Check one of the following: ☐ On-Site Storage of PCS ☒ Landfarming PCS ☐ Storage and Landfarming PCS

Iowa Department of Natural Resources

PETROLEUM CONTAMINATED SOIL LANDFARMING AND STORAGE NOTIFICATION FORM

Mulituse and single-use landfarming agencies shall submit the following notification form to the department and department field office with jurisdiction over the landfarm before land application; however, at least 30 days' notification is encouraged. Petroleum Contaminated Soil (PCS) from an emergency cleanup supervised by the department pursuant to subrule 120.6(1), however, shall be reported within 7 days of the emergency cleanup.

Send the completed application with attached information to:

Solid Waste Section
Land Quality Bureau
Iowa Department of Natural Resources
502 E 9th Street
Des Moines, IA 50319
Fax: (515) 725-8202

Visit https://www.iowadnr.gov/fieldoffice for a listing of field offices addresses and jurisdictions

Questions contact Matt Graesch at (515) 725-8331 or matthew.graesch@dnr.iowa.gov

For information on Emergency Response Spills, call (515) 725-8694 or visit http://www.iowadnr.gov/About-DNR/DNR-Staff-Offices/Environmental-Field-Offices/Emergency-Response-Unit

SECTION 1. CONTACT INFORMATION (Provide the name, address and telephone number for the following):

Landfarming Agency Owner(s)

Name: American Backhoe Company

Street Address: PO Box 335

City: Crescent State: Iowa Zip Code: 51526

Phone Number: 402-306-2084 E-mail: americanbackhoe@gmail.com

DNR Existing Permit Number for Agency: 78 - SDP- 29-07 -PCS

PCS Landfarming/Storage Location Owner

Name: Three C Farms Inc

Street Address: 429 1st Avenue W.

City: Newton State: Iowa Zip Code: 50208

Phone Number: 641-792-3662 E-mail:

Legal Description of Property that will be Utilized for Landfarming/Storage:

(you may attach a legal description from your county assessor)

SE ¼ of NE ¼ of NE ¼ 16 *Section* 85 *Township* N 23 *Range* ☐E ☒W Story *County*

SECTION 2: PCS LANDFARMING AND STORAGE INFORMATION

Petroleum product contaminating soil (check all that apply):

☒ Gasoline ☐ Diesel ☐ Waste Oil ☐ Kerosene ☐ Jet Fuel ☐ Other _____

* Note: Storage of non-standard PCS requires a permit amendment request

Predominant texture of the contaminated soil:

☒ Clay ☐ Sand ☒ Silt ☐ Gravel

☐ Other _____

Does PCS contain or have the potential to produce tar balls:

☐ Yes ☒ No

* PCS that has the potential to produce tar balls shall not be landfarmed

Estimated volume of PCS to be stored: 850 Cubic Yards

Date PCS is expected to be delivered for storage: _____

Date PCS is expected to be land applied: 9/10/2023

Is this project part of a department-supervised emergency cleanup?: ☐ Yes ☒ No

If yes, provide the spill number _____

Petroleum Contaminated Site or Facility

Name: Former Kerr McGee

Street Address: 436 Lincoln Highway

City: Nevada State: Iowa Zip Code: 50201

Phone Number: _____ E-mail: _____

Legal Description of Property that will be Utilized for Landfarming/Storage:

(you may attach a legal description from your county assessor)

SE ¼ of NE ¼ of NE ¼ 16 (Section) 85 (Township) N 23 (Range) ☐ E ☒ W Story (County)

Underground Storage Tank Owner, if applicable

Name: Not Applicable

Street Address: _____

City: _____ State: _____ Zip Code: _____

Phone Number: _____ E-mail: _____

UST Registration Number, if applicable: 197910660

LUST Registration Number, if applicable: 9LTQ97

SECTION 3. NOTIFICATION FORM CHECKLIST

Checking the appropriate boxes below certifies that the attachments submitted in conjunction with this application form are complete and in compliance with the applicable chapters of the Iowa Administrative Code. While some of the attachments below may have been submitted previously, updated copies of each is required to be provided with each notification form.

Required Document

☒ Section A. Topographical Map of Landfarm [IAC 567 Chapter 120.11(1) "b" (2)]
☒ Section B. Soil Map of Landfarm with Key [IAC 567 Chapter 120.11(1) "b" (2)]
☒ Section C. 100-Year Flood Plain Map [IAC 567 Chapter 120.11(1) "b" (2)]
☒ Section D. Map of Landfarm Plot to be Utilized [IAC 567 Chapter 120.11(1) "b" (2)]
☒ Section E. Application Rate Calculations Pursuant to 120.9(6) [IAC 567 Chapter 120.11(1) "b"(3)]
☒ Section F. Chemical Analysis of Petroleum Contaminated Soil [IAC 567 Chapter 120.11(1) "c"]

SECTION 4. LANDFARMING AGENCY OWNER CERTIFICATION FOR LANDFARMING AND STORAGE OF PCS

I certify under penalty of law that I am the owner of the landfarming agency for which this Petroleum Contaminated Soil Landfarming and Storage Notification Form is submitted, and that I have examined and am familiar with the requirements of landfarming and storage of petroleum contaminated soil in accordance with Iowa Administrative Code 567-Chapter 120, and that the information I have provided is true, accurate and complete.

Signature: Greg morris
Greg morris (Sep 6, 2023 14:09 CDT)

Date: Sep 6, 2023

Printed Name: Greg Morris

SECTION 5. LANDFARMING SITE OWNER CERTIFICATION FOR LANDFARMING AND STORAGE OF PCS

I certify I own the application or storage site for the petroleum contaminated soil referenced above and I understand the landfarming practices described in this notification must conform with the requirements contained in Iowa Administrative (IAC) Code 567-Chapter 120.

Signature: Janice C Lewis

Date: 9/6/23

Printed Name: Janice Lewis

DOCUMENTS TO BE ATTACHED

SECTION A. TOPOGRAPHICAL MAP OF LANDFARM (ONLY APPLICABLE FOR SINGLE USE LANDFARM)

- ✓ Provide a topographical map that includes at least a ¼ mile radius around the landfarm site. Clearly mark the following on the map:
    a. Application site boundary
    b. Water wells and occupied structures within ¼ mile of the application site
    c. Streams, lakes, ponds, drainage ditches, sinkholes and tile line surface intakes that are located within a ¼ mile of the application site

SECTION B. SOIL MAP OF LANDFARM (ONLY APPLICABLE FOR SINGLE USE LANDFARM)

- ✓ Provide a soil map with key showing where the PCS will be applied and the landfarm site boundary. If PCS is planned to be stored, mark the location on the soil map. Soil maps can be obtained from the local Natural Resource Conservation Service (NRCS) office.

  PCS shall not be applied on Loamy Sand, Sand, and Silt for single-use landfarms and Clay, Sandy Clay, Sandy Clay Loam, Sandy Loam, Loamy Sand, Sand, and Silt for multiuse landfarms as classified by the USDA Textural Classification Chart for Soils. Soils in the operating area shall have a pH greater than 6 and less than 9, free of debris larger than 4 inches in diameter, and have a minimum of 6 feet of soil over bedrock.

SECTION C. FLOOD PLAIN MAP (ONLY APPLICABLE FOR SINGLE-USE LANDFARM)

- ✓ Provide a 100-year flood plain map showing where the PCS will be applied and the landfarm site boundary.

SECTION D. MAP OF LANDFARM PLOT TO BE UTILIZED (ONLY APPLICABLE FOR MULTIUSE LANDFARM)

- ✓ Provide a map illustrating the multiuse landfarm site and indicating the landfarm plot which the PCS is to be applied.

SECTION E. APPLICATION RATE CALCULATIONS PURSUANT TO IAC 567-120.9(6) (APPLICABLE TO SINGLE- USE AND MULTIUSE LANDFARM)

- ✓ PCS shall be land applied at a rate that is as uniform as practical over an area sufficient to satisfy the greater of the following area requirements. However, PCS from an emergency cleanup supervised by the department pursuant to subrule 120.6(1) may instead be land applied at a rate of 162 ft^2 of landfarm area per cubic yard (yd^3) of PCS, that is as uniform as practical, and in which no layer of unincorporated PCS is thicker than 2 inches.
    a. Petroleum constituents. PCS shall be land applied over the largest area required by the following:
        (1) Benzene. PCS contaminated with benzene shall be land applied in accordance with Table 1. The average concentration of benzene in the PCS shall be used to determine the landfarm area (ft^2) required per cubic yard (yd^3) of PCS to be land applied. The average concentration of benzene shall be calculated from all soil boring test results that are within the PCS excavation area. The application shall be as uniform as practical over the area required.

