn



DESIGNED BY	JANET BALDWIN	
DRAWN BY	NORA DAY	
CHECKED BY	JANET BALDWIN	
APPROVED BY	KEVIN ARMSTRONG	
PROJECT MANAGER	KEVIN ARMSTRONG	

0 120
SCALE IN FEET

MANAGING OFFICE: DES MOINES, IOWA
PROJECT: MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA
TITLE: **GROUNDWATER FLOW DIRECTION MAP**
ALLUVIAL AQUIFER
MAY 5, 2010

MWH

FIGURE 7

27-DEC-2010

\\Ulswa1s002\Projects\CAD\MidAmerican\Dubuque-PNG\gfdm-Aa-0510.dgn

12th ST.

BROWNIES AUTO SALVAGE

RAILROAD

W-11
W-7
W-1
W-14
W-16
P-116
W-25R
W-121
SS-10
W-122
W-22D
W-22C
W-22
W-120
W-15B
W-15C
W-15
W-119

11th STREET

W-17
SS-8
AE-1
SE-2
W-23
W-128
W-118
W-21
W-21R
W-118R
DRAIN LINE
AMMONIA TANK
TAR TANK
SUMP
GAS HOLDER
SS-2
SS-6
SS-7
SS-3
D4
(602.03)
D-2
(603.73)
D-3
MW-10-D
SS-4
D5
W-24
SI-2
D6
D12
602.0
600.0
598.0
596.0
RELIEF HOLDER
(600.35)
W-2
W-10
W-18
P-110
SS-9
(595.69)
W-4
(599.34)
D7
D8
KERPER BOULEVARD
W-20
CITY OF DUBUQUE PUBLIC WORKS GARAGE
W-117R
W-13B
W-13C
W-113
W-13
W-126
W-26
W-27
W-127
HIGHWAY 61/151
RAMP 3000 CONNECTOR
9/11E CONNECTOR
MISSISSIPPI RIVER (Dave Harbor)
(593.7)
LEVEE

LEGEND

- WATER TABLE MONITORING WELL
- SILTY SAND MONITORING WELL
- ALLUVIAL AQUIFER MONITORING WELL
- ABANDONED MONITORING WELL
- TECHNICAL IMPRACTICABILITY ZONE
- (600.35) GROUNDWATER ELEVATION (FT ASL)
- GROUNDWATER ELEVATION NOT USED IN CONTOURING
- GROUNDWATER ELEVATION CONTOUR (FT ASL)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

DESIGNED BY	CLINT OBERBROECKLING	
DRAWN BY	NORA DAY	
CHECKED BY	CLINT OBERBROECKLING	
APPROVED BY	KEVIN ARMSTRONG	
PROJECT MANAGER	KEVIN ARMSTRONG	

0 120
SCALE IN FEET

MANAGING OFFICE: DES MOINES, IOWA

PROJECT: MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

TITLE: **GROUNDWATER FLOW DIRECTION MAP**
WATER TABLE AQUIFER
SEPTEMBER 15, 2010

MWH

FIGURE 8

27-DEC-2010

\\uswa1s02\projects\CAD\MidAmerican\Dubuque-PNG\gfdm-wta-0910.dgn

12th ST.

BROWNIES AUTO SALVAGE

RAILROAD

W-11
W-7

W-1
W-14

W-16
P-116

W-25R
W-121
(595.19)

W-122
(594.97)

W-22D
W-22C
W-22
W-120
(594.78)

SS-10 (594.96)

W-15B
W-15C
W-15
W-119
(594.94)

11th STREET

W-17

(594.87) SS-8

AE-1 SE-2 (594.68)

W-23

W-128
(595.20)

DRAIN LINE
AMMONIA TANK
TAR TANK
(595.87)
SUMP

W-118
W-21
W-21R
W-118R
(594.94)

GAS HOLDER

SS-7
(594.74)

SS-6
(594.95)

D4
(594.53)

D5
(594.49)

W-24

D-2
SS-1

D-3
MP-10-D (598.87*)

SS-4

RELIEF HOLDER

SI-2
(594.61)

B6
(594.47)

P-112
(594.53*)

W-2
W-10
W-18
P-110
(594.73)

(594.63)
SS-9

D7

W-4

D8
(594.52)

W-20

CITY OF DUBUQUE PUBLIC WORKS GARAGE

W-117
W-117R
(594.63)

W-27
W-127
(595.48)

(594.92)

W-13B
W-13C
(594.74)
W-113
W-13

W-126
W-26

595.0

594.5

HIGHWAY 61/151

RAMP 3000 CONNECTOR

9/11E CONNECTOR

KERPER BOULEVARD

LEVEE

MISSISSIPPI RIVER
(Dave Harbor)
(593.7)

LEGEND

- WATER TABLE MONITORING WELL
- SILTY SAND MONITORING WELL
- ALLUVIAL AQUIFER MONITORING WELL
- ABANDONED MONITORING WELL
- TECHNICAL IMPRACTICABILITY ZONE
- (594.61) GROUNDWATER ELEVATION (FT ASL)
- * GROUNDWATER ELEVATION NOT USED IN CONTOURING
- GROUNDWATER ELEVATION CONTOUR (FT ASL)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

DESIGNED BY	CLINT OBERBROECKLING	
DRAWN BY	NORA DAY	
CHECKED BY	CLINT OBERBROECKLING	
APPROVED BY	KEVIN ARMSTRONG	
PROJECT MANAGER	KEVIN ARMSTRONG	

0 120
SCALE IN FEET

MANAGING OFFICE: DES MOINES, IOWA

PROJECT: MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

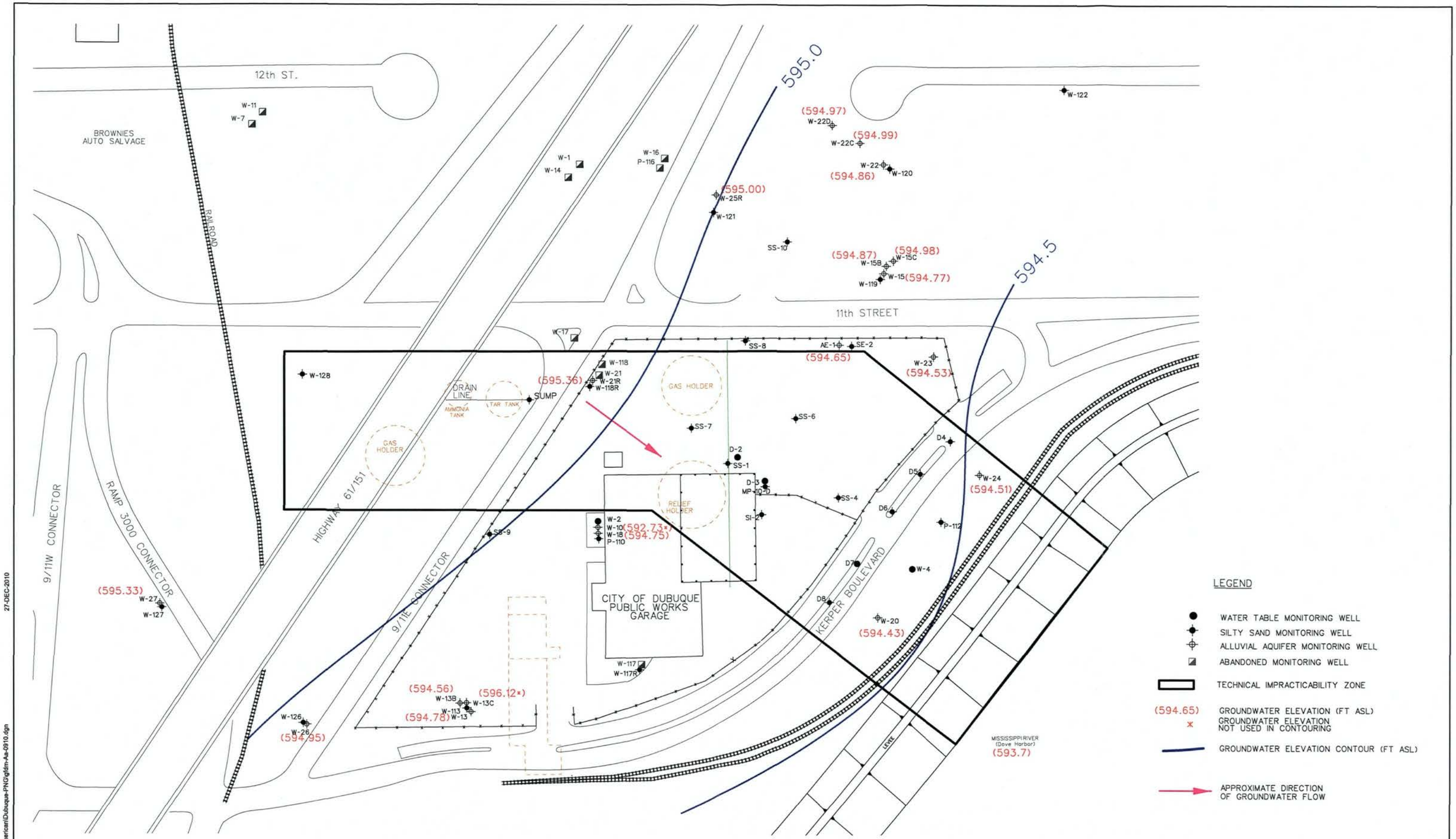
TITLE: GROUNDWATER FLOW DIRECTION MAP
SILTY SAND AQUIFER
SEPTEMBER 15, 2010

MWH

FIGURE 9

27-DEC-2010

\\salvna1s02\projects\CAD\MidAmerican\Dubuque-PNG\gfdm-ssa-0910.dgn



LEGEND

- WATER TABLE MONITORING WELL
- SILTY SAND MONITORING WELL
- ALLUVIAL AQUIFER MONITORING WELL
- ABANDONED MONITORING WELL
- TECHNICAL IMPRACTICABILITY ZONE
- (594.65) GROUNDWATER ELEVATION (FT ASL)
- * GROUNDWATER ELEVATION NOT USED IN CONTOURING
- GROUNDWATER ELEVATION CONTOUR (FT ASL)
- APPROXIMATE DIRECTION OF GROUNDWATER FLOW

DESIGNED BY	CLINT OBERBROECKLING	
DRAWN BY	NORA DAY	
CHECKED BY	CLINT OBERBROECKLING	
APPROVED BY	KEVIN ARMSTRONG	
PROJECT MANAGER	KEVIN ARMSTRONG	

0 120
SCALE IN FEET

MANAGING OFFICE: DES MOINES, IOWA

PROJECT: MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

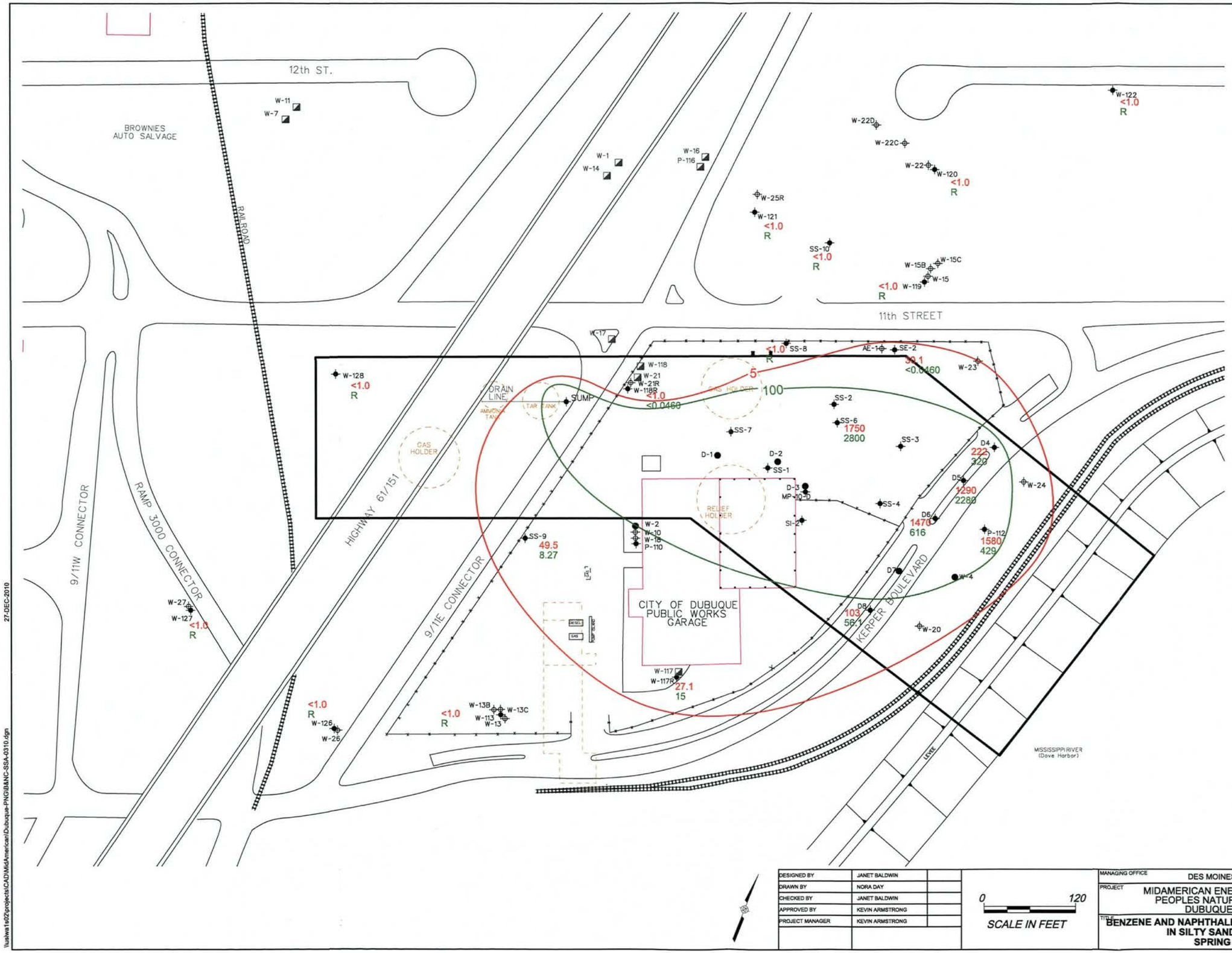
TITLE: **GROUNDWATER FLOW DIRECTION MAP**
ALLUVIAL AQUIFER
SEPTEMBER 15, 2010

MWH

FIGURE: **10**

27-DEC-2010

\\uswa1s02\projects\CAD\MidAmerican\Dubuque-PNG\gfdm-Aa-0910.dgn



LEGEND

- WATER TABLE MONITORING WELL
- SILTY SAND MONITORING WELL
- ALLUVIAL AQUIFER MONITORING WELL
- ABANDONED MONITORING WELL
- 5 BENZENE CONCENTRATION IN ug/L
- 100 NAPHTHALENE CONCENTRATION IN ug/L
- R RESULT REJECTED DUE TO LAB ERROR
- TECHNICAL IMPRACTICABILITY ZONE

DESIGNED BY	JANET BALDWIN	
DRAWN BY	NORA DAY	
CHECKED BY	JANET BALDWIN	
APPROVED BY	KEVIN ARMSTRONG	
PROJECT MANAGER	KEVIN ARMSTRONG	

0 120
SCALE IN FEET

MANAGING OFFICE: DES MOINES, IOWA
PROJECT: MIDAMERICAN ENERGY COMPANY PEOPLES NATURAL GAS SITE DUBUQUE, IOWA
TITLE: BENZENE AND NAPHTHALENE CONCENTRATIONS IN SILTY SAND AQUIFER SPRING 2010

MWH

FIGURE 11

27-DEC-2010

\\ushwa1s02\projects\CAD\MidAmerican\Dubuque-PNG\B&NC-SSA-0310.dgn

12th ST.

BROWNIES AUTO SALVAGE

RAILROAD

11th STREET

W-11
W-7
W-1
W-14
W-16
P-116
W-122
W-22D
W-22C
W-22
<1.0
R
W-120
W-25R
<1.0
R
W-121
SS-10
W-15B
W-15C
W-119
W-15
<1.0
R
W-17
5
W-118
W-21
W-21R
W-118R
206
<0.0460
GAS HOLDER
SS-8
AE-1
SE-2
W-23
<1.0
R
W-128
DRAIN LINE
SUMP
AMMONIA TANK
TAR TANK
SS-2
SS-6
SS-7
SS-3
D4
D-1
D-2
SS-1
D-3
MP-10
D
SS-4
D5
D6
W-24
<1.0
<0.0460
P-112
GAS HOLDER
RELIEF HOLDER
SI-2
W-2
W-10
W-18
P-110
SS-9
D7
W-4
D8
KERPER BOULEVARD
W-20
<1.0
0.183
9/11W CONNECTOR
RAMP 3000 CONNECTOR
HIGHWAY 61/151
9/11E CONNECTOR
CITY OF DUBUQUE PUBLIC WORKS GARAGE
DIESEL
GAS
HOIST HOUSE
W-117
W-117R
<1.0
<0.0460
W-27
W-127
W-126
<1.0
W-26
<0.0460
W-13B
W-13C
W-113
W-13
<1.0
<0.0460
MISSISSIPPI RIVER
(Dove Harbor)
LEVEE

LEGEND

- WATER TABLE MONITORING WELL
- SILTY SAND MONITORING WELL
- ALLUVIAL AQUIFER MONITORING WELL
- ABANDONED MONITORING WELL
- 5 BENZENE CONCENTRATION IN ug/L
- 100 NAPHTHALENE CONCENTRATION IN ug/L
- R RESULT REJECTED DUE TO LAB ERROR
- TECHNICAL IMPRACTICABILITY ZONE

DESIGNED BY	JANET BALDWIN	
DRAWN BY	NORA DAY	
CHECKED BY	JANET BALDWIN	
APPROVED BY	KEVIN ARMSTRONG	
PROJECT MANAGER	KEVIN ARMSTRONG	

0 120
SCALE IN FEET

MANAGING OFFICE: DES MOINES, IOWA

PROJECT: MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

TITLE: **BENZENE AND NAPHTHALENE CONCENTRATIONS IN ALLUVIAL AQUIFER SPRING 2010**

MWH

FIGURE 12

27-DEC-2010

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12th ST.

BROWNIES AUTO SALVAGE

RAILROAD

11th STREET

W-11
W-7
W-1
W-14
W-16
P-116
W-25R
W-121
<1.0
0.317
W-22D
W-22C
W-22
W-120
<1.0
0.0588
W-122
<1.0
10.2
SS-10
<1.0
<0.460
W-15B
W-15C
W-15
W-119
<1.0
<0.0460
W-17
<1.0
SS-8
<0.0460
AE-1
SE-2
22.1
1.1
W-23
W-128
<1.0
<0.0460
W-118
W-21
W-21R
W-118R
220
<0.0460
5
100
DRAIN LINE
AMMONIA TANK
TAR TANK
SUMP
GAS HOLDER
SS-2
SS-6
1710
2750
SS-7
SS-3
D-1
D-2
SS-1
D4
440
30.2
D5
W-24
D-3
MP-10-D
SS-4
SI-2
RELIEF HOLDER
D6
1060
10.2
P-112
1590
877
W-2
W-10
W-19
P-110
SS-9
44.6
11.5
D7
W-4
D8
79.3
73.8
KERPER BOULEVARD
W-20
CITY OF DUBUQUE PUBLIC WORKS GARAGE
DIESEL
GAS
W-117
W-117R
31.5
<0.0460
W-27
W-127
<1.0
<0.0460
<1.0
<0.0460
W-126
W-26
1.2
0.129
W-138
W-13C
W-113
W-13
9/11W CONNECTOR
RAMP 3000 CONNECTOR
HIGHWAY 61/151
9/11E CONNECTOR
MISSISSIPPI RIVER (Dove Harbor)
LEVEE

LEGEND

- WATER TABLE MONITORING WELL
- SILTY SAND MONITORING WELL
- ALLUVIAL AQUIFER MONITORING WELL
- ABANDONED MONITORING WELL
- 5 BENZENE CONCENTRATION IN ug/L
- 100 NAPHTHALENE CONCENTRATION IN ug/L
- TECHNICAL IMPRACTICABILITY ZONE

DESIGNED BY	CLINT OBERBROECKLING	
DRAWN BY	NORA DAY	
CHECKED BY	CLINT OBERBROECKLING	
APPROVED BY	KEVIN ARMSTRONG	
PROJECT MANAGER	KEVIN ARMSTRONG	

0 120
SCALE IN FEET

MANAGING OFFICE: DES MOINES, IOWA

PROJECT: MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

TITLE: BENZENE AND NAPHTHALENE CONCENTRATIONS IN SILTY SAND AQUIFER SEPTEMBER 2010

MWH

FIGURE 13

27-DEC-2010

\\ushia1fs02\projects\CAD\MidAmerican\Dubuque-PNG\B&NC-SSA-0910.dgn

12th ST.

BROWNIES AUTO SALVAGE

RAILROAD

11th STREET

W-11
W-7
W-1
W-14
W-16
P-116
W-122
W-22D
W-22C
W-22
<1.0
<0.0523
W-120
W-25R
<1.0
<0.0511
W-121
SS-10
W-15B
W-15C
W-15
<1.0
<0.0460
W-119
W-17
SS-8
AE-1
SE-2
W-23
<1.0
<0.0460
W-128
W-118
W-21
W-21R
W-118R
2.84
<0.0460
GAS HOLDER
DRAIN LINE
SUMP
AMMONIA TANK
TAR TANK
SS-2
SS-6
SS-7
SS-3
D4
D5
D-1
D-2
SS-1
D-3
MP-10-D
SS-4
W-24
<1.0
<0.0511
D6
SI-2
RELIEF HOLDER
W-2
W-10
W-18
P-110
P-112
SS-9
D7
W-4
D8
CITY OF DUBUQUE PUBLIC WORKS GARAGE
DIESEL
GAS
W-20
<1.0
0.13
W-117
W-117R
W-13B
W-13C
W-113
W-13
<1.0
0.0645
W-126
<1.0
0.147
W-26
<1.0
<0.0460
W-27
W-127
9/11W CONNECTOR
RAMP 3000 CONNECTOR
HIGHWAY 61/151
9/11E CONNECTOR
KERPER BOULEVARD
LEVEE
MISSISSIPPI RIVER (Dove Harbor)

LEGEND

- WATER TABLE MONITORING WELL
- SILTY SAND MONITORING WELL
- ALLUVIAL AQUIFER MONITORING WELL
- ABANDONED MONITORING WELL
- 5 BENZENE CONCENTRATION IN ug/L
- 100 NAPHTHALENE CONCENTRATION IN ug/L
- TECHNICAL IMPRACTICABILITY ZONE

DESIGNED BY	CLINT OBERBROECKLING	
DRAWN BY	NORA DAY	
CHECKED BY	CLINT OBERBROECKLING	
APPROVED BY	KEVIN ARMSTRONG	
PROJECT MANAGER	KEVIN ARMSTRONG	

0 120
SCALE IN FEET

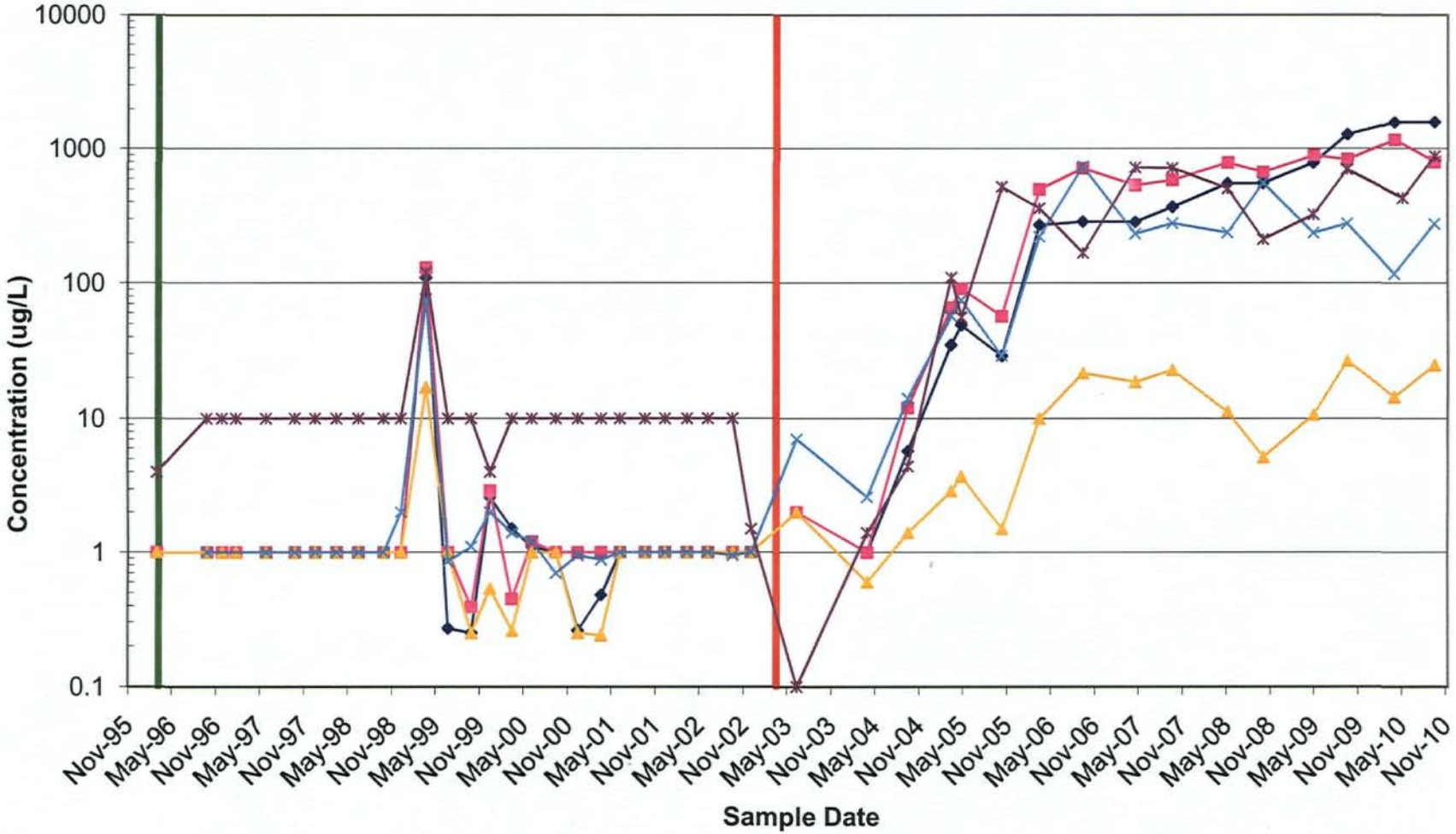
MANAGING OFFICE: DES MOINES, IOWA
PROJECT: MIDAMERICAN ENERGY COMPANY PEOPLES NATURAL GAS SITE DUBUQUE, IOWA
TITLE: BENZENE AND NAPHTHALENE CONCENTRATIONS IN ALLUVIAL AQUIFER SEPTEMBER 2010

MWH

FIGURE 14

27-DEC-2010

\\ustiwa1s012\projects\CAD\MidAmerican\Dubuque-PNG\BS&NC-AA-0910.dgn



DESIGNED BY	MWH	
DRAWN BY	K. ARMSTRONG	
CHECKED BY	C. OBERBROECKLING	
APPROVED BY	K. ARMSTRONG	
PROJECT MANAGER	K. ARMSTRONG	

MANAGING OFFICE: DES MOINES, IOWA

PROJECT: MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

TITLE: **P-112 CONCENTRATIONS**

MWH

FIGURE 15 | REVISION 1

FILE NAME

ATTACHMENT A

MWH

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	SE-2 Silty Sand 32.5 25-May-94	SE-2 Silty Sand 32.5 29-Feb-96	SE-2 Silty Sand 32.5 25-Sep-96	SE-2 Silty Sand 32.5 26-Nov-96	SE-2 Silty Sand 32.5 23-Jan-97	SE-2 Silty Sand 32.5 30-May-97	SE-2 Silty Sand 32.5 30-Sep-97	SE-2 Silty Sand 32.5 19-Dec-97
Sample Location:			SE-2	SE-2	SE-2	SE-2	SE-2	SE-2	SE-2	SE-2
Screened Unit:			Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
Depth BTOC (feet):			32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5
Sample Date:			25-May-94	29-Feb-96	25-Sep-96	26-Nov-96	23-Jan-97	30-May-97	30-Sep-97	19-Dec-97
Benzene	µg/L	5	660	2300	1500	960	950	1200	510	940
Toluene	µg/L	2,000	290	500	370	240	240	350	140	310
Ethylbenzene	µg/L	700	1600	2300	890	570	690	830	360	690
Xylenes	µg/L	10,000	1300	na	710	450	530	620	300	560
2-Methylnaphthalene	µg/L	--	78	400 U	72	51	74	64	37	73
Dibenzofuran	µg/L	--	200 U	400 U	8	150 U	9	100 U	100 U	10
Acenaphthene	µg/L	--	96	160	59	53	55	62	42	59
Acenaphthylene	µg/L	--	37	81	38	35	35	40	28	40
Anthracene	µg/L	--	200 U	400 U	1	150 U	1	100 U	100 U	1
Benzo(a)anthracene	µg/L	0.1	200 U	400 U	10 U	150 U	10 U	100 U	100 U	10 U
Benzo(a)pyrene	µg/L	0.2	200 U	400 U	10 U	150 U	10 U	100 U	100 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	200 U	400 U	10 U	150 U	10 U	100 U	100 U	10 U
Benzo(g,h,i)perylene	µg/L	--	200 U	400 U	10 U	150 U	10 U	100 U	100 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	200 U	400 U	10 U	150 U	10 U	100 U	100 U	10 U
Chrysene	µg/L	0.2	200 U	400 U	10 U	150 U	10 U	100 U	100 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	200 U	400 U	10 U	150 U	10 U	100 U	100 U	10 U
Fluoranthene	µg/L	--	200 U	400 U	10 U	150 U	10 U	100 U	100 U	10 U
Fluorene	µg/L	--	200 U	400 U	13	150 U	13	100 U	100 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	200 U	400 U	10 U	150 U	10 U	100 U	100 U	10 U
Naphthalene	µg/L	100	2000	5000	1200	1300	1100	900	690	910
Phenanthrene	µg/L	--	13	400 U	12	150 U	13	12	100 U	12
Pyrene	µg/L	--	200 U	400 U	10 U	150 U	10 U	100 U	100 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location:	SE-2	SE-2	SE-2	SE-2	SE-2	SE-2	SE-2	SE-2
			Screened Unit:	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet):	32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5
			Sample Date:	17-Mar-98	16-Jun-98	29-Sep-98	25-Jun-99	28-Sep-99	15-Dec-99	15-Mar-00	06-Jun-00
Benzene	µg/L	5		1000	840	260	210	1200	1400	890	580
Toluene	µg/L	2,000		250	190	10 U	130	150	140	170	160
Ethylbenzene	µg/L	700		620	470	420	1400	940	890	660	460
Xylenes	µg/L	10,000		540	480	260	730	560	590	500	390
2-Methylnaphthalene	µg/L	--		62	33	11	50	17	6	34	na
Dibenzofuran	µg/L	--		8	150 U	5	10	10	11	9	na
Acenaphthene	µg/L	--		49	58	58	130	65	67	62	na
Acenaphthylene	µg/L	--		35	34	15	18	62	57	37	na
Anthracene	µg/L	--		1	150 U	10 U	2	10 U	2	10 U	na
Benzo(a)anthracene	µg/L	0.1		10 U	150 U	10 U	10 U	10 U	10 U	10 U	na
Benzo(a)pyrene	µg/L	0.2		10 U	150 U	10 U	10 U	10 U	10 U	10 U	na
Benzo(b)fluoranthene	µg/L	0.2		10 U	150 U	10 U	10 U	10 U	10 U	10 U	na
Benzo(g,h,i)perylene	µg/L	--		10 U	150 U	10 U	10 U	10 U	10 U	10 U	na
Benzo(k)fluoranthene	µg/L	0.2		10 U	150 U	10 U	10 U	10 U	10 U	10 U	na
Chrysene	µg/L	0.2		10 U	150 U	10 U	10 U	10 U	10 U	10 U	na
Dibenzo(a,h)anthracene	µg/L	0.2		10 U	150 U	10 U	10 U	10 U	10 U	10 U	na
Fluoranthene	µg/L	--		10 U	150 U	10 U	10 U	10 U	4	10 U	na
Fluorene	µg/L	--		14	150 U	8	20	17	24	18	na
Indeno(1,2,3cd)pyrene	µg/L	0.4		10 U	150 U	10 U	10 U	10 U	10 U	10 U	na
Naphthalene	µg/L	100		1200	840	620	1900	1700	1500	1200	na
Phenanthrene	µg/L	--		10	150 U	6	15	15	23	13	na
Pyrene	µg/L	--		10 U	150 U	10 U	10 U	10 U	4	10 U	na

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	SE-2 Silty Sand 32.5 15-Sep-00	SE-2 Silty Sand 32.5 15-Dec-00	SE-2 Silty Sand 32.5 21-Mar-01	SE-2 Silty Sand 32.5 07-Jun-01	SE-2 Silty Sand 32.5 20-Sep-01	SE-2 Silty Sand 32.5 11-Dec-01	SE-2 Silty Sand 32.5 14-Mar-02	SE-2 Silty Sand 32.5 05-Jun-02
Sample Location:			SE-2	SE-2	SE-2	SE-2	SE-2	SE-2	SE-2	SE-2
Screened Unit:			Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
Depth BTOC (feet):			32.5	32.5	32.5	32.5	32.5	32.5	32.5	32.5
Sample Date:			15-Sep-00	15-Dec-00	21-Mar-01	07-Jun-01	20-Sep-01	11-Dec-01	14-Mar-02	05-Jun-02
Benzene	µg/L	5	400	5.3	150	150	130	200	ns	39
Toluene	µg/L	2,000	140	1.6	38	45	28	24	ns	9.4
Ethylbenzene	µg/L	700	300	1.7	37	65	90	120	ns	11
Xylenes	µg/L	10,000	240	3.7	110	110	89	120	ns	37
2-Methylnaphthalene	µg/L	--	40	4 J	9.6 J	16	6.6 J	19	ns	10 U
Dibenzofuran	µg/L	--	8 J	4 J	3.1 J	3.2 J	3.1 J	4.1 J	ns	0.99 J
Acenaphthene	µg/L	--	45	23	18	23	20	27	ns	3.8 J
Acenaphthylene	µg/L	--	24	3 J	5.2 J	6.5 J	5.7 J	13	ns	0.58 J
Anthracene	µg/L	--	1 J	10 U	10 U	0.75 J	10 U	0.76 J	ns	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	ns	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	ns	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	ns	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	ns	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	ns	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	ns	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	ns	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	ns	10 U
Fluorene	µg/L	--	13	8 J	6.5 J	7.1 J	6.3 J	7.4 J	ns	3.5 J
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	ns	10 U
Naphthalene	µg/L	100	630	10 U	40	59	60	320	ns	10 U
Phenanthrene	µg/L	--	11	5 J	3.6 J	3.8 J	3.3 J	4.4 J	ns	1.6 J
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	ns	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: SE-2 Screened Unit: Silty Sand Depth BTOC (feet): 32.5 Sample Date: 18-Sep-02	SE-2 Silty Sand 32.5 05-Dec-02	SE-2 Silty Sand 32.5 11-Oct-05	SE-2 Silty Sand 32.5 15-Mar-06	SE-2 Silty Sand 32.5 12-Sep-06	SE-2 Silty Sand 32.5 17-Apr-07	SE-2 Silty Sand 32.5 19-Sep-07	SE-2 Silty Sand 32.5 05-May-08
Benzene	µg/L	5	88	160	23	22	34.1	15.9	24.3	21.1
Toluene	µg/L	2,000	8.7	8.8	1.0 U	1.0 U	1.64	1.00 U	1.27	1.00 U
Ethylbenzene	µg/L	700	23	44	26	8.7	35.5	2.35	27.6	6.62
Xylenes	µg/L	10,000	54	59	10	4.5	23.2	3.00 U	32	11.2
2-Methylnaphthalene	µg/L	--	10 U	15	na	na	na	na	na	na
Dibenzofuran	µg/L	--	2.1 J	3.3J	na	na	na	na	na	na
Acenaphthene	µg/L	--	5.8 J	20	41	35	39.1	25.8	33.5	26.2
Acenaphthylene	µg/L	--	1.5 J	9.0J	120	61	9.99	0.100 U	0.0850 U	0.0850 U
Anthracene	µg/L	--	10 U	10 U	0.43	0.19 Ja	0.355	0.664	0.099 J	0.162 J
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	0.13 U	0.64 U	0.00300 U	0.00353 U	0.0151 J	0.00300 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	0.13 U	0.64 U	0.0320 U	0.0376 U	0.0320 U	0.0320 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	0.051 U	0.25 U	0.0130 U	0.0153 U	0.0130 U	0.0130 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	0.20 U	0.99 U	0.00900 U	0.0106 U	0.00900 U	0.00900 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	0.051 U	0.25 U	0.0150 U	0.0176 U	0.0150 U	0.0150 U
Chrysene	µg/L	0.2	10 U	10 U	0.13 U	0.64 U	0.00500 U	0.00588 U	0.00500 U	0.00500 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	0.30 U	1.5 U*	0.0100 U	0.0118 U	0.0782 J	0.0100 U
Fluoranthene	µg/L	--	10 U	10 U	0.92	0.64 U	0.68	0.0118 U	0.536	0.412
Fluorene	µg/L	--	10 U	5.8J	3.9	2.5	9.01	7.08	12.7	13.5
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	0.13 U	0.64 U	0.00700 U	0.00824 U	0.00700 U	0.00700 U
Naphthalene	µg/L	100	10 U	260	1.3 U	6.4 U	4.91	0.41 B	6.43	9.21
Phenanthrene	µg/L	--	2.4 J	3.2J	0.73	0.22 Ja	1.16	0.00824 U	0.00700 U	0.00700 U
Pyrene	µg/L	--	10 U	10 U	0.45 M	1.2 U	0.0774 J	0.766	0.479	0.171 J

