Scott A. Thompson
Executive Director

OKLAHOMA Environmental Quality

Kevin Stitt
Governor

February 23, 2024

Marcus Tilley, Environmental Engineer
HydroAg Environmental, LLC.
1509 E. Main St., Suite 4
Russellville, Arkansas 72811

Re: General Permit No. OKLAS2400001 - Approved
One-Time Land Application of Biosolids
Camp Maxey Wastewater Treatment Plant
Facility No. N/A
OPDES Permit No. N/A

Dear Mr. Tilley:

The Oklahoma Department of Environmental Quality (DEQ), Water Quality Division (WQD) is enclosing the authorization to operate in compliance with General Permit No. OKLAS2400001, for a one-time land application of biosolids from the Texas Army National Guard's Camp Maxey (Camp) wastewater treatment plant lagoons. The biosolids from the lagoons will be pumped to sealed tanker trucks for transport to the application site, then incorporated by discing. The Camp's application for this authorization was submitted to DEQ on November 30, 2023.

This authorization is approved in accordance with requirements of Oklahoma Administrative Code (OAC) 252:606, as adopted and promulgated pursuant to the Environmental Code, 27 Oklahoma Statute (O.S.) Supp. 2011.

The authorization is for a one-time application of biosolids to the following sites:

Site AF-1:	38.8 acres located within the NE ¼, NW ¼, NW ¼, of Section 3, Township 7 South, Range 18 East of the Indian Meridian, Choctaw County, Oklahoma.
Site AF-2:	50.1 acres located within the NE ¼, NW ¼, NW ¼, of Section 3, Township 7 South, Range 18 East of the Indian Meridian, Choctaw County, Oklahoma.

The biosolids operation authorized by this document should be maintained in accordance with the DEQ General Permit. DEQ must approve any deviation from this authorization in writing before changes can be made. I am returning a copy of the signed Authorization for your records. Please feel free to contact me at 405-702-8109 if you have any questions or concerns.

Sincerely,

Toby Harden, P.E., District Engineer
Municipal Wastewater Enforcement Section
Water Quality Division
Oklahoma Department of Environmental Quality

Enclosure: As stated

TWH/MM/hb WM/CB

cc: Kody Johnson, ECLS, Idabel DEQ Office
Jeff Brents, ECLS, Regional Manager, DEQ

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
AUTHORIZATION FOR ONE TIME LAND APPLICATION OF SEWAGE SLUDGE
UNDER GENERAL PERMIT NO. GP-OK65S
AUTHORIZATION NO. OKLAS2400001

In compliance with Oklahoma Statute, 27A § 2-14-305 (2011) as amended, and the Rules of the Oklahoma Department of Environmental Quality (DEQ) promulgated thereunder, and in reliance on the certified statement and representation heretofore made in its application:

HydroAg Environmental, LLC
1509 E. Main St., Suite 4
Russellville, Arkansas 72811
Facility No. N/A

Is hereby authorized for a one-time land application of biosolids from the Texas Army National Guard's Camp Maxey Wastewater Treatment Plant to the following site:

Site AF-1: 38.8 acres located within the NE ¼, NW ¼, NW ¼, of Section 3, Township 7 South, Range 18 East of the Indian Meridian, Choctaw County, Oklahoma.

Site AF-2: 50.1 acres located within the NE ¼, NW ¼, NW ¼, of Section 3, Township 7 South, Range 18 East of the Indian Meridian, Choctaw County, Oklahoma.

whose site-specific and land application site conditions conform to and are in accordance with residuals characteristics, monitoring requirements and other conditions set forth in Part I of this Authorization.

Issuance of this Authorization in no way or in any respect affects the permittee's civil or criminal responsibilities regarding beneficial reuse of biosolids, except with respect to the permittee's legal responsibility under the Environmental Code and Rules promulgated by the Board of Environmental Quality to obtain this permit.

This Authorization is non-transferable and is granted summarily by and at the discretion of the Executive Director in accordance with applicable DEQ Rules and provisions of the above-referenced Permit.

This is to certify that the proposed beneficial reuse of biosolids set forth in this Authorization meets the requirements of the DEQ Rules, provided the permittee does not exceed the loading rates and/or metal concentrations set forth in this Authorization.

Issued this 23rd day of February 2024.

Myles Mungle, P.E., Engineering Manager
Municipal Wastewater Enforcement Section
Water Quality Division
Oklahoma Department of Environmental Quality

Note: Expiration date is upon completion of existing biosolids removal as described in the application.

PART I: MONITORING, LOADING RATES, METAL CONCENTRATIONS AND OTHER REQUIREMENTS.

SECTION A - MONITORING REQUIREMENTS

During the period beginning on the effective date and lasting through the expiration date of this Authorization, the Permittee shall monitor all land application of sewage sludge in accordance with the following schedule.

Pollutants shall be monitored at the frequency schedule(s) shown below:

Amount of Sewage Sludge* (Metric tons/365-day period)	**Frequency**
$0 \geq$ Sludge ≤ 290	Once/Year
$290 \geq$ Sludge $\leq 1,500$	Once/Quarter
$1,500 \geq$ Sludge $\leq 15,000$	Once/Two Months
$15,000 \geq$ Sludge	Once/Month

*The amount of bulk sewage sludge applied to the land (dry weight basis).

Representative samples of sewage sludge shall be collected and analyzed in accordance with the methods referenced in 40 C.F.R. § 503.8 (b) (2011).

The required monitoring results shall be retained for the period of the Authorization. The results shall be submitted to DEQ as follows:

SAMPLING FREQUENCY	**REPORTING DEADLINE(S)**
Yearly	
January	February 28
Quarterly	
January, February, and March	April 28
April, May, and June	July 28
July, August, and September	October 28
October, November, and December	January 28
Bi-monthly	
January - February	March 28
March - April	May 28
May - June	July 28
July - August	September 28
September - October	November 28
November - December	January 28
Monthly Sampling	**Due the 28th of the following month**

SECTION B - LOADING RATES AND METAL CONCENTRATIONS

In addition to all other requirements and conditions of this General Permit, the Permittee is authorized to land apply sewage sludge only upon the condition that the pollutant ceiling concentration and cumulative pollutant loading rate shall not exceed the listed numerical limits.

Metal concentrations of sewage sludge - Sewage sludge shall not be applied to the land if the concentration of any of the pollutants exceeds the following pollutant concentrations:

TABLE 1	
Pollutant	**Ceiling Concentrations (milligrams per kilogram) ***
Arsenic	75
Cadmium	85
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
Selenium	100
Zinc	7500

*Dry Weight Basis

Cumulative Pollutant Loading Rate Limits:

TABLE 2	
Pollutant	**Cumulative Pollutant Loading Rate (kilograms per hectare)**
Arsenic	41
Cadmium	39
Copper	1500
Lead	300
Mercury	17
Molybdenum	Monitor
Nickel	420
Selenium	100
Zinc	2800

All bulk sewage sludge which is applied to agricultural land, forest, or a reclamation site shall be treated by either Class A or Class B pathogen reduction requirements as defined in Part I Section 1.B.5 of the General Permit. The Permittee may land apply sewage sludge only during the effective date of this Authorization and shall immediately cease and desist any and all land application of sewage sludge made pursuant to such Authorization upon its expiration or at any time the required monitoring indicates that the cumulative loading rate is greater than the allowable rate set forth in this Authorization.

PART II: SPECIAL AND STANDARD CONDITIONS

SECTION A - SPECIAL CONDITIONS

1. There shall be no runoff or discharge from the land application site.
2. The commingling of sewage sludge with any other type of sludge or wastewater intended for land application is not allowed under this Authorization. Sludge which results from the commingling of sewage and any other additive shall not be land applied under this Authorization.
3. Special conditions and/or modification for specific land application sites will be included in the Authorization as necessary to protect the waters of the State.
4. When storage of sewage sludge is necessary, prior to land application, the sludge must be stored in a manner to prevent pollution to the waters of the State.
5. The Permittee is hereby given notice that this Authorization is in all respects subject to compliance with any and all applicable and relevant terms, conditions, provisions and requirements and any and all amendments of the laws of the State of Oklahoma and the Board of Environmental Quality's Rules. The absence of any express reference within this Authorization to any particular statutory requirement, rule(s) or standard(s) shall in no respect be deemed or construed to exempt or preclude the application of such requirement, rule(s) and standard(s) to this Authorization or the Permittee. By approval, grant and issuance of this Authorization, Permittee acknowledges receipt of true, correct, and current copies of the Board of Environmental Quality's rules (as amended) provided, however, that Permittee further acknowledges that any and all amendments thereto shall become part of this Authorization.

SECTION B - STANDARD CONDITIONS

1. Duty to reapply: If the Permittee wishes to continue an activity regulated by this Authorization after the expiration date of said Authorization, the Permittee must reapply for and obtain a new Authorization. Application for renewal shall be submitted at least ninety (90) days before the expiration date of the original Authorization. DEQ may grant permission to submit a renewal application out of time but not later than the original Authorization expiration date.
2. Duty to provide information: The Permittee shall furnish to t DEQ within reasonable time, any information which DEQ may request to determine whether cause exists for modifying or revoking the Authorization, or to determine compliance with the Authorization.
3. Facilities operation: All facilities and equipment used by the Permittee shall be operated as efficiently as possible and be maintained in good working order so as to achieve compliance with the terms and conditions of this Authorization.
4. Right to entry: The Permittee shall allow any representative of DEQ, upon presentation of credentials to a responsible person to:
    a. Enter upon the Permittee's premises where sewage sludge is being land applied or where any records are required to be kept under the terms and conditions of the permit.
    b. At reasonable times have access to and copy any records required to be kept under the terms and conditions of this Authorization; to inspect any equipment utilized in the land application of the sewage sludge; to take photographs; and to sample the sewage sludge being land applied or the soil at the land application site.

c. Enter upon the Permittee's premises to examine and inspect any facilities and equipment covered under the terms of the permit.

5. Monitoring and reporting: All monitoring and reporting shall be in accordance with Part I, Section A of the Authorization.

6. Noncompliance notification: If, for any reason, the Permittee does not comply with or is unable to comply with any term(s) or condition(s) of the permit, the Permittee shall within five (5) days of becoming aware of such condition, provide DEQ with the following information in writing:
   a. Description of the noncompliance and the cause; and
   b. the period of noncompliance, including exact dates and times; or, if not corrected the anticipated time the noncompliance is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the noncompliance.

7. Sludge application limitations: Sewage sludge shall not be applied to any site which is flooded, frozen, snow covered or within 10 meters of any water of the United States.

Mr. Myles Mungle
ODEQ – Water Quality Division
707 N. Robinson
P.O. Box 1677
Oklahoma City, OK 73102-1677

RE: Biosolids Land Application Permit
Camp Maxey WWTP - Powderly, TX

Dear Mr. Mungle:

HydroAg Environmental, LLC (HydroAg) land applies wastewater treatment plant biosolids as a beneficial fertilizer/soil amendment in several States. HydroAg intends to recycle wastewater residuals from the above referenced facility in the soil amendment/fertilizer land application recycling program at sites located near Hugo, OK in Choctaw County.

Attached please find the following information:

1. Endorsement Letter from SMR Construction
2. Form 850SMP
3. General Permit Application Form
4. Waste Management Plan
5. Laboratory analysis of the residuals
6. Land Application Site Location Descriptions
7. Land Use Agreement
8. Agronomic Rate Calculations

If you have any questions or need any additional information, please contact me at (501) 581-1208 or email me at mtilley@gohydroag.com.

Sincerely,

M Tilley

Marcus Tilley
Environmental Engineer
HydroAg Environmental, LLC
www.gohydroag.com

Oklahoma Department of Environmental Quality
707 N. Robinson, OKC OK 73102-6010

Application for Municipal Sludge Land Application Permit

As required by the Oklahoma Environmental Quality Code

This application is to be submitted to obtain a Municipal Sludge Land Application Permit.
Application, plans, and specifications submitted in quadruplicate through the County DEQ personnel.

To the Executive Director of The Department of Environmental Quality
Department of Environmental Quality
Water Quality Division
P.O. Box 1677
Oklahoma City, OK 73101-1677

Date: 11/22/23

Application

The applicant, HydroAg Environmental, LLC (Name of Applicant (Print or Type)), proposes to land apply sludge generated at Camp Maxey WWTP (Name of Treatment Plant (Print or Type)), facility ID No. TCEQ Permit No. WQ0013249001, located at LOCATED APPROX 1/2 M SE OF THE INTERSECTION OF US HWY 271 & FM 2648 IN LAMAR COUNTY, POWDERLY, TX 75473 (Legal Description)

HydroAg Environmental, LLC (Name of Applicant), hereby makes application for a permit to land apply sludge as required by OAC 252:648 of the Oklahoma Environmental Quality Code, 27A O.S. Supp. 1993, Section 2-1-2-101 et seq., the Solid Waste Management Act, 27A:2-10-101 et siq., Article VI of the Code [Water Quality], 27A:2-6-101 et siq., the Oklahoma Pollutant Discharge Elimination System Act, 27A:2-6-201 et sig. And any rules and regulations pursuant thereto.

Applicant Signature

Note: Application must be signed by the authorized chief elective or executive officer of the applicant. Information must be legible.

M Tilley
Signature

Marcus Tilley
Name of Authorized Signature (Print or Type)

Member
Title

HydroAg Environmental, LLC
Name of Organization (Print or Type)

1509 E Main St., Suite 4
Street Address (Print or Type)

Russellville, AR 72811
City/State/Zip Code

COUNTY DEQ PERSONNEL ONLY	DO NOT USE THIS SPACE - ODEQ ONLY
I have had the opportunity to review this application and comment on it. Signature: _____ Title: _____ County: _____ Date: _____	

SITE NAME/ DESIGNATION	STREET NAME (if applicable)	LEGAL DESCRIPTION (including county)	LONGITUDE LATITUDE
AF-1	E 2100 Rd	S3 T 7S R 18E Choctaw County	33.640803° -94.094193°
AF-2	E 2100 Rd	S3 T 7S R 18E Choctaw County	33.753033° -94.144474°

OKLAHOMA DEPARTMENT OF ENVIRONMENTAL QUALITY
APPLICATION FOR AUTHORIZATION TO BE COVERED UNDER GENERAL PERMIT GP NO ____
FOR LAND APPLICATION OF SEWAGE SLUDGE

FORM_____

FOR DEQ USE ONLY	**Application/Permit Number GP** _____ **Date Received** _____ **One Time Land Application** _____, **Minor Facility** _____ **DEQ Biosolids Coordinator** _____

SECTION I

1. **Legal name of applicant:**
   HydroAg Environmental, LLC
2. **Mailing address of applicant:**
   Street address or PO Box P.O. Box 1162
   City Russellville County Pope State AR Zip 72811
   Telephone (501) 581-1208
3. **Name and address of facility:**
   Facility Name Land application only. No facility.
   City _____ County _____ State _____ Zip
4. **Location of land application site:**
   Legal Description: SW¼, SE¼, SE ¼, Sec 3, T 7S, R 18E, ( ) IM ( ) CM.
   Entry Point: Longitude 33.968387°, Latitude -95.403988°.
5. **Type Ownership** Public ( ) Private (X) Federal ( ) State ( )
6. **Contact Person:**
   Name & Title Marcus Tilley, Engineer
   Street address or PO Box P.O. Box 1162
   City Russellville County Faulkner State AR Zip 72811
   Telephone (501) 581-1208
7. **Type of Treatment:**
   Minor Facility: Design Capacity 7000 gpd Estimated Sludge Production 5 Dry Tons/Year
   Lagoon: Estimated sludge quantity 80 Dry Tons
   Other sludge storage facility: Estimated sludge quantity N/A (Dry Tons)
8. **Does Facility Receive Industrial Wastes?** Yes ( ) No (X)
   If "yes", What is the average daily industrial waste flow _____ GPD
   If the facility receives wastewater from a categorical industry, you must submit Section II of this form (attached) for each categorical industrial facility discharging to the sewer system.
9. **Are industrial discharge(s) to the system controlled by ordinance?** Yes ( ) No ( )

10. Sludge generated by the facility:

A. When was the last time sludge was removed from the facility (date) This will be the first time.

B. Was removal authorized by DEQ? Yes ( ) No ( )

C. How was it disposed of (describe the disposal method) _____

_____

_____

D. Location(s) of the disposal site(s) (legal description to the nearest 10 acres) _____

_____

E. Sludge Management Plan, if any:
Sludge Plan ID Number _____ approved by the Department of Environmental Quality

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate and complete. I also certify that I will provide for the operation of this facility in accordance with the Oklahoma Discharge Permits and Pollution Control Regulations and will provide certified operators as required by the Oklahoma Water and Wastewater Operations Certification Act. I further certify that I shall acquire or possess a right to the use of the property or properties on which the land application activities are located as well as the access route thereto. I understand I shall maintain such right of use and access for the duration of the permit term. I am aware that there are significant penalties for submitting false information, including revocation of the permit and the possibility of fine and imprisonment.

Note: Application must be signed by the authorized chief elective or executive officer of the applicant, or by the applicant, if an individual.

Name (print) Marcus Tilley

Title Member

Date 11/22/23

Signature M Tilley

Subscribed and sworn to before me this 27th *day of* 11, 2023.

Oscar Garcia *My commission expires* 9-9-32

This application shall be filed in duplicate with the original and one copy to be submitted to the DEQ, and one copy to be submitted to the local DEQ office.

Please return completed form with attachments to:

Water Quality Division
Department of Environmental Quality
707 N. Robinson, P>O. Box 1677
Oklahoma City, Oklahoma 73102-1677

OSCAR GARCIA
Notary Public - Arkansas
Yell County
Commission # 12720576
My Commission Expires Sep 9, 2032

SMR
CONSTRUCTION

November 22, 2023

HydroAg Environmental, LLC
1509 E Main St
Ste 4
Russellville, AR 72802

Re: **Endorsement Letter for HydroAg**
Contract No. CFMO23-ENG-C-05
Camp Maxey Wastewater Improvements

To Whom It May Concern,

The Camp Maxey National Guard Training site located near Powderly, TX owns and operates a wastewater treatment facility that is being renovated to be in compliance with TCEQ regulations. The wastewater is of domestic origin with no industrial waste streams. SMR Construction is overseeing the wastewater treatment facility renovations for Camp Maxey. Part of the renovations are to remove the wastewater residuals from 3 small lagoons and land apply them as a beneficial soil amendment/fertilizer in Oklahoma.

The cleanout and land application will be conducted by HydroAg Environmental, LLC out of Russellville, AR. HydroAg management and ownership has over 60 years of combined experience in wastewater handling, land application, and regulatory compliance. HydroAg is applying for a one-time land application authorization under a General Permit for Land Application of Sewage Sludge.

Please accept this letter as an endorsement to issue this authorization to HydroAg Environmental, LLC. If you have any questions, please give me a call.

Respectfully,

Henry Herrera

Henry Herrera
Project Manager

HydroAg Environmental, LLC
Waste Management Plan

Camp Maxey WWTP
Biosolids Land Application

November 22, 2023

Prepared by:

HydroAg Environmental, LLC
1509 E Main St.
Russellville, AR 72801
Phone: 501-581-1208
www.gohydroag.com

www.gohydroag.com

Table of Contents

APPENDICES:

1.0 GENERAL FACILITY INFORMATION

1.1 INTRODUCTION

HydroAg Environmental, LLC has several years of experience in land applying waste products from wastewater treatment plants, water treatment plants, food processing facilities, and other waste products at various facilities across the country. Land application of wastewater treatment plant biosolids has proven to be an environmentally sound method of recycling. The biosolids, which are high in plant-available nutrients and low in metals, are beneficial to crops and pastures as a soil amendment and fertilizer.

Texas Army National Guard's Camp Maxey owns and operates a wastewater collection and treatment system. Wastewater processed by the treatment works is of domestic origin. Camp Maxey's wastewater treatment system consists of a three-stage lagoon system. A facultative lagoon and two stabilization lagoons. All three lagoons are being renovated to upgrade the system to improve operation and permit compliance of the treatment plant.

This plan is for the sludge removal and land application of the wastewater treatment plant biosolids. It is estimated there is a total of 400, 000 gallons of liquid sludge to be removed and land applied. This is a one-time land application request.

All biosolids are to be land applied or distributed under an Oklahoma Department of Environmental Quality (ODEQ) No-Discharge General Permit in accordance with rules and regulations established by the ODEQ. Biosolids are non-hazardous and do not exceed pollutant standards for protection of public health and the environment as established by the ODEQ and EPA 40 CFR Part 503.