Table 1

Average concentration of benzene (mg/kg)	Ft^2 of landfarm area per yd^3 of PCS applied	Maximum thickness of unincorporated PCS	Yd^3 of PCS per acre of landfarm
0 < mg/kg ≤ 10	81 ft2	4 inches	537 yd^3
10 < mg/kg ≤ 20	162 ft2	2 inches	268 yd^3
20 < mg/kg	324 ft2	1 inch	134 yd^3

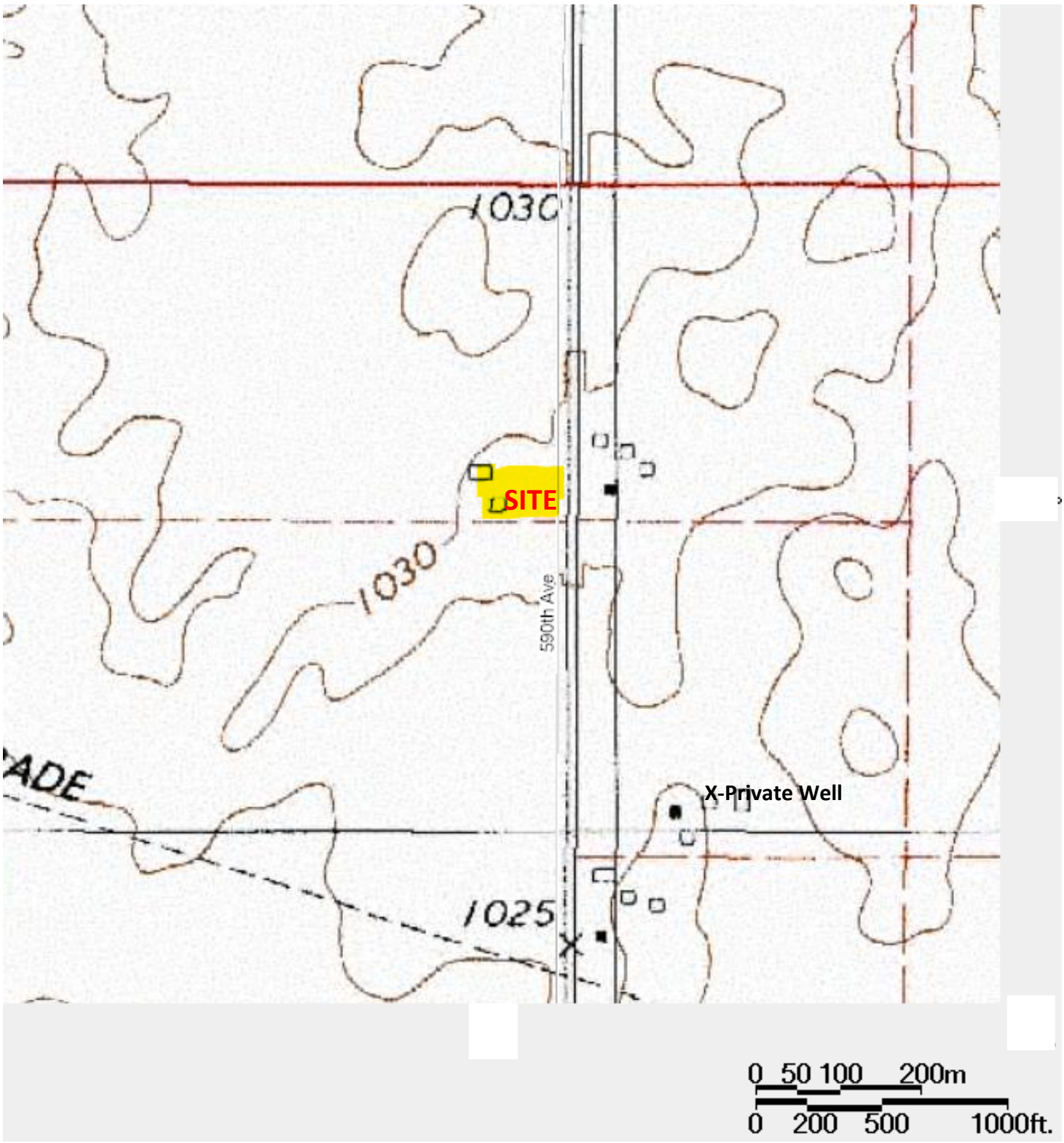
        (2) Toluene, ethylbenzene, xylene, and TEH-diesel. PCS that is not contaminated with benzene or MTBE, but is contaminated with toluene, ethylbenzene, xylene, THE-diesel, or some combination thereof, shall be land applied at a rate of 81 ft^2 of landfarm area per cubic yard (yd3) of PCS. The application shall be as uniform as practical, and no layer of unincorporated PCS shall be thicker than 4 inches.

    b. Total heavy metals. PCS that has been tested for heavy metals pursuant to subparagraph 120.6(2)"c"(4) shall be applied at a rate that is as uniform as practical, that results in no layer of PCS is thicker than 4 inches, and that upon incorporation produces a landfarm soil that satisfies the following requirements. This analysis requires prior testing of background levels of heavy metals at the proposed landfarm site.
        (1) Total heavy metals are less than 2,500 milligrams per kilogram (mg/kg).
        (2) Any particular concentration of a heavy metal is less than the appropriate statewide standard for soil developed pursuant to 567—Chapter 137.

SECTION F. CHEMICAL ANALYSIS OF PETROLEUM CONTAMINATED SOIL (APPLICABLE TO SINGLE-USE AND MULTIUSE LANDFARM)

- ✓ The following analyses shall be performed. Samples shall be acquired, stored, handled, tested and reported in accordance with the required methodology and accepted scientific procedures. A laboratory certified for UST petroleum analyses pursuant to IAC 567-Chapter 83 shall test samples. The analysis shall utilize the most recent version of Method OA-1 (GCMS), "Method for Determination of Volatile Petroleum Hydrocarbons (Gasoline)," University of Iowa Hygienic Laboratory.
    a. BTEX testing. The PCS shall be tested for benzene, toluene, ethylbenzene and xylene.
    b. TEH-diesel testing. The PCS shall be tested for total extractable hydrocarbons.
    c. MTBE testing. The PCS shall be tested for methyl tertiary-butyl ether unless prior analysis at the site, pursuant to IAC 567-Chapter 135.15(455B), has shown that MTBE is not present in the soil or groundwater.
    d. Total metals testing. If the history of the petroleum contaminated site is known to have included solvents, batteries, leaded fuel, waste oil or a gas station in operation prior to 1985, then the PCS shall be tested for total Resource Conservation and Recovery Act (RCRA) metals.

Section A
Topographical Site Map



Section B
Soil Map

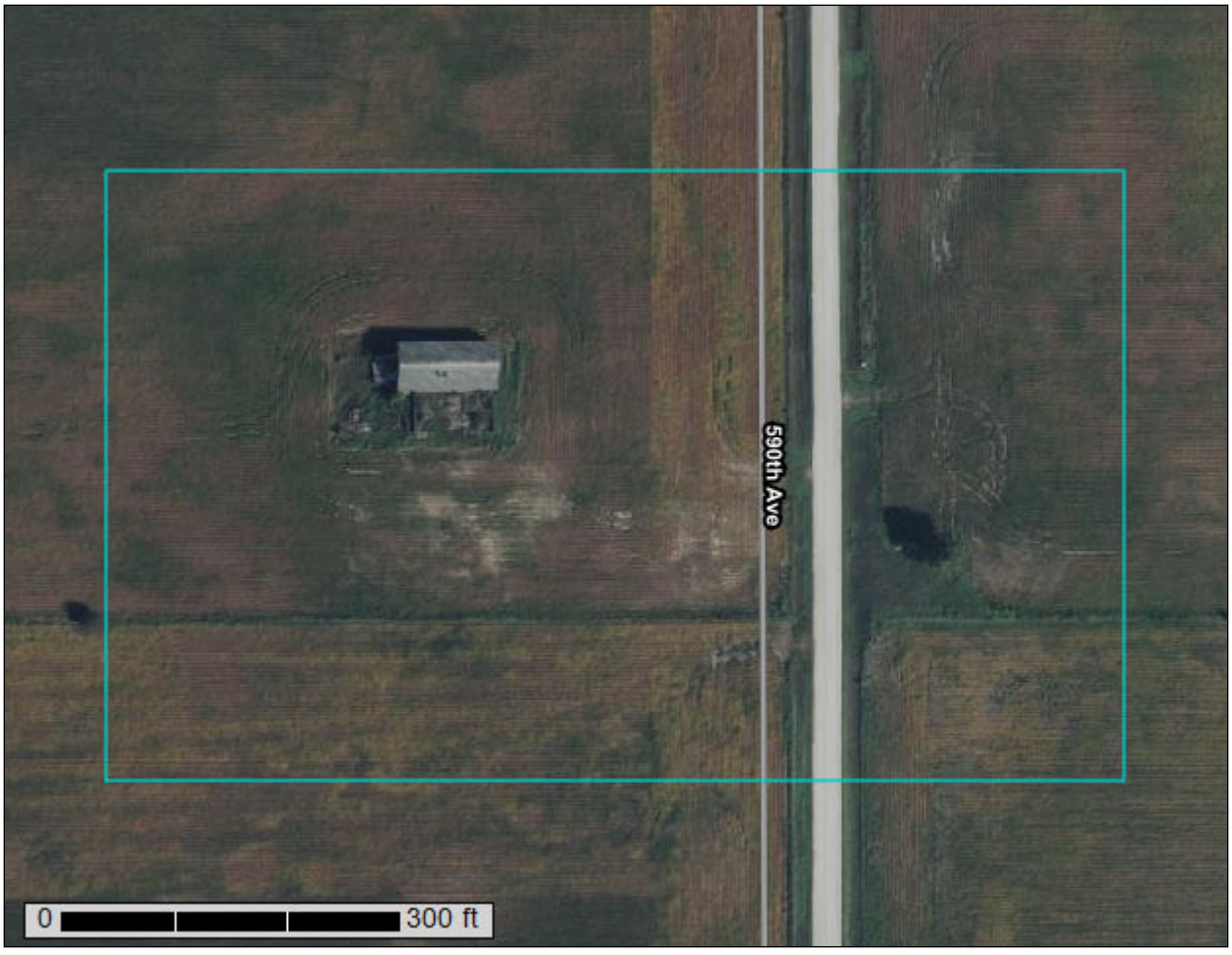
United States Department of Agriculture

NRCS

Natural Resources Conservation Service

A product of the National Cooperative Soil Survey, a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local participants

Custom Soil Resource Report for Story County, Iowa



August 25, 2023

Preface

Soil surveys contain information that affects land use planning in survey areas. They highlight soil limitations that affect various land uses and provide information about the properties of the soils in the survey areas. Soil surveys are designed for many different users, including farmers, ranchers, foresters, agronomists, urban planners, community officials, engineers, developers, builders, and home buyers. Also, conservationists, teachers, students, and specialists in recreation, waste disposal, and pollution control can use the surveys to help them understand, protect, or enhance the environment.

Various land use regulations of Federal, State, and local governments may impose special restrictions on land use or land treatment. Soil surveys identify soil properties that are used in making various land use or land treatment decisions. The information is intended to help the land users identify and reduce the effects of soil limitations on various land uses. The landowner or user is responsible for identifying and complying with existing laws and regulations.

Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include soil quality assessments (http://www.nrcs.usda.gov/wps/portal/nrcs/main/soils/health/) and certain conservation and engineering applications. For more detailed information, contact your local USDA Service Center (https://offices.sc.egov.usda.gov/locator/app?agency=nrcs) or your NRCS State Soil Scientist (http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/contactus/?cid=nrcs142p2_053951).

Great differences in soil properties can occur within short distances. Some soils are seasonally wet or subject to flooding. Some are too unstable to be used as a foundation for buildings or roads. Clayey or wet soils are poorly suited to use as septic tank absorption fields. A high water table makes a soil poorly suited to basements or underground installations.

The National Cooperative Soil Survey is a joint effort of the United States Department of Agriculture and other Federal agencies, State agencies including the Agricultural Experiment Stations, and local agencies. The Natural Resources Conservation Service (NRCS) has leadership for the Federal part of the National Cooperative Soil Survey.

Information about soils is updated periodically. Updated information is available through the NRCS Web Soil Survey, the site for official soil survey information.

The U.S. Department of Agriculture (USDA) prohibits discrimination in all its programs and activities on the basis of race, color, national origin, age, disability, and where applicable, sex, marital status, familial status, parental status, religion, sexual orientation, genetic information, political beliefs, reprisal, or because all or a part of an individual's income is derived from any public assistance program. (Not all prohibited bases apply to all programs.) Persons with disabilities who require

alternative means for communication of program information (Braille, large print, audiotape, etc.) should contact USDA's TARGET Center at (202) 720-2600 (voice and TDD). To file a complaint of discrimination, write to USDA, Director, Office of Civil Rights, 1400 Independence Avenue, S.W., Washington, D.C. 20250-9410 or call (800) 795-3272 (voice) or (202) 720-6382 (TDD). USDA is an equal opportunity provider and employer.

Contents

How Soil Surveys Are Made

Soil surveys are made to provide information about the soils and miscellaneous areas in a specific area. They include a description of the soils and miscellaneous areas and their location on the landscape and tables that show soil properties and limitations affecting various uses. Soil scientists observed the steepness, length, and shape of the slopes; the general pattern of drainage; the kinds of crops and native plants; and the kinds of bedrock. They observed and described many soil profiles. A soil profile is the sequence of natural layers, or horizons, in a soil. The profile extends from the surface down into the unconsolidated material in which the soil formed or from the surface down to bedrock. The unconsolidated material is devoid of roots and other living organisms and has not been changed by other biological activity.

Currently, soils are mapped according to the boundaries of major land resource areas (MLRAs). MLRAs are geographically associated land resource units that share common characteristics related to physiography, geology, climate, water resources, soils, biological resources, and land uses (USDA, 2006). Soil survey areas typically consist of parts of one or more MLRA.

The soils and miscellaneous areas in a survey area occur in an orderly pattern that is related to the geology, landforms, relief, climate, and natural vegetation of the area. Each kind of soil and miscellaneous area is associated with a particular kind of landform or with a segment of the landform. By observing the soils and miscellaneous areas in the survey area and relating their position to specific segments of the landform, a soil scientist develops a concept, or model, of how they were formed. Thus, during mapping, this model enables the soil scientist to predict with a considerable degree of accuracy the kind of soil or miscellaneous area at a specific location on the landscape.

Commonly, individual soils on the landscape merge into one another as their characteristics gradually change. To construct an accurate soil map, however, soil scientists must determine the boundaries between the soils. They can observe only a limited number of soil profiles. Nevertheless, these observations, supplemented by an understanding of the soil-vegetation-landscape relationship, are sufficient to verify predictions of the kinds of soil in an area and to determine the boundaries.

Soil scientists recorded the characteristics of the soil profiles that they studied. They noted soil color, texture, size and shape of soil aggregates, kind and amount of rock fragments, distribution of plant roots, reaction, and other features that enable them to identify soils. After describing the soils in the survey area and determining their properties, the soil scientists assigned the soils to taxonomic classes (units). Taxonomic classes are concepts. Each taxonomic class has a set of soil characteristics with precisely defined limits. The classes are used as a basis for comparison to classify soils systematically. Soil taxonomy, the system of taxonomic classification used in the United States, is based mainly on the kind and character of soil properties and the arrangement of horizons within the profile. After the soil

scientists classified and named the soils in the survey area, they compared the individual soils with similar soils in the same taxonomic class in other areas so that they could confirm data and assemble additional data based on experience and research.

The objective of soil mapping is not to delineate pure map unit components; the objective is to separate the landscape into landforms or landform segments that have similar use and management requirements. Each map unit is defined by a unique combination of soil components and/or miscellaneous areas in predictable proportions. Some components may be highly contrasting to the other components of the map unit. The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The delineation of such landforms and landform segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, onsite investigation is needed to define and locate the soils and miscellaneous areas.

Soil scientists make many field observations in the process of producing a soil map. The frequency of observation is dependent upon several factors, including scale of mapping, intensity of mapping, design of map units, complexity of the landscape, and experience of the soil scientist. Observations are made to test and refine the soil-landscape model and predictions and to verify the classification of the soils at specific locations. Once the soil-landscape model is refined, a significantly smaller number of measurements of individual soil properties are made and recorded. These measurements may include field measurements, such as those for color, depth to bedrock, and texture, and laboratory measurements, such as those for content of sand, silt, clay, salt, and other components. Properties of each soil typically vary from one point to another across the landscape.

Observations for map unit components are aggregated to develop ranges of characteristics for the components. The aggregated values are presented. Direct measurements do not exist for every property presented for every map unit component. Values for some properties are estimated from combinations of other properties.

While a soil survey is in progress, samples of some of the soils in the area generally are collected for laboratory analyses and for engineering tests. Soil scientists interpret the data from these analyses and tests as well as the field-observed characteristics and the soil properties to determine the expected behavior of the soils under different uses. Interpretations for all of the soils are field tested through observation of the soils in different uses and under different levels of management. Some interpretations are modified to fit local conditions, and some new interpretations are developed to meet local needs. Data are assembled from other sources, such as research information, production records, and field experience of specialists. For example, data on crop yields under defined levels of management are assembled from farm records and from field or plot experiments on the same kinds of soil.

Predictions about soil behavior are based not only on soil properties but also on such variables as climate and biological activity. Soil conditions are predictable over long periods of time, but they are not predictable from year to year. For example, soil scientists can predict with a fairly high degree of accuracy that a given soil will have a high water table within certain depths in most years, but they cannot predict that a high water table will always be at a specific level in the soil on a specific date.

After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

identified each as a specific map unit. Aerial photographs show trees, buildings, fields, roads, and rivers, all of which help in locating boundaries accurately.

Soil Map

The soil map section includes the soil map for the defined area of interest, a list of soil map units on the map and extent of each map unit, and cartographic symbols displayed on the map. Also presented are various metadata about data used to produce the map, and a description of each soil map unit.

Custom Soil Resource Report
Soil Map

Map Scale: 1:1,510 if printed on A landscape (11" x 8.5") sheet.

N

Meters
0 20 40 80 120

Feet
0 50 100 200 300

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 15N WGS84

MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:15,800.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL:
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: Story County, Iowa
Survey Area Data: Version 34, Sep 2, 2022

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: May 26, 2021—Sep 16, 2021

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
55	Nicollet clay loam, 1 to 3 percent slopes	2.7	23.8%
107	Webster clay loam, 0 to 2 percent slopes	1.3	11.6%
138B	Clarion loam, 2 to 6 percent slopes	7.2	64.6%
Totals for Area of Interest		**11.2**	**100.0%**

Map Unit Descriptions

The map units delineated on the detailed soil maps in a soil survey represent the soils or miscellaneous areas in the survey area. The map unit descriptions, along with the maps, can be used to determine the composition and properties of a unit.

A map unit delineation on a soil map represents an area dominated by one or more major kinds of soil or miscellaneous areas. A map unit is identified and named according to the taxonomic classification of the dominant soils. Within a taxonomic class there are precisely defined limits for the properties of the soils. On the landscape, however, the soils are natural phenomena, and they have the characteristic variability of all natural phenomena. Thus, the range of some observed properties may extend beyond the limits defined for a taxonomic class. Areas of soils of a single taxonomic class rarely, if ever, can be mapped without including areas of other taxonomic classes. Consequently, every map unit is made up of the soils or miscellaneous areas for which it is named and some minor components that belong to taxonomic classes other than those of the major soils.

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a particular map unit description. Other minor components, however, have properties and behavioral characteristics divergent enough to affect use or to require different management. These are called contrasting, or dissimilar, components. They generally are in small areas and could not be mapped separately because of the scale used. Some small areas of strongly contrasting soils or miscellaneous areas are identified by a special symbol on the maps. If included in the database for a given area, the contrasting minor components are identified in the map unit descriptions along with some characteristics of each. A few areas of minor components may not have been observed, and consequently they are not mentioned in the descriptions, especially where the pattern was so complex that it was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or

landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

An identifying symbol precedes the map unit name in the map unit descriptions. Each description includes general facts about the unit and gives important soil properties and qualities.

Soils that have profiles that are almost alike make up a *soil series*. Except for differences in texture of the surface layer, all the soils of a series have major horizons that are similar in composition, thickness, and arrangement.

Soils of one series can differ in texture of the surface layer, slope, stoniness, salinity, degree of erosion, and other characteristics that affect their use. On the basis of such differences, a soil series is divided into *soil phases*. Most of the areas shown on the detailed soil maps are phases of soil series. The name of a soil phase commonly indicates a feature that affects use or management. For example, Alpha silt loam, 0 to 2 percent slopes, is a phase of the Alpha series.

Some map units are made up of two or more major soils or miscellaneous areas. These map units are complexes, associations, or undifferentiated groups.

A *complex* consists of two or more soils or miscellaneous areas in such an intricate pattern or in such small areas that they cannot be shown separately on the maps. The pattern and proportion of the soils or miscellaneous areas are somewhat similar in all areas. Alpha-Beta complex, 0 to 6 percent slopes, is an example.