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location:	SE-2	SE-2	SE-2	SE-2	SE-2	SE-2	Drain Sump	Drain Sump	Drain Sump
			Screened Unit:	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet):	32.5	32.5	32.5	32.5	32.5	32.5	27.9	27.9	27.9
			Sample Date:	30-Sep-08	28-Apr-09	15-Sep-09	30-Mar-10	05-May-10	15-Sep-10	29-Feb-96	25-Sep-96	26-Nov-96
Benzene	µg/L	5		31.6	20.8	45	30.1	na	22.1	650	4000	3200
Toluene	µg/L	2,000		1.00 U	1.00 U	3.63	1.00 U	na	1.17	20 U	300	800
Ethylbenzene	µg/L	700		13	5.41	73.4	3.58	na	6.12	66	300	210
Xylenes	µg/L	10,000		9.2	3.00 U	41.5	6 U	na	9.26	na	na	na
2-Methylnaphthalene	µg/L	--		na	na	na	na	na	na	40U	24	30
Dibenzofuran	µg/L	--		na	na	na	na	na	na	20	15	200 U
Acenaphthene	µg/L	--		33.8	27.2	50.1	35.1	29.5	38.1	16	10 U	200 U
Acenaphthylene	µg/L	--		0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	6.05	54	52	62
Anthracene	µg/L	--		0.186 J	0.130 J	0.312	0.0100 U	0.0454 J	0.0100 U	6	3	200 U
Benzo(a)anthracene	µg/L	0.1		0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	40U	10 U	200 U
Benzo(a)pyrene	µg/L	0.2		0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	40U	10 U	200 U
Benzo(b)fluoranthene	µg/L	0.2		0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	40U	10 U	200 U
Benzo(g,h,i)perylene	µg/L	--		0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	40U	10 U	200 U
Benzo(k)fluoranthene	µg/L	0.2		0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	40U	10 U	200 U
Chrysene	µg/L	0.2		0.00800 U	0.00800 U	0.0159 J	0.00800 U	0.00800 U	0.00800 U	40U	10 U	200 U
Dibenzo(a,h)anthracene	µg/L	0.2		0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	40U	10 U	200 U
Fluoranthene	µg/L	--		0.657	0.505	0.0100 U	0.0100 U	0.0100 U	0.977	40U	3	200 U
Fluorene	µg/L	--		14.4	12.2	23.6	9.26	3.77	10.8	18	14	200 U
Indeno(1,2,3cd)pyrene	µg/L	0.4		0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	40U	10 U	200 U
Naphthalene	µg/L	100		1.27	0.277	26.6	R	0.0460 U	1.11	170	940	1600
Phenanthrene	µg/L	--		0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	20	22	25
Pyrene	µg/L	--		0.386	0.298	<0.0170 U	0.0170 U	0.0170 U	0.143 J	40U	3	200 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: Drain Sump Screened Unit: Silty Sand Depth BTOC (feet): 27.9 Sample Date: 23-Jan-97	Drain Sump Silty Sand 27.9 30-May-97	Drain Sump Silty Sand 27.9 19-Sep-97	Drain Sump Silty Sand 27.9 19-Dec-97	Drain Sump Silty Sand 27.9 17-Mar-98	Drain Sump Silty Sand 27.9 16-Jun-98	Drain Sump Silty Sand 27.9 29-Sep-98	Drain Sump Silty Sand 27.9 11-Dec-98
Benzene	µg/L	5	2500	4000	1800	2000	2200	3000	2600	2200
Toluene	µg/L	2,000	630	1100	580	430	610	910	2350	150
Ethylbenzene	µg/L	700	310	230	150	120	200	280	320	280
Xylenes	µg/L	10,000	na	650	450	490	510	710	560	530
2-Methylnaphthalene	µg/L	–	41	31	na	29	73	51	42	11
Dibenzofuran	µg/L	–	22	200 U	na	200 U	16	300 U	28	24
Acenaphthene	µg/L	–	18	200 U	na	200 U	16	300 U	28	22
Acenaphthylene	µg/L	–	74	58	na	52	62	75	110	69
Anthracene	µg/L	–	70 U	200 U	na	200 U	4	300 U	6	10 U
Benzo(a)anthracene	µg/L	0.1	70 U	200 U	na	200 U	10 U	300 U	10 U	na
Benzo(a)pyrene	µg/L	0.2	70 U	200 U	na	200 U	10 U	300 U	10 U	na
Benzo(b)fluoranthene	µg/L	0.2	70 U	200 U	na	200 U	10 U	300 U	10 U	na
Benzo(g,h,i)perylene	µg/L	–	70 U	200 U	na	200 U	10 U	300 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	70 U	200 U	na	200 U	10 U	300 U	10 U	na
Chrysene	µg/L	0.2	70 U	200 U	na	200 U	10 U	300 U	10 U	na
Dibenzo(a,h)anthracene	µg/L	0.2	70 U	200 U	na	200 U	10 U	300 U	10 U	na
Fluoranthene	µg/L	–	70 U	200 U	na	200 U	4	300 U	7	10 U
Fluorene	µg/L	–	18	200 U	na	200 U	15	300 U	20	21
Indeno(1,2,3cd)pyrene	µg/L	0.4	70 U	200 U	na	200 U	10 U	300 U	10 U	na
Naphthalene	µg/L	100	1200	1400	na	1100	1500	1500	2100	240
Phenanthrene	µg/L	–	28	200 U	na	20	23	300 U	41	24
Pyrene	µg/L	–	70 U	200 U	na	200 U	2	300 U	4	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: Drain Sump Screened Unit: Silty Sand Depth BTOC (feet): 27.9 Sample Date: 26-Mar-99	Drain Sump Silty Sand 27.9 25-Jun-99	Drain Sump Silty Sand 27.9 30-Sep-99	Drain Sump Silty Sand 27.9 15-Dec-99	Drain Sump Silty Sand 27.9 15-Mar-00	Drain Sump Silty Sand 27.9 06-Jun-00	Drain Sump Silty Sand 27.9 15-Sep-00	Drain Sump Silty Sand 27.9 15-Dec-00	Drain Sump Silty Sand 27.9 21-Mar-01
Benzene	µg/L	5	2300	2300	2000	2400	2500	1700	970	1200	1100
Toluene	µg/L	2,000	74	110	380	170	640	590	480	590	620
Ethylbenzene	µg/L	700	210	250	140	270	260	140	180	170	160
Xylenes	µg/L	10,000	300	390	360	450	700	450	450	510	560
2-Methylnaphthalene	µg/L	--	6	19	22	10 U	15	21	60	60	120
Dibenzofuran	µg/L	--	16	27	16	24	21	14	20	24	28
Acenaphthene	µg/L	--	13	18	11	15	17	14	20	25	24
Acenaphthylene	µg/L	--	49	70	54	69	68	47	60	90	80
Anthracene	µg/L	--	4	6	3	6	3	3	3 J	4 J	4.6 J
Benzo(a)anthracene	µg/L	0.1	3	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U
Chrysene	µg/L	0.2	2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U
Fluoranthene	µg/L	--	11	5	2	5	4	4	4 J	3 J	3.4 J
Fluorene	µg/L	--	14	20	13	24	18	12	21	20	29
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	11 U
Naphthalene	µg/L	100	440	2200	1300	1500	1800	940	1300	2300	2600
Phenanthrene	µg/L	--	18	24	16	27	23	15	21	22	28
Pyrene	µg/L	--	13	3	10 U	4	10 U	2	2 J	2 J	2.8 J

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-117	W-117	W-117	W-117	W-117	W-117	W-117	W-117
			Screened Unit: Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet): 35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
			Sample Date: 26-May-94	26-May-94	29-Feb-96	24-Sep-96	26-Nov-96	23-Jan-97	29-May-97	30-Sep-97
Benzene	µg/L	5	5.7	5.2	11	12	8.6	8.9	7.5	11
Toluene	µg/L	2,000	1.4	1.1	2	2.8	1.9	2.2	1.9	2.5
Ethylbenzene	µg/L	700	1.0 U	1.0 U	3.8	1.7	1 U	1.3	1.2	1.8
Xylenes	µg/L	10,000	2.1	1.0 U	na	4.1	na	na	2.2	3.7
2-Methylnaphthalene	µg/L	--	10 U	10 U	2	3	2	1	1	3
Dibenzofuran	µg/L	--	10 U	10 U	2	2	2	2	2	3
Acenaphthene	µg/L	--	1	1	4	5	5	4	5	8
Acenaphthylene	µg/L	--	0.8	0.8	10 U	10 U	1	10 U	10 U	1
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	1	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	1	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	10 U	10 U	10 U	10 U	1	1	1	2
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	1	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	9	8	28	28	22	18	21	38
Phenanthrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-117	W-117	W-117	W-117	W-117	W-117	W-117	W-117	W-117
			Screened Unit: Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet): 35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
			Sample Date: 17-Dec-97	17-Mar-98	16-Jun-98	29-Sep-98	10-Dec-98	24-Mar-99	23-Jun-99	28-Sep-99	15-Dec-99
Benzene	µg/L	5	9.7	9.5	13	14	12	10	8.5	8.8	12
Toluene	µg/L	2,000	2.2	2	2.9	4.2	2	1.2	1.6	1.2	3.4
Ethylbenzene	µg/L	700	1.7	1.6	1.9	3.1	2	1.4	2	1.6	15
Xylenes	µg/L	10,000	3.3	2.4	3.6	5.1	3	1.9	2.6	2.4	12
2-Methylnaphthalene	µg/L	--	2	1	2	3	10 U	10 U	2	10 U	10 U
Dibenzofuran	µg/L	--	3	3	3	4	10 U	2	5	4	4
Acenaphthene	µg/L	--	7	7	6	11	10 U	6	12	8	9
Acenaphthylene	µg/L	--	1	1	1	3	10 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	2	1	2	2	10 U	10 U	2	2	2
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	26	21	29	48	37	20	31	26	51
Phenanthrene	µg/L	--	1	10 U	1	2	10 U	10 U	2	10 U	2
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-117	W-117	W-117	W-117	W-117	W-117	W-117	W-117
			Screened Unit: Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet): 35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
			Sample Date: 15-Mar-00	06-Jun-00	15-Sep-00	14-Dec-00	20-Mar-01	07-Jun-01	20-Sep-01	12-Dec-01
Benzene	µg/L	5	3.6	10	9.8	12	11	1.6	17	16
Toluene	µg/L	2,000	0.56	1 U	1.1	1.3	1	1 U	5.8	4.2
Ethylbenzene	µg/L	700	0.72	1.7	1.7	1.8	1.7	1 U	3.9	4
Xylenes	µg/L	10,000	1.4	2.3	2.4	3.1	2.5	1 U	6.8	5.2
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	2	2	2 J	2 J	2.2 J	1.0 J	3.7 J	5 J
Acenaphthene	µg/L	--	4	7	6 J	6 J	1.9 J	2.4 J	13	16
Acenaphthylene	µg/L	--	10 U	2	2 J	2 J	2.2 J	10 U	10 U	1.9 J
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	1	1	10 U	10 U	10 U	10 U	1.6 J	2.3 J
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	6	12	6 J	10 J	0.98 J	10 U	57	33
Phenanthrene	µg/L	--	10 U	0.9	10 U	10 U	10 U	10 U	10 U	0.61 J
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-117 Screened Unit: Silty Sand Depth BTOC (feet): 35.0 Sample Date: 14-Mar-02	W-117 Silty Sand 35.0 07-Jun-02	W-117 Silty Sand 35.0 18-Sep-02	W-117 Silty Sand 35.0 05-Dec-02	W-117 Silty Sand 35.0 09-Jun-03	W-117 Silty Sand 35.0 30-Mar-04	W-117 Silty Sand 35.0 15-Sep-04	W-117 Silty Sand 35.0 14-Mar-05	W-117 Silty Sand 35.0 27-Apr-05
Benzene	µg/L	5	1 U	11	13	2.6	9.9	1.7 H	8.7	0.79	1.1
Toluene	µg/L	2,000	2.7	3	2	0.77 J	2 U	1.0 U	3.2	1.0 U	1.0 U
Ethylbenzene	µg/L	700	5.6	3.1	3.7	0.74 J	2 U	1.0 U	2.8	1.0 U	1.0 U
Xylenes	µg/L	10,000	7.6	4.3	4.5	1.2	7 U	1.0 U	4.1	1.0 U	1.0 U
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	na	na	na	na	na
Dibenzofuran	µg/L	--	10 U	5.7 J	10	1.1J	na	na	na	na	na
Acenaphthene	µg/L	--	10 U	19	30	2.8J	11	3.7	1.5 Ja	1.2	1.0 Ja
Acenaphthylene	µg/L	--	10 U	10 U	2.5 J	1.7J	0.92	4.1	4	3.8	2.3
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	0.22	0.036 Ja	0.022 Ja	0.027	0.050 Ua
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	0.17	0.034 Ja	0.13 U	0.12 U	0.13 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	0.12	0.057 Ja	0.13 U	0.12 U	0.13 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	0.1 U	0.040 Ja	0.050 U	0.048 U	0.050 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	0.1 U	0.2 U	0.20 U	0.19 U	0.2 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	0.12	0.020 Ja	0.050 U	0.048 U	0.050 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	0.12	0.13 U	0.13 U	0.12 U	0.13 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	0.1 U	0.30 U	0.30 U	0.29 U	0.30 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	0.26	0.090 Ja	0.13 U	0.12 U	0.13 U
Fluorene	µg/L	--	10 U	2.5 J	4.6 J	10 U	1.4	0.31	0.13 Ja	0.083	0.079 Ja
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	0.1 U	0.13 U	0.13 U	0.12 U	0.13 U
Naphthalene	µg/L	100	1.2 J	27	32	6	3.9	7.1	7	1.2 U	0.51 Ja
Phenanthrene	µg/L	--	10 U	0.67 J	1.8 J	10 U	0.48	0.035 Ja	0.10 U	0.096 U	0.052 Ja
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	0.21	0.25 U	0.25 U	0.24 U	0.25 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-117R Screened Unit: Silty Sand Depth BTOC (feet): 35.7 Sample Date: 11-Oct-05	Sample Location: W-117R Screened Unit: Silty Sand Depth BTOC (feet): 35.7 Sample Date: 15-Mar-06	Sample Location: W-117R Screened Unit: Silty Sand Depth BTOC (feet): 35.7 Sample Date: 12-Sep-06	Sample Location: W-117R Screened Unit: Silty Sand Depth BTOC (feet): 35.7 Sample Date: 18-Apr-07	Sample Location: W-117R Screened Unit: Silty Sand Depth BTOC (feet): 35.7 Sample Date: 20-Sep-07	Sample Location: W-117R Screened Unit: Silty Sand Depth BTOC (feet): 35.7 Sample Date: 6-May-08	Sample Location: W-117R Screened Unit: Silty Sand Depth BTOC (feet): 35.7 Sample Date: 1-Oct-08	Sample Location: W-117R Screened Unit: Silty Sand Depth BTOC (feet): 35.7 Sample Date: 29-Apr-09
Benzene	µg/L	5	2.7	35	24.8	16.6	39.8	15.8	8.08	3.43
Toluene	µg/L	2,000	1.0 U	3.1	9	2.55	9.32	1.26	1.0 U	1.00 U
Ethylbenzene	µg/L	700	1.8	3.2	5.72	2.56	8.3	5.91	3.42	6.28
Xylenes	µg/L	10,000	1.0 U	3.4	10.2	4.36	14.2	6.6	6.09	3.00 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	1.2 Ja	2.4 U	3.04	3.93	4.49	3.41	4.33	2.93
Acenaphthylene	µg/L	--	15	15	4.95	7.51	11.5	6.44	16.3	9.31
Anthracene	µg/L	--	0.029 Ja	0.049 Ua	0.0407 J	0.0495 J	0.075 J	0.027 J	0.0100 U	0.0419 J
Benzo(a)anthracene	µg/L	0.1	0.018 Ja	0.13 U	0.00341 U	0.00337 U	0.00300 U	0.00300 U	0.00500 U	0.00500 U
Benzo(a)pyrene	µg/L	0.2	0.025 Ja	0.13 U	0.0148 U	0.0360 U	0.0320 U	0.0320 U	0.00800 U	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	0.025 Ja	0.049 Ua	0.0170 U	0.0146 U	0.0130 U	0.0130 U	0.0280 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	0.19 U	0.19 U	0.0364 U	0.0101 U	0.00900 U	0.00900 U	0.00800 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	0.047 U	0.049 U	0.0102 U	0.0169 U	0.0150 U	0.0150 U	0.00700 U	0.00700 U
Chrysene	µg/L	0.2	0.046 Ja	0.13 U	0.00568 U	0.00562 U	0.00500 U	0.00500 U	0.00800 U	0.00800 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.28 U	0.29 U*	0.0114 U	0.0112 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.068 Ja	0.13 U	0.0114 U	0.0112 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluorene	µg/L	--	1.2	1.1	1.52	2.23	2.82	1.7	3.06	1.76
Indeno(1,2;3cd)pyrene	µg/L	0.4	0.12 U	0.13 U	0.00795 U	0.00787 U	0.00700 U	0.00700 U	0.00600 U	0.00600 U
Naphthalene	µg/L	100	1.2 U	1.3 U	2.47	4.18 B	6.12	2.4	6.68	0.528
Phenanthrene	µg/L	--	0.12	0.11	0.13	0.152	0.296	0.204	0.308	0.188
Pyrene	µg/L	--	0.23 U	0.24 U	0.0216 U	0.0213 U	0.0190 U	0.0190 U	0.0170 U	0.0170 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-117R Screened Unit: Silty Sand Depth BTOC (feet): 35.7 Sample Date: 16-Sep-09	W-117R Silty Sand 35.7 31-Mar-10	W-117R Silty Sand 35.7 6-May-10	W-117R Silty Sand 35.7 16-Sep-10	W-118 Silty Sand 28.5 29-Feb-96	W-118 Silty Sand 28.5 25-Sep-96	W-118 Silty Sand 28.5 26-Nov-96	W-118 Silty Sand 28.5 22-Jan-97	W-118 Silty Sand 28.5 29-May-97
Benzene	µg/L	5	43 FM	27.1	na	31.5	76	1200	960	250	1 U
Toluene	µg/L	2,000	5.1 FM	1.00 U	na	1.6	5.0U	40	21	10 U	1 U
Ethylbenzene	µg/L	700	8.1 FM	4.91	na	11.1	58	40U	1100	360	1 U
Xylenes	µg/L	10,000	15.0 U FM	6.00 U	na	9.97	na	600	na	na	1 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	10 U	200 U	400 U	10 U	20 U
Dibenzofuran	µg/L	--	na	na	na	na	10 U	200 U	400 U	3	4
Acenaphthene	µg/L	--	0.135 J	5.29	3.6	0.164 J	5	26	400 U	17	10 U
Acenaphthylene	µg/L	--	0.0870 U	13.6	16.1	0.0870 U	4	32	40	23	20 U
Anthracene	µg/L	--	0.0276 J	0.0100 U	0.0100 U	0.0100 U	10 U	200 U	400 U	10 U	20 U
Benzo(a)anthracene	µg/L	0.1	0.0506 J	0.00500 U	0.00500 U	0.00500 U	10 U	200 U	400 U	10 U	20 U
Benzo(a)pyrene	µg/L	0.2	0.0866 J	0.00800 U	0.00800 U	0.00800 U	10 U	200 U	400 U	10 U	20 U
Benzo(b)fluoranthene	µg/L	0.2	0.0938 J	0.0280 U	0.0280 U	0.0280 U	10 U	200 U	400 U	10 U	20 U
Benzo(g,h,i)perylene	µg/L	--	0.085 J	0.00800 U	0.00800 U	0.00800 U	10 U	200 U	400 U	10 U	20 U
Benzo(k)fluoranthene	µg/L	0.2	0.0586 J	0.00700 U	0.00700 U	0.00700 U	10 U	200 U	400 U	10 U	20 U
Chrysene	µg/L	0.2	0.0745 J	0.00800 U	0.00800 U	0.00800 U	10 U	200 U	400 U	10 U	20 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	10 U	200 U	400 U	10 U	20 U
Fluoranthene	µg/L	--	0.0732 J	0.0100 U	0.0100 U	0.0100 U	10 U	200 U	400 U	10 U	20 U
Fluorene	µg/L	--	0.0579 J	1.52	1.61	0.0160 U	10 U	200 U	400 U	6	20 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.0771 J	0.00600 U	0.00600 U	0.00600 U	10 U	200 U	400 U	10 U	20 U
Naphthalene	µg/L	100	0.151	R	15	0.0460 U	6	1400	1400	340	120
Phenanthrene	µg/L	--	0.0784 J	0.00500 U	0.155	0.00500 U	10 U	200 U	400 U	3	5
Pyrene	µg/L	--	0.107 J	0.0170 U	0.0170 U	0.0335 J	10 U	200 U	400 U	10 U	20 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-118 / Screened Unit: Silty Sand / Depth BTOC (feet): 28.5 / Sample Date: 25-Sep-97	W-118 / Silty Sand / 28.5 / 18-Dec-97	W-118 / Silty Sand / 28.5 / 17-Mar-98	W-118 / Silty Sand / 28.5 / 16-Jun-98	W-118 / Silty Sand / 28.5 / 29-Sep-98	W-118 / Silty Sand / 28.5 / 10-Dec-98	W-118 / Silty Sand / 28.5 / 23-Mar-99	W-118 / Silty Sand / 28.5 / 23-Jun-99	W-118 / Silty Sand / 28.5 / 28-Sep-99
Benzene	µg/L	5	120	44	27	22	18	10	13	3.2	3.6
Toluene	µg/L	2,000	9.8	2.5U	1 U	2.1	3	1	0.58	0.29	0.72
Ethylbenzene	µg/L	700	400	93	45	66	23	8	2.9	3.2	5.8
Xylenes	µg/L	10,000	156	3.4	1 U	7.9	5.9	2	1 U	0.73	1.8
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	3	1	1	1	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--	28	12	9	11	7	10 U	3	6	5
Acenaphthylene	µg/L	--	22	8	6	7	4	10 U	2	3	3
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	8	3	10 U	3	2	10 U	10 U	2	2
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	270	3	10 U	4	5	10 U	10 U	10 U	3
Phenanthrene	µg/L	--	5	3	2	2	1	10 U	10 U	10 U	10 U
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-118 / Screened Unit: Silty Sand / Depth BTOC (feet): 28.5 / Sample Date: 15-Dec-99	W-118 / Silty Sand / 28.5 / 15-Mar-00	W-118 / Silty Sand / 28.5 / 06-Jun-00	W-118 / Silty Sand / 28.5 / 14-Sep-00	W-118 / Silty Sand / 28.5 / 14-Dec-00	W-118 / Silty Sand / 28.5 / 21-Mar-01	W-118 / Silty Sand / 28.5 / 07-Jun-01	W-118 / Silty Sand / 28.5 / 20-Sep-01	W-118 / Silty Sand / 28.5 / 12-Dec-01
Benzene	µg/L	5	71	6.1	20	35	16	10	79	43	100
Toluene	µg/L	2,000	14	1	1.5	3.1	1.2	0.71 J	2 U	1.5	1.8
Ethylbenzene	µg/L	700	50	1.9	42	87	10	1.8	54	2.7	0.92 J
Xylenes	µg/L	10,000	30	2.7	10	25	6	2.6	18	7.9	4.4
2-Methylnaphthalene	µg/L	--	10 U	10 U	11 U	10 U	10 U	11 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	10 U	10 U	11 U	10 U	10 U	11 U	0.62 J	10 U	10 U
Acenaphthene	µg/L	--	8	7	5	9 J	11	6.2 J	17	8.7 J	17
Acenaphthylene	µg/L	--	6	2	2	3 J	4 J	4.3 J	7.1 J	3.1 J	4.9 J
Anthracene	µg/L	--	10 U	10 U	11 U	10 U	10 U	11 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	11 U	10 U	10 U	11 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	11 U	10 U	10 U	11 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	11 U	10 U	10 U	11 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	11 U	10 U	10 U	11 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	11 U	10 U	10 U	11 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	11 U	10 U	10 U	11 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	11 U	10 U	10 U	11 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	11 U	10 U	10 U	11 U	10 U	10 U	10 U
Fluorene	µg/L	--	2	2	1	2 J	2 J	2.5 J	3.1 J	1.4 J	3.7 J
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	11 U	10 U	10 U	11 U	10 U	10 U	10 U
Naphthalene	µg/L	100	62	2	3	14 J	4 J	11 U	30	1.4 J	1.1 J
Phenanthrene	µg/L	--	10 U	10 U	11 U	10 U	10 U	1.5 J	1.8 J	10 U	1.6 J
Pyrene	µg/L	--	10 U	10 U	11 U	10 U	10 U	11 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-118 / Screened Unit: Silty Sand / Depth BTOC (feet): 28.5 / Sample Date: 14-Mar-02	W-118 / Silty Sand / 28.5 / 04-Jun-02	W-118 / Silty Sand / 28.5 / 18-Sep-02	W-118 / Silty Sand / 28.5 / 04-Dec-02	W-118 / Silty Sand / 28.5 / 09-Jun-03	W-118 / Silty Sand / 28.5 / 30-Mar-04	W-118 / Silty Sand / 28.5 / 14-Sep-04	W-118 / Silty Sand / 28.5 / 15-Mar-05	W-118R / Silty Sand / 29.0 / 02-May-05
Benzene	µg/L	5	240	130	260	350	61	220 M	170	89	170
Toluene	µg/L	2,000	4.1 J	25 U	2.4	2	2 U	1.6	1.9	1.9	0.82 Ja
Ethylbenzene	µg/L	700	25 U	25 U	1 U	2.3	2 U	4.4	6.8	5.8	0.95 J
Xylenes	µg/L	10,000	25 U	25 U	4	3.3	7 U	12	15	13	1.5
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	na	na	na	na	na
Dibenzofuran	µg/L	--	10 U	10 U	0.44 J	0.50 J	na	na	na	na	na
Acenaphthene	µg/L	--	13	5.5 J	12	17	8.2	12	2.7 Ua	2.6 U	9.8
Acenaphthylene	µg/L	--	3.5 J	1.6 J	2.8 J	4.1J	1.1	6.5 U	15	17	68
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	0.1 U	0.045 Ja	0.055 U	0.051 U	0.035 Ja
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	0.1 U	0.13 U	0.14 U	0.13 U	0.12 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	0.1 U	0.13 U	0.14 U	0.13 U	0.12 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	0.1 U	0.050 U	0.055 U	0.051 U	0.047 Ua
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	0.1 U	0.20 U	0.22 U	0.20 U	0.19 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	0.1 U	0.050 U	0.055 U	0.051 U	0.047 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	0.1 U	0.13 U	0.14 U	0.13 U	0.12 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	0.1 U	0.30 U	0.33 U	0.31 U	0.28 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	0.1 U	0.068 Ja	0.14 U	0.13 U	0.069 Ja
Fluorene	µg/L	--	2.3 J	0.98 J	1.9 J	2.8 J	1.2	1.5	0.14 Ja	0.14	0.65
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	0.1 U	0.13 U	0.14 U	0.13 U	0.12 U
Naphthalene	µg/L	100	10 U	6.1 J	10 U	1.3	0.56	25	110	110	1.2 J
Phenanthrene	µg/L	--	10 U	10 U	10 U	0.70 J	0.24	0.12	0.069 Ja	0.053	0.28
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	0.1 U	0.25 U	0.27 U	0.26 U	0.051 Ja

