

## DETERMINATION OF LEVEL OF REVIEW ENVIRONMENTAL REVIEW RECORD

Project Name: City of Arcadia Water System Improvements

CDBG Contract Number: 22-WS-015

Project Location: City of Arcadia

Project Description (Attach additional descriptive information, as appropriate to the project, including narrative, maps, photographs, site plans, budgets and other information.): **The purpose of this project is to replace existing water lines to address the city's aging water system and have a positive effect on flow patterns and pressure equalization. The replacement of a large portion of the city's old mains will decrease the risk of frequent breaks. This project will replace the current cast iron mains with PVC mains. The complete project description and the exact locations can be found in the Preliminary Engineering Report.**

*The subject project has been reviewed pursuant to HUD regulations 24 CFR Part 58 "Environmental Review Procedures for Entities Assuming HUD Environmental Responsibilities," and the following determination with respect to the project is made:*

- ☐ **Exempt** from NEPA review requirements per 24 CFR 58.34(a)( )
- ☐ **Categorically Excluded NOT Subject** to §58.5 authorities per 24 CFR 58.35(b)()
- ☐ **Categorically Subject** to §58.5 authorities per 24 CFR 58.35(a)() (A Statutory Checklist for the §58.5 authorities is attached.)
- ☒ An **Environmental Assessment** (EA) is required to be performed in accordance with subpart E of 24 CFR Part 58 is attached.
- ☐ An **Environmental Impact Statement** (EIS) is required to be performed.

The ERR (see §58.38) must contain all the environmental review documents, public notices and written determinations or environmental findings required by Part 58 as evidence of review, decision making and actions pertaining to a particular project. Include additional information including checklists, studies, analyses and documentation as appropriate.

### Chief Elected Official:

John Kevin Liechti

Print Name

Signature

Mayor

Title

Date

Updated 3/8/2012

All projects will need to submit this form with their ERR to IEDA prior to a release of funds being issued.





**U.S. Department of Housing and Urban  
Development**

451 Seventh Street, SW  
Washington, DC 20410  
[www.hud.gov](http://www.hud.gov)

[espanol.hud.gov](http://espanol.hud.gov)

**Environmental Assessment  
Determinations and Compliance Findings for HUD-assisted Projects  
24 CFR Part 58**

This is a suggested format that may be used by Responsible Entities to document completion of  
an Environmental Assessment.

**Project Information**

**Project Name:** City of Arcadia Water System Improvements

**Responsible Entity:** City of Arcadia, IA

**Grant Recipient** (if different than Responsible Entity):

**State/Local Identifier:**

**Preparer:** Lauren Mortensen, Economic Development Planner

**Certifying Officer Name and Title:** John Kevin Liechti, Mayor

**Grant Recipient** (if different than Responsible Entity):

**Consultant** (if applicable):

**Direct Comments to:** Lauren Mortensen, Economic Development Planner, Region XII Council of Governments, 712-792-9914, [lmortensen@region12cog.org](mailto:lmortensen@region12cog.org)





**U.S. Department of Housing and Urban Development**

451 Seventh Street, SW  
Washington, DC 20410  
www.hud.gov

espanol.hud.gov

**Project Location:** City of Arcadia

**Description of the Proposed Project** [24 CFR 50.12 & 58.32; 40 CFR 1508.25]:

This project will replace the city's current water mains with an 8" trunk and 6" mains. The 8" trunk line will provide higher quantities of water during a high demand period within the community. By feeding the network of 6" mains with an 8" trunk line ensures that pressures and flows will remain more constant during the periods of high demand. This alternative will replace older cast iron mains, upgrade mains near LUST sites to ductile iron pipe, and will complete several 6" loops within the distribution system.

**Statement of Purpose and Need for the Proposal** [40 CFR 1508.9(b)]:

The purpose of the project is to replace the existing water lines to address the city's aging water system, the inconsistent water pressures and safety concerns that the LUST sites present to the old pipes. The replacement of the city's old mains will reduce the risk of failures and decrease the risk of LUST sites effecting the City's water supply.

**Existing Conditions and Trends** [24 CFR 58.40(a)]:

A number of issues with the water distribution system have been recognized. A portion of the system is still cast iron, and experiences frequent breaks. These pipes likely contribute a sizeable portion of the 14.6% annual water loss. Some water mains are affected by leaking underground storage tank sites. These sites are not considered high risk and are all classified as no action required, but to reduce risk to the community, these mains will be replaced. Mains in these affected areas will be replaced with ductile iron pipe using nitrile gaskets in order to prevent contamination of water in the system. There are also portions of town that are not looped, and this project will improve the overall looping of the City's water distribution system to provide better pressure distribution, service redundancy, reduced water age issues, and improved isolation capabilities.

**Funding Information**

Grant Number	HUD Program	Funding Amount
22-WS-015	CDBG	\$300,000

**Estimated Total HUD Funded Amount:** \$300,000

**Estimated Total Project Cost** (HUD and non-HUD funds) [24 CFR 58.32(d)]:

**Total Cost:** \$1,914,062; **HUD Funds:** \$300,000; **Non-HUD Funds:** \$1,614,062

**Compliance with 24 CFR 50.4, 58.5, and 58.6 Laws and Authorities**

Record below the compliance or conformance determinations for each statute, executive order, or regulation. Provide credible, traceable, and supportive source documentation for each authority. Where applicable, complete the necessary reviews or consultations and obtain or note applicable permits of approvals. Clearly note citations, dates/names/titles of contacts, and page references. Attach additional documentation as appropriate.





**U.S. Department of Housing and Urban Development**

451 Seventh Street, SW  
Washington, DC 20410  
www.hud.gov

espanol.hud.gov

<b>Compliance Factors:</b> Statutes, Executive Orders, and Regulations listed at 24 CFR §58.5 and §58.6	Are formal compliance steps or mitigation required?	Compliance determinations
<b>STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 and 58.6</b>		
<b>Airport Hazards</b> 24 CFR Part 51 Subpart D	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Project is not located within 2,500 feet of the end of a civil airport runway or 15,000 feet of the end of a military airfield runway. HUD policy is to promote compatible land uses in RCZ/CZ/APZ. Map from FAA NPIAS Report is located in Appendix A.
<b>Coastal Barrier Resources</b> Coastal Barrier Resources Act, as amended by the Coastal Barrier Improvement Act of 1990 [16 USC 3501]	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	No coastal zone management programs exist in the states of HUD Region VII, as established by Nat'l Oceanic & Atmospheric Administration, Office of Ocean and Coastal Resource Management.
<b>Flood Insurance</b> Flood Disaster Protection Act of 1973 and National Flood Insurance Reform Act of 1994 [42 USC 4001-4128 and 42 USC 5154a]	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Project is not located in the 100 or 500-year floodplain. The Arcadia FIRM can be found in Appendix G. Map Panel 0108C.
<b>STATUTES, EXECUTIVE ORDERS, AND REGULATIONS LISTED AT 24 CFR 50.4 &amp; 58.5</b>		
<b>Clean Air</b> Clean Air Act, as amended, particularly section 176(c) & (d); 40 CFR Parts 6, 51, 93	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Project is not located in an EPA-designated non-attainment area or maintenance area for one or more of six "criteria pollutants" called National Ambient Air Quality Standards (NAAQS). Map documentation is included in Appendix B and can be found at <a href="https://www3.epa.gov/airquality/greenbook/map/mapnmpoll.pdf">https://www3.epa.gov/airquality/greenbook/map/mapnmpoll.pdf</a> .
<b>Coastal Zone Management</b> Coastal Zone Management Act, sections 307(c) & (d)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	No coastal zone management programs are in the states of HUD Region VII, per Nat'l Oceanic & Atmospheric Administration, Office of Ocean and Coastal Resource Management. <a href="http://www.coastalmanagement.noaa.gov/mystate/welcome.html">www.coastalmanagement.noaa.gov/mystate/welcome.html</a>
<b>Contamination and Toxic Substances</b> 24 CFR Part 50.3(i) & 58.5(i)(2)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Project will not be affected by any contaminated or toxic substance. A field inspection, land use search, and review of environmental compliance were conducted. All sites in proximity were in compliance according to the previous searches. EPA EnviroMapper also found that all sites in proximity were in compliance. The IDNR storage database for LUST sites was searched and no leaking sites and no tanks were registered on the site. When searching the State of Iowa Contaminated Sites database, Arcadia Limestone is currently being monitored for a previous spill. According to the most recent site Monitoring Report, the site was recommended to be reclassified as a No Action Required Site. Documentation for these searches can be found in Appendix C.
<b>Endangered Species</b> Endangered Species Act of 1973, particularly section 7; 50 CFR Part 402	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Project will not affect any Federally listed endangered or threatened species or its habitat because the project location does not have habitat suitable for the listed species. A consultation with USFWS was completed and the consultation results can be found in Appendix D. The Consultation shows that the Topeka Shiner's habitat is located within the project area, but due to there being no body of water within the project area, the Topeka Shiner's habitat will not be disturbed.
<b>Environmental Justice</b> Executive Order 12898	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Project site or neighborhood does not suffer from adverse health or environmental effects which disproportionately impact a minority or low-income population relative to the community at large. Project will





**U.S. Department of Housing and Urban Development**

451 Seventh Street, SW  
Washington, DC 20410  
www.hud.gov

espanol.hud.gov

		assist low to moderate income person's for a better quality of life. See census statistics in Appendix E and at <a href="http://www.data.census.gov">www.data.census.gov</a> .
<b>Explosive and Flammable Hazards</b> 24 CFR Part 51 Subpart C	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Since this project is replacing water lines within the City of Arcadia, it is exempt from review under this criteria.
<b>Farmlands Protection</b> Farmland Protection Policy Act of 1981, particularly sections 1504(b) and 1541; 7 CFR Part 658	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	The project is located in an area that includes prime farmland, unique farmland, and land of statewide or local importance. But, the project area has previously been developed and this project will include the rehabilitation of previously installed water lines. The farmland classification map can be found in Appendix F.
<b>Floodplain Management</b> Executive Order 11988, particularly section 2(a); 24 CFR Part 55	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Project is not located in the 100 or 500-year floodplain. The Arcadia FIRM can be found in Appendix G. Map Panel 0108C.
<b>Historic Preservation</b> National Historic Preservation Act of 1966, particularly sections 106 and 110; 36 CFR Part 800	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	This project is jointly funded with other federal funds. As such, USDA consulted with the State historic preservation office on March 3, 2022 with a finding of no comment. Documentation can be found in Appendix H.
<b>Noise Abatement and Control</b> Noise Control Act of 1972, as amended by the Quiet Communities Act of 1978; 24 CFR Part 51 Subpart B	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	This project is exempt from noise considerations as it falls under the water and sewer purview. Information Sheet C, Page 43 of Appendix 3 of Iowa CDBG Management Guide is located in Appendix I.
<b>Sole Source Aquifers</b> Safe Drinking Water Act of 1974, as amended, particularly section 1424(e); 40 CFR Part 149	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Project is not located within area of an EPA-designated sole source aquifer. Map found in Appendix J and at <a href="https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9eb047ba3ec41ada1877155fe31356b">https://epa.maps.arcgis.com/apps/webappviewer/index.html?id=9eb047ba3ec41ada1877155fe31356b</a>
<b>Wetlands Protection</b> Executive Order 11990, particularly sections 2 and 5	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Project is not located within, or have an impact on a wetland. Map can be found in Appendix K and at: <a href="https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/">https://fwsprimary.wim.usgs.gov/wetlands/apps/wetlands-mapper/</a> .
<b>Wild and Scenic Rivers</b> Wild and Scenic Rivers Act of 1968, particularly section 7(b) and (c)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>	Project is not located within one mile of a designated Wild & Scenic River, or river being studied as a potential component of the Wild & Scenic River System. Iowa does not have any designated rivers, but does have 1 study river and 7 potential rivers listed in the NRI (Sections of the Boone River, Cedar River, Maquoketa, Middle Raccoon River, Turkey River, Upper Iowa River, Wapsipinicon, Yellow River). <a href="https://www.nps.gov/ncrc/programs/rta/ncr/states/ia.html">https://www.nps.gov/ncrc/programs/rta/ncr/states/ia.html</a> This information can be found in Appendix L.

**Environmental Assessment Factors** [24 CFR 58.40; Ref. 40 CFR 1508.8 & 1508.27] Recorded below is the qualitative and quantitative significance of the effects of the proposal on the character, features and resources of the project area. Each factor has been evaluated and documented, as appropriate and in proportion to its relevance to the proposed action. Verifiable source documentation has been provided and described in support of each determination, as appropriate. Credible, traceable and supportive source documentation for each authority has been provided. Where applicable, the necessary reviews or consultations have been completed and applicable permits of approvals have been obtained or noted. Citations, dates/names/titles of contacts, and page references are clear. Additional documentation is attached, as appropriate. **All conditions, attenuation or mitigation measures have been clearly identified.**

**Impact Codes:** Use an impact code from the following list to make the determination of impact for each factor.

- (1) Minor beneficial impact
- (2) No impact anticipated
- (3) Minor Adverse Impact – May require mitigation
- (4) Significant or potentially significant impact requiring avoidance or modification which may require an Environmental Impact Statement





**U.S. Department of Housing and Urban Development**

451 Seventh Street, SW  
Washington, DC 20410  
www.hud.gov

espanol.hud.gov

Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>LAND DEVELOPMENT</b>		
Conformance with Plans / Compatible Land Use and Zoning / Scale and Urban Design	<b>2</b>	The proposed project will not have any impact on future plans for the city. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 4, April 2020)
Soil Suitability/ Slope/ Erosion/ Drainage/ Storm Water Runoff	<b>2</b>	The project will have no impact on soil suitability, ground slope within the community, erosion, or storm water runoff. <b>No mitigation is necessary.</b> (USDA Soil Survey in Appendix & Snyder and Associates Preliminary Engineering Report, Page 13, April 2020)
Hazards and Nuisances including Site Safety and Noise	<b>1</b>	This project will reduce the numerous dead ends and provide better pressure distribution, service redundancy, reduce water age issues, and improve isolation capabilities. This project will also reduce the incidence of emergency main breaks, which can lead to contaminants entering the City's water system. The project will not have any impact on community noise upon completion. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 4, April 2020)
Energy Consumption	<b>1</b>	This project will reduce water losses in the system increasing the energy efficiency through decreased pumping needs. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 13, April 2020)

Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>SOCIOECONOMIC</b>		
Employment and Income Patterns	<b>2</b>	The project will have no impact on employment or income patterns in the City of Arcadia. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 13, April 2020)
Demographic Character Changes, Displacement	<b>2</b>	The project will have no impact on community demographics with no changes directly related to this project. The project will not cause any residential or commercial displacements within the community. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 4, April 2020)
Environmental Justice	<b>1</b>	Project site or neighborhood does not suffer from adverse health or environmental effects which disproportionately impact a minority or low-income population relative to the community at large. Project will assist low to moderate income person's for a better quality of life. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 13, April 2020 & Information from data.census.gov)

Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>COMMUNITY FACILITIES AND SERVICES</b>		
Educational and Cultural Facilities	<b>2</b>	There are no educational facilities in Arcadia; therefore, the project will have no impact on any educational facilities. The project will have no impact on cultural facilities within the city. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 13, April 2020)
Commercial Facilities	<b>2</b>	The project will have no impact on the commercial facilities within the City of Arcadia. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 13, April 2020)





**U.S. Department of Housing and Urban Development**

451 Seventh Street, SW  
Washington, DC 20410  
www.hud.gov

espanol.hud.gov

Health Care and Social Services	2	The project will have no impact on health care or social services within the City of Arcadia. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 13, April 2020)
Solid Waste Disposal / Recycling	2	The project will have no impact on solid waste services within the City of Arcadia. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 13, April 2020)
Wastewater / Sanitary Sewers	2	The project will have no impact on the wastewater utility within the City of Arcadia. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 13, April 2020)
Water Supply	1	The project will reduce the amount of water lost due to main breaks, therefore reducing the amount of water needed from the city's sources. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 9, April 2020)
Public Safety - Police, Fire and Emergency Medical	1	The project will improve the reliability of the water system and provide more uniform flow throughout the system, benefitting the fire response. The project will have no impact on the policing or emergency medical response with the City of Arcadia. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 13, April 2020)
Parks, Open Space and Recreation	2	The project will have no impact on the parks and open space within the community as the new mains will be constructed adjacent to the current mains. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 13, April 2020)
Transportation and Accessibility	2	The project will have no impact on transportation or accessibility within the City of Arcadia. The replacement mains have been designed to avoid street closures with the mains being installed adjacent to the old mains but outside of the roadway pavement (as much as possible). <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 18, April 2020)

Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>NATURAL FEATURES</b>		
Unique Natural Features, Water Resources	1	The project will reduce the amount of water lost due to main breaks, therefore reducing the amount of water needed from the city's sources. The project will have no impact on the unique natural features within the community. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 9, April 2020)
Vegetation, Wildlife	2	The project will have no impact on vegetation and wildlife. <b>No mitigation is necessary.</b> (FWS Wetlands Map Aerial in Appendix K.)
Other Factors	2	The project will have no impact on other natural features within the community. <b>No mitigation is necessary.</b> (FWS Wetlands Map Aerial in Appendix K.)

Environmental Assessment Factor	Impact Code	Impact Evaluation
<b>CLIMATE CHANGE / ENERGY</b>		
Impact on occupants, alteration of future site, effect on/from weather related disasters	2	This project will have no impact on the occupants within the City of Arcadia. The project will not alter any future sites of development, as the project will be located where there are currently water lines located. This project will not have any impact on how weather related disasters affect the city of Arcadia. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 13, April 2020)





**U.S. Department of Housing and Urban Development**

451 Seventh Street, SW  
Washington, DC 20410  
www.hud.gov

espanol.hud.gov

Energy efficiency, Green building practices	2	The most efficient materials will be utilized during construction and the system is designed to reduce waste. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, April 2020)
Energy usage, Emissions	1	This project will reduce water losses in the system increasing the energy efficiency through decreased pumping needs. <b>No mitigation is necessary.</b> (Snyder and Associates Preliminary Engineering Report, Page 13, April 2020)

**Additional Studies Performed:**

A preliminary engineering report was completed: Preliminary Engineering report for Water System Improvements City of Arcadia, Iowa, April 15, 2020.

USDA Environmental Report Proposal is Consistent with 40 CFR§1508.4, "Categorical Exclusion."

**Field Inspection** (Date and completed by): November 2, 2022 by Lauren Mortensen

**List of Sources, Agencies and Persons Consulted [40 CFR 1508.9(b)]:**

USDA  
Iowa DNR  
City of Arcadia  
Fish and Wildlife Services  
Snyder and Associates  
National Park Service  
FEMA  
State Historic Preservation Office

**List of Permits Obtained:**

State of Iowa DNR Water Supply Construction Permit

**Public Outreach [24 CFR 50.23 & 58.43]:**

A public hearing was conducted to give the public an opportunity to provide input on the project. No questions or comments were received before or during the public hearing.

**Cumulative Impact Analysis [24 CFR 58.32]:**

Overall, the project will have no adverse environmental impact. There are no concerns with contaminated substances. No endangered species will be impacted by the project. Some dirt work will occur in previously disturbed areas and will be put back to its pre-construction state after construction is complete. The project will have a slight beneficial impact on the city's water supply and energy consumption.

**Alternatives [24 CFR 58.40(e); 40 CFR 1508.9]**

The first alternative is to add new and replacement water mains to provide safe and efficient water distribution for many years to come, reduce the incidence of emergency main break repairs, and reduce water loss. This alternative will include the additional of 6" loops within the system to ensure better pressures and flow rates to all portions of the community. This alternative will provide the city's distribution system needs through replacing older cast iron mains, upgrading mains near previous LUST sites to ductile iron pipe, and completing several 6" loops within the distribution system. This alternative includes 8" trunks with 6" mains. As this alternative will provide the best answer to the city's current issues, and not cost considerably more than the third alternative, it was selected.

The second alternative is to add new and replacement water mains to provide safe and efficient water distribution for many years to come, reduce the incidence of emergency main break repairs, and reduce water loss. This alternative will provide the city's distribution system needs through replacing older cast iron mains, upgrading mains near previous LUST sites to ductile iron pipe, and completing several 6" loops within the





**U.S. Department of Housing and Urban Development**

451 Seventh Street, SW  
Washington, DC 20410  
www.hud.gov

espanol.hud.gov

distribution system. This alternative would address a portion of the city's needs, but due to the lack of 8" trunks, pressures may still be unstable. Therefore, this alternative was not selected.

**No Action Alternative [24 CFR 58.40(e)]:**

The no action alternative would require the City of Arcadia to continue utilizing the water lines which were installed in the 1930s. The older cast iron portion of the system experiences frequent breaks and likely contributes to a sizeable portion of the 14.6% annual water loss. There are some water mains within the City which could be affected by leaking underground storage tanks, if any were to occur in the future in the project area, as they currently do not utilize the correct main materials and gaskets. Without improving the looping within the community, the flow patterns and pressures will remain unstable. Although this alternative would be the cheapest option, this alternative presents hazards to the community's health and safety, and it was not selected.

**Summary of Findings and Conclusions:**

Overall, this project will have little to no impact on the community, its natural resources, the local climate or other evaluated areas. Any impact that this project will have on the community will be beneficial in nature which leads to no mitigation measures being necessary.

**Mitigation Measures and Conditions [40 CFR 1505.2(c)]**

Summarize below all mitigation measures adopted by the Responsible Entity to reduce, avoid, or eliminate adverse environmental impacts and to avoid non-compliance or non-conformance with the above-listed authorities and factors. These measures/conditions must be incorporated into project contracts, development agreements, and other relevant documents. The staff responsible for implementing and monitoring mitigation measures should be clearly identified in the mitigation plan.

Law, Authority, or Factor	Mitigation Measure

**Determination:**

☒ **Finding of No Significant Impact [24 CFR 58.40(g)(1); 40 CFR 1508.27]**

The project will not result in a significant impact on the quality of the human environment.

☐ **Finding of Significant Impact [24 CFR 58.40(g)(2); 40 CFR 1508.27]**

The project may significantly affect the quality of the human environment.

Preparer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name/Title/Organization: Lauren Mortensen, Economic Development Planner, Region XII Council of Governments





**U.S. Department of Housing and Urban  
Development**

451 Seventh Street, SW  
Washington, DC 20410  
[www.hud.gov](http://www.hud.gov)

[espanol.hud.gov](http://espanol.hud.gov)

Certifying Officer Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Name/Title: John Kevin Liechti, Mayor of Arcadia

This original, signed document and related supporting material must be retained on file by the Responsible Entity in an Environmental Review Record (ERR) for the activity/project (ref: 24 CFR Part 58.38) and in accordance with recordkeeping requirements for the HUD program(s).



# Appendix A



This map displays the locations of National Public Infrastructure Airport System (NPIAS) airports in Iowa. The airports are categorized by size and type, indicated by different symbols: Large/Medium Hub (red star), Small/Nonhub (red triangle), National/Regional (blue square), Local/Basic (blue circle), and Unclassified (orange triangle). The map includes state boundaries for Minnesota, Wisconsin, Illinois, Missouri, Nebraska, and South Dakota. A scale bar in miles (0 to 50) is located in the top right corner. The legend is located in the bottom right corner.

**NPIAS Airports**

- Large/Medium Hub
- Small/Nonhub
- National/Regional
- Local/Basic
- Unclassified

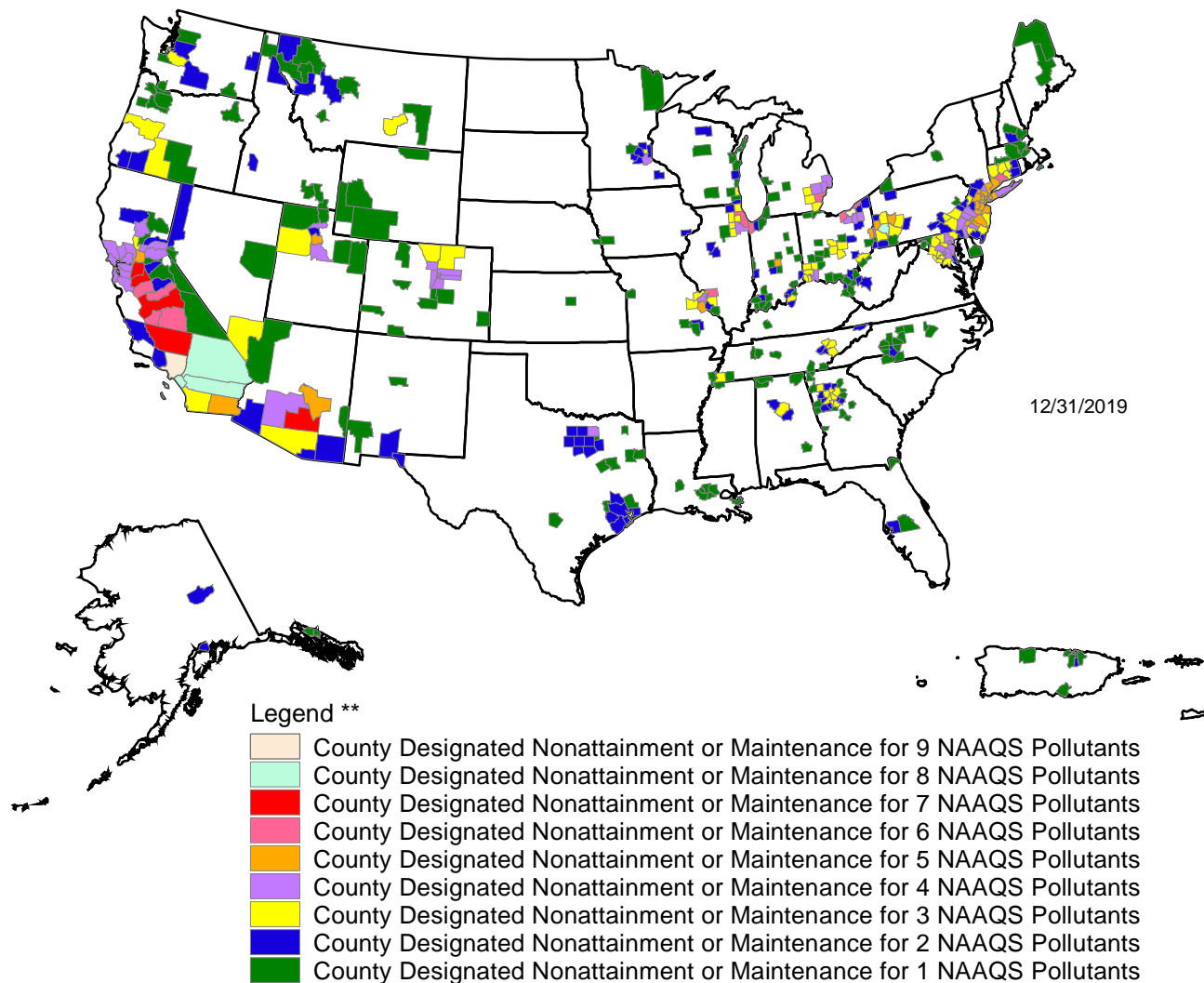


# Appendix B



# Counties Designated "Nonattainment" or "Maintenance"

for Clean Air Act's National Ambient Air Quality Standards (NAAQS) \*



Guam - Piti and Tanguisson power stations are designated nonattainment for the SO<sub>2</sub> (1971) NAAQS

Piti and Cabras power stations are designated nonattainment for the SO<sub>2</sub> (2010) NAAQS

\* The National Ambient Air Quality Standards (NAAQS) are health standards for Carbon Monoxide, Lead (1978 and 2008), Nitrogen Dioxide, 8-hour Ozone (2008), Particulate Matter (PM-10 and PM-2.5 (1997, 2006 and 2012), and Sulfur Dioxide.(1971 and 2010)

\*\* Included in the counts are counties designated for NAAQS and revised NAAQS pollutants. Revoked 1-hour (1979) and 8-hour Ozone (1997) are excluded. Partial counties, those with part of the county designated nonattainment and part attainment, are shown as full counties on the map.



# Appendix C



Advanced Search

☐ UST

☒ LUST

☐ AST

☐ UST 3rd Party Inspections

☐ UST Certifications

Leak Number:

Leak Risk Classification:

High Risk ▼

Site Name:

Site Address:

Site City:

ARCADIA ▼

County:

--County-- ▼

Site Status:

--Status Type-- ▼

Search

Export Results

No Lust Records Found

**DISCLAIMER:** The information on this website represents data provided to the DNR from outside entities. Although believed to be generally reliable, its accuracy cannot be guaranteed. No warranty, expressed or implied, is provided for the data herein, or its use. The Tanks database does not display nor contain all the records submitted for a site. Additional information may be obtained from the DNR Records Center at 515-725-8480 or DNR.Records@dnr.iowa.gov.

The Above Ground Storage Tank (AST) information on this website is no longer maintained. The DNR does not regulate ASTs. For additional information on ASTs, please contact the State Fire Marshal office at (515)-725-6145.



# Facility Search Results

Missouri, Nebraska, North Carolina, Pennsylvania, Vermont, Washington, West Virginia, and Wisconsin are working with EPA to fix problems with their Clean Water Act violation data. [Read More...](#)

[Report Violation](#) [Help](#)

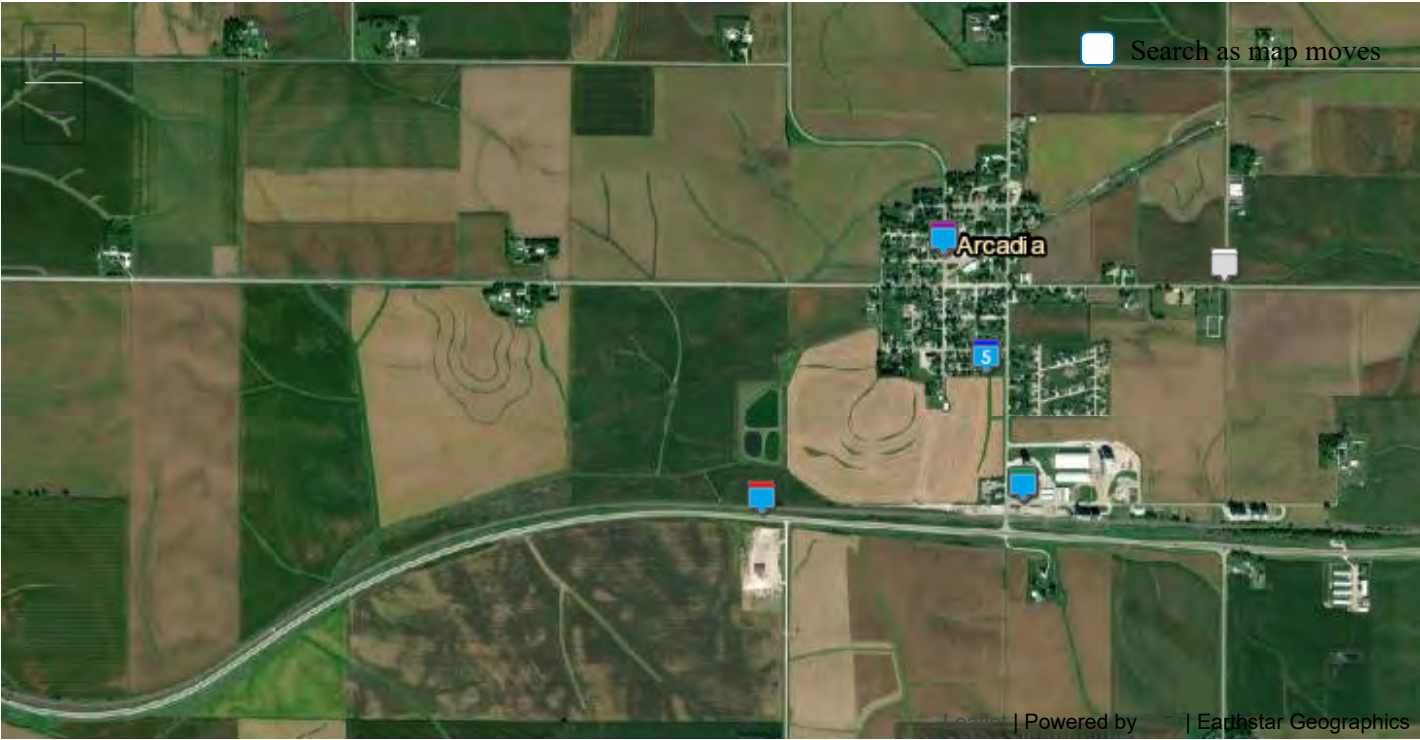
Map  
Legend

Basemap  
Options

EJSCREEN ☐ Add EJ Summary Map US ☐ State

Zoom To

arcadia iowa



Customize  
Columns

Download  
Data

Quick  
CSV  
Download



## > Facility Summary —

Select a facility row from the search results table.

## ▼ Current Search —

### 6 Facilities Found

#### Selected Criteria

Media Program: All Media Programs  
Active/Operating: Yes ✕  
City, State, and/or ZIP Code: arcadia iowa ✕

#### Explore Enforcement and Compliance Criteria

- ☐ 0 Facilities with Current Violations
- ☐ 0 Facilities with Significant Violations
- ☐ 1 Facilities with Violations (3 years)
- ☐ 1 Facilities with Formal Enforcement Actions (5 years)
- ☐ 0 Facilities with Informal Enforcement Actions (5 years)

[View Search Form for More Criteria...](#)

## ▼ Filter Facilities —

Not Filtering on 6 Facilities





Source Data

Results Guide



Reports Legend

☐ Only Show Matches

## Facility Characteristics

### Facility Type

☐ 0 Major ☐ 6 Minor

### Facility Permit/ID

☐ 1 Has Water Permit (ICIS-NPDES)  
☐ 2 Has ICIS-Air ID  
☐ 1 Has RCRA ID  
☐ 0 Has TRI Releases

### Enforcement and Compliance Characteristics

☐ 1 Facilities with Violations (1 or more quarters within the past 3 years)



### Facilities with Formal Enforcement Actions (5 yrs)

☐ 1 Yes ☐ 5 No



### Facilities with Informal Enforcement Actions (5 yrs)

☐ 0 Yes ☐ 6 No



### Facilities with Compliance Monitoring Activities within Date Range

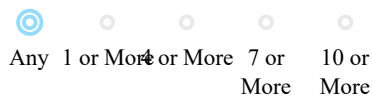
☐ 0 Yes ☐ 6 No

Facility Name	Mapped	Street Address	City	State	FRS ID	Reports	Count of EJ Indexes Above 80th Percentile (US)	Compliance Monitoring Activity (5 years)	Significant Violations
<a href="#">ARCADIA CITY OF STP</a>		HIGHWAY 30 & CONCORD AVE	ARCADIA	IA	110010035522		0	1	No
<a href="#">ARCADIA WATER SUPPLY</a>		--	ARCADIA	IA	110013114708		0	0	No
<a href="#">BROWER CONSTRUCTION CO</a>		.5 MI W OF HWY 30 & M 64	ARCADIA	IA	110007512209		--	0	No
<a href="#">FARMERS COOPERATIVE ELEVATOR-ARCADIA</a>		12543 190TH ST	ARCADIA	IA	110022402470		0	0	No
<a href="#">FARMERS COOPERATIVE FEED MILL - ARCADIA</a>		12543 190TH STREET	ARCADIA	IA	110070255918		0	0	No
<a href="#">SCHROEDER AG, LLC</a>		15889 DELTA AVE	ARCADIA	IA	110070148274		0	0	No



## Community Characteristics

☐ 6 Facilities Located in Areas with EJ Indexes Above 80th Percentile (US)



### ▼ Layers —

Each map layer requires a specific map scale for display. Layers are only available for selection if the map is zoomed in to a sufficient scale. Zoom in further to enable selection of additional layers. Note that adding multiple overlapping map layers may cause performance issues in the browser and display.