An *association* is made up of two or more geographically associated soils or miscellaneous areas that are shown as one unit on the maps. Because of present or anticipated uses of the map units in the survey area, it was not considered practical or necessary to map the soils or miscellaneous areas separately. The pattern and relative proportion of the soils or miscellaneous areas are somewhat similar. Alpha-Beta association, 0 to 2 percent slopes, is an example.

An *undifferentiated group* is made up of two or more soils or miscellaneous areas that could be mapped individually but are mapped as one unit because similar interpretations can be made for use and management. The pattern and proportion of the soils or miscellaneous areas in a mapped area are not uniform. An area can be made up of only one of the major soils or miscellaneous areas, or it can be made up of all of them. Alpha and Beta soils, 0 to 2 percent slopes, is an example.

Some surveys include *miscellaneous areas*. Such areas have little or no soil material and support little or no vegetation. Rock outcrop is an example.

Story County, Iowa

55—Nicollet clay loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tsj3
Elevation: 690 to 1,840 feet
Mean annual precipitation: 24 to 37 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 140 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Nicollet and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Nicollet

Setting

Landform: Ground moraines
Landform position (three-dimensional): Rise, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Parent material: Fine-loamy till

Typical profile

Ap - 0 to 10 inches: clay loam
A - 10 to 17 inches: clay loam
Bg - 17 to 36 inches: clay loam
C - 36 to 79 inches: loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 12 to 24 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: C/D
Ecological site: R103XY004MN - Loamy Upland Prairies
Forage suitability group: Sloping Upland, Neutral (G103XS002MN)
Other vegetative classification: Sloping Upland, Neutral (G103XS002MN)
Hydric soil rating: No

Minor Components

Clarion

Percent of map unit: 5 percent
Landform: Ground moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R103XY004MN - Loamy Upland Prairies
Other vegetative classification: Level Swale, Low AWC, Neutral (G103XS003MN)
Hydric soil rating: No

Okoboji

Percent of map unit: 5 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R103XY015MN - Depressional Marsh
Other vegetative classification: Ponded If Not Drained (G103XS013MN)
Hydric soil rating: Yes

Webster

Percent of map unit: 5 percent
Landform: Ground moraines
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R103XY001MN - Loamy Wet Prairies
Other vegetative classification: Level Swale, Neutral (G103XS001MN)
Hydric soil rating: Yes

107—Webster clay loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2tsj6
Elevation: 690 to 1,840 feet
Mean annual precipitation: 24 to 37 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 140 to 180 days
Farmland classification: Prime farmland if drained

Map Unit Composition

Webster and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Webster

Setting

Landform: Ground moraines
Landform position (three-dimensional): Talf
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Fine-loamy till

Typical profile

Ap - 0 to 10 inches: clay loam
A - 10 to 20 inches: clay loam
Bg - 20 to 42 inches: clay loam
Cg - 42 to 79 inches: loam

Properties and qualities

Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Poorly drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to high (0.06 to 2.00 in/hr)
Depth to water table: About 0 to 8 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 10.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C/D
Ecological site: R103XY001MN - Loamy Wet Prairies
Forage suitability group: Level Swale, Neutral (G103XS001MN)
Other vegetative classification: Level Swale, Neutral (G103XS001MN)
Hydric soil rating: Yes

Minor Components

Okoboji

Percent of map unit: 5 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R103XY015MN - Depressional Marsh
Other vegetative classification: Ponded If Not Drained (G103XS013MN)
Hydric soil rating: Yes

Nicollet

Percent of map unit: 5 percent
Landform: Ground moraines
Landform position (three-dimensional): Rise, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: R103XY004MN - Loamy Upland Prairies
Other vegetative classification: Sloping Upland, Neutral (G103XS002MN)

Hydric soil rating: No

Glencoe

Percent of map unit: 3 percent
Landform: Depressions
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R103XY015MN - Depressional Marsh
Other vegetative classification: Ponded If Not Drained (G103XS013MN)
Hydric soil rating: Yes

Canisteo

Percent of map unit: 2 percent
Landform: Rims on depressions, ground moraines
Landform position (three-dimensional): Talf
Down-slope shape: Concave, linear
Across-slope shape: Linear
Ecological site: R103XY001MN - Loamy Wet Prairies
Other vegetative classification: Level Swale, Calcareous (G103XS009MN)
Hydric soil rating: Yes

138B—Clarion loam, 2 to 6 percent slopes

Map Unit Setting

National map unit symbol: 2s089
Elevation: 690 to 1,840 feet
Mean annual precipitation: 24 to 37 inches
Mean annual air temperature: 43 to 52 degrees F
Frost-free period: 140 to 180 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Clarion and similar soils: 85 percent
Minor components: 15 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Clarion

Setting

Landform: Ground moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Rise
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Fine-loamy till

Typical profile

Ap - 0 to 8 inches: loam
A - 8 to 16 inches: loam
Bw - 16 to 34 inches: loam
C - 34 to 79 inches: loam

Properties and qualities

Slope: 2 to 6 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.20 to 2.00 in/hr)
Depth to water table: About 20 to 47 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 11.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: R103XY004MN - Loamy Upland Prairies
Forage suitability group: Level Swale, Low AWC, Neutral (G103XS003MN)
Other vegetative classification: Level Swale, Low AWC, Neutral (G103XS003MN)
Hydric soil rating: No

Minor Components

Storden, moderately eroded

Percent of map unit: 5 percent
Landform: Ground moraines
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Rise
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R103XY002MN - Calcareous Upland Prairies
Other vegetative classification: Sloping Upland, Calcareous (G103XS010MN)
Hydric soil rating: No

Webster

Percent of map unit: 5 percent
Landform: Ground moraines
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R103XY001MN - Loamy Wet Prairies
Other vegetative classification: Level Swale, Neutral (G103XS001MN)
Hydric soil rating: Yes

Nicollet

Percent of map unit: 5 percent
Landform: Ground moraines
Landform position (three-dimensional): Rise, talf
Down-slope shape: Convex, linear
Across-slope shape: Linear
Ecological site: R103XY004MN - Loamy Upland Prairies
Other vegetative classification: Sloping Upland, Neutral (G103XS002MN)
Hydric soil rating: No

References

American Association of State Highway and Transportation Officials (AASHTO). 2004. Standard specifications for transportation materials and methods of sampling and testing. 24th edition.

American Society for Testing and Materials (ASTM). 2005. Standard classification of soils for engineering purposes. ASTM Standard D2487-00.

Cowardin, L.M., V. Carter, F.C. Golet, and E.T. LaRoe. 1979. Classification of wetlands and deep-water habitats of the United States. U.S. Fish and Wildlife Service FWS/OBS-79/31.

Federal Register. July 13, 1994. Changes in hydric soils of the United States.

Federal Register. September 18, 2002. Hydric soils of the United States.

Hurt, G.W., and L.M. Vasilas, editors. Version 6.0, 2006. Field indicators of hydric soils in the United States.

National Research Council. 1995. Wetlands: Characteristics and boundaries.

Soil Survey Division Staff. 1993. Soil survey manual. Soil Conservation Service. U.S. Department of Agriculture Handbook 18. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_054262

Soil Survey Staff. 1999. Soil taxonomy: A basic system of soil classification for making and interpreting soil surveys. 2nd edition. Natural Resources Conservation Service, U.S. Department of Agriculture Handbook 436. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053577

Soil Survey Staff. 2010. Keys to soil taxonomy. 11th edition. U.S. Department of Agriculture, Natural Resources Conservation Service. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053580

Tiner, R.W., Jr. 1985. Wetlands of Delaware. U.S. Fish and Wildlife Service and Delaware Department of Natural Resources and Environmental Control, Wetlands Section.

United States Army Corps of Engineers, Environmental Laboratory. 1987. Corps of Engineers wetlands delineation manual. Waterways Experiment Station Technical Report Y-87-1.

United States Department of Agriculture, Natural Resources Conservation Service. National forestry manual. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/home/?cid=nrcs142p2_053374

United States Department of Agriculture, Natural Resources Conservation Service. National range and pasture handbook. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/landuse/rangepasture/?cid=stelprdb1043084