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	W-118R Silty Sand 29.0 10-Oct-05	W-118R Silty Sand 29.0 14-Mar-06	W-118R Silty Sand 29.0 11-Sep-06	W-118R Silty Sand 29.0 17-Apr-07	W-118R Silty Sand 29.0 19-Sep-07	W-118R Silty Sand 29.0 05-May-08	W-118R Silty Sand 29.0 30-Sep-08	W-118R Silty Sand 29.0 28-Apr-09	W-118R Silty Sand 29.0 15-Sep-09
Benzene	µg/L	5	190	120	71.3	72. 7 M1	21.7	97.5	165	137	230
Toluene	µg/L	2,000	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	5.98
Ethylbenzene	µg/L	700	1.2	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	4.96	61.4
Xylenes	µg/L	10,000	3.2	1.0 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	22
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	9.7	4.5	2.9	3.43	4.18	9.45	10.6	3.78	7.83
Acenaphthylene	µg/L	--	56	19	3.34	3.56	5.46	10.4	15.6	7.75	17.8
Anthracene	µg/L	--	0.055 U	0.049 U	0.0100 U	0.0100 U	0.0100 U	0.0262 J	0.0417 J	0.0155 J	0.0107 J
Benzo(a)anthracene	µg/L	0.1	0.14 U	0.13 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00500 U	0.00500 U	0.00500 U
Benzo(a)pyrene	µg/L	0.2	0.14 U	0.13 U	0.0320 U	0.0320 U	0.0320 U	0.0320 U	0.00800 U	0.00800 U	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	0.055 U	0.049 U	0.0130 U	0.0130 U	0.0130 U	0.0130 U	0.0280 U	0.0280 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	0.22 U	0.20 U	0.00900 U	0.00900 U	0.00900 U	0.00900 U	0.00800 U	0.00800 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	0.055 U	0.049 U	0.0150 U	0.0150 U	0.0150 U	0.0150 U	0.00700 U	0.00700 U	0.00700 U
Chrysene	µg/L	0.2	0.14 U	0.13 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00800 U	0.00800 U	0.00800 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.33 U	0.29 U*	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.14 U	0.13 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0495 J	0.0100 U	0.0100 U
Fluorene	µg/L	--	0.58	0.19 Ja	0.998	0.755	1.35	3.03	3.44	1.41	3.83
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.14 U	0.13 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00600 U	0.00600 U	0.00600 U
Naphthalene	µg/L	100	1.4 U	1.3 U	0.193	0.398	0.21	1.07	0.805	0.0460 U	49.6
Phenanthrene	µg/L	--	0.19	0.064 Ja	0.0988 J	0.0824 J	0.13	0.153	0.199	0.0856 J	0.222
Pyrene	µg/L	--	0.27 U	0.25 U	0.0190 U	0.0190 U	0.0190 U	0.0190 U	0.0170 U	0.0170 U	0.0170 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-118R	W-118R	W-118R	W-119	W-119	W-119	W-119	W-119	W-119
			Screened Unit: Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet): 29.0	29.0	29.0	35.0	35.0	35.0	35.0	35.0	35.0
			Sample Date: 30-Mar-10	05-May-10	15-Sep-10	26-May-94	29-Feb-96	27-Sep-97	19-Dec-97	17-Mar-98	16-Jun-98
Benzene	µg/L	5	1.00 U	na	220	2500	2400	6.6	17	24	10
Toluene	µg/L	2,000	1.00 U	na	1.00 U	350	150	1 U	1 U	5.1	1
Ethylbenzene	µg/L	700	1.00 U	na	1.27	1800	1400	1 U	1.1	17	11
Xylenes	µg/L	10,000	6.00 U	na	3.00 U	1700	na	2.3	5.1	34	20
2-Methylnaphthalene	µg/L	--	na	na	na	41	300 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	na	na	na	10	300 U	2	2	2	2
Acenaphthene	µg/L	--	0.0220 U	14.1	15.8	110	78	11	11	14	8
Acenaphthylene	µg/L	--	0.0870 U	27.2	24.7	95	46	3	4	6	4
Anthracene	µg/L	--	0.0100 U	0.0100 U	0.0568 J	200 U	300 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	0.00500 U	0.00500 U	0.00500 U	200 U	300 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	0.00800 U	0.00800 U	0.00800 U	200 U	300 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	0.0280 U	0.0280 U	0.0280 U	200 U	300 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	0.00800 U	0.00800 U	0.00800 U	200 U	300 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	0.00700 U	0.00700 U	0.00700 U	200 U	300 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	0.00800 U	0.00800 U	0.00800 U	200 U	300 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	200 U	300 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	200 U	300 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	0.364	1.01	3.51	17	300 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.00600 U	0.00600 U	0.00600 U	200 U	300 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	R	0.0460 U	0.0460 U	3000	2600	3	3	18	21
Phenanthrene	µg/L	--	0.00500 U	0.435	0.868	27	300 U	1	10 U	10 U	10 U
Pyrene	µg/L	--	0.0170 U	0.0170 U	0.0170 U	200 U	300 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location:	W-119	W-119	W-119	W-119	W-119	W-119	W-119	W-119	W-119
			Screened Unit:	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet):	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0	35.0
			Sample Date:	29-Sep-98	10-Dec-98	24-Mar-99	23-Jun-99	28-Sep-99	15-Dec-99	15-Mar-00	06-Jun-00	14-Sep-00
Benzene	µg/L	5		1 U	1300	3300	1500	1200	1200	520	470	340
Toluene	µg/L	2,000		1 U	58	120	120	40	22	60	44	10
Ethylbenzene	µg/L	700		1 U	790	2000	1500	940	1100	130	320	73
Xylenes	µg/L	10,000		1 U	460	1000	740	460	460	86	280	60
2-Methylnaphthalene	µg/L	--		10 U	10 U	12	22	8	3	10 U	10 U	10 U
Dibenzofuran	µg/L	--		1	10 U	6	10	5	9	2	8	6
Acenaphthene	µg/L	--		8	60	61	67	39	56	18	50	47
Acenaphthylene	µg/L	--		4	53	47	58	38	58	16	35	24
Anthracene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--		10 U	10 U	7	10	8	15	3	7	5
Indeno(1,2,3cd)pyrene	µg/L	0.4		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100		3	2400	870	2600	1300	1400	64	510	46
Phenanthrene	µg/L	--		10 U	10 U	5	7	2	6	10 U	4	3
Pyrene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-119 Screened Unit: Silty Sand Depth BTOC (feet): 35.0 Sample Date: 14-Dec-00	W-119 Silty Sand 35.0 20-Mar-01	W-119 Silty Sand 35.0 06-Jun-01	W-119 Silty Sand 35.0 19-Sep-01	W-119 Silty Sand 35.0 11-Dec-01	W-119 Silty Sand 35.0 13-Mar-02	W-119 Silty Sand 35.0 05-Jun-02	W-119 Silty Sand 35.0 18-Sep-02
Benzene	µg/L	5	470	310	8.8	60	42	0.46	28	3.3
Toluene	µg/L	2,000	5.2	2.2	0.34 J	2 U	0.26 J	0.31 J	0.46	1 U
Ethylbenzene	µg/L	700	100	17	2.8	2 U	1 U	1 U	1 U	1 U
Xylenes	µg/L	10,000	58	9.2	1.7	2 U	2.2	1.2	2.1	1 U
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	7	3.4	1.8 J	10 U	2.1 J	0.98 J	1.4 J	0.65 J
Acenaphthene	µg/L	--	53	25	14	10 U	17	6.5 J	12	4.8 J
Acenaphthylene	µg/L	--	27	14	5.1 J	4.6 J	6.8 J	2.5 J	5.1 J	1.9 J
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	1.3 J	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	4	2	10 U	10 U	10 U	10 U	0.72 J	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	89	10 U	14	10 U	0.92 J	10	10	10
Phenanthrene	µg/L	--	3	1.3	0.69 J	10 U	0.71 J	10 U	10 U	10 U
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	W-119 Silty Sand 35.0 04-Dec-02	W-119 Silty Sand 35.0 10-Jun-03	W-119 Silty Sand 35.0 30-Mar-04	W-119 Silty Sand 35.0 15-Sep-04	W-119 Silty Sand 35.0 15-Mar-05	W-119 Silty Sand 35.0 11-Oct-05	W-119 Silty Sand 35.0 15-Mar-06
Sample Location:			W-119	W-119	W-119	W-119	W-119	W-119	W-119
Screened Unit:			Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
Depth BTOC (feet):			35.0	35.0	35.0	35.0	35.0	35.0	35.0
Sample Date:			04-Dec-02	10-Jun-03	30-Mar-04	15-Sep-04	15-Mar-05	11-Oct-05	15-Mar-06
Benzene	µg/L	5	0.86	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	2,000	1 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	700	1 U	2.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	10,000	1 U	7.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene	µg/L	--	11 U	na	na	na	na	na	na
Dibenzofuran	µg/L	--	0.46 J	na	na	na	na	na	na
Acenaphthene	µg/L	--	3.0 J	1.7	1.3 Ja	0.96 Ja	0.63 Ja	1.0 Ja	2.5 U
Acenaphthylene	µg/L	--	1.2 J	1.1	1.3 U	3.1	2.2	2.5	1.5
Anthracene	µg/L	--	11 U	0.10 U	0.025 Ja	0.033 Ja	0.049 Ua	0.024 Ja	0.29 Ja
Benzo(a)anthracene	µg/L	0.1	11 U	0.10 U	0.13 U	0.12 U	0.13 U	0.12 U	0.13 U
Benzo(a)pyrene	µg/L	0.2	11 U	0.10 U	0.13 U	0.12 U	0.13 U	0.12 U	0.13 U
Benzo(b)fluoranthene	µg/L	0.2	11 U	0.10 U	0.051 U	0.048 U	0.049 U	0.048 U	0.050 U
Benzo(g,h,i)perylene	µg/L	--	11 U	0.10 U	0.20 U	0.19 U	0.20 U	0.19 U	0.20 U
Benzo(k)fluoranthene	µg/L	0.2	11 U	0.10 U	0.051 U	0.048 U	0.049 U	0.048 U	0.050 U
Chrysene	µg/L	0.2	11 U	0.10 U	0.13 U	0.12 U	0.13 U	0.12 U	0.13 U
Dibenzo(a,h)anthracene	µg/L	0.2	11 U	0.10 U	0.30 U	0.29 U	0.29 U	0.29 U	0.30 U*
Fluoranthene	µg/L	--	11 U	0.10 U	0.13 U	0.12 U	0.13 U	0.12 U	0.13 U
Fluorene	µg/L	--	11 U	0.35	0.25 U	0.056 Ja	0.049 Ja	0.054 Ja	0.062 Ja
Indeno(1,2,3cd)pyrene	µg/L	0.4	11 U	0.10 U	0.13 U	0.12 U	0.13 U	0.12 U	0.13 U
Naphthalene	µg/L	100	11	0.36	1.3 U	1.2 U	1.3 U	1.2 U	1.3 U
Phenanthrene	µg/L	--	11 U	0.10 U	0.10 U	0.096 U	0.098 Ua	0.096 U	0.10 Ua
Pyrene	µg/L	--	11 U	0.10 U	0.25 U	0.24 U	0.25 U	0.24 U	0.25 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-119 Screened Unit: Silty Sand Depth BTOC (feet): 35.0 Sample Date: 12-Sep-06	W-119 Silty Sand 35.0 18-Apr-07	W-119 Silty Sand 35.0 19-Sep-07	W-119 Silty Sand 35.0 06-May-08	W-119 Silty Sand 35.0 01-Oct-08	W-119 Silty Sand 35.0 28-Apr-09	W-119 Silty Sand 35.0 16-Sep-09	W-119 Silty Sand 35.0 31-Mar-10	W-119 Silty Sand 35.0 15-Sep-10
Benzene	µg/L	5	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Toluene	µg/L	2,000	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Ethylbenzene	µg/L	700	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Xylenes	µg/L	10,000	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	6.00 U	3.00 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	0.0490 U	0.584	0.363	0.558	0.319	0.599	0.28	0.460	0.354
Acenaphthylene	µg/L	--	0.167 J	0.256	0.117 J	0.181 J	0.113 U	0.0870 U	0.0870 U	0.0870 U	0.245
Anthracene	µg/L	--	0.0100 U	0.0181 J	0.0100 U	0.0100 U	0.0130 U	0.0167 J	0.0114 J	0.0100 U	0.0256 J
Benzo(a)anthracene	µg/L	0.1	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00649 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Benzo(a)pyrene	µg/L	0.2	0.0320 U	0.0320 U	0.0320 U	0.0320 U	0.0104 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	0.0130 U	0.0130 U	0.0130 U	0.0130 U	0.0364 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	0.00900 U	0.00900 U	0.00900 U	0.00900 U	0.0104 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	0.0150 U	0.0150 U	0.0150 U	0.0150 U	0.00909 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U
Chrysene	µg/L	0.2	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.0104 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0130 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.0100 U	0.0143	0.0100 U	0.0100 U	0.0130 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluorene	µg/L	--	0.0100 U	0.275	0.145 J	0.262	0.21 J	0.0160 U	0.108 J	0.0160 U	0.129 J
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00779 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U
Naphthalene	µg/L	100	0.0540 U	0.111 B	0.0846 J	0.0540 U	0.0597 U	0.0460 U	0.0782 J	R	0.0460 U
Phenanthrene	µg/L	--	0.00700 U	0.022 J	0.00700 U	0.00700 U	0.00649 U	0.00500 U	0.0139 J	0.00500 U	0.00500 U
Pyrene	µg/L	--	0.0190 U	0.0190 U	0.0190 U	0.0199 J	0.0221 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-120 / Screened Unit: Silty Sand / Depth BTOC (feet): 38.0 / Sample Date: 28-Feb-96	W-120 Silty Sand 38.0 24-Sep-96	W-120 Silty Sand 38.0 26-Nov-96	W-120 Silty Sand 38.0 22-Jan-97	W-120 Silty Sand 38.0 28-May-97	W-120 Silty Sand 38.0 25-Sep-97	W-120 Silty Sand 38.0 18-Dec-97	W-120 Silty Sand 38.0 17-Mar-98
Benzene	µg/L	5	380	1 U	1 U	1 U	400	9.3	1 U	1 U
Toluene	µg/L	2,000	10 U	1 U	1.3	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	µg/L	700	13	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes	µg/L	10,000	na	1 U	na	na	37	1.5	1 U	1 U
2-Methylnaphthalene	µg/L	--	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--	7	10 U	10 U	10 U	8	2	10 U	10 U
Acenaphthylene	µg/L	--	6	10 U	10 U	10 U	7	2	10 U	10 U
Anthracene	µg/L	--	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	220	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene	µg/L	--	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	µg/L	--	20 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-120 / Screened Unit: Silty Sand / Depth BTOC (feet): 38.0 / Sample Date: 16-Jun-98	W-120 Silty Sand 38.0 29-Sep-98	W-120 Silty Sand 38.0 10-Dec-98	W-120 Silty Sand 38.0 23-Mar-99	W-120 Silty Sand 38.0 24-Jun-99	W-120 Silty Sand 38.0 29-Sep-99	W-120 Silty Sand 38.0 15-Dec-99	W-120 Silty Sand 38.0 15-Mar-00
Benzene	µg/L	5	1 U	1 U	1 U	1 U	1 U	0.37	2.5	1 U
Toluene	µg/L	2,000	1 U	1 U	1 U	1 U	1 U	1 U	0.42	0.17
Ethylbenzene	µg/L	700	1 U	1 U	1 U	1 U	1 U	0.34	2.4	1 U
Xylenes	µg/L	10,000	1 U	1 U	1 U	1 U	1 U	0.16	1.2	3 U
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	10 U	10 U	10 U	10 U	10 U	10 U	5	10 U
Phenanthrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location:	W-120	W-120	W-120	W-120	W-120	W-120	W-120	W-120
			Screened Unit:	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet):	38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0
			Sample Date:	06-Jun-00	14-Sep-00	14-Dec-00	20-Mar-01	06-Jun-01	19-Sep-01	11-Dec-01	13-Mar-02
Benzene	µg/L	5		1 U	0.71 J	0.19 J	0.3 J	1 U	1 U	1 U	1 U
Toluene	µg/L	2,000		1 U	0.21 J	1 U	0.43 J	1 U	1 U	1 U	1 U
Ethylbenzene	µg/L	700		1 U	0.27 J	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes	µg/L	10,000		1 U	0.86 J	0.63 J	0.71 J	1 U	1 U	1 U	1 U
2-Methylnaphthalene	µg/L	--		10 U	6 J	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--		10 U	2 J	10 U	10 U	0.79 J	10 U	10 U	10 U
Acenaphthylene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100		10 U	2 J	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene	µg/L	--		10 U	10 U	10 U	10 U	0.32 J	10 U	10 U	10 U
Pyrene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-120 / Screened Unit: Silty Sand / Depth BTOC (feet): 38.0 / Sample Date: 05-Jun-02	W-120 Silty Sand 38.0 18-Sep-02	W-120 Silty Sand 38.0 04-Dec-02	W-120 Silty Sand 38.0 10-Jun-03	W-120 Silty Sand 38.0 30-Mar-04	W-120 Silty Sand 38.0 15-Sep-04	W-120 Silty Sand 38.0 15-Mar-05	W-120 Silty Sand 38.0 11-Oct-05
Benzene	µg/L	5	1 U	1 U	1 U	2 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	2,000	0.17 J	1 U	1 U	2 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	700	1 U	1 U	1 U	2 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	10,000	1 U	1 U	1 U	7 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	na	na	na	na	na
Dibenzofuran	µg/L	--	10 U	10 U	10 U	na	na	na	na	na
Acenaphthene	µg/L	--	10 U	10 U	10 U	0.1 U	2.6 U	2.4 U	2.5 U	2.4 U
Acenaphthylene	µg/L	--	10 U	10 U	10 U	0.1 U	1.3 U	1.2 U	0.13 U	1.2 U
Anthracene	µg/L	--	10 U	10 U	10 U	0.1 U	0.051 U	0.048 U	0.050 U	0.047 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	0.1 U	0.13 U	0.12 U	0.13 U	0.12 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	0.1 U	0.13 U	0.12 U	0.13 U	0.12 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	0.1 U	0.051 U	0.048 U	0.050 U	0.047 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	0.1 U	0.20 U	0.19 U	0.20 U	0.19 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	0.1 U	0.051 U	0.048 U	0.050 U	0.047 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	0.1 U	0.13 U	0.29 U	0.13 U	0.12 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	0.1 U	0.31 U	0.29 U	0.30 U	0.28 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	0.1 U	0.13 U	0.12 U	0.13 U	0.12 U
Fluorene	µg/L	--	10 U	10 U	10 U	0.1 U	0.26 U	0.24 U	0.25 U	0.24 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	0.1 U	0.13 U	0.12 U	0.13 U	0.12 U
Naphthalene	µg/L	100	10 U	10 U	10 U	0.1 U	1.3 U	1.2 U	1.3 U	1.2 U
Phenanthrene	µg/L	--	10 U	10 U	10 U	0.1 U	0.1 U	0.095 U	0.10 U	0.094 U
Pyrene	µg/L	--	10 U	10 U	10 U	0.1 U	0.26 U	0.24 U	0.25 U	0.24 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-120	W-120	W-120	W-120	W-120	W-120	W-120	W-120
			Screened Unit: Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet): 38.0	38.0	38.0	38.0	38.0	38.0	38.0	38.0
			Sample Date: 15-Mar-06	12-Sep-06	18-Apr-07	20-Sep-07	06-May-08	01-Oct-08	29-Apr-09	16-Sep-09
Benzene	µg/L	5	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Toluene	µg/L	2,000	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Ethylbenzene	µg/L	700	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Xylenes	µg/L	10,000	1.0 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	2.5 U	0.0490 U	0.0551 U	0.0490 U	0.0490 U	0.0247 U	0.0220 U	0.0220 U
Acenaphthylene	µg/L	--	1.3 U	0.0850 U	0.0955 U	0.0850 U	0.0850 U	0.0978 U	0.0870 U	0.0870 U
Anthracene	µg/L	--	0.050 U	0.0100 U	0.0112 U	0.0100 U	0.0100 U	0.0112 U	0.0100 U	0.0100 U
Benzo(a)anthracene	µg/L	0.1	0.13 U	0.00300 U	0.00337 U	0.00300 U	0.00300 U	0.00562 U	0.00500 U	0.00853 J
Benzo(a)pyrene	µg/L	0.2	0.13 U	0.0320 U	0.0360 U	0.0320 U	0.0320 U	0.00899 U	0.00800 U	0.0126 J
Benzo(b)fluoranthene	µg/L	0.2	0.050 U	0.0130 U	0.0146 U	0.0130 U	0.0130 U	0.0315 U	0.0280 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	0.20 U	0.00900 U	0.0101 U	0.00900 U	0.00900 U	0.00899 U	0.00800 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	0.050 U	0.0150 U	0.0169 U	0.0150 U	0.0150 U	0.00787 U	0.00700 U	0.00700 U
Chrysene	µg/L	0.2	0.13 U	0.00500 U	0.00562 U	0.00500 U	0.00500 U	0.00899 U	0.00800 U	0.00800 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.30 U*	0.0100 U	0.0112 U	0.0100 U	0.0100 U	0.0112 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.13 U	0.0100 U	0.0112 U	0.0100 U	0.0100 U	0.0112 U	0.0100 U	0.0100 U
Fluorene	µg/L	--	0.25 U	0.0100 U	0.0112 U	0.0100 U	0.0100 U	0.0180 U	0.0160 U	0.0160 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.13 U	0.00700 U	0.00787 U	0.00700 U	0.00700 U	0.00674 U	0.00600 U	0.00600 U
Naphthalene	µg/L	100	1.3 U	0.0540 U	0.0631 J,B	0.0540 U	0.0540 U	0.0517 U	0.0460 U	0.0460 U
Phenanthrene	µg/L	--	0.099 U	0.00700 U	0.00787 U	0.00700 U	0.00700 U	0.00562 U	0.00500 U	0.00500 U
Pyrene	µg/L	--	0.25 U	0.0190 U	0.0213 U	0.0190 U	0.0190 U	0.0191 U	0.0170 U	0.0170 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-120 / Screened Unit: Silty Sand / Depth BTOC (feet): 38.0 / Sample Date: 31-Mar-10	Sample Location: W-120 / Screened Unit: Silty Sand / Depth BTOC (feet): 38.0 / Sample Date: 15-Sep-10	Sample Location: W-121 / Screened Unit: Silty Sand / Depth BTOC (feet): 32.9 / Sample Date: 29-Feb-96	Sample Location: W-121 / Screened Unit: Silty Sand / Depth BTOC (feet): 32.9 / Sample Date: 24-Sep-96	Sample Location: W-121 / Screened Unit: Silty Sand / Depth BTOC (feet): 32.9 / Sample Date: 26-Nov-96	Sample Location: W-121 / Screened Unit: Silty Sand / Depth BTOC (feet): 32.9 / Sample Date: 22-Jan-97	Sample Location: W-121 / Screened Unit: Silty Sand / Depth BTOC (feet): 32.9 / Sample Date: 28-May-97	Sample Location: W-121 / Screened Unit: Silty Sand / Depth BTOC (feet): 32.9 / Sample Date: 25-Sep-97
Benzene	µg/L	5	1.00 U	1.00 U	12	1 U	1 U	1 U	1 U	1 U
Toluene	µg/L	2,000	1.00 U	1.00 U	1.9	1 U	1 U	1 U	1.1	1 U
Ethylbenzene	µg/L	700	1.00 U	1.00 U	23	1 U	1.4	1.5	12	1 U
Xylenes	µg/L	10,000	6.00 U	3.00 U	na	2	na	na	21.9	2.0U
2-Methylnaphthalene	µg/L	--	na	na	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	na	na	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--	0.0220 U	0.0220 U	6	1	10 U	1	6	10 U
Acenaphthylene	µg/L	--	0.0870 U	0.0870 U	4	10 U	10 U	10 U	3	10 U
Anthracene	µg/L	--	0.0100 U	0.0100 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	0.00500 U	0.00500 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	0.00800 U	0.00800 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	0.0280 U	0.0280 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	0.00800 U	0.00800 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	0.00700 U	0.00700 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	0.00800 U	0.00800 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.0100 U	0.0100 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	0.0100 U	0.0326 J	10 U	2	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	0.0160 U	0.0160 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.00600 U	0.00600 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	R	0.0588 J	29	10 U	10 U	10 U	29	10 U
Phenanthrene	µg/L	--	0.00500 U	0.00500 U	10 U	2	10 U	10 U	10 U	10 U
Pyrene	µg/L	--	0.0170 U	0.0170 U	10 U	2	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location:	W-121	W-121	W-121	W-121	W-121	W-121	W-121	W-121
			Screened Unit:	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet):	32.9	32.9	32.9	32.9	32.9	32.9	32.9	32.9
			Sample Date:	18-Dec-97	17-Mar-98	16-Jun-98	29-Sep-98	10-Dec-98	23-Mar-99	24-Jun-99	29-Sep-99
Benzene	µg/L	5		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	µg/L	2,000		1 U	1 U	1 U	1 U	1 U	1 U	1 U	0.2
Ethylbenzene	µg/L	700		1 U	1.7	1 U	1 U	1 U	1 U	1 U	0.31
Xylenes	µg/L	10,000		1 U	2.6	1 U	1 U	1 U	1 U	1 U	0.52
2-Methylnaphthalene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	2
Indeno(1,2,3cd)pyrene	µg/L	0.4		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	2
Pyrene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-121	W-121	W-121	W-121	W-121	W-121	W-121	W-121
			Screened Unit: Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet): 32.9	32.9	32.9	32.9	32.9	32.9	32.9	32.9
			Sample Date: 15-Dec-99	15-Mar-00	06-Jun-00	14-Sep-00	14-Dec-00	20-Mar-01	06-Jun-01	19-Sep-01
Benzene	µg/L	5	2.4	1 U	1 U	1 U	0.16 J	0.46 J	1 U	1 U
Toluene	µg/L	2,000	0.47	0.24	1 U	1 U	1 U	0.35 J	1 U	1 U
Ethylbenzene	µg/L	700	2.7	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes	µg/L	10,000	1.9	3 U	1 U	1 U	0.38 J	0.69 J	1 U	1 U
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1.2 J
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1.3 J
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	2 J	10 U	10 U	10 U	3.7 J
Fluorene	µg/L	--	1	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	8	10 U	1	10 U	10 U	10 U	10 U	10 U
Phenanthrene	µg/L	--	10 U	10 U	10 U	1 J	10 U	0.46 J	10 U	1.6 J
Pyrene	µg/L	--	10 U	10 U	10 U	2 J	10 U	10 U	10 U	4.0 J

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-121	W-121	W-121	W-121	W-121	W-121	W-121	W-121
			Screened Unit: Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet): 32.9	32.9	32.9	32.9	32.9	32.9	32.9	32.9
			Sample Date: 11-Dec-01	13-Mar-02	05-Jun-02	18-Sep-02	04-Dec-02	10-Jun-03	30-Mar-04	15-Sep-04
Benzene	µg/L	5	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U
Toluene	µg/L	2,000	0.4 J	1 U	0.22 J	1 U	1 U	2 U	1 U	1 U
Ethylbenzene	µg/L	700	1 U	1 U	1 U	1 U	1 U	2 U	1 U	1 U
Xylenes	µg/L	10,000	1 U	1 U	1 U	1 U	1 U	7 U	1 U	1 U
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	na	na	na
Dibenzofuran	µg/L	--	10 U	10 U	10 U	10 U	10 U	na	na	na
Acenaphthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	0.1 U	2.7 U	2.4 U
Acenaphthylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	0.1 U	1.4 U	1.2 U
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	0.1 U	0.069	0.035 Ja
Benzo(a)anthracene	µg/L	0.1	0.65 J	1.3 J	10 U	10 U	10 U	0.1 U	0.18	0.048 Ja
Benzo(a)pyrene	µg/L	0.2	10 U	0.89 J	10 U	10 U	10 U	0.1 U	0.18	0.12 Ua
Benzo(b)fluoranthene	µg/L	0.2	10 U	1.2 J	10 U	10 U	10 U	0.1 U	0.14	0.033 Ja
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	0.1 U	0.21 Ua	0.19 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	0.1 U	0.072	0.048 Ua
Chrysene	µg/L	0.2	0.6 J	1.0 J	10 U	10 U	10 U	0.1 U	0.17	0.055 Ja
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	0.1 U	0.32 U	0.29 U
Fluoranthene	µg/L	--	1.8 J	2.5 J	10 U	10 U	10 U	0.18	0.71	0.28
Fluorene	µg/L	--	10 U	10 U	10 U	10 U	10 U	0.1 U	0.078 Ja	0.24 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	0.1 U	0.10 Ja	0.12 U
Naphthalene	µg/L	100	0.94 J	10 U	10 U	10 U	10 U	0.1 U	0.65 Ja	1.2 U
Phenanthrene	µg/L	--	0.65 J	1.6 J	10 U	10 U	10 U	0.1 U	0.17	0.026 Ja
Pyrene	µg/L	--	2 J	2.7 J	0.97 J	10 U	10 U	0.18	0.61	0.27

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-121 / Screened Unit: Silty Sand / Depth BTOC (feet): 32.9 / Sample Date: 15-Mar-05	W-121 / Silty Sand / 32.9 / 11-Oct-05	W-121 / Silty Sand / 32.9 / 15-Mar-06	W-121 / Silty Sand / 32.9 / 12-Sep-06	W-121 / Silty Sand / 32.9 / 18-Apr-07	W-121 / Silty Sand / 32.9 / 20-Sep-07	W-121 / Silty Sand / 32.9 / 06-May-08	W-121 / Silty Sand / 32.9 / 01-Oct-08
Benzene	µg/L	5	1.0 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Toluene	µg/L	2,000	1.0 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Ethylbenzene	µg/L	700	1.0 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Xylenes	µg/L	10,000	1.0 U	1.0 U	1.0 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	2.5 U	2.6 U	2.5 U	0.0544 U	0.0551 U	0.0490 U	0.0490 U	0.0402 J
Acenaphthylene	µg/L	--	1.3 U	1.3 U	1.3 U	0.0944 U	0.0955 U	0.0850 U	0.0850 U	0.0989 U
Anthracene	µg/L	--	0.050 Ua	0.043 Ja	0.037 Ja	0.0134 J	0.0259 J	0.0100 U	0.0100 U	0.0114 U
Benzo(a)anthracene	µg/L	0.1	0.018 Ja	0.083 Ja	0.13 U	0.0554 J	0.0215 J	0.0311 J	0.0584 J	0.0152 J
Benzo(a)pyrene	µg/L	0.2	0.13 U	0.074 Ja	0.035 Ja	0.0559 J	0.0360 U	0.0971 J	0.0921 J	0.0218 J
Benzo(b)fluoranthene	µg/L	0.2	0.050 U	0.060	0.033 Ja	0.0144 U	0.0146 U	0.0130 U	0.112	0.0318 U
Benzo(g,h,i)perylene	µg/L	--	0.20 U	0.21 U	0.20 U	0.0100 U	0.0101 U	0.00900 U	0.0847 J	0.00909 U
Benzo(k)fluoranthene	µg/L	0.2	0.050	0.029 Ja	0.050 Ua	0.0167 U	0.0169 U	0.0150 U	0.0352 J	0.00795 U
Chrysene	µg/L	0.2	0.13 U	0.094 Ja	0.048 Ja	0.0924 J	0.0171 J	0.0262 J	0.0651 J	0.0219 J
Dibenzo(a,h)anthracene	µg/L	0.2	0.30 U	0.31 U	0.30 U*	0.0111 U	0.0112 U	0.0100 U	0.0100 U	0.0114 U
Fluoranthene	µg/L	--	0.13	0.36	0.25	0.125 J	0.13 J	0.098 J	0.180 J	0.0993 J
Fluorene	µg/L	--	0.25 U	0.26 U	0.045 Ja	0.0111 U	0.0112 U	0.0298 J	0.0100 U	0.0575 J
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.13 U	0.051 Ja	0.13 U	0.00778 U	0.00787 U	0.00700 U	0.00700 U	0.00682 U
Naphthalene	µg/L	100	1.3 U	0.45 Ja	0.58 Ja	0.0600 U	0.196 B	0.0788 J	0.106	0.132
Phenanthrene	µg/L	--	0.099 Ua	0.061 Ja	0.054 Ja	0.0503 J	0.0526 J	0.0421 J	0.0774 J	0.0521 J
Pyrene	µg/L	--	0.16 Ja	0.34	0.25	0.354	0.253	0.166 J	0.264	0.132 J

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-121 Screened Unit: Silty Sand Depth BTOC (feet): 32.9 Sample Date: 29-Apr-08	W-121 Silty Sand 32.9 16-Sep-09	W-121 Silty Sand 32.9 31-Mar-10	W-121 Silty Sand 32.9 15-Sep-10	W-122 Silty Sand 38.1 28-Feb-96	W-122 Silty Sand 38.1 25-Sep-96	W-122 Silty Sand 38.1 26-Nov-96	W-122 Silty Sand 38.1 23-Jan-97
Benzene	µg/L	5	1.00 U	1.00 U	1.00 U	1.00 U	3000	270	55	34
Toluene	µg/L	2,000	1.00 U	1.00 U	1.00 U	1.00 U	100 U	10 U	1.7	1 U
Ethylbenzene	µg/L	700	1.00 U	1.00 U	1.00 U	1.00 U	820	100	24	9.4
Xylenes	µg/L	10,000	3.00 U	3.00 U	6.00 U	3.00 U	na	48	na	na
2-Methylnaphthalene	µg/L	--	na	na	na	na	14	10 U	10 U	10 U
Dibenzofuran	µg/L	--	na	na	na	na	100 U	4	2	2
Acenaphthene	µg/L	--	0.0220 U	0.172 J	0.0220 U	0.192	73	32	14	13
Acenaphthylene	µg/L	--	0.0870 U	0.0870 U	0.0870 U	0.0870 U	11	5	2	2
Anthracene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	100 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	0.00500 U	0.0118 J	0.00500 U	0.00500 U	100 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	0.00800 U	0.0138 J	0.00800 U	0.00800 U	100 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	0.0280 U	0.0280 U	0.0280 U	0.0280 U	100 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	0.00800 U	0.00800 U	0.00800 U	0.00800 U	100 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	0.00700 U	0.00700 U	0.00700 U	0.00700 U	100 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	0.0463 J	0.00800 U	0.00800 U	0.0142 J	100 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	100 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	0.082 J	0.0317 J	0.0394 J	0.0628 J	100 U	10 U	10 U	10 U
Fluorene	µg/L	--	0.0160 U	0.0931 J	0.0160 U	0.128 J	100 U	2	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.00600 U	0.00600 U	0.00600 U	0.00600 U	100 U	10 U	10 U	10 U
Naphthalene	µg/L	100	0.0962 J	0.420	R	0.317	550	56	5	1
Phenanthrene	µg/L	--	0.033 J	0.0783 J	0.00500 U	0.111	100 U	5	2	3
Pyrene	µg/L	--	0.14 J	0.115 J	0.074 J	0.124 J	100 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-122	W-122	W-122	W-122	W-122	W-122	W-122	W-122
			Screened Unit: Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet): 38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1
			Sample Date: 28-May-97	30-Sep-97	19-Dec-97	17-Mar-98	16-Jun-98	29-Sep-98	10-Dec-98	23-Mar-99
Benzene	µg/L	5	28	2.7	1.8	1.1	1 U	1 U	0.8	37
Toluene	µg/L	2,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	4
Ethylbenzene	µg/L	700	1.2	1 U	1 U	1 U	1 U	1 U	0.9	14
Xylenes	µg/L	10,000	8.3	1.6	1.6	1 U	1 U	1 U	2	52
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	2	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--	13	4	4	2	1	1	10 U	7
Acenaphthylene	µg/L	--	2	10 U	10 U	10 U	10 U	10 U	10 U	2
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	64
Phenanthrene	µg/L	--	1	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location:	W-122	W-122	W-122	W-122	W-122	W-122	W-122	W-122
			Screened Unit:	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet):	38.1	38.1	38.1	38.1	38.1	38.1	38.1	38.1
			Sample Date:	24-Jun-99	29-Sep-99	15-Dec-99	15-Mar-00	06-Jun-00	14-Sep-00	20-Mar-01	06-Jun-01
Benzene	µg/L	5		340	85	900	70	190	8.3	19	1 U
Toluene	µg/L	2,000		18	8.7	33	2.3	3.8	0.23 J	0.32 J	1 U
Ethylbenzene	µg/L	700		71	26	260	19	6.4	0.4 J	1 U	1 U
Xylenes	µg/L	10,000		190	25	220	18	34	0.99 J	1.8	1 U
2-Methylnaphthalene	µg/L	--		7	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--		6	10 U	3	10 U	2	10 U	10 U	10 U
Acenaphthene	µg/L	--		44	3	20	2	16	5 J	10 U	1.8 J
Acenaphthylene	µg/L	--		7	10 U	4	10 U	2	10 U	0.94 J	10 U
Anthracene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--		6	10 U	3	10 U	1	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100		590	58	360	28	160	2 J	10 U	10 U
Phenanthrene	µg/L	--		10 U	10 U	1	10 U	10 U	10 U	0.6 J	10 U
Pyrene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-122 / Screened Unit: Silty Sand / Depth BTOC (feet): 38.1 / Sample Date: 19-Sep-01	W-122 / Silty Sand / 38.1 / 11-Dec-01	W-122 / Silty Sand / 38.1 / 13-Mar-02	W-122 / Silty Sand / 38.1 / 05-Jun-02	W-122 / Silty Sand / 38.1 / 18-Sep-02	W-122 / Silty Sand / 38.1 / 04-Dec-02	W-122 / Silty Sand / 38.1 / 10-Jun-03	W-122 / Silty Sand / 38.1 / 30-Mar-04
Benzene	µg/L	5	1 U	1 U	9.5	9.7	1 U	1 U	2 U	1.0 U
Toluene	µg/L	2,000	1 U	1 U	0.66 J	0.3 J	1 U	1 U	2 U	1.0 U
Ethylbenzene	µg/L	700	1 U	1 U	4.8	1 U	1 U	1 U	2 U	1.0 U
Xylenes	µg/L	10,000	1 U	1 U	4.5	1.00 J	1 U	0.90 J	7 U	1.0 U
2-Methylnaphthalene	µg/L	--	10 U	10 U	1.6 J	10 U	10 U	10 U	na	na
Dibenzofuran	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	na	na
Acenaphthene	µg/L	--	0.67 J	1.3 J	2.2 J	2.7 J	2.3 J	2.5 J	0.84	2.5 U
Acenaphthylene	µg/L	--	10 U	10 U	10 U	0.74 J	10 U	0.63 J	0.68	1.3 U
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	0.12	0.12
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.028 Ja
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.035 Ja
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.050 Ua
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.20 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.050 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.031 Ja
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.30 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	0.1	0.15
Fluorene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	0.28	0.25 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.13 U
Naphthalene	µg/L	100	10 U	2.2 J	12	10 U	10 U	10 U	0.1 U	1.3 U
Phenanthrene	µg/L	--	10 U	0.3 J	10 U	10 U	10 U	10 U	0.1 U	0.017 Ja
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.25 Ua

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-122 / Screened Unit: Silty Sand / Depth BTOC (feet): 38.1 / Sample Date: 15-Sep-04	W-122 Silty Sand 38.1 14-Mar-05	W-122 Silty Sand 38.1 11-Oct-05	W-122 Silty Sand 38.1 15-Mar-06	W-122 Silty Sand 38.1 12-Sep-06	W-122 Silty Sand 38.1 18-Apr-07	W-122 Silty Sand 38.1 20-Sep-07	W-122 Silty Sand 38.1 06-May-08
Benzene	µg/L	5	1.0 U	1.0 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U
Toluene	µg/L	2,000	1.0 U	1.0 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U
Ethylbenzene	µg/L	700	1.0 U	1.0 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U
Xylenes	µg/L	10,000	1.0 U	1.0 U	1.0 U	1.0 U	3.00 U	3.00 U	3.00 U	3.00 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	2.5 U	2.4 U	2.4 U	2.5 U	0.0490 U	0.0490 U	0.0490 U	0.0524 J
Acenaphthylene	µg/L	--	2.7	1.8	2.1	1.3 U	0.0850 U	0.0850 U	0.0850 U	0.0850 U
Anthracene	µg/L	--	0.11	0.077	0.076	0.032 Ja	0.0336 J	0.0561 J	0.0256 J	0.0261 J
Benzo(a)anthracene	µg/L	0.1	0.13 U	0.026 Ja	0.055 Ja	0.13 U	0.00704 J	0.0127 J	0.0435 J	0.0282 J
Benzo(a)pyrene	µg/L	0.2	0.13 U	0.025 Ja	0.066 Ja	0.018 Ja	0.0320 U	0.0320 U	0.0491 J	0.0554 J
Benzo(b)fluoranthene	µg/L	0.2	0.050 U	0.027 Ja	0.055	0.050 Ua	0.0130 U	0.0130 U	0.0130 U	0.0418 J
Benzo(g,h,i)perylene	µg/L	--	0.20 U	0.19 U	0.19 U	0.20 U	0.00900 U	0.0354 J	0.0804 J	0.00900 U
Benzo(k)fluoranthene	µg/L	0.2	0.050 U	0.048 U	0.027 Ja	0.050 U	0.0150 U	0.0150 U	0.0150 U	0.0150 U
Chrysene	µg/L	0.2	0.13 U	0.034 Ja	0.059 Ja	0.13 U	0.0183 J	0.00976 J	0.0574 J	0.0396 J
Dibenzo(a,h)anthracene	µg/L	0.2	0.30 U	0.29 U	0.29 U	0.30 U*	0.0100 U	0.0251 J	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.13 U	0.14	0.19	0.13 U	0.0677 J	0.0661 J	0.113 J	0.0604 J
Fluorene	µg/L	--	0.25 U	0.24 U	0.24 U	0.25 U	0.0100 U	0.251	0.0591 J	0.667
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.13 U	0.12 U	0.047 Ja	0.13 U	0.00700 U	0.0391 J	0.00700 U	0.00700 U
Naphthalene	µg/L	100	1.3 U	1.2 U	1.2 U	1.3 U	0.0540 U	0.133 B	0.0540 U	0.054 U
Phenanthrene	µg/L	--	0.099 U	0.096 Ua	0.096 U	0.099 U	0.0688 J	0.0542 J	0.0554 J	0.0503 J
Pyrene	µg/L	--	0.25 Ua	0.091 Ja	0.14 Ja	0.058 Ja	0.0190 U	0.0901 J	0.105 J	0.102 J

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-122 Screened Unit: Silty Sand Depth BTOC (feet): 38.1 Sample Date: 01-Oct-08	W-122 Silty Sand 38.1 29-Apr-09	W-122 Silty Sand 38.1 16-Sep-09	W-122 Silty Sand 38.1 31-Mar-10	W-122 Silty Sand 38.1 15-Sep-10	P-112 Silty Sand 38.8 29-Feb-96	P-112 Silty Sand 38.8 24-Sep-96	P-112 Silty Sand 38.8 26-Nov-96
Benzene	µg/L	5	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1	1 U	1 U
Toluene	µg/L	2,000	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1 U	1 U	1 U
Ethylbenzene	µg/L	700	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1	1 U	1 U
Xylenes	µg/L	10,000	3.00 U	3.00 U	3.00 U	6.00 U	3.00 U	na	1 U	na
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	10 U	10 U	10 U
Dibenzofuran	µg/L	--	na	na	na	na	na	10 U	10 U	10 U
Acenaphthene	µg/L	--	0.0763 J	0.0220 U	3.53	0.0220 U	3.33	10 U	10 U	10 U
Acenaphthylene	µg/L	--	0.0870 U	0.0870 U	14.7	0.0870 U	9.73	10 U	10 U	10 U
Anthracene	µg/L	--	0.027 J	0.0286 J	0.0509 J	0.0199 J	0.0100 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	0.0258 J	0.0555 J	0.00500 U	0.0385 J	0.00500 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	0.0479 J	0.0739 J	0.00800 U	0.0549 J	0.00800 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	0.0474 J	0.0897 J	0.0280 U	0.0280 U	0.0280 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	0.0181 J	0.00800 U	0.00800 U	0.00800 U	0.00800 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	0.028 J	0.062 J	0.00700 U	0.00700 U	0.00700 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	0.0391 J	0.0825 J	0.00800 U	0.0353 J	0.00800 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	0.073 J	0.0955 J	0.0100 U	0.0206 J	0.0100 U	10 U	10 U	10 U
Fluorene	µg/L	--	0.0953 J	0.0160 U	2.5	0.0160 U	1.71	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.0183 J	0.00600 U	0.00600 U	0.00600 U	0.00600 U	10 U	10 U	10 U
Naphthalene	µg/L	100	0.0460 U	0.0460 U	4.94	R	10.2	4	10 U	10 U
Phenanthrene	µg/L	--	0.0367 J	0.0544 J	0.268	0.00500 U	0.00500 U	10 U	10 U	10 U
Pyrene	µg/L	--	0.104 J	0.161 J	0.0170 U	0.0339 J	0.0170 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location:	P-112	P-112	P-112	P-112	P-112	P-112	P-112	P-112
			Screened Unit:	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet):	38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8
			Sample Date:	23-Jan-97	28-May-97	25-Sep-97	19-Dec-97	17-Mar-98	16-Jun-98	29-Sep-98	10-Dec-98
Benzene	µg/L	5		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	µg/L	2,000		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	µg/L	700		1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes	µg/L	10,000		na	1 U	1 U	1 U	1 U	1 U	1 U	2
2-Methylnaphthalene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: P-112	P-112	P-112	P-112	P-112	P-112	P-112	P-112
			Screened Unit: Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet): 38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8
			Sample Date: 24-Mar-99	23-Jun-99	28-Sep-99	15-Dec-99	15-Mar-00	06-Jun-00	14-Sep-00	13-Dec-00
Benzene	µg/L	5	110	0.27	0.25	2.6	1.5	1.1	1 U	0.26 J
Toluene	µg/L	2,000	17	1 U	0.25	0.54	0.26	1 U	1 U	0.25 J
Ethylbenzene	µg/L	700	130	1 U	0.39	2.9	0.45	1.2	1 U	1 U
Xylenes	µg/L	10,000	76	0.85	1.1	2	1.4	1.2	0.7 J	0.95 J
2-Methylnaphthalene	µg/L	--	4	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--	2	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	120	10 U	10 U	4	10 U	10 U	10 U	10 U
Phenanthrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: P-112	P-112	P-112	P-112	P-112	P-112	P-112	P-112
			Screened Unit: Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet): 38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8
			Sample Date: 20-Mar-01	07-Jun-01	19-Sep-01	11-Dec-01	13-Mar-02	07-Jun-02	18-Sep-02	04-Dec-02
Benzene	µg/L	5	0.48 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Toluene	µg/L	2,000	0.24 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	µg/L	700	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes	µg/L	10,000	0.88 J	1 U	1 U	1 U	1 U	1 U	0.95 J	1 P
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--	10 U	0.84 J	0.59 J	1.0 J	0.93 J	0.69 J	1.1 J	1.1J
Acenaphthylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1.5
Phenanthrene	µg/L	--	10 U	10 U	10 U	1.0 J	10 U	10 U	10 U	10 U
Pyrene	µg/L	--	10 U	10 U	10 U	0.73 J	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: P-112 Screened Unit: Silty Sand Depth BTOC (feet): 38.8 Sample Date: 10-Jun-03	P-112 Silty Sand 38.8 30-Mar-04	P-112 Silty Sand 38.8 15-Sep-04	P-112 Silty Sand 38.8 14-Mar-05	P-112 Silty Sand 38.8 25-Apr-05	P-112 Silty Sand 38.8 11-Oct-05	P-112 Silty Sand 38.8 15-Mar-06	P-112 Silty Sand 38.8 12-Sep-06	P-112 Silty Sand 38.8 18-Apr-07
Benzene	µg/L	5	2 U	1.0 U	5.7	35	49	29	270	286	285
Toluene	µg/L	2,000	2 U	0.61 Ja	1.4	2.9	3.7	1.5	10 U	21.6	18.6
Ethylbenzene	µg/L	700	2 U	1.0 U	12	66	91	57	500	715	536
Xylenes	µg/L	10,000	7 U	2.6	14	57	75	29	220	734	232
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	0.54	1.3 Ja	1.7 Ja	5.6	2.0 Ja	18	11	32.4	54.3
Acenaphthylene	µg/L	--	0.1 U	4.4	13	100	50	380	270	0.0850 U	0.0944 U
Anthracene	µg/L	--	0.1 U	0.053 Ua	0.049 U	0.050 U	0.050 U	0.24 U	0.051 U	0.0113	0.0721 J
Benzo(a)anthracene	µg/L	0.1	0.1 U	0.14 U	0.13 U	0.13 U	0.13 U	0.62 U	0.13 U	0.00558	0.00333 U
Benzo(a)pyrene	µg/L	0.2	0.1 U	0.14 U	0.13 U	0.13 U	0.13 U	0.62 U	0.13 U	0.0130 U	0.0356 U
Benzo(b)fluoranthene	µg/L	0.2	0.1 U	0.053 U	0.049 U	0.050 U	0.050 Ua	0.24 U	0.051 U	0.0150 U	0.0144 U
Benzo(g,h,i)perylene	µg/L	--	0.1 U	0.21 U	0.19 U	0.20 U	0.20 U	0.95 U	0.20 U	0.0320 U	0.0100 U
Benzo(k)fluoranthene	µg/L	0.2	0.1 U	0.053 U	0.049 U	0.050 U	0.050 U	0.24 U	0.051 U	0.00900 U	0.0167 U
Chrysene	µg/L	0.2	0.1 U	0.14 U	0.13 U	0.13 U	0.13 U	0.62 U	0.13 U	0.0338 J	0.00556 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.1 U	0.32 U	0.29 U	0.30 U	0.3 U	1.4 U	0.30 U*	0.0100 U	0.0111 U
Fluoranthene	µg/L	--	0.12	0.14 U	0.13 U	0.13 U	0.13 U	0.22 Ja	0.13 U	0.0100 U	0.0111 U
Fluorene	µg/L	--	0.1 U	0.26 Ua	0.051 Ja	0.25 U	0.25 U	1.8	1.2	10.1	20.3
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.1 U	0.14 U	0.13 U	0.13 U	0.13 U	0.62 U	0.13 U	0.00700 U	0.00778 U
Naphthalene	µg/L	100	0.1 U	1.4 Ua	4.4	110	56	520	360	167	727 B
Phenanthrene	µg/L	--	0.2	0.031 Ja	0.018 Ja	0.099 U	0.099 Ua	0.48 U	0.10 U	0.544	2.4
Pyrene	µg/L	--	0.14	0.26 U	0.24 U	0.25 U	0.25 Ua	1.2 U	0.25 U	0.0190 U	0.0211 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	P-112 Silty Sand 38.8 20-Sep-07	P-112 Silty Sand 38.8 06-May-08	P-112 Silty Sand 38.8 01-Oct-08	P-112 Silty Sand 38.8 29-Apr-09	P-112 Silty Sand 38.8 16-Sep-09	P-112 Silty Sand 38.8 31-Mar-10	P-112 Silty Sand 38.8 06-May-10	P-112 Silty Sand 38.8 14-Sep-10
Sample Location:			P-112	P-112	P-112	P-112	P-112	P-112	P-112	P-112
Screened Unit:			Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
Depth BTOC (feet):			38.8	38.8	38.8	38.8	38.8	38.8	38.8	38.8
Sample Date:			20-Sep-07	06-May-08	01-Oct-08	29-Apr-09	16-Sep-09	31-Mar-10	06-May-10	14-Sep-10
Benzene	µg/L	5	369 M1	551	554	786	1280	1580	na	1590
Toluene	µg/L	2,000	22.8 M1	11.2 L1	5.15	10.7	26.7	14.4	na	24.8
Ethylbenzene	µg/L	700	585	789	671	890	831	1170	na	798
Xylenes	µg/L	10,000	279 M1	236 L1	556	235	277	117	na	276
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	55.4	84.7	79.4	80.6	101	109	120 MHA	113
Acenaphthylene	µg/L	--	0.0850 U	0.0850 U	0.0870 U	0.0870 U	0.0870 U	1.74 U	0.870 U	0.435 U
Anthracene	µg/L	--	0.136 J	0.217	0.125 J	0.160 J	0.265	0.0100 U	0.192	0.432
Benzo(a)anthracene	µg/L	0.1	0.00300 U	0.0100 J	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Benzo(a)pyrene	µg/L	0.2	0.0320 U	0.0320 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	0.0130 U	0.0130 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	0.00900 U	0.00900 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	0.0150 U	0.0150 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U
Chrysene	µg/L	0.2	0.00500 U	0.00500 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.198	0.0100 U	0.0100 U	0.0100 U
Fluorene	µg/L	--	33.5	64.2	8.06	11.5	91.7	53	54 MHA	41.6
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.007	0.00700 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U
Naphthalene	µg/L	100	719	506	211	324	703	R	429 MHA	877
Phenanthrene	µg/L	--	1.65	2.95	2.17	2.63	3.52	0.100 U	0.00500 U,M1	5.05
Pyrene	µg/L	--	0.0190 U	0.0248 J	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-15 / Screened Unit: Alluvial / Depth BTOC (feet): 53.0 / Sample Date: 24-Sep-96	W-15 Alluvial 53.0 24-Sep-96	W-15 Alluvial 53.0 26-Nov-96	W-15 Alluvial 53.0 22-Jan-97	W-15 Alluvial 53.0 29-May-97	W-15 Alluvial 53.0 25-Sep-97	W-15 Alluvial 53.0 19-Dec-97	W-15 Alluvial 53.0 17-Mar-98
Benzene	µg/L	5	1 U	1 U	1 U	1 U	2.5	1 U	1 U	1 U
Toluene	µg/L	2,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	µg/L	700	1 U	1 U	1.3	1 U	1.3	1 U	1 U	1 U
Xylenes	µg/L	10,000	1 U	1 U	na	na	3.9	1.1	1.8	1 U
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	10 U	10 U	10 U	10 U	11	2	5	10 U
Phenanthrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-15 / Screened Unit: Alluvial / Depth BTOC (feet): 53.0 / Sample Date: 16-Jun-98	W-15 Alluvial 53.0 29-Sep-98	W-15 Alluvial 53.0 09-Dec-98	W-15 Alluvial 53.0 23-Mar-99	W-15 Alluvial 53.0 23-Jun-99	W-15 Alluvial 53.0 28-Sep-99	W-15 Alluvial 53.0 15-Dec-99	W-15 Alluvial 53.0 15-Mar-00
Benzene	µg/L	5	1 U	na	1 U.	1 U	1 U	1 U	4.1	3
Toluene	µg/L	2,000	1 U	na	1 U	1 U	1 U	1 U	0.56	1.9
Ethylbenzene	µg/L	700	1 U	na	1 U	1 U	1 U	1 U	2.4	2.8
Xylenes	µg/L	10,000	1	na	3	1.1	1 U	1 U	1.5	4
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2.0 U
Dibenzofuran	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	na
Acenaphthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.59
Acenaphthylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	1.2
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.15
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.029
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.05
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.038
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.043
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.034
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.20 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.12
Fluorene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.079
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.091
Naphthalene	µg/L	100	10 U	5	10 U	10 U	10 U	10 U	5	2.5
Phenanthrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.27
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.13