☐ Do not show again

---

**Current Zoom: 72%**

- ▶ EJSCREEN Maps
- ▶ Air Maps
- ▶ Water Maps
- ▶ Places
- ▶ Boundaries
- ▶ Endangered Species Act Critical Habitat







# CONTAMINATED SITES

## Site Search

Sites may be searched by entering text in one text boxes at the base of the columns (name, address, city or program). Other search criteria may also be entered the general text box including county, zip code, project manager, alternative name, or ownership type.

The system will start sorting as a search is initiated in the general text search box; pressing an enter or return key isn't necessary. The best results are obtained by using the column text boxes in combination with the general text box to narrow the search list.

[Copy](#) [CSV](#) [Print](#)Show  entriesSearch: 

ID 	Name 	Address 	City 	Program
585 (Detail/585)	Arcadia Limestone	19011 Crystal Avenue	Arcadia	Chapter 133
	<input type="text" value="Search"/>	<input type="text" value="Search"/>	<input type="text" value="Arcadia"/>	-- (All) --

Showing 1 to 1 of 1 entries (filtered from 2,414 total entries)

[Previous](#) [1](#) [Next](#)[State of Iowa \(https://www.iowa.gov\)](https://www.iowa.gov) [DNR Home \(https://www.iowadnr.gov\)](https://www.iowadnr.gov) [Site Policy \(https://www.iowa.gov/pages/policies\)](https://www.iowa.gov/pages/policies)

Leading Iowans in caring for our natural resources

Version: 4.1.1.11101





**Seneca  
Companies**

**CORPORATE HEADQUARTERS • DES MOINES, IOWA**

P.O. Box 3360  
Des Moines, IA 50316-0360

4140 E. 14<sup>th</sup> Street  
Des Moines, IA 50313-3804  
Phone: 515-262-5000  
Toll-Free: 800-369-5500  
Fax: 515-262-4951

*The Complete Solution*

**CON12-15  
DOC# 35646**

February 25, 2019

Hylton Jackson  
Contaminated Sites Section  
Iowa Department of Natural Resources  
502 East 9<sup>th</sup> Street  
Des Moines, Iowa 50319

**SUBJECT: ANNUAL SITE MONITORING REPORT  
ARCADIA LIMESTONE, 19011 CRYSTAL AVENUE, ARCADIA, IOWA  
IDNR SPILL #051603-AHB-1116**

Mr. Jackson,

Seneca Companies, Inc. is pleased to submit this final Site Monitoring Report for the above referenced site. Per an Iowa Department of Natural Resources (IDNR) letter dated August 2017, monthly free product recovery activities have been suspended and a round of groundwater monitoring should be completed. The following wells were monitored for gasoline and diesel constituents by Iowa Methods OA-1 and OA-2: MW-2, MW-3, MW-4, RMW-6A, MW-9, MW-10, MW-11, MW-12, MW-15, and RMW-18 on August 27, 2018. Additionally, an Environmental Covenant was placed on the deed of the property restricting the installation of water wells and the usage of the property as residential.

Seneca recommends the site be reclassified to No Action Required at this time.

Please feel free to contact me at [jbaker@senecaco.com](mailto:jbaker@senecaco.com) or 515-261-7759 if you have any questions.

Thank you,

Jennifer Baker  
Sr. Project Manager

Cc: 6243301

**Branch Locations**

Des Moines, IA • Davenport, IA • Oreana, IL • Kansas City, MO • South Sioux City, NE • Denver, CO  
Tulsa, OK • Grand Island, NE • Creston, IA • Nashville, TN

[www.senecaco.com](http://www.senecaco.com)

Fuel Systems • General Contracting • Environmental Services • Waste Solutions Services  
Remediation & Process Controls • Automotive & Fleet Equipment



**IDNR**

**Site Monitoring Report for  
Leaking Underground Storage Tank Sites**  
Iowa Department of Natural Resources

**RECEIVED****MAR 13 2019****IDNR****SITE IDENTIFICATION**

LUST No.

NA

UST Registration No.

Spill #051603-AHB-1116

Site Name: Arcadia Limestone

Site Address: 19011 Crystal Avenue

City: Arcadia

**RESPONSIBLE PARTY IDENTIFICATION**

Name: Arcadia Limestone / Tom Eich

Phone #: 712-689-2299

Street: PO Box 106

City: Arcadia

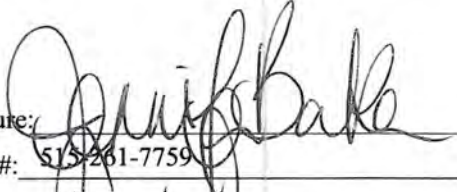
State: Iowa

Zip Code: 51430

Type of Monitoring: ☐ Low Risk ☒ High Risk: Interim ☐ Exempt Granular Bedrock ☐ RemediationIs site reclassification recommended? ☒ Yes / No If yes, what classification? ☒ NAR ☐ low risk ☐ high risk**STATEMENT OF CERTIFICATION**

I, Jennifer Baker, Groundwater Professional Certification No. 2086, am familiar with all applicable requirements of Iowa Code § 455B.474 and all rules and procedures adopted thereunder including, but not limited to, Chapter 567-135 and the Department of Natural Resources' Site Monitoring Report guidance. Based on my knowledge of those documents and information I have prepared and reviewed regarding this site, UST Registration No. Spill #051603-AHB-1116 LUST No. NA, I certify that this document is complete and accurate as provided in 567 IAC 135.9(11)"c" and meets the applicable requirements of the Site Monitoring Report.

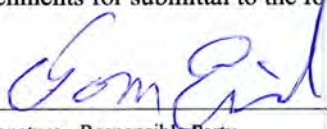
Print: Name/Address/Phone # of Certified Groundwater Professional

Jennifer BakerSeneca Environmental Services4140 NE 14th StreetDes Moines, Iowa 50313Signature: Phone #: 515-261-7759Date: 2/25/2019

I certify that I have reviewed this document, appendices and attachments for submittal to the Iowa Department of Natural Resources.

Arcadia Limestone / Tom Eich

Print: Name of Responsible Party

Signature - Responsible Party **Official IDNR Use Only**

Date Received:

Comment Letter Date:

Reviewer:

Approved:

Y / N



## Site Monitoring Report Checklist

This checklist is for Site Monitoring Reports prepared using Tier 2 software-version 2.51 and later, and applies to the following types of monitoring: **Low risk or High risk: Interim at non-bedrock and exempt granular bedrock sites.** Indicate with "NA" those sections of the report which are not included because they do not apply to site-specific conditions.

<b>REPORT BODY:</b>	<b>Page Number</b>
<input checked="" type="checkbox"/> Cover sheet _____	1
<input checked="" type="checkbox"/> SMR checklist page _____	2
<input checked="" type="checkbox"/> Receptor summary tables _____	3,4,5
<input checked="" type="checkbox"/> Potential receptor summary _____	6
<input checked="" type="checkbox"/> Receptor status change _____	7
<input checked="" type="checkbox"/> Site reclassification _____	7
<input checked="" type="checkbox"/> Groundwater analytical data _____	8
<input checked="" type="checkbox"/> Soil analytical data _____	9
<input checked="" type="checkbox"/> Soil gas analytical data _____	10
<input checked="" type="checkbox"/> Soil SSTL tables _____	11
<input checked="" type="checkbox"/> Groundwater / Soil Leaching monitoring plan summary _____	12
<input checked="" type="checkbox"/> Soil gas monitoring plan summary _____	13
<input checked="" type="checkbox"/> Soil Gas Samples at Tier 2 Soil Sources _____	15
<input checked="" type="checkbox"/> Soil Gas Samples at Tier 2 Groundwater Sources _____	16
<input checked="" type="checkbox"/> Corrections to Tier 2 Deficiencies Included _____	17

### APPENDICES:

- ☒ 1. Evaluation of analytical data
  - ☒ 2. Site plan map
  - ☒ 3. Site vicinity map
  - ☒ 4. Soil summary corrective action map
  - ☒ 5. Soil contamination / soil gas map(s)
  - ☒ 6. Groundwater summary corrective action map
  - ☒ 7. Groundwater monitoring results map
  - ☒ 8. Groundwater contamination map (from SMR software)
  - ☒ 9. Groundwater flow direction map
  - ☒ 10. Analytical data sheets
  - ☒ 11. Boring Logs / monitoring well construction diagrams
  - ☒ 12. Documentation
  - ☒ 13. Best management practices (Initial SMR only)
- ☒ Computer Disk



**SMR, GROUNDWATER SOURCE, RECEPTOR SUMMARY TABLE**

				B	T	E	X	D	W			
SMR, SOIL GAS AT GW SOURCE, USER							--		--			
SOIL GAS AT GW SOURCE, DATA				NS	NS	NS	--	NS	--			
Type	Receptor	Tier 2 Risk	Last Risk	T2(*) or Computed Risk						Corr. Action Taken?	Corrective Action(s) Completed	Current Risk
				Group I				TEH				
				B	T	E	X	D	W			
DWW	DWW1, Sundrup D	L	N	N	N	N	N(PE)*	L*	N	Y	9	N
GU-ASW	DC north, Drainage	H	N	N	N	N	N/A	H*	N/A	Y	9	N
GU-ASW	DC south1, Drainage	H	N	N	N	N	N/A	H*	N/A	Y	9	N
GU-ASW	DC south2, Drainage	H	N	N	N	N	N/A	H*	N/A	Y	9	N
GU-ASW	DC south3, Drainage	H	N	N	N	N	N/A	H*	N/A	Y	9	N
GU-ASW	Stream, Unnamed St	H	N	N	N	N	N/A	N*	N/A	Y	9	N
PCS	No-IC	L	N	N	N	N	N/A	L*	N/A	Y	9	N
PCS	IC	L	N	N	N	N	N/A	L*	N/A	Y	9	N
PSS	No-IC	L	N	N	N	N	N/A	L*	N/A	Y	9	N
PSS	IC	L	N	N	N	N	N/A	L*	N/A	Y	9	N

N: no action required, L: low risk, H: high risk, N/A: not applicable, NSC: No source concentration, N(SG): Passed soil gas at SMR.

PE: Tier 2 preliminary pathway evaluation result. \*: Risk shown is Tier 2 risk classification. Not sufficient data for risk reclassification or risk reclassification criteria for N, L or H have not been met.

**Corrective Actions:**

1. Plugged drinking water wells
2. Plugged non-drinking water wells
3. Notified IDNR Water Supply Section
4. Notified designated county authority

5. Notified sanitary sewer public authority
6. Notified utility company-plastic water line
7. Relocated plastic water lines
8. Replaced plastic water lines

9. Established institutional controls
10. Conducted soil excavation
11. Cleared with soil gas
12. Zoning
13. For actual PWL, GW > 3 feet



**SMR, SOIL LEACHING, RECEPTOR SUMMARY TABLE**

				B	T	E	X	D	W			
SMR, SOIL GAS AT SOIL SOURCE, USER							--		--			
SOIL GAS AT SOIL SOURCE, DATA				NS	NS	NS	--	NS	--			
SUBMERGED SOIL SOURCE				???	???	???	--	???	--			
Type	Receptor	Tier 2 Risk	Last Risk	T2(*) or Computed Risk						Corr. Action Taken?	Corrective Action(s) Completed	Current Risk
				Group I				TEH				
				B	T	E	X	D	W			

For actual receptors, only Tier 2 risk shown for chemicals. For potential, reclassification uses groundwater in vicinity of the soil source.

N: No action required, or no receptors present for potential receptors. N(1): Soil source <=Tier 2 Default.

N(2): Modeled GW at Soil Source<=GW TL. N(3): Modeled GW at Receptor<=GW TL. N(4): Chemical not applicable for GW.

N/A: Chemical not applicable for soil. L: low risk. H: high risk. NSC: no source concentration. N(SG): passed soil gas at SMR.

PE: Tier 2 preliminary pathway evaluation result. \*: Tier 2 risk classification result.

L or H: For PGWS, monitoring well(s) needed in vicinity of soil source to complete risk classification.

<b>Corrective Actions:</b>			9. Established institutional controls
1. Plugged drinking water wells	5. Notified sanitary sewer public authority		10. Conducted soil excavation
2. Plugged non-drinking water wells	6. Notified utility company-plastic water line		11. Cleared with soil gas
3. Notified IDNR Water Supply Section	7. Relocated plastic water lines		12. Zoning
4. Notified designated county authority	8. Replaced plastic water lines		13. For actual PWL, GW > 3 feet



**SMR, SOIL VAPOR, SOIL TO PLASTIC WATER LINE, RECEPTOR SUMMARY TABLE**

				B	T	E	D			
SMR, SOIL GAS AT SOIL SOURCE, USER										
SOIL GAS AT SOIL SOURCE, DATA				NS	NS	NS	NS			
SUBMERGED SOIL SOURCE				???	???	???	???			
Type	Receptor	Tier 2 Risk	Last Risk	Tier 2 Risk				Corr. Action Taken?	Corrective Action(s) Completed	Current Risk
				Group I			TEH D			
				B	T	E				

Tier 2 risk classification shown for chemicals.

N: no action required. L: low risk. H: high risk. N/A: chemical is not applicable. NSC: No source concentration. N(SG): Passed soil gas at SMR.

PE: Tier 2 preliminary evaluation result.

**Corrective Actions:**

1. Plugged drinking water wells
2. Plugged non-drinking water wells
3. Notified IDNR Water Supply Section
4. Notified designated county authority

5. Notified sanitary sewer public authority
6. Notified utility company-plastic water line
7. Relocated plastic water lines
8. Replaced plastic water lines

9. Established institutional controls
10. Conducted soil excavation
11. Cleared with soil gas
12. Zoning
13. For actual PWL, GW > 3 feet



Potential Receptor Summary			SMR,V-3.00, NA	
Surveys for new, removed, and replaced receptors must be conducted within the larger area of either 1) the receptor identification plume for the appropriate receptor type; or 2) the receptor-specific distance listed in brackets below.				
Receptor questions	Yes/ No	Contact Name/Company Name/ Complete Address	Contact Phone #	Date
New drinking water well(s)? [1,000']	No	1) IDNR Facility Explorer Online Well Search		9/17/2018
		2) Carey Kersey Carroll County Environmental Health 114 E 6th Street Carroll, IA, 51401	712 792-9532	9/24/2018
		3) 300' Visual Survey by Seneca Personnel Seneca Environmental Services 4140 NE 14th Street Des Moines, IA, 50313	515 262-3500	8/27/2018
New non-drinking water well(s)? [1,000']	Yes	1) IDNR Facility Explorer Online Well Search		9/17/2018
		2) Carey Kersey Carroll County Environmental Health 114 E 6th Street Carroll, IA, 51401	712 792-9532	9/24/2018
		3) 300' Visual Survey by Seneca Personnel Seneca Environmental Services 4140 NE 14th Street Des Moines, IA, 50313	515 262-3500	8/27/2018
Plugged drinking water well(s)? [1,000']	No	1) IDNR Facility Explorer Online Well Search		9/17/2018
		2) Carey Kersey Carroll County Environmental Health 114 E 6th Street Carroll, IA, 51401	712 792-9532	9/24/2018
		3) 300' Visual Survey by Seneca Personnel Seneca Environmental Services 4140 NE 14th Street Des Moines, IA, 50313	515 262-3500	8/27/2018
Plugged non-drinking water well(s)? [1,000']	No	1) IDNR Facility Explorer Online Well Search		9/17/2018
		2) Carey Kersey Carroll County Environmental Health 114 E 6th Street Carroll, IA, 51401	712 792-9532	9/24/2018
		3) 300' Visual Survey by Seneca Personnel Seneca Environmental Services 4140 NE 14th Street Des Moines, IA, 50313	515 262-3500	8/27/2018



**Potential Receptor Summary****SMR,V-3.00, NA**

Surveys for new, removed, and replaced receptors must be conducted within the larger area of either 1) the receptor identification plume for the appropriate receptor type; or 2) the receptor-specific distance listed in brackets below.

Receptor questions	Yes/ No	Contact Name/Company Name/ Complete Address	Contact Phone #	Date
New plastic water lines(s)? [200']	No	Tom Eich Arcadia Limestone Highway 285, Box 106 Arcadia, IA, 51430	712 689-2299	9/25/2018
Replaced or relocated plastic water line(s)? [200']	No	Tom Eich Arcadia Limestone Highway 285, Box 106 Arcadia, IA, 51430	712 689-2299	9/25/2018
New sanitary sewer(s)? [200']	No	Tom Eich Arcadia Limestone Highway 285, Box 106 Arcadia, IA, 51430	712 689-2299	9/25/2018
Replaced or relocated sanitary sewer(s)? [200']	No	Tom Eich Arcadia Limestone Highway 285, Box 106 Arcadia, IA, 51430	712 689-2299	9/25/2018
New building(s) with basements? [200']	No	1) Julie Schroeder Arcadia City Hall 205 W. Front St. Arcadia, IA, 51430	712 689-2442	9/25/2018
		2) 200' Visual Survey by Seneca Personnel Seneca Environmental Services 4140 NE 14th Street Des Moines, IA, 50313	515 262-3500	8/27/2018
Building(s) with basement(s) removed? [200']	No	1) Julie Schroeder Arcadia City Hall 205 W. Front St. Arcadia, IA, 51430	712 689-2442	9/25/2018
		2) 200' Visual Survey by Seneca Personnel Seneca Environmental Services 4140 NE 14th Street Des Moines, IA, 50313	515 262-3500	8/27/2018
Zoning changes? [200']	No	Julie Schroeder Arcadia City Hall 205 W. Front St. Arcadia, IA, 51430	712 689-2442	9/25/2018



## Well Search Report

Included in search	No. of wells	Database
X	0	IGS well database General well database maintained by IGS, location accuracy varies 3,730 to 25 ft., last updated 8/2005.
X	0	Public wells Municipal and nonmunicipal public well databases maintained by IGS, location varies 3,730 to 25 ft., under development.
X	0	SDWIS public wells 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	1	Private well tracking system 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 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 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 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 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 Locational accuracy 220 m., last updated 8/96.
X	0	Ag drainage wells Locational accuracy 100 m., last updated 4/98.

### Well Search Detail

**Subject:** XY UTM Coordinates: 330937/4660544  
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								

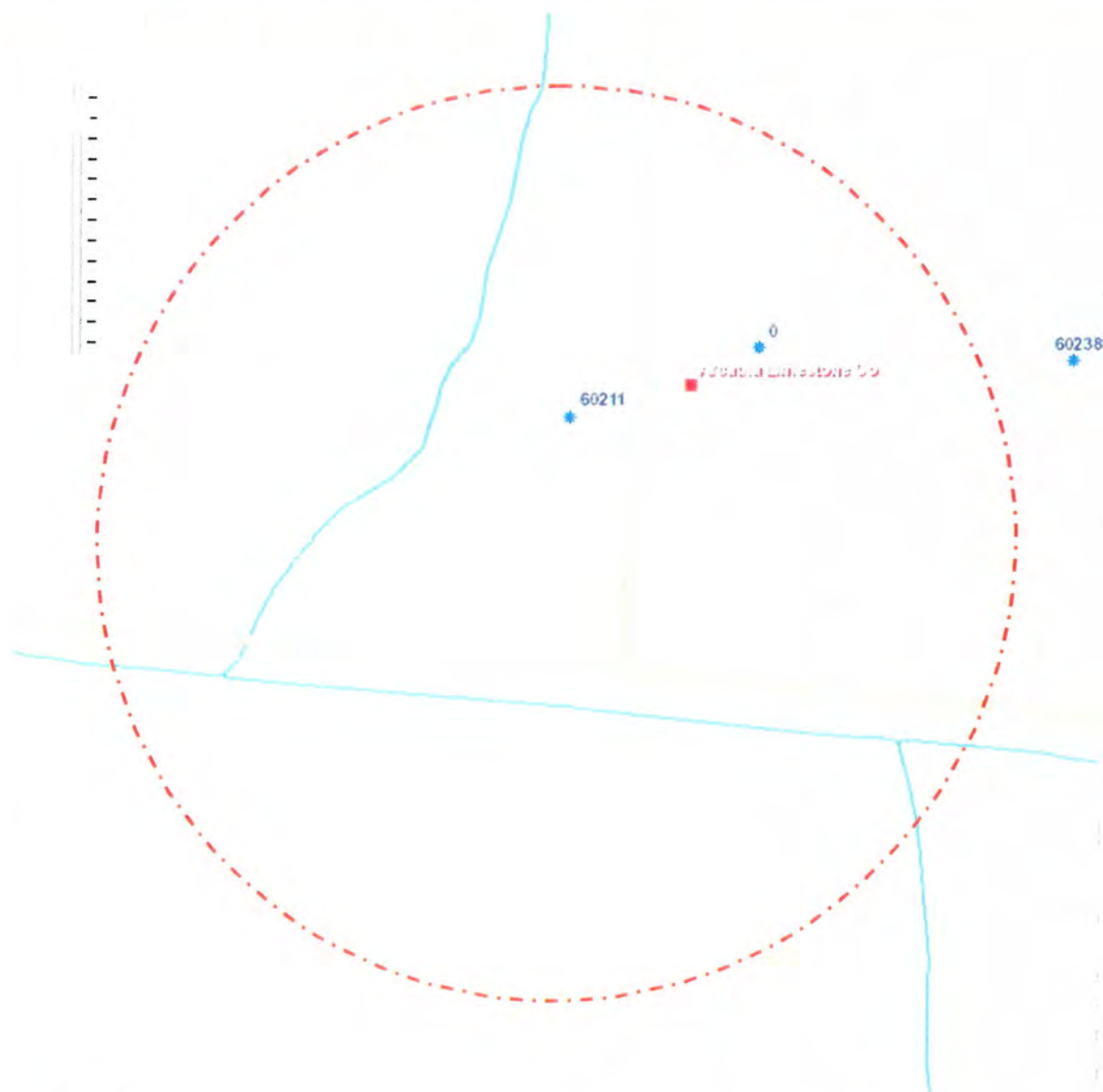






## Well Search Buffered Map

**Subject:** XY UTM Coordinates: 330937/4660544  
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.



SMR Groundwater Analytical Data (ug/L), V-3.00, NA													
Boring / Well #	Date Sampled	Elevations (ASL)				Group 1				Group 2		FP Type	FP Default?
		Ground	TOC	TOS	SWL	B	T	E	X	TEH-D	TEH-WO		
MW1	05/22/2003	N	N	N	N	58.7	28.3	36.6	104.	980,000.	102,000.	N	N
MW1A	10/18/2004	N	N	N	14.43	47.	<10.	13.	<30.	281,000.	56,500.	D	N
MW1A	05/05/2005	N	N	N	13.31	11.4	<5.	14.	21.	269,000.	17,400.	N	N
MW1A	12/29/2005	N	N	N	13.95	11.3	<5.	5.05	<15.	294,000.	46,900.	N	N
MW2	05/22/2003	93.88	98.17	90.88	85.21	32.6	6.3	27.4	30.	569,000.	62,200.	N	N
MW2	10/18/2004	93.88	98.17	90.88	85.09	28.8	<5.	22.5	<15.	451,000.	59,500.	D	N
MW2	05/05/2005	93.88	98.17	90.88	88.87	13.3	<5.	14.6	<15.	584,000.	61,500.	N	N
MW2	12/29/2005	93.88	98.17	90.88	85.54	16.4	<5.	9.55	<15.	622,000.	97,000.	N	N
MW2	08/27/2018	93.88	98.17	90.88	87.79	4.14	<3.15	30.4	13.2	1,320,000.	<278.	N	N
MW3	05/22/2003	95.97	98.57	92.97	85.79	38.4	<5.	33.9	52.	239,000.	29,400.	N	N
MW3	05/05/2005	95.97	98.57	92.97	85.93	<5.	<5.	13.5	15.	451,000.	92,200.	N	N
MW3	09/05/2006	95.97	98.57	92.97	85.83	6.04	<2.	5.31	10.2	45,500.	2,300.	N	N
MW3	05/08/2007	95.97	98.57	92.97	87.68	5.74	<2.	9.42	12.1	937,000.	72,800.	N	N
MW3	12/14/2007	95.97	98.57	92.97	85.61	8.05	<5.	7.1	<15.	646,000.	75,900.	N	N
MW3	06/17/2008	95.97	98.57	92.97	87.15	3.47	<1.	3.78	3.7	103,000.	6,190.	N	N
MW3	12/30/2008	95.97	98.57	92.97	85.95	4.3	<2.	5.86	14.4	155,000.	15,200.	N	N
MW3	06/30/2009	95.97	98.57	92.97	85.55	2.59	<2.	4.15	4.	4,510.	486.	N	N
MW3	12/30/2009	95.97	98.57	92.97	85.71	3.2	<2.	4.9	5.48	7,510.	749.	N	N
MW3	06/30/2010	95.97	98.57	92.97	86.55	2.5	<2.	2.81	3.52	62,100.	6,460.	N	N
MW3	01/06/2011	95.97	98.57	92.97	85.71	3.18	<2.	4.08	3.22	14,500.	1,530.	N	N
MW3	06/30/2011	95.97	98.57	92.97	89.01	<2.	<2.	4.02	7.81	330,000.	12,800.	N	N
MW3	12/29/2011	95.97	98.57	92.97	85.01	<0.9	<10.	<10.	<15.	1,100,000.	107,000.	N	N
MW3	08/01/2012	95.97	98.57	92.97	85.05	<2.	<2.	2.51	6.8	31,000.	4,560.	N	N
MW3	02/13/2013	95.97	98.57	92.97	84.76	2.86	<2.	<2.	<3.	<313.	<313.	N	N
MW3	08/27/2013	95.97	98.57	92.97	84.85	2.53	<2.	<2.	<3.	7,600.	1,010.	N	N
MW3	05/29/2014	95.97	98.57	92.97	85.63	3.39	<2.	<2.	<3.	6,280.	590.	N	N
MW3	12/08/2014	95.97	98.57	92.97	85.73	2.02	<2.	2.47	4.74	25,200.	<278.	N	N
MW3	06/30/2015	95.97	98.57	92.97	86.64	<2.	<2.	7.77	23.9	217,000.	<278.	N	N
MW3	02/01/2016	95.97	98.57	92.97	86.04	<2.	<2.	<2.	<3.	13,500.	<278.	N	N
MW3	08/27/2018	95.97	98.57	92.97	86.70	<2.	<2.	<2.	<6.	49,900.	<278.	N	N
MW4	05/22/2003	91.72	95.99	88.72	85.76	18.1	<5.	15.7	<15.	136,000.	14,900.	N	N
MW4	10/18/2004	91.72	95.99	88.72	83.65	9.2	<5.	12.	<15.	63,000.	7,450.	D	N
MW4	05/05/2005	91.72	95.99	88.72	85.54	<5.	<5.	5.4	<15.	149,000.	16,300.	N	N
MW4	06/17/2008	91.72	95.99	88.72	86.35	4.78	1.4	5.21	3.08	82,400.	5,890.	N	N
MW4	12/30/2008	91.72	95.99	88.72	85.38	10.6	<20.	<20.	34.4	27,900.	3,970.	N	N
MW4	06/30/2009	91.72	95.99	88.72	86.26	3.58	<2.	5.09	<3.	3,400.	403.	N	N
MW4	12/30/2009	91.72	95.99	88.72	85.25	3.13	57.7	6.62	4.38	18,300.	1,890.	N	N



SMR Groundwater Analytical Data (ug/L), V-3.00, NA													
Boring / Well #	Date Sampled	Elevations (ASL)				Group 1				Group 2		FP Type	FP Default?
		Ground	TOC	TOS	SWL	B	T	E	X	TEH-D	TEH-WO		
MW4	06/30/2010	91.72	95.99	88.72	86.73	2.8	10.1	5.7	<3.	14,500.	2,660.	N	N
MW4	01/06/2011	91.72	95.99	88.72	85.38	<2.	8.66	3.67	<3.	18,000.	1,900.	N	N
MW4	06/30/2011	91.72	95.99	88.72	85.99	2.11	<2.	4.71	<3.	8,240.	944.	N	N
MW4	12/29/2011	91.72	95.99	88.72	84.51	<2.	<2.	4.09	<3.	18,200.	1,720.	N	N
MW4	08/01/2012	91.72	95.99	88.72	84.76	<2.	<2.	3.93	<3.	14,400.	1,780.	N	N
MW4	02/13/2013	91.72	95.99	88.72	83.69	<2.	<2.	<2.	<3.	795.	337.	N	N
MW4	08/27/2013	91.72	95.99	88.72	84.03	<2.	<2.	<2.	<3.	25,200.	2,800.	N	N
MW4	05/29/2014	91.72	95.99	88.72	84.82	<2.	<2.	<2.	<3.	2,220.	482.	N	N
MW4	12/08/2014	91.72	95.99	88.72	85.51	<2.	<2.	<2.	<3.	4,300.	<278.	N	N
MW4	06/30/2015	91.72	95.99	88.72	86.09	<2.	<2.	3.17	20.2	157,000.	<278.	N	N
MW4	02/01/2016	91.72	95.99	88.72	85.72	<2.	<2.	<2.	<3.	57,100.	<278.	N	N
MW4	08/27/2018	91.72	95.99	88.72	86.08	<2.	<2.	<2.	<6.	43,700.	<278.	N	N
MW5	05/22/2003	96.38	100.65	93.38	88.63	<1.	<1.	<1.	<3.	<380.	<380.	N	N
MW6	05/22/2003	90.74	93.43	87.74	85.88	66.7	17.5	38.2	124.	116,000.	10,500.	N	N
MW7	05/22/2003	97.32	99.84	94.32	87.21	31.6	5.4	26.2	55.	1,120,000.	107,000.	N	N
MW7	10/18/2004	97.32	99.84	94.32	86.10	5.4	<5.	9.	21.	394,000.	51,800.	D	N
MW7	05/05/2005	97.32	99.84	94.32	86.54	6.8	<5.	12.	15.	662,000.	37,800.	D	N
MW7	12/29/2005	97.32	99.84	94.32	85.99	10.8	<5.	8.9	15.	267,000.	41,200.	D	N
MW8	05/22/2003	94.66	98.22	91.66	87.17	<1.	<1.	<1.	<3.	<380.	<380.	N	N
MW8	10/18/2004	94.66	98.22	91.66	85.94	<1.	<1.	<1.	<3.	<380.	<380.	N	N
MW8	05/05/2005	94.66	98.22	91.66	86.92	<1.	<1.	<1.	<3.	<380.	<380.	N	N
MW8	12/29/2005	94.66	98.22	91.66	85.92	<1.	<1.	<1.	<3.	<427.	<427.	N	N
DWW	05/22/2003	N	N	N	N	<5.	<5.	<5.	<15.	<380.	<380.	N	N
DWW	10/18/2004	N	N	N	N	<1.	<1.	<1.	<3.	<380.	<380.	N	N
DWW	05/05/2005	N	N	N	N	<1.	<1.	<1.	<3.	<380.	<380.	N	N
DWW	12/29/2005	N	N	N	N	<1.	<1.	<1.	<3.	<380.	<380.	N	N
DWW	09/05/2006	N	N	N	N	<2.	<2.	<2.	<3.	<300.	<300.	N	N
DWW	05/08/2007	N	N	N	N	<1.	<1.	<1.	<3.	<300.	<300.	N	N
DWW	12/14/2007	N	N	N	N	<1.	<1.	<1.	<3.	<300.	<300.	N	N
DWW	06/17/2008	N	N	N	N	<1.	<1.	<1.	<3.	<300.	<300.	N	N
DWW	12/30/2008	N	N	N	N	<2.	<2.	<2.	5.47	<300.	<300.	N	N
DWWB	01/13/2009	N	N	N	N	<2.	<2.	<2.	<3.	N	N	N	N
DWWA	01/13/2009	N	N	N	N	<2.	<2.	<2.	<3.	N	N	N	N
DWW	06/30/2009	N	N	N	N	<2.	<2.	<2.	<3.	<300.	<300.	N	N
DWW	12/30/2009	N	N	N	N	<2.	<2.	<2.	<3.	<300.	<300.	N	N
DWW	06/30/2010	N	N	N	N	<2.	<2.	<2.	<3.	<300.	<300.	N	N
DWW	01/06/2011	N	N	N	N	<2.	<2.	<2.	<3.	<300.	<300.	N	N