1.2 BIOSOLIDS CHARACTERISTICS

Biosolids are primarily organic materials produced during wastewater treatment which may be put to beneficial use. An example of such use is the addition of biosolids to soil to supply nutrients and replenish soil organic matter. Biosolids can be used on agricultural land, forests, rangelands, or on disturbed land in need of reclamation.

Recycling biosolids through land application serves several purposes. It improves soil properties, such as texture and water holding capacity, which make conditions more favorable for root growth and increases the drought tolerance of vegetation. Biosolids application also supplies nutrients essential for plant growth, including nitrogen and phosphorous. Biosolids can also serve as an alternative or substitute for expensive chemical fertilizers. The nutrients in the biosolids offer several advantages over those in inorganic fertilizers because they are organic and are released slowly to growing plants. These organic forms of nutrients are less water soluble and, therefore, less likely to leach into groundwater or run off into surface waters.

The Environmental Protection Agency's 40 CFR Part 503, Standards for the Use and Disposal of Sewage Sludge (the Part 503 Rule), requires that wastewater solids be processed before they are land applied. This processing is referred to as "stabilization" and helps minimize odor generation, destroys pathogens (disease causing organisms), and reduces vector attraction potential.

2.0 LAND APPLICATION

2.1 APPLICABILITY

Land application is defined as the spreading, spraying, injection, or incorporation of biosolids, onto or below the surface of the land to take advantage of the soil enhancing qualities of the residuals. Biosolids are land applied to improve the structure of the soil. It is also applied as a fertilizer to supply nutrients to crops and other vegetation grown in the soil. Land application is well-suited for managing solids from any size wastewater treatment facility. As the method of choice for small facilities, it offers cost advantages, benefits to the environment, and value to the agricultural community. Land application is an excellent way to recycle wastewater solids as long as the material is quality controlled. It returns valuable nutrients to the soil and enhances conditions for vegetative growth.

A properly managed biosolids land application program is preferable to the use of conventional fertilizers for the following reasons:

- Biosolids are a recycled product, use of which does not deplete non-renewable resources.
- The nutrients in biosolids are not as soluble as those in chemical fertilizers and are therefore released more slowly.
- Biosolids appliers are required to maintain setbacks from water resources and are often subject to more stringent soil conservation and erosion control practices, nutrient management, and record keeping and reporting requirements than farmers who use only chemical fertilizers or manures.
- Biosolids are closely monitored.
- The organic matter in biosolids improves soil properties for optimum plant growth, including tilth, fertility and water holding capacity. They also decrease the need for pesticide use.

2.2 LAND APPLICATION METHODS

In the case of liquid/pumpable biosolids, HydroAg will transport the residuals from the wastewater treatment plant to authorized land application sites with sealed tanker trucks. (18 Wheelers or bob trucks) The majority of the time, the residuals will be transported to the site by the tanker trucks and offloaded into a temporary storage tank (frac tank) to allow the truck to get back in route. Once the materials are transferred to the frac tank, the land application equipment will be loaded from the tank and transport the materials into the field where they will be surface applied, surface applied w/ incorporation, or subsoil injected. Some materials that are transported to the fields in the sealed trucks will be surface applied directly to the sites from the trucks. The trucks and equipment are operated by HydroAg employees.

2.3 MANAGEMENT PRACTICES

The areas designated for land application of residuals are shown on the detailed site maps. The setbacks, buffers and non-application areas are imposed for the purpose of preventing loss of nutrients from the fields through surface runoff and ground water leaching and to maximize assimilation of the nutrients by the soil / plant complex. The buffers and setbacks shown on the map will be marked off on site with flags that are distinguishable to equipment operators prior to land application.

The land application sites consist of privately owned cattle pastures and hay fields; therefore, the following management practices will be implemented:

1. The material will be applied evenly at good agronomic rates, not to exceed the Plant Available Nitrogen uptake of the cover crop, or other limits imposed by the permit.

2. Residuals shall not be spread within; 50 feet of property lines, public road, or drainage ditch.

3. Residuals shall not be spread within; 100 feet of lakes, ponds, springs, wetlands, streams.

4. Residuals shall not be spread within; 300 feet of occupied buildings or public use areas.

5. Residuals shall not be spread within; 250 feet of sinkholes, losing streams, wells, and water supplies.

6. Residuals will not be land applied to soils that are saturated, frozen or covered with snow, during rain or when precipitation is imminent, meaning a substantial natural occurrence of precipitation that could cause a runoff event.

7. Hay crops shall not be harvested for 30 days after residuals are applied.

8. Animals shall not be grazed on a site for 30 days after residual application.

9. According to the NRCS web soil survey maps, the land application site consists primarily of Bernow Fine Sandy Loam, Bernow – Romia Complex, and Muskogee Silt Loam soils. These soils have a depth to season water table of at least 2' in accordance with the NRCS Soil Survey Maps.

   A small portion of the sites consist of Boggy Fine Sandy Loam which show to have a depth of 0"-24" to the seasonal water table. This area has been excluded from the application area and depicted on the site map.

2.4 APPLICATION RATES

Organic residuals are required to be land applied to a site at a rate that is equal to or less than the agronomic rate for the site. An agronomic rate is the whole residuals application rate (dry weight basis) designed to provide the annual amount of nutrients needed by a cover crop. This helps to minimize the amount of nitrogen passing below the root zone of the crop or vegetation to groundwater. For the purpose of this plan, application rates will be based on cover crop uptake requirements.

Loading rate tabulations will be calculated based upon the limiting parameter. Generally, the limiting parameter will be Plant Available Nitrogen. (PAN)

PAN = MR (TKN – Ammonia-N) + VR (Ammonia-N) + Nitrate-Nitrite

Where: MR= Mineralization Rate (30% aerobically digested & 20% anaerobically digested.)
VR = Volatilization Rate (1 for subsoil injection and 0.5 for surface application)

For surface application of aerobically digested biosolids, PAN is calculated as follows:

PAN = 0.3(TKN-NH3) + 0.5(NH3) + NO3 + NO2

For subsurface application of aerobically digested biosolids, PAN is calculated as follows:

PAN = 0.3(TKN-NH3) + NH3 + NO3 + NO2

The analytical loading rate report based off the soil test recommend nitrogen can be found in **Appendix A.** Should there be a limiting parameter other than PAN; the application rate will be adjusted accordingly. The cover crop for the application area is bermuda grass and will be land applied in the late winter/early spring in time for the summer growing season.

Pollutant Loading Rates shall be calculated per application event using the following equation based on the residual analysis:

Pounds Acre = Concentrations (mg kg) * 0.002 * Application Rate (DT acre)

2.5 SPILL REPONSE:

If a spill occurs during the transport or land application of IFR, HydroAg will:

- Contain the spill.
- Notify proper authorities.
- Remove spilled residuals with a front-end loader, shovel, or other practical means.
- Apply absorbent (e.g., sand, oil dry) if needed.
- Cover the area with dry lime.
- Transport spilled product to a Department authorized residuals land application or disposal site.

3.0 ANALYTICAL INFORMATION

3.1 SOILS ANALYSIS

Representative (composite) soil samples were collected for each field at a depth of 0-6 inches for analysis. Several core samples were taken for each site not to exceed 80 acres of application area per field per sample and composited into one sample. The analytical results can be found in **Appendix A.**

3.2 BIOSOLIDS ANALYSIS

Grab samples for the Camp Maxey WWTP biosolids were taken and analyzed in accordance with required parameters to meet 40 CFR 503 parameters and in accordance with the requested parameters from ODEQ correspondence. (Email dated 8/8/23) Biosolids analysis for the Camp Maxey WWTP has been included in **Appendix A.**

3.3 PATHOGEN REDUCTION

Seven representative samples were collected and delivered to a certified laboratory for fecal geometric mean analysis. The geometric mean of the density of fecal coliform from the results was found to be less than 2 million MPN/gram of total solids on a dry weight basis. This is in compliance with Alternative 1 of 40 CFR Part 503.32(b) for Class B pathogen reduction requirements. The lab results for can be found in **Appendix A**.

3.4 VECTOR ATTRACTION REDUCTION

The biosolids will be surface applied to the application sites and disced within 6 hours of application. This satisfies Option 10 of 40 CFR Part 503.33(b).

4.0 LAND APPLICATION SITES

4.1 SITE INFORMATION

HydroAg is proposing to permit 88.9 acres in Choctaw county. Land application site information which includes the acreage available, section, township, range, latitude, and longitude is presented in **Appendix B**. Site maps, topographic maps and location maps are also included in **Appendix B**. NRCS Soil Survey Report(s) is/are included in **Attachment C**.

APPENDIX A

Analytical Data

ANALYTICAL- LOADING RATE REPORT

Source: Camp Maxey WWTP
Product: WWTP
State: OK
Application Type: Surface

Analysis No: 192-5117
Analysis Date: 10/16/2023

PAN Mineralization %: 30

Parameter	Concentration (mg/kg) Dry	Wet
PAN	15,390	230.9
Total Kjeldahl Nitrogen	47,000	705.0
Ammonia	5,600	84.00
Nitrate	170	2.55
Nitrite	32.0	0.480
Organic N	41,400	621.0
Total Solids	1.5	
pH	6.7	
Arsenic	5.2	0.078
Cadmium	0.4	0.006
Chromium	6.7	0.101
Copper	42.0	0.630
Lead	7.9	0.119
Mercury	0.1	0.001
Molybdenum	1.7	0.026
Nickel	8.1	0.122
Phosphorus	2,600	39.00
Potassium	2,200	33.00
Selenium	7.0	0.105
Zinc	74.0	1.11
lbs / gallon	8.34	

Pounds per 6000 gallon load:

Plant-available Nitrogen:	11.55
Phosphate (P_2O_5):	4.47
Potash (K_2O):	1.98

Pounds per 4600 gallon load:

Plant-available Nitrogen:	8.86
Phosphate (P_2O_5):	3.43
Potash (K_2O):	1.52

Maximum allowable application rate at 180.00 pounds PAN per acre = 93,492.4575 gallons/acre.
5.85 dry tons/ac

Printed: 10/16/2023

Nutrient Budget

Date: 11/22/2023
Location: Choctaw County Oklahoma near Hugo.

Biosolids Analysis	PAN (lbs/gal)	P2O5 (lbs/gal)	K2O (lbs/gal)	Total Solids (%)
Estimated Nutrient Content	0.002	0.001	0.0003	1.5

Site Information			Nutrient Recommendations (lbs/ac)			Applied Nitrients (lbs/ac)			Access Nutrients (lbs/ac)		
Field ID	Cover Crop	gal/ac	PAN	P2O5	K2O	PAN	P2O5	K2O	PAN	P2O5	K2O
AF-1	Bermuda	30000	186	68	204	60	30	9	-126	-38	-195
AF-2	Bermuda	30000	180	75	208	60	30	9	-120	-45	-199

Nutrient Budget Summary

- Application rates were reduced to prevent hydraulic overloading.
- Apply comercial fertilizer as needed to achieve soil test recommendations.
- Apply commercial fertilizer to achieve soil test recommendations in buffered areas.
- The total estimated gallons to be land applied is 400,000 gallons.
- The estimated available acres required at 30000 gal/ac is 13.3 acres.

Estimated Pollutant Loading Rates @ 30K g/ac.

DT/Ac= 1.88

	Arsenic	Cadmium	Chromium	Copper	Lead	Mercury	Molybdenum	Nickel	Selenium	Zinc
Analysis (mg/kg)	5.2	0.4	6.7	42	7.9	0.1	1.7	8.1	7	74
Loading Rate (lbs/Ac)	0.019552	0.001504	0.025192	0.15792	0.029704	0.00038	0.006392	0.030456	0.02632	0.27824

eurofins | Environment Testing

ANALYTICAL REPORT

PREPARED FOR

Attn: Mr. Marcus Tilley
HydroAg Environmental, LLC
1224 E. 14th St.
PO BOX 1162
Russellville, Arkansas 72802

Generated 10/17/2023 10:05:33 AM Revision 1

JOB DESCRIPTION

Camp Maxey WWTP

JOB NUMBER

192-5117-1

Eurofins Arkansas
8600 Kanis Rd
Little Rock AR 72204

See page two for job notes and contact information.

my EOL

Eurofins Arkansas

Job Notes

This report may not be reproduced except in full, and with written approval from the laboratory. The results relate only to the samples tested. For questions please contact the Project Manager at the e-mail address or telephone number listed on this page.

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 South Central, LLC Project Manager.

Authorization

Steve Bradford

Generated
10/17/2023 10:05:33 AM
Revision 1

Authorized for release by
Steve Bradford, Lab Director
steve.bradford@et.eurofinsus.com
(501)224-5060

Table of Contents

Definitions/Glossary

Client: HydroAg Environmental, LLC
Project/Site: Camp Maxey WWTP

Job ID: 192-5117-1

Qualifiers

GC/MS Semi VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.

GC Semi VOA

Qualifier	Qualifier Description
*3	ISTD response or retention time outside acceptable limits.
F1	MS and/or MSD recovery exceeds control limits.
p	The %RPD between the primary and confirmation column/detector is >40%. The lower value has been reported.

General Chemistry

Qualifier	Qualifier Description
4	MS, MSD: The analyte present in the original sample is greater than 4 times the matrix spike concentration; therefore, control limits are not applicable.
F2	MS/MSD RPD exceeds control limits
HF	Parameter with a holding time of 15 minutes. Test performed by laboratory at client's request. Sample was analyzed outside of hold time.

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

Job ID: 192-5117-1

Laboratory: Eurofins Arkansas

Narrative

Job Narrative
192-5117-1

Revision
The report being provided is a revision of the original report sent on 9/27/2023. The report (revision 1) is being revised due to: Client requested fecals be split to a second report..

Receipt
The samples were received on 9/13/2023 12:01 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 10.1° C.

Receipt Exceptions

Client requested fecals be split to a second report.

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

GC/MS Semi VOA
Methods 625.1, 8270E: The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 192-7359 was outside criteria for the following analyte(s): Hexachlorocyclopentadiene. As indicated in the reference method, sample analysis may proceed; however, any detection or non-detection for the affected analyte(s) is considered estimated.

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

HPLC/IC
No analytical or quality issues were noted, other than those described 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 matrix spike / matrix spike duplicate (MS/MSD) recoveries for preparation batch 192-7168 and 192-7314 and analytical batch 192-7471 were outside control limits. Sample matrix interference is suspected because the associated laboratory control sample (LCS) recovery was within acceptance limits.

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.

Biology
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.

Client Sample ID: Camp Maxey WWTP
Date Collected: 09/12/23 17:00
Date Received: 09/13/23 12:01

Lab Sample ID: 192-5117-1
Matrix: Solid

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

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.50		0.50	mg/L			09/21/23 22:26	100
2-Butanone (MEK)	<1.0		1.0	mg/L			09/21/23 22:26	100
Carbon tetrachloride	<0.20		0.20	mg/L			09/21/23 22:26	100
Chlorobenzene	<0.50		0.50	mg/L			09/21/23 22:26	100
Chloroform	<0.50		0.50	mg/L			09/21/23 22:26	100
1,2-Dichloroethane	<0.50		0.50	mg/L			09/21/23 22:26	100
1,1-Dichloroethene	<0.50		0.50	mg/L			09/21/23 22:26	100
Tetrachloroethene	<0.50		0.50	mg/L			09/21/23 22:26	100
Trichloroethene	<0.50		0.50	mg/L			09/21/23 22:26	100
Vinyl chloride	<0.20		0.20	mg/L			09/21/23 22:26	100

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*102*		*91 - 109*		*09/21/23 22:26*	*100*
Toluene-d8 (Surr)	*99*		*87 - 112*		*09/21/23 22:26*	*100*
4-Bromofluorobenzene (Surr)	*94*		*86 - 112*		*09/21/23 22:26*	*100*

Method: SW846 8270E - Semivolatile Organic Compounds (GC/MS) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	<0.050		0.050	mg/L		09/21/23 13:44	09/22/23 01:51	1
2,4-Dinitrotoluene	<0.050		0.050	mg/L		09/21/23 13:44	09/22/23 01:51	1
Hexachlorobenzene	<0.050		0.050	mg/L		09/21/23 13:44	09/22/23 01:51	1
Hexachlorobutadiene	<0.050		0.050	mg/L		09/21/23 13:44	09/22/23 01:51	1
Hexachloroethane	<0.050		0.050	mg/L		09/21/23 13:44	09/22/23 01:51	1
2-Methylphenol	<0.050		0.050	mg/L		09/21/23 13:44	09/22/23 01:51	1
3 & 4 Methylphenol	<0.050		0.050	mg/L		09/21/23 13:44	09/22/23 01:51	1
Nitrobenzene	<0.050		0.050	mg/L		09/21/23 13:44	09/22/23 01:51	1
Pentachlorophenol	<0.050		0.050	mg/L		09/21/23 13:44	09/22/23 01:51	1
Pyridine	<0.050		0.050	mg/L		09/21/23 13:44	09/22/23 01:51	1
2,4,5-Trichlorophenol	<0.050		0.050	mg/L		09/21/23 13:44	09/22/23 01:51	1
2,4,6-Trichlorophenol	<0.050		0.050	mg/L		09/21/23 13:44	09/22/23 01:51	1
Total Cresols	<0.10		0.10	mg/L		09/21/23 13:44	09/22/23 01:51	1

Surrogate	*%Recovery*	*Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*40*		*33 - 96*	*09/21/23 13:44*	*09/22/23 01:51*	*1*
2-Fluorobiphenyl (Surr)	*70*		*49 - 108*	*09/21/23 13:44*	*09/22/23 01:51*	*1*
Nitrobenzene-d5 (Surr)	*74*		*54 - 111*	*09/21/23 13:44*	*09/22/23 01:51*	*1*
p-Terphenyl-d14 (Surr)	*89*		*46 - 121*	*09/21/23 13:44*	*09/22/23 01:51*	*1*
2,4,6-Tribromophenol (Surr)	*23*	*S1-*	*35 - 125*	*09/21/23 13:44*	*09/22/23 01:51*	*1*

Method: SW846 8081B - Organochlorine Pesticides (GC) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
.gamma.-BHC	<0.000010		0.000010	mg/L		09/19/23 11:50	09/19/23 21:16	1
cis-Chlordane	<0.000020	F1	0.000020	mg/L		09/19/23 11:50	09/19/23 21:16	1
trans-Chlordane	<0.000020		0.000020	mg/L		09/19/23 11:50	09/19/23 21:16	1
Endrin	<0.000020		0.000020	mg/L		09/19/23 11:50	09/19/23 21:16	1
Heptachlor	<0.0000050		0.0000050	mg/L		09/19/23 11:50	09/19/23 21:16	1
Heptachlor epoxide	<0.000010		0.000010	mg/L		09/19/23 11:50	09/19/23 21:16	1
Methoxychlor	<0.000020		0.000020	mg/L		09/19/23 11:50	09/19/23 21:16	1
Toxaphene	<0.00020		0.00020	mg/L		09/19/23 11:50	09/19/23 21:16	1

Client Sample ID: Camp Maxey WWTP
Date Collected: 09/12/23 17:00
Date Received: 09/13/23 12:01

Lab Sample ID: 192-5117-1
Matrix: Solid

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	45		22 - 117	09/19/23 11:50	09/19/23 21:16	1
DCB Decachlorobiphenyl (Surr)	54		1 - 119	09/19/23 11:50	09/19/23 21:16	1

Method: SW846 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.098		0.098	mg/Kg		09/26/23 09:00	09/27/23 11:54	1
PCB-1221	<0.098		0.098	mg/Kg		09/26/23 09:00	09/27/23 11:54	1
PCB-1232	<0.098		0.098	mg/Kg		09/26/23 09:00	09/27/23 11:54	1
PCB-1242	<0.098		0.098	mg/Kg		09/26/23 09:00	09/27/23 11:54	1
PCB-1248	<0.098		0.098	mg/Kg		09/26/23 09:00	09/27/23 11:54	1
PCB-1254	<0.098		0.098	mg/Kg		09/26/23 09:00	09/27/23 11:54	1
PCB-1260	<0.098		0.098	mg/Kg		09/26/23 09:00	09/27/23 11:54	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
Tetrachloro-m-xylene	78		47 - 115	09/26/23 09:00	09/27/23 11:54	1
DCB Decachlorobiphenyl (Surr)	76		52 - 122	09/26/23 09:00	09/27/23 11:54	1

Method: SW846 8321B - Herbicides (HPLC) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<0.20		0.20	mg/L		09/22/23 15:09	09/22/23 16:49	1
Silvex (2,4,5-TP)	<0.10		0.10	mg/L		09/22/23 15:09	09/22/23 16:49	1

