Administrative Package Cover Page

This file contains the following documents:

1. Summary of application (in plain language)
2. First Notice (NORI-Notice of Receipt of Application and Intent to Obtain a Permit)
3. Application Materials

Bell County Water Control & Improvement District No. 2 (CN6007375) proposes to operate Bell County WCID #2 Land Application Site RN1029219. a land application site used for the beneficial land application of Class B biosolids generated from municipal wastewater treatment on approximately 2.91 acres. The facility is located 0.32 miles North of Farm-to-Market 436 and 0.50 miles east of State Highway 95, in Little River Academy, Bell County, Texas 76554. This permit will not authorize a discharge of pollutants into water in the state.

Land application of Biosolids is expected to contain Nitrogen, Phosphorus, Potassium, and trace metals (e.g. arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc) Examples of best management practices implemented by Bell County Water Control & Improvement District No. 2 include but are not limited to: monitoring of metal pollutants, pathogen reduction, vector attraction reduction, applicable land application unit buffer zones, soil monitoring and limiting application at the appropriate agronomic rate based on crop needs.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

NOTICE OF RECEIPT OF APPLICATION AND INTENT TO OBTAIN A BENEFICIAL LAND USE PERMIT

PROPOSED PERMIT NO. WQ0005500000

APPLICATION. Bell County Water Control & Improvement District No. 2, 202 Brookman South, Little River-Academy, Texas 76554, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed beneficial land use Permit No. WQ0005500000 to authorize the land application of wastewater treatment plant Class B biosolids for beneficial use on approximately 2.91 acres. The beneficial land use site is located approximately 0.32 miles north and 0.5 miles east of the intersection of State Highway 95 and Farm-to-Market Road 436, near the city of Little River-Academy, in Bell County, Texas 76554. Authorization for land application was previously permitted by expired Permit No. WQ0004436000. TCEQ received this application on September 16, 2025. The anticipated date of the first application of Class B biosolids, subject to issuance of the permit is July 15, 2026. The permit application will be available for viewing and copying at Bell County WCID 2 Office, 202 Brookman South, Little River-Academy, in Bell, Texas prior to the date this notice is published in the newspaper. The application, including any updates, and associated notices are available electronically at the following webpage: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/sludge-applications. This link to an electronic map of the site or facility's general location is provided as a public courtesy and not part of the application or notice. For the exact location, refer to the application. https://gisweb.tceq.texas.gov/LocationMapper/?marker=-97.333611,30.985277&level=18

ADDITIONAL NOTICE. TCEQ's Executive Director has determined the application is administratively complete and will conduct a technical review of the application. After technical review of the application is complete, the Executive Director may prepare a draft permit and will issue a preliminary decision on the application. **Notice of the Application and Preliminary Decision will be published and mailed to those who are on the county-wide mailing list and to those who are on the mailing list for this application. That notice will contain the deadline for submitting public comments.**

PUBLIC COMMENT / PUBLIC MEETING. You may submit public comments or request a public meeting on this application. The purpose of a public meeting is to provide the opportunity to submit comments or to ask questions about the application. TCEQ will hold a public meeting if the Executive Director determines that there is a significant degree of public interest in the application or if requested by a local legislator. A public meeting is not a contested case hearing.

OPPORTUNITY FOR A CONTESTED CASE HEARING. After the deadline for submitting public comments, the Executive Director will consider all timely comments and prepare a response to all relevant and material, or significant public comments. **Unless the application is directly referred for a contested case hearing, the response to comments, and the Executive Director's decision on the application, will be mailed to everyone who submitted public comments and to those persons who are on the mailing list for this application. If comments are received, the mailing will also provide instructions for requesting reconsideration of the Executive Director's decision and for requesting a contested case hearing.** A contested case hearing is a legal proceeding similar to a civil trial in state district court.

TO REQUEST A CONTESTED CASE HEARING, YOU MUST INCLUDE THE FOLLOWING ITEMS IN YOUR REQUEST: your name, address, phone number; applicant's name and proposed permit number; the location and distance of your property/activities relative to the proposed facility; a specific description of how you would be adversely affected by the facility in a way not common to the general public; a list of all disputed issues of fact that you submit during the comment period and, the statement "[I/we] request a contested case hearing." If the request for contested case hearing is filed on behalf of a group or association, the request must designate the group's representative for receiving future correspondence; identify by name and physical address an individual member of the group who would be adversely affected by the proposed facility or activity; provide the information discussed above regarding the affected member's location and distance from the facility or activity; explain how and why the member would be affected; and explain how the interests the group seeks to protect are relevant to the group's purpose.

Following the close of all applicable comment and request periods, the Executive Director will forward the application and any requests for reconsideration or for a contested case hearing to the TCEQ Commissioners for their consideration at a scheduled Commission meeting.

The Commission may only grant a request for a contested case hearing on issues the requestor submitted in their timely comments that were not subsequently withdrawn. **If a hearing is granted, the subject of a hearing will be limited to disputed issues of fact or mixed questions of fact and law relating to relevant and material water quality concerns submitted during the comment period.**

MAILING LIST. If you submit public comments, a request for a contested case hearing or a reconsideration of the Executive Director's decision, you will be added to the mailing list for this specific application to receive future public notices mailed by the Office of the Chief Clerk. In addition, you may request to be placed on: (1) the permanent mailing list for a specific applicant name and permit number; and/or (2) the mailing list for a specific county. If you wish to be placed on the permanent and/or the county mailing list, clearly specify which list(s) and send your request to TCEQ Office of the Chief Clerk at the address below.

INFORMATION AVAILABLE ONLINE. For details about the status of the application, visit the Commissioners' Integrated Database at www.tceq.texas.gov/goto/cid. Search the database using the permit number for this application, which is provided at the top of this notice.

AGENCY CONTACTS AND INFORMATION. All public comments and requests must be submitted either electronically at **https://www14.tceq.texas.gov/epic/eComment/**, or in writing to the Texas Commission on Environmental Quality, Office of the Chief Clerk, MC-105,

P.O. Box 13087, Austin, Texas 78711-3087. Please be aware that any contact information you provide, including your name, phone number, email address and physical address will become part of the agency's public record. For more information about this permit application or the permitting process, please call the TCEQ Public Education Program, Toll Free, at 1-800-687-4040 or visit their website at www.tceq.texas.gov/goto/pep. Si desea información en Español, puede llamar al 1-800-687-4040.

Further information may also be obtained from Bell County Water Control & Improvement District 2 at the address stated above or by calling Ms. Andreana Alexander, Jacobs Engineering Group, at 469-245-7689.

Issuance Date: October 14, 2025

Leah Whallon

From: Alexander, Andreana <Andreana.Alexander@jacobs.com>
Sent: Thursday, September 25, 2025 4:43 PM
To: Leah Whallon
Cc: Hill, Liie; Germon, Grace; Eder, Mallory; Harrold, Ryan; Jones, Meryl; Dickerson, Rich
Subject: RE: Application for Proposed Permit No. WQ0005500000; Bell County Water Control & Improvement District 2
Attachments: TCEQ Core Data Form 10400.pdf; PLS For Class B Permits_Bell County WCID 2.docx; Form 10451_Application for Beneficial Land Use of Biosolids.pdf

Importance: High

Follow Up Flag: Follow up
Flag Status: Flagged

Hi Leah,

In reference to the application for Proposed Permit No. WQ0005500000 submitted by Bell County Water Control & Improvement District No. 2, and the correspondence received on September 24, 2025, please find the attached documents addressing the following items.

- Updated and signed Core Data Form.
- Updated Application for Permit for Beneficial Land Use of Biosolids (TCEQ-10451) including corrections to Section 9.E. Bilingual Notice Requirement, alleviating the alternative language notice publication requirement.
- PLS in English.
- NORI language below was reviewed, and the only correction is listed in red.

Let me know if you need anything else to consider the application administratively complete.

APPLICATION. Bell County Water Control & Improvement District No. 2, 202 Brookman South, Little River-Academy, Texas 76554, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed beneficial land use Permit No. WQ0005500000 to authorize the land application of wastewater treatment plant Class B biosolids for beneficial use on approximately 2.91 acres. The beneficial land use site is located approximately ~~0.58 miles northeast of the intersection of State Highway 95 and Farm-to-Market Road 436, near the city of Little River-Academy in Bell County, Texas 76554 (pending response)~~ ***0.32 miles North of Farm-to-Market Road 436 and 0.50 miles east of State Highway 95, in Bell County, TX 76554.*** *Authorization for land application was previously permitted by expired Permit No. WQ0004436000. TCEQ received this application on September 16, 2025. The anticipated date of the first application of Class B biosolids, subject to issuance of the permit is July 15, 2026. The permit application will be available for viewing and copying at Bell County WCID 2 Office, 202 Brookman South, Little River-Academy, in Bell County, Texas prior to the date this notice is published in the newspaper. The application, including any updates, and associated notices are available electronically at the following webpage: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/sludge-applications. This link to an electronic map of the site or facility's general location is provided as a public courtesy and not part of the application or notice. For the exact location, refer to the application. https://gisweb.tceq.texas.gov/LocationMapper/?marker=-97.333611,30.985277&level=18*

Further information may also be obtained from Bell County Water Control & Improvement District 2 at the address stated above or by calling Ms. Andreana Alexander, Jacobs Engineering Group, at 469-245-7689.

Best,

Andreana S. Alexander | Jacobs | Project Manager
O: +1.512.393.8345 | M: +1.469.245.7689 | andreana.alexander@jacobs.com

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From: Leah Whallon <Leah.Whallon@Tceq.Texas.Gov>
Sent: Wednesday, September 24, 2025 3:17 PM
To: Alexander, Andreana <Andreana.Alexander@jacobs.com>
Subject: [EXTERNAL] Application for Proposed Permit No. WQ0005500000; Bell County Water Control & Improvement District 2

Good Afternoon,

Please see the attached Notice of Deficiency letter dated September 24, 2025, requesting additional information needed to declare the application administratively complete. Please send the complete response by October 8, 2025.

Please let me know if you have any questions.

Thank you,

Leah Whallon
Texas Commission on Environmental Quality
Water Quality Division
512-239-0084
leah.whallon@tceq.texas.gov

How is our customer service? Fill out our online customer satisfaction survey at www.tceq.texas.gov/customersurvey

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NOTICE - This communication may contain confidential and privileged information that is for the sole use of the intended recipient. Any viewing, copying or distribution of, or reliance on this message by unintended recipients is strictly prohibited. If you have received this message in error, please notify us immediately by replying to the message and deleting it from your computer.

TCEQ Office Use Only
Permit No:
CN:
RN:
Region:

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

APPLICATION FOR A PERMIT FOR BENEFICIAL LAND USE OF BIOSOLIDS

If you have questions about completing this form please contact the Applications Review and Processing Team at 512-239-4671.

SECTION 1. TYPE OF APPLICATION

☐ New (original, site not permitted)

☒ New (previously permitted but allowed to expire or canceled)

☐ Major Amendment (including renewals with changes to substantive provisions of the permit)

☐ Minor Amendment (including non-substantive provisions of the registration, expiration date remains the same)

☐ Renewal

☐ Renewal with Minor Amendment

For amendments, describe the proposed changes:

For existing permits:

What is the permit number? WQ0004436000

SECTION 2. APPLICATION FEE

The application fee varies from $1,000 to $5,000 based on the quantity of biosolids to be applied annually. See instructions to determine the appropriate fee.

Provide your payment information below, for verification of payment

Check/Money Order Number: Click here to enter text.

Check/Money Order Amount: $1,000

Name Printed on Check: Click here to enter text.

SECTION 3. APPLICANT INFORMATION

A. The **site operator** must apply for the permit. What is the legal name of the site operator (applicant)? The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.

Bell County Water Control and Improvement District #2

B. If the applicant is an existing TCEQ customer, provide the Customer Number (CN) issued to this entity. CN 600737522

C. What is the contact information for this applicant?

Contact Name: Joe Chaffin

Mailing Address: 202 S Brookman

City, State, and Zip Code: Little River Academy, TX 76554

Phone Number: 254-982-4685 Fax Number: Click here to enter text.

E-mail Address: belcountywater@embarqmail.com

SECTION 4. CO-APPLICANT INFORMATION

Complete this section only if more than one person or entity is a site operator.

A. What is the legal name of the co-applicant? The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.

Click here to enter text.

B. If the co-applicant is an existing TCEQ customer, provide the Customer Number (CN) issued to this entity. CN Click here to enter text.

C. What is the contact information for this applicant?

Contact Name: Click here to enter text.

Mailing Address: Click here to enter text.

City, State, and Zip Code: Click here to enter text.

Phone Number: Click here to enter text. Fax Number: Click here to enter text.

E-mail Address: Click here to enter text.

SECTION 5. APPLICATION CONTACT INFORMATION

These are the individuals that TCEQ will contact if additional information is needed about this application.

A. Prefix (Mr., Ms., Miss): Mrs.

Application Contact First and Last Name: Andreana Alexander

Title: Project Manager Credentials: Click here to enter text.

Organization Name: Jacobs Engineering Group

Mailing Address: 720 River Road

City, State, and Zip Code: San Marcos, TX 78666

Phone Number: 469-245-7689 Fax Number: Click here to enter text.

E-mail Address: andreana.alexander@jacobs.com

B. Prefix (Mr., Ms., Miss): Mr.

Application Contact First and Last Name: Joe Chaffin

Title: President Credentials: Click here to enter text.

Organization Name: Bell County WCID #2

Mailing Address: 202 S Brookman

City, State, and Zip Code: Little River Academy, TX 76554

Phone Number: 254-982-4685 Fax Number: Click here to enter text.

E-mail Address: belcountywater@embarqmail.com

SECTION 6. PERMIT CONTACT INFORMATION

These are the individuals that TCEQ can contact during the term of the permit.

A. Prefix (Mr., Ms., Miss): Mr.

Permit Contact First and Last Name: Joe Chaffin

Title: President Credentials: Click here to enter text.

Organization Name: Bell County WCID #2

Mailing Address: 202 S. Brookman

City, State, and Zip Code: Little River Academy, TX 76554

Phone Number: 254-982-4685 Fax Number: Click here to enter text.

E-mail Address: belcountywater@embarqmail.com

B. Prefix (Mr., Ms., Miss): Mrs.

Permit Contact First and Last Name: Andreana Alexander

Title: Project Manager Credentials: Click here to enter text.

Organization Name: Jacobs Engineering Group

Mailing Address: 720 River Road

City, State, and Zip Code: San Marcos, TX 78666

Phone Number: 469-245-7689 Fax Number: Click here to enter text.

E-mail Address: andreana.alexander@jacobs.com

SECTION 7. BILLING CONTACT INFORMATION

This is the person that TCEQ will contact if additional information is needed about the annual fee invoices.

Prefix (Mr., Ms., Miss): Mrs.

Billing Contact First and Last Name: Andreana Alexander

Title: Project Manager Credentials: Click here to enter text.

Organization Name: Jacobs Engineering Group

Mailing Address: 720 River Road

City, State, and Zip Code: San Marcos, TX 78666

Phone Number: 469-245-7689 Fax Number: Click here to enter text.

E-mail Address: andreana.alexander@jacobs.com

SECTION 8. REPORTING CONTACT INFORMATION

This is the person that TCEQ will contact if additional information is needed about the annual biosolids land application reports.

Prefix (Mr., Ms., Miss): Mr.

Reporting Contact First and Last Name: Joe Chaffin

Title: President Credentials: Click here to enter text.

Organization Name: Bell County WCID #2

Mailing Address: 202 S. Brookman

City, State, and Zip Code: Little River Academy, TX 76554

Phone Number: 254-982-4685 Fax Number: Click here to enter text.

E-mail Address: belcountywater@embarqmail.com

SECTION 9. NOTICE INFORMATION

A. Individual responsible for publishing the notices in the newspaper

Prefix (Mr., Ms., Miss): Mrs.

First and Last Name: Andreana Alexander

Title: Project Manager Credentials: Click here to enter text.

Company Name: Jacobs Engineering Group

Mailing Address: 720 River Road

City, State, and Zip Code: San Marcos, TX 78666

Phone Number: 469-245-7689 Fax Number: Click here to enter text.

E-mail Address: andreana.alexander@jacobs.com

B. Method for receiving the notice package for the Notice of Receipt and Intent

☒ E-mail: andreana.alexander@jacobs.com

☐ Fax Number: Click here to enter text.

☐ Regular Mail:

Mailing Address: Click here to enter text.

City, State, and Zip Code: Click here to enter text.

C. Contact person to be listed in the notice

Prefix (Mr., Ms., Miss): Mrs.

First and Last Name: Andreana Alexander

Title: Project Manager Credentials: Click here to enter text.

Company Name: Jacobs Engineering Group

Phone Number: 469-245-7689

D. Public viewing location

If the facility is located in more than one county, a public viewing location for each county must be provided.

Public Building Name: Bell County WCID #2

Physical Address of Building: 202 S. Brookman

City: Little River Academy, TX County: Bell

Phone Number: 254-982-4685

E. Bilingual Notice Requirement

For new, major amendment, and renewal applications. This information can be obtained by contacting the bilingual/ESL coordinator at the nearest elementary or middle school.

1. Is a bilingual education program required by the Texas Education Code at the nearest elementary or middle school to the facility or proposed facility?

   Yes ☐ No ☒

   (**If No**, alternative language notice publication is not required; skip to Section 10. Regulated Entity (Site) Information.)

2. Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?
   Yes ☐ No ☒

3. Do the students at these schools attend a bilingual education program at another location?
   Yes ☐ No ☒

4. Would the school be required to provide a bilingual education program but the school has waived out of this requirement under 19 TAC §89.1205(g)?
   Yes ☐ No ☒

5. If the answer is yes to 1, 2, 3, or 4, public notice in an alternative language is required. Which language is required by the bilingual program? _____

F. Public Involvement Plan
Complete the Public Involvement Plan (PIP) Form (TCEQ-20960) for each application for a **new permit** or **major amendment to a permit** and include as an attachment.

Attachment Number: Attachment C

SECTION 10. REGULATED ENTITY (SITE) INFORMATION

A. Site Name: BELL COUNTY WCID 2 LAND APPLICATION SITE

B. If this is an existing permitted site, provide the Regulated Entity Number (RN) issued to this site. RN 102921913

C. Site Address/Location:

Is the location of the application site used in the existing permit accurate?

☒ Yes ☐ No

If **YES**, skip to D. If **NO**, or if this application is for a new site, provide the physical address of the site such as: 12100 Park 35 Circle, Austin, TX 78753. If the site does not have a physical address, provide a location description such as: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

The land application site is located 0.32 miles north of Farm-to-Market Road 436 and 0.50 miles east of State Highway 95, in Bell County, Texas 76554.

D. County where the site is located: Bell

E. Latitude: 30.986111 Longitude: -97.335833

F. Landowner Information:

Attach an additional sheet if more than one landowner.

Prefix (Mr., Ms., Miss): Click here to enter text.

First and Last Name: Click here to enter text.

Organization Name: Bell County Water Control and Improvement District #2

Mailing Address: 202 S. Brookman

City, State, and Zip Code: Little River-Academy, TX 76554

Phone Number: (254) 982-4685

G. County Judge

Provide the name of the county judge in each county where the site is located. Attach an additional sheet if more than one county.

Prefix (Mr., Ms., Miss): Mr.

First and Last Name: David Blackburn

Mailing Address: P.O. Box 768

City, State, and Zip Code: Belton, Texas, 76513

Phone Number: 254-933-5105

Name of County: Bell County

SECTION 11. LAND APPLICATION INFORMATION

A. Provide the anticipated date (MM/DD/YY) of the first application of biosolids after issuance or re-issuance of the permit. NOTE: This date must be at least 330 days after the date TCEQ receives this application. 07/15/26

B. The application area is:

☐ within the city limit of: Click here to enter text.

☒ within the extraterritorial jurisdiction of: Little River-Academy

☐ outside the extraterritorial jurisdiction of: Click here to enter text.

C. Types of Waste

Identify the types of waste that will be land applied at this site.

☒ Wastewater Treatment Plant Class B Biosolids

☐ Water Treatment Plant Residuals

☐ Domestic Septage

D. Sources of Biosolids or Residuals

Provide the sources of generation, any water quality or public water supply permit number issued by TCEQ, and the location of the sources. Complete Table 1 for each

source identified below.

Facility Name	Permit Number	Location
Academy Wastewater Treatment Plant	TX0020249	206 S Highway 95
Little River Wastewater Treatment Plant	TX0020257	610 South Evans Street

E. Property Acreage

Total acreage of the entire property, including the application area and buffer zones: 5.3

F. Application Area Acreage

Total acreage where the biosolids may be applied, excluding the buffer zones: 2.91

SECTION 12. MISCELLANEOUS INFORMATION

A. Did any person who was formerly employed by the TCEQ represent your company and get paid for service regarding this application?

Yes ☐ No ☒

If yes, provide the name(s) of the former TCEQ employee(s): Click here to enter text.

B. Is the site located on Indian Lands?

Yes ☐ No ☒

C. Is any permanent school fund land affected by this application?

Yes ☐ No ☒

If yes, provide the location, forseeable impacts, and effects this application has on the land(s). Click here to enter text.

D. Delinquent Fees and Penalties:

Do you owe fees to the TCEQ? Yes ☐ No ☐

Do you owe any penalties to the TCEQ? Yes ☐ No ☐

If you answered yes to either of the above questions, provide the amount owed, the type of fee or penalty, and an identifying number. Click here to enter text.

SECTION 13. AFFECTED LANDOWNER INFORMATION

A. Landowner map. Attach a landowner map or drawing. See instructions for

information that must be displayed on the map.

Attachment Number:

B. Landowner list. Attach a list of the landowners' names and mailing addresses. The list must be cross-referenced to the letter or number identified on the landowner map.

Attachment Number:

C. Landowner list media. Indicate the format of the landowners list.

☐ Read/Writeable CD

☒ 4 sets of mailing labels

D. Landowner data source. Provide the source of the landowners' names and mailing addresses. Tax Appraisal District of Bell County

SECTION 14. INSURANCE INFORMATION

This information is not required for an applicant that is a political subdivision (e.g. city, county, state agency, water district, etc.).

A. Commercial Liability Insurance

Attach a copy of the certificate of insurance in regard to commercial liability.

Attachment Number: N/A

B. Environmental Impairment Insurance

Attach a copy of the certificate of insurance in regard to environmental impairment.

Attachment Number: N/A

SECTION 15. MAPS AND ATTACHMENTS

A. TCEQ Core Data Form

Complete and submit a TCEQ Core Data Form (TCEQ-10400).

Attachment Number:

B. TCEQ Public Involvement Plan Form

Complete and submit a TCEQ Public Involvement Plan Form (TCEQ-20960) for new and major amendment applications.

Attachment Number:

C. General Highway (County) Map

Submit an ORIGINAL General Highway (County) Map. See instructions for information that must be displayed on the map.

Attachment Number:

D. United States Geological Survey (USGS) Topographic Map

Submit an ORIGINAL United States Geological Survey (USGS) Topographic Map (1:24,000 scale). See instructions for information that must be displayed on the map.

Attachment Number:

E. USDA-NRCS Soil Map

Submit a legible copy of a USDA-NRCS Soil Map. See instructions for information that must be displayed on the map.

Attachment Number:

F. Federal Emergency Management Agency (FEMA) Map

Submit a copy of the FEMA map that shows the approximate application area boundaries, the surrounding area within one-quarter mile of the application area, and the appropriate legend.

Attachment Number:

G. Nutrient Management Plan

Attach a copy of the nutrient management plan that has been prepared by a certified nutrient management specialist, in accordance with the NRCS.

Attachment Number:

H. TCEQ Transporters Registration Approval Documents

Attach a copy of the TCEQ Transporters Registration approval documents.

Attachment Number:

I. Soil Analysis

Attach a copy of the soil laboratory analysis for the application area.

Attachment Number:

H. Biosolids or Residuals Analyses

Attach a laboratory analysis for each source.

Attachment Number:

I. Metal and Nutrient Concentrations (Table 1)

Use the laboratory analyses to complete Table 1 for each source.

J. Volume Weighted Averages of Metal and Nutrient Concentrations (Table 2)

If more than one source of biosolids or residuals are land applied, complete Table 2.

K. Agronomic Rate Calculations (Appendix A)

Determine the agronomic application rate by completing and attaching Appendix A.

L. Pathogen Reduction Options (Appendix B)

Identify the pathogen reduction options by completing and attaching Appendix B.

M. Vector Attraction Reduction Options (Appendix C)

Identify the vector attraction reduction options by completing and attaching Appendix C.

N. On-Site Storage (Appendix D)

If on-site storage will occur at this site, complete and attach Appendix D.

LABORATORY ACCREDITATION

All laboratory tests performed must meet the requirements of 30 TAC Chapter 25, *Environmental Testing Laboratory Accreditation and Certification*, unless the laboratory meets the following general exemptions from National Environmental Laboratory Accreditation Program (NELAP) certification requirements.

- The laboratory is an in-house laboratory and is:
  - periodically inspected by the TCEQ;
  - located in another state and is accredited or inspected by that state;
  - performing work for another company with a unit located in the same site; or
  - performing pro bono work for a governmental agency or charitable organization.
- The laboratory is accredited under federal law.
- The data are needed for emergency-response activities, and a laboratory accredited under the Texas Laboratory Accreditation Program is not available.
- The laboratory supplies data for which the TCEQ does not offer accreditation.

The applicant should review 30 TAC Chapter 25 for specific requirements. The following certification statement shall be signed and submitted with every application.

CERTIFICATION

I certify that all laboratory tests submitted with this application meet the requirements of 30 TAC Chapter 25, *Environmental Testing Laboratory Accreditation and Certification.*

Printed Name: Andreana Alexander

Title: Project Manager

Signature: Andreana S Alexander Date: 8-14-2025

SITE OPERATOR SIGNATURE PAGE

If co-applicants are necessary, each co-applicant must submit an original, separate signature page.

Permit Number: WQ0004436000

Applicant: Bell County WCID #2

I understand that I am responsible for operating the site described in this permit application in accordance with the requirements in 30 TAC Chapter 312, the conditions set forth in this application, and any additional conditions as required by the Texas Commission on Environmental Quality.

I certify, under penalty of law, that all information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine, imprisonment for violations, and revocation of this permit.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signatory Name: Grace Germon

Title: Assistant Project Manager

Signature (use blue ink): _____ Date: 7/30/25

SUBSCRIBED AND SWORN to before me by the said Grace Germon on this 30th day of July, 20 25

My commission expires on the 20th day of February, 20 29

(Seal)

BRIDJET GILLIS
Notary Public, State of Texas
Comm. Expires 02-20-2029
Notary ID 135502524

Notary Public

Bell County

County, Texas

LANDOWNER SIGNATURE PAGE

Required if the landowner is not the applicant or co-applicant. Each landowner must submit an original, separate signature page.

Permit Number: WQ0004436000

Applicant: Bell County WCID #2

I certify, as the owner of the land described in this permit application, that I have all rights and covenants to authorize the applicant to use this site for the land application of Municipal Wastewater Biosolids (*identify the type(s) of waste*). I understand that 30 TAC Chapter 312 requires me to make a reasonable effort to see that the applicant complies with the requirements in 30 TAC Chapter 312, the conditions set forth in this application, and any additional conditions as required by the TCEQ. I also certify, under penalty of law, that all information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine, imprisonment for violations, and revocation of the permit.

Signatory Name: Joe Chaffin

Title: President

Signature (use blue ink): Joe Chaffin Date: 7/30/25

SUBSCRIBED AND SWORN to before me by the said Joe Chaffin on this 30th day of July, 2025

My commission expires on the 20th day of February, 2029

BRIDJET GILLIS
Notary Public, State of Texas
Comm. Expires 02-20-2029
Notary ID 135502524

(Seal)

Notary Public

Bell County
County, Texas

Attachment 1
Individual Information

Complete this attachment if the applicant or co-applicant is an individual. Make additional copies of this attachment if both are individuals.

Prefix (Mr., Ms., Miss): Click here to enter text.

Full Legal Name, including middle name: Click here to enter text.

Driver's License or State Identification Number: Click here to enter text.

State that Issued the License or Identification Number: Click here to enter text.

Date of Birth: Click here to enter text.

Mailing Address: Click here to enter text.

City, State, and Zip Code: Click here to enter text.

Phone Number: Click here to enter text. Fax Number: Click here to enter text.

E-mail Address: Click here to enter text.

For TCEQ Use Only

Customer Number _____
Regulated Entity Number _____
Permit Number _____

TECHNICAL REPORT
FOR BENEFICIAL LAND USE OF CLASS B BIOSOLIDS

Note: The term "biosolids" also includes the combination of water treatment plant residuals with Class B Biosolids material.

SECTION 1. SITE HISTORY

Have biosolids or septage been previously land applied at this site?

☒ Yes ☐ No

If Yes, provide a short narrative on the agricultural practices previously used at the site. The narrative must discuss the following elements:

- crops grown;
- tillage practices;
- previous biosolids application amount (dry tons) and rates (dry tons per acre); and
- previous septage application amount (gallons) and rates (gallons per acre).

Sludge applied at an annual rate not to exceed 3.61 dry tons per acre per year, up to 10.5 dry tones per year on 2.91 acres located within approximately 5.28 acres at coordinates (30.986111, -97.335833). Bermuda grass covers the grounds as a warm season crop and as a cool season crop. Haying to be conducted within the property bounds as well. No tillage seen on grounds per operations manager.

SECTION 2. PROPOSED LAND APPLICATION ACTIVITIES

Provide a short narrative on the proposed land application activities at the site. The narrative must discuss the following elements:

- crops grown;
- planting dates;
- times per year applied;
- frequency of application; and
- tillage practices.

Sludge applied at an annual rate not to exceed 3.61 dry tons per acre per year, up to 10.5 dry tones per year on 2.91 acres located within approximately 5.28 acres at coordinates (30.986111, -97.335833). Area within the property boundary to have a coastal Bermuda grass cover throughout the warm and cold season. Haying will be practiced within the property. Hay production is based on three cuttings each year with an average yield of 2 tons per acre. Farming activities such as planting and harvesting hay will be managed by local vendors under contract with BCWCID2. The application of biosolids to the field is managed by Paramount Wastewater Solutions, LLC.

SECTION 3. SOIL INFORMATION

A. Soil Properties

Complete the table below using the Physical and Chemical Properties and the Engineering Tables found in the USDA Natural Resources Conservation Service (NRCS) soils descriptions.

Map Symbol	Soil Type	Slope	pH	Depth to Bedrock* (inches)	Depth to Groundwater (feet)	Permeability (inches/hour)	Soil Depth** (inches)
BrB	Branyon Clay	1%-3%	8.0	155.9	Not given, listed as N/A	0.060	>80
LegC	Lewisville	2-5%	8.2	214	Not given, listed as N/A	0.6-2.0	60-80
LegC	Altoga	2-5%	8.2	184	Not given, listed as N/A	0.6-2.0	60-80

* If depth to bedrock is not specified in the soil survey, use the maximum depth shown.
** If soil depth is less than two feet, provide rationale for using these shallow soils. The rationale should include site specific investigation results.

B. Restrictive Soil Characteristics

In the table below, identify all soils that have the following restrictive characteristics and the management practices to be used.

- Soils with at least an "occasional flooding" classification may flood between 5 to 50 times in 100 years;
- Soil permeability of >6 inches per hour; and
- Seasonal groundwater or groundwater table below the treatment zone at least:
  - 3 feet for soil with permeability of <2 inches per hour
  - 4 feet for soil with permeability of 2-6 inches per hour.

Soil Type	Restrictive Characteristic	Best Management Practices

Soil Type	Restrictive Characteristic	Best Management Practices

SECTION 4. WELL INFORMATION

In the table below, provide information about each well located on-site and within 500 feet of the application area. Water well information is available from the Texas Water Development Board, 512-936-0837. Oil and gas well information is available from the Texas Railroad Commission, 512-463-6851.

Well Type (Water Well, Oil Well, Injection Well)	Producing or Non-Producing	Open, Cased, or Capped*	Protective Measures**
No wells on or within 500 feet of the application area			

* Casing, capping, and plugging rules are located in 16 TAC Chapter 76.
** The following protective measures are required prior to initial biosolids/septage application:

- If the well is producing and cased, no action is needed.
- If the well is producing and not cased, the well must be cased or describe other protective measures.
- If the well is non-producing and cased, the well must be plugged or capped.
- If the well is non-producing and not cased, the well must be plugged.

SECTION 5. HYDROLOGIC CHARACTERISTICS

Submit information listed below, or equivalent documentation, regarding the hydrologic characteristics of the surface and groundwater at the application site and within one-quarter mile of the site.

- Aquifer identification per Texas Water Development Board Report 345
- Location of the area according to the Geologic Atlas of Texas, published by the University of Texas, Bureau of Economic Geology.
- Any feature that exhibits a direct hydrologic connection between surface and subsurface water.
- List periods of seasonal perched and/or high water table, if any.

Attachment Number: Attachment N

Table 1
Pollutant and Nutrient Concentrations in Biosolids and Water Treatment Residuals (if applicable)

Complete this table **for each source** of biosolids and residuals.

Facility Name: Academy Wastewater Treatment Plant

TCEQ Authorization Number: TX0020249

POLLUTANT/METAL ANALYSIS

Pollutant	Maximum Concentration, mg/kg dry weight	Test Results, mg/kg dry weight	Sample Date	Detection Level for Analysis	Sample Method
Arsenic (As)	75	<14.0	08/29/24	14.0	EPA 6010C
Cadmium (Cd)	85	0.593	08/29/24	1.00	EPA 6010C
Chromium (Cr)	3000	32.9	08/29/24	1.00	EPA 6010C
Copper (Cu)	4300	760	08/29/24	25.0	EPA 6010C
Lead (Pb)	840	21.6	08/29/24	1.00	EPA 6010C
Mercury (Hg)	57	0.667	08/29/24	0.387	EPA 7471B 2
Molybdenum (Mo)	75	4.67	08/29/24	3.00	EPA 6010C
Nickel (Ni)	420	14.1	08/29/24	25.0	EPA 6010C
Selenium (Se)	100	12.4	08/29/24	1.00	EPA 6010C
Zinc (Zn)	7500	1020	08/29/24	10.0	EPA 6010C
PCB (ppm)	50.0 ppm	<1 ppm	08/29/24	1 ppm	EPA 8082

NUTRIENT ANALYSIS

Nutrient	Concentration (%)	Sample Date	Detection Level for Analysis	Sample Method
Total Kjeldahl Nitrogen (TKN)	4.73	08/29/24	0.13	SM4500-NH3 G 2011
Ammonium Nitrogen (NH_4-N)	0.52	08/29/24	0.00972	EPA 350.1 2
Nitrate Nitrogen (NO_3-N)	Non-detect	08/29/24	0.00459	EPA 9056
Total Phosphorus (P)	1.02	08/29/24	0.01	EPA 6010C
Total Potassium (K)	0.379	08/29/24	0.05	EPA 6010C

Table 1
Pollutant and Nutrient Concentrations in Biosolids and Water Treatment Residuals (if applicable)

Complete this table **for each source** of biosolids and residuals.

Facility Name: Little River Wastewater Treatment Plant

TCEQ Authorization Number: TX0020257

POLLUTANT/METAL ANALYSIS

Pollutant	Maximum Concentration, mg/kg dry weight	Test Results, mg/kg dry weight	Sample Date	Detection Level for Analysis	Sample Method
Arsenic (As)	75	<28.4	08/29/24	28.4	EPA 6010C
Cadmium (Cd)	85	0.542	08/29/24	2.02	EPA 6010C
Chromium (Cr)	3000	27.5	08/29/24	2.02	EPA 6010C
Copper (Cu)	4300	507	08/29/24	50.6	EPA 6010C
Lead (Pb)	840	13.4	08/29/24	2.02	EPA 6010C
Mercury (Hg)	57	0.576	08/29/24	0.387	EPA 7471B 2
Molybdenum (Mo)	75	4.93	08/29/24	6.07	EPA 6010C
Nickel (Ni)	420	13.2	08/29/24	2.02	EPA 6010C
Selenium (Se)	100	16.6	08/29/24	2.02	EPA 6010C
Zinc (Zn)	7500	943	08/29/24	20.2	EPA 6010C
PCB (ppm)	50.0 ppm		08/29/24		EPA 8082

NUTRIENT ANALYSIS

Nutrient	Concentration (%)	Sample Date	Detection Level for Analysis	Sample Method
Total Kjeldahl Nitrogen (TKN)	5.72	08/29/24		SM4500-NH3 G 2011
Ammonium Nitrogen (NH_4-N)	0.69	08/29/24	0.0194	EPA 350.1 2
Nitrate Nitrogen (NO_3-N)	Non-detect	08/29/24	0.0125	EPA 9056
Total Phosphorus (P)	1.06	08/29/24	0.0202	EPA 6010C
Total Potassium (K)	0.457	08/29/24	0.101	EPA 6010C

TABLE 2
Volume Weighted Average (Mean) of Nutrient and Pollutant Concentration

Complete this table if more than one source is land applied at the site.

Directions:

1. For each pollutant, multiply the Pollutant Concentrations from Table 1 by the estimated number of dry tons you expect to apply from each facility.
2. Sum the individual columns. Enter results in last row of the table.
3. Divide the sum of each column by the dry tons sum (bottom of second column). Enter number in the appropriate Volume Weighted Average Box (row below table).
4. Use these final results to complete Appendix A, Step 1.

TCEQ Auth. Number	Est. Dry Tons*	As	Cd	Cr	Cu	Pb	Hg	Mo	Ni	Se	Zn	TKN	NH_4-N	NO_3-N	P	K
TX0020249	5.7	ND	3.4	188.2	4,347	123.6	3.8	26.6	80.4	70.7	5,814	27.0	3.0	ND	5.8	2.2
TX0020257	4.8	ND	2.6	131.5	2,423	64.1	2.8	23.7	63.4	79.7	4,526	27.5	3.3	ND	5.1	2.2
Sum	10.5	ND	6.0	319.7	6,770	187.7	6.6	50.3	143.8	150.4	10,340	54.5	6.3	ND	10.9	4.4
Volume Weighted Average		ND	0.57	30.4	644.8	17.9	0.63	4.8	13.7	14.3	984.8	5.2	0.60	ND	1.0	0.42

*Total estimated dry tons to be land applied from the source facility.

APPENDIX A
AGRONOMIC RATE CALCULATIONS

Note: The maximum allowable agronomic rate for land application of Class B Biosolids is 12 tons/acre/year.

APPENDIX A, PART 1. APPLICATION RATE

STEP 1. CALCULATE QUANTITY OF NUTRIENTS AND METALS IN BIOSOLIDS AND RESIDUALS IN LBS/TON

Nutrient	Concentration (%)**	Conversion Factor	Pounds per Ton
Total Kjeldahl Nitrogen (TKN)	5.2	x 20	104
Ammonium Nitrogen (NH_4-N)	0.60	x 20	12
Nitrate Nitrogen (NO_3-N)	ND	x 20	ND
Total Phosphorus (P)	1.0	x 20	20
Total Potassium (K)	0.42	x 20	8.4

Pollutant	Test Results, mg/kg dry weight	Conversion Factor	Pounds per Ton
Total Arsenic (As)	ND	x 0.002	ND
Total Cadmium (Cd)	0.57	x 0.002	0.0011
Total Chromium (Cr)	30.4	x 0.002	0.061
Total Copper (Cu)	644.8	x 0.002	1.29
Total Lead (Pb)	17.9	x 0.002	0.036
Total Mercury (Hg)	0.63	x 0.002	0.0013
Total Molybdenum (Mo)	4.8	x 0.002	0.0096
Total Nickel (Ni)	13.7	x 0.002	0.027
Total Selenium (Se)	14.3	x 0.002	0.029
Total Zinc (Zn)	984.8	x 0.002	1.97

**Values from laboratory analysis (dry weight only).

Conversions:

mg/kg ÷ 10,000 = %

ppm = mg/kg

STEP 2. CROPPING PLAN AND NUTRIENT NEEDS

Warm Season Intended Crop(s): Coastal Bermudagrass

Yield Goal: 2 tons/acre/year Nitrogen Requirement, in lb/yr: 580 lbs/yr

Cool Season Intended Crop(s): Same as cool season

Yield Goal: Click here to enter text. Nitrogen Requirement, in lb/yr: Click here to enter text.

Provide the data source for the nitrogen requirements above.

USDA Agricultural Research (ARS), Coastal Bermudagrass Fertilization Guidelines

Nitrogen needed by crop:

2A. Total Nitrogen Requirement*	580
2B. Nitrogen available in soil**	88
2C. Nitrogen amount still needed	
Line 2A – Line 2B	492

*Line 2A = Sum of the nitrogen requirement for the specified yield goals for the warm season crop and cool season crop

**Line 2B = 2*NO_3-N (ppm)(in the 0-6" soil depth) + 6*NO_3- N(ppm)(in the 6-24" soil depth)

STEP 3. CALCULATE THE PLANT AVAILABLE NITROGEN (PAN) PROVIDED BY THE BIOSOLIDS AND RESIDUALS

Use the TKN, NH_4-N, and NO_3-N from Step 1.

Organic Nitrogen = TKN – (NH_4-N) – (NO_3-N) 92

Mineralization Rate (%) * 30%

3A. Organic Nitrogen x Mineralization Rate 27.6

3B. Ammonium Nitrogen = (NH_4-N) x V 6

V = 0.5 if biosolids are left on soil surface

V = 1.0 if biosolids are worked into the soil

3C. Nitrate Nitrogen (NO_3-N) non-detect

3D. Total PAN = (Line 3A + Line3B + Line 3C)= 33.6

*Mineralization Rates:

Treatment Method	Mineralization Rates
Unstabilized Primary and Waste Activated Biosolids	40 %
Aerobically Digested Biosolids	30 %
Anaerobically Digested Biosolids	20 %
Composted Biosolids	10 %

STEP 4. CALCULATE MAXIMUM BIOSOLIDS APPLICATION RATES BASED ON CROP NITROGEN NEEDS (SAR_N)

4A. Nitrogen amount still needed (lbs/acre/year)

Enter amount from Step 2C. 492

4B. Total PAN (lbs/ton)

Enter amount from Step 3D. 33.6

4C. Biosolids Application Rate (BAR_N) (tons/acre/year)

Line 4A ÷ Line 4B 14.6

STEP 5. CALCULATE MAXIMUM APPLICATION RATE BASED ON METALS (SAR_M)

METAL	A Cumulative Metal Limits (lbs/ac)	B Max Loading Rate (lbs/ac/yr)	C Metals In Biosolids (lbs/ton) (Step 1)	D Metals Applied Yearly at $\underline{BAR_N}$ (lbs/acre/yr) (C x SAR_N)	E Biosolids Applied Yearly at $\underline{BAR_M}$ (tons/acre/yr) (B ÷ C)	F Max Loading Rate (tons/acre) (A ÷ C)
Arsenic	36	1.8	ND	ND	ND	ND
Cadmium	35	1.7	0.001	0.0027	N/A	35,000
Chromium	2677	134	0.061	0.16	N/A	43,885
Copper	1339	67	1.29	3.48	N/A	1,038
Lead	268	13	0.036	0.097	N/A	7,444
Mercury	15	0.76	0.0013	0.0035	N/A	11,538
Molybdenum	Monitor	Monitor	0.0096	0.026		
Nickel	375	18.7	0.027	0.073	N/A	13,889
Selenium	89	4.5	0.029	0.078	N/A	3,069
Zinc	2500	125	1.97	5.32	N/A	1,269
Other						

Note: For each metal, if the value in column B is greater than the value in column D (B>D), the BAR_N dictates the maximum biosolids application rate. Enter N/A in column E. If the value in column B is less than the value in column D (B<D), then the BAR_M dictates the maximum biosolids application rate and the value of E = B ÷ C.

STEP 6. CALCULATE THE CUMULATIVE LOADING RATE

6A. Maximum allowable cumulative biosolids loading rate

Lowest value in Step 5, Column F (tons/acre) 1,038

6B. Previous applications of biosolids (tons/acre) Click here to enter text.

6C. Remaining biosolids application rate to reach metal limits

Line 6A – Line 6B (tons/acre) 1,038

6D. Maximum allowable biosolids application rate

Lowest value of Step 4C and Step 5, Column E (tons/acre/year)

3.43

6E. Years remaining to reach the maximum cumulative loading

Line 6C ÷ Line 6D (years) 303

APPENDIX A, PART 2: SEPTAGE APPLICATION RATE

Complete Part 2 and 3 if sewage and septage are both applied at the site.

STEP 1. CROPPING PLAN AND NUTRIENT NEEDS

Warm Season Intended Crop(s): Click here to enter text.

Yield Goal: Click here to enter text. Nitrogen Requirement, in lb/yr: Click here to enter text.

Cool Season Intended Crop(s): Click here to enter text.

Yield Goal: Click here to enter text. Nitrogen Requirement, in lb/yr: Click here to enter text.

Provide the data source for the nitrogen requirements.

Click here to enter text.

Nitrogen needed by crop:

1A. Total Nitrogen Requirement* Click here to enter text.

1B. Nitrogen available in soil** Click here to enter text.

1C. Nitrogen amount still needed

Line A - Line B Click here to enter text.

*Line 1A = Sum of the nitrogen requirement for the specified yield goals for the warm season crop and cool season crop
**Line 1B = 2*NO_3-N (ppm)(in the 0-6" soil depth) + 6*NO_3- N(ppm)(in the 6-24" soil depth)

STEP 2. CALCULATE ANNUAL APPLICATION RATE

The annual application rate is based on the nitrogen needs of the crop. It is calculated using the following equation:

AAR = N ÷ 0.0026

AAR = Annual application rate, in gallons per acre per 365 day period.

N = Nitrogen amount still needed for the crop, in pounds per acre per 365 day period.

2A. Enter amount from Step 1C Click here to enter text.

2B. Conversion Factor 0.0026

2C. Annual Application Rate (gal/acre/yr)

Line 2A ÷ Line 2B Click here to enter text.

APPENDIX A, PART 3: PROPORTIONATE AGRONOMIC RATE

Complete if both sewage and septage are applied in the same year.

Biosolids:

A. Biosolids Application Rate (tons/acre/year) Click here to enter text.

B. Percentage of plant nutrient supplied by the biosolids

= Click here to enter text. ÷ 100 Click here to enter text.

C. Multiple Line A by Line B (tons/acre/year) Click here to enter text.

Domestic Septage:

A. Biosolids Application Rate (tons/acre/year) Click here to enter text.

B. Percentage of plant nutrient supplied by the biosolids

= Click here to enter text. ÷ 100 Click here to enter text.

C. Multiple Line A by Line B (tons/acre/year) Click here to enter text.

APPENDIX B
PATHOGEN REDUCTION REQUIREMENTS

For each source, select the pathogen reduction alternative that will be used prior to land application of biosolids septage. Requirements for each alternative can be found in 30 TAC §312.82.

TCEQ Permit Number	Pathogen Reduction Alternative Used	Fecal Coliform Geometric Mean (cfu/gram total solids)*	Fecal Test Date*	Is PSRP Certification Attached?** (Yes/No/NA)
Example WQ11280-001	Option 1: Density of Fecal Coliform	300,000 cfu/g	12/2/98	NA
TX0020249	Option 2a: PSRP Aerobic Digestion			Yes-Attachment O
TX0020257	Option 2a: PSRP Aerobic Digestion			Yes-Attachment O
	Choose an item.			
	Choose an item.			
	Choose an item.			
	Choose an item.			
	Choose an item.			
	Choose an item.			
	Choose an item.			
	Choose an item.			
	Choose an item.			

*Applicable to Option 1 only.
**Applicable to Option 2a – f.

If Other is selected as the Alternative Used, please explain: Click here to enter text.

APPENDIX C
VECTOR ATTRACTION REDUCTION REQUIREMENTS

For each source, provide the vector attraction reduction option that will be used prior to or after land application of biosolids/septage. Requirements for each alternative can be found in 30 TAC §312.83.

TCEQ Permit Number	Vector Attraction Reduction Alternative Used*	Monitoring Criteria and results needed for alternative
Example WQ11280-001	Option 10: Incorporate within 6 hrs	Visual inspection of area after tilling
Example WQ13450-003	Option 4: SOUR <=1.5 mg 02/hr/g total solids at 20C (<2% solids)	Aerobically digested, 2.0% solids, SOUR=1.3 mg/g
TX0020249	Option 4: SOUR <=1.5 mg 02/hr/g total solids at 20C (<2% solids)	Aerobically digested, 1.5% solids, SOUR = 0.22 mg O2/hr/g total solids
TX0020257	Option 4: SOUR <=1.5 mg 02/hr/g total solids at 20C (<2% solids)	Aerobically digested, 1.5% solids, SOUR = 0.22 mg O2/hr/g total solids
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	

*Options 1-8 are Class B biosolids treatment alternatives. Options 9-10 are onsite alternatives. Option 12 is for domestic septage only.

APPENDIX D
ON-SITE STORAGE

If on-site storage will occur at the site, this Appendix must be completed in its entirety. On-site storage does not include staging of biosolids or septage for up to seven (7) days prior to applying it. On-site storage cannot exceed the 90-day maximum per 30 TAC §312.50 unless properly authorized for each instance. Construction of the storage area cannot begin until written authorization for this action is received from the TCEQ. Materials cannot be treated without proper authorization from the TCEQ.

A. Provide a complete description of operational plans for the temporary storage, including all steps to be taken to control odors, vectors and other nuisance conditions.
N/A

B. The location of the temporary storage area(s) must be accurately shown on the USGS topographic map submitted with the application, including all main features of the storage area(s) (e.g. berms, tanks, pads, liners, storm water retention, etc.).

C. Provide a copy of the liner and storage tank certification as per 30 TAC §312.50(a)(4) or 312.50(a)(8).
Attachment Number: N/A

D. Describe the proposed spill prevention and cleanup methods.
N/A

E. Provide a certification that the berm(s) will hold the required volume(s) without discharging as per 30 TAC §312.50 (a)(7).
Attachment Number: N/A

F. Describe the method for stormwater runoff collection and disposal.
N/A

G. Describe methods to be used to ensure no loads of biosolids remain at the temporary storage site for longer than 90 days, including how exceptions to this restriction will be requested (as provided by 30 TAC §312.50), when needed.
N/A

INSTRUCTIONS FOR PERMIT FOR BENEFICIAL LAND USE OF CLASS B BIOSOLIDS

GENERAL INFORMATION

Purpose of the Application

This form is to be used to:

- Permit a new site for beneficial land use of Class B biosolids;
- Submit a Major Amendment to change acreage or to make any other substantive change to a permitted site for beneficial land use of Class B biosolids; or
- Renew an existing permitted site for beneficial land use of Class B biosolids.

NOTE: If the land application site is within or adjacent to a publicly-owned wastewater treatment plant (WWTP) and the site is owned or operated by the WWTP, the WWTP's existing wastewater discharge permit may be amended to authorize land application of Class B biosolids. To amend the wastewater discharge permit, complete and submit this application form and the Domestic Wastewater Permit Application (TCEQ Form 10054).

Who Should Apply?

This application must be submitted by the site operator. If there is more than one operator, then a co-applicant is required.

When Is The Application Submitted?

For new and amendment applications, the completed application must be submitted at least 180 days before the proposed date of land application. For renewal applications, the completed application must be submitted at least 180 days before the expiration date of the current registration.

Where to Send the Application Form

One original and three copies of the application, including attachments, must be provided to the address below:

Regular U.S. Mail:
TCEQ
ARP Team, MC 148
PO Box 13087
Austin TX 78711-3087

Express Mail or Hand Delivery:
TCEQ
ARP Team, MC 148
Building F Room 2101

12100 Park 35 Circle
Austin TX 78753

TCEQ Contact List

Permit Information and Application Forms:	512-239-4671
Technical Information, Land ApplicationTeam, Attn: Biosolids Group:	512-239-4671
Environmental Law Division:	512-239-0600

Copies of records on file with the TCEQ may be obtained for a minimal fee from the Records Management Office at 512-239-2900.

INSTRUCTIONS FOR FILLING OUT THE APPLICATION FORM

Section 1. Type of Application

Select the appropriate type of application.

For amendment applications, describe the proposed changes.

For existing permits, provide the TCEQ permit number.

Section 2. Application Fee

The permit application fee varies from $1,000 to $5,000, based on the quantity of biosolids to be applied annually under the permit.

Quantity of Biosolids Applied Annually	Application Fee
2,000 dry tons or less	$1,000
2,001 to 5,000 dry tons	$2,000
5,001 to 10,000 dry tons	$3,000
10,001 to 20,000 dry tons	$4,000
20,001 dry tons or more	$5,000

Application fees must be paid by check or money order made payable to the Texas Commission on Environmental Quality. Fees are to be sent under separate cover making reference to the type of application, name of applicant, and permit number of existing permit, and mailed to:

TCEQ
Revenues Section (MC 214)
P.O. Box 13088
Austin, Texas 78711-3088

To verify receipt of payment or any other questions you may have regarding payment of fees to the TCEQ, you may call the Revenues Section, Cashiers Office at (512) 239-0357.

Section 3. Applicant Information

Provide the full legal name of the site operator.

If the site operator is an existing TCEQ customer, provide the customer number (CN) for the site operator. The Customer Number is available at the following website: http://www15.tceq.texas.gov/crpub/. If the site operator is not an existing TCEQ customer, leave blank.

Provide the following contact information for the site operator: mailing address, phone number, fax number, and email address.

Section 4. Co-Applicant Information

If there is more than one operator, then a co-applicant is required. Provide the full legal name of the co-applicant.

If the co-applicant is an existing TCEQ customer, provide the customer number (CN) for the co-applicant. The Customer Number is available at the following website: http://www15.tceq.texas.gov/crpub/. If the co-applicant is not an existing TCEQ customer, leave blank.

Provide the following contact information for the co-applicant: mailing address, phone number, fax number, and email address.

Explain the need for a co-applicant.

Section 5. Application Contact Information

Provide the name and contact information for the person that TCEQ will contact if additional information is needed about this application. Provide one contact for the operator and one contact for the landowner.

Section 6. Permit Contact Information

Provide the name and contact information for two individuals that TCEQ can contact if additional information is needed during the term of the permit.

Section 7. Billing Contact Information

Provide the name and contact information for the person that TCEQ can contact regarding the annual fee invoices.

Section 8. Reporting Contact Information

Provide the name and contact information for the person that TCEQ can contact regarding the annual biosolids land application reports.

Section 9. Notice Information

A. Individual publishing the notices

Provide the name, company name, mailing address, telephone number and fax number of the person that will publish the public notices required during the processing of the application. Only one name can be provided. This individual will be contacted to publish the required public notices in a newspaper of the largest general circulation in the county where the facility is/will be located. This person must be available during the application processing since the first public notice. The "Notice of Receipt of Application and Intent to Obtain a Water Quality Permit" must be published within 30 days of the application being declared Administratively Complete.

B. Method of Receiving Notice Package

Provide the method of receiving the required public notice information. When the application is declared Administratively Complete, the notice package will be sent via the method selected. The notice package includes the TCEQ declaration of completeness, a notice ready for publication, instructions for publishing the notice, a publication affidavit, and a public notice verification form.

C. Contact Person in the Notice

Provide the person's name, company name, mailing address, telephone number and fax number of the one individual that will be identified as the notice contact in the two public notices that are published as part of the permitting process. This individual may be contacted by the public to answer questions about all aspects of the permit application.

D. Public Viewing Location

Provide the name and physical address for the public place where the complete application, draft permit, and Technical Summary/Fact Sheet will be made available for viewing and copying by the general public. Please verify with the proper authority they will make the application available for public viewing and copying. The address must be a physical address. Post office box addresses are not acceptable. The public place must be located within the county in which the facility is/will be located. If the facility is located in more than one county, a public viewing place for each county must be provided.

E. Bilingual Notice Requirement

Bilingual notice may be required for new, major amendment, and renewal applications if an elementary school or middle school nearest to the facility is required to make a bilingual education program available to qualifying students.

The applicant is required to call the bilingual/ESL coordinator at the nearest elementary and middle schools to obtain answers to questions 1. – 4. These questions will determine if an alternative language notice is required.

If it is determined that a bilingual notice is required, the applicant is responsible for ensuring that the publication in the alternate language is complete and accurate in that language.

F. Public Involvement Plan Form
Complete and attach one Public Involvement Plan (PIP) Form (TCEQ Form 20960) for each application for a new permit or major amendment to a permit. This form is not required for renewal or minor amendment applications.

Section 10. Regulated Entity (Site) Information

A. Provide the name of the site as known by the public in the area where the site is located.

B. If the site is currently regulated by TCEQ, provide the regulated entity reference number (RN) for the site. The RN is available at the following website: http://www15.tceq.texas.gov/crpub/. If the site is not currently regulated by TCEQ, leave blank.

C. If the location in the existing permit is not correct or if this is a new site, provide the physical address of the site. If a physical address is not available, provide a location description.

D. Provide the county in which the site is located.

E. Provide the latitude and longitude for the site.

F. Provide the name and contact information for the landowner of the application site.

G. Provide the name and contact information for the county judge in each county where the site is located. Attach an additional sheet if the site is located in more than one county.

Section 11. Land Application Information

If the land application site is within or adjacent to a publicly-owned wastewater treatment plant (WWTP) and the site is owned or operated by the WWTP, the WWTP's existing wastewater discharge permit may be amended to authorize land application of biosolids. To amend the wastewater discharge permit, complete and submit this application form and the Domestic Wastewater Permit Application (TCEQ Form 10054).

A. Provide the anticipated date that you plan to start applications on this site. This date must be at least 330 days from the date TCEQ receives this application form.

B. Indicate by a checkmark if the beneficial land use area is within the city limits, within the extraterritorial jurisdiction, or outside the extraterritorial jurisdiction of a city. Provide the city or municipality name in the space provided.

C. Identify the types of wastes that will be land applied at this site.

D. For each source, provide the facility name, TCEQ authorization number, and the location. Add additional rows to the table, if necessary.

E. Provide the total acreage of the property where the application site is located. Include the application area and the buffer zones.

F. Provide the total acreage where biosolids may be applied. Do not include buffer zones.

NOTE: A minimum buffer of 500 feet is required for water wells and surface water

when land application of Class B Biosolids occurs in a county that borders the Gulf of Mexico (Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Jefferson, Kenedy, Kleberg, Matagorda, Nueces, San Patricio, and Willacy Counties).

Section 12. Miscellaneous Information

A. Provide the name of each person that was previously employed by TCEQ and who was paid for services regarding this application.

B. Identify if the application site is located on Indian lands. If the answer is yes, TCEQ does not have jurisdiction to process this application. Do not send this application to TCEQ. Contact the Land Application Team, Attn: Biosolids Group at 512-239-4671.

C. Identify if any permanent school fund land is affected by this application. If yes, provide the location and potential impacts on the school fund land.

D. Indicate if the site operator or co-applicant(s) owe fees or penalties to TCEQ. If yes, provide the amount owed, the type of fee or penalty, and the account number for fees or the TCEQ Docket number for penalties.

The following TCEQ website will help you determine if you owe any fees or penalties to the TCEQ and how to make a payment: https://www.tceq.texas.gov/agency/fees/delin/index.html. For questions about delinquent fees and penalties, contact the Financial Administration Division, Revenue Section, at 512-239-0354.

NOTE: TCEQ will not declare any application administratively complete or issue a permit if the applicant or co-applicant is delinquent on a fee or penalty.

Section 13. Affected Landowner Information

A. Attach a landowner map or drawing that includes a scale, the applicant's property boundaries, the application area boundaries, the approximate property boundaries of all landowners located within 1/4 mile of the property boundaries. Assign a letter or number to each landowner.

B. Attach a list of landowners that live on land within 1/4 mile of the property boundaries. The list must include the landowner's name and address, and include a cross-reference to the letter or number identified on the landowner map. The applicant may choose to attach a list of all landowners within 1/4 mile of the property boundary, regardless of whether the landowner lives on the land.

C. Identify the format of the landowners list.

D. Provide the source of the landowner's names and mailing addresses. Sources may include City or County Tax Records.

Section 14. Insurance Information

This information is <u>not</u> required for an applicant that is a political subdivision (e.g., city, county, state agency, water district, etc.).
Note: The insurance policies required by this section must be maintained for the duration of the permit which is normally issued for a term of five years.

A. Commercial Liability Insurance

Attach a copy of the certificate of insurance in regard to commercial liability, reflecting total coverage of not less than $3 million per occurrence with an annual aggregate of not less than $3 million, exclusive of legal defense costs. The certificate must be worded identically to the wording specified in 30 TAC §37.9145 (relating to Certificate of Insurance for Commercial Liability) or an endorsement worded identically to the wording specified in 30 TAC §37.9150 (relating to Endorsement for Commercial Liability). The certificate of insurance must be issued by an insurance company authorized to transact business in the State of Texas and that has a rating of A- or better by A.M. Best Company.

B. Environmental Impairment Insurance

Attach a copy of the certificate of insurance in regard to environmental impairment, reflecting total coverage of not less than $3 million per occurrence with a policy limit of not less than $3 million, exclusive of legal defense costs. The certificate must be worded identically to the wording specified in 30 TAC §37.9155 (relating to Certificate of Insurance for Environmental Impairment). The certificate of insurance must be issued by an insurance company authorized to transact business in the State of Texas and that has a rating of A- or better by A.M. Best Company.

Section 15. Maps and Attachments

A. Complete and submit the TCEQ Core Data Form (TCEQ-10400).

B. Complete and attach one Public Involvement Plan (PIP) Form (TCEQ Form 20960) for each application for a new permit or major amendment to a permit.

C. Submit an original General Highway (County) Map showing all boundaries of the site area and all areas within 1000 feet of the area boundaries. These can be ordered from the Texas Department of Transportation Map Sales from the following web site: http://www.txdot.gov/travel/county_grid_search.htm

D. Submit a full-sized USGS topographic map (1:24,000 scale). These are available by contacting the Texas Natural Resource Information System at 512-463-8337. The map must show:

- the boundaries of the property(s) being permitted;
- the boundaries of the application area within the property boundaries;
- all areas within ¼ mile of the site (if the site is on the border of the USGS map, the adjoining map is also required); and
- the location of all wells, springs, public water supply intakes, water treatment plants, potable water storage facilities, and wastewater treatment plants on-site and within ¼ mile of the application area (including off-site).

If the land application unit boundaries cannot fit or are too small to depict on the required USGS topographic map, a zoomed-in version must be submitted on a separate 81/2 X 12 map or larger. This map may be a zoomed-in version of the topographic map or an accurately self-generated map.

E. Submit a legible copy of a USDA Natural Resources Conservation Service (NRCS) Soil Map that shows the approximate application area boundaries, the soil legend,

necessary interpretative information, and the location of each grab sample of the composite soil sample(s) taken for analyses. If the specific county is not mapped, have a soil scientist identify the soils.

F. Submit a copy of the Federal Emergency Management Agency (FEMA) Map that shows the approximate application area boundaries, the surrounding area within ¼ mile of the property boundaries, and the appropriate legend.

G. Submit a copy of the nutrient management plan that has been prepared by a certified nutrient management specialist, in accordance with the practice standards of the USDA-NRCS.

H. Submit a copy of the TCEQ transporters registration approval documents.

I. Attach the soil laboratory analysis for the application area. Additional information about collecting and analyzing the soil samples is available at the end of these instructions.

J. Attach a laboratory analysis for each source. Additional information about testing is available at the end of these instructions.

K. Metal and Nutrient Concentrations (Table 1). Use the laboratory analyses to complete Table 1 for each source.

L. Volume Weighted Averages of Metal and Nutrient Concentrations (Table 2). If more than one source of is land applied, complete Table 2.

M. Agronomic Rate Calculations (Appendix A). Determine the agronomic application rate by completing and attaching Appendix A.

N. Pathogen Reduction Requirements (Appendix B). Identify the pathogen reduction alternative for each source by completing and attaching Appendix B.

O. Vector Attraction Reduction Requirements (Appendix C). Identify the vector attraction reduction alternative for each source by completing and attaching Appendix C.

P. On-Site Storage (Appendix D). If on-site storage will occur at the site, complete and attach Appendix D.

Signature Page

A separate signature page must be provided for the site operator, each co-applicant, and the landowner of the application site (if the landowner is different from the site operator and co-applicant). The signature page must bear an original signature and the seal of a notary public. The date signed by the applicant must be the same as the date notarized. The signature page will not be acceptable if the dates are different.

In accordance with 30 Texas Administrative Code §305.44 relating to Signatories to Applications, all applications shall be signed as follows:

For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making

functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

SOIL TESTING INFORMATION

Soil samples shall be taken prior to any application of commercial fertilizer. Do not use a galvanized container as this could give a false reading on zinc. Samples will need to be taken within the same 45 day time-frame each year, or by an approved sampling plan and analyzed within 30 days of sample collection. The initial soil sample for application approval may be taken whenever necessary.

Obtain one composite sample for each soil depth per 80 acres and per uniform soil type (soils with the same characteristics and texture) within the 80 acres, or per approved soil sampling plan. Composite samples shall be comprised of 10 - 15 random sample cores taken from each of the following soil depth zones: 0-6 inches and 6-24 inches.

Soil samples shall be submitted to a soil testing laboratory along with a previous crop history of the site, intended crop growth and yield goal. Soil reports shall include fertilizer recommendations for the crop yield goal. Samples shall be analyzed for the parameters below:

Parameter (7)		**0- 6 "**	**6 -24"**
Nitrate Nitrogen (NO_3-N, mg/kg)	(1)	x	x
Ammonium Nitrogen (NH_4-N, mg/kg)	(1)	x	x
Total Kjeldahl Nitrogen (TKN, mg/kg)	(2)	x	x
Phosphorus (plant available, mg/kg)	(3)	x	x
Potassium (plant available, mg/kg)	(3)	x	x
Sodium (plant available, mg/kg)	(3)	x	x
Magnesium (plant available, mg/kg)	(3)	x	x
Calcium (plant available, mg/kg)	(3)	x	x
Electrical Conductivity	(4)	x	x
Soil Water pH (S.U.)	(5)	x	x
Total Arsenic (mg/kg)	(6)	x	N/A
Total Cadmium (mg/kg)	(6)	x	N/A
Total Chromium (mg/kg)	(6)	x	N/A
Total Copper (mg/kg)	(6)	x	N/A
Total Lead (mg/kg)	(6)	x	N/A
Total Mercury (mg/kg)	(6)	x	N/A
Total Molybdenum (mg/kg)	(6)	x	N/A
Total Nickel (mg/kg)	(6)	x	N/A
Total Selenium (mg/kg)	(6)	x	N/A
Total Zinc (mg/kg)	(6)	x	N/A

1. Determined in a 1 N KCl soil extract (http://soiltesting.tamu.edu/webpages/swftlmethods1209.html).
2. Determined by Kjeldahl digestion or an equivalent accepted procedure. Methods that rely on Mercury as a catalyst are not acceptable.
3. Mehlich III extraction (yields plant-available concentrations) with inductively coupled plasma.
4. Electrical Conductivity (EC) - determine from extract of 2:1 (volume/volume) water/soil mixture and expressed in dS/m (same as mmho/cm).
5. Soil pH must be analyzed by the electrometric method in Test Methods for Evaluating Solid Waste, EPA SW-846, 40 CFR 260.11; method 9045C - determine from extract of 2:1 (volume/volume) water/soil mixture.
6. Analysis for metals in soil must be performed according to methods outlined in Test Methods for Evaluating Solid Waste, EPA SW-846; method 3050.
7. All parameters must be analyzed on a dry weight basis, except Soil Water pH and Electrical Conductivity.

Please be advised that the maximum acceptable soil concentrations of metals are listed below. These rates are based on the maximum cumulative loading rates found in 30 TAC §312.43 Table 2- Cumulative Metal Loading Rate.

Metal	Soil Concentration Limit (mg/kg)
Total Arsenic	20.5
Total Cadmium	19.5
Total Chromium	1500
Total Copper	750
Total Lead	150
Total Mercury	8.5
Total Molybdenum	Monitor
Total Nickel	210
Total Selenium	50
Total Zinc	1,400

BIOSOLIDS AND RESIDUALS TESTING INFORMATION

Testing Parameters (dry weight basis) for
Class B Biosolids and Water Treatment Plant Residuals

Nutrients (%)	Metals (mg/kg)	Other
Total Kjeldahl Nitrogen Ammonium-Nitrogen Nitrate-Nitrogen Total Phosphorus Total Potassium	Total Arsenic Total Cadmium Total Chromium Total Copper Total Lead Total Mercury Total Molybdenum Total Nickel Total Selenium Total Zinc	Total PCBs

1. If accepting from multiple sources,
   a) perform a new analysis on the mixed material if blended before land application, or
   b) use Table 2 of the application form to determine the volume weighted average (mass balance) which will accurately reflect the amount of metals contributed by each facility.
2. The metal and nutrient tests shall be used to calculate the Maximum Biosolids Application Rate and Site Life in Appendix A of the application form. These tests and calculations will also be required in an annual report for the permitted site.
3. Copies of all laboratory test data with Quality Control (QA/QC) and Chain of Custody sheets must be kept on file at the site operator's place of business for at least five (5) years and can be requested by TCEQ at any time.
4. Include the most recent full Toxicity Characteristic Leaching Procedure (TCLP) analysis for each wastewater treatment plant source (Appendix E).

