**11228 Aurora Avenue**
**Des Moines, Iowa 50322-7905**
**United States**
**www.ghd.com**

**GHD ref:** 11156780

**July 29, 2022**

**Ms. Dianna Daly-Husted , CP-FS, HHS**
**Environmental Public Health Director**
**Appanoose, Davis, Lucas, and Monroe Counties Department of Environmental Public Health**
**12307 Hwy 5, P.O. Box 399**
**Moravia, IA 52571**

**Notification of Groundwater Impact – Former Manufactured Gas Plant Site, Albia, Iowa**

Dear Ms. Daly-Husted,

This letter has been prepared on behalf of Interstate Power and Light Company (IPL) to formally notify you of groundwater contamination in the vicinity of the Albia former manufactured gas plant (FMGP) site. The Albia FMGP site is located at 510 N Main Street, in Albia, Iowa. IPL has conducted an environmental assessment of the site under the oversight of the Iowa Department of Natural Resources (IDNR).

IPL has conducted a site investigation to identify the extent of contamination in the area (Figure 1). Residual FMGP-related soil and groundwater remain at the site. The chemicals of concern include volatile organic compounds, such as benzene, and polynuclear aromatic hydrocarbons, such as naphthalene. A summary of groundwater sample results from the site is attached (Table 1).

IPL is submitting this notification for reference when considering granting private well installation permits in the area. Contamination above the allowable levels for drinking water is present in shallow groundwater in the localized area. The impacted groundwater at this site is considered a nonprotected groundwater source (as defined in Iowa Administrative Code (IAC) 567—137.2). Caution and further evaluation should be used before allowing a drinking water well to be installed in this area. The IDNR suggests a 1,000-foot separation distance be maintained between the groundwater plume and any new water well, in accordance with Chapter 43 of the IAC, Table A. An online database search for water wells was completed on July 22, 2022; no active water wells were identified within a 1,000-foot radius of the site (Attachment 1).

The attached table provides the historical groundwater data collected at this site. The IDNR Statewide Standards for nonprotected groundwater are also provided in the table for your reference. The site location and groundwater results are illustrated in Figure 1.

If you have any questions, or need additional information, please contact Jill Stevens of IPL at 608-458-0466 or me at 515-414-3935.

Sincerely,

Kevin G Armstrong.

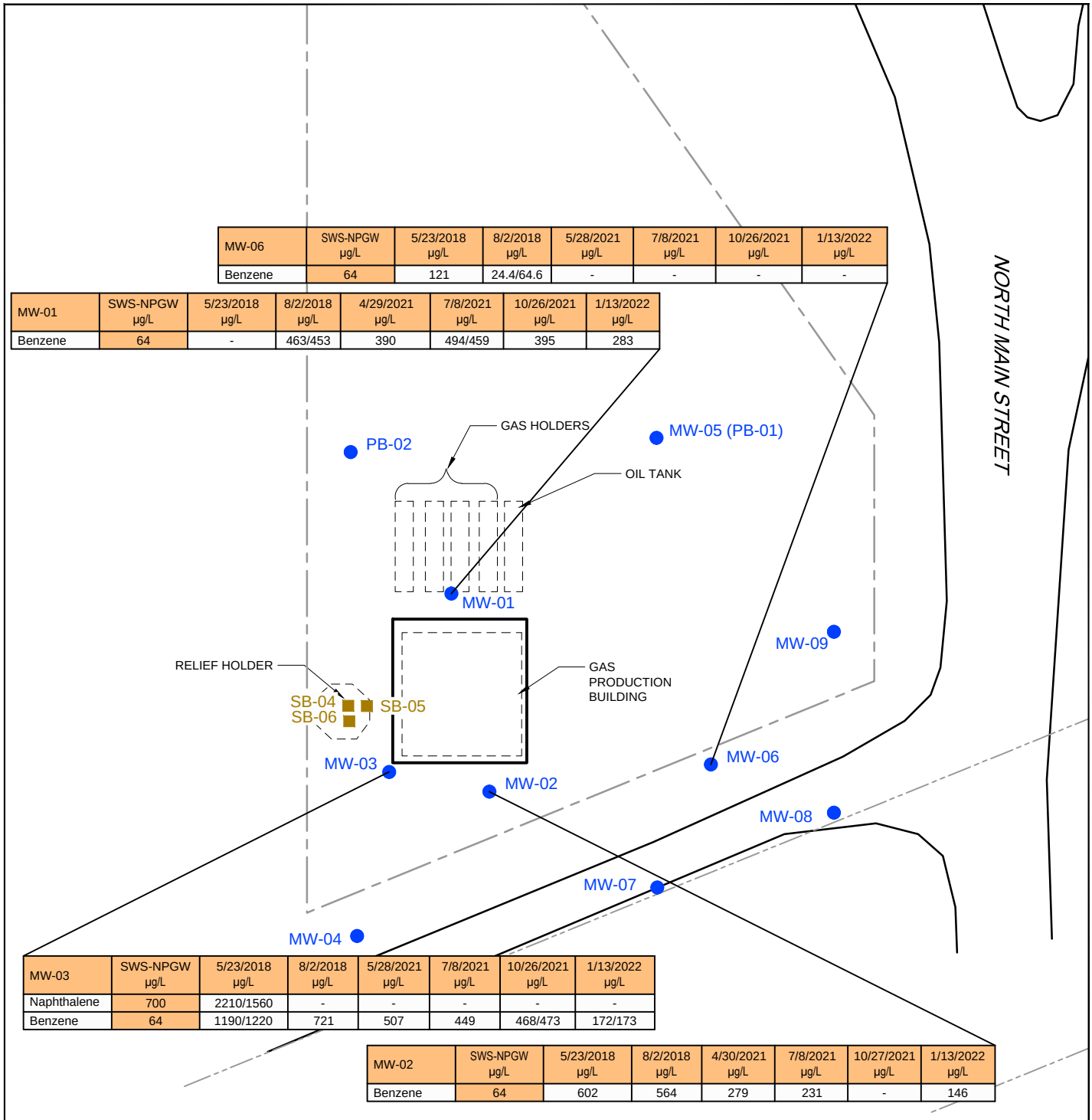
**Kevin G. Armstrong, C.P.G.**
Project Manager

+1 515 414-3935
kevin.armstrong@ghd.com

KA/lg/LTR-3

cc: Jill Stevens, IPL
Matt Culp, Iowa Department of Natural Resources

# Figure




| MW-06 | SWS-NPGW µg/L | 5/23/2018 µg/L | 8/2/2018 µg/L | 5/28/2021 µg/L | 7/8/2021 µg/L | 10/26/2021 µg/L | 1/13/2022 µg/L |
|---|---|---|---|---|---|---|---|
| Benzene | 64 | 121 | 24.4/64.6 | - | - | - | - |

| MW-01 | SWS-NPGW µg/L | 5/23/2018 µg/L | 8/2/2018 µg/L | 4/29/2021 µg/L | 7/8/2021 µg/L | 10/26/2021 µg/L | 1/13/2022 µg/L |
|---|---|---|---|---|---|---|---|
| Benzene | 64 | - | 463/453 | 390 | 494/459 | 395 | 283 |

| MW-03 | SWS-NPGW µg/L | 5/23/2018 µg/L | 8/2/2018 µg/L | 5/28/2021 µg/L | 7/8/2021 µg/L | 10/26/2021 µg/L | 1/13/2022 µg/L |
|---|---|---|---|---|---|---|---|
| Naphthalene | 700 | 2210/1560 | - | - | - | - | - |
| Benzene | 64 | 1190/1220 | 721 | 507 | 449 | 468/473 | 172/173 |

| MW-02 | SWS-NPGW µg/L | 5/23/2018 µg/L | 8/2/2018 µg/L | 4/30/2021 µg/L | 7/8/2021 µg/L | 10/27/2021 µg/L | 1/13/2022 µg/L |
|---|---|---|---|---|---|---|---|
| Benzene | 64 | 602 | 564 | 279 | 231 | - | 146 |

## LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- APPROXIMATE RAILROAD R.O.W.
- APPROXIMATE LOCATION OF FORMER MGP STRUCTURES
- SOIL BORING
- SOIL BORING COMPLETED AS SHALLOW MONITORING WELL

| MW-01 | SWS-NPGW µg/L | 5/23/2018 µg/L | 8/2/2018 µg/L |
|---|---|---|---|
| Benzene | 64 | - | 463/453 |

SAMPLE LOCATION
SAMPLE DATE
RESULT UNIT
RESULT
PARAMETER

NOTES:
µg/L = MICROGRAMS PER LITER
SWS-NPGW = STATEWIDE STANDARD FOR NON-PROTECTED GROUNDWATER
- = NO EXCEEDANCE
24.4/64.6 = DUPLICATE SAMPLE

0 25 50 ft
1" = 50 ft

Coordinate System:
IOWA SOUTH STATE PLANE
NAD83 FEET

N

GHD

**INTERSTATE POWER AND LIGHT COMPANY**
**ALBIA FORMER MANUFACTURED GAS PLANT SITE**
**ALBIA, IOWA**

Project No. **11156780**
Date **July 2022**

## GROUNDWATER EXCEEDANCE MAP

# FIGURE 1

Filename: N:\US\Des Moines\Projects\563\11156780\Digital_Design\ACAD\Figures\LTR003\11156780-GHD-00-00-LTR-EN-D101_DE-003.DWG
Plot Date: 22 July 2022 1:25 PM

SOURCE: FORMER MGP STRUCTURES FROM SANBORN MAP CO. IMAGERY (1922). & PROPERTY BOUNDARY ESTIMATED FROM MONROE COUNTY GIS.