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-15 / Screened Unit: Alluvial / Depth BTOC (feet): 53.0 / Sample Date: 06-Jun-00	W-15 Alluvial 53.0 14-Sep-00	W-15 Alluvial 53.0 14-Dec-00	W-15 Alluvial 53.0 20-Mar-01	W-15 Alluvial 53.0 06-Jun-01	W-15 Alluvial 53.0 19-Sep-01	W-15 Alluvial 53.0 11-Dec-01	W-15 Alluvial 53.0 13-Mar-02
Benzene	µg/L	5	5.1	1 U	1 U	0.2 J	1 U	1 U	1 U	1 U
Toluene	µg/L	2,000	1.4	1 U	0.17 J	0.24 J	1 U	1 U	0.23 J	1 U
Ethylbenzene	µg/L	700	3.5	1 U	1 U	1 U	1 U	1 U	0.96 J	1.2
Xylenes	µg/L	10,000	2.8	1 U	0.45 J	0.69 J	1 U	1 U	0.41 J	1 U
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	10 U	10 U	10 U	10 U	10 U	10 U	1 J	4.6 J
Phenanthrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	0.3 J	0.3 J
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location:	W-15	W-15	W-15	W-15	W-15	W-15	W-15	W-15
			Screened Unit:	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
			Depth BTOC (feet):	53.0	53.0	53.0	53.0	53.0	53.0	53.0	53.0
			Sample Date:	05-Jun-02	18-Sep-02	04-Dec-02	10-Jun-03	30-Mar-04	15-Sep-04	15-Mar-05	11-Oct-05
Benzene	µg/L	5		1 U	1 U	0.59	2 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	2,000		1 U	1 U	1 U	2 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	700		1 U	1 U	1 U	2 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	10,000		1 U	1 U	1 U	7 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene	µg/L	--		10 U	10 U	10 U	na	na	na	na	na
Dibenzofuran	µg/L	--		10 U	10 U	10 U	na	na	na	na	na
Acenaphthene	µg/L	--		10 U	10 U	10 U	0.1 U	2.4 U	2.4 U	2.4 U	2.4 U
Acenaphthylene	µg/L	--		10 U	10 U	10 U	0.1 U	1.2 U	1.2 U	1.3 U	1.2 U
Anthracene	µg/L	--		10 U	10 U	10 U	0.1 U	0.048 U	0.048 U	0.049 U	0.084
Benzo(a)anthracene	µg/L	0.1		10 U	10 U	10 U	0.1 U	0.12 U	0.12 U	0.13 U	0.059 Ja
Benzo(a)pyrene	µg/L	0.2		10 U	10 U	10 U	0.1 U	0.12 U	0.12 U	0.13 U	0.12 U
Benzo(b)fluoranthene	µg/L	0.2		10 U	10 U	10 U	0.1 U	0.048 U	0.048 U	0.049 U	0.035 Ja
Benzo(g,h,i)perylene	µg/L	--		10 U	10 U	10 U	0.1 U	0.19 U	0.19 U	0.19 U	0.19 U
Benzo(k)fluoranthene	µg/L	0.2		10 U	10 U	10 U	0.1 U	0.048 U	0.048 U	0.049 U	0.048 U
Chrysene	µg/L	0.2		10 U	10 U	10 U	0.1 U	0.12 U	0.12 U	0.13 U	0.032 Ja
Dibenzo(a,h)anthracene	µg/L	0.2		10 U	10 U	10 U	0.1 U	0.29 U	0.29 U	0.29 U	0.29 U
Fluoranthene	µg/L	--		10 U	10 U	10 U	0.1 U	0.12 U	0.12 U	0.13 U	0.12 J
Fluorene	µg/L	--		10 U	10 U	10 U	0.1 U	0.24 U	0.24 U	0.24 U	0.24 U
Indeno(1,2,3cd)pyrene	µg/L	0.4		10 U	10 U	10 U	0.1 U	0.12 U	0.12 U	0.13 U	0.12 U
Naphthalene	µg/L	100		10 U	2.2 J	10	0.1 U	1.2 U	1.2 U	1.3 U	1.2 U
Phenanthrene	µg/L	--		10 U	10 U	10 U	0.1 U	0.096 U	0.095 U	0.097 Ua	0.076 Ja
Pyrene	µg/L	--		10 U	10 U	10 U	0.1 U	0.24 U	0.24 U	0.24 U	0.11 Ja

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-15 / Screened Unit: Alluvial / Depth BTOC (feet): 53.0 / Sample Date: 15-Mar-06	W-15 Alluvial 53.0 12-Sep-06	W-15 Alluvial 53.0 18-Apr-07	W-15 Alluvial 53.0 20-Sep-07	W-15 Alluvial 53.0 06-May-08	W-15 Alluvial 53.0 01-Oct-08	W-15 Alluvial 53.0 28-Apr-09	W-15 Alluvial 53.0 16-Sep-09	W-15 Alluvial 53.0 31-Mar-10	W-15 Alluvial 53.0 15-Sep-10
Benzene	µg/L	5	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Toluene	µg/L	2,000	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Ethylbenzene	µg/L	700	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Xylenes	µg/L	10,000	1.0 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	6.00 U	3.00 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	2.5 U	0.0557 U	0.0544 U	0.0490 U	0.0490 U	0.0220 U	0.0220 U	0.0220 U	0.0220 U	0.0220 U
Acenaphthylene	µg/L	--	1.3 U	0.0966 U	0.0944 U	0.0850 U	0.0850 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U
Anthracene	µg/L	--	0.051 U	0.0114 U	0.0111 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Benzo(a)anthracene	µg/L	0.1	0.13 U	0.00341 U	0.00333 U	0.00300 U	0.00300 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Benzo(a)pyrene	µg/L	0.2	0.13 U	0.0364 U	0.0356 U	0.0320 U	0.0320 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	0.051 U	0.0148 U	0.0144 U	0.0130 U	0.0130 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	0.20 U	0.0102 U	0.0100 U	0.00900 U	0.00900 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	0.051 U	0.0170 U	0.0167 U	0.0150 U	0.0150 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U
Chrysene	µg/L	0.2	0.13 U	0.00568 U	0.00556 U	0.00500 U	0.00500 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.30 U*	0.0114 U	0.0111 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.13 U	0.0114 U	0.0111 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluorene	µg/L	--	0.25 U	0.0114 U	0.0111 U	0.0100 U	0.0100 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.13 U	0.00795 U	0.00778 U	0.00700 U	0.00700 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U
Naphthalene	µg/L	100	1.3 U	0.0614 U	0.0600 U	0.0540 U	0.0540 U	0.0460 U	0.0460 U	0.0460 U	R	0.0460 U
Phenanthrene	µg/L	--	0.10 U	0.00795 U	0.00778 U	0.00700 U	0.00700 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.0379 J
Pyrene	µg/L	--	0.25 U	0.0216 U	0.0211 U	0.0190 U	0.0190 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-21 / Screened Unit: Alluvial / Depth BTOC (feet): 50.0 / Sample Date: 25-Sep-96	W-21 Alluvial 50.0 26-Nov-96	W-21 Alluvial 50.0 22-Jan-97	W-21 Alluvial 50.0 29-May-97	W-21 Alluvial 50.0 25-Sep-97	W-21 Alluvial 50.0 18-Dec-97	W-21 Alluvial 50.0 18-Dec-97	W-21 Alluvial 50.0 17-Mar-98	W-21 Alluvial 50.0 16-Jun-98	W-21 Alluvial 50.0 29-Sep-98	W-21 Alluvial 50.0 10-Dec-98
Benzene	µg/L	5	1.9	67	1 U	71	2.3	1 U	na	1 U	1 U	2	3
Toluene	µg/L	2,000	1 U	20 U	1 U	10 U	1 U	1 U	na	1 U	1 U	1 U	1 U
Ethylbenzene	µg/L	700	1 U	81	1.2	260	6.2	1 U	na	1 U	1 U	1 U	0.5
Xylenes	µg/L	10,000	1 U	na	na	89	3.2	1 U	na	1 U	1 U	1 U	1 U
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2	10 U
Acenaphthylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	7	10 U	10 U	10 U	2	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location:	W-21	W-21	W-21	W-21	W-21	W-21	W-21	W-21	W-21	W-21	W-21
			Screened Unit:	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
			Depth BTOC (feet):	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0	50.0
			Sample Date:	23-Mar-99	23-Jun-99	28-Sep-99	15-Dec-99	15-Mar-00	06-Jun-00	14-Sep-00	14-Dec-00	21-Mar-01	07-Jun-01	20-Sep-01
Benzene	µg/L	5		2.3	3.9	0.48	0.91	0.56	4.7	1 U	1 U	0.18 J	1 U	1 U
Toluene	µg/L	2,000		1 U	1 U	1 U	0.36	0.48	1.5	1 U	0.3 J	0.29 J	1 U	1 U
Ethylbenzene	µg/L	700		1 U	6.1	1 U	1.4	0.42	2.9	1 U	1 U	1 U	1 U	1 U
Xylenes	µg/L	10,000		1 U	1.5	1 U	0.89	0.64	2.6	1 U	0.5 J	0.21 J	1 U	1 U
2-Methylnaphthalene	µg/L	--		10 U	10 U	10 U	10 U	2.0 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--		10 U	10 U	10 U	10 U	na	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--		10 U	10 U	10 U	10 U	2.0 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	µg/L	--		10 U	10 U	10 U	10 U	2.0 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--		10 U	10 U	10 U	10 U	0.10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1		10 U	10 U	10 U	10 U	0.10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2		10 U	10 U	10 U	10 U	0.10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2		10 U	10 U	10 U	10 U	0.10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--		10 U	10 U	10 U	10 U	0.20 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2		10 U	10 U	10 U	10 U	0.10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2		10 U	10 U	10 U	10 U	0.10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2		10 U	10 U	10 U	10 U	0.20 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--		10 U	10 U	10 U	10 U	0.029	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--		10 U	10 U	10 U	10 U	0.048	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4		10 U	10 U	10 U	10 U	0.20 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100		10 U	10 U	10 U	4	2.0 U	2	10 U	10 U	10 U	10 U	10 U
Phenanthrene	µg/L	--		10 U	10 U	10 U	10 U	0.062	10 U	10 U	10 U	0.37 J	10 U	10 U
Pyrene	µg/L	--		10 U	10 U	10 U	10 U	0.023	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	W-21 Alluvial 50.0 12-Dec-01	W-21 Alluvial 50.0 14-Mar-02	W-21 Alluvial 50.0 07-Jun-02	W-21 Alluvial 50.0 18-Sep-02	W-21 Alluvial 50.0 05-Dec-02	W-21 Alluvial 50.0 09-Jun-03	W-21 Alluvial 50.0 30-Mar-04	W-21 Alluvial 50.0 14-Sep-04	W-21 Alluvial 50.0 14-Mar-05	W-21R Alluvial 49.5 02-May-05	W-21R Alluvial 49.5 10-Oct-05
Benzene	µg/L	5	110	42	35	3.7	3	2 U	1.4	44	66	65	23
Toluene	µg/L	2,000	16	6.6	5.5	0.39 J	0.45 J	2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	700	57	37	16	2.5	3.4	2 U	1.0 U	0.67 Ja	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	10,000	77	33	25	2.4	1.7	7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene	µg/L	--	10 U	2.7 J	10 U	10 U	10 U	na	na	na	na	na	na
Dibenzofuran	µg/L	--	10 U	4.3 J	1.6 J	0.53 J	4.1 J	na	na	na	na	na	na
Acenaphthene	µg/L	--	0.6 J	37	12	4.1 J	14	1.4	0.72 Ja	1.3Ja	0.92 Ja	12	7.2
Acenaphthylene	µg/L	--	0.85 J	26	8.6 J	1.8 J	5.1 J	0.28	1.2 Ja	11	3.1	30	12
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	0.12	0.055	0.034 Ja	0.026 Ja	0.32	0.31
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	0.1	0.30	0.10 Ja	0.13	0.12 U	0.12 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	0.14	0.43	0.12 J	0.16	0.12 U	0.12 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	0.14	0.52	0.17	0.23	0.046 U	0.047 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	0.11	0.47	0.11 Ja	0.22	0.19 U	0.19 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	0.15	0.25	0.079	0.11	0.046 U	0.047 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	0.15	0.40	0.14	0.17 M	0.12 U	0.12 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	0.1 U	0.30 U	0.29 U	0.29 U	0.28 U	0.28 U
Fluoranthene	µg/L	--	10 U	10 U	1.2 J	10 U	10 U	0.36	0.78	0.29	0.36	0.12 U	0.12 U
Fluorene	µg/L	--	10 U	4.4 J	1.6 J	10 U	3.0 J	0.29	0.15 Ja	0.13 Ja	0.068 Ja	6.1	3.1
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	0.1	0.46	0.14	0.21	0.12 U	0.12 U
Naphthalene	µg/L	100	270	1300	260	10 U	7	0.15	1.3 Ua	0.61 Ja	1.3 U	0.57 Ja	1.2 U
Phenanthrene	µg/L	--	0.25 J	10 U	0.81 J	10 U	10 U	0.21	0.32	0.13	0.13	0.030 Ja	0.094 U
Pyrene	µg/L	--	10 U	10 U	1.4 J	10 U	10 U	0.27	0.60	0.20 Ja	0.28	0.23 U	0.24 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-21R	W-21R	W-21R	W-21R	W-21R	W-21R	W-21R	W-21R	W-21R	W-21R
			Screened Unit: Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
			Depth BTOC (feet): 49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5	49.5
			Sample Date: 14-Mar-06	11-Sep-06	17-Apr-07	19-Sep-07	05-May-08	30-Sep-08	28-Apr-09	15-Sep-09	30-Mar-10	05-May-10
Benzene	µg/L	5	3.2	5.57	104	2.41	34.2	2.17	67.0	1.00 U	206	na
Toluene	µg/L	2,000	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	na
Ethylbenzene	µg/L	700	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.64	na
Xylenes	µg/L	10,000	1.0 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	6.00 U	na
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	3.7	1.69	7.79	1.18	2.55	3.66	7.32	2.82	16.1	0.979
Acenaphthylene	µg/L	--	4.9	0.0850 U	1.78	0.0850 U	1.00	0.568	1.27	0.952	30.5	0.0870 U
Anthracene	µg/L	--	0.25	0.306	0.288	0.124 J	0.117 J	0.149 J	0.14800 J	0.257	0.0100 U	0.0583 J
Benzo(a)anthracene	µg/L	0.1	0.13 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Benzo(a)pyrene	µg/L	0.2	0.13 U	0.0320 U	0.0320 U	0.0320 U	0.0320 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	0.049 U	0.0130 U	0.0130 U	0.0130 U	0.0130 U	0.0280 U	0.02800 U	0.02800 U	0.0280 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	0.19 U	0.00900 U	0.00900 U	0.00900 U	0.00900 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	0.049 U	0.0150 U	0.0150 U	0.0150 U	0.0150 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U
Chrysene	µg/L	0.2	0.13 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.29 U*	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.13 U	0.0243 J	0.0100 U	0.0100 U	0.0100 U	0.0398 J	0.0631 J	0.0526 J	0.0100 U	0.0100 U
Fluorene	µg/L	--	2.6	1.88	3.35	0.906	1.18	3.8	4.99	1.91	0.0160 U	0.724
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.13 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U
Naphthalene	µg/L	100	1.3 U	0.217	0.0540 U	0.119	0.438	0.417	0.04600 U	0.166	R	0.0460 U
Phenanthrene	µg/L	--	0.097 U	0.0445 J	0.00700 U	0.0589 J	0.0589 J	0.0547 J	0.00500 U	0.00666 J	0.00500 U	0.00500 U
Pyrene	µg/L	--	0.24 U	0.102 J	0.0190 U	0.0190 U	0.0190 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-21R Screened Unit: Alluvial Depth BTOC (feet): 49.5 Sample Date: 15-Sep-10	W-22 Alluvial 69.0 24-Sep-96	W-22 Alluvial 69.0 26-Nov-96	W-22 Alluvial 69.0 22-Jan-97	W-22 Alluvial 69.0 28-May-97	W-22 Alluvial 69.0 28-May-97	W-22 Alluvial 69.0 25-Sep-97	W-22 Alluvial 69.0 18-Dec-97	W-22 Alluvial 69.0 17-Mar-98	W-22 Alluvial 69.0 16-Jun-98	W-22 Alluvial 69.0 29-Sep-98
Benzene	µg/L	5	2.84	1 U	1 U	1 U	1 U	na	1 U	1 U	1 U	1 U	1 U
Toluene	µg/L	2,000	1.00 U	1 U	1.3	1 U	1 U	na	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	µg/L	700	1.00 U	1 U	1 U	1 U	1 U	na	1 U	1 U	1 U	1 U	1 U
Xylenes	µg/L	10,000	3.00 U	1 U	na	na	1 U	na	1 U	1 U	1 U	1 U	1 U
2-Methylnaphthalene	µg/L	--	na	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	na	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--	1.34	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	µg/L	--	0.0870 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--	0.188 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	0.00500 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	0.00800 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	0.0280 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	0.00800 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	0.00700 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	0.00800 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.0100 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	0.104 J	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	1.14	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.00600 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	0.0460 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Phenanthrene	µg/L	--	0.00500 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	µg/L	--	0.0170 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-22 Screened Unit: Alluvial Depth BTOC (feet): 69.0 Sample Date: 10-Dec-98	W-22 Alluvial 69.0 23-Mar-99	W-22 Alluvial 69.0 24-Jun-99	W-22 Alluvial 69.0 29-Sep-99	W-22 Alluvial 69.0 15-Dec-99	W-22 Alluvial 69.0 15-Mar-00	W-22 Alluvial 69.0 06-Jun-00	W-22 Alluvial 69.0 14-Sep-00	W-22 Alluvial 69.0 14-Dec-00	W-22 Alluvial 69.0 20-Mar-01	W-22 Alluvial 69.0 06-Jun-01
Benzene	µg/L	5	1 U	1 U	1 U	1 U	4	1.9	1 U	1 U	1 U	0.45 J	1 U
Toluene	µg/L	2,000	1 U	1 U	1 U	1 U	0.54	0.94	1 U	1 U	0.19 J	0.59 J	1 U
Ethylbenzene	µg/L	700	1 U	1 U	1 U	1 U	3.5	1.4	1 U	1 U	1 U	1 U	1 U
Xylenes	µg/L	10,000	1 U	1 U	1 U	1 U	1.9	1.9	1 U	1 U	0.39 J	0.91 J	1 U
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	2.0 U	10 U	10 U	12 U	10 U	11 U
Dibenzofuran	µg/L	--	10 U	10 U	10 U	10 U	10 U	na	10 U	10 U	12 U	10 U	11 U
Acenaphthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	0.22	10 U	10 U	12 U	10 U	11 U
Acenaphthylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	2.0 U	10 U	10 U	12 U	10 U	11 U
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	0.067	10 U	10 U	12 U	10 U	11 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	0.1	10 U	10 U	12 U	10 U	11 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	0.12	10 U	10 U	12 U	10 U	11 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	0.15	10 U	10 U	12 U	10 U	11 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	0.094	10 U	10 U	12 U	10 U	11 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	0.055	10 U	10 U	12 U	10 U	11 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	0.16	10 U	10 U	12 U	10 U	11 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	0.20 U	10 U	10 U	12 U	10 U	11 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	0.32	10 U	10 U	12 U	10 U	11 U
Fluorene	µg/L	--	10 U	10 U	10 U	10 U	10 U	0.1	10 U	10 U	12 U	10 U	11 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	0.19	10 U	10 U	12 U	10 U	11 U
Naphthalene	µg/L	100	10 U	10 U	10 U	10 U	6	2	10 U	10 U	12 U	10 U	11 U
Phenanthrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	0.36	10 U	10 U	12 U	10 U	11 U
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	0.3	10 U	10 U	12 U	10 U	11 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location:	W-22	W-22	W-22	W-22	W-22	W-22	W-22	W-22	W-22	W-22	W-22
			Screened Unit:	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
			Depth BTOC (feet):	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0	69.0
			Sample Date:	19-Sep-01	11-Dec-01	13-Mar-02	05-Jun-02	18-Sep-02	04-Dec-02	10-Jun-03	30-Mar-04	15-Sep-04	15-Mar-05	11-Oct-05
Benzene	µg/L	5		1 U	1 U	1 U	1 U	1 U	0.48	2 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	2,000		1 U	1 U	0.54 J	0.18 J	1 U	1 U	2 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	700		1 U	1 U	2.8	1 U	1 U	1 U	2 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	10,000		1 U	1 U	2.9	1 U	1 U	1 U	7 U	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	na	na	na	na	na
Dibenzofuran	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	na	na	na	na	na
Acenaphthene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	2.6 U	2.4 U	2.5 U	2.5 U
Acenaphthylene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	1.4 U	1.2 U	1.3 U	1.3 U
Anthracene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.053 U	0.047 U	0.050 Ua	0.050 U
Benzo(a)anthracene	µg/L	0.1		10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.14 U	0.12 U	0.13 U	0.13 U
Benzo(a)pyrene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.14 U	0.12 U	0.13 U	0.13 U
Benzo(b)fluoranthene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.053 U	0.047 U	0.050 U	0.050 U
Benzo(g,h,i)perylene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.21 U	0.19 U	0.20 U	0.20 U
Benzo(k)fluoranthene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.053 U	0.047 U	0.050 U	0.050 U
Chrysene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.14 U	0.12 U	0.13 U	0.13 U
Dibenzo(a,h)anthracene	µg/L	0.2		10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.32 U	0.28 U	0.30 U	0.30 U
Fluoranthene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.14 U	0.12 U	0.13 U	0.13 U
Fluorene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.26 U	0.24 U	0.25 U	0.25 U
Indeno(1,2,3cd)pyrene	µg/L	0.4		10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.14 U	0.12 U	0.13 U	0.13 U
Naphthalene	µg/L	100		10 U	0.9 J	1.5 J	10 U	10 U	1.4	0.1 U	1.0 U	1.2 U	1.3 U	1.3 U
Phenanthrene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.11 U	0.094 U	0.10 Ua	0.10 U
Pyrene	µg/L	--		10 U	10 U	10 U	10 U	10 U	10 U	0.1 U	0.26 U	0.24 U	0.25 U	0.25 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	W-22 Alluvial 69.0 15-Mar-06	W-22 Alluvial 69.0 12-Sep-06	W-22 Alluvial 69.0 17-Apr-07	W-22 Alluvial 69.0 19-Sep-07	W-22 Alluvial 69.0 06-May-08	W-22 Alluvial 69.0 01-Oct-08	W-22 Alluvial 69.0 29-Apr-09	W-22 Alluvial 69.0 16-Sep-09	W-22 Alluvial 69.0 31-Mar-10	W-22 Alluvial 69.0 15-Sep-10	W-23 Alluvial 73.0 25-Sep-96
Benzene	µg/L	5	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1 U
Toluene	µg/L	2,000	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1 U
Ethylbenzene	µg/L	700	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1 U
Xylenes	µg/L	10,000	1.0 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	6.00 U	3.00 U	1 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na	na	10 U
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na	na	10 U
Acenaphthene	µg/L	--	2.5 U	0.0490 U	0.0544 U	0.0490 U	0.0490 U	0.0220 U	0.0220 U	0.0220 U	0.0220 U	0.0250 U	10 U
Acenaphthylene	µg/L	--	1.3 U	0.0850 U	0.0944 U	0.0850 U	0.0850 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0989 U	10 U
Anthracene	µg/L	--	0.050 U	0.0100 U	0.0111 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0114 U	10 U
Benzo(a)anthracene	µg/L	0.1	0.13 U	0.00300 U	0.00333 U	0.00300 U	0.00300 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00568 U	10 U
Benzo(a)pyrene	µg/L	0.2	0.13 U	0.0320 U	0.0356 U	0.0320 U	0.0320 U	0.00800 U	0.00800 U	0.00857 J	0.00800 U	0.00909 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	0.050 U	0.0130 U	0.0144 U	0.0130 U	0.0130 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0318 U	10 U
Benzo(g,h,i)perylene	µg/L	--	0.20 U	0.00900 U	0.0100 U	0.00900 U	0.00900 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00909 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	0.050 U	0.0150 U	0.0167 U	0.0150 U	0.0150 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00795 U	10 U
Chrysene	µg/L	0.2	0.13 U	0.00500 U	0.00556 U	0.00500 U	0.00500 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00909 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.30 U*	0.0100 U	0.0111 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0114 U	10 U
Fluoranthene	µg/L	--	0.13 U	0.0100 U	0.0111 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0114 U	10 U
Fluorene	µg/L	--	0.25 U	0.0100 U	0.0111 U	0.0100 U	0.0100 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U	0.0182 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.13 U	0.00700 U	0.00778 U	0.00700 U	0.00700 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00682 U	10 U
Naphthalene	µg/L	100	1.3 U	0.0540 U	0.0600 U	0.0540 U	0.0540 U	0.0460 U	0.0460 U	0.0460 U	R	0.0523 U	10 U
Phenanthrene	µg/L	--	0.10 U	0.00700 U	0.00778 U	0.00700 U	0.00700 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00568 U	10 U
Pyrene	µg/L	--	0.25 U	0.0190 U	0.0211 U	0.0190 U	0.0190 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0193 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-23 / Screened Unit: Alluvial / Depth BTOC (feet): 73.0 / Sample Date: 26-Nov-96	W-23 Alluvial 73.0 22-Jan-97	W-23 Alluvial 73.0 29-May-97	W-23 Alluvial 73.0 30-Sep-97	W-23 Alluvial 73.0 19-Dec-97	W-23 Alluvial 73.0 17-Mar-98	W-23 Alluvial 73.0 16-Jun-98	W-23 Alluvial 73.0 29-Sep-98	W-23 Alluvial 73.0 10-Dec-98	W-23 Alluvial 73.0 24-Mar-99	W-23 Alluvial 73.0 23-Jun-99
Benzene	µg/L	5	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5.2
Toluene	µg/L	2,000	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1.9
Ethylbenzene	µg/L	700	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	8.5
Xylenes	µg/L	10,000	na	na	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	5
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	4
Phenanthrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	W-23 Alluvial 73.0 28-Sep-99	W-23 Alluvial 73.0 15-Dec-99	W-23 Alluvial 73.0 15-Mar-00	W-23 Alluvial 73.0 06-Jun-00	W-23 Alluvial 73.0 15-Sep-00	W-23 Alluvial 73.0 13-Dec-00	W-23 Alluvial 73.0 21-Mar-01	W-23 Alluvial 73.0 07-Jun-01	W-23 Alluvial 73.0 19-Sep-01	W-23 Alluvial 73.0 12-Dec-01	W-23 Alluvial 73.0 13-Mar-02
Sample Location:			W-23	W-23	W-23	W-23	W-23	W-23	W-23	W-23	W-23	W-23	W-23
Screened Unit:			Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
Depth BTOC (feet):			73.0	73.0	73.0	73.0	73.0	73.0	73.0	73.0	73.0	73.0	73.0
Sample Date:			28-Sep-99	15-Dec-99	15-Mar-00	06-Jun-00	15-Sep-00	13-Dec-00	21-Mar-01	07-Jun-01	19-Sep-01	12-Dec-01	13-Mar-02
Benzene	µg/L	5	1 U	2.2	5.4	4.6	0.35 J	0.37 J	0.23 J	1 U	1 U	5.2	1 U
Toluene	µg/L	2,000	0.21	0.5	2.1	1.2	1 U	0.35 J	1 U	1 U	1 U	0.14 J	1 U
Ethylbenzene	µg/L	700	1 U	1.8	3.7	1 U	0.61 J	1 U	1 U	1 U	1 U	1	1 U
Xylenes	µg/L	10,000	1 U	1.6	3.8	1.3	0.36 J	0.93 J	1 U	1 U	1 U	0.64 J	1 U
2-Methylnaphthalene	µg/L	--	10 U	10 U	0.19	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Dibenzofuran	µg/L	--	10 U	10 U	na	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Acenaphthene	µg/L	--	10 U	10 U	0.27	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Acenaphthylene	µg/L	--	10 U	10 U	2.0 U	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Anthracene	µg/L	--	10 U	10 U	0.02	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	0.015	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	0.031	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	0.10 U	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	0.026	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	0.10 U	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Chrysene	µg/L	0.2	10 U	10 U	0.028	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	0.20 U	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Fluoranthene	µg/L	--	10 U	10 U	0.075	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Fluorene	µg/L	--	10 U	10 U	0.056	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	0.041	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Naphthalene	µg/L	100	10 U	7	3.8	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Phenanthrene	µg/L	--	10 U	10 U	0.15	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U
Pyrene	µg/L	--	10 U	10 U	0.079	10 U	10 U	10 U	10 U	10 U	10 U	na	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-23 / Screened Unit: Alluvial / Depth BTOC (feet): 73.0 / Sample Date: 07-Jun-02	W-23 Alluvial 73.0 19-Sep-02	W-23 Alluvial 73.0 04-Dec-02	W-23 Alluvial 73.0 10-Jun-03	W-23 Alluvial 73.0 30-Mar-04	W-23 Alluvial 73.0 14-Sep-04	W-23 Alluvial 73.0 14-Mar-05	W-23 Alluvial 73.0 11-Oct-05	W-23 Alluvial 73.0 15-Mar-06	W-23 Alluvial 73.0 11-Sep-06	W-23 Alluvial 73.0 17-Apr-07
Benzene	µg/L	5	1 U	1 U	1 U	2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	2,000	0.21 J	1 U	1 U	2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	700	1 U	1 U	1 U	2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	10,000	1 U	1.1	1 U	7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U	3.0 U
2-Methylnaphthalene	µg/L	--	10 U	3.2 J	10 U	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	10 U	10 U	10 U	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	10 U	2.3 J	10 U	0.1 U	2.3 U	2.4 U	2.5 U	2.4 U	2.4 U	0.0490 U	0.0544 U
Acenaphthylene	µg/L	--	10 U	10 U	10 U	0.1 U	1.2 U	1.2 U	1.3 U	1.2 U	1.3 U	0.0850 U	0.0944 U
Anthracene	µg/L	--	10 U	0.68 J	10 U	0.1 U	0.047 U	0.048 U	0.050 U	0.048 U	0.049 U	0.0100 U	0.0111 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	0.1 U	0.12 U	0.12 U	0.13 U	0.12 U	0.13 U	0.00300 U	0.00333 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	0.1 U	0.12 U	0.12 U	0.13 U	0.12 U	0.13 U	0.0320 U	0.0356 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	0.1 U	0.047 U	0.048 U	0.050 U	0.048 U	0.049 U	0.0130 U	0.0144 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	0.1 U	0.19 U	0.19 U	0.20 U	0.19 U	0.19 U	0.00900 U	0.0100 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	0.1 U	0.047 U	0.048 U	0.050 U	0.048 U	0.049 U	0.0150 U	0.0167 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	0.1 U	0.12 U	0.12 U	0.13 U	0.12 U	0.13 U	0.00500 U	0.00556 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	0.1 U	0.28 U	0.29 U	0.30 U	0.29 U	0.29 U*	0.0100 U	0.0111 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	0.1 U	0.12 U	0.12 U	0.13 U	0.12 U	0.13 U	0.0100 U	0.0111 U
Fluorene	µg/L	--	10 U	1 J	10 U	0.1 U	0.23 U	0.24 U	0.25 U	0.24 U	0.24 U	0.0100 U	0.0111 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	0.1 U	0.12 U	0.12 U	0.13 U	0.12 U	0.13 U	0.00700 U	0.00778 U
Naphthalene	µg/L	100	2.9 J	2.7 J	10 U	0.1 U	1.2 U	1.2 U	1.3 U	1.2 U	1.3 U	0.0540 U	0.0636 J,B
Phenanthrene	µg/L	--	10 U	2.5 J	10 U	0.1 U	0.093 U	0.015 Ja	0.099 U	0.032 Ja	0.097 U	0.0134 J	0.00778 U
Pyrene	µg/L	--	10 U	1 J	10 U	0.1 U	0.23 U	0.24 U	0.25 U	0.24 U	0.24 U	0.0190 U	0.0211 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	W-23 Alluvial 73.0 19-Sep-07	W-23 Alluvial 73.0 06-May-08	W-23 Alluvial 73.0 01-Oct-08	W-23 Alluvial 73.0 28-Apr-09	W-23 Alluvial 73.0 16-Sep-09	W-23 Alluvial 73.0 31-Mar-10	W-23 Alluvial 73.0 15-Sep-10	W-25 Alluvial 72.4 24-Sep-96	W-25 Alluvial 72.4 26-Nov-96	W-25 Alluvial 72.4 22-Jan-97	W-25 Alluvial 72.4 28-May-97
Sample Location: / Screened Unit: / Depth BTOC (feet): / Sample Date:													
Benzene	µg/L	5	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1 U	1 U	1 U	1 U
Toluene	µg/L	2,000	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1 U	1 U	1 U	1 U
Ethylbenzene	µg/L	700	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1 U	1 U	1 U	1 U
Xylenes	µg/L	10,000	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	6.00 U	3.00 U	1 U	na	na	1 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--	0.0490 U	0.0490 U	0.0220 U	0.0220 U	0.0220 U	0.0220 U	0.0220 U	10 U	10 U	10 U	10 U
Acenaphthylene	µg/L	--	0.0850 U	0.0850 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	0.00300 U	0.00458 J	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	0.0320 U	0.0320 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	0.0130 U	0.0130 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	0.00900 U	0.00900 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	0.0150 U	0.0150 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	0.00500 U	0.00500 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	0.0100 U	0.121 J	0.0160 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.00700 U	0.00700 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	0.0540 U	0.410	0.0460 U	0.0460 U	0.0460 U	R	0.0460 U	10 U	10 U	10 U	10 U
Phenanthrene	µg/L	--	0.00700 U	0.0553 J	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	10 U	10 U	10 U	10 U
Pyrene	µg/L	--	0.0190 U	0.0190 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	W-25 Alluvial 72.4 25-Sep-97	W-25 Alluvial 72.4 18-Dec-97	W-25 Alluvial 72.4 17-Mar-98	W-25 Alluvial 72.4 16-Jun-98	W-25 Alluvial 72.4 29-Sep-98	W-25 Alluvial 72.4 10-Dec-98	W-25R Alluvial 72.4 23-Mar-99	W-25R Alluvial 72.4 24-Jun-99	W-25R Alluvial 72.4 28-Sep-99	W-25R Alluvial 72.4 15-Dec-99	W-25R Alluvial 72.4 15-Mar-00
Benzene	µg/L	5	1 U	1 U	1 U	1 U	1 U	1 U	3.8	0.46	0.2	2.9	0.67
Toluene	µg/L	2,000	1 U	1 U	1 U	1 U	1 U	1 U	1.8	0.32	1 U	0.5	0.34
Ethylbenzene	µg/L	700	1 U	1 U	1 U	1 U	1 U	1 U	1.3	0.6	1 U	2.4	0.59
Xylenes	µg/L	10,000	1 U	1 U	1 U	1 U	1 U	1 U	1.3	0.81	1 U	1.7	0.71
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2.0 U
Dibenzofuran	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	na
Acenaphthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2.0 U
Acenaphthylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	2.0 U
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.014
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.022
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.20 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.025
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.20 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.12
Fluorene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.20 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.043
Naphthalene	µg/L	100	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	7	0.84
Phenanthrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.076
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	0.058