Maximum Metal Loadings & Concentrations

If background soil concentrations exceed the values listed below, then land application is only possible if biosolids concentrations are below the concentrations found in Table 3 of 30 TAC §312.43(b)(3).

If the concentration of any metal in the biosolids exceeds the metal ceiling concentration, then the land application of that biosolids is prohibited.

Pollutant	Cumulative Loading (lbs/acre)	Table 3 §312.43(b)(3) (mg/kg)	Metal Ceiling Concentration (mg/kg)
Arsenic	36	41	75
Cadmium	35	39	85
Chromium	2,677	1,200	3,000

Pollutant	Cumulative Loading (lbs/acre)	Table 3 §312.43(b)(3) (mg/kg)	Metal Ceiling Concentration (mg/kg)
Copper	1,339	1,500	4,300
Lead	268	300	840
Mercury	15	17	57
Molybdenum	Monitor	Monitor	75
Nickel	375	420	420
Selenium	89	36	100
Zinc	2,500	2,800	7,500

APPENDIX E

Toxicity Characteristic Leaching Procedure (TCLP) Regulatory Levels

METALS	TCLP Regulatory Level, mg/L	EPA Hazardous Waste Number	Recommended Test Method
Arsenic	5.0	D004	7061
Barium	100.0	D005	7080
Cadmium	1.0	D006	7130
Chromium	5.0	D007	7190
Lead	5.0	D008	7420
Mercury	0.2	D009	7471
Selenium	1.0	D010	7741
Silver	5.0	D011	7760

VOLATILE ORGANICS	TCLP Regulatory Level, mg/L	EPA Hazardous Waste Number	Recommended Test Method
Benzene	0.5	D018	8260B
Carbon Tetrachloride	0.5	D019	8260B
Chlorobenzene	100.0	D021	8260B
Chloroform	6.0	D022	8260B
1,4-Dichlorobenzene	7.5	D027	8260B
1,2-Dichloroethane	0.5	D028	8260B
1,1-Dichloroethylene	0.7	D029	8260B
Methyl Ethyl Ketone	200.0	D035	8260B
Tetrachloroethylene	0.7	D039	8260B
Trichloroethylene	0.5	D040	8260B
Vinyl Chloride	0.2	D043	8260B

SEMIVOLATILE ORGANICS	TCLP Regulatory Level, mg/L	EPA Hazardous Waste Number	Recommended Test Method
o-Cresol *	200	D023	8270C
m-Cresol *	200	D024	8270C
p-Cresol *	200	D025	8270C
Cresol *	200	D026	8270C
2,4-Dinitrotoluene	0.13	D030	8270C
Hexachlorobenzene	0.13	D032	8270C
Hexachlorobutadiene	0.5	D033	8270C
Hexachloroethane	3.0	D034	8270C
Nitrobenzene	2.0	D036	8270C
Pentachlorophenol	100.0	D037	8270C
Pyridine	5.0	D038	8270C
2,4,5-Trichlorophenol	400.0	D041	8270C
2,4,6-Trichlorophenol	2.0	D042	8270C

ORGANOCHLORINE PESTICIDES	TCLP Regulatory Level, mg/L	EPA Hazardous Waste Number	Recommended Test Method
Chlordane	0.03	D020	8081A
Endrin	0.02	D012	8081A
Heptachlor (and its Epoxide)	0.008	D031	8081A
Lindane	0.4	D013	8081A
Methoxychlor	10.0	D014	8081A
Toxaphene	0.5	D015	8081A

CHLOROPHENOXY ACID HERBICIDES	TCLP Regulatory Level, mg/L	EPA Hazardous Waste Number	Recommended Test Method
2,4-D	10.0	D016	8150
2,4,5-TP (Silvex)	1.0	D017	8150

* If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used.

Reference: 40 CFR 261, Appendix II, 1993 ed., as amended by 58 FR 46040, August 31, 1993.

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided.)*

☒ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application.)*

☐ Renewal *(Core Data Form should be submitted with the renewal form)*

☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN 6007375		RN 1029219

SECTION II: Customer Information

4. General Customer Information	**5. Effective Date for Customer Information Updates** (mm/dd/yyyy)	

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State *(SOS) or Texas Comptroller of Public Accounts (CPA).*

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)*	*If new Customer, enter previous Customer below:*
Bell County Water Control & Improvement District 2	

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*

11. Type of Customer:	☐ Corporation	☐ Individual	Partnership: ☐ General ☐ Limited
Government: ☐ City ☒ County ☐ Federal ☐ Local ☐ State ☐ Other		☐ Sole Proprietorship	☐ Other:

12. Number of Employees	13. Independently Owned and Operated?
☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher	☒ Yes ☐ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator ☐ Other:
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant

15. Mailing Address:	202 S Brookman						
	City	Little River Academy	State	TX	ZIP	76554	ZIP + 4

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
N/A	belcountywater@embarqmail.com

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(254) 982-4685		( ) -

SECTION III: Regulated Entity Information

21. **General Regulated Entity Information** *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☒ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be *updated, in order to meet TCEQ Core* ***Data Standards (removal of organizational endings such*** *as Inc, LP, or LLC).*

22. **Regulated Entity Name** *(Enter name of the site where the regulated action is taking place.)*

BELL COUNTY WCID 2 LAND APPLICATION SITE

23. Street Address of **the Regulated Entity:** *(No PO Boxes)*								
	City		State		ZIP		ZIP + 4	
24. County								

If no Street Address is provided, fields 25-28 are required.

25. **Description to Physical Location:**	Land Application Site is located 0.32 miles North of Farm-to-Market Road 436 and 0.50 miles east of State Highway 95, in Bell County, TX 76554

26. Nearest City	State	Nearest ZIP Code
Little River Academy	TX	76554

Latitude/Longitude *are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).*

27. **Latitude (N)** In Decimal:	30.986111	28. Longitude (W) In Decimal:	-97.335833

Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	59	10.0	97	20	09.0

29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)	31. Primary NAICS Code (5 or 6 digits)	32. Secondary NAICS Code (5 or 6 digits)
4952		111998	221320

33. **What is the Primary Business of this entity?** *(Do not repeat the SIC or NAICS description.)*

Sludge Application

34. Mailing Address:								
	City		State		ZIP		ZIP + 4	

35. E-Mail Address:	

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
( ) -		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☒ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
WQ0004436000				
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Andreana S. Alexander	41. Title:	Project Manager

42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(469) 245-7689		( ) -	andreana.alexander@jacobs.com

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Jacobs	Job Title:	Project Manager	
Name *(In Print):*	Andreana S. Alexander		Phone:	(469) 245- 7689
Signature:	Andreana S Alexander		Date:	9/25/2025

Bell County Water Control & Improvement District No. 2 (CN6007375) proposes to operate Bell County WCID #2 Land Application Site RN1029219. a land application site used for the beneficial land application of Class B biosolids generated from municipal wastewater treatment on approximately 2.91 acres. The facility is located 0.32 miles North of Farm-to-Market 436 and 0.50 miles east of State Highway 95, in Little River Academy, Bell County, Texas 76554.

Renewal which authorizes the land application of Class B wastewater treatment plant biosolids for beneficial use on approximately 2.91 acres. This permit will not authorize a discharge of pollutants into water in the state.

Land application of Biosolids is expected to contain Nitrogen, Phosphorus, Potassium, and trace metals (e.g. arsenic, cadmium, copper, lead, mercury, molybdenum, nickel, selenium, and zinc) Examples of best management practices implemented by Bell County Water Control & Improvement District No. 2 include but are not limited to: monitoring of metal pollutants, pathogen reduction, vector attraction reduction, applicable land application unit buffer zones, soil monitoring and limiting application at the appropriate agronomic rate based on crop needs.

Bell County WCID #2 of Little River Academy, Texas

Texas Commission on Environmental Quality

Beneficial Land Use of Biosolids Permit Application

August 2025

Table of Contents

Attachment A **1**
Copy of TCEQ ePay Voucher 2
Attachment B **3**
10451 - Class B Biosolids Beneficial Land Use Application 49
Attachment C **50**
Public Involvement Plan Form (TCEQ-20960) 54
Attachment D **55**
Affected Landowner Information 59
Attachment E **60**
10400 – Core Data Form 63
Attachment F **64**
Academy map Aerial (General HWY Map) 65
Academy map B&W (General HWY Map) 66
Attachment G **67**
USGS Topographic Map 68
Attachment H **69**
USDA NRCS Soil Report 70
Attachment I **135**
FEMA Map 140
Attachment J **141**
Nutrient Management Plan 142
Attachment K **177**
TCEQ Transporters Registration Approval Documents 178
Attachment L **182**
Soil Analysis 183
Attachment M **207**
Academy Biosolids and Residuals Analysis 208
Little River Biosolids and Residuals Analysis 266

Attachment N **318**
Technical Report Section 5. Hydrologic Characteristics 319
Attachment O **388**
Academy Quarterly Biosolids Summary Report 389
Little River Quarterly Biosolids Summary Report 391

Attachment A

Print this voucher for your records. If you are sending the TCEQ hardcopy documents related to this payment, include a copy of this voucher.

Transaction Information

Voucher Number:	778823
Trace Number:	582EA000680305
Date:	08/11/2025 11:49 AM
Payment Method:	CC - Authorization 0000085668
Voucher Amount:	$1,000.00
Fee Type:	PERMIT - CLASS B SEWAGE SLUDGE BLU <= 2,000 TONS
ePay Actor:	ANDREANA ALEXANDER
Actor Email:	andreana.alexander@jacobs.com
IP:	170.85.102.85

Payment Contact Information

Name:	ANDREANA ALEXANDER
Company:	JACOBS
Address:	PO BOX 338, LITTLE RIVER ACADEMY, TX 76554
Phone:	469-245-7689

Site Information

Site Name:	BELL COUNTY WCID 2 BENEFICIAL LAND APPLICATION SITE
Site Location:	0.32 MILE N OF FM ROAD 436 AND 0.50 MILE E OF S HWY 95 BELL COUNTY TX 76554

Customer Information

Customer Name:	BELL COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT NO 2
Customer Address:	P O BOX 338, LITTLE RIVER ACADEMY, TX 76554

Close

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Attachment B

TCEQ Office Use Only
Permit No:
CN:
RN:
Region:

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

APPLICATION FOR A PERMIT FOR BENEFICIAL LAND USE OF BIOSOLIDS

If you have questions about completing this form please contact the Applications Review and Processing Team at 512-239-4671.

SECTION 1. TYPE OF APPLICATION

☐ New (original, site not permitted)

☒ New (previously permitted but allowed to expire or canceled)

☐ Major Amendment (including renewals with changes to substantive provisions of the permit)

☐ Minor Amendment (including non-substantive provisions of the registration, expiration date remains the same)

☐ Renewal

☐ Renewal with Minor Amendment

For amendments, describe the proposed changes:

For existing permits:

What is the permit number? WQ0004436000

SECTION 2. APPLICATION FEE

The application fee varies from $1,000 to $5,000 based on the quantity of biosolids to be applied annually. See instructions to determine the appropriate fee.

Provide your payment information below, for verification of payment

Check/Money Order Number: Click here to enter text.

Check/Money Order Amount: $1,000

Name Printed on Check: Click here to enter text.

SECTION 3. APPLICANT INFORMATION

A. The **site operator** must apply for the permit. What is the legal name of the site operator (applicant)? The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.

Bell County Water Control and Improvement District #2

B. If the applicant is an existing TCEQ customer, provide the Customer Number (CN) issued to this entity. CN 600737522

C. What is the contact information for this applicant?

Contact Name: Joe Chaffin

Mailing Address: 202 S Brookman

City, State, and Zip Code: Little River Academy, TX 76554

Phone Number: 254-982-4685 Fax Number: Click here to enter text.

E-mail Address: Click here to enter text.

SECTION 4. CO-APPLICANT INFORMATION

Complete this section only if more than one person or entity is a site operator.

A. What is the legal name of the co-applicant? The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal document forming the entity.

Click here to enter text.

B. If the co-applicant is an existing TCEQ customer, provide the Customer Number (CN) issued to this entity. CN Click here to enter text.

C. What is the contact information for this applicant?

Contact Name: Click here to enter text.

Mailing Address: Click here to enter text.

City, State, and Zip Code: Click here to enter text.

Phone Number: Click here to enter text. Fax Number: Click here to enter text.

E-mail Address: Click here to enter text.

SECTION 5. APPLICATION CONTACT INFORMATION

These are the individuals that TCEQ will contact if additional information is needed about this application.

A. Prefix (Mr., Ms., Miss): Mrs.

Application Contact First and Last Name: Andreana Alexander

Title: Project Manager Credentials: Click here to enter text.

Organization Name: Jacobs Engineering Group

Mailing Address: 720 River Road

City, State, and Zip Code: San Marcos, TX 78666

Phone Number: 469-245-7689 Fax Number: Click here to enter text.

E-mail Address: andreana.alexander@jacobs.com

B. Prefix (Mr., Ms., Miss): Mr.

Application Contact First and Last Name: Joe Chaffin

Title: President Credentials: Click here to enter text.

Organization Name: Bell County WCID #2

Mailing Address: 202 S Brookman

City, State, and Zip Code: Little River Academy, TX 76554

Phone Number: 254-982-4685 Fax Number: Click here to enter text.

E-mail Address: Click here to enter text.

SECTION 6. PERMIT CONTACT INFORMATION

These are the individuals that TCEQ can contact during the term of the permit.

A. Prefix (Mr., Ms., Miss): Mr.

Permit Contact First and Last Name: Joe Chaffin

Title: President Credentials: Click here to enter text.

Organization Name: Bell County WCID #2

Mailing Address: 202 S. Brookman

City, State, and Zip Code: Little River Academy, TX 76554

Phone Number: 254-982-4685 Fax Number: Click here to enter text.

E-mail Address: Click here to enter text.

B. Prefix (Mr., Ms., Miss): Mrs.

Permit Contact First and Last Name: Andreana Alexander

Title: Project Manager Credentials: Click here to enter text.

Organization Name: Jacobs Engineering Group

Mailing Address: 720 River Road

City, State, and Zip Code: San Marcos, TX 78666

Phone Number: 469-245-7689 Fax Number: Click here to enter text.

E-mail Address: andreana.alexander@jacobs.com

SECTION 7. BILLING CONTACT INFORMATION

This is the person that TCEQ will contact if additional information is needed about the annual fee invoices.

Prefix (Mr., Ms., Miss): Mrs.

Billing Contact First and Last Name: Andreana Alexander

Title: Project Manager Credentials: Click here to enter text.

Organization Name: Jacobs Engineering Group

Mailing Address: 720 River Road

City, State, and Zip Code: San Marcos, TX 78666

Phone Number: 469-245-7689 Fax Number: Click here to enter text.

E-mail Address: andreana.alexander@jacobs.com

SECTION 8. REPORTING CONTACT INFORMATION

This is the person that TCEQ will contact if additional information is needed about the annual biosolids land application reports.

Prefix (Mr., Ms., Miss): Mr.

Reporting Contact First and Last Name: Joe Chaffin

Title: President Credentials: Click here to enter text.

Organization Name: Bell County WCID #2

Mailing Address: 202 S. Brookman

City, State, and Zip Code: Little River Academy, TX 76554

Phone Number: 254-982-4685 Fax Number: Click here to enter text.

E-mail Address: Click here to enter text.

SECTION 9. NOTICE INFORMATION

A. Individual responsible for publishing the notices in the newspaper

Prefix (Mr., Ms., Miss): Mrs.

First and Last Name: Andreana Alexander

Title: Project Manager Credentials: Click here to enter text.

Company Name: Jacobs Engineering Group

Mailing Address: 720 River Road

City, State, and Zip Code: San Marcos, TX 78666

Phone Number: 469-245-7689 Fax Number: Click here to enter text.

E-mail Address: andreana.alexander@jacobs.com

B. Method for receiving the notice package for the Notice of Receipt and Intent

☒ E-mail: andreana.alexander@jacobs.com

☐ Fax Number: Click here to enter text.

☐ Regular Mail:

Mailing Address: Click here to enter text.

City, State, and Zip Code: Click here to enter text.

C. Contact person to be listed in the notice

Prefix (Mr., Ms., Miss): Mrs.

First and Last Name: Andreana Alexander

Title: Project Manager Credentials: Click here to enter text.

Company Name: Jacobs Engineering Group

Phone Number: 469-245-7689

D. Public viewing location

If the facility is located in more than one county, a public viewing location for each county must be provided.

Public Building Name: Bell County WCID #2

Physical Address of Building: 202 S. Brookman

City: Little River Academy, TX County: Bell

Phone Number: 254-982-4685

E. Bilingual Notice Requirement

For new, major amendment, and renewal applications. This information can be obtained by contacting the bilingual/ESL coordinator at the nearest elementary or middle school.

1. Is a bilingual education program required by the Texas Education Code at the nearest elementary or middle school to the facility or proposed facility?

   Yes ☒ No ☐

   (**If No**, alternative language notice publication is not required; skip to Section 10. Regulated Entity (Site) Information.)

2. Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?
   Yes ☒ No ☐

3. Do the students at these schools attend a bilingual education program at another location?
   Yes ☐ No ☒

4. Would the school be required to provide a bilingual education program but the school has waived out of this requirement under 19 TAC §89.1205(g)?
   Yes ☐ No ☐

5. If the answer is yes to 1, 2, 3, or 4, public notice in an alternative language is required. Which language is required by the bilingual program? Spanish

F. Public Involvement Plan
Complete the Public Involvement Plan (PIP) Form (TCEQ-20960) for each application for a **new permit** or **major amendment to a permit** and include as an attachment.

Attachment Number: Attachment C

SECTION 10. REGULATED ENTITY (SITE) INFORMATION

A. Site Name: BELL COUNTY WCID 2 LAND APPLICATION SITE

B. If this is an existing permitted site, provide the Regulated Entity Number (RN) issued to this site. RN 102921913

C. Site Address/Location:

Is the location of the application site used in the existing permit accurate?

☒ Yes ☐ No

If **YES**, skip to D. If **NO**, or if this application is for a new site, provide the physical address of the site such as: 12100 Park 35 Circle, Austin, TX 78753. If the site does not have a physical address, provide a location description such as: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

The land application site is located 0.32 miles north of Farm-to-Market Road 436 and 0.50 miles east of State Highway 95, in Bell County, Texas 76554.

D. County where the site is located: Bell

E. Latitude: 30.986111 Longitude: -97.335833

F. Landowner Information:

Attach an additional sheet if more than one landowner.

Prefix (Mr., Ms., Miss): Click here to enter text.

First and Last Name: Click here to enter text.

Organization Name: Bell County Water Control and Improvement District #2

Mailing Address: 202 S. Brookman

City, State, and Zip Code: Little River-Academy, TX 76554

Phone Number: (254) 982-4685

G. County Judge

Provide the name of the county judge in each county where the site is located. Attach an additional sheet if more than one county.

Prefix (Mr., Ms., Miss): Mr.

First and Last Name: David Blackburn

Mailing Address: P.O. Box 768

City, State, and Zip Code: Belton, Texas, 76513

Phone Number: 254-933-5105

Name of County: Bell County

SECTION 11. LAND APPLICATION INFORMATION

A. Provide the anticipated date (MM/DD/YY) of the first application of biosolids after issuance or re-issuance of the permit. NOTE: This date must be at least 330 days after the date TCEQ receives this application. 07/15/26

B. The application area is:

☐ within the city limit of: Click here to enter text.

☒ within the extraterritorial jurisdiction of: Little River-Academy

☐ outside the extraterritorial jurisdiction of: Click here to enter text.

C. Types of Waste

Identify the types of waste that will be land applied at this site.

☒ Wastewater Treatment Plant Class B Biosolids

☐ Water Treatment Plant Residuals

☐ Domestic Septage

D. Sources of Biosolids or Residuals

Provide the sources of generation, any water quality or public water supply permit number issued by TCEQ, and the location of the sources. Complete Table 1 for each

source identified below.

Facility Name	Permit Number	Location
Academy Wastewater Treatment Plant	TX0020249	206 S Highway 95
Little River Wastewater Treatment Plant	TX0020257	610 South Evans Street

E. Property Acreage

Total acreage of the entire property, including the application area and buffer zones: 5.3

F. Application Area Acreage

Total acreage where the biosolids may be applied, excluding the buffer zones: 2.91

SECTION 12. MISCELLANEOUS INFORMATION

A. Did any person who was formerly employed by the TCEQ represent your company and get paid for service regarding this application?

Yes ☐ No ☒

If yes, provide the name(s) of the former TCEQ employee(s): Click here to enter text.

B. Is the site located on Indian Lands?

Yes ☐ No ☒

C. Is any permanent school fund land affected by this application?

Yes ☐ No ☒

If yes, provide the location, forseeable impacts, and effects this application has on the land(s). Click here to enter text.

D. Delinquent Fees and Penalties:

Do you owe fees to the TCEQ? Yes ☐ No ☐

Do you owe any penalties to the TCEQ? Yes ☐ No ☐

If you answered yes to either of the above questions, provide the amount owed, the type of fee or penalty, and an identifying number. Click here to enter text.

SECTION 13. AFFECTED LANDOWNER INFORMATION

A. Landowner map. Attach a landowner map or drawing. See instructions for

information that must be displayed on the map.

Attachment Number:

B. Landowner list. Attach a list of the landowners' names and mailing addresses. The list must be cross-referenced to the letter or number identified on the landowner map.

Attachment Number:

C. Landowner list media. Indicate the format of the landowners list.

☐ Read/Writeable CD

☒ 4 sets of mailing labels

D. Landowner data source. Provide the source of the landowners' names and mailing addresses. Tax Appraisal District of Bell County

SECTION 14. INSURANCE INFORMATION

This information is not required for an applicant that is a political subdivision (e.g. city, county, state agency, water district, etc.).

A. Commercial Liability Insurance

Attach a copy of the certificate of insurance in regard to commercial liability.

Attachment Number: N/A

B. Environmental Impairment Insurance

Attach a copy of the certificate of insurance in regard to environmental impairment.

Attachment Number: N/A

SECTION 15. MAPS AND ATTACHMENTS

A. TCEQ Core Data Form

Complete and submit a TCEQ Core Data Form (TCEQ-10400).

Attachment Number:

B. TCEQ Public Involvement Plan Form

Complete and submit a TCEQ Public Involvement Plan Form (TCEQ-20960) for new and major amendment applications.

Attachment Number:

C. General Highway (County) Map

Submit an ORIGINAL General Highway (County) Map. See instructions for information that must be displayed on the map.

Attachment Number:

D. United States Geological Survey (USGS) Topographic Map

Submit an ORIGINAL United States Geological Survey (USGS) Topographic Map (1:24,000 scale). See instructions for information that must be displayed on the map.

Attachment Number:

E. USDA-NRCS Soil Map

Submit a legible copy of a USDA-NRCS Soil Map. See instructions for information that must be displayed on the map.

Attachment Number:

F. Federal Emergency Management Agency (FEMA) Map

Submit a copy of the FEMA map that shows the approximate application area boundaries, the surrounding area within one-quarter mile of the application area, and the appropriate legend.

Attachment Number:

G. Nutrient Management Plan

Attach a copy of the nutrient management plan that has been prepared by a certified nutrient management specialist, in accordance with the NRCS.

Attachment Number:

H. TCEQ Transporters Registration Approval Documents

Attach a copy of the TCEQ Transporters Registration approval documents.

Attachment Number:

I. Soil Analysis

Attach a copy of the soil laboratory analysis for the application area.

Attachment Number:

H. Biosolids or Residuals Analyses

Attach a laboratory analysis for each source.

Attachment Number:

I. Metal and Nutrient Concentrations (Table 1)

Use the laboratory analyses to complete Table 1 for each source.

J. Volume Weighted Averages of Metal and Nutrient Concentrations (Table 2)

If more than one source of biosolids or residuals are land applied, complete Table 2.

K. Agronomic Rate Calculations (Appendix A)

Determine the agronomic application rate by completing and attaching Appendix A.

L. Pathogen Reduction Options (Appendix B)

Identify the pathogen reduction options by completing and attaching Appendix B.

M. Vector Attraction Reduction Options (Appendix C)

Identify the vector attraction reduction options by completing and attaching Appendix C.

N. On-Site Storage (Appendix D)

If on-site storage will occur at this site, complete and attach Appendix D.

LABORATORY ACCREDITATION

All laboratory tests performed must meet the requirements of 30 TAC Chapter 25, *Environmental Testing Laboratory Accreditation and Certification*, unless the laboratory meets the following general exemptions from National Environmental Laboratory Accreditation Program (NELAP) certification requirements.

- The laboratory is an in-house laboratory and is:
  - periodically inspected by the TCEQ;
  - located in another state and is accredited or inspected by that state;
  - performing work for another company with a unit located in the same site; or
  - performing pro bono work for a governmental agency or charitable organization.
- The laboratory is accredited under federal law.
- The data are needed for emergency-response activities, and a laboratory accredited under the Texas Laboratory Accreditation Program is not available.
- The laboratory supplies data for which the TCEQ does not offer accreditation.

The applicant should review 30 TAC Chapter 25 for specific requirements. The following certification statement shall be signed and submitted with every application.

CERTIFICATION

I certify that all laboratory tests submitted with this application meet the requirements of 30 TAC Chapter 25, *Environmental Testing Laboratory Accreditation and Certification.*

Printed Name: Andreana Alexander

Title: Project Manager

Signature: Andreana S Alexander Date: 8-14-2025

SITE OPERATOR SIGNATURE PAGE

If co-applicants are necessary, each co-applicant must submit an original, separate signature page.

Permit Number: WQ0004436000

Applicant: Bell County WCID #2

I understand that I am responsible for operating the site described in this permit application in accordance with the requirements in 30 TAC Chapter 312, the conditions set forth in this application, and any additional conditions as required by the Texas Commission on Environmental Quality.

I certify, under penalty of law, that all information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine, imprisonment for violations, and revocation of this permit.

I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document, and can provide documentation in proof of such authorization upon request.

Signatory Name: Grace Germon

Title: Assistant Project Manager

Signature (use blue ink): _____ Date: 7/30/25

SUBSCRIBED AND SWORN to before me by the said Grace Germon on this 30th day of July, 20 25

My commission expires on the 20th day of February, 20 29

(Seal)

BRIDJET GILLIS
Notary Public, State of Texas
Comm. Expires 02-20-2029
Notary ID 135502524

Notary Public

Bell County

County, Texas

LANDOWNER SIGNATURE PAGE

Required if the landowner is not the applicant or co-applicant. Each landowner must submit an original, separate signature page.

Permit Number: WQ0004436000

Applicant: Bell County WCID #2

I certify, as the owner of the land described in this permit application, that I have all rights and covenants to authorize the applicant to use this site for the land application of Municipal Wastewater Biosolids (*identify the type(s) of waste*). I understand that 30 TAC Chapter 312 requires me to make a reasonable effort to see that the applicant complies with the requirements in 30 TAC Chapter 312, the conditions set forth in this application, and any additional conditions as required by the TCEQ. I also certify, under penalty of law, that all information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine, imprisonment for violations, and revocation of the permit.

Signatory Name: Joe Chaffin

Title: President

Signature (use blue ink): Joe Chaffin Date: 7/30/25

SUBSCRIBED AND SWORN to before me by the said Joe Chaffin on this 30th day of July, 2025

My commission expires on the 20th day of February, 2029

BRIDJET GILLIS
Notary Public, State of Texas
Comm. Expires 02-20-2029
Notary ID 135502524

(Seal)

Notary Public

Bell County
County, Texas

Attachment 1
Individual Information

Complete this attachment if the applicant or co-applicant is an individual. Make additional copies of this attachment if both are individuals.

Prefix (Mr., Ms., Miss): Click here to enter text.

Full Legal Name, including middle name: Click here to enter text.

Driver's License or State Identification Number: Click here to enter text.

State that Issued the License or Identification Number: Click here to enter text.

Date of Birth: Click here to enter text.

Mailing Address: Click here to enter text.

City, State, and Zip Code: Click here to enter text.

Phone Number: Click here to enter text. Fax Number: Click here to enter text.

E-mail Address: Click here to enter text.

For TCEQ Use Only

Customer Number _____
Regulated Entity Number _____
Permit Number _____

TECHNICAL REPORT
FOR BENEFICIAL LAND USE OF CLASS B BIOSOLIDS

Note: The term "biosolids" also includes the combination of water treatment plant residuals with Class B Biosolids material.

SECTION 1. SITE HISTORY

Have biosolids or septage been previously land applied at this site?

☒ Yes ☐ No

If Yes, provide a short narrative on the agricultural practices previously used at the site. The narrative must discuss the following elements:

- crops grown;
- tillage practices;
- previous biosolids application amount (dry tons) and rates (dry tons per acre); and
- previous septage application amount (gallons) and rates (gallons per acre).

Sludge applied at an annual rate not to exceed 3.61 dry tons per acre per year, up to 10.5 dry tones per year on 2.91 acres located within approximately 5.28 acres at coordinates (30.986111, -97.335833). Bermuda grass covers the grounds as a warm season crop and as a cool season crop. Haying to be conducted within the property bounds as well. No tillage seen on grounds per operations manager.

SECTION 2. PROPOSED LAND APPLICATION ACTIVITIES

Provide a short narrative on the proposed land application activities at the site. The narrative must discuss the following elements:

- crops grown;
- planting dates;
- times per year applied;
- frequency of application; and
- tillage practices.

Sludge applied at an annual rate not to exceed 3.61 dry tons per acre per year, up to 10.5 dry tones per year on 2.91 acres located within approximately 5.28 acres at coordinates (30.986111, -97.335833). Area within the property boundary to have a coastal Bermuda grass cover throughout the warm and cold season. Haying will be practiced within the property. Hay production is based on three cuttings each year with an average yield of 2 tons per acre. Farming activities such as planting and harvesting hay will be managed by local vendors under contract with BCWCID2. The application of biosolids to the field is managed by Paramount Wastewater Solutions, LLC.

SECTION 3. SOIL INFORMATION

A. Soil Properties

Complete the table below using the Physical and Chemical Properties and the Engineering Tables found in the USDA Natural Resources Conservation Service (NRCS) soils descriptions.

Map Symbol	Soil Type	Slope	pH	Depth to Bedrock* (inches)	Depth to Groundwater (feet)	Permeability (inches/hour)	Soil Depth** (inches)
BrB	Branyon Clay	1%-3%	8.0	155.9	Not given, listed as N/A	0.060	>80
LegC	Lewisville	2-5%	8.2	214	Not given, listed as N/A	0.6-2.0	60-80
LegC	Altoga	2-5%	8.2	184	Not given, listed as N/A	0.6-2.0	60-80

* If depth to bedrock is not specified in the soil survey, use the maximum depth shown.
** If soil depth is less than two feet, provide rationale for using these shallow soils. The rationale should include site specific investigation results.

B. Restrictive Soil Characteristics

In the table below, identify all soils that have the following restrictive characteristics and the management practices to be used.

- Soils with at least an "occasional flooding" classification may flood between 5 to 50 times in 100 years;
- Soil permeability of >6 inches per hour; and
- Seasonal groundwater or groundwater table below the treatment zone at least:
  - 3 feet for soil with permeability of <2 inches per hour
  - 4 feet for soil with permeability of 2-6 inches per hour.

Soil Type	Restrictive Characteristic	Best Management Practices

Soil Type	Restrictive Characteristic	Best Management Practices

SECTION 4. WELL INFORMATION

In the table below, provide information about each well located on-site and within 500 feet of the application area. Water well information is available from the Texas Water Development Board, 512-936-0837. Oil and gas well information is available from the Texas Railroad Commission, 512-463-6851.

Well Type (Water Well, Oil Well, Injection Well)	Producing or Non-Producing	Open, Cased, or Capped*	Protective Measures**
No wells on or within 500 feet of the application area			

* Casing, capping, and plugging rules are located in 16 TAC Chapter 76.
** The following protective measures are required prior to initial biosolids/septage application:

- If the well is producing and cased, no action is needed.
- If the well is producing and not cased, the well must be cased or describe other protective measures.
- If the well is non-producing and cased, the well must be plugged or capped.
- If the well is non-producing and not cased, the well must be plugged.

SECTION 5. HYDROLOGIC CHARACTERISTICS

Submit information listed below, or equivalent documentation, regarding the hydrologic characteristics of the surface and groundwater at the application site and within one-quarter mile of the site.

- Aquifer identification per Texas Water Development Board Report 345
- Location of the area according to the Geologic Atlas of Texas, published by the University of Texas, Bureau of Economic Geology.
- Any feature that exhibits a direct hydrologic connection between surface and subsurface water.
- List periods of seasonal perched and/or high water table, if any.

Attachment Number: Attachment N

Table 1
Pollutant and Nutrient Concentrations in Biosolids and Water Treatment Residuals (if applicable)

Complete this table **for each source** of biosolids and residuals.

Facility Name: Academy Wastewater Treatment Plant

TCEQ Authorization Number: TX0020249

POLLUTANT/METAL ANALYSIS

Pollutant	Maximum Concentration, mg/kg dry weight	Test Results, mg/kg dry weight	Sample Date	Detection Level for Analysis	Sample Method
Arsenic (As)	75	<14.0	08/29/24	14.0	EPA 6010C
Cadmium (Cd)	85	0.593	08/29/24	1.00	EPA 6010C
Chromium (Cr)	3000	32.9	08/29/24	1.00	EPA 6010C
Copper (Cu)	4300	760	08/29/24	25.0	EPA 6010C
Lead (Pb)	840	21.6	08/29/24	1.00	EPA 6010C
Mercury (Hg)	57	0.667	08/29/24	0.387	EPA 7471B 2
Molybdenum (Mo)	75	4.67	08/29/24	3.00	EPA 6010C
Nickel (Ni)	420	14.1	08/29/24	25.0	EPA 6010C
Selenium (Se)	100	12.4	08/29/24	1.00	EPA 6010C
Zinc (Zn)	7500	1020	08/29/24	10.0	EPA 6010C
PCB (ppm)	50.0 ppm	<1 ppm	08/29/24	1 ppm	EPA 8082

NUTRIENT ANALYSIS

Nutrient	Concentration (%)	Sample Date	Detection Level for Analysis	Sample Method
Total Kjeldahl Nitrogen (TKN)	4.73	08/29/24	0.13	SM4500-NH3 G 2011
Ammonium Nitrogen (NH_4-N)	0.52	08/29/24	0.00972	EPA 350.1 2
Nitrate Nitrogen (NO_3-N)	Non-detect	08/29/24	0.00459	EPA 9056
Total Phosphorus (P)	1.02	08/29/24	0.01	EPA 6010C
Total Potassium (K)	0.379	08/29/24	0.05	EPA 6010C

Table 1
Pollutant and Nutrient Concentrations in Biosolids and Water Treatment Residuals (if applicable)

Complete this table **for each source** of biosolids and residuals.

Facility Name: Little River Wastewater Treatment Plant

TCEQ Authorization Number: TX0020257

POLLUTANT/METAL ANALYSIS

Pollutant	Maximum Concentration, mg/kg dry weight	Test Results, mg/kg dry weight	Sample Date	Detection Level for Analysis	Sample Method
Arsenic (As)	75	<28.4	08/29/24	28.4	EPA 6010C
Cadmium (Cd)	85	0.542	08/29/24	2.02	EPA 6010C
Chromium (Cr)	3000	27.5	08/29/24	2.02	EPA 6010C
Copper (Cu)	4300	507	08/29/24	50.6	EPA 6010C
Lead (Pb)	840	13.4	08/29/24	2.02	EPA 6010C
Mercury (Hg)	57	0.576	08/29/24	0.387	EPA 7471B 2
Molybdenum (Mo)	75	4.93	08/29/24	6.07	EPA 6010C
Nickel (Ni)	420	13.2	08/29/24	2.02	EPA 6010C
Selenium (Se)	100	16.6	08/29/24	2.02	EPA 6010C
Zinc (Zn)	7500	943	08/29/24	20.2	EPA 6010C
PCB (ppm)	50.0 ppm		08/29/24		EPA 8082

NUTRIENT ANALYSIS

Nutrient	Concentration (%)	Sample Date	Detection Level for Analysis	Sample Method
Total Kjeldahl Nitrogen (TKN)	5.72	08/29/24		SM4500-NH3 G 2011
Ammonium Nitrogen (NH_4-N)	0.69	08/29/24	0.0194	EPA 350.1 2
Nitrate Nitrogen (NO_3-N)	Non-detect	08/29/24	0.0125	EPA 9056
Total Phosphorus (P)	1.06	08/29/24	0.0202	EPA 6010C
Total Potassium (K)	0.457	08/29/24	0.101	EPA 6010C

TABLE 2
Volume Weighted Average (Mean) of Nutrient and Pollutant Concentration

Complete this table if more than one source is land applied at the site.

Directions:

1. For each pollutant, multiply the Pollutant Concentrations from Table 1 by the estimated number of dry tons you expect to apply from each facility.
2. Sum the individual columns. Enter results in last row of the table.
3. Divide the sum of each column by the dry tons sum (bottom of second column). Enter number in the appropriate Volume Weighted Average Box (row below table).
4. Use these final results to complete Appendix A, Step 1.

TCEQ Auth. Number	Est. Dry Tons*	As	Cd	Cr	Cu	Pb	Hg	Mo	Ni	Se	Zn	TKN	NH_4-N	NO_3-N	P	K
TX0020249	5.7	ND	3.4	188.2	4,347	123.6	3.8	26.6	80.4	70.7	5,814	27.0	3.0	ND	5.8	2.2
TX0020257	4.8	ND	2.6	131.5	2,423	64.1	2.8	23.7	63.4	79.7	4,526	27.5	3.3	ND	5.1	2.2
Sum	10.5	ND	6.0	319.7	6,770	187.7	6.6	50.3	143.8	150.4	10,340	54.5	6.3	ND	10.9	4.4
Volume Weighted Average		ND	0.57	30.4	644.8	17.9	0.63	4.8	13.7	14.3	984.8	5.2	0.60	ND	1.0	0.42

*Total estimated dry tons to be land applied from the source facility.

APPENDIX A
AGRONOMIC RATE CALCULATIONS

Note: The maximum allowable agronomic rate for land application of Class B Biosolids is 12 tons/acre/year.

APPENDIX A, PART 1. APPLICATION RATE

STEP 1. CALCULATE QUANTITY OF NUTRIENTS AND METALS IN BIOSOLIDS AND RESIDUALS IN LBS/TON

Nutrient	Concentration (%)**	Conversion Factor	Pounds per Ton
Total Kjeldahl Nitrogen (TKN)	5.2	x 20	104
Ammonium Nitrogen (NH_4-N)	0.60	x 20	12
Nitrate Nitrogen (NO_3-N)	ND	x 20	ND
Total Phosphorus (P)	1.0	x 20	20
Total Potassium (K)	0.42	x 20	8.4

Pollutant	Test Results, mg/kg dry weight	Conversion Factor	Pounds per Ton
Total Arsenic (As)	ND	x 0.002	ND
Total Cadmium (Cd)	0.57	x 0.002	0.0011
Total Chromium (Cr)	30.4	x 0.002	0.061
Total Copper (Cu)	644.8	x 0.002	1.29
Total Lead (Pb)	17.9	x 0.002	0.036
Total Mercury (Hg)	0.63	x 0.002	0.0013
Total Molybdenum (Mo)	4.8	x 0.002	0.0096
Total Nickel (Ni)	13.7	x 0.002	0.027
Total Selenium (Se)	14.3	x 0.002	0.029
Total Zinc (Zn)	984.8	x 0.002	1.97

**Values from laboratory analysis (dry weight only).

Conversions:

mg/kg ÷ 10,000 = %

ppm = mg/kg

STEP 2. CROPPING PLAN AND NUTRIENT NEEDS

Warm Season Intended Crop(s): Coastal Bermudagrass

Yield Goal: 2 tons/acre/year Nitrogen Requirement, in lb/yr: 580 lbs/yr

Cool Season Intended Crop(s): Same as cool season

Yield Goal: Click here to enter text. Nitrogen Requirement, in lb/yr: Click here to enter text.

Provide the data source for the nitrogen requirements above.

USDA Agricultural Research (ARS), Coastal Bermudagrass Fertilization Guidelines

Nitrogen needed by crop:

2A. Total Nitrogen Requirement*	580
2B. Nitrogen available in soil**	88
2C. Nitrogen amount still needed	
Line 2A – Line 2B	492

*Line 2A = Sum of the nitrogen requirement for the specified yield goals for the warm season crop and cool season crop

**Line 2B = 2*NO_3-N (ppm)(in the 0-6" soil depth) + 6*NO_3- N(ppm)(in the 6-24" soil depth)

STEP 3. CALCULATE THE PLANT AVAILABLE NITROGEN (PAN) PROVIDED BY THE BIOSOLIDS AND RESIDUALS

Use the TKN, NH_4-N, and NO_3-N from Step 1.

Organic Nitrogen = TKN – (NH_4-N) – (NO_3-N) 92

Mineralization Rate (%) * 30%

3A. Organic Nitrogen x Mineralization Rate 27.6

3B. Ammonium Nitrogen = (NH_4-N) x V 6

V = 0.5 if biosolids are left on soil surface

V = 1.0 if biosolids are worked into the soil

3C. Nitrate Nitrogen (NO_3-N) non-detect

3D. Total PAN = (Line 3A + Line3B + Line 3C)= 33.6

*Mineralization Rates:

Treatment Method	Mineralization Rates
Unstabilized Primary and Waste Activated Biosolids	40 %
Aerobically Digested Biosolids	30 %
Anaerobically Digested Biosolids	20 %
Composted Biosolids	10 %

STEP 4. CALCULATE MAXIMUM BIOSOLIDS APPLICATION RATES BASED ON CROP NITROGEN NEEDS (SAR_N)

4A. Nitrogen amount still needed (lbs/acre/year)

Enter amount from Step 2C. 492

4B. Total PAN (lbs/ton)

Enter amount from Step 3D. 33.6

4C. Biosolids Application Rate (BAR_N) (tons/acre/year)

Line 4A ÷ Line 4B 14.6

STEP 5. CALCULATE MAXIMUM APPLICATION RATE BASED ON METALS (SAR_M)

METAL	A Cumulative Metal Limits (lbs/ac)	B Max Loading Rate (lbs/ac/yr)	C Metals In Biosolids (lbs/ton) (Step 1)	D Metals Applied Yearly at $\underline{BAR_N}$ (lbs/acre/yr) (C x SAR_N)	E Biosolids Applied Yearly at $\underline{BAR_M}$ (tons/acre/yr) (B ÷ C)	F Max Loading Rate (tons/acre) (A ÷ C)
Arsenic	36	1.8	ND	ND	ND	ND
Cadmium	35	1.7	0.001	0.0027	N/A	35,000
Chromium	2677	134	0.061	0.16	N/A	43,885
Copper	1339	67	1.29	3.48	N/A	1,038
Lead	268	13	0.036	0.097	N/A	7,444
Mercury	15	0.76	0.0013	0.0035	N/A	11,538
Molybdenum	Monitor	Monitor	0.0096	0.026		
Nickel	375	18.7	0.027	0.073	N/A	13,889
Selenium	89	4.5	0.029	0.078	N/A	3,069
Zinc	2500	125	1.97	5.32	N/A	1,269
Other						

Note: For each metal, if the value in column B is greater than the value in column D (B>D), the BAR_N dictates the maximum biosolids application rate. Enter N/A in column E. If the value in column B is less than the value in column D (B<D), then the BAR_M dictates the maximum biosolids application rate and the value of E = B ÷ C.

STEP 6. CALCULATE THE CUMULATIVE LOADING RATE

6A. Maximum allowable cumulative biosolids loading rate

Lowest value in Step 5, Column F (tons/acre) 1,038

6B. Previous applications of biosolids (tons/acre) Click here to enter text.

6C. Remaining biosolids application rate to reach metal limits

Line 6A – Line 6B (tons/acre) 1,038

6D. Maximum allowable biosolids application rate

Lowest value of Step 4C and Step 5, Column E (tons/acre/year)

3.43

6E. Years remaining to reach the maximum cumulative loading

Line 6C ÷ Line 6D (years) 303

APPENDIX A, PART 2: SEPTAGE APPLICATION RATE

Complete Part 2 and 3 if sewage and septage are both applied at the site.

STEP 1. CROPPING PLAN AND NUTRIENT NEEDS

Warm Season Intended Crop(s): Click here to enter text.

Yield Goal: Click here to enter text. Nitrogen Requirement, in lb/yr: Click here to enter text.

Cool Season Intended Crop(s): Click here to enter text.

Yield Goal: Click here to enter text. Nitrogen Requirement, in lb/yr: Click here to enter text.

Provide the data source for the nitrogen requirements.

Click here to enter text.

Nitrogen needed by crop:

1A. Total Nitrogen Requirement* Click here to enter text.

1B. Nitrogen available in soil** Click here to enter text.

1C. Nitrogen amount still needed

Line A - Line B Click here to enter text.

*Line 1A = Sum of the nitrogen requirement for the specified yield goals for the warm season crop and cool season crop
**Line 1B = 2*NO_3-N (ppm)(in the 0-6" soil depth) + 6*NO_3- N(ppm)(in the 6-24" soil depth)

STEP 2. CALCULATE ANNUAL APPLICATION RATE

The annual application rate is based on the nitrogen needs of the crop. It is calculated using the following equation:

AAR = N ÷ 0.0026

AAR = Annual application rate, in gallons per acre per 365 day period.

N = Nitrogen amount still needed for the crop, in pounds per acre per 365 day period.

2A. Enter amount from Step 1C Click here to enter text.

2B. Conversion Factor 0.0026

2C. Annual Application Rate (gal/acre/yr)

Line 2A ÷ Line 2B Click here to enter text.

APPENDIX A, PART 3: PROPORTIONATE AGRONOMIC RATE

Complete if both sewage and septage are applied in the same year.

Biosolids:

A. Biosolids Application Rate (tons/acre/year) Click here to enter text.

B. Percentage of plant nutrient supplied by the biosolids

= Click here to enter text. ÷ 100 Click here to enter text.

C. Multiple Line A by Line B (tons/acre/year) Click here to enter text.

Domestic Septage:

A. Biosolids Application Rate (tons/acre/year) Click here to enter text.

B. Percentage of plant nutrient supplied by the biosolids

= Click here to enter text. ÷ 100 Click here to enter text.

C. Multiple Line A by Line B (tons/acre/year) Click here to enter text.

APPENDIX B
PATHOGEN REDUCTION REQUIREMENTS

For each source, select the pathogen reduction alternative that will be used prior to land application of biosolids septage. Requirements for each alternative can be found in 30 TAC §312.82.

TCEQ Permit Number	Pathogen Reduction Alternative Used	Fecal Coliform Geometric Mean (cfu/gram total solids)*	Fecal Test Date*	Is PSRP Certification Attached?** (Yes/No/NA)
Example WQ11280-001	Option 1: Density of Fecal Coliform	300,000 cfu/g	12/2/98	NA
TX0020249	Option 2a: PSRP Aerobic Digestion			Yes-Attachment O
TX0020257	Option 2a: PSRP Aerobic Digestion			Yes-Attachment O
	Choose an item.			
	Choose an item.			
	Choose an item.			
	Choose an item.			
	Choose an item.			
	Choose an item.			
	Choose an item.			
	Choose an item.			
	Choose an item.			

*Applicable to Option 1 only.
**Applicable to Option 2a – f.

If Other is selected as the Alternative Used, please explain: Click here to enter text.

APPENDIX C
VECTOR ATTRACTION REDUCTION REQUIREMENTS

For each source, provide the vector attraction reduction option that will be used prior to or after land application of biosolids/septage. Requirements for each alternative can be found in 30 TAC §312.83.

TCEQ Permit Number	Vector Attraction Reduction Alternative Used*	Monitoring Criteria and results needed for alternative
Example WQ11280-001	Option 10: Incorporate within 6 hrs	Visual inspection of area after tilling
Example WQ13450-003	Option 4: SOUR <=1.5 mg 02/hr/g total solids at 20C (<2% solids)	Aerobically digested, 2.0% solids, SOUR=1.3 mg/g
TX0020249	Option 4: SOUR <=1.5 mg 02/hr/g total solids at 20C (<2% solids)	Aerobically digested, 1.5% solids, SOUR = 0.22 mg O2/hr/g total solids
TX0020257	Option 4: SOUR <=1.5 mg 02/hr/g total solids at 20C (<2% solids)	Aerobically digested, 1.5% solids, SOUR = 0.22 mg O2/hr/g total solids
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	
	Choose an item.	

*Options 1-8 are Class B biosolids treatment alternatives. Options 9-10 are onsite alternatives. Option 12 is for domestic septage only.

APPENDIX D
ON-SITE STORAGE

If on-site storage will occur at the site, this Appendix must be completed in its entirety. On-site storage does not include staging of biosolids or septage for up to seven (7) days prior to applying it. On-site storage cannot exceed the 90-day maximum per 30 TAC §312.50 unless properly authorized for each instance. Construction of the storage area cannot begin until written authorization for this action is received from the TCEQ. Materials cannot be treated without proper authorization from the TCEQ.

A. Provide a complete description of operational plans for the temporary storage, including all steps to be taken to control odors, vectors and other nuisance conditions.
N/A

B. The location of the temporary storage area(s) must be accurately shown on the USGS topographic map submitted with the application, including all main features of the storage area(s) (e.g. berms, tanks, pads, liners, storm water retention, etc.).

C. Provide a copy of the liner and storage tank certification as per 30 TAC §312.50(a)(4) or 312.50(a)(8).
Attachment Number: N/A

D. Describe the proposed spill prevention and cleanup methods.
N/A

E. Provide a certification that the berm(s) will hold the required volume(s) without discharging as per 30 TAC §312.50 (a)(7).
Attachment Number: N/A

F. Describe the method for stormwater runoff collection and disposal.
N/A

G. Describe methods to be used to ensure no loads of biosolids remain at the temporary storage site for longer than 90 days, including how exceptions to this restriction will be requested (as provided by 30 TAC §312.50), when needed.
N/A

INSTRUCTIONS FOR PERMIT FOR BENEFICIAL LAND USE OF CLASS B BIOSOLIDS

GENERAL INFORMATION

Purpose of the Application

This form is to be used to:

- Permit a new site for beneficial land use of Class B biosolids;
- Submit a Major Amendment to change acreage or to make any other substantive change to a permitted site for beneficial land use of Class B biosolids; or
- Renew an existing permitted site for beneficial land use of Class B biosolids.

NOTE: If the land application site is within or adjacent to a publicly-owned wastewater treatment plant (WWTP) and the site is owned or operated by the WWTP, the WWTP's existing wastewater discharge permit may be amended to authorize land application of Class B biosolids. To amend the wastewater discharge permit, complete and submit this application form and the Domestic Wastewater Permit Application (TCEQ Form 10054).

Who Should Apply?

This application must be submitted by the site operator. If there is more than one operator, then a co-applicant is required.

When Is The Application Submitted?

For new and amendment applications, the completed application must be submitted at least 180 days before the proposed date of land application. For renewal applications, the completed application must be submitted at least 180 days before the expiration date of the current registration.

Where to Send the Application Form

One original and three copies of the application, including attachments, must be provided to the address below:

Regular U.S. Mail:
TCEQ
ARP Team, MC 148
PO Box 13087
Austin TX 78711-3087

Express Mail or Hand Delivery:
TCEQ
ARP Team, MC 148
Building F Room 2101

12100 Park 35 Circle
Austin TX 78753

TCEQ Contact List

Permit Information and Application Forms:	512-239-4671
Technical Information, Land ApplicationTeam, Attn: Biosolids Group:	512-239-4671
Environmental Law Division:	512-239-0600

Copies of records on file with the TCEQ may be obtained for a minimal fee from the Records Management Office at 512-239-2900.

INSTRUCTIONS FOR FILLING OUT THE APPLICATION FORM

Section 1. Type of Application

Select the appropriate type of application.

For amendment applications, describe the proposed changes.

For existing permits, provide the TCEQ permit number.

Section 2. Application Fee

The permit application fee varies from $1,000 to $5,000, based on the quantity of biosolids to be applied annually under the permit.

Quantity of Biosolids Applied Annually	Application Fee
2,000 dry tons or less	$1,000
2,001 to 5,000 dry tons	$2,000
5,001 to 10,000 dry tons	$3,000
10,001 to 20,000 dry tons	$4,000
20,001 dry tons or more	$5,000

Application fees must be paid by check or money order made payable to the Texas Commission on Environmental Quality. Fees are to be sent under separate cover making reference to the type of application, name of applicant, and permit number of existing permit, and mailed to:

TCEQ
Revenues Section (MC 214)
P.O. Box 13088
Austin, Texas 78711-3088

To verify receipt of payment or any other questions you may have regarding payment of fees to the TCEQ, you may call the Revenues Section, Cashiers Office at (512) 239-0357.

Section 3. Applicant Information

Provide the full legal name of the site operator.

If the site operator is an existing TCEQ customer, provide the customer number (CN) for the site operator. The Customer Number is available at the following website: http://www15.tceq.texas.gov/crpub/. If the site operator is not an existing TCEQ customer, leave blank.

Provide the following contact information for the site operator: mailing address, phone number, fax number, and email address.

Section 4. Co-Applicant Information

If there is more than one operator, then a co-applicant is required. Provide the full legal name of the co-applicant.

If the co-applicant is an existing TCEQ customer, provide the customer number (CN) for the co-applicant. The Customer Number is available at the following website: http://www15.tceq.texas.gov/crpub/. If the co-applicant is not an existing TCEQ customer, leave blank.

Provide the following contact information for the co-applicant: mailing address, phone number, fax number, and email address.

Explain the need for a co-applicant.

Section 5. Application Contact Information

Provide the name and contact information for the person that TCEQ will contact if additional information is needed about this application. Provide one contact for the operator and one contact for the landowner.

Section 6. Permit Contact Information

Provide the name and contact information for two individuals that TCEQ can contact if additional information is needed during the term of the permit.

Section 7. Billing Contact Information

Provide the name and contact information for the person that TCEQ can contact regarding the annual fee invoices.

Section 8. Reporting Contact Information

Provide the name and contact information for the person that TCEQ can contact regarding the annual biosolids land application reports.

Section 9. Notice Information

A. Individual publishing the notices

Provide the name, company name, mailing address, telephone number and fax number of the person that will publish the public notices required during the processing of the application. Only one name can be provided. This individual will be contacted to publish the required public notices in a newspaper of the largest general circulation in the county where the facility is/will be located. This person must be available during the application processing since the first public notice. The "Notice of Receipt of Application and Intent to Obtain a Water Quality Permit" must be published within 30 days of the application being declared Administratively Complete.

B. Method of Receiving Notice Package

Provide the method of receiving the required public notice information. When the application is declared Administratively Complete, the notice package will be sent via the method selected. The notice package includes the TCEQ declaration of completeness, a notice ready for publication, instructions for publishing the notice, a publication affidavit, and a public notice verification form.

C. Contact Person in the Notice

Provide the person's name, company name, mailing address, telephone number and fax number of the one individual that will be identified as the notice contact in the two public notices that are published as part of the permitting process. This individual may be contacted by the public to answer questions about all aspects of the permit application.

D. Public Viewing Location

Provide the name and physical address for the public place where the complete application, draft permit, and Technical Summary/Fact Sheet will be made available for viewing and copying by the general public. Please verify with the proper authority they will make the application available for public viewing and copying. The address must be a physical address. Post office box addresses are not acceptable. The public place must be located within the county in which the facility is/will be located. If the facility is located in more than one county, a public viewing place for each county must be provided.

E. Bilingual Notice Requirement

Bilingual notice may be required for new, major amendment, and renewal applications if an elementary school or middle school nearest to the facility is required to make a bilingual education program available to qualifying students.

The applicant is required to call the bilingual/ESL coordinator at the nearest elementary and middle schools to obtain answers to questions 1. – 4. These questions will determine if an alternative language notice is required.

If it is determined that a bilingual notice is required, the applicant is responsible for ensuring that the publication in the alternate language is complete and accurate in that language.

F. Public Involvement Plan Form
Complete and attach one Public Involvement Plan (PIP) Form (TCEQ Form 20960) for each application for a new permit or major amendment to a permit. This form is not required for renewal or minor amendment applications.

Section 10. Regulated Entity (Site) Information

A. Provide the name of the site as known by the public in the area where the site is located.

B. If the site is currently regulated by TCEQ, provide the regulated entity reference number (RN) for the site. The RN is available at the following website: http://www15.tceq.texas.gov/crpub/. If the site is not currently regulated by TCEQ, leave blank.

C. If the location in the existing permit is not correct or if this is a new site, provide the physical address of the site. If a physical address is not available, provide a location description.

D. Provide the county in which the site is located.

E. Provide the latitude and longitude for the site.

F. Provide the name and contact information for the landowner of the application site.

G. Provide the name and contact information for the county judge in each county where the site is located. Attach an additional sheet if the site is located in more than one county.

Section 11. Land Application Information

If the land application site is within or adjacent to a publicly-owned wastewater treatment plant (WWTP) and the site is owned or operated by the WWTP, the WWTP's existing wastewater discharge permit may be amended to authorize land application of biosolids. To amend the wastewater discharge permit, complete and submit this application form and the Domestic Wastewater Permit Application (TCEQ Form 10054).

A. Provide the anticipated date that you plan to start applications on this site. This date must be at least 330 days from the date TCEQ receives this application form.

B. Indicate by a checkmark if the beneficial land use area is within the city limits, within the extraterritorial jurisdiction, or outside the extraterritorial jurisdiction of a city. Provide the city or municipality name in the space provided.

C. Identify the types of wastes that will be land applied at this site.

D. For each source, provide the facility name, TCEQ authorization number, and the location. Add additional rows to the table, if necessary.

E. Provide the total acreage of the property where the application site is located. Include the application area and the buffer zones.

F. Provide the total acreage where biosolids may be applied. Do not include buffer zones.

NOTE: A minimum buffer of 500 feet is required for water wells and surface water

when land application of Class B Biosolids occurs in a county that borders the Gulf of Mexico (Aransas, Brazoria, Calhoun, Cameron, Chambers, Galveston, Jefferson, Kenedy, Kleberg, Matagorda, Nueces, San Patricio, and Willacy Counties).

Section 12. Miscellaneous Information

A. Provide the name of each person that was previously employed by TCEQ and who was paid for services regarding this application.

B. Identify if the application site is located on Indian lands. If the answer is yes, TCEQ does not have jurisdiction to process this application. Do not send this application to TCEQ. Contact the Land Application Team, Attn: Biosolids Group at 512-239-4671.

C. Identify if any permanent school fund land is affected by this application. If yes, provide the location and potential impacts on the school fund land.

D. Indicate if the site operator or co-applicant(s) owe fees or penalties to TCEQ. If yes, provide the amount owed, the type of fee or penalty, and the account number for fees or the TCEQ Docket number for penalties.

The following TCEQ website will help you determine if you owe any fees or penalties to the TCEQ and how to make a payment: https://www.tceq.texas.gov/agency/fees/delin/index.html. For questions about delinquent fees and penalties, contact the Financial Administration Division, Revenue Section, at 512-239-0354.

NOTE: TCEQ will not declare any application administratively complete or issue a permit if the applicant or co-applicant is delinquent on a fee or penalty.

Section 13. Affected Landowner Information

A. Attach a landowner map or drawing that includes a scale, the applicant's property boundaries, the application area boundaries, the approximate property boundaries of all landowners located within 1/4 mile of the property boundaries. Assign a letter or number to each landowner.

B. Attach a list of landowners that live on land within 1/4 mile of the property boundaries. The list must include the landowner's name and address, and include a cross-reference to the letter or number identified on the landowner map. The applicant may choose to attach a list of all landowners within 1/4 mile of the property boundary, regardless of whether the landowner lives on the land.

C. Identify the format of the landowners list.

D. Provide the source of the landowner's names and mailing addresses. Sources may include City or County Tax Records.

Section 14. Insurance Information

This information is <u>not</u> required for an applicant that is a political subdivision (e.g., city, county, state agency, water district, etc.).
Note: The insurance policies required by this section must be maintained for the duration of the permit which is normally issued for a term of five years.

A. Commercial Liability Insurance

Attach a copy of the certificate of insurance in regard to commercial liability, reflecting total coverage of not less than $3 million per occurrence with an annual aggregate of not less than $3 million, exclusive of legal defense costs. The certificate must be worded identically to the wording specified in 30 TAC §37.9145 (relating to Certificate of Insurance for Commercial Liability) or an endorsement worded identically to the wording specified in 30 TAC §37.9150 (relating to Endorsement for Commercial Liability). The certificate of insurance must be issued by an insurance company authorized to transact business in the State of Texas and that has a rating of A- or better by A.M. Best Company.

B. Environmental Impairment Insurance

Attach a copy of the certificate of insurance in regard to environmental impairment, reflecting total coverage of not less than $3 million per occurrence with a policy limit of not less than $3 million, exclusive of legal defense costs. The certificate must be worded identically to the wording specified in 30 TAC §37.9155 (relating to Certificate of Insurance for Environmental Impairment). The certificate of insurance must be issued by an insurance company authorized to transact business in the State of Texas and that has a rating of A- or better by A.M. Best Company.

Section 15. Maps and Attachments

A. Complete and submit the TCEQ Core Data Form (TCEQ-10400).

B. Complete and attach one Public Involvement Plan (PIP) Form (TCEQ Form 20960) for each application for a new permit or major amendment to a permit.

C. Submit an original General Highway (County) Map showing all boundaries of the site area and all areas within 1000 feet of the area boundaries. These can be ordered from the Texas Department of Transportation Map Sales from the following web site: http://www.txdot.gov/travel/county_grid_search.htm

D. Submit a full-sized USGS topographic map (1:24,000 scale). These are available by contacting the Texas Natural Resource Information System at 512-463-8337. The map must show:

- the boundaries of the property(s) being permitted;
- the boundaries of the application area within the property boundaries;
- all areas within ¼ mile of the site (if the site is on the border of the USGS map, the adjoining map is also required); and
- the location of all wells, springs, public water supply intakes, water treatment plants, potable water storage facilities, and wastewater treatment plants on-site and within ¼ mile of the application area (including off-site).

If the land application unit boundaries cannot fit or are too small to depict on the required USGS topographic map, a zoomed-in version must be submitted on a separate 81/2 X 12 map or larger. This map may be a zoomed-in version of the topographic map or an accurately self-generated map.

E. Submit a legible copy of a USDA Natural Resources Conservation Service (NRCS) Soil Map that shows the approximate application area boundaries, the soil legend,

necessary interpretative information, and the location of each grab sample of the composite soil sample(s) taken for analyses. If the specific county is not mapped, have a soil scientist identify the soils.

F. Submit a copy of the Federal Emergency Management Agency (FEMA) Map that shows the approximate application area boundaries, the surrounding area within ¼ mile of the property boundaries, and the appropriate legend.

G. Submit a copy of the nutrient management plan that has been prepared by a certified nutrient management specialist, in accordance with the practice standards of the USDA-NRCS.

H. Submit a copy of the TCEQ transporters registration approval documents.

I. Attach the soil laboratory analysis for the application area. Additional information about collecting and analyzing the soil samples is available at the end of these instructions.

J. Attach a laboratory analysis for each source. Additional information about testing is available at the end of these instructions.

K. Metal and Nutrient Concentrations (Table 1). Use the laboratory analyses to complete Table 1 for each source.

L. Volume Weighted Averages of Metal and Nutrient Concentrations (Table 2). If more than one source of is land applied, complete Table 2.

M. Agronomic Rate Calculations (Appendix A). Determine the agronomic application rate by completing and attaching Appendix A.

N. Pathogen Reduction Requirements (Appendix B). Identify the pathogen reduction alternative for each source by completing and attaching Appendix B.

O. Vector Attraction Reduction Requirements (Appendix C). Identify the vector attraction reduction alternative for each source by completing and attaching Appendix C.

P. On-Site Storage (Appendix D). If on-site storage will occur at the site, complete and attach Appendix D.

Signature Page

A separate signature page must be provided for the site operator, each co-applicant, and the landowner of the application site (if the landowner is different from the site operator and co-applicant). The signature page must bear an original signature and the seal of a notary public. The date signed by the applicant must be the same as the date notarized. The signature page will not be acceptable if the dates are different.

In accordance with 30 Texas Administrative Code §305.44 relating to Signatories to Applications, all applications shall be signed as follows:

For a corporation, the application shall be signed by a responsible corporate officer. For purposes of this paragraph, a responsible corporate officer means a president, secretary, treasurer, or vice-president of the corporation in charge of a principal business function, or any other person who performs similar policy or decision-making

functions for the corporation; or the manager of one or more manufacturing, production, or operating facilities employing more than 250 persons or having gross annual sales or expenditures exceeding $25 million (in second-quarter 1980 dollars), if authority to sign documents has been assigned or delegated to the manager in accordance with corporate procedures. Corporate procedures governing authority to sign permit or post-closure order applications may provide for assignment or delegation to applicable corporate positions rather than to specific individuals.

For a partnership or sole proprietorship, the application shall be signed by a general partner or the proprietor, respectively.

For a municipality, state, federal, or other public agency, the application shall be signed by either a principal executive officer or a ranking elected official. For purposes of this paragraph, a principal executive officer of a federal agency includes the chief executive officer of the agency, or a senior executive officer having responsibility for the overall operations of a principal geographic unit of the agency (e.g., regional administrator of the EPA).

SOIL TESTING INFORMATION

Soil samples shall be taken prior to any application of commercial fertilizer. Do not use a galvanized container as this could give a false reading on zinc. Samples will need to be taken within the same 45 day time-frame each year, or by an approved sampling plan and analyzed within 30 days of sample collection. The initial soil sample for application approval may be taken whenever necessary.

Obtain one composite sample for each soil depth per 80 acres and per uniform soil type (soils with the same characteristics and texture) within the 80 acres, or per approved soil sampling plan. Composite samples shall be comprised of 10 - 15 random sample cores taken from each of the following soil depth zones: 0-6 inches and 6-24 inches.

Soil samples shall be submitted to a soil testing laboratory along with a previous crop history of the site, intended crop growth and yield goal. Soil reports shall include fertilizer recommendations for the crop yield goal. Samples shall be analyzed for the parameters below:

Parameter (7)		**0- 6 "**	**6 -24"**
Nitrate Nitrogen (NO_3-N, mg/kg)	(1)	x	x
Ammonium Nitrogen (NH_4-N, mg/kg)	(1)	x	x
Total Kjeldahl Nitrogen (TKN, mg/kg)	(2)	x	x
Phosphorus (plant available, mg/kg)	(3)	x	x
Potassium (plant available, mg/kg)	(3)	x	x
Sodium (plant available, mg/kg)	(3)	x	x
Magnesium (plant available, mg/kg)	(3)	x	x
Calcium (plant available, mg/kg)	(3)	x	x
Electrical Conductivity	(4)	x	x
Soil Water pH (S.U.)	(5)	x	x
Total Arsenic (mg/kg)	(6)	x	N/A
Total Cadmium (mg/kg)	(6)	x	N/A
Total Chromium (mg/kg)	(6)	x	N/A
Total Copper (mg/kg)	(6)	x	N/A
Total Lead (mg/kg)	(6)	x	N/A
Total Mercury (mg/kg)	(6)	x	N/A
Total Molybdenum (mg/kg)	(6)	x	N/A
Total Nickel (mg/kg)	(6)	x	N/A
Total Selenium (mg/kg)	(6)	x	N/A
Total Zinc (mg/kg)	(6)	x	N/A

1. Determined in a 1 N KCl soil extract (http://soiltesting.tamu.edu/webpages/swftlmethods1209.html).
2. Determined by Kjeldahl digestion or an equivalent accepted procedure. Methods that rely on Mercury as a catalyst are not acceptable.
3. Mehlich III extraction (yields plant-available concentrations) with inductively coupled plasma.
4. Electrical Conductivity (EC) - determine from extract of 2:1 (volume/volume) water/soil mixture and expressed in dS/m (same as mmho/cm).
5. Soil pH must be analyzed by the electrometric method in Test Methods for Evaluating Solid Waste, EPA SW-846, 40 CFR 260.11; method 9045C - determine from extract of 2:1 (volume/volume) water/soil mixture.
6. Analysis for metals in soil must be performed according to methods outlined in Test Methods for Evaluating Solid Waste, EPA SW-846; method 3050.
7. All parameters must be analyzed on a dry weight basis, except Soil Water pH and Electrical Conductivity.

Please be advised that the maximum acceptable soil concentrations of metals are listed below. These rates are based on the maximum cumulative loading rates found in 30 TAC §312.43 Table 2- Cumulative Metal Loading Rate.