SMR Groundwater Analytical Data (ug/L), V-3.00, NA													
Boring / Well #	Date Sampled	Elevations (ASL)				Group 1				Group 2		FP Type	FP Default?
		Ground	TOC	TOS	SWL	B	T	E	X	TEH-D	TEH-WO		
DWW	06/30/2011	N	N	N	N	<2.	<2.	<2.	<3.	<300.	<300.	N	N
DWW	12/29/2011	N	N	N	N	<2.	<2.	<2.	<3.	<300.	<300.	N	N
DWW	02/13/2013	N	N	N	N	<2.	<2.	<2.	<3.	23,300.	921.	N	N
DWW	08/27/2013	N	N	N	N	<2.	<2.	<2.	<3.	<268.	<268.	N	N
DWW	05/29/2014	N	N	N	N	<2.	<2.	<2.	<3.	<268.	<268.	N	N
DWW	12/08/2014	N	N	N	N	<2.	<2.	<2.	<3.	<278.	<278.	N	N
DWW	06/30/2015	N	N	N	N	<2.	<2.	<2.	<3.	<278.	<278.	N	N
DWW	02/01/2016	N	N	N	N	<2.	<2.	<2.	<3.	<278.	<278.	N	N
DWW	08/27/2018	N	N	N	N	<2.	<2.	<2.	<6.	<288.	<288.	N	N
MW9	08/14/2003	89.90	93.98	86.90	85.22	16.	<10.	58.	<30.	4,640,000.	471,000.	N	N
MW9	10/18/2004	89.90	93.98	86.90	84.80	9.2	<5.	5.2	<15.	223,000.	32,700.	D	N
MW9	05/05/2005	89.90	93.98	86.90	86.28	<5.	<5.	<5.	<15.	177,000.	24,200.	N	N
MW9	12/29/2005	89.90	93.98	86.90	84.26	6.6	<5.	7.3	<15.	140,000.	26,000.	N	N
MW9	12/30/2008	89.90	93.98	86.90	86.47	7.69	<20.	<20.	<30.	25,800.	5,440.	N	N
MW9	06/30/2009	89.90	93.98	86.90	86.46	4.24	<2.	6.75	<3.	19,700.	2,860.	N	N
MW9	12/30/2009	89.90	93.98	86.90	86.22	2.97	<2.	6.16	<3.	21,500.	3,290.	N	N
MW9	06/30/2010	89.90	93.98	86.90	87.12	4.67	<2.	10.9	4.29	7,750.	992.	N	N
MW9	01/06/2011	89.90	93.98	86.90	86.26	7.12	<2.	15.7	9.74	13,900.	1,370.	N	N
MW9	06/30/2011	89.90	93.98	86.90	86.75	6.54	<2.	14.1	4.73	5,770.	819.	N	N
MW9	12/29/2011	89.90	93.98	86.90	85.49	5.1	<2.	11.2	<3.	11,700.	1,460.	N	N
MW9	08/01/2012	89.90	93.98	86.90	85.46	5.24	<2.	9.81	<3.	6,050.	1,600.	N	N
MW9	02/13/2013	89.90	93.98	86.90	85.37	<2.	<2.	<2.	<3.	<278.	<278.	N	N
MW9	08/27/2013	89.90	93.98	86.90	84.93	2.54	<2.	<2.	<3.	3,050.	1,040.	N	N
MW9	05/29/2014	89.90	93.98	86.90	86.49	<2.	<2.	<2.	<3.	1,170.	1,090.	N	N
MW9	12/08/2014	89.90	93.98	86.90	86.26	<2.	<2.	<2.	<3.	2,830.	<278.	N	N
MW9	06/30/2015	89.90	93.98	86.90	86.64	<2.	<2.	<2.	<3.	2,860.	<278.	N	N
MW9	02/01/2016	89.90	93.98	86.90	86.46	<2.	<2.	<2.	<3.	2,980.	<278.	N	N
MW9	08/27/2018	89.90	93.98	86.90	86.69	<2.	<2.	<2.	<6.	3,060.	<278.	N	N
MW10	08/14/2003	91.64	96.06	88.64	84.32	73.2	<5.	38.4	40.	174,000.	21,700.	N	N
MW10	10/18/2004	91.64	96.06	88.64	83.61	<5.	<5.	<5.	<15.	40,500.	6,210.	N	N
MW10	05/05/2005	91.64	96.06	88.64	85.92	<5.	<5.	<5.	<15.	5,010.	1,910.	N	N
MW10	12/29/2005	91.64	96.06	88.64	84.30	<5.	<5.	<5.	<15.	2,660.	648.	N	N
MW10	09/05/2006	91.64	96.06	88.64	85.08	<2.	<2.	<2.	<3.	843.	<300.	N	N
MW10	05/08/2007	91.64	96.06	88.64	88.13	<1.	<1.	<1.	<3.	651.	<300.	N	N
MW10	12/14/2007	91.64	96.06	88.64	85.27	<1.	<1.	<1.	<3.	1,510.	304.	N	N
MW10	06/17/2008	91.64	96.06	88.64	87.18	<1.	<1.	<1.	<3.	311.	<300.	N	N
MW10	12/30/2008	91.64	96.06	88.64	85.72	<2.	<2.	<2.	<3.	<300.	<300.	N	N



**SMR Groundwater Analytical Data (ug/L), V-3.00, NA**

Boring / Well #	Date Sampled	Elevations (ASL)				Group 1				Group 2		FP Type	FP Default?
		Ground	TOC	TOS	SWL	B	T	E	X	TEH-D	TEH-WO		
MW10	06/30/2009	91.64	96.06	88.64	85.77	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW10	12/30/2009	91.64	96.06	88.64	85.39	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW10	06/30/2010	91.64	96.06	88.64	87.53	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW10	01/06/2011	91.64	96.06	88.64	85.46	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW10	06/30/2011	91.64	96.06	88.64	86.32	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW10	12/29/2011	91.64	96.06	88.64	84.27	<2.	<2.	<2.	<3.	328.	<300.	N	N
MW10	08/01/2012	91.64	96.06	88.64	84.65	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW10	02/13/2013	91.64	96.06	88.64	83.48	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW10	08/27/2013	91.64	96.06	88.64	83.66	<2.	<2.	<2.	<3.	<268.	<268.	N	N
MW10	05/29/2014	91.64	96.06	88.64	84.54	<2.	<2.	<2.	<3.	<268.	<268.	N	N
MW10	12/08/2014	91.64	96.06	88.64	85.64	<2.	<2.	<2.	<3.	<278.	<278.	N	N
MW10	06/30/2015	91.64	96.06	88.64	86.38	<2.	<2.	<2.	<3.	<106.	<112.	N	N
MW10	02/01/2016	91.64	96.06	88.64	86.02	<2.	<2.	<2.	<3.	<278.	<278.	N	N
MW10	08/27/2018	91.64	96.06	88.64	86.20	<2.	<2.	<2.	<6.	<278.	<278.	N	N
MW11	08/14/2003	92.88	97.30	89.88	82.69	<5.	<10.	<10.	<30.	10,350,000.	1,700,000.	N	N
MW11	10/18/2004	92.88	97.30	89.88	82.65	22.5	<5.	19.6	<15.	68,000.	10,100.	D	N
MW11	05/05/2005	92.88	97.30	89.88	83.25	<5.	<5.	7.6	<15.	616,000.	133,000.	N	N
MW11	12/29/2005	92.88	97.30	89.88	81.65	6.25	<5.	28.2	<15.	137,000.	24,400.	N	N
MW11	08/27/2018	92.88	97.30	89.88	83.79	<2.	<2.	<2.	<6.	411,000.	<278.	N	N
MW12	08/14/2003	87.04	91.18	84.54	84.66	<1.	<1.	<1.	<3.	<380.	<380.	N	N
MW12	02/19/2010	87.04	91.18	84.54	84.93	0.615	<10.	<10.	<15.	425.	<300.	N	N
MW12	01/06/2011	87.04	91.18	84.54	85.63	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW12	08/01/2012	87.04	91.18	84.54	84.36	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW12	02/13/2013	87.04	91.18	84.54	85.01	<2.	<2.	<2.	<3.	<288.	<288.	N	N
MW12	08/27/2013	87.04	91.18	84.54	84.34	<2.	3.51	<2.	<3.	<268.	425.	N	N
MW12	05/29/2014	87.04	91.18	84.54	84.64	<2.	<2.	<2.	<3.	<268.	<268.	N	N
MW12	12/08/2014	87.04	91.18	84.54	84.87	<2.	<2.	<2.	<3.	<278.	<278.	N	N
MW12	06/30/2015	87.04	91.18	84.54	84.62	<2.	<2.	<2.	<3.	<106.	<112.	N	N
MW12	02/01/2016	87.04	91.18	84.54	84.75	<2.	<2.	<2.	<3.	<278.	<278.	N	N
MW13	08/14/2003	88.01	92.46	85.01	78.75	<2.	<2.	<2.	<6.	<380.	<380.	N	N
MW15	08/14/2003	96.58	98.36	93.58	83.98	<5.	<5.	<5.	<15.	1,060.	1,320.	N	N
MW15	10/18/2004	96.58	98.36	93.58	83.25	<1.	<1.	<1.	<3.	858.	<380.	N	N
MW15	05/05/2005	96.58	98.36	93.58	85.35	<5.	<5.	<5.	<15.	<380.	<380.	N	N
MW15	12/29/2005	96.58	98.36	93.58	83.87	<5.	<5.	<5.	<15.	442.	<380.	N	N
MW15	09/05/2006	96.58	98.36	93.58	84.56	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW15	05/08/2007	96.58	98.36	93.58	87.35	<1.	<1.	<1.	<3.	<300.	<300.	N	N
MW15	12/14/2007	96.58	98.36	93.58	84.68	<1.	<1.	<1.	<3.	<300.	<300.	N	N



SMR Groundwater Analytical Data (ug/L), V-3.00, NA													
Boring / Well #	Date Sampled	Elevations (ASL)				Group 1				Group 2		FP Type	FP Default?
		Ground	TOC	TOS	SWL	B	T	E	X	TEH-D	TEH-WO		
MW15	06/17/2008	96.58	98.36	93.58	86.33	<1.	<1.	<1.	<3.	<300.	<300.	N	N
MW15	12/30/2008	96.58	98.36	93.58	85.17	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW15	06/30/2009	96.58	98.36	93.58	85.69	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW15	12/30/2009	96.58	98.36	93.58	84.88	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW15	06/30/2010	96.58	98.36	93.58	86.81	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW15	01/06/2011	96.58	98.36	93.58	84.97	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW15	06/30/2011	96.58	98.36	93.58	85.75	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW15	12/29/2011	96.58	98.36	93.58	83.79	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW15	08/01/2012	96.58	98.36	93.58	84.31	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW15	02/13/2013	96.58	98.36	93.58	83.14	<2.	<2.	<2.	<3.	<300.	<300.	N	N
MW15	08/27/2013	96.58	98.36	93.58	83.39	<2.	<2.	<2.	<3.	<288.	<288.	N	N
MW15	05/29/2014	96.58	98.36	93.58	84.10	<2.	<2.	<2.	<3.	<268.	<268.	N	N
MW15	12/08/2014	96.58	98.36	93.58	85.08	<2.	<2.	<2.	<3.	<278.	<278.	N	N
MW15	06/30/2015	96.58	98.36	93.58	85.76	<2.	<2.	<2.	<3.	<106.	<112.	N	N
MW15	02/01/2016	96.58	98.36	93.58	85.45	<2.	<2.	<2.	<3.	<278.	<278.	N	N
MW15	08/27/2018	96.58	98.36	93.58	85.75	<2.	<2.	<2.	<6.	<278.	<278.	N	N
MW16	09/08/2003	92.89	92.89	89.89	84.49	<1.	<1.	<1.	<3.	<380.	<380.	N	N
MW17	09/08/2003	85.44	85.44	82.94	84.15	<1.	<1.	<1.	<3.	<380.	<380.	N	N
MW18	09/08/2003	89.95	89.95	86.95	85.61	<1.	<1.	<1.	<3.	<380.	<380.	N	N
Surface Water	08/14/2003	N	N	N	N	<1.	<1.	<1.	<3.	<380.	<380.	N	N
Surface Water	10/18/2004	N	N	N	N	<1.	1.6	<1.	<3.	784.	<380.	N	N
Surface Water	05/05/2005	N	N	N	N	<1.	<1.	<1.	<3.	<380.	<380.	N	N
Surface Water	12/29/2005	N	N	N	N	<1.	<1.	<1.	<3.	<380.	716.	N	N
Surface Water	09/05/2006	N	N	N	N	<2.	<2.	<2.	<3.	<300.	<300.	N	N
Surface Water	05/08/2007	N	N	N	N	<1.	<1.	<1.	<3.	<300.	<300.	N	N
Surface Water	06/17/2008	N	N	N	N	<1.	<1.	<1.	<3.	<300.	<300.	N	N
Surface Water	12/30/2008	N	N	N	N	<2.	<2.	<2.	<3.	<300.	<300.	N	N
Surface Water	06/30/2009	N	N	N	N	<2.	<2.	<2.	<3.	<300.	<300.	N	N
Surface Water	12/30/2009	N	N	N	N	<2.	<2.	<2.	<3.	<429.	119.	N	N
Surface Water	06/30/2010	N	N	N	N	<2.	<2.	<2.	<3.	<300.	<300.	N	N
Surface Water	01/06/2011	N	N	N	N	<2.	<2.	<2.	<3.	<300.	<300.	N	N
Surface Water	06/30/2011	N	N	N	N	<2.	<2.	<2.	<3.	<300.	<300.	N	N
Surface Water	12/29/2011	N	N	N	N	<2.	<2.	<2.	<3.	<300.	<300.	N	N
Surface	08/01/2012	N	N	N	N	<2.	<2.	<2.	<3.	<300.	482.	N	N
Surface	02/13/2013	N	N	N	N	<2.	<2.	<2.	<3.	15,500.	731.	N	N
Surface	08/27/2013	N	N	N	N	<2.	<2.	<2.	<3.	<268.	<268.	N	N
Surface Water	05/29/2014	N	N	N	N	<2.	<2.	<2.	<3.	<268.	<268.	N	N



SMR Groundwater Analytical Data (ug/L), V-3.00, NA													
Boring / Well #	Date Sampled	Elevations (ASL)				Group 1				Group 2		FP Type	FP Default?
		Ground	TOC	TOS	SWL	B	T	E	X	TEH-D	TEH-WO		
Surface Water	12/08/2014	N	N	N	N	<2.	<2.	<2.	<3.	<278.	<278.	N	N
Surface Water	06/30/2015	N	N	N	N	<2.	<2.	<2.	<3.	<278.	<278.	N	N
Surface Water	02/01/2016	N	N	N	N	<2.	<2.	<2.	<3.	<278.	<278.	N	N
RMW18	05/14/2007	88.95	93.02	86.02	86.49	<1.	<1.	<1.	<3.	<300.	<300.	N	N
RMW18	12/14/2007	88.95	93.02	86.02	85.84	<1.	<1.	<1.	<3.	<300.	<300.	N	N
RMW18	06/17/2008	88.95	93.02	86.02	86.83	<1.	<1.	<1.	<3.	<300.	<300.	N	N
RMW18	12/30/2008	88.95	93.02	86.02	86.39	<2.	<2.	<2.	<3.	<300.	<300.	N	N
RMW18	06/30/2009	88.95	93.02	86.02	86.15	<2.	<2.	<2.	<3.	<300.	<300.	N	N
RMW18	12/30/2009	88.95	93.02	86.02	86.13	<2.	<2.	<2.	<3.	<300.	<300.	N	N
RMW18	06/30/2010	88.95	93.02	86.02	87.14	<2.	<2.	<2.	<3.	<300.	<300.	N	N
RMW18	01/06/2011	88.95	93.02	86.02	86.18	<2.	<2.	<2.	<3.	<300.	<300.	N	N
RMW18	06/30/2011	88.95	93.02	86.02	86.58	<2.	<2.	<2.	<3.	<300.	<300.	N	N
RMW18	12/29/2011	88.95	93.02	86.02	85.77	<2.	<2.	<2.	<3.	<300.	<300.	N	N
RMW18	08/01/2012	88.95	93.02	86.02	85.67	<2.	<2.	<2.	<3.	<300.	<300.	N	N
RMW18	02/13/2013	88.95	93.02	86.02	85.66	<2.	<2.	<2.	<3.	<300.	<300.	N	N
RMW18	08/27/2013	88.95	93.02	86.02	85.20	<2.	<2.	<2.	<3.	<268.	<268.	N	N
RMW18	05/29/2014	88.95	93.02	86.02	86.24	<2.	<2.	<2.	<3.	<268.	<268.	N	N
RMW18	12/08/2014	88.95	93.02	86.02	86.10	<2.	<2.	<2.	<3.	<278.	<278.	N	N
RMW18	06/30/2015	88.95	93.02	86.02	86.61	<2.	<2.	<2.	<3.	<106.	<112.	N	N
RMW18	02/01/2016	88.95	93.02	86.02	86.28	<2.	<2.	<2.	<3.	<278.	<278.	N	N
RMW18	08/27/2018	88.95	93.02	86.02	86.72	<2.	<2.	<2.	<6.	<278.	<278.	N	N
RMW6A	05/08/2007	96.35	98.03	91.03	86.82	<5.	<5.	5.6	<15.	14,200.	855.	N	N
RMW6A	12/14/2007	96.35	98.03	91.03	84.96	<5.	<5.	7.4	20.6	79,700.	3,460.	N	N
RMW6A	06/17/2008	96.35	98.03	91.03	86.10	<1.	1.5	7.08	15.8	106,000.	4,990.	N	N
RMW6A	12/30/2008	96.35	98.03	91.03	85.41	4.87	<20.	<20.	43.4	7,720.	711.	N	N
RMW6A	06/30/2009	96.35	98.03	91.03	86.13	<2.	<2.	5.11	9.99	120,000.	8,840.	N	N
RMW6A	12/30/2009	96.35	98.03	91.03	85.12	<2.	<2.	4.77	8.58	15,900.	1,280.	N	N
RMW6A	06/30/2010	96.35	98.03	91.03	87.34	N	N	N	N	56,700.	4,590.	N	N
RMW6A	01/06/2011	96.35	98.03	91.03	85.26	<2.	<2.	3.47	7.52	48,900.	3,720.	N	N
RMW6A	06/30/2011	96.35	98.03	91.03	86.20	<2.	<2.	3.27	8.52	89,300.	7,800.	N	N
RMW6A	12/29/2011	96.35	98.03	91.03	84.19	<2.	<2.	<2.	<3.	61,300.	4,640.	N	N
RMW6A	08/01/2012	96.35	98.03	91.03	84.35	<2.	<2.	4.19	14.4	68,900.	6,130.	N	N
RMW61	02/13/2013	96.35	98.03	91.03	83.91	<2.	<2.	2.2	3.94	11,100.	415.	N	N
RMW6A	08/27/2013	96.35	98.03	91.03	84.43	<2.	<2.	<2.	<3.	3,250.	452.	N	N
RMW6A	05/29/2014	96.35	98.03	91.03	85.08	<2.	<2.	<2.	<3.	4,170.	470.	N	N
RMW6A	12/08/2014	96.35	98.03	91.03	85.44	<2.	<2.	<2.	<3.	13,400.	<278.	N	N
RMW6A	06/30/2015	96.35	98.03	91.03	87.93	<2.	<2.	<2.	<3.	50,200.	<278.	N	N



SMR Groundwater Analytical Data (ug/L), V-3.00, NA													
Boring / Well #	Date Sampled	Elevations (ASL)				Group 1				Group 2		FP Type	FP Default?
		Ground	TOC	TOS	SWL	B	T	E	X	TEH-D	TEH-WO		
RMW6A	02/01/2016	96.35	98.03	91.03	86.04	<2.	<2.	<2.	<3.	19,400.	<278.	N	N
RMW6A	08/27/2018	96.35	98.03	91.03	88.71	<2.	<2.	<2.	<6.	21,400.	<278.	N	N



**SMR, GROUNDWATER / SOIL LEACHING MONITORING PLAN SUMMARY  
and NFA GW/SL MONITORING RESULTS**

MW	Most Recent Sample	SSTL	SSTL Met	Steady Decline/ 3 Year	Monitor Type(T2)	Receptor			Chem. Risk	Recept. Curr. Risk	Min. Freq.
						Type	Label	Description			
GW/SL MONITORING PLAN											
NFA GW/SL MONITORING RESULTS											
MW3	49,900										
	2,613,452,000		Yes	No	LTG/	DWW	DWW1	Sundrup DWW	L*	N	
MW4	43,700										
	47,206,220,000		Yes	Yes	/	DWW	DWW1	Sundrup DWW	L*	N	
	3,020,334		Yes	Yes	TG/	GU-ASW	DC north	Drainage Creek nor	H*	N	
MW6	116,000										
	3,930,557		Yes	No	/	GU-ASW	DC north	Drainage Creek nor	H*	N	
MW9	3,060										
	556,634,900		Yes	Yes	L/	DWW	DWW1	Sundrup DWW	L*	N	
	2,340,952		Yes	Yes	P/P	GU-ASW	DC south1	Drainage Creek sou	H*	N	
	3,049,901		Yes	Yes	P/P	GU-ASW	DC south2	Drainage Creek sou	H*	N	
	3,454,726		Yes	Yes	P/P	GU-ASW	DC south3	Drainage Creek sou	H*	N	
	2,221,424		Yes	N/A	Ext.E/Ext.E	PCS	No-IC		L*	N	
	2,221,424		Yes	N/A	Ext.E/Ext.E	PCS	IC		L*	N	
	4,442,847		Yes	N/A	Ext.E/Ext.E	PSS	No-IC		L*	N	
	4,442,847		Yes	N/A	Ext.E/Ext.E	PSS	IC		L*	N	
MW10	<278										
	223,745,700,000		Yes	Yes	/	DWW	DWW1	Sundrup DWW	L*	N	
	2,221,424		Yes	Yes	T-ML/T-ML	PCS	No-IC		L*	N	
	4,048,335		Yes	Yes	T-ML/T-ML	PCS	IC		L*	N	
MW11	411,000										
	1,200,000,000,000		Yes	No	S/	DWW	DWW1	Sundrup DWW	L*	N	
	6,020,182		Yes	No	S/	GU-ASW	DC north	Drainage Creek nor	H*	N	
	2,340,952		Yes	No	S/	GU-ASW	DC south1	Drainage Creek sou	H*	N	
	3,049,901		Yes	No	S/	GU-ASW	DC south2	Drainage Creek sou	H*	N	
	3,454,726		Yes	No	S/	GU-ASW	DC south3	Drainage Creek sou	H*	N	
	4,882,265		Yes	No	S	PCS	No-IC		L*	N	
	4,882,265		Yes	No	S	PCS	IC		L*	N	
	5,575,459		Yes	No	S	PSS	No-IC		L*	N	
	5,575,459		Yes	No	S	PSS	IC		L*	N	
MW12	<278										
	31,250,750,000		Yes	Yes	/	DWW	DWW1	Sundrup DWW	L*	N	
MW15	<278										
	1,200,000,000,000		Yes	Yes	/P	DWW	DWW1	Sundrup DWW	L*	N	
	2,221,424		Yes	Yes	TG/TG	PCS	No-IC		L*	N	
	4,442,847		Yes	Yes	TG/TG	PSS	No-IC		L*	N	
RMW18	<278										
	32,500		Yes	Yes	/	DWW	DWW1	Sundrup DWW	L*	N	
RMW6A RM	21,400**/352										
	193,246,100,000		Yes	Yes	/	DWW	DWW1	Sundrup DWW	L*	N	



**Arcadia Limestone  
19011 Crystal Avenue  
Arcadia, IA  
Site Monitoring Report**

**Appendices**

The following appendices have been omitted: 4, 11, and 13.

- Appendix 4 has not been included as there are no high risk soil pathways
- Appendix 11 has not been included as no monitoring wells or soil borings were completed during this monitoring period.
- Appendix 13 has not been included as this is not the initial SMR.



**Arcadia Limestone  
19011 Crystal Avenue  
Arcadia, IA  
Site Monitoring Report**

**Appendix 1  
Evaluation of Analytical Data**



## Evaluation of Analytical Data

The following narrative is provided to discuss trends in groundwater and surface water impacts due to the May 19, 2003 petroleum discovery. The current assessment is based upon the risk evaluations completed via the IDNR's Tier 2/SMR software due to the nature of the contamination, petroleum products. The SMR evaluation is simply a continuation of the Tier 2 evaluation; and the high, low, and/or no action required classifications found therein may not coincide with the IDNR Contaminated Sites Section evaluation process. Recommendations presented by Seneca in this report are based on the laboratory analytical data and the receptors currently and/or potentially impacted in the future.

For this evaluation, Seneca utilized the IDNR's version 3.0 Tier 2/SMR software. Per IDNR correspondence dated August 3, 2016, groundwater samples are to be collected for site monitoring closure from the following locations with corresponding reporting: MW-2 MW-3, MW-4, RMW-6A, MW-9, MW-10, MW-11, MW-12, MW-15, RMW-18, and DWW1 (Sundrup well).

Based on the IDNR RBCA software utilized for evaluation at the site the following receptors are at risk.

Sundrup drinking water well (DWW1)

Drainage Creek

Potential confined space

Potential sanitary sewer

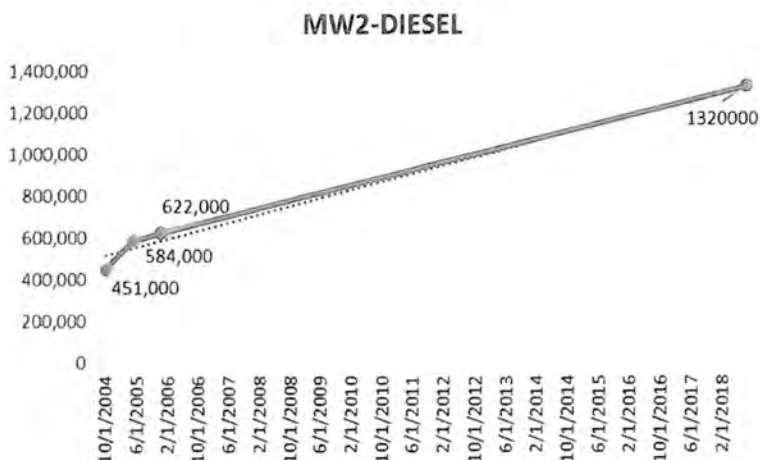
The Sundrup drinking water well, potential confined space, and potential sanitary sewer receptors are classified as no risk because of the recently established Environmental Covenant on the Subject Property. The Drainage creek has met SSTLs and has been classified as No Risk.

An Environmental Covenant has been established on the property. Therefore, Seneca is requesting site reclassification.

### Analytical Data Comparison

#### **MW-2**

MW2 was sampled on August 27, 2018 during the most recent round of sampling. Diesel concentrations have increased since historic sampling in 2004-2006.

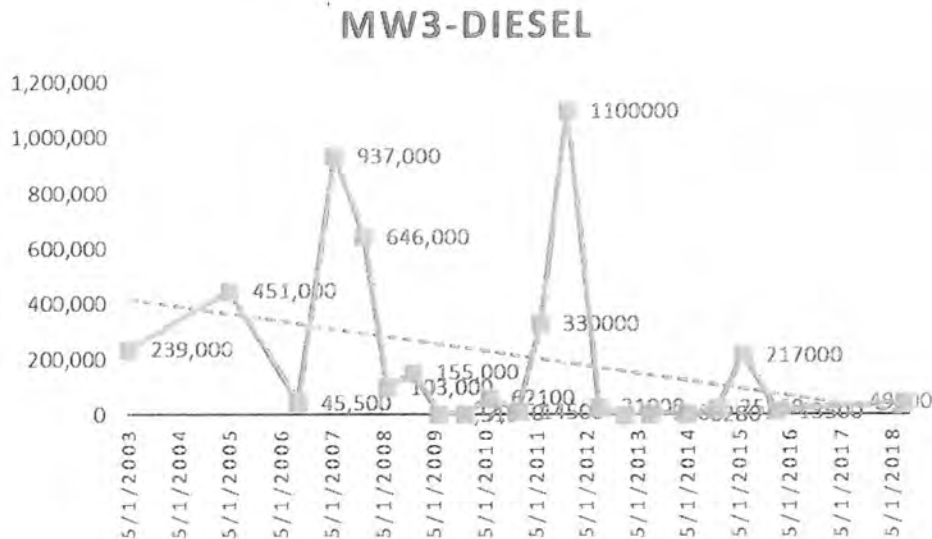




## Evaluation of Analytical Data

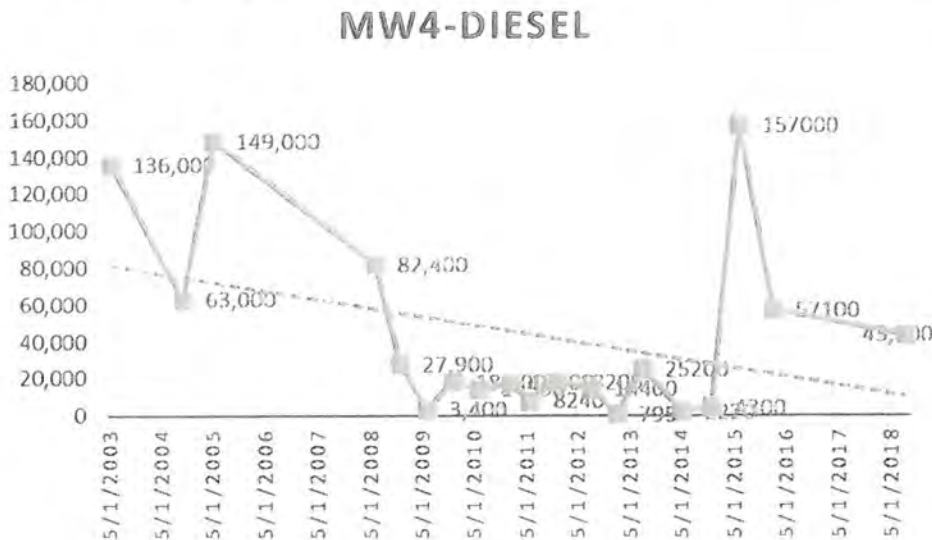
### MW-3

The IDNR RBCA software established target level for this well is 2,613,452,000ppb for diesel. Concentrations at this location have remained less than the target level. Diesel concentrations have fluctuated not allowing steady and declining criteria as set by the software to be met. Below is a graph of concentrations over time showing a declining trend.



### MW-4

The IDNR RBCA software established target level for this well is 3,060,579 ppb for diesel. Concentrations at this location have remained less than the target level. Diesel concentrations have fluctuated not allowing steady and declining criteria as set by the software to be met. Below is a graph of concentrations over time showing a declining trend.



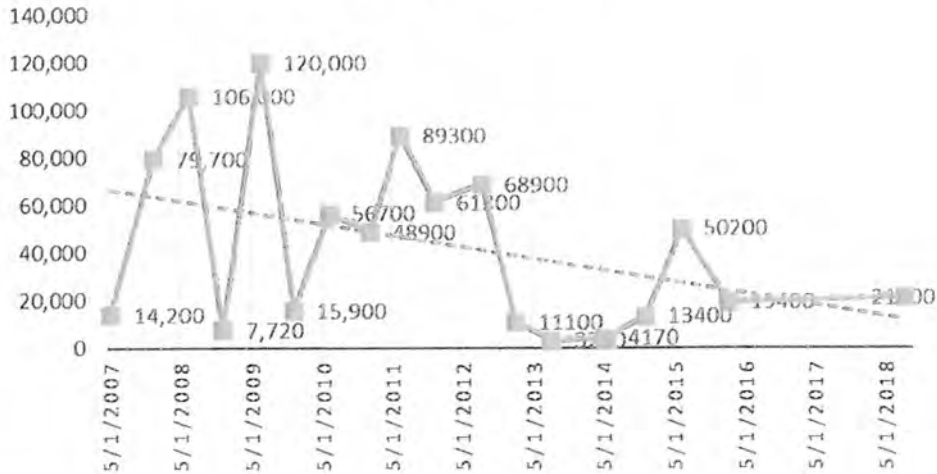


## Evaluation of Analytical Data

### RMW-6A

This well was installed as a replacement for MW-6 during May 2007. RMW-6A could not be reinstalled within 5' of the original location of MW-6 due to the location of a lime stockpile; therefore, RMW-6A was relocated directly south of the original location. The IDNR RBCA software established target level for this well is 193,246,1000,000 ppb for diesel. Diesel concentrations have fluctuated not allowing steady and declining criteria as set by the software to be met. Below is a graph of concentrations over time showing a declining trend.

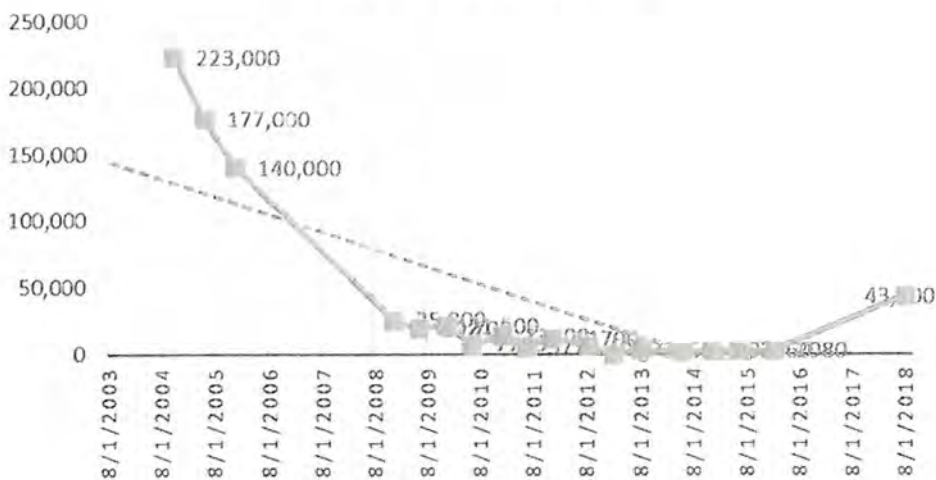
### RMW6-DIESEL



### MW-9

The IDNR RBCA software established target level for this well is 2,340,952 ppb for diesel. Concentrations at this location have remained less than the target level. Steady and declining criteria have been met.