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-25R	W-25R	W-25R	W-25R	W-25R	W-25R	W-25R	W-25R	W-25R	W-25R	W-25R
			Screened Unit: Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
			Depth BTOC (feet): 72.4	72.4	72.4	72.4	72.4	72.4	72.4	72.4	72.4	72.4	72.4
			Sample Date: 06-Jun-00	14-Sep-00	14-Dec-00	20-Mar-01	08-Jun-01	19-Sep-01	11-Dec-01	13-Mar-02	05-Jun-02	18-Sep-02	04-Dec-02
Benzene	µg/L	5	1 U	1 U	0.16 J	0.24 J	1 U	0.69 J	1 U	1 U	1 U	1 U	0.36
Toluene	µg/L	2,000	1 U	1 U	1 U	0.37 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Ethylbenzene	µg/L	700	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U	1 U
Xylenes	µg/L	10,000	1 U	0.3 J	0.42 J	0.91 J	1 U	1 U	1 U	1 U	1 U	1 U	1 U
2-Methylnaphthalene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzofuran	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Acenaphthylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Anthracene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)anthracene	µg/L	0.1	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(a)pyrene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(b)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(g,h,i)perylene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Benzo(k)fluoranthene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Chrysene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Dibenzo(a,h)anthracene	µg/L	0.2	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluoranthene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Fluorene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U
Naphthalene	µg/L	100	10 U	10 U	10 U	10 U	10 U	10 U	1.8 J	2.1	10 U	10 U	10 U
Phenanthrene	µg/L	--	10 U	10 U	10 U	0.3 J	10 U	10 U	0.29 J	10 U	10 U	10 U	10 U
Pyrene	µg/L	--	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U	10 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-25R	W-25R	W-25R	W-25R	W-25R	W-25R	W-25R	W-25R	W-25R	W-25R
			Screened Unit: Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
			Depth BTOC (feet): 72.4	72.4	72.4	72.4	72.4	72.4	72.4	72.4	72.4	72.4
			Sample Date: 10-Jun-03	30-Mar-04	15-Sep-04	15-Mar-05	11-Oct-05	15-Mar-06	12-Sep-06	18-Apr-07	19-Sep-07	06-May-08
Benzene	µg/L	5	2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U
Toluene	µg/L	2,000	2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U
Ethylbenzene	µg/L	700	2 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U
Xylenes	µg/L	10,000	7 U	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U	3.00 U	3.00 U	3.00 U	3.00 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	0.14	2.5 U	2.4 U	2.5 U	2.3 U	2.6 U	0.0490 U	0.0490 U	0.0490 U	0.0490 U
Acenaphthylene	µg/L	--	0.1 U	1.3 U	0.34	0.24 Ja	0.16 Ja	1.3 U	0.0850 U	0.0850 U	0.0850 U	0.0850 U
Anthracene	µg/L	--	0.1 U	0.051 U	0.048 U	0.050 U	0.047 U	0.051 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Benzo(a)anthracene	µg/L	0.1	0.1 U	0.13 U	0.12 U	0.13 U	0.12 U	0.13 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U
Benzo(a)pyrene	µg/L	0.2	0.1 U	0.13 U	0.12 U	0.13 U	0.12 U	0.13 U	0.0320 U	0.0320 U	0.0320 U	0.0320 U
Benzo(b)fluoranthene	µg/L	0.2	0.1 U	0.051 U	0.048 U	0.050 U	0.047 U	0.051 U	0.0130 U	0.0130 U	0.0130 U	0.0130 U
Benzo(g,h,i)perylene	µg/L	--	0.1 U	0.20 U	0.19 U	0.20 U	0.19 U	0.20 U	0.00900 U	0.00900 U	0.00900 U	0.00900 U
Benzo(k)fluoranthene	µg/L	0.2	0.1 U	0.051 U	0.048 U	0.050 U	0.047 U	0.051 U	0.0150 U	0.0150 U	0.0150 U	0.0150 U
Chrysene	µg/L	0.2	0.1 U	0.13 U	0.12 U	0.13 U	0.12 U	0.13 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.1 U	0.30 U	0.29 U	0.30 U	0.28 U	0.31 U*	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.1 U	0.13 U	0.12 U	0.13 U	0.12 U	0.13 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluorene	µg/L	--	0.1 U	0.25 U	0.24 U	0.25 U	0.23 U	0.26 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.1 U	0.13 U	0.12 U	0.13 U	0.12 U	0.13 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U
Naphthalene	µg/L	100	0.1 U	1.3 U	1.2 U	1.3 U	1.2 U	1.3 U	0.0540 U	0.0540 U	0.0540 U	0.0540 U
Phenanthrene	µg/L	--	0.1 U	0.10 U	0.095 U	0.099 U	0.093 U	0.10 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U
Pyrene	µg/L	--	0.1 U	0.25 U	0.24 U	0.25 U	0.23 U	0.26 U	0.0190 U	0.0190 U	0.0190 U	0.0190 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-25R	W-25R	W-25R	W-25R	W-25R
			Screened Unit: Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
			Depth BTOC (feet): 72.4	72.4	72.4	72.4	72.4
			Sample Date: 01-Oct-08	29-Apr-09	16-Sep-09	31-Mar-10	15-Sep-10
Benzene	µg/L	5	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Toluene	µg/L	2,000	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Ethylbenzene	µg/L	700	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Xylenes	µg/L	10,000	3.00 U	3.00 U	3.00 U	6.00 U	3.00 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na
Acenaphthene	µg/L	--	0.0220 U	0.0220 U	0.0220 U	0.209	0.0244 U
Acenaphthylene	µg/L	--	0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0967 U
Anthracene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0111 U
Benzo(a)anthracene	µg/L	0.1	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00556 U
Benzo(a)pyrene	µg/L	0.2	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00889 U
Benzo(b)fluoranthene	µg/L	0.2	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0311 U
Benzo(g,h,i)perylene	µg/L	--	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00889 U
Benzo(k)fluoranthene	µg/L	0.2	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00778 U
Chrysene	µg/L	0.2	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00889 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0111 U
Fluoranthene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0111 U
Fluorene	µg/L	--	0.0160 U	0.0160 U	0.0160 U	0.0160 U	0.0178 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00667 U
Naphthalene	µg/L	100	0.0460 U	0.0460 U	0.0460 U	R	0.0511 U
Phenanthrene	µg/L	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00556 U
Pyrene	µg/L	--	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0189 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	D-4 Silty Sand 37.0 29-Apr-09	D-4 Silty Sand 37.0 15-Sep-09	D-4 Silty Sand 37.0 31-Mar-10	D-4 Silty Sand 37.0 06-May-10	D-4 Silty Sand 37.0 15-Sep-10	D-5 Silty Sand 37.5 31-Mar-10	D-5 Silty Sand 37.5 06-May-10
Sample Location:			D-4	D-4	D-4	D-4	D-4	D-5	D-5
Screened Unit:			Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
Depth BTOC (feet):			37.0	37.0	37.0	37.0	37.0	37.5	37.5
Sample Date:			29-Apr-09	15-Sep-09	31-Mar-10	06-May-10	15-Sep-10	31-Mar-10	06-May-10
Benzene	µg/L	5	458.0	413	222	na	440	1290	na
Toluene	µg/L	2,000	13.5	10.0 U	5.00 U	na	6.97	432	na
Ethylbenzene	µg/L	700	484	321	99.8	na	349	850	na
Xylenes	µg/L	10,000	176.0	137	30.0 U	na	119	770	na
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	59.9	40.4	39.4	71.9	85.4	111	97.1
Acenaphthylene	µg/L	--	56.4	0.870 U	51.1	0.870 U	95	1.74 U	0.870 U
Anthracene	µg/L	--	1.57	0.746	1.68	1.51	2.52	5.89	6.01
Benzo(a)anthracene	µg/L	0.1	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	3.05	2.19
Benzo(a)pyrene	µg/L	0.2	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	3.40	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	0.00800 U	0.0186 J	0.00800 U	0.00800 U	0.00800 U	0.00800 U	2.84
Benzo(k)fluoranthene	µg/L	0.2	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U
Chrysene	µg/L	0.2	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	1.06
Dibenzo(a,h)anthrace	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.0100 U	0.471	0.0100 U	0.0100 U	0.0100 U	10.6	10.8
Fluorene	µg/L	--	47.8	36.1	21.7	39	39.6	52.3	49.5
Indeno(1,2,3cd)pyren	µg/L	0.4	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.777
Naphthalene	µg/L	100	214	107	R	320	30.2	R	2280
Phenanthrene	µg/L	--	15.1	9.91	9.52	12	17.6	34.6	25
Pyrene	µg/L	--	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	D-7 Water Table 22.3 29-Apr-09	D-7 Water Table 22.3 15-Sep-09	D-7 Water Table 22.3 31-Mar-10	D-7 Water Table 22.3 06-May-10	D-8 Silty Sand 37.8 29-Apr-09	D-8 Silty Sand 37.8 15-Sep-09	D-8 Silty Sand 37.8 31-Mar-10	D-8 Silty Sand 37.8 06-May-10	D-8 Silty Sand 37.8 15-Sep-10
Benzene	µg/L	5	726	638	638	na	187	103	103	na	79.3
Toluene	µg/L	2,000	318	240	247	na	8.22	3.14	3.24	na	2.67
Ethylbenzene	µg/L	700	142	126	109	na	32.2	24.1	18.8 C9	na	15.4
Xylenes	µg/L	10,000	236	232	231	na	94.0	35.8	28.7 C9	na	23.7
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	43.9	136	0.337 U	61.8	13.1	9.34	9.45	9.55	7.03
Acenaphthylene	µg/L	--	38.3	133	1.33 U	0.435 U	14.2	10.9	26.1	0.0870 U	0.0870 U
Anthracene	µg/L	--	16.2	177	318	13.8	3.60	1.04	1.83	0.445	0.85
Benzo(a)anthracene	µg/L	0.1	5.34	71.6	147	31.7	1.83	0.159	0.625	0.179	0.136
Benzo(a)pyrene	µg/L	0.2	7.44	53.8	125	38.7	2.88	0.00800 U	0.00800 U	0.131 J	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	6.54	39.4	0.429 U	0.140 U	2.46	0.0280 U	0.0280 U	0.0280 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	4.47	29.1	0.122 U	15.8	1.25	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	2.20	24	35.8	0.0350 U	1.06	0.509	0.00700 U	0.00700 U	0.00700 U
Chrysene	µg/L	0.2	4.15	80.5	435	18.7	2.18	0.301	0.967	0.00800 U	0.185
Dibenzo(a,h)anthrace	µg/L	0.2	0.936	6.85	0.0510 U	0.0100 U	0.183	0.138	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	19.7	337	598	112	9.28	1.37	2.77	0.0100 U	1.03
Fluorene	µg/L	--	55.9	306	0.816 U	70.5	17.2	10.6	6.75	0.0160 U	6.27
Indeno(1,2,3cd)pyren	µg/L	0.4	4.08	26.2	0.0306 U	14.2	1.00	0.00600 U	0.00600 U	0.00600 U	0.00600 U
Naphthalene	µg/L	100	105	1460	R	939	56.1	69.6	R	56.1	73.8
Phenanthrene	µg/L	--	27.5	710	1350	107	14.1	2.91	5.19	2.94	2.43
Pyrene	µg/L	--	17	177	268	11.8	23.3	0.563	0.017 U	0.0170 U	0.404

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	SS-6 Silty Sand 31.5 11-Jan-05	SS-6 Silty Sand 31.5 14-Mar-05	SS-6 Silty Sand 31.5 10-Oct-05	SS-6 Silty Sand 31.5 14-Mar-06	SS-6 Silty Sand 31.5 11-Sep-06	SS-6 Silty Sand 31.5 17-Apr-07	SS-6 Silty Sand 31.5 19-Sep-07	SS-6 Silty Sand 31.5 05-May-08
Sample Location:			SS-6	SS-6	SS-6	SS-6	SS-6	SS-6	SS-6	SS-6
Screened Unit:			Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
Depth BTOC (feet):			31.5	31.5	31.5	31.5	31.5	31.5	31.5	31.5
Sample Date:			11-Jan-05	14-Mar-05	10-Oct-05	14-Mar-06	11-Sep-06	17-Apr-07	19-Sep-07	05-May-08
Benzene	µg/L	5	2000	2000	2700	2300	2130	1670	1540	1660
Toluene	µg/L	2,000	380	350	490	500	431	446	380	471
Ethylbenzene	µg/L	700	670	390	670	620	635	747	909	1080
Xylenes	µg/L	10,000	1200	960	100 U	1400	1250	1390	1750	1570
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	130 U	90 Ja	120 U	24 U	40.6	86.3	32.6	25.3
Acenaphthylene	µg/L	--	2600	1900	2000	1600	315	393	378	294
Anthracene	µg/L	--	37 *	77	97	28	33.3	42.3	31.2	12.3
Benzo(a)anthracene	µg/L	0.1	16	43	53	13	11.7	17.6	17.4	5.76
Benzo(a)pyrene	µg/L	0.2	10	28	35	8.2	11.3	15.9	17.2	6.11
Benzo(b)fluoranthene	µg/L	0.2	5.6	18	17	4.5	8.66	12.9	8.47	4.36
Benzo(g,h,i)perylene	µg/L	--	10 U	9.6 Ja	9.9	2.4	3.66	5.77	9.15	2.87
Benzo(k)fluoranthene	µg/L	0.2	3.4	9.7	7.3	1.8 M	4.32	5.31	5.43	2.39
Chrysene	µg/L	0.2	12	34	39	9.7	11.7	16.6	16	5.39
Dibenzo(a,h)anthrace	µg/L	0.2	16 U	29 U	14 U	2.7 J*	1	1.45	1.57	0.652
Fluoranthene	µg/L	--	53	170	190	46	33.1	71.1	42	17.1
Fluorene	µg/L	--	69	130	140	60	152	185	248	156
Indeno(1,2,3cd)pyren	µg/L	0.4	3.8 Ja	10 Ja	13	3.1	4.56	7.34	7.45	2.94
Naphthalene	µg/L	100	3100	2100	2200	1600	1390	1950 B	1760	1740
Phenanthrene	µg/L	--	120 H	280	270	87	81.8	111	112	56.7
Pyrene	µg/L	--	19 M	110	130	33 M	136	186	34.5	11.8

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: SS-6 / Screened Unit: Silty Sand / Depth BTOC (feet): 31.5 / Sample Date: 30-Sep-08	SS-6 / Silty Sand / 31.5 / 15-Sep-09	SS-6 / Silty Sand / 31.5 / 31-Mar-10	SS-6 / Silty Sand / 31.5 / 06-May-10	SS-6 / Silty Sand / 31.5 / 15-Sep-10	SS-7 / Silty Sand / 33.2 / 11-Jan-05	SS-7 / Silty Sand / 33.2 / 14-Mar-05	SS-7 / Silty Sand / 33.2 / 27-Apr-05	SS-7 / Silty Sand / 33.2 / 11-Oct-05
Benzene	µg/L	5	1880	1560	1750	na	1710	1200	1500	1300	1600
Toluene	µg/L	2,000	392	453	451	na	521	760	460	560	770
Ethylbenzene	µg/L	700	586	919	1120	na	928	1500	1300	1700	2000
Xylenes	µg/L	10,000	1290	1470	1670	na	1560	2700	2400	2700	3200
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	37	18.4	72.9	0.110 U	50.1	120 Ua	100 Ja	110	130
Acenaphthylene	µg/L	--	433	209	634	647	611	3400	2800	2800	2400
Anthracene	µg/L	--	21.1	4.23	32.8	46.2	48.6	22 *	17	28	20
Benzo(a)anthracene	µg/L	0.1	10.8	0.471	12.7	18.4	16.4	7.9	6.3 Ja	15	8.4
Benzo(a)pyrene	µg/L	0.2	10.4	0.475	11.3	16.6	13.7	5.3 Ja	4.1 Ja	11	6
Benzo(b)fluoranthene	µg/L	0.2	7.03	0.324	0.0566 U	0.0280 U	9.03	2.5	4.8 Ua	4.3	2.6
Benzo(g,h,i)perylene	µg/L	--	5.52	0.205	0.0162 U	4.73	7.36	9.9 U	19 U	3.3	1.7 Ja
Benzo(k)fluoranthene	µg/L	0.2	4.27	0.159	0.0141 U	0.00700 U	0.00700 U	1.5 Ja	4.8 U	2.9	1.2
Chrysene	µg/L	0.2	9.96	0.527	13.3	9.39	19.6	5.3 Ja	4.1 Ja	10	6.2
Dibenzo(a,h)anthrace	µg/L	0.2	1.01	0.0377 J	0.0202 U	0.0100 U	1.29	15 U	29 U	1.6 Ja	3.0 U
Fluoranthene	µg/L	--	35.2	2.91	0.101 U	52	48.8	25	26	49	28
Fluorene	µg/L	--	143	98.6	179	222	158	51	48	57	49
Indeno(1,2,3cd)pyren	µg/L	0.4	4.84	0.18	3.77	5.29	6.61	6.4 U	12 U	3.5	1.9
Naphthalene	µg/L	100	1670	1720	R	2800	2750	5500	5900	5900	5200
Phenanthrene	µg/L	--	80	25.5	97.8	131	139	84	79	120	74
Pyrene	µg/L	--	22.1	1.74	16.9	7.8	22.9	12 Ja	19 Ja	39	20

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: SS-7 Screened Unit: Silty Sand Depth BTOC (feet): 33.2 Sample Date: 15-Mar-06	SS-7 Silty Sand 33.2 12-Sep-06	SS-7 Silty Sand 33.2 18-Apr-07	SS-8 Silty Sand 33.4 11-Jan-05	SS-8 Silty Sand 33.4 14-Mar-05	SS-8 Silty Sand 33.4 10-Oct-05	SS-8 Silty Sand 33.4 14-Mar-06	SS-8 Silty Sand 33.4 11-Sep-06
Benzene	µg/L	5	1400	1940	927	1.6	1.6	1.1	1.0 U	1.0 U
Toluene	µg/L	2,000	650	481	470	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	700	1600	1350	1470	1.0 U	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	10,000	2700	2190	2100	1.0 U	1.0 U	1.0 U	1.0 U	3.0 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	63	77.6	159	0.59 Ja	0.50 Ja	2.5 U	0.48 Ja	0.701
Acenaphthylene	µg/L	--	2400	205	291	47	38	47	18	0.0850 U
Anthracene	µg/L	--	30	22.9	32.9	0.051 U*	0.050 U	0.049 U	0.050 U	0.185 J
Benzo(a)anthracene	µg/L	0.1	7.8	9.8	14.5	0.13 U	0.13 U	0.13 U	0.13 U	0.00300 U
Benzo(a)pyrene	µg/L	0.2	5.1	10.6	13.1	0.13 U	0.13 U	0.13 U	0.13 U	0.0320 U
Benzo(b)fluoranthene	µg/L	0.2	2.4	6.54	8.51	0.051 U	0.050 U	0.049 U	0.050 Ua	0.0130 U
Benzo(g,h,i)perylene	µg/L	--	1.2 Ja	3.54	4.61	0.20 U	0.20 U	0.20 U	0.20 U	0.00900 U
Benzo(k)fluoranthene	µg/L	0.2	0.49 U	3.21	4.19	0.051 U	0.050 U	0.049 U	0.050 U	0.0150 U
Chrysene	µg/L	0.2	5.3 M	9.59	11.6	0.13 U	0.13 U	0.13 U	0.13 U	0.00500 U
Dibenzo(a,h)anthrace	µg/L	0.2	2.9 U*	0.938	1.19	0.31 U	0.30 U	0.29 U	0.30 U*	0.0100 U
Fluoranthene	µg/L	--	24	22.7	46.8	0.13 U	0.13 U	0.13 U	0.13 U	0.0100 U
Fluorene	µg/L	--	44	81.6	125	0.26 U	0.25 U	0.25 U	0.25 U	0.647
Indeno(1,2,3cd)pyren	µg/L	0.4	1.8	4.07	6.03	0.13 U	0.13 U	0.13 U	0.13 U	0.00700 U
Naphthalene	µg/L	100	4900	2920	4540 B	0.66 Ja	0.36 Ja	1.3 U	0.31 Ja	0.0551 J
Phenanthrene	µg/L	--	66	70	100	0.039 Ja	0.099 Ua	0.098 U	0.099 U	0.0151 J
Pyrene	µg/L	--	14 M	101	140	0.20 Ja	0.25 U	0.25 U	0.25 U	0.0303 J