# Table

**Table 1**

**Groundwater Analytical Results**
**Interstate Power and Light Company**
**Former Manufactured Gas Plant - Albia, Iowa**

| Analyte | Units | Iowa Statewide Standard (Non-Protected) | Iowa Statewide Standard (Protected) | MW-01 MW01-GW-0518 5/23/2018 | MW-01 MW01-GW-0818 8/2/2018 | MW-01 DP01-GW-0818 8/2/2018 | MW-01 MW01-GW-0421 4/29/2021 | MW-01 MW01-GW-0721 7/8/2021 | MW-01 DUP1-GW-0721 7/8/2021 | MW-01 MW01-GW-1021 10/26/2021 | MW-01 MW01-GW-0122 1/13/2022 | MW-02 MW02-GW-0518 5/23/2018 | MW-02 MW02-GW-0818 8/2/2018 | MW-02 MW02-GW-0421 4/30/2021 | MW-02 MW02-GW-0721 7/8/2021 | MW-02 MW02-GW-1021 10/27/2021 | MW-02 MW02-GW-0122 1/13/2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | |
| Cyanide, Free | mg/L | - | - | <0.00500 | <0.00500 | <0.00500 | - | - | - | - | | <0.00500 | <0.00500 | - | - | - | - |
| Arsenic, Total | mg/L | 0.05 | 0.01 | <0.00200 | 0.00677 | 0.00618 | **0.0134** | 0.00610 | 0.00598 | **0.0124** | **0.0166** | 0.00204 | **0.0184** | **0.0147** | **0.0153** | **0.0228** | **0.0149** |
| Lead, Total | mg/L | 0.075 | 0.015 | <0.000500 | <0.000500 | <0.000500 | <0.000500 | 0.000664 | 0.000583 | 0.000590 | 0.000715 | <0.000500 | <0.000500 | <0.000500 | <0.000500 | 0.000533 | <0.000500 |
| ***Polynuclear Aromatic Hydrocarbons*** | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | µg/L | 140 | 28 | <0.200 | <0.161 | 0.573 | <0.200 | 0.280 | 0.259 | <0.227 | <0.200 | **41.4** | 6.64 | 1.74 | 1.03 | <0.217 | <0.238 |
| Acenaphthene | µg/L | 2100 | 420 | <0.200 | 11.8 | 21.3 | 11.9 | 19.3 | 20.1 | 11.6 | 17.6 | 46.4 | 14.3 | 22.5 | 20.7 | <0.217 | 13.9 |
| Acenaphthylene | µg/L | 1000 | 210 | <0.200 | 0.511 | 4.39 | 2.63 F1 | 4.71 | 5.05 | 1.43 | 3.33 | 95.5 | 17.5 | 24.8 | 25.8 | <0.217 | 9.58 |
| Anthracene | µg/L | 10000 | 2100 | <0.200 | 1.61 | 4.74 | 0.844 | 1.83 | 1.98 | 1.04 | 1.43 | 5.43 | 2.07 | 1.57 | 1.33 | <0.217 | 0.808 |
| Benzo[a]anthracene | µg/L | 4.8 | 0.24 | <0.200 | <0.161 | <0.172 | <0.200 | <0.227 | <0.238 | <0.227 | <0.200 | <0.238 | <0.172 | <0.200 | <0.208 | <0.217 | <0.238 |
| Benzo[a]pyrene | µg/L | 3.5 | 0.18 | <0.200 | <0.161 | <0.172 | <0.200 | <0.227 | <0.238 | <0.227 | <0.200 | <0.238 | <0.172 | <0.200 | <0.208 | <0.217 | <0.238 |
| Benzo[b]fluoranthene | µg/L | 4.8 | 0.24 | <0.200 | <0.161 | <0.172 | <0.200 | <0.227 | <0.238 | <0.227 | <0.200 | <0.238 | <0.172 | <0.200 | <0.208 | <0.217 | <0.238 |
| Benzo[g,h,i]perylene | µg/L | 100 | 21 | <0.200 | <0.161 | <0.172 | <0.200 | <0.227 | <0.238 | <0.227 | <0.200 | <0.238 | <0.172 | <0.200 | <0.208 | <0.217 | <0.238 |
| Benzo[k]fluoranthene | µg/L | 48 | 2.4 | <0.200 | <0.161 | <0.172 | <0.200 | <0.227 | <0.238 | <0.227 | <0.200 | <0.238 | <0.172 | <0.200 | <0.208 | <0.217 | <0.238 |
| Chrysene | µg/L | 480 | 24 | <0.200 | <0.161 | <0.172 | <0.200 | <0.227 | <0.238 | <0.227 | <0.200 | <0.238 | <0.172 | <0.200 | <0.208 | <0.217 | <0.238 |
| Dibenz(a,h)anthracene | µg/L | 0.48 | 0.024 | <0.200 | <0.161 | <0.172 | <0.200 | <0.227 | <0.238 | <0.227 | <0.200 | <0.238 | <0.172 | <0.200 | <0.208 | <0.217 | <0.238 |
| Fluoranthene | µg/L | 1400 | 280 | <0.200 | 2.91 | 4.47 | 0.579 | 1.65 | 1.68 | 1.05 | 0.924 | 1.24 | 1.18 | 0.896 | 0.799 | <0.217 | 0.972 |
| Fluorene | µg/L | 1400 | 280 | <0.200 | 19.6 | 42.3 | 9.01 | 15.4 | 17.2 | 10.0 | 13.9 | 37.5 | 11.3 | 16.8 | 16.7 | <0.217 | 8.83 |
| Indeno[1,2,3-cd]pyrene | µg/L | 4.8 | 0.24 | <0.200 | <0.161 | <0.172 | <0.200 | <0.227 | <0.238 | <0.227 | <0.200 | <0.238 | <0.172 | <0.200 | <0.208 | <0.217 | <0.238 |
| Naphthalene | µg/L | 700 | 100 | <0.500 | <0.403 | 0.660 | 13.6 F2 | 66.9 | 80.9 | 0.848 F1 F2 | 4.39 | **178** | 0.699 | 39.4 | 22.6 | <0.543 | 0.909 |
| Phenanthrene | µg/L | 1000 | 210 | <0.200 | 2.35 | 18.5 | 4.32 | 12.0 | 13.3 | 3.08 F1 F2 | 6.75 | 28.0 | 11.6 | 8.82 | 8.59 | <0.217 | 2.9 |
| Pyrene | µg/L | 1000 | 210 | <0.200 | 2.59 | 4.10 | 0.473 | 1.55 | 1.56 | 1.02 | 0.909 | 1.01 | 0.924 | 0.831 | 0.760 | 0.234 | 1.05 |
| ***Volatile Organic Compounds*** | | | | | | | | | | | | | | | | | |
| Benzene | µg/L | 64 | 5 | **51.2** | **463** | **453** | **390** | **494** | **459** | **395** | **283** | **602** | **564** | **279** | **231** | **38.6** | **146** |
| Ethylbenzene | µg/L | 3500 | 700 | 126 | **1270** | **1200** | 407 | 565 | 562 | 531 | 384 | 126 | 180 | 89.5 | 81.5 | 12.4 | 27.6 |
| Toluene | µg/L | 5000 | 1000 | <10.0 | 11.9 | 11.1 | 4.60 | 6.58 | 6.51 | 4.78 | 2.87 | 54.1 | 58.7 | 6.48 | 5.80 | <1.00 | 1.31 |
| Xylenes, Total | µg/L | 50000 | 10000 | 70.5 | 773 | 740 | 49.5 | 57.5 | 55.2 | 41.9 | 29.6 | 284 | 300 | 58.1 | 51.7 | 10.1 | 24.8 |
| 1,1,1,2-Tetrachloroethane | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1,1-Trichloroethane | µg/L | 70000 | 200 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1,2,2-Tetrachloroethane | µg/L | 18 | 0.3 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1,2-Trichloroethane | µg/L | 61 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1-Dichloroethane | µg/L | 700 | 140 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1-Dichloroethene | µg/L | 180 | 7 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 |
| 1,1-Dichloropropene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2,3-Trichlorobenzene | µg/L | - | - | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| 1,2,3-Trichloropropane | µg/L | 0.12 | 0.0058 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2,4-Trichlorobenzene | µg/L | 350 | 70 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| 1,2,4-Trimethylbenzene | µg/L | 350 | 70 | 17.7 | **158** | **156** | **85.2** | **111** | **104** | **78.2** | 69.6 | 44.8 | 47.3 | 45.9 | 41.5 | 10.3 | 21 |
| 1,2-Dibromo-3-Chloropropane | µg/L | 2.9 | 0.2 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| 1,2-Dibromoethane (EDB) | µg/L | 1.8 | 0.05 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dichlorobenzene | µg/L | 3200 | 600 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dichloroethane | µg/L | 38 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | 3.61 |
| 1,2-Dichloropropane | µg/L | 60 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,3,5-Trimethylbenzene | µg/L | 350 | 70 | <10.0 | 63.5 | 60.1 | <1.00 | <1.00 | <1.00 | <1.00 F1 F2 | <1.00 | 27.3 | 15.2 | 4.32 | 3.54 | 1.17 | 1.62 |
| 1,3-Dichlorobenzene | µg/L | 3200 | 600 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,3-Dichloropropane | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,4-Dichlorobenzene | µg/L | 650 | 75 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 2,2-Dichloropropane | µg/L | - | - | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| 2-Butanone (MEK) | µg/L | 21000 | 4000 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 |
| 2-Chlorotoluene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |

**Table 1**

**Groundwater Analytical Results**
**Interstate Power and Light Company**
**Former Manufactured Gas Plant - Albia, Iowa**