Metal	Soil Concentration Limit (mg/kg)
Total Arsenic	20.5
Total Cadmium	19.5
Total Chromium	1500
Total Copper	750
Total Lead	150
Total Mercury	8.5
Total Molybdenum	Monitor
Total Nickel	210
Total Selenium	50
Total Zinc	1,400

BIOSOLIDS AND RESIDUALS TESTING INFORMATION

Testing Parameters (dry weight basis) for
Class B Biosolids and Water Treatment Plant Residuals

Nutrients (%)	Metals (mg/kg)	Other
Total Kjeldahl Nitrogen Ammonium-Nitrogen Nitrate-Nitrogen Total Phosphorus Total Potassium	Total Arsenic Total Cadmium Total Chromium Total Copper Total Lead Total Mercury Total Molybdenum Total Nickel Total Selenium Total Zinc	Total PCBs

1. If accepting from multiple sources,
   a) perform a new analysis on the mixed material if blended before land application, or
   b) use Table 2 of the application form to determine the volume weighted average (mass balance) which will accurately reflect the amount of metals contributed by each facility.
2. The metal and nutrient tests shall be used to calculate the Maximum Biosolids Application Rate and Site Life in Appendix A of the application form. These tests and calculations will also be required in an annual report for the permitted site.
3. Copies of all laboratory test data with Quality Control (QA/QC) and Chain of Custody sheets must be kept on file at the site operator's place of business for at least five (5) years and can be requested by TCEQ at any time.
4. Include the most recent full Toxicity Characteristic Leaching Procedure (TCLP) analysis for each wastewater treatment plant source (Appendix E).

Maximum Metal Loadings & Concentrations

If background soil concentrations exceed the values listed below, then land application is only possible if biosolids concentrations are below the concentrations found in Table 3 of 30 TAC §312.43(b)(3).

If the concentration of any metal in the biosolids exceeds the metal ceiling concentration, then the land application of that biosolids is prohibited.

Pollutant	Cumulative Loading (lbs/acre)	Table 3 §312.43(b)(3) (mg/kg)	Metal Ceiling Concentration (mg/kg)
Arsenic	36	41	75
Cadmium	35	39	85
Chromium	2,677	1,200	3,000

Pollutant	Cumulative Loading (lbs/acre)	Table 3 §312.43(b)(3) (mg/kg)	Metal Ceiling Concentration (mg/kg)
Copper	1,339	1,500	4,300
Lead	268	300	840
Mercury	15	17	57
Molybdenum	Monitor	Monitor	75
Nickel	375	420	420
Selenium	89	36	100
Zinc	2,500	2,800	7,500

APPENDIX E

Toxicity Characteristic Leaching Procedure (TCLP) Regulatory Levels

METALS	TCLP Regulatory Level, mg/L	EPA Hazardous Waste Number	Recommended Test Method
Arsenic	5.0	D004	7061
Barium	100.0	D005	7080
Cadmium	1.0	D006	7130
Chromium	5.0	D007	7190
Lead	5.0	D008	7420
Mercury	0.2	D009	7471
Selenium	1.0	D010	7741
Silver	5.0	D011	7760

VOLATILE ORGANICS	TCLP Regulatory Level, mg/L	EPA Hazardous Waste Number	Recommended Test Method
Benzene	0.5	D018	8260B
Carbon Tetrachloride	0.5	D019	8260B
Chlorobenzene	100.0	D021	8260B
Chloroform	6.0	D022	8260B
1,4-Dichlorobenzene	7.5	D027	8260B
1,2-Dichloroethane	0.5	D028	8260B
1,1-Dichloroethylene	0.7	D029	8260B
Methyl Ethyl Ketone	200.0	D035	8260B
Tetrachloroethylene	0.7	D039	8260B
Trichloroethylene	0.5	D040	8260B
Vinyl Chloride	0.2	D043	8260B

SEMIVOLATILE ORGANICS	TCLP Regulatory Level, mg/L	EPA Hazardous Waste Number	Recommended Test Method
o-Cresol *	200	D023	8270C
m-Cresol *	200	D024	8270C
p-Cresol *	200	D025	8270C
Cresol *	200	D026	8270C
2,4-Dinitrotoluene	0.13	D030	8270C
Hexachlorobenzene	0.13	D032	8270C
Hexachlorobutadiene	0.5	D033	8270C
Hexachloroethane	3.0	D034	8270C
Nitrobenzene	2.0	D036	8270C
Pentachlorophenol	100.0	D037	8270C
Pyridine	5.0	D038	8270C
2,4,5-Trichlorophenol	400.0	D041	8270C
2,4,6-Trichlorophenol	2.0	D042	8270C

ORGANOCHLORINE PESTICIDES	TCLP Regulatory Level, mg/L	EPA Hazardous Waste Number	Recommended Test Method
Chlordane	0.03	D020	8081A
Endrin	0.02	D012	8081A
Heptachlor (and its Epoxide)	0.008	D031	8081A
Lindane	0.4	D013	8081A
Methoxychlor	10.0	D014	8081A
Toxaphene	0.5	D015	8081A

CHLOROPHENOXY ACID HERBICIDES	TCLP Regulatory Level, mg/L	EPA Hazardous Waste Number	Recommended Test Method
2,4-D	10.0	D016	8150
2,4,5-TP (Silvex)	1.0	D017	8150

* If o-, m-, and p-Cresol concentrations cannot be differentiated, the total cresol (D026) concentration is used.

Reference: 40 CFR 261, Appendix II, 1993 ed., as amended by 58 FR 46040, August 31, 1993.

Attachment C

Texas Commission on Environmental Quality

Public Involvement Plan Form for Permit and Registration Applications

The Public Involvement Plan is intended to provide applicants and the agency with information about how public outreach will be accomplished for certain types of applications in certain geographical areas of the state. It is intended to apply to new activities; major changes at existing plants, facilities, and processes; and to activities which are likely to have significant interest from the public. This preliminary screening is designed to identify applications that will benefit from an initial assessment of the need for enhanced public outreach.

All applicable sections of this form should be completed and submitted with the permit or registration application. For instructions on how to complete this form, see TCEQ-20960-inst.

Section 1. Preliminary Screening

☒ New Permit or Registration Application

☐ New Activity – modification, registration, amendment, facility, etc. (see instructions)

If neither of the above boxes are checked, completion of the form is not required and does not need to be submitted.

Section 2. Secondary Screening

☒ Requires public notice,

☒ Considered to have significant public interest, **and**

☐ Located within any of the following geographical locations:

- Austin
- Dallas
- Fort Worth
- Houston
- San Antonio
- West Texas
- Texas Panhandle
- Along the Texas/Mexico Border
- Other geographical locations should be decided on a case-by-case basis

If all the above boxes are not checked, a Public Involvement Plan is not necessary. Stop after Section 2 and submit the form.

☐ Public Involvement Plan not applicable to this application. Provide **brief** explanation.

Section 3. Application Information

Type of Application (check all that apply):

Air ☐ Initial ☐ Federal ☐ Amendment ☐ Standard Permit ☐ Title V

Waste ☒ Municipal Solid Waste ☐ Industrial and Hazardous Waste ☐ Scrap Tire
☐ Radioactive Material Licensing ☐ Underground Injection Control

Water Quality

☐ Texas Pollutant Discharge Elimination System (TPDES)

☐ Texas Land Application Permit (TLAP)

☐ State Only Concentrated Animal Feeding Operation (CAFO)

☐ Water Treatment Plant Residuals Disposal Permit

☒ Class B Biosolids Land Application Permit

☐ Domestic Septage Land Application Registration

Water Rights New Permit

☐ New Appropriation of Water

☐ New or existing reservoir

Amendment to an Existing Water Right

☐ Add a New Appropriation of Water

☐ Add a New or Existing Reservoir

☐ Major Amendment that could affect other water rights or the environment

Section 4. Plain Language Summary

Provide a brief description of planned activities.

Sludge applied at an annual rate not to exceed 3.61 dry tons per acre per year, up to 10.5 dry tones per year on 2.91 acres located within approximately 5.28 acres at coordinates (30.986111, -97.335833). Bermuda grass covers the grounds as a warm season crop and as a cool season crop. Haying to be conducted within the property bounds as well. No tillage seen on grounds per operations manager.

Section 5. Community and Demographic Information

Community information can be found using EPA's EJ Screen, U.S. Census Bureau information, or generally available demographic tools.

Information gathered in this section can assist with the determination of whether alternative language notice is necessary. Please provide the following information.

(City)

Little River Academy

(County)

Bell County

(Census Tract)

Please indicate which of these three is the level used for gathering the following information.

☒ City ☐ County ☐ Census Tract

(a) Percent of people over 25 years of age who at least graduated from high school

86%

(b) Per capita income for population near the specified location

$29,516

(c) Percent of minority population and percent of population by race within the specified location

69.42% white, 9.78% noted as other race.

(d) Percent of Linguistically Isolated Households by language within the specified location

6%

(e) Languages commonly spoken in area by percentage

61.9% speak only English, 38.1% speak another language other than English.

(f) Community and/or Stakeholder Groups

Bell County WCID #2 & City of Little River Academy, TX

(g) Historic public interest or involvement

Section 6. Planned Public Outreach Activities

(a) Is this application subject to the public participation requirements of Title 30 Texas Administrative Code (30 TAC) Chapter 39?

☒ Yes ☐ No

(b) If yes, do you intend at this time to provide public outreach other than what is required by rule?

☐ Yes ☒ No

If Yes, please describe.

If you answered "yes" that this application is subject to 30 TAC Chapter 39, answering the remaining questions in Section 6 is not required.

(c) Will you provide notice of this application in alternative languages?

☐ Yes ☐ No

Please refer to Section 5. If more than 5% of the population potentially affected by your application is Limited English Proficient, then you are required to provide notice in the alternative language.

If yes, how will you provide notice in alternative languages?

☐ Publish in alternative language newspaper

☐ Posted on Commissioner's Integrated Database Website

☐ Mailed by TCEQ's Office of the Chief Clerk

☐ Other (specify)

(d) Is there an opportunity for some type of public meeting, including after notice?

☐ Yes ☐ No

(e) If a public meeting is held, will a translator be provided if requested?

☐ Yes ☐ No

(f) Hard copies of the application will be available at the following (check all that apply):

☐ TCEQ Regional Office ☐ TCEQ Central Office

☐ Public Place (specify)

Section 7. Voluntary Submittal

For applicants voluntarily providing this Public Involvement Plan, who are not subject to formal public participation requirements.

Will you provide notice of this application, including notice in alternative languages?

☐ Yes ☒ No

What types of notice will be provided?

☐ Publish in alternative language newspaper

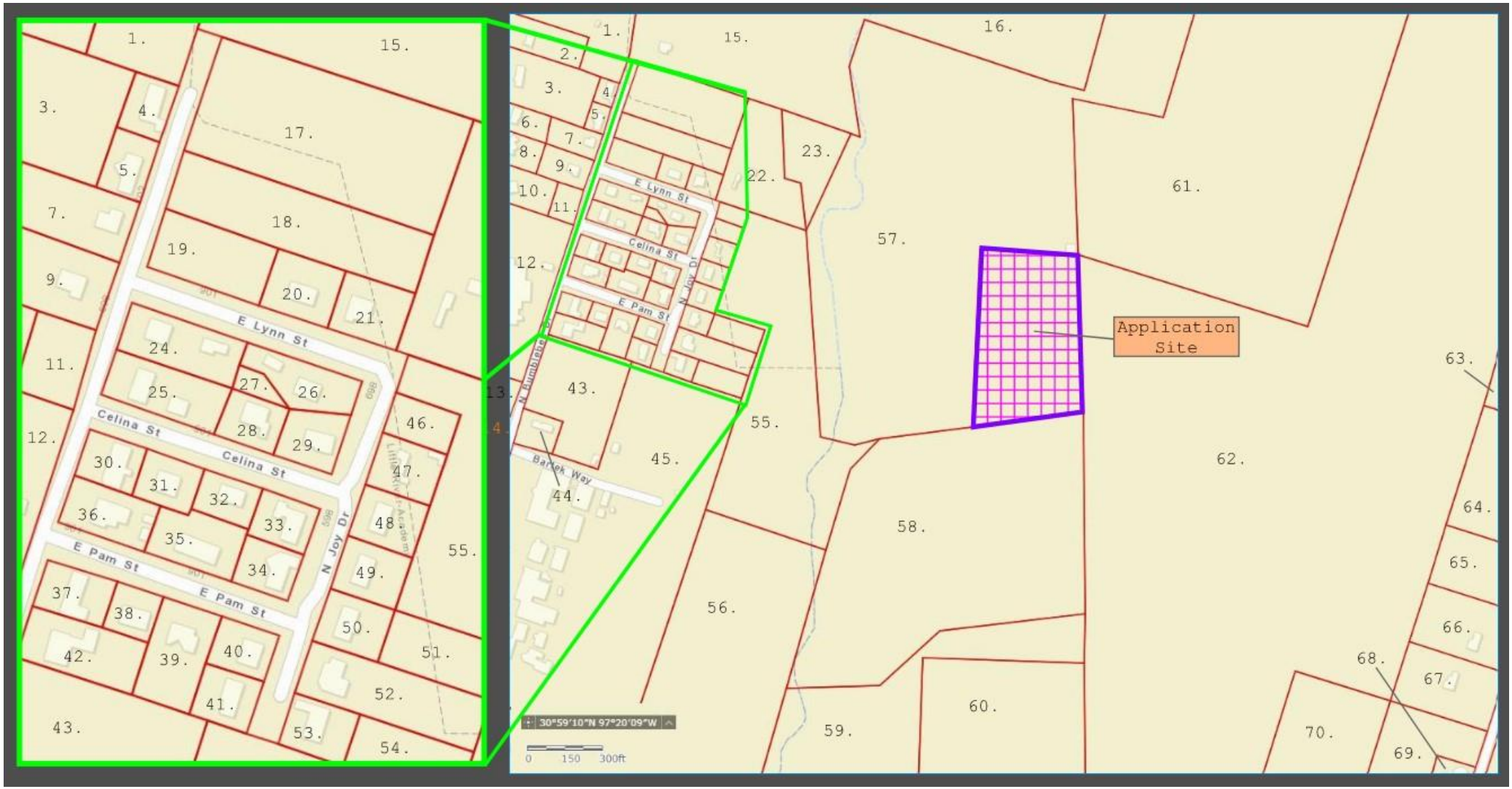
☐ Posted on Commissioner's Integrated Database Website

☑ Mailed by TCEQ's Office of the Chief Clerk

☑ Other (specify) Publish notice in English language newspaper

Attachment D

Affected Land Owner Aerial Boundary Map



1. Owner Name: WALKER, DONALD NEWTON ETAL
Mailing Address: C/O STONE LOUGHLIN & SWANSON LLP ATTN: WALKER, DONALD PO BOX 30111
Austin, Tx 78755

2. Owner Name: ROASA PROPERTIES LLC
Mailing Address: 12741 STAG RD
Holland, Tx 76534

3. Owner Name: GARCIA, JERRY & SUZANNE
Mailing Address: 703 N HIGHWAY 95
Little River Academy, Tx 76554

4.Owner Name: THOMAS, PATSY LEE
Mailing Address: 706 N BUMBLEBEE DR
Little River Academy, Tx 76554

5. Owner Name: WHITE, JAYME E
Mailing Address: 704 N BUMBLEBEE DR
Little River Academy, Tx 76554

6. Owner Name: HARGIS, BEVERLY
Mailing Address: 910 E MAIN ST
Little River Academy, Tx 76554

7. Owner Name: HENDRICKSON, AUTUMN MARIE & JACKIE M COLLUM
Mailing Address: 702 N BUMBLEBEE DR
Little River Academy, Tx 76554

8. Owner Name: TERRA FIRMA LAND HOLDINGS LLC
Mailing Address: PO BOX 124
Temple, Tx 76503

9. Owner Name: MAINARD, SCOTT O ETUX MARY L
Mailing Address: 606 N BUMBLEBEE DR
Little River Academy, Tx 76554

10. Owner Name: KEHRLY, CHRISTOPHER & CHRISTINE
Mailing Address: 601 N HWY 95
Little River Academy, Tx 76554

11. Owner Name: CCNB LP
Mailing Address: 1912 N MAIN ST
Taylor, Tx 76574

12. Owner Name: DORSEY, D R PROPERTIES LLC
Mailing Address: 409 N HIGHWAY 95 UNIT B
Little River Academy, Tx 76554

13. Owner Name: FIRST STATE BANK
Mailing Address: ATTN ACCOUNTING PO BOX 4360
Tupelo, MS 38803

14. Owner Name: JASPER-KNIGHT FAMILY LIMITED PARTNERSHIP
Mailing Address: 10820 DEER RUN
College Station, Tx 77845

15.Owner Name: WALKER, DONALD NEWTON ETAL
Mailing Address: C/O STONE LOUGHLIN & SWANSON LLP ATTN: WALKER, DONALD PO BOX 30111
Austin Tx, 78755

16. Owner Name: HEJL, JAMES D ETUX PEGGY L
Mailing Address: 309 CHERRYWOOD CIR
Taylor, Tx 76574

17. Owner Name: PARKER, CHRISTOPHER S ETUX TRESSA R
Mailing Address: 705 N BUMBLEBEE DR
Little river Academy, Tx 76554

18.Owner Name: KARL, ROBERT ETUX LEAH
Mailing Address: 703 N BUMBLEBEE
Little River Academy, Tx 76554

19.Owner Name: PAYNE, LOUIS LEROY & LINDA KAYE
Mailing Address: 5530 KNOB CREEK RD
Temple, Tx 76501

20. Owner Name: BRUGGMAN INVESTMENTS LLC
Mailing Address: 19885 STATE HIGHWAY 95
Holland, Tx 76534

21.Owner Name: BRUGGMAN INVESTMENTS LLC
Mailing Address: 19885 STATE HIGHWAY 95
Holland, Tx 76534

22.Owner Name: MERRIMAN, AMY
Mailing Address: 10636 WEDEL CEMETERY RD
Rogers, Tx 76569

23.Owner Name: MERRIMAN, AMY
Mailing Address: 10636 WEDEL CEMETERY RD
Rogers, Tx 76569

24.Owner Name: KRUMNOW, CHARLES ETUX ANNETTA
Mailing Address: 603 N BUMBLEBEE DR
Little river Academy, Tx 76554

25.Owner Name: COOPER, DON LEON JR ETUX CYNTHIA L IVEY
Mailing Address: 601 N BUMBLEBEE DR
Little River Academy, Tx 76554

26.Owner Name: BRUGGMAN INVESTMENTS LLC
Mailing Address: 19885 STATE HIGHWAY 95
Holland, Tx 76534

27.Owner Name: STEWART, KELLY & DANA GORDON
Mailing Address: 511 S HIGHWAY 95
Little River Academy, Tx 76554

28.Owner Name: STEWART, KELLY & DANA GORDON
Mailing Address: 511 S HIGHWAY 95
Little River Academy, Tx 76554

29.Owner Name: BRUGGMAN INVESTMENTS LLC
Mailing Address: 19885 STATE HIGHWAY 95
Holland, Tx 76534

30.Owner Name: MARTIN, WILLIAM L
Mailing Address: 505 N BUMBLEBEE DR
Little River Academy, Tx 76554

31.Owner Name: MENN, JOANNA & WILLIAM H MENN
Mailing Address: 901 CELINA ST
Little River Academy, Tx 76554

32.Owner Name: ROJO, VIRGINIA
Mailing Address: 903 CELINA ST
Little River Academy, Tx 76554

33.Owner Name: SAVERSE, JOEY
Mailing Address: 504 N JOY ST
Little river Academy, Tx 76554

34.Owner Name: MARTIN, TED O ETUX BEVERLY I
Mailing Address: 502 N JOY ST
Little River Academy, Tx 76554

35.Owner Name: CORDOVA, ROSEMARY J & JAMES L BARTLETT
Mailing Address: 706 6TH ST
Tularosa, NM 88352

36.Owner Name: HILL, DICKIE H
Mailing Address: 501 N BUMBLEBEE DR
Little River Academy, Tx 76554

37.Owner Name: SHARP, JIMMY R & CYNTHIA J
Mailing Address: 413 N BUMBLEBEE DR
Little River Academy, Tx 76554

38.Owner Name: SHAUG, MARIE A & MARK HEININGE
Mailing Address: PO BOX 1342
Temple, Tx 76503

39.Owner Name: DYE, PAULA ALLEN
Mailing Address: 905 PAM ST
Little river academy, Tx 76554

40.Owner Name: FINCHER, KENDALL DALE & BRITNEY NICOLE BENNIGHT
Mailing Address: 412 N JOY ST
Little River Academy, Tx 76554

41.Owner Name: ROBERSON, DAVID EUGENE
Mailing Address: 410 N JOY ST
Little River Academy, Tx 76554

42.Owner Name: HOLLAS, GARLAND
Mailing Address: 411 N BUMBLEBEE DR
Little River Academy, Tx 76554

43.Owner Name: RIVER RATS CENTEX LLC
Mailing Address: PO BOX 340
Troy, Tx 76759

44.Owner Name: NBLA LLC
Mailing Address: PO BOX 331
Troy, Tx 76759

45.Owner Name: ACADEMY INDEPENDENT SCHOOL DISTRICT
Mailing Address: C/O KEVIN SPRINKLES SUPERINTENDENT 704 E MAIN ST
Little River Academy, Tx 76554

46.Owner Name: SWAIM, JOHNNY LYNN & JOY S CASON
Mailing Address: 1628 THOMAS LN
Carrolton, Tx 75010

47.Owner Name: RABEL, HENRY A ETUX JANE
Mailing Address: 603 N JOY ST
Little River Academy, Tx 76554

48.Owner Name: DYE, PAUL & PAULA
Mailing Address: 905 E PAM ST
Little River Academy, Tx 76554

49.Owner Name: KNEIP, HERMINA ELIZABETH
Mailing Address: 503 N JOY ST
Little river Academy, Tx 76554

50.Owner Name: BRUGGMAN INVESTMENTS LLC
Mailing Address: 19885 STATE HIGHWAY 95
Holland, Tx 76534

51.Owner Name: BRUGGMAN INVESTMENTS LLC
Mailing Address: 19885 STATE HIGHWAY 95
Holland, Tx 76534

52.Owner Name: PENNINGTON, JOSHUA ADAM & DENISE BERLIN
Mailing Address: 413 N JOY ST
Little River Academy, Tx 76554

53.Owner Name: BLAND, PERRY A & SHARLOT
Mailing Address: 411 N JOY ST
Little River Academy, Tx 76554

54.Owner Name: BLAND, PERRY A & SHARLOT
Mailing Address: 411 N JOY ST
Little River Academy, Tx 76554

55.Owner Name: SWAIM, JOHNNY LYNN
Mailing Address: 1628 THOMAS LN
Carrolton, Tx 75010

56.Owner Name: BARTZ, KEVIN
Mailing Address: 11213 AMERICAN MUSTANG LOOP
Manor, Tx 78653

57.Owner Name: SWAIM, JOHNNY LYNN
Mailing Address: 1628 THOMAS LN
Carrolton, Tx 75010

58.Owner Name: MAULDIN, BRANN A & BROOKE E
Mailing Address: 5066 E FM 436
Temple, Tx 76503

59.Owner Name: MAULDIN, BENJAMIN R & BRITTON R
Mailing Address: 5070 EAST FM 436
Temple, Tx 76503

60.Owner Name: DRIFTWOOD VENTURES LLC
Mailing Address: 13031 SUNSHINE RD
Holland, Tx 76534

61.Owner Name: SWAIM, JOHNNY LYNN
Mailing Address: 1628 THOMAS LN
Carrolton, Tx 75010

62.Owner Name: CASON, JOY SWAIM
Mailing Address: PO BOX 865
Little River Academy, Tx 76554

63.Owner Name: MCKENZIE, DEBRA ETVIR ROBERT
Mailing Address: 4662 WATER WORKS RD
Belton, Tx 76513

64.Owner Name: CLARK, MORRIS FREEMAN JR
Mailing Address: 10752 BURGESS RD
Temple, Tx 76501

65.Owner Name: KRISTINEK, LAURI
Mailing Address: 10840 BURGESS DR
Temple, Tx 76501

66.Owner Name: DICKERSON, DAVE
Mailing Address: 10910 BURGESS RD
Temple, Tx 76501

67.Owner Name: MARX, JOHN W ETUX BELYNDA
Mailing Address: 10966 BURGESS RD
Temple, Tx 76501

68.Owner Name: CENTRAL TEXAS WATER SUPPLY
Mailing Address: PO BOX 2393
Harker Heights, Tx 76548

69.Owner Name: CENTRAL TEXAS WATER SUPPLY
Mailing Address: PO BOX 2393
Harker Heights, Tx 76548

70.Owner Name: CENTRAL TEXAS WATER SUPPLY
Mailing Address: PO BOX 2393
Harker Heights, Tx 76548

Attachment E

TCEQ Use Only

TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

SECTION I: General Information

1. Reason for Submission (*If other is checked please describe in space provided.*)

☒ New Permit, Registration or Authorization (*Core Data Form should be submitted with the program application.*)

☐ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN 6007375		**RN 1029219**

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☒ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)* | *If new Customer, enter previous Customer below:*

Bell County Water Control & Improvement District 2

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*

11. Type of Customer:
☐ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☒ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

12. Number of Employees
☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher

13. Independently Owned and Operated?
☒ **Yes** ☐ **No**

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:

202 S Brookman

City	Little River Academy	**State**	TX	**ZIP**	76554	**ZIP + 4**	

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*
N/A	andreana.alexander@jacobs.com

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(469) 245-7689		( ) -

SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☒ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

BELL COUNTY WCID 2 LAND APPLICATION SITE

23. Street Address of the Regulated Entity: ***(No PO Boxes)***								
	City		**State**		**ZIP**		**ZIP + 4**	
24. County								

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:	LOCATED 1/2 MI E OF HWY 95 ON FM 436, 1690 FT N OF THIS POINT IN THE EXTRATERRITORIAL JURISDICTION OF LITTLE RIVER ACADEMY

26. Nearest City	State	Nearest ZIP Code
Temple	TX	76554

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:	30.986111		28. Longitude (W) In Decimal:	-97.335833	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
30	59	10.0	97	20	09.0

29. Primary SIC Code (4 digits)	30. Secondary SIC Code (4 digits)	31. Primary NAICS Code (5 or 6 digits)	32. Secondary NAICS Code (5 or 6 digits)
4952		111998	221320

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Sludge Application

34. Mailing Address:								
	City		**State**		**ZIP**		**ZIP + 4**	
35. E-Mail Address:								

36. Telephone Number	37. Extension or Code	38. Fax Number *(if applicable)*
( ) -		( ) -

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☐ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
☒ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
WQ0004436000				
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:		**41. Title:**	
42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
( ) -		( ) -	

SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:		**Job Title:**	
Name *(In Print):*		**Phone:**	( ) -
Signature:		**Date:**	

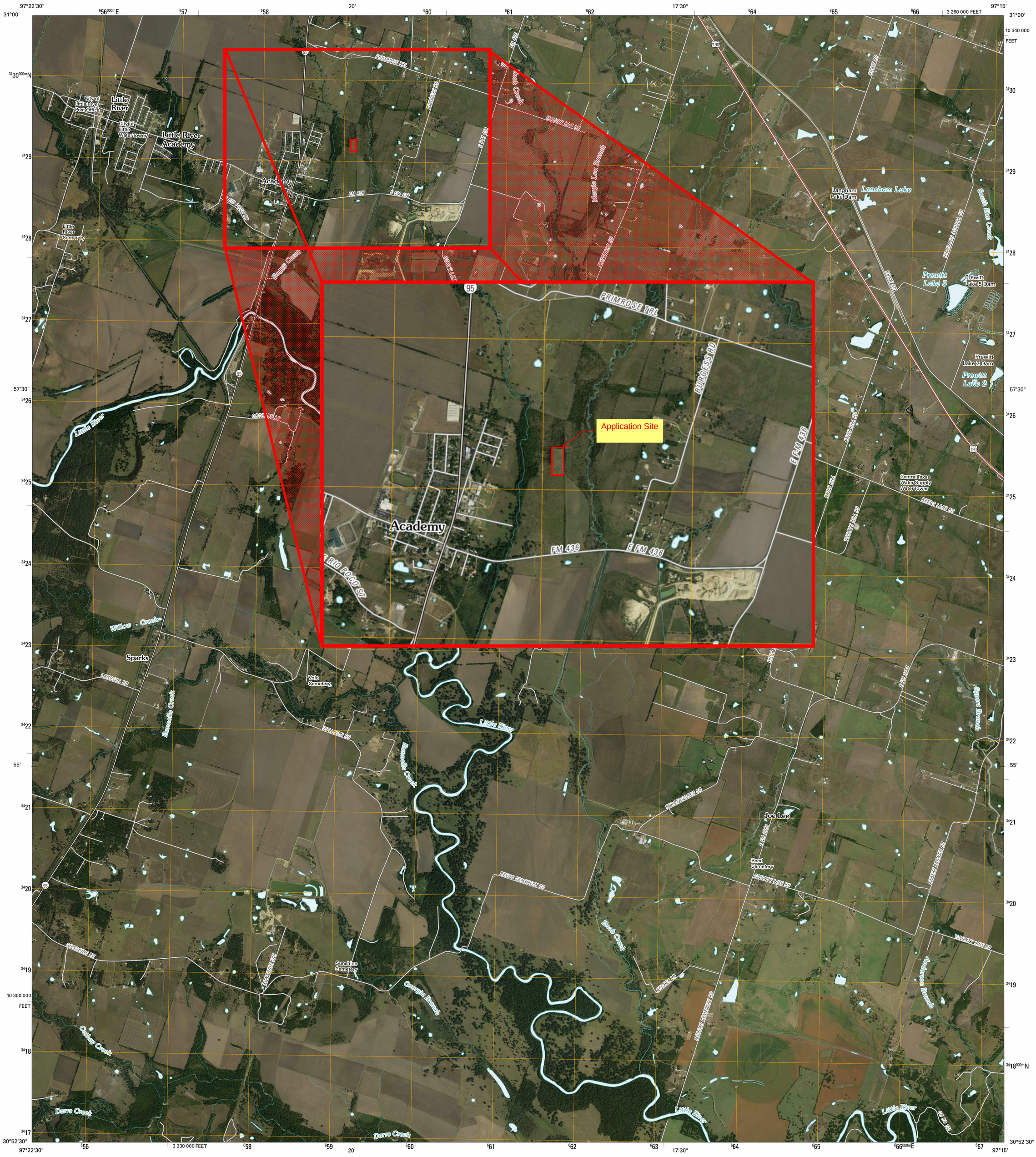
Attachment F

USGS science for a changing world

U.S. DEPARTMENT OF THE INTERIOR
U. S. GEOLOGICAL SURVEY

The National Map US Topo

LITTLE RIVER QUADRANGLE
TEXAS
7.5-MINUTE SERIES



97°22'30" 97°15'
31°00' 30°52'30"
3 260 000 FEET
10 340 000 FEET
10 300 000 FEET
3 230 000 FEET
20' 17'30"
6560mE 6657 6658 6659 6660 6661 6662 6663 6664 6665 6666 6667
34°30'00"N 34°18'00"N
34°29 34°28 34°27 57'30" 34°26 34°25 34°24 34°23 34°22 55' 34°21 34°20 34°19 34°18 34°17

Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 14R
10 000-foot ticks: Texas Coordinate System of 1983
(central zone)

Imagery.....NAIP, September 2008
Roads.....US Census Bureau TIGER data
with limited USGS updates, 2006 - 2008
Names.....GNIS, 2008
Hydrography.....National Hydrography Dataset, 1995
Contours.....National Elevation Dataset, 2004

MN 4° 30' 80 MILS
GN 0° 52' 15 MILS
UTM GRID AND 2010 MAGNETIC NORTH DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID: PV
Grid Zone Designation: 14R

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 10 FEET

This map was produced to conform with version 0.5.10 of the
draft USGS Standards for 7.5-Minute Quadrangle Maps.
A metadata file associated with this product is also draft version 0.5.10

TEXAS

QUADRANGLE LOCATION

Belton	Temple	Seaton
Holland	Little River	Rogers
Bartlett	Davilla	Sharp

ADJOINING 7.5' QUADRANGLES
TX 3097-434

ROAD CLASSIFICATION

Interstate Route	State Route
US Route	Local Road
Ramp	4WD

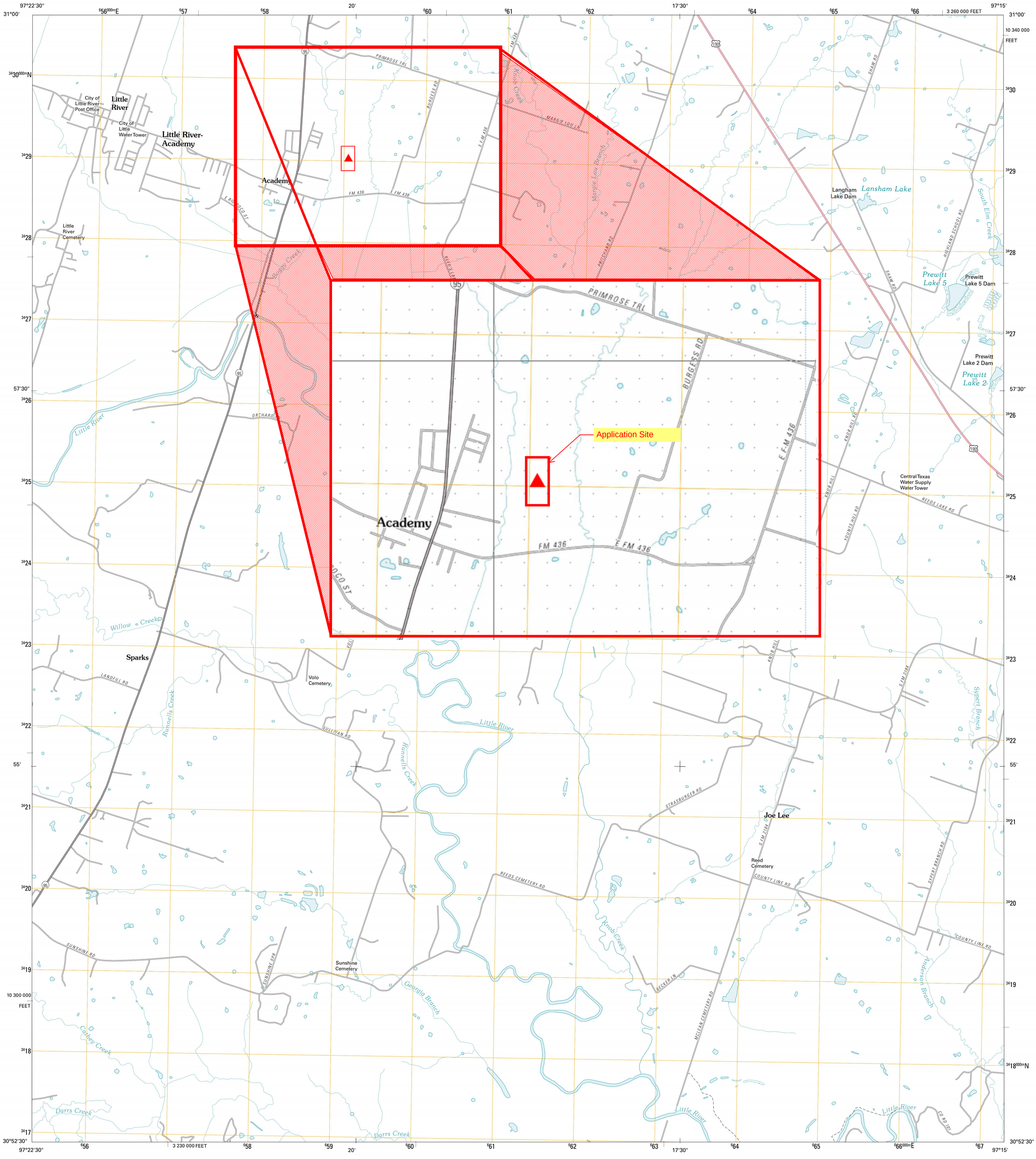
Interstate Route US Route State Route

LITTLE RIVER, TX
2010

U.S. DEPARTMENT OF THE INTERIOR
U. S. GEOLOGICAL SURVEY

The National Map US Topo

LITTLE RIVER QUADRANGLE
TEXAS
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid: Universal Transverse Mercator, Zone 14R
10 000-foot ticks: Texas Coordinate System of 1983
(central zone)

Imagery.....NAIP, September 2008
Roads.....US Census Bureau TIGER data
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Names.....GNIS, 2008
Hydrography.....National Hydrography Dataset, 1995
Contours.....National Elevation Dataset, 2004

MN
GN
4° 30'
80 MILS
0° 52'
15 MILS

UTM GRID AND 2010 MAGNETIC NORTH
DECLINATION AT CENTER OF SHEET

U.S. National Grid
100,000-m Square ID
PV
Grid Zone Designation
14R

SCALE 1:24 000

1 0.5 0 KILOMETERS 1 2
1000 500 0 METERS 1000 2000
1 0.5 0 1
MILES
1000 0 1000 2000 3000 4000 5000 6000 7000 8000 9000 10000
FEET

CONTOUR INTERVAL 10 FEET

This map was produced to conform with version 0.5.10 of the
draft USGS Standards for 7.5-Minute Quadrangle Maps.
A metadata file associated with this product is also draft version 0.5.10

QUADRANGLE LOCATION

Belton	Temple	Seaton
Holland	Little River	Rogers
Bartlett	Davilla	Sharp

ADJOINING 7.5' QUADRANGLES
TX 3097-434

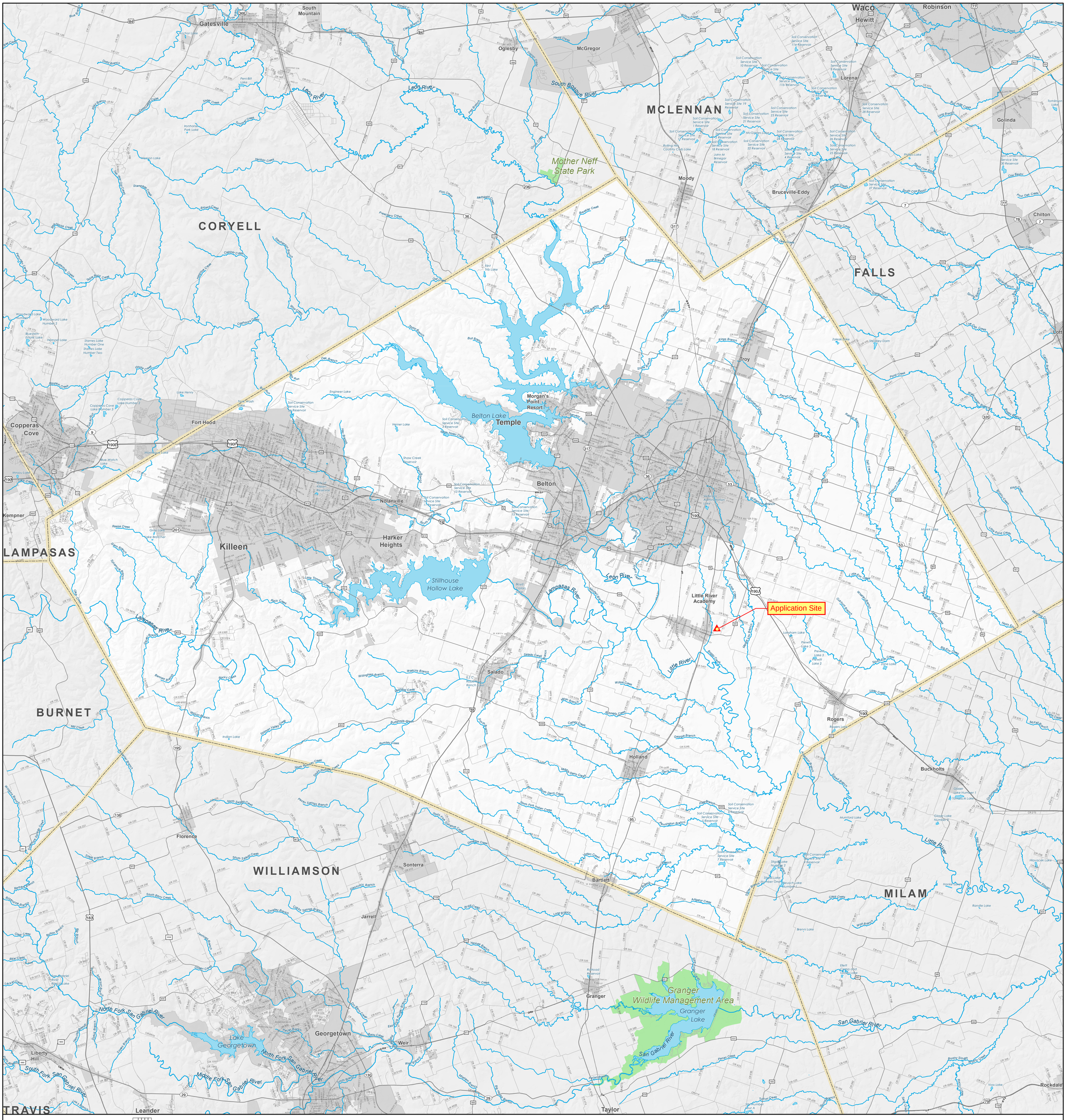
ROAD CLASSIFICATION

Interstate Route	State Route
US Route	Local Road
Ramp	4WD

Interstate Route US Route State Route

LITTLE RIVER, TX
2010

Attachment G



DISCLAIMER
This data was generated by the Texas Water Development Board using GIS (Geographical Information System) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate. 08/01/2020

DATA SOURCES
Transportation and Boundaries:
Texas Department of Transportation (TxDOT) & US Census Bureau (USCB)
Hydrography:
United States Geological Survey (USGS)
National Hydrography Data Set (NHD)

TNRIS

Texas Water Development Board

Attachment H

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 Bell County, Texas

April 21, 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

Preface.....2
How Soil Surveys Are Made.....6
Soil Map.....9
Soil Map.....10
Legend.....11
Map Unit Legend.....12
Map Unit Descriptions.....13
Bell County, Texas.....16
AsB—Austin silty clay, 1 to 3 percent slopes.....16
AsC—Austin silty clay, 2 to 5 percent slopes, moderately eroded.....17
AxB—Axtell fine sandy loam, 1 to 3 percent slopes.....18
BaA—Bastsil fine sandy loam, 0 to 2 percent slopes.....20
BoA—Bosque clay loam, 0 to 1 percent slopes, frequently flooded.....21
BrA—Branyon clay, 0 to 1 percent slopes.....22
BrB—Branyon clay, 1 to 3 percent slopes.....24
BuB—Burleson clay, 1 to 3 percent slopes.....26
FhF2—Ferris-Heiden complex, 5 to 15 percent slopes, moderately eroded.....27
FrA—Frio silty clay, 0 to 1 percent slopes, occasionally flooded.....29
FsA—Frio silty clay, 0 to 1 percent slopes, frequently flooded.....31
HeB—Heiden clay, 1 to 3 percent slopes.....32
HeC—Heiden clay, 3 to 5 percent slopes.....34
HfD3—Heiden-Ferris complex, 3 to 8 percent slopes, moderately eroded.....35
HoA—Houston Black clay, 0 to 1 percent slopes.....37
HoB—Houston Black clay, 1 to 3 percent slopes.....39
HoC—Houston Black clay, 3 to 5 percent slopes.....40
LeB—Lewisville silty clay, 1 to 3 percent slopes.....42
LeC2—Lewisville silty clay, 3 to 5 percent slopes, eroded.....43
LegC—Lewisville-Altoga complex, 2 to 5 percent slopes.....44
McE—McLennan clay loam, 5 to 15 percent slopes.....46
MeD2—Menard soils, 5 to 8 percent slopes, moderately eroded.....48
PaD—Patrick soils, 1 to 8 percent slopes.....49
PcA—Payne loam, 0 to 1 percent slopes.....51
PcB—Payne loam, 1 to 3 percent slopes.....52
PITSG—Pits, sand and gravel, 0 to 45 percent slopes.....53
TcA—Tinn clay, 0 to 1 percent slopes, occasionally flooded.....54
TnA—Tinn clay, 0 to 1 percent slopes, frequently flooded.....55
VeA—Venus clay loam, 0 to 1 percent slopes.....56
VeB—Venus clay loam, 1 to 3 percent slopes.....57
VeC—Venus clay loam, 3 to 5 percent slopes.....59
W—Water.....60
WlA—Wilson clay loam, 0 to 1 percent slopes.....60
WlB—Wilson clay loam, 1 to 3 percent slopes.....62

References.....64

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

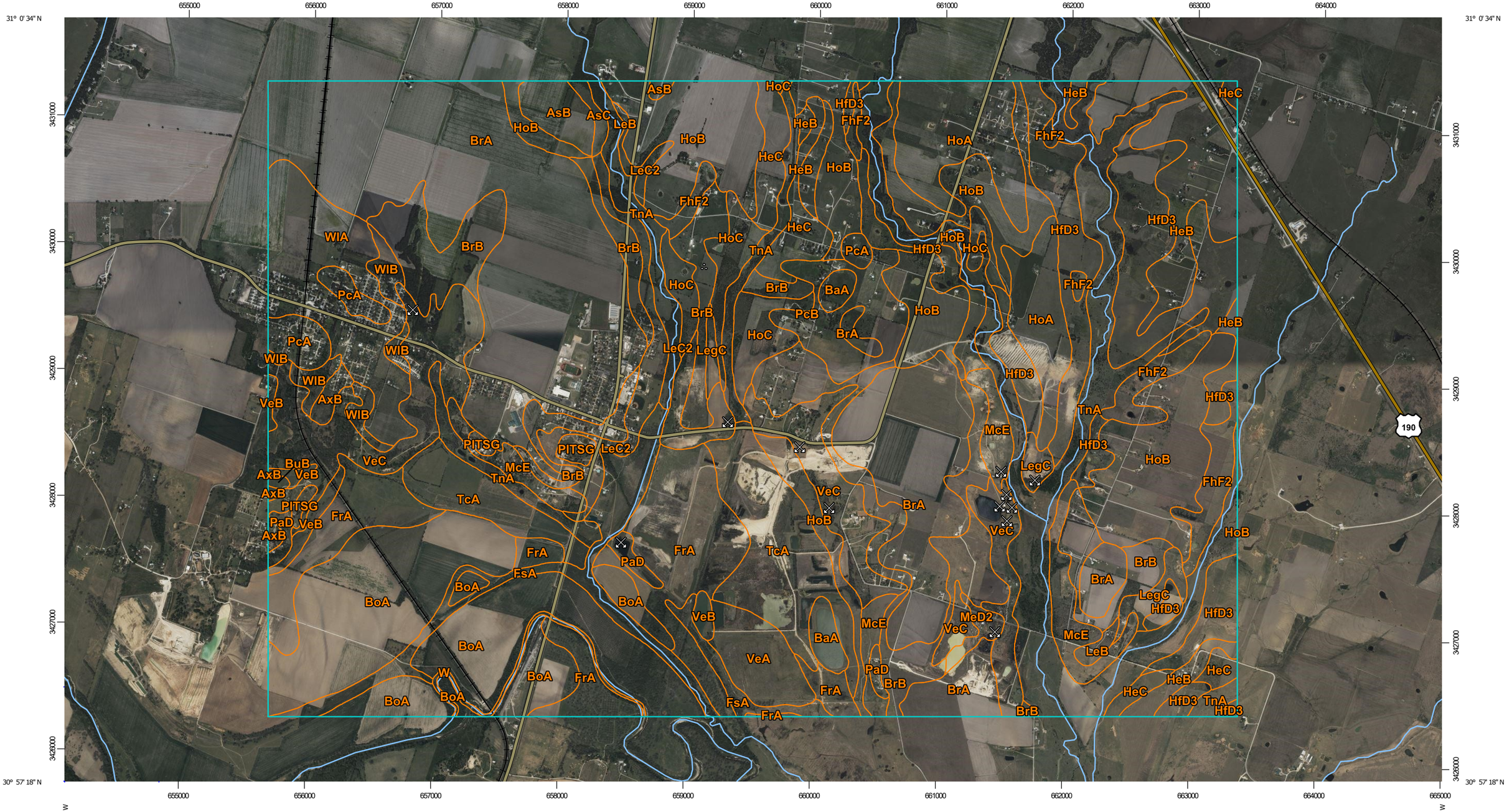
After soil scientists located and identified the significant natural bodies of soil in the survey area, they drew the boundaries of these bodies on aerial photographs and

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

Soil Map

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

Custom Soil Resource Report
Soil Map



Map Scale: 1:29,400 if printed on B landscape (17" x 11") sheet.

Meters: 0 400 800 1600 2400

Feet: 0 1000 2000 4000 6000

Map projection: Web Mercator Corner coordinates: WGS84 Edge tics: UTM Zone 14N 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.

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: Bell County, Texas
Survey Area Data: Version 21, Aug 24, 2022

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

Date(s) aerial images were photographed: Sep 29, 2020—May 17, 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

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
AsB	Austin silty clay, 1 to 3 percent slopes	62.3	0.7%
AsC	Austin silty clay, 2 to 5 percent slopes, moderately eroded	14.4	0.2%
AxB	Axtell fine sandy loam, 1 to 3 percent slopes	25.2	0.3%
BaA	Bastsil fine sandy loam, 0 to 2 percent slopes	47.4	0.5%
BoA	Bosque clay loam, 0 to 1 percent slopes, frequently flooded	833.0	8.7%
BrA	Branyon clay, 0 to 1 percent slopes	1,496.7	15.7%
BrB	Branyon clay, 1 to 3 percent slopes	671.8	7.0%
BuB	Burleson clay, 1 to 3 percent slopes	3.7	0.0%
FhF2	Ferris-Heiden complex, 5 to 15 percent slopes, moderately eroded	154.6	1.6%
FrA	Frio silty clay, 0 to 1 percent slopes, occasionally flooded	501.3	5.3%
FsA	Frio silty clay, 0 to 1 percent slopes, frequently flooded	217.4	2.3%
HeB	Heiden clay, 1 to 3 percent slopes	321.1	3.4%
HeC	Heiden clay, 3 to 5 percent slopes	158.9	1.7%
HfD3	Heiden-Ferris complex, 3 to 8 percent slopes, moderately eroded	646.6	6.8%
HoA	Houston Black clay, 0 to 1 percent slopes	328.4	3.4%
HoB	Houston Black clay, 1 to 3 percent slopes	907.7	9.5%
HoC	Houston Black clay, 3 to 5 percent slopes	178.0	1.9%
LeB	Lewisville silty clay, 1 to 3 percent slopes	20.9	0.2%
LeC2	Lewisville silty clay, 3 to 5 percent slopes, eroded	169.6	1.8%
LegC	Lewisville-Altoga complex, 2 to 5 percent slopes	63.1	0.7%
McE	McLennan clay loam, 5 to 15 percent slopes	191.2	2.0%

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
MeD2	Menard soils, 5 to 8 percent slopes, moderately eroded	21.8	0.2%
PaD	Patrick soils, 1 to 8 percent slopes	36.7	0.4%
PcA	Payne loam, 0 to 1 percent slopes	81.7	0.9%
PcB	Payne loam, 1 to 3 percent slopes	138.6	1.5%
PITSG	Pits, sand and gravel, 0 to 45 percent slopes	28.6	0.3%
TcA	Tinn clay, 0 to 1 percent slopes, occasionally flooded	379.1	4.0%
TnA	Tinn clay, 0 to 1 percent slopes, frequently flooded	798.0	8.4%
VeA	Venus clay loam, 0 to 1 percent slopes	103.9	1.1%
VeB	Venus clay loam, 1 to 3 percent slopes	45.9	0.5%
VeC	Venus clay loam, 3 to 5 percent slopes	516.1	5.4%
W	Water	19.5	0.2%
WlA	Wilson clay loam, 0 to 1 percent slopes	286.2	3.0%
WlB	Wilson clay loam, 1 to 3 percent slopes	69.6	0.7%
Totals for Area of Interest		**9,539.8**	**100.0%**

Map Unit Descriptions

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

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

Most minor soils have properties similar to those of the dominant soil or soils in the map unit, and thus they do not affect use and management. These are called noncontrasting, or similar, components. They may or may not be mentioned in a

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

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Bell County, Texas

AsB—Austin silty clay, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2vtgj
Elevation: 440 to 810 feet
Mean annual precipitation: 30 to 40 inches
Mean annual air temperature: 63 to 70 degrees F
Frost-free period: 228 to 293 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Austin and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Austin

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum weathered from chalk

Typical profile

Ap - 0 to 16 inches: silty clay
Bw - 16 to 22 inches: silty clay
Bk - 22 to 29 inches: silty clay
Cr - 29 to 57 inches: bedrock

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: 22 to 39 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): 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
Calcium carbonate, maximum content: 85 percent
Maximum salinity: Nonsaline to very slightly saline (0.5 to 2.1 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Low (about 4.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

Minor Components

Houston black

Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Microfeatures of landform position: Linear gilgai
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

AsC—Austin silty clay, 2 to 5 percent slopes, moderately eroded

Map Unit Setting

National map unit symbol: 2vtgk
Elevation: 420 to 1,050 feet
Mean annual precipitation: 32 to 44 inches
Mean annual air temperature: 63 to 69 degrees F
Frost-free period: 228 to 272 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Austin, Moderately Eroded

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum weathered from chalk

Typical profile

Ap - 0 to 16 inches: silty clay
Bw - 16 to 22 inches: silty clay
Bk - 22 to 29 inches: silty clay
Cr - 29 to 57 inches: bedrock

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: 22 to 39 inches to paralithic bedrock
Drainage class: Well drained
Runoff class: High

Capacity of the most limiting layer to transmit water (Ksat): 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
Calcium carbonate, maximum content: 85 percent
Maximum salinity: Nonsaline to very slightly saline (0.5 to 2.1 mmhos/cm)
Sodium adsorption ratio, maximum: 1.0
Available water supply, 0 to 60 inches: Low (about 4.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

Minor Components

Houston black

Percent of map unit: 15 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Microfeatures of landform position: Linear gilgai
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

AxB—Axtell fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2shg6
Elevation: 200 to 790 feet
Mean annual precipitation: 33 to 47 inches
Mean annual air temperature: 65 to 67 degrees F
Frost-free period: 240 to 270 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Axtell and similar soils: 87 percent
Minor components: 13 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Axtell

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread

Down-slope shape: Linear
Across-slope shape: Convex, linear
Parent material: Clayey alluvium of pleistocene age derived from mudstone

Typical profile

A - 0 to 10 inches: fine sandy loam
Btss - 10 to 18 inches: clay
Btk1 - 18 to 46 inches: clay
Btk2 - 46 to 80 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: High
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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: Moderate (about 7.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R087AY003TX - Claypan Savannah
Hydric soil rating: No

Minor Components

Mabank

Percent of map unit: 7 percent
Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R086AY004TX - Southern Claypan Prairie
Hydric soil rating: No

Rader

Percent of map unit: 6 percent
Landform: Stream terraces, stream terraces, stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave, convex, linear
Ecological site: R087AY005TX - Sandy Loam
Hydric soil rating: No

BaA—Bastsil fine sandy loam, 0 to 2 percent slopes

Map Unit Setting

National map unit symbol: 2vtj2
Elevation: 280 to 540 feet
Mean annual precipitation: 33 to 37 inches
Mean annual air temperature: 67 to 68 degrees F
Frost-free period: 250 to 266 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Bastsil

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium derived from sandstone and shale

Typical profile

A - 0 to 11 inches: fine sandy loam
Bt1 - 11 to 57 inches: sandy clay loam
BCt - 57 to 80 inches: sandy clay loam

Properties and qualities

Slope: 0 to 2 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
Calcium carbonate, maximum content: 5 percent
Maximum salinity: Nonsaline (0.0 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 6.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R086AY005TX - Sandy Loam
Hydric soil rating: No

Minor Components

Silawa

Percent of map unit: 10 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY005TX - Sandy Loam
Hydric soil rating: No

Mabank

Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R086AY004TX - Southern Claypan Prairie
Hydric soil rating: No

BoA—Bosque clay loam, 0 to 1 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: f3y7
Elevation: 500 to 1,200 feet
Mean annual precipitation: 32 to 36 inches
Mean annual air temperature: 64 to 68 degrees F
Frost-free period: 220 to 275 days
Farmland classification: Not prime farmland

Map Unit Composition

Bosque and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Bosque

Setting

Landform: Flood plains
Landform position (two-dimensional): Shoulder
Down-slope shape: Concave
Across-slope shape: Concave
Parent material: Loamy alluvium

Typical profile

H1 - 0 to 45 inches: clay loam
H2 - 45 to 60 inches: clay loam
H3 - 60 to 80 inches: silty clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
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: FrequentNone
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Available water supply, 0 to 60 inches: High (about 10.8 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: B
Ecological site: R085AY181TX - Loamy Bottomland 30-38" PZ
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 8 percent
Hydric soil rating: No

Unnamed, hydric

Percent of map unit: 2 percent
Landform: Depressions on flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Hydric soil rating: Yes

BrA—Branyon clay, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2shgv
Elevation: 290 to 1,050 feet
Mean annual precipitation: 31 to 38 inches
Mean annual air temperature: 65 to 70 degrees F
Frost-free period: 238 to 288 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Branyon

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Calcareous clayey alluvium derived from mudstone of pleistocene age

Typical profile

Ap - 0 to 12 inches: clay
Bkss - 12 to 72 inches: clay
BCkss - 72 to 80 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 7.0
Available water supply, 0 to 60 inches: High (about 10.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: D
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Minor Components

Houston black

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Lewisville

Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (three-dimensional): Riser

Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

Burleson

Percent of map unit: 5 percent
Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai, circular gilgai
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

BrB—Branyon clay, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2shgw
Elevation: 290 to 1,040 feet
Mean annual precipitation: 33 to 39 inches
Mean annual air temperature: 66 to 70 degrees F
Frost-free period: 243 to 288 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Branyon

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Calcareous clayey alluvium derived from mudstone of pleistocene age

Typical profile

Ap - 0 to 12 inches: clay
Bkss - 12 to 72 inches: clay
BCkss - 72 to 80 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: Very high

Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 7.0
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: D
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Minor Components

Houston black

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Footslope
Landform position (three-dimensional): Base slope
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Burleson

Percent of map unit: 5 percent
Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai, circular gilgai
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Lewisville

Percent of map unit: 5 percent
Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

BuB—Burleson clay, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2tbtx
Elevation: 120 to 970 feet
Mean annual precipitation: 34 to 47 inches
Mean annual air temperature: 62 to 69 degrees F
Frost-free period: 228 to 239 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Burleson

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous clayey alluvium of pleistocene age derived from mudstone

Typical profile

Ap - 0 to 5 inches: clay
Bss - 5 to 20 inches: clay
Bkss - 20 to 43 inches: clay
2Ck - 43 to 60 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: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Maximum salinity: Nonsaline to slightly saline (0.0 to 4.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e

Hydrologic Soil Group: D
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Minor Components

Wilson
Percent of map unit: 8 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R086AY004TX - Southern Claypan Prairie
Hydric soil rating: No

Branyon
Percent of map unit: 7 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

FhF2—Ferris-Heiden complex, 5 to 15 percent slopes, moderately eroded

Map Unit Setting
National map unit symbol: 2s1r4
Elevation: 330 to 700 feet
Mean annual precipitation: 34 to 37 inches
Mean annual air temperature: 67 to 69 degrees F
Frost-free period: 255 to 266 days
Farmland classification: Not prime farmland

Map Unit Composition
Ferris, moderately eroded, and similar soils: 48 percent
Heiden, moderately eroded, and similar soils: 32 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Ferris, Moderately Eroded

Setting
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Linear gilgai
Down-slope shape: Linear

Across-slope shape: Convex
Parent material: Clayey residuum weathered from mudstone

Typical profile

Ap - 0 to 10 inches: clay
Bkss1 - 10 to 30 inches: clay
Bkss2 - 30 to 45 inches: clay
Cdk - 45 to 60 inches: clay

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 39 to 59 inches to densic bedrock
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 12.0
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: R086AY009TX - Southern Eroded Blackland
Hydric soil rating: No

Description of Heiden, Moderately Eroded

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Linear gilgai
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from mudstone

Typical profile

Ap - 0 to 5 inches: clay
A - 5 to 15 inches: clay
Bkss1 - 15 to 38 inches: clay
Bkss2 - 38 to 64 inches: clay
CBdk - 64 to 80 inches: clay

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: 48 to 65 inches to densic material
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)

Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 12.0
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: R086AY009TX - Southern Eroded Blackland
Hydric soil rating: No

Minor Components

Tinn

Percent of map unit: 10 percent
Landform: Flood plains
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Linear, concave
Ecological site: R086AY013TX - Clayey Bottomland
Hydric soil rating: No

Vertel

Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Linear gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY009TX - Southern Eroded Blackland
Hydric soil rating: No

FrA—Frio silty clay, 0 to 1 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2ssh3
Elevation: 240 to 960 feet
Mean annual precipitation: 35 to 40 inches
Mean annual air temperature: 65 to 68 degrees F
Frost-free period: 246 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Frio, Occasionally Flooded

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous loamy alluvium derived from mudstone over clayey alluvium derived from mudstone

Typical profile

Ap - 0 to 6 inches: silty clay
A - 6 to 50 inches: silty clay
Bk - 50 to 80 inches: silty clay

Properties and qualities

Slope: 0 to 1 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 low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 3.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: C
Ecological site: R086AY012TX - Loamy Bottomland
Hydric soil rating: No

Minor Components

Tinn, occasionally flooded

Percent of map unit: 10 percent
Landform: Flood plains, flood plains
Microfeatures of landform position: Circular gilgai, circular gilgai
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R086AY013TX - Clayey Bottomland
Hydric soil rating: No

Oakalla, occasionally flooded

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Convex

Across-slope shape: Linear
Ecological site: R086AY012TX - Loamy Bottomland
Hydric soil rating: No

FsA—Frio silty clay, 0 to 1 percent slopes, frequently flooded

Map Unit Setting

National map unit symbol: 2wg92
Elevation: 330 to 770 feet
Mean annual precipitation: 37 to 42 inches
Mean annual air temperature: 64 to 65 degrees F
Frost-free period: 245 to 252 days
Farmland classification: Not prime farmland

Map Unit Composition

Frio, frequently flooded, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Frio, Frequently Flooded

Setting

Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Calcareous clayey alluvium derived from mudstone and/or calcareous loamy alluvium derived from mudstone

Typical profile

Ap - 0 to 6 inches: silty clay
A - 6 to 50 inches: silty clay
Bk - 50 to 80 inches: silty clay

Properties and qualities

Slope: 0 to 1 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 low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 3.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 10.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: C
Ecological site: R086AY012TX - Loamy Bottomland
Hydric soil rating: No

Minor Components

Tinn, frequently flooded
Percent of map unit: 8 percent
Landform: Flood plains, flood plains
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R086AY013TX - Clayey Bottomland
Hydric soil rating: No

Gladewater, frequently flooded
Percent of map unit: 2 percent
Landform: Flood plains, flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R086AY013TX - Clayey Bottomland
Hydric soil rating: Yes

HeB—Heiden clay, 1 to 3 percent slopes

Map Unit Setting
National map unit symbol: 2v1v9
Elevation: 290 to 1,020 feet
Mean annual precipitation: 33 to 45 inches
Mean annual air temperature: 63 to 68 degrees F
Frost-free period: 224 to 278 days
Farmland classification: All areas are prime farmland

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

Description of Heiden

Setting
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Microfeatures of landform position: Linear gilgai
Down-slope shape: Convex
Across-slope shape: Linear
Parent material: Clayey residuum weathered from mudstone

Typical profile

Ap - 0 to 6 inches: clay
A - 6 to 18 inches: clay
Bkss - 18 to 58 inches: clay
CBdk - 58 to 70 inches: clay

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: 40 to 65 inches to densic material
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 12.0
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Minor Components

Houston black

Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Microfeatures of landform position: Circular gilgai
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Ferris

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Linear gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY009TX - Southern Eroded Blackland
Hydric soil rating: No

HeC—Heiden clay, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2v1vc
Elevation: 260 to 890 feet
Mean annual precipitation: 33 to 42 inches
Mean annual air temperature: 63 to 68 degrees F
Frost-free period: 233 to 260 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Heiden

Setting

Landform: Ridges
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope
Microfeatures of landform position: Linear gilgai
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from mudstone

Typical profile

Ap - 0 to 6 inches: clay
Bkss1 - 6 to 18 inches: clay
Bkss2 - 18 to 58 inches: clay
CBdk - 58 to 80 inches: clay

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: 40 to 65 inches to densic material
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 12.0
Available water supply, 0 to 60 inches: High (about 9.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Minor Components

Houston black
Percent of map unit: 10 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Circular gilgai
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Ferris, moderately eroded
Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Linear gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY009TX - Southern Eroded Blackland
Hydric soil rating: No

HfD3—Heiden-Ferris complex, 3 to 8 percent slopes, moderately eroded

Map Unit Setting
National map unit symbol: f3z2
Elevation: 500 to 1,000 feet
Mean annual precipitation: 32 to 36 inches
Mean annual air temperature: 64 to 68 degrees F
Frost-free period: 225 to 275 days
Farmland classification: Not prime farmland

Map Unit Composition
Heiden, moderately eroded, and similar soils: 72 percent
Ferris, moderately eroded, and similar soils: 26 percent
Minor components: 2 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Heiden, Moderately Eroded

Setting
Landform: Ridges
Landform position (two-dimensional): Backslope

Landform position (three-dimensional): Side slope
Microfeatures of landform position: Linear gilgai
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from clayey shale of eagleford shale or taylor marl

Typical profile

H1 - 0 to 16 inches: clay
H2 - 16 to 58 inches: clay
H3 - 58 to 70 inches: clay
H4 - 70 to 80 inches: clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 55 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 12.0
Available water supply, 0 to 60 inches: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: D
Ecological site: R086AY009TX - Southern Eroded Blackland
Hydric soil rating: No

Description of Ferris, Moderately Eroded

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Linear gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum weathered from calcareous shale in eagleford shale and taylor marl formations of cretaceous age

Typical profile

H1 - 0 to 8 inches: clay
H2 - 8 to 56 inches: clay
H3 - 56 to 80 inches: clay

Properties and qualities

Slope: 3 to 8 percent
Depth to restrictive feature: 40 to 60 inches to densic bedrock
Drainage class: Well drained

Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 30 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 5.0
Available water supply, 0 to 60 inches: Moderate (about 8.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 6e
Hydrologic Soil Group: D
Ecological site: R086AY009TX - Southern Eroded Blackland
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 2 percent
Hydric soil rating: No

HoA—Houston Black clay, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: 2shgy
Elevation: 300 to 870 feet
Mean annual precipitation: 31 to 39 inches
Mean annual air temperature: 65 to 70 degrees F
Frost-free period: 238 to 288 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Houston Black

Setting

Landform: Plains
Landform position (two-dimensional): Summit
Landform position (three-dimensional): Interfluve
Microfeatures of landform position: Linear gilgai
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear

Parent material: Clayey residuum weathered from calcareous mudstone of upper cretaceous age

Typical profile

Ap - 0 to 6 inches: clay
Bkss - 6 to 70 inches: clay
BCkss - 70 to 80 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2w
Hydrologic Soil Group: D
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Minor Components

Wilson

Percent of map unit: 8 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R086AY004TX - Southern Claypan Prairie
Hydric soil rating: No

Heiden

Percent of map unit: 7 percent
Landform: Plains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve
Microfeatures of landform position: Linear gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

HoB—Houston Black clay, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2ssh0
Elevation: 270 to 1,040 feet
Mean annual precipitation: 33 to 43 inches
Mean annual air temperature: 62 to 63 degrees F
Frost-free period: 217 to 244 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Houston black and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Houston Black

Setting

Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve
Microfeatures of landform position: Linear gilgai
Down-slope shape: Convex, linear
Across-slope shape: Convex, linear
Parent material: Clayey residuum weathered from calcareous mudstone of upper cretaceous age

Typical profile

Ap - 0 to 6 inches: clay
Bkss - 6 to 70 inches: clay
BCkss - 70 to 80 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: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: D
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Minor Components

Heiden
Percent of map unit: 15 percent
Landform: Plains
Landform position (two-dimensional): Shoulder
Landform position (three-dimensional): Interfluve
Microfeatures of landform position: Linear gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Fairlie
Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Footslope, toeslope
Landform position (three-dimensional): Base slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

HoC—Houston Black clay, 3 to 5 percent slopes

Map Unit Setting
National map unit symbol: 2wg8y
Elevation: 310 to 850 feet
Mean annual precipitation: 27 to 38 inches
Mean annual air temperature: 65 to 71 degrees F
Frost-free period: 233 to 270 days
Farmland classification: All areas are prime farmland

Map Unit Composition
Houston black and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Houston Black

Setting
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Linear gilgai

Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey residuum weathered from calcareous mudstone of upper cretaceous age

Typical profile

Ap - 0 to 6 inches: clay
Bkss - 6 to 70 inches: clay
BCkss - 70 to 80 inches: clay

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 9.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Minor Components

Heiden

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Linear gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Ferris

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Microfeatures of landform position: Linear gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY009TX - Southern Eroded Blackland
Hydric soil rating: No