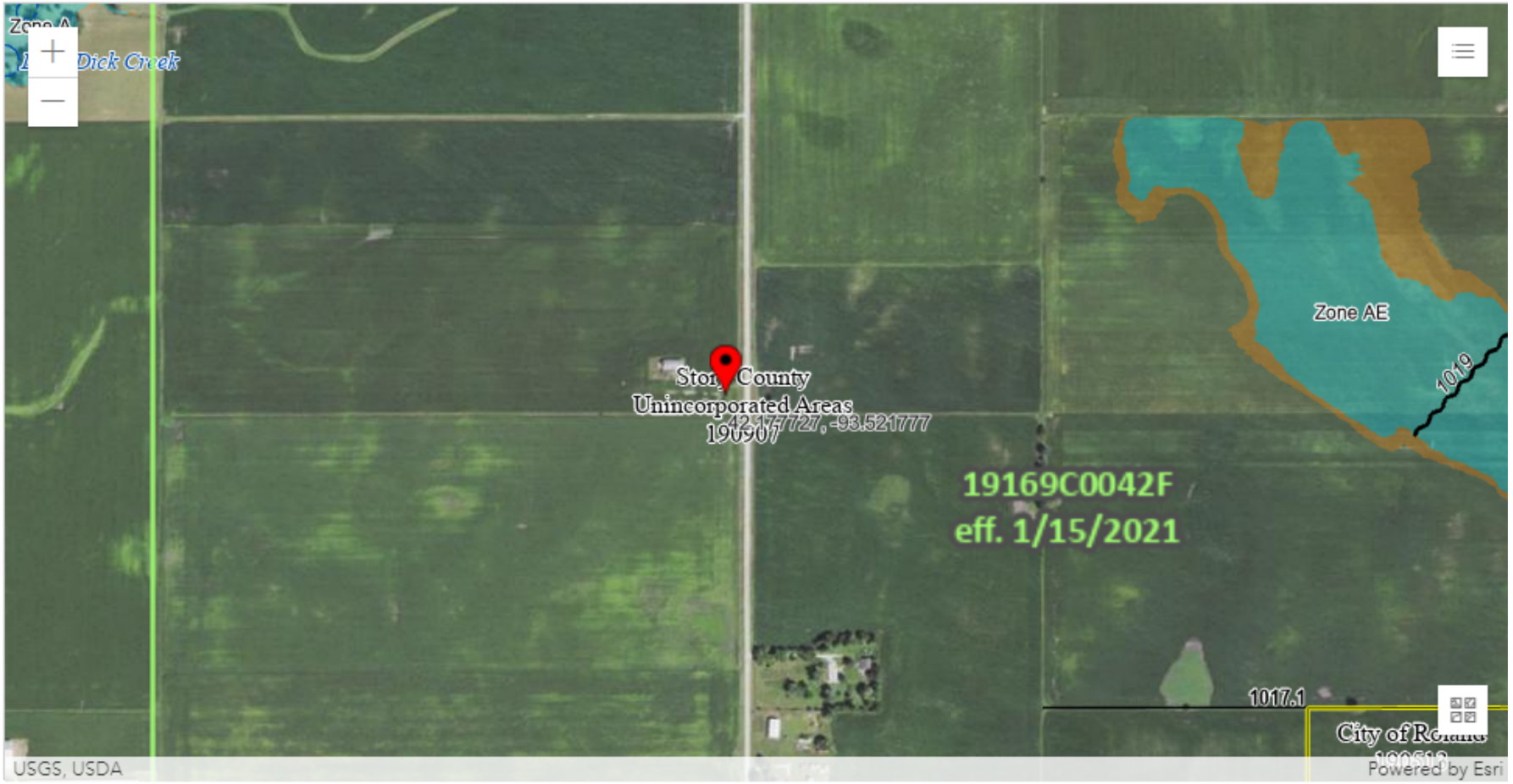
United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/soils/scientists/?cid=nrcs142p2_054242

United States Department of Agriculture, Natural Resources Conservation Service. 2006. Land resource regions and major land resource areas of the United States, the Caribbean, and the Pacific Basin. U.S. Department of Agriculture Handbook 296. http://www.nrcs.usda.gov/wps/portal/nrcs/detail/national/soils/?cid=nrcs142p2_053624

United States Department of Agriculture, Soil Conservation Service. 1961. Land capability classification. U.S. Department of Agriculture Handbook 210. http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs142p2_052290.pdf

Section C

100 year flood plain map



PIN
- Approximate location based on user input and does not represent an authoritative property location

MAP PANELS
- Selected FloodMap Boundary
- Digital Data Available
- No Digital Data Available
- Unmapped

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard Zone X
- Effective LOMRs
- Area of Undetermined Flood Hazard Zone D
- Otherwise Protected Area
- Coastal Barrier Resource System Area

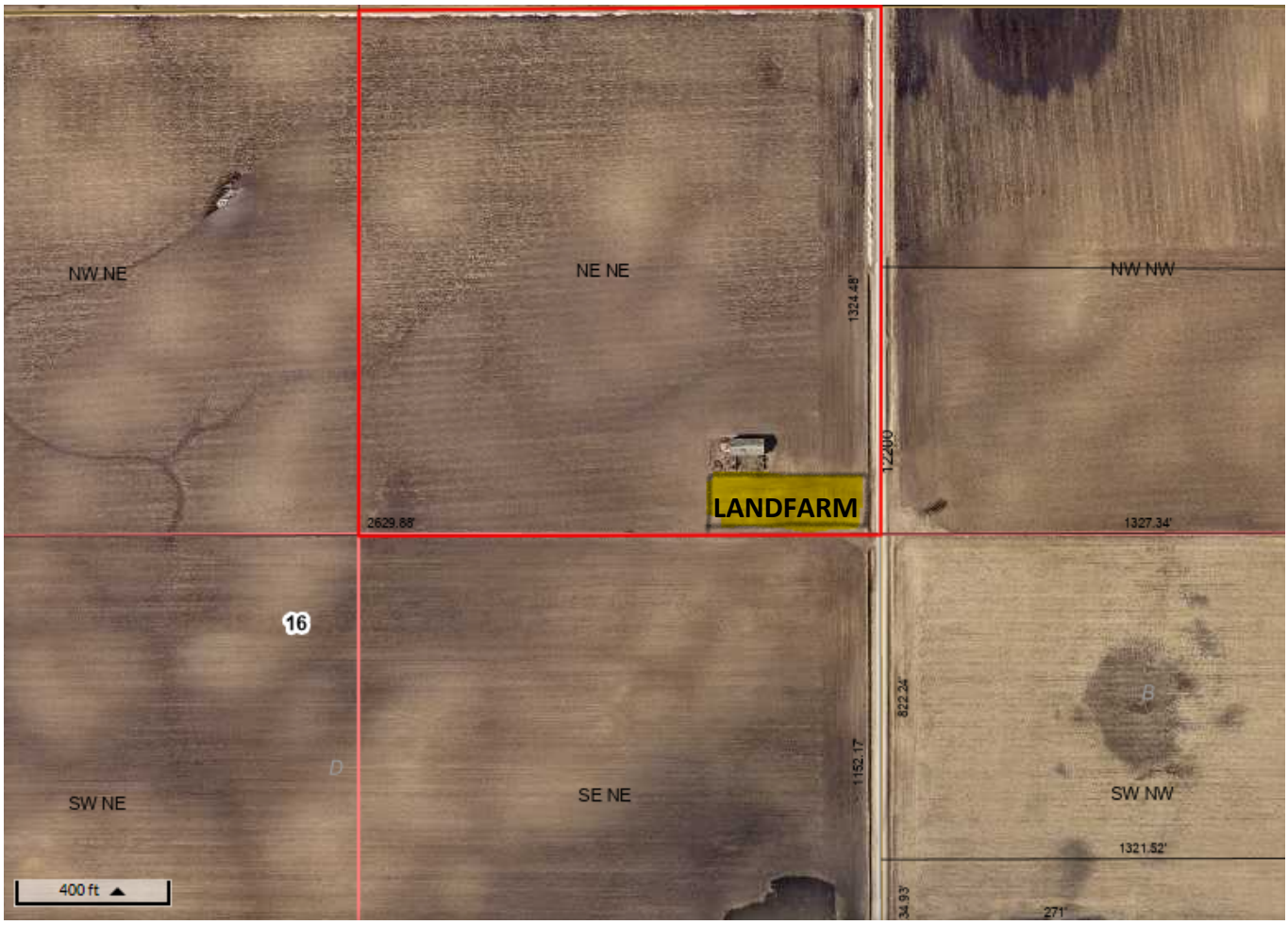
SPECIAL FLOOD HAZARD AREAS
- Without Base Flood Elevation (BFE) Zone A, V, A99
- With BFE or Depth
- Regulatory Floodway Zone AE, AO, AH, VE, AR

OTHER AREAS OF FLOOD HAZARD
- 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
- Area with Reduced Flood Risk due to Levee. See Notes. Zone X
- Area with Flood Risk due to Levee Zone D

OTHER FEATURES
- 20.2 Cross Sections with 1% Annual Chance
- 17.5 Water Surface Elevation
- Coastal Transect
- 513 Base Flood Elevation Line (BFE)
- Limit of Study
- Jurisdiction Boundary
- Coastal Transect Baseline
- Profile Baseline
- Hydrographic Feature

GENERAL STRUCTURES
- Channel, Culvert, or Storm Sewer
- Levee, Dike, or Floodwall

Section D
Map of Landfarm Plot



Section E

Application Rate Calculations

Boring	Date	Benzene	Toluene	Ethylbenzene	Xylenes	TEH-Diesel	TEH-WO	MTBE
		(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)	(mg/kg)
SG-2	11/13/2018	1.59	0.54	2.56	9.87			
SB6	10/24/2019	1.69	4.92	6.39	27.3			
SG-3	11/13/2018	1.76	0.55	5.42	38			
MW8	7/31/2015	2.22	6.32	22.3	82.3			
DP1	6/29/2021	2.46	0.44	4.83	6.61			
SB-5	10/24/2019	2.86	<0.48	4.84	22.4			
TMW-1	4/7/2014	3.15	0.68	84.5	308			
MW7	5/28/2015	3.28	1.69	6.65	25.4			
SB6	10/24/2019	5.96	17.8	29.6	119			
RW1	6/30/2021	7.04	3.62	14.6	60.2			
SG-1	11/13/2018	7.37	3.36	56.9	235			
SG-3	11/13/2018	9.05	3.85	22.6	109			
DP3	6/30/2021	9.12	2.12	40.2	158			
DP2	6/29/2021	9.96	1.64	18.2	81.2			
LF-1	12/12/2022	0.733	0.417	2.07	9.91	<9.45	<9.45	<0.0967
AVERAGE		4.55	3.20	21.44	86.15			

Section F

Chemical Analysis of Petroleum Contaminated Soil

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Jennifer Repp
Seneca Companies
PO BOX 3360
Des Moines, Iowa 50316

Generated 12/21/2022 3:36:23 PM

JOB DESCRIPTION

Fmr Kerr McGee (Dairy Queen)
SDG NUMBER 6363555

JOB NUMBER

310-246403-1

Eurofins Cedar Falls
3019 Venture Way
Cedar Falls IA 50613

See page two for job notes and contact information.

Job Notes

The test results in this report meet all NELAP requirements for parameters for which accreditation is required or available. Any exceptions to the NELAP requirements are noted in this report. Pursuant to NELAP, this report may not be reproduced, except in full, without the written approval of the laboratory. This report is confidential and is intended for the sole use of Eurofins Environment Testing North Central, LLC and its client. All questions regarding this report should be directed to the Eurofins Environment Testing North Central, LLC Project Manager who has signed this report.