Method: SW846 6010D - Metals (ICP)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	**5.2**		5.0	mg/Kg	☼	09/21/23 09:35	09/25/23 18:10	1
Cadmium	<0.40		0.40	mg/Kg	☼	09/21/23 09:35	09/25/23 18:10	1
Copper	**42**		1.0	mg/Kg	☼	09/21/23 09:35	09/25/23 18:10	1
Lead	**7.9**		4.0	mg/Kg	☼	09/21/23 09:35	09/25/23 18:10	1
Molybdenum	**1.7**		1.0	mg/Kg	☼	09/21/23 09:35	09/25/23 18:10	1
Nickel	**8.1**		1.0	mg/Kg	☼	09/21/23 09:35	09/25/23 18:10	1
Phosphorus	**2600**		100	mg/Kg	☼	09/21/23 09:35	09/25/23 18:06	10
Potassium	**2200**		100	mg/Kg	☼	09/21/23 09:35	09/25/23 18:10	1
Selenium	<7.0		7.0	mg/Kg	☼	09/21/23 09:35	09/25/23 18:10	1
Zinc	**74**		10	mg/Kg	☼	09/21/23 09:35	09/25/23 18:06	10
Chromium	**6.7**		1.0	mg/Kg	☼	09/21/23 09:35	09/25/23 18:10	1

Method: SW846 6010D - Metals (ICP) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.25		0.25	mg/L		09/19/23 13:38	09/22/23 14:34	1
Barium	**0.21**		0.010	mg/L		09/19/23 13:38	09/22/23 14:34	1
Cadmium	<0.020		0.020	mg/L		09/19/23 13:38	09/22/23 14:34	1
Chromium	<0.050		0.050	mg/L		09/19/23 13:38	09/22/23 14:34	1
Lead	<0.20		0.20	mg/L		09/19/23 13:38	09/22/23 14:34	1
Selenium	<0.35		0.35	mg/L		09/19/23 13:38	09/22/23 14:34	1
Silver	<0.035		0.035	mg/L		09/19/23 13:38	09/22/23 14:34	1

Method: SW846 7470A - Mercury (CVAA) - TCLP

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.0080		0.0080	mg/L		09/21/23 12:26	09/22/23 15:48	1

Client Sample ID: Camp Maxey WWTP
Date Collected: 09/12/23 17:00
Date Received: 09/13/23 12:01

Lab Sample ID: 192-5117-1
Matrix: Solid

Method: SW846 7471B - Mercury (CVAA)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.092		0.092	mg/Kg	☼	09/14/23 14:15	09/15/23 11:00	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Total Solids (SM 2540G-2015)	1.5		0.010	%			09/14/23 15:39	1
pH (SW846 9045D)	6.7	HF	0.05	SU			09/15/23 08:11	1

Client Sample ID: Camp Maxey WWTP
Date Collected: 09/12/23 17:00
Date Received: 09/13/23 12:01

Lab Sample ID: 192-5117-1
Matrix: Solid
Percent Solids: 1.5

Method: SW846 9056A - Anions, Ion Chromatography

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	170		32	mg/Kg	☼		09/13/23 18:11	1
Nitrite as N	<32		32	mg/Kg	☼		09/13/23 18:11	1

General Chemistry

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N) (SM 4500 NH3 G-2011)	5600		600	mg/Kg	☼	09/15/23 15:36	09/15/23 17:35	1
Nitrogen, Kjeldahl (SM 4500 NorgC-2011)	47000	F2	7400	mg/Kg	☼	09/15/23 15:39	09/18/23 13:46	5

Method: SM 9221C,E-2014 - Coliforms, Fecal (Multiple-Tube Fermentation)

Analyte	Result	Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Coliform, Fecal	39000		65	MPN/g	☼		09/13/23 16:10	1

Surrogate Summary

Client: HydroAg Environmental, LLC
Project/Site: Camp Maxey WWTP

Job ID: 192-5117-1

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

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(91-109)	(87-112)	(86-112)
LCS 192-7367/1003	Lab Control Sample	100	103	102
MB 192-7367/5	Method Blank	99	100	100

Surrogate Legend

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

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

Matrix: Solid

Prep Type: TCLP

		Percent Surrogate Recovery (Acceptance Limits)		
		DBFM	TOL	BFB
Lab Sample ID	Client Sample ID	(91-109)	(87-112)	(86-112)
192-5117-1	Camp Maxey WWTP	102	99	94
192-5117-1 MS	Camp Maxey WWTP	104	104	107
192-5117-1 MSD	Camp Maxey WWTP	105	105	102

Surrogate Legend

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

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: Total/NA

		Percent Surrogate Recovery (Acceptance Limits)				
		2FP	FBP	NBZ	TPHd14	TBP
Lab Sample ID	Client Sample ID	(33-96)	(49-108)	(54-111)	(46-121)	(35-125)
LCS 192-7330/2-A	Lab Control Sample	58	67	71	75	65
LCSD 192-7330/3-A	Lab Control Sample Dup	67	74	81	83	72
MB 192-7330/1-A	Method Blank	58	65	70	78	44

Surrogate Legend

2FP = 2-Fluorophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)
NBZ = Nitrobenzene-d5 (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Matrix: Solid

Prep Type: TCLP

		Percent Surrogate Recovery (Acceptance Limits)				
		2FP	FBP	NBZ	TPHd14	TBP
Lab Sample ID	Client Sample ID	(33-96)	(49-108)	(54-111)	(46-121)	(35-125)
192-5117-1	Camp Maxey WWTP	40	70	74	89	23 S1-
192-5117-1 MS	Camp Maxey WWTP	60	66	74	78	71
192-5117-1 MSD	Camp Maxey WWTP	64	64	73	59	68

Surrogate Legend

2FP = 2-Fluorophenol (Surr)
FBP = 2-Fluorobiphenyl (Surr)

Surrogate Summary

Client: HydroAg Environmental, LLC
Project/Site: Camp Maxey WWTP

Job ID: 192-5117-1

NBZ = Nitrobenzene-d5 (Surr)
TPHd14 = p-Terphenyl-d14 (Surr)
TBP = 2,4,6-Tribromophenol (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

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

		Percent Surrogate Recovery (Acceptance Limits)			
		TCX1	TCX1	DCBP1	DCBP1
Lab Sample ID	Client Sample ID	(22-117)	(22-117)	(1-119)	(1-119)
LCS 192-7190/2-A	Lab Control Sample	54	54	54	54
LCSD 192-7190/3-A	Lab Control Sample Dup	54	54	53	53
MB 192-7190/1-A	Method Blank	46	46	49	49

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCBP = DCB Decachlorobiphenyl (Surr)

Method: 8081B - Organochlorine Pesticides (GC)

Matrix: Solid — **Prep Type: TCLP**

		Percent Surrogate Recovery (Acceptance Limits)			
		TCX1	TCX1	DCBP1	DCBP1
Lab Sample ID	Client Sample ID	(22-117)	(22-117)	(1-119)	(1-119)
192-5117-1	Camp Maxey WWTP	45	45	54	54
192-5117-1 MS	Camp Maxey WWTP	46	46	51	51
192-5117-1 MSD	Camp Maxey WWTP	43	43	47	47

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCBP = DCB Decachlorobiphenyl (Surr)

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

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

		Percent Surrogate Recovery (Acceptance Limits)	
		TCX1	DCBP1
Lab Sample ID	Client Sample ID	(47-115)	(52-122)
192-5117-1	Camp Maxey WWTP	78	76
192-5117-1 MS	Camp Maxey WWTP	63	70
192-5117-1 MSD	Camp Maxey WWTP	63	73
LCS 192-7466/2-A	Lab Control Sample	69	68
LCSD 192-7466/3-A	Lab Control Sample Dup	69	72
MB 192-7466/1-A	Method Blank	72	67

Surrogate Legend

TCX = Tetrachloro-m-xylene
DCBP = DCB Decachlorobiphenyl (Surr)

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

Lab Sample ID: MB 192-7367/5
Matrix: Solid
Analysis Batch: 7367

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Benzene	<0.0050		0.0050		mg/L			09/21/23 19:28	1
2-Butanone (MEK)	<0.010		0.010		mg/L			09/21/23 19:28	1
Carbon tetrachloride	<0.0020		0.0020		mg/L			09/21/23 19:28	1
Chlorobenzene	<0.0050		0.0050		mg/L			09/21/23 19:28	1
Chloroform	<0.0050		0.0050		mg/L			09/21/23 19:28	1
1,2-Dichloroethane	<0.0050		0.0050		mg/L			09/21/23 19:28	1
1,1-Dichloroethene	<0.0050		0.0050		mg/L			09/21/23 19:28	1
Tetrachloroethene	<0.0050		0.0050		mg/L			09/21/23 19:28	1
Trichloroethene	<0.0050		0.0050		mg/L			09/21/23 19:28	1
Vinyl chloride	<0.0020		0.0020		mg/L			09/21/23 19:28	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Dibromofluoromethane (Surr)	*99*		*91 - 109*		*09/21/23 19:28*	*1*
Toluene-d8 (Surr)	*100*		*87 - 112*		*09/21/23 19:28*	*1*
4-Bromofluorobenzene (Surr)	*100*		*86 - 112*		*09/21/23 19:28*	*1*

Lab Sample ID: LCS 192-7367/1003
Matrix: Solid
Analysis Batch: 7367

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	0.0500	0.0487		mg/L		97	70 - 130
2-Butanone (MEK)	0.100	0.0986		mg/L		98	70 - 130
Carbon tetrachloride	0.0501	0.0499		mg/L		100	70 - 130
Chlorobenzene	0.0499	0.0486		mg/L		97	70 - 130
Chloroform	0.0496	0.0473		mg/L		95	70 - 130
1,2-Dichloroethane	0.0500	0.0499		mg/L		100	70 - 130
1,1-Dichloroethene	0.0495	0.0480		mg/L		97	70 - 130
Tetrachloroethene	0.0497	0.0483		mg/L		97	70 - 130
Trichloroethene	0.0502	0.0489		mg/L		97	70 - 130
Vinyl chloride	0.0503	0.0471		mg/L		94	70 - 130

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*100*		*91 - 109*
Toluene-d8 (Surr)	*103*		*87 - 112*
4-Bromofluorobenzene (Surr)	*102*		*86 - 112*

Lab Sample ID: 192-5117-1 MS
Matrix: Solid
Analysis Batch: 7367

Client Sample ID: Camp Maxey WWTP
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Benzene	<0.50		5.00	5.01		mg/L		100	70 - 130
2-Butanone (MEK)	<1.0		10.0	11.3		mg/L		113	70 - 130
Carbon tetrachloride	<0.20		5.01	5.10		mg/L		102	70 - 130
Chlorobenzene	<0.50		4.99	4.87		mg/L		98	70 - 130
Chloroform	<0.50		4.96	4.86		mg/L		98	70 - 130
1,2-Dichloroethane	<0.50		5.00	5.06		mg/L		101	70 - 130

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

Lab Sample ID: 192-5117-1 MS
Matrix: Solid
Analysis Batch: 7367

Client Sample ID: Camp Maxey WWTP
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,1-Dichloroethene	<0.50		4.95	5.02		mg/L		101	70 - 130
Tetrachloroethene	<0.50		4.97	4.73		mg/L		95	70 - 130
Trichloroethene	<0.50		5.02	5.04		mg/L		100	70 - 130
Vinyl chloride	<0.20		5.03	4.81		mg/L		96	70 - 130

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*104*		*91 - 109*
Toluene-d8 (Surr)	*104*		*87 - 112*
4-Bromofluorobenzene (Surr)	*107*		*86 - 112*

Lab Sample ID: 192-5117-1 MSD
Matrix: Solid
Analysis Batch: 7367

Client Sample ID: Camp Maxey WWTP
Prep Type: TCLP

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Benzene	<0.50		5.00	4.98		mg/L		100	70 - 130	1	20
2-Butanone (MEK)	<1.0		10.0	10.5		mg/L		105	70 - 130	7	20
Carbon tetrachloride	<0.20		5.01	5.07		mg/L		101	70 - 130	1	20
Chlorobenzene	<0.50		4.99	5.00		mg/L		100	70 - 130	3	20
Chloroform	<0.50		4.96	4.89		mg/L		98	70 - 130	1	20
1,2-Dichloroethane	<0.50		5.00	5.16		mg/L		103	70 - 130	2	20
1,1-Dichloroethene	<0.50		4.95	5.04		mg/L		102	70 - 130	0	20
Tetrachloroethene	<0.50		4.97	4.83		mg/L		97	70 - 130	2	20
Trichloroethene	<0.50		5.02	4.94		mg/L		98	70 - 130	2	20
Vinyl chloride	<0.20		5.03	4.85		mg/L		97	70 - 130	1	20

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Dibromofluoromethane (Surr)	*105*		*91 - 109*
Toluene-d8 (Surr)	*105*		*87 - 112*
4-Bromofluorobenzene (Surr)	*102*		*86 - 112*

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 192-7330/1-A
Matrix: Solid
Analysis Batch: 7359

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7330

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
1,4-Dichlorobenzene	<0.0050		0.0050	mg/L		09/21/23 13:44	09/21/23 19:47	1
2,4-Dinitrotoluene	<0.0050		0.0050	mg/L		09/21/23 13:44	09/21/23 19:47	1
Hexachlorobenzene	<0.0050		0.0050	mg/L		09/21/23 13:44	09/21/23 19:47	1
Hexachlorobutadiene	<0.0050		0.0050	mg/L		09/21/23 13:44	09/21/23 19:47	1
Hexachloroethane	<0.0050		0.0050	mg/L		09/21/23 13:44	09/21/23 19:47	1
2-Methylphenol	<0.0050		0.0050	mg/L		09/21/23 13:44	09/21/23 19:47	1
3 & 4 Methylphenol	<0.0050		0.0050	mg/L		09/21/23 13:44	09/21/23 19:47	1
Nitrobenzene	<0.0050		0.0050	mg/L		09/21/23 13:44	09/21/23 19:47	1
Pentachlorophenol	<0.0050		0.0050	mg/L		09/21/23 13:44	09/21/23 19:47	1
Pyridine	<0.0050		0.0050	mg/L		09/21/23 13:44	09/21/23 19:47	1

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 192-7330/1-A
Matrix: Solid
Analysis Batch: 7359

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7330

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-Trichlorophenol	<0.0050		0.0050	mg/L		09/21/23 13:44	09/21/23 19:47	1
2,4,6-Trichlorophenol	<0.0050		0.0050	mg/L		09/21/23 13:44	09/21/23 19:47	1
Total Cresols	<0.010		0.010	mg/L		09/21/23 13:44	09/21/23 19:47	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
2-Fluorophenol (Surr)	*58*		*33 - 96*	*09/21/23 13:44*	*09/21/23 19:47*	*1*
2-Fluorobiphenyl (Surr)	*65*		*49 - 108*	*09/21/23 13:44*	*09/21/23 19:47*	*1*
Nitrobenzene-d5 (Surr)	*70*		*54 - 111*	*09/21/23 13:44*	*09/21/23 19:47*	*1*
p-Terphenyl-d14 (Surr)	*78*		*46 - 121*	*09/21/23 13:44*	*09/21/23 19:47*	*1*
2,4,6-Tribromophenol (Surr)	*44*		*35 - 125*	*09/21/23 13:44*	*09/21/23 19:47*	*1*

Lab Sample ID: LCS 192-7330/2-A
Matrix: Solid
Analysis Batch: 7359

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7330

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dichlorobenzene	0.0200	0.0126		mg/L		63	52 - 97
2,4-Dinitrotoluene	0.0200	0.0145		mg/L		72	48 - 127
Hexachlorobenzene	0.0200	0.0132		mg/L		66	8 - 142
Hexachlorobutadiene	0.0200	0.0123		mg/L		61	38 - 120
Hexachloroethane	0.0200	0.0122		mg/L		61	55 - 120
2-Methylphenol	0.0200	0.0132		mg/L		66	40 - 107
3 & 4 Methylphenol	0.0200	0.0129		mg/L		65	45 - 106
Nitrobenzene	0.0200	0.0130		mg/L		65	54 - 158
Pentachlorophenol	0.0200	0.0121		mg/L		61	38 - 152
Pyridine	0.0200	<0.0050		mg/L		10	1 - 25
2,4,5-Trichlorophenol	0.0200	0.0135		mg/L		68	46 - 114
2,4,6-Trichlorophenol	0.0200	0.0145		mg/L		72	52 - 129
Total Cresols	0.0400	0.0261		mg/L		65	

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*58*		*33 - 96*
2-Fluorobiphenyl (Surr)	*67*		*49 - 108*
Nitrobenzene-d5 (Surr)	*71*		*54 - 111*
p-Terphenyl-d14 (Surr)	*75*		*46 - 121*
2,4,6-Tribromophenol (Surr)	*65*		*35 - 125*

Lab Sample ID: LCSD 192-7330/3-A
Matrix: Solid
Analysis Batch: 7359

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 7330

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dichlorobenzene	0.0200	0.0134		mg/L		67	52 - 97	6	21
2,4-Dinitrotoluene	0.0200	0.0157		mg/L		79	48 - 127	8	42
Hexachlorobenzene	0.0200	0.0145		mg/L		73	8 - 142	9	55
Hexachlorobutadiene	0.0200	0.0136		mg/L		68	38 - 120	11	62
Hexachloroethane	0.0200	0.0131		mg/L		66	55 - 120	7	52
2-Methylphenol	0.0200	0.0142		mg/L		71	40 - 107	7	46

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 192-7330/3-A
Matrix: Solid
Analysis Batch: 7359

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 7330

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
3 & 4 Methylphenol			0.0200	0.0149		mg/L		75	45 - 106	15	42
Nitrobenzene			0.0200	0.0158		mg/L		79	54 - 158	20	62
Pentachlorophenol			0.0200	0.0127		mg/L		63	38 - 152	4	86
Pyridine			0.0200	<0.0050		mg/L		11	1 - 25	3	
2,4,5-Trichlorophenol			0.0200	0.0144		mg/L		72	46 - 114	6	42
2,4,6-Trichlorophenol			0.0200	0.0138		mg/L		69	52 - 129	5	58
Total Cresols			0.0400	0.0291		mg/L		73		11	

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
2-Fluorophenol (Surr)	*67*		*33 - 96*
2-Fluorobiphenyl (Surr)	*74*		*49 - 108*
Nitrobenzene-d5 (Surr)	*81*		*54 - 111*
p-Terphenyl-d14 (Surr)	*83*		*46 - 121*
2,4,6-Tribromophenol (Surr)	*72*		*35 - 125*

Lab Sample ID: 192-5117-1 MS
Matrix: Solid
Analysis Batch: 7359

Client Sample ID: Camp Maxey WWTP
Prep Type: TCLP
Prep Batch: 7330

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
1,4-Dichlorobenzene	<0.050		0.200	0.138		mg/L		69	57 - 86
2,4-Dinitrotoluene	<0.050		0.200	0.153		mg/L		76	39 - 139
Hexachlorobenzene	<0.050		0.200	0.141		mg/L		70	1 - 152
Hexachlorobutadiene	<0.050		0.200	0.127		mg/L		64	24 - 120
Hexachloroethane	<0.050		0.200	0.127		mg/L		64	40 - 120
2-Methylphenol	<0.050		0.200	0.126		mg/L		63	9.3 - 130
3 & 4 Methylphenol	<0.050		0.200	0.140		mg/L		70	49 - 105
Nitrobenzene	<0.050		0.200	0.144		mg/L		72	35 - 180
Pentachlorophenol	<0.050		0.200	0.166		mg/L		83	14 - 176
Pyridine	<0.050		0.200	<0.050		mg/L		0	
2,4,5-Trichlorophenol	<0.050		0.200	0.133		mg/L		67	11 - 133
2,4,6-Trichlorophenol	<0.050		0.200	0.138		mg/L		69	37 - 144
Total Cresols	<0.10		0.400	0.266		mg/L		67	

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
2-Fluorophenol (Surr)	*60*		*33 - 96*
2-Fluorobiphenyl (Surr)	*66*		*49 - 108*
Nitrobenzene-d5 (Surr)	*74*		*54 - 111*
p-Terphenyl-d14 (Surr)	*78*		*46 - 121*
2,4,6-Tribromophenol (Surr)	*71*		*35 - 125*