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: SS-8 Screened Unit: Silty Sand Depth BTOC (feet): 33.4 Sample Date: 17-Apr-07	SS-8 Silty Sand 33.4 19-Sep-07	SS-8 Silty Sand 33.4 05-May-08	SS-8 Silty Sand 33.4 30-Sep-08	SS-8 Silty Sand 33.4 28-Apr-09	SS-8 Silty Sand 33.4 15-Sep-09	SS-8 Silty Sand 33.4 30-Mar-10	SS-8 Silty Sand 33.4 15-Sep-10	SS-9 Silty Sand 28.0 11-Jan-05
Benzene	µg/L	5	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	29.0
Toluene	µg/L	2,000	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	2.5
Ethylbenzene	µg/L	700	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.2
Xylenes	µg/L	10,000	3.0 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	6.00 U	3.00 U	3.0
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	0.107 J	0.0490 U	0.181 J	0.484	0.0220 U	0.0220 U	0.0220 U	0.0220 U	4
Acenaphthylene	µg/L	--	0.0850 U	0.0850 U	0.0850 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	4.1
Anthracene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0145 J	0.0100 U	0.0126 J	0.0100 U	0.0100 U	0.015 Ja*
Benzo(a)anthracene	µg/L	0.1	0.00300 U	0.0149 J	0.00300 U	0.00500 U	0.00500 U	0.00658 J	0.00500 U	0.00500 U	0.13 U
Benzo(a)pyrene	µg/L	0.2	0.0320 U	0.0320 U	0.0320 U	0.00800 U	0.00800 U	0.0154 J	0.00800 U	0.00800 U	0.13 U
Benzo(b)fluoranthene	µg/L	0.2	0.0130 U	0.0130 U	0.0130 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.052 U
Benzo(g,h,i)perylene	µg/L	--	0.00900 U	0.00900 U	0.0323 J	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.21 U
Benzo(k)fluoranthene	µg/L	0.2	0.0150 U	0.0150 U	0.0150 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.052 U
Chrysene	µg/L	0.2	0.00500 U	0.0368 J	0.0148 J	0.00800 U	0.00800 U	0.00891 J	0.00800 U	0.00800 U	0.13 U
Dibenzo(a,h)anthrace	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.31 U
Fluoranthene	µg/L	--	0.0288 J	0.0326 J	0.0153 J	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.13 U
Fluorene	µg/L	--	0.0100 U	0.868	0.777	1.12	0.0160 U	0.0160 U	0.0160 U	0.84	0.084 Ja
Indeno(1,2,3cd)pyren	µg/L	0.4	0.00700 U	0.00700 U	0.00700 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.13 U
Naphthalene	µg/L	100	0.165 B	0.0540 U	0.0857 J	0.0460 U	0.0460 U	0.0460 U	R	0.0460 U	6.8
Phenanthrene	µg/L	--	0.00700 U	0.0732 J	0.00700 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.17
Pyrene	µg/L	--	0.0556 J	0.0408 J	0.0190 U	0.022 J	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.26 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: SS-9 / Screened Unit: Silty Sand / Depth BTOC (feet): 28.0 / Sample Date: 14-Mar-05	SS-9 / Silty Sand / 28.0 / 10-Oct-05	SS-9 / Silty Sand / 28.0 / 15-Mar-06	SS-9 / Silty Sand / 28.0 / 11-Sep-06	SS-9 / Silty Sand / 28.0 / 17-Apr-07	SS-9 / Silty Sand / 28.0 / 19-Sep-07	SS-9 / Silty Sand / 28.0 / 06-May-08	SS-9 / Silty Sand / 28.0 / 30-Sep-08
Benzene	µg/L	5	24	29	30	32.8	33.8	25.1	51.1	31.2
Toluene	µg/L	2,000	2.1	2.6	2.5	2.57	2.59	2.38	4.33	1.34 L5
Ethylbenzene	µg/L	700	1	1.3	1.1	1.11	1.33	1.29	3.13	1.56
Xylenes	µg/L	10,000	1.6	3.6	3.5	3.84	4.32	5.64	7	3.03
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	5	10	8.9	10.5	13.4	14.8	9.18	18.1
Acenaphthylene	µg/L	--	2.2 M	3.3 M	0.83 Ja	0.0850 U	0.0850 U	0.0850 U	1.82	3.18
Anthracene	µg/L	--	0.048 Ua	0.033 Ja	0.049 Ua	0.0162 J	0.0156 J	0.0100 U	0.0102 J	0.0100 U
Benzo(a)anthracene	µg/L	0.1	0.12 U	0.13 U	0.13 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00500 U
Benzo(a)pyrene	µg/L	0.2	0.12 U	0.13 U	0.13 U	0.0320 U	0.0320 U	0.0320 U	0.0320 U	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	0.048 U	0.049 U	0.049 U	0.0130 U	0.0130 U	0.0130 U	0.0130 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	0.19 U	0.20 U	0.20 U	0.00900 U	0.00900 U	0.00900 U	0.00900 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	0.048 U	0.049 U	0.049 U	0.0150 U	0.0150 U	0.0150 U	0.0150 U	0.00700 U
Chrysene	µg/L	0.2	0.12 U	0.13 U	0.13 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00800 U
Dibenzo(a,h)anthrace	µg/L	0.2	0.29 U	0.29 U	0.29 U*	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.12 U	0.064 Ja	0.13 U	0.0100 U	0.0318 J	0.0308 J	0.0365 J	0.025 J
Fluorene	µg/L	--	0.14 Ja	0.21 Ja	0.088 Ja	0.205	0.322	0.298	0.366	0.637
Indeno(1,2,3cd)pyren	µg/L	0.4	0.12 U	0.13 U	0.13 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00600 U
Naphthalene	µg/L	100	6.2	7.6	3.1	6.88	10.5 B	9.88	13.3	6.32
Phenanthrene	µg/L	--	0.19	0.28	0.12	0.15	0.214	0.213	0.277	0.208
Pyrene	µg/L	--	0.24 U	0.045 Ja	0.25 U	0.0533 J	0.0844 J	0.0222 J	0.0248 J	0.0170 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: SS-9 / Screened Unit: Silty Sand / Depth BTOC (feet): 28.0 / Sample Date: 28-Apr-09	SS-9 / Silty Sand / 28.0 / 15-Sep-09	SS-9 / Silty Sand / 28.0 / 30-Mar-10	SS-9 / Silty Sand / 28.0 / 05-May-10	SS-9 / Silty Sand / 28.0 / 15-Sep-10	SS-10 / Silty Sand / 35.1 / 11-Jan-05	SS-10 / Silty Sand / 35.1 / 15-Mar-05	SS-10 / Silty Sand / 35.1 / 25-Apr-05	SS-10 / Silty Sand / 35.1 / 11-Oct-05
Benzene	µg/L	5	49.5	53.8	49.5	na	44.6	1.0 U	1.0 U	1.0 U	1.0 U
Toluene	µg/L	2,000	4.28	4.84	3.11	na	3.55	1.0 U	1.0 U	1.0 U	1.0 U
Ethylbenzene	µg/L	700	1.57	2.43	1.75	na	1.67	1.0 U	1.0 U	1.0 U	1.0 U
Xylenes	µg/L	10,000	4.65	7.21	6.00 U	na	6.00	1.0 U	1.0 U	1.0 U	1.0 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	19.2	19.9	27.6	26.5	27.7	2.5 U	2.5 U	2.4 U	2.7 U
Acenaphthylene	µg/L	--	0.0870 U	0.0870 U	5.88 M1	0.0870 U	0.0870 U	1.3 U	1.3 U	1.3 U	1.4 U
Anthracene	µg/L	--	0.0100 U	0.0136 J	0.0100 U	0.0100 U	0.0211 J	0.020 Ja*	0.050 Ua	0.049 Ua	0.053 U
Benzo(a)anthracene	µg/L	0.1	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.13 U	0.13 U	0.13 U	0.14 U
Benzo(a)pyrene	µg/L	0.2	0.00800 U	0.00800 U	).00800 U M	0.00800 U	0.00800 U	0.13 U	0.13 U	0.13 U	0.14 U
Benzo(b)fluoranthene	µg/L	0.2	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.051 U	0.050 U	0.049 Ua	0.053 U
Benzo(g,h,i)perylene	µg/L	--	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.20 U	0.20 U	0.19 U	0.21 U
Benzo(k)fluoranthene	µg/L	0.2	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.051 U	0.050 U	0.049 U	0.053 U
Chrysene	µg/L	0.2	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.13 U	0.13 U	0.13 U	0.14 U
Dibenzo(a,h)anthrace	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.30 U	0.30 U	0.29 U	0.32 U
Fluoranthene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.064 Ja	0.13 U	0.13 U	0.14 U
Fluorene	µg/L	--	0.582	0.704	0.794	0.0160 U	0.834	0.25 U	0.25 U	0.24 U	0.27 U
Indeno(1,2,3cd)pyren	µg/L	0.4	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.13 U	0.13 U	0.13 U	0.14 U
Naphthalene	µg/L	100	14.1	16.3	R	8.27	11.5	1.3 U	1.3 U	1.3 U	1.4 U
Phenanthrene	µg/L	--	0.00500 U	0.271	0.000500 U	0.16	0.269	0.10 Ja	0.036 Ja	0.097 Ua	0.11 U
Pyrene	µg/L	--	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.25 Ua	0.25 Ua	0.24 U	0.27 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	SS-10 Silty Sand 35.1 15-Mar-06	SS-10 Silty Sand 35.1 12-Sep-06	SS-10 Silty Sand 35.1 18-Apr-07	SS-10 Silty Sand 35.1 06-May-08	SS-10 Silty Sand 35.1 01-Oct-08	SS-10 Silty Sand 35.1 29-Apr-09	SS-10 Silty Sand 35.1 16-Sep-09	SS-10 Silty Sand 35.1 31-Mar-10	SS-10 Silty Sand 35.1 16-Sep-10
Benzene	µg/L	5	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Toluene	µg/L	2,000	1.0 U	1.0 U	1.00 U	1.00 U L1	1.04	1.00 U	1.00 U	1.00 U	1.00 U
Ethylbenzene	µg/L	700	1.0 U	1.0 U	1.00 U	1.00 U L1	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Xylenes	µg/L	10,000	1.0 U	3.0 U	3.00 U	3.00 U L1	3.00 U	3.00 U	3.00 U	6.00 U	3.00 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	2.5 U	0.0544 U	0.0544 U	0.0490 U	0.0220 U	0.0220 U	0.0220 U	0.0220 U	0.0220 U
Acenaphthylene	µg/L	--	1.3 U	0.0944 U	0.0944 U	0.0850 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U
Anthracene	µg/L	--	0.050 U	0.0111 U	0.0111 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Benzo(a)anthracene	µg/L	0.1	0.13 U	0.00383 J	0.00333 U	0.00300 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Benzo(a)pyrene	µg/L	0.2	0.13 U	0.0356 U	0.0356 U	0.0320 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	0.050 U	0.0144 U	0.0144 U	0.0130 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	0.20 U	0.0100 U	0.0100 U	0.00900 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	0.050 U	0.0167 U	0.0167 U	0.0150 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U
Chrysene	µg/L	0.2	0.13 U	0.00556 U	0.00556 U	0.00500 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Dibenzo(a,h)anthrace	µg/L	0.2	0.30 U*	0.0111 U	0.0111 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.13 U	0.0111 U	0.0111 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluorene	µg/L	--	0.25 U	0.0111 U	0.0111 U	0.0100 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U
Indeno(1,2,3cd)pyren	µg/L	0.4	0.13 U	0.00778 U	0.00778 U	0.00700 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U
Naphthalene	µg/L	100	1.3 U	0.188	0.0642 J,B	0.0540 U	0.0460 U	0.0460 U	0.0697 J	R	0.0460 U
Phenanthrene	µg/L	--	0.099 U	0.0103 J	0.00792 J	0.00700 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Pyrene	µg/L	--	0.25 U	0.0211 U	0.0323 J	0.0190 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	W-4 Water Table 23.4 11-Oct-05	W-4 Water Table 23.4 15-Mar-06	W-4 Water Table 23.4 12-Sep-06	W-4 Water Table 23.4 18-Apr-07	W-4 Water Table 23.4 20-Sep-07	W-4 Water Table 23.4 6-May-08	W-4 Water Table 23.4 1-Oct-08	W-4 Water Table 23.4 29-Apr-09
Benzene	µg/L	5	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Toluene	µg/L	2,000	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Ethylbenzene	µg/L	700	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Xylenes	µg/L	10,000	1.0 U	1.0 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	1.1 Ja	2.6 U	1.06	0.298	0.526	0.263	2.75	0.631
Acenaphthylene	µg/L	--	2.4	0.77 Ja	0.0850 U	0.0850 U	0.0850 U	0.0850 U	0.0967 U	0.0978 U
Anthracene	µg/L	--	0.073	0.052 Ua	0.0103 J	0.0100 U	0.0100 U	0.0100 U	0.0378 J	0.0112 U
Benzo(a)anthracene	µg/L	0.1	0.032 Ja	0.13 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00556 U	0.00562 U
Benzo(a)pyrene	µg/L	0.2	0.028 Ja	0.13 U	0.0320 U	0.0320 U	0.0320 U	0.0320 U	0.00889 U	0.00899 U
Benzo(b)fluoranthene	µg/L	0.2	0.049 U	0.052 U	0.0130 U	0.0130 U	0.0130 U	0.0130 U	0.0311 U	0.0315 U
Benzo(g,h,i)perylene	µg/L	--	0.19 U	0.21 U	0.00900 U	0.00900 U	0.00900 U	0.00900 U	0.00889 U	0.00899 U
Benzo(k)fluoranthene	µg/L	0.2	0.049 U	0.052 U	0.0150 U	0.0150 U	0.0150 U	0.0150 U	0.00778 U	0.00787 U
Chrysene	µg/L	0.2	0.031 Ja	0.13 U	0.00500 U	0.00500 U	0.0197 J	0.00500 U	0.00889 U	0.00899 U
Dibenzo(a,h)anthrace	µg/L	0.2	0.29 U	0.31 U*	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0111 U	0.0112 U
Fluoranthene	µg/L	--	0.18	0.13 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0111 U	0.0112 U
Fluorene	µg/L	--	0.11 Ja	0.056 Ja	0.0100 U	0.0653 J	0.31	0.18 J	1.43	0.0180 U
Indeno(1,2,3cd)pyren	µg/L	0.4	0.13 U	0.13 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00667 U	0.00674 U
Naphthalene	µg/L	100	1.3 U	1.3 U	0.0540 U	0.0567 J,B	0.0540 U	0.0540 U	0.0511 U	0.0517 U
Phenanthrene	µg/L	--	0.15	0.10 Ua	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00556 U	0.00562 U
Pyrene	µg/L	--	0.12 Ja	0.26 U	0.0190 U	0.0190 U	0.0190 U	0.0190 U	0.0284 J	0.0191 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	W-4 Water Table 23.4 16-Sep-09	W-4 Water Table 23.4 31-Mar-10	W-4 Water Table 23.4 6-May-10	W-4 Water Table 23.4 14-Sep-10	W-13 Alluvial 48.0 10-Oct-05	W-13 Alluvial 48.0 14-Mar-06	W-13 Alluvial 48.0 11-Sep-06	W-13 Alluvial 48.0 17-Apr-07	W-13 Alluvial 48.0 19-Sep-07
Sample Location:			W-4	W-4	W-4	W-4	W-13	W-13	W-13	W-13	W-13
Screened Unit:			Water Table	Water Table	Water Table	Water Table	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
Depth BTOC (feet):			23.4	23.4	23.4	23.4	48.0	48.0	48.0	48.0	48.0
Sample Date:			16-Sep-09	31-Mar-10	6-May-10	14-Sep-10	10-Oct-05	14-Mar-06	11-Sep-06	17-Apr-07	19-Sep-07
Benzene	µg/L	5	1.00 U	1.00 U	na	1.00 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U
Toluene	µg/L	2,000	1.00 U	1.00 U	na	1.00 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U
Ethylbenzene	µg/L	700	1.00 U	1.00 U	na	1.00 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U
Xylenes	µg/L	10,000	3.00 U	6.00 U	na	3.00 U	1.0 U	1.0 U	3.00 U	3.00 U	3.00 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	1.39	0.570	0.332	0.558	2.4 U	2.5 U*	0.0490 U	0.0544 U	0.0490 U
Acenaphthylene	µg/L	--	0.0870 U	0.0870 U	0.0989 U	0.291	1.2 U	1.3 U*	0.0850 U	0.0944 U	0.0850 U
Anthracene	µg/L	--	0.0189 J	0.0100 U	0.0114 U	0.0100 U	0.048 U	0.050 U*	0.0100 U	0.0111 U	0.0100 U
Benzo(a)anthracene	µg/L	0.1	0.00651 J	0.00500 U	0.00568 U	0.00500 U	0.020 Ja	0.13 U	0.015 J	0.00333 U	0.00300 U
Benzo(a)pyrene	µg/L	0.2	0.00800 U	0.00800 U	0.00909 U	0.00800 U	0.021 Ja	0.13 U	0.0320 U	0.0356 U	0.0320 U
Benzo(b)fluoranthene	µg/L	0.2	0.0280 U	0.0280 U	0.0318 U	0.0280 U	0.048 U	0.050 U	0.0130 U	0.0144 U	0.0130 U
Benzo(g,h,i)perylene	µg/L	--	0.00800 U	0.00800 U	0.00909 U	0.00800 U	0.19 U	0.20 U	0.00900 U	0.0100 U	0.00900 U
Benzo(k)fluoranthene	µg/L	0.2	0.00700 U	0.00700 U	0.00795 U	0.00700 U	0.048 U	0.050 U	0.0150 U	0.0167 U	0.0150 U
Chrysene	µg/L	0.2	0.00800 U	0.00800 U	0.00909 U	0.00800 U	0.12 U	0.13 U	0.0431 J	0.00556 U	0.00500 U
Dibenzo(a,h)anthrace	µg/L	0.2	0.0100 U	0.0100 U	0.0114 U	0.0100 U	0.29 U	0.30 U	0.0100 U	0.0111 U	0.0100 U
Fluoranthene	µg/L	--	0.0100 U	0.0100 U	0.0114 U	0.0100 U	0.048 Ja	0.13 U	0.0100 U	0.0111 U	0.0100 U
Fluorene	µg/L	--	0.764	0.0160 U	0.0182 U	0.0160 U	0.24 U	0.25 U*	0.0100 U	0.0111 U	0.0100 U
Indeno(1,2,3cd)pyren	µg/L	0.4	0.00600 U	0.00600 U	0.00682 U	0.00600 U	0.12 U	0.13 U	0.00700 U	0.00778 U	0.00700 U
Naphthalene	µg/L	100	0.153	R	0.0737 J	0.161	1.2 U	1.3 U*	0.0540 U	0.117 B	0.0540 U
Phenanthrene	µg/L	--	0.0505 J	0.00500 U	0.00568 U	0.00500 U	0.096 U	0.099 Ua	0.0292 J	0.0115 J	0.00700 U
Pyrene	µg/L	--	0.0170 U	0.0170 U	0.0193 U	0.0170 U	0.048 Ja	0.25 U	0.16 J	0.0211 U	0.0190 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location:	W-13	W-13	W-13	W-13	W-13	W-13	W-13	W-20	W-20	W-20
			Screened Unit:	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
			Depth BTOC (feet):	48.0	48.0	48.0	48.0	48.0	48.0	48.0	51.0	51.0	51.0
			Sample Date:	05-May-08	30-Sep-08	28-Apr-09	15-Sep-09	30-Mar-10	05-May-10	15-Sep-10	29-Apr-09	16-Sep-09	31-Mar-10
Benzene	µg/L	5		1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	na	1.00 U	1.00 U	8.71	1.00 U
Toluene	µg/L	2,000		1.00 U	1.00 U, L5	1.00 U	1.00 U	1.00 U	na	1.00 U	1.00 U	1.09	1.00 U
Ethylbenzene	µg/L	700		1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	na	1.00 U	1.00 U	1.7	1.00 U
Xylenes	µg/L	10,000		3.00 U	3.00 U	3.00 U	3.00 U	6.00 U	na	3.00 U	3.00 U	3.54	6.00 U
2-Methylnaphthalene	µg/L	--		na	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--		na	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--		0.0490 U	0.0220 U	0.0220 U	0.0220 U	0.234	0.0220 U	0.0220 U	0.253	3.01	0.407
Acenaphthylene	µg/L	--		0.0850 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0978 U	3.09	0.0870 U
Anthracene	µg/L	--		0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0220 J	0.0691 J	0.0567 J
Benzo(a)anthracene	µg/L	0.1		0.00300 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00562 U	0.0249 J	0.0216 J
Benzo(a)pyrene	µg/L	0.2		0.0320 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.0315 U	0.00889 U	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2		0.0130 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.00787 U	0.0311 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--		0.00900 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00899 U	0.00899 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2		0.0150 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00899 U	0.00778 U	0.00700 U
Chrysene	µg/L	0.2		0.00500 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00899 U	0.0174 J	0.00800 U
Dibenzo(a,h)anthrace	µg/L	0.2		0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0112 U	0.0111 U	0.0100 U
Fluoranthene	µg/L	--		0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0374 J	0.0805 J	0.0187 J
Fluorene	µg/L	--		0.0100 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U	0.223	2.66 M1	0.503
Indeno(1,2,3cd)pyren	µg/L	0.4		0.00700 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00674 U	0.00667 U	0.00600 U
Naphthalene	µg/L	100		0.0540 U	0.0460 U	0.0460 U	0.0589 J	R	0.0460 U	0.0645 J	0.0517 U	0.916	R
Phenanthrene	µg/L	--		0.00700 U	0.0137 J	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00562 U	0.127	0.00500 U
Pyrene	µg/L	--		0.0190 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0191 U	0.075 J	0.0170 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location:	W-20	W-20	W-24	W-24	W-24	W-24	W-24	W-26	W-26	W-26
			Screened Unit:	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial	Alluvial
			Depth BTOC (feet):	51.0	51.0	76.5	76.5	76.5	76.5	76.5	49.7	49.7	49.7
			Sample Date:	05-May-10	14-Sep-10	29-Apr-09	16-Sep-09	31-Mar-10	06-May-10	14-Sep-10	10-Oct-05	14-Mar-06	12-Sep-06
Benzene	µg/L	5		na	1.00 U	1.00 U	1.00 U	1.00 U	na	1.00 U	1.0 U	1.0 U	1.00 U
Toluene	µg/L	2,000		na	1.00 U	1.00 U	1.00 U	1.00 U	na	1.00 U	1.0 U	1.0 U	1.00 U
Ethylbenzene	µg/L	700		na	1.00 U	1.00 U	1.00 U	1.00 U	na	1.00 U	1.0 U	1.0 U	1.00 U
Xylenes	µg/L	10,000		na	3.00 U	3.00 U	3.00 U	6.00 U	na	3.00 U	1.0 U	1.0 U	3.00 U
2-Methylnaphthalene	µg/L	--		na	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--		na	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--		2.43	1.91	0.0250 U	0.0220 U	0.0220 U	0.0220 U	0.0244 U	2.5 U	2.6 U*	0.0490 U
Acenaphthylene	µg/L	--		2.18	1.48	0.0989 U	0.0870 U	0.0870 U	0.0870 U	0.0967 U	1.3 U	0.24 Ja*	0.0850 U
Anthracene	µg/L	--		0.0447 J	0.0584 J	0.0114 U	0.0100 U	0.0100 U	0.0100 U	0.0111 U	0.050 U	0.051 U*	0.0100 U
Benzo(a)anthracene	µg/L	0.1		0.00500 U	0.0123 J	0.00568 U	0.00500 U	0.00500 U	0.00500 U	0.00556 U	0.13 U	0.13 U	0.00300 U
Benzo(a)pyrene	µg/L	0.2		0.00800 U	0.00800 U	0.00909 U	0.00800 U	0.00800 U	0.00800 U	0.00889 U	0.13 U	0.13 U	0.0320 U
Benzo(b)fluoranthene	µg/L	0.2		0.0280 U	0.0280 U	0.0318 U	0.0280 U	0.0280 U	0.0280 U	0.0311 U	0.050 U	0.051 U	0.0130 U
Benzo(g,h,i)perylene	µg/L	--		0.00800 U	0.00800 U	0.00909 U	0.00800 U	0.00800 U	0.00800 U	0.00889 U	0.20 U	0.20 U	0.00900 U
Benzo(k)fluoranthene	µg/L	0.2		0.00700 U	0.00700 U	0.00795 U	0.00700 U	0.00700 U	0.00700 U	0.00778 U	0.050 U	0.051 U	0.0150 U
Chrysene	µg/L	0.2		0.00800 U	0.0376 J	0.00909 U	0.00800 U	0.00800 U	0.00800 U	0.00889 U	0.13 U	0.13 U	0.00500 U
Dibenzo(a,h)anthrace	µg/L	0.2		0.0100 U	0.0100 U	0.0114 U	0.0100 U	0.0100 U	0.0100 U	0.0111 U	0.30 U	0.31 U	0.0100 U
Fluoranthene	µg/L	--		0.0100 U	0.0100 U	0.0114 U	0.0100 U	0.0100 U	0.0100 U	0.0111 U	0.13 U	0.13 U	0.0100 U
Fluorene	µg/L	--		1.41	1.11	0.0182 U	0.0160 U	0.0160 U	0.0160 U	0.0178 U	0.25 U	0.26 U*	0.0100 U
Indeno(1,2,3cd)pyren	µg/L	0.4		0.00600 U	0.00600 U	0.00682 U	0.00600 U	0.00600 U	0.00600 U	0.00667 U	0.13 U	0.13 U	0.00700 U
Naphthalene	µg/L	100		0.183 J	0.13	0.0523 U	0.120	R	0.0460 U	0.0511 U	1.3 U	1.0 Ja*	0.0540 U
Phenanthrene	µg/L	--		0.00500 U	0.00500 U	0.00568 U	0.0117 J	0.00500 U	0.00500 U	0.00556 U	0.099 U	0.10 Ua	0.00700 U
Pyrene	µg/L	--		0.0170 U	0.0255 J	0.0193 U	0.0170 U	0.0170 U	0.0170 U	0.0189 U	0.25 U	0.26 U	0.0190 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	W-26 Alluvial 49.7 17-Apr-07	W-26 Alluvial 49.7 19-Sep-07	W-26 Alluvial 49.7 05-May-08	W-26 Alluvial 49.7 01-Oct-08	W-26 Alluvial 49.7 28-Apr-09	W-26 Alluvial 49.7 16-Sep-09	W-26 Alluvial 49.7 30-Mar-10	W-26 Alluvial 49.7 06-May-10	W-26 Alluvial 49.7 15-Sep-10	W-27 Alluvial 49.7 10-Oct-05
Benzene	µg/L	5	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	na	1.00 U	1.0 U
Toluene	µg/L	2,000	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	na	1.00 U	1.0 U
Ethylbenzene	µg/L	700	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	na	1.00 U	1.0 U
Xylenes	µg/L	10,000	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	6.00 U	na	3.00 U	1.0 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	0.0490 U	0.0490 U	0.049 U	0.0220 U	0.0760 J	0.0220 U	0.0220 U	0.0220 U	0.0244 U	2.5 U
Acenaphthylene	µg/L	--	0.0850 U	0.0850 U	0.0850 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0967 U	1.3 U
Anthracene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0111 U	0.051 U
Benzo(a)anthracene	µg/L	0.1	0.00300 U	0.00300 U	0.00655 J	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00556 U	0.13 U
Benzo(a)pyrene	µg/L	0.2	0.0320 U	0.0320 U	0.0320 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00889 U	0.13 U
Benzo(b)fluoranthene	µg/L	0.2	0.0130 U	0.0130 U	0.0130 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0311 U	0.051 U
Benzo(g,h,i)perylene	µg/L	--	0.00900 U	0.00900 U	0.00900 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00889 U	0.20 U
Benzo(k)fluoranthene	µg/L	0.2	0.0150 U	0.0150 U	0.0150 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00778 U	0.051 U
Chrysene	µg/L	0.2	0.00500 U	0.00500 U	0.0181 J	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00889 U	0.13 U
Dibenzo(a,h)anthrace	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0111 U	0.30 U
Fluoranthene	µg/L	--	0.0100 U	0.0100 U	0.0167 J	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0111 U	0.13 U
Fluorene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U	0.0178 U	0.25 U
Indeno(1,2,3cd)pyren	µg/L	0.4	0.00700 U	0.00700 U	0.00700 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00667 U	0.13 U
Naphthalene	µg/L	100	0.0540 U	0.0540 U	0.222	0.0460 U	0.0460 U	0.0817 J	R	0.0460 U	0.147	1.3 U
Phenanthrene	µg/L	--	0.00700 U	0.00700 U	0.00700 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.0467 J	0.10 U
Pyrene	µg/L	--	0.0190 U	0.0190 U	0.0190 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0189 U	0.25 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	W-27 Alluvial 49.7 14-Mar-06	W-27 Alluvial 49.7 12-Sep-06	W-27 Alluvial 49.7 17-Apr-07	W-27 Alluvial 49.7 19-Sep-07	W-27 Alluvial 49.7 05-May-08	W-27 Alluvial 49.7 01-Oct-08	W-27 Alluvial 49.7 28-Apr-09	W-27 Alluvial 49.7 16-Sep-09	W-27 Alluvial 49.7 30-Mar-10	W-27 Alluvial 49.7 06-May-10
Benzene	µg/L	5	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	na
Toluene	µg/L	2,000	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U, L5	1.00 U	1.00 U	1.00 U	na
Ethylbenzene	µg/L	700	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	na
Xylenes	µg/L	10,000	1.0 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	6.00 U	na
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	2.5 U*	0.0490 U	0.0490 U	0.0490 U	0.0490 U	0.0220 U	0.0220 U	0.0220 U	0.0220 U	0.0220 U
Acenaphthylene	µg/L	--	1.3 U*	0.0850 U	0.0850 U	0.0850 U	0.0850 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U
Anthracene	µg/L	--	0.049 U*	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Benzo(a)anthracene	µg/L	0.1	0.13 U	0.00300 U	0.00300 U	0.00300 U	0.00300 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Benzo(a)pyrene	µg/L	0.2	0.13 U	0.0320 U	0.0320 U	0.0320 U	0.0320 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	0.049 U	0.0130 U	0.0130 U	0.0130 U	0.0130 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	0.20 U	0.00900 U	0.00900 U	0.00900 U	0.00900 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	0.049 U	0.0150 U	0.0150 U	0.0150 U	0.0150 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U
Chrysene	µg/L	0.2	0.13 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Dibenzo(a,h)anthrace	µg/L	0.2	0.29 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.13 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluorene	µg/L	--	0.25 U*	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U
Indeno(1,2,3cd)pyren	µg/L	0.4	0.13 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U
Naphthalene	µg/L	100	1.3 U*	0.0540 U	0.0540 U	0.0540 U	0.0540 U	0.0460 U	0.0460 U	0.0874 J	R	0.0460 U
Phenanthrene	µg/L	--	0.098 U	0.00956 J	0.00700 U	0.00700 U	0.00700 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U
Pyrene	µg/L	--	0.25 U	0.0190 U	0.0190 U	0.0190 U	0.0190 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	W-27 Alluvial 49.7 15-Sep-10	W-113 Silty Sand 34.8 10-Oct-05	W-113 Silty Sand 34.8 14-Mar-06	W-113 Silty Sand 34.8 11-Sep-06	W-113 Silty Sand 34.8 17-Apr-07	W-113 Silty Sand 34.8 19-Sep-07	W-113 Silty Sand 34.8 05-May-08	W-113 Silty Sand 34.8 30-Sep-08	W-113 Silty Sand 34.8 28-Apr-09
Sample Location: / Screened Unit: / Depth BTOC (feet): / Sample Date:											
Benzene	µg/L	5	1.00 U	1.0 U	1.0 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Toluene	µg/L	2,000	1.00 U	1.0 U	1.0 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Ethylbenzene	µg/L	700	1.00 U	1.0 U	1.0 U	5.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Xylenes	µg/L	10,000	3.00 U	1.0 U	1.0 U	15.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	0.0220 U	2.5 U	2.4 U*	0.0490 U	0.0490 U	0.0490 U	0.0490 U	0.0331 J	0.0702 J
Acenaphthylene	µg/L	--	0.0870 U	1.3 U	1.2 U*	0.0850 U	0.0850 U	0.0850 U	0.0850 U	0.0870 U	0.0870 U
Anthracene	µg/L	--	0.0100 U	0.050 U	0.048 Ua*	0.0100 J	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Benzo(a)anthracene	µg/L	0.1	0.00500 U	0.13 U	0.12 U	0.0101 J	0.00300 U	0.0199 J	0.00903 J	0.00500 U	0.0102 J
Benzo(a)pyrene	µg/L	0.2	0.00800 U	0.13 U	0.017 Ja	0.0320 U	0.0320 U	0.0320 U	0.0320 U	0.00800 U	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	0.0280 U	0.050 U	0.048 U	0.0130 U	0.0130 U	0.0130 U	0.0130 U	0.0280 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	0.00800 U	0.20 U	0.19 U	0.00900 U	0.00900 U	0.0199 J	0.00900 U	0.00800 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	0.00700 U	0.050 U	0.048 U	0.0150 U	0.0150 U	0.0150 U	0.0150 U	0.00700 U	0.00700 U
Chrysene	µg/L	0.2	0.00800 U	0.13 U	0.12 U	0.01 J	0.00500 U	0.0304 J	0.0270 J	0.00800 U	0.00800 U
Dibenzo(a,h)anthrace	µg/L	0.2	0.0100 U	0.30 U	0.29 U	0.0100 U	0.0100 U	0.01	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.0100 U	0.13 U	0.045 Ja	0.0100 U	0.0100 U	0.0157 J	0.0100 U	0.0100 U	0.0100 U
Fluorene	µg/L	--	0.0160 U	0.25 U	0.24 U*	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0160 U	0.0160 U
Indeno(1,2,3cd)pyren	µg/L	0.4	0.00600 U	0.13 U	0.12 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00600 U	0.00600 U
Naphthalene	µg/L	100	0.0460 U	1.3 U	1.2 U*	0.0540 U	0.197	0.0540 U	0.702	0.0460 U	0.0460 U
Phenanthrene	µg/L	--	0.00500 U	0.099 U	0.030 Ja	0.0197 J	0.00700 U	0.00700 U	0.00700 U	0.00500 U	0.00500 U
Pyrene	µg/L	--	0.0170 U	0.25 U	0.040 Ja	0.0213 J	0.0325 J	0.0232 J	0.0190 U	0.0170 U	0.0170 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location:	W-113	W-113	W-113	W-126	W-126	W-126	W-126	W-126	W-126
			Screened Unit:	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
			Depth BTOC (feet):	34.8	34.8	34.8	30.0	30.0	30.0	30.0	30.0	30.0
			Sample Date:	15-Sep-09	30-Mar-10	15-Sep-10	11-Oct-05	14-Mar-06	12-Sep-06	17-Apr-07	19-Sep-07	05-May-08
Benzene	µg/L	5		1.00 U	1.00 U	1.2	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U
Toluene	µg/L	2,000		1.00 U	1.00 U	1.00 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U
Ethylbenzene	µg/L	700		1.00 U	1.00 U	1.00 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U
Xylenes	µg/L	10,000		3.00 U	6.00 U	3.00 U	1.0 U	1.0 U	3.00 U	3.00 U	3.00 U	3.00 U
2-Methylnaphthalene	µg/L	--		na	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--		na	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--		0.136 J	0.0220 U	0.0861 J	2.5 U	2.5 U*	0.0490 U	0.0544 U	0.0490 U	0.0490 U
Acenaphthylene	µg/L	--		0.0870 U	0.0870 U	0.0870 U	1.3 U	1.3 U*	0.0850 U	0.0944 U	0.0850 U	0.0850 U
Anthracene	µg/L	--		0.0100 U	0.0100 U	0.0100 U	0.027 Ja	0.049 U*	0.0100 U	0.0111 U	0.0100 U	0.0100 U
Benzo(a)anthracene	µg/L	0.1		0.00500 U	0.00500 U	0.00696 J	0.13 U	0.13 U	0.00300 U	0.00333 U	0.00300 U	0.00300 U
Benzo(a)pyrene	µg/L	0.2		0.00800 U	0.00800 U	0.00800 U	0.13 U	0.13 U	0.0320 U	0.0356 U	0.0320 U	0.0320 U
Benzo(b)fluoranthene	µg/L	0.2		0.0280 U	0.0280 U	0.0280 U	0.051 U	0.049 U	0.0130 U	0.0144 U	0.0130 U	0.0130 U
Benzo(g,h,i)perylene	µg/L	--		0.00800 U	0.00800 U	0.00800 U	0.20 U	0.20 U	0.00900 U	0.0100 U	0.00900 U	0.00900 U
Benzo(k)fluoranthene	µg/L	0.2		0.00700 U	0.00700 U	0.00700 U	0.051 U	0.049 U	0.0150 U	0.0167 U	0.0150 U	0.0150 U
Chrysene	µg/L	0.2		0.00800 U	0.00800 U	0.0175 J	0.13 U	0.13 U	0.00500 U	0.00556 U	0.00500 U	0.00500 U
Dibenzo(a,h)anthrace	µg/L	0.2		0.0100 U	0.0100 U	0.0100 U	0.30 U	0.29 U	0.0100 U	0.0111 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--		0.0100 U	0.0100 U	0.0100 U	0.13 U	0.13 U	0.0100 U	0.0111 U	0.0100 U	0.0100 U
Fluorene	µg/L	--		0.0160 U	0.0160 U	0.0160 U	0.25 U	0.25 U*	0.0100 U	0.0111 U	0.0100 U	0.0100 U
Indeno(1,2,3cd)pyren	µg/L	0.4		0.00600 U	0.00600 U	0.00600 U	0.13 U	0.13 U	0.00700 U	0.00778 U	0.00700 U	0.00700 U
Naphthalene	µg/L	100		0.0460 U	R	0.129	1.3 U	1.3 U*	0.0540 U	0.0600 U	0.0540 U	0.0540 U
Phenanthrene	µg/L	--		0.00500 U	0.00500 U	0.00500 U	0.10 U	0.098 U	0.0191 J	0.00778 U	0.00700 U	0.00700 U
Pyrene	µg/L	--		0.0170 U	0.0170 U	0.0170 U	0.25 U	0.25 U	0.0190 U	0.0211 U	0.0190 U	0.0190 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	W-126 Silty Sand 30.0 01-Oct-08	W-126 Silty Sand 30.0 28-Apr-09	W-126 Silty Sand 30.0 16-Sep-09	W-126 Silty Sand 30.0 30-Mar-10	W-126 Silty Sand 30.0 15-Sep-10	W-127 Silty Sand 26.0 11-Oct-05	W-127 Silty Sand 26.0 14-Mar-06	W-127 Silty Sand 26.0 12-Sep-06
Sample Location:			W-126	W-126	W-126	W-126	W-126	W-127	W-127	W-127
Screened Unit:			Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand	Silty Sand
Depth BTOC (feet):			30.0	30.0	30.0	30.0	30.0	26.0	26.0	26.0
Sample Date:			01-Oct-08	28-Apr-09	16-Sep-09	30-Mar-10	15-Sep-10	11-Oct-05	14-Mar-06	12-Sep-06
Benzene	µg/L	5	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.0 U	1.0 U	1.00 U
Toluene	µg/L	2,000	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.0 U	1.0 U	1.00 U
Ethylbenzene	µg/L	700	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.0 U	1.0 U	1.00 U
Xylenes	µg/L	10,000	3.00 U	3.00 U	3.00 U	6.00 U	3.00 U	1.0 U	1.0 U	3.00 U
2-Methylnaphthalene	µg/L	--	na	na	na	na		na	na	na
Dibenzofuran	µg/L	--	na	na	na	na		na	na	na
Acenaphthene	µg/L	--	0.0220 U	0.0220 U	0.0220 U	0.0220 U	0.0220 U	2.5 U	2.4 U*	0.0551 U
Acenaphthylene	µg/L	--	0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	1.3 U	1.3 U*	0.0955 U
Anthracene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.049 U	0.049 U*	0.0112 U
Benzo(a)anthracene	µg/L	0.1	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.13 U	0.13 U	0.00337 U
Benzo(a)pyrene	µg/L	0.2	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.13 U	0.13 U	0.0360 U
Benzo(b)fluoranthene	µg/L	0.2	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.049 U	0.049 U	0.0146 U
Benzo(g,h,i)perylene	µg/L	--	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.20 U	0.19 U	0.0101 U
Benzo(k)fluoranthene	µg/L	0.2	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.049 U	0.049 U	0.0169 U
Chrysene	µg/L	0.2	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.13 U	0.13 U	0.00973 J
Dibenzo(a,h)anthrace	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.29 U	0.29 U	0.0112 U
Fluoranthene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.13 U	0.13 U	0.0112 U
Fluorene	µg/L	--	0.0160 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U	0.25 U	0.24 U*	0.0112 U
Indeno(1,2,3cd)pyren	µg/L	0.4	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.13 U	0.13 U	0.00787 U
Naphthalene	µg/L	100	0.0460 U	0.0460 U	0.0894 J	R	0.0460 U	1.3 U	1.3 U*	0.0607 U
Phenanthrene	µg/L	--	0.00500 U	0.00500 U	0.0156 J	0.00500 U	0.00500 U	0.098 U	0.097 U	0.0121 J
Pyrene	µg/L	--	0.0170 U	0.0170 U	0.0170 U	0.017 U	0.0170 U	0.25 U	0.24 U	0.0213 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-127 / Screened Unit: Silty Sand / Depth BTOC (feet): 26.0 / Sample Date: 17-Apr-07	W-127 / Silty Sand / 26.0 / 19-Sep-07	W-127 / Silty Sand / 26.0 / 05-May-08	W-127 / Silty Sand / 26.0 / 01-Oct-08	W-127 / Silty Sand / 26.0 / 28-Apr-09	W-127 / Silty Sand / 26.0 / 16-Sep-09	W-127 / Silty Sand / 26.0 / 30-Mar-10	W-127 / Silty Sand / 26.0 / 15-Sep-10
Benzene	µg/L	5	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Toluene	µg/L	2,000	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Ethylbenzene	µg/L	700	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Xylenes	µg/L	10,000	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	6.00 U	3.00 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	0.0490 U	0.0490 U	0.0490 U	0.0220 U	0.0220 U	0.0220 U	0.0220 U	0.0220 U
Acenaphthylene	µg/L	--	0.0850 U	0.0850 U	0.0850 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U
Anthracene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Benzo(a)anthracene	µg/L	0.1	0.00300 U	0.00300 U	0.00300 U	0.00500 U	0.00500 U	0.00794 J	0.00500 U	0.00500 U
Benzo(a)pyrene	µg/L	0.2	0.0320 U	0.0320 U	0.0320 U	0.00800 U	0.00800 U	0.0111 J	0.00800 U	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	0.0130 U	0.0130 U	0.0130 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	0.00900 U	0.00900 U	0.00900 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	0.0150 U	0.0150 U	0.0150 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U
Chrysene	µg/L	0.2	0.00563 J	0.00500 U	0.00500 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U
Dibenzo(a,h)anthrace	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluorene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U	0.0160 U
Indeno(1,2,3cd)pyren	µg/L	0.4	0.00700 U	0.00700 U	0.00700 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U
Naphthalene	µg/L	100	0.0937 J	0.0540 U	0.0540 U	0.0460 U	0.0460 U	0.106	R	0.0460 U
Phenanthrene	µg/L	--	0.0175 J	0.00700 U	0.00700 U	0.00500 U	0.00500 U	0.0234 J	0.00500 U	0.00500 U
Pyrene	µg/L	--	0.0190 U	0.0190 U	0.0190 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: W-128 / Screened Unit: Silty Sand / Depth BTOC (feet): 24.8 / Sample Date: 10-Jul-07	W-128 Silty Sand 24.8 20-Sep-07	W-128 Silty Sand 24.8 05-May-08	W-128 Silty Sand 24.8 01-Oct-08	W-128 Silty Sand 24.8 28-Apr-09	W-128 Silty Sand 24.8 16-Sep-09	W-128 Silty Sand 24.8 30-Mar-10	W-128 Silty Sand 24.8 15-Sep-10
Benzene	µg/L	5	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Toluene	µg/L	2,000	1.00 U	1.00 U	1.00 U	1.00 U, L5	1.00 U	1.00 U	1.00 U	1.00 U
Ethylbenzene	µg/L	700	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Xylenes	µg/L	10,000	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	3.00 U	6.00 U	3.00 U
2-Methylnaphthalene	µg/L	--	na	na	na	na	na	na	na	na
Dibenzofuran	µg/L	--	na	na	na	na	na	na	na	na
Acenaphthene	µg/L	--	4.16	5.25	4.19	5.27	3.91	4.01	3.24	2.08
Acenaphthylene	µg/L	--	0.0850 U	0.0850 U	0.0850 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U	0.0870 U
Anthracene	µg/L	--	0.405	0.128 J	0.0764 J	0.0754 J	0.0936 J	0.0579 J	0.0291 J	0.0559 J
Benzo(a)anthracene	µg/L	0.1	0.189	0.124 J	0.0553 J	0.0536 J	0.112 J	0.0698 J	0.0374 J	0.0547 J
Benzo(a)pyrene	µg/L	0.2	0.197	0.147 J	0.120 J	0.088 J	0.169 J	0.0807 J	0.00800 U	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	0.292	0.239	0.0130 U	0.0280 U	0.238	0.0929 J	0.0280 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	0.114	0.2	0.0877 J	0.00800 U	0.117	0.112	0.00800 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	0.139 J	0.116 J	0.0150 U	0.00700 U	0.0510 J	0.0375 J	0.00700 U	0.00700 U
Chrysene	µg/L	0.2	0.218	0.218	0.162	0.164	0.205	0.0657 J	0.00800 U	0.0982 J
Dibenzo(a,h)anthrace	µg/L	0.2	0.0100 U	0.0235 J	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	1.53	0.63	0.334	0.306	0.375	0.17 J	0.0537 J	0.0100 U
Fluorene	µg/L	--	0.685	0.772	0.551	0.67	0.0160 U	0.452	0.0160 U	0.0160 U
Indeno(1,2,3cd)pyren	µg/L	0.4	0.165	0.144	0.0696 J	0.00600 U	0.119	0.0612 J	0.00600 U	0.00600 U
Naphthalene	µg/L	100	0.354	0.627	0.0540 U	0.0460 U	0.0460 U	0.225	R	0.0460 U
Phenanthrene	µg/L	--	0.329	0.653	0.113	0.0734 J	0.0879 J	0.0511 J	0.00500 U	0.00500 U
Pyrene	µg/L	--	2.35	1.31	0.485	0.481	0.221	0.11 J	0.0170 U	0.0170 U

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	Sample Location: D-6 Screened Unit: Silty Sand Depth BTOC (feet): 37.0 Sample Date: 27-Apr-05	D-6 Silty Sand 37.0 11-Oct-05	D-6 Silty Sand 37.0 15-Mar-06	D-6 Silty Sand 37.0 12-Sep-06	D-6 Silty Sand 37.0 18-Apr-07	D-6 Silty Sand 37.0 09-Sep-07	D-6 Silty Sand 37.0 08-May-08	D-6 Silty Sand 37.0 15-Sep-09	D-6 Silty Sand 37.0 31-Mar-10	D-6 Silty Sand 37.0 06-May-10	D-6 Silty Sand 37.0 16-Sep-10	SS-7 Silty Sand 33.2 27-Apr-05
Alkalinity, Total as CaCO3	mg/L	--	1300	1200	1300	1490	1820	1500	1840	1720	1630	na	1660	750
Ammonia(NH3+NH4),as N	mg/L	--	110	120	130	193	165	147	204	210	194	na	199	39
Chloride	mg/L	--	na	na	na	1390	na	na	na	na	na	na	1640	na
Iron, Total	mg/L	--	na	64	66	68.2	31.0 pH >2	59.7	15.4	44.7	30	na	29.1 pH>2	na
Iron, Dissolved	mg/L	--	na	38	31	49	9.45	45.6	15.2	22.7 pH>2	23.7	na	21.2	na
Manganese, Total	mg/L	--	na	5.3	8.3	8.85	4.04 pH>2	6.74	9.62	8.9	5.53	na	6.74 pH>2	na
Manganese, Dissolved	mg/L	--	na	na	7.2	7.7	3.54	6.28	7.56	8.22 pH >2	6.25	na	6.08	na
Methane	µg/L	--	5100	2200	4000	7660	10900	5790	2390	12500	11500	na	8740	2400
Nitrate as N (NO3-N)	mg/L	--	0.10 U	0.1	0.040 B	0.100 U	0.100 U	0.100 U	0.10 U	0.10 U	0.10 U	na	0.10 U	0.10 U
Nitrite as N (NO2-N)	mg/L	--	0.020 U	0.020 U	0.020 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	na	0.100 U	0.020 U
Nitrogen, Total Kjeldahl as N	mg/L	--	130	130	130	106	159	164	186	205	193	na	180	38
Phosphate, Ortho as P	mg/L	--	0.044 B	0.050 U	0.022 B	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	na	0.199	0.014 B
Sulfate	mg/L	--	20	80	50	30.2	13.8	196	122	222	63	na	147	320
Sulfide	mg/L	--	67	7.5	11	2.4	5.5 pH <12	2.0 U	2.0 U	3.84	2.0 U pH <12	na	2.00 U,pH<12	1.9
Total Organic Carbon	mg/L	--	35	36	35	28	26.9 ET	30.3 ET	32.6 ET	39.3 ET	36.2 ET	na	21.4 ET	49
Benzene	µg/L	5	610	990	670	638	556	1220	1030	966	1470	na	1060	1300
Toluene	µg/L	2,000	87	120	33	24.4	22.3	159	25.8	49.2	49.6	na	44.8	560
Ethylbenzene	µg/L	700	620	730	620	635	582	795	948	870	882 C9	na	737	1700
Xylenes	µg/L	10,000	640	600	340	253	222	564 MHA	253	1140	345 C9	na	356	2700
Acenaphthene	µg/L	--	690	88	110	170	226	143	194	213	186	148	3.67	110
Acenaphthylene	µg/L	--	4300	1300	1400	46.4	0.0850 U	0.0850 U	0.0850 U	4.35 U	1.35 U	1.74 U	13.9	2800
Anthracene	µg/L	--	290	20	20	52.2	54.6	19.4	37.9	33.6	29.7	14.8	0.0654 J	28
Benzo(a)anthracene	ug/L	0.1	180	8.3	9.6	21.9	22.9	8.0	18.5	13.4	14.5	4.83	0.00500 U	15
Benzo(a)pyrene	µg/L	0.2	110	5.2	5.8	22	20.9	9.36	18.2	12.4	13.4	4.9	0.00800 U	11
Benzo(b)fluoranthene	µg/L	0.2	55	2.7	3.1	17.6	16.6	5.74	12.8	7.56	0.0433 U	0.0280 U	0.0280 U	4.3
Benzo(g,h,i)perylene	µg/L	--	37	1.8 Ja	2.1	8.07	7.98	6.81	10	7.3	0.0124 U	2.38	0.00800 U	3.3
Benzo(k)fluoranthene	µg/L	0.2	35	1.1	1.3	7.07	7.24	2.83	6.44	4.54	0.0108 U	0.00700 U	0.00700 U	2.9
Chrysene	µg/L	0.2	120	5.5	6.2	24.8	18.6	8.74	17.7	10.1	0.124 U	2.47	0.00800 U	10
Dibenzo(a,h)anthracene	µg/L	0.2	20	0.87 Ja	0.88 Ja*	1.95	1.73	1.07	1.95	1.56	0.140 J	0.0100 U	0.0100 U	1.6 Ja
Fluoranthene	µg/L	--	810	42	44	75.2	106	29.1	73.4	58.4	42.2	16	0.0100 U	49
Fluorene	µg/L	--	350	35	34	149	149	142	207	207	103	88.8	2.41	57
Indeno(1,2,3cd)pyrene	µg/L	0.4	47	2.2	2.7	9.41	10	5.07	9.59	6.91	0.00928 U	1.98	0.00600 U	3.5
Naphthalene	µg/L	100	4800	1200	800	583	712 B	854	591	659	R	616	10.2	5900
Phenanthrene	µg/L	--	1200	74	77	170	181	86.3	158	153	120	53.2	0.226	120
Pyrene	µg/L	--	450	21	24	317	320	27	52.6	43.8	0.0263 U	2.95	0.0170 U	39
TPH as Gasoline	mg/L	--	na	na	na	na	na	na	na	na	10	na	na	na
Diesel	µg/L	--	na	na	na	na	na	na	na	na	15900 N1,Q	na	na	na
Gasoline	µg/L	--	na	na	na	na	na	na	na	na	22900 B,N1,Q	na	na	na
Motor Oil	µg/L	--	na	na	na	na	na	na	na	na	2460 N1,Q	na	na	na
Total Extractable Hydrocarbons	µg/L	--	na	na	na	na	na	na	na	na	41300	na	na	na
BOD - 5 Day	mg/L	--	na	na	na	na	na	na	na	na	30.3	na	na	na
Chemical Oxygen Demand	mg/L	--	na	na	na	na	na	na	na	na	102 M1	na	na	na
Phosphorous, Total	mg/L	--	na	na	na	na	na	na	na	na	102 M1	na	na	na