The test results in this report relate only to the samples as received by the laboratory and will meet all requirements of the methodology, with any exceptions noted. This report shall not be reproduced except in full, without the express written approval of the laboratory. All questions should be directed to the Eurofins Environment Testing North Central, LLC Project Manager.

Authorization

Generated
12/21/2022 3:36:23 PM

Authorized for release by
Conner Calhoun, Project Management Assistant I
Conner.Calhoun@et.eurofinsus.com
(319)277-2401

Table of Contents

Case Narrative

Client: Seneca Companies
Project/Site: Fmr Kerr McGee (Dairy Queen)

Job ID: 310-246403-1
SDG: 6363555

Job ID: 310-246403-1

Laboratory: Eurofins Cedar Falls

Narrative

Job Narrative
310-246403-1

Comments
No additional comments.

Receipt
The samples were received on 12/13/2022 4:35 PM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 0.4º C.

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

GC VOA
Method OA-1 (GC): Surrogate recovery for the following samples was outside control limits: MW3 (310-246403-1), MW8 (310-246403-2), (310-245931-C-2), (310-245931-B-2 MS) and (310-245931-B-2 MSD). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method OA-1 (GC): The continuing calibration verification (CCV) associated with batch 310-374834 recovered below the lower control limit for Benzene(-25.0%) and Toluene(-21.2%). The LCS passed under CCV criteria for these analytes; therefore, the data has been reported. The associated sample is impacted: (CCV 310-374834/4).

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

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

Metals
Method 6010D: The following sample(s) was diluted due to the presence of an interferent. >: LF-1 (310-246403-4). Elevated reporting limits (RLs) are provided.

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

General Chemistry
No analytical or quality issues were noted, other than those described 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: Fmr Kerr McGee (Dairy Queen)

Job ID: 310-246403-1
SDG: 6363555

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
310-246403-1	MW3	Ground Water	12/12/22 11:30	12/13/22 16:35
310-246403-2	MW8	Ground Water	12/12/22 12:10	12/13/22 16:35
310-246403-3	RW1	Ground Water	12/12/22 12:35	12/13/22 16:35
310-246403-4	LF-1	Solid	12/12/22 10:10	12/13/22 16:35

Detection Summary

Client: Seneca Companies
Project/Site: Fmr Kerr McGee (Dairy Queen)

Job ID: 310-246403-1
SDG: 6363555

Client Sample ID: MW3 — Lab Sample ID: 310-246403-1

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2040		40.0		ug/L	20		OA-1 (GC)	Total/NA
Toluene	214		2.00		ug/L	1		OA-1 (GC)	Total/NA
Ethylbenzene	985		40.0		ug/L	20		OA-1 (GC)	Total/NA
Xylenes, Total	2770		120		ug/L	20		OA-1 (GC)	Total/NA

Client Sample ID: MW8 — Lab Sample ID: 310-246403-2

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	2220		40.0		ug/L	20		OA-1 (GC)	Total/NA
Toluene	262		2.00		ug/L	1		OA-1 (GC)	Total/NA
Ethylbenzene	1110		40.0		ug/L	20		OA-1 (GC)	Total/NA
Xylenes, Total	3370		120		ug/L	20		OA-1 (GC)	Total/NA

Client Sample ID: RW1 — Lab Sample ID: 310-246403-3

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	4660		100		ug/L	50		OA-1 (GC)	Total/NA
Toluene	762		100		ug/L	50		OA-1 (GC)	Total/NA
Ethylbenzene	687		100		ug/L	50		OA-1 (GC)	Total/NA
Xylenes, Total	2910		300		ug/L	50		OA-1 (GC)	Total/NA

Client Sample ID: LF-1 — Lab Sample ID: 310-246403-4

Analyte	Result	Qualifier	RL	MDL	Unit	Dil Fac	D	Method	Prep Type
Benzene	0.733		0.0967		mg/Kg	1		8260D	Total/NA
Ethylbenzene	2.07		0.0967		mg/Kg	1		8260D	Total/NA
Toluene	0.417		0.0967		mg/Kg	1		8260D	Total/NA
Xylenes, Total	9.91		0.145		mg/Kg	1		8260D	Total/NA
Gasoline	485		9.45		mg/Kg	1		OA-2	Total/NA
Barium	177		1.84		mg/Kg	2	☼	6010D	Total/NA
Chromium	40.9		1.84		mg/Kg	2	☼	6010D	Total/NA
Lead	9.37		9.22		mg/Kg	2	☼	6010D	Total/NA

This Detection Summary does not include radiochemical test results.

Client Sample Results

Client: Seneca Companies
Project/Site: Fmr Kerr McGee (Dairy Queen)

Job ID: 310-246403-1
SDG: 6363555

Client Sample ID: MW3
Date Collected: 12/12/22 11:30
Date Received: 12/13/22 16:35

Lab Sample ID: 310-246403-1
Matrix: Ground Water

Method: Iowa DNR OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	2040		40.0		ug/L			12/16/22 20:51	20
Toluene	214		2.00		ug/L			12/15/22 06:27	1
Ethylbenzene	985		40.0		ug/L			12/16/22 20:51	20
Xylenes, Total	2770		120		ug/L			12/16/22 20:51	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*238*	*S1+*	*46 - 150*		*12/15/22 06:27*	*1*
4-Bromofluorobenzene (Surr)	*126*		*46 - 150*		*12/16/22 20:51*	*20*

Client: Seneca Companies
Project/Site: Fmr Kerr McGee (Dairy Queen)

Job ID: 310-246403-1
SDG: 6363555

Client Sample ID: MW8
Date Collected: 12/12/22 12:10
Date Received: 12/13/22 16:35

Lab Sample ID: 310-246403-2
Matrix: Ground Water

Method: Iowa DNR OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	2220		40.0		ug/L			12/16/22 21:17	20
Toluene	262		2.00		ug/L			12/15/22 05:34	1
Ethylbenzene	1110		40.0		ug/L			12/16/22 21:17	20
Xylenes, Total	3370		120		ug/L			12/16/22 21:17	20

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*217*	*S1+*	*46 - 150*		*12/15/22 05:34*	*1*
4-Bromofluorobenzene (Surr)	*127*		*46 - 150*		*12/16/22 21:17*	*20*

Client Sample Results

Client: Seneca Companies
Project/Site: Fmr Kerr McGee (Dairy Queen)

Job ID: 310-246403-1
SDG: 6363555

Client Sample ID: RW1
Date Collected: 12/12/22 12:35
Date Received: 12/13/22 16:35

Lab Sample ID: 310-246403-3
Matrix: Ground Water

Method: Iowa DNR OA-1 (GC) - Volatile Petroleum Hydrocarbons (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	4660		100		ug/L			12/16/22 21:44	50
Toluene	762		100		ug/L			12/16/22 21:44	50
Ethylbenzene	687		100		ug/L			12/16/22 21:44	50
Xylenes, Total	2910		300		ug/L			12/16/22 21:44	50

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*114*		*46 - 150*		*12/16/22 21:44*	*50*

Client: Seneca Companies
Project/Site: Fmr Kerr McGee (Dairy Queen)

Job ID: 310-246403-1
SDG: 6363555

Client Sample ID: LF-1

Date Collected: 12/12/22 10:10
Date Received: 12/13/22 16:35

Lab Sample ID: 310-246403-4

Matrix: Solid

Method: SW846 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	**0.733**		0.0967		mg/Kg		12/14/22 06:47	12/14/22 23:14	1
Ethylbenzene	**2.07**		0.0967		mg/Kg		12/14/22 06:47	12/14/22 23:14	1
Methyl-t-Butyl Ether (MTBE)	<0.0967		0.0967		mg/Kg		12/14/22 06:47	12/14/22 23:14	1
Toluene	**0.417**		0.0967		mg/Kg		12/14/22 06:47	12/14/22 23:14	1
Xylenes, Total	**9.91**		0.145		mg/Kg		12/14/22 06:47	12/14/22 23:14	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*105*		*80 - 120*	*12/14/22 06:47*	*12/14/22 23:14*	*1*
Dibromofluoromethane (Surr)	*101*		*80 - 120*	*12/14/22 06:47*	*12/14/22 23:14*	*1*
Toluene-d8 (Surr)	*103*		*80 - 120*	*12/14/22 06:47*	*12/14/22 23:14*	*1*

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

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	**485**		9.45		mg/Kg		12/14/22 09:53	12/15/22 11:28	1
Diesel	<9.45		9.45		mg/Kg		12/14/22 09:53	12/15/22 11:28	1
Waste Oil	<9.45		9.45		mg/Kg		12/14/22 09:53	12/15/22 11:28	1
Total Extractable Hydrocarbons	<14.2		14.2		mg/Kg		12/14/22 09:53	12/15/22 11:28	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*88*		*12 - 126*	*12/14/22 09:53*	*12/15/22 11:28*	*1*

Client Sample Results

Client: Seneca Companies
Project/Site: Fmr Kerr McGee (Dairy Queen)

Job ID: 310-246403-1
SDG: 6363555

Client Sample ID: LF-1
Date Collected: 12/12/22 10:10
Date Received: 12/13/22 16:35

Lab Sample ID: 310-246403-4
Matrix: Solid
Percent Solids: 83.5

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<7.38		7.38		mg/Kg	☼	12/20/22 09:35	12/21/22 10:14	2
Barium	**177**		1.84		mg/Kg	☼	12/20/22 09:35	12/21/22 10:14	2
Cadmium	<1.84		1.84		mg/Kg	☼	12/20/22 09:35	12/21/22 10:14	2
Chromium	**40.9**		1.84		mg/Kg	☼	12/20/22 09:35	12/21/22 10:14	2
Lead	**9.37**		9.22		mg/Kg	☼	12/20/22 09:35	12/21/22 10:14	2
Selenium	<9.22		9.22		mg/Kg	☼	12/20/22 09:35	12/21/22 10:14	2
Silver	<1.84		1.84		mg/Kg	☼	12/20/22 09:35	12/21/22 10:14	2

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0212		0.0212		mg/Kg	☼	12/16/22 14:17	12/20/22 15:40	1

Definitions/Glossary

Client: Seneca Companies
Project/Site: Fmr Kerr McGee (Dairy Queen)

Job ID: 310-246403-1
SDG: 6363555

Qualifiers

GC VOA

Qualifier	Qualifier Description
S1+	Surrogate recovery exceeds control limits, high biased.