### MW9-DIESEL





## Evaluation of Analytical Data

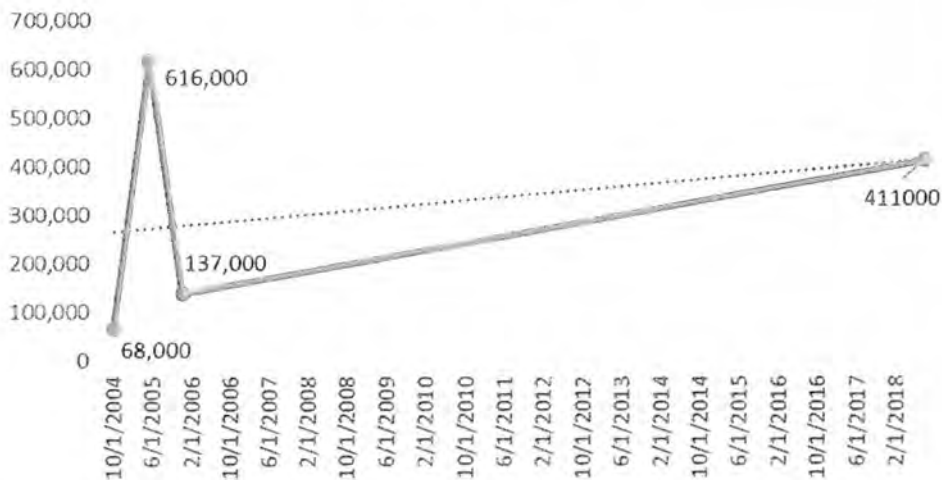
### MW-10

The IDNR RBCA software established target level for this well is 2,221,424 ppb for diesel. Concentrations at this location have remained less than the target level. Steady and declining criteria have been met.

### MW11

MW11 was sampled on August 27, 2018 during the most recent round of sampling. Diesel concentrations have fluctuated since historic sampling in 2004-2006.

#### MW11-DIESEL



### MW-12

The IDNR RBCA software established target level for this well is 31,250,750,000 ppb for diesel. Concentrations at this location have remained less than the target level. Steady and declining criteria have been met.

### MW-15

The IDNR RBCA software established target level for this well is 2,221,424 ppb for diesel. Concentrations at this location have remained less than the target level. Steady and declining criteria have been met.

### RMW-18

This well was installed in May 2007 as a replacement well for MW-18. RMW-18 could not be reinstalled within 5' of MW-18, as the original location was offsite in an agricultural field. The IDNR RBCA software established target level for this well is 32,500 ppb for diesel. Concentrations at this location have remained less than the target level. Steady and declining criteria have been met.

### Surface Water

Concentrations for the most recent sampling event are all less than laboratory detection limits.

### Sundrup Well (DWW-1)

Concentrations for the most recent sampling event are all less than laboratory detection limits.



## Evaluation of Analytical Data

### Summary:

All wells in the monitoring plan have concentrations are less than target levels established by the software. Steady and declining criteria have been met at all wells in the monitoring plan with the exception of MW3 and MW11. Concentrations at MW3 has shown a declining trend. MW11 has not been sampled frequently enough to establish a declining or increasing trend.

Sundrup Well – this well has been sampled and has shown concentrations less than lab detection limits. RMW18 is located between the site and the drinking water well and acts as a guard well. Concentrations at this location have remained less than lab detection limits during all sampling events.

Potential Confined Space – Based on groundwater contamination that extends offsite the risk for impacting future structures exists. However, based on the usage of the neighboring properties (agricultural field and Railroad) Seneca does not believe there is a risk.

Potential Sanitary Sewer – Based on groundwater contamination that extends offsite the risk for impacting future structures exists. However, based on the usage of the neighboring properties (agricultural field and Railroad) Seneca does not believe there is a risk.

### Recommendations

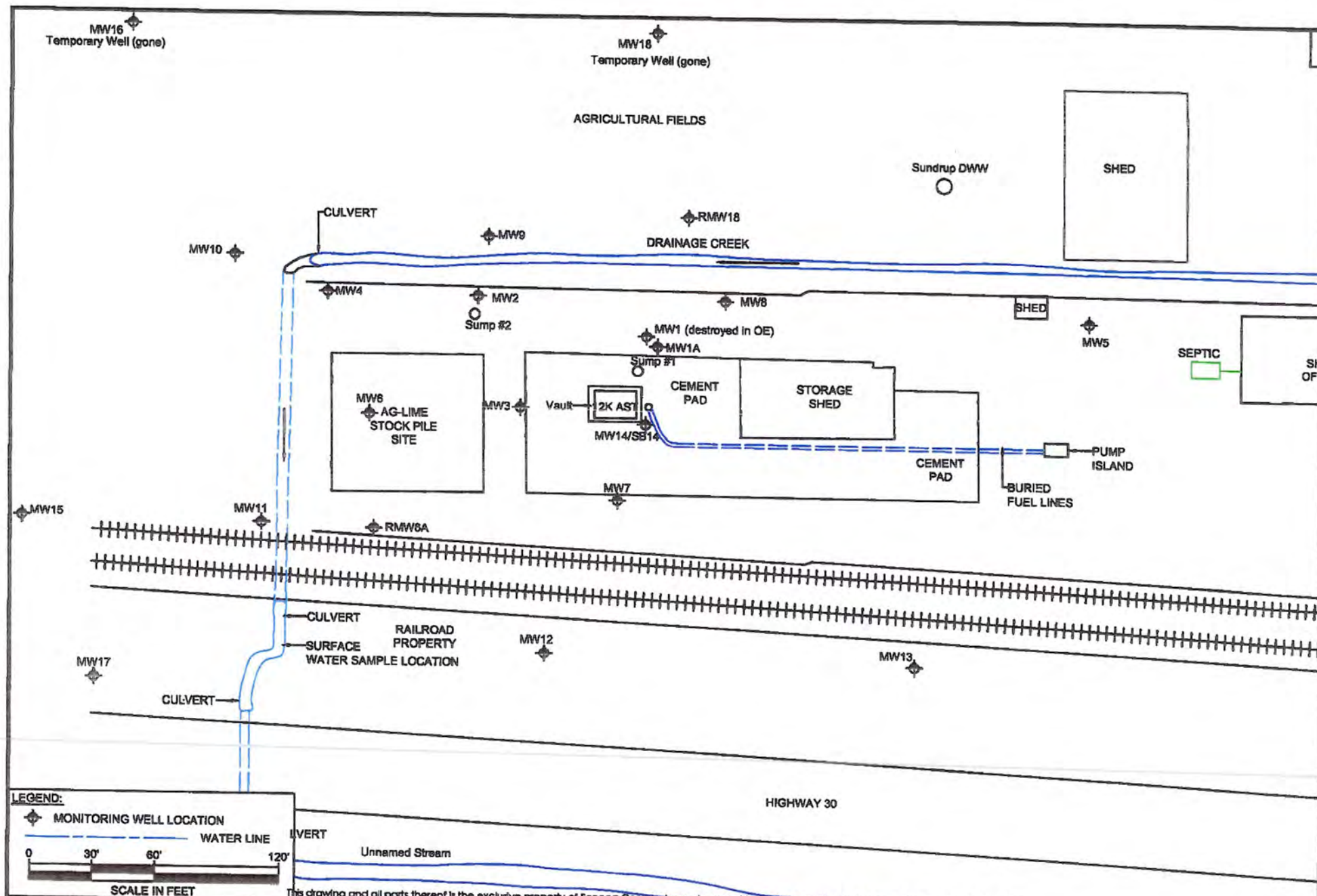
Seneca recommends site reclassification and no further action.



**Arcadia Limestone  
19011 Crystal Avenue  
Arcadia, IA  
Site Monitoring Report**

**Appendix 2  
Site Map**





This drawing and all parts thereof is the exclusive property of Seneca Companies and may not be reproduced in whole or part without written permission.

REV. NO.	DATE	<p><b>Seneca Companies</b> The Complete Solution</p>	<p><b>JOB DESCRIPTION:</b></p> <p>ARCADIA LIMESTONE 19011 CRYSTAL AVENUE ARCADIA, IA</p>	<p>CHECKED BY:</p> <p>STEVE REINDERS</p>	<p>DATE:</p> <p>6/6/2003</p>
				<p>SCALE:</p> <p>1"=60'</p>	<p>DRAWN BY:</p> <p>DARRICK WORRALL</p>
				<p>FILENAME:</p> <p>ARCADIA</p>	<p>SHEET NO.</p> <p>1 OF 1</p>
				<p>PROJECT NO:</p> <p>6243303</p>	

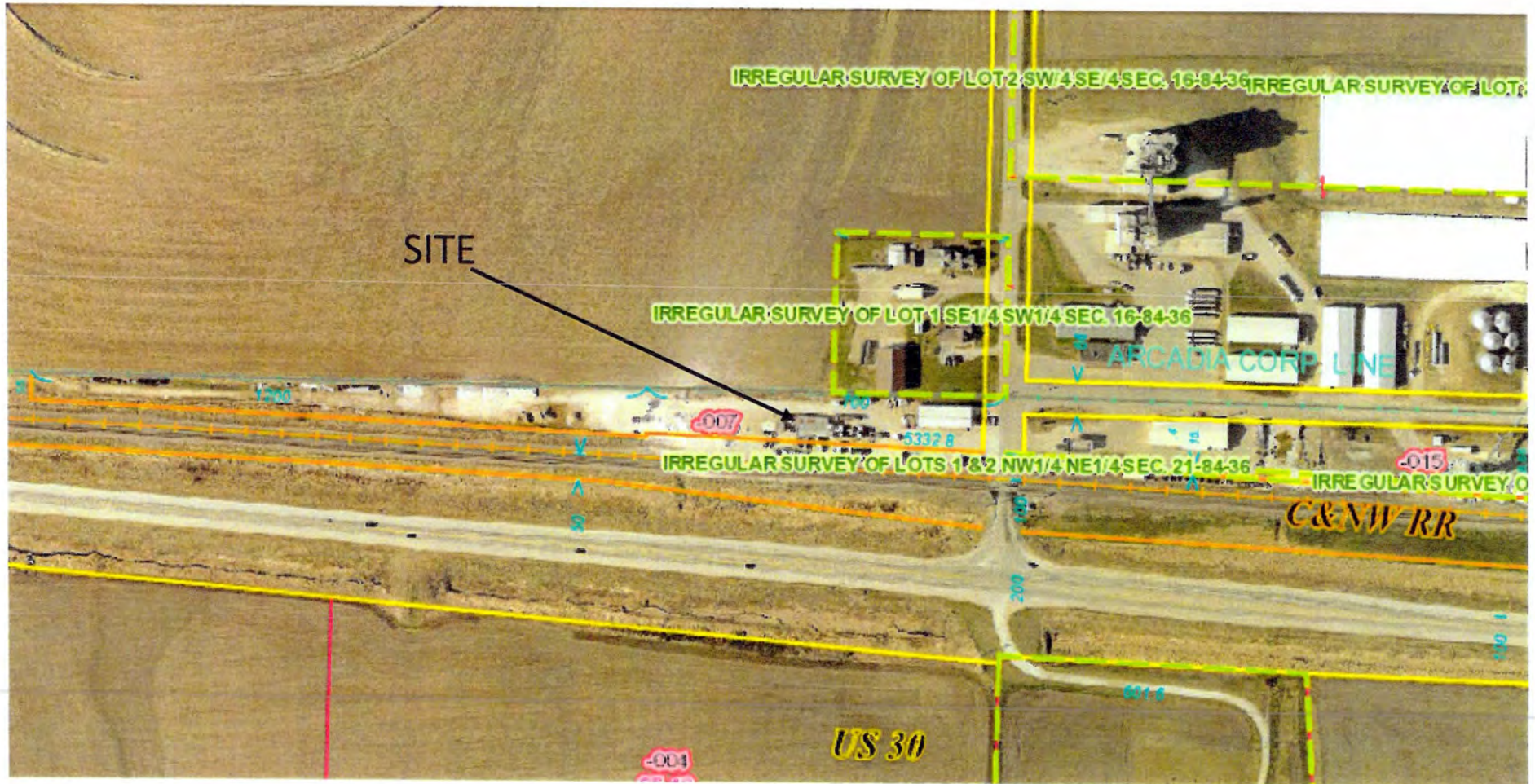
**SHEET TITLE:** SCALED SITE MAP



**Arcadia Limestone  
19011 Crystal Avenue  
Arcadia, IA  
Site Monitoring Report**

**Appendix 3  
Site Vicinity Map**





**Seneca Environmental Services**

Courtesy of Carroll County Assessor

Arcadia Limestone  
19011 Crystal Avenue  
Arcadia, IA

Spill #051603-AHB-1116  
Seneca Job # 6287410

**Site Vicinity Map**  
Scale: 1" = 500'



**Arcadia Limestone  
19011 Crystal Avenue  
Arcadia, IA  
Site Monitoring Report**

**Appendix 5  
Soil Contamination Maps**



MW16&lt;&lt;0.005&gt;

MW18&lt;&lt;0.005&gt;

Soil Plume Contours: Benzene(ng/kg)  
V-2.51, NA

Sundrup DWW

SHED

CULVERT

MW9&lt;0.008&gt;

DRAINAGE CREEK

MW10&lt;&lt;0.005&gt;

MW4&lt;&lt;0.005&gt;

North Wall&lt;0.021&gt;

MW8&lt;&lt;0.005&gt;

SHED

MW5&lt;&lt;0.005&gt;

SEPTIC

ST  
OFFMW6<0.02>  
STOCK PILE  
SITE

PB3&lt;&lt;0.005&gt;

MW1&lt;0.059&gt;

PB6&lt;0.008&gt;

CEMENT  
PADSTORAGE  
SHED

MW14/SB14&lt;&lt;0.005&gt;

CEMENT  
PADPUMP  
ISLAND  
BURIED  
FUEL LINES

MW7&lt;0.01&gt;

MW15&lt;&lt;0.005&gt;

MW11&lt;0.01&gt;

CULVERT

RAILROAD  
PROPERTY  
SURFACE  
WATER SAMPLE LOCATION

MW12&lt;&lt;0.005&gt;

MW13&lt;&lt;0.005&gt;

MW17<<0.005>  
CULVERT

HIGHWAY 30

## LEGEND:



MONITORING WELL LOCATION

WATER LINE

0 30' 60' 120'

SCALE IN FEET

CULVERT  
Unnamed Stream

This drawing and all parts thereof is the exclusive property of Seneca Companies and may not be reproduced in whole or part without written permission.

JOB DESCRIPTION:

ARCADIA LIMESTONE  
19011 CRYSTAL AVENUE  
ARCADIA, IA

SHEET TITLE:

SCALED SITE MAP

CHECKED BY:

STEVE REINDERS

SCALE:

1"=60'

FILENAME:

ARCADIA

PROJECT NO:  
6243303

DATE:

6/6/2003

DRAWN BY:

DARRICK WORRALL

SHEET NO.

1 OF 1

**Seneca  
Companies**

The Complete Solution







**Arcadia Limestone  
19011 Crystal Avenue  
Arcadia, IA  
Site Monitoring Report**

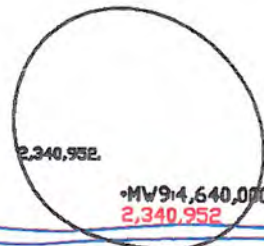
**Appendix 6  
Groundwater Summary Corrective Action Map**



•MW16<380.

•MW18<380.

Groundwater Summary Corrective Action Map: TEH-D  
V-3.00, NA



Sundrup DWW  
•MW1<380.

SHED

CULVERT  
•MW10<174,000.  
•MW4<136,000.  
•MW2<369,000.  
DRAINAGE CREEK

SHED

•MW5<380.

SEPTIC

SH  
OFF

•MW15<116,000.  
STOCK PILE SITE

•MW3<229,000.

CEMENT PAD

STORAGE SHED

CEMENT PAD

PUMP ISLAND

BURIED FUEL LINES

•MW7<1,120,000.

•MW11<10,350,000.

•MW12<380.

•MW13<380.

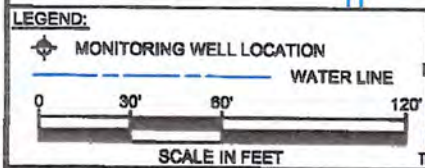
CULVERT  
SURFACE WATER SAMPLE LOCATION

•MW17<380.  
CULVERT

SURFACE WATER<380.

HIGHWAY 30

Unnamed Stream



This drawing and all parts thereof is the exclusive property of Seneca Companies and may not be reproduced in whole or part without written permission.

REV. NO.	DATE



**Seneca Companies**  
The Complete Solution

JOB DESCRIPTION:  
ARCADIA LIMESTONE  
19011 CRYSTAL AVENUE  
ARCADIA, IA

SHEET TITLE:  
SCALED SITE MAP

CHECKED BY: STEVE REINDERS	DATE: 6/6/2003
SCALE: 1"=60'	DRAWN BY: DARRICK WORRALL
FILENAME: ARCADIA	SHEET NO. 1 OF 1
PROJECT NO: 6243303	



**Arcadia Limestone  
19011 Crystal Avenue  
Arcadia, IA  
Site Monitoring Report**

**Appendix 7  
Groundwater Monitoring Results Map**



# SMR, Groundwater Monitoring Results Map: 09/20/2018, Benzene(ug/L)

V-3.00, NA

#: Most recent sample more than 6 months older than current risk date.



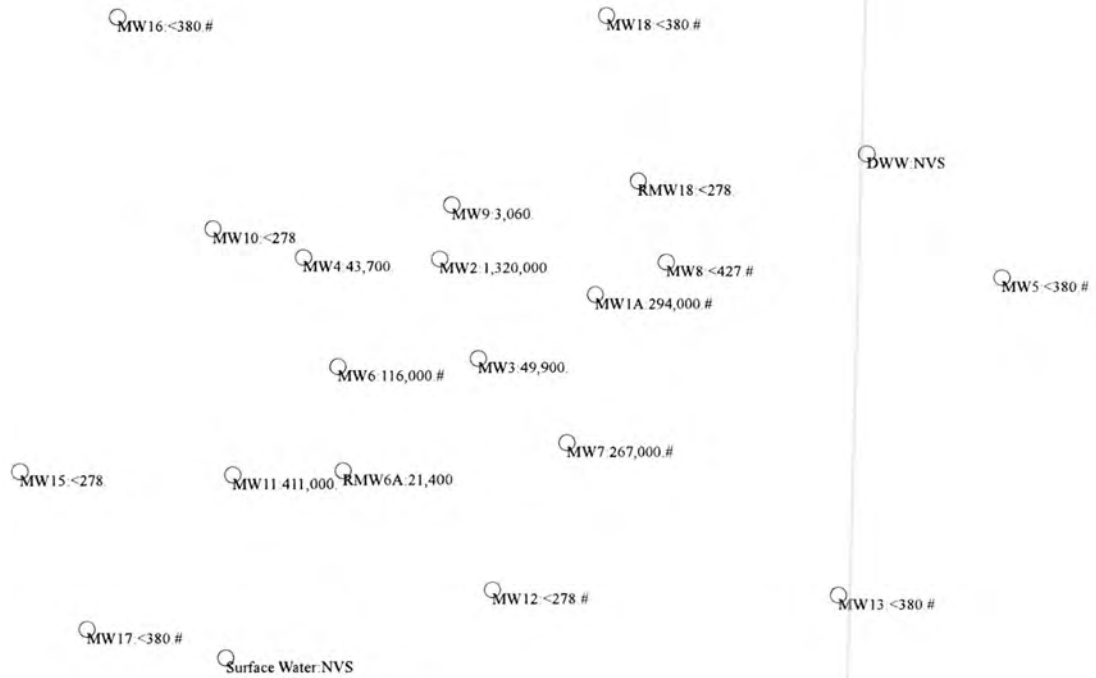
1 inch = 100 feet



**SMR, Groundwater Monitoring Results Map: 09/20/2018, TEH-D(ug/L)**

V-3.00, NA

#: Most recent sample more than 6 months older than current risk date.



1 inch = 100 feet



**Arcadia Limestone  
19011 Crystal Avenue  
Arcadia, IA  
Site Monitoring Report**

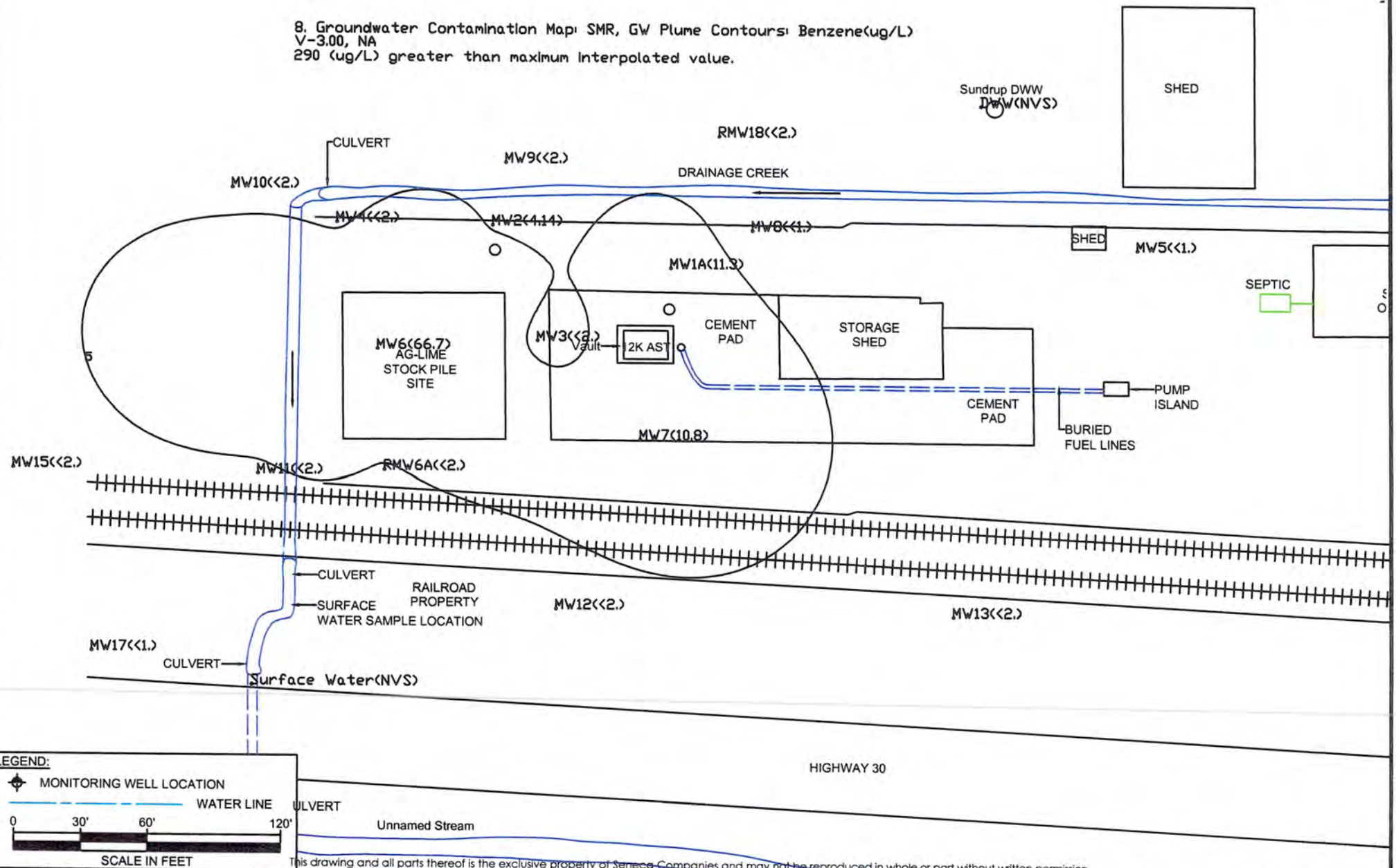
**Appendix 8  
Groundwater Contamination Plume Map(s)**



MW16&lt;&lt;1.&gt;

MW18&lt;&lt;1.&gt;

8. Groundwater Contamination Map: SMR, GW Plume Contours: Benzene(ug/L)  
 V-3.00, NA  
 290 (ug/L) greater than maximum interpolated value.



## LEGEND:



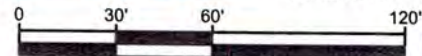
MONITORING WELL LOCATION



WATER LINE



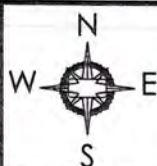
Unnamed Stream



SCALE IN FEET

This drawing and all parts thereof is the exclusive property of Seneca Companies and may not be reproduced in whole or part without written permission.

REV. NO. DATE



**Seneca**  
**Companies**

The Complete Solution

JOB DESCRIPTION:

ARCADIA LIMESTONE  
 19011 CRYSTAL AVENUE  
 ARCADIA, IA

SHEET TITLE:

SCALED SITE MAP

CHECKED BY:

STEVE REINDERS

SCALE:

1"=60'

FILENAME:

ARCADIA

PROJECT NO:

6243303

DATE:

6/6/2003

DRAWN BY:

DARRICK WORRALL

SHEET NO:

1 OF 1



MW16<<380.>  
Temporary Well (gone)

MW18<<380.>  
Temporary Well (gone)

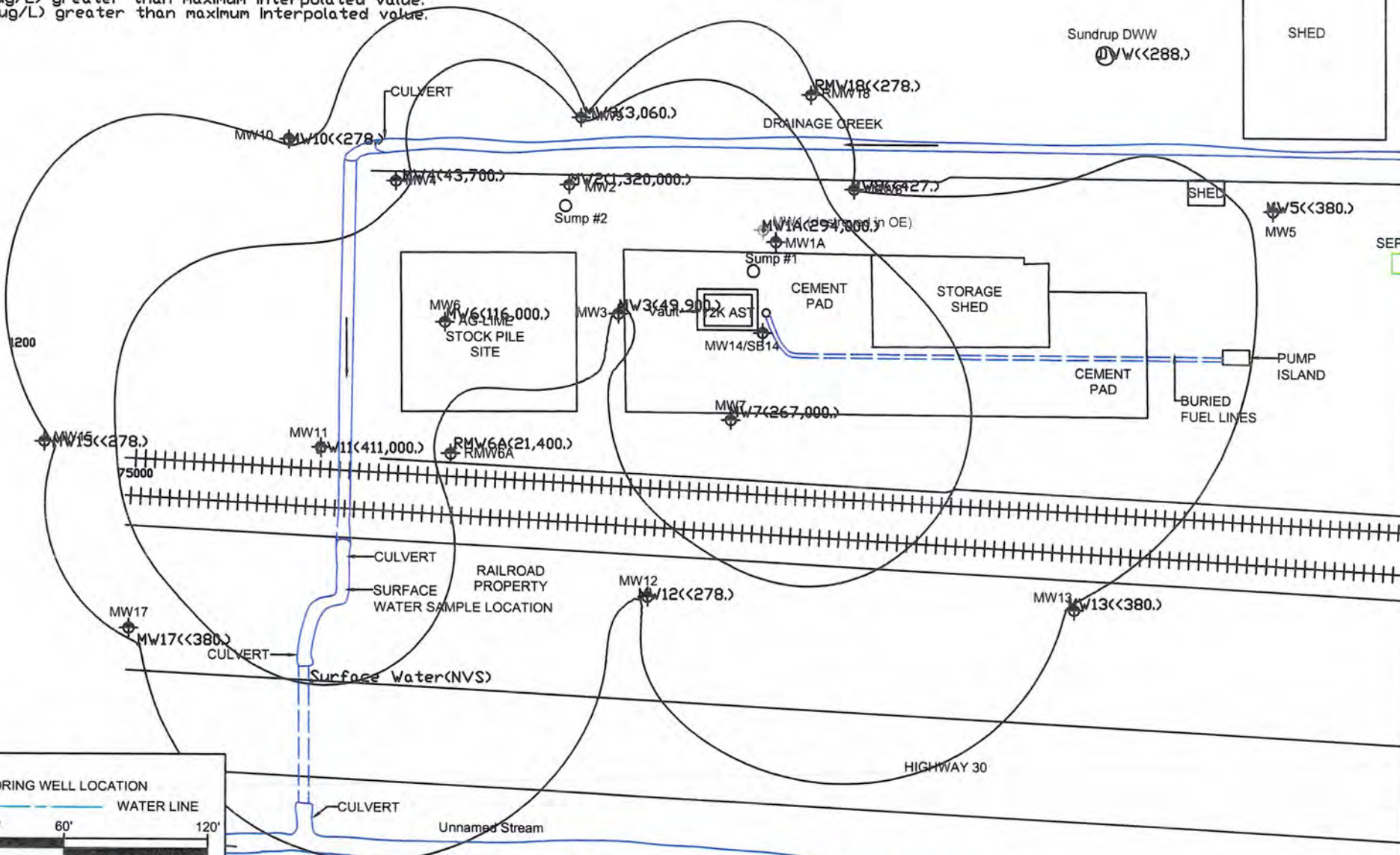
8. Groundwater Contamination Map: SMR, GW Plume Contours: TEH-D(ug/L)  
V-3.00, NA

2200000 (ug/L) greater than maximum interpolated value.  
4400000 (ug/L) greater than maximum interpolated value.  
5700000 (ug/L) greater than maximum interpolated value.  
1.14E+07 (ug/L) greater than maximum interpolated value.

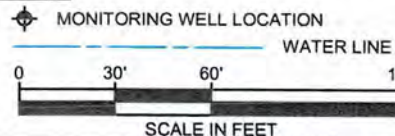
AGRICULTURAL FIELDS

Sundrup DWW  
MW<<288.>

SHED



LEGEND:



This drawing and all parts thereof is the exclusive property of Seneca Companies and may not be reproduced in whole or part without written permission.

REV. NO.	DATE:



**Seneca**  
Companies

The Complete Solution

JOB DESCRIPTION:

ARCADIA LIMESTONE  
19011 CRYSTAL AVENUE  
ARCADIA, IA

SHEET TITLE:

SCALED SITE MAP

CHECKED BY:  
STEVE REINDERS  
SCALE:  
1"=60'  
FILENAME:  
ARCADIA  
PROJECT NO:  
6243303

DATE:  
6/6/2003  
DRAWN BY:  
DARRICK WORRALL  
SHEET NO.  
1 OF 1



**Arcadia Limestone  
19011 Crystal Avenue  
Arcadia, IA  
Site Monitoring Report**

**Appendix 9**  
**Groundwater Flow Direction Map**



MW16  
Temporary Well (gone)

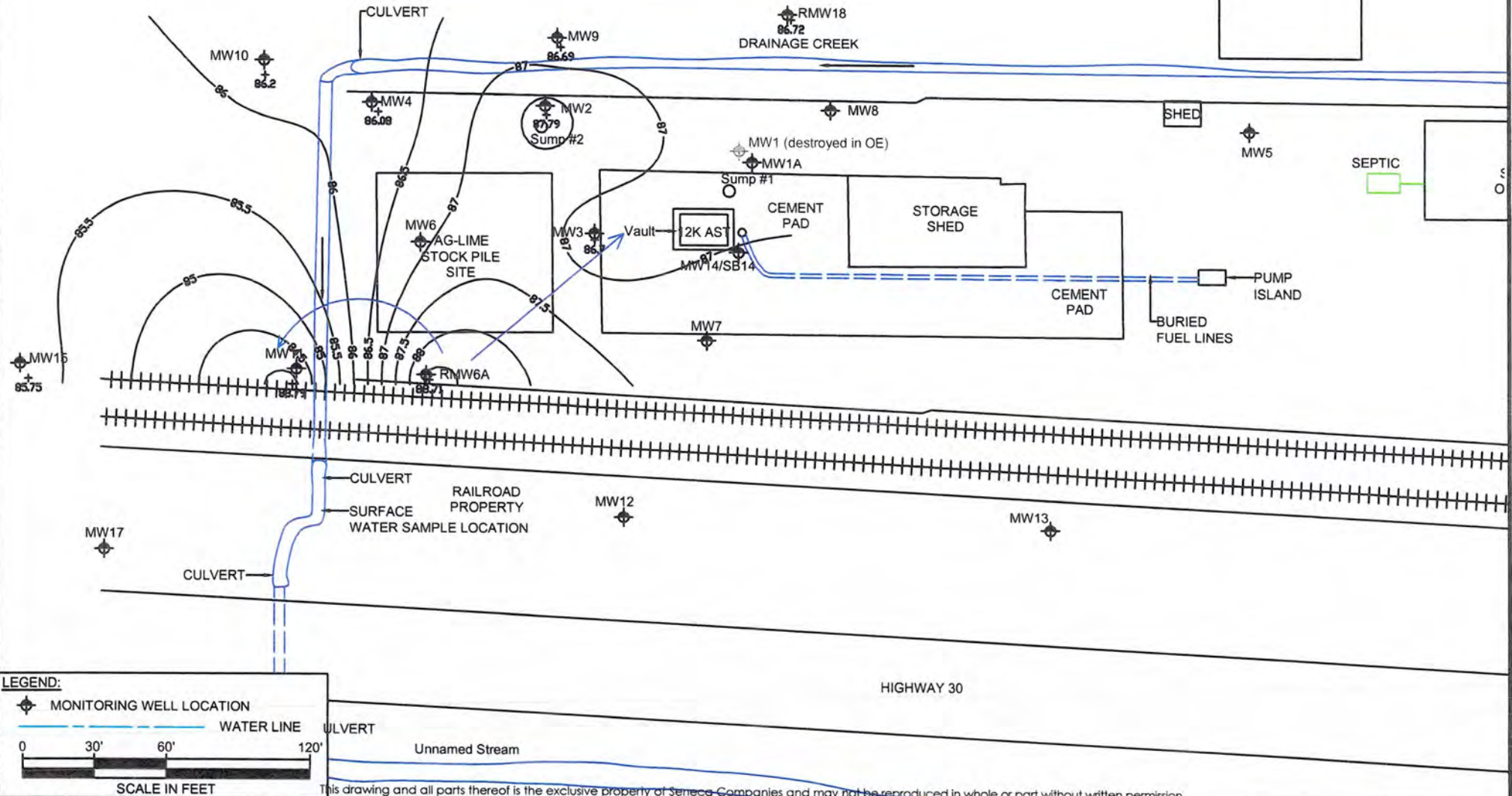
MW18  
Temporary Well (gone)

GROUNDWATER FLOW MAP  
AUGUST 27, 2018  
CONTOUR INTERVAL: 0.5'

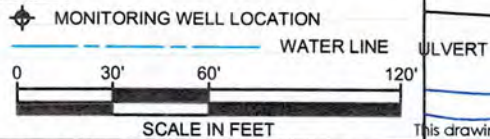
AGRICULTURAL FIELDS

Sundrup DWW

SHED



LEGEND:



REV. NO.	DATE:



**Seneca**  
Companies

The Complete Solution

JOB DESCRIPTION:

ARCADIA LIMESTONE  
19011 CRYSTAL AVENUE  
ARCADIA, IA

SHEET TITLE:

SCALED SITE MAP

CHECKED BY:  
STEVE REINDERS

SCALE:  
1"=60'

FILENAME:  
ARCADIA

PROJECT NO:  
6243303

DATE:  
6/6/2003

DRAWN BY:  
DARRICK WORRALL

SHEET NO:  
1 OF 1



**Arcadia Limestone  
19011 Crystal Avenue  
Arcadia, IA  
Site Monitoring Report**

**Appendix 10  
Analytical Data Sheets**



# TestAmerica

THE LEADER IN ENVIRONMENTAL TESTING

## ANALYTICAL REPORT

TestAmerica Laboratories, Inc.