| Analyte | Units | Iowa Statewide Standard (Non-Protected) | Iowa Statewide Standard (Protected) | MW-01 MW01-GW-0518 5/23/2018 | MW-01 MW01-GW-0818 8/2/2018 | MW-01 DP01-GW-0818 8/2/2018 | MW-01 MW01-GW-0421 4/29/2021 | MW-01 MW01-GW-0721 7/8/2021 | MW-01 DUP1-GW-0721 7/8/2021 | MW-01 MW01-GW-1021 10/26/2021 | MW-01 MW01-GW-0122 1/13/2022 | MW-02 MW02-GW-0518 5/23/2018 | MW-02 MW02-GW-0818 8/2/2018 | MW-02 MW02-GW-0421 4/30/2021 | MW-02 MW02-GW-0721 7/8/2021 | MW-02 MW02-GW-1021 10/27/2021 | MW-02 MW02-GW-0122 1/13/2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Volatile Organic Compounds (cont'd)*** | | | | | | | | | | | | | | | | | |
| 4-Chlorotoluene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Acetone | µg/L | 32000 | 6300 | <100 | <10.0 | <10.0 | <10.0 F1 | <10.0 | <10.0 | <10.0 | <10.0 | <100 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 |
| Bromobenzene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Bromochloromethane | µg/L | 450 | 90 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Bromodichloromethane | µg/L | 400 | 80 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Bromoform | µg/L | 440 | 80 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Bromomethane | µg/L | 50 | 10 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| Carbon disulfide | µg/L | 3500 | 700 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | 1.15 | <1.00 | <1.00 |
| Carbon tetrachloride | µg/L | 50 | 5 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 |
| Chlorobenzene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Chlorodibromomethane | µg/L | 400 | 80 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Chloroethane | µg/L | 14000 | 2800 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| Chloroform | µg/L | - | 80 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 |
| Chloromethane | µg/L | - | - | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 |
| cis-1,2-Dichloroethene | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| cis-1,3-Dichloropropene | µg/L | - | - | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Dibromomethane | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Dichlorodifluoromethane | µg/L | 7000 | 1000 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 |
| Hexachlorobutadiene | µg/L | 45 | 1 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Hexane | µg/L | 2100 | 420 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Isopropylbenzene | µg/L | 3500 | 700 | <1.00 | 9.54 | 9.24 | 4.30 | 6.17 | 6.17 | 4.78 | 4.62 | <10.0 | 3.57 | 2.78 | 2.45 | <1.00 | 1.18 |
| Methyl tert-butyl ether | µg/L | 1000 | 210 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Methylene Chloride | µg/L | 1800 | 5 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| n-Butylbenzene | µg/L | 1800 | 350 | <1.00 | 2.47 | 2.42 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | 1.20 | 1.14 | <1.00 | <1.00 | <1.00 |
| N-Propylbenzene | µg/L | 17000 | 3400 | <1.00 | 23.7 | 22.4 | 6.43 | 11.0 | 10.8 | 7.84 | 7.91 | <1.00 | 3.71 | 2.31 | 1.96 | <1.00 | <1.00 |
| p-Isopropyltoluene | µg/L | - | - | <1.00 | 1.60 | 1.33 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| sec-Butylbenzene | µg/L | - | - | <1.00 | 1.17 | 1.10 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Styrene | µg/L | - | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| tert-Butylbenzene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Tetrachloroethene | µg/L | 1700 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| trans-1,2-Dichloroethene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| trans-1,3-Dichloropropene | µg/L | - | - | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Trichloroethene | µg/L | 76 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Trichlorofluoromethane | µg/L | 10000 | 2000 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| Vinyl chloride | µg/L | 10 | 2 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| ***Phenols*** | | | | | | | | | | | | | | | | | |
| 2,4,5-Trichlorophenol | µg/L | 3500 | 700 | <103 | - | - | - | - | - | - | - | <104 | - | - | - | - | - |
| 2,4,6-Trichlorophenol | µg/L | 320 | 16 | <103 | - | - | - | - | - | - | - | <104 | - | - | - | - | - |
| 2,4-Dichlorophenol | µg/L | 100 | 20 | <103 | - | - | - | - | - | - | - | <104 | - | - | - | - | - |
| 2,4-Dimethylphenol | µg/L | 700 | 100 | <103 | - | - | - | - | - | - | - | <104 | - | - | - | - | - |
| 2,4-Dinitrophenol | µg/L | 70 | 14 | <206 | - | - | - | - | - | - | - | <208 | - | - | - | - | - |
| 2-Chlorophenol | µg/L | 200 | 40 | <103 | - | - | - | - | - | - | - | <104 | - | - | - | - | - |
| 2-Methylphenol | µg/L | - | 35 | <103 | - | - | - | - | - | - | - | <104 | - | - | - | - | - |
| 2-Nitrophenol | µg/L | - | - | <103 | - | - | - | - | - | - | - | <104 | - | - | - | - | - |
| 4,6-Dinitro-2-methylphenol | µg/L | - | - | <103 | - | - | - | - | - | - | - | <104 | - | - | - | - | - |
| 4-Chloro-3-methylphenol | µg/L | 3500 | 700 | <103 | - | - | - | - | - | - | - | <104 | - | - | - | - | - |
| 4-Methylphenol (and/or 3-Methylphenol) | µg/L | - | 70 | <103 | - | - | - | - | - | - | - | <104 | - | - | - | - | - |
| 4-Nitrophenol | µg/L | 300 | 60 | <103 | - | - | - | - | - | - | - | <104 | - | - | - | - | - |
| Pentachlorophenol | µg/L | 8.8 | 1 | <103 | - | - | - | - | - | - | - | <104 | - | - | - | - | - |
| Phenol | µg/L | 10000 | 2000 | <103 | - | - | - | - | - | - | - | <104 | - | - | - | - | - |
| Total Cresols | µg/L | - | - | <103 | - | - | - | - | - | - | - | <104 | - | - | - | - | - |

Notes:

Concentrations above Statewide Standard for a Protected Water Source are in bold font.
Concentrations above Statewide Standard for a Non-Protected Water Source are in bold red font with red outline.
F1 - MS and/or MSD Recovery is outside acceptance limits.
*1 - LCS/LCSD RPD exceeds control limits.
+ - LCS and/or LCSD is outside acceptance limit, high biased.

**Table 1**

**Groundwater Analytical Results**
**Interstate Power and Light Company**
**Former Manufactured Gas Plant - Albia, Iowa**

| Analyte | Units | Iowa Statewide Standard (Non-Protected) | Iowa Statewide Standard (Protected) | MW-03 MW03-GW-0518 5/23/2018 | MW-03 DP01-GW-0518 5/23/2018 | MW-03 MW03-GW-0818 8/2/2018 | MW-03 MW3-GW-0521 5/28/2021 | MW-03 MW03-GW-0721 7/8/2021 | MW-03 MW03-GW-1021 10/26/2021 | MW-03 DUP1-GW-1021 10/26/2021 | MW-03 MW03-GW-0122 1/13/2022 | MW-03 DUP1-GW-0122 1/13/2022 | MW-04 MW04-GW-0818 8/2/2018 | MW-04 MW04-GW-0918 9/6/2018 | MW-04 MW04-GW-0421 4/30/2021 | MW-04 DP01-GW-0421 4/30/2021 | MW-04 MW04-GW-0721 7/7/2021 | MW-04 MW04-GW-1021 10/26/2021 | MW-04 MW04-GW-0122 1/13/2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | | | | |
| Cyanide, Free | mg/L | - | - | <0.00500 F1 | <0.00500 | <0.00500 F1 | - | - | - | - | - | - | <0.00500 | - | - | - | - | - | |
| Arsenic, Total | mg/L | 0.05 | 0.01 | 0.00593 | 0.00575 | **0.0173** | 0.00353 | 0.00416 | 0.00637 | 0.00673 | **0.0111** | 0.0069 | 0.00243 | 0.00351 | 0.00409 | 0.00448 | 0.00598 | 0.00394 | 0.00537 |
| Lead, Total | mg/L | 0.075 | 0.015 | <0.000500 | <0.000500 | <0.000500 | <0.000500 | 0.000999 | 0.000571 | 0.000933 | 0.000558 | 0.000592 | <0.000500 | <0.000500 | <0.000500 | <0.000500 | <0.000500 | 0.000704 | 0.000799 |
| ***Polynuclear Aromatic Hydrocarbons*** | | | | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | µg/L | 140 | 28 | **72.2** | **39.2** | 18.5 | 3.62 *1 | 1.29 | 0.295 | 0.238 | 0.273 | 0.266 | <0.167 | <0.192 | <0.208 | <0.208 | <0.200 | <0.227 | <0.200 |
| Acenaphthene | µg/L | 2100 | 420 | 43.6 | 27.1 | 13.8 | 27.0 *1 | 18.7 | 21.6 | 21.1 | 18.3 | 20.9 | <0.167 | <0.192 | <0.208 | <0.208 | <0.200 | <0.227 | <0.200 |
| Acenaphthylene | µg/L | 1000 | 210 | 180 | 122 | 67.1 F2 | 159 *1 | 129 | 130 | 114 | 70.4 | 96.1 | <0.167 | <0.192 | <0.208 | <0.208 | <0.200 | <0.227 | <0.200 |
| Anthracene | µg/L | 10000 | 2100 | 7.60 | 4.98 | 2.65 F2 F1 | 6.09 *1 | 4.22 | 2.50 | 3.26 | 1.56 | 1.49 | <0.167 | <0.192 | <0.208 | <0.208 | <0.200 | <0.227 | <0.200 |
| Benzo[a]anthracene | µg/L | 4.8 | 0.24 | <0.227 | <0.200 | <0.172 | <0.200 *1 | <0.217 | <0.208 | <0.227 | <0.200 | <0.200 | <0.167 | <0.192 | <0.208 | <0.208 | <0.200 | <0.227 | <0.200 |
| Benzo[a]pyrene | µg/L | 3.5 | 0.18 | <0.227 | <0.200 | <0.172 | <0.200 *1 | <0.217 | <0.208 | <0.227 | <0.200 | <0.200 | 0.177 | <0.192 | <0.208 | <0.208 | <0.200 | <0.227 | <0.200 |
| Benzo[b]fluoranthene | µg/L | 4.8 | 0.24 | <0.227 | <0.200 | <0.172 | <0.200 *1 | <0.217 | <0.208 | <0.227 | <0.200 | <0.200 | <0.167 | <0.192 | <0.208 | <0.208 | 0.219 | <0.227 | <0.200 |
| Benzo[g,h,i]perylene | µg/L | 100 | 21 | <0.227 | <0.200 | <0.172 F2 | <0.200 *1 | <0.217 | <0.208 | <0.227 | <0.200 | <0.200 | 0.356 | <0.192 F2 | <0.208 | <0.208 | <0.200 | <0.227 | <0.200 |
| Benzo[k]fluoranthene | µg/L | 48 | 2.4 | <0.227 | <0.200 | <0.172 | <0.200 | <0.217 | <0.208 | <0.227 | <0.200 | <0.200 | <0.167 | <0.192 | <0.208 | <0.208 | <0.200 | <0.227 | <0.200 |
| Chrysene | µg/L | 480 | 24 | <0.227 | <0.200 | <0.172 | <0.200 *1 | <0.217 | <0.208 | <0.227 | <0.200 | <0.200 | <0.167 | <0.192 | <0.208 | <0.208 | <0.200 | <0.227 | <0.200 |
| Dibenz(a,h)anthracene | µg/L | 0.48 | 0.024 | <0.227 | <0.200 | <0.172 F2 | <0.200 *1 | <0.217 | <0.208 | <0.227 | <0.200 | <0.200 | **0.352** | <0.192 F2 | <0.208 | <0.208 | <0.200 | <0.227 | <0.200 |
| Fluoranthene | µg/L | 1400 | 280 | 5.41 | 3.60 | 1.70 | 5.37 *1 | 4.66 | 3.99 | 4.36 | 1.03 | 1.05 | <0.167 | <0.192 | <0.208 | <0.208 | <0.200 | <0.227 | <0.200 |
| Fluorene | µg/L | 1400 | 280 | 29.2 | 18.7 | 9.95 F2 | 17.2 *1 | 12.2 | 11.5 | 11.1 | 8.64 | 9.23 | <0.167 | <0.192 | <0.208 | <0.208 | <0.200 | <0.227 | <0.200 |
| Indeno[1,2,3-cd]pyrene | µg/L | 4.8 | 0.24 | <0.227 | <0.200 | <0.172 F2 | <0.200 *1 | <0.217 | <0.208 | <0.227 | <0.200 | <0.200 | **0.393** | <0.192 | <0.208 | <0.208 | <0.200 | <0.227 | <0.200 |
| Naphthalene | µg/L | 700 | 100 | **2210** | **1560** | **618 F2** | **ing** | **266** | 39.9 | 32.7 | 14 | 15.7 | <0.417 | <0.481 | <0.521 | <0.521 | <0.500 | <0.568 | <0.500 |
| Phenanthrene | µg/L | 1000 | 210 | 90.8 | 64.2 | 24.2 | 66.4 | 54.3 | 27.8 | 22.3 | 15 | 16.3 | <0.167 | <0.192 | <0.208 | <0.208 | <0.200 | <0.227 | <0.200 |
| Pyrene | µg/L | 1000 | 210 | 5.34 | 3.59 | 1.66 | 5.55 *1 | 5.07 | 4.09 | 4.48 | 0.959 | 1.03 | <0.167 | <0.192 | <0.208 | <0.208 | <0.200 | <0.227 | <0.200 |
| ***Volatile Organic Compounds*** | | | | | | | | | | | | | | | | | | | |
| Benzene | µg/L | 64 | 5 | **1190** | **1220** | **721** | **507** | **449** | **468** | **473** | **172** | **173** | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 |
| Ethylbenzene | µg/L | 3500 | 700 | 293 | 265 | 174 | 154 | 133 | 188 | 194 | 49.8 | 49.8 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Toluene | µg/L | 5000 | 1000 | 23.7 | 22.1 | 15.7 | 19.0 | 20.1 | 7.86 | 7.91 | 2.5 | 2.39 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Xylenes, Total | µg/L | 50000 | 10000 | 309 | 281 | 158 F1 | 130 | 121 | 95.6 | 96.9 | 48.8 | 47.4 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 |
| 1,1,1,2-Tetrachloroethane | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1,1-Trichloroethane | µg/L | 70000 | 200 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1,2,2-Tetrachloroethane | µg/L | 18 | 0.3 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1,2-Trichloroethane | µg/L | 61 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1-Dichloroethane | µg/L | 700 | 140 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1-Dichloroethene | µg/L | 180 | 7 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 |
| 1,1-Dichloropropene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2,3-Trichlorobenzene | µg/L | - | - | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| 1,2,3-Trichloropropane | µg/L | 0.12 | 0.0058 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2,4-Trichlorobenzene | µg/L | 350 | 70 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| 1,2,4-Trimethylbenzene | µg/L | 350 | 70 | **122** | **111** | 57.8 | 69.7 | **72.1** | 69.5 | **71.5** | 42.7 | 41.3 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dibromo-3-Chloropropane | µg/L | 2.9 | 0.2 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| 1,2-Dibromoethane (EDB) | µg/L | 1.8 | 0.05 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dichlorobenzene | µg/L | 3200 | 600 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dichloroethane | µg/L | 38 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dichloropropane | µg/L | 60 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,3,5-Trimethylbenzene | µg/L | 350 | 70 | 30.4 | 27.3 | 12.2 | 7.97 | 7.16 | 4.10 | 4.25 | 2.95 | 2.81 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,3-Dichlorobenzene | µg/L | 3200 | 600 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,3-Dichloropropane | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,4-Dichlorobenzene | µg/L | 650 | 75 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 2,2-Dichloropropane | µg/L | - | - | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| 2-Butanone (MEK) | µg/L | 21000 | 4000 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 |
| 2-Chlorotoluene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |

**Groundwater Analytical Results**
**Interstate Power and Light Company**
**Former Manufactured Gas Plant - Albia, Iowa**

| Analyte | Units | Iowa Statewide Standard (Non-Protected) | Iowa Statewide Standard (Protected) | MW-03 MW03-GW-0518 5/23/2018 | MW-03 DP01-GW-0518 5/23/2018 | MW-03 MW03-GW-0818 8/2/2018 | MW-03 MW3-GW-0521 5/28/2021 | MW-03 MW03-GW-0721 7/8/2021 | MW-03 MW03-GW-1021 10/26/2021 | MW-03 DUP1-GW-1021 10/26/2021 | MW-03 MW03-GW-0122 1/13/2022 | MW-03 DUP1-GW-0122 1/13/2022 | MW-04 MW04-GW-0818 8/2/2018 | MW-04 MW04-GW-0918 9/6/2018 | MW-04 MW04-GW-0421 4/30/2021 | MW-04 DP01-GW-0421 4/30/2021 | MW-04 MW04-GW-0721 7/7/2021 | MW-04 MW04-GW-1021 10/26/2021 | MW-04 MW04-GW-0122 1/13/2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Volatile Organic Compounds (cont'd)*** | | | | | | | | | | | | | | | | | | | |
| 4-Chlorotoluene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Acetone | µg/L | 32000 | 6300 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 |
| Bromobenzene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Bromochloromethane | µg/L | 450 | 90 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Bromodichloromethane | µg/L | 400 | 80 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Bromoform | µg/L | 440 | 80 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Bromomethane | µg/L | 50 | 10 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| Carbon disulfide | µg/L | 3500 | 700 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Carbon tetrachloride | µg/L | 50 | 5 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 |
| Chlorobenzene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Chlorodibromomethane | µg/L | 400 | 80 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Chloroethane | µg/L | 14000 | 2800 | <4.00 | <4.00 | <4.00 | <4.00 | 21.9 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 * | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| Chloroform | µg/L | - | 80 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 |
| Chloromethane | µg/L | - | - | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 |
| cis-1,2-Dichloroethene | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| cis-1,3-Dichloropropene | µg/L | - | - | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Dibromomethane | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Dichlorodifluoromethane | µg/L | 7000 | 1000 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 |
| Hexachlorobutadiene | µg/L | 45 | 1 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Hexane | µg/L | 2100 | 420 | <1.00 | <1.00 | <1.00 F2 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Isopropylbenzene | µg/L | 3500 | 700 | 22.4 | 20.5 | 10.3 | 12.9 | 13.8 | 16.4 | 17.3 | 4.76 | 4.74 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Methyl tert-butyl ether | µg/L | 1000 | 210 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Methylene Chloride | µg/L | 1800 | 5 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| n-Butylbenzene | µg/L | 1800 | 350 | 2.81 | 2.83 | 1.63 | 2.12 | 1.75 | 1.62 | 1.69 | 1.04 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| N-Propylbenzene | µg/L | 17000 | 3400 | 10.1 | 9.07 | 4.10 | 4.68 | 4.58 | 5.21 | 5.47 | 1.23 | 1.27 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| p-Isopropyltoluene | µg/L | - | - | 2.55 | 2.21 | <1.00 | 1.02 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| sec-Butylbenzene | µg/L | - | - | 1.23 | 1.09 | <1.00 | 1.01 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Styrene | µg/L | - | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| tert-Butylbenzene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Tetrachloroethene | µg/L | 1700 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| trans-1,2-Dichloroethene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| trans-1,3-Dichloropropene | µg/L | - | - | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Trichloroethene | µg/L | 76 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Trichlorofluoromethane | µg/L | 10000 | 2000 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| Vinyl chloride | µg/L | 10 | 2 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 * | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| ***Phenols*** | | | | | | | | | | | | | | | | | | | |
| 2,4,5-Trichlorophenol | µg/L | 3500 | 700 | <105 | <106 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2,4,6-Trichlorophenol | µg/L | 320 | 16 | <105 | <106 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2,4-Dichlorophenol | µg/L | 100 | 20 | <105 | <106 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2,4-Dimethylphenol | µg/L | 700 | 100 | <105 | <106 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2,4-Dinitrophenol | µg/L | 70 | 14 | <211 | <213 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2-Chlorophenol | µg/L | 200 | 40 | <105 | <106 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2-Methylphenol | µg/L | - | 35 | <105 | <106 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2-Nitrophenol | µg/L | - | - | <105 | <106 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4,6-Dinitro-2-methylphenol | µg/L | - | - | <105 | <106 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4-Chloro-3-methylphenol | µg/L | 3500 | 700 | <105 | <106 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4-Methylphenol (and/or 3-Methylphenol) | µg/L | - | 70 | <105 | <106 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4-Nitrophenol | µg/L | 300 | 60 | <105 | <106 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pentachlorophenol | µg/L | 8.8 | 1 | <105 | <106 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Phenol | µg/L | 10000 | 2000 | <105 | <106 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Cresols | µg/L | - | - | <105 | <106 | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Notes:
Concentrations above Statewide Standard for a Protected Water Source are in bold font.
Concentrations above Statewide Standard for a Non-Protected Water Source are in bold red font with red outline.
F1 - MS and/or MSD Recovery is outside acceptance limits.
*1 - LCS/LCSD RPD exceeds control limits.
+ - LCS and/or LCSD is outside acceptance limit, high biased.