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
CFU	Colony Forming Unit
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)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
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)
TNTC	Too Numerous To Count

Surrogate Summary

Client: Seneca Companies
Project/Site: Fmr Kerr McGee (Dairy Queen)

Job ID: 310-246403-1
SDG: 6363555

Method: 8260D - Volatile Organic Compounds by GC/MS

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)		
		BFB	DBFM	TOL
Lab Sample ID	Client Sample ID	(80-120)	(80-120)	(80-120)
310-246403-4	LF-1	105	101	103
LCS 310-374713/2-A	Lab Control Sample	97	106	100
MB 310-374713/1-A	Method Blank	99	103	96

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)
DBFM = Dibromofluoromethane (Surr)
TOL = Toluene-d8 (Surr)

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

Matrix: Ground Water — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		BFB
Lab Sample ID	Client Sample ID	(46-150)
310-246403-1	MW3	238 S1+
310-246403-1	MW3	126
310-246403-2	MW8	217 S1+
310-246403-2	MW8	127
310-246403-3	RW1	114

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)
		BFB
Lab Sample ID	Client Sample ID	(46-150)
LCS 310-374834/6	Lab Control Sample	93
LCS 310-375081/4	Lab Control Sample	124
MB 310-374834/7	Method Blank	78
MB 310-375081/3	Method Blank	102

Surrogate Legend

BFB = 4-Bromofluorobenzene (Surr)

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

Matrix: Solid — **Prep Type: Total/NA**

		Percent Surrogate Recovery (Acceptance Limits)
		OTCN
Lab Sample ID	Client Sample ID	(12-126)
310-246403-4	LF-1	88
LCS 310-374769/2-A	Lab Control Sample	100
MB 310-374769/1-A	Method Blank	90

Surrogate Legend

OTCN = n-Octacosane

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 310-374713/1-A
Matrix: Solid
Analysis Batch: 374716

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 374713

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0948		0.0948		mg/Kg		12/14/22 06:47	12/14/22 17:40	1
Ethylbenzene	<0.0948		0.0948		mg/Kg		12/14/22 06:47	12/14/22 17:40	1
Methyl-t-Butyl Ether (MTBE)	<0.0948		0.0948		mg/Kg		12/14/22 06:47	12/14/22 17:40	1
Toluene	<0.0948		0.0948		mg/Kg		12/14/22 06:47	12/14/22 17:40	1
Xylenes, Total	<0.142		0.142		mg/Kg		12/14/22 06:47	12/14/22 17:40	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*99*		*80 - 120*	*12/14/22 06:47*	*12/14/22 17:40*	*1*
Dibromofluoromethane (Surr)	*103*		*80 - 120*	*12/14/22 06:47*	*12/14/22 17:40*	*1*
Toluene-d8 (Surr)	*96*		*80 - 120*	*12/14/22 06:47*	*12/14/22 17:40*	*1*

Lab Sample ID: LCS 310-374713/2-A
Matrix: Solid
Analysis Batch: 374716

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 374713

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			0.989	0.9944		mg/Kg		101	80 - 130		
Ethylbenzene			0.989	1.024		mg/Kg		104	80 - 128		
Methyl-t-Butyl Ether (MTBE)			0.989	1.127		mg/Kg		114	70 - 138		
Toluene			0.989	1.057		mg/Kg		107	80 - 127		
Xylenes, Total			1.98	2.106		mg/Kg		106	80 - 128		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*97*		*80 - 120*
Dibromofluoromethane (Surr)	*106*		*80 - 120*
Toluene-d8 (Surr)	*100*		*80 - 120*

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

Lab Sample ID: MB 310-374834/7
Matrix: Water
Analysis Batch: 374834

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00		2.00		ug/L			12/14/22 21:38	1
Toluene	<2.00		2.00		ug/L			12/14/22 21:38	1
Ethylbenzene	<2.00		2.00		ug/L			12/14/22 21:38	1
Xylenes, Total	<6.00		6.00		ug/L			12/14/22 21:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*78*		*46 - 150*		*12/14/22 21:38*	*1*

Lab Sample ID: LCS 310-374834/6
Matrix: Water
Analysis Batch: 374834

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	33.80		ug/L		84	76 - 120		

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

Lab Sample ID: LCS 310-374834/6
Matrix: Water
Analysis Batch: 374834

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Toluene			40.0	33.68		ug/L		84	80 - 120		
Ethylbenzene			40.0	33.98		ug/L		85	80 - 120		
Xylenes, Total			120	108.2		ug/L		90	79 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*93*		*46 - 150*

Lab Sample ID: MB 310-375081/3
Matrix: Water
Analysis Batch: 375081

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

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<2.00		2.00		ug/L			12/16/22 18:39	1
Toluene	<2.00		2.00		ug/L			12/16/22 18:39	1
Ethylbenzene	<2.00		2.00		ug/L			12/16/22 18:39	1
Xylenes, Total	<6.00		6.00		ug/L			12/16/22 18:39	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
4-Bromofluorobenzene (Surr)	*102*		*46 - 150*		*12/16/22 18:39*	*1*

Lab Sample ID: LCS 310-375081/4
Matrix: Water
Analysis Batch: 375081

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Benzene			80.0	73.11		ug/L		91	76 - 120		
Toluene			80.0	69.25		ug/L		87	80 - 120		
Ethylbenzene			80.0	70.31		ug/L		88	80 - 120		
Xylenes, Total			240	217.5		ug/L		91	79 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
4-Bromofluorobenzene (Surr)	*124*		*46 - 150*

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

Lab Sample ID: MB 310-374769/1-A
Matrix: Solid
Analysis Batch: 374862

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 374769

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline	<9.49		9.49		mg/Kg		12/14/22 09:53	12/15/22 10:18	1
Diesel	<9.49		9.49		mg/Kg		12/14/22 09:53	12/15/22 10:18	1
Waste Oil	<9.49		9.49		mg/Kg		12/14/22 09:53	12/15/22 10:18	1
Total Extractable Hydrocarbons	<14.2		14.2		mg/Kg		12/14/22 09:53	12/15/22 10:18	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
n-Octacosane	*90*		*12 - 126*	*12/14/22 09:53*	*12/15/22 10:18*	*1*

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

Lab Sample ID: LCS 310-374769/2-A
Matrix: Solid
Analysis Batch: 374862

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 374769

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Diesel			127	144.8		mg/Kg		114	34 - 120		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
n-Octacosane	*100*		*12 - 126*

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 310-375075/1-A
Matrix: Solid
Analysis Batch: 375447

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 375075

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<3.57		3.57		mg/Kg		12/20/22 09:35	12/20/22 16:00	1
Barium	<0.893		0.893		mg/Kg		12/20/22 09:35	12/20/22 16:00	1
Cadmium	<0.893		0.893		mg/Kg		12/20/22 09:35	12/20/22 16:00	1
Chromium	<0.893		0.893		mg/Kg		12/20/22 09:35	12/20/22 16:00	1
Lead	<4.46		4.46		mg/Kg		12/20/22 09:35	12/20/22 16:00	1
Selenium	<4.46		4.46		mg/Kg		12/20/22 09:35	12/20/22 16:00	1
Silver	<0.893		0.893		mg/Kg		12/20/22 09:35	12/20/22 16:00	1

Lab Sample ID: LCS 310-375075/2-A
Matrix: Solid
Analysis Batch: 375447

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 375075

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Arsenic			175	200.2		mg/Kg		114	80 - 120		
Barium			87.6	101.3		mg/Kg		116	80 - 120		
Cadmium			87.6	96.00		mg/Kg		110	80 - 120		
Chromium			87.6	97.65		mg/Kg		112	80 - 120		
Lead			175	186.3		mg/Kg		106	80 - 120		
Selenium			350	389.9		mg/Kg		111	80 - 120		
Silver			87.6	100.0		mg/Kg		114	80 - 120		

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 310-375066/1-A
Matrix: Solid
Analysis Batch: 375381

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 375066

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0193		0.0193		mg/Kg		12/16/22 15:17	12/20/22 15:23	1

Lab Sample ID: LCS 310-375066/2-A
Matrix: Solid
Analysis Batch: 375381

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 375066

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.138	0.1383		mg/Kg		100	80 - 120		

QC Association Summary

Client: Seneca Companies
Project/Site: Fmr Kerr McGee (Dairy Queen)

Job ID: 310-246403-1
SDG: 6363555

GC/MS VOA

Prep Batch: 374713

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-246403-4	LF-1	Total/NA	Solid	5035	
MB 310-374713/1-A	Method Blank	Total/NA	Solid	5035	
LCS 310-374713/2-A	Lab Control Sample	Total/NA	Solid	5035	

Analysis Batch: 374716

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-246403-4	LF-1	Total/NA	Solid	8260D	374713
MB 310-374713/1-A	Method Blank	Total/NA	Solid	8260D	374713
LCS 310-374713/2-A	Lab Control Sample	Total/NA	Solid	8260D	374713

GC VOA

Analysis Batch: 374834

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-246403-1	MW3	Total/NA	Ground Water	OA-1 (GC)	
310-246403-2	MW8	Total/NA	Ground Water	OA-1 (GC)	
MB 310-374834/7	Method Blank	Total/NA	Water	OA-1 (GC)	
LCS 310-374834/6	Lab Control Sample	Total/NA	Water	OA-1 (GC)	

Analysis Batch: 375081

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-246403-1	MW3	Total/NA	Ground Water	OA-1 (GC)	
310-246403-2	MW8	Total/NA	Ground Water	OA-1 (GC)	
310-246403-3	RW1	Total/NA	Ground Water	OA-1 (GC)	
MB 310-375081/3	Method Blank	Total/NA	Water	OA-1 (GC)	
LCS 310-375081/4	Lab Control Sample	Total/NA	Water	OA-1 (GC)	