Lab Sample ID: 192-5117-1 MSD
Matrix: Solid
Analysis Batch: 7359

Client Sample ID: Camp Maxey WWTP
Prep Type: TCLP
Prep Batch: 7330

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
1,4-Dichlorobenzene	<0.050		0.200	0.122		mg/L		61	57 - 86	12	21
2,4-Dinitrotoluene	<0.050		0.200	0.160		mg/L		80	39 - 139	5	42

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: 192-5117-1 MSD
Matrix: Solid
Analysis Batch: 7359

Client Sample ID: Camp Maxey WWTP
Prep Type: TCLP
Prep Batch: 7330

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Hexachlorobenzene	<0.050		0.200	0.130		mg/L		65	1 - 152	7	55
Hexachlorobutadiene	<0.050		0.200	0.123		mg/L		62	24 - 120	3	62
Hexachloroethane	<0.050		0.200	0.111		mg/L		55	40 - 120	14	52
2-Methylphenol	<0.050		0.200	0.142		mg/L		71	9.3 - 130	12	46
3 & 4 Methylphenol	<0.050		0.200	0.148		mg/L		74	49 - 105	6	42
Nitrobenzene	<0.050		0.200	0.147		mg/L		73	35 - 180	2	62
Pentachlorophenol	<0.050		0.200	0.178		mg/L		89	14 - 176	7	86
Pyridine	<0.050		0.200	<0.050		mg/L		0		NC	
2,4,5-Trichlorophenol	<0.050		0.200	0.144		mg/L		72	11 - 133	8	42
2,4,6-Trichlorophenol	<0.050		0.200	0.147		mg/L		73	37 - 144	6	58
Total Cresols	<0.10		0.400	0.290		mg/L		73		9	

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
2-Fluorophenol (Surr)	*64*		*33 - 96*
2-Fluorobiphenyl (Surr)	*64*		*49 - 108*
Nitrobenzene-d5 (Surr)	*73*		*54 - 111*
p-Terphenyl-d14 (Surr)	*59*		*46 - 121*
2,4,6-Tribromophenol (Surr)	*68*		*35 - 125*

Method: 8081B - Organochlorine Pesticides (GC)

Lab Sample ID: MB 192-7190/1-A
Matrix: Solid
Analysis Batch: 7256

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7190

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
.gamma.-BHC	<0.0000010		0.0000010		mg/L		09/19/23 08:04	09/19/23 19:31	1
.gamma.-BHC	<0.0000010		0.0000010		mg/L		09/19/23 08:04	09/19/23 19:31	1
cis-Chlordane	<0.0000020		0.0000020		mg/L		09/19/23 08:04	09/19/23 19:31	1
cis-Chlordane	<0.0000020		0.0000020		mg/L		09/19/23 08:04	09/19/23 19:31	1
trans-Chlordane	<0.0000020		0.0000020		mg/L		09/19/23 08:04	09/19/23 19:31	1
trans-Chlordane	<0.0000020		0.0000020		mg/L		09/19/23 08:04	09/19/23 19:31	1
Endrin	<0.0000020		0.0000020		mg/L		09/19/23 08:04	09/19/23 19:31	1
Endrin	<0.0000020		0.0000020		mg/L		09/19/23 08:04	09/19/23 19:31	1
Heptachlor	<0.00000050		0.0000005 0		mg/L		09/19/23 08:04	09/19/23 19:31	1
Heptachlor	<0.00000050		0.0000005 0		mg/L		09/19/23 08:04	09/19/23 19:31	1
Heptachlor epoxide	<0.0000010		0.0000010		mg/L		09/19/23 08:04	09/19/23 19:31	1
Heptachlor epoxide	<0.0000010		0.0000010		mg/L		09/19/23 08:04	09/19/23 19:31	1
Methoxychlor	<0.0000020		0.0000020		mg/L		09/19/23 08:04	09/19/23 19:31	1
Methoxychlor	<0.0000020		0.0000020		mg/L		09/19/23 08:04	09/19/23 19:31	1
Toxaphene	<0.000020		0.000020		mg/L		09/19/23 08:04	09/19/23 19:31	1
Toxaphene	<0.000020		0.000020		mg/L		09/19/23 08:04	09/19/23 19:31	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*46*		*22 - 117*	*09/19/23 08:04*	*09/19/23 19:31*	*1*
Tetrachloro-m-xylene	*46*		*22 - 117*	*09/19/23 08:04*	*09/19/23 19:31*	*1*
DCB Decachlorobiphenyl (Surr)	*49*		*1 - 119*	*09/19/23 08:04*	*09/19/23 19:31*	*1*

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: MB 192-7190/1-A
Matrix: Solid
Analysis Batch: 7257

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7190

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
DCB Decachlorobiphenyl (Surr)	49		1 - 119	09/19/23 08:04	09/19/23 19:31	1

Lab Sample ID: LCS 192-7190/2-A
Matrix: Solid
Analysis Batch: 7256

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7190

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
.gamma.-BHC	0.000100	0.0000605		mg/L		60	43 - 130
.gamma.-BHC	0.000100	0.0000605		mg/L		60	43 - 130
cis-Chlordane	0.000100	0.0000611		mg/L		61	55 - 130
cis-Chlordane	0.000100	0.0000611		mg/L		61	55 - 130
trans-Chlordane	0.000100	0.0000602		mg/L		60	55 - 130
trans-Chlordane	0.000100	0.0000602		mg/L		60	55 - 130
Endrin	0.000100	0.0000610		mg/L		61	51 - 130
Endrin	0.000100	0.0000610		mg/L		61	51 - 130
Heptachlor	0.000100	0.0000620		mg/L		62	43 - 130
Heptachlor	0.000100	0.0000620		mg/L		62	43 - 130
Heptachlor epoxide	0.000100	0.0000604		mg/L		60	57 - 132
Heptachlor epoxide	0.000100	0.0000604		mg/L		60	57 - 132
Methoxychlor	0.000100	0.0000716		mg/L		72	26 - 139
Methoxychlor	0.000100	0.0000716		mg/L		72	26 - 139

Surrogate	LCS %Recovery	LCS Qualifier	Limits
Tetrachloro-m-xylene	54		22 - 117
Tetrachloro-m-xylene	54		22 - 117
DCB Decachlorobiphenyl (Surr)	54		1 - 119
DCB Decachlorobiphenyl (Surr)	54		1 - 119

Lab Sample ID: LCSD 192-7190/3-A
Matrix: Solid
Analysis Batch: 7256

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 7190

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
.gamma.-BHC	0.000100	0.0000601		mg/L		60	43 - 130	1	39
.gamma.-BHC	0.000100	0.0000601		mg/L		60	43 - 130	1	39
cis-Chlordane	0.000100	0.0000606		mg/L		61	55 - 130	1	35
cis-Chlordane	0.000100	0.0000606		mg/L		61	55 - 130	1	35
trans-Chlordane	0.000100	0.0000600		mg/L		60	55 - 130	0	35
trans-Chlordane	0.000100	0.0000600		mg/L		60	55 - 130	0	35
Endrin	0.000100	0.0000616		mg/L		62	51 - 130	1	48
Endrin	0.000100	0.0000616		mg/L		62	51 - 130	1	48
Heptachlor	0.000100	0.0000623		mg/L		62	43 - 130	1	43
Heptachlor	0.000100	0.0000623		mg/L		62	43 - 130	1	43
Heptachlor epoxide	0.000100	0.0000605		mg/L		61	57 - 132	0	26
Heptachlor epoxide	0.000100	0.0000605		mg/L		61	57 - 132	0	26
Methoxychlor	0.000100	0.0000802		mg/L		80	26 - 139	11	23
Methoxychlor	0.000100	0.0000802		mg/L		80	26 - 139	11	23

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: LCSD 192-7190/3-A
Matrix: Solid
Analysis Batch: 7256

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 7190

Surrogate	*LCSD %Recovery*	*LCSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*54*		*22 - 117*
Tetrachloro-m-xylene	*54*		*22 - 117*
DCB Decachlorobiphenyl (Surr)	*53*		*1 - 119*
DCB Decachlorobiphenyl (Surr)	*53*		*1 - 119*

Lab Sample ID: 192-5117-1 MS
Matrix: Solid
Analysis Batch: 7256

Client Sample ID: Camp Maxey WWTP
Prep Type: TCLP
Prep Batch: 7190

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
.gamma.-BHC	<0.000010		0.00100	0.000495		mg/L		50	32 - 140
.gamma.-BHC	<0.000010		0.00100	0.000495		mg/L		50	32 - 140
cis-Chlordane	<0.000020	F1	0.00100	0.000466		mg/L		47	45 - 140
cis-Chlordane	<0.000020		0.00100	0.000466		mg/L		47	45 - 140
trans-Chlordane	<0.000020		0.00100	0.000496	p	mg/L		50	45 - 140
trans-Chlordane	<0.000020		0.00100	0.000496	p	mg/L		50	45 - 140
Endrin	<0.000020		0.00100	0.000476		mg/L		48	30 - 147
Endrin	<0.000020		0.00100	0.000476		mg/L		48	30 - 147
Heptachlor	<0.0000050		0.00100	0.000517		mg/L		52	34 - 140
Heptachlor	<0.0000050		0.00100	0.000517		mg/L		52	34 - 140
Heptachlor epoxide	<0.000010		0.00100	0.000467		mg/L		47	37 - 142
Heptachlor epoxide	<0.000010		0.00100	0.000467		mg/L		47	37 - 142
Methoxychlor	<0.000020		0.00100	0.000677		mg/L		68	13 - 141
Methoxychlor	<0.000020		0.00100	0.000677		mg/L		68	13 - 141

Surrogate	*MS %Recovery*	*MS Qualifier*	*Limits*
Tetrachloro-m-xylene	*46*		*22 - 117*
Tetrachloro-m-xylene	*46*		*22 - 117*
DCB Decachlorobiphenyl (Surr)	*51*		*1 - 119*
DCB Decachlorobiphenyl (Surr)	*51*		*1 - 119*

Lab Sample ID: 192-5117-1 MSD
Matrix: Solid
Analysis Batch: 7256

Client Sample ID: Camp Maxey WWTP
Prep Type: TCLP
Prep Batch: 7190

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
.gamma.-BHC	<0.000010		0.00100	0.000467		mg/L		47	32 - 140	6	39
.gamma.-BHC	<0.000010		0.00100	0.000467		mg/L		47	32 - 140	6	39
cis-Chlordane	<0.000020	F1	0.00100	0.000594	*3	mg/L		59	45 - 140	24	35
cis-Chlordane	<0.000020	F1	0.00100	0.000594		mg/L		59	45 - 140	5	35
trans-Chlordane	<0.000020		0.00100	0.000471	p	mg/L		47	45 - 140	5	35
trans-Chlordane	<0.000020		0.00100	0.000471	p	mg/L		47	45 - 140	5	35
Endrin	<0.000020		0.00100	0.000447		mg/L		45	30 - 147	6	48
Endrin	<0.000020		0.00100	0.000447		mg/L		45	30 - 147	6	48
Heptachlor	<0.0000050		0.00100	0.000491		mg/L		49	34 - 140	5	43
Heptachlor	<0.0000050		0.00100	0.000491		mg/L		49	34 - 140	5	43
Heptachlor epoxide	<0.000010		0.00100	0.000447		mg/L		45	37 - 142	4	26
Heptachlor epoxide	<0.000010		0.00100	0.000447		mg/L		45	37 - 142	4	26

Method: 8081B - Organochlorine Pesticides (GC) (Continued)

Lab Sample ID: 192-5117-1 MSD
Matrix: Solid
Analysis Batch: 7256

Client Sample ID: Camp Maxey WWTP
Prep Type: TCLP
Prep Batch: 7190

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Methoxychlor	<0.000020		0.00100	0.000602	*3	mg/L		60	13 - 141	12	23
Methoxychlor	<0.000020		0.00100	0.000602		mg/L		60	13 - 141	12	23

Surrogate	*MSD %Recovery*	*MSD Qualifier*	*Limits*
Tetrachloro-m-xylene	*43*		*22 - 117*
Tetrachloro-m-xylene	*43*		*22 - 117*
DCB Decachlorobiphenyl (Surr)	*47*		*1 - 119*
DCB Decachlorobiphenyl (Surr)	*47*		*1 - 119*

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography

Lab Sample ID: MB 192-7466/1-A
Matrix: Solid
Analysis Batch: 7536

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7466

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
PCB-1016	<0.10		0.10		mg/Kg		09/26/23 09:00	09/27/23 09:38	1
PCB-1221	<0.10		0.10		mg/Kg		09/26/23 09:00	09/27/23 09:38	1
PCB-1232	<0.10		0.10		mg/Kg		09/26/23 09:00	09/27/23 09:38	1
PCB-1242	<0.10		0.10		mg/Kg		09/26/23 09:00	09/27/23 09:38	1
PCB-1248	<0.10		0.10		mg/Kg		09/26/23 09:00	09/27/23 09:38	1
PCB-1254	<0.10		0.10		mg/Kg		09/26/23 09:00	09/27/23 09:38	1
PCB-1260	<0.10		0.10		mg/Kg		09/26/23 09:00	09/27/23 09:38	1

Surrogate	*MB %Recovery*	*MB Qualifier*	*Limits*	*Prepared*	*Analyzed*	*Dil Fac*
Tetrachloro-m-xylene	*72*		*47 - 115*	*09/26/23 09:00*	*09/27/23 09:38*	*1*
DCB Decachlorobiphenyl (Surr)	*67*		*52 - 122*	*09/26/23 09:00*	*09/27/23 09:38*	*1*

Lab Sample ID: LCS 192-7466/2-A
Matrix: Solid
Analysis Batch: 7536

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7466

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
PCB-1016			0.500	0.325		mg/Kg		65	50 - 111		
PCB-1260			0.504	0.368		mg/Kg		73	52 - 117		

Surrogate	*LCS %Recovery*	*LCS Qualifier*	*Limits*
Tetrachloro-m-xylene	*69*		*47 - 115*
DCB Decachlorobiphenyl (Surr)	*68*		*52 - 122*

Lab Sample ID: LCSD 192-7466/3-A
Matrix: Solid
Analysis Batch: 7536

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 7466

Analyte			Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
PCB-1016			0.500	0.306		mg/Kg		61	50 - 111	6	21
PCB-1260			0.504	0.397		mg/Kg		79	52 - 117	7	18

Method: 8082A - Polychlorinated Biphenyls (PCBs) by Gas Chromatography (Continued)

Lab Sample ID: LCSD 192-7466/3-A
Matrix: Solid
Analysis Batch: 7536

Client Sample ID: Lab Control Sample Dup
Prep Type: Total/NA
Prep Batch: 7466

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
Tetrachloro-m-xylene	*69*		*47 - 115*
DCB Decachlorobiphenyl (Surr)	*72*		*52 - 122*

Lab Sample ID: 192-5117-1 MS
Matrix: Solid
Analysis Batch: 7536

Client Sample ID: Camp Maxey WWTP
Prep Type: Total/NA
Prep Batch: 7466

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
PCB-1016	<0.098		0.501	0.365		mg/Kg		73	48 - 102
PCB-1260	<0.098		0.505	0.377		mg/Kg		75	46 - 112

Surrogate	MS %Recovery	MS Qualifier	Limits
Tetrachloro-m-xylene	*63*		*47 - 115*
DCB Decachlorobiphenyl (Surr)	*70*		*52 - 122*

Lab Sample ID: 192-5117-1 MSD
Matrix: Solid
Analysis Batch: 7536

Client Sample ID: Camp Maxey WWTP
Prep Type: Total/NA
Prep Batch: 7466

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
PCB-1016	<0.098		0.500	0.342		mg/Kg		68	48 - 102	7	21
PCB-1260	<0.098		0.504	0.375		mg/Kg		74	46 - 112	0	18

Surrogate	MSD %Recovery	MSD Qualifier	Limits
Tetrachloro-m-xylene	*63*		*47 - 115*
DCB Decachlorobiphenyl (Surr)	*73*		*52 - 122*

Method: 9056A - Anions, Ion Chromatography

Lab Sample ID: MB 192-7034/1-A
Matrix: Solid
Analysis Batch: 7020

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Nitrate as N	<0.50		0.50		mg/Kg			09/13/23 16:03	1
Nitrite as N	<0.50		0.50		mg/Kg			09/13/23 16:03	1

Lab Sample ID: LCS 192-7034/2-A
Matrix: Solid
Analysis Batch: 7020

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

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Nitrate as N			50.0	49.9		mg/Kg		100	90 - 110		
Nitrite as N			50.0	50.9		mg/Kg		102	90 - 110		

Method: 9056A - Anions, Ion Chromatography (Continued)

Lab Sample ID: 192-5142-A-1-B MS
Matrix: Solid
Analysis Batch: 7020

Client Sample ID: Matrix Spike
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrate as N	190		3360	3460		mg/Kg	☼	97	80 - 120
Nitrite as N	<34		3360	3520		mg/Kg	☼	105	80 - 120

Lab Sample ID: 192-5142-A-1-C MSD
Matrix: Solid
Analysis Batch: 7020

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrate as N	190		3350	3490		mg/Kg	☼	99	80 - 120	1	10
Nitrite as N	<34		3350	3520		mg/Kg	☼	105	80 - 120	0	10

Method: 8321B - Herbicides (HPLC)

Lab Sample ID: MB 192-7385/1-A
Matrix: Solid
Analysis Batch: 7389

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7385

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
2,4-D	<2.0		2.0	mg/L		09/22/23 15:09	09/22/23 15:44	5
Silvex (2,4,5-TP)	<1.0		1.0	mg/L		09/22/23 15:09	09/22/23 15:44	5

Lab Sample ID: LCS 192-7385/2-A
Matrix: Solid
Analysis Batch: 7389

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7385

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
2,4-D	9.85	10.2		mg/L		104	40 - 160
Silvex (2,4,5-TP)	9.86	10.8		mg/L		109	40 - 160

Lab Sample ID: 192-5117-1 MS
Matrix: Solid
Analysis Batch: 7389

Client Sample ID: Camp Maxey WWTP
Prep Type: TCLP
Prep Batch: 7385

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
2,4-D	<0.20		4.92	4.84		mg/L		98	40 - 150
Silvex (2,4,5-TP)	<0.10		4.93	5.29		mg/L		107	40 - 160

Lab Sample ID: 192-5117-1 MSD
Matrix: Solid
Analysis Batch: 7389

Client Sample ID: Camp Maxey WWTP
Prep Type: TCLP
Prep Batch: 7385

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
2,4-D	<0.20		4.92	5.17		mg/L		105	40 - 150	7	13
Silvex (2,4,5-TP)	<0.10		4.93	5.52		mg/L		112	40 - 160	4	11.5

Method: 6010D - Metals (ICP)

Lab Sample ID: MB 192-7222/1-A
Matrix: Solid
Analysis Batch: 7393

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7222

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<0.25		0.25	mg/L		09/19/23 13:38	09/22/23 14:18	1
Barium	<0.010		0.010	mg/L		09/19/23 13:38	09/22/23 14:18	1
Cadmium	<0.020		0.020	mg/L		09/19/23 13:38	09/22/23 14:18	1
Chromium	<0.050		0.050	mg/L		09/19/23 13:38	09/22/23 14:18	1
Lead	<0.20		0.20	mg/L		09/19/23 13:38	09/22/23 14:18	1
Selenium	<0.35		0.35	mg/L		09/19/23 13:38	09/22/23 14:18	1
Silver	<0.035		0.035	mg/L		09/19/23 13:38	09/22/23 14:18	1

Lab Sample ID: LCS 192-7222/3-A
Matrix: Solid
Analysis Batch: 7393

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7222

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	10.0	9.61		mg/L		96	85 - 115
Barium	0.500	0.469		mg/L		94	85 - 115
Cadmium	1.00	0.960		mg/L		96	85 - 115
Chromium	1.00	0.985		mg/L		98	85 - 115
Lead	10.0	9.71		mg/L		97	85 - 115
Selenium	10.0	10.9		mg/L		109	85 - 115
Silver	0.200	0.220		mg/L		110	85 - 115