LeB—Lewisville silty clay, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2vtgn
Elevation: 240 to 1,470 feet
Mean annual precipitation: 32 to 44 inches
Mean annual air temperature: 63 to 68 degrees F
Frost-free period: 240 to 270 days
Farmland classification: All areas are prime farmland

Map Unit Composition

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

Description of Lewisville

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Calcareous clayey alluvium derived from mudstone

Typical profile

Ap - 0 to 15 inches: silty clay
Bk1 - 15 to 38 inches: silty clay
Bk2 - 38 to 69 inches: silty clay

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.7 to 1.1 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

Minor Components

Altoga

Percent of map unit: 10 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

Branyon

Percent of map unit: 5 percent
Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai, circular gilgai
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

LeC2—Lewisville silty clay, 3 to 5 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2vth0
Elevation: 310 to 1,030 feet
Mean annual precipitation: 32 to 44 inches
Mean annual air temperature: 63 to 70 degrees F
Frost-free period: 248 to 272 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Lewisville, Eroded

Setting

Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Calcareous clayey alluvium derived from mudstone

Typical profile

Ap - 0 to 12 inches: silty clay
Bk1 - 12 to 36 inches: silty clay
Bk2 - 36 to 64 inches: silty clay

Properties and qualities

Slope: 3 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.7 to 1.1 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

Minor Components

Altoga, eroded

Percent of map unit: 15 percent
Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

LegC—Lewisville-Altoga complex, 2 to 5 percent slopes

Map Unit Setting

National map unit symbol: 2s1s0
Elevation: 340 to 710 feet
Mean annual precipitation: 34 to 37 inches
Mean annual air temperature: 67 to 69 degrees F
Frost-free period: 255 to 266 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Lewisville and similar soils: 47 percent
Altoga and similar soils: 30 percent
Minor components: 23 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Lewisville

Setting

Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Calcareous clayey alluvium derived from mudstone

Typical profile

Ap - 0 to 12 inches: silty clay
Bk1 - 12 to 28 inches: silty clay
Bk2 - 28 to 52 inches: silty clay

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 40 percent
Maximum salinity: Nonsaline (0.6 to 1.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.3 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

Description of Altoga

Setting

Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Calcareous clayey alluvium derived from mudstone

Typical profile

Ap - 0 to 7 inches: silty clay loam
Bk1 - 7 to 60 inches: silty clay
Bk2 - 60 to 66 inches: silty clay loam

Properties and qualities

Slope: 2 to 5 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
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: More than 80 inches

Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 75 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: C
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

Minor Components

Sunev

Percent of map unit: 13 percent
Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

Seawillow

Percent of map unit: 10 percent
Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

McE—McLennan clay loam, 5 to 15 percent slopes

Map Unit Setting

National map unit symbol: 2s1qq
Elevation: 450 to 670 feet
Mean annual precipitation: 34 to 37 inches
Mean annual air temperature: 67 to 69 degrees F
Frost-free period: 255 to 266 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Mclennan

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Residuum weathered from shale and siltstone

Typical profile

A - 0 to 7 inches: clay loam
Bk - 7 to 32 inches: clay loam
Bk/C - 32 to 80 inches: silty clay loam

Properties and qualities

Slope: 5 to 15 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately high (0.20 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 80 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: C
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

Minor Components

Austin

Percent of map unit: 8 percent
Landform: Ridges
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

Lewisville

Percent of map unit: 7 percent
Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

MeD2—Menard soils, 5 to 8 percent slopes, moderately eroded

Map Unit Setting

National map unit symbol: f3zj
Elevation: 500 to 1,200 feet
Mean annual precipitation: 32 to 36 inches
Mean annual air temperature: 64 to 68 degrees F
Frost-free period: 210 to 260 days
Farmland classification: Not prime farmland

Map Unit Composition

Menard, moderately eroded, and similar soils: 92 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Menard, Moderately Eroded

Setting

Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy alluvium

Typical profile

H1 - 0 to 10 inches: fine sandy loam
H2 - 10 to 28 inches: sandy clay loam
H3 - 28 to 50 inches: sandy clay loam

Properties and qualities

Slope: 5 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 (0.57 to 1.98 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 7.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 4e
Hydrologic Soil Group: B
Ecological site: R084BY174TX - Sandy Loam 29-33" PZ
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 8 percent
Hydric soil rating: No

PaD—Patrick soils, 1 to 8 percent slopes

Map Unit Setting

National map unit symbol: 2s1qf
Elevation: 460 to 590 feet
Mean annual precipitation: 34 to 37 inches
Mean annual air temperature: 67 to 69 degrees F
Frost-free period: 255 to 266 days
Farmland classification: Not prime farmland

Map Unit Composition

Patrick and similar soils: 57 percent
Patrick, shallow, and similar soils: 35 percent
Minor components: 8 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Patrick

Setting

Landform: Paleoterraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey alluvium derived from mudstone over sandy alluvium derived from sandstone

Typical profile

A - 0 to 9 inches: clay
Bw - 9 to 18 inches: clay
2Ck - 18 to 70 inches: very gravelly sand

Properties and qualities

Slope: 1 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 55 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Low (about 3.9 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R086AY002TX - Southern Chalky Ridge
Hydric soil rating: No

Description of Patrick, Shallow

Setting

Landform: Paleoterraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Clayey alluvium derived from mudstone over sandy alluvium derived from sandstone

Typical profile

A - 0 to 4 inches: clay
Bw - 4 to 9 inches: clay
2Ck - 9 to 70 inches: very gravelly sand

Properties and qualities

Slope: 1 to 8 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 55 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Very low (about 2.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R086AY002TX - Southern Chalky Ridge
Hydric soil rating: No

Minor Components

Lewisville

Percent of map unit: 8 percent
Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

PcA—Payne loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: f3zl
Elevation: 600 to 900 feet
Mean annual precipitation: 32 to 36 inches
Mean annual air temperature: 64 to 68 degrees F
Frost-free period: 243 to 265 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Payne and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Payne

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Clayey alluvium of quaternary age derived from mixed sources

Typical profile

H1 - 0 to 7 inches: loam
H2 - 7 to 29 inches: clay
H3 - 29 to 80 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Sodium adsorption ratio, maximum: 6.0
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: D
Ecological site: R086AY004TX - Southern Claypan Prairie
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 10 percent
Hydric soil rating: No

PcB—Payne loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: f3zm
Elevation: 600 to 900 feet
Mean annual precipitation: 32 to 36 inches
Mean annual air temperature: 64 to 68 degrees F
Frost-free period: 243 to 265 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

Payne and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Payne

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Clayey alluvium of quaternary age derived from mixed sources

Typical profile

H1 - 0 to 8 inches: loam
H2 - 8 to 48 inches: clay
H3 - 48 to 80 inches: clay

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 35 percent
Sodium adsorption ratio, maximum: 6.0
Available water supply, 0 to 60 inches: High (about 9.2 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: R086AY004TX - Southern Claypan Prairie
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 10 percent
Hydric soil rating: No

PITSG—Pits, sand and gravel, 0 to 45 percent slopes

Map Unit Setting

National map unit symbol: 2y7rl
Elevation: 450 to 1,700 feet
Mean annual precipitation: 26 to 42 inches
Mean annual air temperature: 60 to 68 degrees F
Frost-free period: 210 to 245 days
Farmland classification: Not prime farmland

Map Unit Composition

Pits, sand and gravel, 1 to 8 percent slopes: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Pits, Sand And Gravel, 1 To 8 Percent Slopes

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

Minor Components

Pits, sand and gravel, 0 to 1 percent slopes

Percent of map unit: 10 percent
Hydric soil rating: No

Pits, sand and gravel, 8 to 15 percent slopes

Percent of map unit: 5 percent
Hydric soil rating: No

Pits, sand and gravel, 15 to 45 percent slopes

Percent of map unit: 5 percent
Hydric soil rating: No

TcA—Tinn clay, 0 to 1 percent slopes, occasionally flooded

Map Unit Setting

National map unit symbol: 2sshf
Elevation: 260 to 1,310 feet
Mean annual precipitation: 27 to 47 inches
Mean annual air temperature: 63 to 71 degrees F
Frost-free period: 224 to 279 days
Farmland classification: Not prime farmland

Map Unit Composition

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

Description of Tinn

Setting

Landform: Flood plains
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Linear, concave
Parent material: Calcareous clayey alluvium

Typical profile

Ap - 0 to 28 inches: clay
Bss - 28 to 60 inches: clay
Bkssy - 60 to 80 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: OccasionalNone
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: High (about 10.1 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3s
Hydrologic Soil Group: D

Ecological site: R086AY013TX - Clayey Bottomland
Hydric soil rating: No

Minor Components

Whitesboro
Percent of map unit: 10 percent
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R086AY012TX - Loamy Bottomland
Hydric soil rating: No

Gladewater
Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R086AY013TX - Clayey Bottomland
Hydric soil rating: Yes

TnA—Tinn clay, 0 to 1 percent slopes, frequently flooded

Map Unit Setting
National map unit symbol: 2vtgr
Elevation: 330 to 750 feet
Mean annual precipitation: 35 to 47 inches
Mean annual air temperature: 63 to 68 degrees F
Frost-free period: 226 to 263 days
Farmland classification: Not prime farmland

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

Description of Tinn

Setting
Landform: Flood plains
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Calcareous clayey alluvium

Typical profile
A - 0 to 17 inches: clay
Bss - 17 to 57 inches: clay
Bkssy - 57 to 80 inches: clay

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: FrequentNone
Frequency of ponding: None
Calcium carbonate, maximum content: 25 percent
Gypsum, maximum content: 2 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Sodium adsorption ratio, maximum: 2.0
Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 5w
Hydrologic Soil Group: D
Ecological site: R086AY013TX - Clayey Bottomland
Hydric soil rating: No

Minor Components

Whitesboro

Percent of map unit: 10 percent
Landform: Flood plains
Microfeatures of landform position: Circular gilgai
Down-slope shape: Linear
Across-slope shape: Concave
Ecological site: R086AY012TX - Loamy Bottomland
Hydric soil rating: No

Gladewater

Percent of map unit: 5 percent
Landform: Flood plains
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R086AY013TX - Clayey Bottomland
Hydric soil rating: Yes

VeA—Venus clay loam, 0 to 1 percent slopes

Map Unit Setting

National map unit symbol: f409
Elevation: 500 to 800 feet
Mean annual precipitation: 32 to 36 inches
Mean annual air temperature: 64 to 68 degrees F
Frost-free period: 220 to 250 days

Farmland classification: All areas are prime farmland

Map Unit Composition

Venus and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Venus

Setting

Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy alluvium of quaternary age derived from mixed sources

Typical profile

H1 - 0 to 13 inches: clay loam
H2 - 13 to 45 inches: clay loam
H3 - 45 to 70 inches: clay loam

Properties and qualities

Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Negligible
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
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 1
Hydrologic Soil Group: B
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 10 percent
Hydric soil rating: No

VeB—Venus clay loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: f40b

Elevation: 500 to 800 feet
Mean annual precipitation: 32 to 36 inches
Mean annual air temperature: 64 to 68 degrees F
Frost-free period: 220 to 250 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Venus and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Venus

Setting

Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy alluvium of quaternary age derived from mixed sources

Typical profile

H1 - 0 to 13 inches: clay loam
H2 - 13 to 27 inches: clay loam
H3 - 27 to 57 inches: clay loam

Properties and qualities

Slope: 1 to 3 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
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: High (about 9.7 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: B
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 10 percent
Hydric soil rating: No

VeC—Venus clay loam, 3 to 5 percent slopes

Map Unit Setting

National map unit symbol: f40c
Elevation: 500 to 800 feet
Mean annual precipitation: 32 to 36 inches
Mean annual air temperature: 64 to 68 degrees F
Frost-free period: 220 to 250 days
Farmland classification: All areas are prime farmland

Map Unit Composition

Venus and similar soils: 80 percent
Minor components: 20 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Venus

Setting

Landform: Stream terraces
Landform position (three-dimensional): Riser
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy alluvium of quaternary age derived from mixed sources

Typical profile

H1 - 0 to 12 inches: clay loam
H2 - 12 to 46 inches: clay loam
H3 - 46 to 72 inches: 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
Calcium carbonate, maximum content: 40 percent
Available water supply, 0 to 60 inches: High (about 10.5 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: B
Ecological site: R086AY007TX - Southern Clay Loam
Hydric soil rating: No

Minor Components

Unnamed
Percent of map unit: 20 percent
Hydric soil rating: No

W—Water

Map Unit Setting
National map unit symbol: 2xslv
Elevation: 300 to 2,350 feet
Mean annual precipitation: 1 to 2 inches
Mean annual air temperature: 61 to 67 degrees F
Frost-free period: 181 to 270 days
Farmland classification: Not prime farmland

Map Unit Composition
Water: 100 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Water

Interpretive groups
Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 8
Hydrologic Soil Group: D
Hydric soil rating: No

WlA—Wilson clay loam, 0 to 1 percent slopes

Map Unit Setting
National map unit symbol: 2wst1
Elevation: 200 to 770 feet
Mean annual precipitation: 34 to 43 inches
Mean annual air temperature: 65 to 69 degrees F
Frost-free period: 240 to 278 days
Farmland classification: Farmland of statewide importance

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

Description of Wilson

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loamy and/or clayey alluvium derived from mudstone

Typical profile

Ap - 0 to 7 inches: clay loam
Btss - 7 to 31 inches: clay
Btkss - 31 to 36 inches: clay
Btkssyg - 36 to 42 inches: clay
Btkyg - 42 to 80 inches: clay loam

Properties and qualities

Slope: 0 to 1 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 5 to 36 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Gypsum, maximum content: 15 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0
Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: R086AY004TX - Southern Claypan Prairie
Hydric soil rating: No

Minor Components

Burleson

Percent of map unit: 10 percent
Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai, circular gilgai
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Crockett

Percent of map unit: 5 percent
Landform: Ridges
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve

Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY004TX - Southern Claypan Prairie
Hydric soil rating: No

WlB—Wilson clay loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2wg9f
Elevation: 200 to 770 feet
Mean annual precipitation: 34 to 48 inches
Mean annual air temperature: 64 to 67 degrees F
Frost-free period: 243 to 262 days
Farmland classification: Farmland of statewide importance

Map Unit Composition

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

Description of Wilson

Setting

Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Linear
Across-slope shape: Concave
Parent material: Loamy and/or clayey alluvium derived from mudstone

Typical profile

Ap - 0 to 7 inches: clay loam
Btss - 7 to 31 inches: clay
Btkss - 31 to 36 inches: clay
Btkssyg - 36 to 42 inches: clay
Btkyg - 42 to 80 inches: clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Moderately well drained
Runoff class: High
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: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Gypsum, maximum content: 15 percent
Maximum salinity: Very slightly saline to moderately saline (2.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 10.0

Available water supply, 0 to 60 inches: Moderate (about 7.6 inches)

Interpretive groups

Land capability classification (irrigated): None specified
Land capability classification (nonirrigated): 3w
Hydrologic Soil Group: D
Ecological site: R086AY004TX - Southern Claypan Prairie
Hydric soil rating: No

Minor Components

Burleson

Percent of map unit: 10 percent
Landform: Stream terraces, stream terraces
Landform position (three-dimensional): Tread
Microfeatures of landform position: Circular gilgai, circular gilgai
Down-slope shape: Linear
Across-slope shape: Linear
Ecological site: R086AY011TX - Southern Blackland
Hydric soil rating: No

Crockett

Percent of map unit: 5 percent
Landform: Ridges, stream terraces
Landform position (two-dimensional): Summit, shoulder
Landform position (three-dimensional): Interfluve, tread
Down-slope shape: Linear
Across-slope shape: Convex
Ecological site: R086AY004TX - Southern Claypan Prairie
Hydric soil rating: No

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Attachment I

National Flood Hazard Layer FIRMette

FEMA

97°20'20"W 30°59'23"N

97°19'43"W 30°58'53"N

0 250 500 1,000 1,500 2,000 Feet

1:6,000

Basemap: USGS National Map: Orthoimagery: Data refreshed October, 2020

Legend

SEE FIS REPORT FOR DETAILED LEGEND AND INDEX MAP FOR FIRM PANEL LAYOUT

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

OTHER AREAS OF FLOOD HAZARD
- 0.2% Annual Chance Flood Hazard, Areas of 1% annual chance flood with average depth less than one foot or with drainage areas of less than one square mile *Zone X*
- Future Conditions 1% Annual Chance Flood Hazard *Zone X*
- Area with Reduced Flood Risk due to Levee. See Notes. *Zone X*
- Area with Flood Risk due to Levee *Zone D*

OTHER AREAS
- NO SCREEN Area of Minimal Flood Hazard *Zone X*
- Effective LOMRs
- Area of Undetermined Flood Hazard *Zone D*

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

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

MAP PANELS
- Digital Data Available
- No Digital Data Available
- Unmapped

N

The pin displayed on the map is an approximate point selected by the user and does not represent an authoritative property location.

This map complies with FEMA's standards for the use of digital flood maps if it is not void as described below. The basemap shown complies with FEMA's basemap accuracy standards

The flood hazard information is derived directly from the authoritative NFHL web services provided by FEMA. This map was exported on 4/21/2023 at 11:11 AM and does not reflect changes or amendments subsequent to this date and time. The NFHL and effective information may change or become superseded by new data over time.

This map image is void if the one or more of the following map elements do not appear: basemap imagery, flood zone labels, legend, scale bar, map creation date, community identifiers, FIRM panel number, and FIRM effective date. Map images for unmapped and unmodernized areas cannot be used for regulatory purposes.

Attachment J

NUTRIENT MANAGEMENT PLAN

Prepared For:

BELL COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT NO. 2

P.O. Box 338

Little River-Academy, Texas 76554

April 25, 2025

FINAL

Nutrient Management Specialist:	Jenni Griesel, P.E., NMP 202002
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Project No.	0376-006-01

TABLE OF CONTENTS

1 Summary 1
1.1 Beneficial Biosolids Land Application Site 1
1.2 Sludge Application 1
1.3 Hay Production 1
1.4 Total Biosolids Produced Annually 1
1.5 Total Biosolids to Be Land Applied Annually 4
1.6 Biosolids to Be Disposed by Alternative Method 4
2 Application Site Information 5
2.1 Acreage 5
2.2 Soil Types and Properties 5
2.3 Soil Test Results 6
2.4 Phosphorus Management 7
2.5 Proposed Production of Hay 7
2.6 Buffer Zones 7
3 Biosolids 8
3.1 Sludge Sources 8
3.2 Sludge Test Results 8
4 Nutrient Management Plan Results 9
4.1 Phosphorus Index 9
4.2 Nitrogen Leaching 9
5 Operation and Maintenance Provisions 10
5.1 When to Avoid Application 10
5.2 Record Keeping 10
Appendix A: 590 Organic Nutrient Management Plan Version 5 11
Appendix B: Nitrogen Leaching Index Worksheet TX - Version 4 31

LIST OF FIGURES

Figure 1. General Location Map 2
Figure 2. Site Map 3

LIST OF TABLES

Table 1. Water-Holding Capacities for Soils in Field 6
Table 2. Soil Test Result for Nitrogen, Phosphorus and Potassium 6
Table 3. Land Application Buffer Zones 7
Table 4. Biosolids Generated for Each Facility 8
Table 5. Results of Biosolids Analyses 8
Table 6. Sludge Application Rates Based on 590 Plan Results 9

LIST OF ABBREVIATIONS

Abbreviation	Meaning
590 Plan	590 Organic Nutrient Management Plan
ac	acres
AWC	available water-holding capacities
BCWCID2	Bell County Water Control and Improvement District No. 2
BrB	Branyon Clay
DT/ac/yr	dry tons per acre per year
g-soil/cc	grams of soil per cubic centimeter
K	potassium
LegC	Lewisville-Altoga complex
mg/kg	milligram per kilogram
µm/s	micro-meters per second
N	nitrogen
NELAC	National Environmental Laboratory Accreditation Conference
NELAP	National Environmental Laboratory Accreditation Program
NLI	Nitrogen Leaching Index
NMP	nutrient management plan
NRCS	National Resources Conservation Service
NUP	nutrient utilization plan
P	phosphorus
PAN	plant-available nitrogen
Permit	TCEQ Permit No. WQ0004436000
PI	Phosphorus Index
ppm	parts per million
SSSA	Soil Science Society of America
TCEQ	Texas Commission on Environmental Quality
TKN	Total Kjeldahl-Nitrogen
TPDES	Texas Pollutant Discharge Elimination System
WWTF	Wastewater Treatment Facility

1 SUMMARY

This Nutrient Management Plan (NMP) has been developed to support the application to permit Bell County Water Control and Improvement District No. 2 (BCWCID2) Beneficial Biosolids Land Application Site. This NMP was developed based on current federal and state regulations governing land application of Class B biosolids, as well as the previous permit requirements for this site under Texas Commission on Environmental Quality (TCEQ) Permit No. WQ0004436000 (Permit). This NMP has been developed in accordance with Natural Resources Conservation Service (NRCS) Code 590 Practice Standard.

1.1 BENEFICIAL BIOSOLIDS LAND APPLICATION SITE

The land application site is located 0.32 miles north of Farm-to-Market Road 436 and 0.50 miles east of State Highway 95, in Bell County, Texas 76554. BCWCID2 owns a 5.28-acre (ac) site with 2.91 acres receiving land application of sludge.

Figure 1 shows the general location of the site within Bell County.

After the removal of the buffer zones along the property boundaries, flood zones, and other areas of exclusion, the land application area includes a total of 2.91 acres. The land application area has fairly level ground with a slope of 1-3%. The field grows coastal Bermuda grass, which is harvested between March and November, dependent on weather conditions.

Figure 2 shows the location of the land application area and its boundaries. Refer also to Section 2 for additional information.

1.2 SLUDGE APPLICATION

BCWCID first obtained a permit to land apply biosolids to this site on September 12, 2002. Sludge has not been applied to the site since before 2019. The previous permit expired July 27, 2023, and this NMP has been developed in concert with a new permit application. Sludge will be land applied in compliance with this NMP, dated April 25 2025. Year-round application of biosolids is contracted to Paramount Wastewater Solutions, LLC.

1.3 HAY PRODUCTION

This NMP is based on hay production of three cuttings each year with an average yield of 2 tons per acre. Farming activities such as planting and harvesting hay will be managed by local vendors under contract with BCWCID2.

1.4 TOTAL BIOSOLIDS PRODUCED ANNUALLY

BCWCID 2 currently operates the Academy Wastewater Treatment Facility (WWTF) under Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0011090001 and the Little River WWTF under TPDES Permit No. WQ0011091001, which generate biosolids that are either land applied to the beneficial biosolids site covered under this NMP or are hauled to another facility for further treatment. The combined sludge production for the two WWTFs is approximately 12.45 dry metric tons per year, or 13.72 dry tons per year. Refer also to Section 3 for additional information.

PLUMMER

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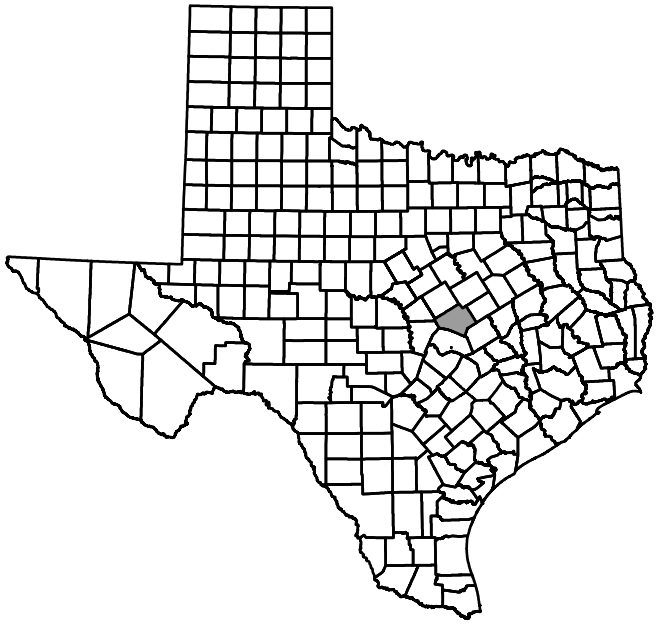

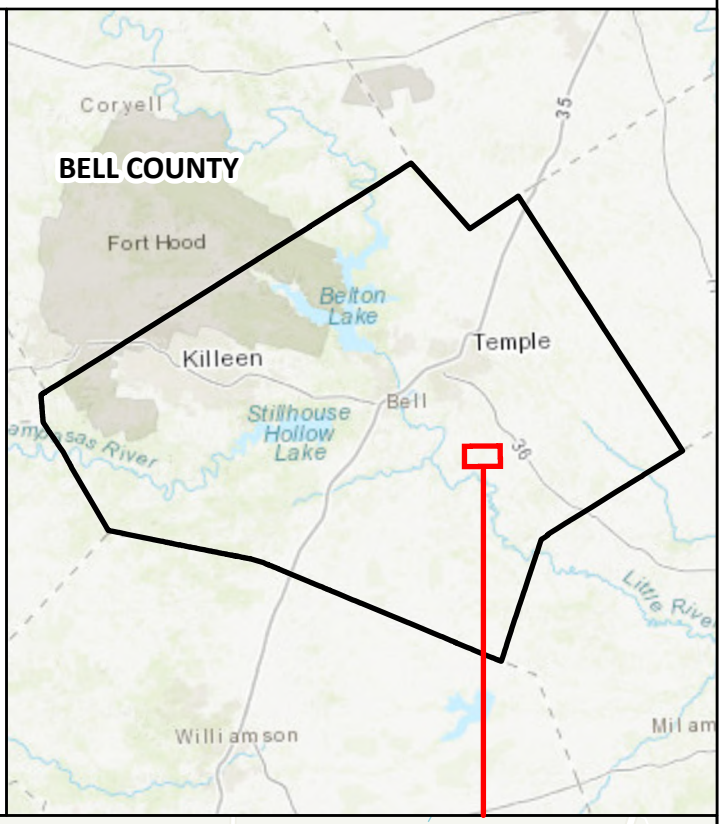

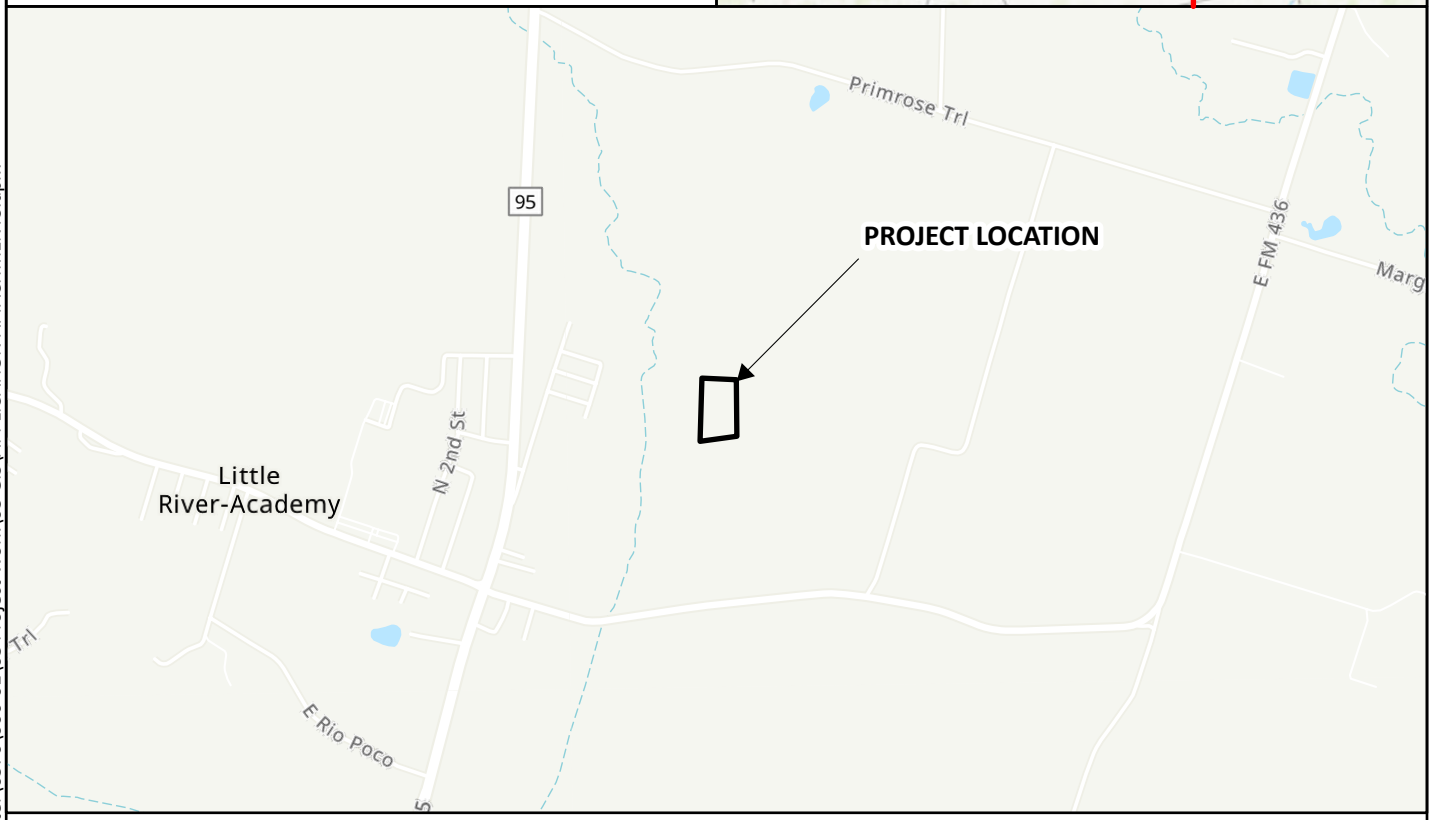

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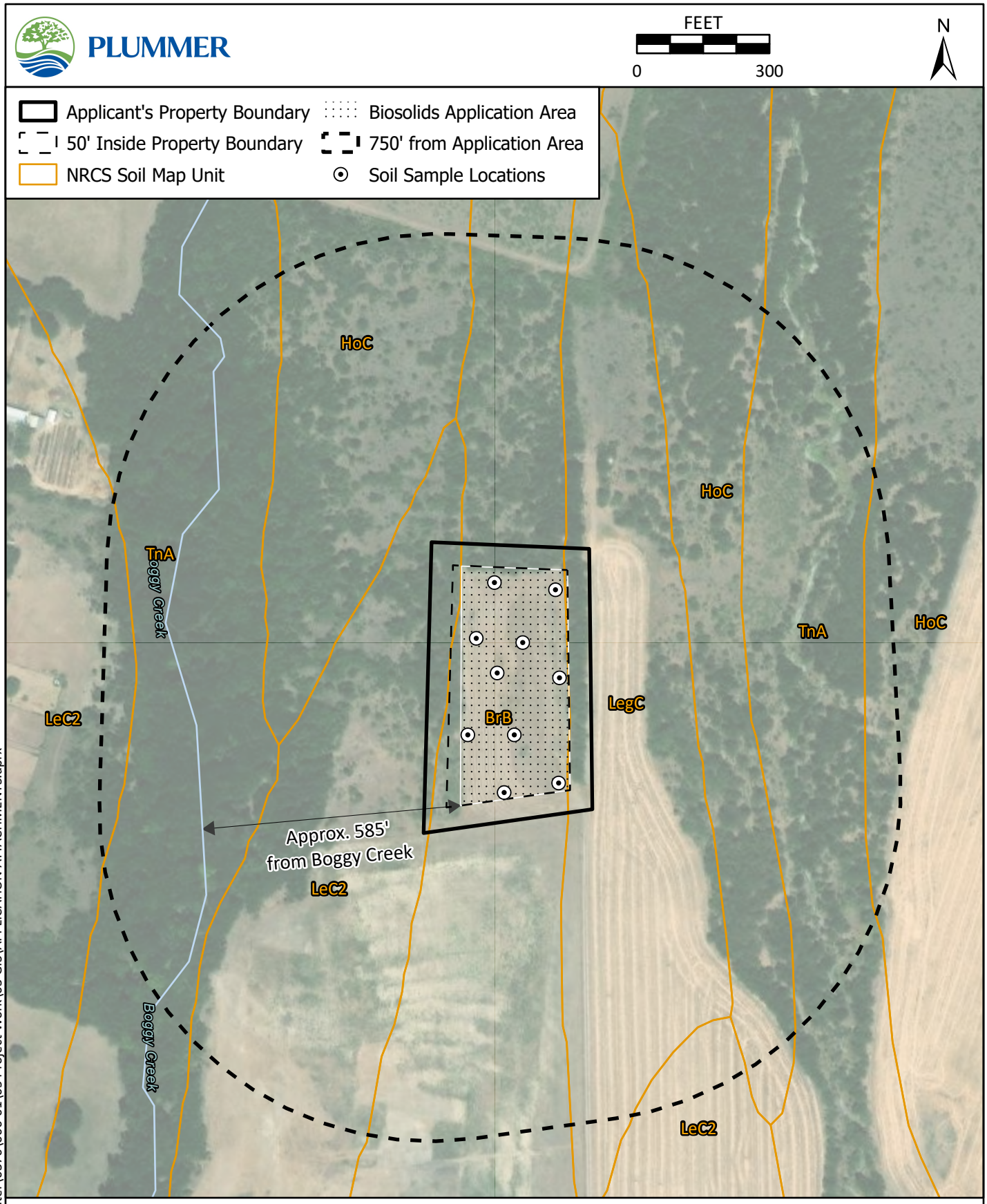
BELL COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT NO. 2
BENEFICIAL BIOSOLIDS LAND APPLICATION SITE
NUTRIENT MANAGEMENT PLAN
FIGURE 1. GENERAL LOCATION MAP



BELL COUNTY WATER CONTROL AND IMPROVEMENT DISTRICT NO. 2
BENEFICIAL BIOSOLIDS LAND APPLICATION SITE
NUTRIENT MANAGEMENT PLAN
FIGURE 2. SITE MAP

TEXAS REGISTERED ENGINEERING FIRM F-13
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1.5 TOTAL BIOSOLIDS TO BE LAND APPLIED ANNUALLY

The NRCS 590 Organic Nutrient Management Plan Version 5 (590 Plan) is used to calculate recommended application rates based on the three main macronutrients for plants: nitrogen (N), phosphorus (P), and potassium (K). Land application area, nutrient content of soil, and nutrient content of the biosolids are entered into the NRCS program and used to determine the application rate. Utilizing this tool, the maximum P-based annual application rate of biosolids is 3.61 dry tons per acre per year (DT/ac/yr) at the current soil nutrient levels. Refer also to Section 4 for additional information.

1.6 BIOSOLIDS TO BE DISPOSED BY ALTERNATIVE METHOD

Up to 10.5 dry tons per year can be land applied on the site, leaving approximately 3.22 dry tons to be disposed of by an alternate method. Excess biosolids will be hauled to another facility for further treatment and final disposal. Hauling is contracted to Paramount Wastewater Solutions, LLC. The actual amount applied or transported may vary depending upon rainfall patterns that may limit application, the annual soil nutrient levels, and/or biosolids nutrient levels with corresponding adjustments in application rate.

2 APPLICATION SITE INFORMATION

Figure 2 shows the land application area used by BCWCID2. The application of biosolids to the field is managed by Paramount Wastewater Solutions, LLC. Harvesting hay will be managed by a local farming vendor under contract with BCWCID2.

2.1 ACREAGE

BCWCID2 operates and maintains a total of 3.23 acres for hay production, which includes the active field used for beneficial land application of biosolids. Approximately 0.32 acres of the field are excluded from the land application of biosolids. Exclusions from the land application area include regulatory buffer zones and floodways. The remaining 2.91 acres of the field are used for land application of biosolids.

2.2 SOIL TYPES AND PROPERTIES

The active field is made up of 97.1% Branyon Clay (BrB) with a slope of 1-3% and of 2.9% Lewisville-Altoga complex (LegC) at the easternmost edge with a slope of 2-5%. Figure 2 shows the land application areas, soil sample locations, and the types of soil series present within the land application area. The following is a brief description of the soil series types depicted in Figure 2:

- The Branyon Clay soil series is classified by the NRCS as fine, smectitic, thermic Udic Haplusterts. The soil texture of the first 52 inches of the soil profile is listed as clay. Branyon soil series is classified as hydrologic group D and has a hydraulic conductivity of 0.42-1.40 µm/s in the top layer and 0.01-0.42 µm/s in the lower layers. The slope is very low at 1% to 3%. However, based on the hydrologic group, there is a low risk of runoff from this soil.
- The Lewisville soil series is classified by the NRCS as fine-silty, mixed, active, thermic Udic Calciustolls. The soil texture of the first 52 inches of the soil profile is listed as silty clay. The Lewisville soil series is classified as hydrologic group C and has a hydraulic conductivity of 0.42-1.40 µm/s. The slope is low at 2% to 5%, and there is a moderate risk of runoff.
- The Altoga soil series is classified by the NRCS as fine-silty, carbonatic, thermic Udic Haplustepts. The soil texture of 0 to 7 inches and 60 to 66 inches of the soil profile is listed as silty clay loam. The soil texture of 7 to 60 inches is silty clay. The Altoga soil series is classified as hydrologic group C and has a hydraulic conductivity of 4.00-14.00 µm/s in the top layer, 0.42-1.40 µm/s in the middle layer, and 1.40-4.00 µm/s in the bottom layer. The slope is low at 2% to 5%, and there is a moderate risk of runoff.

The available water-holding capacities (AWC), moist bulk density in grams of soil per cubic centimeter (g-soil/cc), and hydraulic conductivity in micro-meters per second (µm/s) by depth of these soils are provided in Table 1.

Table 1. Water-Holding Capacities for Soils in Field

Map ID	Soil Name	Depth Layer	Moist Bulk Density (g-soil/cc)	Saturated Hydraulic Conductivity (µm/s)	AWC (inches-H_2O/ inches-soil)	Hydrologic Group
BrB	Branyon Clay	0-12”	1.25-1.45	0.42-1.40	0.14-0.18	D
		12-72"	1.27-1.60	0.01-0.42	0.11-0.18	
		72-80"	1.28-1.65	0.01-0.42	0.12-0.21	
LegC	Lewisville	0-12”	1.35-1.40	0.42-1.40	0.16-0.20	C
		12-28”	1.35-1.55	0.42-1.40	0.14-0.18	
		28-52”	1.35-1.60	0.42-1.40	0.14-0.18	
	Altoga	0-7”	1.20-1.40	4.00-14.00	0.14-0.19	C
		7-60”	1.35-1.50	0.42-1.40	0.14-0.18	
		60-66”	1.35-1.50	1.40-4.00	0.15-0.19	

2.3 SOIL TEST RESULTS

One composite sample was collected from the land application area on February 25, 2025, comprising 10 sub-samples. Sub-samples were taken in groupings of similar soils for depths 0-6 inches and 6-24 inches. The locations of these sub-samples are shown in Figure 2. A composite sample of all soil samples was analyzed for the two depth ranges. The composite soil sample represents the 2.91 ac land application site. This compositing technique is consistent with the NRCS-recommended maximum composite soil sample representation of 40 acres. A summary of the soil testing analysis per depth for nitrate-N, total Kjeldahl nitrogen (TKN), ammonium-N, phosphorus, and potassium in milligrams per kilogram (mg/kg), or parts per million (ppm) are presented in Table 2.

Table 2. Soil Test Result for Nitrogen, Phosphorus and Potassium

Composite Sample Result (mg/kg, ppm)	Depth 0-6”	Depth 6-24”
Nitrate-N	8	12
TKN	806	1320
Ammonium-N	2.1	1.4
Phosphorus	136	113
Potassium	351	289

BCWCID2 will conduct soil sample analyses annually. Analytical testing will be conducted by a laboratory participating in the North American Proficiency Testing Program supported by the Soil Science Society of America (SSSA), the NRCS, or those certified under the National Environmental Laboratory Accreditation Program (NELAP) as administered by the TCEQ under authorization from the National Environmental

Laboratory Accreditation Conference (NELAC). All soil composites will represent land areas of less than or equal to 40 acres.

2.4 PHOSPHORUS MANAGEMENT

The field will be monitored for P levels that may exceed 200 ppm. It is recommended that management strategies be revised to a nutrient utilization plan (NUP) if soil P levels exceed 200 ppm. In this case the NMP may be revised to an NUP to reduce nutrient application rates to no more than the amount utilized and removed from the soil by the crops. The current February 2025 soil test shows P below 200 ppm. Additionally, biosolids application methods and site operations minimize the potential for P runoff from the site. Therefore, an NUP is not required.

2.5 PROPOSED PRODUCTION OF HAY

Planned production of hay for the proposed permit period is based on three cuttings annually of coastal Bermuda grass.

2.6 BUFFER ZONES

When land-applying biosolids, state regulations require the establishment of buffer zones to prevent the harm of fish, wildlife, and the public. The area where biosolids are land applied must have buffer zones for areas including, but not limited to, floodways, surface water, private water wells, and residential properties. The required buffer zone distances for each feature are provided in Table 3.

Table 3. Land Application Buffer Zones

Distance	Buffered Feature
750’	Established school, institution, business or residence
500’	Public water supply well, intake, spring, or similar source, public water treatment plant, or public water supply elevated or ground storage tank
200’	Solution channel, sinkhole, or other conduit to groundwater
200’	Water in the state - when sludge is not incorporated
150’	Private water supply well
50’	Public right-of-way
50’	Property Boundary
33’	Water in the state - when sludge is incorporated within 48 hours of application and a vegetated cover is established
10’	Irrigation conveyance canal

Figure 2 shows that a 50’ buffer zone is provided between the location of biosolids application and the property line; The site is over 500’ from the nearest water in the state, and no other features are within 750’ of the land application area.

3 BIOSOLIDS

3.1 SLUDGE SOURCES

This NMP has been developed to support the beneficial land application of biosolids permit application for a 5-year TPDES permit term, which is expected to last through the year 2030. The WWTFs' flows and annual sludge production are shown in Table 4.

Table 4. Biosolids Generated for Each Facility

Facility	Permitted Daily Average Flow, MGD	Sludge Produced, (9/1/2023 – 8/31/2024)	
		Dry Metric Tons	Dry Tons
Academy WWTF	0.10	6.79	7.48
Little River WWTF	0.16	5.66	6.24
Total	0.26	12.45	13.72

A combined sludge production of 13.72 dry tons/year is used for this NMP.

3.2 SLUDGE TEST RESULTS

Biosolid samples were collected on August 29, 2024 for analysis. A summary of the results is provided in Table 5.

Table 5. Results of Biosolids Analyses

Parameter	Academy WWTF Results (mg/kg, dry weight)	Little River WWTF Results (mg/kg, dry weight)	Weighted Average Results (mg/kg, dry weight)
Nitrate-N	45.9	92.6	67
Nitrite-N	61.4	125.0	90
TKN	47,300	57,200	51,801
Ammonia-N	5,200	6,900	5,973
Phosphorus	10,200	10,600	10,382
Potassium	3,790	4,570	4,145

The biosolids land-applied to the field will provide nutrients to the soil for hay production. The test results of the biosolids are used to determine the proper biosolids application rate. The percentages of plant-available nitrogen (PAN), P, and K in the combined biosolids were determined as 1.52%, 1.04%, and 0.414% respectively.

4 NUTRIENT MANAGEMENT PLAN RESULTS

The land application rate was determined using the 590 Plan. Land area, nutrient content of soil, and nutrient content of the biosolids were used as program inputs to determine the application rate. The Nutrient Management Plan produced is attached as Appendix A: 590 Organic Nutrient Management Plan Version 5. Utilizing this tool, the maximum P-based annual application rate of biosolids is 3.61 dry tons per acre per year (DT/ac/yr) at the current soil nutrient levels. No supplemental nutrients in the form of chemical fertilizers are needed to meet the crop yield goals at the proposed application rate.

4.1 PHOSPHORUS INDEX

Table 6 provides the results from the 590 Plan program for the phosphorus index (PI) runoff potential, application rate of biosolids, and amount of nutrients applied.

Table 6. Sludge Application Rates Based on 590 Plan Results

Parameter	Value	Unit
Field PI*	19.5	N/A
Maximum Biosolids Application Rate	3.61	DT/ac/yr
	10.5	DT/yr

Note: PI classification brackets are categorized as PI < 12 = Very Low or Low; 12 ≤ PI ≤ 22.75 = Medium; 23 ≤ PI < 32 = High; PI ≥ 32 = Very High

Based on the PI classification brackets shown in Table 6, the field has a medium potential for phosphorus runoff.

4.2 NITROGEN LEACHING

The potential nitrogen leaching in the soil was evaluated using the Nitrogen Leaching Index (NLI) Worksheet, Texas Version 4. An NLI below 2 indicates that the potential for nitrate leaching below the root zone is low. Based on the field's "D" hydrologic group and that Bermuda grass is primarily used, the NLI is calculated to be 1. The NLI Worksheet is provided as Appendix B: Nitrogen Leaching Index Worksheet TX - Version 4.

5 OPERATION AND MAINTENANCE PROVISIONS

5.1 WHEN TO AVOID APPLICATION

Biosolids must be applied during times that will minimize the potential for phosphorus to enter a water body through runoff and erosion. Application of biosolids shall not occur during the following conditions:

1. Standing water is present on the ground;
2. Land is flooded, frozen, or snow-covered;
3. A rainfall event ≥ 0.50 inches has occurred within the previous 24 hours; or
4. Forecast of heavy rainfall to occur within 24 hours of proposed application.

The application of biosolids during proper conditions will prevent the addition of phosphorus into the environment while allowing the proper amount of nutrients to be used for hay production.

5.2 RECORD KEEPING

Records for all biosolid applications are maintained by BCWCID2. These records include the volume of biosolids generated and the volume of biosolids land applied or disposed of by another management practice. Records must be maintained for a minimum of 5 years for planning and maintenance purposes. The following shall be included in the record keeping when appropriate as according to the NRCS Code 633 Waste Utilization:

1. Soil test results;
2. Dates and amounts of waste application where land applied;
3. Climatic conditions during waste application including time of day, temperature, humidity, wind speed, and other factors as necessary;
4. Waste application methods; and
5. Crops grown, yield goals, and measured yield.

APPENDIX A: 590 ORGANIC NUTRIENT MANAGEMENT PLAN VERSION 5

Waste Utilization and Nutrient Management Plan

Beneficial Land Application Site
0 BURGESS DR
TEMPLE, TX 76501
(469) 245-7689

TCEQ Permit Number:
WQ0004436000

Owner
Bell County WCID #2
P.O. Box 338
Little River-Academy, Texas 76554
(469) 245-7689

Operator
Paramount Wastewater Solutions, LLC
4025 Paramount Pkwy
Temple, TX 76502
(254) 791-0303

Type of Organic Nutrient Management Plan:
Biosolids
located in Bell County

Prepared By:

Jenni Griesel
_____
(Signature)
JENNI GRIESEL
PROJECT ENGINEER
Certificate Number = TX202002
Expiration Date = January 31, 2026
Plummer Associates, Inc.
8911 N Capital of TX Hwy, Bldg 1 - Ste 1250
Austin, TX 78759
512-687-2193

This plan is based on:
590 Organic Nutrient Management Plan V 5.0

4/14/25 4:46 PM

Waste Utilization and Nutrient Management Plan

EXECUTIVE SUMMARY: Permit #: WQ0004436000

This Nutrient Management Plan has fields that meet NUPs requirements.

The above statement is incorrect: The application field does not meet the NUP requirements, as the soil P level is below 200 ppm. This nutrient management plan has been prepared for Bell County Water Control and Improvement District No. 2 (BCWCID2) in support of their permit application for the beneficial use and land disposal of biosolids generated from the Academy and Little River Wastewater Treatment Plants. The permitted area consists of 3.27 acres, of which only 2.91 acres will receive biosolids. The plan is based on current soil and biosolids analysis results. Book values for crop yields and crop nutrient contents were used. No livestock are pastured on the site.

Using the above assumptions and soil properties taken from the official soil series descriptions, the calculated maximum biosolids application rate based on P is 3.61 dry tons/acre/year. Over the 2.91 application acres, this would amount to 10.5 dry tons applied each year. The two facilities produce approximately 13.72 tons of biosolids annually. Therefore, approximately 3.22 dry tons per year will require an alternate disposal method. This rate is sufficient to supply the crop needs for nitrogen, phosphorus and potassium. No additional fertilizer wil be needed to achieve the desired yield goals. Since the soils are slightly alkaline, no lime application is required. Soil and waste samples shall be collected and tested annually in accordance with permit requirements. New soil and biosolids data can then be used to revise this NMP and provide a more accurate calculation of maximum biosolid application rates. BCWCID2 keeps records of the amounts of hay removed from each field.

Careful adherence to this nutrient management plan will allow the beneficial use of nutrient rich biosolids while protecting our water resources from environmental damage resulting from excess nitrogen or phosphorus applications.

LOCATION AND PURPOSE OF THE PLAN

Located in : Bell County

See plan map for location. The purpose of this plan is to outline the details of land application of biosolids on this land. This plan, when applied, will meet the requirements of the Natural Resources Conservation Service Nutrient Management Standard (590) and Waste Utilization Standard (633). When the appropriate land treatment practices needed to reduce runoff are fully implemented and maintained in each field the plan will provide the more comprehensive benefits of minimizing the affects of the land application of biosolids on the air, soil, water, and animal resources in and around the application area. Annual maximum application rates are determined using **Table 2 & 2a** depending on the current soil test P level and P index result for each field receiving biosolids.

Table 3 provides an estimate of the nutrients removed in the harvested portion of the crop at the planned yield goal for hay, grain, and fiber crops. The values used for grazed crops are the estimated amount of nutrients taken up in the above ground portion of the plants.

Refer to **Table 4** for field specific maximum biosolids application rates. Values in **Table 4** are based on the data in **Table 1**. Application will be based on biosolids analysis. Applying biosolids at **MAXIMUM** rates shown in **Table 4** will result in a more rapid build-up of phosphorus than if applied at lower rates. Phosphorus will build up more rapidly on pastureland than on hayland or cropland, since a much small amount of nutrients are actually removed from the farm by grazing animals. Biosolids may be applied to the same acreage every year, but if the soil test P level exceeds the critical level, or the Texas P Index result changes the rates of application will have to be reduced in accordance with Texas NRCS Nutrient Management Standard (590). This plan is valid only if the annual application of biosolids to the crops listed in **Table 4** does not exceed the per acre rates by more than 10%. If the yield of a crop does not meet the expected goal, the application rate should be adjusted accordingly the following year.

Recommended annual application amounts that are smaller than can physically be applied due to limitation of the application equipment should be doubled and applied to the field every other year. No other P fertilizer may be used the second year, but supplemental N and K2O should be applied, if needed. If the P index critical P level is exceeded, it is recommended that no additional biosolids be applied to those fields until the level is reduced. Biosolids applications should be made at appropriate times to meet crop needs, but may be applied at any time as long as soils are not saturated, snow covered, or frozen, and the annual maximum is not exceeded.

SUPPLEMENTAL NUTRIENTS TO MEET YIELD GOAL

Table 5 shows the estimated amount of nutrients that are applied in pounds per acre for each field where biosolids are applied using per acre amounts shown in **Table 4**. Supplemental nitrogen (N) and potassium (K2O) will be applied to achieve the yield goals noted in **Table 5**, when recommended based on soil analysis and the annual biosolids application does not meet the requirements as detailed in **Table 5.**

Deep soil sampling is recommended on application areas where loamy to clayey soils are present and biosolids have been applied previously. If this deep testing reveals accumulated nitrate N in the root zone, it should be deducted from any supplemental N to be applied to meet the planned yield goal. Sampling in 6 inch increments to a depth of 3 feet is sufficient for most crops.

ADJUSTMENTS TO APPLY LESS THAN THE MAXIMUM RATES

In situations where more land is available than is needed to utilize the maximum application rate on each field, the application rates in **Table 6** can be reduced down to the level that does not exceed the amount of solids available. **Table 7** indicates the amount of nutrients provided and, if needed, the supplemental nutrients which must be applied when the application is based on these reduced rates. The amount of supplemental nutrients in **Table 7** are based on the actual amount of waste available rather than the maximum rate that **"could"** be applied.

The second line from the bottom of **Table 6** on the right has a box that will be **"YES"** or **"NO"**. When the reduced rates uses all solids to be produced in a year, this box will be **"Yes"**. If the percentages are too low, it will be **"No"**. If **"No"**, either more acreage is needed on which to apply the solids or the solids will need to be transported off-site.

Acres of biosolids exclusion zones are noted in **Table 8**. Location of buffers and other exclusion zones are found on the application area map.

Filter Strips will meet the Texas USDA/NRCS standard (393). A minimum 100 foot wide grassed and/or wooded buffer providing at least 70% ground cover will be maintained between the application area and all water courses, ponds, lakes, wetlands, etc.

Riparian Forested Buffers (if used) will meet the Texas USDA/NRCS Standard (391). When planned, a minimum 50 foot wide wooded buffer will be maintained between the application area and the edge of streams, creeks, rivers, etc. to protect water quality, decrease water temperatures, improve aquatic organism habitat, reduce sediment and nutrient loading and reduce bank erosion. Select harvesting within this zone may be done in accordance with guidelines of the Texas Forest Service. If the wooded buffer is only 50 feet wide, there still must be a minimum 100 feet between biosolids application area and stream bank. Another vegetated buffer will be established or maintained to account for the remaining distance. Biosolids will not be applied within 100 feet of any waterway, stream, creek, pond, lake, or wetlands.

The minimum application distance from private or public wells will be 150 feet and 500 feet respectively. Private wells that are located within a field where biosolids are applied and are part of a center pivot irrigation system are exempt from the set-back requirement. The minimum suggested application distance from schools, institutions, and densely populated residential, business, or similar development is 1000 feet.

Biosolids will not be applied to any buffer areas or any frequently flooded areas, as designated by county soil survey.

PLANNED METHOD OF APPLICATION

Biosolids may be surface applied uniformly, injected, or incorporated below the surface of the soil within the root zone of the planned crop. To reduce soil compaction, applications should only be made when soil conditions are favorable. Biosolids should not be spread if heavy rains are forecast to occur within 1 day of a proposed application date.

ODOR MANAGEMENT

The following steps should be taken when spreading biosolids to reduce problems associated with odor.
1. Avoid spreading biosolids when wind will blow odors toward populated areas.
2. Avoid spreading biosolids immediately before weekends or holidays, if people are likely to be engaged in nearby outdoor activities.
3. Avoid spreading biosolids near heavily traveled highways.
4. Make biosolids applications in the morning when the air is warming, rather than in the late afternoon.

BIOSOLIDS TESTING

If your biosolids application area is permitted by the Texas Commission on Environmental Quality (TCEQ), follow the sampling and testing requirements of your permit. For applications not permitted by TCEQ, the biosolids need to be analyzed for percent moisture, total nitrogen, total phosphorus, and total potassium.

Biosolids may be temporarily stockpiled and covered with durable plastic or other suitable tarp material. Stockpiled biosolids must be sited on suitable soil, geology, and topography to prevent contamination of waterways. Runoff from stockpiled biosolids must be retained on-site by use of berms or other adequate structures where there is potential transport of biosolids into waterways.

COLLECTING SOIL SAMPLES FOR ANALYSIS

If your biosolids application area is permitted by the Texas Commission on Environmental Quality (TCEQ), follow the sampling requirements of your permit. If application area is not regulated by TCEQ:

Collect a composite sample for each field (or area of similar soils and management not more than about 40 acres) comprised of 10 - 15 randomly selected cores. Each core should represent 0 - 6 inches below the surface. Thoroughly mix each set of core samples, and select about a pint of the mixture as the sample for analysis. Label each sample for the field that it represents. Request that the samples be analyzed for nitrate nitrogen, available phosphorus, potassium, sodium, magnesium, calcium, sulfur, boron, conductivity, and pH. Also note on the samples that they are from a biosolids application area.

SOIL ANALYSIS

If your biosolids application area is permitted by the Texas Commission on Environmental Quality (TCEQ), follow the sampling requirements of your permit. If application area is not regulated by TCEQ:

A base line soil analysis will be completed for all areas to be used for biosolids application. The area will be tested every year that biosolids are applied to monitor P build up. If soil test values rise to a higher category, i.e., Low to Medium, contact the local Soil and Water Conservation District or USDA/NRCS office to revise the Waste Utilization Plan and to assist in development of a plan to reduce P in the field(s).

RECORD KEEPING

If your biosolids application area is permitted by the Texas Commission on Environmental Quality (TCEQ), follow the record keeping requirements of your permit. If application area is not regulated by TCEQ:

Detailed records should be maintained for all applications of biosolids for a period of at least 5 years. Records should include date, time, location, and amount of application; they could also include weather conditions, estimated wind speed and direction, etc. Keep all soil and biosolids analyses for the same period.

OPERATION AND MAINTENANCE

Application equipment should be maintained in good working order, and it should be calibrated at least once a year, so that the desired rate and amount of biosolids will be applied. Any changes in this system must be discussed with Texas Commission on Environmental Quality (TCEQ) prior to their initiation on permitted sites. If your site is not permitted by TCEQ, contact your local NRCS office for updates and assistance.

Waste Utilization and Nutrient Management Plan

SIGNATURE PAGE WQ0004436000

Plan Prepared by:	**JENNI GRIESEL**	Date:	**4/14/2025**
Plan Approved by:	Jenni Griesel	Date:	4/25/2025
Producer Signature:	AndreanaSAlexander	Date:	4/28/2025

The producer's signature indicates that this plan has been discussed with him/her.
If this plan is not signed by the producer, indicate how the plan was provided to the producer.

PI Index by Field

Printed on: 4/14/25 4:47 PM

This plan is based on: Nutrient Management Plan V 5.0

Permit #: WQ0004436000

Client Name: Beneficial Land Application Site

Planner: JENNI GRIESEL

Date: 4/14/2025

Location: Bell

Rainfall: >25.0 inches

LMU or Fields	Crop	Slope	Runoff Curve	Soil Test P Level	Inorganic P_2O_5 Appl Rate	Organic P_2O_5 Appl Rate	Inorganic Method & Timing	Organic Method & Timing	Proximity of Appl to Named Stream	Runoff Class	Soil Erosion	Total Index Points	P Runoff Potential	Soil Test Date:
1	Coastal 3 Cut Hay	2.0%	78	8	0	6	0	0.5	2.5	1	1.5	19.5	Medium	2/25/25

Waste Utilization and Nutrient Management Plan

Table 1 - Est. Amount of Waste Allowed for Land Application Permit #: WQ0004436000

Biosolids Type	Est. Max DRY tons applied annually
Other	**10.5**

Contact your agronomic consultant, TCEQ or local USDA Natural Resources Conservation Service office, if the application quantities change by more than 10 percent so your plan can be revised.

Estimated Nutrient Availabilty

Solids

		pounds / yr	pounds / ton	
**	**N**	**873**	**83.2**	**
	P2O5	**500**	**47.6**	
	K2O	**103**	**9.8**	

**** Effluent Values Based on Analysis**

**** Solids Values Based on Analysis**

Explanation of Other Biosolids Type:

The Process to Significantly Reduce Pathogens (PSRP) for these Class B biosolids is aerobic digestion.

Default values were used on all fields for plant removal of nutrients and yield levels.

Waste Utilization and Nutrient Management Plan

TABLE 2. A Nutrient Management Plan (NMP) is required where Soil Test P Level [1/] is:

- **less than 200 ppm statewide or**
- **or < 350 ppm in arid areas 2/ with a named stream > one mile.**

P – Index Rating	Maximum TMDL Annual P Application Rate [5/]	Maximum Annual P Application	Maximum Biennial Application Rate
Very Low, Low	Annual Nitrogen (N) Requirement	Annual Nitrogen (N) Requirement	2.0 Times Annual N Requirement
Medium	2.0 Times Annual Crop P Requirement [3/]	2.0 Times Annual Crop P Requirement [3/]	2.0 Times Annual N Requirement
High [5]	1.5 Times Annual Crop P Requirement [3/]	1.5 Times Annual Crop P Requirement [3/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Requirement
Very High [5]	1.0 Times Annual Crop P Requirement [3/]	1.0 Times Annual Crop P Requirement [3/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Requirement

TABLE 2a. A Nutrient Utilization Plan (NUP) is required by TCEQ where Soil Test P Level [1/] is:

- **equal to or greater than 200 ppm in non-arid areas [2/] or**
- **equal to or greater than 350 ppm in arid areas [2/] with a named stream greater than one mile or**
- **equal to or greater than 200 ppm in arid areas [2/] with a named stream less than one mile.**

P – Index Rating	Maximum TMDL Annual P Application Rate [5/]	Maximum Annual P Application	Maximum Biennial Application Rate
Very Low, Low	1.0 Times Annual Crop P Removal [4/]	Annual N Crop Removal	2.0 Times Annual N Removal
Medium	1.0 Times Annual Crop P Removal [4/]	1.5 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal
High [5]	1.0 Times Annual Crop P Removal [4/]	1.0 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal
Very High [5]	0.5 Times Annual Crop P Removal [4/]	0.5 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal

Footnotes Applicable to both Tables

1/ Soil test P will be Mehlich III by inductively coupled plasma (ICP).

2/ Non-arid areas, counties receiving => 25 inches annual rainfall, will use the 200 ppm P level while arid areas, counties receiving < 25 inches of annual rainfall, will use the 350 ppm P level. See map in TX Agronomy Technical Note 15, Phosphorus Assessment Tool for Texas, for county designations.

3/ Not to exceed the annual nitrogen requirement rate.

4/ Not to exceed the annual nitrogen removal rate.

5/ When soil test phosphorus levels are ≥ 500 ppm, with a P-Index rating of "High" or "Very High", there will be no additional application of phosphorus to a CMU or field.

Waste Utilization and Nutrient Management Plan

Table 3 - Crop Removal Rates (For Information Only) Permit #: WQ0004436000

LMU or Field No.	Acres	Crop and P Index Level	TCEQ Plan Type	Actual Crop Analysis or Default	Total Est. N Removal lbs/Ac/Yr	Total Est. P_2O_5 Removal lbs/Ac/Yr	Total Est. K_2O Removal lbs/Ac/Yr
1	2.9	Coastal 3 Cut Hay M	NMP	Default	238	74	202

NOTE: When crops are used for grazing, only a portion of the nutrients used by the crop are removed from the field in the live weight gain of the livestock, the remainder is returned to the land in manure and urine. The book "Southern Forages" estimates the N, P, & K removed in 100 pounds live weight gain as follows: **2.5 lbs N, 0.68 lbs P, 0.15 lbs K**

Waste Utilization and Nutrient Management Plan

Table 4 - Maximum Solids Application per Field Permit #: WQ0004436000

Est. Solids Produced Annually (wet tons)	LMU or Field No.	Acres	Crop Management and PI runoff potential	Current Soil Test P Level (ppm)	Max Annual P2O5 lbs/acre	Annual/Biennial	Maximum Solids Allowable Tons/Acre	Maximum Allowable Application Per field (Tons)
0	1	2.9	Coastal 3 Cut Hay M	136	172	A	3.6	10

Total Solids Application Acres
2.91
Application Allowable on-site (tons)
10.5
Adequate
Solids to be used off-site (tons)
0.0

End of Table 4

Waste Utilization and Nutrient Management Plan

Table 5 - Nutrients Applied/Needs at Maximum Solids Rates Permit #: WQ0004436000

	Nutrients Applied When Application is at Maximum Rates			Supplemental Nutrients Needed When Application is at Maximum Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
1	300	172	35	0	0	0	0

Waste Utilization and Nutrient Management Plan

Table 6 - Planned Solids Application Rates Permit #: WQ0004436000

LMU or Field No.	Double crop	Acres	Crop Management and PI runoff potential	Current Soil Test P ppm	Annual / Biennial	Max Rate tons/ac	% of Maximum to apply	Planned Solids tons/ac	Planned Solids per field (tons)
1		2.9	Coastal 3 Cut Hay M	136	A	3.6	50	1.8	5.2
Acres		2.9		Will the planned per acre application rates use all of the Solids?					5.2
10			Tons wet of solids to be used						NO
0				Tons to be used off-site at planned rates					5

Waste Utilization and Nutrient Management Plan

Table 7 - Nutrients Applied/Needed at Planned Solids Rates Permit #: WQ0004436000

Red cells? Proceed to adjustment page and fix.

	Nutrients Applied at Planned Rates			Supplemental Nutrients Needed at Planned Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
1	150	86	18	0	0	0	0

Waste Utilization and Nutrient Management Plan

Table 8 - Non Application Areas by Field Permit #: WQ0004436000

FS = 393-Filter Strip; **FB** = 386-Field Border, **RFB** = 391-Riparian Forest Buffer; **OLEA** = Other Land Excluded Ar

LMU / Field #	FS Acres	FB Acres	RFB Acres	OLEA Acres	Total Excluded
1	0.0	2.1	0.0	0.3	2.4
Totals	0.0	2.1	0.0	0.3	2.4

See Application Map for location of buffers

Total 590-633 application acres: 2.9

Total 590-633 Field Acres: 5.3

Waste Utilization and Nutrient Management Data Entries

General Data

Date :	4/14/2025
Farmer Name :	Beneficial Land Application Site
County in which the Land is located :	Bell
Type of Waste Plan :	Biosolids
Is this plan in a TMDL watershed for nutrients? Yes or No :	No
Is any field PERMITTED by TCEQ? Yes or No :	Yes
Permit # :	WQ0004436000

All other entries on General Page appear on the Cover Page

Biosolids Information

Plan Year :	2025
Biosolid Type :	Other
Analysis Date:	8/29/2024
Nitrogen % From Biosolids Analysis:	5.20
Phosphorus % From Biosolids Analysis:	1.04
Potassium % From Biosolids Analysis:	0.41
Moisture % From Biosolids Analysis:	0.00
Does this site generate biosolids?	No
If B11 = "Yes", How many dry tons/year?	

Explain Other:
The Process to Significantly Reduce Pathogens (PSRP) for these Class B biosolids is aerobic digestion.

This plan is based on: rganic Nutrient Management Plan V 5.0
Printed on: 4/14/25 4:48 PM

Field and Buffer Entries

Permit #: WQ0004436000

Printed on: 4/14/25 4:48 PM

Plan is based on: 590 Organic Nutrient Management Plan

FS = 393-Filter Strip, FB = 386-Field Border, RFB = 391-Riparian Forest Buffer, OLEA = Other Land Exclusion Areas or non-application areas (i.e. headquarters, freq. flooded areas, wooded areas, water bodies, etc)

NOTE: Field Border (FB) is expressed in ACRES on this spreadsheet, but as LINEAR FEET on the CPO.

Field No.	Total LMU or Field Acres	FS	FB	RFB	OLEA	Total Buffer Acres	Actual Application Acres	This Column Intentionally Left Blank
1	5.28	0	2.05	0	0.32	2.4	2.9	

Soil Test, Crop Information and Plant Analysis Data Entries

Printed on: 4/14/25 4:48 PM Plan is based on: 590 Organic Nutrient Management Plan V 5.0 Permit #: WQ0004436000

Soil Test Analysis				This column only for Dry Poultry	LMU or Field #	Appl. Area Acres	Crop/Land-Use and P Index Runoff Potential VL - L; M; H; or VH		Plant Analysis (Y / N)	Plant Analysis & Yield (optional) Use Only When Crop Removal is Required			
N (ppm)	P (ppm)	K (ppm)	Lime (enter amt or leave blank)							% N	% P	% K	Yield Air Dry Production (lbs/ac/yr)
806	136	351			1	2.9	Coastal 3 Cut Hay M		N				

Solids Application Rate Entries

Solids - Set the Planned Application Rates

Permit #: WQ

10		Maximum dry tons that may be applied.	Will the planned rates use the Maximum a Dry Tons to be used on-site at plann				
LMU or Field No.	Acres	Crop Management and PI runoff potential	Current Soil Test P ppm	Crop P_2O_5 Req.	Annual or Biennial Application Cycle	Maximum Solids Allowable Tons/Ac	Enter % of Maximum Planned to Apply
1	2.9	Coastal 3 Cut Hay M	136	125	Annual	3.6	50.0

Printed on: 4/14/25 4:48 PM

Plan is based on: 590 Organi

APPENDIX B: NITROGEN LEACHING INDEX WORKSHEET TX - VERSION 4

Nitrogen Leaching Index Worksheet TX - Version 4

Name: Jenni Griesel, P.E., NMS Assisted by: Date: 14-Apr-25

County: Bell Use button in yellow cells to pick from list. Annual Inches Additional from Irrigation: 0

30 year avg. (rainfall inches)

Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Ann. Avg.
1.66	2.75	2.97	2.14	4.49	3.99	1.34	1.66	2.82	3.34	3.09	3.08	33.33

	Avg. Annual Rainfall	Avg. Total Non-growing Rainfall	Non-Growing Months
Corn	33.33	13.55	Nov - Mar
Cotton	33.33	15.69	Nov - Apr
Sorghum	33.33	15.69	Nov - Apr
Bermudagrass	33.33	10.58	Nov - Feb
Bermudagrass & Small Grain	33.33	0.00	None
Corn + Small Grain	33.33	2.82	Sep
Corn Silage + Small Grain	33.33	4.48	Aug - Sep
Forage Sorghum (silage) + Small Grain	33.33	4.48	Aug - Sep
Small Grain	33.33	5.82	Jul - Sep
Full Season Double Crop	33.33	3.34	Oct
Spring Watemelons	33.33	not grown	not grown
Fall Watermelons	33.33	17.09	Dec - May
→		33.33	← (Manual Entry Data for Any Other Crop can be done in the appropriate cells to the left.)