**Table 1**

**Groundwater Analytical Results**
**Interstate Power and Light Company**
**Former Manufactured Gas Plant - Albia, Iowa**

| Analyte | Units | Iowa Statewide Standard (Non-Protected) | Iowa Statewide Standard (Protected) | MW-05 MW05-GW-0818 8/2/2018 | MW-05 MW05-GW-0918 9/6/2018 | MW-05 MW05-GW-0421 4/29/2021 | MW-05 MW05-GW-0721 7/7/2021 | MW-05 MW05-GW-1021 10/26/2021 | MW-05 MW05-GW-0122 1/13/2022 | MW-06 MW06-GW-0818 8/2/2018 | MW-06 MW06-GW-0918 9/6/2018 | MW-06 DP01-GW-0918 9/6/2018 | MW-06 MW06-GW-0421 4/30/2021 | MW-06 MW06-GW-0721 7/8/2021 | MW-06 MW06-GW-1021 10/27/2021 | MW-06 MW06-GW-0122 1/13/2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | |
| Cyanide, Free | mg/L | - | - | <0.00500 | - | - | - | - | - | <0.00500 | - | - | - | - | - | - |
| Arsenic, Total | mg/L | 0.05 | 0.01 | <0.00200 ^ | 0.00242 | 0.00342 | <0.00200 | <0.00200 | <0.00200 | <0.00200 ^ | 0.00468 | 0.00470 | **0.0422** | **0.0257** | **0.0193** | **0.0266** |
| Lead, Total | mg/L | 0.075 | 0.015 | <0.000500 | <0.000500 | <0.000500 | <0.000500 | 0.000737 | <0.000500 | <0.000500 | <0.000500 | <0.000500 | 0.000534 | <0.000500 | 0.00127 | 0.00065 |
| ***Polynuclear Aromatic Hydrocarbons*** | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | µg/L | 140 | 28 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | 13.1 | 6.40 | 9.50 | <0.200 | 0.319 | <0.217 | <0.208 |
| Acenaphthene | µg/L | 2100 | 420 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | 8.80 | 3.59 | 4.08 | 1.53 | 2.06 | <0.217 | 3.02 |
| Acenaphthylene | µg/L | 1000 | 210 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | 66.5 | 31.5 | 37.3 | 3.77 | 5.72 | <0.217 | 4.9 |
| Anthracene | µg/L | 10000 | 2100 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | 5.55 | 1.57 | 1.50 | <0.200 | 0.544 | <0.217 | 0.74 |
| Benzo[a]anthracene | µg/L | 4.8 | 0.24 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | <0.167 | <0.200 | <0.192 | <0.200 | <0.227 | <0.217 | <0.208 |
| Benzo[a]pyrene | µg/L | 3.5 | 0.18 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | <0.167 | <0.200 | <0.192 | <0.200 | <0.227 | <0.217 | <0.208 |
| Benzo[b]fluoranthene | µg/L | 4.8 | 0.24 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | <0.167 | <0.200 | <0.192 | <0.200 | <0.227 | <0.217 | <0.208 |
| Benzo[g,h,i]perylene | µg/L | 100 | 21 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | <0.167 | <0.200 | <0.192 | <0.200 | <0.227 | <0.217 | <0.208 |
| Benzo[k]fluoranthene | µg/L | 48 | 2.4 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | <0.167 | <0.200 | <0.192 | <0.200 | <0.227 | <0.217 | <0.208 |
| Chrysene | µg/L | 480 | 24 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | <0.167 | <0.200 | <0.192 | <0.200 | <0.227 | <0.217 | <0.208 |
| Dibenz(a,h)anthracene | µg/L | 0.48 | 0.024 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | <0.167 | <0.200 | <0.192 | <0.200 | <0.227 | <0.217 | <0.208 |
| Fluoranthene | µg/L | 1400 | 280 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | 2.90 | 2.04 | 2.09 | 0.654 | 0.804 | <0.217 | 1.28 |
| Fluorene | µg/L | 1400 | 280 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | 27.7 | 11.5 | 12.9 | 0.744 | 1.63 | <0.217 | 2.82 |
| Indeno[1,2,3-cd]pyrene | µg/L | 4.8 | 0.24 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | <0.167 | <0.200 | <0.192 | <0.200 | <0.227 | <0.217 | <0.208 |
| Naphthalene | µg/L | 700 | 100 | 0.432 | <0.500 | <0.543 | <0.500 | <0.543 | <0.568 | **226** | **121** | **342** | 0.733 | 6.83 | <0.543 | 0.933 |
| Phenanthrene | µg/L | 1000 | 210 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | 27.4 | 8.07 | 9.79 | <0.200 | 4.07 | <0.217 | 5.4 |
| Pyrene | µg/L | 1000 | 210 | <0.167 | <0.200 | <0.217 | <0.200 | <0.217 | <0.227 | 3.26 | 3.14 | 3.21 | 0.914 | 0.927 | <0.217 | 1.34 |
| ***Volatile Organic Compounds*** | | | | | | | | | | | | | | | | |
| Benzene | µg/L | 64 | 5 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | **121** | **24.4** | **64.6** | **41.7** | **22.7** | **9.16** | **20.9** |
| Ethylbenzene | µg/L | 3500 | 700 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | 20.0 | <10.0 | 13.6 | 6.05 | 4.63 | 2.04 | 6.54 |
| Toluene | µg/L | 5000 | 1000 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | 179 | 40.5 | 89.0 | 4.32 | 3.28 | <1.00 | 1.25 |
| Xylenes, Total | µg/L | 50000 | 10000 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | 169 | <30.0 | 59.7 | 44.7 | 29.7 | 4.23 | 19.3 |
| 1,1,1,2-Tetrachloroethane | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1,1-Trichloroethane | µg/L | 70000 | 200 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1,2,2-Tetrachloroethane | µg/L | 18 | 0.3 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1,2-Trichloroethane | µg/L | 61 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1-Dichloroethane | µg/L | 700 | 140 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1-Dichloroethene | µg/L | 180 | 7 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <20.0 | <20.0 | <2.00 | <2.00 | <2.00 | <2.00 |
| 1,1-Dichloropropene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2,3-Trichlorobenzene | µg/L | - | - | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <50.0 | <50.0 | <5.00 | <5.00 | <5.00 | <5.00 |
| 1,2,3-Trichloropropane | µg/L | 0.12 | 0.0058 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2,4-Trichlorobenzene | µg/L | 350 | 70 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <50.0 | <50.0 | <5.00 | <5.00 | <5.00 | <5.00 |
| 1,2,4-Trimethylbenzene | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | 26.1 | <10.0 | 11.4 | 17.4 | 14.6 | 2.71 | 15.2 |
| 1,2-Dibromo-3-Chloropropane | µg/L | 2.9 | 0.2 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <50.0 | <50.0 | <5.00 | <5.00 | <5.00 | <5.00 |
| 1,2-Dibromoethane (EDB) | µg/L | 1.8 | 0.05 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dichlorobenzene | µg/L | 3200 | 600 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dichloroethane | µg/L | 38 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dichloropropane | µg/L | 60 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,3,5-Trimethylbenzene | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | 10.5 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | 1.15 |
| 1,3-Dichlorobenzene | µg/L | 3200 | 600 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,3-Dichloropropane | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,4-Dichlorobenzene | µg/L | 650 | 75 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| 2,2-Dichloropropane | µg/L | - | - | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <40.0 | <40.0 | <4.00 | <4.00 | <4.00 | <4.00 |
| 2-Butanone (MEK) | µg/L | 21000 | 4000 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <100 | <100 | <10.0 | <10.0 | <10.0 | <10.0 |
| 2-Chlorotoluene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |

**Table 1**

**Groundwater Analytical Results**
**Interstate Power and Light Company**
**Former Manufactured Gas Plant - Albia, Iowa**

| Analyte | Units | Iowa Statewide Standard (Non-Protected) | Iowa Statewide Standard (Protected) | MW-05 MW05-GW-0818 8/2/2018 | MW-05 MW05-GW-0918 9/6/2018 | MW-05 MW05-GW-0421 4/29/2021 | MW-05 MW05-GW-0721 7/7/2021 | MW-05 MW05-GW-1021 10/26/2021 | MW-05 MW05-GW-0122 1/13/2022 | MW-06 MW06-GW-0818 8/2/2018 | MW-06 MW06-GW-0918 9/6/2018 | MW-06 DP01-GW-0918 9/6/2018 | MW-06 MW06-GW-0421 4/30/2021 | MW-06 MW06-GW-0721 7/8/2021 | MW-06 MW06-GW-1021 10/27/2021 | MW-06 MW06-GW-0122 1/13/2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Volatile Organic Compounds (cont'd)*** | | | | | | | | | | | | | | | | |
| 4-Chlorotoluene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| Acetone | µg/L | 32000 | 6300 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <100 | <100 | <10.0 | <10.0 | <10.0 | <10.0 |
| Bromobenzene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| Bromochloromethane | µg/L | 450 | 90 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <50.0 | <50.0 | <5.00 | <5.00 | <5.00 | <5.00 |
| Bromodichloromethane | µg/L | 400 | 80 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| Bromoform | µg/L | 440 | 80 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <50.0 | <50.0 | <5.00 | <5.00 | <5.00 | <5.00 |
| Bromomethane | µg/L | 50 | 10 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <40.0 | <40.0 | <4.00 | <4.00 | <4.00 | <4.00 |
| Carbon disulfide | µg/L | 3500 | 700 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| Carbon tetrachloride | µg/L | 50 | 5 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <20.0 | <20.0 | <2.00 | <2.00 | <2.00 | <2.00 |
| Chlorobenzene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| Chlorodibromomethane | µg/L | 400 | 80 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <50.0 | <50.0 | <5.00 | <5.00 | <5.00 | <5.00 |
| Chloroethane | µg/L | 14000 | 2800 | <4.00 | <4.00 * | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <40.0 | <40.0 | <4.00 | <4.00 | <4.00 | <4.00 |
| Chloroform | µg/L | - | 80 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <30.0 | <30.0 | <3.00 | <3.00 | <3.00 | <3.00 |
| Chloromethane | µg/L | - | - | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <30.0 | <30.0 | <3.00 | <3.00 | <3.00 | <3.00 |
| cis-1,2-Dichloroethene | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| cis-1,3-Dichloropropene | µg/L | - | - | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <50.0 | <50.0 | <5.00 | <5.00 | <5.00 | <5.00 |
| Dibromomethane | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| Dichlorodifluoromethane | µg/L | 7000 | 1000 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <30.0 | <30.0 | <3.00 | <3.00 | <3.00 | <3.00 |
| Hexachlorobutadiene | µg/L | 45 | 1 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <50.0 | <50.0 | <5.00 | <5.00 | <5.00 | <5.00 |
| Hexane | µg/L | 2100 | 420 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| Isopropylbenzene | µg/L | 3500 | 700 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | 1.23 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| Methyl tert-butyl ether | µg/L | 1000 | 210 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| Methylene Chloride | µg/L | 1800 | 5 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <50.0 | <50.0 | <5.00 | <5.00 | <5.00 | <5.00 |
| n-Butylbenzene | µg/L | 1800 | 350 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | 1.12 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| N-Propylbenzene | µg/L | 17000 | 3400 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| p-Isopropyltoluene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| sec-Butylbenzene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| Styrene | µg/L | - | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| tert-Butylbenzene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| Tetrachloroethene | µg/L | 1700 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| trans-1,2-Dichloroethene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| trans-1,3-Dichloropropene | µg/L | - | - | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <50.0 | <50.0 | <5.00 | <5.00 | <5.00 | <5.00 |
| Trichloroethene | µg/L | 76 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| Trichlorofluoromethane | µg/L | 10000 | 2000 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <40.0 | <40.0 | <4.00 | <4.00 | <4.00 | <4.00 |
| Vinyl chloride | µg/L | 10 | 2 | <1.00 | <1.00 * | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <10.0 | <10.0 | <1.00 | <1.00 | <1.00 | <1.00 |
| ***Phenols*** | | | | | | | | | | | | | | | | |
| 2,4,5-Trichlorophenol | µg/L | 3500 | 700 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2,4,6-Trichlorophenol | µg/L | 320 | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2,4-Dichlorophenol | µg/L | 100 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2,4-Dimethylphenol | µg/L | 700 | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2,4-Dinitrophenol | µg/L | 70 | 14 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2-Chlorophenol | µg/L | 200 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2-Methylphenol | µg/L | - | 35 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2-Nitrophenol | µg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4,6-Dinitro-2-methylphenol | µg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4-Chloro-3-methylphenol | µg/L | 3500 | 700 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4-Methylphenol (and/or 3-Methylphenol) | µg/L | - | 70 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4-Nitrophenol | µg/L | 300 | 60 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pentachlorophenol | µg/L | 8.8 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Phenol | µg/L | 10000 | 2000 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Cresols | µg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Notes:
Concentrations above Statewide Standard for a Protected Water Source are in bold font.
Concentrations above Statewide Standard for a Non-Protected Water Source are in bold red font with red outline.
F1 - MS and/or MSD Recovery is outside acceptance limits.
*1 - LCS/LCSD RPD exceeds control limits.
+ - LCS and/or LCSD is outside acceptance limit, high biased.