Lab Sample ID: MB 192-7314/1-A
Matrix: Solid
Analysis Batch: 7471

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7314

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Arsenic	<5.0		5.0	mg/Kg		09/21/23 09:35	09/25/23 16:45	1
Cadmium	<0.40		0.40	mg/Kg		09/21/23 09:35	09/25/23 16:45	1
Copper	<1.0		1.0	mg/Kg		09/21/23 09:35	09/25/23 16:45	1
Lead	<4.0		4.0	mg/Kg		09/21/23 09:35	09/25/23 16:45	1
Molybdenum	<1.0		1.0	mg/Kg		09/21/23 09:35	09/25/23 16:45	1
Nickel	<1.0		1.0	mg/Kg		09/21/23 09:35	09/25/23 16:45	1
Phosphorus	<10		10	mg/Kg		09/21/23 09:35	09/25/23 16:45	1
Potassium	<100		100	mg/Kg		09/21/23 09:35	09/25/23 16:45	1
Selenium	<7.0		7.0	mg/Kg		09/21/23 09:35	09/25/23 16:45	1
Zinc	<1.0		1.0	mg/Kg		09/21/23 09:35	09/25/23 16:45	1
Chromium	<1.0		1.0	mg/Kg		09/21/23 09:35	09/25/23 16:45	1

Lab Sample ID: LCS 192-7314/2-A
Matrix: Solid
Analysis Batch: 7471

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7314

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	200	193		mg/Kg		96	85 - 115
Cadmium	20.0	19.6		mg/Kg		98	85 - 115
Copper	20.0	19.6		mg/Kg		98	85 - 115
Lead	200	186		mg/Kg		93	85 - 115
Molybdenum	20.0	20.2		mg/Kg		101	85 - 115
Nickel	20.0	19.8		mg/Kg		99	85 - 115

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: LCS 192-7314/2-A
Matrix: Solid
Analysis Batch: 7471

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7314

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Phosphorus	200	196		mg/Kg		98	85 - 115
Potassium	400	421		mg/Kg		105	85 - 115
Selenium	200	218		mg/Kg		109	85 - 115
Zinc	20.0	19.8		mg/Kg		99	85 - 115
Chromium	20.0	19.6		mg/Kg		98	85 - 115

Lab Sample ID: 192-5319-A-1-B MS
Matrix: Solid
Analysis Batch: 7471

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 7314

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	<5.0		199	211		mg/Kg	☼	100	75 - 125
Cadmium	<0.40		19.9	17.4		mg/Kg	☼	87	75 - 125
Copper	8.9		19.9	26.4		mg/Kg	☼	88	75 - 125
Lead	21		199	190		mg/Kg	☼	84	75 - 125
Molybdenum	1.8		19.9	22.1		mg/Kg	☼	102	75 - 125
Nickel	8.3		19.9	25.7		mg/Kg	☼	87	75 - 125
Phosphorus	140		199	326		mg/Kg	☼	95	75 - 125
Potassium	1400		399	1520		mg/Kg	☼	31	75 - 125
Selenium	<7.0		199	230		mg/Kg	☼	114	75 - 125
Zinc	34		19.9	48.7		mg/Kg	☼	75	75 - 125
Chromium	8.6		19.9	26.0		mg/Kg	☼	87	75 - 125

Lab Sample ID: 192-5319-A-1-B MS
Matrix: Solid
Analysis Batch: 7471

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 7314

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	<50		199	216		mg/Kg	☼	108	75 - 125
Cadmium	<4.0		19.9	18.6		mg/Kg	☼	94	75 - 125
Copper	14		19.9	31.0		mg/Kg	☼	86	75 - 125
Lead	<40		199	211		mg/Kg	☼	93	75 - 125
Molybdenum	<10		19.9	23.3		mg/Kg	☼	117	75 - 125
Nickel	<10		19.9	28.8		mg/Kg	☼	96	75 - 125
Phosphorus	130		199	326		mg/Kg	☼	98	75 - 125
Potassium	1100		399	1350		mg/Kg	☼	72	75 - 125
Selenium	<70		199	250		mg/Kg	☼	125	75 - 125
Zinc	35		19.9	53.1		mg/Kg	☼	91	75 - 125
Chromium	<10		19.9	27.8		mg/Kg	☼	99	75 - 125

Lab Sample ID: 192-5319-A-1-B MS
Matrix: Solid
Analysis Batch: 7471

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 7314

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Selenium	<700		199	<700		mg/Kg	☼	NC	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 192-5319-A-1-C MSD
Matrix: Solid
Analysis Batch: 7471

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 7314

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	<5.0		196	212		mg/Kg	☼	103	75 - 125	1	20
Cadmium	<0.40		19.6	17.5		mg/Kg	☼	89	75 - 125	0	20
Copper	8.9		19.6	24.9		mg/Kg	☼	81	75 - 125	6	20
Lead	21		196	193		mg/Kg	☼	87	75 - 125	2	20
Molybdenum	1.8		19.6	21.6		mg/Kg	☼	101	75 - 125	2	20
Nickel	8.3		19.6	26.2		mg/Kg	☼	91	75 - 125	2	20
Phosphorus	140		196	323		mg/Kg	☼	95	75 - 125	1	20
Potassium	1400		393	1570		mg/Kg	☼	45	75 - 125	3	20
Selenium	<7.0		196	229		mg/Kg	☼	115	75 - 125	1	20
Zinc	34		19.6	50.5		mg/Kg	☼	85	75 - 125	4	20
Chromium	8.6		19.6	27.0		mg/Kg	☼	94	75 - 125	4	20

Lab Sample ID: 192-5319-A-1-C MSD
Matrix: Solid
Analysis Batch: 7471

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 7314

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	<50		196	214		mg/Kg	☼	109	75 - 125	1	20
Cadmium	<4.0		19.6	18.2		mg/Kg	☼	93	75 - 125	3	20
Copper	14		19.6	30.7		mg/Kg	☼	86	75 - 125	1	20
Lead	<40		196	207		mg/Kg	☼	93	75 - 125	2	20
Molybdenum	<10		19.6	23.3		mg/Kg	☼	119	75 - 125	0	20
Nickel	<10		19.6	28.4		mg/Kg	☼	95	75 - 125	2	20
Phosphorus	130		196	317		mg/Kg	☼	94	75 - 125	3	20
Potassium	1100		393	1280		mg/Kg	☼	56	75 - 125	5	20
Selenium	<70		196	240		mg/Kg	☼	122	75 - 125	4	20
Zinc	35		19.6	51.6		mg/Kg	☼	84	75 - 125	3	20
Chromium	<10		19.6	26.7		mg/Kg	☼	94	75 - 125	4	20

Lab Sample ID: 192-5319-A-1-C MSD
Matrix: Solid
Analysis Batch: 7471

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 7314

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Selenium	<700		196	<690		mg/Kg	☼	NC	75 - 125	1	20

Lab Sample ID: 192-5117-1 MS
Matrix: Solid
Analysis Batch: 7393

Client Sample ID: Camp Maxey WWTP
Prep Type: TCLP
Prep Batch: 7222

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Arsenic	<0.25		10.0	9.87		mg/L		99	75 - 125
Barium	0.21		0.500	0.611		mg/L		80	75 - 125
Cadmium	<0.020		1.00	0.898		mg/L		90	75 - 125
Chromium	<0.050		1.00	0.906		mg/L		91	75 - 125
Lead	<0.20		10.0	8.74		mg/L		87	75 - 125
Selenium	<0.35		10.0	10.1		mg/L		99	75 - 125
Silver	<0.035		0.200	0.192		mg/L		96	75 - 125

Method: 6010D - Metals (ICP) (Continued)

Lab Sample ID: 192-5117-1 MSD
Matrix: Solid
Analysis Batch: 7393

Client Sample ID: Camp Maxey WWTP
Prep Type: TCLP
Prep Batch: 7222

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Arsenic	<0.25		10.0	9.72		mg/L		97	75 - 125	2	20
Barium	0.21		0.500	0.610		mg/L		80	75 - 125	0	20
Cadmium	<0.020		1.00	0.902		mg/L		90	75 - 125	0	20
Chromium	<0.050		1.00	0.903		mg/L		90	75 - 125	0	20
Lead	<0.20		10.0	8.76		mg/L		88	75 - 125	0	20
Selenium	<0.35		10.0	9.88		mg/L		97	75 - 125	2	20
Silver	<0.035		0.200	0.194		mg/L		97	75 - 125	1	20

Method: 7470A - Mercury (CVAA)

Lab Sample ID: MB 192-7325/1-A
Matrix: Solid
Analysis Batch: 7395

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7325

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.00020		0.00020		mg/L		09/21/23 12:26	09/22/23 15:45	1

Lab Sample ID: LCS 192-7325/2-A
Matrix: Solid
Analysis Batch: 7395

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7325

Analyte			Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury			0.00250	0.00249		mg/L		100	85 - 115		

Lab Sample ID: 192-5117-1 MS
Matrix: Solid
Analysis Batch: 7395

Client Sample ID: Camp Maxey WWTP
Prep Type: TCLP
Prep Batch: 7325

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits		
Mercury	<0.0080		0.100	0.0822		mg/L		82	75 - 125		

Lab Sample ID: 192-5117-1 MSD
Matrix: Solid
Analysis Batch: 7395

Client Sample ID: Camp Maxey WWTP
Prep Type: TCLP
Prep Batch: 7325

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.0080		0.100	0.0820		mg/L		82	75 - 125	0	20

Method: 7471B - Mercury (CVAA)

Lab Sample ID: MB 192-7072/1-A
Matrix: Solid
Analysis Batch: 7112

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7072

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Mercury	<0.10		0.10		mg/Kg		09/14/23 14:15	09/15/23 10:19	1

Method: 7471B - Mercury (CVAA) (Continued)

Lab Sample ID: LCS 192-7072/2-A
Matrix: Solid
Analysis Batch: 7112

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7072

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	1.00	0.852		mg/Kg		85	85 - 115

Lab Sample ID: 192-5142-A-1-F MS
Matrix: Solid
Analysis Batch: 7112

Client Sample ID: Matrix Spike
Prep Type: Total/NA
Prep Batch: 7072

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Mercury	<0.095		0.943	0.756		mg/Kg	☼	80	75 - 125

Lab Sample ID: 192-5142-A-1-G MSD
Matrix: Solid
Analysis Batch: 7112

Client Sample ID: Matrix Spike Duplicate
Prep Type: Total/NA
Prep Batch: 7072

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Mercury	<0.095		0.929	0.736		mg/Kg	☼	79	75 - 125	3	20

Method: 2540G-2015 - Percent Moisture

Lab Sample ID: 192-5117-1 DU
Matrix: Solid
Analysis Batch: 7077

Client Sample ID: Camp Maxey WWTP
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
Total Solids	1.5		1.5		%		0.8	10

Method: 4500 NH3 G-2011 - Ammonia

Lab Sample ID: MB 192-7124/1-A
Matrix: Solid
Analysis Batch: 7140

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7124

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Ammonia (as N)	<10		10	mg/Kg		09/15/23 15:36	09/15/23 17:33	1

Lab Sample ID: LCS 192-7124/2-A
Matrix: Solid
Analysis Batch: 7140

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7124

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia (as N)	100	99.5		mg/Kg		99	80 - 120

Lab Sample ID: 192-5117-1 MS
Matrix: Solid
Analysis Batch: 7140

Client Sample ID: Camp Maxey WWTP
Prep Type: Total/NA
Prep Batch: 7124

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Ammonia (as N)	5600		5870	10800		mg/Kg	☼	90	80 - 120

Method: 4500 NH3 G-2011 - Ammonia (Continued)

Lab Sample ID: 192-5117-1 MSD
Matrix: Solid
Analysis Batch: 7140

Client Sample ID: Camp Maxey WWTP
Prep Type: Total/NA
Prep Batch: 7124

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Ammonia (as N)	5600		6190	11900		mg/Kg	☼	103	80 - 120	10	25

Method: 4500 NorgC-2011 - Nitrogen, Total Kjeldahl

Lab Sample ID: MB 192-7126/1-A
Matrix: Solid
Analysis Batch: 7179

Client Sample ID: Method Blank
Prep Type: Total/NA
Prep Batch: 7126

Analyte	MB Result	MB Qualifier	RL	Unit	D	Prepared	Analyzed	Dil Fac
Nitrogen, Kjeldahl	<25		25	mg/Kg		09/15/23 15:39	09/18/23 13:25	1

Lab Sample ID: LCS 192-7126/2-A
Matrix: Solid
Analysis Batch: 7179

Client Sample ID: Lab Control Sample
Prep Type: Total/NA
Prep Batch: 7126

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Kjeldahl	100	121		mg/Kg		121	88 - 152

Lab Sample ID: 192-5117-1 MS
Matrix: Solid
Analysis Batch: 7179

Client Sample ID: Camp Maxey WWTP
Prep Type: Total/NA
Prep Batch: 7126

Analyte	Sample Result	Sample Qualifier	Spike Added	MS Result	MS Qualifier	Unit	D	%Rec	%Rec Limits
Nitrogen, Kjeldahl	47000	F2	6040	54500	4	mg/Kg	☼	119	44 - 143

Lab Sample ID: 192-5117-1 MSD
Matrix: Solid
Analysis Batch: 7179

Client Sample ID: Camp Maxey WWTP
Prep Type: Total/NA
Prep Batch: 7126

Analyte	Sample Result	Sample Qualifier	Spike Added	MSD Result	MSD Qualifier	Unit	D	%Rec	%Rec Limits	RPD	RPD Limit
Nitrogen, Kjeldahl	47000	F2	6140	46200	4	mg/Kg	☼	-18	44 - 143	16	10

Method: 9045D - pH

Lab Sample ID: LCS 192-7133/1
Matrix: Solid
Analysis Batch: 7133

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

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec Limits
pH	6.86	6.9		SU		101	

Lab Sample ID: 192-5117-1 DU
Matrix: Solid
Analysis Batch: 7133

Client Sample ID: Camp Maxey WWTP
Prep Type: Total/NA

Analyte	Sample Result	Sample Qualifier	DU Result	DU Qualifier	Unit	D	RPD	RPD Limit
pH	6.7	HF	6.7		SU		0.2	5

Client: HydroAg Environmental, LLC
Project/Site: Camp Maxey WWTP

Job ID: 192-5117-1

Method: 9221C,E-2014 - Coliforms, Fecal (Multiple-Tube Fermentation)

Lab Sample ID: MB 192-7031/10
Matrix: Solid
Analysis Batch: 7031

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

Analyte	MB Result	MB Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Coliform, Fecal	neg		1.0		MPN/g			09/13/23 16:10	1

Lab Sample ID: POS 192-7031/8
Matrix: Solid
Analysis Batch: 7031

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

Analyte	POS Result	POS Qualifier	RL		Unit	D	Prepared	Analyzed	Dil Fac
Coliform, Fecal	pos		1.0		MPN/g			09/13/23 16:10	1

GC/MS VOA

Leach Batch: 6266

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	1311	
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	1311	
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	1311	

Analysis Batch: 7367

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	8260D	6266
MB 192-7367/5	Method Blank	Total/NA	Solid	8260D	
LCS 192-7367/1003	Lab Control Sample	Total/NA	Solid	8260D	
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	8260D	6266
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	8260D	6266

GC/MS Semi VOA

Leach Batch: 6643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	1311	
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	1311	
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	1311	

Prep Batch: 7330

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	3510C	6643
MB 192-7330/1-A	Method Blank	Total/NA	Solid	3510C	
LCS 192-7330/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 192-7330/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	3510C	6643
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	3510C	6643

Analysis Batch: 7359

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	8270E	7330
MB 192-7330/1-A	Method Blank	Total/NA	Solid	8270E	7330
LCS 192-7330/2-A	Lab Control Sample	Total/NA	Solid	8270E	7330
LCSD 192-7330/3-A	Lab Control Sample Dup	Total/NA	Solid	8270E	7330
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	8270E	7330
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	8270E	7330

GC Semi VOA

Leach Batch: 6643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	1311	
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	1311	
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	1311	

Prep Batch: 7190

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	3510C	6643
MB 192-7190/1-A	Method Blank	Total/NA	Solid	3510C	
LCS 192-7190/2-A	Lab Control Sample	Total/NA	Solid	3510C	
LCSD 192-7190/3-A	Lab Control Sample Dup	Total/NA	Solid	3510C	

GC Semi VOA (Continued)

Prep Batch: 7190 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	3510C	6643
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	3510C	6643

Analysis Batch: 7256

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	8081B	7190
MB 192-7190/1-A	Method Blank	Total/NA	Solid	8081B	7190
LCS 192-7190/2-A	Lab Control Sample	Total/NA	Solid	8081B	7190
LCSD 192-7190/3-A	Lab Control Sample Dup	Total/NA	Solid	8081B	7190
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	8081B	7190
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	8081B	7190

Analysis Batch: 7257

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 192-7190/1-A	Method Blank	Total/NA	Solid	8081B	7190
LCS 192-7190/2-A	Lab Control Sample	Total/NA	Solid	8081B	7190
LCSD 192-7190/3-A	Lab Control Sample Dup	Total/NA	Solid	8081B	7190
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	8081B	7190
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	8081B	7190

Prep Batch: 7466

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	3550C	
MB 192-7466/1-A	Method Blank	Total/NA	Solid	3550C	
LCS 192-7466/2-A	Lab Control Sample	Total/NA	Solid	3550C	
LCSD 192-7466/3-A	Lab Control Sample Dup	Total/NA	Solid	3550C	
192-5117-1 MS	Camp Maxey WWTP	Total/NA	Solid	3550C	
192-5117-1 MSD	Camp Maxey WWTP	Total/NA	Solid	3550C	

Analysis Batch: 7536

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	8082A	7466
MB 192-7466/1-A	Method Blank	Total/NA	Solid	8082A	7466
LCS 192-7466/2-A	Lab Control Sample	Total/NA	Solid	8082A	7466
LCSD 192-7466/3-A	Lab Control Sample Dup	Total/NA	Solid	8082A	7466
192-5117-1 MS	Camp Maxey WWTP	Total/NA	Solid	8082A	7466
192-5117-1 MSD	Camp Maxey WWTP	Total/NA	Solid	8082A	7466

HPLC/IC

Analysis Batch: 7020

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	9056A	7034
MB 192-7034/1-A	Method Blank	Total/NA	Solid	9056A	7034
LCS 192-7034/2-A	Lab Control Sample	Total/NA	Solid	9056A	7034
192-5142-A-1-B MS	Matrix Spike	Total/NA	Solid	9056A	7034
192-5142-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	9056A	7034

Leach Batch: 7034

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	DI Leach	

HPLC/IC (Continued)

Leach Batch: 7034 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
MB 192-7034/1-A	Method Blank	Total/NA	Solid	DI Leach	
LCS 192-7034/2-A	Lab Control Sample	Total/NA	Solid	DI Leach	
192-5142-A-1-B MS	Matrix Spike	Total/NA	Solid	DI Leach	
192-5142-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	DI Leach	

LCMS

Leach Batch: 6643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	1311	
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	1311	
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	1311	

Prep Batch: 7385

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	3535A	6643
MB 192-7385/1-A	Method Blank	Total/NA	Solid	3535A	
LCS 192-7385/2-A	Lab Control Sample	Total/NA	Solid	3535A	
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	3535A	6643
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	3535A	6643

Analysis Batch: 7389

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	8321B	7385
MB 192-7385/1-A	Method Blank	Total/NA	Solid	8321B	7385
LCS 192-7385/2-A	Lab Control Sample	Total/NA	Solid	8321B	7385
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	8321B	7385
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	8321B	7385

Metals

Leach Batch: 6643

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	1311	
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	1311	
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	1311	

Drying Batch: 7005

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	Prep/Oven Dry	
192-5142-A-1-F MS	Matrix Spike	Total/NA	Solid	Prep/Oven Dry	
192-5142-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	Prep/Oven Dry	

Prep Batch: 7072

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	7471B	7005
MB 192-7072/1-A	Method Blank	Total/NA	Solid	7471B	
LCS 192-7072/2-A	Lab Control Sample	Total/NA	Solid	7471B	
192-5142-A-1-F MS	Matrix Spike	Total/NA	Solid	7471B	7005
192-5142-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	7471B	7005

Metals

Analysis Batch: 7112

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	7471B	7072
MB 192-7072/1-A	Method Blank	Total/NA	Solid	7471B	7072
LCS 192-7072/2-A	Lab Control Sample	Total/NA	Solid	7471B	7072
192-5142-A-1-F MS	Matrix Spike	Total/NA	Solid	7471B	7072
192-5142-A-1-G MSD	Matrix Spike Duplicate	Total/NA	Solid	7471B	7072

Drying Batch: 7168

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5319-A-1-B MS	Matrix Spike	Total/NA	Solid	Prep/Oven Dry	
192-5319-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	Prep/Oven Dry	

Prep Batch: 7222

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	3010A	6643
MB 192-7222/1-A	Method Blank	Total/NA	Solid	3010A	
LCS 192-7222/3-A	Lab Control Sample	Total/NA	Solid	3010A	
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	3010A	6643
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	3010A	6643