TestAmerica Cedar Falls

704 Enterprise Drive

Cedar Falls, IA 50613

Tel: (319)277-2401

TestAmerica Job ID: 310-137918-1

TestAmerica Sample Delivery Group: 6243301

Client Project/Site: Arcadia Limestone

For:

Seneca Companies

PO BOX 3360

Des Moines, Iowa 50316

Attn: Jennifer Baker



Authorized for release by:

9/7/2018 1:24:21 PM

Angela Muehling, Project Manager I

(319)277-2401

[angela.muehling@testamericainc.com](mailto:angela.muehling@testamericainc.com)

### LINKS

Review your project  
results through

**Total Access**

Have a Question?

 **Ask  
The  
Expert**

Visit us at:

[www.testamericainc.com](http://www.testamericainc.com)

*This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.*

*Results relate only to the items tested and the sample(s) as received by the laboratory.*



## Table of Contents

Cover Page . . . . .	1
Table of Contents . . . . .	2
Case Narrative . . . . .	3
Sample Summary . . . . .	4
Detection Summary . . . . .	5
Client Sample Results . . . . .	6
Definitions . . . . .	16
Surrogate Summary . . . . .	17
QC Sample Results . . . . .	19
QC Association . . . . .	22
Chronicle . . . . .	24
Certification Summary . . . . .	27
Method Summary . . . . .	28
Chain of Custody . . . . .	29
Receipt Checklists . . . . .	32



## Case Narrative

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

**Job ID: 310-137918-1**

**Laboratory: TestAmerica Cedar Falls**

### Narrative

#### Job Narrative 310-137918-1

#### Comments

No additional comments.

#### Receipt

The samples were received on 8/28/2018 5:15 PM; the samples arrived in good condition, properly preserved and, where required, on ice. The temperature of the cooler at receipt was 4.7° C.

#### GC VOA

Method(s) OA-1 (GC): The following volatile samples were analyzed with significant headspace in the sample containers: MW15 (310-137918-2), MW18 (310-137918-3), MW10 (310-137918-4), MW9 (310-137918-5), MW3 (310-137918-6), MW11 (310-137918-8) and MW2 (310-137918-10). Significant headspace is defined as a bubble greater than 6 mm in diameter.

Method(s) OA-1 (GC): The following sample was diluted due to the nature of the sample matrix: MW2 (310-137918-10). Elevated reporting limits (RLs) are provided. Sample had free floating particles and was therefore not rejected/reran for being "over-diluted."

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### GC Semi VOA

Method(s) OA-2: Surrogate recovery for the following sample was outside control limits: MW2 (310-137918-10). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

#### Organic Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

#### VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.



## Sample Summary

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-137918-1	DWW	Ground Water	08/27/18 12:10	08/28/18 17:15
310-137918-2	MW15	Ground Water	08/27/18 12:35	08/28/18 17:15
310-137918-3	MW18	Ground Water	08/27/18 12:50	08/28/18 17:15
310-137918-4	MW10	Ground Water	08/27/18 13:15	08/28/18 17:15
310-137918-5	MW9	Ground Water	08/27/18 13:40	08/28/18 17:15
310-137918-6	MW3	Ground Water	08/27/18 13:55	08/28/18 17:15
310-137918-7	MW4	Ground Water	08/27/18 14:15	08/28/18 17:15
310-137918-8	MW11	Ground Water	08/27/18 14:35	08/28/18 17:15
310-137918-9	RMW6A	Ground Water	08/27/18 14:50	08/28/18 17:15
310-137918-10	MW2	Ground Water	08/27/18 15:15	08/28/18 17:15



## Detection Summary

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

### Client Sample ID: DWW

Lab Sample ID: 310-137918-1

No Detections.

### Client Sample ID: MW15

Lab Sample ID: 310-137918-2

No Detections.

### Client Sample ID: MW18

Lab Sample ID: 310-137918-3

No Detections.

### Client Sample ID: MW10

Lab Sample ID: 310-137918-4

No Detections.

### Client Sample ID: MW9

Lab Sample ID: 310-137918-5

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Diesel	3060		278		ug/L	1			OA-2	Total/NA

### Client Sample ID: MW3

Lab Sample ID: 310-137918-6

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Diesel	49900		278		ug/L	1			OA-2	Total/NA

### Client Sample ID: MW4

Lab Sample ID: 310-137918-7

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Diesel	43700		278		ug/L	1			OA-2	Total/NA

### Client Sample ID: MW11

Lab Sample ID: 310-137918-8

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Diesel	411000		1390		ug/L	5			OA-2	Total/NA

### Client Sample ID: RMW6A

Lab Sample ID: 310-137918-9

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Diesel	21400		278		ug/L	1			OA-2	Total/NA

### Client Sample ID: MW2

Lab Sample ID: 310-137918-10

Analyte	Result	Qualifier	RL	MDL	Unit	Dil	Fac	D	Method	Prep Type
Benzene	4.14	J	10.0	3.95	ug/L	5			OA-1 (GC)	Total/NA
Ethylbenzene	30.4		10.0	5.30	ug/L	5			OA-1 (GC)	Total/NA
Xylenes, Total	13.2	J	30.0	11.8	ug/L	5			OA-1 (GC)	Total/NA
Diesel	1320000		8330		ug/L	30			OA-2	Total/NA

This Detection Summary does not include radiochemical test results.

TestAmerica Cedar Falls



# Client Sample Results

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

**Client Sample ID: DWW**

**Date Collected: 08/27/18 12:10**

**Date Received: 08/28/18 17:15**

**Sampler Name: David Phipps**

**Lab Sample ID: 310-137918-1**

**Matrix: Ground Water**

**Sampler Phone Number: 800-369-3500**

## Method: OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00		2.00		ug/L			08/29/18 21:29	1
Toluene	<2.00		2.00		ug/L			08/29/18 21:29	1
Ethylbenzene	<2.00		2.00		ug/L			08/29/18 21:29	1
Xylenes, Total	<6.00		6.00		ug/L			08/29/18 21:29	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	85		35 - 150		08/29/18 21:29	1

## Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<288		288		ug/L		08/30/18 12:03	08/31/18 14:48	1
Diesel	<288		288		ug/L		08/30/18 12:03	08/31/18 14:48	1
Waste Oil	<288		288		ug/L		08/30/18 12:03	08/31/18 14:48	1
Total Extractable Hydrocarbons	<481		481		ug/L		08/30/18 12:03	08/31/18 14:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	78		32 - 148	08/30/18 12:03	08/31/18 14:48	1

TestAmerica Cedar Falls



# Client Sample Results

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

**Client Sample ID: MW15**  
**Date Collected: 08/27/18 12:35**  
**Date Received: 08/28/18 17:15**  
**Sampler Name: David Phipps**

**Lab Sample ID: 310-137918-2**  
**Matrix: Ground Water**

**Sampler Phone Number: 800-369-3500**

## Method: OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00		2.00		ug/L			09/04/18 18:56	1
Toluene	<2.00		2.00		ug/L			09/04/18 18:56	1
Ethylbenzene	<2.00		2.00		ug/L			09/04/18 18:56	1
Xylenes, Total	<6.00		6.00		ug/L			09/04/18 18:56	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	87		35 - 150		09/04/18 18:56	1

## Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<278		278		ug/L		08/30/18 12:03	08/31/18 15:18	1
Diesel	<278		278		ug/L		08/30/18 12:03	08/31/18 15:18	1
Waste Oil	<278		278		ug/L		08/30/18 12:03	08/31/18 15:18	1
Total Extractable Hydrocarbons	<463		463		ug/L		08/30/18 12:03	08/31/18 15:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	78		32 - 148	08/30/18 12:03	08/31/18 15:18	1



# Client Sample Results

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

**Client Sample ID: MW18**

**Date Collected: 08/27/18 12:50**

**Date Received: 08/28/18 17:15**

**Sampler Name: David Phipps**

**Lab Sample ID: 310-137918-3**

**Matrix: Ground Water**

**Sampler Phone Number: 800-369-3500**

## Method: OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00		2.00		ug/L			09/04/18 19:25	1
Toluene	<2.00		2.00		ug/L			09/04/18 19:25	1
Ethylbenzene	<2.00		2.00		ug/L			09/04/18 19:25	1
Xylenes, Total	<6.00		6.00		ug/L			09/04/18 19:25	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	88		35 - 150		09/04/18 19:25	1

## Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<278		278		ug/L		08/30/18 12:03	08/31/18 15:33	1
Diesel	<278		278		ug/L		08/30/18 12:03	08/31/18 15:33	1
Waste Oil	<278		278		ug/L		08/30/18 12:03	08/31/18 15:33	1
Total Extractable Hydrocarbons	<463		463		ug/L		08/30/18 12:03	08/31/18 15:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	87		32 - 148	08/30/18 12:03	08/31/18 15:33	1

TestAmerica Cedar Falls



# Client Sample Results

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

**Client Sample ID: MW10**  
**Date Collected: 08/27/18 13:15**  
**Date Received: 08/28/18 17:15**  
**Sampler Name: David Phipps**

**Lab Sample ID: 310-137918-4**  
**Matrix: Ground Water**

**Sampler Phone Number: 800-369-3500**

## Method: OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00		2.00		ug/L			09/04/18 19:54	1
Toluene	<2.00		2.00		ug/L			09/04/18 19:54	1
Ethylbenzene	<2.00		2.00		ug/L			09/04/18 19:54	1
Xylenes, Total	<6.00		6.00		ug/L			09/04/18 19:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	45		35 - 150		09/04/18 19:54	1

## Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<278		278		ug/L		08/30/18 12:03	08/31/18 15:48	1
Diesel	<278		278		ug/L		08/30/18 12:03	08/31/18 15:48	1
Waste Oil	<278		278		ug/L		08/30/18 12:03	08/31/18 15:48	1
Total Extractable Hydrocarbons	<463		463		ug/L		08/30/18 12:03	08/31/18 15:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	80		32 - 148	08/30/18 12:03	08/31/18 15:48	1



# Client Sample Results

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

**Client Sample ID: MW9**

**Date Collected: 08/27/18 13:40**

**Date Received: 08/28/18 17:15**

**Sampler Name: David Phipps**

**Lab Sample ID: 310-137918-5**

**Matrix: Ground Water**

**Sampler Phone Number: 800-369-3500**

## Method: OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00		2.00		ug/L			09/05/18 02:09	1
Toluene	<2.00		2.00		ug/L			09/05/18 02:09	1
Ethylbenzene	<2.00		2.00		ug/L			09/05/18 02:09	1
Xylenes, Total	<6.00		6.00		ug/L			09/05/18 02:09	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		35 - 150		09/05/18 02:09	1

## Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<278		278		ug/L		08/30/18 12:03	08/31/18 16:03	1
Diesel	3060		278		ug/L		08/30/18 12:03	08/31/18 16:03	1
Waste Oil	<278		278		ug/L		08/30/18 12:03	08/31/18 16:03	1
Total Extractable Hydrocarbons	<463		463		ug/L		08/30/18 12:03	08/31/18 16:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	81		32 - 148	08/30/18 12:03	08/31/18 16:03	1

TestAmerica Cedar Falls



# Client Sample Results

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

**Client Sample ID: MW3**  
**Date Collected: 08/27/18 13:55**  
**Date Received: 08/28/18 17:15**  
**Sampler Name: David Phipps**

**Lab Sample ID: 310-137918-6**  
**Matrix: Ground Water**

**Sampler Phone Number: 800-369-3500**

## Method: OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00	F2	2.00		ug/L			09/04/18 21:50	1
Toluene	<2.00	F2	2.00		ug/L			09/04/18 21:50	1
Ethylbenzene	<2.00	F2	2.00		ug/L			09/04/18 21:50	1
Xylenes, Total	<6.00	F2	6.00		ug/L			09/04/18 21:50	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		35 - 150					09/04/18 21:50	1

## Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<278		278		ug/L		08/30/18 12:03	08/31/18 16:18	1
Diesel	49900		278		ug/L		08/30/18 12:03	08/31/18 16:18	1
Waste Oil	<278		278		ug/L		08/30/18 12:03	08/31/18 16:18	1
Total Extractable Hydrocarbons	<463		463		ug/L		08/30/18 12:03	08/31/18 16:18	1

Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
n-Octacosane	91		32 - 148				08/30/18 12:03	08/31/18 16:18	1

TestAmerica Cedar Falls



# Client Sample Results

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

**Client Sample ID: MW4**

**Date Collected: 08/27/18 14:15**

**Date Received: 08/28/18 17:15**

**Sampler Name: David Phipps**

**Lab Sample ID: 310-137918-7**

**Matrix: Ground Water**

**Sampler Phone Number: 800-369-3500**

## Method: OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00		2.00		ug/L			09/05/18 02:37	1
Toluene	<2.00		2.00		ug/L			09/05/18 02:37	1
Ethylbenzene	<2.00		2.00		ug/L			09/05/18 02:37	1
Xylenes, Total	<6.00		6.00		ug/L			09/05/18 02:37	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		35 - 150		09/05/18 02:37	1

## Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<278		278		ug/L		08/30/18 12:03	08/31/18 16:33	1
Diesel	43700		278		ug/L		08/30/18 12:03	08/31/18 16:33	1
Waste Oil	<278		278		ug/L		08/30/18 12:03	08/31/18 16:33	1
Total Extractable Hydrocarbons	<463		463		ug/L		08/30/18 12:03	08/31/18 16:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	91		32 - 148	08/30/18 12:03	08/31/18 16:33	1

TestAmerica Cedar Falls



# Client Sample Results

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

**Client Sample ID: MW11**  
**Date Collected: 08/27/18 14:35**  
**Date Received: 08/28/18 17:15**  
**Sampler Name: David Phipps**

**Lab Sample ID: 310-137918-8**  
**Matrix: Ground Water**

**Sampler Phone Number: 800-369-3500**

## Method: OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00		2.00		ug/L			09/05/18 14:33	1
Toluene	<2.00		2.00		ug/L			09/05/18 14:33	1
Ethylbenzene	<2.00		2.00		ug/L			09/05/18 14:33	1
Xylenes, Total	<6.00		6.00		ug/L			09/05/18 14:33	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	127		35 - 150		09/05/18 14:33	1

## Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<278		278		ug/L		08/30/18 12:03	08/31/18 16:48	1
Diesel	411000		1390		ug/L		08/30/18 12:03	09/06/18 03:27	5
Waste Oil	<278		278		ug/L		08/30/18 12:03	08/31/18 16:48	1
Total Extractable Hydrocarbons	<463		463		ug/L		08/30/18 12:03	08/31/18 16:48	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	97		32 - 148	08/30/18 12:03	08/31/18 16:48	1

TestAmerica Cedar Falls



# Client Sample Results

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

**Client Sample ID: RMW6A**

**Date Collected: 08/27/18 14:50**

**Date Received: 08/28/18 17:15**

**Sampler Name: David Phipps**

**Lab Sample ID: 310-137918-9**

**Matrix: Ground Water**

**Sampler Phone Number: 800-369-3500**

## Method: OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00		2.00		ug/L			09/05/18 23:44	1
Toluene	<2.00		2.00		ug/L			09/05/18 23:44	1
Ethylbenzene	<2.00		2.00		ug/L			09/05/18 23:44	1
Xylenes, Total	<6.00		6.00		ug/L			09/05/18 23:44	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		35 - 150		09/05/18 23:44	1

## Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<278		278		ug/L		08/30/18 12:03	08/31/18 17:03	1
Diesel	21400		278		ug/L		08/30/18 12:03	08/31/18 17:03	1
Waste Oil	<278		278		ug/L		08/30/18 12:03	08/31/18 17:03	1
Total Extractable Hydrocarbons	<463		463		ug/L		08/30/18 12:03	08/31/18 17:03	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	99		32 - 148	08/30/18 12:03	08/31/18 17:03	1

TestAmerica Cedar Falls



## Client Sample Results

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

**Client Sample ID: MW2**

Date Collected: 08/27/18 15:15

Date Received: 08/28/18 17:15

Sampler Name: David Phipps

**Lab Sample ID: 310-137918-10**

Matrix: Ground Water

**Sampler Phone Number: 800-369-3500**

### Method: OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	4.14	J	10.0	3.95	ug/L			09/05/18 21:49	5
Toluene	<3.15		10.0	3.15	ug/L			09/05/18 21:49	5
Ethylbenzene	30.4		10.0	5.30	ug/L			09/05/18 21:49	5
Xylenes, Total	13.2	J	30.0	11.8	ug/L			09/05/18 21:49	5

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	105		35 - 150		09/05/18 21:49	5

### Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<278		278		ug/L		08/30/18 12:03	08/31/18 17:18	1
Diesel	1320000		8330		ug/L		08/30/18 12:03	09/06/18 03:42	30
Waste Oil	<278		278		ug/L		08/30/18 12:03	08/31/18 17:18	1
Total Extractable Hydrocarbons	<463		463		ug/L		08/30/18 12:03	08/31/18 17:18	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	2	X	32 - 148	08/30/18 12:03	08/31/18 17:18	1

TestAmerica Cedar Falls



## Definitions/Glossary

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

### Qualifiers

#### GC VOA

Qualifier	Qualifier Description
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
F2	MS/MSD RPD exceeds control limits

#### GC Semi VOA

Qualifier	Qualifier Description
X	Surrogate is outside control limits

### Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
PQL	Practical Quantitation Limit
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)



## Surrogate Summary

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

### Method: OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Matrix: Ground Water

Prep Type: Total/NA

#### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (35-150)
310-137918-1	DWW	85
310-137918-2	MW15	87
310-137918-3	MW18	88
310-137918-4	MW10	45
310-137918-5	MW9	94
310-137918-6	MW3	90
310-137918-6 MS	MW3	97
310-137918-6 MSD	MW3	81
310-137918-7	MW4	92
310-137918-8	MW11	127
310-137918-9	RMW6A	90
310-137918-10	MW2	105

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

### Method: OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Matrix: Water

Prep Type: Total/NA

#### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	BFB (35-150)
LCS 310-213946/31	Lab Control Sample	98
LCS 310-214470/5	Lab Control Sample	98
LCS 310-214587/5	Lab Control Sample	97
MB 310-213946/1	Method Blank	90
MB 310-214470/4	Method Blank	92
MB 310-214587/4	Method Blank	87

#### Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

### Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Matrix: Ground Water

Prep Type: Total/NA

#### Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTCN (32-148)
310-137918-1	DWW	78
310-137918-2	MW15	78
310-137918-3	MW18	87
310-137918-4	MW10	80
310-137918-5	MW9	81
310-137918-6	MW3	91
310-137918-7	MW4	91
310-137918-8	MW11	97
310-137918-9	RMW6A	99
310-137918-10	MW2	2 X

#### Surrogate Legend

TestAmerica Cedar Falls



## Surrogate Summary

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

OTCN = n-Octacosane

**Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)**

**Matrix: Water**

**Prep Type: Total/NA**

Percent Surrogate Recovery (Acceptance Limits)

Lab Sample ID	Client Sample ID	OTCN (32-148)
LCS 310-214036/2-A	Lab Control Sample	92
LCSD 310-214036/3-A	Lab Control Sample Dup	85
MB 310-214036/1-A	Method Blank	68

**Surrogate Legend**

OTCN = n-Octacosane

TestAmerica Cedar Falls



## QC Sample Results

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

### Method: OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 310-213946/1  
Matrix: Water  
Analysis Batch: 213946

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00		2.00		ug/L			08/29/18 18:05	1
Toluene	<2.00		2.00		ug/L			08/29/18 18:05	1
Ethylbenzene	<2.00		2.00		ug/L			08/29/18 18:05	1
Xylenes, Total	<6.00		6.00		ug/L			08/29/18 18:05	1

Surrogate	%Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	90		35 - 150		08/29/18 18:05	1

Lab Sample ID: LCS 310-213946/31  
Matrix: Water  
Analysis Batch: 213946

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	40.0	37.07		ug/L		93	77 - 122
Toluene	40.0	38.47		ug/L		96	74 - 120
Ethylbenzene	40.0	40.05		ug/L		100	74 - 120
Xylenes, Total	120	125.4		ug/L		105	74 - 120

Surrogate	%Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		35 - 150

Lab Sample ID: MB 310-214470/4  
Matrix: Water  
Analysis Batch: 214470

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00		2.00		ug/L			09/04/18 14:40	1
Toluene	<2.00		2.00		ug/L			09/04/18 14:40	1
Ethylbenzene	<2.00		2.00		ug/L			09/04/18 14:40	1
Xylenes, Total	<6.00		6.00		ug/L			09/04/18 14:40	1

Surrogate	%Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	92		35 - 150		09/04/18 14:40	1

Lab Sample ID: LCS 310-214470/5  
Matrix: Water  
Analysis Batch: 214470

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	40.0	38.79		ug/L		97	77 - 122
Toluene	40.0	38.86		ug/L		97	74 - 120
Ethylbenzene	40.0	40.25		ug/L		101	74 - 120
Xylenes, Total	120	126.8		ug/L		106	74 - 120

Surrogate	%Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	98		35 - 150

TestAmerica Cedar Falls



## QC Sample Results

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

### Method: OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC) (Continued)

Lab Sample ID: 310-137918-6 MS

Matrix: Ground Water

Analysis Batch: 214470

Client Sample ID: MW3  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	<2.00	F2	40.0	32.04		ug/L		80	54 - 122
Toluene	<2.00	F2	40.0	31.50		ug/L		79	62 - 120
Ethylbenzene	<2.00	F2	40.0	29.61		ug/L		74	51 - 120
Xylenes, Total	<6.00	F2	120	91.61		ug/L		76	51 - 120

Surrogate	MS %Recovery	MS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		35 - 150

Lab Sample ID: 310-137918-6 MSD

Matrix: Ground Water

Analysis Batch: 214470

Client Sample ID: MW3  
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzene	<2.00	F2	40.0	24.86	F2	ug/L		62	54 - 122	25	10
Toluene	<2.00	F2	40.0	26.89	F2	ug/L		67	62 - 120	16	10
Ethylbenzene	<2.00	F2	40.0	25.61	F2	ug/L		64	51 - 120	15	10
Xylenes, Total	<6.00	F2	120	79.76	F2	ug/L		66	51 - 120	14	10

Surrogate	MSD %Recovery	MSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	81		35 - 150

Lab Sample ID: MB 310-214587/4

Matrix: Water

Analysis Batch: 214587

Client Sample ID: Method Blank  
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.790		2.00	0.790	ug/L			09/05/18 12:52	1
Toluene	<0.630		2.00	0.630	ug/L			09/05/18 12:52	1
Ethylbenzene	<1.06		2.00	1.06	ug/L			09/05/18 12:52	1
Xylenes, Total	<2.35		6.00	2.35	ug/L			09/05/18 12:52	1

Surrogate	MB %Recovery	MB Qualifier	Limits
4-Bromofluorobenzene (Surr)	87		35 - 150

Prepared	Analyzed	Dil Fac
	09/05/18 12:52	1

Lab Sample ID: LCS 310-214587/5

Matrix: Water

Analysis Batch: 214587

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Benzene	40.0	36.88		ug/L		92	77 - 122
Toluene	40.0	37.66		ug/L		94	74 - 120
Ethylbenzene	40.0	38.97		ug/L		97	74 - 120
Xylenes, Total	120	121.5		ug/L		101	74 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	97		35 - 150

TestAmerica Cedar Falls



# QC Sample Results

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

## Method: OA-2 - Iowa - Extractable Petroleum Hydrocarbons (GC)

Lab Sample ID: MB 310-214036/1-A  
Matrix: Water  
Analysis Batch: 214161

Client Sample ID: Method Blank  
Prep Type: Total/NA  
Prep Batch: 214036

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<300		300		ug/L		08/30/18 12:03	08/31/18 14:02	1
Diesel	<300		300		ug/L		08/30/18 12:03	08/31/18 14:02	1
Waste Oil	<300		300		ug/L		08/30/18 12:03	08/31/18 14:02	1
Total Extractable Hydrocarbons	<500		500		ug/L		08/30/18 12:03	08/31/18 14:02	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
n-Octacosane	68		32 - 148	08/30/18 12:03	08/31/18 14:02	1

Lab Sample ID: LCS 310-214036/2-A  
Matrix: Water  
Analysis Batch: 214161

Client Sample ID: Lab Control Sample  
Prep Type: Total/NA  
Prep Batch: 214036

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Diesel	2000	1495		ug/L		75	17 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
n-Octacosane	92		32 - 148

Lab Sample ID: LCSD 310-214036/3-A  
Matrix: Water  
Analysis Batch: 214161

Client Sample ID: Lab Control Sample Dup  
Prep Type: Total/NA  
Prep Batch: 214036

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	Limits	RPD	Limit
Diesel	2000	1428		ug/L		71	17 - 120	5	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
n-Octacosane	85		32 - 148

TestAmerica Cedar Falls



## QC Association Summary

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

### GC VOA

#### Analysis Batch: 213946

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-137918-1	DWW	Total/NA	Ground Water	OA-1 (GC)	
MB 310-213946/1	Method Blank	Total/NA	Water	OA-1 (GC)	
LCS 310-213946/31	Lab Control Sample	Total/NA	Water	OA-1 (GC)	

#### Analysis Batch: 214470

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-137918-2	MW15	Total/NA	Ground Water	OA-1 (GC)	
310-137918-3	MW18	Total/NA	Ground Water	OA-1 (GC)	
310-137918-4	MW10	Total/NA	Ground Water	OA-1 (GC)	
310-137918-5	MW9	Total/NA	Ground Water	OA-1 (GC)	
310-137918-6	MW3	Total/NA	Ground Water	OA-1 (GC)	
310-137918-7	MW4	Total/NA	Ground Water	OA-1 (GC)	
MB 310-214470/4	Method Blank	Total/NA	Water	OA-1 (GC)	
LCS 310-214470/5	Lab Control Sample	Total/NA	Water	OA-1 (GC)	
310-137918-6 MS	MW3	Total/NA	Ground Water	OA-1 (GC)	
310-137918-6 MSD	MW3	Total/NA	Ground Water	OA-1 (GC)	

#### Analysis Batch: 214587

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-137918-8	MW11	Total/NA	Ground Water	OA-1 (GC)	
310-137918-9	RMW6A	Total/NA	Ground Water	OA-1 (GC)	
310-137918-10	MW2	Total/NA	Ground Water	OA-1 (GC)	
MB 310-214587/4	Method Blank	Total/NA	Water	OA-1 (GC)	
LCS 310-214587/5	Lab Control Sample	Total/NA	Water	OA-1 (GC)	

### GC Semi VOA

#### Prep Batch: 214036

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-137918-1	DWW	Total/NA	Ground Water	3510C	
310-137918-2	MW15	Total/NA	Ground Water	3510C	
310-137918-3	MW18	Total/NA	Ground Water	3510C	
310-137918-4	MW10	Total/NA	Ground Water	3510C	
310-137918-5	MW9	Total/NA	Ground Water	3510C	
310-137918-6	MW3	Total/NA	Ground Water	3510C	
310-137918-7	MW4	Total/NA	Ground Water	3510C	
310-137918-8	MW11	Total/NA	Ground Water	3510C	
310-137918-9	RMW6A	Total/NA	Ground Water	3510C	
310-137918-10	MW2	Total/NA	Ground Water	3510C	
MB 310-214036/1-A	Method Blank	Total/NA	Water	3510C	
LCS 310-214036/2-A	Lab Control Sample	Total/NA	Water	3510C	
LCSD 310-214036/3-A	Lab Control Sample Dup	Total/NA	Water	3510C	

#### Analysis Batch: 214161

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-137918-1	DWW	Total/NA	Ground Water	OA-2	214036
310-137918-2	MW15	Total/NA	Ground Water	OA-2	214036
310-137918-3	MW18	Total/NA	Ground Water	OA-2	214036
310-137918-4	MW10	Total/NA	Ground Water	OA-2	214036
310-137918-5	MW9	Total/NA	Ground Water	OA-2	214036

TestAmerica Cedar Falls



## QC Association Summary

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

### GC Semi VOA (Continued)

#### Analysis Batch: 214161 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-137918-6	MW3	Total/NA	Ground Water	OA-2	214036
310-137918-7	MW4	Total/NA	Ground Water	OA-2	214036
310-137918-8	MW11	Total/NA	Ground Water	OA-2	214036
310-137918-9	RMW6A	Total/NA	Ground Water	OA-2	214036
310-137918-10	MW2	Total/NA	Ground Water	OA-2	214036
MB 310-214036/1-A	Method Blank	Total/NA	Water	OA-2	214036
LCS 310-214036/2-A	Lab Control Sample	Total/NA	Water	OA-2	214036
LCSD 310-214036/3-A	Lab Control Sample Dup	Total/NA	Water	OA-2	214036

#### Analysis Batch: 214608

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-137918-8	MW11	Total/NA	Ground Water	OA-2	214036
310-137918-10	MW2	Total/NA	Ground Water	OA-2	214036



## Lab Chronicle

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

### Client Sample ID: DWW

Date Collected: 08/27/18 12:10

Date Received: 08/28/18 17:15

### Lab Sample ID: 310-137918-1

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	OA-1 (GC)		1	213946	08/29/18 21:29	CMM	TAL CF
Total/NA	Prep	3510C			214036	08/30/18 12:03	ACJ	TAL CF
Total/NA	Analysis	OA-2		1	214161	08/31/18 14:48	DLK	TAL CF

### Client Sample ID: MW15

Date Collected: 08/27/18 12:35

Date Received: 08/28/18 17:15

### Lab Sample ID: 310-137918-2

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	OA-1 (GC)		1	214470	09/04/18 18:56	CMM	TAL CF
Total/NA	Prep	3510C			214036	08/30/18 12:03	ACJ	TAL CF
Total/NA	Analysis	OA-2		1	214161	08/31/18 15:18	DLK	TAL CF

### Client Sample ID: MW18

Date Collected: 08/27/18 12:50

Date Received: 08/28/18 17:15

### Lab Sample ID: 310-137918-3

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	OA-1 (GC)		1	214470	09/04/18 19:25	CMM	TAL CF
Total/NA	Prep	3510C			214036	08/30/18 12:03	ACJ	TAL CF
Total/NA	Analysis	OA-2		1	214161	08/31/18 15:33	DLK	TAL CF

### Client Sample ID: MW10

Date Collected: 08/27/18 13:15

Date Received: 08/28/18 17:15

### Lab Sample ID: 310-137918-4

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	OA-1 (GC)		1	214470	09/04/18 19:54	CMM	TAL CF
Total/NA	Prep	3510C			214036	08/30/18 12:03	ACJ	TAL CF
Total/NA	Analysis	OA-2		1	214161	08/31/18 15:48	DLK	TAL CF

### Client Sample ID: MW9

Date Collected: 08/27/18 13:40

Date Received: 08/28/18 17:15

### Lab Sample ID: 310-137918-5

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	OA-1 (GC)		1	214470	09/05/18 02:09	CMM	TAL CF
Total/NA	Prep	3510C			214036	08/30/18 12:03	ACJ	TAL CF
Total/NA	Analysis	OA-2		1	214161	08/31/18 16:03	DLK	TAL CF

TestAmerica Cedar Falls



## Lab Chronicle

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

### Client Sample ID: MW3

Date Collected: 08/27/18 13:55

Date Received: 08/28/18 17:15

### Lab Sample ID: 310-137918-6

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	OA-1 (GC)		1	214470	09/04/18 21:50	CMM	TAL CF
Total/NA	Prep	3510C			214036	08/30/18 12:03	ACJ	TAL CF
Total/NA	Analysis	OA-2		1	214161	08/31/18 16:18	DLK	TAL CF

### Client Sample ID: MW4

Date Collected: 08/27/18 14:15

Date Received: 08/28/18 17:15

### Lab Sample ID: 310-137918-7

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	OA-1 (GC)		1	214470	09/05/18 02:37	CMM	TAL CF
Total/NA	Prep	3510C			214036	08/30/18 12:03	ACJ	TAL CF
Total/NA	Analysis	OA-2		1	214161	08/31/18 16:33	DLK	TAL CF

### Client Sample ID: MW11

Date Collected: 08/27/18 14:35

Date Received: 08/28/18 17:15

### Lab Sample ID: 310-137918-8

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	OA-1 (GC)		1	214587	09/05/18 14:33	CMM	TAL CF
Total/NA	Prep	3510C			214036	08/30/18 12:03	ACJ	TAL CF
Total/NA	Analysis	OA-2		1	214161	08/31/18 16:48	DLK	TAL CF
Total/NA	Prep	3510C			214036	08/30/18 12:03	ACJ	TAL CF
Total/NA	Analysis	OA-2		5	214608	09/06/18 03:27	DLK	TAL CF

### Client Sample ID: RMW6A

Date Collected: 08/27/18 14:50

Date Received: 08/28/18 17:15

### Lab Sample ID: 310-137918-9

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	OA-1 (GC)		1	214587	09/05/18 23:44	CMM	TAL CF
Total/NA	Prep	3510C			214036	08/30/18 12:03	ACJ	TAL CF
Total/NA	Analysis	OA-2		1	214161	08/31/18 17:03	DLK	TAL CF

### Client Sample ID: MW2

Date Collected: 08/27/18 15:15

Date Received: 08/28/18 17:15

### Lab Sample ID: 310-137918-10

Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	OA-1 (GC)		5	214587	09/05/18 21:49	CMM	TAL CF
Total/NA	Prep	3510C			214036	08/30/18 12:03	ACJ	TAL CF
Total/NA	Analysis	OA-2		1	214161	08/31/18 17:18	DLK	TAL CF
Total/NA	Prep	3510C			214036	08/30/18 12:03	ACJ	TAL CF

TestAmerica Cedar Falls



## Lab Chronicle

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

**Client Sample ID: MW2**

**Date Collected: 08/27/18 15:15**

**Date Received: 08/28/18 17:15**

**Lab Sample ID: 310-137918-10**

**Matrix: Ground Water**

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	OA-2		30	214608	09/06/18 03:42	DLK	TAL CF

**Laboratory References:**

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401



## Accreditation/Certification Summary

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

### Laboratory: TestAmerica Cedar Falls

The accreditations/certifications listed below are applicable to this report.