GC Semi VOA

Prep Batch: 374769

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-246403-4	LF-1	Total/NA	Solid	3546	
MB 310-374769/1-A	Method Blank	Total/NA	Solid	3546	
LCS 310-374769/2-A	Lab Control Sample	Total/NA	Solid	3546	

Analysis Batch: 374862

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-246403-4	LF-1	Total/NA	Solid	OA-2	374769
MB 310-374769/1-A	Method Blank	Total/NA	Solid	OA-2	374769
LCS 310-374769/2-A	Lab Control Sample	Total/NA	Solid	OA-2	374769

Metals

Prep Batch: 375066

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-246403-4	LF-1	Total/NA	Solid	7471B	
MB 310-375066/1-A	Method Blank	Total/NA	Solid	7471B	
LCS 310-375066/2-A	Lab Control Sample	Total/NA	Solid	7471B	

Prep Batch: 375075

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-246403-4	LF-1	Total/NA	Solid	3050B	

Metals (Continued)

Prep Batch: 375075 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 310-375075/1-A	Method Blank	Total/NA	Solid	3050B	
LCS 310-375075/2-A	Lab Control Sample	Total/NA	Solid	3050B	

Analysis Batch: 375381

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-246403-4	LF-1	Total/NA	Solid	7471B	375066
MB 310-375066/1-A	Method Blank	Total/NA	Solid	7471B	375066
LCS 310-375066/2-A	Lab Control Sample	Total/NA	Solid	7471B	375066

Analysis Batch: 375447

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
310-246403-4	LF-1	Total/NA	Solid	6010D	375075
MB 310-375075/1-A	Method Blank	Total/NA	Solid	6010D	375075
LCS 310-375075/2-A	Lab Control Sample	Total/NA	Solid	6010D	375075

Lab Chronicle

Client: Seneca Companies
Project/Site: Fmr Kerr McGee (Dairy Queen)

Job ID: 310-246403-1
SDG: 6363555

Client Sample ID: MW3
Date Collected: 12/12/22 11:30
Date Received: 12/13/22 16:35

Lab Sample ID: 310-246403-1
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	OA-1 (GC)		1	374834	ZB9H	EET CF	12/15/22 06:27
Total/NA	Analysis	OA-1 (GC)		20	375081	ZB9H	EET CF	12/16/22 20:51

Client Sample ID: MW8
Date Collected: 12/12/22 12:10
Date Received: 12/13/22 16:35

Lab Sample ID: 310-246403-2
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	OA-1 (GC)		1	374834	ZB9H	EET CF	12/15/22 05:34
Total/NA	Analysis	OA-1 (GC)		20	375081	ZB9H	EET CF	12/16/22 21:17

Client Sample ID: RW1
Date Collected: 12/12/22 12:35
Date Received: 12/13/22 16:35

Lab Sample ID: 310-246403-3
Matrix: Ground Water

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Analysis	OA-1 (GC)		50	375081	ZB9H	EET CF	12/16/22 21:44

Client Sample ID: LF-1
Date Collected: 12/12/22 10:10
Date Received: 12/13/22 16:35

Lab Sample ID: 310-246403-4
Matrix: Solid

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	5035			374713	MZR8	EET CF	12/14/22 06:47
Total/NA	Analysis	8260D		1	374716	MZR8	EET CF	12/14/22 23:14
Total/NA	Prep	3546			374769	GW4G	EET CF	12/14/22 09:53
Total/NA	Analysis	OA-2		1	374862	C3AA	EET CF	12/15/22 11:28

Client Sample ID: LF-1
Date Collected: 12/12/22 10:10
Date Received: 12/13/22 16:35

Lab Sample ID: 310-246403-4
Matrix: Solid
Percent Solids: 83.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Prep	3050B			375075	QTZ5	EET CF	12/20/22 09:35
Total/NA	Analysis	6010D		2	375447	ZRI4	EET CF	12/21/22 10:14
Total/NA	Prep	7471B			375066	XXW3	EET CF	12/16/22 14:17
Total/NA	Analysis	7471B		1	375381	XXW3	EET CF	12/20/22 15:40

Laboratory References:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

Accreditation/Certification Summary

Client: Seneca Companies
Job ID: 310-246403-1
Project/Site: Fmr Kerr McGee (Dairy Queen)
SDG: 6363555

Laboratory: Eurofins Cedar Falls

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

Authority	Program	Identification Number	Expiration Date
Iowa	State	007	12-01-23

Method Summary

Client: Seneca Companies
Project/Site: Fmr Kerr McGee (Dairy Queen)

Job ID: 310-246403-1
SDG: 6363555

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET CF
OA-1 (GC)	Volatile Petroleum Hydrocarbons (GC)	Iowa DNR	EET CF
OA-2	Iowa - Extractable Petroleum Hydrocarbons (GC)	Iowa DNR	EET CF
6010D	Metals (ICP)	SW846	EET CF
7471B	Mercury (CVAA)	SW846	EET CF
3050B	Preparation, Metals	SW846	EET CF
3546	Microwave Extraction	SW846	EET CF
5030B	Purge and Trap	SW846	EET CF
5035	Purge and Trap for Methanol Extractions	SW846	EET CF
7471B	Preparation, Mercury	SW846	EET 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:

EET CF = Eurofins Cedar Falls, 3019 Venture Way, Cedar Falls, IA 50613, TEL (319)277-2401

eurofins | Environment Testing America

310-246403 Chain of Custody

Cooler/Sample Receipt and Temperature Log Form

Client Information

Client: Seneca

City/State: CITY Des Moines | STATE IA | Project:

Receipt Information

Date/Time Received: DATE 12/13/22 | TIME 1635 | Received By: EH

Delivery Type: ☐ UPS ☐ FedEx ☐ FedEx Ground ☐ US Mail ☐ Spee-Dee
☑ Lab Courier ☐ Lab Field Services ☐ Client Drop-off ☐ Other:_____

Condition of Cooler/Containers

Sample(s) received in Cooler?	☑ Yes	☐ No	*If yes:* Cooler ID:
Multiple Coolers?	☐ Yes	☑ No	*If yes:* Cooler # _____ of _____
Cooler Custody Seals Present?	☑ Yes	☐ No	*If yes:* Cooler custody seals intact? ☐ Yes ☐ No
Sample Custody Seals Present?	☐ Yes	☑ No	*If yes:* Sample custody seals intact? ☐ Yes ☐ No
Trip Blank Present?	☐ Yes	☑ No	*If yes:* Which VOA samples are in cooler? ↓

Temperature Record

Coolant: ☑ Wet ice ☐ Blue ice ☐ Dry ice ☐ Other:_____ ☐ NONE

Thermometer ID: R | Correction Factor (°C): 0

• Temp Blank Temperature – If no temp blank, or temp blank temperature above criteria, proceed to Sample Container Temperature

Uncorrected Temp (°C): 0.4 | Corrected Temp (°C): 0.4

• Sample Container Temperature

	CONTAINER 1	CONTAINER 2
Container(s) used:		
Uncorrected Temp (°C):		
Corrected Temp (°C):		

Exceptions Noted

1) If temperature exceeds criteria, was sample(s) received same day of sampling? ☐ Yes ☐ No
   a) *If yes:* Is there evidence that the chilling process began? ☐ Yes ☐ 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?) ☐ Yes ☐ No

NOTE: If yes, contact PM before proceeding. If no, proceed with login

Additional Comments

eurofins

Environment Testing
TestAmerica

Cedar Falls Division
3019 Venture Way
Cedar Falls, IA 50613

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

Company: Seneca Companies, Inc.
Your PO #: 415159
Send Report To: Leslie Nagel
Invoice To accountspayable@senecaco.com
Address: 4140 E. 14th Street
Quote #:
City/State/Zip Code: Des Moines, IA
Project Name: **Fmr Kerr McGee (Dairy Queen)**
Telephone Number: 515-262-3500 Cell:
436 Lincoln Way
Email Address for Reports to be sent: lnagel@senecaco.com
Nevada IA
Sampled By: (Print Name) C Auch PH-105
(Signature)
Project Number: 6363555
Project Manager: Leslie Nagel

Sample ID	Date Sampled	Time Sampled	# of containers shipped	Grab	Composite	Field Filtered	Preservative: Ice	HNO3 (Red & White Label)	HCl (Blue & White Label)	NaOH (Orange & White Label)	H2SO4 Plastic (Yellow & White Label)	H2SO4 Glass(Yellow & White Label)	None (Black & White Label)	Other (Specify)	Matrix: Groundwater	Wastewater	Drinking Water	Sludge	Soil	Other Specify	Analyze For: OA1	OA2	MTBE	RCRA 8 metals							RUSH TAT (Must call ahead!)	Standard TAT	E-mail results	Fax Results
MW3	12/12/22	11 30	3	x			x		x						x						x											x		
MW8		12 10	3	x			x		x						x						x											x		
RW1		12:35	3	x			x		x						x						x											x		
LF-1	↓	10.10	1	x			x						x						x		x	x	x	x								x		

NOTICE: **Pre-Arrangements must be made *AT LEAST 48 Hours in ADVANCE* to receive results with these turn around time commitments; Additional Charges may be assessed.**

Notes

Relinquished by	Date	Time	Received by	Date	Time	Relinquished by	Date	Time
	12/13/22	1330						
Received for TestAmerica by	Date	Time	COC Seals Present and Intact? Yes No	Laboratory Comments.				
	12/13/22	1635	Shipped via.					

Login Sample Receipt Checklist

Client: Seneca Companies

Job Number: 310-246403-1
SDG Number: 6363555

Login Number: 246403
List Number: 1
Creator: Richardson, Lydia E

List Source: Eurofins Cedar Falls

Question	Answer	Comment
Radioactivity wasn't checked or is </= background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
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 <6mm (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	