**Table 1**

**Groundwater Analytical Results**
**Interstate Power and Light Company**
**Former Manufactured Gas Plant - Albia, Iowa**

| Analyte | Units | Iowa Statewide Standard (Non-Protected) | Iowa Statewide Standard (Protected) | MW-07 MW07-GW-1018 10/18/2018 | MW-07 MW07-GW-0119 1/15/2019 | MW-07 MW7-GW-0521 5/28/2021 | MW-07 MW07-GW-0721 7/7/2021 | MW-07 MW07-GW-1021 10/29/2021 | MW-07 MW07-GW-0122 1/13/2022 | MW-08 MW08-GW-1018 10/18/2018 | MW-08 MW08-GW-0119 1/15/2019 | MW-08 DP01-GW-0119 1/15/2019 | MW-08R MW8R-GW-0421 4/30/2021 | MW-08R MW08R-GW-0721 7/7/2021 | MW-08R MW08R-GW-1021 10/26/2021 | MW-08R MW08R-GW-0122 1/13/2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | | | | | | |
| Cyanide, Free | mg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | |
| Arsenic, Total | mg/L | 0.05 | 0.01 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | **0.0133** | **0.0112** | **0.0110** | <0.00200 |
| Lead, Total | mg/L | 0.075 | 0.015 | <0.000500 | <0.000500 | <0.000500 | <0.000500 | <0.000500 | 0.000819 | <0.000500 | 0.000695 | 0.000578 | 0.000614 | 0.000536 | 0.00577 | <0.000500 |
| ***Polynuclear Aromatic Hydrocarbons*** | | | | | | | | | | | | | | | | |
| 2-Methylnaphthalene | µg/L | 140 | 28 | <0.185 | <0.192 | 1.02 *1 | <0.227 | <0.227 | <0.200 | <0.192 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| Acenaphthene | µg/L | 2100 | 420 | <0.185 | <0.192 | <0.227 *1 | <0.227 | <0.227 | <0.200 | 0.389 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| Acenaphthylene | µg/L | 1000 | 210 | <0.185 | <0.192 | 0.453 *1 | <0.227 | <0.227 | <0.200 | <0.192 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| Anthracene | µg/L | 10000 | 2100 | <0.185 | <0.192 | <0.227 *1 | <0.227 | <0.227 | <0.200 | <0.192 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| Benzo[a]anthracene | µg/L | 4.8 | 0.24 | <0.185 | <0.192 | <0.227 *1 | <0.227 | <0.227 | <0.200 | <0.192 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| Benzo[a]pyrene | µg/L | 3.5 | 0.18 | <0.185 | <0.192 | <0.227 *1 | <0.227 | <0.227 | <0.200 | <0.192 F2 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| Benzo[b]fluoranthene | µg/L | 4.8 | 0.24 | <0.185 | <0.192 | <0.227 *1 | <0.227 | <0.227 | <0.200 | <0.192 F2 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| Benzo[g,h,i]perylene | µg/L | 100 | 21 | <0.185 | <0.192 | <0.227 *1 | <0.227 | <0.227 | <0.200 | <0.192 F2 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| Benzo[k]fluoranthene | µg/L | 48 | 2.4 | <0.185 | <0.192 | <0.227 | <0.227 | <0.227 | <0.200 | <0.192 F2 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| Chrysene | µg/L | 480 | 24 | <0.185 | <0.192 | <0.227 *1 | <0.227 | <0.227 | <0.200 | <0.192 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| Dibenz(a,h)anthracene | µg/L | 0.48 | 0.024 | <0.185 | <0.192 | <0.227 *1 | <0.227 | <0.227 | <0.200 | <0.192 F2 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| Fluoranthene | µg/L | 1400 | 280 | <0.185 | <0.192 | <0.227 *1 | <0.227 | <0.227 | <0.200 | <0.192 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| Fluorene | µg/L | 1400 | 280 | <0.185 | <0.192 | <0.227 *1 | <0.227 | <0.227 | <0.200 | <0.192 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| Indeno[1,2,3-cd]pyrene | µg/L | 4.8 | 0.24 | <0.185 | <0.192 | <0.227 *1 | <0.227 | <0.227 | <0.200 | <0.192 F2 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| Naphthalene | µg/L | 700 | 100 | <0.463 | <0.481 | 2.91 *1 *+ | <0.568 | <0.568 | <0.500 | <0.481 | <0.481 | <0.500 | <0.500 | <0.500 | <0.568 | <0.595 |
| Phenanthrene | µg/L | 1000 | 210 | <0.185 | <0.192 | <0.227 | <0.227 | <0.227 | <0.200 | <0.192 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| Pyrene | µg/L | 1000 | 210 | <0.185 | <0.192 | <0.227 *1 | <0.227 | <0.227 | <0.200 | <0.192 | <0.192 | <0.200 | <0.200 | <0.200 | <0.227 | <0.238 |
| ***Volatile Organic Compounds*** | | | | | | | | | | | | | | | | |
| Benzene | µg/L | 64 | 5 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 |
| Ethylbenzene | µg/L | 3500 | 700 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Toluene | µg/L | 5000 | 1000 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Xylenes, Total | µg/L | 50000 | 10000 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 |
| 1,1,1,2-Tetrachloroethane | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1,1-Trichloroethane | µg/L | 70000 | 200 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 F2 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1,2,2-Tetrachloroethane | µg/L | 18 | 0.3 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1,2-Trichloroethane | µg/L | 61 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1-Dichloroethane | µg/L | 700 | 140 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1-Dichloroethene | µg/L | 180 | 7 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 |
| 1,1-Dichloropropene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 F2 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2,3-Trichlorobenzene | µg/L | - | - | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| 1,2,3-Trichloropropane | µg/L | 0.12 | 0.0058 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2,4-Trichlorobenzene | µg/L | 350 | 70 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| 1,2,4-Trimethylbenzene | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dibromo-3-Chloropropane | µg/L | 2.9 | 0.2 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| 1,2-Dibromoethane (EDB) | µg/L | 1.8 | 0.05 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dichlorobenzene | µg/L | 3200 | 600 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dichloroethane | µg/L | 38 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dichloropropane | µg/L | 60 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,3,5-Trimethylbenzene | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,3-Dichlorobenzene | µg/L | 3200 | 600 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,3-Dichloropropane | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,4-Dichlorobenzene | µg/L | 650 | 75 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 2,2-Dichloropropane | µg/L | - | - | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| 2-Butanone (MEK) | µg/L | 21000 | 4000 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 |
| 2-Chlorotoluene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |

**Table 1**

**Groundwater Analytical Results**
**Interstate Power and Light Company**
**Former Manufactured Gas Plant - Albia, Iowa**

| Analyte | Units | Iowa Statewide Standard (Non-Protected) | Iowa Statewide Standard (Protected) | MW-07 MW07-GW-1018 10/18/2018 | MW-07 MW07-GW-0119 1/15/2019 | MW-07 MW7-GW-0521 5/28/2021 | MW-07 MW07-GW-0721 7/7/2021 | MW-07 MW07-GW-1021 10/29/2021 | MW-07 MW07-GW-0122 1/13/2022 | MW-08 MW08-GW-1018 10/18/2018 | MW-08 MW08-GW-0119 1/15/2019 | MW-08 DP01-GW-0119 1/15/2019 | MW-08R MW8R-GW-0421 4/30/2021 | MW-08R MW08R-GW-0721 7/7/2021 | MW-08R MW08R-GW-1021 10/26/2021 | MW-08R MW08R-GW-0122 1/13/2022 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Volatile Organic Compounds (cont'd)*** | | | | | | | | | | | | | | | | |
| 4-Chlorotoluene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Acetone | µg/L | 32000 | 6300 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 |
| Bromobenzene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Bromochloromethane | µg/L | 450 | 90 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Bromodichloromethane | µg/L | 400 | 80 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Bromoform | µg/L | 440 | 80 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Bromomethane | µg/L | 50 | 10 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| Carbon disulfide | µg/L | 3500 | 700 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Carbon tetrachloride | µg/L | 50 | 5 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 F2 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 |
| Chlorobenzene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Chlorodibromomethane | µg/L | 400 | 80 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Chloroethane | µg/L | 14000 | 2800 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| Chloroform | µg/L | - | 80 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 |
| Chloromethane | µg/L | - | - | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 |
| cis-1,2-Dichloroethene | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| cis-1,3-Dichloropropene | µg/L | - | - | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Dibromomethane | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Dichlorodifluoromethane | µg/L | 7000 | 1000 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 |
| Hexachlorobutadiene | µg/L | 45 | 1 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Hexane | µg/L | 2100 | 420 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Isopropylbenzene | µg/L | 3500 | 700 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Methyl tert-butyl ether | µg/L | 1000 | 210 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Methylene Chloride | µg/L | 1800 | 5 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| n-Butylbenzene | µg/L | 1800 | 350 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| N-Propylbenzene | µg/L | 17000 | 3400 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| p-Isopropyltoluene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| sec-Butylbenzene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Styrene | µg/L | - | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| tert-Butylbenzene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Tetrachloroethene | µg/L | 1700 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| trans-1,2-Dichloroethene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| trans-1,3-Dichloropropene | µg/L | - | - | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Trichloroethene | µg/L | 76 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Trichlorofluoromethane | µg/L | 10000 | 2000 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| Vinyl chloride | µg/L | 10 | 2 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| ***Phenols*** | | | | | | | | | | | | | | | | |
| 2,4,5-Trichlorophenol | µg/L | 3500 | 700 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2,4,6-Trichlorophenol | µg/L | 320 | 16 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2,4-Dichlorophenol | µg/L | 100 | 20 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2,4-Dimethylphenol | µg/L | 700 | 100 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2,4-Dinitrophenol | µg/L | 70 | 14 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2-Chlorophenol | µg/L | 200 | 40 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2-Methylphenol | µg/L | - | 35 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 2-Nitrophenol | µg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4,6-Dinitro-2-methylphenol | µg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4-Chloro-3-methylphenol | µg/L | 3500 | 700 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4-Methylphenol (and/or 3-Methylphenol) | µg/L | - | 70 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| 4-Nitrophenol | µg/L | 300 | 60 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Pentachlorophenol | µg/L | 8.8 | 1 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Phenol | µg/L | 10000 | 2000 | - | - | - | - | - | - | - | - | - | - | - | - | - |
| Total Cresols | µg/L | - | - | - | - | - | - | - | - | - | - | - | - | - | - | - |