Guidelines and Recommendations

NLI <2 - probably will not contribute to soluble nutrient leaching below the root zone.

NLI 2 to 10 - may contribute to soluble nutrient leaching below the root zone.

NLI >10 - will contribute to soluble nutrient leaching below the root zone. Nutrient management should be maximized or soluble nutrients should not be applied. Additonal practices to reduce leaching should be considered.

Field #	Predominant Soil Symbol *	Hydrologic Group	NLI Corn	NLI Cotton	NLI Sorghum	NLI Bermuda	NLI Bermuda & Small Grain	NLI Corn & Small Grain	NLI Corn Silage & Small Grain	NLI Forage Sorghum Silage & Small Grain	NLI Small Grain	NLI Full Season Double Crop	NLI Spring Watermelons	NLI Fall Watermelons	NLI
1	BrB	D	2	2	2	1	0	1	1	1	1	1	0	2	

* Most map symbols contain inclusions of other soils, thus the same symbol may be assigned more than 1 Hydrologic Group. Therefore, the symbol may be listed multiple times. Use the group that represents the predominant soils.

Attachment K

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Erin E. Chancellor, *Interim Executive Director*

Texas Commission on Environmental Quality

Protecting Texas by Reducing and Preventing Pollution

May 02, 2023

PATRICK KERN
PARAMOUNT WASTEWATER SOLUTIONS LLC
4025 PARAMOUNT PKWY
TEMPLE, TX 76502-7729

Re: Amendment to Sludge Transportation Registration
PARAMOUNT WASTEWATER SOLUTIONS
Registration Number: 23363 **CN601699283** **RN103167169**

Dear Patrick Kern:

The Section Manager of the Registration and Reporting Section has issued the enclosed amended registration in accordance with Title 30 of the Texas Administrative Code (30 TAC) Chapter 312 Subchapter G. This action is taken under authority delegated by the Executive Director of the Texas Commission on Environmental Quality.

Issuance of this registration is not an acknowledgment regarding compliance of your operation with state and federal rules and regulations. Failure to comply with all rules and regulations may result in enforcement action and/or revocation of your registration.

Please review the enclosed copy of your amended registration. It should replace any previous sludge registrations and reflect your current operation.

A copy of your sludge transporter registration, a copy of your application for registration and copies of all amendments to this registration must be available at all times and at all locations where business is being transacted under this registration, including all motorized vehicles operated under this registration.

If you have any questions or comments, please contact the Sludge Transporter Registration Program at (512) 239-6413.

Sincerely,

Shannon W. Frazier, Manager
Registration & Reporting Section

Enclosures
CC: TCEQ Region 9, WACO

Texas Commission on Environmental Quality

SLUDGE TRANSPORTER REGISTRATION

Registration Number: 23363 **CN601699283** **RN103167169**

Print Date: May 02, 2023

Bryan E. Chancellor

For the Commission

Company: PARAMOUNT WASTEWATER SOLUTIONS LLC

Regulated Entity: PARAMOUNT WASTEWATER SOLUTIONS

Organization Type: CORPORATION

County: BELL

Transport Waste into Texas: NO

Registered Since: January 31, 2003

Expiration Date: August 31, 2024

Status: ACTIVE

TCEQ Region: 9

Transport Waste out of Texas: NO

Physical Address:

4025 PARAMOUNT PKWY
TEMPLE, TX 76502-7729

Mailing Address:

4025 PARAMOUNT PKWY
TEMPLE, TX 76502-7729

Temporary Storage Address:

4025 PARAMOUNT PKWY
TEMPLE, TX 76502-7729

9432 HWY 36
ROGER, TX 76569

4051 STATE HIGHWAY 95
TEMPLE, TX 76502-7674

Contact Information

Contact: PATRICK KERN

Phone: 254-791-0303

Fax:

E-Mail: KRISTA@PARAMOUNTWASTEWATER.COM

Sticker Numbers Issued and Listed below will expire on August 31, 2024:

06821	06822	06823	06824	06825	06826	06827	06828	06829
07204	06498							

This is your registration which reflects the information submitted on your application to the Register or Renew as a Transporter of Municipal Sludge(s) and Similar Wastes. Requirements for transportation are provided in accordance with 30 TAC Chapter 312. Issuance of this registration is not acknowledgement by the TCEQ that your operation is in full compliance with the rules and regulations of the TCEQ. Changes or additions referred to this notice require written notification to the TCEQ. Please keep a copy of this registration in every vehicle transporting sludge and all locations where business is being transacted under this registration.

Texas Commission on Environmental Quality

SLUDGE TRANSPORTER

Registration Number: 23363

Print Date: May 02, 2023

For the Commission

Disposal Facility Information

Facility ID	Waste Type	Facility Name	Program
2310	DS; GS; WW	J-V DIRT + LOAM	MSWPROC
2367	DS; GS; WT; WW	AUSTIN LIQUID WASTE PROCESSING FACILITY	MSWPROC
2384	DS; GS; WW	AUSTIN WASTEWATER PROCESSING FACILITY	MSWPROC
40164	DS	JTB RECYCLING TRANSFER STATION FACILITY	SLUDGETR
43010	GS	S & M VACUUM & LIQUID WASTE PROCESSING FACILITY	SLUDGETR
692A	GS; GT; WT; WW	TEMPLE RECYCLING AND DISPOSAL FACILITY	MSWDISP
WQ0001160000	DS	SAN JACINTO RIVER AND RAIL	WWPERMIT
WQ0004458000	DS; WW	GRANDY RANCH SLUDGE SITE	SLUDGE
WQ0010210002	DS	LOCKHART WWTP 2	WWPERMIT
WQ0010264002	DS	BRUSHY CREEK REGIONAL EAST WWTP	WWPERMIT
WQ0010653001	DS	WESTSIDE WWTP	WWPERMIT
WQ0010654003	DS	CITY OF MARBLE FALLS WWTP	WWPERMIT
WQ0011071001	DS; GS; PP; WW	WACO METROPOLITAN AREA REGIONAL SEWERAGE SYSTEM	WWPERMIT
WQ0011318001	DS; PP	TEMPLE BELTON WWTP	WWPERMIT
WQ0011549001	DS	KINGSLAND MUD WWTP	WWPERMIT
WQ0011768001	WW	OAK HOLLOW WWTP	WWPERMIT
WQ0015032001	DS	GRIMES COUNTY WATER RECLAMATION WWTP	WWPERMIT

Waste Types

DS - Septic Tank Waste
GS - Grease Trap Waste
GT - Grit Trap Waste
PP - Chemical Toilet Waste
WT - Water Treatment Residuals
WW - Sewage Sludge/Biosolids

Texas Commission on Environmental Quality

SLUDGE TRANSPORTER

Registration Number: 23363

Print Date: May 02, 2023

For the Commission

Vehicle Information

License Plate	Year	Vehicle Make	Sticker Issued	Vehicle Capacity
HLS6132	2014	MACK	06/02/2016	3300 GAL
JHT2692	2003	INTERNATIONAL	02/20/2017	500 GAL
LRW1436	2019	INTERNATIONAL	01/22/2019	4000 GAL
1L94673	2019	MACK	03/11/2020	5000 GAL
NKG4589	2019	WESTERN STAR	07/10/2020	4000 GAL
NWW1896	2019	WESTERN STAR	02/11/2021	4000 GAL
1M94429	2011	WESTERN STAR	05/25/2021	5000 GAL
RCD1472	2022	PETERBILT	04/19/2022	25 CY
1N19802	2013	KENWORTH	05/10/2022	5000 GAL
SHP5350	2019	MACK	11/21/2022	4000 GAL
SXG0373	2023	MACK	02/08/2023	4000 GAL

*UOM - Units of Measure

Attachment L

email information for report date:
3/20/25 16:08

I007228

Bell County WCID #2 % Jacobs

Attn: Andreana Salas
andreana.salas@jacobs.com

-
-, - -

Please contact us for your sampling needs or if you have any questions. Some convenient contacts are listed below. You can also access your results and reports through our ClientConnect ™ portal on our website (www.aqua-techlabs.com).

For sampling questions:

samplingbryan@aqua-techlabs.com (Bryan area)
samplingaustin@aqua-techlabs.com (Austin area)

reporting@aqua-techlabs.com (report questions)

Aqua-Tech values you as a customer and encourages you to speak with our staff at 979-778-3707 or the above emails if you have questions.

Thank you for your business,
June M. Brien
Executive Technical Director

BRYAN FACILITY
635 Phil Gramm Boulevard
Bryan, TX 77807
Phone: (979) 778-3707
Fax: (979) 778-3193

AQUA-TECH LABORATORIES

AUSTIN FACILITY
3512 Montopolis Dr. Suite A
Austin, TX 78744
Phone: (512) 301-9559
Fax: (512) 301-9552

The analyses summarized in this report were performed by Aqua-Tech Laboratories, Inc. unless otherwise noted. Aqua-Tech Laboratories, Inc. holds accreditation from the State of Texas in accordance with TNI and/or through the TCEQ Drinking Water Commercial Laboratory Approval Program.

The following abbreviations indicate certification status:

NEL	TNI accredited parameter.
ANR	Accreditation not offered by the State of Texas.
DWP	Approval through the TCEQ Drinking Water Commercial Laboratory Approval Program.
INF	Aqua-Tech Laboratories, Inc. is not accredited for this parameter. It is reported on an informational basis only.

Subcontracted data summarized in this report is indicated by "Sub" in the Lab column.

Certificate: TX-C24-00311

TCEQ Lab ID T104704371

General Definitions:

NR	Not Reported.
RPD	Relative Percent Difference.
% R	Percent Recovery.
dry	Results with the "dry" unit designation are reported on a "dry weight" basis.
SQL	The Sample Quantitation Limit is the value below which the parameter cannot reliably be detected. The SQL includes all sample preparations, dilutions and / or concentrations.
Adj MDL	The Adjusted Method Detection Limit is the MDL value adjusted for any sample dilutions or concentrations .
MDL	The Method Detection Limit is the lowest theoretical value that is statistically different from zero for a specific method, taking into account all preparation steps and instrument settings.

All samples are reported on an "as received" basis unless the designation "dry" is added to the reported unit.

Copies of Aqua-Tech Laboratories, Inc. procedures and individual sampling plans are available upon request. Note that samples are collected by Aqua-Tech Laboratories, Inc. personnel unless otherwise noted in the "Sample Collected" field of this report as "Client" or "CLT".

Samples included in this report were received in acceptable condition according to Aqua-Tech Laboratories, Inc. procedures and 40 CFR, Chapter I, Subchapter D, Part 136.3, TABLE II. - *Required containers, preservation techniques, and holding times*, unless otherwise noted in this report.

Record Retention:

All reports, raw data, and associated quality control data are kept on file for 10 years before being destroyed. Any client that would like copies of records must contact Aqua-Tech Laboratories, Inc. no later than six months prior to the scheduled disposal. An administrative fee for retrieval and distribution will apply.

This report was approved by:

June M. Brien, Technical Director

The results in this report apply only to the samples analyzed. This analytical report must be reproduced in its entirety unless written permission is granted by Aqua-Tech Laboratories, Inc.

BRYAN FACILITY
635 Phil Gramm Boulevard
Bryan, TX 77807
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AQUA-TECH LABORATORIES

AUSTIN FACILITY
3512 Montopolis Dr. Suite A
Austin, TX 78744
Phone: (512) 301-9559
Fax: (512) 301-9552

Analytical Report

Bell County WCID #2 % Jacobs

Report Printed: **3/20/25** **16:08**

I007228

See attached subcontract report for additional analysis and fertilizer recommendations.

Bell County Land Application Site 0-6 in

Collected: 02/25/25 11:50 by CLIENT
Received: 02/25/25 15:20 by Hanna Garner

Type: Comp | *Matrix*: Soil | *C-O-C #*: I007228

Lab ID# I007228-01

	Result	Units	Notes	MDL	Adj MDL	SQL	Lab	Analyzed	Method	Batch	
General Chemistry											
Total Kjeldahl Nitrogen as N	**806**	mg/kg wet		0.13	31.9	49.1	*Bryan*	03/11/25 13:38 KMA	SM4500-NH3 G 2011	M190174	ANR
Metals (Total)											
Mercury	**0.041**	mg/kg wet	RPD-01	0.0002	0.007	0.019	*Bryan*	03/17/25 10:52 ABM	EPA 7471A 1994	M190585	NEL

Please see the attached subcontract report for subcontracted data.

Bell County Land Application Site 6-24 in

Collected: 02/25/25 11:50 by CLIENT
Received: 02/25/25 15:20 by Hanna Garner

Type: Comp | *Matrix*: Solid | *C-O-C #*: I007228

Lab ID# I007228-02

	Result	Units	Notes	MDL	Adj MDL	SQL	Lab	Analyzed	Method	Batch	
General Chemistry											
% Solids	**81.1**	g/100g (%)		0.10	0.10	0.10	*Austin*	02/27/25 13:50 MAM	SM2540 G 2015	M190041	NEL
Total Kjeldahl Nitrogen as N	**1320**	mg/kg dry		0.13	39.2	60.3	*Bryan*	03/11/25 13:38 KMA	SM4500-NH3 G 2011	M190174	ANR

Please see the attached subcontract report for subcontracted data.

Explanation of Notes

RPD-01	Duplicate RPD is outside acceptable range. Acceptance of run is not based on matrix QC.

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AQUA-TECH LABORATORIES

AUSTIN FACILITY
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Austin, TX 78744
Phone: (512) 301-9559
Fax: (512) 301-9552

Analytical Report

Bell County WCID #2 % Jacobs

Report Printed: 3/20/25 16:08

I007228

General Chemistry - Quality Control

	Result	Units	Notes	MDL	SQL	Analyzed	Spike Amount	Source Result	%R	%R Limits	RPD	RPD Limit	Batch	
% Solids - SM2540 G 2015														*Austin*
Blank	<0.10	g/100g (%)		0.10	0.10	02/27/25 13:50 MAM							M190041	
Duplicate	90.6	g/100g (%)		0.10	0.10	02/27/25 13:50 MAM		91.5			0.944	10	M190041	
Duplicate	90.6	%		0.100	0.100	02/27/25 13:50 MAM		91.5			0.944	10	M190041	
Total Kjeldahl Nitrogen as N - SM4500-NH3 G 2011														*Bryan*
Initial Cal Check	3.46	mg/L				03/11/25 13:38 KMA	3.47		99.9	90 - 110			2503137	
Low Cal Check	0.23	mg/L				03/11/25 13:38 KMA	0.200		113	70 - 130			2503137	
Blank	<0.20	mg/kg wet		0.13	0.20	03/11/25 13:38 KMA							M190174	
LCS	4.14	mg/kg wet		0.13	0.20	03/11/25 13:38 KMA	4.00		103	94.4 - 115			M190174	
LCS Dup	4.20	mg/kg wet		0.13	0.20	03/11/25 13:38 KMA	4.00		105	94.4 - 115	1.49	3.6	M190174	
Matrix Spike	3080	mg/kg dry		72.7	112	03/11/25 13:38 KMA	2240	836	100	72.9 - 132			M190174	
Matrix Spike Dup	3040	mg/kg dry		72.7	112	03/11/25 13:38 KMA	2240	836	98.6	72.9 - 132	1.78	24.2	M190174	

Metals (Total) - Quality Control

	Result	Units	Notes	MDL	SQL	Analyzed	Spike Amount	Source Result	%R	%R Limits	RPD	RPD Limit	Batch	
Mercury - EPA 7471A 1994														*Bryan*
Initial Cal Check	7.14	ug/L				03/17/25 10:52 ABM	6.88		104	80 - 120			2503154	
Blank	<0.0005	mg/kg wet		0.0002	0.0005	03/17/25 10:52 ABM							M190585	
Duplicate	0.085	mg/kg wet	*RPD-01*	0.007	0.019	03/17/25 10:52 ABM		0.041			*68.9*	20	M190585	
LCS	0.003	mg/kg wet		0.0002	0.0005	03/17/25 10:52 ABM	0.00250		110	80 - 120			M190585	
LCS Dup	0.003	mg/kg wet		0.0002	0.0005	03/17/25 10:52 ABM	0.00250		111	80 - 120	0.760	10	M190585	
Matrix Spike	0.155	mg/kg wet		0.007	0.019	03/17/25 10:52 ABM	0.0955	0.041	119	80 - 120			M190585	
Matrix Spike Dup	0.136	mg/kg wet		0.007	0.019	03/17/25 10:52 ABM	0.0957	0.041	99.2	80 - 120	18.3	20	M190585	
MRL Check	0.0006	mg/kg wet		0.0002	0.0005	03/17/25 10:52 ABM	0.000500		117	70 - 130			M190585	

Sample Preparation Summary

Sample	Method	Prepared	Lab	Bottle	Initial	Units	Final	Units	External Dilution Factor	Batch
I007228-01										
Mercury	EPA 7471A 1994	3/12/25 11:55 ABM	Bryan	D	0.263	g	10.0	mL	1	M190585
Total Kjeldahl Nitrogen as N	SM4500-NH3 G 2011	3/3/25 13:42 CTG	Bryan	D	0.102	g	25.0	mL	1	M190174
I007228-02										
% Solids	SM2540 G 2015	2/27/25 13:50 MAM	Austin	A	10.0	g	10.0	mL	1	M190041
Total Kjeldahl Nitrogen as N	SM4500-NH3 G 2011	3/3/25 13:42 CTG	Bryan	B	0.102	g	25.0	mL	1	M190174

Form: C:\ELMNT\FORMAT\ATL 090124 FIN_LS.RPT

AQUA-TECH LABORATORIES — Chain-of-Custody and Analysis Request

Client /Project: Jacobs - Bell County WCID #2 (Soil Analysis)

Contact Info
Name: Andreana Alexander
Address: 202 Brookman S
City: Little River State: TX ZIP: 76554
Phone / Email: andreana.alexander@jacobs.com 469-245-7689

Definitions
DW - Drinking Water; NP - Non-Potable Water; S - Solid
(+) Container Type: P - Plastic; G - Glass; T - Teflon©
CM - Custody Maintained; CTU - Custody Transfer Unbroken; CT - Corrected Temperature; SUB - Subcontracted Analysis

TCEQ Lab ID: T104704371

Aqua-Tech Laboratories, Inc.
Austin: 3512 Montopolis Dr.Suite A, Austin, TX 78744, 512.301.9559
Bryan: 635 Phil Gramm Blvd., Bryan, TX 77807, 979.778.3707
Test results meet all accreditation/certification requirements unless stated otherwise.

Work Order / C-O-C: I007228 3
Page 1 of 1
V-0023 R03

By relinquishing the samples listed below to Aqua-Tech, the client agrees to the following terms.
Samples will be analyzed by a method that is within Aqua-Tech Laboratories' NELAC fields of accreditation. Analytes requiring a certified method that is not within Aqua-Tech's fields of accreditation will be subcontracted to a NELAC certified lab that is certified for that method. Clients will be notified of the subcontract lab's details. Other analytes not requiring accreditation will be analyzed by a compendial method. If a specific method is required, the client will note the method in the "Analysis Requested" column. The client approves all method modifications documented by Aqua-Tech or the subcontract lab. A current list of Aqua-Tech's NELAC fields of accreditation and other methods are available on request.

Client Comments:
Land Application Site
Soil Analysis
0-6"
6-24"

*** Preservatives**
1 < 6 °C (unfrozen)
2 H2SO4
3 HCl
4 HNO3
5 Na2S2O3
6 NaOH
7

Receipt in Lab
Cooler ID: CU1
Temperature (°C): read / CT: 5.1 / 5.1
Preservation Correct? YES NO | YES NO
Post Preservatives? YES NO | YES NO
Thermometer ID: 0764480
pH Paper ID: —

Lab Comments

Sample Custody

Relinquished by (print & sign): Andreana Alexander	☒ Sampler ☒ Client ☐ ATL Field	Date 2-25-25 Time ~~1535~~ AM	☒ Iced / Refrig ☐ Custody Sealed
Received by (print & sign):	☐ Client ☐ ATL Field	Date 1510 Time	☐ Iced / Refrig ☐ CM / CTU
Relinquished by (print & sign): NEEDED	☐ Client ☐ ATL Field	Date Time	☐ Iced / Refrig ☐ CM / CTU
Received by (print & sign):	☐ Client ☐ ATL Field	Date Time	☐ Iced / Refrig ☐ CM / CTU
Relinquished by (print & sign):	☐ Client ☐ ATL Field	Date Time	☐ Iced / Refrig ☐ CM / CTU / sealed
Received by (print & sign): Hanna Garner	☐ Lab	Date 2/25/25 Time 1335	☒ Cond Good ☒ Iced / Refrig ☒ CM / CTU

Field Sample ID (record field data for each sample in space below)	Start Date	Start Time	End Date	End Time	Composite Type	Sample Matrix	Container(s) Bottle Count	Volume (Size in L)	Type (+)	Preserv-ative(s) *	LAB USE ONLY (initials HGE) Cooler ID	pH Check	SUB	WORK ORDER	
0"-6" Soil	2-25-25		2-25-25		grab	S	~~2~~ 1	1 gal bag	P	1	CU1	—	—	Sample 01	A
Analysis Requested & Comments: Parameters 1-20 (see e-mail)							NEEDED								
6"-24" Soil	2-25-25		2-25-25		grab	S	~~2~~ 1	1 gal bag	P	1	CU1	—	—	Sample 02	A
Analysis Requested & Comments: Parameters ~~1-20~~ AA 1-10 (see e-mail)							NEEDED								
														Sample	
Analysis Requested & Comments:															
														Sample	
Analysis Requested & Comments:															
														Sample	
Analysis Requested & Comments:															

NEEDED

Page 4 of 23 I007228_1 ATL 090124 FIN_ls 03 20 25 1608

I007228 pg 2 of 2

I007228 pg 2 of 2

XII. SOIL SAMPLING AND ANALYSIS:

The permittee is required to notify the local TCEQ Regional Office 48 hours prior to taking annual soil samples at the permitted site. Samples will need to be taken within the same 45-day period each year, or under an approved sampling plan and analyzed within 30 days of sample collection.

The permittee must monitor the soil-sludge mixture for the site for the parameters listed below using the soil sampling requirements described in 30 TAC §312.11(d)(2) and (3). Analytical results must be provided on a dry weight basis. The Soil Sampling and Analysis plan shall be provided to the analytical laboratory prior to sample analysis.

No.	PARAMETER[7]	NOTE	FREQUENCY	SAMPLE DEPTH 0" - 6"	SAMPLE DEPTH 6" - 24"
1.	Nitrate Nitrogen (NO_3-N, mg/kg)	1	1 per year	X	X
2.	Ammonium Nitrogen (NH_4-N, mg/kg)	1	1 per year	X	X
3.	Total Nitrogen (TKN, mg/kg)	2	1 per year	X	X
4.	Phosphorus (plant available, mg/kg)	3	1 per year	X	X
5.	Potassium (plant available, mg/kg)	3	1 per year	X	X
6.	Sodium (plant available, mg/kg)	3	1 per year	X	X
7.	Magnesium (plant available, mg/kg)	3	1 per year	X	X
8.	Calcium (plant available, mg/kg)	3	1 per year	X	X
9.	Electrical Conductivity	4	1 per year	X	X
10.	Soil Water pH (S.U.)	5	1 per year	X	X
11.	Total Arsenic (mg/kg)	6	1 per 5 years	X	N/A
12.	Total Cadmium (mg/kg)	6	1 per 5 years	X	N/A
13.	Total Chromium (mg/kg)	6	1 per 5 years	X	N/A
14.	Total Copper (mg/kg)	6	1 per 5 years	X	N/A
15.	Total Lead (mg/kg)	6	1 per 5 years	X	N/A
16.	Total Mercury (mg/kg)	6	1 per 5 years	X	N/A
17.	Total Molybdenum (mg/kg)	6	1 per 5 years	X	N/A
18.	Total Nickel (mg/kg)	6	1 per 5 years	X	N/A
19.	Total Selenium (mg/kg)	6	1 per 5 years	X	N/A
20.	Total Zinc (mg/kg)	6	1 per 5 years	X	N/A

1. Determined in a 1 N KCl soil extract (http://soiltesting.tamu.edu/webpages/swftlmethods1209.html).
2. Determined by Kjeldahl digestion or an equivalent accepted procedure. Methods that rely on Mercury as a catalyst are not acceptable.
3. Mehlich III extraction (yields plant-available concentrations) with inductively coupled plasma.
4. Electrical Conductivity (EC) - determined from extract of 2:1 (volume/volume) water/soil mixture and expressed in dS/m (same as mmho/cm).
5. Soil pH must be analyzed by the electrometric method, Method 9045C, in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" EPA SW-846, as referenced in 40 CFR §260.11 - determined from extract of 2:1 (volume/volume) water/soil mixture.
6. Analysis for metals in soil must be performed according to methods outlined in "Test Methods for Evaluating Solid Waste, Physical/Chemical Methods" EPA SW-846; method 3050B.
7. All parameters must be analyzed on a dry weight basis, except Soil Water pH and Electrical Conductivity.

Page 5 of 23 1007228_1 ATL 090124 FIN_ls 03 20 25 1608

CORRECTED

AQUA-TECH LABORATORIES — Chain-of-Custody and Analysis Request

Client /Project: Jacobs - Bell County WCID #2 (Soil Analysis)

Contact Info
Name: Andreana Alexander
Address: 202 Brookman S
City: Little River State: TX ZIP: 76554
Phone / Email: ~~469-245-7689~~ andreana.alexander@jacobs.com

Definitions
DW - Drinking Water; NP - Non-Potable Water; S - Solid; CM - Custody Maintained; CTU - Custody Transfer Unbroken; CT - Corrected Temperature; SUB - Subcontracted Analysis
(+) Container Type: P - Plastic; G - Glass; T - Teflon®

By relinquishing the samples listed below to Aqua-Tech, the client agrees to the following terms.
Samples will be analyzed by a method that is within Aqua-Tech Laboratories' NELAC fields of accreditation. Analytes requiring a certified method that is not within Aqua-Tech's fields of accreditation will be subcontracted to a NELAC certified lab that is certified for that method. Clients will be notified of the subcontract lab's details. Other analytes not requiring accreditation will be analyzed by a compendial method. If a specific method is required, the client will note the method in the "Analysis Requested" column. The client approves all method modifications documented by Aqua-Tech or the subcontract lab. A current list of Aqua-Tech's NELAC fields of accreditation and other methods are available on request.

TCEQ Lab ID: T104704371

Aqua-Tech Laboratories, Inc.
Austin: 3512 Montopolis Dr. Suite A, Austin, TX 78744, 512.301.9559
Bryan: 635 Enid Coggin Blvd, Bryan, TX 77807, 979.778.3707
Test results meet all accreditation/certification requirements unless stated otherwise.

Work Order (LOG): I007228
Page 3 of 3
V-0023.R03

Sample Custody

Relinquished by (print & sign): Andreana Alexander / ~~Andreana Alexander~~	☒ Sample ☒ Client ☐ ATL Field	Date: 2-25-25 Time: ~~1835~~ 1510	☒ Iced / Refrig ☐ Custody Seal
Received by (print & sign):	☐ Client ☐ ATL Field	Date: Time:	☐ Iced / Refrig ☐ CM / CTU
Relinquished by (print & sign):	☐ Client ☐ ATL Field	Date: Time:	☐ Iced / Refrig ☐ CM / CTU
Received by (print & sign):	☐ Client ☐ ATL Field	Date: Time:	☐ Iced / Refrig ☐ CM / CTU / sealed
Relinquished by (print & sign):	☐ Client ☐ ATL Field	Date: Time:	☐ Iced / Refrig ☐ CM / CTU / sealed
Received by (print & sign): Hanna Grenner	☐ Lab	Date: 2/25/25 Time: 1325	☒ Cond Good ☒ Iced / Refrig ☒ CM / CTU

NEEDED

Client Comments:
Land Application Site
Soil Analysis
0-6"
6-24"

*** Preservatives**
1 < 6 °C (unfrozen); 2 H_2SO_4; 3 HCl; 4 HNO_3; 5 $Na_2S_2O_3$; 6 NaOH; 7

Receipt in Lab
Cooler ID: CLT
Temperature (°C) read / CT: 5 / 5.1
Preservation Correct? YES NO YES NO
Post Preservatives? YES NO YES NO
Thermometer ID: 07164480
pH Paper ID: —

Lab Comments:

Field Sample ID (record field data for each sample in space below)	Start Date	Start Time	End Date	End Time	Composite Type	Sample Matrix	Container(s) Bottle Count	Volume (Size in L)	Type (+)	Preservative(s) *	Analysis Requested & Comments	LAB USE ONLY BELOW (initials HG) Cooler ID	pH Check	SUB	WORK ORDER I007228
0"-6" Soil	2-25-25	1100	2-25-25	1150	grab	S	3x1	1gal bag	P	1	Parameters 1-20 (see e-mail)	CLT	—	—	Sample
6"-24" Soil	2-25-25	1100	2-25-25	1150	grab	S	3x1	1gal bag	P	1	Parameters ~~1-20~~ AA 1-10 (see e-mail)	CLT	—	—	Sample
															Sample
															Sample
															Sample

NEEDED

Page 6 of 23 I007228_1 ATL 090124 FIN_ls 03 20 25 1608

2600 Dudley Rd. Kilgore, Texas 75662
24 Waterway Avenue, Suite 375 The Woodlands, TX 77380
Office: 903-984-0551 * Fax: 903-984-5914

Project
1137992

AQU1-G

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
Bryan, TX 77807-9104

Printed 03/06/2025
15:15

TABLE OF CONTENTS

I007228

This report consists of this Table of Contents and the following pages:

Report Name	Description	Pages
1137992_r02_01_ProjectSamples	SPL Kilgore Project P:1137992 C:AQU1 Project Sample Cross Reference t:304	1
1137992_r03_03_ProjectResults	SPL Kilgore Project P:1137992 C:AQU1 Project Results t:304 PO: I007228	3
1137992_r03_06_G_ProjectTRRP	SPL Kilgore Project P:1137992 C:AQU1 Project TRRP Results Report for Class G	2
1137992_r03_06_M_ProjectTRRP	SPL Kilgore Project P:1137992 C:AQU1 Project TRRP Results Report for Class M	2
1137992_r10_05_ProjectQC	SPL Kilgore Project P:1137992 C:AQU1 Project Quality Control Groups	3
1137992_r99_09_CoC__1_of_1	SPL Kilgore CoC AQU1 1137992_1_of_1	2
	Total Pages:	13

Email: Kilgore.ProjectManagement@spllabs.com

2600 Dudley Rd. Kilgore, Texas 75662
24 Waterway Avenue, Suite 375 The Woodlands, TX 77380
Office: 903-984-0551 * Fax: 903-984-5914

SAMPLE CROSS REFERENCE

Project
1137992

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
Bryan, TX 77807-9104

Sample	Sample ID	Taken	Time	Received
2385459	*I007228-01*	02/25/2025	11:50:00	02/28/2025

Bottle 01 Client supplied plastic
Bottle 02 Prepared Bottle: ICP Preparation for Metals (Batch 1163225) Volume: 50.00000 mL <== Derived from 01 (1.3 grams)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 6020A	02	1163225	03/03/2025	1163802	03/05/2025
EPA 6020A	02	1163225	03/03/2025	1163898	03/05/2025
SM 2540 G-1997	01	1163222	02/28/2025	1163222	02/28/2025

Email: Kilgore.ProjectManagement@spllabs.com

2600 Dudley Rd. Kilgore, Texas 75662
24 Waterway Avenue, Suite 375 The Woodlands, TX 77380
Office: 903-984-0551 * Fax: 903-984-5914

SPL The Science of Sure

AQU1-G

Project 1137992

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
Bryan, TX 77807-9104

Printed: 03/06/2025

I007228

RESULTS

Sample Results

2385459 **I007228-01** Received: 02/28/2025

Solid & Chemical Materials | Collected by: Client | AquaTech Laboratorie | PO: I007228
Taken: 02/25/2025 11:50:00

EPA 6020A Prepared: 1163225 03/03/2025 12:00:00 Analyzed 1163802 03/05/2025 17:21:00 ESG

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	Arsenic, Total	3.97 *	mg/kg	1.22		7440-38-2	02
NELAC	Cadmium, Total	0.258 *	mg/kg	0.243		7440-43-9	02
NELAC	Chromium, Total	16.5 *	mg/kg	0.243		7440-47-3	02
NELAC	Copper, Total	23.9 *	mg/kg	0.243		7440-50-8	02
NELAC	Lead, Total	14.0 *	mg/kg	0.243		7439-92-1	02
NELAC	Molybdenum, Total	0.247 *	mg/kg	0.730	J	7439-98-7	02
NELAC	Nickel, Total	12.3 *	mg/kg	0.243		7440-02-0	02
NELAC	Selenium, Total	0.477 *	mg/kg	0.243		7782-49-2	02
NELAC	Zinc, Total	62.7 *	mg/kg	2.43		7440-66-6	02

* Dry Weight Basis

SM 2540 G-1997 Prepared: 1163222 02/28/2025 14:35:00 Analyzed 1163222 02/28/2025 14:35:00 BEK

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	Total Solids	79.9	%	0.100			01

Sample Preparation

2385459 **I007228-01** Received: 02/28/2025

I007228

02/25/2025

Prepared: 03/06/2025 15:04:00 Analyzed 03/06/2025 15:04:00 WJP

z	Check Limits	Completed

2600 Dudley Rd. Kilgore, Texas 75662
24 Waterway Avenue, Suite 375 The Woodlands, TX 77380
Office: 903-984-0551 * Fax: 903-984-5914

SPL The Science of Sure

AQU1-G

Project
1137992

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
Bryan, TX 77807-9104

Printed: 03/06/2025

2385459 **I007228-01** *Received:* 02/28/2025

I007228

02/25/2025

Calculation	*Prepared:*		*03/06/2025*	*14:25:18*	*Calculated*		*03/06/2025*	*14:25:18*	*CAL*
As Received to Dry Weight Basis	**Calculated**								
EPA 200.2 2.8	*Prepared:*	*1163225*	*03/03/2025*	*12:00:00*	*Analyzed*	*1163225*	*03/03/2025*	*12:00:00*	*TES*
NELAC **Solid Metals Digestion**	**50/1.2863**	**grams**							01
SM 2540 G-1997	*Prepared:*	*1163029*	*02/28/2025*	*14:35:00*	*Analyzed*	*1163029*	*02/28/2025*	*14:35:00*	*BEK*
NELAC **Total Solids Start**	**Started**								

Qualifiers:

J - Analyte detected below quantitation limit

We report results on an As Received (or Wet) basis unless marked Dry Weight.

Unless otherwise noted, testing was performed at SPL, Inc.- Kilgore laboratory which holds International, Federal, and state accreditations. Please see our Websites for details.

(N)ELAC - Covered in our NELAC scope of accreditation
z -- Not covered by our NELAC scope of accreditation

These analytical results relate to the sample tested. This report may NOT be reproduced EXCEPT in FULL without written approval of SPL Kilgore. Unless otherwise specified, these test results meet the requirements of NELAC.
RL is the Reporting Limit (sample specific quantitation limit) and is at or above the Method Detection Limit (MDL). CAS is Chemical Abstract Service number. RL is our Reporting Limit, or Minimum Quantitation Level. The RL takes into account the Instrument Detection Limit (IDL), Method Detection Limit (MDL), and Practical Quantitation Limit (PQL), and any dilutions and/or concentrations performed during sample preparation (EQL). Our analytical result must be above this RL before we report a value in the 'Results' column of our report (without a 'J' flag). Otherwise, we report ND (Not Detected above RL), because the result is "<" (less than) the number in the RL column. MAL is Minimum Analytical Level and is typically from regulatory agencies. Unless we report a result in the result column, or interferences prevent it, we work to have our RL at or below the MAL.

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SPL The Science of Sure

AQU1-G

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
Bryan, TX 77807-9104

Project
1137992

Printed: 03/06/2025

Bill Peery, MS, VP Technical Services

2600 Dudley Rd. Kilgore, Texas 75662
24 Waterway Avenue, Suite 375 The Woodlands, TX 77380
Office: 903-984-0551 * Fax: 903-984-5914

RESULTS

Project
1137992

AQU1

Printed 03/06/2025

I007228

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
Bryan, TX 77807-9104

CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Solid & Chemical Materials	**Gravimetrics**									**SM 2540 G-1997**	
2385459	I007228-01										
		Collection:	02/25/2025	11:50:00	Client				*Received:*	02/28/2025	
	Prepared: 1163222										
				Analyzed:	1163222			2/28/25	14:35:00		
	Total Solids	**79.9**	0.100	0.100	0.100	0.100		**%**		01	1.00

MDL is Method Detection Limit (40 CFR 136 Appendix B)
SDL is Sample Detection Limit and is the adjusted MDL (sample specific dilutions, dry weight)
MQL is the Method Quantitation Limit and corresponds to a low standard
MQLADJ is the Adjusted Method Quantitation Limit (dilutions, dry weight)
Qualifiers:

J - Analyte detected below quantitation limit

We report results on an As Received (or Wet) basis unless marked Dry Weight.

Unless otherwise noted, testing was performed at SPL, Inc.- Kilgore laboratory which holds International, Federal, and state accreditations. Please see our Websites for details.

(N)ELAC - Covered in our NELAC scope of accreditation
z -- Not covered by our NELAC scope of accreditation

These analytical results relate to the sample tested. This report may NOT be reproduced EXCEPT in FULL without written approval of SPL Kilgore. Unless otherwise specified, these test results meet the requirements of NELAC.

Email: Kilgore.ProjectManagement@spllabs.com

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RESULTS

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AQU1

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SPL The Science of Sure®

RESULTS

Project 1137992

AQU1

Printed 03/06/2025

I007228

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
Bryan, TX 77807-9104

CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Solid & Chemical Materials	**Metals**									**EPA 6020A**	
2385459	I007228-01										
		Collection:	02/25/2025	11:50:00	Client				*Received:*	02/28/2025	
	Prepared: 1163225										
				Analyzed:	1163802			3/5/25	17:21:00		
7440-38-2	**Arsenic, Total**	**3.97 ***	0.000917	0.223	0.005	1.22		**mg/kg**	5.00	02	194.00
7440-43-9	**Cadmium, Total**	**0.258 ***	0.00011	0.0268	0.001	0.243		**mg/kg**	1.50	02	194.00
7440-47-3	**Chromium, Total**	**16.5 ***	0.000409	0.0995	0.001	0.243		**mg/kg**	2400	02	194.00
7440-50-8	**Copper, Total**	**23.9 ***	0.000242	0.0588	0.001	0.243		**mg/kg**	1000	02	194.00
7439-92-1	**Lead, Total**	**14.0 ***	0.000262	0.0637	0.001	0.243		**mg/kg**	6.30	02	194.00
7439-98-7	**Molybdenum, Total**	**0.247 ***	0.000865	0.210	0.003	0.730	J	**mg/kg**	155	02	194.00
7440-02-0	**Nickel, Total**	**12.3 ***	0.000287	0.0698	0.001	0.243		**mg/kg**	160	02	194.00
7440-66-6	**Zinc, Total**	**62.7 ***	0.00479	1.17	0.010	2.43		**mg/kg**	2400	02	194.00
				Analyzed:	1163898			3/5/25	17:21:00		
7782-49-2	**Selenium, Total**	**0.477 ***	0.000353	0.0859	0.001	0.243		**mg/kg**	2.30	02	194.00

** Dry Weight Basis*

MDL is Method Detection Limit (40 CFR 136 Appendix B)
SDL is Sample Detection Limit and is the adjusted MDL (sample specific dilutions, dry weight)
MQL is the Method Quantitation Limit and corresponds to a low standard
MQLADJ is the Adjusted Method Quantitation Limit (dilutions, dry weight)

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SPL The Science of Sure

RESULTS

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Qualifiers:

J - Analyte detected below quantitation limit

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Bill Peery

Bill Peery, MS, VP Technical Services

Email: Kilgore.ProjectManagement@spllabs.com

QUALITY CONTROL

AQU1-G

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
Bryan, TX 77807-9104

Project
1137992

Printed 03/06/2025

Analytical Set 1163222 — SM 2540 G-1997

ControlBlk

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Total Solids	1163222	0			grams	127358073

Duplicate

Parameter	Sample	Result	Unknown	Unit	RPD	Limit%
Total Solids	2384898	12.0	11.8	%	1.68	20.0

Analytical Set 1163802 — EPA 6020A

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Arsenic, Total	1163225	ND	0.000917	0.005	mg/kg	127369698
Cadmium, Total	1163225	ND	0.00011	0.001	mg/kg	127369698
Chromium, Total	1163225	ND	0.000409	0.001	mg/kg	127369698
Copper, Total	1163225	ND	0.000242	0.001	mg/kg	127369698
Lead, Total	1163225	ND	0.000262	0.001	mg/kg	127369698
Molybdenum, Total	1163225	ND	0.000865	0.003	mg/kg	127369698
Nickel, Total	1163225	ND	0.000287	0.001	mg/kg	127369698
Zinc, Total	1163225	ND	0.00479	0.010	mg/kg	127369698

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Arsenic, Total	0.0492	0.05	mg/kg	98.4	90.0 - 110	127369681
Arsenic, Total	0.0481	0.05	mg/kg	96.2	90.0 - 110	127369697
Arsenic, Total	0.0491	0.05	mg/kg	98.2	90.0 - 110	127369706
Arsenic, Total	0.049	0.05	mg/kg	98.0	90.0 - 110	127369716
Arsenic, Total	0.0475	0.05	mg/kg	95.0	90.0 - 110	127369746
Arsenic, Total	0.0474	0.05	mg/kg	94.8	90.0 - 110	127369752
Arsenic, Total	0.0478	0.05	mg/kg	95.6	90.0 - 110	127369758
Cadmium, Total	0.0499	0.05	mg/kg	99.8	90.0 - 110	127369681
Cadmium, Total	0.0494	0.05	mg/kg	98.8	90.0 - 110	127369697
Cadmium, Total	0.0497	0.05	mg/kg	99.4	90.0 - 110	127369706
Cadmium, Total	0.0497	0.05	mg/kg	99.4	90.0 - 110	127369716
Cadmium, Total	0.0494	0.05	mg/kg	98.8	90.0 - 110	127369746
Cadmium, Total	0.0498	0.05	mg/kg	99.6	90.0 - 110	127369752
Cadmium, Total	0.0493	0.05	mg/kg	98.6	90.0 - 110	127369758
Chromium, Total	0.0508	0.05	mg/kg	102	90.0 - 110	127369681
Chromium, Total	0.0502	0.05	mg/kg	100	90.0 - 110	127369697
Chromium, Total	0.0515	0.05	mg/kg	103	90.0 - 110	127369706
Chromium, Total	0.0515	0.05	mg/kg	103	90.0 - 110	127369716
Copper, Total	0.0518	0.05	mg/kg	104	90.0 - 110	127369681
Copper, Total	0.0515	0.05	mg/kg	103	90.0 - 110	127369697
Copper, Total	0.0529	0.05	mg/kg	106	90.0 - 110	127369706
Copper, Total	0.0526	0.05	mg/kg	105	90.0 - 110	127369716
Lead, Total	0.0491	0.05	mg/kg	98.2	90.0 - 110	127369681
Lead, Total	0.0487	0.05	mg/kg	97.4	90.0 - 110	127369697

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QUALITY CONTROL

AQU1-G

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
Bryan, TX 77807-9104

Project
1137992

Printed 03/06/2025

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Lead, Total	0.0484	0.05	mg/kg	96.8	90.0 - 110	127369706
Lead, Total	0.0483	0.05	mg/kg	96.6	90.0 - 110	127369716
Lead, Total	0.0495	0.05	mg/kg	99.0	90.0 - 110	127369746
Lead, Total	0.0505	0.05	mg/kg	101	90.0 - 110	127369752
Lead, Total	0.0491	0.05	mg/kg	98.2	90.0 - 110	127369758
Molybdenum, Total	0.0499	0.05	mg/kg	99.8	90.0 - 110	127369681
Molybdenum, Total	0.0488	0.05	mg/kg	97.6	90.0 - 110	127369697
Molybdenum, Total	0.0482	0.05	mg/kg	96.4	90.0 - 110	127369706
Molybdenum, Total	0.0504	0.05	mg/kg	101	90.0 - 110	127369716
Nickel, Total	0.051	0.05	mg/kg	102	90.0 - 110	127369681
Nickel, Total	0.0508	0.05	mg/kg	102	90.0 - 110	127369697
Nickel, Total	0.0521	0.05	mg/kg	104	90.0 - 110	127369706
Nickel, Total	0.0518	0.05	mg/kg	104	90.0 - 110	127369716
Zinc, Total	0.0501	0.05	mg/kg	100	90.0 - 110	127369681
Zinc, Total	0.0507	0.05	mg/kg	101	90.0 - 110	127369697
Zinc, Total	0.0517	0.05	mg/kg	103	90.0 - 110	127369706
Zinc, Total	0.0519	0.05	mg/kg	104	90.0 - 110	127369716

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Arsenic, Total	0.0489	0.05	mg/kg	97.8	90.0 - 110	127369676
Cadmium, Total	0.0498	0.05	mg/kg	99.6	90.0 - 110	127369676
Chromium, Total	0.0504	0.05	mg/kg	101	90.0 - 110	127369676
Copper, Total	0.0503	0.05	mg/kg	101	90.0 - 110	127369676
Lead, Total	0.0495	0.05	mg/kg	99.0	90.0 - 110	127369676
Molybdenum, Total	0.0489	0.05	mg/kg	97.8	90.0 - 110	127369676
Nickel, Total	0.0504	0.05	mg/kg	101	90.0 - 110	127369676
Zinc, Total	0.0478	0.05	mg/kg	95.6	90.0 - 110	127369676

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Arsenic, Total	1163225	2.36	2.36	2.50	80.0 - 120	94.4	94.4	mg/kg	0	20.0
Cadmium, Total	1163225	1.17	1.18	1.25	80.0 - 120	93.6	94.4	mg/kg	0.851	20.0
Chromium, Total	1163225	2.50	2.49	2.50	80.0 - 120	100	99.6	mg/kg	0.401	20.0
Copper, Total	1163225	2.43	2.41	2.50	80.0 - 120	97.2	96.4	mg/kg	0.826	20.0
Lead, Total	1163225	2.31	2.32	2.50	80.0 - 120	92.4	92.8	mg/kg	0.432	20.0
Molybdenum, Total	1163225	1.26	1.26	1.25	80.0 - 120	101	101	mg/kg	0	20.0
Nickel, Total	1163225	2.49	2.48	2.50	80.0 - 120	99.6	99.2	mg/kg	0.402	20.0
Zinc, Total	1163225	2.34	2.36	2.50	80.0 - 120	93.6	94.4	mg/kg	0.851	20.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Arsenic, Total	2384913	69.8	69.0	1.90	76.0	67.5 - 123	89.3	88.3	mg/kg	1.19	20.0
Cadmium, Total	2384913	36.2	35.9	0.0475	38.0	86.3 - 114	95.1	94.3	mg/kg	0.833	20.0
Chromium, Total	2384913	80.1	80.8	5.80	76.0	80.1 - 122	97.8	98.7	mg/kg	0.938	20.0
Copper, Total	2384913	72.9	73.8	3.11	76.0	40.4 - 145	91.8	93.0	mg/kg	1.28	20.0

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QUALITY CONTROL

AQU1-G

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Printed 03/06/2025

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Lead, Total	2384913	76.6	78.5	6.76	76.0	78.8 - 123	91.9	94.4	mg/kg	2.68	20.0
Molybdenum, Total	2384913	36.6	36.7	0.379	38.0	62.9 - 137	95.3	95.6	mg/kg	0.276	20.0
Nickel, Total	2384913	75.4	76.3	3.35	76.0	76.5 - 121	94.8	96.0	mg/kg	1.24	20.0
Zinc, Total	2384913	81.3	87.7	18.9	76.0	28.6 - 157	82.1	90.5	mg/kg	9.76	20.0
Arsenic, Total	2385120	11.4	11.5	0.0679	12.4	67.5 - 123	92.1	92.9	mg/kg	0.879	20.0
Cadmium, Total	2385120	5.77	5.76	0.0173	6.21	86.3 - 114	93.2	93.1	mg/kg	0.174	20.0
Chromium, Total	2385120	12.1	11.9	0.226	12.4	80.1 - 122	96.5	94.9	mg/kg	1.70	20.0
Copper, Total	2385120	16.3	16.1	5.31	12.4	40.4 - 145	89.3	87.7	mg/kg	1.84	20.0
Lead, Total	2385120	11.2	11.0	0.0908	12.4	78.8 - 123	90.3	88.7	mg/kg	1.82	20.0
Molybdenum, Total	2385120	6.41	6.42	0.231	6.21	62.9 - 137	100	100	mg/kg	0.162	20.0
Nickel, Total	2385120	11.9	11.8	0.286	12.4	76.5 - 121	94.4	93.6	mg/kg	0.865	20.0
Zinc, Total	2385120	27.4	27.2	17.5	12.4	28.6 - 157	80.5	78.9	mg/kg	2.04	20.0

Analytical Set 1163898 — EPA 6020A

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Selenium, Total	1163225	ND	0.000353	0.001	mg/kg	127371971

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Selenium, Total	0.0511	0.05	mg/kg	102	90.0 - 110	127371954
Selenium, Total	0.049	0.05	mg/kg	98.0	90.0 - 110	127371970
Selenium, Total	0.0498	0.05	mg/kg	99.6	90.0 - 110	127371979
Selenium, Total	0.0499	0.05	mg/kg	99.8	90.0 - 110	127371989

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Selenium, Total	0.0506	0.05	mg/kg	101	90.0 - 110	127371949

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Selenium, Total	1163225	2.41	2.41	2.50	80.0 - 120	96.4	96.4	mg/kg	0	20.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Selenium, Total	2384913	68.9	67.9	0.311	76.0	63.9 - 122	90.2	88.9	mg/kg	1.47	20.0
Selenium, Total	2385120	11.4	11.5	0.062	12.4	63.9 - 122	92.2	93.0	mg/kg	0.878	20.0

* Out RPD is Relative Percent Difference: abs(r1-r2) / mean(r1,r2) * 100% Recover% is Recovery Percent: result / known * 100%

Blank - Method Blank (reagent water or other blank matrices that contains all reagents except standard(s) and is processed simultaneously with and under the same conditions as samples; carried through preparation and analytical procedures exactly like a sample; monitors); CCV - Continuing Calibration Verification (same standard used to prepare the curve; typically a mid-range concentration; verifies the continued validity of the calibration curve); MSD - Matrix Spike Duplicate (replicate of the matrix spike; same solution and amount of target analyte added to the MS is added to a third aliquot of sample; quantifies matrix bias and precision.); ICV - Initial Calibration Verification; LCS Dup - Laboratory Control Sample Duplicate (replicate LCS; analyzed when there is insufficient sample for duplicate or MSD; quantifies accuracy and precision.)

Email: Kilgore.ProjectManagement@spllabs.com

1137992 CoC Print Group 001 of 001

AQUA-TECH LABORATORIES, INC.

ATL - Bryan Facility:
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(979) 778-3707
Fax (979) 778-3193

ATL - Austin Facility:
3512 Montopolis Drive
Austin, TX 78744
(512) 301-9559
Fax (512) 301-9552

Chain-of-Custody & Analysis Request

SHIPPED TO:
SPL-Kilgore (T104704201)
2600 Dudley Road
Kilgore, TX 75662
Phone: (903) 984-0551
Fax: (903) 984-5914

C-O-C #

909 - I007228

T104704371

All analyses must be performed by a TNI approved method certified by the TCEQ. Contact ATL's sample custodian via voice and email if your methods do not meet this criteria.

Analysis Request for: **Sample ID: I007228-01** Sampled: 02/25/25 11:50 Matrix: Soil **Laboratory ID >>** 2365459

Solids, Percent - % calculation	Mo SL - EPA 6010B 1996 ✓	As SL - EPA 6020A ✓	Cd SL - EPA 6020A ✓
Cr SL - EPA 6020A ✓	Cu SL - EPA 6020A ✓	Ni SL - EPA 6020A ✓	Pb SL - EPA 6020A ✓
Se SL - EPA 6020A ✓	Zn SL - EPA 6020A ✓	TS - SM2540 G 2015	

CONTAINERS SUPPLIED: (ATL indicates cooler number in parentheses for each container - only required if more than one cooler listed below.)

( ) I007228-01 [B] - SOIL TKN 0.25LP
[Split taken from container A.]

Relinquished by: (print & sign) ☒ ATL-Austin ☐ ATL - Bryan ☐ Sampler Kristin Torres Kristin Torres		Date 2-27-25	Time 1630	☒ Iced ☒ Custody Sealed ☐ Not Chilled	**Abbreviations:** DW - Drinking Water; NP - Non-Potable Water; S - Solid; CTU - Custody Transfer Unbroken; StP - Sterile Plastic; LP - Liter Plastic; LG - Liter Glass
Carrier & Tracking Number: Fed Ex	Cooler 1: AQU1 7704 4834 8438			Sample Info "X" all that apply	**Aqua-Tech Comments and Special Instructions**
Received by: (print & sign) ☑ Received in Lab McCabe Wheeler SPL, Inc. MCC		Date 2-28-25	Time 1030	☑ Received Iced ☐ CTU ☑ Condition Good ☐ Not Rec'd Iced	Use sample ID as PO# Need new 2010 MALs. Please J Flag metals < MRL & note all metals < MDL on reports.

Line below documents condition at receipt in lab (shipped to) listed above.

Cooler Temperature (°C)	Temp. Read (TR)	Corrected Temp. (CT)	Thermometer ID
Cooler 1			
N/A	N/A	N/A	

Please email reports to:
reporting@aqua-techlabs.com

Please return cooler(s) to:
Austin Facility

Do not further sub-contract any analysis.
Keep in house or call for further instructions.

1137992 CoC Print Group 001 of 001

Therm#: 6205 Corr Fact: -0.6 C

Temp: 2.6 1 2.0 C

Date Time Tech

5510847 27fab2025 AUSA 50164/26DE/5FE5

FedEx MPS# 0263 7704 4834 8438

FRI - 28 FEB 4A
PRIORITY OVERNIGHT

75662 TX-US
SHV

XP GGGA

ORIGIN ID:AUSA (512) 301-9559
SUZANNE RUDD
AQUA- TECH LAB
3312 MONTOPOLIS DR.
SUITE A
AUSTIN, TX 78735
UNITED STATES US

SHIP DATE: 03DEC24
ACTWGT: 65.00 LB
CAD: 5912804/NET4760
DIMS: 25x14x14 IN

BILL SENDER

TO LOGIN - SAMPLES
ANA-LAB - SPL CORP
2600 DUDLEY RD
KILGORE TX 75662
(903) 984-0551

PO:
REF: MENO
DEPT:

FedEx Express

598CAAEB79D3C04

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
(979)321-5960

Visit our website: http://soiltesting.tamu.edu

Report generated for:
Aqua Tech Laboratories, Inc
635 Phil Gramm Blvd.
BRYAN, TX 77807

Sample received on: 3/4/2025
Printed on: 3/18/2025
Area Represented: not provided

Brazos County
Laboratory Number: 679878
Customer Sample ID: I007228-01C
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	
pH	**8.0**	(5.8)	-	**Mod. Alkaline**	
Conductivity	**269**	(-)	umho/cm	**None** CL*	**Nutrient Recommended**
Nitrate-N	**8**	(-)	ppm**		**80** lbs N/acre
Phosphorus	**136**	(50)	ppm		**0** lbs P2O5/acre
Potassium	**351**	(150)	ppm		**0** lbs K20/acre
Calcium	**12,441**	(180)	ppm		**0** lbs Ca/acre
Magnesium	**183**	(50)	ppm		**0** lbs Mg/acre
Sulfur	**64**	(13)	ppm		**0** lbs S/acre
Sodium	**46**	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron	**3.02**	(1.30)	ppm		**0** lbs B/acre
Limestone Requirement					**0.00** tons 100ECCE/acre
Ammonium-N	**2.1**		ppm		

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Online fertilizer calculators to determine appropriate fertilizers and application rates.
http://soiltesting.tamu.edu

Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, S and B/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP.

ProAnalysisVer. 2.19j

Soil Analysis Report

Soil, Water and Forage Testing Laboratory
Department of Soil and Crop Sciences
2478 TAMU
College Station, TX 77843-2478
(979)321-5960

Visit our website: http://soiltesting.tamu.edu

Report generated for:
Aqua Tech Laboratories, Inc
635 Phil Gramm Blvd.
BRYAN, TX 77807

Sample received on: 3/4/2025
Printed on: 3/18/2025
Area Represented: not provided

Brazos County
Laboratory Number: 679879
Customer Sample ID: I007228-02C
Crop Grown: IMPROVED AND HYBRID BERMUDA GRASS (3 HAY CUTTINGS-2 TONS/A AVG.)

Analysis	Results	CL*	Units	ExLow VLow Low Mod High VHigh Excess.	Nutrient Recommended
pH	**7.9**	(5.8)	-	**Mod. Alkaline**	
Conductivity	**213**	(-)	umho/cm	**None** CL*	**Nutrient Recommended**
Nitrate-N	**12**	(-)	ppm**		**75** lbs N/acre
Phosphorus	**113**	(50)	ppm		**0** lbs P2O5/acre
Potassium	**289**	(150)	ppm		**0** lbs K20/acre
Calcium	**14,613**	(180)	ppm		**0** lbs Ca/acre
Magnesium	**185**	(50)	ppm		**0** lbs Mg/acre
Sulfur	**74**	(13)	ppm		**0** lbs S/acre
Sodium	**56**	(-)	ppm		
Iron					
Zinc					
Manganese					
Copper					
Boron	**2.92**	(1.30)	ppm		**0** lbs B/acre
Limestone Requirement					**0.00** tons 100ECCE/acre
Ammonium-N	**1.4**		ppm		

*CL=Critical level is the point which no additional nutrient (excluding nitrate-N, sodium and conductivity) is recommended. **ppm=mg/kg

Nitrogen: Apply an additional 100 lbs/A of nitrogen for each subsequent hay cuttings.

Online fertilizer calculators to determine appropriate fertilizers and application rates.
http://soiltesting.tamu.edu

Methods: pH and conductivity/ 2:1; nitrate-N/Cd-red.; P, K, Ca, Mg, Na, S and B/Mehlich 3 by ICP; Fe, Zn, Mn, and Cu/DTPA by ICP.

ProAnalysisVer. 2.19j

AQUA-TECH LABORATORIES — Chain-of-Custody and Analysis Request

All analyses must be performed by a TNI approved method certified by the TCEQ. Contact ATL's sample custodian via voice and email if your methods do not meet this criteria.

SHIPPED TO
TAMU - Soil Lab
2610 F&B Road
College Station, TX 77845
Phone: (979) 845-4816

DEFINITIONS

P	Plastic
G	Glass
L	Liter
CM	Custody Maintained
CTU	Custody Transfer Unbroken
ATL	Aqua-Tech Laboratories, Inc

T104704371

Aqua-Tech laboratories, Inc.

Austin
3512 Montopolis Dr. Suite A
Austin, TX 78744
512.301.9559

Bryan
635 Phil Gramm Blvd.
Bryan, TX 77807
979.778.3707

Test results meet all accreditation/certification requirements unless stated otherwise.

C-O-C # **834 - I007228**

Page 1 of 1

sco_ATL TAMU 011921

Comments:

Please use Sample ID as PO# and email reports to reporting@aqua-techlabs.com.

Lines below document condition at receipt in lab (shipped to) listed above.

Cooler ID	Temp Read (C)	Corrected Temp (C)	Thermometer ID
B145		NA <DND>	

Please hold coolers for pick-up.

Sample Custody

Relinquished (print & sign)	Dane Dylla	☐ Sampler ☐ Client ☐ ATL Field	Date 3-3-25 Time 0900	☐ Iced / Refrig ☑ Custody Sealed
Received (print & sign)	Dane Dylla	☐ Client ☑ ATL Field	Date 3-3-25 Time 0900	☐ Iced / Refrig ☑ CM / CTU
Relinquished (print & sign)		☐ Client ☐ ATL Field	Date Time	☐ Iced / Refrig ☐ CM / CTU
Received (print & sign)	NA <DND>	☐ Client ☐ ATL Field	Date Time	☐ Iced / Refrig ☐ CM / CTU
Relinquished (print & sign)	Dane Dylla	☐ Client ☑ ATL Field	Date 3-3-25 Time 0938	☐ Iced / Refrig ☑ CM / CTU / Sealed
Received (print & sign)	J. Waskom	☑ Lab	Date 3/3/25 Time 9:38	☑ Cond Good ☐ Iced / Refrig ☐ CM / CTU

Sample ID Sampled / Matrix	Analysis Request	(ATL indicates cooler number in parentheses for each container - only required if more than one cooler listed above.)	Lab ID
I007228-01 02/25/25 11:50 Soil	***Mehlich 3 - TAMU*** P Plant Available; NO3N Extractable; Na Plant Available Mg Plant Available; K Plant Available; Ca Plant Available ***TAMU - 1:2 Soil Extract*** pH; Conductivity (1:2) ***TAMU - KCl Extract*** NH4 - Ammonium	( ) I007228-01 [C] - [SUB] TAMU SL 1LP	
I007228-02 02/25/25 11:50 Soil	***Mehlich 3 - TAMU*** P Plant Available; NO3N Extractable; Na Plant Available Mg Plant Available; K Plant Available; Ca Plant Available ***TAMU - 1:2 Soil Extract*** pH; Conductivity (1:2) ***TAMU - KCl Extract*** NH4 - Ammonium	( ) I007228-02 [C] - [SUB] TAMU SL 1LP	

AQUA-TECH LABORATORIES — Chain-of-Custody and Analysis Request

Client /Project: Jacobs - Bell County WCID #2 (Soil Analysis)

Contact Info
Name: Andreana Alexander
Address: 202 Brookman S
City: Little River State: TX ZIP: 76554
Phone / Email: andreana.alexander@jacobs.com 469-245-7089

Definitions
DW - Drinking Water; NP - Non-Potable Water; S - Solid
CM - Custody Maintained; CTU - Custody Transfer Unbroken; CT - Corrected Temperature; SUB - Subcontracted Analysis
(+) Container Type: P - Plastic; G - Glass; T - Teflon®

By relinquishing the samples listed below to Aqua-Tech, the client agrees to the following terms.
Samples will be analyzed by a method that is within Aqua-Tech Laboratories' NELAC fields of accreditation. Analytes requiring a certified method that is not within Aqua-Tech's fields of accreditation will be subcontracted to a NELAC certified lab that is certified for that method. Clients will be notified of the subcontract lab's details. Other analytes not requiring accreditation will be analyzed by a compendial method. If a specific method is required, the client will note the method in the "Analysis Requested" column. The client approves all method modifications documented by Aqua-Tech or the subcontract lab. A current list of Aqua-Tech's NELAC fields of accreditation and other methods are available on request.

TCEQ Lab ID: T104704371

Aqua-Tech Laboratories, Inc.
Austin: 3512 Montopolis Dr.Suite A, Austin, TX 78744, 512.301.9559
Bryan: 635 Phil Gramm Blvd, Bryan, TX 77807, 979.778.3707
Test results meet all accreditation/certification requirements unless stated otherwise.

Work Order / C-O-C: I007228
Page 1 of 2
V-0023 R03

Sample Custody

Relinquished by (print & sign): Andreana Alexander Andreana Alexander	☒ Sampler ☒ Client ☐ ATL Field	Date: 2-25-25 Time: ~~1335~~ AA	☒ Iced / Refrig ☐ Custody Sealed
Received by (print & sign):	☐ Client ☐ ATL Field	Date: Time: 1510	☐ Iced / Refrig ☐ CM / CTU
Relinquished by (print & sign): NEEDED	☐ Client ☐ ATL Field	Date: Time:	☐ Iced / Refrig ☐ CM / CTU
Received by (print & sign):	☐ Client ☐ ATL Field	Date: Time:	☐ Iced / Refrig ☐ CM / CTU
Relinquished by (print & sign):	☐ Client ☐ ATL Field	Date: Time:	☐ Iced / Refrig ☐ CM / CTU / sealed
Received by (print & sign): Hanna Gamer	☒ Lab	Date: 2/25/25 Time: 13:35	☒ Cond Good ☒ Iced / Refrig ☒ CM / CTU

Client Comments:
Land Application Site
Soil Analysis
0-6"
6-24"

* Preservatives		Receipt in Lab		
1	< 6 °C (unfrozen)	Cooler ID:	CLT	
2	H2SO4	Temperature (°C): read / CT	5.1 / 5.1	
3	HCl			
4	HNO3	Preservation Correct?	(YES) NO	YES NO
5	Na2S2O3	Post Preservatives?	YES (NO)	YES NO
6	NaOH	Thermometer ID:	07644S0	
7		pH Paper ID:	—	

Lab Comments:

Field Sample ID (record field data for each sample in space below)	Start Date	Start Time	End Date	End Time	Composite Type	Sample Matrix	Container(s) Bottle Count	Volume (Size in L)	Type (+)	Preserv-ative(s) *	LAB USE ONLY BELOW (Initials HG) Cooler ID	pH Check	SUB	WORK ORDER	
0"-6" Soil	2-25-25	1100	2-25-25	1150	grab	S	~~2~~ 1	1 gal bag	P	1	CLT	—	—	Sample	I007228
Analysis Requested & Comments: Parameters 1-20 (see e-mail)							NEEDED								
6"-24" Soil	2-25-25	1100	2-25-25	1150	grab	S	~~2~~ 1	1 gal bag	P	1	CLT	—	—	Sample	
Analysis Requested & Comments: Parameters ~~1-20~~ AA 1-10 (see e-mail)							NEEDED								
														Sample	
Analysis Requested & Comments:															
														Sample	
Analysis Requested & Comments: NEEDED															
														Sample	
Analysis Requested & Comments:															

Attachment M

Email information for report date:
9/30/24 11:43

H028340

Bell County WCID #2 % Jacobs

Attn: Andreana Salas
andreana.salas@jacobs.com

-
-, - -

Please contact us for your sampling needs or if you have any questions. Some convenient contacts are listed below. You can also access your results and reports through our ClientConnect ™ portal on our website (www.aqua-techlabs.com).

For sampling questions:

samplingbryan@aqua-techlabs.com (Bryan area)
samplingaustin@aqua-techlabs.com (Austin area)

reporting@aqua-techlabs.com (report questions)

Aqua-Tech values you as a customer and encourages you to speak with our staff at 979-778-3707 or the above emails if you have questions.

Thank you for your business,
June M. Brien
Executive Technical Director

BRYAN FACILITY
635 Phil Gramm Boulevard
Bryan, TX 77807
Phone: (979) 778-3707
Fax: (979) 778-3193

AQUA-TECH LABORATORIES

AUSTIN FACILITY
3512 Montopolis Dr. Suite A
Austin, TX 78744
Phone: (512) 301-9559
Fax: (512) 301-9552

The analyses summarized in this report were performed by Aqua-Tech Laboratories, Inc. unless otherwise noted. Aqua-Tech Laboratories, Inc. holds accreditation from the State of Texas in accordance with TNI and/or through the TCEQ Drinking Water Commercial Laboratory Approval Program.

The following abbreviations indicate certification status:

NEL	TNI accredited parameter.
ANR	Accreditation not offered by the State of Texas.
DWP	Approval through the TCEQ Drinking Water Commercial Laboratory Approval Program.
INF	Aqua-Tech Laboratories, Inc. is not accredited for this parameter. It is reported on an informational basis only.

Subcontracted data summarized in this report is indicated by "Sub" in the Lab column.

Certificate: TX-C24-00311

TCEQ Lab ID T104704371

General Definitions:

NR	Not Reported.
RPD	Relative Percent Difference.
% R	Percent Recovery.
dry	Results with the "dry" unit designation are reported on a "dry weight" basis.
SQL	The Sample Quantitation Limit is the value below which the parameter cannot reliably be detected. The SQL includes all sample preparations, dilutions and / or concentrations.
Adj MDL	The Adjusted Method Detection Limit is the MDL value adjusted for any sample dilutions or concentrations .
MDL	The Method Detection Limit is the lowest theoretical value that is statistically different from zero for a specific method, taking into account all preparation steps and instrument settings.

All samples are reported on an "as received" basis unless the designation "dry" is added to the reported unit.

Copies of Aqua-Tech Laboratories, Inc. procedures and individual sampling plans are available upon request. Note that samples are collected by Aqua-Tech Laboratories, Inc. personnel unless otherwise noted in the "Sample Collected" field of this report as "Client" or "CLT".