Authority	Program	EPA Region	Identification Number	Expiration Date
Iowa	State Program	7	007	12-01-19



## Method Summary

Client: Seneca Companies  
Project/Site: Arcadia Limestone

TestAmerica Job ID: 310-137918-1  
SDG: 6243301

Method	Method Description	Protocol	Laboratory
OA-1 (GC)	Volatile Petroleum Hydrocarbons (GC)	Iowa DNR	TAL CF
OA-2	Iowa - Extractable Petroleum Hydrocarbons (GC)	Iowa DNR	TAL CF
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	TAL CF
5030B	Purge and Trap	SW846	TAL CF

### Protocol References:

Iowa DNR = Iowa Department of Natural Resources

SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

### Laboratory References:

TAL CF = TestAmerica Cedar Falls, 704 Enterprise Drive, Cedar Falls, IA 50613, TEL (319)277-2401





310-137918 Chain of Custody

## Cooler/Sample Receipt and Temperature

<b>Client Information</b>	
Client: <u>Seneca Environmental</u>	
City/State: <u>Des Moines IA</u>	Project: <u>Arcadia Limestone</u>
<b>Receipt Information</b>	
Date/Time Received: <u>8/28/18 1715</u>	Received By: <u>LAB</u>
Delivery Type: <input type="checkbox"/> UPS <input type="checkbox"/> FedEx <input type="checkbox"/> FedEx Ground <input type="checkbox"/> US Mail <input type="checkbox"/> Spee-Dee <input checked="" type="checkbox"/> TA Courier <input type="checkbox"/> TA Field Services <input type="checkbox"/> Client Drop-off <input type="checkbox"/> Other: _____	
<b>Condition of Cooler/Containers</b>	
Sample(s) received in Cooler?	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No If yes: Cooler ID: _____
Multiple Coolers?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Cooler # _____ of _____
Cooler Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Cooler custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Sample Custody Seals Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Sample custody seals intact? <input type="checkbox"/> Yes <input type="checkbox"/> No
Trip Blank Present?	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No If yes: Which VOA samples are in cooler? ↓
<b>Temperature Record</b>	
Coolant: <input checked="" type="checkbox"/> Wet ice <input type="checkbox"/> Blue ice <input type="checkbox"/> Dry ice <input type="checkbox"/> Other: _____ <input type="checkbox"/> NONE	
Thermometer ID: <u>J</u>	Correction Factor (°C): <u>40.1</u>
• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature	
Uncorrected Temp (°C):	Corrected Temp (°C):
• Sample Container Temperature	
Container type(s) used: <u>Amber 250ml NT</u>	
Uncorrected Temp (°C): <u>4.6</u>	Corrected Temp (°C): <u>4.7</u>
<b>Exceptions Noted</b>	
1) If temperature exceeds criteria, was sample(s) received same day of sampling? <input type="checkbox"/> Yes <input type="checkbox"/> No a) If yes: Is there evidence that the chilling process began? <input type="checkbox"/> Yes <input type="checkbox"/> No	
2) If temperature is <0°C, are there obvious signs that the integrity of sample containers is compromised? (e.g., bulging septa, broken/cracked bottles, frozen solid?) <input type="checkbox"/> Yes <input type="checkbox"/> No	
NOTE: If yes, contact PM before proceeding. If no, proceed with login	
<b>Additional Comments</b>	



Phone: 319 - 277 - 2401 or 1 - 800 - 750 - 2401  
Fax: 319 - 277 - 2425

Your PO #:

Invoice To:

TA Quote #:

Project Name: ARCAD-A L<sub>2</sub> ME STAFF

Fax: 515-262-2469

Project Number: 6243301

Project Manager: JEN BAKER

Proj. Mgr. Telephone:

Proj. Mgr. E-mail:

**NOTE:** All turn around times are calculated from the time of receipt at TestAmerica.  
**NOTICE:** Pre-Arrangements must be made **AT LEAST 48 Hours in ADVANCE** to receive results with **RUSH** turn around time commitments; **additional charges** may be assessed.  
**NOTE:** There may be a charge assessed for TestAmerica disposing of sample remainders.

NOTES:

Date \_\_\_\_\_

Time

Received by:

Date \_\_\_\_\_

Time

Relinquished by:

Date \_\_\_\_\_

Time

Shipped Via:

Received for TestAmerica by:

Date \_\_\_\_\_

Time

Temperature Upon Receipt:

Laboratory Comments:

Shipped Via:



Phone: 319 - 277 - 2401 or 1 - 800 - 750 - 2401  
Fax: 319 - 277 - 2425

Your PO #:

Invoice To:

TA Quote #:

Project Name: ARCADIA LIMESTONE

Fax: 515-262-2469

Project Number: 6243301

Project Manager: JEN BAKEN

(Signature)

Proj. Mgr. Telephone:

Proj. Mgr. E-mail:

**NOTE:** All turn around times are calculated from the time of receipt at TestAmerica.  
**NOTICE:** Pre-Arrangements must be made **AT LEAST 48 Hours in ADVANCE** to receive results with RUSH turn around time commitments: **additional charges** may be assessed.  
**NOTE:** There may be a charge assessed for TestAmerica disposing of sample remainders.

NOTES:

Relinquished by:

Date \_\_\_\_\_

Time

Received by:

Date \_\_\_\_\_

Time

Relinquished by:

Date \_\_\_\_\_

Time

Shipped Via:

Received for TestAmerica by:

Date \_\_\_\_\_

Time

Comments:

Temperature Upon Receipt:

Shipped Via:

| Shipped Via:

Page 31 of 32



## Login Sample Receipt Checklist

Client: Seneca Companies

Job Number: 310-137918-1

SDG Number: 6243301

Login Number: 137918

List Number: 1

Creator: Homolar, Dana J

List Source: TestAmerica Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is $\leq$ background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	N/A	
Sample custody seals, if present, are intact.	N/A	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	True	
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	False	Refer to Job Narrative for details.
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	



## ANALYTICAL REPORT

Job Number: 310-137918-1  
SDG Number: 6243301  
Job Description: Arcadia Limestone

For:  
Seneca Companies  
PO BOX 3360  
Des Moines, IA 50316  
Attention: Jennifer Baker



Approved for release:  
Angela C Muehling  
Project Manager I  
9/7/2018 1:25 PM

---

Angela C Muehling, Project Manager I  
704 Enterprise Drive, Cedar Falls, IA, 50613  
angela.muehling@testamericainc.com  
09/07/2018



# Table of Contents

Cover Title Page .....	1
GC VOA .....	3
Method OA1 .....	3
Method OA1 Sample Data .....	4
Method OA1 CCAL Data .....	6
GC Semi VOA .....	12
Method OA2 .....	12
Method OA2 Sample Data .....	13
Method OA2 CCAL Data .....	15



# Method OA1

---

Volatile Petroleum Hydrocarbons (GC)  
by Method OA1



TestAmerica Cedar Falls  
Target Compound Quantitation Report

Data File: \\ChromNA\CedarFalls\ChromData\Saffron\20180905-46623.b\S0257680.D  
 Lims ID: 310-137918-B-10  
 Client ID: MW2  
 Sample Type: Client  
 Inject. Date: 05-Sep-2018 21:49:10 ALS Bottle#: 0 Worklist Smp#: 22  
 Purge Vol: 5.000 mL Dil. Factor: 5.0000  
 Sample Info: 310-0046623-022  
 Misc. Info.: 9-05-18 H2O  
 Operator ID: cmm Instrument ID: Saffron  
 Method: \\ChromNA\CedarFalls\ChromData\Saffron\20180905-46623.b\SaffronWater.m  
 Limit Group: GCV OA1 ICAL  
 Last Update: 07-Sep-2018 10:26:05 Calib Date: 16-Jul-2018 21:17:33  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\CedarFalls\ChromData\Saffron\20180716-45642.b\S0256670.D  
 Column 1 : Det: GC ELC2B  
 Column 2 : Det: GC FID1A  
 Process Host: XAWRK010

First Level Reviewer: meyerch

Date:

07-Sep-2018 10:17:25

Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/l	Flags
-----	--------------	------------------	------------------	----------	-------------------	-------

3 Benzene						M
1	5.154	5.160	-0.006	8975	0.8276	M
6 Toluene						M
1	6.412	6.411	0.001	2061	-0.0885	M
12 Ethylbenzene						M
1	7.546	7.548	-0.002	51604	6.08	M
2 m-Xylene & p-Xylene						M
1	7.727	7.725	0.002	31317	2.64	M
4 o-Xylene						M
1	8.101	8.105	-0.004	6617	0.4188	M
\$ 14 4-Bromofluorobenzene (Surr)						M
1	8.528	8.530	-0.002	222297	20.9	M
S 15 Xylenes, Total						
1					3.06	

**QC Flag Legend**

Review Flags

M - Manually Integrated

**Reagents:**

GV\_I\_BFB11\_00062

Amount Added: 1.00

Units: uL

Run Reagent



Report Date: 07-Sep-2018 10:27:32

Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Cedar Falls

Data File: \\ChromNA\CedarFalls\ChromData\Saffron\20180905-46623.b\S0257680.D

Injection Date: 05-Sep-2018 21:49:10

Instrument ID: Saffron

Operator ID: cmm

Lims ID: 310-137918-B-10

Lab Sample ID: 310-137918-10

Worklist Smp#: 22

Client ID: MW2

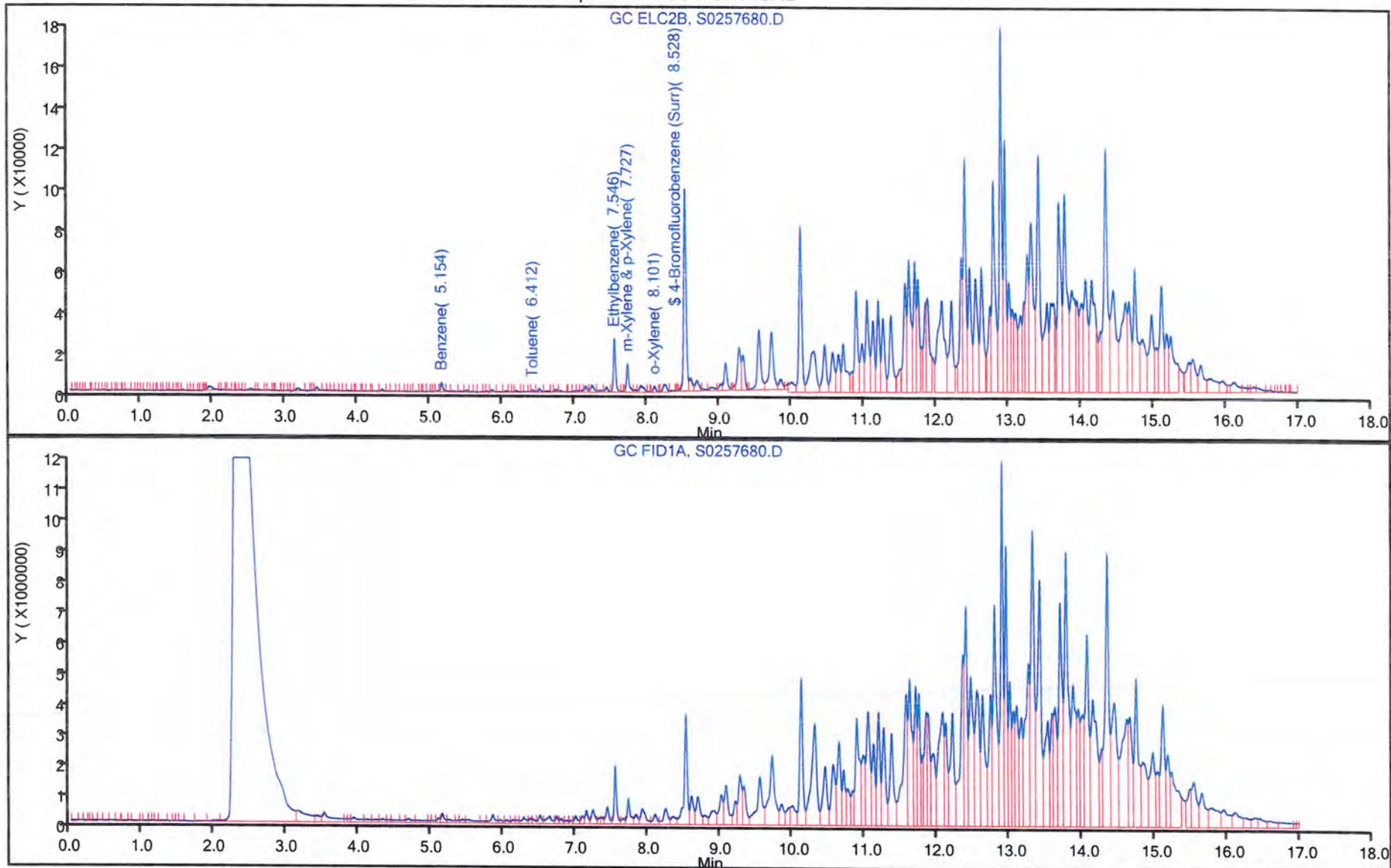
Purge Vol: 5.000 mL

Dil. Factor: 5.0000

ALS Bottle#: 0

Method: SaffronWater

Limit Group: GCV OA1 ICAL





TestAmerica Cedar Falls  
Target Compound Quantitation Report

Data File: \\ChromNA\CedarFalls\ChromData\Saffron\20180905-46623.b\S0257660.D  
 Lims ID: ccv  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 05-Sep-2018 11:55:11 ALS Bottle#: 0 Worklist Smp#: 2  
 Purge Vol: 5.000 mL Dil. Factor: 1.0000  
 Sample Info: 310-0046623-002  
 Misc. Info.: 9-05-18 H2O  
 Operator ID: cmm Instrument ID: Saffron  
 Sublist: chrom-SaffronWater\*sub1  
 Method: \\ChromNA\CedarFalls\ChromData\Saffron\20180905-46623.b\SaffronWater.m  
 Limit Group: GCV OA1 ICAL  
 Last Update: 06-Sep-2018 16:11:33 Calib Date: 16-Jul-2018 21:17:33  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\CedarFalls\ChromData\Saffron\20180716-45642.b\S0256670.D  
 Column 1: Det: GC ELC2B  
 Column 2: Det: GC FID1A  
 Process Host: XAWRK026

First Level Reviewer: meyerch

Date:

06-Sep-2018 16:06:12

Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
-----	--------------	------------------	------------------	----------	-----------------	-------------------	-------

11 Methyl tert-butyl ether							M
1	4.003	4.003	0.000	186977	40.0	41.9	M
2	4.003	4.003	0.000	21513059			
3 Benzene							M
1	5.160	5.160	0.000	411254	40.0	37.9	M
6 Toluene							M
1	6.411	6.411	0.000	384783	40.0	38.6	M
12 Ethylbenzene							M
1	7.548	7.548	0.000	325183	40.0	39.5	M
2 m-Xylene & p-Xylene							M
1	7.725	7.725	0.000	758036	80.0	83.3	M
4 o-Xylene							M
1	8.105	8.105	0.000	329876	40.0	41.0	M
\$ 14 4-Bromofluorobenzene (Surr)							M
1	8.530	8.530	0.000	209043	20.0	19.7	M
A 1 C6-C10 WI							
2	8.742	(3.903-13.536)		250303535	NC	NC	
9 1,3,5-Trimethylbenzene							M
1	9.559	9.559	0.000	364939	NC	NC	M
5 1,2,4-Trimethylbenzene							M
1	10.133	10.133	0.000	293033	NC	NC	M
8 Naphthalene							M
1	13.436	13.436	0.000	297519	NC	NC	M
2	13.437	13.436	0.001	13623810			
S 15 Xylenes, Total							
1					120.0	124.3	



QC Flag Legend

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

Reagents:

GV_I_WI CCV40_00044	Amount Added: 50.00	Units: uL	
GV_I_BFB11_00062	Amount Added: 1.00	Units: uL	Run Reagent



Report Date: 06-Sep-2018 16:11:34

Chrom Revision: 2.3 19-Jul-2018 15:14:50

Data File: \\ChromNA\CedarFalls\ChromData\Saffron\20180905-46623.b\S0257660.D  
Injection Date: 05-Sep-2018 11:55:11

Instrument ID: Saffron

Operator ID: cmm

Lims ID: ccv

Worklist Smp#: 2

Client ID:

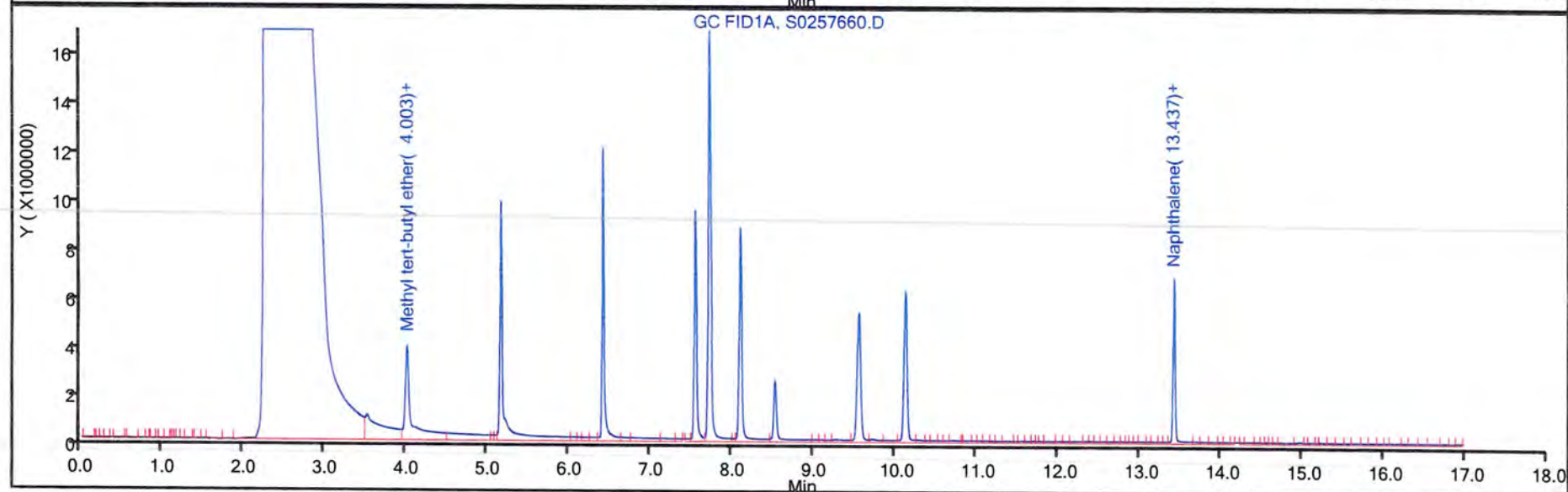
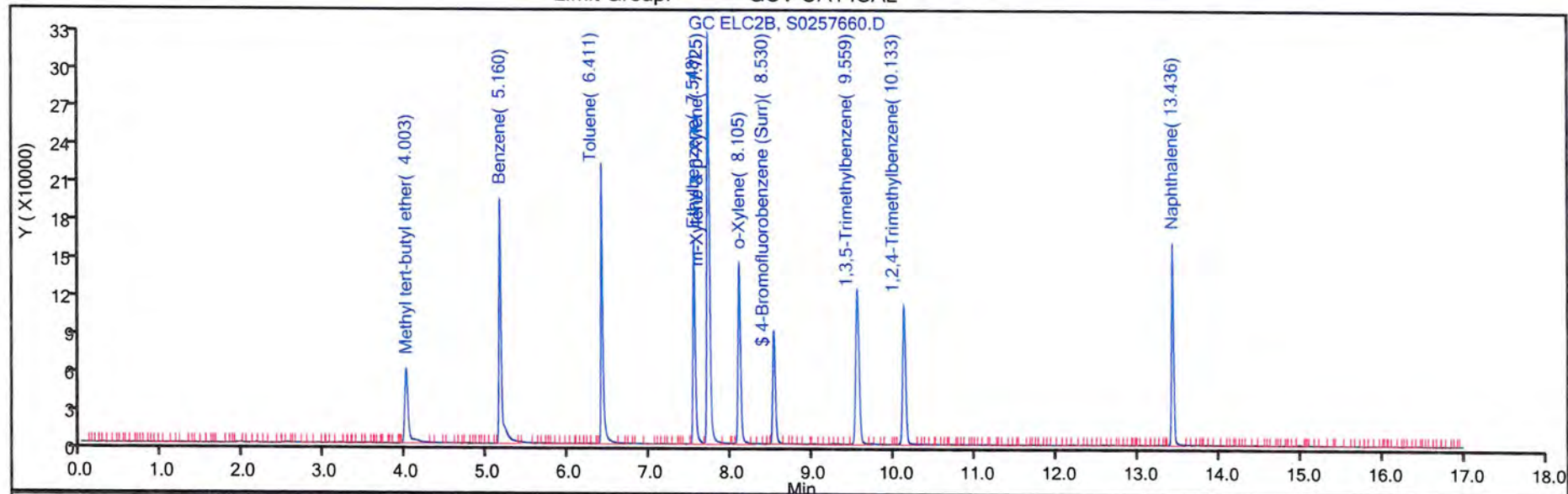
Purge Vol: 5.000 mL

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: SaffronWater

Limit Group: GCV OA1 ICAL





TestAmerica Cedar Falls  
Target Compound Quantitation Report

Data File: \\ChromNA\CedarFalls\ChromData\Saffron\20180905-46623.b\S0257689.D  
 Lims ID: ccv  
 Client ID:  
 Sample Type: CCV  
 Inject. Date: 06-Sep-2018 02:07:10 ALS Bottle#: 0 Worklist Smp#: 31  
 Purge Vol: 5.000 mL Dil. Factor: 1.0000  
 Sample Info: 310-0046623-031  
 Operator ID: cmm Instrument ID: Saffron  
 Sublist: chrom-SaffronWater\*sub1  
 Method: \\ChromNA\CedarFalls\ChromData\Saffron\20180905-46623.b\SaffronWater.m  
 Limit Group: GCV OA1 ICAL  
 Last Update: 06-Sep-2018 16:11:48 Calib Date: 16-Jul-2018 21:17:33  
 Integrator: Falcon  
 Quant Method: External Standard Quant By: Initial Calibration  
 Last ICal File: \\ChromNA\CedarFalls\ChromData\Saffron\20180716-45642.b\S0256670.D  
 Column 1 : Det: GC ELC2B  
 Column 2 : Det: GC FID1A  
 Process Host: XAWRK026

First Level Reviewer: meyerch

Date:

06-Sep-2018 16:11:16

Det	RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/l	OnCol Amt ug/l	Flags
-----	--------------	------------------	------------------	----------	-----------------	-------------------	-------

11 Methyl tert-butyl ether							M
1	3.994	4.003	-0.009	139338	40.0	31.2	M
2	3.994	4.003	-0.009	10749743			
3 Benzene							M
1	5.157	5.160	-0.003	391958	40.0	36.1	M
6 Toluene							M
1	6.411	6.411	0.000	372812	40.0	37.4	M
12 Ethylbenzene							M
1	7.548	7.548	0.000	328536	40.0	39.9	M
2 m-Xylene & p-Xylene							M
1	7.725	7.725	0.000	755840	80.0	83.0	M
4 o-Xylene							M
1	8.103	8.105	-0.002	327063	40.0	40.7	M
\$ 14 4-Bromofluorobenzene (Surr)							M
1	8.530	8.530	0.000	206562	20.0	19.4	M
A 1 C6-C10 WI							
2	8.708	(3.903-13.536)		237943695	NC	NC	
9 1,3,5-Trimethylbenzene							M
1	9.557	9.559	-0.002	351783	NC	NC	M
5 1,2,4-Trimethylbenzene							M
1	10.131	10.133	-0.002	286534	NC	NC	M
8 Naphthalene							M
1	13.434	13.436	-0.002	256110	NC	NC	M
2	13.435	13.436	-0.001	11124383			
S 15 Xylenes, Total							
1					120.0	123.7	



Report Date: 06-Sep-2018 16:11:48

Chrom Revision: 2.3 19-Jul-2018 15:14:50

**QC Flag Legend**

Processing Flags

NC - Not Calibrated

Review Flags

M - Manually Integrated

**Reagents:**

GV\_I\_WI CCV40\_00044

Amount Added: 50.00

Units: uL

GV\_I\_BFB11\_00062

Amount Added: 1.00

Units: uL

Run Reagent



Report Date: 06-Sep-2018 16:11:48

Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Cedar Falls

Data File: \\ChromNA\CedarFalls\ChromData\Saffron\20180905-46623.b\S0257689.D

Injection Date: 06-Sep-2018 02:07:10

Instrument ID: Saffron

Operator ID: cmm

Lims ID: ccv

Worklist Smp#: 31

Client ID:

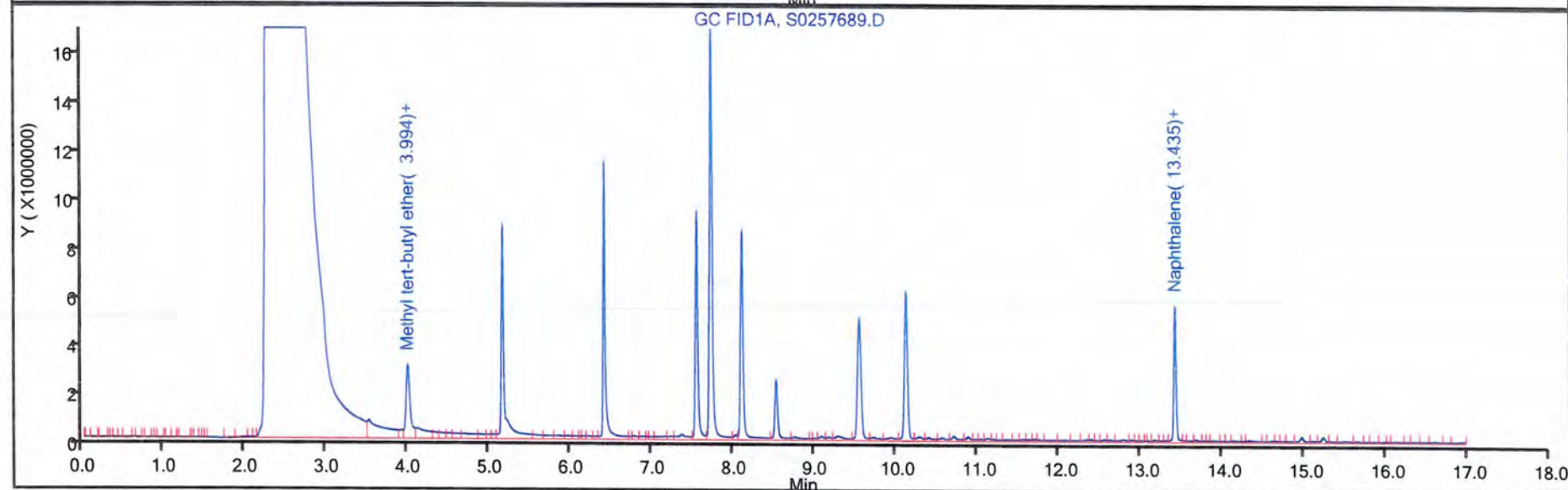
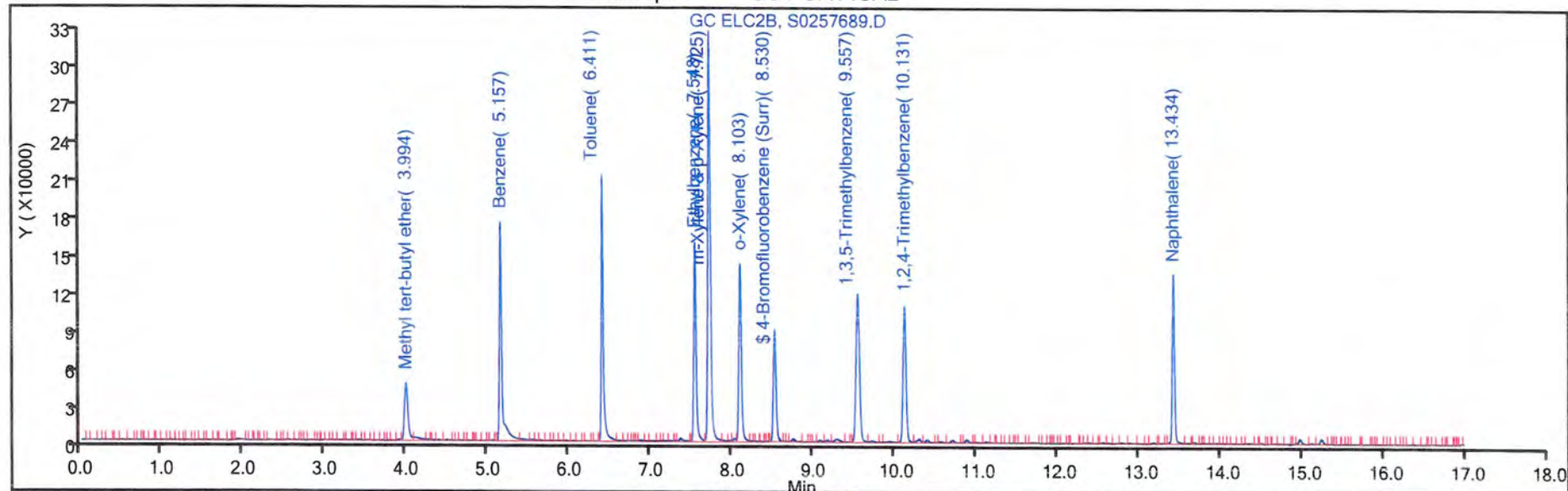
Purge Vol: 5.000 mL

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: SaffronWater

Limit Group: GCV OA1 ICAL





# Method OA2

---

Iowa - Extractable Petroleum  
Hydrocarbons (GC) by Method OA2



TestAmerica Cedar Falls  
Target Compound Quantitation Report

Data File: \\chromna\cedarfalls\ChromData\Ivy-R\20180905-46624.b\090518\_IVYREAR\_057dat-Back Signal.d  
Lims ID: 310-137918-A-10-A  
Client ID: MW2  
Sample Type: Client  
Inject. Date: 06-Sep-2018 03:42:00 ALS Bottle#: 0 Worklist Smp#: 57  
Injection Vol: 1.0 uL Dil. Factor: 30.0000  
Sample Info: 0046624-057  
Misc. Info.: 0046624-057  
Operator ID: System Instrument ID: Ivy-R  
Method: \\chromna\cedarfalls\ChromData\Ivy-R\20180905-46624.b\IvyRear.m  
Limit Group: GC OA2 ICAL  
Last Update: 06-Sep-2018 08:23:12 Calib Date: 01-Aug-2018 15:59:00  
Integrator: Falcon  
Quant Method: External Standard Quant By: Initial Calibration  
Last ICal File: \\ChromNA\cedarfalls\ChromData\Ivy-R\20180801-45968.b\08118\_IVYREAR\_020dat-Back Signal.d  
Column 1 : Det: 060815\_BATMANBACK\_002dat-BatmanBack  
Process Host: XAWRK035

First Level Reviewer: klinkenbergd

Date:

06-Sep-2018 08:22:32

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	OnCol Amt ug/ml	Flags
--------------	------------------	------------------	----------	--------------------	-------

A 1 Diesel

2.777 (1.200-4.354) 474406752 11873

\$ 11 n-Octacosane

4.122 4.119 0.003 2499 0.0672



Report Date: 06-Sep-2018 08:23:37

Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Cedar Falls

Data File: \\chromna\cedarfalls\ChromData\Ivy-R\20180905-46624.b\090518\_IVYREAR\_057dat-Back Signal.d

Injection Date: 06-Sep-2018 03:42:00

Instrument ID: Ivy-R

Operator ID: System

Lims ID: 310-137918-A-10-A

Lab Sample ID: 310-137918-10

Worklist Smp#: 57

Client ID: MW2

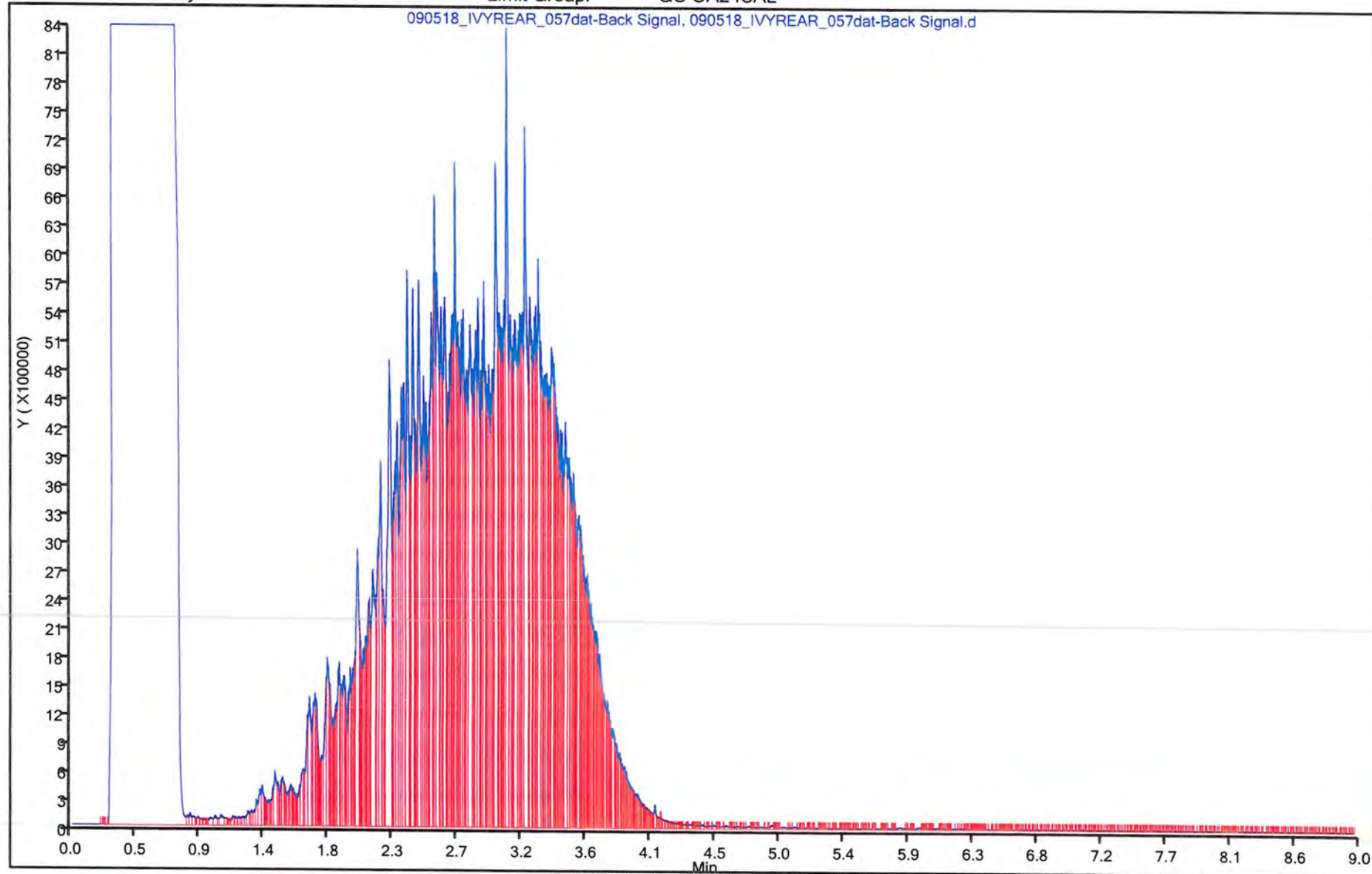
Injection Vol: 1.0 uL

Dil. Factor: 30.0000

ALS Bottle#: 0

Method: IvyRear

Limit Group: GC OA2 ICAL





TestAmerica Cedar Falls  
Target Compound Quantitation Report

Data File: \\chromna\cedarfalls\ChromData\Ivy-R\20180905-46624.b\090518\_IVYREAR\_005dat-Back Signal.d  
Lims ID: CCV  
Client ID:  
Sample Type: CCV  
Inject. Date: 05-Sep-2018 09:01:00 ALS Bottle#: 0 Worklist Smp#: 5  
Injection Vol: 1.0 uL Dil. Factor: 1.0000  
Sample Info: CCV D  
Misc. Info.: CCV D  
Operator ID: System Instrument ID: Ivy-R  
Sublist: chrom-IvyRear\*sub2