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	SS-7 Silty Sand 33.2 11-Oct-05	SS-7 Silty Sand 33.2 15-Mar-06	SS-7 Silty Sand 33.2 12-Sep-06	SS-7 Silty Sand 33.2 18-Apr-07	SS-10 Silty Sand 35.1 25-Apr-05	SS-10 Silty Sand 35.1 11-Oct-05	SS-10 Silty Sand 35.1 15-Mar-06	SS-10 Silty Sand 35.1 12-Sep-06	SS-10 Silty Sand 35.1 18-Apr-07	SS-10 Silty Sand 35.1 20-Sep-07	SS-10 Silty Sand 35.1 06-May-08	SS-10 Silty Sand 35.1 01-Oct-08
Alkalinity, Total as CaCO3	mg/L	--	730	790	654	853	620	890	930	922	1010	1020	697	993
Ammonia(NH3+NH4),as N	mg/L	--	32	23	11.4	30.1	9.2	5.7	3.8	3.2	3.48	3.1	4.47 M1	6.41 M1
Chloride	mg/L	--	na	na	400	na	na	na	na	119	na	na	na	na
Iron, Total	mg/L	--	72	70	73.4	69.4	na	100	42	14.7	38.1	75.4	16.1	20.4 MHA
Iron, Dissolved	mg/L	--	45	54	51.9	52.2	na	13	13	14.7	13.3	14.9	8.24	12.8 MHA
Manganese, Total	mg/L	--	37	35	25.8	37.7	na	14	16	12.5	12.5	12.6	10.1 MHA	13.9 MHA
Manganese, Dissolved	mg/L	--	na	33	24.5	36.8	na	na	16	11.2	11.8	11.5	9.68 MHA	14 MHA
Methane	µg/L	--	2200	3300	8680	7980	22	9.6	17	26.0 U	36	92	26 U	181
Nitrate as N (NO3-N)	mg/L	--	0.10 U	0.10 U	0.100 U	0.100 U	0.10 U	0.031 B	0.063 B	0.100 U	0.100 U	0.100 U	0.10 U	0.10 U
Nitrite as N (NO2-N)	mg/L	--	0.020 U	0.020 U	0.100 U	0.100 U	0.020 U	0.020 U	0.020 U	0.100 U	0.100 U	0.100 U	0.100 U,M1	0.100 U
Nitrogen, Total Kjeldahl as N	mg/L	--	33	24	13	30.9	12	7.5	8.5	3.02	5.18	4.99	7.91	9.37 M1
Phosphate, Ortho as P	mg/L	--	0.0070 B	0.015 B	0.100 U	0.100 U	0.13 ^	0.0060 B	0.018 B	0.100 U	0.100 U	0.100 U	0.364	0.100 U
Sulfate	mg/L	--	300	260	202	240	82	50	46	46.4	53	65	61.9	33.6
Sulfide	mg/L	--	1.0 U	1.0 U	1.00 U	1.97 pH<12	0.40 B	0.60 B	1.0 U	1.00 U	1.00 U	2.00 U	2.00 U,M1	2.00 U
Total Organic Carbon	mg/L	--	37	33	20.5	23.5 ET	9	16	14	8.82	9.85	11.4 ET	6.84 ET	9.61 ET
Benzene	µg/L	5	1600	1400	1940	927	1.0 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U	1.00 U
Toluene	µg/L	2,000	770	650	481	470	1.0 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U L1	1.04
Ethylbenzene	µg/L	700	2000	1600	1350	1470	1.0 U	1.0 U	1.0 U	1.00 U	1.00 U	1.00 U	1.00 U L1	1.00 U
Xylenes	µg/L	10,000	3200	2700	2190	2100	1.0 U	1.0 U	1.0 U	3.00 U	3.00 U	3.00 U	3.00 U L1	3.00 U
Acenaphthene	µg/L	--	130	63	77.6	159	2.4 U	2.7 U	2.5 U	0.0544 U	0.0544 U	0.0490 U	0.0490 U	0.0220 U
Acenaphthylene	µg/L	--	2400	2400	205	291	1.3 U	1.4 U	1.3 U	0.0944 U	0.0944 U	0.0850 U	0.0850 U	0.0870 U
Anthracene	µg/L	--	20	30	22.9	32.9	0.049 Ua	0.053 U	0.050 U	0.0111 U	0.0111 U	0.0100 U	0.0100 U	0.0100 U
Benzo(a)anthracene	ug/L	0.1	8.4	7.8	9.8	14.5	0.13 U	0.14 U	0.13 U	0.00383 J	0.00333 U	0.0117 J	0.00300 U	0.00500 U
Benzo(a)pyrene	µg/L	0.2	6	5.1	10.6	13.1	0.13 U	0.14 U	0.13 U	0.0356 U	0.0356 U	0.0320 U	0.0320 U	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	2.6	2.4	6.54	8.51	0.049 U	0.053 U	0.050 U	0.0144 U	0.0144 U	0.0130 U	0.0130 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	1.7 Ja	1.2 Ja	3.54	4.61	0.19 U	0.21 U	0.20 U	0.0100 U	0.0100 U	0.00900 U	0.00900 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	1.2	0.49 U	3.21	4.19	0.049 U	0.053 U	0.050 U	0.0167 U	0.0167 U	0.0150 U	0.0150 U	0.00700 U
Chrysene	µg/L	0.2	6.2	5.3 M	9.59	11.6	0.13 U	0.14 U	0.13 U	0.00556 U	0.00556 U	0.0324 J	0.00500 U	0.00800 U
Dibenzo(a,h)anthracene	µg/L	0.2	3.0 U	2.9 U*	0.938	1.19	0.29 U	0.32 U	0.30 U*	0.0111 U	0.0111 U	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	28	24	22.7	46.8	0.13 U	0.14 U	0.13 U	0.0111 U	0.0111 U	0.0100 U	0.0100 U	0.0100 U
Fluorene	µg/L	--	49	44	81.6	125	0.24 U	0.27 U	0.25 U	0.0111 U	0.0111 U	0.0100 U	0.0100 U	0.0160 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	1.9	1.8	4.07	6.03	0.13 U	0.14 U	0.13 U	0.00778 U	0.00778 U	0.00700 U	0.00700 U	0.00600 U
Naphthalene	µg/L	100	5200	4900	2920	4540 B	1.3 U	1.4 U	1.3 U	0.188	0.0642 J,B	0.0540 U	0.0540 U	0.0460 U
Phenanthrene	µg/L	--	74	66	70	100	0.097 Ua	0.11 U	0.099 U	0.0103 J	0.00792 J	0.00700 U	0.00700 U	0.00500 U
Pyrene	µg/L	--	20	14 M	101	140	0.24 U	0.27 U	0.25 U	0.0211 U	0.0323 J	0.0190 U	0.0190 U	0.0170 U
TPH as Gasoline	mg/L	--	na	na	na	na	na	na	na	na	na	na	na	na
Diesel	µg/L	--	na	na	na	na	na	na	na	na	na	na	na	na
Gasoline	µg/L	--	na	na	na	na	na	na	na	na	na	na	na	na
Motor Oil	µg/L	--	na	na	na	na	na	na	na	na	na	na	na	na
Total Extractable Hydrocarbons	µg/L	--	na	na	na	na	na	na	na	na	na	na	na	na
BOD - 5 Day	mg/L	--	na	na	na	na	na	na	na	na	na	na	na	na
Chemical Oxygen Demand	mg/L	--	na	na	na	na	na	na	na	na	na	na	na	na
Phosphorous, Total	mg/L	--	na	na	na	na	na	na	na	na	na	na	na	na

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	SS-10 Silty Sand 35.1 29-Apr-09	SS-10 Silty Sand 35.1 16-Sep-09	SS-10 Silty Sand 35.1 31-Mar-10	SS-10 Silty Sand 35.1 16-Sep-10	P-112 Silty Sand 38.8 25-Apr-05	P-112 Silty Sand 38.8 11-Oct-05	P-112 Silty Sand 38.8 15-Mar-06	P-112 Silty Sand 38.8 12-Sep-06	P-112 Silty Sand 38.8 18-Apr-07	P-112 Silty Sand 38.8 20-Sep-07	P-112 Silty Sand 38.8 06-May-08
Alkalinity, Total as CaCO3	mg/L	--	1020	1020	783	957	510	670	810	854	995	1090	1220
Ammonia(NH3+NH4),as N	mg/L	--	5.29	4.4	7.27	5.98	31	32	32	41.6	41.3	54.3	58.2
Chloride	mg/L	--	na	na	na	67.2	na	na	na	964 M1	na	na	na
Iron, Total	mg/L	--	19.0	17.4 MHA	13.1	18.8 MHA	na	95	120	122 MHA	137	101 MHA	65
Iron, Dissolved	mg/L	--	13.6 MHA	15	10.8	13.4	na	99	120	119 MHA	125	98.8 MHA	100
Manganese, Total	mg/L	--	13.8	12.5	12.2	14.2 MHA	na	5.5	6.2	6.07	6.24	5.33 MHA	9.62
Manganese, Dissolved	mg/L	--	14.2 MHA	12.6 S3	12.2	13.7	na	na	6.6	5.97	5.87	5.21	5.08
Methane	µg/L	--	26.0 U	26.0 U	79	29.8	2400	2900	2800	11600	16200	4600 M7	4200
Nitrate as N (NO3-N)	mg/L	--	0.10 U	0.10 U	0.10 U	0.10 U,M1	0.10 U	0.10 U	0.10 U	0.100 U M1	0.100 U	0.100 U M1	0.10 U
Nitrite as N (NO2-N)	mg/L	--	0.100 U	0.100 U	0.100 U	0.100 U	0.020 U	0.020 U	0.020 U	0.100 U	0.100 U	0.100 U	0.100 U
Nitrogen, Total Kjeldahl as N	mg/L	--	6.33 M1	5.47 M1,R	8.47	7.00 M1	27	30	32	34.2 M1	43.1	50.4 M1	61.8
Phosphate, Ortho as P	mg/L	--	0.100 U M1	0.100 U	0.100 U	0.100 U,M1	0.027 B^	0.050 U	0.016 B	0.100 U	0.100 U	1.00 U RL1	0.100 U
Sulfate	mg/L	--	41.4	35.2	43.6	34.3	9.3	15	5.0 U	15.9		12.2 M7	88.7
Sulfide	mg/L	--	2.00 U	2.00 U	2.00 U pH <12	2.00 U,pH<12	2.3	6.3	6.8	1	1.55 pH<12	2.00 U	2.00 U
Total Organic Carbon	mg/L	--	11.00	10.2 ET	8.19 ET	9.39 ET	12	18	18	16.6 M1	7.42 ET	7.22 ET, M1	7.66 ET
Benzene	µg/L	5	1.00 U	1.00 U	1.00 U	1.00 U	49	29	270	286	285	369 M1	551
Toluene	µg/L	2,000	1.00 U	1.00 U	1.00 U	1.00 U	3.7	1.5	10 U	21.6	18.6	22.8 M1	11.2 L1
Ethylbenzene	µg/L	700	1.00 U	1.00 U	1.00 U	1.00 U	91	57	500	715	536	585	789
Xylenes	µg/L	10,000	3.00 U	3.00 U	6.00 U	3.00 U	75	29	220	734	232	279 M1	236 L1
Acenaphthene	µg/L	--	0.0220 U	0.0220 U	0.0220 U	0.0220 U	2.0 Ja	18	11	32.4	54.3	55.4	84.7
Acenaphthylene	µg/L	--	0.0870 U	0.0870 U	0.0870 U	0.0870 U	50	380	270	0.0850 U	0.0944 U	0.0850 U	0.0850 U
Anthracene	µg/L	--	*0.0100 U*	*0.0100 U*	*0.0100 U*	*0.0100 U*	*0.050 U*	*0.24 U*	*0.051 U*	*0.0113*	*0.0721 J*	*0.136 J*	0.217
Benzo(a)anthracene	ug/L	0.1	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.13 U	0.62 U	0.13 U	0.00558	0.00333 U	0.00300 U	0.01 J
Benzo(a)pyrene	µg/L	0.2	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.13 U	0.62 U	0.13 U	0.0320 U	0.0356 U	0.0320 U	0.0320 U
Benzo(b)fluoranthene	µg/L	0.2	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.050 Ua	0.24 U	0.051 U	0.0130 U	0.0144 U	0.0130 U	0.0130 U
Benzo(g,h,i)perylene	µg/L	--	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.20 U	0.95 U	0.20 U	0.00900 U	0.0100 U	0.00900 U	0.00900 U
Benzo(k)fluoranthene	µg/L	0.2	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.050 U	0.24 U	0.051 U	0.0150 U	0.0167 U	0.0150 U	0.0150 U
Chrysene	µg/L	0.2	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.13 U	0.62 U	0.13 U	0.0338 J	0.00556 U	0.00500 U	0.00500 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.30 U	1.4 U	0.30 U*	0.0100 U	0.0111 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.13 U	0.22 Ja	0.13 U	0.0100 U	0.0111 U	0.0100 U	0.0100 U
Fluorene	µg/L	--	0.0160 U	0.0160 U	0.0160 U	0.0160 U	0.25 U	1.8	1.2	10.1	20.3	33.5	64.2
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.13 U	0.62 U	0.13 U	0.00700 U	0.00778 U	0.007	0.00700 U
Naphthalene	µg/L	100	0.0460 U	0.0697 J	R	0.0460 U	56	520	360	167	727 B	719	506
Phenanthrene	µg/L	--	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.099 Ua	0.48 U	0.10 U	0.544	2.4	1.65	2.95
Pyrene	µg/L	--	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.25 U	1.2 U	0.25 U	0.0190 U	0.0211 U	0.0190 U	0.0248 J
TPH as Gasoline	mg/L	--	na	na	na	na	na	na	na	na	na	na	na
Diesel	µg/L	--	na	na	na	na	na	na	na	na	na	na	na
Gasoline	µg/L	--	na	na	na	na	na	na	na	na	na	na	na
Motor Oil	µg/L	--	na	na	na	na	na	na	na	na	na	na	na
Total Extractable Hydrocarbons	µg/L	--	na	na	na	na	na	na	na	na	na	na	na
BOD - 5 Day	mg/L	--	na	na	na	na	na	na	na	na	na	na	na
Chemical Oxygen Demand	mg/L	--	na	na	na	na	na	na	na	na	na	na	na
Phosphorous, Total	mg/L	--	na	na	na	na	na	na	na	na	na	na	na

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	P-112 Silty Sand 38.8 01-Oct-08	P-112 Silty Sand 38.8 29-Apr-09	P-112 Silty Sand 38.8 16-Sep-09	P-112 Silty Sand 38.8 31-Mar-10	P-112 Silty Sand 38.8 06-May-10	P-112 Silty Sand 38.8 14-Sep-10	W-117 Silty Sand 35.0 27-Apr-05	W-117R Silty Sand 35.7 11-Oct-05	W-117R Silty Sand 35.7 15-Mar-06	W-117R Silty Sand 35.7 12-Sep-06	W-117R Silty Sand 35.7 18-Apr-07	W-117R Silty Sand 35.7 20-Sep-07
Alkalinity, Total as CaCO3	mg/L	–	1200	1340	1290	1880	na	1490	650	590	640	590	673	639
Ammonia(NH3+NH4),as N	mg/L	–	74.2	95.7	114	128	na	127	77	38	23	25	27.3	28.7
Chloride	mg/L	–	na	na	na	na	na	1080	na	na	na	2160	na	na
Iron, Total	mg/L	–	94.7	78.8	68.8	64.6	na	75.8	na	110	70	71.1	83.5 MHA	53.8
Iron, Dissolved	mg/L	–	89.5	86.2	71.8	70	na	59.1	na	43	46	46.2	64.0 MHA	46.9
Manganese, Total	mg/L	–	5.17	4.29	4.06	3.76	na	3.79	na	9.4	8.6	8.04	9.47	6.81
Manganese, Dissolved	mg/L	–	4.91	4.60	4.2	4.04	na	3.28	na	na	8.5	7.26	9.05 MHA	6.7
Methane	µg/L	–	8530	16500	10600	7170	na	6670	1000	200	140	530	748	273
Nitrate as N (NO3-N)	mg/L	–	0.10 U	0.10 U	0.10 U	0.10 U	na	0.10 U,H3,P2	0.10 U	0.10 U	0.10 U	0.100 U	0.100 U	0.100 U
Nitrite as N (NO2-N)	mg/L	–	0.100 U	0.100 U	0.100 U	0.100 U	na	0.100 U,H3	0.020 U	0.020 U	0.020 U	0.100 U	0.100 U	0.100 U
Nitrogen, Total Kjeldahl as N	mg/L	–	58.1	93.6	113 M1	130	na	114	80	44	23	21.3	27 M1	29.2
Phosphate, Ortho as P	mg/L	–	0.100 U	0.100 U	0.100 U	0.100 U	na	0.100 U,H3	0.015 B	0.050 U	0.016 B	0.100 U	0.108 M1	0.100 U
Sulfate	mg/L	–	140	76.3	81.9	165	na	108	230	280	270	284	346	396
Sulfide	mg/L	–	2.00 U	2.00 U	2.00 U	2.00 U pH<12	na	2.00 U,pH<12	6.5	7.9	6.6	1	1.76	2.00 U
Total Organic Carbon	mg/L	–	16.9 ET	26.7 ET	25.4	26.7 ET	na	18.5 ET	7	15	14	8.88	2.93 ET, M1	2.86 ET
Benzene	µg/L	5	554	786	1280	1580	na	1590	1.1	2.7	35	24.8	16.6	39.8
Toluene	µg/L	2,000	5.15	10.7	26.7	14.4	na	24.8	1.0 U	1.0 U	3.1	9	2.55	9.32
Ethylbenzene	µg/L	700	671	890	831	1170	na	798	1.0 U	1.8	3.2	5.72	2.56	8.3
Xylenes	µg/L	10,000	556	235	277	117	na	276	1.0 U	1.0 U	3.4	10.2	4.36	14.2
Acenaphthene	µg/L	–	79.4	80.6	101	109	120 MHA	113	1.0 Ja	1.2 Ja	2.4 U	3.04	3.93	4.49
Acenaphthylene	µg/L	–	0.0870 U	0.0870 U	0.0870 U	1.74 U	0.870 U,MHA	0.435 U	2.3	15	15	4.95	7.51	11.5
Anthracene	µg/L	–	0.125 J	0.160 J	0.265	0.0100 U	0.192	0.432	0.050 Ua	0.029 Ja	0.049 Ua	0.0407 J	0.0495 J	0.075 J
Benzo(a)anthracene	ug/L	0.1	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.00500 U	0.13 U	0.018 Ja	0.13 U	0.00341 U	0.00337 U	0.00300 U
Benzo(a)pyrene	µg/L	0.2	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.13 U	0.025 Ja	0.13 U	0.0364 U	0.0360 U	0.0320 U
Benzo(b)fluoranthene	µg/L	0.2	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.0280 U	0.050 U	0.025 Ja	0.049 Ua	0.0148 U	0.0146 U	0.0130 U
Benzo(g,h,i)perylene	µg/L	–	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.20 U	0.19 U	0.19 U	0.0102 U	0.0101 U	0.00900 U
Benzo(k)fluoranthene	µg/L	0.2	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.00700 U	0.050 U	0.047 U	0.049 U	0.0170 U	0.0169 U	0.0150 U
Chrysene	µg/L	0.2	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.00800 U	0.13 U	0.046 Ja	0.13 U	0.00568 U	0.00562 U	0.00500 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.30 U	0.28 U	0.29 U*	0.0114 U	0.0112 U	0.0100 U
Fluoranthene	µg/L	–	0.0100 U	0.0100 U	0.198	0.0100 U	0.0100 U	0.0100 U	0.13 U	0.068 Ja	0.13 U	0.0114 U	0.0112 U	0.0100 U
Fluorene	µg/L	–	8.06	11.5	91.7	53	54 MHA	41.6	0.079 Ja	1.2	1.1	1.52	2.23	2.82
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.00600 U	0.13 U	0.12 U	0.13 U	0.00795 U	0.00787 U	0.00700 U
Naphthalene	µg/L	100	211	324	703	R	429 MHA	877	0.51 Ja	1.2 U	1.3 U	2.47	4.18 B	6.12
Phenenthrene	µg/L	–	2.17	2.63	3.52	0.100 U	0.00500 U,M1	5.05	0.052 Ja	0.12	0.11	0.13	0.152	0.296
Pyrene	µg/L	–	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.0170 U	0.25 U	0.23 U	0.24 U	0.0216 U	0.0213 U	0.0190 U
TPH as Gasoline	mg/L	–	na	na	na	8.53	na	na	na	na	na	na	na	na
Diesel	µg/L	–	na	na	na	5340 N1,Q	na	na	na	na	na	na	na	na
Gasoline	µg/L	–	na	na	na	13000 B,N1,Q	na	na	na	na	na	na	na	na
Motor Oil	µg/L	–	na	na	na	512 N1,Q	na	na	na	na	na	na	na	na
Total Extractable Hydrocarbons	µg/L	–	na	na	na	18900	na	na	na	na	na	na	na	na
BOD - 5 Day	mg/L	–	na	na	na	16.4	na	na	na	na	na	na	na	na
Chemical Oxygen Demand	mg/L	–	na	na	na	75.7 M1	na	na	na	na	na	na	na	na
Phosphorous, Total	mg/L	–	na	na	na	na	1.75	na	na	na	na	na	na	na

GROUNDWATER ANALYTICAL RESULTS
MIDAMERICAN ENERGY COMPANY
PEOPLES NATURAL GAS SITE
DUBUQUE, IOWA

Analyte	Units	Remediation Goal	W-117R Silty Sand 35.7 6-May-08	W-117R Silty Sand 35.7 1-Oct-08	W-117R Silty Sand 35.7 29-Apr-09	W-117R Silty Sand 35.7 16-Sep-09	W-117R Silty Sand 35.7 31-Mar-10	W-117R Silty Sand 35.7 6-May-10	W-117R Silty Sand 35.7 16-Sep-10
Alkalinity, Total as CaCO3	mg/L	--	621	615	572	653	837	na	656
Ammonia(NH3+NH4),as N	mg/L	--	17.5	32.9	30.6	47.7	39.7	na	40.3
Chloride	mg/L	--	na	na	na	na	na	na	2280
Iron, Total	mg/L	--	101	43.6	82.0	45.6	42.1	na	40.4
Iron, Dissolved	mg/L	--	63.1	42.4	88.2	43.6	42.7 S3	na	39.0
Manganese, Total	mg/L	--	5.09	5.95	12.7	6.62	6.50 MHA	na	5.95
Manganese, Dissolved	mg/L	--	9.48	5.84	13.6	6.58	6.60 S3	na	5.82
Methane	µg/L	--	154	529	578	997	823	na	608
Nitrate as N (NO3-N)	mg/L	--	0.10 U	0.10 U	0.10 U P2	0.10 U	0.10 U,M1	na	0.10 U
Nitrite as N (NO2-N)	mg/L	--	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	na	0.100 U
Nitrogen, Total Kjeldahl as N	mg/L	--	31.5	33.4	34.1 M1	43.5	39.4 M1	na	37.1
Phosphate, Ortho as P	mg/L	--	0.100 U	0.100 U	0.100 U	0.100 U	0.100 U	na	0.100 U
Sulfate	mg/L	--	347	347	581	357	286	na	366
Sulfide	mg/L	--	2.00 U	2.00 U	2.00 U	2.00 U	2.00 U pH<12	na	2.00 U, pH<12
Total Organic Carbon	mg/L	--	2.47 ET	7.79 ET	8.93 ET	16.7 ET	12.4 ET	na	7.19 ET
Benzene	µg/L	5	15.8	8.08	3.43	43 FM	27.1	na	31.5
Toluene	µg/L	2,000	1.26	1.00 U	1.00 U	5.1 FM	1.00 U	na	1.6
Ethylbenzene	µg/L	700	5.91	3.42	6.28	8.1 FM	4.91	na	11.1
Xylenes	µg/L	10,000	6.60	6.09	3.00 U	15.0 U FM	6.00 U	na	9.97
Acenaphthene	µg/L	--	3.41	4.33	2.93	0.135 J	5.29	3.6	0.164 J
Acenaphthylene	µg/L	--	6.44	16.3	9.31	0.0870 U	13.6	16.1	0.0870 U
Anthracene	µg/L	--	0.0270 J	0.0100 U	0.0419 J	0.0276 J	0.0100 U	0.0100 U	0.0100 U
Benzo(a)anthracene	ug/L	0.1	0.00300 U	0.00500 U	0.00500 U	0.0506 J	0.00500 U	0.00500 U	0.00500 U
Benzo(a)pyrene	µg/L	0.2	0.0320 U	0.00800 U	0.00800 U	0.0866 J	0.00800 U	0.00800 U	0.00800 U
Benzo(b)fluoranthene	µg/L	0.2	0.0130 U	0.0280 U	0.0280 U	0.0938 J	0.0280 U	0.0280 U	0.0280 U
Benzo(g,h,i)perylene	µg/L	--	0.00900 U	0.00800 U	0.00800 U	0.085 J	0.00800 U	0.00800 U	0.00800 U
Benzo(k)fluoranthene	µg/L	0.2	0.0150 U	0.00700 U	0.00700 U	0.0586 J	0.00700 U	0.00700 U	0.00700 U
Chrysene	µg/L	0.2	0.00500 U	0.00800 U	0.00800 U	0.0745 J	0.00800 U	0.00800 U	0.00800 U
Dibenzo(a,h)anthracene	µg/L	0.2	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U	0.0100 U
Fluoranthene	µg/L	--	0.0100 U	0.0100 U	0.0100 U	0.0732 J	0.0100 U	0.0100 U	0.0100 U
Fluorene	µg/L	--	1.7	3.06	1.76	0.0579 J	1.52	1.61	0.0160 U
Indeno(1,2,3cd)pyrene	µg/L	0.4	0.00700 U	0.00600 U	0.00600 U	0.0771 J	0.00600 U	0.00600 U	0.00600 U
Naphthalene	µg/L	100	2.4	6.68	0.528	0.151	R	15	0.0460 U
Phenanthrene	µg/L	--	0.204	0.308	0.188	0.0784 J	0.00500 U	0.155	0.00500 U
Pyrene	µg/L	--	0.0190 U	0.0170 U	0.0170 U	0.107 J	0.0170 U	0.0170 U	0.0335 J
TPH as Gasoline	mg/L	--	na	na	na	na	na	na	na
Diesel	µg/L	--	na	na	na	na	na	na	na
Gasoline	µg/L	--	na	na	na	na	na	na	na
Motor Oil	µg/L	--	na	na	na	na	na	na	na
Total Extractable Hydrocarbons	µg/L	--	na	na	na	na	na	na	na
BOD - 5 Day	mg/L	--	na	na	na	na	na	na	na
Chemical Oxygen Demand	mg/L	--	na	na	na	na	na	na	na
Phosphorous, Total	mg/L	--	na	na	na	na	na	na	na

ATTACHMENT B

MWH

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SITE LOGIC Report

Bio-Trap In Situ Microcosm Study

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MI Identifier:	050HI

Report Date: November 11, 2010

Project: Dubuque PNG – EAS Study

Comments:

Executive Summary

A Bio-Trap® *In Situ* Microcosm study was undertaken in monitoring well P-112 to evaluate monitored natural attenuation (MNA) and EAS® as remediation options to promote biodegradation of benzene. The purpose of the control unit is to simulate MNA conditions and therefore it contained no exogenous electron acceptors. The second microcosm unit was amended with EAS® (a sulfate amendment) to serve as an electron acceptor. The *In Situ* Microcosm assemblies were recovered from the well after a 53 day deployment for analysis of the following: anaerobic BTEX degrading bacteria, iron and sulfate reducing bacteria, PLFA, contaminant concentrations, incorporation and mineralization of ^{13}C labeled benzene and anion and volatile fatty acid concentrations. A summary of the results is provided in the tables below.

- A moderate level of biomass (~10^5 cells/bead) was detected in both the MNA and the EAS sampler.
- Quantification of ^{13}C enriched biomass demonstrated a low level of utilization of the ^{13}C benzene in both samplers.
- Quantification of the ^{13}C dissolved inorganic carbon (DIC) showed that there was a moderate amount of mineralization occurring in the MNA sampler and a high level occurring in the EAS sampler.
- Pre- and post-deployment benzene analysis demonstrated a lower loss in the MNA sampler (29%) as compared to the EAS sampler which had a 48% loss.
- Concentrations of Benzyl Succinate Synthase genes (bssA) were not detected in either of the samplers.
- Concentrations of Iron and Sulfate Reducers were both in the 10^3 range.

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Overview of Approach

Site managers have frequently turned to laboratory microcosms or small pilot studies to evaluate bioremediation. However, duplication of *in situ* conditions in the laboratory is difficult and the results often do not correlate to the field. Pilot studies are performed in the field but are often prohibitively expensive as an investigative tool. Bio-Trap studies serve as cost-effective, *in situ* microcosms providing microbial, chemical, and geochemical evidence to evaluate biodegradation as a treatment mechanism and to screen remedial alternatives.

Typically each Bio-Trap Unit will contain samplers to evaluate the following:

Geochemical Fingerprint (GEO)	•20 mL amber VOA vial with a nylon screened cap designed for assessment of a variety of geochemical parameters including anions and metabolic acids.
Microbial Populations (MICRO)	•PVC cassette containing Bio-sep beads which provide a large surface area for microbial attachment and were designed for analysis by a variety of molecular biological tools (MBTs).

How does it work?

The MICRO sampler (microbial populations) contains Bio-Sep® beads, an engineered composite of Nomex® and powdered activated carbon which provides an incredibly large surface area (~600 m^2/g) that is readily colonized by subsurface microorganisms. In addition to a matrix for microbial growth, the Bio-Sep® beads can be "baited" with amendments including electron donors (e.g. hydrogen releasing compounds) to investigate biostimulation approaches to enhance biodegradation. The Bio-Trap units also contain a COC (contaminant of concern) sampler to measure contaminant concentrations, daughter product formation, and dissolved gases and a GEO (geochemical fingerprint) sampler for quantification of geochemical parameters (nitrate, iron, sulfate, etc.), chloride production and metabolic acids (pyruvic, lactic, acetic, propionic, etc).

BTEX-Impacted Sites

At sites impacted by petroleum products, the aromatic hydrocarbons benzene, toluene, ethylbenzene, and xylenes (BTEX) are typically the contaminants of principal concern. Under aerobic conditions, a variety of bacteria can utilize BTEX compounds as carbon and energy sources. Typically, aerobic BTEX biodegradation is initiated by an aromatic oxygenase enzyme which incorporates oxygen into the aromatic ring or a side group. Dehydrogenation is followed by ring cleavage and hydrolysis to yield central metabolites. BTEX compounds are also susceptible to biodegradation under anoxic and anaerobic conditions. Although the

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catabolic pathways for anaerobic BTEX biodegradation are not as well characterized as the aerobic pathways, benzylsuccinate synthase has been shown to be involved in the anaerobic biodegradation of toluene.

Bio-Trap *in situ* microcosm studies at BTEX-impacted sites typically include two types of Bio-Trap Units deployed within a monitoring well. One Bio-Trap Unit represents monitored natural attenuation (MNA) conditions and the second Unit (BioStim) includes an amendment designed to stimulate BTEX biodegradation. Combining the Control MNA Unit and BioStim Unit to form a Bio-Trap Assembly provides the microbiological, chemical, and geochemical lines of evidence to evaluate MNA and biostimulation as remedial alternatives in a single *in situ* pilot study.

The BioStim Unit will typically contain an Amendment Supplier with an oxygen releasing material, a slow-release nutrient source, or both depending on the type of biostimulation approach needed at the site. Both Bio-Trap Units contain COC and GEO samplers for chemical and geochemical analyses. The MICRO sampler contained in both the Control (MNA) and BioStim Units are typically baited with ^{13}C labeled Benzene for stable isotope probing.

Types of Bio-Trap Units configurations for BTEX-impacted sites:

Control (MNA)	•Bio-sep beads loaded with ^{13}C enriched Benzene and represent current aquifer conditions.
Biostimulation (BioStim)	•Bio-sep beads baited with a ^{13}C enriched Benzene. Amendment Supplier is used to slowly release nutrients.

Stable Isotope Probing (SIP)

Stable isotope probing (SIP) is an innovative method to track the environmental fate of a "labeled" contaminant of concern to unambiguously demonstrate biodegradation. Two stable carbon isotopes exist in nature – carbon 12 (^{12}C) which accounts for 99% of carbon and carbon 13 (^{13}C) which is considerably less abundant (~1%). With the SIP method, the Bio-Trap® sampler is baited with a specially synthesized form of the contaminant containing ^{13}C labeled carbon. Since ^{13}C is rare, the labeled compound can be readily differentiated from the contaminants present at the site. Following deployment, the Bio-Trap® is recovered and three approaches are used to conclusively demonstrate biodegradation of the contaminant of concern.

- The loss of the labeled compound provides an estimate of the degradation rate (% loss of ^{13}C).
- Quantification of ^{13}C enriched phospholipid fatty acids (PLFA) indicates incorporation into microbial biomass.
- Quantification of ^{13}C enriched dissolved inorganic carbon (DIC) indicates contaminant mineralization.

Phospholipid Fatty Acids (PLFA): PLFA are a primary component of the membrane of all living cells including bacteria. PLFA decomposes rapidly upon cell death (1, 2), so the total amount of PLFA present in a sample is indicative of the viable biomass. When combined with stable isotope probing (SIP), incorporation of ^{13}C into PLFA is a conclusive indicator of biodegradation.

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Results

Table 1. Summary of the results obtained from the Bio-Trap® Units. Interpretation guidelines and definitions are found later in the document.

Sample Name Treatment	P-112 MNA	P-112 EAS
Contaminant Loss		
Benzene Pre-deployment (mg/bd)	1.10	1.10
Benzene Post-deployment (mg/bd)	0.78	0.58
% Loss	29%	48%
Biomass & ^{13}C Incorporation		
Total Biomass (Cells/bd)	3.22E+05	2.95E+05
^{13}C Enriched Biomass (Cells/bd)	3.00E+03	2.64E+03
Maximum PLFA Del (‰)	146	143
^{13}C Mineralization		
DIC Del (‰)	593	1630
% 13C	1.73%	2.83%
Community Structure (% total PLFA)		
Firmicutes (TerBrSats)	0.0	0.0
Proteobacteria (Monos)	71.1	70.0
Anaerobic metal reducers (BrMonos)	0.0	0.0
Actinomycetes (MidBrSats)	0.0	0.0
General (Nsats)	27.2	27.8
Eukaryotes (Polyenoics)	1.7	2.2
Physiological Status (Proteobacteria only)		
Slowed Growth	0.12	0.15
Decreased Permeability	0.06	0.05

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Table 1 (cont'd).