Samples included in this report were received in acceptable condition according to Aqua-Tech Laboratories, Inc. procedures and 40 CFR, Chapter I, Subchapter D, Part 136.3, TABLE II. - *Required containers, preservation techniques, and holding times*, unless otherwise noted in this report.

Record Retention:

All reports, raw data, and associated quality control data are kept on file for 10 years before being destroyed. Any client that would like copies of records must contact Aqua-Tech Laboratories, Inc. no later than six months prior to the scheduled disposal. An administrative fee for retrieval and distribution will apply.

This report was approved by:

June M. Brien, Technical Director

The results in this report apply only to the samples analyzed. This analytical report must be reproduced in its entirety unless written permission is granted by Aqua-Tech Laboratories, Inc.

BRYAN FACILITY
635 Phil Gramm Boulevard
Bryan, TX 77807
Phone: (979) 778-3707
Fax: (979) 778-3193

AQUA-TECH LABORATORIES

AUSTIN FACILITY
3512 Montopolis Dr. Suite A
Austin, TX 78744
Phone: (512) 301-9559
Fax: (512) 301-9552

Analytical Report

Bell County WCID #2 % Jacobs

Report Printed: **9/30/24** **11:43**

H028340

Academy WWTP Sludge

Collected: 08/29/24 13:01 by CLIENT
Received: 08/29/24 15:35 by Suzanne Rudd

Type: Grab
Matrix: Non Potable
C-O-C #: H028340

Lab ID# H028340-01

	Result	Units	Notes	MDL	Adj MDL	SQL	Lab	Analyzed	Method	Batch	

Please see the attached subcontract report for subcontracted data.

Academy WWTP Sludge

Collected: 08/29/24 13:01 by CLIENT
Received: 08/29/24 15:35 by Suzanne Rudd

Type: Grab
Matrix: Non Potable
C-O-C #: H028340

Lab ID# H028340-02

	Result	Units	Notes	MDL	Adj MDL	SQL	Lab	Analyzed	Method	Batch	
Total Kjeldahl Nitrogen as N	**47300**	mg/kg dry		0.13	1300	1990	*Bryan*	09/03/24 13:32 KMA	SM4500-NH3 G 2011	M182218	*ANR*
Metals (Total)											
Mercury	**0.992**	mg/kg dry	MS-01, RPD-01	0.0002	0.077	0.203	*Bryan*	09/12/24 10:00 ARM	EPA 7471A 1994	M182590	*NEL*

Please see the attached subcontract report for subcontracted data.

Explanation of Notes

J	Analyte detected below the SQL but above the MDL.
MS-01	The MS and/or MSD recovery was outside acceptance limits. Investigation concludes it is a sample- specific matrix effect and the batch was accepted based on acceptable LCS and /or LCSD recovery.
RPD-01	Duplicate RPD is outside acceptable range. Acceptance of run is not based on matrix QC.

BRYAN FACILITY
635 Phil Gramm Boulevard
Bryan, TX 77807
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Fax: (979) 778-3193

AQUA-TECH LABORATORIES

AUSTIN FACILITY
3512 Montopolis Dr. Suite A
Austin, TX 78744
Phone: (512) 301-9559
Fax: (512) 301-9552

Analytical Report

Bell County WCID #2 % Jacobs

Report Printed: **9/30/24** **11:43**

H028340

General Chemistry - Quality Control

	Result	Units	Notes	MDL	SQL	Analyzed	Spike Amount	Source Result	%R	%R Limits	RPD	RPD Limit	Batch
Total Kjeldahl Nitrogen as N - SM4500-NH3 G 2011													*Bryan*
Initial Cal Check	3.45	mg/L				09/03/24 13:32 KMA	3.38		102	90 - 110			2409018
Low Cal Check	0.21	mg/L				09/03/24 13:32 KMA	0.200		104	70 - 130			2409018
Blank	<0.20	mg/kg wet		0.13	0.20	09/03/24 13:32 KMA							M182218
LCS	4.07	mg/kg wet		0.13	0.20	09/03/24 13:32 KMA	4.00		102	91 - 116			M182218
LCS Dup	4.13	mg/kg wet		0.13	0.20	09/03/24 13:32 KMA	4.00		103	91 - 116	1.46	10	M182218
Matrix Spike	2670	mg/kg dry		71.5	110	09/03/24 13:32 KMA	2200	410	103	88.2 - 119			M182218
Matrix Spike Dup	2670	mg/kg dry		71.5	110	09/03/24 13:32 KMA	2200	410	103	88.2 - 119	0.0729	20	M182218

Metals (Total) - Quality Control

	Result	Units	Notes	MDL	SQL	Analyzed	Spike Amount	Source Result	%R	%R Limits	RPD	RPD Limit	Batch
Mercury - EPA 7471A 1994													*Bryan*
Initial Cal Check	7.45	ug/L				09/12/24 10:00 ARM	6.88		108	80 - 120			2409132
Blank	<0.0005	mg/kg wet		0.0002	0.0005	09/12/24 10:00 ARM							M182590
Duplicate	0.924	mg/kg dry		0.077	0.203	09/12/24 10:00 ARM		0.992			7.13	20	M182590
LCS	0.002	mg/kg wet		0.0002	0.0005	09/12/24 10:00 ARM	0.00250		99.4	80 - 120			M182590
LCS Dup	0.003	mg/kg wet		0.0002	0.0005	09/12/24 10:00 ARM	0.00250		101	80 - 120	1.95	10	M182590
Matrix Spike	1.29	mg/kg dry	*MS-01*	0.077	0.203	09/12/24 10:00 ARM	0.102	0.992	*297*	80 - 120			M182590
Matrix Spike Dup	1.56	mg/kg dry	*MS-01, RPD-01*	0.077	0.203	09/12/24 10:00 ARM	0.101	0.992	*564*	80 - 120	*62.2*	20	M182590
MRL Check	<0.0005	mg/kg wet	*J (0.0004)*	0.0002	0.0005	09/12/24 10:00 ARM	0.000500		86.6	70 - 130			M182590

Sample Preparation Summary

Sample	Method	Prepared	Lab	Bottle	Initial	Units	Final	Units	External Dilution Factor	Batch
H028340-01										
Subcontract	Sub Contract Data Entry	9/3/24 10:25 PMY	Bryan	-	-	-	-	-	-	M182216
H028340-02										
% Solids	% calculation	9/30/24 11:14 PMY	Bryan	-	-	-	-	-	-	M183453
Mercury	EPA 7471A 1994	9/11/24 10:09 ARM	Bryan	B	10.0	g	10.0	mL	10	M182590
Subcontract	Sub Contract Data Entry	9/3/24 10:25 PMY	Bryan	-	-	-	-	-	-	M182216
Total Kjeldahl Nitrogen as N	SM4500-NH3 G 2011	9/3/24 8:20 CTG	Bryan	D	0.102	g	25.0	mL	1	M182218

Form: C:\ELMNT\FORMAT\ATL 090124 FIN_LS.RPT

Chain-of-Custody and Analysis Request

AQUA-TECH LABORATORIES, INC.

Client / Project Name: Bell County WCID #2 % Jacobs — Academy WWTP Sludge

Contact Information
Name Andreana Salas
Address -
City -
State - Zip -
Phone -
email

Definitions
DW Drinking Water
NP Non-Potable Water
S Solid
CM Custody Maintained
CTU Custody Transfer Unbroken
CT Corrected Temperature

Reagent tracking is available upon request.

TCEQ LAB ID: T104704371

Aqua-Tech laboratories, Inc.

Austin: 3512 Montopolis Dr., Austin, TX 78744, 512.301.9559
Bryan: 635 Phil Gramm Blvd., Bryan, TX 77807, 979.778.3707

Test results meet all accreditation/certification requirements unless stated otherwise.

C-O-C # **H028340**

Page 1 of 2

rte_ATL COC 012723.rpt

Analyses Requested: "A" prefix indicates Austin, all others Bryan or Subcontracted, indicated by [SUB].
Name format: Analysis-Matrix-Technology-Method.

[NEL] = NELAP accredited parameter
[SUB] = NELAP accredited subcontracted parameter
[CNR] = No NELAP accreditation required or available
[INF] = Informational only (not NELAC certified)

By relinquishing the samples listed below to Aqua-Tech laboratories, Inc. (ATL), the client agrees to the following terms. Samples will be analyzed by a method that is within ATL's NELAP fields of accreditation (FoA). Analytes requiring an accredited method that is not within ATL's FoA will be subcontracted to a NELAP lab that is accredited for that method. Clients will be notified of the subcontract lab's details. Other analytes not requiring accreditation will be analyzed by a compendial method. If a specific method is required, the client will note the method in the "Analysis Requested" column. The client approves all method modifications documented by ATL or the subcontract lab.
A current list of ATL's NELAC fields of accreditation and other methods are available on request.

Comments:

- LAB RECEIPT - CM

Temperature - CT (C):	4.6/4.6CT
Preservation Correct:	Y
Post-Preservatives:	NA
Thermometer ID:	DT64(4650
pH Paper ID:	—

Sample Custody

Relinquished (print & sign)	Andreana Alexander / Andreana Alexander	☒ Sampler ☐ Client ☐ ATL Field	Date 8-29-24 ☒ Iced / Refrig Time ~~1635~~ AM ☐ Custody Sealed
Received (print & sign)		☐ Client ☐ ATL Field	Date 1585 ☐ Iced / Refrig Time ☐ CM / CTU
Relinquished (print & sign)		☐ Client ☐ ATL Field	Date ☐ Iced / Refrig Time ☐ CM / CTU
Received (print & sign)	NFE(8)	☐ Client ☐ ATL Field	Date ☐ Iced / Refrig Time ☐ CM / CTU
Relinquished (print & sign)		☐ Client ☐ ATL Field	Date ☐ Iced / Refrig Time ☐ CM / CTU / Sealed
Received (print & sign)	Suzanne Rudd / Suzanne Rudd	X Lab	Date 8-29-24 X Cond Good Time 1535 X Iced / Refrig X CM / CTU

Field Sample ID	Start Date	Start Time	End Date	End Time	Composite Type	Sample Matrix	Container (Checked box indicates bottle arrived in lab) (Volume - Type - Preservative)	Lab ID
Academy WWTP Sludge	8-29-24	1301	- N/A -	- N/A -	Grab	NP	☑ A TCLP FULL 1LG ☑ B TCLP FULL 1LG ☑ C TCLP FULL 1LG ☑ D TCLP FULL 1LG	**H028340-01**
TCLP EXT Metals SW-846 1311 [SUB] TCLP FULL SUITE [SUB] TCLP Metals (7) ICP EPA 6020 [SUB] TCLP VOL NP GC-MS EPA 8260 B [SUB]	TCLP EXT Non-Vol SW-846 1311 [SUB] TCLP Herb NP GC EPA 8151 [SUB] TCLP Pest NP GC EPA 8081 A [SUB]		TCLP EXT VOL SW846 1311 [SUB] TCLP Hg FIMS EPA 7470A [SUB] TCLP SV NP GC-MS EPA 8270 C [SUB]					
Academy WWTP Sludge	8-29-24	1301	- N/A -	- N/A -	Grab	S	☑ A Metals 0.25LP ☑ B Sludge Metals & Hg 0.25LP ☑ C Sludge Nutrients 0.25LP ☑ D Sludge Nutrients 0.25LP ☑ E [SUB] ANA PCB 0.33LG ☑ F PCB 0.33LG	**H028340-02**
A Fecal SL 7pt Geo Mean Calc SM 9222 D [NEL] Cr SL ICP SW846 6020 A [SUB] K SL ICP SW846 6010 B [SUB] Ni SL ICP SW846 6020 A [SUB] NO3N SL CALC EPA 353.2 [SUB] PCB GC-ECD EPA 8082 [SUB] TKN SL AUTO SM4500 NH3 G [CNR] Y Billing Digest, Metals SL ICP [SUB]	As SL ICP SW846 6020 A [SUB] Cu SL ICP SW846 6020 A [SUB] Mo SL ICP SW846 6010 B [SUB] NO2N SL Spec SM4500 NO2 B [SUB] P SL ICP SW846 6010 B [SUB] Se SL ICP SW846 6020 A [SUB] TS SL Grav SM 2540 G [SUB] Y Billing Ship to Sub-Contract Lab		Cd SL ICP SW846 6020 A [SUB] Hg SL CVAA SW846 7471 A [NEL] NH3N NP SL Tit EPA 350.1 [SUB] [NEL] NO3N + NO2N SL RFA EPA 353.2 [SUB] Pb SL ICP SW846 6020 A [SUB] Solids, Dry Weight Y Billing Digest, Metals Hg Zn SL ICP SW846 6020 A [SUB]				
Academy WWTP Sludge Part 1	8-29-24	1301	- N/A -	- N/A -	Grab	S	☑ A Fecal TS 0.29L SP	**H028340-03**
A Fecal SL Membrane SM 9222 D [NEL]	A TS SL Grav SM2540 G [NEL]		Solids, Dry Weight					
Academy WWTP Sludge Part 2	8-29-24	1301	- N/A -	- N/A -	Grab	S	☑ A Fecal TS 0.29L SP	**H028340-04**
A Fecal SL Membrane SM 9222 D [NEL]	A TS SL Grav SM2540 G [NEL]		Solids, Dry Weight					

Page 4 of 58 H028340_1 ATL 090124 FIN_ls 09 30 24 11143

AQUA-TECH LABORATORIES, INC.

Chain-of-Custody and Analysis Request

C-O-C #
H028340

Client : Bell County WCID #2 % Jacobs

Field Sample ID	Start Date	Start Time	End Date	End Time	Composite Type	Sample Matrix	Container (Checked box indicates bottle arrived in lab) (Volume - Type - Preservative)	Lab ID
Academy WWTP Sludge Part 3	8-29-24	1301	- N/A -	- N/A -	Grab	S	☑ A Fecal TS 0.29L SP	**H028340-05**
A Fecal SL Membrane SM 9222 D [NEL]	A TS SL Grav SM2540 G [NEL]			Solids, Dry Weight				
Academy WWTP Sludge Part 4	8-29-24	1301	- N/A -	- N/A -	Grab	S	☑ A Fecal TS 0.29L SP	**H028340-06**
A Fecal SL Membrane SM 9222 D [NEL]	A TS SL Grav SM2540 G [NEL]			Solids, Dry Weight				
Academy WWTP Sludge Part 5	8-29-24	1301	- N/A -	- N/A -	Grab	S	☑ A Fecal TS 0.29L SP	**H028340-07**
A Fecal SL Membrane SM 9222 D [NEL]	A TS SL Grav SM2540 G [NEL]			Solids, Dry Weight				
Academy WWTP Sludge Part 6	8-29-24	1301	- N/A -	- N/A -	Grab	S	☑ A Fecal TS 0.29L SP	**H028340-08**
A Fecal SL Membrane SM 9222 D [NEL]	A TS SL Grav SM2540 G [NEL]			Solids, Dry Weight				
Academy WWTP Sludge Part 7	8-29-24	1301	- N/A -	- N/A -	Grab	S	☐ A Fecal TS 0.29L SP	**H028340-09**
A Fecal SL Membrane SM 9222 D [NEL]	A TS SL Grav SM2540 G [NEL]			Solids, Dry Weight				

Page 5 of 58 H028340_1 ATL 090124 FIN_ls 09 30 24 1143

2600 Dudley Rd. Kilgore, Texas 75662
24 Waterway Avenue, Suite 375 The Woodlands, TX 77380
Office: 903-984-0551 * Fax: 903-984-5914

Project
1116357

AQU1-G

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
Bryan, TX 77807-9104

Printed 09/16/2024
13:01

TABLE OF CONTENTS

H028340

This report consists of this Table of Contents and the following pages:

Report Name	Description	Pages
1116357_r02_01_ProjectSamples	SPL Kilgore Project P:1116357 C:AQU1 Project Sample Cross Reference t:304	2
1116357_r03_03_ProjectResults	SPL Kilgore Project P:1116357 C:AQU1 Project Results t:304 PO: H028340	8
1116357_r03_06_A_ProjectTRRP	SPL Kilgore Project P:1116357 C:AQU1 Project TRRP Results Report for Class A	2
1116357_r03_06_D_ProjectTRRP	SPL Kilgore Project P:1116357 C:AQU1 Project TRRP Results Report for Class D	2
1116357_r03_06_G_ProjectTRRP	SPL Kilgore Project P:1116357 C:AQU1 Project TRRP Results Report for Class G	2
1116357_r03_06_I_ProjectTRRP	SPL Kilgore Project P:1116357 C:AQU1 Project TRRP Results Report for Class I	2
1116357_r03_06_M_ProjectTRRP	SPL Kilgore Project P:1116357 C:AQU1 Project TRRP Results Report for Class M	4
1116357_r03_06_O_ProjectTRRP	SPL Kilgore Project P:1116357 C:AQU1 Project TRRP Results Report for Class O	4
1116357_r10_05_ProjectQC	SPL Kilgore Project P:1116357 C:AQU1 Project Quality Control Groups	19
1116357_r99_09_CoC__1_of_1	SPL Kilgore CoC AQU1 1116357_1_of_1	7
	Total Pages:	52

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SAMPLE CROSS REFERENCE

Project
1116357

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
Bryan, TX 77807-9104

Sample	Sample ID	Taken	Time	Received
2330220	*H028340-01*	08/29/2024	13:01:00	08/30/2024

Bottle 01 Client Supplied Amber Glass
Bottle 02 Client Supplied Amber Glass
Bottle 03 Client Supplied Amber Glass
Bottle 04 Client Supplied Amber Glass
Bottle 05 Prepared Bottle: TCLP Extract (Batch 1136321) Volume: 2000.00000 mL <== Derived from 01 (100 ml)
Bottle 06 Prepared Bottle: TCLP Extract for Metals (Batch 1136321) Volume: 100.00000 mL <== Derived from 01 (300 ml)
Bottle 07 Prepared Bottle: TCLP Extract for TABN/TCYH (Batch 1136321) Volume: 2000.00000 mL <== Derived from 01 (100 ml)
Bottle 08 Prepared Bottle: TCLP Extract for TVOA (Batch 1136385)<== Derived from 01 (0 ml)
Bottle 09 Prepared Bottle: TEDLAR BAG (Batch 1136385) Volume: 300.00000 mL <== Derived from 01 (300 ml)
Bottle 10 Prepared Bottle: TCLP Acid Mercury Digestion (Batch 1136510) Volume: 50.00000 mL <== Derived from 06 (2.5 ml)
Bottle 11 Prepared Bottle: 2 mL Autosampler Vial (Batch 1136389) Volume: 1.00000 mL <== Derived from 07 (100 ml)
Bottle 12 Prepared Bottle: TCLP Acid Digestion (Batch 1136589) Volume: 50.00000 mL <== Derived from 06 (10 ml)
Bottle 13 Prepared Bottle: TG80 2 mL Autosampler Vial (Batch 1136620) Volume: 10.00000 mL <== Derived from 07 (200 ml)
Bottle 14 Prepared Bottle: 2 mL Autosampler Vial (Batch 1137054) Volume: 10.00000 mL <== Derived from 07 (1 ml)
Bottle 15 Prepared Bottle: 2 mL Autosampler Vial (Batch 1137054) Volume: 10.00000 mL <== Derived from 07 (1 ml)
Bottle 16 Prepared Bottle: 2 mL Autosampler Vial (Batch 1137658) Volume: 1.00000 mL <== Derived from 07 (100 ml)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 6010C	12	1136589	09/04/2024	1136705	09/04/2024
EPA 7470 A	10	1136510	09/04/2024	1136608	09/04/2024
EPA 8260B	09	1136385	09/03/2024	1136745	09/04/2024
EPA 8081A	13	1136620	09/04/2024	1137319	09/05/2024
EPA 8270C	16	1137658	09/11/2024	1138101	09/12/2024
EPA 8151	14	1137054	09/06/2024	1137620	09/10/2024

Sample	Sample ID	Taken	Time	Received
2330222	*H028340-02*	08/29/2024	13:01:00	08/30/2024

Bottle 01 Client Supplied Amber Glass
Bottle 02 Client supplied plastic
Bottle 03 Client supplied plastic
Bottle 04 Prepared Bottle: 2 mL Glass vial (Batch 1136320) Volume: 50.00000 mL <== Derived from 02 (5.0 grams)
Bottle 05 Prepared Bottle: Mercury Preparation for Metals (Batch 1136476) Volume: 50.00000 mL <== Derived from 03 (0.5 grams)
Bottle 06 Prepared Bottle: NH3N TRAACS Autosampler Vial (Batch 1136490) Volume: 6.00000 mL <== Derived from 02 (0.5 grams)
Bottle 07 Prepared Bottle: 2 mL Autosampler Vial (Batch 1136619) Volume: 10.00000 mL <== Derived from 01 (20 grams)
Bottle 08 Prepared Bottle: ICP Preparation for Metals (Batch 1136861) Volume: 50.00000 mL <== Derived from 01 (10.2 grams)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 8082	07	1136619	09/04/2024	1137396	09/05/2024

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SAMPLE CROSS REFERENCE

Project
1116357

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Bryan, TX 77807-9104

Sample	Sample ID	Taken	Time	Received
2330222	*H028340-02*	08/29/2024	13:01:00	08/30/2024

Bottle 01 Client Supplied Amber Glass
Bottle 02 Client supplied plastic
Bottle 03 Client supplied plastic
Bottle 04 Prepared Bottle: 2 mL Glass vial (Batch 1136320) Volume: 50.00000 mL <== Derived from 02 (5.0 grams)
Bottle 05 Prepared Bottle: Mercury Preparation for Metals (Batch 1136476) Volume: 50.00000 mL <== Derived from 03 (0.5 grams)
Bottle 06 Prepared Bottle: NH3N TRAACS Autosampler Vial (Batch 1136490) Volume: 6.00000 mL <== Derived from 02 (0.5 grams)
Bottle 07 Prepared Bottle: 2 mL Autosampler Vial (Batch 1136619) Volume: 10.00000 mL <== Derived from 01 (20 grams)
Bottle 08 Prepared Bottle: ICP Preparation for Metals (Batch 1136861) Volume: 50.00000 mL <== Derived from 01 (10.2 grams)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 9056	04	1136320	09/03/2024	1136551	09/04/2024
EPA 6010C	08	1136861	09/05/2024	1137960	09/12/2024
EPA 6020A	08	1136861	09/05/2024	1137141	09/06/2024
EPA 7471B 2	05	1136476	09/04/2024	1136606	09/04/2024
EPA 6010C	08	1136861	09/05/2024	1137019	09/06/2024
EPA 6010C	08	1136861	09/05/2024	1137010	09/06/2024
EPA 350.1 2	06	1136490	09/04/2024	1137361	09/09/2024
SM 2540 G-1997	01	1136752	09/04/2024	1136752	09/04/2024

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Project 1116357

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Bryan, TX 77807-9104

Printed: 09/16/2024

H028340

RESULTS

Sample Results

2330220 **H028340-01** Received: 08/30/2024

Non-Potable Water | Collected by: Client | AquaTech Laboratorie | PO: H028340
Taken: 08/29/2024 13:01:00

EPA 6010C Prepared: 1136589 09/04/2024 11:15:00 Analyzed 1136705 09/04/2024 16:02:00 CAS

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	TCLP Arsenic	<0.0745	mg/L	0.0745		7440-38-2	12
NELAC	TCLP Barium	<0.0051	mg/L	0.0051		7440-39-3	12
NELAC	TCLP Cadmium	<0.007	mg/L	0.007		7440-43-9	12
NELAC	TCLP Chromium	<0.00875	mg/L	0.00875		7440-47-3	12
NELAC	TCLP Lead	<0.073	mg/L	0.073		7439-92-1	12
NELAC	TCLP Selenium	<0.141	mg/L	0.141		7782-49-2	12
NELAC	TCLP Silver	<0.0104	mg/L	0.0104		7440-22-4	12

EPA 7470 A Prepared: 1136510 09/04/2024 09:15:00 Analyzed 1136608 09/04/2024 13:22:00 ESG

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	TCLP Mercury	<0.00113	mg/L	0.00113		7439-97-6	10

EPA 8081A Prepared: 1136620 09/04/2024 14:00:00 Analyzed 1137319 09/05/2024 23:28:00 KAP

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	TCLP Chlordane	<0.001	mg/L	0.001		57-74-9	13
NELAC	TCLP Endrin	<0.00005	mg/L	0.00005		72-20-8	13
NELAC	TCLP gamma-BHC (Lindane)	<0.00005	mg/L	0.00005		58-89-9	13
NELAC	TCLP Heptachlor	<0.00005	mg/L	0.00005		76-44-8	13
NELAC	TCLP Heptachlor Epoxide	<0.00005	mg/L	0.00005		1024-57-3	13
NELAC	TCLP Methoxychlor	<0.00005	mg/L	0.00005		72-43-5	13
NELAC	TCLP Toxaphene	<0.001	mg/L	0.001		8001-35-2	13

EPA 8151 Prepared: 1137054 09/06/2024 13:00:00 Analyzed 1137620 09/10/2024 20:06:00 KAP

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	TCLP 2,4 D	<0.500	mg/L	0.500		94-75-7	14
NELAC	TCLP 2,4,5-TP (Silvex)	<0.300	mg/L	0.300		93-72-1	14

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Project 1116357

Printed: 09/16/2024

2330220 **H028340-01** Received: 08/30/2024

Non-Potable Water | Collected by: Client | AquaTech Laboratorie | PO: H028340
Taken: 08/29/2024 13:01:00

EPA 8260B Prepared: 1136385 09/03/2024 14:15:00 Analyzed 1136745 09/04/2024 11:50:00 MR1

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	TCLP 1,1-Dichloroethene	<0.010	mg/L	0.010		75-35-4	09
NELAC	TCLP 1,2-Dichloroethane	<0.010	mg/L	0.010		107-06-2	09
NELAC	TCLP 1,4 Dichlorobenzene	<0.010	mg/L	0.010		106-46-7	09
NELAC	TCLP Benzene	<0.010	mg/L	0.010		71-43-2	09
NELAC	TCLP Carbon tetrachloride	<0.010	mg/L	0.010		56-23-5	09
NELAC	TCLP Chlorobenzene	<0.010	mg/L	0.010		108-90-7	09
NELAC	TCLP Chloroform	<0.010	mg/L	0.010		67-66-3	09
NELAC	TCLP MEK	<0.010	mg/L	0.010		78-93-3	09
NELAC	TCLP Tetrachloroethylene	<0.010	mg/L	0.010		127-18-4	09
NELAC	TCLP Trichloroethylene	<0.010	mg/L	0.010		79-01-6	09
NELAC	TCLP Vinyl chloride	<0.010	mg/L	0.010		75-01-4	09

EPA 8270C Prepared: 1137658 09/11/2024 11:00:00 Analyzed 1138101 09/12/2024 20:58:00 PM1

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	TCLP 2,4,5-Trichlorophenol	<0.010	mg/L	0.010		95-95-4	16
NELAC	TCLP 2,4,6-Trichlorophenol	<0.010	mg/L	0.010		88-06-2	16
NELAC	TCLP 2,4-Dinitrotoluene	<0.035	mg/L	0.035		121-14-2	16
NELAC	TCLP 2-Methylphenol (o-Cresol)	<0.052	mg/L	0.052		95-48-7	16
NELAC	TCLP 3&4-Methylphenol (m&p-Creso	<0.062	mg/L	0.062		108-39-4	16
NELAC	TCLP bis(2-Chloroethyl)ether	<0.010	mg/L	0.010		111-44-4	16
NELAC	TCLP Hexachlorobenzene	<0.010	mg/L	0.010		118-74-1	16
NELAC	TCLP Hexachlorobutadiene	<0.010	mg/L	0.010		87-68-3	16
NELAC	TCLP Hexachloroethane	<0.010	mg/L	0.010		67-72-1	16
NELAC	TCLP Nitrobenzene	<0.010	mg/L	0.010		98-95-3	16
NELAC	TCLP Pentachlorophenol	<0.010	mg/L	0.010		87-86-5	16
NELAC	TCLP Pyridine (Reg. Limit 5)	<0.054	mg/L	0.054		110-86-1	16

EPA 8270C Prepared: 1137658 09/11/2024 11:00:00 Calculated 1138101 09/16/2024 12:44:28 CAL

	Parameter	Results	Units	RL	Flags	CAS	Bottle
z	TCLP Total Cresols (Reg Lim 200)	<0.062	mg/L	0.062		108-39-4,ect.	16

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Project 1116357

Printed: 09/16/2024

2330222 **H028340-02** Received: 08/30/2024

Solid & Chemical Materials | Collected by: Client | AquaTech Laboratorie | PO: H028340
Taken: 08/29/2024 13:01:00

Prepared: 09/16/2024 12:56:00 Analyzed 09/16/2024 12:56:00 WJP

	Parameter	Results	Units	RL	Flags	CAS	Bottle
z	Check Limits	Completed					
z	Check Limits	Completed					

EPA 350.1 2 Prepared: 1136490 09/04/2024 08:33:57 Analyzed 1137361 09/09/2024 09:38:00 AMB

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	Ammonia Nitrogen	5200 *	mg/kg	97.2			06

* Dry Weight Basis

EPA 6010C Prepared: 1136861 09/05/2024 15:00:00 Analyzed 1137010 09/06/2024 08:49:00 CAS

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	Phosphorus	10200 *	mg/kg	100		7723-14-0	08

EPA 6010C Prepared: 1136861 09/05/2024 15:00:00 Analyzed 1137019 09/06/2024 08:51:00 CAS

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	Potassium	3790 *	mg/kg	500		7440-09-7	08

EPA 6010C Prepared: 1136861 09/05/2024 15:00:00 Analyzed 1137960 09/12/2024 22:26:00 CAS

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	Arsenic	<14.0 *	mg/kg	14.0		7440-38-2	08
NELAC	Copper	760 *	mg/kg	25.0		7440-50-8	08
NELAC	Nickel	14.1 *	mg/kg	25.0	J	7440-02-0	08

* Dry Weight Basis

EPA 6020A Prepared: 1136861 09/05/2024 15:00:00 Analyzed 1137141 09/06/2024 12:42:00 JC2

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	Cadmium, Total	0.593 *	mg/kg	1.00	J	7440-43-9	08
NELAC	Chromium, Total	32.9 *	mg/kg	1.00		7440-47-3	08
NELAC	Lead, Total	21.6 *	mg/kg	1.00		7439-92-1	08
NELAC	Molybdenum, Total	4.67 *	mg/kg	3.00		7439-98-7	08
NELAC	Selenium, Total	12.4 *	mg/kg	1.00		7782-49-2	08
NELAC	Zinc, Total	1020 *	mg/kg	10.0		7440-66-6	08

* Dry Weight Basis

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Project 1116357

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Printed: 09/16/2024

2330222 **H028340-02** Received: 08/30/2024

Solid & Chemical Materials | Collected by: Client | AquaTech Laboratorie | PO: H028340
Taken: 08/29/2024 13:01:00

EPA 7471B 2 — Prepared: 1136476 09/04/2024 07:30:00 — Analyzed 1136606 09/04/2024 10:10:00 ESG

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	**Mercury**	**0.667 ***	**mg/kg**	0.387		**7439-97-6**	05

* Dry Weight Basis

EPA 8082 — Prepared: 1136619 09/04/2024 14:00:00 — Analyzed 1137396 09/05/2024 22:29:00 KAP

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	**PCB-1016**	**<1000 ***	**ug/kg**	1000		**12674-11-2**	07
NELAC	**PCB-1221**	**<1000 ***	**ug/kg**	1000		**11104-28-2**	07
NELAC	**PCB-1232**	**<1000 ***	**ug/kg**	1000		**11141-16-5**	07
NELAC	**PCB-1242**	**<1000 ***	**ug/kg**	1000		**53469-21-9**	07
NELAC	**PCB-1248**	**<1000 ***	**ug/kg**	1000		**12672-29-6**	07
NELAC	**PCB-1254**	**<1000 ***	**ug/kg**	1000		**11097-69-1**	07
NELAC	**PCB-1260**	**<1000 ***	**ug/kg**	1000		**11096-82-5**	07
NELAC	**PCB-1262**	**<1000 ***	**ug/kg**	1000		**37324-23-5**	07
NELAC	**PCB-1268**	**<1000 ***	**ug/kg**	1000		**11100-14-4**	07

* Dry Weight Basis

EPA 9056 — Prepared: 1136320 09/03/2024 11:55:13 — Analyzed 1136551 09/04/2024 04:58:00 TTC

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	**Nitrate-Nitrogen**	**<45.9 ***	**mg/kg**	45.9		**14797-55-8**	04
NELAC	**Nitrite-Nitrogen**	**<61.4 ***	**mg/kg**	61.4			04

* Dry Weight Basis

SM 2540 G-1997 — Prepared: 1136752 09/04/2024 06:45:00 — Analyzed 1136752 09/04/2024 06:45:00 BEK

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	**Total Solids**	**2.46**	**%**	0.100			01

Sample Preparation

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Printed: 09/16/2024

2330220 **H028340-01** Received: 08/30/2024

H028340

08/29/2024

		Prepared:		09/09/2024	09:05:35	Calculated		09/09/2024	09:05:35 CAL
z	**Return Cooler with bottles**	**Verified**							
	EPA 1311	Prepared:	1136321	09/03/2024	11:35:00	Analyzed	1136321	09/03/2024	11:35:00 SLF
NELAC	**TCLP Extraction Non-Volatile**	**SOLID EXT 1**	**ml**						01
	EPA 1311ZHE	Prepared:	1136385	09/03/2024	14:15:00	Analyzed	1136385	09/03/2024	14:15:00 SLF
NELAC	**TCLP Extraction ZHE Volatiles**	**100% SOLID**	**ml**						01
	EPA 3005A	Prepared:	1136321	09/03/2024	11:35:00	Analyzed	1136589	09/04/2024	11:15:00 TES
z	**Metals Digestion TCLP Extract**	**50/10**	**ml**						06
	EPA 3510C	Prepared:	1136321	09/03/2024	11:35:00	Analyzed	1136389	09/04/2024	09:00:00 CRS
	TCLP Liquid-Liquid Extract	**1/100**	**ml**						07
	EPA 3510C	Prepared:	1136321	09/03/2024	11:35:00	Analyzed	1136620	09/04/2024	14:00:00 CRS
	TCLP Liq-Liq Extr. W/Hex Exch.	**10/200**	**ml**						07
	EPA 3510C	Prepared:	1136321	09/03/2024	11:35:00	Analyzed	1137658	09/11/2024	11:00:00 LSM
	TCLP Liquid-Liquid Extract	**1/100**	**ml**						07
	EPA 7470A	Prepared:	1136321	09/03/2024	11:35:00	Analyzed	1136510	09/04/2024	09:15:00 ALB
NELAC	**Metals Digestion TCLP 7470**	**50/2.5**	**ml**						06

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Printed: 09/16/2024

2330220 **H028340-01** Received: 08/30/2024

H028340

08/29/2024

EPA 8081A	*Prepared:*	*1136620*	*09/04/2024*	*14:00:00*	*Analyzed*	*1137319*	*09/05/2024*	*23:28:00*	*KAP*
NELAC **GC TCLP Pesticide**	**Entered**								13
EPA 8151	*Prepared:*	*1137054*	*09/06/2024*	*13:00:00*	*Analyzed*	*1137620*	*09/10/2024*	*20:06:00*	*KAP*
NELAC **GC TCLP Herbicide**	**Entered**								14
EPA 8151A (Prep)	*Prepared:*	*1136321*	*09/03/2024*	*11:35:00*	*Analyzed*	*1137054*	*09/06/2024*	*13:00:00*	*CRS*
NELAC **Esterification of TCLP Extract**	**10/1**	**ml**							07
EPA 8260B	*Prepared:*	*1136385*	*09/03/2024*	*14:15:00*	*Analyzed*	*1136745*	*09/04/2024*	*11:50:00*	*MR1*
NELAC **MS TCLP Volatile Analysis**	**Entered**								09
EPA 8270C	*Prepared:*	*1137658*	*09/11/2024*	*11:00:00*	*Analyzed*	*1138101*	*09/12/2024*	*20:58:00*	*PM1*
NELAC **MS TCLP Semivolatile Analysis**	**Entered**								16

2330222 **H028340-02** Received: 08/30/2024

H028340

08/29/2024

Calculation	*Prepared:*		*09/16/2024*	*12:54:17*	*Calculated*		*09/16/2024*	*12:54:17*	*CAL*
As Received to Dry Weight Basis	**Calculated**								

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Project 1116357

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
Bryan, TX 77807-9104

Printed: 09/16/2024

2330222 **H028340-02** Received: 08/30/2024

H028340

08/29/2024

EPA 3050B		*Prepared:*	*1136861*	*09/05/2024*	*15:00:00*	*Analyzed*	*1136861*	*09/05/2024*	*15:00:00*	*TES*
NELAC	**Solid/Sludge/Soil/Sediment Metal**	**50/10.15**	**grams**							01
EPA 350.1 2		*Prepared:*	*1136490*	*09/04/2024*	*08:33:57*	*Analyzed*	*1136490*	*09/04/2024*	*08:33:57*	*MEG*
NELAC	**Ammonia Distillation**	**6/0.5015**	**grams**							02
EPA 3510C		*Prepared:*	*1136619*	*09/04/2024*	*14:00:00*	*Analyzed*	*1136619*	*09/04/2024*	*14:00:00*	*CRS*
	PCB Liq-Liq Extr. W/Hex Exch.	**10/20**	**grams**							01
EPA 7471B		*Prepared:*	*1136476*	*09/04/2024*	*07:30:00*	*Analyzed*	*1136476*	*09/04/2024*	*07:30:00*	*ALB*
NELAC	**Solid Metals Digestion Hg**	**50/0.5250**	**grams**							03
EPA 8082		*Prepared:*	*1136619*	*09/04/2024*	*14:00:00*	*Analyzed*	*1137396*	*09/05/2024*	*22:29:00*	*KAP*
NELAC	**Polychlorinated Biphenyls**	**Entered**								07
EPA 9056		*Prepared:*	*1136320*	*09/03/2024*	*11:55:13*	*Analyzed*	*1136320*	*09/03/2024*	*11:55:13*	*PEV*
	Water Extract-Ion Chromatography	**50/5.02**	**grams**							02
SM 2540 G-1997		*Prepared:*	*1136470*	*09/04/2024*	*06:45:00*	*Analyzed*	*1136470*	*09/04/2024*	*06:45:00*	*BEK*
NELAC	**Total Solids Start**	**Started**								

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Qualifiers:

J - Analyte detected below quantitation limit

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RL is the Reporting Limit (sample specific quantitation limit) and is at or above the Method Detection Limit (MDL). CAS is Chemical Abstract Service number. RL is our Reporting Limit, or Minimum Quantitation Level. The RL takes into account the Instrument Detection Limit (IDL), Method Detection Limit (MDL), and Practical Quantitation Limit (PQL), and any dilutions and/or concentrations performed during sample preparation (EQL). Our analytical result must be above this RL before we report a value in the 'Results' column of our report (without a 'J' flag). Otherwise, we report ND (Not Detected above RL), because the result is "<" (less than) the number in the RL column. MAL is Minimum Analytical Level and is typically from regulatory agencies. Unless we report a result in the result column, or interferences prevent it, we work to have our RL at or below the MAL.

Bill Peery

Bill Peery, MS, VP Technical Services

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Non-Potable Water	**Administrative**										**EPA 8270C**
2330220	**H028340-01**										
		Collection:	08/29/2024		13:01:00	Client			*Received:*	08/30/2024	
Prepared:	***1137658***										
				Analyzed:		***1138101***		9/16/24	12:44:28		
108-39-4,ect.	**TCLP Total Cresols (Reg Lim 200)**	**ND**	0.00615	0.0615	0.0062	0.062		**mg/L**	200	16	1.00
Solid & Chemical Materials	**Administrative**										
2330222	**H028340-02**										
		Collection:	08/29/2024		13:01:00	Client			*Received:*	08/30/2024	
Prepared:											
				Analyzed:				9/16/24	12:56:00		
	Check Limits	**Completed**									1.00
	Check Limits	**Completed**									1.00

MDL is Method Detection Limit (40 CFR 136 Appendix B)
MQL is the Method Quantitation Limit and corresponds to a low standard
SDL is Sample Detection Limit and is the adjusted MDL (sample specific dilutions, dry weight)
MQLADJ is the Adjusted Method Quantitation Limit (dilutions, dry weight)

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Solid & Chemical Materials	**Distillations**									**EPA 350.1 2**	
2330222	H028340-02										
		Collection:	08/29/2024	13:01:00	Client				*Received:*	08/30/2024	
Prepared:	*1136490*										
				Analyzed:		*1137361*		9/9/24	09:38:00		
	Ammonia Nitrogen	**5200 ***	0.509	49.6	1.00	97.2		**mg/kg**		06	2.39

** Dry Weight Basis*

MDL is Method Detection Limit (40 CFR 136 Appendix B)
SDL is Sample Detection Limit and is the adjusted MDL (sample specific dilutions, dry weight)
MQL is the Method Quantitation Limit and corresponds to a low standard
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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Solid & Chemical Materials	**Gravimetrics**									**SM 2540 G-1997**	
2330222	H028340-02										
		Collection:	08/29/2024	13:01:00	Client				*Received:*	08/30/2024	
	Prepared: 1136752										
				Analyzed:	1136752			9/4/24	06:45:00		
	Total Solids	**2.46**	0.100	0.100	0.100	0.100		**%**		01	1.00

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SDL is Sample Detection Limit and is the adjusted MDL (sample specific dilutions, dry weight)
MQL is the Method Quantitation Limit and corresponds to a low standard
MQLADJ is the Adjusted Method Quantitation Limit (dilutions, dry weight)
Qualifiers:

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Solid & Chemical Materials	**Ion Chromatography**									**EPA 9056**	
2330222	H028340-02										
		Collection:	08/29/2024	13:01:00	Client				*Received:*	08/30/2024	
Prepared:	*1136320*										
				Analyzed:	*1136551*			9/4/24	04:58:00		
14797-55-8	**Nitrate-Nitrogen**	**ND ***	0.0185	37.4	0.0226	45.9		**mg/kg**		04	49.80
	Nitrite-Nitrogen	**ND ***	0.00717	14.5	0.0304	61.4		**mg/kg**		04	49.80

** Dry Weight Basis*

MDL is Method Detection Limit (40 CFR 136 Appendix B)
SDL is Sample Detection Limit and is the adjusted MDL (sample specific dilutions, dry weight)
MQL is the Method Quantitation Limit and corresponds to a low standard
MQLADJ is the Adjusted Method Quantitation Limit (dilutions, dry weight)

Qualifiers:

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Non-Potable Water	**Metals**										**EPA 6010C**
2330220	**H028340-01**										
		Collection:	08/29/2024	13:01:00	Client				*Received:*	08/30/2024	
	Prepared:	***1136589***									
				Analyzed:	***1136705***		9/4/24	16:02:00			
7440-38-2	**TCLP Arsenic**	**ND**	0.0149	0.0745	0.050	0.250		**mg/L**	5.00	12	5.00
7440-39-3	**TCLP Barium**	**ND**	0.00102	0.0051	0.050	0.250		**mg/L**	100	12	5.00
7440-43-9	**TCLP Cadmium**	**ND**	0.0014	0.007	0.025	0.125		**mg/L**	1.00	12	5.00
7440-47-3	**TCLP Chromium**	**ND**	0.00175	0.00875	0.050	0.250		**mg/L**	5.00	12	5.00
7439-92-1	**TCLP Lead**	**ND**	0.0146	0.073	0.050	0.250		**mg/L**	5.00	12	5.00
7782-49-2	**TCLP Selenium**	**ND**	0.0282	0.141	0.050	0.250		**mg/L**	1.00	12	5.00
7440-22-4	**TCLP Silver**	**ND**	0.00208	0.0104	0.010	0.050		**mg/L**	5.00	12	5.00
Non-Potable Water	**Metals**										**EPA 7470 A**
2330220	**H028340-01**										
		Collection:	08/29/2024	13:01:00	Client				*Received:*	08/30/2024	
	Prepared:	***1136510***									
				Analyzed:	***1136608***		9/4/24	13:22:00			
7439-97-6	**TCLP Mercury**	**ND**	0.000113	0.00113	0.0002	0.002		**mg/L**	0.200	10	10.00
Solid & Chemical Materials	**Metals**										**EPA 6010C**
2330222	**H028340-02**										
		Collection:	08/29/2024	13:01:00	Client				*Received:*	08/30/2024	

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Solid & Chemical Materials	**Metals**										**EPA 6010C**
Prepared:	***1136861***										
				Analyzed:		***1137010***		9/6/24	08:49:00		
7723-14-0	**Phosphorus**	**10200 ***	0.00734	7.36	0.100	100		**mg/kg**		08	24.60
				Analyzed:		***1137019***		9/6/24	08:51:00		
7440-09-7	**Potassium**	**3790 ***	0.111	111	0.500	500		**mg/kg**		08	24.60
				Analyzed:		***1137960***		9/12/24	22:26:00		
7440-38-2	**Arsenic**	**ND ***	0.014	14.0	0.050	50.0		**mg/kg**	5.00	08	24.60
7440-50-8	**Copper**	**760 ***	0.00321	3.22	0.025	25.0		**mg/kg**	1000	08	24.60
7440-02-0	**Nickel**	**14.1 ***	0.00409	4.11	0.025	25.0	J	**mg/kg**	160	08	24.60
** Dry Weight Basis*											
Solid & Chemical Materials	**Metals**										**EPA 6020A**
2330222	**H028340-02**										
		Collection:	08/29/2024	13:01:00	Client			*Received:*	08/30/2024		
Prepared:	***1136861***										
				Analyzed:		***1137141***		9/6/24	12:42:00		
7440-43-9	**Cadmium, Total**	**0.593 ***	0.00011	0.110	0.001	1.00	J	**mg/kg**	1.50	08	24.60
7440-47-3	**Chromium, Total**	**32.9 ***	0.000409	0.411	0.001	1.00		**mg/kg**	2400	08	24.60
7439-92-1	**Lead, Total**	**21.6 ***	0.000262	0.262	0.001	1.00		**mg/kg**	6.30	08	24.60
7439-98-7	**Molybdenum, Total**	**4.67 ***	0.000865	0.866	0.003	3.00		**mg/kg**	155	08	24.60
7782-49-2	**Selenium, Total**	**12.4 ***	0.000353	0.353	0.001	1.00		**mg/kg**	2.30	08	24.60
7440-66-6	**Zinc, Total**	**1020 ***	0.00479	4.80	0.010	10.0		**mg/kg**	2400	08	24.60
** Dry Weight Basis*											
Solid & Chemical Materials	**Metals**										**EPA 7471B 2**

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Solid & Chemical Materials	**Metals**									**EPA 7471B 2**	
2330222	**H028340-02**										
		Collection:	08/29/2024	13:01:00	Client				*Received:*	08/30/2024	
	Prepared: **1136476**										
				Analyzed:	**1136606**			9/4/24	10:10:00		
7439-97-6	**Mercury**	**0.667 ***	0.0000419	0.162	0.0001	0.387		**mg/kg**	0.0078 pH dependent	05	95.20

** Dry Weight Basis*

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Non-Potable Water	**Organics**										**EPA 8081A**
2330220	**H028340-01**										
		Collection:	08/29/2024	13:01:00	Client				*Received:*	08/30/2024	
	Prepared: ***1136620***										
				Analyzed:	***1137319***			9/5/24	23:28:00		
57-74-9	**TCLP Chlordane**	**ND**	0.0183	0.000915	0.020	0.001		**mg/L**	0.030	13	0.05
72-20-8	**TCLP Endrin**	**ND**	0.000538	0.0000269	0.001	0.00005		**mg/L**		13	0.05
58-89-9	**TCLP gamma-BHC (Lindane)**	**ND**	0.000385	0.0000192	0.001	0.00005		**mg/L**	0.400	13	0.05
76-44-8	**TCLP Heptachlor**	**ND**	0.000207	0.0000104	0.001	0.00005		**mg/L**	0.008	13	0.05
1024-57-3	**TCLP Heptachlor Epoxide**	**ND**	0.00066	0.000033	0.001	0.00005		**mg/L**	0.008	13	0.05
72-43-5	**TCLP Methoxychlor**	**ND**	0.000898	0.0000449	0.001	0.00005		**mg/L**	10.0	13	0.05
8001-35-2	**TCLP Toxaphene**	**ND**	0.0169	0.000845	0.020	0.001		**mg/L**	0.500	13	0.05
Non-Potable Water	**Organics**										**EPA 8151**
2330220	**H028340-01**										
		Collection:	08/29/2024	13:01:00	Client				*Received:*	08/30/2024	
	Prepared: ***1137054***										
				Analyzed:	***1137620***			9/10/24	20:06:00		
94-75-7	**TCLP 2,4 D**	**ND**	0.000159	0.159	0.0005	0.500		**mg/L**	10.0	14	1000.00
93-72-1	**TCLP 2,4,5-TP (Silvex)**	**ND**	0.0000893	0.0893	0.0003	0.300		**mg/L**	1.00	14	1000.00
Non-Potable Water	**Organics**										**EPA 8260B**
2330220	**H028340-01**										

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Non-Potable Water	**Organics**										**EPA 8260B**
		Collection:	08/29/2024		13:01:00	Client			*Received:*	08/30/2024	
	Prepared: ***1136385***										
				Analyzed:	***1136745***			9/4/24	11:50:00		
75-35-4	**TCLP 1,1-Dichloroethene**	**ND**	0.000574	0.00574	0.001	0.010		**mg/L**	0.700	09	10.00
107-06-2	**TCLP 1,2-Dichloroethane**	**ND**	0.00059	0.0059	0.001	0.010		**mg/L**	0.500	09	10.00
106-46-7	**TCLP 1,4 Dichlorobenzene**	**ND**	0.000837	0.00837	0.001	0.010		**mg/L**	7.50	09	10.00
71-43-2	**TCLP Benzene**	**ND**	0.000453	0.00453	0.001	0.010		**mg/L**	0.500	09	10.00
56-23-5	**TCLP Carbon tetrachloride**	**ND**	0.000299	0.00299	0.001	0.010		**mg/L**	0.500	09	10.00
108-90-7	**TCLP Chlorobenzene**	**ND**	0.000558	0.00558	0.001	0.010		**mg/L**	100	09	10.00
67-66-3	**TCLP Chloroform**	**ND**	0.000463	0.00463	0.001	0.010		**mg/L**	6.00	09	10.00
78-93-3	**TCLP MEK**	**ND**	0.000742	0.00742	0.001	0.010		**mg/L**	200	09	10.00
127-18-4	**TCLP Tetrachloroethylene**	**ND**	0.000607	0.00607	0.001	0.010		**mg/L**	0.700	09	10.00
79-01-6	**TCLP Trichloroethylene**	**ND**	0.000521	0.00521	0.001	0.010		**mg/L**	0.500	09	10.00
75-01-4	**TCLP Vinyl chloride**	**ND**	0.000702	0.00702	0.001	0.010		**mg/L**	0.200	09	10.00
Non-Potable Water	**Organics**										**EPA 8270C**
2330220	**H028340-01**										
		Collection:	08/29/2024		13:01:00	Client			*Received:*	08/30/2024	
	Prepared: ***1137658***										
				Analyzed:	***1138101***			9/12/24	20:58:00		
95-95-4	**TCLP 2,4,5-Trichlorophenol**	**ND**	0.000734	0.00734	0.001	0.010		**mg/L**	400	16	10.00
88-06-2	**TCLP 2,4,6-Trichlorophenol**	**ND**	0.000704	0.00704	0.001	0.010		**mg/L**	2.00	16	10.00
121-14-2	**TCLP 2,4-Dinitrotoluene**	**ND**	0.00335	0.0335	0.0035	0.035		**mg/L**	0.130	16	10.00

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RESULTS

Project 1116357

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Non-Potable Water	**Organics**									**EPA 8270C**	
95-48-7	TCLP 2-Methylphenol (o-Cresol)	ND	0.00513	0.0513	0.0052	0.052		mg/L	200	16	10.00
108-39-4	TCLP 3&4-Methylphenol (m&p-Creso	ND	0.00615	0.0615	0.0062	0.062		mg/L	200	16	10.00
111-44-4	TCLP bis(2-Chloroethyl)ether	ND	0.000434	0.00434	0.001	0.010		mg/L	0.300	16	10.00
118-74-1	TCLP Hexachlorobenzene	ND	0.000187	0.00187	0.001	0.010		mg/L	0.130	16	10.00
87-68-3	TCLP Hexachlorobutadiene	ND	0.000618	0.00618	0.001	0.010		mg/L	0.500	16	10.00
67-72-1	TCLP Hexachloroethane	ND	0.000789	0.00789	0.001	0.010		mg/L	3.00	16	10.00
98-95-3	TCLP Nitrobenzene	ND	0.00039	0.0039	0.001	0.010		mg/L	2.00	16	10.00
87-86-5	TCLP Pentachlorophenol	ND	0.000129	0.00129	0.001	0.010		mg/L	100	16	10.00
110-86-1	TCLP Pyridine (Reg. Limit 5)	ND	0.00533	0.0533	0.0054	0.054		mg/L	5.00	16	10.00
Solid & Chemical Materials	**Organics**									**EPA 8082**	
2330222	H028340-02										
	Collection: 08/29/2024 13:01:00 Client								Received: 08/30/2024		
	Prepared: 1136619										
				Analyzed:	1137396	9/5/24	22:29:00				
12674-11-2	PCB-1016	ND *	43.0	175	250	1020		ug/kg	1140	07	0.10
11104-28-2	PCB-1221	ND *	43.0	175	250	1020		ug/kg	1140	07	0.10
11141-16-5	PCB-1232	ND *	43.0	175	250	1020		ug/kg	1140	07	0.10
53469-21-9	PCB-1242	ND *	43.0	175	250	1020		ug/kg	1140	07	0.10
12672-29-6	PCB-1248	ND *	43.0	175	250	1020		ug/kg	1140	07	0.10
11097-69-1	PCB-1254	ND *	43.0	175	250	1020		ug/kg	1140	07	0.10
11096-82-5	PCB-1260	ND *	43.0	175	250	1020		ug/kg	1140	07	0.10
37324-23-5	PCB-1262	ND *	78.3	318	250	1020		ug/kg		07	0.10

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RESULTS

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Solid & Chemical Materials	**Organics**									**EPA 8082**	
11100-14-4	**PCB-1268**	**ND ***	78.3	318	250	1020		**ug/kg**		07	0.10

** Dry Weight Basis*

MDL is Method Detection Limit (40 CFR 136 Appendix B)
SDL is Sample Detection Limit and is the adjusted MDL (sample specific dilutions, dry weight)
MQL is the Method Quantitation Limit and corresponds to a low standard
MQLADJ is the Adjusted Method Quantitation Limit (dilutions, dry weight)

Qualifiers:

J - Analyte detected below quantitation limit

We report results on an As Received (or Wet) basis unless marked Dry Weight.

Unless otherwise noted, testing was performed at SPL, Inc.- Kilgore laboratory which holds International, Federal, and state accreditations. Please see our Websites for details.

(N)ELAC - Covered in our NELAC scope of accreditation
z -- Not covered by our NELAC scope of accreditation

These analytical results relate to the sample tested. This report may NOT be reproduced EXCEPT in FULL without written approval of SPL Kilgore. Unless otherwise specified, these test results meet the requirements of NELAC.

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Analytical Set 1136608 — EPA 7470 A

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
TCLP Mercury	1136510	0.000121	0.000113	0.0002	mg/L	126732269

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP Mercury	0.00511	0.005	mg/L	102	90.0 - 110	126732259
TCLP Mercury	0.00491	0.005	mg/L	98.2	90.0 - 110	126732260
TCLP Mercury	0.00473	0.005	mg/L	94.6	90.0 - 110	126732267
TCLP Mercury	0.00469	0.005	mg/L	93.8	90.0 - 110	126732268
TCLP Mercury	0.00506	0.005	mg/L	101	90.0 - 110	126732275
TCLP Mercury	0.00485	0.005	mg/L	97.0	90.0 - 110	126732278

ICL

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP Mercury	0.0201	0.02	mg/L	100	90.0 - 110	126732258

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP Mercury	0.0049	0.005	mg/L	98.0	90.0 - 110	126732257

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
TCLP Mercury	1136510	0.00873	0.00912	0.010	85.1 - 117	87.3	91.2	mg/L	4.37	20.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
TCLP Mercury	2330276	0.0936	0.0861	0.000394	0.100	80.9 - 121	93.2	85.7	mg/L	8.38	20.0

Analytical Set 1136705 — EPA 6010C

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
TCLP Arsenic	1136589	ND	0.0149	0.050	mg/L	126732861
TCLP Barium	1136589	ND	0.00102	0.050	mg/L	126732861
TCLP Cadmium	1136589	ND	0.0014	0.025	mg/L	126732861
TCLP Chromium	1136589	ND	0.00175	0.050	mg/L	126732861
TCLP Lead	1136589	0.0159	0.0146	0.050	mg/L	126732861
TCLP Selenium	1136589	ND	0.0282	0.050	mg/L	126732861
TCLP Silver	1136589	ND	0.00208	0.010	mg/L	126732861

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP Arsenic	2.60	2.50	mg/L	104	90.0 - 110	126732839
TCLP Arsenic	2.59	2.50	mg/L	104	90.0 - 110	126732840
TCLP Arsenic	2.61	2.50	mg/L	104	90.0 - 110	126732856
TCLP Arsenic	2.57	2.50	mg/L	103	90.0 - 110	126732862
TCLP Arsenic	2.52	2.50	mg/L	101	90.0 - 110	126732870

QUALITY CONTROL

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CCV

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
TCLP Barium	2.64	2.50	mg/L	106	90.0 - 110	126732839
TCLP Barium	2.63	2.50	mg/L	105	90.0 - 110	126732840
TCLP Barium	2.65	2.50	mg/L	106	90.0 - 110	126732856
TCLP Barium	2.62	2.50	mg/L	105	90.0 - 110	126732862
TCLP Barium	2.57	2.50	mg/L	103	90.0 - 110	126732870
TCLP Cadmium	1.31	1.25	mg/L	105	90.0 - 110	126732839
TCLP Cadmium	1.30	1.25	mg/L	104	90.0 - 110	126732840
TCLP Cadmium	1.31	1.25	mg/L	105	90.0 - 110	126732856
TCLP Cadmium	1.29	1.25	mg/L	103	90.0 - 110	126732862
TCLP Cadmium	1.27	1.25	mg/L	102	90.0 - 110	126732870
TCLP Chromium	2.50	2.50	mg/L	100	90.0 - 110	126732839
TCLP Chromium	2.48	2.50	mg/L	99.2	90.0 - 110	126732840
TCLP Chromium	2.52	2.50	mg/L	101	90.0 - 110	126732856
TCLP Chromium	2.48	2.50	mg/L	99.2	90.0 - 110	126732862
TCLP Chromium	2.45	2.50	mg/L	98.0	90.0 - 110	126732870
TCLP Lead	2.65	2.50	mg/L	106	90.0 - 110	126732839
TCLP Lead	2.63	2.50	mg/L	105	90.0 - 110	126732840
TCLP Lead	2.65	2.50	mg/L	106	90.0 - 110	126732856
TCLP Lead	2.63	2.50	mg/L	105	90.0 - 110	126732862
TCLP Lead	2.59	2.50	mg/L	104	90.0 - 110	126732870
TCLP Selenium	2.56	2.50	mg/L	102	90.0 - 110	126732839
TCLP Selenium	2.56	2.50	mg/L	102	90.0 - 110	126732840
TCLP Selenium	2.58	2.50	mg/L	103	90.0 - 110	126732856
TCLP Selenium	2.56	2.50	mg/L	102	90.0 - 110	126732862
TCLP Selenium	2.52	2.50	mg/L	101	90.0 - 110	126732870
TCLP Silver	0.504	0.500	mg/L	101	90.0 - 110	126732839
TCLP Silver	0.505	0.500	mg/L	101	90.0 - 110	126732840
TCLP Silver	0.509	0.500	mg/L	102	90.0 - 110	126732856
TCLP Silver	0.504	0.500	mg/L	101	90.0 - 110	126732862
TCLP Silver	0.494	0.500	mg/L	98.8	90.0 - 110	126732870

ICL

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
TCLP Arsenic	4.96	5.00	mg/L	99.2	95.0 - 105	126732833
TCLP Barium	4.95	5.00	mg/L	99.0	95.0 - 105	126732833
TCLP Cadmium	2.47	2.50	mg/L	98.8	95.0 - 105	126732833
TCLP Chromium	4.78	5.00	mg/L	95.6	95.0 - 105	126732833
TCLP Lead	5.01	5.00	mg/L	100	95.0 - 105	126732833
TCLP Selenium	4.87	5.00	mg/L	97.4	95.0 - 105	126732833
TCLP Silver	0.968	1.00	mg/L	96.8	95.0 - 105	126732833

ICV

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
TCLP Arsenic	2.51	2.50	mg/L	100	90.0 - 110	126732837
TCLP Barium	2.61	2.50	mg/L	104	90.0 - 110	126732837

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QUALITY CONTROL

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ICV

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
TCLP Cadmium	1.28	1.25	mg/L	102	90.0 - 110	126732837
TCLP Chromium	2.46	2.50	mg/L	98.4	90.0 - 110	126732837
TCLP Lead	2.59	2.50	mg/L	104	90.0 - 110	126732837
TCLP Selenium	2.48	2.50	mg/L	99.2	90.0 - 110	126732837
TCLP Silver	0.503	0.500	mg/L	101	90.0 - 110	126732837

LCS Dup

Parameter	*PrepSet*	*LCS*	*LCSD*	*Known*	*Limits%*	*LCS%*	*LCSD%*	*Units*	*RPD*	*Limit%*
TCLP Arsenic	1136589	0.467	0.495	0.500	87.8 - 119	93.4	99.0	mg/L	5.82	30.0
TCLP Barium	1136589	0.447	0.457	0.500	86.1 - 118	89.4	91.4	mg/L	2.21	30.0
TCLP Cadmium	1136589	0.223	0.229	0.250	85.7 - 117	89.2	91.6	mg/L	2.65	30.0
TCLP Chromium	1136589	0.463	0.476	0.500	93.8 - 121	92.6	95.2	mg/L	2.77	30.0
TCLP Lead	1136589	0.478	0.486	0.500	85.0 - 123	95.6	97.2	mg/L	1.66	30.0
TCLP Selenium	1136589	0.466	0.475	0.500	81.8 - 123	93.2	95.0	mg/L	1.91	30.0
TCLP Silver	1136589	0.086	0.0883	0.100	80.4 - 123	86.0	88.3	mg/L	2.64	30.0

MSD

Parameter	*Sample*	*MS*	*MSD*	*UNK*	*Known*	*Limits*	*MS%*	*MSD%*	*Units*	*RPD*	*Limit%*
TCLP Arsenic	2330205	2.41	2.47	ND	2.50	73.8 - 133	96.4	98.8	mg/L	2.46	30.0
TCLP Barium	2330205	2.36	2.35	ND	2.50	73.3 - 125	94.4	94.0	mg/L	0.425	30.0
TCLP Cadmium	2330205	1.13	1.13	ND	1.25	47.5 - 140	90.4	90.4	mg/L	0	30.0
TCLP Chromium	2330205	2.37	2.40	0.0053	2.50	83.9 - 121	94.6	95.8	mg/L	1.26	30.0
TCLP Lead	2330205	2.40	2.41	0.0412	2.50	71.8 - 120	94.4	94.8	mg/L	0.423	30.0
TCLP Selenium	2330205	2.33	2.38	ND	2.50	59.3 - 142	93.2	95.2	mg/L	2.12	30.0
TCLP Silver	2330205	0.435	0.434	ND	0.500	72.3 - 126	87.0	86.8	mg/L	0.230	30.0

Analytical Set 1136745 — EPA 8260B

BFB

Parameter	*Sample*	*RefMass*	*Reading*	*%*	*Limits%*	*File*
BFB Mass 173	1136745	174	200	1.1	0 - 2.00	126734154
BFB Mass 174	1136745	95.0	18548	56.6	50.0 - 100	126734154
BFB Mass 175	1136745	174	1426	7.7	5.00 - 9.00	126734154
BFB Mass 176	1136745	174	17636	95.1	95.0 - 101	126734154
BFB Mass 177	1136745	176	1112	6.3	5.00 - 9.00	126734154
BFB Mass 50	1136745	95.0	5834	17.8	15.0 - 40.0	126734154
BFB Mass 75	1136745	95.0	16710	51.0	30.0 - 60.0	126734154
BFB Mass 95	1136745	95.0	32760	100.0	100 - 100	126734154
BFB Mass 96	1136745	95.0	2213	6.8	5.00 - 9.00	126734154

Blank

Parameter	*PrepSet*	*Reading*	*MDL*	*MQL*	*Units*	*File*
TCLP 1,1-Dichloroethene	1136745	ND	0.000574	0.001	mg/L	126734158
TCLP 1,1-Dichloroethene	1136745	ND	0.000574	0.001	mg/L	126734159
TCLP 1,2-Dichloroethane	1136745	ND	0.00059	0.001	mg/L	126734158
TCLP 1,2-Dichloroethane	1136745	ND	0.00059	0.001	mg/L	126734159
TCLP 1,4 Dichlorobenzene	1136745	ND	0.000837	0.001	mg/L	126734158

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Parameter	*PrepSet*	*Reading*	*MDL*	*MQL*	*Units*	*File*
TCLP 1,4 Dichlorobenzene	1136745	ND	0.000837	0.001	mg/L	126734159
TCLP Benzene	1136745	ND	0.000453	0.001	mg/L	126734158
TCLP Benzene	1136745	ND	0.000453	0.001	mg/L	126734159
TCLP Carbon tetrachloride	1136745	ND	0.000299	0.001	mg/L	126734158
TCLP Carbon tetrachloride	1136745	ND	0.000299	0.001	mg/L	126734159
TCLP Chlorobenzene	1136745	ND	0.000558	0.001	mg/L	126734158
TCLP Chlorobenzene	1136745	ND	0.000558	0.001	mg/L	126734159
TCLP Chloroform	1136745	ND	0.000463	0.001	mg/L	126734158
TCLP Chloroform	1136745	ND	0.000463	0.001	mg/L	126734159
TCLP MEK	1136745	ND	0.000742	0.001	mg/L	126734158
TCLP MEK	1136745	ND	0.000742	0.001	mg/L	126734159
TCLP Tetrachloroethylene	1136745	ND	0.000607	0.001	mg/L	126734158
TCLP Tetrachloroethylene	1136745	ND	0.000607	0.001	mg/L	126734159
TCLP Trichloroethylene	1136745	ND	0.000521	0.001	mg/L	126734158
TCLP Trichloroethylene	1136745	ND	0.000521	0.001	mg/L	126734159
TCLP Vinyl chloride	1136745	ND	0.000702	0.001	mg/L	126734158
TCLP Vinyl chloride	1136745	ND	0.000702	0.001	mg/L	126734159

CCV

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
TCLP 1,1-Dichloroethene	0.0191	0.020	mg/L	95.5	70.0 - 130	126734155
TCLP 1,2-Dichloroethane	0.0227	0.020	mg/L	114	70.0 - 130	126734155
TCLP 1,4 Dichlorobenzene	0.0181	0.020	mg/L	90.5	70.0 - 130	126734155
TCLP Benzene	0.0204	0.020	mg/L	102	70.0 - 130	126734155
TCLP Carbon tetrachloride	0.0209	0.020	mg/L	104	70.0 - 130	126734155
TCLP Chlorobenzene	0.020	0.020	mg/L	100	70.0 - 130	126734155
TCLP Chloroform	0.0208	0.020	mg/L	104	70.0 - 130	126734155
TCLP MEK	0.0214	0.020	mg/L	107	70.0 - 130	126734155
TCLP Tetrachloroethylene	0.0204	0.020	mg/L	102	70.0 - 130	126734155
TCLP Trichloroethylene	0.0199	0.020	mg/L	99.5	70.0 - 130	126734155
TCLP Vinyl chloride	0.0209	0.020	mg/L	104	70.0 - 130	126734155

IS Areas

Parameter	*Sample*	*Type*	*Reading*	*CCVISM*	*Low*	*High*	*File*	*PrepSet*
1,4-DichlorobenzeneD4 (ISTD)	1136745	CCV	178200	178200	124800	231700	126734155	1136745
1,4-DichlorobenzeneD4 (ISTD)	1136745	LCS	177400	178200	124800	231700	126734156	1136745
1,4-DichlorobenzeneD4 (ISTD)	1136745	LCS Dup	165500	178200	124800	231700	126734157	1136745
1,4-DichlorobenzeneD4 (ISTD)	1136745	Blank	153100	178200	124800	231700	126734158	1136745
1,4-DichlorobenzeneD4 (ISTD)	1136745	Blank	147900	178200	124800	231700	126734159	1136745
ChlorobenzeneD5 (ISTD)	1136745	CCV	297500	297500	208300	386800	126734155	1136745
ChlorobenzeneD5 (ISTD)	1136745	LCS	298400	297500	208300	386800	126734156	1136745
ChlorobenzeneD5 (ISTD)	1136745	LCS Dup	280000	297500	208300	386800	126734157	1136745
ChlorobenzeneD5 (ISTD)	1136745	Blank	276500	297500	208300	386800	126734158	1136745
ChlorobenzeneD5 (ISTD)	1136745	Blank	270500	297500	208300	386800	126734159	1136745
1,4-DichlorobenzeneD4 (ISTD)	2330205	MS	156500	178200	124800	231700	126734162	1136385