Method: \\chromna\cedarfalls\ChromData\Ivy-R\20180905-46624.b\IvyRear.m  
Limit Group: GC OA2 ICAL  
Last Update: 06-Sep-2018 14:01:20 Calib Date: 01-Aug-2018 15:59:00  
Integrator: Falcon  
Quant Method: External Standard Quant By: Initial Calibration  
Last ICal File: \\ChromNA\cedarfalls\ChromData\Ivy-R\20180801-45968.b\08118\_IVYREAR\_020dat-Back Signal.d

Column 1 : Det: 060815\_BATMANBACK\_002dat-BatmanBack  
Process Host: XAWRK035

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
--------------	------------------	------------------	----------	------------------	--------------------	-------

A 1 Diesel  
2.777 (1.200-4.354) 215281139 5000.0 5358.4

A 7 Total Extractable Hydrocarbons  
4.450 (0.900-8.000) 222420751 5000.0 5351.9

**Reagents:**

GE\_I\_DIESEL\_00036 Amount Added: 1.00 Units: mL



Report Date: 06-Sep-2018 14:01:21

Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Cedar Falls

Data File: \\chromna\cedarfalls\ChromData\Ivy-R\20180905-46624.b\090518\_IVYREAR\_005dat-Back Signal.d

Injection Date: 05-Sep-2018 09:01:00

Instrument ID: Ivy-R

Operator ID: System

Lims ID: CCV

Worklist Smp#: 5

Client ID:

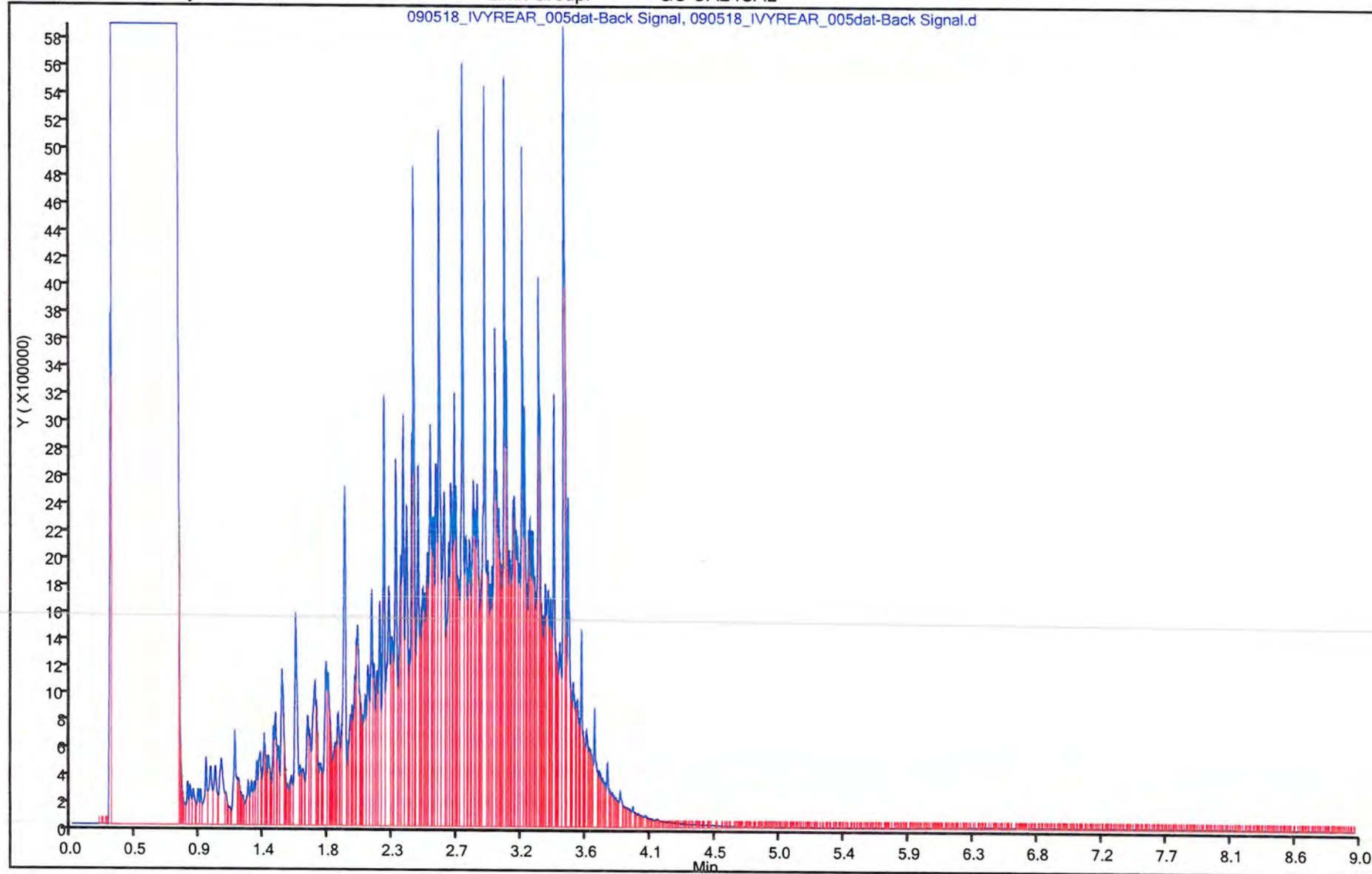
Injection Vol: 1.0 uL

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: IvyRear

Limit Group: GC OA2 ICAL





TestAmerica Cedar Falls  
Target Compound Quantitation Report

Data File: \\chromna\cedarfalls\ChromData\Ivy-R\20180906-46633.b\090618\_IVYREAR\_004dat-Back Signal.d  
Lims ID: CCV  
Client ID:  
Sample Type: CCV  
Inject. Date: 06-Sep-2018 07:55:00 ALS Bottle#: 0 Worklist Smp#: 4  
Injection Vol: 1.0 uL Dil. Factor: 1.0000  
Sample Info: 310-0046632-003  
Misc. Info.: 310-0046632-003  
Operator ID: System Instrument ID: Ivy-R  
Sublist: chrom-IvyRear\*sub2

Method: \\chromna\cedarfalls\ChromData\Ivy-R\20180906-46633.b\IvyRear.m  
Limit Group: GC OA2 ICAL  
Last Update: 06-Sep-2018 13:45:14 Calib Date: 01-Aug-2018 15:59:00  
Integrator: Falcon  
Quant Method: External Standard Quant By: Initial Calibration  
Last ICal File: \\ChromNA\cedarfalls\ChromData\Ivy-R\20180801-45968.b\08118\_IVYREAR\_020dat-Back Signal.d

Column 1 : Det: 060815\_BATMANBACK\_002dat-BatmanBack  
Process Host: XAWRK035

RT (min.)	Exp RT (min.)	Dlt RT (min.)	Response	Cal Amt ug/ml	OnCol Amt ug/ml	Flags
--------------	------------------	------------------	----------	------------------	--------------------	-------

A 1 Diesel  
2.777 (1.200-4.354) 215152626 5000.0 5355.2  
A 7 Total Extractable Hydrocarbons  
4.450 (0.900-8.000) 222300014 5000.0 5348.9

**Reagents:**

GE\_I\_DIESEL\_00036 Amount Added: 1.00 Units: mL



Report Date: 06-Sep-2018 13:45:15

Chrom Revision: 2.3 19-Jul-2018 15:14:50

TestAmerica Cedar Falls

Data File: \\chromna\cedarfalls\ChromData\Ivy-R\20180906-46633.b\090618\_IVYREAR\_004dat-Back Signal.d

Injection Date: 06-Sep-2018 07:55:00

Instrument ID: Ivy-R

Operator ID: System

Lims ID: CCV

Worklist Smp#: 4

Client ID:

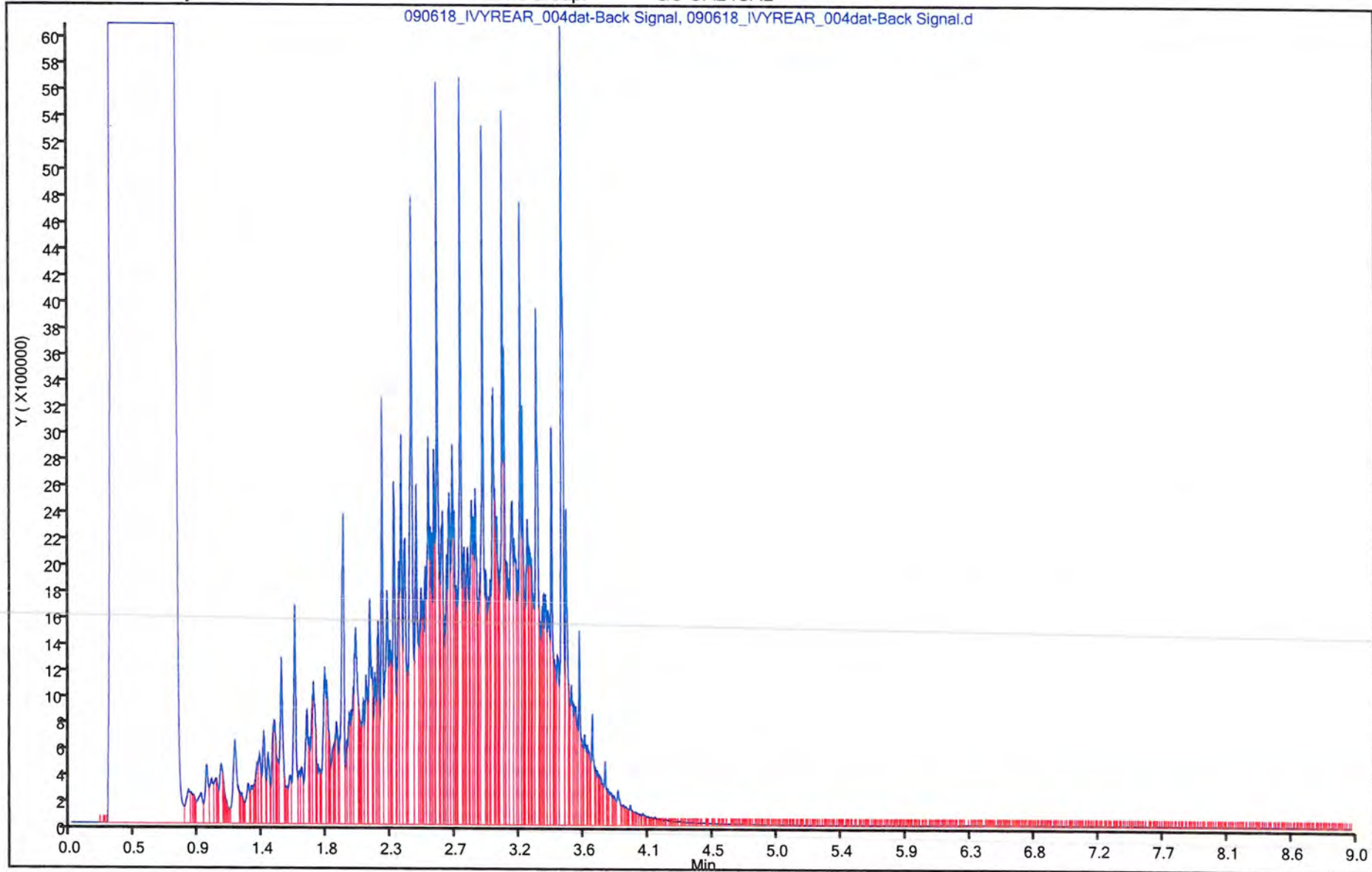
Injection Vol: 1.0 uL

Dil. Factor: 1.0000

ALS Bottle#: 0

Method: IvyRear

Limit Group: GC OA2 ICAL





**Arcadia Limestone  
19011 Crystal Avenue  
Arcadia, IA  
Site Monitoring Report**

**Appendix 12  
Documentation**



## Groundwater Professional Summary Statement

Subject: Environmental Covenant for 19011 Crystal Avenue, Arcadia, IA  
IDNR Spill# 051603-AHB-1116

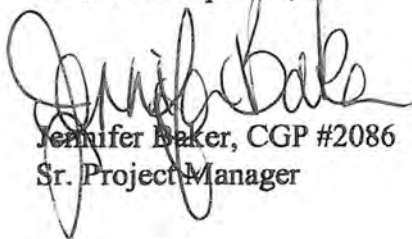
Seneca Companies, Inc. is seeking to establish a restrictive environmental covenant to be placed on the deed of the above referenced property. This restrictive environmental covenant will limit the potential risk posed by contamination at the site with the following use restrictions:

The property may not be redeveloped as a residential area. "Residential area" means land used as a permanent residence or domicile, such as a house, apartment, nursing home, school, child care facility or prison, land zoned for such uses, or land where no zoning is in place as defined by 567 IAC 135 (and as subsequently revised).

No drinking water or non-drinking water wells as defined in Iowa Department of Natural Resources Rule 567 Iowa Administrative Code 135.2 and as subsequently amended shall be installed within the boundaries of the property. For purposes of reference, drinking water well means, "Any groundwater well used as a source for drinking water by humans and groundwater wells used primarily for the final production of food or medicine for human consumption in facilities routinely characterized with the Standard Industrial Codes (SIC) group 283 for drugs and 20 for foods (or the North American Industry Classification System (NAICS) Codes of 3254 for drugs and 311 for food)." Non-drinking water well means, "any groundwater well (except an extraction well used as part of a remediation system) not defined as a drinking water well including a groundwater well which is not properly plugged in accordance with department rules in 567-Chapters 39 and 49."

With these restrictions in place the site may be reclassified to No Risk.

Sincerely,  
Seneca Companies, Inc.



Jennifer Baker, CGP #2086  
Sr. Project Manager



• • •

• •

st  
n  
angles to  
el

Bovine and Swine, LLC

NONE

leases of record

NONE

NONE

WITNESS OUR HANDS this 1st day of October, 1914 at 10:00 A.M.  
at CARROLL, IN THE COUNTY OF CARROLL, AND STATE OF IOWA.

SECURITY TITLE &amp; INVESTMENT COMPANY

BY Wayne T. Harmening, President  
Mark W. Harmening, Vice President



INST NO: 2018-2409  
BK 2018 PG 2409 ✓  
RECORDED 9/04/2018 TIME 10:20 AM  
DOC TYPE WD PAGES 3  
FEE PAID \$22.00 REVENUE TAX \$263.20  
KATHY SCHWALLER, RECORDER  
CARROLL COUNTY IOWA



**WARRANTY DEED**  
(CORPORATE/BUSINESS ENTITY GRANTOR)  
THE IOWA STATE BAR ASSOCIATION  
Official Form No. 335  
Recorder's Cover Sheet

**Preparer Information:** (Name, address and phone number)  
Gregory J. Siemann, 801 N Adams Street, Carroll, IA 51401, (712) 792-2200

**Taxpayer Information:** (Name and complete address)  
Bovine and Swine, LLC, 19011 Crystal Avenue, Arcadia, IA 51430

**Return Document To:** (Name and complete address)  
Bovine and Swine, LLC, ~~19011 Crystal Avenue, Arcadia, IA 51430~~  
110 Dunlap street Arcadia, IA 51430

**Grantors:**  
Arcadia Limestone Co.

**Grantees:**  
Bovine and Swine, LLC

**Legal description:**  
**Document or instrument number of previously recorded documents:**

18-54





**WARRANTY DEED  
(CORPORATE/BUSINESS ENTITY GRANTOR)**

For the consideration of One Dollar(s) and other  
valuable consideration, Arcadia Limestone Co.  
For profit C-Corporation organized and existing under  
the laws of Iowa does hereby Convey to Bovine and Swine, LLC

the following described real estate in Carroll County, Iowa:  
Sec 1 in Addendum

The grantor hereby covenants with grantees, and successors in interest, that it holds the real estate by title in fee simple; that it has good and lawful authority to sell and convey the real estate; that the real estate is free and clear of all liens and encumbrances, except as may be above stated; and it covenants to Warrant and Defend the real estate against the lawful claims of all persons, except as may be above stated.

Words and phrases herein, including acknowledgment hereof, shall be construed as in the singular or plural number, according to the context.

Dated on August 31, 2018.

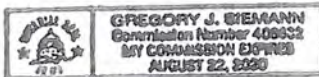
Arcadia Limestone Co., a(n) For profit C-Corporation

By Tracy A. Riesenberg  
Tracy A. Riesenberg, President

By \_\_\_\_\_

STATE OF IOWA, COUNTY OF CARROLL

This record was acknowledged before me on August 31, 2018, by Tracy A. Riesenberg  
as President  
of Arcadia Limestone Co.



Gregory J. Stemann  
Signature of Notary Public



## Addendum

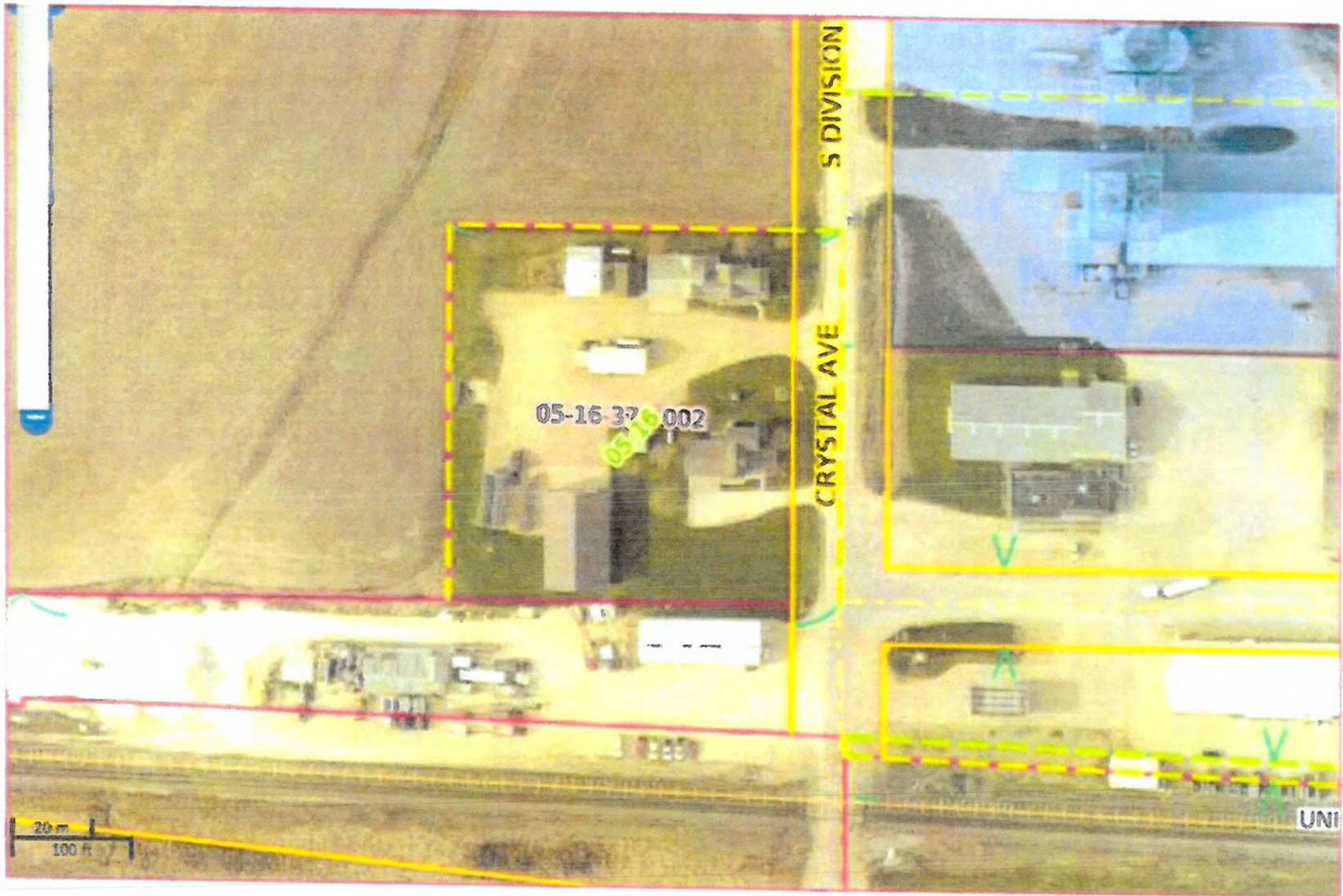
1. That part of the North Half of the Northwest Quarter (N1/2 NW1/4) of Section Twenty-one (21), Township Eighty-four (84) North, Range Thirty-six (36) West of the 5th P.M., Carroll County, Iowa, bounded and described as follows: Commencing at the Northeast (NE) corner of said Northwest Quarter (NW1/4) of Section Twenty-one (21); thence Westerly along the North line of said Northwest Quarter (NW1/4) a distance of 700 feet to the point of beginning of the parcel of land herein described; thence continuing Westerly along the North line of said Northwest Quarter (NW1/4) a distance of 1,200 feet; thence Southerly along a line at right angles to the last described course a distance of 55 feet, more or less, to a point distant 50 feet Northerly, measured at right angles, from the center line of the most Southerly or Westbound main track of the Chicago and North Western Railway Company, as with said main track is now located; thence Easterly along a line parallel with said main track center line a distance of 1,200 feet, more or less, to a point on a line drawn parallel with the East line of said Northwest Quarter (NW1/4), through the point of beginning; thence Northerly along said last described parallel line a distance of 95 feet, more or less, to the point of beginning, EXCEPTING THEREFROM that part, if any, lying Southerly of a line parallel with and distant 9 feet Northerly, measured radially, from the center line of Chicago and North Western Railway Company Spur Track I.C.C. #3, as said spur track is now located.

AND

That part of the Northeast Quarter of the Northwest Quarter (NE1/4 NW1/4) of Section Twenty-one (21), Township Eighty-four (84) North, Range Thirty-six (36) West of the 5th P.M., Carroll County, Iowa, lying Easterly of a line parallel with and distant 700 feet Westerly, measured along the North line of said quarter quarter section, from the East line thereof and lying Northerly of a line parallel with and distant 50 feet Northerly, measured at right angles, from the center line of the most Southerly or West bound main track of the Chicago and North Western Railway Company, as said main track is now located, EXCEPTING THEREFROM that part, if any, that lies Southerly of a line parallel with and distant 8.5 feet Northerly, measured at right angles or radially, from the center line of Chicago and North Western Railway Company Spur Track I.C.C. #3, as said spur track is not located.



# Plat Map





# Appendix D





## United States Department of the Interior



FISH AND WILDLIFE SERVICE  
Illinois-Iowa Ecological Services Field Office  
Illinois & Iowa Ecological Services Field Office  
1511 47th Ave  
Moline, IL 61265-7022  
Phone: (309) 757-5800 Fax: (309) 757-5807

In Reply Refer To:  
Project Code: 2022-0028777  
Project Name: City of Arcadia Water Improvements

June 29, 2022

Subject: List of threatened and endangered species that may occur in your proposed project location or may be affected by your proposed project

### To Whom It May Concern:

The enclosed species list identifies threatened, endangered, proposed and candidate species, as well as proposed and final designated critical habitat, that may occur within the boundary of your proposed project and/or may be affected by your proposed project. The species list fulfills the requirements of the U.S. Fish and Wildlife Service (Service) under section 7(c) of the Endangered Species Act (Act) of 1973, as amended (16 U.S.C. 1531 *et seq.*).

New information based on updated surveys, changes in the abundance and distribution of species, changed habitat conditions, or other factors could change this list. Please feel free to contact us if you need more current information or assistance regarding the potential impacts to federally proposed, listed, and candidate species and federally designated and proposed critical habitat. Please note that under 50 CFR 402.12(e) of the regulations implementing section 7 of the Act, the accuracy of this species list should be verified after 90 days. This verification can be completed formally or informally as desired. The Service recommends that verification be completed by visiting the ECOS-IPaC website at regular intervals during project planning and implementation for updates to species lists and information. An updated list may be requested through the ECOS-IPaC system by completing the same process used to receive the enclosed list.

The purpose of the Act is to provide a means whereby threatened and endangered species and the ecosystems upon which they depend may be conserved. Under sections 7(a)(1) and 7(a)(2) of the Act and its implementing regulations (50 CFR 402 *et seq.*), Federal agencies are required to utilize their authorities to carry out programs for the conservation of threatened and endangered species and to determine whether projects may affect threatened and endangered species and/or designated critical habitat.

A Biological Assessment is required for construction projects (or other undertakings having similar physical impacts) that are major Federal actions significantly affecting the quality of the human environment as defined in the National Environmental Policy Act (42 U.S.C. 4332(2))



(c)). For projects other than major construction activities, the Service suggests that a biological evaluation similar to a Biological Assessment be prepared to determine whether the project may affect listed or proposed species and/or designated or proposed critical habitat. Recommended contents of a Biological Assessment are described at 50 CFR 402.12.

If a Federal agency determines, based on the Biological Assessment or biological evaluation, that listed species and/or designated critical habitat may be affected by the proposed project, the agency is required to consult with the Service pursuant to 50 CFR 402. In addition, the Service recommends that candidate species, proposed species and proposed critical habitat be addressed within the consultation. More information on the regulations and procedures for section 7 consultation, including the role of permit or license applicants, can be found in the "Endangered Species Consultation Handbook" at:

<http://www.fws.gov/endangered/esa-library/pdf/TOC-GLOS.PDF>

**Migratory Birds:** In addition to responsibilities to protect threatened and endangered species under the Endangered Species Act (ESA), there are additional responsibilities under the Migratory Bird Treaty Act (MBTA) and the Bald and Golden Eagle Protection Act (BGEPA) to protect native birds from project-related impacts. Any activity, intentional or unintentional, resulting in take of migratory birds, including eagles, is prohibited unless otherwise permitted by the U.S. Fish and Wildlife Service (50 C.F.R. Sec. 10.12 and 16 U.S.C. Sec. 668(a)). For more information regarding these Acts see <https://www.fws.gov/birds/policies-and-regulations.php>.

The MBTA has no provision for allowing take of migratory birds that may be unintentionally killed or injured by otherwise lawful activities. It is the responsibility of the project proponent to comply with these Acts by identifying potential impacts to migratory birds and eagles within applicable NEPA documents (when there is a federal nexus) or a Bird/Eagle Conservation Plan (when there is no federal nexus). Proponents should implement conservation measures to avoid or minimize the production of project-related stressors or minimize the exposure of birds and their resources to the project-related stressors. For more information on avian stressors and recommended conservation measures see <https://www.fws.gov/birds/bird-enthusiasts/threats-to-birds.php>.

In addition to MBTA and BGEPA, Executive Order 13186: *Responsibilities of Federal Agencies to Protect Migratory Birds*, obligates all Federal agencies that engage in or authorize activities that might affect migratory birds, to minimize those effects and encourage conservation measures that will improve bird populations. Executive Order 13186 provides for the protection of both migratory birds and migratory bird habitat. For information regarding the implementation of Executive Order 13186, please visit <https://www.fws.gov/birds/policies-and-regulations/executive-orders/e0-13186.php>.

We appreciate your concern for threatened and endangered species. The Service encourages Federal agencies to include conservation of threatened and endangered species into their project planning to further the purposes of the Act. Please include the Consultation Code in the header of this letter with any request for consultation or correspondence about your project that you submit to our office.

---



Attachment(s):

- Official Species List
- USFWS National Wildlife Refuges and Fish Hatcheries
- Wetlands



## Official Species List

This list is provided pursuant to Section 7 of the Endangered Species Act, and fulfills the requirement for Federal agencies to "request of the Secretary of the Interior information whether any species which is listed or proposed to be listed may be present in the area of a proposed action".

This species list is provided by:

**Illinois-Iowa Ecological Services Field Office**

Illinois & Iowa Ecological Services Field Office

1511 47th Ave

Moline, IL 61265-7022

(309) 757-5800

---



## Project Summary

Project Code: 2022-0028777

Event Code: None

Project Name: City of Arcadia Water Improvements

Project Type: Water Supply Pipeline - New Constr - Below Ground

Project Description: The City of Arcadia is working to replace water lines within the community

Project Location:

Approximate location of the project can be viewed in Google Maps: <https://www.google.com/maps/@42.08621605,-95.04362298948155,14z>



Counties: Carroll County, Iowa

---



## Endangered Species Act Species

There is a total of 3 threatened, endangered, or candidate species on this species list.

Species on this list should be considered in an effects analysis for your project and could include species that exist in another geographic area. For example, certain fish may appear on the species list because a project could affect downstream species.

IPaC does not display listed species or critical habitats under the sole jurisdiction of NOAA Fisheries<sup>1</sup>, as USFWS does not have the authority to speak on behalf of NOAA and the Department of Commerce.

See the "Critical habitats" section below for those critical habitats that lie wholly or partially within your project area under this office's jurisdiction. Please contact the designated FWS office if you have questions.

- 
1. [NOAA Fisheries](#), also known as the National Marine Fisheries Service (NMFS), is an office of the National Oceanic and Atmospheric Administration within the Department of Commerce.

## Mammals

NAME	STATUS
Northern Long-eared Bat <i>Myotis septentrionalis</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9045">https://ecos.fws.gov/ecp/species/9045</a>	Threatened

## Insects

NAME	STATUS
Monarch Butterfly <i>Danaus plexippus</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/9743">https://ecos.fws.gov/ecp/species/9743</a>	Candidate

## Flowering Plants

NAME	STATUS
Western Prairie Fringed Orchid <i>Platanthera praeclara</i> No critical habitat has been designated for this species. Species profile: <a href="https://ecos.fws.gov/ecp/species/1669">https://ecos.fws.gov/ecp/species/1669</a>	Threatened

## Critical habitats

There is 1 critical habitat wholly or partially within your project area under this office's jurisdiction.

---



NAME	STATUS
<b>Topeka Shiner <i>Notropis topeka</i> (=tristis)</b> For information on why this critical habitat appears for your project, even though Topeka Shiner is not on the list of potentially affected species at this location, contact the local field office. <a href="https://ecos.fws.gov/ecp/species/4122#crithab">https://ecos.fws.gov/ecp/species/4122#crithab</a>	<b>Final</b>



# USFWS National Wildlife Refuge Lands And Fish Hatcheries

Any activity proposed on lands managed by the [National Wildlife Refuge](#) system must undergo a 'Compatibility Determination' conducted by the Refuge. Please contact the individual Refuges to discuss any questions or concerns.

THERE ARE NO REFUGE LANDS OR FISH HATCHERIES WITHIN YOUR PROJECT AREA.

---



# Wetlands

Impacts to [NWI wetlands](#) and other aquatic habitats may be subject to regulation under Section 404 of the Clean Water Act, or other State/Federal statutes.

For more information please contact the Regulatory Program of the local [U.S. Army Corps of Engineers District](#).

Please note that the NWI data being shown may be out of date. We are currently working to update our NWI data set. We recommend you verify these results with a site visit to determine the actual extent of wetlands on site.

## FRESHWATER EMERGENT WETLAND

- [Palustrine](#)

## RIVERINE

- [Riverine](#)
-



**IPaC User Contact Information**

Agency: Arcadia city  
Name: Lauren Mortensen  
Address: 1009 East Anthony Street  
Address Line 2: PO Box 768  
City: Carroll  
State: IA  
Zip: 51401  
Email: lmortensen@region12cog.org  
Phone: 7127929914

---





**FISH & WILDLIFE SERVICE**

**ENDANGERED SPECIES CONSULTATION**

**NO EFFECTS DETERMINATION**

A determination has been made that the project named below will have no effect on any federally listed species or their habitats.