Sample Name Treatment	P-112 MNA	P-112 EAS
CENSUS (cells/bead)		
Benzyl Succinate Synthase (bssA)	<5.00E+01	<5.00E+01
Iron and Sulfate Reducers (IRB/SRB)	1.50E+03	2.54E+03
Anions (mg/L)		
Chloride	995	1047
Nitrate	<0.10	<0.10
Phosphate	<0.57	1.2
Sulfate	422	1309
Volatile Fatty Acids (mg/L)		
Acetic	8.7	5.8
Propionic	<0.31	<0.31
Lactic	<0.39	0.44
Pyruvic	<0.69	<0.69
Butyric	<0.41	<0.41

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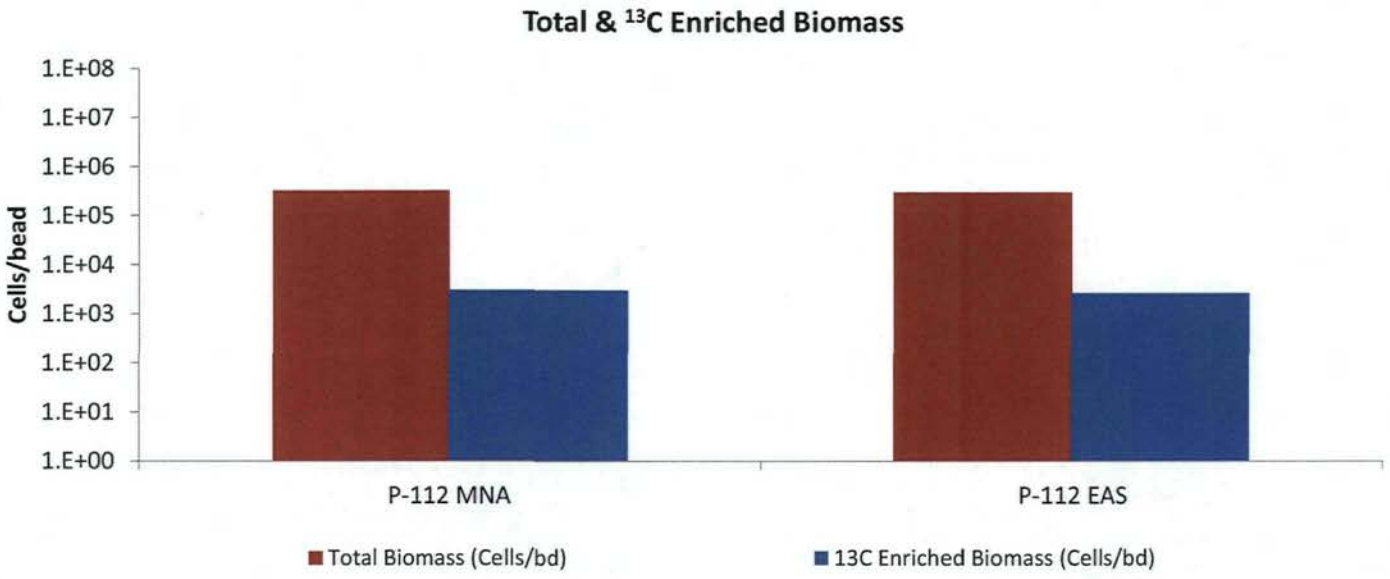

Figure -. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

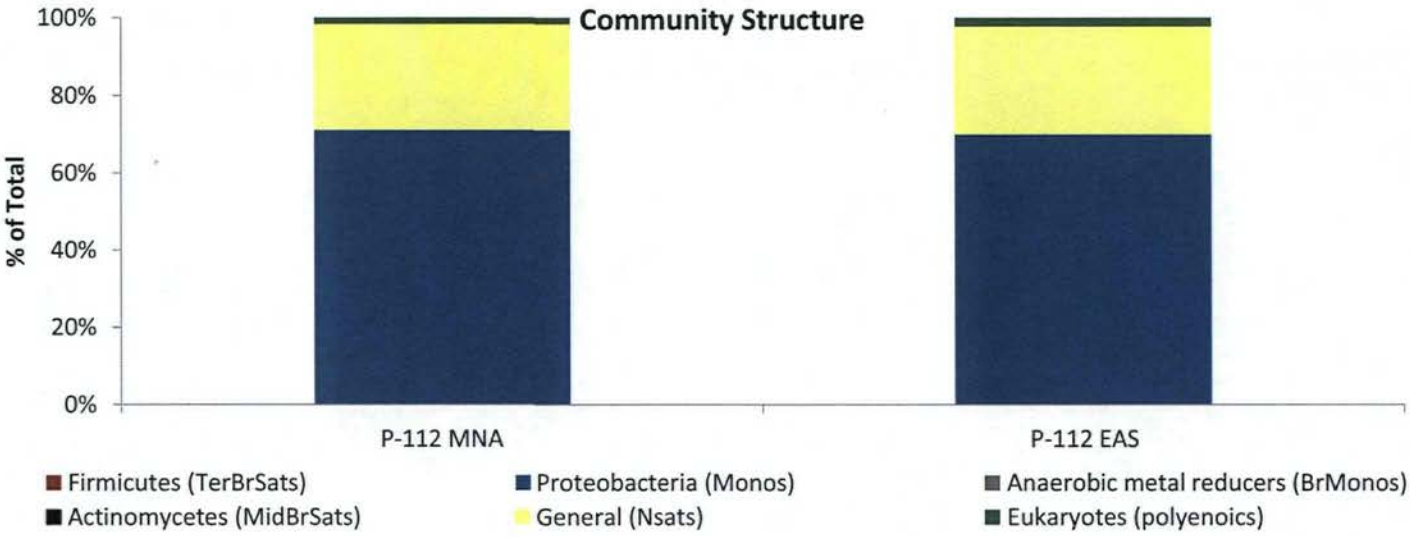

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

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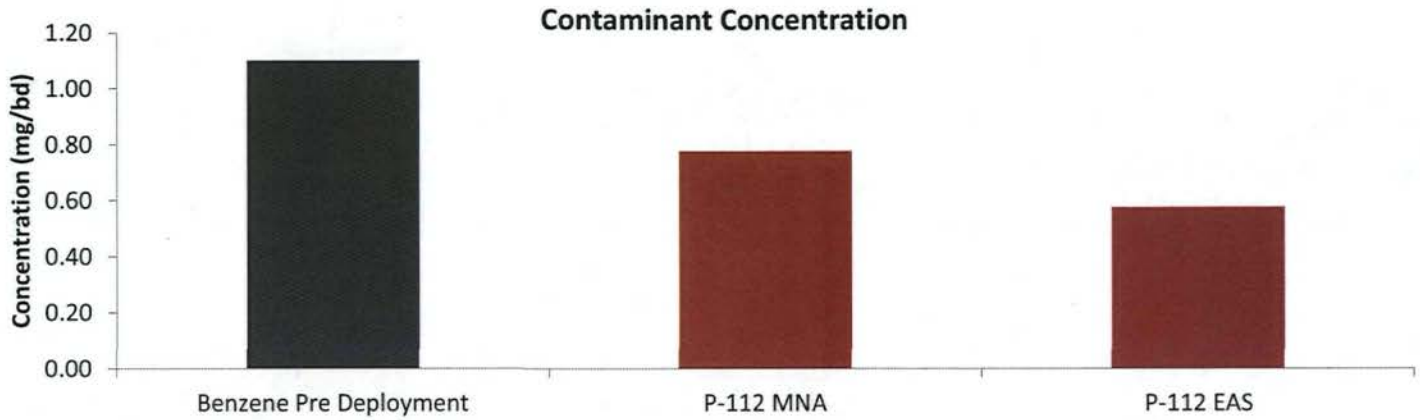

Figure 3. Comparison of Pre-deployment concentrations loaded on Bio-Sep beads to the concentrations detected after incubation.

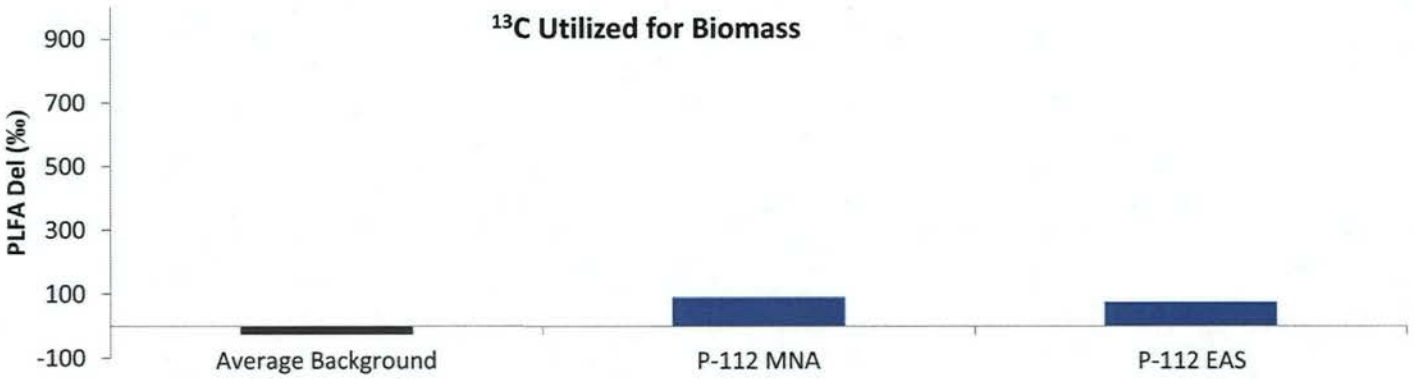

Figure 4. Comparison of the average Del value obtained from PLFA biomarkers from each Bio-Trap® unit to the average background Del observed in samples not exposed to ^{13}C enriched compounds.

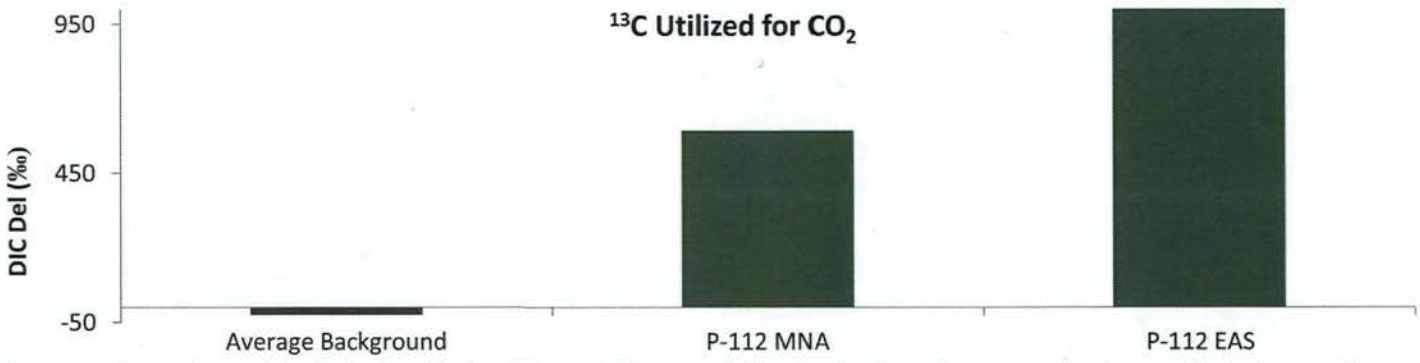

Figure 5. Comparison of the Del value obtained from DIC from each Bio-Trap® unit to the average background Del observed in samples not exposed to ^{13}C enriched compounds.

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Interpretation

Interpretation of the results of the SIP Bio-Trap® study must be performed with due consideration of site conditions, site activities, and the desired treatment mechanism. The following discussion describes interpretation of results in general terms and is meant to serve as a guide.

Contaminant Concentration: Bio-Traps® are baited with a ^{13}C labeled contaminant of concern and a pre-deployment concentration is determined prior to shipping. Following deployment, Bio-Traps® are recovered for analysis including measurement of the concentration of the ^{13}C labeled contaminant remaining. Pre- and post-deployment concentrations are used to calculate percent loss.

Biomass Concentrations: PLFA analysis is one of the most reliable and accurate methods available for the determination of viable (live) biomass. Phospholipids break down rapidly upon cell death, so biomass calculations based on PLFA content do not include "fossil" lipids from dead cells. Total biomass (cells/bead) is calculated from total PLFA using a conversion factor of 20,000 cells/pmole of PLFA. When making comparisons between wells, treatments, or over time, differences of one order of magnitude or more are considered significant.

Total Biomass		
Low	**Moderate**	**High**
10^3 to 10^4 cells	10^5 to 10^6 cells	10^7 to 10^8 cells

For SIP studies, the ^{13}C enriched PLFA is also determined to conclusively demonstrate contaminant biodegradation and quantify incorporation into biomass as a result of the ^{13}C being used for cellular growth. The % ^{13}C incorporation (^{13}C enriched biomass/total biomass) is also provided in the data summary table, but the value must be interpreted carefully especially when comparing wells or treatments. Typically, biodegradation of a contaminant of concern is performed by a small subset of the total microbial community. For Bio-Traps® with large total biomass, the % ^{13}C incorporation value could be low despite significant ^{13}C labeled biomass and loss of the compound. The % ^{13}C incorporation should be viewed in light of total biomass, percent loss, and dissolved inorganic carbon (DIC) results.

^{13}C enrichment data is often reported as a del value. The del value is the difference between the isotopic ratio ($^{13}C/^{12}C$) of the sample (R_x) and a standard (R_{std}) normalized to the isotopic ratio of the standard (R_{std}) and multiplied by 1,000 (units are parts per thousand, denoted ‰).

R_{std} is the naturally occurring isotopic ratio and is approximately 0.011180 (roughly 1% of naturally occurring carbon is ^{13}C). The isotopic ratio, R_x, of PLFA is typically less than the R_{std} under natural conditions, resulting in a del value between -20 and -30‰. For a SIP Bio-Trap® study, biodegradation and incorporation of the ^{13}C labeled compound into PLFA results in a larger $^{13}C/^{12}C$ ratio (R_x) and thus del values greater than under natural conditions. Typical PLFA del values are provided below.

PLFA Del (‰)		
Low	**Moderate**	**High**
0 to 100	100 to 1,000	>1,000

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Dissolved Inorganic Carbon (DIC): Often, bacteria can utilize the ^{13}C labeled compound as both a carbon and energy source. The ^{13}C portion used as a carbon source for growth can be incorporated into PLFA as discussed above, while the ^{13}C used for energy is oxidized to $^{13}CO_2$ (mineralized).

^{13}C enriched CO_2 data is often reported as a del value as described above for PLFA. Under natural conditions, the R_x of CO_2 is approximately the same as R_{std} (0.01118 or about 1.1% ^{13}C). For an SIP Bio-Trap® study, mineralization of the ^{13}C labeled contaminant of concern would lead to a greater value of R_x (increased $^{13}CO_2$ production) and thus a positive del value. As with PLFA, del values between 0 and 100‰ are considered low, values between 100 and 1,000‰ are considered moderate, and values greater than 1,000‰ are considered high. Thus DIC $\%^{13}C$ are considered low if the value is less than 1.23%, moderate if between 1.23 and 2.24%, and high if greater than 2.24%.

Dissolved Inorganic Carbon (DIC) Del and $\%^{13}C$		
Low	**Moderate**	**High**
0 to 100	100 to 1,000	>1,000
1.11 to 1.23%	1.23 to 2.24 %	>2.24 %

Community Structure (% total PLFA): Community structure data is presented as a percentage of PLFA structural groups normalized to the total PLFA biomass. The relative proportions of the PLFA structural groups provide a "fingerprint" of the types of microbial groups (e.g. anaerobes, sulfate reducers, etc.) present and therefore offer insight into the dominant metabolic processes occurring at the sample location. Thorough interpretation of the PLFA structural groups depends in part on an understanding of site conditions and the desired microbial biodegradation pathways. For example, an increase in mid chain branched saturated PLFA (MidBrSats), indicative of sulfate reducing bacteria (SRB) and *Actinomycetes*, may be desirable at a site where anaerobic BTEX biodegradation is the treatment mechanism, but would not be desirable for a corrective action promoting aerobic BTEX or MTBE biodegradation. The following table provides a brief summary of each PLFA structural group and its potential relevance to bioremediation.

Table 2. Description of PLFA structural groups.

PLFA Structural Group	General classification	Potential Relevance to Bioremediation Studies
Monoenoic (Monos)	Abundant in Proteobacteria (Gram negative bacteria), typically fast growing, utilize many carbon sources, and adapt quickly to a variety of environments.	Proteobacteria is one of the largest groups of bacteria and represents a wide variety of both aerobes and anaerobes. The majority of Hydrocarbon utilizing bacteria fall within the Proteobacteria
Terminally Branched Saturated (TerBrSats)	Characteristic of Firmicutes (Low G+C Gram-positive bacteria), and also found in Bacteriodes, and some Gram-negative bacteria (especially anaerobes).	Firmicutes are indicative of presence of anaerobic fermenting bacteria (mainly *Clostridia/Bacteriodes*-like), which produce the H_2 necessary for reductive dechlorination
Branched Monoenoic (BrMonos)	Found in the cell membranes of micro-aerophiles and anaerobes, such as sulfate- or iron-reducing bacteria	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Mid-Chain Branched Saturated (MidBrSats)	Common in sulfate reducing bacteria and also Actinobacteria (High G+C Gram-positive bacteria).	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Normal Saturated (Nsats)	Found in all organisms.	High proportions often indicate less diverse populations.
Polyenoic	Found in eukaryotes such as fungi, protozoa, algae, higher plants, and animals.	Eukaryotic scavengers will often rise up and prey on contaminant utilizing bacteria

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Physiological Status (*Proteobacteria*): Some *Proteobacteria* modify specific PLFA as a strategy to adapt to stressful environmental conditions (3, 4). For example, *cis* monounsaturated fatty acids may be modified to cyclopropyl fatty acids during periods of slowed growth or modified to *trans* monounsaturated fatty acids to decrease membrane permeability in response to environmental stress. The ratio of product to substrate fatty acid thus provides an index of their health and metabolic activity. In general, status ratios greater than 0.25 indicate a response to unfavorable environmental conditions.

Glossary

Del: A Del value is the difference between the isotopic ratio ($^{13}C/^{12}C$) of the sample (R_x) and a standard (R_{std}) normalized to the isotopic ratio of the standard (R_{std}) and multiplied by 1,000 (units are parts per thousand denoted ‰).

$$Del = (R_x - R_{std})/R_{std} \times 1000$$

References

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SITE LOGIC Report

Bio-Trap In Situ Microcosm Study

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Email: Kevin.G.Armstrong@MWHglobal.com

MI Identifier: 022HK

Report Date:

Project: PNG – Dubuque

Comments:

Executive Summary

A Bio-Trap® *In Situ* Microcosm study was undertaken in monitoring well P-112 to evaluate monitored natural attenuation (MNA) and EAS® as remediation options to promote biodegradation of naphthalene. The purpose of the control unit is to simulate MNA conditions and therefore it contained no exogenous electron acceptors. The second microcosm unit was amended with EAS® (a sulfate amendment) to serve as an electron acceptor. The *In Situ* Microcosm assemblies were recovered from the well after a 56 day deployment for analysis of the following: anaerobic BTEX degrading bacteria, iron and sulfate reducing bacteria, PLFA, contaminant concentrations, incorporation and mineralization of ^{13}C labeled naphthalene and anion concentrations. A summary of the results is provided in the tables below.

- A moderate level of biomass (~10^5 cells/bead) was detected in both the MNA and the EAS sampler.
- Quantification of ^{13}C-enriched biomass demonstrated a low level of utilization of the ^{13}C naphthalene in both samplers.
- Quantification of the ^{13}C dissolved inorganic carbon (DIC) showed that there was a high amount of mineralization occurring in both the MNA sampler and the EAS sampler.
- Pre- and post-deployment naphthalene analysis showed similar loss between the two samplers (MNA sampler (18%) and EAS 11%)).
- Concentrations of Iron and Sulfate Reducers were higher in the EAS amended sampler (MNA not detected versus EAS ~10^3).

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Overview of Approach

Site managers have frequently turned to laboratory microcosms or small pilot studies to evaluate bioremediation. However, duplication of *in situ* conditions in the laboratory is difficult and the results often do not correlate to the field. Pilot studies are performed in the field but are often prohibitively expensive as an investigative tool. Bio-Trap studies serve as cost-effective, *in situ* microcosms providing microbial, chemical, and geochemical evidence to evaluate biodegradation as a treatment mechanism and to screen remedial alternatives.

Typically each Bio-Trap Unit will contain samplers to evaluate the following:

Geochemical Fingerprint (GEO)	•20 mL amber VOA vial with a nylon screened cap designed for assessment of a variety of geochemical parameters including anions and metabolic acids.
Microbial Populations (MICRO)	•PVC cassette containing Bio-sep beads which provide a large surface area for microbial attachment and were designed for analysis by a variety of molecular biological tools (MBTs).

How does it work?

The MICRO sampler (microbial populations) contains Bio-Sep® beads, an engineered composite of Nomex® and powdered activated carbon which provides an incredibly large surface area (~600 m^2/g) that is readily colonized by subsurface microorganisms. In addition to a matrix for microbial growth, the Bio-Sep® beads can be "baited" with amendments including electron donors (e.g. hydrogen releasing compounds) to investigate biostimulation approaches to enhance biodegradation. The Bio-Trap units also contain a COC (contaminant of concern) sampler to measure contaminant concentrations, daughter product formation, and dissolved gases and a GEO (geochemical fingerprint) sampler for quantification of geochemical parameters (nitrate, iron, sulfate, etc.), chloride production and metabolic acids (pyruvic, lactic, acetic, propionic, etc).

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Types of Bio-Trap Units configurations for BTEX-impacted sites:

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Stable isotope probing (SIP) is an innovative method to track the environmental fate of a "labeled" contaminant of concern to unambiguously demonstrate biodegradation. Two stable carbon isotopes exist in nature – carbon 12 (^{12}C) which accounts for 99% of carbon and carbon 13 (^{13}C) which is considerably less abundant (~1%). With the SIP method, the Bio-Trap® sampler is baited with a specially synthesized form of the contaminant containing ^{13}C labeled carbon. Since ^{13}C is rare, the labeled compound can be readily differentiated from the contaminants present at the site. Following deployment, the Bio-Trap® is recovered and three approaches are used to conclusively demonstrate biodegradation of the contaminant of concern.

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Naphthalene Pre-deployment (mg/bd)	1.00	1.00
Naphthalene Post-deployment (mg/bd)	0.82	0.89
% Loss	18%	11%
Biomass & ^{13}C Incorporation		
Total Biomass (Cells/bd)	5.36E+05	3.72E+05
^{13}C Enriched Biomass (Cells/bd)	4.45E+01	1.84E+02
Maximum PLFA Del (‰)	29	38
^{13}C Mineralization		
DIC Del (‰)	8,042	7,622
% 13C	9.09%	8.70%
Community Structure (% total PLFA)		
Firmicutes (TerBrSats)	1.0	1.2
Proteobacteria (Monos)	74.4	74.0
Anaerobic metal reducers (BrMonos)	0.7	0.9
Actinomycetes (MidBrSats)	0.0	0.0
General (Nsats)	22.5	22.4
Eukaryotes (Polyenoics)	1.4	1.5
Physiological Status (Proteobacteria only)		
Slowed Growth	0.19	0.17
Decreased Permeability	0.17	0.16
CENSUS (cells/bead)		
Benzyl Succinate Synthase (bssA)	<5.00E+01	<5.00E+01
Iron and Sulfate Reducers (IRB/SRB)	<3.75E+01	1.65E+03
Anions (mg/L)		
Chloride	1125	1094
Nitrate	0.18	4.7
Phosphate	<0.57	<0.57
Sulfate	69	186

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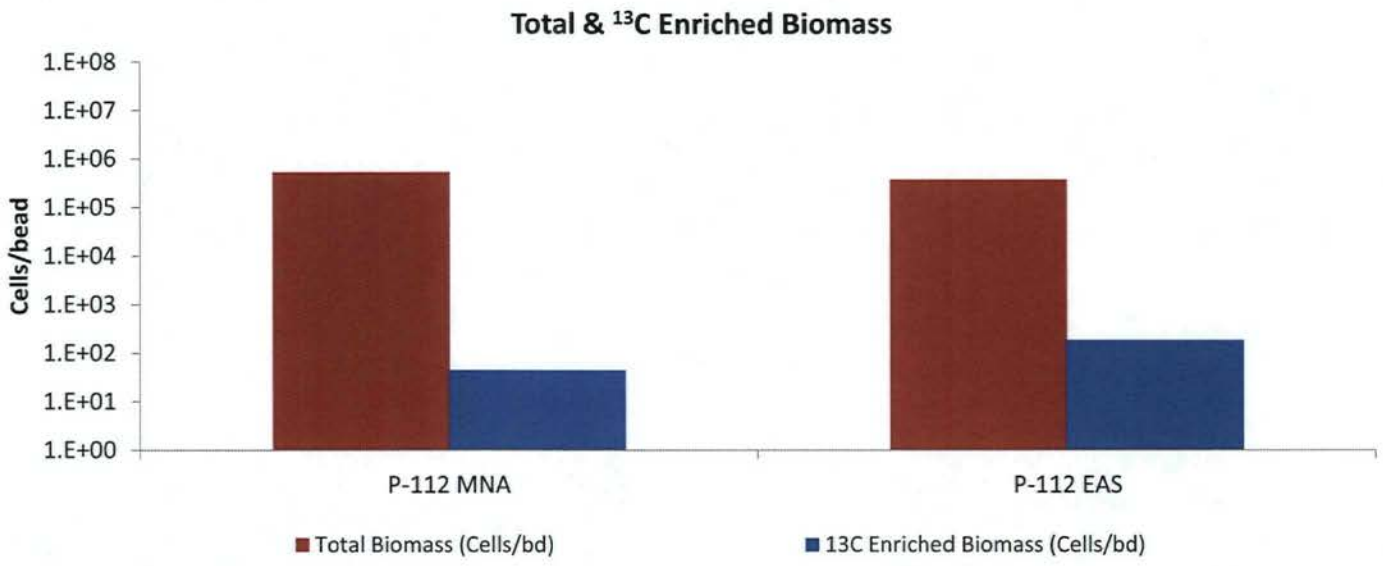

Figure -. Biomass content is presented as a cell equivalent based on the total amount of phospholipid fatty acids (PLFA) extracted from a given sample. Total biomass is calculated based upon PLFA attributed to bacterial and eukaryotic biomass (associated with higher organisms).

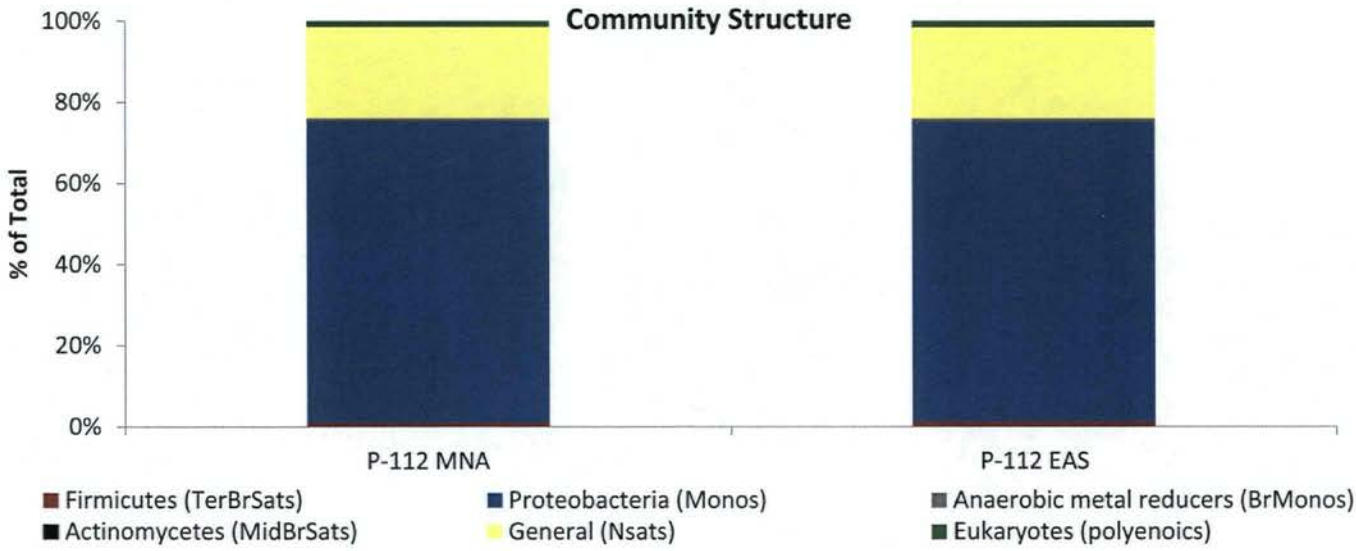

Figure 2. Relative percentages of total PLFA structural groups in the samples analyzed. Structural groups are assigned according to PLFA chemical structure, which is related to fatty acid biosynthesis. See the table in the interpretation section for detailed descriptions of the structural groups.

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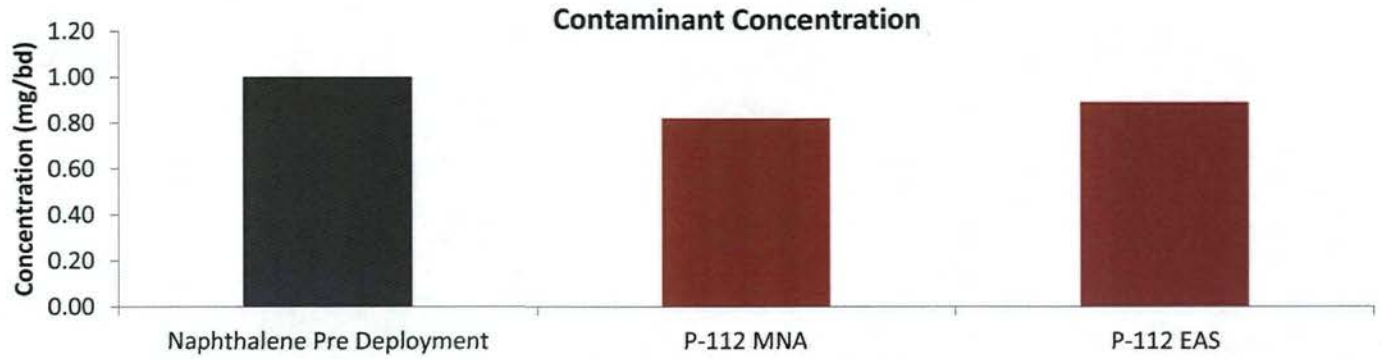

Figure 3. Comparison of Pre-deployment concentrations loaded on Bio-Sep beads to the concentrations detected after incubation.

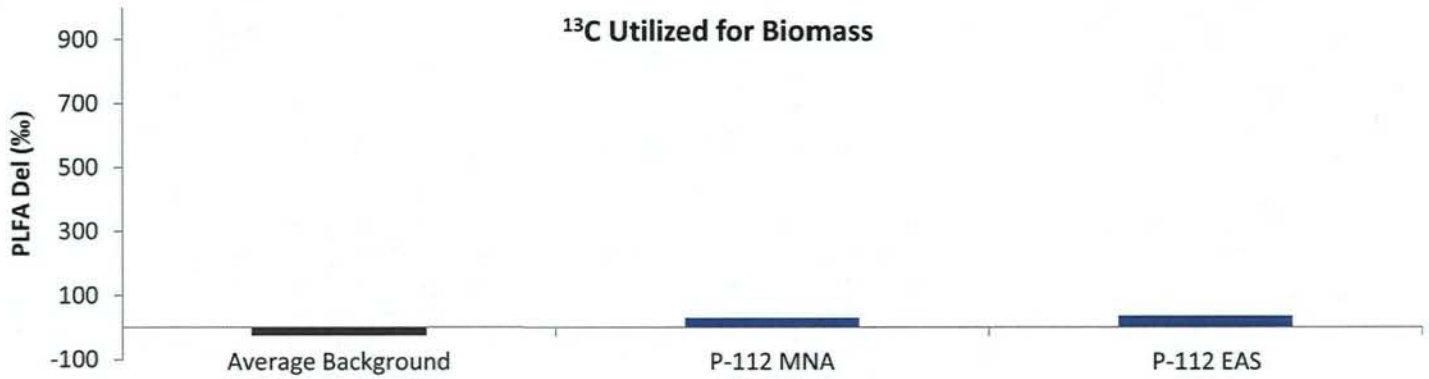

Figure 4. Comparison of the average Del value obtained from PLFA biomarkers from each Bio-Trap® unit to the average background Del observed in samples not exposed to ^{13}C enriched compounds.

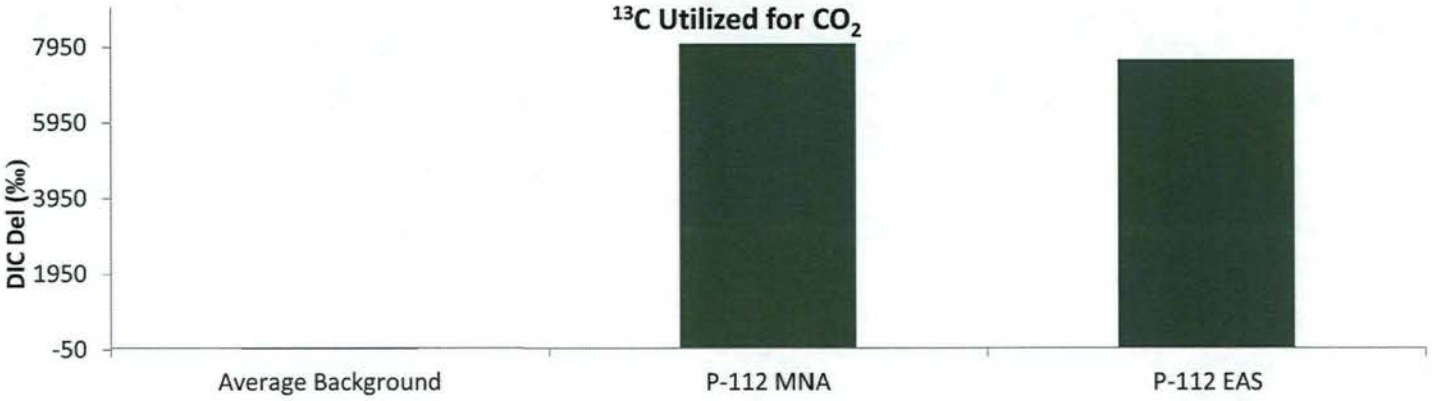

Figure 5. Comparison of the Del value obtained from DIC from each Bio-Trap® unit to the average background Del observed in samples not exposed to ^{13}C enriched compounds.

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Interpretation

Interpretation of the results of the SIP Bio-Trap® study must be performed with due consideration of site conditions, site activities, and the desired treatment mechanism. The following discussion describes interpretation of results in general terms and is meant to serve as a guide.

Contaminant Concentration: Bio-Traps® are baited with a ^{13}C labeled contaminant of concern and a pre-deployment concentration is determined prior to shipping. Following deployment, Bio-Traps® are recovered for analysis including measurement of the concentration of the ^{13}C labeled contaminant remaining. Pre- and post-deployment concentrations are used to calculate percent loss.

Biomass Concentrations: PLFA analysis is one of the most reliable and accurate methods available for the determination of viable (live) biomass. Phospholipids break down rapidly upon cell death, so biomass calculations based on PLFA content do not include "fossil" lipids from dead cells. Total biomass (cells/bead) is calculated from total PLFA using a conversion factor of 20,000 cells/pmole of PLFA. When making comparisons between wells, treatments, or over time, differences of one order of magnitude or more are considered significant.

Total Biomass		
Low	**Moderate**	**High**
10^3 to 10^4 cells	**10^5 to 10^6 cells**	**10^7 to 10^8 cells**

For SIP studies, the ^{13}C enriched PLFA is also determined to conclusively demonstrate contaminant biodegradation and quantify incorporation into biomass as a result of the ^{13}C being used for cellular growth. The % ^{13}C incorporation (^{13}C enriched biomass/total biomass) is also provided in the data summary table, but the value must be interpreted carefully especially when comparing wells or treatments. Typically, biodegradation of a contaminant of concern is performed by a small subset of the total microbial community. For Bio-Traps® with large total biomass, the % ^{13}C incorporation value could be low despite significant ^{13}C labeled biomass and loss of the compound. The % ^{13}C incorporation should be viewed in light of total biomass, percent loss, and dissolved inorganic carbon (DIC) results.

^{13}C enrichment data is often reported as a del value. The del value is the difference between the isotopic ratio ($^{13}C/^{12}C$) of the sample (R_x) and a standard (R_{std}) normalized to the isotopic ratio of the standard (R_{std}) and multiplied by 1,000 (units are parts per thousand, denoted ‰).

R_{std} is the naturally occurring isotopic ratio and is approximately 0.011180 (roughly 1% of naturally occurring carbon is ^{13}C). The isotopic ratio, R_x, of PLFA is typically less than the R_{std} under natural conditions, resulting in a del value between -20 and -30‰. For a SIP Bio-Trap® study, biodegradation and incorporation of the ^{13}C labeled compound into PLFA results in a larger $^{13}C/^{12}C$ ratio (R_x) and thus del values greater than under natural conditions. Typical PLFA del values are provided below.

PLFA Del (‰)		
Low	**Moderate**	**High**
0 to 100	100 to 1,000	>1,000

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Dissolved Inorganic Carbon (DIC): Often, bacteria can utilize the ^{13}C labeled compound as both a carbon and energy source. The ^{13}C portion used as a carbon source for growth can be incorporated into PLFA as discussed above, while the ^{13}C used for energy is oxidized to $^{13}CO_2$ (mineralized).

^{13}C enriched CO_2 data is often reported as a del value as described above for PLFA. Under natural conditions, the R_x of CO_2 is approximately the same as R_{std} (0.01118 or about 1.1% ^{13}C). For an SIP Bio-Trap® study, mineralization of the ^{13}C labeled contaminant of concern would lead to a greater value of R_x (increased $^{13}CO_2$ production) and thus a positive del value. As with PLFA, del values between 0 and 100‰ are considered low, values between 100 and 1,000‰ are considered moderate, and values greater than 1,000‰ are considered high. Thus DIC $\%^{13}C$ are considered low if the value is less than 1.23%, moderate if between 1.23 and 2.24%, and high if greater than 2.24%.

Dissolved Inorganic Carbon (DIC) Del and $\%^{13}C$		
Low	**Moderate**	**High**
0 to 100	100 to 1,000	>1,000
1.11 to 1.23%	1.23 to 2.24 %	>2.24 %

Community Structure (% total PLFA): Community structure data is presented as a percentage of PLFA structural groups normalized to the total PLFA biomass. The relative proportions of the PLFA structural groups provide a "fingerprint" of the types of microbial groups (e.g. anaerobes, sulfate reducers, etc.) present and therefore offer insight into the dominant metabolic processes occurring at the sample location. Thorough interpretation of the PLFA structural groups depends in part on an understanding of site conditions and the desired microbial biodegradation pathways. For example, an increase in mid chain branched saturated PLFA (MidBrSats), indicative of sulfate reducing bacteria (SRB) and *Actinomycetes*, may be desirable at a site where anaerobic BTEX biodegradation is the treatment mechanism, but would not be desirable for a corrective action promoting aerobic BTEX or MTBE biodegradation. The following table provides a brief summary of each PLFA structural group and its potential relevance to bioremediation.

Table 2. Description of PLFA structural groups.

PLFA Structural Group	General classification	Potential Relevance to Bioremediation Studies
Monoenoic (Monos)	Abundant in Proteobacteria (Gram negative bacteria), typically fast growing, utilize many carbon sources, and adapt quickly to a variety of environments.	Proteobacteria is one of the largest groups of bacteria and represents a wide variety of both aerobes and anaerobes. The majority of Hydrocarbon utilizing bacteria fall within the Proteobacteria
Terminally Branched Saturated (TerBrSats)	Characteristic of Firmicutes (Low G+C Gram-positive bacteria), and also found in Bacteriodes, and some Gram-negative bacteria (especially anaerobes).	Firmicutes are indicative of presence of anaerobic fermenting bacteria (mainly *Clostridia/Bacteriodes*-like), which produce the H_2 necessary for reductive dechlorination
Branched Monoenoic (BrMonos)	Found in the cell membranes of micro-aerophiles and anaerobes, such as sulfate- or iron-reducing bacteria	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Mid-Chain Branched Saturated (MidBrSats)	Common in sulfate reducing bacteria and also Actinobacteria (High G+C Gram-positive bacteria).	In contaminated environments high proportions are often associated with anaerobic sulfate and iron reducing bacteria
Normal Saturated (Nsats)	Found in all organisms.	High proportions often indicate less diverse populations.
Polyenoic	Found in eukaryotes such as fungi, protozoa, algae, higher plants, and animals.	Eukaryotic scavengers will often rise up and prey on contaminant utilizing bacteria

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Physiological Status (*Proteobacteria*): Some *Proteobacteria* modify specific PLFA as a strategy to adapt to stressful environmental conditions (3, 4). For example, *cis* monounsaturated fatty acids may be modified to cyclopropyl fatty acids during periods of slowed growth or modified to *trans* monounsaturated fatty acids to decrease membrane permeability in response to environmental stress. The ratio of product to substrate fatty acid thus provides an index of their health and metabolic activity. In general, status ratios greater than 0.25 indicate a response to unfavorable environmental conditions.

Glossary

Del: A Del value is the difference between the isotopic ratio ($^{13}C/^{12}C$) of the sample (R_x) and a standard (R_{std}) normalized to the isotopic ratio of the standard (R_{std}) and multiplied by 1,000 (units are parts per thousand denoted ‰).

$$Del = (R_x - R_{std})/R_{std} \times 1000$$

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