Notes:

Concentrations above Statewide Standard for a Protected Water Source are in bold font.
Concentrations above Statewide Standard for a Non-Protected Water Source are in bold red font with red outline.
F1 - MS and/or MSD Recovery is outside acceptance limits.
*1 - LCS/LCSD RPD exceeds control limits.
+ - LCS and/or LCSD is outside acceptance limit, high biased.

**Table 1**

**Groundwater Analytical Results**
**Interstate Power and Light Company**
**Former Manufactured Gas Plant - Albia, Iowa**

| Analyte | Units | Iowa Statewide Standard (Non-Protected) | Iowa Statewide Standard (Protected) | MW-09 MW09-GW-1018 10/18/2018 | MW-09 DP01-GW-1018 10/18/2018 | MW-09 MW09-GW-0119 1/15/2019 | MW-09 MW09-GW-0421 4/29/2021 | MW-09 MW09-GW-0721 7/7/2021 | MW-09 MW09-GW-1021 10/27/2021 | MW-09 MW09-GW-0122 1/13/2022 | PB-02 PB02-GW-0718 7/12/2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Inorganics*** | | | | | | | | | | | |
| Cyanide, Free | mg/L | - | - | - | - | - | - | - | - | - | <0.00500 |
| Arsenic, Total | mg/L | 0.05 | 0.01 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | <0.00200 | **0.0116** |
| Lead, Total | mg/L | 0.075 | 0.015 | <0.000500 | <0.000500 | <0.000500 | <0.000500 | <0.000500 | 0.000509 | <0.000500 | **0.0158** |
| ***Polynuclear Aromatic Hydrocarbons*** | | | | | | | | | | | |
| 2-Methylnaphthalene | µg/L | 140 | 28 | <0.192 | <0.192 | <0.200 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| Acenaphthene | µg/L | 2100 | 420 | <0.192 | <0.192 | <0.200 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| Acenaphthylene | µg/L | 1000 | 210 | <0.192 | <0.192 | <0.200 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| Anthracene | µg/L | 10000 | 2100 | <0.192 | <0.192 | <0.200 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| Benzo[a]anthracene | µg/L | 4.8 | 0.24 | <0.192 | <0.192 | <0.200 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| Benzo[a]pyrene | µg/L | 3.5 | 0.18 | <0.192 | <0.192 | <0.200 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| Benzo[b]fluoranthene | µg/L | 4.8 | 0.24 | <0.192 | <0.192 | <0.200 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| Benzo[g,h,i]perylene | µg/L | 100 | 21 | <0.192 | <0.192 | <0.200 F2 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| Benzo[k]fluoranthene | µg/L | 48 | 2.4 | <0.192 | <0.192 | <0.200 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| Chrysene | µg/L | 480 | 24 | <0.192 | <0.192 | <0.200 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| Dibenz(a,h)anthracene | µg/L | 0.48 | 0.024 | <0.192 | <0.192 | <0.200 F2 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| Fluoranthene | µg/L | 1400 | 280 | <0.192 | <0.192 | <0.200 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| Fluorene | µg/L | 1400 | 280 | <0.192 | <0.192 | <0.200 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| Indeno[1,2,3-cd]pyrene | µg/L | 4.8 | 0.24 | <0.192 | <0.192 | <0.200 F2 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| Naphthalene | µg/L | 700 | 100 | <0.481 | <0.481 | <0.500 | <0.625 | <0.500 | <0.568 | <0.500 | <0.538 |
| Phenanthrene | µg/L | 1000 | 210 | <0.192 | <0.192 | <0.200 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| Pyrene | µg/L | 1000 | 210 | <0.192 | <0.192 | <0.200 | <0.250 | <0.200 | <0.227 | <0.200 | <0.108 |
| ***Volatile Organic Compounds*** | | | | | | | | | | | |
| Benzene | µg/L | 64 | 5 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 | <0.500 |
| Ethylbenzene | µg/L | 3500 | 700 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Toluene | µg/L | 5000 | 1000 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Xylenes, Total | µg/L | 50000 | 10000 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 |
| 1,1,1,2-Tetrachloroethane | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1,1-Trichloroethane | µg/L | 70000 | 200 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1,2,2-Tetrachloroethane | µg/L | 18 | 0.3 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1,2-Trichloroethane | µg/L | 61 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1-Dichloroethane | µg/L | 700 | 140 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,1-Dichloroethene | µg/L | 180 | 7 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 |
| 1,1-Dichloropropene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2,3-Trichlorobenzene | µg/L | - | - | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| 1,2,3-Trichloropropane | µg/L | 0.12 | 0.0058 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2,4-Trichlorobenzene | µg/L | 350 | 70 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| 1,2,4-Trimethylbenzene | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dibromo-3-Chloropropane | µg/L | 2.9 | 0.2 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| 1,2-Dibromoethane (EDB) | µg/L | 1.8 | 0.05 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dichlorobenzene | µg/L | 3200 | 600 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dichloroethane | µg/L | 38 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,2-Dichloropropane | µg/L | 60 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,3,5-Trimethylbenzene | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,3-Dichlorobenzene | µg/L | 3200 | 600 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,3-Dichloropropane | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 1,4-Dichlorobenzene | µg/L | 650 | 75 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| 2,2-Dichloropropane | µg/L | - | - | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| 2-Butanone (MEK) | µg/L | 21000 | 4000 | <10.0 | <10.0 | <10.0 F2 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 |
| 2-Chlorotoluene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |

**Table 1**

**Groundwater Analytical Results**
**Interstate Power and Light Company**
**Former Manufactured Gas Plant - Albia, Iowa**

| Analyte | Units | Iowa Statewide Standard (Non-Protected) | Iowa Statewide Standard (Protected) | MW-09 MW09-GW-1018 10/18/2018 | MW-09 DP01-GW-1018 10/18/2018 | MW-09 MW09-GW-0119 1/15/2019 | MW-09 MW09-GW-0421 4/29/2021 | MW-09 MW09-GW-0721 7/7/2021 | MW-09 MW09-GW-1021 10/27/2021 | MW-09 MW09-GW-0122 1/13/2022 | PB-02 PB02-GW-0718 7/12/2018 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| ***Volatile Organic Compounds (cont'd)*** | | | | | | | | | | | |
| 4-Chlorotoluene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Acetone | µg/L | 32000 | 6300 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 | <10.0 |
| Bromobenzene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Bromochloromethane | µg/L | 450 | 90 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Bromodichloromethane | µg/L | 400 | 80 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Bromoform | µg/L | 440 | 80 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Bromomethane | µg/L | 50 | 10 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| Carbon disulfide | µg/L | 3500 | 700 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Carbon tetrachloride | µg/L | 50 | 5 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 | <2.00 |
| Chlorobenzene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Chlorodibromomethane | µg/L | 400 | 80 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Chloroethane | µg/L | 14000 | 2800 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| Chloroform | µg/L | - | 80 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 |
| Chloromethane | µg/L | - | - | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 |
| cis-1,2-Dichloroethene | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| cis-1,3-Dichloropropene | µg/L | - | - | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Dibromomethane | µg/L | 350 | 70 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Dichlorodifluoromethane | µg/L | 7000 | 1000 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 | <3.00 |
| Hexachlorobutadiene | µg/L | 45 | 1 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Hexane | µg/L | 2100 | 420 | <1.00 | <1.00 | <1.00 F2 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Isopropylbenzene | µg/L | 3500 | 700 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Methyl tert-butyl ether | µg/L | 1000 | 210 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Methylene Chloride | µg/L | 1800 | 5 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| n-Butylbenzene | µg/L | 1800 | 350 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| N-Propylbenzene | µg/L | 17000 | 3400 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| p-Isopropyltoluene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| sec-Butylbenzene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Styrene | µg/L | - | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| tert-Butylbenzene | µg/L | - | - | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Tetrachloroethene | µg/L | 1700 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| trans-1,2-Dichloroethene | µg/L | 700 | 100 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| trans-1,3-Dichloropropene | µg/L | - | - | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 | <5.00 |
| Trichloroethene | µg/L | 76 | 5 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| Trichlorofluoromethane | µg/L | 10000 | 2000 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 | <4.00 |
| Vinyl chloride | µg/L | 10 | 2 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 | <1.00 |
| ***Phenols*** | | | | | | | | | | | |
| 2,4,5-Trichlorophenol | µg/L | 3500 | 700 | - | - | - | - | - | - | - | - |
| 2,4,6-Trichlorophenol | µg/L | 320 | 16 | - | - | - | - | - | - | - | - |
| 2,4-Dichlorophenol | µg/L | 100 | 20 | - | - | - | - | - | - | - | - |
| 2,4-Dimethylphenol | µg/L | 700 | 100 | - | - | - | - | - | - | - | - |
| 2,4-Dinitrophenol | µg/L | 70 | 14 | - | - | - | - | - | - | - | - |
| 2-Chlorophenol | µg/L | 200 | 40 | - | - | - | - | - | - | - | - |
| 2-Methylphenol | µg/L | - | 35 | - | - | - | - | - | - | - | - |
| 2-Nitrophenol | µg/L | - | - | - | - | - | - | - | - | - | - |
| 4,6-Dinitro-2-methylphenol | µg/L | - | - | - | - | - | - | - | - | - | - |
| 4-Chloro-3-methylphenol | µg/L | 3500 | 700 | - | - | - | - | - | - | - | - |
| 4-Methylphenol (and/or 3-Methylphenol) | µg/L | - | 70 | - | - | - | - | - | - | - | - |
| 4-Nitrophenol | µg/L | 300 | 60 | - | - | - | - | - | - | - | - |
| Pentachlorophenol | µg/L | 8.8 | 1 | - | - | - | - | - | - | - | - |
| Phenol | µg/L | 10000 | 2000 | - | - | - | - | - | - | - | - |
| Total Cresols | µg/L | - | - | - | - | - | - | - | - | - | - |

Notes:

Concentrations above Statewide Standard for a Protected Water Source are in bold font.
Concentrations above Statewide Standard for a Non-Protected Water Source are in bold red font with red outline.
F1 - MS and/or MSD Recovery is outside acceptance limits.
*1 - LCS/LCSD RPD exceeds control limits.
+ - LCS and/or LCSD is outside acceptance limit, high biased.