This determination is based on upon one or more of the following factors: (check all that apply)

- ☐ The project involves no new construction activities
- ☒ The project involves the replacement, reconstruction or resurfacing of existing infrastructure components without disturbance of previously undisturbed soil
- ☐ The project involves the removal of blight through demolition with no storage or disposal of removed materials in or adjacent any listed species habitats
- ☐ The project involves the rehabilitation of existing buildings/facilities without a significant increase in capacity or change in use
- ☒ The project site is within an already developed area containing pavement, structures and/or regularly mowed or maintained grass or landscaped area and will not involve the removal of any native vegetation, including trees
- ☒ The project will not directly or indirectly effect any habitat area utilized by a listed endangered or threatened species

CDBG Project Name: City of Arcadia Water System Improvements 22-WS-015

Nature of Project: Water Line Replacement

Signature of Certifying Person: Rauren Mortensen

Date: 11-29-2022



# Appendix E

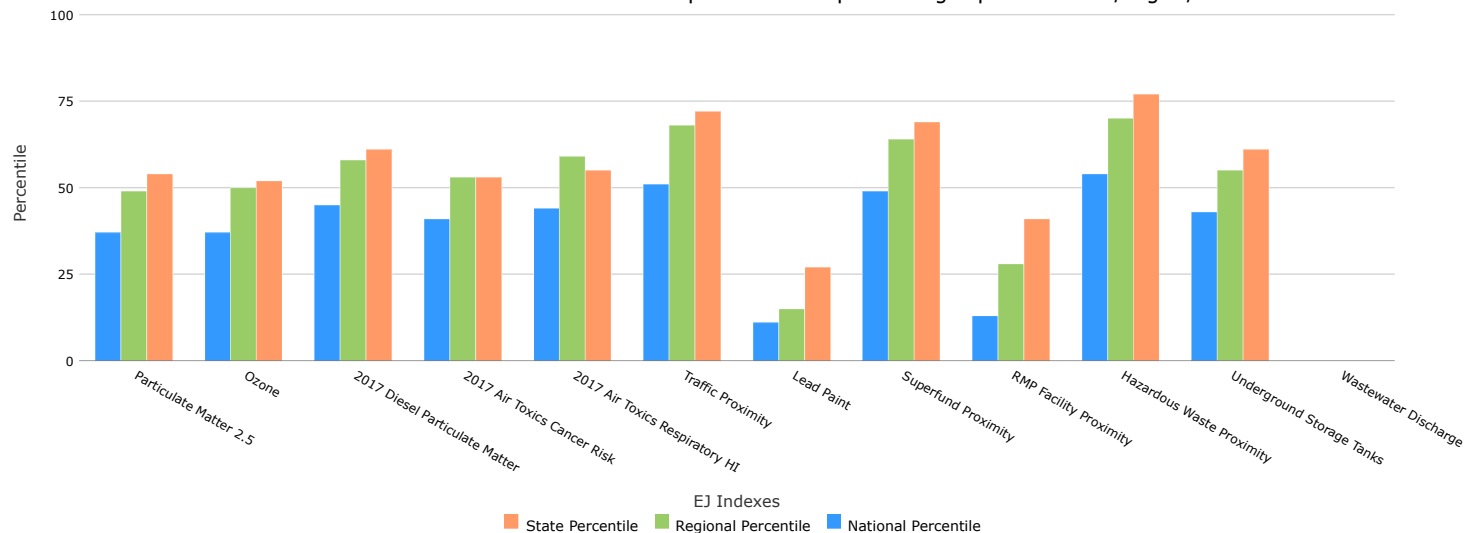




**EJScreen Report (Version 2.0)**  
**1 mile Ring Centered at 42.087076,-95.045471**  
**IOWA, EPA Region 7**  
**Approximate Population: 515**  
**Input Area (sq. miles): 3.14**

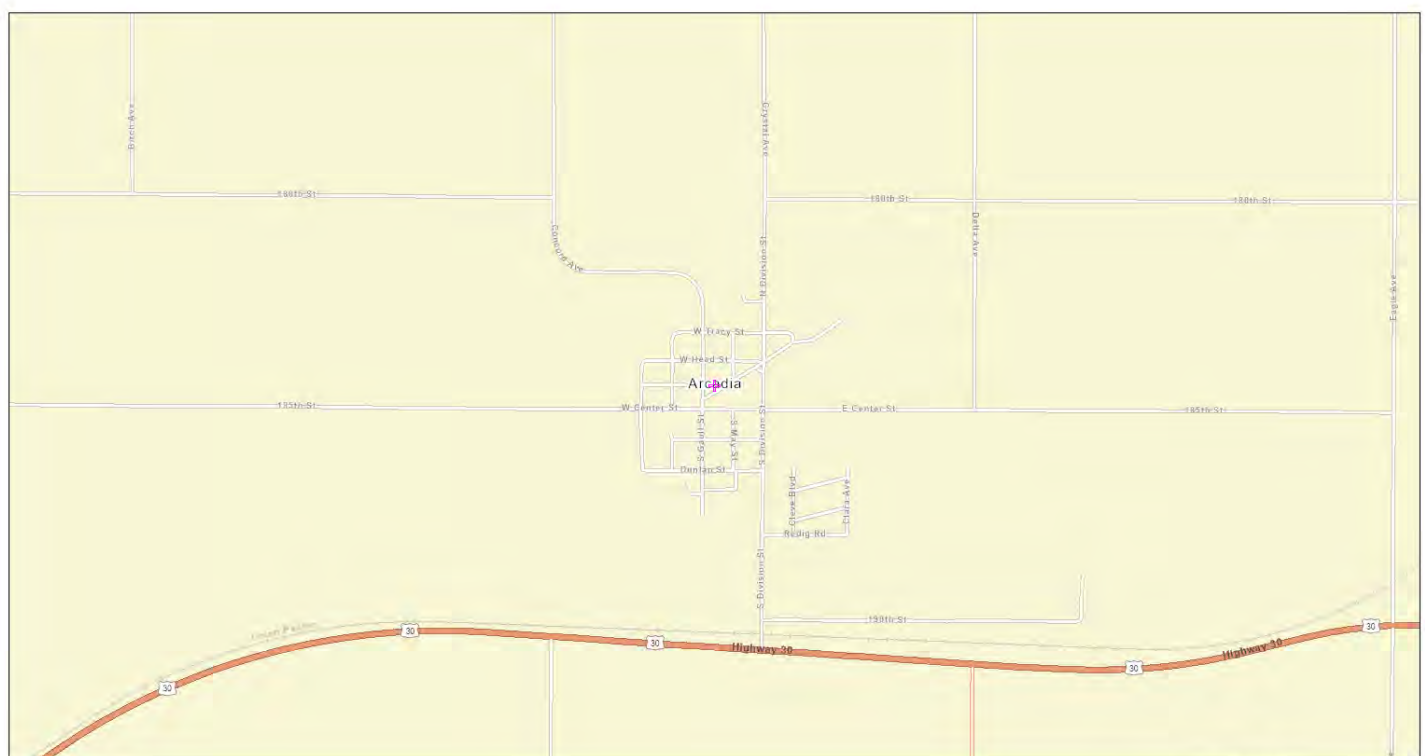
Selected Variables	Percentile in State	Percentile in EPA Region	Percentile in USA
<b>Environmental Justice Indexes</b>			
EJ Index for Particulate Matter 2.5	54	49	37
EJ Index for Ozone	52	50	37
EJ Index for 2017 Diesel Particulate Matter*	61	58	45
EJ Index for 2017 Air Toxics Cancer Risk*	53	53	41
EJ Index for 2017 Air Toxics Respiratory HI*	55	59	44
EJ Index for Traffic Proximity	72	68	51
EJ Index for Lead Paint	27	15	11
EJ Index for Superfund Proximity	69	64	49
EJ Index for RMP Facility Proximity	41	28	13
EJ Index for Hazardous Waste Proximity	77	70	54
EJ Index for Underground Storage Tanks	61	55	43
EJ Index for Wastewater Discharge	N/A	N/A	N/A

EJ Index for the Selected Area Compared to All People's Blockgroups in the State/Region/US



This report shows the values for environmental and demographic indicators and EJScreen indexes. It shows environmental and demographic raw data (e.g., the estimated concentration of ozone in the air), and also shows what percentile each raw data value represents. These percentiles provide perspective on how the selected block group or buffer area compares to the entire state, EPA region, or nation. For example, if a given location is at the 95th percentile nationwide, this means that only 5 percent of the US population has a higher block group value than the average person in the location being analyzed. The years for which the data are available, and the methods used, vary across these indicators. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports.

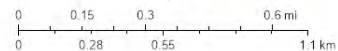




April 6, 2022

✚ Search Result (point)

1:18,056



Esri Community Maps Contributors, Iowa DNR, Esri Canada, Esri, HERE, Garmin, SafeGraph, GeoTechnologies, Inc, METI/NASA, USGS, EPA, NPS, US Census Bureau, USDA

Sites reporting to EPA	
Superfund NPL	0
Hazardous Waste Treatment, Storage, and Disposal Facilities (TSDF)	0

Selected Variables	Value	State		EPA Region		USA	
		Avg.	%tile	Avg.	%tile	Avg.	%tile
Pollution and Sources							
Particulate Matter 2.5 (µg/m³)	7.79	8.23	21	8.26	20	8.74	28
Ozone (ppb)	40.9	41.8	10	44.1	4	42.6	37
2017 Diesel Particulate Matter* (µg/m³)	0.0969	0.17	13	0.221	<50th	0.295	<50th
2017 Air Toxics Cancer Risk* (lifetime risk per million)	20	22	88	26	<50th	29	<50th
2017 Air Toxics Respiratory HI*	0.2	0.24	58	0.33	<50th	0.36	<50th
Traffic Proximity (daily traffic count/distance to road)	6.6	390	11	410	9	710	6
Lead Paint (% Pre-1960 Housing)	0.52	0.41	62	0.33	73	0.28	78
Superfund Proximity (site count/km distance)	0.013	0.11	8	0.1	11	0.13	8
RMP Facility Proximity (facility count/km distance)	0.9	1.2	53	0.95	64	0.75	73
Hazardous Waste Proximity (facility count/km distance)	0.025	0.45	2	1	4	2.2	2
Underground Storage Tanks (count/km²)	0.052	1.7	25	2.5	25	3.9	20
Wastewater Discharge (toxicity-weighted concentration/m distance)	N/A	0.21	N/A	2.9	N/A	12	N/A
Socioeconomic Indicators							
Demographic Index	12%	21%	29	25%	22	36%	13
People of Color	4%	14%	24	20%	16	40%	7
Low Income	21%	28%	38	30%	36	31%	38
Unemployment Rate	2%	4%	48	4%	44	5%	31
Linguistically Isolated	0%	2%	64	2%	65	5%	45
Less Than High School Education	7%	8%	55	9%	48	12%	39
Under Age 5	7%	6%	57	6%	57	6%	59
Over Age 64	17%	17%	52	16%	56	16%	61

\*Diesel particulate matter, air toxics cancer risk, and air toxics respiratory hazard index are from the EPA's 2017 Air Toxics Data Update, which is the Agency's ongoing, comprehensive evaluation of air toxics in the United States. This effort aims to prioritize air toxics, emission sources, and locations of interest for further study. It is important to remember that the air toxics data presented here provide broad estimates of health risks over geographic areas of the country, not definitive risks to specific individuals or locations. Cancer risks and hazard indices from the Air Toxics Data Update are reported to one significant figure and any additional significant figures here are due to rounding. More information on the Air Toxics Data Update can be found at: <https://www.epa.gov/haps/air-toxics-data-update>. (<https://www.epa.gov/haps/air-toxics-data-update>)



For additional information, see: [www.epa.gov/environmentaljustice](https://www.epa.gov/environmentaljustice) (<https://www.epa.gov/environmentaljustice>)

---

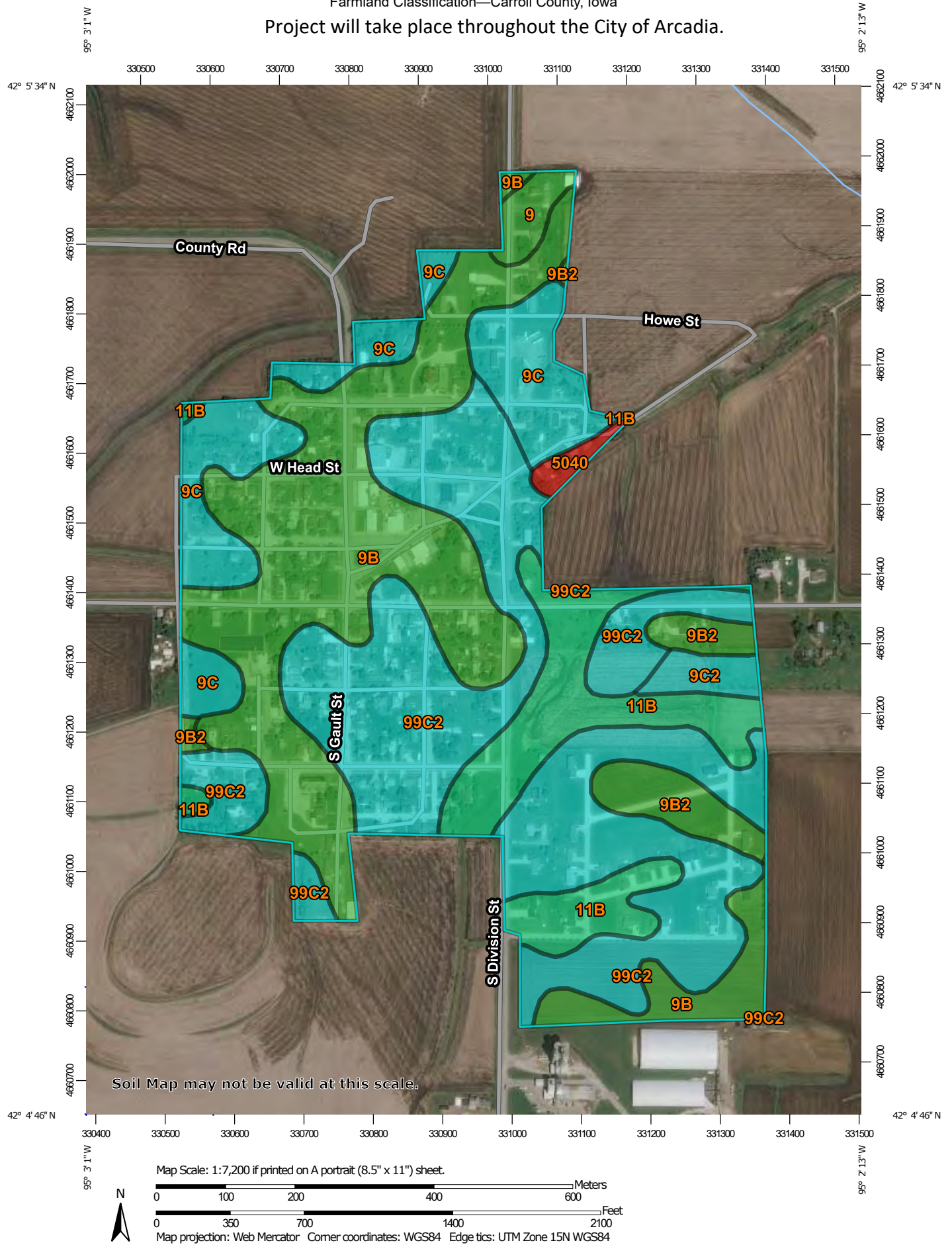
EJScreen is a screening tool for pre-decisional use only. It can help identify areas that may warrant additional consideration, analysis, or outreach. It does not provide a basis for decision-making, but it may help identify potential areas of EJ concern. Users should keep in mind that screening tools are subject to substantial uncertainty in their demographic and environmental data, particularly when looking at small geographic areas. Important caveats and uncertainties apply to this screening-level information, so it is essential to understand the limitations on appropriate interpretations and applications of these indicators. Please see EJScreen documentation for discussion of these issues before using reports. This screening tool does not provide data on every environmental impact and demographic factor that may be relevant to a particular location. EJScreen outputs should be supplemented with additional information and local knowledge before taking any action to address potential EJ concerns.



# Appendix F




Farmland Classification—Carroll County, Iowa  
Project will take place throughout the City of Arcadia.













## MAP LEGEND








### Area of Interest (AOI)






 Area of Interest (AOI)








### Soils



#### Soil Rating Polygons

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season









-  Prime farmland if subsoiled, completely removing the root inhibiting soil layer
-  Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
-  Prime farmland if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance
-  Farmland of statewide importance, if drained
-  Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if irrigated

-  Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if irrigated and drained
-  Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer
-  Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60

-  Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium
-  Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season
-  Farmland of statewide importance, if warm enough
-  Farmland of statewide importance, if thawed
-  Farmland of local importance
-  Farmland of local importance, if irrigated

-  Farmland of unique importance
-  Not rated or not available

### Soil Rating Lines

-  Not prime farmland
-  All areas are prime farmland
-  Prime farmland if drained
-  Prime farmland if protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated
-  Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season
-  Prime farmland if irrigated and drained
-  Prime farmland if irrigated and either protected from flooding or not frequently flooded during the growing season



# Farmland Classification—Carroll County, Iowa

	Prime farmland if subsoiled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated and reclaimed of excess salts and sodium		Farmland of unique importance		Prime farmland if subsoiled, completely removing the root inhibiting soil layer
	Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of statewide importance, if irrigated and drained		Farmland of statewide importance, if drained or either protected from flooding or not frequently flooded during the growing season	<b>Soil Rating Points</b>			Prime farmland if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60
	Prime farmland if irrigated and reclaimed of excess salts and sodium		Farmland of statewide importance, if irrigated and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if warm enough, and either drained or either protected from flooding or not frequently flooded during the growing season		Not prime farmland		Prime farmland if irrigated and reclaimed of excess salts and sodium
	Farmland of statewide importance		Farmland of statewide importance, if subsoiled, completely removing the root inhibiting soil layer		Farmland of statewide importance, if thawed		Prime farmland if protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance
	Farmland of statewide importance, if drained		Farmland of statewide importance, if irrigated and the product of I (soil erodibility) x C (climate factor) does not exceed 60		Farmland of local importance		Prime farmland if irrigated		Farmland of statewide importance, if drained
	Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season				Farmland of local importance, if irrigated		Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if protected from flooding or not frequently flooded during the growing season
	Farmland of statewide importance, if irrigated						Prime farmland if drained and either protected from flooding or not frequently flooded during the growing season		Farmland of statewide importance, if irrigated



# Farmland Classification—Carroll County, Iowa





## Farmland Classification

Map unit symbol	Map unit name	Rating	Acres in AOI	Percent of AOI
9	Marshall silty clay loam, 0 to 2 percent slopes	All areas are prime farmland	2.1	1.4%
9B	Marshall silty clay loam, 2 to 5 percent slopes	All areas are prime farmland	48.0	30.7%
9B2	Marshall silty clay loam, 2 to 5 percent slopes, eroded	All areas are prime farmland	6.6	4.2%
9C	Marshall silty clay loam, 5 to 9 percent slopes	Farmland of statewide importance	18.7	12.0%
9C2	Marshall silty clay loam, 5 to 9 percent slopes, eroded	Farmland of statewide importance	2.3	1.4%
11B	Colo-Judson silty clay loams, 0 to 5 percent slopes, occasionally flooded	Prime farmland if drained	18.0	11.5%
99C2	Exira silty clay loam, 5 to 9 percent slopes, eroded	Farmland of statewide importance	59.5	38.0%
5040	Udorthents, loamy	Not prime farmland	1.1	0.7%
<b>Totals for Area of Interest</b>			<b>156.4</b>	<b>100.0%</b>

## Description

Farmland classification identifies map units as prime farmland, farmland of statewide importance, farmland of local importance, or unique farmland. It identifies the location and extent of the soils that are best suited to food, feed, fiber, forage, and oilseed crops. NRCS policy and procedures on prime and unique farmlands are published in the "Federal Register," Vol. 43, No. 21, January 31, 1978.

## Rating Options

*Aggregation Method:* No Aggregation Necessary

*Tie-break Rule:* Lower



# Appendix G



Project will replace lines throughout the City of Arcadia - City limits outlined in yellow in the map below.



FLOOD HAZARD INFORMATION

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT	
THE INFORMATION DEPICTED ON THIS MAP AND SUPPORTING DOCUMENTATION ARE ALSO AVAILABLE IN DIGITAL FORMAT AT <a href="http://MSC.FEMA.GOV">HTTP://MSC.FEMA.GOV</a>	
SPECIAL FLOOD HAZARD AREAS	Without Base Flood Elevation (BFE) Zone A, V, A99
	With BFE or Depth Zone AE, AO, AH, VE, AR
OTHER AREAS OF FLOOD HAZARD	Regulatory Floodway
	0.2% Annual Chance Flood Hazard, Areas of 1% Annual Chance Flood with average depth less than one foot or with drainage areas of less than one square mile Zone X
	Future Conditions 1% Annual Chance Flood Hazard Zone X
OTHER AREAS	Area with Reduced Flood Risk due to Levee See Notes Zone X
	NO SCREEN Area of Minimal Flood Hazard Zone X
GENERAL STRUCTURES	Area of Undetermined Flood Hazard Zone D
	Channel, Culvert, or Storm Sewer
OTHER FEATURES	Levee, Dike, or Floodwall
	Cross Sections with 1% Annual Chance Water Surface Elevation (BFE)
	Coastal Transect
	Coastal Transect Baseline
	Profile Baseline
	Hydrographic Feature
	Base Flood Elevation Line (BFE)
	Limit of Study
	Jurisdiction Boundary

NOTES TO USERS

For information and questions about this map, available products associated with this FIRM including historic versions of this FIRM, how to order products or the National Flood Insurance Program in general, please call the FEMA Map Information eXchange at 1-877-FEMA-MAP (1-877-336-2827) or visit the FEMA Map Service Center website at <http://msc.fema.gov>. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the website. Users may determine the current map date for each FIRM panel by visiting the FEMA Map Service Center website or by calling the FEMA Map Information eXchange.

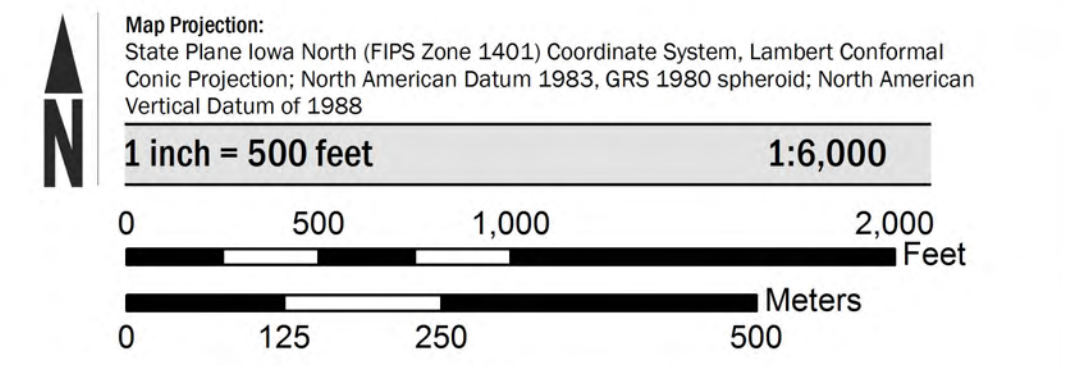
Communities annexing land on adjacent FIRM panels must obtain a current copy of the adjacent panel as well as the current FIRM index. These may be ordered directly from the Map Service Center at the number listed above.

For community and countywide map dates refer to the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your Insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

Base map information shown on this FIRM was provided in digital format by the Iowa Department of Natural Resources. This information was derived from digital orthophotography at a 2-foot ground resolution from imagery flown in April 2009.

SCALE



PANEL LOCATOR



**National Flood Insurance Program**

**NATIONAL FLOOD INSURANCE PROGRAM**  
**FLOOD INSURANCE RATE MAP**

**CARROLL COUNTY, IOWA**  
And Incorporated Areas

PANEL 108 OF 400

Panel Contains:

COMMUNITY	NUMBER	PANEL	SUFFIX
ARCADIA, CITY OF	190694	0108	C
CARROLL COUNTY	190039	0108	C

VERSION NUMBER  
2.3.3.2

MAP NUMBER  
19027C0108C

EFFECTIVE DATE  
SEPTEMBER 15, 2017



# Appendix H





2203141732

3/3/2022

State Historic Preservation Office  
Attn: Daniel Higginbottom  
600 East Locust  
Des Moines, IA 50319-0290

Subject:

Notification of Intent to Initiate Section 106 Review  
City of Arcadia Water Tower and Piping Project  
Arcadia, Carroll County, Iowa

Dear Mr. Higginbottom:

The City of Arcadia is seeking financial assistance from the [Rural Utilities Service (RUS), under its Water and Environmental Program for an Elevated Water Storage tank and piping project. The proposed project consists of the construction of a new 150,000-gallon elevated water storage tank. This structure will be constructed on 0.43 acres on Lot 6 of the SW ¼, SE ¼, Section 16, Township 84 N, Range 36 West. A replacement water distribution system is also proposed. The construction will occur within previously developed areas in public right-of-way within the corporate City of Arcadia. All construction areas have been previously disturbed and committed to urban development.

If RUS elects to fund the Project, it will become subject to review under Section 106 of the National Historic Preservation Act, 54 U.S.C. 306108, and its implementing regulations, 36 CFR Part 800. Pursuant to 36 CFR § 800.2(c)(4), and 7 CFR § 1970.5(b)(2) of the regulations, "Environmental Policies and Procedures" (7 CFR Part 1970 RUS has issued a blanket delegation for its applicants to initiate and proceed through Section 106 review.

The City of Arcadia proposes that the area of potential effects (APE) for the referenced project consists of **no historic properties affected**. The geographic scope of the APE will not be final until a determination is made by RUS pursuant to 36 CFR § 800.4(a)(1).

At the direction of RUS, The City of Arcadia has notified and is seeking information about possibly affected historic properties in the APE from the following Indian tribes - Apache Tribe of Oklahoma, Iowa Tribe of Kansas and Nebraska, Iowa Tribe of Oklahoma, Menominee Indian Tribe of Wisconsin, Omaha Tribe of Nebraska, Otoe-Missouria Tribe of Indians, Oklahoma, Sac & Fox Nation of Missouri in Kansas and Nebraska, Sac & Fox Nation, Oklahoma, Sac & Fox Tribe of the Mississippi in Iowa.

Please review the Project and enclosed maps. After completing your review, please provide the City of Arcadia with your recommendation(s) about whether or not a study of the APE is needed to identify affected historic properties. If you recommend study, please explain the nature and

Rural Development • Storm Lake Office  
1619 N. Lake Ave. • Storm Lake, IA 50588  
Voice (712) 732-1851 • Fax (855) 251-2245



scope of the proposed investigation specifically in reference to those factors identified in 36 CFR § 800.4(b)(1). This project will have no effect to historical properties.

Submit your recommendations within thirty (30) days of your receipt of this request to Dana Davis, 712-732-1851, dana.davis2@usda.gov. If no timely response is received, the City of Arcadia will notify RUS so the federal agency may determine how to proceed with Section 106 review in accordance with 36 CFR § 800.3(b)(4). Should you have any questions, please contact Dana Davis, 712-732-1851, dana.davis2@usda.gov.

Sincerely,

*Dana Davis*

Dana Davis  
Area Specialist

NAME

DATE

CONCUR

*[Signature]*  
*6/14/22*

Enclosures

cc: State Environmental Coordinator



# Appendix I



# ADDITIONAL INFORMATION FOR EA AND CEST PROJECTS - SHEET C

## Noise Assessment Guidelines

### Noise: The Quiet Communities Act (24 CFR Part 51, Subpart B):

The Act establishes specific noise control requirements for CDBG-funded projects. Grant Recipients must take into consideration the noise criteria and standards in the environmental review process and consider ameliorative actions when noise sensitive land development is proposed in noise exposed areas.

The prime concern of a CDBG environmental impact assessment for noise should be the effect of existing and projected noise levels on the proposed activities and facilities.

**If your project is not noise sensitive (e.g., water & sewer projects) then you can skip this assessment and note in the environmental review that the nature of the project, as described, is not noise sensitive.**

**An assessment will be needed if housing and other noise sensitive uses are proposed:**

**1. Document the following on a map (either your project meets this criteria or not):**

- Existing or proposed commercial or military airports within 15 miles of the site.
- Roadways within 1,000 feet of the site with such characteristics (e.g., high traffic levels, high speed, heavy truck/bus usage, slope gradients, etc.) that would indicate high ambient vehicular noise levels.
- Railroads within 3,000 feet of the site.
- Other significant noise sources (e.g., industrial/manufacturing facilities, power generating stations, firing ranges) in proximity to the site.

**2. If you project is within the distance criteria above, you must perform a noise calculation. It can be found here: <https://www.hudexchange.info/environmental-review/dnl-calculator/>.**

- a. Airports: contact Airport for noise contour maps
- b. Road data: <https://iowadot.gov/maps/digital-maps/traffic-maps/county>
- c. Railroads: <http://safetydata.fra.dot.gov/OfficeofSafety/publicsite/crossing/xingqryloc.aspx>
  - i. Some defaults:
    - 1. Diesel Engines: # of diesel = 2, # of rail cars = 50, Average Speed = 30, nighttime of ATO = .15 or 15%
    - 2. Electric Engines: # of electric = 1, # of rail cars = 8, Average Speed = 30, nighttime of ATO = .15 or 15%

**3. If your decibel level is above 65 dB – 75 dB:**

- a. For new construction – you MUST mitigate
- b. For Rehab – you are strongly encouraged to mitigate

However, if above 75 dB you MUST contact leslie leager at IEDA for additional instructions.



# Appendix J



# Designated Sole Source Aquifers in EPA Region VII

Iowa, Kansas, Missouri, Nebraska



## REGION VII (IA, KS, MO, NE)

Stephanie Lindberg  
Drinking Water/Ground Water Branch  
EPA Region 7  
901 N. 5th Street  
Kansas City, KS 66101  
phone: (800) 223-0425  
email: [lindberg.stephanie@epa.gov](mailto:lindberg.stephanie@epa.gov)

*There are no designated Sole Source Aquifers in Region VII. Contact the coordinator above for more information about designating SSAs in Region VII.*

---

Return to: [Sole Source Aquifer program home page](#)



# Appendix K





U.S. Fish and Wildlife Service

# National Wetlands Inventory

## Wetlands



April 6, 2022

### Wetlands

Estuarine and Marine Deepwater

Estuarine and Marine Wetland

Freshwater Emergent Wetland

Freshwater Forested/Shrub Wetland

Freshwater Pond

Lake

Other

Riverine

This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.



# Appendix L





## Iowa Segments

### Hector Santiago

National Park Service  
Midwest Regional Office  
601 Riverside Drive  
Omaha, Nebraska 68102  
(402) 661-1848



[Authorizations](#) / [History](#) /  
[Eligibility Descriptions](#) /  
[Outstandingly Remarkable](#)  
[Values](#) / [Potential](#)  
[Classification](#) / [Wild and](#)  
[Scenic Rivers System](#)

[Return to nri Page](#)

River	County	Reach	Length (miles)	Year Listed/ Updated	<a href="#">Potential Classification</a>	<a href="#">ORVs</a>	Description	Other States
Boone	Hamilton and Webster	From Webster City to confluence with Des Moines River.	25	1995	S	S, R, F, W	Iowa's first designated "Protected Water Area." Identified for it's scenic and natural qualities, including relatively undisturbed riparian habitat and excellent smallmouth bass fishery.	
Cedar River	Louisa, Muscatine	Iowa River to Highway 6.	26	1982		F, W, C	Two federally listed endangered species of mussel and	



							one federally listed species of bat may be found along the river; potentially rich in cultural resources; nice streamside relief with bluffs and ridges.	
Maquoketa River	Jackson, Jones	Mississippi River to US 151 Bridge (omit small reservoir northwest of Maquoketa)	68	1982		S, R, G, F, W, H, C, O	River cuts narrow, gorge-like valley up to 150 feet deep through limestone; excellent water quality supporting productive smallmouth bass fishery; potentially rich in cultural resources; threatened northern wild monkshood has been found in basin.	
Middle Raccoon River	Gutherie and Dallas	City of Panora to the city of Redfield dam.	15	1995	S	S, R, F, W	A designated Iowa "Protected Water Area." Beautiful canoe route with good access. Excellent smallmouth bass fishing and wildlife viewing.	
Turkey River	Clayton, Fayette, Winneshiek, Howard	Mississippi River to Vernon Springs.	110	1982		S, R, G, F, H, C, O	Gently rolling hills with dense stands of trees; good trout stream; high potential for significant cultural resources; northern wild monkshood, a federally listed endangered species, has	



							been found in the basin.	
Upper Iowa River	Winneshick and Allamakee	City of Kendallville to Highway 76 crossing.	64	1995	W	S, R, G, F, W	A designated "Protected Water Area." The state's most scenic canoe river with towering limestone outcroppings and beautiful riparian habitat. Good bass and trout fishing.	
Wapsipinicon River	Clinton, Scott, Cedar, Jones, Linn, Buchanan, Black Hawk, Bremer	Mississippi River to State Highway 334 at Frederika (omit reservoir northwest of Independence).	195	1982		S, G, F, W, H	A designated Iowa "Protected Water Area." Wide, wooded flood plain with only limited development and agricultural encroachment; wide diversity of fish and wildlife habitat; exposed geologic fault; historically valuable Stone City quarries.	
Yellow River	Allamakee	Entire segment within Effigy Mounds National Monument	1	1982/1993	S	S, R, G, W, H, C	One of fastest falling rivers in state, providing excellent fishing and canoeing opportunities. Numerous prehistoric Indian burial mounds. Site of Jefferson Davis Sawmill upstream from boundary.	
Yellow River	Allamakee	Mississippi River to Highway W60 near Myron.	34	1982		S, R, F, W, H, C	Heavily wooded with marked relief, camping and backpacking opportunities; unusual ecological niches and	



							plant life, including the northern wild monkshood, a federally listed threatened plant, has been found in the basin; good fishery; high potential for cultural resources (Effigy Mounds National Monument adjoins near mouth).	
--	--	--	--	--	--	--	--	--

[Challenge Cost Share Program](#) | [Federal Lands to Parks](#) | [Hydropower Relicensing Program](#)  
[Land and Water Conservation Fund](#) | [National Center for Recreation and Conservation](#) | [National Trails System](#)  
[Partnership Wild and Scenic Rivers](#) | [Rivers and Trails Program](#) | [Urban Park and Recreation Recovery](#)

[Webmaster](#)  
[NPS.gov](#)  
[USA.gov](#)

[U.S. Department of the Interior](#)

[FOIA](#)

[Privacy](#)

[Disclaimer](#)

Last Modified 2-27-09