QUALITY CONTROL

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IS Areas

Parameter	*Sample*	*Type*	*Reading*	*CCVISM*	*Low*	*High*	*File*	*PrepSet*
1,4-DichlorobenzeneD4 (ISTD)	2330205	MSD	156100	178200	124800	231700	126734163	1136385
ChlorobenzeneD5 (ISTD)	2330205	MS	264400	297500	208300	386800	126734162	1136385
ChlorobenzeneD5 (ISTD)	2330205	MSD	269500	297500	208300	386800	126734163	1136385

IS RetTime

Parameter	*Sample*	*Type*	*Reading*	*CCVISM*	*Low*	*High*	*File*	*PrepSet*
1,4-DichlorobenzeneD4 (ISTD)	1136745	LCS	11.97	11.96	11.90	12.02	126734156	1136745
1,4-DichlorobenzeneD4 (ISTD)	1136745	LCS Dup	11.97	11.96	11.90	12.02	126734157	1136745
1,4-DichlorobenzeneD4 (ISTD)	1136745	Blank	11.97	11.96	11.90	12.02	126734158	1136745
1,4-DichlorobenzeneD4 (ISTD)	1136745	Blank	11.97	11.96	11.90	12.02	126734159	1136745
ChlorobenzeneD5 (ISTD)	1136745	LCS	9.597	9.597	9.537	9.657	126734156	1136745
ChlorobenzeneD5 (ISTD)	1136745	LCS Dup	9.597	9.597	9.537	9.657	126734157	1136745
ChlorobenzeneD5 (ISTD)	1136745	Blank	9.597	9.597	9.537	9.657	126734158	1136745
ChlorobenzeneD5 (ISTD)	1136745	Blank	9.591	9.597	9.537	9.657	126734159	1136745
1,4-DichlorobenzeneD4 (ISTD)	2330205	MS	11.97	11.96	11.90	12.02	126734162	1136385
1,4-DichlorobenzeneD4 (ISTD)	2330205	MSD	11.96	11.96	11.90	12.02	126734163	1136385
ChlorobenzeneD5 (ISTD)	2330205	MS	9.597	9.597	9.537	9.657	126734162	1136385
ChlorobenzeneD5 (ISTD)	2330205	MSD	9.597	9.597	9.537	9.657	126734163	1136385

LCS Dup

Parameter	*PrepSet*	*LCS*	*LCSD*	*Known*	*Limits%*	*LCS%*	*LCSD%*	*Units*	*RPD*	*Limit%*
TCLP 1,1-Dichloroethene	1136745	0.0179	0.0174	0.020	56.7 - 135	89.5	87.0	mg/L	2.83	30.0
TCLP 1,2-Dichloroethane	1136745	0.0201	0.0212	0.020	69.8 - 132	100	106	mg/L	5.83	30.0
TCLP 1,4 Dichlorobenzene	1136745	0.018	0.0189	0.020	74.8 - 116	90.0	94.5	mg/L	4.88	30.0
TCLP Benzene	1136745	0.0197	0.0198	0.020	67.1 - 123	98.5	99.0	mg/L	0.506	30.0
TCLP Carbon tetrachloride	1136745	0.0185	0.0189	0.020	60.1 - 132	92.5	94.5	mg/L	2.14	30.0
TCLP Chlorobenzene	1136745	0.0188	0.020	0.020	74.0 - 115	94.0	100	mg/L	6.19	30.0
TCLP Chloroform	1136745	0.0186	0.0189	0.020	71.1 - 128	93.0	94.5	mg/L	1.60	30.0
TCLP MEK	1136745	0.0205	0.0215	0.020	40.7 - 166	102	108	mg/L	5.71	30.0
TCLP Tetrachloroethylene	1136745	0.0186	0.0191	0.020	71.2 - 126	93.0	95.5	mg/L	2.65	30.0
TCLP Trichloroethylene	1136745	0.0176	0.0183	0.020	71.4 - 126	88.0	91.5	mg/L	3.90	30.0
TCLP Vinyl chloride	1136745	0.0215	0.0211	0.020	18.5 - 155	108	106	mg/L	1.87	30.0

MSD

Parameter	*Sample*	*MS*	*MSD*	*UNK*	*Known*	*Limits*	*MS%*	*MSD%*	*Units*	*RPD*	*Limit%*
TCLP 1,1-Dichloroethene	2330205	0.174	0.171	0.0114	0.200	0.100 - 168	81.3	79.8	mg/L	1.86	30.0
TCLP 1,2-Dichloroethane	2330205	0.205	0.204	0.0114	0.200	48.4 - 134	96.8	96.3	mg/L	0.518	30.0
TCLP 1,4 Dichlorobenzene	2330205	0.178	0.178	0.0114	0.200	45.4 - 121	83.3	83.3	mg/L	0	30.0
TCLP Benzene	2330205	0.194	0.190	0.0114	0.200	5.00 - 119	91.3	89.3	mg/L	2.21	30.0
TCLP Carbon tetrachloride	2330205	0.180	0.178	0.0114	0.200	0.100 - 164	84.3	83.3	mg/L	1.19	30.0
TCLP Chlorobenzene	2330205	0.191	0.183	0.0114	0.200	32.5 - 130	89.8	85.8	mg/L	4.56	30.0
TCLP Chloroform	2330205	0.188	0.183	0.0114	0.200	22.1 - 141	88.3	85.8	mg/L	2.87	30.0
TCLP MEK	2330205	0.204	0.204	0.0114	0.200	9.88 - 197	96.3	96.3	mg/L	0	30.0
TCLP Tetrachloroethylene	2330205	0.191	0.182	0.0114	0.200	0.100 - 157	89.8	85.3	mg/L	5.14	30.0
TCLP Trichloroethylene	2330205	0.176	0.169	0.0114	0.200	0.100 - 161	82.3	78.8	mg/L	4.35	30.0
TCLP Vinyl chloride	2330205	0.209	0.204	0.0114	0.200	0.100 - 197	98.8	96.3	mg/L	2.56	30.0

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Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
1,2-DCA-d4 (SURR)	1136745	CCV	0.0208	0.020	mg/L	104	74.2 - 132	126734155
1,2-DCA-d4 (SURR)	1136745	LCS	0.0219	0.020	mg/L	110	74.2 - 132	126734156
1,2-DCA-d4 (SURR)	1136745	LCS Dup	0.0217	0.020	mg/L	108	74.2 - 132	126734157
1,2-DCA-d4 (SURR)	1136745	Blank	0.021	0.020	mg/L	105	74.2 - 132	126734158
1,2-DCA-d4 (SURR)	1136745	Blank	0.0212	0.020	mg/L	106	74.2 - 132	126734159
Bromofluorobenzene (SURR)	1136745	CCV	0.0192	0.020	mg/L	96.0	77.2 - 134	126734155
Bromofluorobenzene (SURR)	1136745	LCS	0.0192	0.020	mg/L	96.0	77.2 - 134	126734156
Bromofluorobenzene (SURR)	1136745	LCS Dup	0.0191	0.020	mg/L	95.5	77.2 - 134	126734157
Bromofluorobenzene (SURR)	1136745	Blank	0.020	0.020	mg/L	100	77.2 - 134	126734158
Bromofluorobenzene (SURR)	1136745	Blank	0.0199	0.020	mg/L	99.5	77.2 - 134	126734159
Dibromofluoromethane (SURR)	1136745	CCV	0.0196	0.020	mg/L	98.0	67.2 - 122	126734155
Dibromofluoromethane (SURR)	1136745	LCS	0.0206	0.020	mg/L	103	67.2 - 122	126734156
Dibromofluoromethane (SURR)	1136745	LCS Dup	0.0198	0.020	mg/L	99.0	67.2 - 122	126734157
Dibromofluoromethane (SURR)	1136745	Blank	0.0194	0.020	mg/L	97.0	67.2 - 122	126734158
Dibromofluoromethane (SURR)	1136745	Blank	0.0195	0.020	mg/L	97.5	67.2 - 122	126734159
TolueneD8 (SURR)	1136745	CCV	0.0185	0.020	mg/L	92.5	69.2 - 122	126734155
TolueneD8 (SURR)	1136745	LCS	0.0187	0.020	mg/L	93.5	69.2 - 122	126734156
TolueneD8 (SURR)	1136745	LCS Dup	0.0189	0.020	mg/L	94.5	69.2 - 122	126734157
TolueneD8 (SURR)	1136745	Blank	0.0182	0.020	mg/L	91.0	69.2 - 122	126734158
TolueneD8 (SURR)	1136745	Blank	0.018	0.020	mg/L	90.0	69.2 - 122	126734159
1,2-DCA-d4 (SURR)	2330205	MS	0.021	0.020	mg/L	105	74.2 - 132	126734162
1,2-DCA-d4 (SURR)	2330205	MSD	0.0214	0.020	mg/L	107	74.2 - 132	126734163
Bromofluorobenzene (SURR)	2330205	MS	0.019	0.020	mg/L	95.0	77.2 - 134	126734162
Bromofluorobenzene (SURR)	2330205	MSD	0.0191	0.020	mg/L	95.5	77.2 - 134	126734163
Dibromofluoromethane (SURR)	2330205	MS	0.0198	0.020	mg/L	99.0	67.2 - 122	126734162
Dibromofluoromethane (SURR)	2330205	MSD	0.0198	0.020	mg/L	99.0	67.2 - 122	126734163
TolueneD8 (SURR)	2330205	MS	0.0186	0.020	mg/L	93.0	69.2 - 122	126734162
TolueneD8 (SURR)	2330205	MSD	0.0187	0.020	mg/L	93.5	69.2 - 122	126734163
1,2-DCA-d4 (SURR)	2330220	Unknown	0.0213	0.020	mg/L	106	74.2 - 132	126734161
Bromofluorobenzene (SURR)	2330220	Unknown	0.0196	0.020	mg/L	98.0	77.2 - 134	126734161
Dibromofluoromethane (SURR)	2330220	Unknown	0.0197	0.020	mg/L	98.5	67.2 - 122	126734161
TolueneD8 (SURR)	2330220	Unknown	0.0184	0.020	mg/L	92.0	69.2 - 122	126734161

Analytical Set 1137319 EPA 8081A

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
TCLP Chlordane	1136321	ND	0.0000183	0.00002	mg/L	126748068
TCLP Endrin	1136321	ND	0.000538	0.001	mg/L	126748068
TCLP gamma-BHC (Lindane)	1136321	ND	0.000385	0.001	mg/L	126748068
TCLP Heptachlor	1136321	ND	0.000207	0.001	mg/L	126748068
TCLP Heptachlor Epoxide	1136321	ND	0.00066	0.001	mg/L	126748068
TCLP Methoxychlor	1136321	ND	0.000898	0.001	mg/L	126748068
TCLP Toxaphene	1136321	ND	0.000169	0.0002	mg/L	126748068

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CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP Endrin	0.0462	0.050	mg/L	92.5	70.0 - 130	126748064
TCLP Endrin	0.0554	0.050	mg/L	111	70.0 - 130	126748074
TCLP gamma-BHC (Lindane)	0.0446	0.050	mg/L	89.3	70.0 - 130	126748064
TCLP gamma-BHC (Lindane)	0.0538	0.050	mg/L	108	70.0 - 130	126748074
TCLP Heptachlor	0.0422	0.050	mg/L	84.3	70.0 - 130	126748064
TCLP Heptachlor	0.0509	0.050	mg/L	102	70.0 - 130	126748074
TCLP Heptachlor Epoxide	0.0452	0.050	mg/L	90.5	70.0 - 130	126748064
TCLP Heptachlor Epoxide	0.055	0.050	mg/L	110	70.0 - 130	126748074
TCLP Methoxychlor	0.0474	0.050	mg/L	94.7	70.0 - 130	126748064
TCLP Methoxychlor	0.058	0.050	mg/L	116	70.0 - 130	126748074

MS

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
TCLP Endrin	2330104	0.0042	0	ND	0.005	24.3 - 151	84.0		mg/L		30.0
TCLP gamma-BHC (Lindane)	2330104	0.00401	0	ND	0.005	21.3 - 144	80.2		mg/L		30.0
TCLP Heptachlor	2330104	0.00315	0	ND	0.005	14.9 - 138	63.0		mg/L		30.0
TCLP Heptachlor Epoxide	2330104	0.00394	0	ND	0.005	29.9 - 133	78.8		mg/L		30.0
TCLP Methoxychlor	2330104	0.00401	0	ND	0.005	10.3 - 183	80.2		mg/L		30.0

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
Decachlorobiphenyl	625249	CCV	0.0465	0.100	mg/L	46.5	10.0 - 150	126748064
Decachlorobiphenyl	625249	CCV	0.0526	0.100	mg/L	52.6	10.0 - 150	126748074
Tetrachloro-m-Xylene (Surr)	625249	CCV	0.0459	0.100	mg/L	45.9	10.0 - 150	126748064
Tetrachloro-m-Xylene (Surr)	625249	CCV	0.0446	0.100	mg/L	44.6	10.0 - 150	126748074
Decachlorobiphenyl	1136321	Blank	0.0582	0.100	mg/L	58.2	10.0 - 150	126748068
Tetrachloro-m-Xylene (Surr)	1136321	Blank	0.0393	0.100	mg/L	39.3	10.0 - 150	126748068
Decachlorobiphenyl	2330104	MS	0.00194	0.005	mg/L	38.8	10.0 - 150	126748073
Tetrachloro-m-Xylene (Surr)	2330104	MS	0.00241	0.005	mg/L	48.2	10.0 - 150	126748073
Decachlorobiphenyl	2330220	Unknown	0.00268	0.005	mg/L	53.6	10.0 - 150	126748070
Tetrachloro-m-Xylene (Surr)	2330220	Unknown	0.00244	0.005	mg/L	48.8	10.0 - 150	126748070

Analytical Set 1137620 EPA 8151

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
TCLP 2,4 D	1136321	ND	0.000159	0.0005	mg/L	126756651
TCLP 2,4,5-TP (Silvex)	1136321	ND	0.0000893	0.0003	mg/L	126756651
TCLP 2,4 D	1137054	ND	0.000159	0.0005	mg/L	126756647
TCLP 2,4,5-TP (Silvex)	1137054	ND	0.0000893	0.0003	mg/L	126756647

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP 2,4 D	0.146	0.150	mg/L	97.6	70.0 - 130	126756646
TCLP 2,4 D	0.173	0.150	mg/L	116	70.0 - 130	126756656
TCLP 2,4,5-TP (Silvex)	0.154	0.150	mg/L	103	70.0 - 130	126756646
TCLP 2,4,5-TP (Silvex)	0.173	0.150	mg/L	115	70.0 - 130	126756656

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LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
TCLP 2,4 D	1137054	0.000815	0.000954	0.001	2.06 - 194	81.5	95.4	mg/L	15.7	30.0
TCLP 2,4,5-TP (Silvex)	1137054	0.000794	0.000916	0.001	19.3 - 162	79.4	91.6	mg/L	14.3	30.0

MS

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
TCLP 2,4 D	2330220	0.800	0	0.00663	1.00	0.100 - 228	79.3		mg/L		30.0
TCLP 2,4,5-TP (Silvex)	2330220	0.768	0	0.00128	1.00	2.02 - 165	76.7		mg/L		30.0

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
2,4-Dichlorophenylacetic Acid		CCV	0.141	0.200	mg/L	70.5	0.100 - 294	126756646
2,4-Dichlorophenylacetic Acid		CCV	0.158	0.200	mg/L	79.0	0.100 - 294	126756656
2,4-Dichlorophenylacetic Acid	1136321	Blank	0.0761	0.200	mg/L	38.0	0.100 - 294	126756651
2,4-Dichlorophenylacetic Acid	1137054	Blank	0.063	0.200	mg/L	31.5	0.100 - 294	126756647
2,4-Dichlorophenylacetic Acid	1137054	LCS	0.0763	0.200	mg/L	38.2	0.100 - 294	126756648
2,4-Dichlorophenylacetic Acid	1137054	LCS Dup	0.0857	0.200	mg/L	42.8	0.100 - 294	126756649
2,4-Dichlorophenylacetic Acid	2330220	Unknown	0.847	2.00	mg/L	42.4	0.100 - 294	126756653
2,4-Dichlorophenylacetic Acid	2330220	MS	0.735	2.00	mg/L	36.8	0.100 - 294	126756654

Analytical Set 1138101 EPA 8270C

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
TCLP 2,4,5-Trichlorophenol	1136321	ND	0.000734	0.001	mg/L	126769637
TCLP 2,4,6-Trichlorophenol	1136321	ND	0.000704	0.001	mg/L	126769637
TCLP 2,4-Dinitrotoluene	1136321	ND	0.00335	0.0035	mg/L	126769637
TCLP 2-Methylphenol (o-Cresol)	1136321	ND	0.00513	0.0052	mg/L	126769637
TCLP 3&4-Methylphenol (m&p-Creso	1136321	ND	0.00615	0.0062	mg/L	126769637
TCLP bis(2-Chloroethyl)ether	1136321	ND	0.000434	0.001	mg/L	126769637
TCLP Hexachlorobenzene	1136321	ND	0.000187	0.001	mg/L	126769637
TCLP Hexachlorobutadiene	1136321	ND	0.000618	0.001	mg/L	126769637
TCLP Hexachloroethane	1136321	ND	0.000789	0.001	mg/L	126769637
TCLP Nitrobenzene	1136321	ND	0.00039	0.001	mg/L	126769637
TCLP Pentachlorophenol	1136321	0.00096	0.000129	0.001	mg/L	126769637
TCLP Pyridine (Reg. Limit 5)	1136321	ND	0.00533	0.0054	mg/L	126769637
TCLP 2,4,5-Trichlorophenol	1137658	ND	0.000734	0.001	mg/L	126769634
TCLP 2,4,6-Trichlorophenol	1137658	ND	0.000704	0.001	mg/L	126769634
TCLP 2,4-Dinitrotoluene	1137658	ND	0.00335	0.0035	mg/L	126769634
TCLP 2-Methylphenol (o-Cresol)	1137658	ND	0.00513	0.0052	mg/L	126769634
TCLP 3&4-Methylphenol (m&p-Creso	1137658	ND	0.00615	0.0062	mg/L	126769634
TCLP bis(2-Chloroethyl)ether	1137658	ND	0.000434	0.001	mg/L	126769634
TCLP Hexachlorobenzene	1137658	ND	0.000187	0.001	mg/L	126769634
TCLP Hexachlorobutadiene	1137658	ND	0.000618	0.001	mg/L	126769634
TCLP Hexachloroethane	1137658	ND	0.000789	0.001	mg/L	126769634
TCLP Nitrobenzene	1137658	ND	0.00039	0.001	mg/L	126769634
TCLP Pentachlorophenol	1137658	0.00096	0.000129	0.001	mg/L	126769634

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Parameter	PrepSet	Reading	MDL	MQL	Units	File
TCLP Pyridine (Reg. Limit 5)	1137658	ND	0.00533	0.0054	mg/L	126769634

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP 2,4,5-Trichlorophenol	52.0	50.0	mg/L	104	70.0 - 130	126769632
TCLP 2,4,6-Trichlorophenol	51.7	50.0	mg/L	103	70.0 - 130	126769632
TCLP 2,4-Dinitrotoluene	47.3	50.0	mg/L	94.5	70.0 - 130	126769632
TCLP 2-Methylphenol (o-Cresol)	47.8	50.0	mg/L	95.6	70.0 - 130	126769632
TCLP 3&4-Methylphenol (m&p-Creso	47.8	50.0	mg/L	95.5	70.0 - 130	126769632
TCLP bis(2-Chloroethyl)ether	45.5	50.0	mg/L	90.9	70.0 - 130	126769632
TCLP Hexachlorobenzene	49.0	50.0	mg/L	97.9	70.0 - 130	126769632
TCLP Hexachlorobutadiene	48.8	50.0	mg/L	97.5	70.0 - 130	126769632
TCLP Hexachloroethane	49.6	50.0	mg/L	99.2	70.0 - 130	126769632
TCLP Nitrobenzene	47.0	50.0	mg/L	94.0	70.0 - 130	126769632
TCLP Pentachlorophenol	48.0	50.0	mg/L	96.1	70.0 - 130	126769632
TCLP Pyridine (Reg. Limit 5)	48.4	50.0	mg/L	96.7	70.0 - 130	126769632

DFTPP

Parameter		RefMass	Reading	%	Limits%	File
DFTPP Mass 127	626753	198	43472	50.5	40.0 - 60.0	126769631
DFTPP Mass 197	626753	198	0	0.0	0 - 1.00	126769631
DFTPP Mass 198	626753	198	86134	100.0	100 - 100	126769631
DFTPP Mass 199	626753	198	5746	6.7	5.00 - 9.00	126769631
DFTPP Mass 275	626753	198	17174	19.9	10.0 - 30.0	126769631
DFTPP Mass 365	626753	198	2041	2.4	1.00 - 100	126769631
DFTPP Mass 441	626753	443	6626	79.8	0 - 100	126769631
DFTPP Mass 442	626753	198	43992	51.1	40.0 - 100	126769631
DFTPP Mass 443	626753	442	8303	18.9	17.0 - 23.0	126769631
DFTPP Mass 51	626753	198	26536	30.8	30.0 - 60.0	126769631
DFTPP Mass 68	626753	69.0	335	1.0	0 - 2.00	126769631
DFTPP Mass 69	626753	198	31997	37.1	0 - 100	126769631
DFTPP Mass 70	626753	69.0	162	0.5	0 - 2.00	126769631

IS Areas

Parameter	Sample	Type	Reading	CCVISM	Low	High	File	PrepSet
1,4-Dichlorobenzene-d4-ISTD	626417	CCV	218500	218500	109200	327700	126769632	626417
Acenaphthene-d10-ISTD	626417	CCV	426700	426700	213300	640000	126769632	626417
Naphthalene-d8-ISTD	626417	CCV	837000	837000	418500	1255000	126769632	626417
Phenanthrene-d10-ISTD	626417	CCV	610100	610100	305000	915100	126769632	626417
1,4-Dichlorobenzene-d4-ISTD	1136321	Blank	136000	218500	109200	327700	126769637	1136321
Acenaphthene-d10-ISTD	1136321	Blank	266600	426700	213300	640000	126769637	1136321
Naphthalene-d8-ISTD	1136321	Blank	509000	837000	418500	1255000	126769637	1136321
Phenanthrene-d10-ISTD	1136321	Blank	391100	610100	305000	915100	126769637	1136321
1,4-Dichlorobenzene-d4-ISTD	1137658	Blank	172900	218500	109200	327700	126769634	1137658
1,4-Dichlorobenzene-d4-ISTD	1137658	LCS	138900	218500	109200	327700	126769635	1137658
1,4-Dichlorobenzene-d4-ISTD	1137658	LCS Dup	154100	218500	109200	327700	126769636	1137658

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IS Areas

Parameter	Sample	Type	Reading	CCVISM	Low	High	File	PrepSet
Acenaphthene-d10-ISTD	1137658	Blank	332400	426700	213300	640000	126769634	1137658
Acenaphthene-d10-ISTD	1137658	LCS	260100	426700	213300	640000	126769635	1137658
Acenaphthene-d10-ISTD	1137658	LCS Dup	275600	426700	213300	640000	126769636	1137658
Naphthalene-d8-ISTD	1137658	Blank	638000	837000	418500	1255000	126769634	1137658
Naphthalene-d8-ISTD	1137658	LCS	521000	837000	418500	1255000	126769635	1137658
Naphthalene-d8-ISTD	1137658	LCS Dup	569400	837000	418500	1255000	126769636	1137658
Phenanthrene-d10-ISTD	1137658	Blank	484700	610100	305000	915100	126769634	1137658
Phenanthrene-d10-ISTD	1137658	LCS	349800	610100	305000	915100	126769635	1137658
Phenanthrene-d10-ISTD	1137658	LCS Dup	376700	610100	305000	915100	126769636	1137658
1,4-Dichlorobenzene-d4-ISTD	2330205	MS	138200	218500	109200	327700	126769639	1137658
Acenaphthene-d10-ISTD	2330205	MS	261700	426700	213300	640000	126769639	1137658
Naphthalene-d8-ISTD	2330205	MS	516800	837000	418500	1255000	126769639	1137658
Phenanthrene-d10-ISTD	2330205	MS	365000	610100	305000	915100	126769639	1137658
1,4-Dichlorobenzene-d4-ISTD	2330220	Unknown	137200	218500	109200	327700	126769640	1137658
Acenaphthene-d10-ISTD	2330220	Unknown	255100	426700	213300	640000	126769640	1137658
Naphthalene-d8-ISTD	2330220	Unknown	512200	837000	418500	1255000	126769640	1137658
Phenanthrene-d10-ISTD	2330220	Unknown	359400	610100	305000	915100	126769640	1137658

IS RetTime

Parameter	Sample	Type	Reading	CCVISM	Low	High	File	PrepSet
1,4-Dichlorobenzene-d4-ISTD	626417	CCV	7.580	7.580	7.520	7.640	126769632	626417
Acenaphthene-d10-ISTD	626417	CCV	13.92	13.92	13.86	13.98	126769632	626417
Naphthalene-d8-ISTD	626417	CCV	9.960	9.960	9.900	10.02	126769632	626417
Phenanthrene-d10-ISTD	626417	CCV	16.74	16.74	16.68	16.80	126769632	626417
1,4-Dichlorobenzene-d4-ISTD	1136321	Blank	7.580	7.580	7.520	7.640	126769637	1136321
Acenaphthene-d10-ISTD	1136321	Blank	13.91	13.92	13.86	13.98	126769637	1136321
Naphthalene-d8-ISTD	1136321	Blank	9.950	9.960	9.900	10.02	126769637	1136321
Phenanthrene-d10-ISTD	1136321	Blank	16.73	16.74	16.68	16.80	126769637	1136321
1,4-Dichlorobenzene-d4-ISTD	1137658	Blank	7.580	7.580	7.520	7.640	126769634	1137658
1,4-Dichlorobenzene-d4-ISTD	1137658	LCS	7.580	7.580	7.520	7.640	126769635	1137658
1,4-Dichlorobenzene-d4-ISTD	1137658	LCS Dup	7.580	7.580	7.520	7.640	126769636	1137658
Acenaphthene-d10-ISTD	1137658	Blank	13.91	13.92	13.86	13.98	126769634	1137658
Acenaphthene-d10-ISTD	1137658	LCS	13.91	13.92	13.86	13.98	126769635	1137658
Acenaphthene-d10-ISTD	1137658	LCS Dup	13.91	13.92	13.86	13.98	126769636	1137658
Naphthalene-d8-ISTD	1137658	Blank	9.960	9.960	9.900	10.02	126769634	1137658
Naphthalene-d8-ISTD	1137658	LCS	9.960	9.960	9.900	10.02	126769635	1137658
Naphthalene-d8-ISTD	1137658	LCS Dup	9.960	9.960	9.900	10.02	126769636	1137658
Phenanthrene-d10-ISTD	1137658	Blank	16.73	16.74	16.68	16.80	126769634	1137658
Phenanthrene-d10-ISTD	1137658	LCS	16.73	16.74	16.68	16.80	126769635	1137658
Phenanthrene-d10-ISTD	1137658	LCS Dup	16.73	16.74	16.68	16.80	126769636	1137658
1,4-Dichlorobenzene-d4-ISTD	2330205	MS	7.580	7.580	7.520	7.640	126769639	1137658
Acenaphthene-d10-ISTD	2330205	MS	13.91	13.92	13.86	13.98	126769639	1137658
Naphthalene-d8-ISTD	2330205	MS	9.960	9.960	9.900	10.02	126769639	1137658
Phenanthrene-d10-ISTD	2330205	MS	16.73	16.74	16.68	16.80	126769639	1137658
1,4-Dichlorobenzene-d4-ISTD	2330220	Unknown	7.580	7.580	7.520	7.640	126769640	1137658

QUALITY CONTROL

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IS RetTime

Parameter	Sample	Type	Reading	CCVISM	Low	High	File	PrepSet
Acenaphthene-d10-ISTD	2330220	Unknown	13.90	13.92	13.86	13.98	126769640	1137658
Naphthalene-d8-ISTD	2330220	Unknown	9.950	9.960	9.900	10.02	126769640	1137658
Phenanthrene-d10-ISTD	2330220	Unknown	16.73	16.74	16.68	16.80	126769640	1137658

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
TCLP 2,4,5-Trichlorophenol	1137658	0.0192	0.0196	0.025	39.3 - 111	76.8	78.4	mg/L	2.06	30.0
TCLP 2,4,6-Trichlorophenol	1137658	0.0193	0.0202	0.025	38.2 - 109	77.2	80.8	mg/L	4.56	30.0
TCLP 2,4-Dinitrotoluene	1137658	0.0184	0.0189	0.025	36.3 - 132	73.6	75.6	mg/L	2.68	30.0
TCLP 2-Methylphenol (o-Cresol)	1137658	0.0152	0.0153	0.025	23.0 - 87.8	60.8	61.2	mg/L	0.656	30.0
TCLP 3&4-Methylphenol (m&p-Creso	1137658	0.0138	0.0138	0.025	14.9 - 92.5	55.2	55.2	mg/L	0	30.0
TCLP bis(2-Chloroethyl)ether	1137658	0.0185	0.0189	0.025	22.9 - 122	74.0	75.6	mg/L	2.14	30.0
TCLP Hexachlorobenzene	1137658	0.020	0.0202	0.025	44.4 - 117	80.0	80.8	mg/L	0.995	30.0
TCLP Hexachlorobutadiene	1137658	0.011	0.0112	0.025	17.2 - 88.9	44.0	44.8	mg/L	1.80	30.0
TCLP Hexachloroethane	1137658	0.0108	0.011	0.025	14.6 - 88.8	43.2	44.0	mg/L	1.83	30.0
TCLP Nitrobenzene	1137658	0.0193	0.0198	0.025	34.3 - 113	77.2	79.2	mg/L	2.56	30.0
TCLP Pentachlorophenol	1137658	0.0165	0.0172	0.025	15.7 - 129	66.0	68.8	mg/L	4.15	30.0
TCLP Pyridine (Reg. Limit 5)	1137658	0.0112	0.00996	0.025	0.0753 - 83.4	44.8	39.8	mg/L	11.8	30.0

MS

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
TCLP 2,4,5-Trichlorophenol	2330205	0.187	0	0.0038	0.250	33.7 - 116	73.3		mg/L		30.0
TCLP 2,4,6-Trichlorophenol	2330205	0.188	0	0.0038	0.250	20.1 - 131	73.7		mg/L		30.0
TCLP 2,4-Dinitrotoluene	2330205	0.185	0	0.0038	0.250	31.8 - 135	72.5		mg/L		30.0
TCLP 2-Methylphenol (o-Cresol)	2330205	0.156	0	ND	0.250	10.6 - 106	62.4		mg/L		30.0
TCLP 3&4-Methylphenol (m&p-Creso	2330205	0.145	0	ND	0.250	0.100 - 149	58.0		mg/L		30.0
TCLP bis(2-Chloroethyl)ether	2330205	0.176	0	0.0038	0.250	10.8 - 128	68.9		mg/L		30.0
TCLP Hexachlorobenzene	2330205	0.194	0	0.0038	0.250	35.9 - 125	76.1		mg/L		30.0
TCLP Hexachlorobutadiene	2330205	0.0995	0	0.0038	0.250	11.1 - 88.5	38.3		mg/L		30.0
TCLP Hexachloroethane	2330205	0.0989	0	0.0038	0.250	8.41 - 88.1	38.0		mg/L		30.0
TCLP Nitrobenzene	2330205	0.186	0	0.0038	0.250	28.7 - 119	72.9		mg/L		30.0
TCLP Pentachlorophenol	2330205	0.176	0	0.0095	0.250	8.33 - 141	66.6		mg/L		30.0
TCLP Pyridine (Reg. Limit 5)	2330205	0.0965	0	ND	0.250	0.100 - 97.2	38.6		mg/L		30.0

SPCC

Parameter	Sample	RF	Minimum	File
TCLP 2,4-Dinitrophenol	626417	44.9	0.050	126769632
TCLP 4-Nitrophenol	626417	42.0	0.050	126769632
TCLP Hexachlorocyclopentadiene	626417	50.9	0.050	126769632
TCLP N-Nitroso-n-propylamine	626417	48.0	0.050	126769632

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
2,4,6-Tribromophenol	626417	CCV	42.9	100	mg/L	42.9	9.79 - 123	126769632
2-Fluorobiphenyl-SURR	626417	CCV	49.2	50.0	mg/L	98.4	0.100 - 131	126769632
2-Fluorophenol-SURR	626417	CCV	49.0	100	mg/L	49.0	5.36 - 80.2	126769632

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Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
4-Terphenyl-d14-SURR	626417	CCV	47.3	50.0	mg/L	94.6	0.100 - 137	126769632
Nitrobenzene-d5-SURR	626417	CCV	48.9	50.0	mg/L	97.8	0.100 - 131	126769632
Phenol-d6-SURR	626417	CCV	47.8	100	mg/L	47.8	0.100 - 66.5	126769632
2,4,6-Tribromophenol	1136321	Blank	0.0565	0.100	mg/L	56.5	9.79 - 123	126769637
2-Fluorobiphenyl-SURR	1136321	Blank	30.9	50.0	mg/L	61.8	0.100 - 131	126769637
2-Fluorophenol-SURR	1136321	Blank	44.2	100	mg/L	44.2	5.36 - 80.2	126769637
4-Terphenyl-d14-SURR	1136321	Blank	32.5	50.0	mg/L	65.0	0.100 - 137	126769637
Nitrobenzene-d5-SURR	1136321	Blank	33.3	50.0	mg/L	66.6	0.100 - 131	126769637
Phenol-d6-SURR	1136321	Blank	29.4	100	mg/L	29.4	0.100 - 66.5	126769637
2,4,6-Tribromophenol	1137658	Blank	0.0578	0.100	mg/L	57.8	9.79 - 123	126769634
2,4,6-Tribromophenol	1137658	LCS	0.0598	0.100	mg/L	59.8	9.79 - 123	126769635
2,4,6-Tribromophenol	1137658	LCS Dup	0.0624	0.100	mg/L	62.4	9.79 - 123	126769636
2-Fluorobiphenyl-SURR	1137658	Blank	32.6	50.0	mg/L	65.2	0.100 - 131	126769634
2-Fluorobiphenyl-SURR	1137658	LCS	35.5	50.0	mg/L	71.0	0.100 - 131	126769635
2-Fluorobiphenyl-SURR	1137658	LCS Dup	36.1	50.0	mg/L	72.2	0.100 - 131	126769636
2-Fluorophenol-SURR	1137658	Blank	47.1	100	mg/L	47.1	5.36 - 80.2	126769634
2-Fluorophenol-SURR	1137658	LCS	47.4	100	mg/L	47.4	5.36 - 80.2	126769635
2-Fluorophenol-SURR	1137658	LCS Dup	47.8	100	mg/L	47.8	5.36 - 80.2	126769636
4-Terphenyl-d14-SURR	1137658	Blank	32.5	50.0	mg/L	65.0	0.100 - 137	126769634
4-Terphenyl-d14-SURR	1137658	LCS	33.6	50.0	mg/L	67.2	0.100 - 137	126769635
4-Terphenyl-d14-SURR	1137658	LCS Dup	33.7	50.0	mg/L	67.4	0.100 - 137	126769636
Nitrobenzene-d5-SURR	1137658	Blank	35.6	50.0	mg/L	71.2	0.100 - 131	126769634
Nitrobenzene-d5-SURR	1137658	LCS	39.0	50.0	mg/L	78.0	0.100 - 131	126769635
Nitrobenzene-d5-SURR	1137658	LCS Dup	40.1	50.0	mg/L	80.2	0.100 - 131	126769636
Phenol-d6-SURR	1137658	Blank	30.6	100	mg/L	30.6	0.100 - 66.5	126769634
Phenol-d6-SURR	1137658	LCS	31.5	100	mg/L	31.5	0.100 - 66.5	126769635
Phenol-d6-SURR	1137658	LCS Dup	31.6	100	mg/L	31.6	0.100 - 66.5	126769636
2,4,6-Tribromophenol	2330205	MS	0.601	1.00	mg/L	60.1	9.79 - 123	126769639
2-Fluorobiphenyl-SURR	2330205	MS	0.331	0.500	mg/L	66.2	0.100 - 131	126769639
2-Fluorophenol-SURR	2330205	MS	0.441	1.00	mg/L	44.1	5.36 - 80.2	126769639
4-Terphenyl-d14-SURR	2330205	MS	0.349	0.500	mg/L	69.8	0.100 - 137	126769639
Nitrobenzene-d5-SURR	2330205	MS	0.373	0.500	mg/L	74.6	0.100 - 131	126769639
Phenol-d6-SURR	2330205	MS	0.299	1.00	mg/L	29.9	0.100 - 66.5	126769639
2,4,6-Tribromophenol	2330220	Unknown	0.473	1.00	mg/L	47.3	9.79 - 123	126769640
2-Fluorobiphenyl-SURR	2330220	Unknown	0.299	0.500	mg/L	59.8	0.100 - 131	126769640
2-Fluorophenol-SURR	2330220	Unknown	0.455	1.00	mg/L	45.5	5.36 - 80.2	126769640
4-Terphenyl-d14-SURR	2330220	Unknown	0.288	0.500	mg/L	57.6	0.100 - 137	126769640
Nitrobenzene-d5-SURR	2330220	Unknown	0.317	0.500	mg/L	63.4	0.100 - 131	126769640
Phenol-d6-SURR	2330220	Unknown	0.300	1.00	mg/L	30.0	0.100 - 66.5	126769640

Analytical Set 1137361 — EPA 350.1 2

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Ammonia Nitrogen	1136490	ND	0.509	1.00	mg/kg	126750195

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CCV

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
Ammonia Nitrogen	2.09	2.00	mg/kg	104	90.0 - 110	126750191
Ammonia Nitrogen	2.15	2.00	mg/kg	108	90.0 - 110	126750192
Ammonia Nitrogen	2.15	2.00	mg/kg	108	90.0 - 110	126750193
Ammonia Nitrogen	2.18	2.00	mg/kg	109	90.0 - 110	126750194
Ammonia Nitrogen	2.15	2.00	mg/kg	108	90.0 - 110	126750202
Ammonia Nitrogen	2.14	2.00	mg/kg	107	90.0 - 110	126750203
Ammonia Nitrogen	2.13	2.00	mg/kg	106	90.0 - 110	126750204
Ammonia Nitrogen	2.14	2.00	mg/kg	107	90.0 - 110	126750205
Ammonia Nitrogen	2.12	2.00	mg/kg	106	90.0 - 110	126750206
Ammonia Nitrogen	2.16	2.00	mg/kg	108	90.0 - 110	126750207

Duplicate

Parameter	*Sample*	*Result*	*Unknown*	*Unit*	*RPD*	*Limit%*
Ammonia Nitrogen	2330210	77.7	84.2	mg/kg	8.03	20.0

ICV

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
Ammonia Nitrogen	2.10	2.00	mg/kg	105	90.0 - 110	126750190

LCS Dup

Parameter	*PrepSet*	*LCS*	*LCSD*	*Known*	*Limits%*	*LCS%*	*LCSD%*	*Units*	*RPD*	*Limit%*
Ammonia Nitrogen	1136490	98.4	99.9	100	90.0 - 110	98.4	99.9	mg/kg	1.51	20.0

Mat. Spike

Parameter	*Sample*	*Spike*	*Unknown*	*Known*	*Units*	*Recovery %*	*Limits %*	*File*	
Ammonia Nitrogen	2330210	109	84.2	100	mg/kg	24.8	80.0 - 120	126750200	*

Analytical Set 1136752 — SM 2540 G-1997

ControlBlk

Parameter	*PrepSet*	*Reading*	*MDL*	*MQL*	*Units*	*File*
Total Solids	1136752	0.0001			grams	126734314

Duplicate

Parameter	*Sample*	*Result*	*Unknown*	*Unit*	*RPD*	*Limit%*
Total Solids	2330603	22.7	22.7	%	0	20.0

Analytical Set 1136551 — EPA 9056

Blank

Parameter	*PrepSet*	*Reading*	*MDL*	*MQL*	*Units*	*File*
Nitrate-Nitrogen	1136320	ND	0.0185	0.0226	mg/kg	126731133
Nitrite-Nitrogen	1136320	ND	0.00717	0.0152	mg/kg	126731133

CCV

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
Nitrate-Nitrogen	2.07	2.26	mg/kg	91.6	90.0 - 110	126731132
Nitrite-Nitrogen	2.96	3.04	mg/kg	97.4	90.0 - 110	126731132

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LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Nitrate-Nitrogen	1136320	0.936	0.914	1.13	75.0 - 120	82.8	80.9	mg/kg	2.38	20.0
Nitrite-Nitrogen	1136320	1.29	1.31	1.52	72.0 - 115	84.9	86.2	mg/kg	1.54	20.0

Analytical Set 1136606 — EPA 7471B 2

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Mercury	1136476	0.0000531	0.0000419	0.0001	mg/kg	126732206

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Mercury	0.00511	0.005	mg/kg	102	90.0 - 110	126732204
Mercury	0.00491	0.005	mg/kg	98.2	90.0 - 110	126732205
Mercury	0.00473	0.005	mg/kg	94.6	90.0 - 110	126732212
Mercury	0.00469	0.005	mg/kg	93.8	90.0 - 110	126732216

ICL

Parameter	Reading	Known	Units	Recover%	Limits%	File
Mercury	0.0201	0.02	mg/kg	100	90.0 - 110	126732203

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Mercury	0.0049	0.005	mg/kg	98.0	90.0 - 110	126732202

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Mercury	1136476	0.00984	0.00962	0.010	78.6 - 104	98.4	96.2	mg/kg	2.26	20.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Mercury	2330034	0.822	0.884	0.0328	0.997	74.3 - 109	79.2	85.4	mg/kg	7.56	25.0

Analytical Set 1137010 — EPA 6010C

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Phosphorus	1136861	0.0603	0.00734	0.100	mg/kg	126740729

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Phosphorus	1.04	1.00	mg/kg	104	90.0 - 110	126740728
Phosphorus	1.05	1.00	mg/kg	105	90.0 - 110	126740737

ICL

Parameter	Reading	Known	Units	Recover%	Limits%	File
Phosphorus	25.2	25.0	mg/kg	101	95.0 - 105	126740726

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File

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ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Phosphorus	1.04	1.00	mg/kg	104	90.0 - 110	126740727

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Phosphorus	1136861	19.9	19.8	20.0	80.0 - 120	99.5	99.0	mg/kg	0.504	25.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Phosphorus	2330210	225	225	129	98.0	23.3 - 179	98.4	98.4	mg/kg	0	25.0

Analytical Set 1137019 — EPA 6010C

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Potassium	1136861	ND	0.111	0.500	mg/kg	126740935

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Potassium	25.6	25.0	mg/kg	102	90.0 - 110	126740934
Potassium	24.0	25.0	mg/kg	96.0	90.0 - 110	126740944
Potassium	25.0	25.0	mg/kg	100	90.0 - 110	126740953

ICL

Parameter	Reading	Known	Units	Recover%	Limits%	File
Potassium	51.2	50.0	mg/kg	102	95.0 - 105	126740928

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Potassium	25.9	25.0	mg/kg	104	90.0 - 110	126740932

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Potassium	1136861	23.8	23.7	25.0	78.0 - 116	95.2	94.8	mg/kg	0.421	25.0

LDR

Parameter	Reading	Known	Units	Recover%	Limits%	File
Potassium	98.7	100	mg/kg	98.7	90.0 - 110	126740929

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Potassium	2330210	182	181	55.7	123	33.6 - 179	104	103	mg/kg	0.795	25.0

Analytical Set 1137141 — EPA 6020A

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units		File
Cadmium, Total	1136861	0.000791	0.00011	0.001	mg/kg		126743947
Chromium, Total	1136861	0.00328	0.000409	0.001	mg/kg	*	126743947
Lead, Total	1136861	0.00142	0.000262	0.001	mg/kg	*	126743947

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Parameter	PrepSet	Reading	MDL	MQL	Units	File
Molybdenum, Total	1136861	ND	0.000865	0.003	mg/kg	126743947
Selenium, Total	1136861	ND	0.000353	0.001	mg/kg	126743947
Zinc, Total	1136861	ND	0.00479	0.010	mg/kg	126743947

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Cadmium, Total	0.0511	0.05	mg/kg	102	90.0 - 110	126743946
Cadmium, Total	0.049	0.05	mg/kg	98.0	90.0 - 110	126743950
Cadmium, Total	0.0512	0.05	mg/kg	102	90.0 - 110	126743959
Cadmium, Total	0.0517	0.05	mg/kg	103	90.0 - 110	126743969
Chromium, Total	0.0489	0.05	mg/kg	97.8	90.0 - 110	126743946
Chromium, Total	0.0497	0.05	mg/kg	99.4	90.0 - 110	126743950
Chromium, Total	0.0484	0.05	mg/kg	96.8	90.0 - 110	126743959
Lead, Total	0.0493	0.05	mg/kg	98.6	90.0 - 110	126743946
Lead, Total	0.0493	0.05	mg/kg	98.6	90.0 - 110	126743950
Lead, Total	0.0488	0.05	mg/kg	97.6	90.0 - 110	126743959
Molybdenum, Total	0.0508	0.05	mg/kg	102	90.0 - 110	126743946
Molybdenum, Total	0.0503	0.05	mg/kg	101	90.0 - 110	126743950
Molybdenum, Total	0.0504	0.05	mg/kg	101	90.0 - 110	126743959
Selenium, Total	0.0526	0.05	mg/kg	105	90.0 - 110	126743946
Selenium, Total	0.0533	0.05	mg/kg	107	90.0 - 110	126743950
Selenium, Total	0.0542	0.05	mg/kg	108	90.0 - 110	126743959
Zinc, Total	0.050	0.05	mg/kg	100	90.0 - 110	126743946
Zinc, Total	0.0475	0.05	mg/kg	95.0	90.0 - 110	126743950
Zinc, Total	0.0467	0.05	mg/kg	93.4	90.0 - 110	126743959

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Cadmium, Total	0.0501	0.05	mg/kg	100	90.0 - 110	126743940
Chromium, Total	0.0482	0.05	mg/kg	96.4	90.0 - 110	126743940
Lead, Total	0.0495	0.05	mg/kg	99.0	90.0 - 110	126743940
Molybdenum, Total	0.0502	0.05	mg/kg	100	90.0 - 110	126743940
Selenium, Total	0.0503	0.05	mg/kg	101	90.0 - 110	126743940
Zinc, Total	0.0497	0.05	mg/kg	99.4	90.0 - 110	126743940

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Cadmium, Total	1136861	1.26	1.19	1.25	80.0 - 120	101	95.2	mg/kg	5.71	20.0
Chromium, Total	1136861	2.53	2.41	2.50	80.0 - 120	101	96.4	mg/kg	4.86	20.0
Lead, Total	1136861	2.45	2.33	2.50	80.0 - 120	98.0	93.2	mg/kg	5.02	20.0
Molybdenum, Total	1136861	2.45	2.35	2.50	80.0 - 120	98.0	94.0	mg/kg	4.17	20.0
Selenium, Total	1136861	2.52	2.43	2.50	80.0 - 120	101	97.2	mg/kg	3.64	20.0
Zinc, Total	1136861	2.39	2.28	2.50	80.0 - 120	95.6	91.2	mg/kg	4.71	20.0

LDR

Parameter	Reading	Known	Units	Recover%	Limits%	File

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LDR

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
Cadmium, Total	9.39	10	mg/kg	93.9	90.0 - 110	126743945
Chromium, Total	9.31	10	mg/kg	93.1	90.0 - 110	126743945
Lead, Total	0.982	1	mg/kg	98.2	90.0 - 110	126743944
Molybdenum, Total	0.985	1	mg/kg	98.5	90.0 - 110	126743944
Selenium, Total	9.76	10	mg/kg	97.6	90.0 - 110	126743945
Zinc, Total	9.05	10	mg/kg	90.5	90.0 - 110	126743945

MSD

Parameter	*Sample*	*MS*	*MSD*	*UNK*	*Known*	*Limits*	*MS%*	*MSD%*	*Units*	*RPD*	*Limit%*
Cadmium, Total	2330210	5.57	5.58	0.00661	6.13	86.3 - 114	91.2	91.4	mg/kg	0.180	20.0
Chromium, Total	2330210	11.2	11.4	0.336	12.3	80.1 - 122	89.0	90.7	mg/kg	1.82	20.0
Lead, Total	2330210	11.1	11.2	0.163	12.3	78.8 - 123	89.6	90.5	mg/kg	0.910	20.0
Molybdenum, Total	2330210	10.8	10.8	0.0602	12.3	62.9 - 137	88.0	88.0	mg/kg	0	20.0
Selenium, Total	2330210	11.3	11.4	0.203	12.3	63.9 - 122	91.0	91.8	mg/kg	0.897	20.0
Zinc, Total	2330210	21.8	22.4	11.5	12.3	28.6 - 157	84.4	89.3	mg/kg	5.66	20.0

Analytical Set 1137960 — EPA 6010C

Blank

Parameter	*PrepSet*	*Reading*	*MDL*	*MQL*	*Units*	*File*
Arsenic	1136861	ND	0.014	0.050	mg/kg	126765410
Copper	1136861	ND	0.00321	0.025	mg/kg	126765410
Nickel	1136861	ND	0.00409	0.025	mg/kg	126765410

CCV

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
Arsenic	2.59	2.50	mg/kg	104	90.0 - 110	126765330
Arsenic	2.60	2.50	mg/kg	104	90.0 - 110	126765331
Arsenic	2.57	2.50	mg/kg	103	90.0 - 110	126765383
Arsenic	2.58	2.50	mg/kg	103	90.0 - 110	126765392
Arsenic	2.58	2.50	mg/kg	103	90.0 - 110	126765401
Arsenic	2.57	2.50	mg/kg	103	90.0 - 110	126765411
Arsenic	2.59	2.50	mg/kg	104	90.0 - 110	126765419
Arsenic	2.56	2.50	mg/kg	102	90.0 - 110	126765429
Copper	2.55	2.50	mg/kg	102	90.0 - 110	126765330
Copper	2.53	2.50	mg/kg	101	90.0 - 110	126765383
Copper	2.54	2.50	mg/kg	102	90.0 - 110	126765392
Copper	2.54	2.50	mg/kg	102	90.0 - 110	126765401
Copper	2.53	2.50	mg/kg	101	90.0 - 110	126765411
Copper	2.54	2.50	mg/kg	102	90.0 - 110	126765419
Copper	2.53	2.50	mg/kg	101	90.0 - 110	126765429
Nickel	2.54	2.50	mg/kg	102	90.0 - 110	126765330
Nickel	2.47	2.50	mg/kg	98.8	90.0 - 110	126765383
Nickel	2.48	2.50	mg/kg	99.2	90.0 - 110	126765392
Nickel	2.48	2.50	mg/kg	99.2	90.0 - 110	126765401
Nickel	2.48	2.50	mg/kg	99.2	90.0 - 110	126765411

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CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Nickel	2.48	2.50	mg/kg	99.2	90.0 - 110	126765419
Nickel	2.48	2.50	mg/kg	99.2	90.0 - 110	126765429

ICL

Parameter	Reading	Known	Units	Recover%	Limits%	File
Arsenic	5.00	5.00	mg/kg	100	95.0 - 105	126765324
Copper	4.89	5.00	mg/kg	97.8	95.0 - 105	126765324
Nickel	4.81	5.00	mg/kg	96.2	95.0 - 105	126765324

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Arsenic	2.52	2.50	mg/kg	101	90.0 - 110	126765328
Copper	2.52	2.50	mg/kg	101	90.0 - 110	126765328
Nickel	2.49	2.50	mg/kg	99.6	90.0 - 110	126765328

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Arsenic	1136861	2.38	2.37	2.50	84.7 - 113	95.2	94.8	mg/kg	0.421	25.0
Copper	1136861	2.53	2.50	2.50	83.8 - 115	101	100	mg/kg	1.19	25.0
Nickel	1136861	2.46	2.43	2.50	88.3 - 113	98.4	97.2	mg/kg	1.23	25.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Arsenic	2330210	11.6	11.7	0.146	12.3	77.7 - 119	93.9	94.7	mg/kg	0.869	25.0
Copper	2330210	18.4	18.5	6.18	12.3	75.8 - 122	100	101	mg/kg	0.815	25.0
Nickel	2330210	11.8	11.9	0.0153	12.3	91.0 - 115	96.6	97.4	mg/kg	0.845	25.0

Analytical Set 1137396 EPA 8082

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
PCB-1016	1136619	ND	43.0	250	ug/kg	126751601
PCB-1221	1136619	ND	43.0	250	ug/kg	126751601
PCB-1232	1136619	ND	43.0	250	ug/kg	126751601
PCB-1242	1136619	ND	43.0	250	ug/kg	126751601
PCB-1248	1136619	ND	43.0	250	ug/kg	126751601
PCB-1254	1136619	ND	43.0	250	ug/kg	126751601
PCB-1260	1136619	ND	43.0	250	ug/kg	126751601
PCB-1262	1136619	ND	78.3	250	ug/kg	126751601
PCB-1268	1136619	ND	78.3	250	ug/kg	126751601

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
PCB-1016	1100	1000	ug/kg	110	80.0 - 115	126751600
PCB-1016	929	1000	ug/kg	92.9	80.0 - 115	126751605
PCB-1260	1120	1000	ug/kg	112	80.0 - 115	126751600
PCB-1260	969	1000	ug/kg	96.9	80.0 - 115	126751605

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QUALITY CONTROL

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LCS Dup

Parameter	*PrepSet*	*LCS*	*LCSD*	*Known*	*Limits%*	*LCS%*	*LCSD%*	*Units*	*RPD*	*Limit%*
PCB-1016	1136619	3260	3420	5000	39.8 - 135	65.2	68.4	ug/kg	4.79	30.0
PCB-1260	1136619	2850	3030	5000	36.1 - 134	57.0	60.6	ug/kg	6.12	30.0

Surrogate

Parameter	*Sample*	*Type*	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
Decachlorobiphenyl	1136619	Blank	55.3	100	ug/kg	55.3	10.0 - 200	126751601
Tetrachloro-m-Xylene (Surr)	1136619	Blank	48.7	100	ug/kg	48.7	10.0 - 200	126751601
Decachlorobiphenyl	2330222	Unknown	19.8	50.0	ug/kg	39.6	10.0 - 200	126751604
Tetrachloro-m-Xylene (Surr)	2330222	Unknown	11.6	50.0	ug/kg	23.2	10.0 - 200	126751604

* Out RPD is Relative Percent Difference: abs(r1-r2) / mean(r1,r2) * 100% Recover% is Recovery Percent: result / known * 100%

Blank - Method Blank (reagent water or other blank matrices that contains all reagents except standard(s) and is processed simultaneously with and under the same conditions as samples; carried through preparation and analytical procedures exactly like a sample; monitors); CCV - Continuing Calibration Verification (same standard used to prepare the curve; typically a mid-range concentration; verifies the continued validity of the calibration curve); LCS Dup - Laboratory Control Sample Duplicate (replicate LCS; analyzed when there is insufficient sample for duplicate or MSD; quantifies accuracy and precision.); MSD - Matrix Spike Duplicate (replicate of the matrix spike; same solution and amount of target analyte added to the MS is added to a third aliquot of sample; quantifies matrix bias and precision.); ICV - Initial Calibration Verification; BFB - Bromofluorobenzene, GC/MS Tuning Compound (mass intensity used as tuning acceptance criteria.); Surrogate - Surrogate (mimics the analyte of interest but is unlikely to be found in environmental samples; added to analytical samples for QC purposes. **ANSI/ASQC E4 1994 Ref #4 TRADE QA Resources Guide.); IS Areas - Internal Standard Area (The area of the internal stadard relative to a check standard. Internal Standard is a known concentration of an analyte(s) that is not a sample component or standard that is added to the sample and standard and is used to measure the relative responses of other analytes in the same sample or standard.); IS RetTime - Internal Standard Retention Time (the time the internal standard comes off the column. Internal Stardard is a known concentration of an analyte(s) that is not a sample component or standard that is added to the sample and standard and is used to measure the relative responses of other analytes in the same sample or standard.); LDR - Linear Dynamic Range Standard; MS - Matrix Spike (same solution and amount of target analyte added to the LCS is added to a second aliquot of sample; quantifies matrix bias.); DFTPP - GC/MS Tuning Compound

1116357 CoC Print Group 001 of 001

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Austin, TX 78744
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Chain-of-Custody & Analysis Request

T104704371

SHIPPED TO:
SPL-Kilgore (T104704201)
2600 Dudley Road
Kilgore, TX 75662
Phone: (903) 984-0551
Fax: (903) 984-5914

C-O-C #

228 - H028340

All analyses must be performed by a TNI approved method certified by the TCEQ. Contact ATL's sample custodian via voice and email if your methods do not meet this criteria.

Analysis Request for:	Sample ID: H028340-01	Sampled: 08/29/24 13:01	Matrix: Non Potable	Laboratory ID >> 2330220
TCLP Pesticides - EPA 8081A	TCLP Herbicides - EPA 8151	TCLP Volatiles - EPA 8260B	TCLP SemiVol - EPA 8270C	
TCLP EXT Metals - SW-846 131	TCLP EXT Non-Vol - SW-846 131	TCLP EXT Vol - SW-846 131	TCLP Metals (7) - SW-846 6020	
TCLP Hg - SW-846 7470A				
Analysis Request for:	Sample ID: H028340-02	Sampled: 08/29/24 13:01	Matrix: Solid	Laboratory ID >> 2330222
Solids, Percent - % calculation	NH3N SL SUB - EPA 350.1 R2.0	NO3N + NO2N SL - EPA 353.2	K - EPA 6010B 1996	
Mo SL - EPA 6010B 1996	P - EPA 6010B 1996	As SL - EPA 6020A	Cd SL - EPA 6020A	
Cr SL - EPA 6020A	Cu SL - EPA 6020A	Ni SL - EPA 6020A	Pb SL - EPA 6020A	
Se SL - EPA 6020A	Zn SL - EPA 6020A	TS - SM2540 G 2011	NO2N - SM4500 NO2- B, 2000	
PCB - SW846 8082				
Analysis Request for:	Sample ID: H028340-03	Sampled: 08/29/24 13:01	Matrix: Solid	Laboratory ID >>
Solids, Percent - % calculation				
Analysis Request for:	Sample ID: H028340-04	Sampled: 09/05/24 00:00	Matrix: Solid	Laboratory ID >>
Solids, Percent - % calculation				
Analysis Request for:	Sample ID: H028340-05	Sampled: 09/05/24 00:00	Matrix: Solid	Laboratory ID >>
Solids, Percent - % calculation				
Analysis Request for:	Sample ID: H028340-06	Sampled: 09/05/24 00:00	Matrix: Solid	Laboratory ID >>
Solids, Percent - % calculation				
Analysis Request for:	Sample ID: H028340-07	Sampled: 09/05/24 00:00	Matrix: Solid	Laboratory ID >>
Solids, Percent - % calculation				
Analysis Request for:	Sample ID: H028340-08	Sampled: 09/05/24 00:00	Matrix: Solid	Laboratory ID >>
Solids, Percent - % calculation				
Analysis Request for:	Sample ID: H028340-09	Sampled: 09/05/24 00:00	Matrix: Solid	Laboratory ID >>
Solids, Percent - % calculation				

AQUA-TECH LABORATORIES, INC.

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Chain-of-Custody & Analysis Request

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T104704371

C-O-C #

228 - H028340

All analyses must be performed by a TNI approved method certified by the TCEQ. Contact ATL's sample custodian via voice and email if your methods do not meet this criteria.

CONTAINERS SUPPLIED: (ATL indicates cooler number in parentheses for each container - only required if more than one cooler listed below.)

( ) H028340-01 [A] - TCLP FULL 1LG	( ) H028340-01 [B] - TCLP FULL 1LG	( ) H028340-01 [C] - TCLP FULL 1LG
( ) H028340-01 [D] - TCLP FULL 1LG		
( ) H028340-02 [A] - Metals 0.25LP	( ) H028340-02 [C] - Sludge Nutrients 0.25LP	( ) H028340-02 [E] - [SUB] ANA PCB 0.33LG

See next page(s) for list of analytes requested.

Relinquished by: (print & sign) [X] ATL-Austin [ ] ATL - Bryan [ ] Sampler Suzanne Rudd			Date: 8/29/24	Time: 1625	[X] Iced [X] Custody Sealed [ ] Not Chilled
Carrier & Tracking Number: Fed Ex	Cooler 1: AQU1				Sample Info "X" all that apply
Received by: (print & sign) [✓] Received in Lab Rayshawn Thompson SPL, Inc.			Date:	Time:	[ ] Received Iced [ ] CTU [ ] Condition Good [ ] Not Rec'd Iced
Line below documents condition at receipt in lab (shipped to) listed above.				Please email reports to: reporting@aqua-techlabs.com	
Cooler Temperature (°C)	Temp. Read (TR)	Corrected Temp. (CT)	Thermometer ID		
Cooler 1				Please return cooler(s) to: Austin Facility	
N/A	N/A	N/A			

Abbreviations: DW - Drinking Water; NP - Non-Potable Water; S - Solid; CTU - Custody Transfer Unbroken; STP - Sterile Plastic; LP - Liter Plastic; LG - Liter Glass

Aqua-Tech Comments and Special Instructions

Use sample ID as PO#

Need new 2010 MALs. Please J Flag metals < MRL & note all metals < MDL on reports.

Do not further sub-contract any analysis.
Keep in house or call for further instructions.

AQUA-TECH LABORATORIES, INC.

ATL - Bryan Facility:
635 Phil Gramm Blvd.
Bryan, TX 77807
(979) 778-3707
Fax (979) 778-3193

ATL - Austin Facility:
3512 Montopolis Drive
Austin, TX 78744
(512) 301-9559
Fax (512) 301-9552

Chain-of-Custody & Analysis Request

C:\ELMNT\Print\sco_ATL 022924.rpt

T104704371

C-O-C #

228 - H028340

All analyses must be performed by a TNI approved method certified by the TCEQ. Contact ATL's sample custodian via voice and email if your methods do not meet this criteria.

Analytes Requested for Multiple Component Tests

H028340-01

TCLP Herbicides EPA 8151

2,4,5-TP (Silvex) | 2,4-D

TCLP Hg SW-846 7470A

Mercury

TCLP Metals (7) SW-846 6020

Arsenic	Barium	Cadmium	Chromium
Lead	Selenium	Silver	

TCLP Pesticides EPA 8081A

Chlordane	Endrin	gamma-BHC (Lindane)	Heptachlor
Heptachlor epoxide	Methoxychlor	Toxaphene	

TCLP SemiVol EPA 8270C

2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dinitrotoluene	3&4-Methylphenol (m&p-Cresol)
Bis(2-chloroethyl)ether	Cresol(s)	Hexachlorobenzene	Hexachlorobutadiene
Hexachloroethane	Nitrobenzene	o-Cresol	Pentachlorophenol
Pyridine			

TCLP Volatiles EPA 8260B

1,1-Dichloroethene	1,2-Dichloroethane	1,4-Dichlorobenzene	Benzene
Carbon tetrachloride	Chlorobenzene	Chloroform	Methyl Ethyl Ketone (2-Butanone)
Tetrachloroethylene	Trichloroethylene	Vinyl chloride	

H028340-02

As SL EPA 6020A

Arsenic

Cd SL EPA 6020A

Cadmium

Cr SL EPA 6020A

Chromium

Cu SL EPA 6020A

Copper

K EPA 6010B 1996

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Austin, TX 78744
(512) 301-9559
Fax (512) 301-9552

Chain-of-Custody & Analysis Request

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T104704371

C-O-C #

228 - H028340

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Analytes Requested for Multiple Component Tests

Potassium

Mo SL EPA 6010B 1996
Molybdenum

NH3N SL SUB EPA 350.1 R2.0
Ammonia as N

Ni SL EPA 6020A
Nickel

NO2N SM4500 NO2- B, 2000
Nitrite as N

NO3N + NO2N SL EPA 353.2
Nitrate/Nitrite as N

P EPA 6010B 1996
Phosphorus-Total

Pb SL EPA 6020A
Lead

PCB SW846 8082

PCB-1016	PCB-1221	PCB-1232	PCB-1242
PCB-1248	PCB-1254	PCB-1260	

Se SL EPA 6020A
Selenium

Solids, Percent % calculation
% Solids

TS SM2540 G 2011
Total Solids

Zn SL EPA 6020A
Zinc

H028340-03

Solids, Percent % calculation
% Solids

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Chain-of-Custody & Analysis Request

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T104704371

C-O-C #

228 - H028340

All analyses must be performed by a TNI approved method certified by the TCEQ. Contact ATL's sample custodian via voice and email if your methods do not meet this criteria.

Analytes Requested for Multiple Component Tests

H028340-04

Solids, Percent % calculation
% Solids

H028340-05

Solids, Percent % calculation
% Solids

H028340-06

Solids, Percent % calculation
% Solids

H028340-07

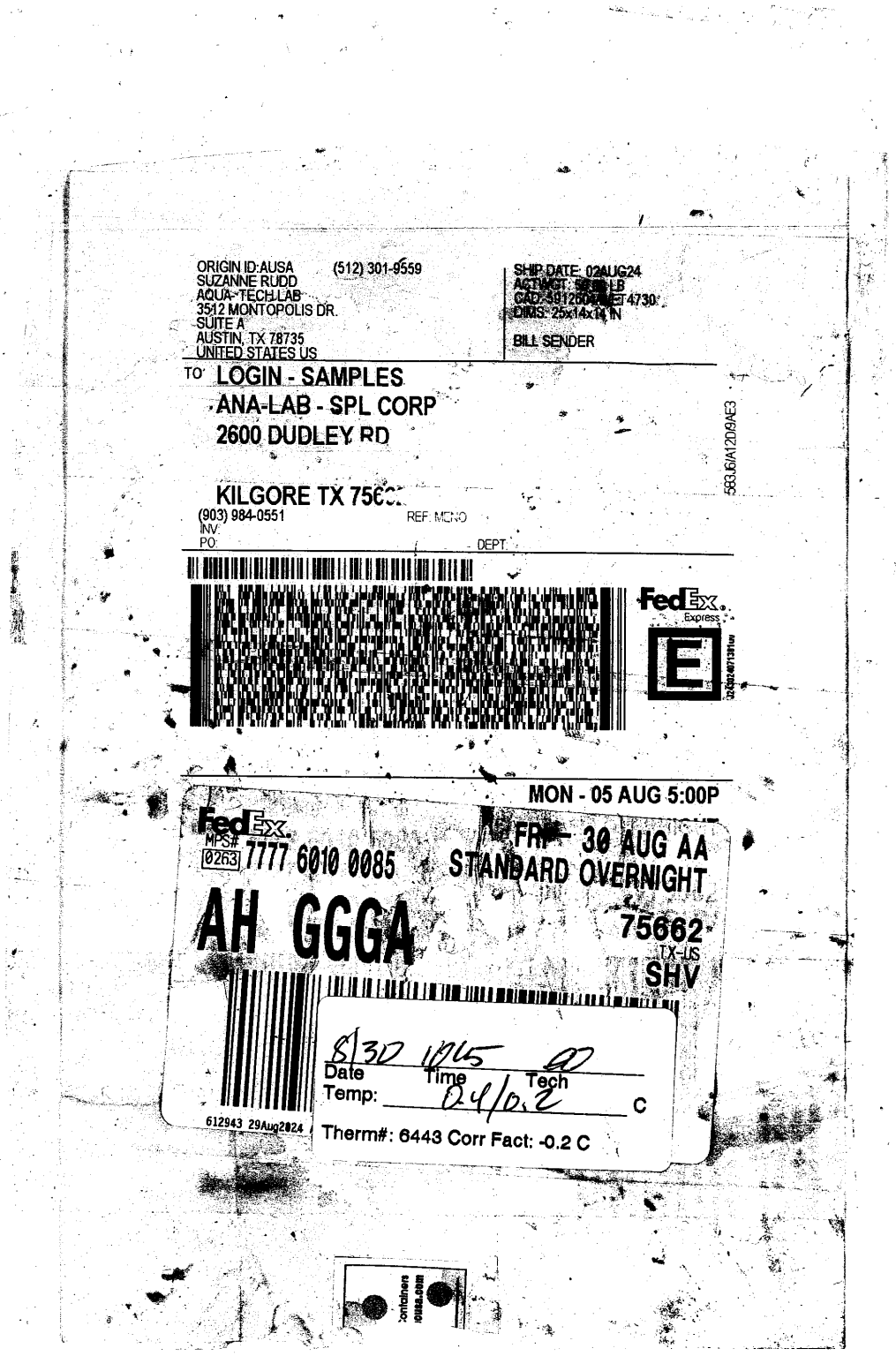
Solids, Percent % calculation
% Solids

H028340-08

Solids, Percent % calculation
% Solids

H028340-09

Solids, Percent % calculation
% Solids


ORIGIN ID:AUSA (512) 301-9559
SUZANNE RUDD
AQUA-TECH LAB
3512 MONTOPOLIS DR.
SUITE A
AUSTIN, TX 78735
UNITED STATES US
SHIP DATE: 02AUG24
BILL SENDER
TO LOGIN - SAMPLES
ANA-LAB - SPL CORP
2600 DUDLEY RD
KILGORE TX 756
(903) 984-0551
INV:
PO:
DEPT:
FedEx Express
MON - 05 AUG 5:00P
FedEx
MPS# 0263 7777 6010 0085
FRI 30 AUG AA
STANDARD OVERNIGHT
AH GGGA
75662
TX-US
SHV
8/30 1145
Date Time Tech
Temp: 04/0.2 C
Therm#: 6443 Corr Fact: -0.2 C
612943 29Aug2024

1116357 CoC Print Group 001 of 001

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1. Use the 'Print' button on this page to print your label to your laser or inkjet printer.
2. Fold the printed page along the horizontal line.
3. Place label in shipping pouch and affix it to your shipment so that the barcode portion of the label can be read and scanned.