# Attachment 1

## Well Search Report

## Well Search Report

| Included in search | No. of wells | Database |
|---|---|---|
| X | 0 | IGS well database<br>General well database maintained by IGS, location accuracy varies 3,730 to 25 ft., last updated 8/2005. |
| X | 0 | Public wells<br>Muncipal and nonmunicipal public well databases maintained by IGS, location varies 3,730 to 25 ft., under development. |
| X | 0 | SDWIS public wells<br>Public well database developed from the Safe Drinking Water Information System database maintained by IDNR, estimated locational accuracy varies from 15m. to 3300m. Created from 5/2005 data. |
| X | 3 | Private well tracking system<br>IDNR database management system for Grants-to-counties-covered wells. Locational accuracy unknown, assumed to be +/- 17 m., Last update 7/2005. |
| X | 0 | Wells registered for testing<br>Wells tested under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned. |
| X | 0 | Permitted private wells<br>Wells permitted under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned. |
| X | 1 | Registered abandoned wells<br>Wells abandoned under Grant-to-Counties program. Locational accuracy varies 1150 to 150 m.; Last update 9/2001, no future updates planned. |
| X | 0 | Water use facilities<br>Wells used by facilities permitted to withdraw >25,000 gallons per day, locational accuracy is +/-20m to 1150 m. Created from 7/2005 data. |
| X | 0 | Municipal wells and intakes<br>Locational accuracy 220 m., last updated 8/96. |
| X | 0 | Ag drainage wells<br>Locational accuracy 100 m., last updated 4/98. |

## Well Search Detail

**Subject:** XY UTM Coordinates: 516203/4542306
Search Radius (ft): 1000

**IGS Well Database**

| Map ID | Well No. | Location | Accuracy | Dist. From Point | Well Depth | Construction/ Permit Date | Owner/Permittees | Other Information |
|---|---|---|---|---|---|---|---|---|
| No records found from this data source | | | | | | | | |

**Public Wells**

| Map ID | Well No. | Location | Accuracy | Dist. From Point | Well Depth | Construction/ Permit Date | Owner/Permittees | Other Information |
|---|---|---|---|---|---|---|---|---|

No records found from this data source

**SDWIS public wells**

| Map ID | Well No. | Location | Accuracy | Dist. From Point | Well Depth | Construction/ Permit Date | Owner/Permittees | Other Information |
|---|---|---|---|---|---|---|---|---|
| No records found from this data source | | | | | | | | |

**Private Well Tracking System**

| Map ID | Well No. | Location | Accuracy | Dist. From Point | Well Depth | Construction/ Permit Date | Owner/Permittees | Other Information |
|---|---|---|---|---|---|---|---|---|
| 278220 | 2093700 | T72N, R17W, S15 | nom. +/- 25m. | 220 (m) | 25 | 1/1/1930 | Shepard, Kenny | Status: Plugged |
| 278207 | 2122072 | T72N, R17W, S15 | nom. +/- 25m. | 233 (m) | 28 | 5/14/1933 | Sinnott, Steve | Status: Plugged |
| 278425 | 2186678 | T72N, R17W, S15 | nom. +/- 25m. | 217 (m) | 35 | 1/1/1960 | Suda, Don | Status: Plugged |

**Wells Registered For Testing**

| Map ID | Well No. | Location | Accuracy | Dist. From Point | Well Depth | Construction/ Permit Date | Owner/Permittees | Other Information |
|---|---|---|---|---|---|---|---|---|
| No records found from this data source | | | | | | | | |

**Permitted Private Wells**

| Map ID | Well No. | Location | Accuracy | Dist. From Point | Well Depth | Construction/ Permit Date | Owner/Permittees | Other Information |
|---|---|---|---|---|---|---|---|---|
| No records found from this data source | | | | | | | | |

**Abandoned Wells (plugged)**

| Map ID | Well No. | Location | Accuracy | Dist. From Point | Well Depth | Construction/ Permit Date | Owner/Permittees | Other Information |
|---|---|---|---|---|---|---|---|---|
| 278433 | 19147 | T72N, R17W, Sec. 15, SW, SE, NE | Calc. +/- 285m. | 183 (m) | 10 | n.a. | Steinbach, Wanda M., C/O Don Herteen | Well plugged: 3/18/1994; Well type: > 18" dia. |

**Water Use Facilities**

| Map ID | Well No. | Location | Accuracy | Dist. From Point | Well Depth | Construction/ Permit Date | Owner/Permittees | Other Information |
|---|---|---|---|---|---|---|---|---|
| No records found from this data source | | | | | | | | |

**Municipal Wells And Intakes**

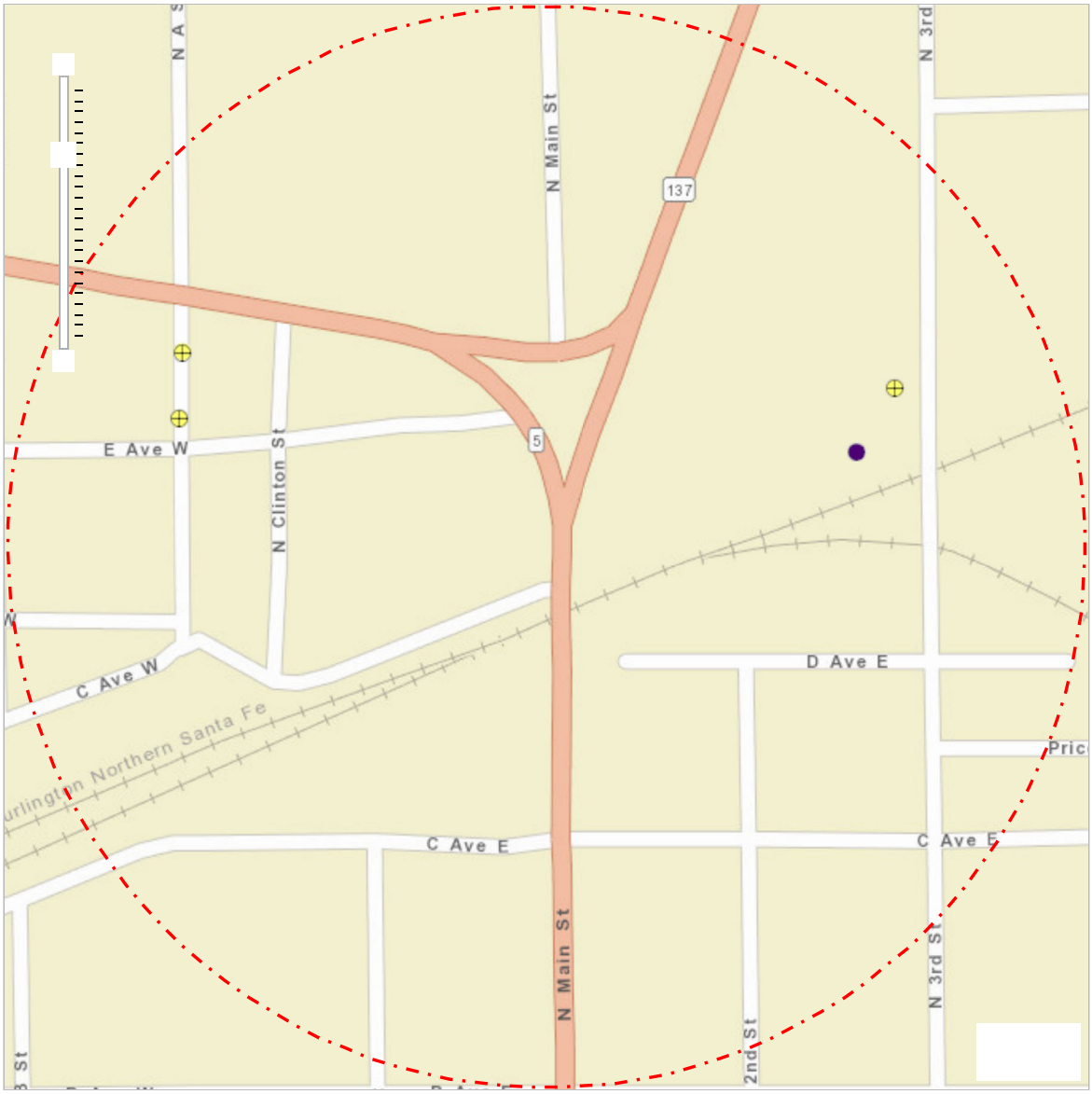
| Map ID | Well No. | Location | Accuracy | Dist. From Point | Well Depth | Construction/ Permit Date | Owner/Permittees | Other Information |
|---|---|---|---|---|---|---|---|---|
| No records found from this data source | | | | | | | | |

**Ag Drainage Wells**

| Map ID | Well No. | Location | Accuracy | Dist. From Point | Well Depth | Construction/ Permit Date | Owner/Permittees | Other Information |
|---|---|---|---|---|---|---|---|---|
| No records found from this data source | | | | | | | | |

## Well Search Buffered Map

**Subject:** XY UTM Coordinates: 516203/4542306
Search Radius (ft): 1000




Map Notes:
- UST
- LUST
- Wells

Please refer to the Accuracy column in Well Search Detail.
Since multiple points can be at the same spot ( as those located to the center of a quarter section), points were randomly dispersed within 10 meters around that spot so all points can be seen.