Prep Batch: 7314

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	3051A	7005
MB 192-7314/1-A	Method Blank	Total/NA	Solid	3051A	
LCS 192-7314/2-A	Lab Control Sample	Total/NA	Solid	3051A	
192-5319-A-1-B MS	Matrix Spike	Total/NA	Solid	3051A	7168
192-5319-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	3051A	7168

Prep Batch: 7325

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	7470A	6643
MB 192-7325/1-A	Method Blank	Total/NA	Solid	7470A	
LCS 192-7325/2-A	Lab Control Sample	Total/NA	Solid	7470A	
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	7470A	6643
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	7470A	6643

Analysis Batch: 7393

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	6010D	7222
MB 192-7222/1-A	Method Blank	Total/NA	Solid	6010D	7222
LCS 192-7222/3-A	Lab Control Sample	Total/NA	Solid	6010D	7222
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	6010D	7222
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	6010D	7222

Analysis Batch: 7395

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	TCLP	Solid	7470A	7325
MB 192-7325/1-A	Method Blank	Total/NA	Solid	7470A	7325
LCS 192-7325/2-A	Lab Control Sample	Total/NA	Solid	7470A	7325
192-5117-1 MS	Camp Maxey WWTP	TCLP	Solid	7470A	7325
192-5117-1 MSD	Camp Maxey WWTP	TCLP	Solid	7470A	7325

Metals

Analysis Batch: 7471

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	6010D	7314
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	6010D	7314
MB 192-7314/1-A	Method Blank	Total/NA	Solid	6010D	7314
LCS 192-7314/2-A	Lab Control Sample	Total/NA	Solid	6010D	7314
192-5319-A-1-B MS	Matrix Spike	Total/NA	Solid	6010D	7314
192-5319-A-1-B MS	Matrix Spike	Total/NA	Solid	6010D	7314
192-5319-A-1-B MS	Matrix Spike	Total/NA	Solid	6010D	7314
192-5319-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	6010D	7314
192-5319-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	6010D	7314
192-5319-A-1-C MSD	Matrix Spike Duplicate	Total/NA	Solid	6010D	7314

General Chemistry

Analysis Batch: 7077

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	2540G-2015	
192-5117-1 DU	Camp Maxey WWTP	Total/NA	Solid	2540G-2015	

Prep Batch: 7124

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	4500 NH3 B-2011	
MB 192-7124/1-A	Method Blank	Total/NA	Solid	4500 NH3 B-2011	
LCS 192-7124/2-A	Lab Control Sample	Total/NA	Solid	4500 NH3 B-2011	
192-5117-1 MS	Camp Maxey WWTP	Total/NA	Solid	4500 NH3 B-2011	
192-5117-1 MSD	Camp Maxey WWTP	Total/NA	Solid	4500 NH3 B-2011	

Prep Batch: 7126

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	SM4500Norg_C	
MB 192-7126/1-A	Method Blank	Total/NA	Solid	SM4500Norg_C	
LCS 192-7126/2-A	Lab Control Sample	Total/NA	Solid	SM4500Norg_C	
192-5117-1 MS	Camp Maxey WWTP	Total/NA	Solid	SM4500Norg_C	
192-5117-1 MSD	Camp Maxey WWTP	Total/NA	Solid	SM4500Norg_C	

Analysis Batch: 7133

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	9045D	
LCS 192-7133/1	Lab Control Sample	Total/NA	Solid	9045D	
192-5117-1 DU	Camp Maxey WWTP	Total/NA	Solid	9045D	

Analysis Batch: 7140

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	4500 NH3 G-2011	7124
MB 192-7124/1-A	Method Blank	Total/NA	Solid	4500 NH3 G-2011	7124
LCS 192-7124/2-A	Lab Control Sample	Total/NA	Solid	4500 NH3 G-2011	7124

General Chemistry (Continued)

Analysis Batch: 7140 (Continued)

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1 MS	Camp Maxey WWTP	Total/NA	Solid	4500 NH3 G-2011	7124
192-5117-1 MSD	Camp Maxey WWTP	Total/NA	Solid	4500 NH3 G-2011	7124

Analysis Batch: 7179

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	4500 NorgC-2011	7126
MB 192-7126/1-A	Method Blank	Total/NA	Solid	4500 NorgC-2011	7126
LCS 192-7126/2-A	Lab Control Sample	Total/NA	Solid	4500 NorgC-2011	7126
192-5117-1 MS	Camp Maxey WWTP	Total/NA	Solid	4500 NorgC-2011	7126
192-5117-1 MSD	Camp Maxey WWTP	Total/NA	Solid	4500 NorgC-2011	7126

Biology

Analysis Batch: 7031

Lab Sample ID	Client Sample ID	Prep Type	Matrix	Method	Prep Batch
192-5117-1	Camp Maxey WWTP	Total/NA	Solid	9221C,E-2014	
MB 192-7031/10	Method Blank	Total/NA	Solid	9221C,E-2014	
POS 192-7031/8	Positive Control	Total/NA	Solid	9221C,E-2014	

Lab Chronicle

Client: HydroAg Environmental, LLC
Project/Site: Camp Maxey WWTP

Job ID: 192-5117-1

Client Sample ID: Camp Maxey WWTP

Lab Sample ID: 192-5117-1

Date Collected: 09/12/23 17:00

Matrix: Solid

Date Received: 09/13/23 12:01

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
TCLP	Leach	1311			6266	JO5	EET ARK	09/18/23 13:50
TCLP	Analysis	8260D		100	7367	LC5	EET ARK	09/21/23 22:26
TCLP	Leach	1311			6643	JO5	EET ARK	09/18/23 13:48
TCLP	Prep	3510C			7330	SS	EET ARK	09/21/23 13:44
TCLP	Analysis	8270E		1	7359	LC5	EET ARK	09/22/23 01:51
TCLP	Leach	1311			6643	JO5	EET ARK	09/18/23 13:48
TCLP	Prep	3510C			7190	SS	EET ARK	09/19/23 11:50
TCLP	Analysis	8081B		1	7256	SS	EET ARK	09/19/23 21:16
Total/NA	Prep	3550C			7466	SS	EET ARK	09/26/23 09:00
Total/NA	Analysis	8082A		1	7536	SS	EET ARK	09/27/23 11:54
TCLP	Leach	1311			6643	JO5	EET ARK	09/18/23 13:48
TCLP	Prep	3535A			7385	ZS	EET ARK	09/22/23 15:09
TCLP	Analysis	8321B		1	7389	SZC	EET ARK	09/22/23 16:49
TCLP	Leach	1311			6643	JO5	EET ARK	09/18/23 13:48
TCLP	Prep	3010A			7222	JO5	EET ARK	09/19/23 13:38
TCLP	Analysis	6010D		1	7393	EQ5	EET ARK	09/22/23 14:34
Total/NA	Drying	Prep/Oven Dry			7005	EQ5	EET ARK	09/13/23 13:23
Total/NA	Prep	3051A			7314	JO5	EET ARK	09/21/23 09:35
Total/NA	Analysis	6010D		10	7471	JO5	EET ARK	09/25/23 18:06
Total/NA	Drying	Prep/Oven Dry			7005	EQ5	EET ARK	09/13/23 13:23
Total/NA	Prep	3051A			7314	JO5	EET ARK	09/21/23 09:35
Total/NA	Analysis	6010D		1	7471	JO5	EET ARK	09/25/23 18:10
TCLP	Leach	1311			6643	JO5	EET ARK	09/18/23 13:48
TCLP	Prep	7470A			7325	CR5	EET ARK	09/21/23 12:26
TCLP	Analysis	7470A		1	7395	CR5	EET ARK	09/22/23 15:48
Total/NA	Drying	Prep/Oven Dry			7005	EQ5	EET ARK	09/13/23 13:23
Total/NA	Prep	7471B			7072	CR5	EET ARK	09/14/23 14:15
Total/NA	Analysis	7471B		1	7112	CR5	EET ARK	09/15/23 11:00
Total/NA	Analysis	2540G-2015		1	7077	AJ	EET ARK	09/14/23 15:39
Total/NA	Analysis	9045D		1	7133	AJ	EET ARK	09/15/23 08:11

Client Sample ID: Camp Maxey WWTP

Lab Sample ID: 192-5117-1

Date Collected: 09/12/23 17:00

Matrix: Solid

Date Received: 09/13/23 12:01

Percent Solids: 1.5

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Analyst	Lab	Prepared or Analyzed
Total/NA	Leach	DI Leach			7034	ZS	EET ARK	09/13/23 16:00
Total/NA	Analysis	9056A		1	7020	SZC	EET ARK	09/13/23 18:11
Total/NA	Prep	4500 NH3 B-2011			7124	HR	EET ARK	09/15/23 15:36
Total/NA	Analysis	4500 NH3 G-2011		1	7140	HR	EET ARK	09/15/23 17:35
Total/NA	Prep	SM4500Norg_C			7126	HR	EET ARK	09/15/23 15:39
Total/NA	Analysis	4500 NorgC-2011		5	7179	HR	EET ARK	09/18/23 13:46
Total/NA	Analysis	9221C,E-2014		1	7031	SG	EET ARK	09/13/23 16:10

Lab Chronicle

Client: HydroAg Environmental, LLC
Project/Site: Camp Maxey WWTP

Job ID: 192-5117-1

Laboratory References:

EET ARK = Eurofins Arkansas, 8600 Kanis Rd, Little Rock, AR 72204, TEL (501)224-5060

Accreditation/Certification Summary

Client: HydroAg Environmental, LLC
Project/Site: Camp Maxey WWTP

Job ID: 192-5117-1

Laboratory: Eurofins Arkansas

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

Authority	Program	Identification Number	Expiration Date
Arkansas DEQ	State	60-0889	03-01-24
Louisiana (All)	NELAP	01946	07-01-25

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8270E	3510C	Solid	3 & 4 Methylphenol
8270E	3510C	Solid	Pyridine
8270E	3510C	Solid	Total Cresols
8321B	3535A	Solid	2,4-D
8321B	3535A	Solid	Silvex (2,4,5-TP)

Method Summary

Client: HydroAg Environmental, LLC
Project/Site: Camp Maxey WWTP

Job ID: 192-5117-1

Method	Method Description	Protocol	Laboratory
8260D	Volatile Organic Compounds by GC/MS	SW846	EET ARK
8270E	Semivolatile Organic Compounds (GC/MS)	SW846	EET ARK
8081B	Organochlorine Pesticides (GC)	SW846	EET ARK
8082A	Polychlorinated Biphenyls (PCBs) by Gas Chromatography	SW846	EET ARK
9056A	Anions, Ion Chromatography	SW846	EET ARK
8321B	Herbicides (HPLC)	SW846	EET ARK
6010D	Metals (ICP)	SW846	EET ARK
7470A	Mercury (CVAA)	SW846	EET ARK
7471B	Mercury (CVAA)	SW846	EET ARK
2540G-2015	Percent Moisture	SM	EET ARK
4500 NH3 G-2011	Ammonia	SM	EET ARK
4500 NorgC-2011	Nitrogen, Total Kjeldahl	SM	EET ARK
9045D	pH	SW846	EET ARK
9221C,E-2014	Coliforms, Fecal (Multiple-Tube Fermentation)	SM	EET ARK
1311	TCLP Extraction	SW846	EET ARK
3010A	Preparation, Total Metals	SW846	EET ARK
3051A	Preparation, Metals, Microwave Assisted	SW846	EET ARK
3510C	Liquid-Liquid Extraction (Separatory Funnel)	SW846	EET ARK
3535A	Solid Phase Extraction (SPE)	SW846	EET ARK
3550C	Ultrasonic Extraction	SW846	EET ARK
4500 NH3 B-2011	Ammonia, Distillation	SM	EET ARK
5030C	Purge and Trap	SW846	EET ARK
7470A	Preparation, Mercury	SW846	EET ARK
7471B	Preparation, Mercury	SW846	EET ARK
DI Leach	Deionized Water Leaching Procedure	ASTM	EET ARK
Prep/Oven Dry	Preparation, Oven Dry	None	EET ARK
SM4500Norg_C	Preparation, Nitrogen -Total Kjeldahl	SM	EET ARK

Protocol References:

ASTM = ASTM International
None = None
SM = "Standard Methods For The Examination Of Water And Wastewater"
SW846 = "Test Methods For Evaluating Solid Waste, Physical/Chemical Methods", Third Edition, November 1986 And Its Updates.

Laboratory References:

EET ARK = Eurofins Arkansas, 8600 Kanis Rd, Little Rock, AR 72204, TEL (501)224-5060

Sample Summary

Client: HydroAg Environmental, LLC
Project/Site: Camp Maxey WWTP

Job ID: 192-5117-1

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
192-5117-1	Camp Maxey WWTP	Solid	09/12/23 17:00	09/13/23 12:01

AMERICAN INTERPLEX CORPORATION
LABORATORIES

8600 Kanis Road
Little Rock, AR 72204-2322
(501) 224-5060
FAX (501) 224-5072

192-5117 COC

CHAIN OF CUSTODY / ANALYSIS REQUEST FORM

PAGE OF

Client: HydroAs
Project Reference: Camp Maxey WWTP
Project Manager:
Sampled By:

PO No.

NO OF BOTTLES

SAMPLE MATRIX: WATER, SOIL

AIC No.	Sample Identification	Date/Time Collected	GRAB	COMP	WATER	SOIL	Sludge	NO OF BOTTLES	ANALYSES REQUESTED: Full TCLP	See Attachment	Fecal
1	Camp Maxey WWTP	9-12-23 5:00 pm	X				X	1	X	X	X
		Container Type									
		Preservative									

AIC CONTROL NO: 5117
AIC PROPOSAL NO:
Carrier:
Received on Ice (4°C)? YES 10.1 (NO) melted
Remarks

Field pH calibration
on _____ @ _____
Buffer:

G = Glass P = Plastic V = VOA vials H = HCl to pH2 T = Sodium Thiosulfate
NO = none S = Sulfuric acid pH2 N = Nitric acid pH2 B = NaOH to pH12 Z = Zinc acetate

Turnaround Time Requested: (Please circle)
NORMAL or EXPEDITED IN ____ DAYS
Expedited results requested by: _____
Who should AIC contact with questions: _____
Phone: _____ Fax: _____
Report Attention to: _____
Report Address to:

Relinquished By:	Date/Time	Received By:	Date/Time
Relinquished By:	Date/Time	Received in Lab By:	Date/Time 9-13-23 1201

Comments:

5/01

FORM 0060

10/17/2023 (Rev. 1)

Login Sample Receipt Checklist

Client: HydroAg Environmental, LLC

Job Number: 192-5117-1

Login Number: 5117
List Number: 1
Creator: Brown, Danny

List Source: Eurofins Arkansas

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.	True	
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.	False	
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	

Green Country Testing, Inc.
6825 E 38th Street
Tulsa, OK 74145
TEL: 918-828-9977 FAX: 918-828-7756
Website: www.greencountrytesting.com

October 30, 2023

Marcus Tilley
HydrAg Environmental
P.O. Box 1162
Russelville, AR 72811
TEL: (501) 581-1208
FAX:

RE: Order No.: 2310410

Dear Marcus Tilley:

Green Country Testing, Inc. received 7 sample(s) on 10/26/2023 for the analyses presented in the following report.

In accordance with your instructions, Green Country Testing conducted the analysis shown on the following pages on samples submitted by your company. The results relate only to the items tested. Unless otherwise noted, all analysis were conducted using EPA approved methodologies. Test reports meet all the NELAC requirements. All relevant sampling information is on the attached chain-of-custody form. The initials SUB as the analyst designate any testing sub-contracted by Green Country Testing.

Certifications/Accreditation: OK - 7604 - AR - ADEQ - KS - E-10232

A scope of Certified/Accredited parameters is available upon request. If you have any questions regarding these tests results, please feel free to call.

Sincerely,

Brian Duzan
Laboratory Director

Green Country Testing, Inc.
6825 E 38th Street
Tulsa, OK 74145
TEL: 918-828-9977 FAX: 918-828-7756
Website: www.greencountrytesting.com

Analytical Report

(continuous)

WO#: **2310410**

Date Reported: **10/30/2023**

CLIENT: HydrAg Environmental **Lab Order:** 2310410

Project:

Lab ID: 2310410-001 **Collection Date:** 10/26/2023 7:40:00 AM

Client Sample ID: #1 Sludge **Matrix:** SLUDGE

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
FECAL COLIFORM IN SOIL OR SLUDGE				**A9222 D-2015**		Analyst: **DW**
Coliform, Fecal	26,000	667		CFU/g-dry	20	10/26/2023 3:00:00 PM
PERCENT MOISTURE				**E160.3**		Analyst: **DW**
Percent Moisture	97.0	0.100			1	10/27/2023 10:30:00 AM

Lab ID: 2310410-002 **Collection Date:** 10/26/2023 7:40:00 AM

Client Sample ID: #2 Sludge **Matrix:** SLUDGE

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
FECAL COLIFORM IN SOIL OR SLUDGE				**A9222 D-2015**		Analyst: **DW**
Coliform, Fecal	31,400	730		CFU/g-dry	20	10/26/2023 3:00:00 PM
PERCENT MOISTURE				**E160.3**		Analyst: **DW**
Percent Moisture	97.3	0.100			1	10/27/2023 10:30:00 AM

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	W	Sample container temperature is out of limit as specified at testcode

Green Country Testing, Inc.
6825 E 38th Street
Tulsa, OK 74145
TEL: 918-828-9977 FAX: 918-828-7756
Website: www.greencountrytesting.com

Analytical Report

(continuous)

WO#: **2310410**

Date Reported: **10/30/2023**

CLIENT: HydrAg Environmental **Lab Order:** 2310410

Project:

Lab ID: 2310410-003 **Collection Date:** 10/26/2023 7:40:00 AM

Client Sample ID: #3 Sludge **Matrix:** SLUDGE

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
FECAL COLIFORM IN SOIL OR SLUDGE				**A9222 D-2015**		Analyst: **DW**
Coliform, Fecal	34,500	749		CFU/g-dry	20	10/26/2023 3:00:00 PM
PERCENT MOISTURE				**E160.3**		Analyst: **DW**
Percent Moisture	97.3	0.100			1	10/27/2023 10:30:00 AM

Lab ID: 2310410-004 **Collection Date:** 10/26/2023 7:40:00 AM

Client Sample ID: #4 Sludge **Matrix:** SLUDGE

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
FECAL COLIFORM IN SOIL OR SLUDGE				**A9222 D-2015**		Analyst: **DW**
Coliform, Fecal	14,800	707		CFU/g-dry	20	10/26/2023 3:00:00 PM
PERCENT MOISTURE				**E160.3**		Analyst: **DW**
Percent Moisture	97.2	0.100			1	10/27/2023 10:30:00 AM

Qualifiers:				
	H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
	ND	Not Detected at the Reporting Limit	PL	Permit Limit
	RL	Reporting Detection Limit	W	Sample container temperature is out of limit as specified at testcode

Green Country Testing, Inc.
6825 E 38th Street
Tulsa, OK 74145
TEL: 918-828-9977 FAX: 918-828-7756
Website: www.greencountrytesting.com

Analytical Report

(continuous)

WO#: **2310410**

Date Reported: **10/30/2023**

CLIENT: HydrAg Environmental

Lab Order: 2310410

Project:

Lab ID: 2310410-005 **Collection Date:** 10/26/2023 7:40:00 AM

Client Sample ID: #5 Sludge **Matrix:** SLUDGE

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
FECAL COLIFORM IN SOIL OR SLUDGE				**A9222 D-2015**		Analyst: **DW**
Coliform, Fecal	< 749	749		CFU/g-dry	20	10/26/2023 3:00:00 PM
PERCENT MOISTURE				**E160.3**		Analyst: **DW**
Percent Moisture	97.3	0.100			1	10/27/2023 10:30:00 AM

Lab ID: 2310410-006 **Collection Date:** 10/26/2023 7:40:00 AM

Client Sample ID: #6 Sludge **Matrix:** SLUDGE

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
FECAL COLIFORM IN SOIL OR SLUDGE				**A9222 D-2015**		Analyst: **DW**
Coliform, Fecal	2,410	531		CFU/g-dry	20	10/26/2023 3:00:00 PM
PERCENT MOISTURE				**E160.3**		Analyst: **DW**
Percent Moisture	96.2	0.100			1	10/27/2023 10:30:00 AM

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response
ND	Not Detected at the Reporting Limit	PL	Permit Limit
RL	Reporting Detection Limit	W	Sample container temperature is out of limit as specified at testcode

Green Country Testing, Inc.
6825 E 38th Street
Tulsa, OK 74145
TEL: 918-828-9977 FAX: 918-828-7756
Website: www.greencountrytesting.com

Analytical Report

(continuous)

WO#: **2310410**

Date Reported: **10/30/2023**

CLIENT: HydrAg Environmental

Lab Order: 2310410

Project:

Lab ID: 2310410-007

Collection Date: 10/26/2023 7:40:00 AM

Client Sample ID: #7 Sludge

Matrix: SLUDGE

Analyses	Result	RL	Qual	Units	DF	Date Analyzed
FECAL COLIFORM IN SOIL OR SLUDGE				**A9222 D-2015**		Analyst: **DW**
Coliform, Fecal	4,470	545		CFU/g-dry	20	10/26/2023 3:00:00 PM
PERCENT MOISTURE				**E160.3**		Analyst: **DW**
Percent Moisture	96.3	0.100			1	10/27/2023 10:30:00 AM

Qualifiers:

H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
RL	Reporting Detection Limit
M	Manual Integration used to determine area response
PL	Permit Limit
W	Sample container temperature is out of limit as specified at testcode

Green Country Testing, Inc.
6825 E 38th Street
Tulsa, OK 74145
TEL: 918-828-9977 FAX: 918-828-7756
Website: www.greencountrytesting.com

QC SUMMARY REPORT

WO#: **2310410**
30-Oct-23

Client: HydrAg Environmental
Project:

TestNo: **A9222 D-2015**

Sample ID: **MB-R64882**	SampType: **MBLK**	TestCode: **FECAL_S**	Units: **CFU/g**	Prep Date:	RunNo: **64882**
Client ID: **PBS**	Batch ID: **R64882**	TestNo: **A9222 D-2015**		Analysis Date: **10/26/2023**	SeqNo: **735604**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Coliform, Fecal	< 1.00	1.00									

Sample ID: **2310410-001ADUP**	SampType: **DUP**	TestCode: **FECAL_S**	Units: **CFU/g-dry**	Prep Date:	RunNo: **64882**
Client ID: **#1 Sludge**	Batch ID: **R64882**	TestNo: **A9222 D-2015**		Analysis Date: **10/26/2023**	SeqNo: **735606**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Coliform, Fecal	28,000	667						26,000	7.41	28.9	

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit	W	Sample container temperature is out of limit as sp

Green Country Testing, Inc.
6825 E 38th Street
Tulsa, OK 74145
TEL: 918-828-9977 FAX: 918-828-7756
Website: www.greencountrytesting.com

QC SUMMARY REPORT

WO#: **2310410**
30-Oct-23

Client: HydrAg Environmental
Project:

TestNo: **E160.3**

Sample ID: **2310410-001ADUP**	SampType: **DUP**	TestCode: **PMOIST**	Units:	Prep Date:	RunNo: **64850**
Client ID: **#1 Sludge**	Batch ID: **R64850**	TestNo: **E160.3**		Analysis Date: **10/27/2023**	SeqNo: **735430**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Percent Moisture	97.3	0.100						97.00	0.329	12.5	

Qualifiers:

H	Holding times for preparation or analysis exceeded	M	Manual Integration used to determine area response	ND	Not Detected at the Reporting Limit
PL	Permit Limit	RL	Reporting Detection Limit	W	Sample container temperature is out of limit as sp

Green Country TESTING

Chain of Custody Record

Laboratory Number: 2310410

	Client Information:	Billing Information:	PO Number:	Project Name/Number:	Page 1 of 1
Company Name:	HydrAg Environmental			Camp Mackey WWTP	
Contact Name:	Marcus Tilley		Quote Number:		Turn Time
Address:	P.O. Box 1162			Sampler's Signature	☐ 1 Day
			Required QC Level		☐ 2 Day
City, State Zip:	Russellville, AR 72811				☒ Standard
Phone Number:	501-581-1208 Ext:	Ext:	Bill Monthly	Shipping Method:	☐ Other
Fax Number:			☐ Yes	UPS / FedEx / Airborne	(Rush turn times will incur a surcharge.)
E-mail Address:	mtilley@2ohydroag.com		☒ No	DHL / GCT / Hand / Mail	

Which Regulations Apply: ☐ RCRA ☐ POTW ☐ NPDES ☐ USDA/FDA ☐ RECAP/RISC ☐ Drinking Water ☐ Distribution ☐ Special ☐ State ☐ Other

Matrix Code: AQ = Aqueous, DW = Drinking, WW = Waste, MW = Monit. Well, LQ = Liquid, SO = Soil, O = Oil, SL = Sludge, F = Food, SW = Swab, SOL = Solid

Sample ID/Description	Date	Time	Grab / Composite	Matrix	Container Number	Container Type P=Plastic, G=Glass, V=Vial	Pres. HCl, HNO_3, H_2SO_4, NaOH, $Na_2S_2O_3$	Requested Tests: Fecal	Comments
Camp Mackey WWTP #1	10-26-23	0940	G	sludge	#1	P	—	X	
#2								X	
#3									
#4									
#5									
#6									
#7	↓	↓	↓	↓	↓	↓	↓	↓	

GREEN COUNTRY TESTING CHAIN OF CUSTODY ATTACHMENT OF ___ PAGES

	Relinquished by	Date/Time	Received by	Date/Time	Field Notes:
1	Brine Laughlin	10/26/23 11:30am		10/26/23 1130	
2					
3					Received on ice? ☒ Yes ☐ No
4					Temp: 16°

All samples submitted to Green Country Testing for analysis are accepted on a custodial basis only. Ownership of the material remains with the client submitting the samples.
Green Country Testing reserves the right to return unused sample portions.

6825 E. 38th Street
Tulsa, OK 74145
918-828-9977
Fax: 918-828-7756

10/08

Waypoint ANALYTICAL
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ° Fax 901.213.2440
www.waypointanalytical.com

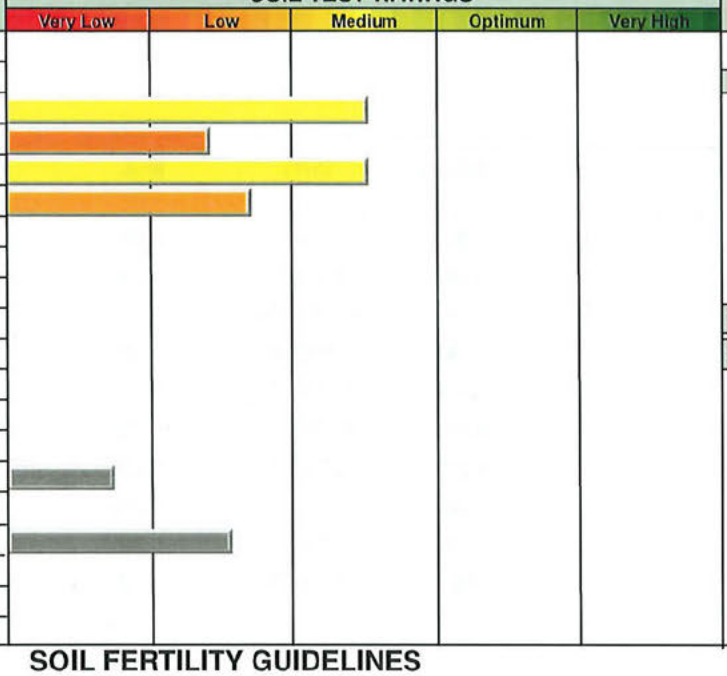
"Every acre...Every year®"

SOIL ANALYSIS

Client :	Grower :	Report No: 23-270-1701
Hydro Ag Environmental	Aaron Fancher (AF-1)	Cust No: 24927
Mr. Marcus Tilley		Date Printed: 09/28/2023
P.O. Box 1162		Date Received : 09/27/2023
Russelville AR 72811	Farm: Fancher	PO:
		Page : 1 of 1

Lab No: 58659 **Field:** 1 **Sample ID:** AF-1

Test	Method	Results
Soil pH	1:1	5.4
Buffer pH	SMP	6.81
Phosphorus (P)	M3	24 ppm
Potassium (K)	M3	50 ppm
Calcium (Ca)	M3	511 ppm
Magnesium (Mg)	M3	41 ppm
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	LOI	1.3%
Estimated N Release		70 lbs/acre
Nitrate Nitrogen	NO3N	7 ppm



Calculated Cation Exchange Capacity: **4.2** meq/100g

%Saturation

	%sat	meq
K	3.1	0.1
Ca	60.8	2.6
Mg	8.1	0.3
H	28.6	1.2

K/Mg Ratio: 0.37

Ca/Mg Ratio: 7.51

SOIL FERTILITY GUIDELINES

Crop : Bermudagrass Hay **Yield Goal :** 5 tons/acre **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
2500 1.3	186	68	204	15						

Crop : **Rec Units:**

Comments :

Bermudagrass Hay

Limestone application is targeted to bring soil pH to 6.0.

- Use dolomitic limestone to correct the pH.
- For the establishment of bermudagrass or warm season grasses, apply the phosphorus and potassium and 30 to 50 lbs N/acre before sprigging or seeding.
- For grass hay apply 50 lbs. N/Acre for each ton of expected yield. The normal range is 200-500 lbs. N/Acre. Apply 75-100 lbs. N/Acre when spring growth begins and 75-100 lbs. N/Acre after each harvest.
- On light soils with high grass hay yields, soil test annually to maintain soil pH and nutrient level.
- For soils low in sulfur, apply 20-40 lbs of sulfur as a sulfate in the spring with the nitrogen.
- For grass hay or pasture needing high rates split the P and K application. Apply 1/2 in the spring and 1/2 in late summer.

SMP - SMP Buffer pH M3 - Mehlich 3 NO3N - Nitrate-N LOI - Loss On Ignition 1:1 - Water pH

Analysis prepared by: Waypoint Analytical Tennessee, Inc.

Waypoint ANALYTICAL

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ° Fax 901.213.2440
www.waypointanalytical.com

24927
Hydro Ag Environmental
Mr. Marcus Tilley
1509 East Main Street
Suite 4
Russelville , AR 72802

Project Information : Aaron Fancher (AF-1) SPJ

Report Date : 10/05/2023
Received : 09/27/2023

Report Number : **23-270-0188**

REPORT OF ANALYSIS

Lab No : **88077**
Sample ID : **AF-1**

Matrix: **Solids**
Sampled:

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Moisture	**10.1**	%	0.050	1	09/28/23 09:30	CAH	SW-DRYWT
Arsenic	**3.48**	mg/Kg - dry	0.556	1	09/30/23 06:49	BKN	6010D
Cadmium	**0.112**	mg/Kg - dry	0.111	1	09/30/23 06:49	BKN	6010D
Copper	**2.37**	mg/Kg - dry	0.556	1	09/30/23 06:49	BKN	6010D
Lead	**11.9**	mg/Kg - dry	0.333	1	09/30/23 06:49	BKN	6010D
Mercury	<0.190	mg/Kg - dry	0.190	1	10/05/23 11:45	MRE	7471A
Molybdenum	<0.278	mg/Kg - dry	0.278	1	09/30/23 06:49	BKN	6010D
Nickel	**3.16**	mg/Kg - dry	0.278	1	10/02/23 19:20	BKN	6010D
Selenium	<0.556	mg/Kg - dry	0.556	1	09/30/23 06:49	BKN	6010D
Zinc	**7.59**	mg/Kg - dry	1.39	1	10/02/23 19:20	BKN	6010D

Qualifiers/ Definitions

DF Dilution Factor
MQL Method Quantitation Limit
L Limit Exceeded

Waypoint ANALYTICAL
"Every acre...Every year®"
2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ° Fax 901.213.2440
www.waypointanalytical.com

SOIL ANALYSIS

Client :
Hydro Ag Environmental
Mr. Marcus Tilley
P.O. Box 1162
Russelville AR 72811

Grower :
Aaron Fancher (AF-2)
SPJ

Farm: Fancher

Report No: 23-276-1282
Cust No: 24927
Date Printed: 10/09/2023
Date Received : 10/03/2023
PO:
Page : 1 of 1

Lab No: 13695 **Field:** 2 **Sample ID:** AF-2

Test	Method	Results
Soil pH	1:1	5.0
Buffer pH	SMP	6.77
Phosphorus (P)	M3	19 ppm
Potassium (K)	M3	47 ppm
Calcium (Ca)	M3	355 ppm
Magnesium (Mg)	M3	43 ppm
Sulfur (S)		
Boron (B)		
Copper (Cu)		
Iron (Fe)		
Manganese (Mn)		
Zinc (Zn)		
Sodium (Na)		
Soluble Salts		
Organic Matter	LOI	1.2%
Estimated N Release		68 lbs/acre
Nitrate Nitrogen	NO3N	10 ppm
Ammonium Nitrogen	NH4N	10 ppm
Total Kjeldahl Nitrogen		865 ppm

SOIL TEST RATINGS: Very Low | Low | Medium | Optimum | Very High

Calculated Cation Exchange Capacity: **3.9** meq/100g

%Saturation

	%sat	meq
K	3.1	0.1
Ca	45.5	1.8
Mg	9.2	0.4
H	41.0	1.6

K/Mg Ratio: 0.33
Ca/Mg Ratio: 4.95

SOIL FERTILITY GUIDELINES

Crop : Bermudagrass Hay **Yield Goal :** 5 tons/acre **Rec Units:** LB/ACRE

(lbs) LIME (tons)	N	P_2O_5	K_2O	Mg	S	B	Cu	Mn	Zn	Fe
3500 1.8	180	75	208	14						

Crop : **Rec Units:**

Comments :

Bermudagrass Hay

Limestone application is targeted to bring soil pH to 6.0.

- Use dolomitic limestone to correct the pH.
- For the establishment of bermudagrass or warm season grasses, apply the phosphorus and potassium and 30 to 50 lbs N/acre before sprigging or seeding.
- For grass hay apply 50 lbs. N/Acre for each ton of expected yield. The normal range is 200-500 lbs. N/Acre. Apply 75-100 lbs. N/Acre when spring growth begins and 75-100 lbs. N/Acre after each harvest.
- On light soils with high grass hay yields, soil test annually to maintain soil pH and nutrient level.
- For soils low in sulfur, apply 20-40 lbs of sulfur as a sulfate in the spring with the nitrogen.
- For grass hay or pasture needing high rates split the P and K application. Apply 1/2 in the spring and 1/2 in late summer.

SMP - SMP Buffer pH M3 - Mehlich 3 NH4N - Ammonia-N NO3N - Nitrate-N LOI - Loss On Ignition 1:1 - Water pH

Analysis prepared by: Waypoint Analytical Tennessee, Inc.

Waypoint ANALYTICAL

2790 Whitten Road, Memphis, TN 38133
Main 901.213.2400 ° Fax 901.213.2440
www.waypointanalytical.com

24927 .
Hydro Ag Environmental
Mr. Marcus Tilley
1509 East Main Street
Suite 4
Russelville , AR 72802

Project Information : Aaron Fancher (AF-2) SPJ

Report Date : 10/10/2023
Report Number : **23-276-0126** ***REPORT OF ANALYSIS*** Received : 10/03/2023

Lab No : **97763** Matrix: **Solids**
Sample ID : **AF-2** Sampled:

Test	Results	Units	MQL	DF	Date / Time Analyzed	By	Analytical Method
Arsenic	**2.42**	mg/Kg	0.500	1	10/06/23 05:23	BKN	6010D
Cadmium	<0.100	mg/Kg	0.100	1	10/06/23 05:23	BKN	6010D
Chromium	**7.49**	mg/Kg	0.250	1	10/06/23 05:23	BKN	6010D
Copper	**1.78**	mg/Kg	0.500	1	10/06/23 05:23	BKN	6010D
Lead	**8.56**	mg/Kg	0.300	1	10/06/23 05:23	BKN	6010D
Mercury	<0.173	mg/Kg	0.173	1	10/10/23 11:47	MRE	7471A
Molybdenum	<0.250	mg/Kg	0.250	1	10/06/23 05:23	BKN	6010D
Nickel	**2.58**	mg/Kg	0.250	1	10/06/23 05:23	BKN	6010D
Selenium	<0.500	mg/Kg	0.500	1	10/06/23 05:23	BKN	6010D
Zinc	**6.03**	mg/Kg	1.25	1	10/06/23 05:23	BKN	6010D

Qualifiers/ Definitions
DF Dilution Factor
MQL Method Quantitation Limit
L Limit Exceeded

APPENDIX B

Land Site Table

Land Use Agreement

Road Maps

Site Maps

Topo Maps

Camp Maxey WWTP Land
Choctaw County, Oklahoma

Name	Field ID	Section	Township	Range	Lattitude	Longitude	Crop	Available Acres
	AF-1	3	7 S	18 E	33.969729°	-95.402793°	Bermuda	38.8
	AF-2	3	7 S	18 E	33.974575°	-95.406263°	Bermuda	50.1

Total Acres = 88.9

HydroAg Environmental

LANDOWNER APPROVAL
WWTP Biosolids

Field No.	Approx. Available Acreage*	Section	Township	Range
AF-1	38.8	3	7S	18E
AF-2	50.1	3	7S	18E

This shall serve to document our approval to use the above described lands for the land application of wastewater treatment plant biosolids as fertilizer. Land application shall be administered by HydroAg Environmental in accordance with agricultural best management practices for land application of a nitrogen fertilizer.

Landowner/tenant agrees to provide or allow HydroAg Environmental to obtain a soil test result for each field prior to land application.

The undersigned hereby certifies that he/she has the signatory authority for the above described lands. The landowner and/or tenant retain complete control over the lands. This approval may be canceled with written notice of the landowner/tenant.

Print Name **Address:**

Phone # :

_____ _____
Landowner (please print and sign) **Date**

Print Name:_____ **Address:**_____

Phone # : _____

_____ _____
Tenant (please print and sign) **Date**

N
W E
S

HydroAg Environmental
AF-1 & 2

0 0.4 0.8 1.6 2.4 3.2 Miles

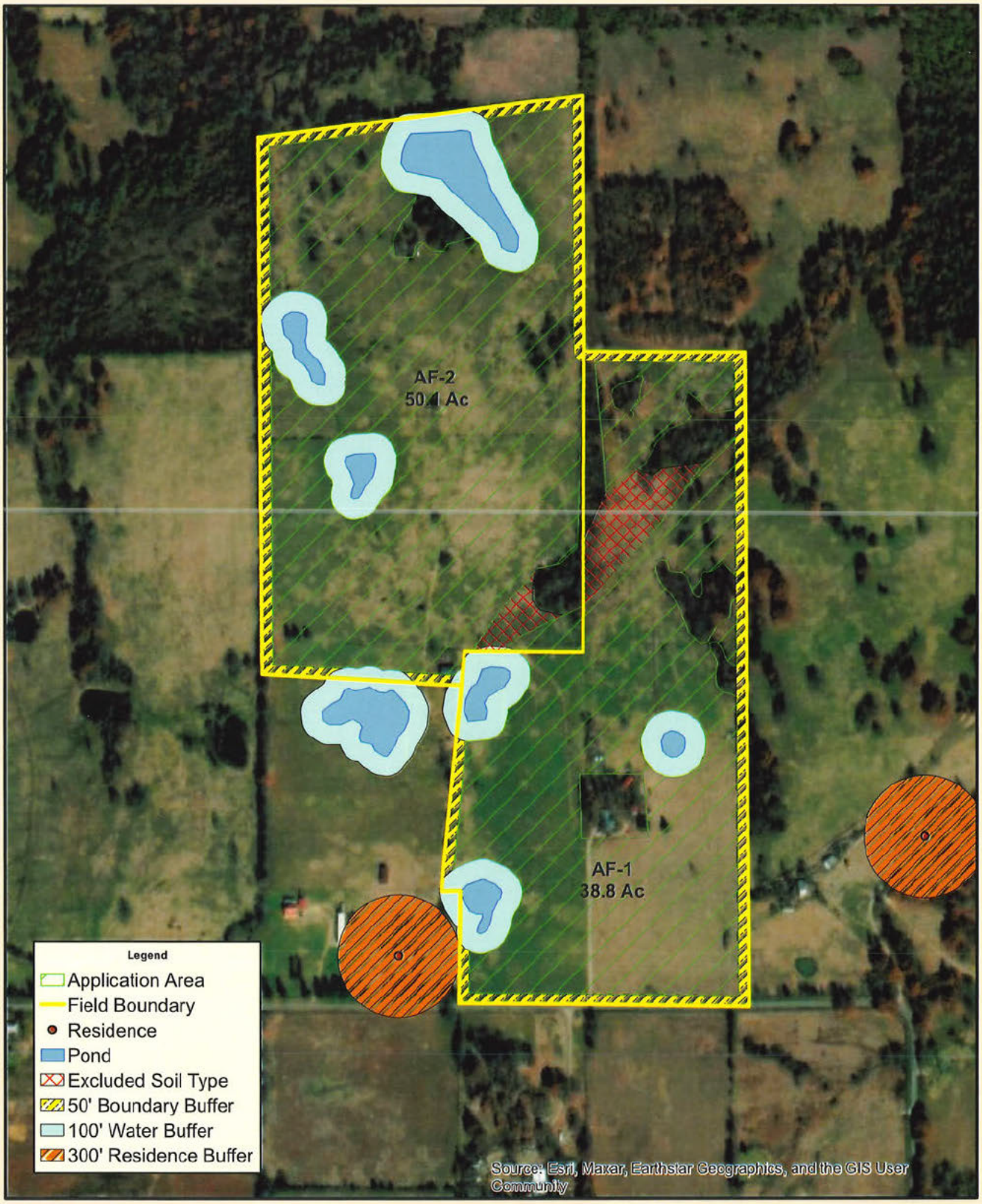
1 inch = 1.58 miles

N
W E
S

HydroAg Environmental
AF-1 & 2

0 0.15 0.3 0.6 0.9 1.2 Miles

1 inch = 0.63 miles

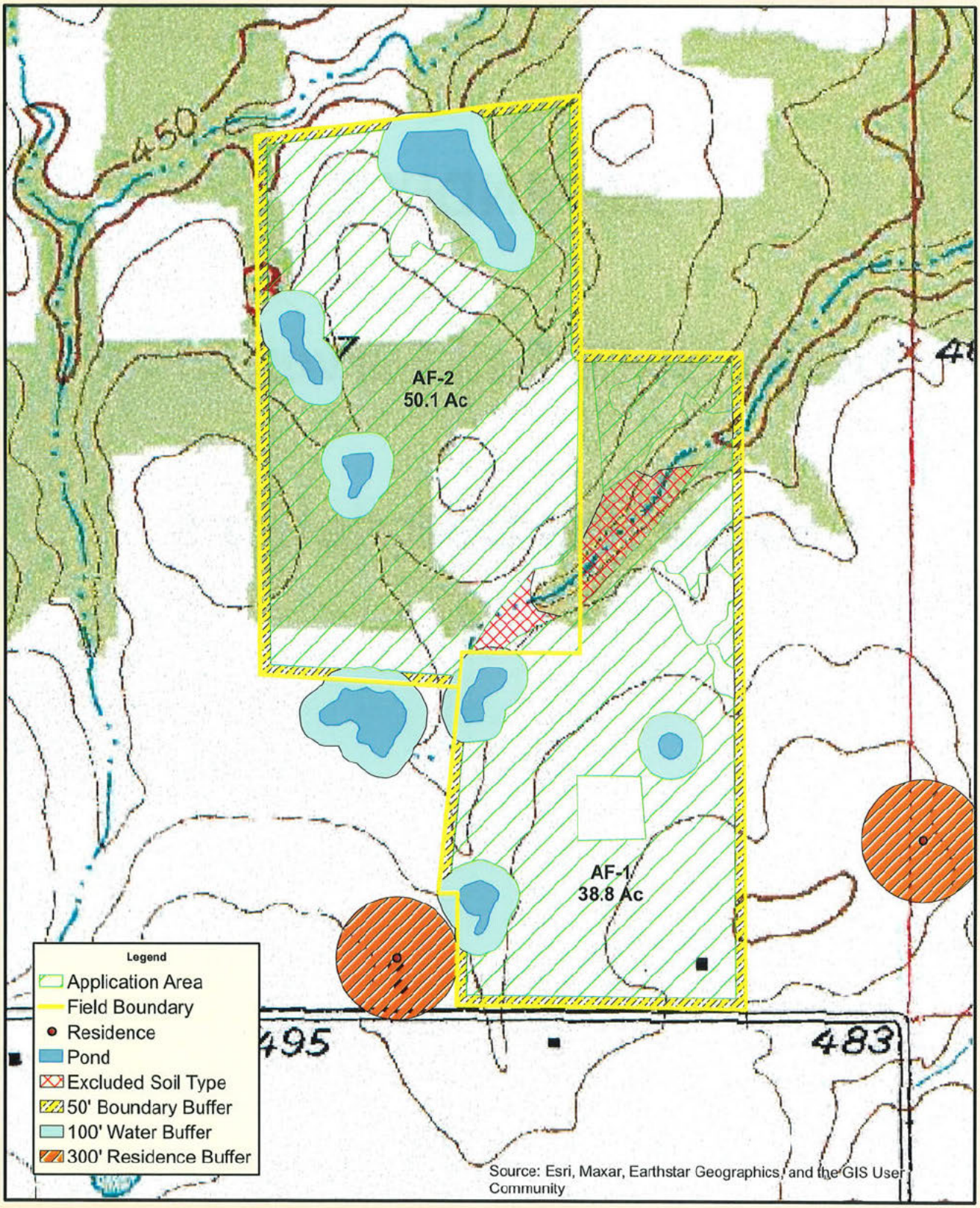


N
W E
S

HydroAg Environmental
AF-1 & 2

0 0.03 0.06 0.12 0.18 0.24 Miles

1 inch = 0.13 miles



N
W E
S

HydroAg Environmental
AF-1 & 2

0 0.03 0.06 0.12 0.18 0.24 Miles

1 inch = 0.13 miles

APPENDIX C

USDA NRCS Soil Survey Map

Soil Series Descriptions

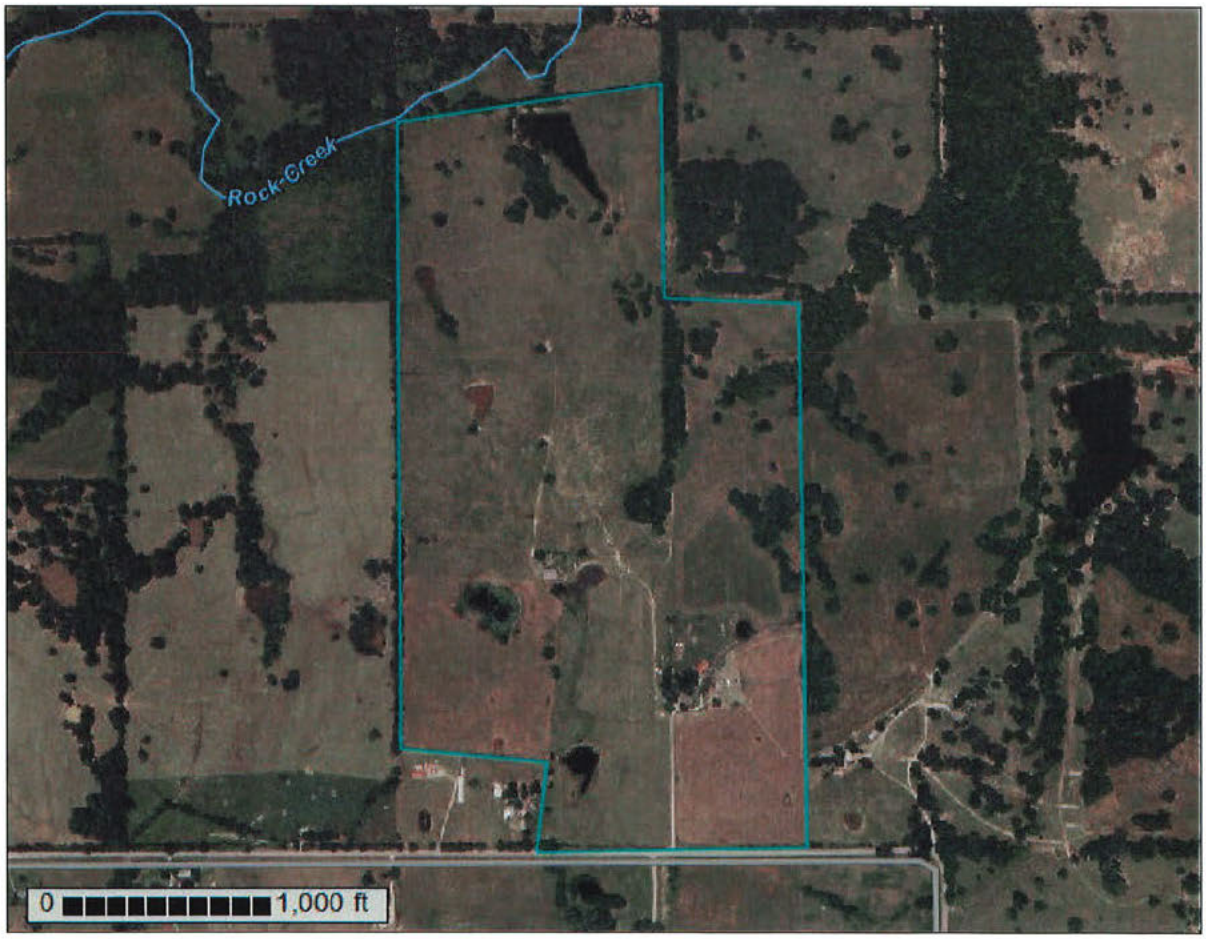
United States Department of Agriculture

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 Choctaw County, Oklahoma



September 29, 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.

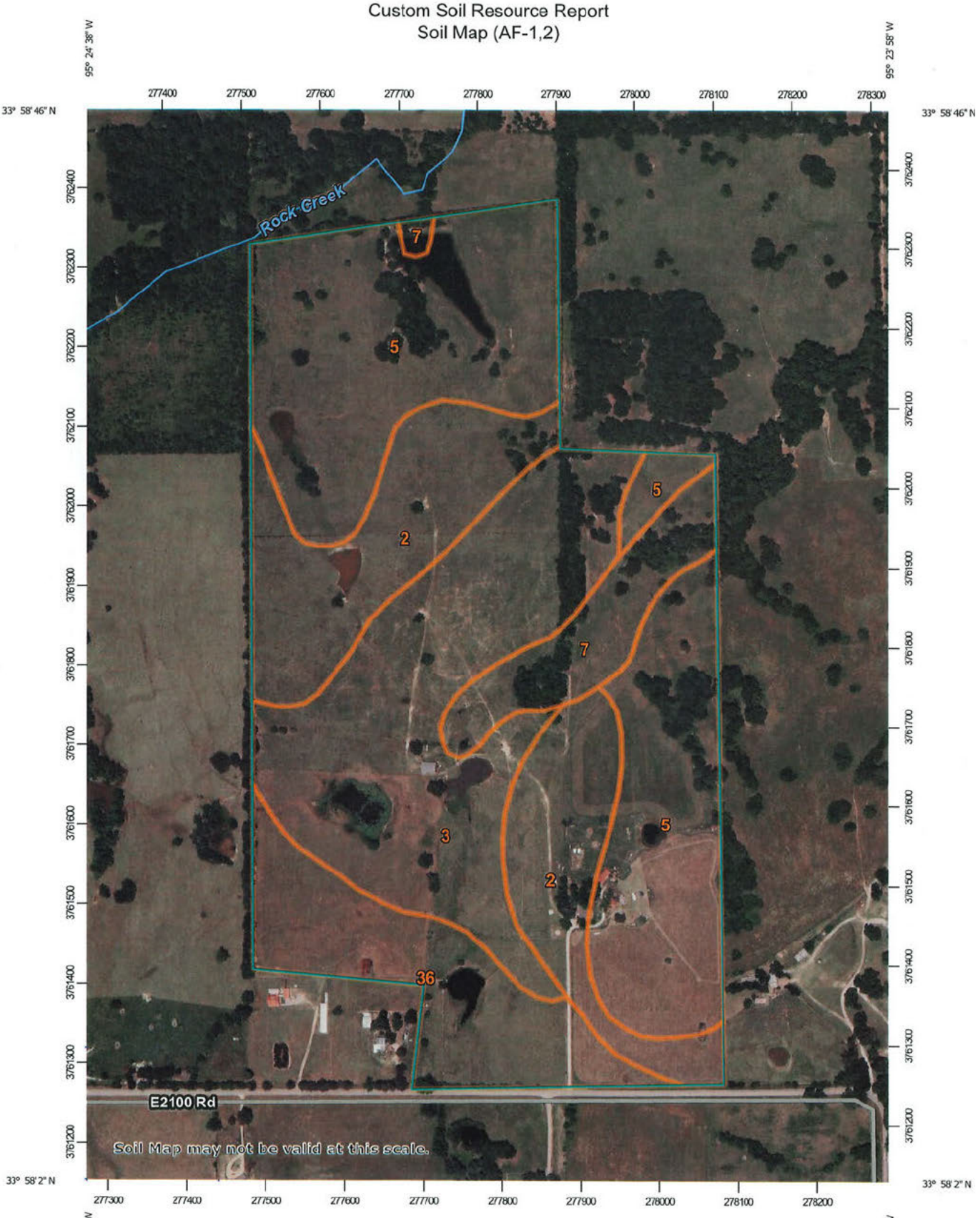
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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 (AF-1,2)



Map Scale: 1:6,560 if printed on A portrait (8.5" x 11") sheet.

N

Meters
0 50 100 200 300

Feet
0 300 600 1200 1800

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 1:24,000.

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: Choctaw County, Oklahoma
Survey Area Data: Version 18, 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 6, 2022—May 28, 2022

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 (AF-1,2)

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
2	Bernow fine sandy loam, 1 to 3 percent slopes	28.3	20.4%
3	Bernow fine sandy loam, 3 to 5 percent slopes	35.3	25.5%
5	Bernow-Romia complex, 3 to 8 percent slopes, eroded	49.2	35.6%
7	Boggy fine sandy loam, 0 to 1 percent slopes, frequently flooded	9.1	6.6%
36	Muskogee silt loam, 1 to 3 percent slopes	16.4	11.8%
Totals for Area of Interest		**138.3**	**100.0%**

Map Unit Descriptions (AF-1,2)

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.

Choctaw County, Oklahoma

2—Bernow fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 30drq
Elevation: 370 to 790 feet
Mean annual precipitation: 40 to 46 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 223 to 234 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Bernow

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and loamy residuum weathered from sandstone

Typical profile

A - 0 to 10 inches: fine sandy loam
E - 10 to 23 inches: fine sandy loam
Bt - 23 to 44 inches: sandy clay loam
B't and E - 44 to 80 inches: sandy clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 0.1 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.9 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: R087BY003TX - Sandy Loam
Forage suitability group: Unnamed (G135BY020OK)
Other vegetative classification: Unnamed (G135BY020OK)
Hydric soil rating: No

Minor Components

Bosville

Percent of map unit: 8 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R087BY002TX - Claypan Savannah
Other vegetative classification: Unnamed (G135BY110OK)
Hydric soil rating: No

Hamden

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R087BY003TX - Sandy Loam
Other vegetative classification: Unnamed (G135BY274OK)
Hydric soil rating: No

Romia

Percent of map unit: 2 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Crest
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R087BY003TX - Sandy Loam
Other vegetative classification: Unnamed (G135BY099OK)
Hydric soil rating: No

3—Bernow fine sandy loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 30drr
Elevation: 380 to 850 feet
Mean annual precipitation: 40 to 46 inches
Mean annual air temperature: 63 to 63 degrees F
Frost-free period: 223 to 234 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Bernow

Setting

Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Sandy and loamy residuum weathered from sandstone

Typical profile

A - 0 to 7 inches: fine sandy loam
E - 7 to 15 inches: fine sandy loam
Bt - 15 to 48 inches: sandy clay loam
B't and E - 48 to 80 inches: sandy clay loam

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Maximum salinity: Nonsaline (0.0 to 0.1 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: R087BY003TX - Sandy Loam
Forage suitability group: Unnamed (G135BY020OK)
Other vegetative classification: Unnamed (G135BY020OK)
Hydric soil rating: No

Minor Components

Bosville

Percent of map unit: 8 percent
Landform: Hillslopes
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Concave
Across-slope shape: Linear
Ecological site: R087BY002TX - Claypan Savannah
Other vegetative classification: Unnamed (G135BY110OK)
Hydric soil rating: No

Larue

Percent of map unit: 5 percent
Landform: Hillslopes
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope

Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R087BY004TX - Sandy
Other vegetative classification: Unnamed (G135BY027OK)
Hydric soil rating: No

Hamden

Percent of map unit: 2 percent
Landform: Hillslopes
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R087BY003TX - Sandy Loam
Other vegetative classification: Unnamed (G135BY274OK)
Hydric soil rating: No

5—Bernow-Romia complex, 3 to 8 percent slopes, eroded

Map Unit Setting

National map unit symbol: m5f5
Elevation: 300 to 1,000 feet
Mean annual precipitation: 42 to 51 inches
Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 210 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition

Bernow, eroded, and similar soils: 60 percent
Romia, eroded, and similar soils: 35 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bernow, Eroded

Setting

Landform: Paleoterraces
Landform position (three-dimensional): Riser
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Sandy and loamy alluvium

Typical profile

A - 0 to 4 inches: fine sandy loam
E - 4 to 10 inches: fine sandy loam
Bt - 10 to 48 inches: sandy clay loam
Bt and E' - 48 to 72 inches: sandy clay loam

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches

Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F135BY004AR - Loamy Upland
Forage suitability group: Unnamed (G135BY105OK)
Other vegetative classification: Unnamed (G135BY105OK)
Hydric soil rating: No

Description of Romia, Eroded

Setting

Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy residuum weathered from sandstone

Typical profile

A - 0 to 4 inches: fine sandy loam
E - 4 to 10 inches: fine sandy loam
Bt - 10 to 41 inches: sandy clay loam
Cr - 41 to 56 inches: bedrock

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately high (0.00 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: Low (about 5.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: F135BY004AR - Loamy Upland
Forage suitability group: Unnamed (G135BY099OK)
Other vegetative classification: Unnamed (G135BY099OK)
Hydric soil rating: No

Minor Components

Bosville, eroded

Percent of map unit: 5 percent
Landform: Hillslopes on hills
Landform position (two-dimensional): Backslope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F135BY002AR - Clayey Upland
Other vegetative classification: Unnamed (G135BY115OK)
Hydric soil rating: No

7—Boggy fine sandy loam, 0 to 1 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2y1kj
Elevation: 300 to 1,000 feet
Mean annual precipitation: 40 to 56 inches
Mean annual air temperature: 60 to 64 degrees F
Frost-free period: 200 to 230 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Boggy

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium

Typical profile

A - 0 to 20 inches: fine sandy loam
C - 20 to 79 inches: loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.60 to 2.00 in/hr)
Depth to water table: About 0 to 24 inches
Frequency of flooding: Frequent

Frequency of ponding: None
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B/D
Ecological site: F135BY014AR - Poorly Drained Flood Plain
Forage suitability group: Unnamed (G135BY116OK)
Other vegetative classification: Unnamed (G135BY116OK)
Hydric soil rating: Yes

Minor Components

Dela

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F135BY015AR - Well Drained Flood Plain
Other vegetative classification: Unnamed (G135BY092OK)
Hydric soil rating: No

Rexor

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F135BY015AR - Well Drained Flood Plain
Other vegetative classification: Unnamed (G135BY108OK)
Hydric soil rating: No

Guyton

Percent of map unit: 5 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: F135BY014AR - Poorly Drained Flood Plain
Other vegetative classification: Unnamed (G135BY267OK)
Hydric soil rating: Yes

36—Muskogee silt loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: m5dp
Elevation: 300 to 1,000 feet
Mean annual precipitation: 42 to 51 inches

Mean annual air temperature: 61 to 63 degrees F
Frost-free period: 210 to 230 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Muskogee

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Silty and clayey alluvium

Typical profile

A - 0 to 5 inches: silt loam
E - 5 to 10 inches: silt loam
BE - 10 to 17 inches: silty clay loam
Bt1 - 17 to 26 inches: silty clay loam
Bt2 - 26 to 72 inches: clay

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: About 24 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: F135BY012AR - Terrace
Forage suitability group: Unnamed (G135BY106OK)
Other vegetative classification: Unnamed (G135BY106OK)
Hydric soil rating: No

Minor Components

Bernow

Percent of map unit: 8 percent
Landform: Paleoterraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: F135BY004AR - Loamy Upland
Other vegetative classification: Unnamed (G135BY020OK)
Hydric soil rating: No

Alusa

Percent of map unit: 7 percent
Landform: Interfluves
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: F135BY001AR - Poorly Drained Clayey Upland
Other vegetative classification: Unnamed (G135BY078OK)
Hydric soil rating: Yes

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