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Project
1116350

AQU1-G

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
Bryan, TX 77807-9104

Printed 09/16/2024
12:58

TABLE OF CONTENTS

H028341

This report consists of this Table of Contents and the following pages:

Report Name	Description	Pages
1116350_r02_01_ProjectSamples	SPL Kilgore Project P:1116350 C:AQU1 Project Sample Cross Reference t:304	2
1116350_r03_03_ProjectResults	SPL Kilgore Project P:1116350 C:AQU1 Project Results t:304 PO: H028341	8
1116350_r03_06_A_ProjectTRRP	SPL Kilgore Project P:1116350 C:AQU1 Project TRRP Results Report for Class A	2
1116350_r03_06_D_ProjectTRRP	SPL Kilgore Project P:1116350 C:AQU1 Project TRRP Results Report for Class D	2
1116350_r03_06_G_ProjectTRRP	SPL Kilgore Project P:1116350 C:AQU1 Project TRRP Results Report for Class G	2
1116350_r03_06_I_ProjectTRRP	SPL Kilgore Project P:1116350 C:AQU1 Project TRRP Results Report for Class I	2
1116350_r03_06_M_ProjectTRRP	SPL Kilgore Project P:1116350 C:AQU1 Project TRRP Results Report for Class M	4
1116350_r03_06_O_ProjectTRRP	SPL Kilgore Project P:1116350 C:AQU1 Project TRRP Results Report for Class O	4
1116350_r10_05_ProjectQC	SPL Kilgore Project P:1116350 C:AQU1 Project Quality Control Groups	18
1116350_r99_09_CoC__1_of_1	SPL Kilgore CoC AQU1 1116350_1_of_1	7
	Total Pages:	51

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SAMPLE CROSS REFERENCE

Project
1116350

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
Bryan, TX 77807-9104

Sample	Sample ID	Taken	Time	Received
2330205	*H028341-01*	08/29/2024	15:35:00	08/30/2024

Bottle 01 Client Supplied Amber Glass
Bottle 02 Client Supplied Amber Glass
Bottle 03 Client Supplied Amber Glass
Bottle 04 Client Supplied Amber Glass
Bottle 05 Prepared Bottle: TCLP Extract (Batch 1136321) Volume: 2000.00000 mL <== Derived from 01 (100 ml)
Bottle 06 Prepared Bottle: TCLP Extract for Metals (Batch 1136321) Volume: 100.00000 mL <== Derived from 01 (300 ml)
Bottle 07 Prepared Bottle: TCLP Extract for TABN/TCYH (Batch 1136321) Volume: 2000.00000 mL <== Derived from 01 (100 ml)
Bottle 08 Prepared Bottle: TCLP Extract for TVOA (Batch 1136385)<== Derived from 01 (0 ml)
Bottle 09 Prepared Bottle: TEDLAR BAG (Batch 1136385) Volume: 300.00000 mL <== Derived from 01 (300 ml)
Bottle 10 Prepared Bottle: TCLP Acid Mercury Digestion (Batch 1136510) Volume: 50.00000 mL <== Derived from 06 (2.5 ml)
Bottle 11 Prepared Bottle: 2 mL Autosampler Vial (Batch 1136389) Volume: 1.00000 mL <== Derived from 07 (100 ml)
Bottle 12 Prepared Bottle: TCLP Acid Digestion (Batch 1136589) Volume: 50.00000 mL <== Derived from 06 (10 ml)
Bottle 13 Prepared Bottle: TCLP Acid Digestion (Batch 1136589) Volume: 50.00000 mL <== Derived from 06 (10 ml)
Bottle 14 Prepared Bottle: TCLP Acid Digestion (Batch 1136589) Volume: 50.00000 mL <== Derived from 06 (10 ml)
Bottle 15 Prepared Bottle: TG80 2 mL Autosampler Vial (Batch 1136620) Volume: 10.00000 mL <== Derived from 07 (200 ml)
Bottle 16 Prepared Bottle: 2 mL Autosampler Vial (Batch 1137054) Volume: 10.00000 mL <== Derived from 07 (1 ml)
Bottle 17 Prepared Bottle: 2 mL Autosampler Vial (Batch 1137658) Volume: 1.00000 mL <== Derived from 07 (100 ml)
Bottle 18 Prepared Bottle: 2 mL Autosampler Vial (Batch 1137658) Volume: 1.00000 mL <== Derived from 07 (100 ml)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 6010C	12	1136589	09/04/2024	1136705	09/04/2024
EPA 7470 A	10	1136510	09/04/2024	1136608	09/04/2024
EPA 8260B	09	1136385	09/03/2024	1136745	09/04/2024
EPA 8081A	15	1136620	09/04/2024	1137319	09/05/2024
EPA 8270C	17	1137658	09/11/2024	1138101	09/12/2024
EPA 8151	16	1137054	09/06/2024	1137620	09/10/2024

Sample	Sample ID	Taken	Time	Received
2330210	*H028341-02*	08/29/2024	13:30:00	08/30/2024

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SAMPLE CROSS REFERENCE

Project
1116350

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
Bryan, TX 77807-9104

Bottle 01 Client Supplied Amber Glass
Bottle 02 Client supplied plastic
Bottle 03 Client supplied plastic
Bottle 04 Prepared Bottle: 2 mL Glass vial (Batch 1136320) Volume: 50.00000 mL <== Derived from 03 (5.0 grams)
Bottle 05 Prepared Bottle: Mercury Preparation for Metals (Batch 1136476) Volume: 50.00000 mL <== Derived from 02 (0.5 grams)
Bottle 06 Prepared Bottle: NH3N TRAACS Autosampler Vial (Batch 1136490) Volume: 6.00000 mL <== Derived from 03 (0.5 grams)
Bottle 07 Prepared Bottle: NH3N TRAACS Autosampler Vial (Batch 1136490) Volume: 6.00000 mL <== Derived from 03 (0.5 grams)
Bottle 08 Prepared Bottle: NH3N TRAACS Autosampler Vial (Batch 1136490) Volume: 6.00000 mL <== Derived from 03 (0.5 grams)
Bottle 09 Prepared Bottle: ICP Preparation for Metals (Batch 1136861) Volume: 50.00000 mL <== Derived from 01 (10.1 grams)
Bottle 10 Prepared Bottle: ICP Preparation for Metals (Batch 1136861) Volume: 50.00000 mL <== Derived from 01 (10.2 grams)
Bottle 11 Prepared Bottle: ICP Preparation for Metals (Batch 1136861) Volume: 50.00000 mL <== Derived from 01 (10.2 grams)

Method	Bottle	PrepSet	Preparation	QcGroup	Analytical
EPA 9056	04	1136320	09/03/2024	1136551	09/04/2024
EPA 6010C	09	1136861	09/05/2024	1137960	09/12/2024
EPA 6020A	09	1136861	09/05/2024	1137141	09/06/2024
EPA 7471B 2	05	1136476	09/04/2024	1136606	09/04/2024
EPA 6010C	09	1136861	09/05/2024	1137019	09/06/2024
EPA 6010C	09	1136861	09/05/2024	1137010	09/06/2024
EPA 350.1 2	06	1136490	09/04/2024	1137361	09/09/2024
SM 2540 G-1997	01	1136752	09/04/2024	1136752	09/04/2024

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Project
1116350

Printed: 09/16/2024

H028341

RESULTS

Sample Results

2330205 H028341-01

Received: 08/30/2024

Non-Potable Water | Collected by: Client | AquaTech Laboratorie | PO: H028341

Taken: 08/29/2024 15:35:00

EPA 6010C Prepared: 1136589 09/04/2024 11:15:00 Analyzed 1136705 09/04/2024 15:52:00 CAS

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	TCLP Arsenic	<0.0745	mg/L	0.0745		7440-38-2	12
NELAC	TCLP Barium	<0.0051	mg/L	0.0051		7440-39-3	12
NELAC	TCLP Cadmium	<0.007	mg/L	0.007		7440-43-9	12
NELAC	TCLP Chromium	<0.00875	mg/L	0.00875		7440-47-3	12
NELAC	TCLP Lead	<0.073	mg/L	0.073		7439-92-1	12
NELAC	TCLP Selenium	<0.141	mg/L	0.141		7782-49-2	12
NELAC	TCLP Silver	<0.0104	mg/L	0.0104		7440-22-4	12

EPA 7470 A Prepared: 1136510 09/04/2024 09:15:00 Analyzed 1136608 09/04/2024 13:20:00 ESG

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	TCLP Mercury	<0.00113	mg/L	0.00113		7439-97-6	10

EPA 8081A Prepared: 1136620 09/04/2024 14:00:00 Analyzed 1137319 09/05/2024 23:08:00 KAP

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	TCLP Chlordane	<0.001	mg/L	0.001		57-74-9	15
NELAC	TCLP Endrin	<0.00005	mg/L	0.00005		72-20-8	15
NELAC	TCLP gamma-BHC (Lindane)	<0.00005	mg/L	0.00005		58-89-9	15
NELAC	TCLP Heptachlor	0.000012	mg/L	0.00005	J	76-44-8	15
NELAC	TCLP Heptachlor Epoxide	<0.00005	mg/L	0.00005		1024-57-3	15
NELAC	TCLP Methoxychlor	<0.00005	mg/L	0.00005		72-43-5	15
NELAC	TCLP Toxaphene	<0.001	mg/L	0.001		8001-35-2	15

EPA 8151 Prepared: 1137054 09/06/2024 13:00:00 Analyzed 1137620 09/10/2024 19:45:00 KAP

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	TCLP 2,4 D	<0.500	mg/L	0.500		94-75-7	16
NELAC	TCLP 2,4,5-TP (Silvex)	<0.300	mg/L	0.300		93-72-1	16

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Project 1116350

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John Brien
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Bryan, TX 77807-9104

Printed: 09/16/2024

2330205 **H028341-01** Received: 08/30/2024

Non-Potable Water | Collected by: Client | AquaTech Laboratorie | PO: H028341
Taken: 08/29/2024 15:35:00

EPA 8260B — Prepared: 1136385 09/03/2024 14:15:00 — Analyzed 1136745 09/04/2024 11:28:00 MR1

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	TCLP 1,1-Dichloroethene	<0.010	mg/L	0.010		75-35-4	09
NELAC	TCLP 1,2-Dichloroethane	<0.010	mg/L	0.010		107-06-2	09
NELAC	TCLP 1,4 Dichlorobenzene	<0.010	mg/L	0.010		106-46-7	09
NELAC	TCLP Benzene	<0.010	mg/L	0.010		71-43-2	09
NELAC	TCLP Carbon tetrachloride	<0.010	mg/L	0.010		56-23-5	09
NELAC	TCLP Chlorobenzene	<0.010	mg/L	0.010		108-90-7	09
NELAC	TCLP Chloroform	<0.010	mg/L	0.010		67-66-3	09
NELAC	TCLP MEK	<0.010	mg/L	0.010		78-93-3	09
NELAC	TCLP Tetrachloroethylene	<0.010	mg/L	0.010		127-18-4	09
NELAC	TCLP Trichloroethylene	<0.010	mg/L	0.010		79-01-6	09
NELAC	TCLP Vinyl chloride	<0.010	mg/L	0.010		75-01-4	09

EPA 8270C — Prepared: 1137658 09/11/2024 11:00:00 — Analyzed 1138101 09/12/2024 19:38:00 PM1

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	TCLP 2,4,5-Trichlorophenol	<0.010	mg/L	0.010		95-95-4	17
NELAC	TCLP 2,4,6-Trichlorophenol	<0.010	mg/L	0.010		88-06-2	17
NELAC	TCLP 2,4-Dinitrotoluene	<0.035	mg/L	0.035		121-14-2	17
NELAC	TCLP 2-Methylphenol (o-Cresol)	<0.052	mg/L	0.052		95-48-7	17
NELAC	TCLP 3&4-Methylphenol (m&p-Creso	<0.062	mg/L	0.062		108-39-4	17
NELAC	TCLP bis(2-Chloroethyl)ether	<0.010	mg/L	0.010		111-44-4	17
NELAC	TCLP Hexachlorobenzene	<0.010	mg/L	0.010		118-74-1	17
NELAC	TCLP Hexachlorobutadiene	<0.010	mg/L	0.010		87-68-3	17
NELAC	TCLP Hexachloroethane	<0.010	mg/L	0.010		67-72-1	17
NELAC	TCLP Nitrobenzene	<0.010	mg/L	0.010		98-95-3	17
NELAC	TCLP Pentachlorophenol	<0.010	mg/L	0.010		87-86-5	17
NELAC	TCLP Pyridine (Reg. Limit 5)	<0.054	mg/L	0.054		110-86-1	17

EPA 8270C — Prepared: 1137658 09/11/2024 11:00:00 — Calculated 1138101 09/16/2024 12:44:28 CAL

	Parameter	Results	Units	RL	Flags	CAS	Bottle
z	TCLP Total Cresols (Reg Lim 200)	<0.062	mg/L	0.062		108-39-4,ect.	17

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AquaTech Laboratories
John Brien
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Bryan, TX 77807-9104

Project
1116350

Printed: 09/16/2024

2330210 **H028341-02** Received: 08/30/2024

Solid & Chemical Materials | Collected by: Client | AquaTech Laboratorie | PO: H028341
Taken: 08/29/2024 13:30:00

Prepared: 09/16/2024 12:51:00 Analyzed 09/16/2024 12:51:00 WJP

	Parameter	Results	Units	RL	Flags	CAS	Bottle
z	**Check Limits**	**Completed**					

EPA 350.1 2 Prepared: 1136490 09/04/2024 08:33:57 Analyzed 1137361 09/09/2024 09:38:00 AMB

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	**Ammonia Nitrogen**	**6900 ***	**mg/kg**	194	P		06

* Dry Weight Basis

EPA 6010C Prepared: 1136861 09/05/2024 15:00:00 Analyzed 1137010 09/06/2024 08:39:00 CAS

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	**Phosphorus**	**10600 ***	**mg/kg**	202		**7723-14-0**	09

EPA 6010C Prepared: 1136861 09/05/2024 15:00:00 Analyzed 1137019 09/06/2024 08:41:00 CAS

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	**Potassium**	**4570 ***	**mg/kg**	1010		**7440-09-7**	09

EPA 6010C Prepared: 1136861 09/05/2024 15:00:00 Analyzed 1137960 09/12/2024 22:06:00 CAS

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	**Arsenic**	**<28.4 ***	**mg/kg**	28.4		**7440-38-2**	09
NELAC	**Copper**	**507 ***	**mg/kg**	50.6		**7440-50-8**	09

* Dry Weight Basis

EPA 6020A Prepared: 1136861 09/05/2024 15:00:00 Analyzed 1137141 09/06/2024 12:29:00 JC2

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	**Cadmium, Total**	**0.542 ***	**mg/kg**	2.02	J	**7440-43-9**	09
NELAC	**Chromium, Total**	**27.5 ***	**mg/kg**	2.02		**7440-47-3**	09
NELAC	**Lead, Total**	**13.4 ***	**mg/kg**	2.02		**7439-92-1**	09
NELAC	**Molybdenum, Total**	**4.93 ***	**mg/kg**	6.07	J	**7439-98-7**	09
NELAC	**Nickel, Total**	**13.2 ***	**mg/kg**	2.02		**7440-02-0**	09
NELAC	**Selenium, Total**	**16.6 ***	**mg/kg**	2.02		**7782-49-2**	09
NELAC	**Zinc, Total**	**943 ***	**mg/kg**	20.2		**7440-66-6**	09

* Dry Weight Basis

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Printed: 09/16/2024

2330210 **H028341-02** Received: 08/30/2024

Solid & Chemical Materials | Collected by: Client | AquaTech Laboratorie | PO: H028341
Taken: 08/29/2024 13:30:00

EPA 7471B 2 — Prepared: 1136476 09/04/2024 07:30:00 — Analyzed 1136606 09/04/2024 10:08:00 ESG

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	**Mercury**	**0.576 ***	**mg/kg**	0.789	J	**7439-97-6**	05

* Dry Weight Basis

EPA 9056 — Prepared: 1136320 09/03/2024 11:55:13 — Analyzed 1136551 09/04/2024 04:34:00 TTC

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	**Nitrate-Nitrogen**	**<92.6 ***	**mg/kg**	92.6		**14797-55-8**	04
NELAC	**Nitrite-Nitrogen**	**<125 ***	**mg/kg**	125			04

* Dry Weight Basis

SM 2540 G-1997 — Prepared: 1136752 09/04/2024 06:45:00 — Analyzed 1136752 09/04/2024 06:45:00 BEK

	Parameter	Results	Units	RL	Flags	CAS	Bottle
NELAC	**Total Solids**	**1.22**	**%**	0.100			01

Sample Preparation

2330205 **H028341-01** Received: 08/30/2024

H028341

08/29/2024

Prepared: 09/09/2024 09:05:35 — Calculated 09/09/2024 09:05:35 CAL

z	**Return Cooler with bottles**	**Verified**

EPA 1311 — Prepared: 1136321 09/03/2024 11:35:00 — Analyzed 1136321 09/03/2024 11:35:00 SLF

NELAC	**TCLP Extraction Non-Volatile**	**SOLID EXT 1**	**ml**	01

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2330205 H028341-01 Received: 08/30/2024

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08/29/2024

	EPA 1311ZHE	*Prepared:*	*1136385*	*09/03/2024*	*14:15:00*	*Analyzed*	*1136385*	*09/03/2024*	*14:15:00*	*SLF*
NELAC	**TCLP Extraction ZHE Volatiles**	**100% SOLID**		**ml**						01
	EPA 3005A	*Prepared:*	*1136321*	*09/03/2024*	*11:35:00*	*Analyzed*	*1136589*	*09/04/2024*	*11:15:00*	*TES*
z	**Metals Digestion TCLP Extract**	**50/10**		**ml**						06
	EPA 3510C	*Prepared:*	*1136321*	*09/03/2024*	*11:35:00*	*Analyzed*	*1136389*	*09/04/2024*	*09:00:00*	*CRS*
	TCLP Liquid-Liquid Extract	**1/100**		**ml**						07
	EPA 3510C	*Prepared:*	*1136321*	*09/03/2024*	*11:35:00*	*Analyzed*	*1136620*	*09/04/2024*	*14:00:00*	*CRS*
	TCLP Liq-Liq Extr. W/Hex Exch.	**10/200**		**ml**						07
	EPA 3510C	*Prepared:*	*1136321*	*09/03/2024*	*11:35:00*	*Analyzed*	*1137658*	*09/11/2024*	*11:00:00*	*LSM*
	TCLP Liquid-Liquid Extract	**1/100**		**ml**						07
	EPA 7470A	*Prepared:*	*1136321*	*09/03/2024*	*11:35:00*	*Analyzed*	*1136510*	*09/04/2024*	*09:15:00*	*ALB*
NELAC	**Metals Digestion TCLP 7470**	**50/2.5**		**ml**						06
	EPA 8081A	*Prepared:*	*1136620*	*09/04/2024*	*14:00:00*	*Analyzed*	*1137319*	*09/05/2024*	*23:08:00*	*KAP*
NELAC	**GC TCLP Pesticide**	**Entered**								15
	EPA 8151	*Prepared:*	*1137054*	*09/06/2024*	*13:00:00*	*Analyzed*	*1137620*	*09/10/2024*	*19:45:00*	*KAP*
NELAC	**GC TCLP Herbicide**	**Entered**								16

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EPA 8151A (Prep)	*Prepared:*	*1136321*	*09/03/2024*	*11:35:00*	*Analyzed*	*1137054*	*09/06/2024*	*13:00:00*	*CRS*
NELAC **Esterification of TCLP Extract**	**10/1**	**ml**							07
EPA 8260B	*Prepared:*	*1136385*	*09/03/2024*	*14:15:00*	*Analyzed*	*1136745*	*09/04/2024*	*11:28:00*	*MR1*
NELAC **MS TCLP Volatile Analysis**	**Entered**								09
EPA 8270C	*Prepared:*	*1137658*	*09/11/2024*	*11:00:00*	*Analyzed*	*1138101*	*09/12/2024*	*19:38:00*	*PM1*
NELAC **MS TCLP Semivolatile Analysis**	**Entered**								17

2330210 **H028341-02** *Received:* 08/30/2024

H028341

08/29/2024

Calculation	*Prepared:*		*09/14/2024*	*13:12:51*	*Calculated*		*09/14/2024*	*13:12:51*	*CAL*
As Received to Dry Weight Basis	**Calculated**								
Calculation	*Prepared:*		*09/14/2024*	*13:18:42*	*Calculated*		*09/14/2024*	*13:18:42*	*CAL*
As Received to Dry Weight Basis	**Calculated**								
EPA 3050B	*Prepared:*	*1136861*	*09/05/2024*	*15:00:00*	*Analyzed*	*1136861*	*09/05/2024*	*15:00:00*	*TES*
NELAC **Solid/Sludge/Soil/Sediment Metal**	**50/10.13**	**grams**							01

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2330210 **H028341-02** *Received:* 08/30/2024

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EPA 350.1 2	*Prepared:*	*1136490*	*09/04/2024*	*08:33:57*	*Analyzed*	*1136490*	*09/04/2024*	*08:33:57*	*MEG*	
NELAC	**Ammonia Distillation**	**6/0.5058**	**grams**							03
EPA 7471B	*Prepared:*	*1136476*	*09/04/2024*	*07:30:00*	*Analyzed*	*1136476*	*09/04/2024*	*07:30:00*	*ALB*	
NELAC	**Solid Metals Digestion Hg**	**50/0.5200**	**grams**							02
EPA 9056	*Prepared:*	*1136320*	*09/03/2024*	*11:55:13*	*Analyzed*	*1136320*	*09/03/2024*	*11:55:13*	*PEV*	
	Water Extract-Ion Chromatography	**50/5.01**	**grams**							03
SM 2540 G-1997	*Prepared:*	*1136470*	*09/04/2024*	*06:45:00*	*Analyzed*	*1136470*	*09/04/2024*	*06:45:00*	*BEK*	
NELAC	**Total Solids Start**	**Started**								

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Qualifiers:

J - Analyte detected below quantitation limit

P - Spike recovery outside control limits due to matrix effects.

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RL is the Reporting Limit (sample specific quantitation limit) and is at or above the Method Detection Limit (MDL). CAS is Chemical Abstract Service number. RL is our Reporting Limit, or Minimum Quantitation Level. The RL takes into account the Instrument Detection Limit (IDL), Method Detection Limit (MDL), and Practical Quantitation Limit (PQL), and any dilutions and/or concentrations performed during sample preparation (EQL). Our analytical result must be above this RL before we report a value in the 'Results' column of our report (without a 'J' flag). Otherwise, we report ND (Not Detected above RL), because the result is "<" (less than) the number in the RL column. MAL is Minimum Analytical Level and is typically from regulatory agencies. Unless we report a result in the result column, or interferences prevent it, we work to have our RL at or below the MAL.

Bill Peery

Bill Peery, MS, VP Technical Services

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Non-Potable Water	**Administrative**									**EPA 8270C**	
2330205	**H028341-01**										
		Collection:	08/29/2024		15:35:00	Client			*Received:*	08/30/2024	
	Prepared: ***1137658***										
				Analyzed:	***1138101***			9/16/24	12:44:28		
108-39-4,ect.	**TCLP Total Cresols (Reg Lim 200)**	**ND**	0.00615	0.0615	0.0062	0.062		**mg/L**	200	17	1.00
Solid & Chemical Materials	**Administrative**										
2330210	**H028341-02**										
		Collection:	08/29/2024		13:30:00	Client			*Received:*	08/30/2024	
	Prepared:										
				Analyzed:				9/16/24	12:51:00		
	Check Limits	**Completed**									1.00

MDL is Method Detection Limit (40 CFR 136 Appendix B)

SDL is Sample Detection Limit and is the adjusted MDL (sample specific dilutions, dry weight)

MQL is the Method Quantitation Limit and corresponds to a low standard

MQLADJ is the Adjusted Method Quantitation Limit (dilutions, dry weight)

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Qualifiers:

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Solid & Chemical Materials	**Distillations**									**EPA 350.1 2**	
2330210	H028341-02										
		Collection:	08/29/2024	13:30:00	Client				*Received:*	08/30/2024	
Prepared:	*1136490*										
				Analyzed:	*1137361*		9/9/24	09:38:00			
	Ammonia Nitrogen	**6900 ***	0.509	99.2	1.00	194	P	**mg/kg**		06	2.37

** Dry Weight Basis*

MDL is Method Detection Limit (40 CFR 136 Appendix B)
SDL is Sample Detection Limit and is the adjusted MDL (sample specific dilutions, dry weight)
MQL is the Method Quantitation Limit and corresponds to a low standard
MQLADJ is the Adjusted Method Quantitation Limit (dilutions, dry weight)

Qualifiers:

J - Analyte detected below quantitation limit
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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Solid & Chemical Materials	**Gravimetrics**									**SM 2540 G-1997**	
2330210	H028341-02										
		Collection:	08/29/2024	13:30:00	Client				*Received:*	08/30/2024	
	Prepared: 1136752										
				Analyzed:	1136752			9/4/24	06:45:00		
	Total Solids	1.22	0.100	0.100	0.100	0.100		%		01	1.00

MDL is Method Detection Limit (40 CFR 136 Appendix B)
SDL is Sample Detection Limit and is the adjusted MDL (sample specific dilutions, dry weight)
MQL is the Method Quantitation Limit and corresponds to a low standard
MQLADJ is the Adjusted Method Quantitation Limit (dilutions, dry weight)
Qualifiers:

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P - Spike recovery outside control limits due to matrix effects.

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Solid & Chemical Materials	**Ion Chromatography**									**EPA 9056**	
2330210	H028341-02										
		Collection: 08/29/2024	13:30:00	Client					*Received:* 08/30/2024		
	Prepared: 1136320										
				Analyzed:	1136551			9/4/24	04:34:00		
14797-55-8	**Nitrate-Nitrogen**	**ND ***	0.0185	75.7	0.0226	92.6		**mg/kg**		04	49.90
	Nitrite-Nitrogen	**ND ***	0.00717	29.3	0.0304	125		**mg/kg**		04	49.90

** Dry Weight Basis*

MDL is Method Detection Limit (40 CFR 136 Appendix B)
SDL is Sample Detection Limit and is the adjusted MDL (sample specific dilutions, dry weight)
MQL is the Method Quantitation Limit and corresponds to a low standard
MQLADJ is the Adjusted Method Quantitation Limit (dilutions, dry weight)

Qualifiers:

J - Analyte detected below quantitation limit
P - Spike recovery outside control limits due to matrix effects.

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Non-Potable Water	**Metals**										**EPA 6010C**
2330205	**H028341-01**										
		Collection:	08/29/2024	15:35:00	Client				*Received:*	08/30/2024	
	Prepared:	***1136589***									
				Analyzed:	***1136705***		9/4/24	15:52:00			
7440-38-2	**TCLP Arsenic**	**ND**	0.0149	0.0745	0.050	0.250		**mg/L**	5.00	12	5.00
7440-39-3	**TCLP Barium**	**ND**	0.00102	0.0051	0.050	0.250		**mg/L**	100	12	5.00
7440-43-9	**TCLP Cadmium**	**ND**	0.0014	0.007	0.025	0.125		**mg/L**	1.00	12	5.00
7440-47-3	**TCLP Chromium**	**ND**	0.00175	0.00875	0.050	0.250		**mg/L**	5.00	12	5.00
7439-92-1	**TCLP Lead**	**ND**	0.0146	0.073	0.050	0.250		**mg/L**	5.00	12	5.00
7782-49-2	**TCLP Selenium**	**ND**	0.0282	0.141	0.050	0.250		**mg/L**	1.00	12	5.00
7440-22-4	**TCLP Silver**	**ND**	0.00208	0.0104	0.010	0.050		**mg/L**	5.00	12	5.00
Non-Potable Water	**Metals**										**EPA 7470 A**
2330205	**H028341-01**										
		Collection:	08/29/2024	15:35:00	Client				*Received:*	08/30/2024	
	Prepared:	***1136510***									
				Analyzed:	***1136608***		9/4/24	13:20:00			
7439-97-6	**TCLP Mercury**	**ND**	0.000113	0.00113	0.0002	0.002		**mg/L**	0.200	10	10.00
Solid & Chemical Materials	**Metals**										**EPA 6010C**
2330210	**H028341-02**										
		Collection:	08/29/2024	13:30:00	Client				*Received:*	08/30/2024	

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Solid & Chemical Materials	**Metals**										**EPA 6010C**
Prepared:	*1136861*										
				Analyzed:		*1137010*		9/6/24	08:39:00		
7723-14-0	**Phosphorus**	**10600 ***	0.00734	14.8	0.100	202		**mg/kg**		09	24.70
				Analyzed:		*1137019*		9/6/24	08:41:00		
7440-09-7	**Potassium**	**4570 ***	0.111	225	0.500	1010		**mg/kg**		09	24.70
				Analyzed:		*1137960*		9/12/24	22:06:00		
7440-38-2	**Arsenic**	**ND ***	0.014	28.4	0.050	101		**mg/kg**	5.00	09	24.70
7440-50-8	**Copper**	**507 ***	0.00321	6.49	0.025	50.6		**mg/kg**	1000	09	24.70
** Dry Weight Basis*											
Solid & Chemical Materials	**Metals**										**EPA 6020A**
2330210	**H028341-02**										
		Collection:	08/29/2024	13:30:00	Client			*Received:*	08/30/2024		
Prepared:	*1136861*										
				Analyzed:		*1137141*		9/6/24	12:29:00		
7440-43-9	**Cadmium, Total**	**0.542 ***	0.00011	0.222	0.001	2.02	J	**mg/kg**	1.50	09	24.70
7440-47-3	**Chromium, Total**	**27.5 ***	0.000409	0.828	0.001	2.02		**mg/kg**	2400	09	24.70
7439-92-1	**Lead, Total**	**13.4 ***	0.000262	0.530	0.001	2.02		**mg/kg**	6.30	09	24.70
7439-98-7	**Molybdenum, Total**	**4.93 ***	0.000865	1.75	0.003	6.07	J	**mg/kg**	155	09	24.70
7440-02-0	**Nickel, Total**	**13.2 ***	0.000287	0.580	0.001	2.02		**mg/kg**	160	09	24.70
7782-49-2	**Selenium, Total**	**16.6 ***	0.000353	0.714	0.001	2.02		**mg/kg**	2.30	09	24.70
7440-66-6	**Zinc, Total**	**943 ***	0.00479	9.67	0.010	20.2		**mg/kg**	2400	09	24.70
** Dry Weight Basis*											
Solid & Chemical Materials	**Metals**										**EPA 7471B 2**

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RESULTS

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H028341

AquaTech Laboratories
John Brien
635 Phil Gramm Blvd.
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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Solid & Chemical Materials	**Metals**									**EPA 7471B 2**	
2330210	**H028341-02**										
		Collection:	08/29/2024		13:30:00	Client			*Received:*	08/30/2024	
	Prepared: **1136476**										
				Analyzed:	**1136606**			9/4/24	10:08:00		
7439-97-6	**Mercury**	**0.576 ***	0.0000419	0.330	0.0001	0.789	J	**mg/kg**	0.0078 pH dependent	05	96.20

** Dry Weight Basis*

MDL is Method Detection Limit (40 CFR 136 Appendix B)
SDL is Sample Detection Limit and is the adjusted MDL (sample specific dilutions, dry weight)
MQL is the Method Quantitation Limit and corresponds to a low standard
MQLADJ is the Adjusted Method Quantitation Limit (dilutions, dry weight)

Qualifiers:

J - Analyte detected below quantitation limit
P - Spike recovery outside control limits due to matrix effects.

We report results on an As Received (or Wet) basis unless marked Dry Weight.

Unless otherwise noted, testing was performed at SPL, Inc.- Kilgore laboratory which holds International, Federal, and state accreditations. Please see our Websites for details.

(N)ELAC - Covered in our NELAC scope of accreditation
z -- Not covered by our NELAC scope of accreditation

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RESULTS

Project 1116350

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Non-Potable Water	**Organics**									**EPA 8081A**	
2330205	**H028341-01**										
		Collection:	08/29/2024	15:35:00	Client				*Received:*	08/30/2024	
	Prepared: 1136620										
				Analyzed:	1137319			9/5/24	23:08:00		
57-74-9	TCLP Chlordane	ND	0.0183	0.000915	0.020	0.001		mg/L	0.030	15	0.05
72-20-8	TCLP Endrin	ND	0.000538	0.0000269	0.001	0.00005		mg/L		15	0.05
58-89-9	TCLP gamma-BHC (Lindane)	ND	0.000385	0.0000192	0.001	0.00005		mg/L	0.400	15	0.05
76-44-8	TCLP Heptachlor	0.000012	0.000207	0.0000104	0.001	0.00005	J	mg/L	0.008	15	0.05
1024-57-3	TCLP Heptachlor Epoxide	ND	0.00066	0.000033	0.001	0.00005		mg/L	0.008	15	0.05
72-43-5	TCLP Methoxychlor	ND	0.000898	0.0000449	0.001	0.00005		mg/L	10.0	15	0.05
8001-35-2	TCLP Toxaphene	ND	0.0169	0.000845	0.020	0.001		mg/L	0.500	15	0.05
Non-Potable Water	**Organics**									**EPA 8151**	
2330205	**H028341-01**										
		Collection:	08/29/2024	15:35:00	Client				*Received:*	08/30/2024	
	Prepared: 1137054										
				Analyzed:	1137620			9/10/24	19:45:00		
94-75-7	TCLP 2,4 D	ND	0.000159	0.159	0.0005	0.500		mg/L	10.0	16	1000.00
93-72-1	TCLP 2,4,5-TP (Silvex)	ND	0.0000893	0.0893	0.0003	0.300		mg/L	1.00	16	1000.00
Non-Potable Water	**Organics**									**EPA 8260B**	
2330205	**H028341-01**										

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Non-Potable Water	**Organics**									**EPA 8260B**	
		Collection:	08/29/2024		15:35:00	Client			*Received:*	08/30/2024	
	Prepared: ***1136385***										
				Analyzed:	***1136745***			9/4/24	11:28:00		
75-35-4	**TCLP 1,1-Dichloroethene**	**ND**	0.000574	0.00574	0.001	0.010		**mg/L**	0.700	09	10.00
107-06-2	**TCLP 1,2-Dichloroethane**	**ND**	0.00059	0.0059	0.001	0.010		**mg/L**	0.500	09	10.00
106-46-7	**TCLP 1,4 Dichlorobenzene**	**ND**	0.000837	0.00837	0.001	0.010		**mg/L**	7.50	09	10.00
71-43-2	**TCLP Benzene**	**ND**	0.000453	0.00453	0.001	0.010		**mg/L**	0.500	09	10.00
56-23-5	**TCLP Carbon tetrachloride**	**ND**	0.000299	0.00299	0.001	0.010		**mg/L**	0.500	09	10.00
108-90-7	**TCLP Chlorobenzene**	**ND**	0.000558	0.00558	0.001	0.010		**mg/L**	100	09	10.00
67-66-3	**TCLP Chloroform**	**ND**	0.000463	0.00463	0.001	0.010		**mg/L**	6.00	09	10.00
78-93-3	**TCLP MEK**	**ND**	0.000742	0.00742	0.001	0.010		**mg/L**	200	09	10.00
127-18-4	**TCLP Tetrachloroethylene**	**ND**	0.000607	0.00607	0.001	0.010		**mg/L**	0.700	09	10.00
79-01-6	**TCLP Trichloroethylene**	**ND**	0.000521	0.00521	0.001	0.010		**mg/L**	0.500	09	10.00
75-01-4	**TCLP Vinyl chloride**	**ND**	0.000702	0.00702	0.001	0.010		**mg/L**	0.200	09	10.00
Non-Potable Water	**Organics**									**EPA 8270C**	
2330205	**H028341-01**										
		Collection:	08/29/2024		15:35:00	Client			*Received:*	08/30/2024	
	Prepared: ***1137658***										
				Analyzed:	***1138101***			9/12/24	19:38:00		
95-95-4	**TCLP 2,4,5-Trichlorophenol**	**ND**	0.000734	0.00734	0.001	0.010		**mg/L**	400	17	10.00
88-06-2	**TCLP 2,4,6-Trichlorophenol**	**ND**	0.000704	0.00704	0.001	0.010		**mg/L**	2.00	17	10.00
121-14-2	**TCLP 2,4-Dinitrotoluene**	**ND**	0.00335	0.0335	0.0035	0.035		**mg/L**	0.130	17	10.00

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CAS	Parameter	Results	MDL	SDL	MQL	MQLAdj	Flag	Units	Target	Bottle	Dilute
Non-Potable Water	**Organics**									**EPA 8270C**	
95-48-7	TCLP 2-Methylphenol (o-Cresol)	ND	0.00513	0.0513	0.0052	0.052		mg/L	200	17	10.00
108-39-4	TCLP 3&4-Methylphenol (m&p-Creso	ND	0.00615	0.0615	0.0062	0.062		mg/L	200	17	10.00
111-44-4	TCLP bis(2-Chloroethyl)ether	ND	0.000434	0.00434	0.001	0.010		mg/L	0.300	17	10.00
118-74-1	TCLP Hexachlorobenzene	ND	0.000187	0.00187	0.001	0.010		mg/L	0.130	17	10.00
87-68-3	TCLP Hexachlorobutadiene	ND	0.000618	0.00618	0.001	0.010		mg/L	0.500	17	10.00
67-72-1	TCLP Hexachloroethane	ND	0.000789	0.00789	0.001	0.010		mg/L	3.00	17	10.00
98-95-3	TCLP Nitrobenzene	ND	0.00039	0.0039	0.001	0.010		mg/L	2.00	17	10.00
87-86-5	TCLP Pentachlorophenol	ND	0.000129	0.00129	0.001	0.010		mg/L	100	17	10.00
110-86-1	TCLP Pyridine (Reg. Limit 5)	ND	0.00533	0.0533	0.0054	0.054		mg/L	5.00	17	10.00

MDL is Method Detection Limit (40 CFR 136 Appendix B)

SDL is Sample Detection Limit and is the adjusted MDL (sample specific dilutions, dry weight)

MQL is the Method Quantitation Limit and corresponds to a low standard

MQLADJ is the Adjusted Method Quantitation Limit (dilutions, dry weight)

Qualifiers:

J - Analyte detected below quantitation limit

P - Spike recovery outside control limits due to matrix effects.

We report results on an As Received (or Wet) basis unless marked Dry Weight.

Unless otherwise noted, testing was performed at SPL, Inc.- Kilgore laboratory which holds International, Federal, and state accreditations. Please see our Websites for details.

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QUALITY CONTROL

AQU1-G

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Project
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Analytical Set 1136608 — EPA 7470 A

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
TCLP Mercury	1136510	0.000121	0.000113	0.0002	mg/L	126732269

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP Mercury	0.00511	0.005	mg/L	102	90.0 - 110	126732259
TCLP Mercury	0.00491	0.005	mg/L	98.2	90.0 - 110	126732260
TCLP Mercury	0.00473	0.005	mg/L	94.6	90.0 - 110	126732267
TCLP Mercury	0.00469	0.005	mg/L	93.8	90.0 - 110	126732268
TCLP Mercury	0.00506	0.005	mg/L	101	90.0 - 110	126732275
TCLP Mercury	0.00485	0.005	mg/L	97.0	90.0 - 110	126732278

ICL

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP Mercury	0.0201	0.02	mg/L	100	90.0 - 110	126732258

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP Mercury	0.0049	0.005	mg/L	98.0	90.0 - 110	126732257

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
TCLP Mercury	1136510	0.00873	0.00912	0.010	85.1 - 117	87.3	91.2	mg/L	4.37	20.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
TCLP Mercury	2330276	0.0936	0.0861	0.000394	0.100	80.9 - 121	93.2	85.7	mg/L	8.38	20.0

Analytical Set 1136705 — EPA 6010C

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
TCLP Arsenic	1136589	ND	0.0149	0.050	mg/L	126732861
TCLP Barium	1136589	ND	0.00102	0.050	mg/L	126732861
TCLP Cadmium	1136589	ND	0.0014	0.025	mg/L	126732861
TCLP Chromium	1136589	ND	0.00175	0.050	mg/L	126732861
TCLP Lead	1136589	0.0159	0.0146	0.050	mg/L	126732861
TCLP Selenium	1136589	ND	0.0282	0.050	mg/L	126732861
TCLP Silver	1136589	ND	0.00208	0.010	mg/L	126732861

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP Arsenic	2.60	2.50	mg/L	104	90.0 - 110	126732839
TCLP Arsenic	2.59	2.50	mg/L	104	90.0 - 110	126732840
TCLP Arsenic	2.61	2.50	mg/L	104	90.0 - 110	126732856
TCLP Arsenic	2.57	2.50	mg/L	103	90.0 - 110	126732862
TCLP Arsenic	2.52	2.50	mg/L	101	90.0 - 110	126732870

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QUALITY CONTROL

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CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP Barium	2.64	2.50	mg/L	106	90.0 - 110	126732839
TCLP Barium	2.63	2.50	mg/L	105	90.0 - 110	126732840
TCLP Barium	2.65	2.50	mg/L	106	90.0 - 110	126732856
TCLP Barium	2.62	2.50	mg/L	105	90.0 - 110	126732862
TCLP Barium	2.57	2.50	mg/L	103	90.0 - 110	126732870
TCLP Cadmium	1.31	1.25	mg/L	105	90.0 - 110	126732839
TCLP Cadmium	1.30	1.25	mg/L	104	90.0 - 110	126732840
TCLP Cadmium	1.31	1.25	mg/L	105	90.0 - 110	126732856
TCLP Cadmium	1.29	1.25	mg/L	103	90.0 - 110	126732862
TCLP Cadmium	1.27	1.25	mg/L	102	90.0 - 110	126732870
TCLP Chromium	2.50	2.50	mg/L	100	90.0 - 110	126732839
TCLP Chromium	2.48	2.50	mg/L	99.2	90.0 - 110	126732840
TCLP Chromium	2.52	2.50	mg/L	101	90.0 - 110	126732856
TCLP Chromium	2.48	2.50	mg/L	99.2	90.0 - 110	126732862
TCLP Chromium	2.45	2.50	mg/L	98.0	90.0 - 110	126732870
TCLP Lead	2.65	2.50	mg/L	106	90.0 - 110	126732839
TCLP Lead	2.63	2.50	mg/L	105	90.0 - 110	126732840
TCLP Lead	2.65	2.50	mg/L	106	90.0 - 110	126732856
TCLP Lead	2.63	2.50	mg/L	105	90.0 - 110	126732862
TCLP Lead	2.59	2.50	mg/L	104	90.0 - 110	126732870
TCLP Selenium	2.56	2.50	mg/L	102	90.0 - 110	126732839
TCLP Selenium	2.56	2.50	mg/L	102	90.0 - 110	126732840
TCLP Selenium	2.58	2.50	mg/L	103	90.0 - 110	126732856
TCLP Selenium	2.56	2.50	mg/L	102	90.0 - 110	126732862
TCLP Selenium	2.52	2.50	mg/L	101	90.0 - 110	126732870
TCLP Silver	0.504	0.500	mg/L	101	90.0 - 110	126732839
TCLP Silver	0.505	0.500	mg/L	101	90.0 - 110	126732840
TCLP Silver	0.509	0.500	mg/L	102	90.0 - 110	126732856
TCLP Silver	0.504	0.500	mg/L	101	90.0 - 110	126732862
TCLP Silver	0.494	0.500	mg/L	98.8	90.0 - 110	126732870

ICL

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP Arsenic	4.96	5.00	mg/L	99.2	95.0 - 105	126732833
TCLP Barium	4.95	5.00	mg/L	99.0	95.0 - 105	126732833
TCLP Cadmium	2.47	2.50	mg/L	98.8	95.0 - 105	126732833
TCLP Chromium	4.78	5.00	mg/L	95.6	95.0 - 105	126732833
TCLP Lead	5.01	5.00	mg/L	100	95.0 - 105	126732833
TCLP Selenium	4.87	5.00	mg/L	97.4	95.0 - 105	126732833
TCLP Silver	0.968	1.00	mg/L	96.8	95.0 - 105	126732833

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP Arsenic	2.51	2.50	mg/L	100	90.0 - 110	126732837
TCLP Barium	2.61	2.50	mg/L	104	90.0 - 110	126732837

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ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP Cadmium	1.28	1.25	mg/L	102	90.0 - 110	126732837
TCLP Chromium	2.46	2.50	mg/L	98.4	90.0 - 110	126732837
TCLP Lead	2.59	2.50	mg/L	104	90.0 - 110	126732837
TCLP Selenium	2.48	2.50	mg/L	99.2	90.0 - 110	126732837
TCLP Silver	0.503	0.500	mg/L	101	90.0 - 110	126732837

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
TCLP Arsenic	1136589	0.467	0.495	0.500	87.8 - 119	93.4	99.0	mg/L	5.82	30.0
TCLP Barium	1136589	0.447	0.457	0.500	86.1 - 118	89.4	91.4	mg/L	2.21	30.0
TCLP Cadmium	1136589	0.223	0.229	0.250	85.7 - 117	89.2	91.6	mg/L	2.65	30.0
TCLP Chromium	1136589	0.463	0.476	0.500	93.8 - 121	92.6	95.2	mg/L	2.77	30.0
TCLP Lead	1136589	0.478	0.486	0.500	85.0 - 123	95.6	97.2	mg/L	1.66	30.0
TCLP Selenium	1136589	0.466	0.475	0.500	81.8 - 123	93.2	95.0	mg/L	1.91	30.0
TCLP Silver	1136589	0.086	0.0883	0.100	80.4 - 123	86.0	88.3	mg/L	2.64	30.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
TCLP Arsenic	2330205	2.41	2.47	ND	2.50	73.8 - 133	96.4	98.8	mg/L	2.46	30.0
TCLP Barium	2330205	2.36	2.35	ND	2.50	73.3 - 125	94.4	94.0	mg/L	0.425	30.0
TCLP Cadmium	2330205	1.13	1.13	ND	1.25	47.5 - 140	90.4	90.4	mg/L	0	30.0
TCLP Chromium	2330205	2.37	2.40	0.0053	2.50	83.9 - 121	94.6	95.8	mg/L	1.26	30.0
TCLP Lead	2330205	2.40	2.41	0.0412	2.50	71.8 - 120	94.4	94.8	mg/L	0.423	30.0
TCLP Selenium	2330205	2.33	2.38	ND	2.50	59.3 - 142	93.2	95.2	mg/L	2.12	30.0
TCLP Silver	2330205	0.435	0.434	ND	0.500	72.3 - 126	87.0	86.8	mg/L	0.230	30.0

Analytical Set 1136745 — EPA 8260B

BFB

Parameter	Sample	RefMass	Reading	%	Limits%	File
BFB Mass 173	1136745	174	200	1.1	0 - 2.00	126734154
BFB Mass 174	1136745	95.0	18548	56.6	50.0 - 100	126734154
BFB Mass 175	1136745	174	1426	7.7	5.00 - 9.00	126734154
BFB Mass 176	1136745	174	17636	95.1	95.0 - 101	126734154
BFB Mass 177	1136745	176	1112	6.3	5.00 - 9.00	126734154
BFB Mass 50	1136745	95.0	5834	17.8	15.0 - 40.0	126734154
BFB Mass 75	1136745	95.0	16710	51.0	30.0 - 60.0	126734154
BFB Mass 95	1136745	95.0	32760	100.0	100 - 100	126734154
BFB Mass 96	1136745	95.0	2213	6.8	5.00 - 9.00	126734154

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
TCLP 1,1-Dichloroethene	1136745	ND	0.000574	0.001	mg/L	126734158
TCLP 1,1-Dichloroethene	1136745	ND	0.000574	0.001	mg/L	126734159
TCLP 1,2-Dichloroethane	1136745	ND	0.00059	0.001	mg/L	126734158
TCLP 1,2-Dichloroethane	1136745	ND	0.00059	0.001	mg/L	126734159
TCLP 1,4 Dichlorobenzene	1136745	ND	0.000837	0.001	mg/L	126734158

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Blank

Parameter	*PrepSet*	*Reading*	*MDL*	*MQL*	*Units*	*File*
TCLP 1,4 Dichlorobenzene	1136745	ND	0.000837	0.001	mg/L	126734159
TCLP Benzene	1136745	ND	0.000453	0.001	mg/L	126734158
TCLP Benzene	1136745	ND	0.000453	0.001	mg/L	126734159
TCLP Carbon tetrachloride	1136745	ND	0.000299	0.001	mg/L	126734158
TCLP Carbon tetrachloride	1136745	ND	0.000299	0.001	mg/L	126734159
TCLP Chlorobenzene	1136745	ND	0.000558	0.001	mg/L	126734158
TCLP Chlorobenzene	1136745	ND	0.000558	0.001	mg/L	126734159
TCLP Chloroform	1136745	ND	0.000463	0.001	mg/L	126734158
TCLP Chloroform	1136745	ND	0.000463	0.001	mg/L	126734159
TCLP MEK	1136745	ND	0.000742	0.001	mg/L	126734158
TCLP MEK	1136745	ND	0.000742	0.001	mg/L	126734159
TCLP Tetrachloroethylene	1136745	ND	0.000607	0.001	mg/L	126734158
TCLP Tetrachloroethylene	1136745	ND	0.000607	0.001	mg/L	126734159
TCLP Trichloroethylene	1136745	ND	0.000521	0.001	mg/L	126734158
TCLP Trichloroethylene	1136745	ND	0.000521	0.001	mg/L	126734159
TCLP Vinyl chloride	1136745	ND	0.000702	0.001	mg/L	126734158
TCLP Vinyl chloride	1136745	ND	0.000702	0.001	mg/L	126734159

CCV

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
TCLP 1,1-Dichloroethene	0.0191	0.020	mg/L	95.5	70.0 - 130	126734155
TCLP 1,2-Dichloroethane	0.0227	0.020	mg/L	114	70.0 - 130	126734155
TCLP 1,4 Dichlorobenzene	0.0181	0.020	mg/L	90.5	70.0 - 130	126734155
TCLP Benzene	0.0204	0.020	mg/L	102	70.0 - 130	126734155
TCLP Carbon tetrachloride	0.0209	0.020	mg/L	104	70.0 - 130	126734155
TCLP Chlorobenzene	0.020	0.020	mg/L	100	70.0 - 130	126734155
TCLP Chloroform	0.0208	0.020	mg/L	104	70.0 - 130	126734155
TCLP MEK	0.0214	0.020	mg/L	107	70.0 - 130	126734155
TCLP Tetrachloroethylene	0.0204	0.020	mg/L	102	70.0 - 130	126734155
TCLP Trichloroethylene	0.0199	0.020	mg/L	99.5	70.0 - 130	126734155
TCLP Vinyl chloride	0.0209	0.020	mg/L	104	70.0 - 130	126734155

IS Areas

Parameter	*Sample*	*Type*	*Reading*	*CCVISM*	*Low*	*High*	*File*	*PrepSet*
1,4-DichlorobenzeneD4 (ISTD)	1136745	CCV	178200	178200	124800	231700	126734155	1136745
1,4-DichlorobenzeneD4 (ISTD)	1136745	LCS	177400	178200	124800	231700	126734156	1136745
1,4-DichlorobenzeneD4 (ISTD)	1136745	LCS Dup	165500	178200	124800	231700	126734157	1136745
1,4-DichlorobenzeneD4 (ISTD)	1136745	Blank	153100	178200	124800	231700	126734158	1136745
1,4-DichlorobenzeneD4 (ISTD)	1136745	Blank	147900	178200	124800	231700	126734159	1136745
ChlorobenzeneD5 (ISTD)	1136745	CCV	297500	297500	208300	386800	126734155	1136745
ChlorobenzeneD5 (ISTD)	1136745	LCS	298400	297500	208300	386800	126734156	1136745
ChlorobenzeneD5 (ISTD)	1136745	LCS Dup	280000	297500	208300	386800	126734157	1136745
ChlorobenzeneD5 (ISTD)	1136745	Blank	276500	297500	208300	386800	126734158	1136745
ChlorobenzeneD5 (ISTD)	1136745	Blank	270500	297500	208300	386800	126734159	1136745
1,4-DichlorobenzeneD4 (ISTD)	2330205	MS	156500	178200	124800	231700	126734162	1136385

QUALITY CONTROL

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IS Areas

Parameter	*Sample*	*Type*	*Reading*	*CCVISM*	*Low*	*High*	*File*	*PrepSet*
1,4-DichlorobenzeneD4 (ISTD)	2330205	MSD	156100	178200	124800	231700	126734163	1136385
ChlorobenzeneD5 (ISTD)	2330205	MS	264400	297500	208300	386800	126734162	1136385
ChlorobenzeneD5 (ISTD)	2330205	MSD	269500	297500	208300	386800	126734163	1136385

IS RetTime

Parameter	*Sample*	*Type*	*Reading*	*CCVISM*	*Low*	*High*	*File*	*PrepSet*
1,4-DichlorobenzeneD4 (ISTD)	1136745	LCS	11.97	11.96	11.90	12.02	126734156	1136745
1,4-DichlorobenzeneD4 (ISTD)	1136745	LCS Dup	11.97	11.96	11.90	12.02	126734157	1136745
1,4-DichlorobenzeneD4 (ISTD)	1136745	Blank	11.97	11.96	11.90	12.02	126734158	1136745
1,4-DichlorobenzeneD4 (ISTD)	1136745	Blank	11.97	11.96	11.90	12.02	126734159	1136745
ChlorobenzeneD5 (ISTD)	1136745	LCS	9.597	9.597	9.537	9.657	126734156	1136745
ChlorobenzeneD5 (ISTD)	1136745	LCS Dup	9.597	9.597	9.537	9.657	126734157	1136745
ChlorobenzeneD5 (ISTD)	1136745	Blank	9.597	9.597	9.537	9.657	126734158	1136745
ChlorobenzeneD5 (ISTD)	1136745	Blank	9.591	9.597	9.537	9.657	126734159	1136745
1,4-DichlorobenzeneD4 (ISTD)	2330205	MS	11.97	11.96	11.90	12.02	126734162	1136385
1,4-DichlorobenzeneD4 (ISTD)	2330205	MSD	11.96	11.96	11.90	12.02	126734163	1136385
ChlorobenzeneD5 (ISTD)	2330205	MS	9.597	9.597	9.537	9.657	126734162	1136385
ChlorobenzeneD5 (ISTD)	2330205	MSD	9.597	9.597	9.537	9.657	126734163	1136385

LCS Dup

Parameter	*PrepSet*	*LCS*	*LCSD*	*Known*	*Limits%*	*LCS%*	*LCSD%*	*Units*	*RPD*	*Limit%*
TCLP 1,1-Dichloroethene	1136745	0.0179	0.0174	0.020	56.7 - 135	89.5	87.0	mg/L	2.83	30.0
TCLP 1,2-Dichloroethane	1136745	0.0201	0.0212	0.020	69.8 - 132	100	106	mg/L	5.83	30.0
TCLP 1,4 Dichlorobenzene	1136745	0.018	0.0189	0.020	74.8 - 116	90.0	94.5	mg/L	4.88	30.0
TCLP Benzene	1136745	0.0197	0.0198	0.020	67.1 - 123	98.5	99.0	mg/L	0.506	30.0
TCLP Carbon tetrachloride	1136745	0.0185	0.0189	0.020	60.1 - 132	92.5	94.5	mg/L	2.14	30.0
TCLP Chlorobenzene	1136745	0.0188	0.020	0.020	74.0 - 115	94.0	100	mg/L	6.19	30.0
TCLP Chloroform	1136745	0.0186	0.0189	0.020	71.1 - 128	93.0	94.5	mg/L	1.60	30.0
TCLP MEK	1136745	0.0205	0.0215	0.020	40.7 - 166	102	108	mg/L	5.71	30.0
TCLP Tetrachloroethylene	1136745	0.0186	0.0191	0.020	71.2 - 126	93.0	95.5	mg/L	2.65	30.0
TCLP Trichloroethylene	1136745	0.0176	0.0183	0.020	71.4 - 126	88.0	91.5	mg/L	3.90	30.0
TCLP Vinyl chloride	1136745	0.0215	0.0211	0.020	18.5 - 155	108	106	mg/L	1.87	30.0

MSD

Parameter	*Sample*	*MS*	*MSD*	*UNK*	*Known*	*Limits*	*MS%*	*MSD%*	*Units*	*RPD*	*Limit%*
TCLP 1,1-Dichloroethene	2330205	0.174	0.171	0.0114	0.200	0.100 - 168	81.3	79.8	mg/L	1.86	30.0
TCLP 1,2-Dichloroethane	2330205	0.205	0.204	0.0114	0.200	48.4 - 134	96.8	96.3	mg/L	0.518	30.0
TCLP 1,4 Dichlorobenzene	2330205	0.178	0.178	0.0114	0.200	45.4 - 121	83.3	83.3	mg/L	0	30.0
TCLP Benzene	2330205	0.194	0.190	0.0114	0.200	5.00 - 119	91.3	89.3	mg/L	2.21	30.0
TCLP Carbon tetrachloride	2330205	0.180	0.178	0.0114	0.200	0.100 - 164	84.3	83.3	mg/L	1.19	30.0
TCLP Chlorobenzene	2330205	0.191	0.183	0.0114	0.200	32.5 - 130	89.8	85.8	mg/L	4.56	30.0
TCLP Chloroform	2330205	0.188	0.183	0.0114	0.200	22.1 - 141	88.3	85.8	mg/L	2.87	30.0
TCLP MEK	2330205	0.204	0.204	0.0114	0.200	9.88 - 197	96.3	96.3	mg/L	0	30.0
TCLP Tetrachloroethylene	2330205	0.191	0.182	0.0114	0.200	0.100 - 157	89.8	85.3	mg/L	5.14	30.0
TCLP Trichloroethylene	2330205	0.176	0.169	0.0114	0.200	0.100 - 161	82.3	78.8	mg/L	4.35	30.0
TCLP Vinyl chloride	2330205	0.209	0.204	0.0114	0.200	0.100 - 197	98.8	96.3	mg/L	2.56	30.0

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Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
1,2-DCA-d4 (SURR)	1136745	CCV	0.0208	0.020	mg/L	104	74.2 - 132	126734155
1,2-DCA-d4 (SURR)	1136745	LCS	0.0219	0.020	mg/L	110	74.2 - 132	126734156
1,2-DCA-d4 (SURR)	1136745	LCS Dup	0.0217	0.020	mg/L	108	74.2 - 132	126734157
1,2-DCA-d4 (SURR)	1136745	Blank	0.021	0.020	mg/L	105	74.2 - 132	126734158
1,2-DCA-d4 (SURR)	1136745	Blank	0.0212	0.020	mg/L	106	74.2 - 132	126734159
Bromofluorobenzene (SURR)	1136745	CCV	0.0192	0.020	mg/L	96.0	77.2 - 134	126734155
Bromofluorobenzene (SURR)	1136745	LCS	0.0192	0.020	mg/L	96.0	77.2 - 134	126734156
Bromofluorobenzene (SURR)	1136745	LCS Dup	0.0191	0.020	mg/L	95.5	77.2 - 134	126734157
Bromofluorobenzene (SURR)	1136745	Blank	0.020	0.020	mg/L	100	77.2 - 134	126734158
Bromofluorobenzene (SURR)	1136745	Blank	0.0199	0.020	mg/L	99.5	77.2 - 134	126734159
Dibromofluoromethane (SURR)	1136745	CCV	0.0196	0.020	mg/L	98.0	67.2 - 122	126734155
Dibromofluoromethane (SURR)	1136745	LCS	0.0206	0.020	mg/L	103	67.2 - 122	126734156
Dibromofluoromethane (SURR)	1136745	LCS Dup	0.0198	0.020	mg/L	99.0	67.2 - 122	126734157
Dibromofluoromethane (SURR)	1136745	Blank	0.0194	0.020	mg/L	97.0	67.2 - 122	126734158
Dibromofluoromethane (SURR)	1136745	Blank	0.0195	0.020	mg/L	97.5	67.2 - 122	126734159
ToluneneD8 (SURR)	1136745	CCV	0.0185	0.020	mg/L	92.5	69.2 - 122	126734155
ToluneneD8 (SURR)	1136745	LCS	0.0187	0.020	mg/L	93.5	69.2 - 122	126734156
ToluneneD8 (SURR)	1136745	LCS Dup	0.0189	0.020	mg/L	94.5	69.2 - 122	126734157
ToluneneD8 (SURR)	1136745	Blank	0.0182	0.020	mg/L	91.0	69.2 - 122	126734158
ToluneneD8 (SURR)	1136745	Blank	0.018	0.020	mg/L	90.0	69.2 - 122	126734159
1,2-DCA-d4 (SURR)	2330205	Unknown	0.021	0.020	mg/L	105	74.2 - 132	126734160
1,2-DCA-d4 (SURR)	2330205	MS	0.021	0.020	mg/L	105	74.2 - 132	126734162
1,2-DCA-d4 (SURR)	2330205	MSD	0.0214	0.020	mg/L	107	74.2 - 132	126734163
Bromofluorobenzene (SURR)	2330205	Unknown	0.0199	0.020	mg/L	99.5	77.2 - 134	126734160
Bromofluorobenzene (SURR)	2330205	MS	0.019	0.020	mg/L	95.0	77.2 - 134	126734162
Bromofluorobenzene (SURR)	2330205	MSD	0.0191	0.020	mg/L	95.5	77.2 - 134	126734163
Dibromofluoromethane (SURR)	2330205	Unknown	0.0194	0.020	mg/L	97.0	67.2 - 122	126734160
Dibromofluoromethane (SURR)	2330205	MS	0.0198	0.020	mg/L	99.0	67.2 - 122	126734162
Dibromofluoromethane (SURR)	2330205	MSD	0.0198	0.020	mg/L	99.0	67.2 - 122	126734163
ToluneneD8 (SURR)	2330205	Unknown	0.0187	0.020	mg/L	93.5	69.2 - 122	126734160
ToluneneD8 (SURR)	2330205	MS	0.0186	0.020	mg/L	93.0	69.2 - 122	126734162
ToluneneD8 (SURR)	2330205	MSD	0.0187	0.020	mg/L	93.5	69.2 - 122	126734163

Analytical Set 1137319 — EPA 8081A

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
TCLP Chlordane	1136321	ND	0.0000183	0.00002	mg/L	126748068
TCLP Endrin	1136321	ND	0.000538	0.001	mg/L	126748068
TCLP gamma-BHC (Lindane)	1136321	ND	0.000385	0.001	mg/L	126748068
TCLP Heptachlor	1136321	ND	0.000207	0.001	mg/L	126748068
TCLP Heptachlor Epoxide	1136321	ND	0.00066	0.001	mg/L	126748068
TCLP Methoxychlor	1136321	ND	0.000898	0.001	mg/L	126748068
TCLP Toxaphene	1136321	ND	0.000169	0.0002	mg/L	126748068

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CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP Endrin	0.0462	0.050	mg/L	92.5	70.0 - 130	126748064
TCLP Endrin	0.0554	0.050	mg/L	111	70.0 - 130	126748074
TCLP gamma-BHC (Lindane)	0.0446	0.050	mg/L	89.3	70.0 - 130	126748064
TCLP gamma-BHC (Lindane)	0.0538	0.050	mg/L	108	70.0 - 130	126748074
TCLP Heptachlor	0.0422	0.050	mg/L	84.3	70.0 - 130	126748064
TCLP Heptachlor	0.0509	0.050	mg/L	102	70.0 - 130	126748074
TCLP Heptachlor Epoxide	0.0452	0.050	mg/L	90.5	70.0 - 130	126748064
TCLP Heptachlor Epoxide	0.055	0.050	mg/L	110	70.0 - 130	126748074
TCLP Methoxychlor	0.0474	0.050	mg/L	94.7	70.0 - 130	126748064
TCLP Methoxychlor	0.058	0.050	mg/L	116	70.0 - 130	126748074

MS

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
TCLP Endrin	2330104	0.0042	0	ND	0.005	24.3 - 151	84.0		mg/L		30.0
TCLP gamma-BHC (Lindane)	2330104	0.00401	0	ND	0.005	21.3 - 144	80.2		mg/L		30.0
TCLP Heptachlor	2330104	0.00315	0	ND	0.005	14.9 - 138	63.0		mg/L		30.0
TCLP Heptachlor Epoxide	2330104	0.00394	0	ND	0.005	29.9 - 133	78.8		mg/L		30.0
TCLP Methoxychlor	2330104	0.00401	0	ND	0.005	10.3 - 183	80.2		mg/L		30.0

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
Decachlorobiphenyl	625249	CCV	0.0465	0.100	mg/L	46.5	10.0 - 150	126748064
Decachlorobiphenyl	625249	CCV	0.0526	0.100	mg/L	52.6	10.0 - 150	126748074
Tetrachloro-m-Xylene (Surr)	625249	CCV	0.0459	0.100	mg/L	45.9	10.0 - 150	126748064
Tetrachloro-m-Xylene (Surr)	625249	CCV	0.0446	0.100	mg/L	44.6	10.0 - 150	126748074
Decachlorobiphenyl	1136321	Blank	0.0582	0.100	mg/L	58.2	10.0 - 150	126748068
Tetrachloro-m-Xylene (Surr)	1136321	Blank	0.0393	0.100	mg/L	39.3	10.0 - 150	126748068
Decachlorobiphenyl	2330104	MS	0.00194	0.005	mg/L	38.8	10.0 - 150	126748073
Tetrachloro-m-Xylene (Surr)	2330104	MS	0.00241	0.005	mg/L	48.2	10.0 - 150	126748073
Decachlorobiphenyl	2330205	Unknown	0.0027	0.005	mg/L	54.0	10.0 - 150	126748069
Tetrachloro-m-Xylene (Surr)	2330205	Unknown	0.00241	0.005	mg/L	48.2	10.0 - 150	126748069

Analytical Set 1137620 — EPA 8151

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
TCLP 2,4 D	1136321	ND	0.000159	0.0005	mg/L	126756651
TCLP 2,4,5-TP (Silvex)	1136321	ND	0.0000893	0.0003	mg/L	126756651
TCLP 2,4 D	1137054	ND	0.000159	0.0005	mg/L	126756647
TCLP 2,4,5-TP (Silvex)	1137054	ND	0.0000893	0.0003	mg/L	126756647

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
TCLP 2,4 D	0.146	0.150	mg/L	97.6	70.0 - 130	126756646
TCLP 2,4 D	0.173	0.150	mg/L	116	70.0 - 130	126756656
TCLP 2,4,5-TP (Silvex)	0.154	0.150	mg/L	103	70.0 - 130	126756646
TCLP 2,4,5-TP (Silvex)	0.173	0.150	mg/L	115	70.0 - 130	126756656

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LCS Dup

Parameter	*PrepSet*	*LCS*	*LCSD*	*Known*	*Limits%*	*LCS%*	*LCSD%*	*Units*	*RPD*	*Limit%*
TCLP 2,4 D	1137054	0.000815	0.000954	0.001	2.06 - 194	81.5	95.4	mg/L	15.7	30.0
TCLP 2,4,5-TP (Silvex)	1137054	0.000794	0.000916	0.001	19.3 - 162	79.4	91.6	mg/L	14.3	30.0

MS

Parameter	*Sample*	*MS*	*MSD*	*UNK*	*Known*	*Limits*	*MS%*	*MSD%*	*Units*	*RPD*	*Limit%*
TCLP 2,4 D	2330220	0.800	0	0.00663	1.00	0.100 - 228	79.3		mg/L		30.0
TCLP 2,4,5-TP (Silvex)	2330220	0.768	0	0.00128	1.00	2.02 - 165	76.7		mg/L		30.0

Surrogate

Parameter	*Sample*	*Type*	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
2,4-Dichlorophenylacetic Acid		CCV	0.141	0.200	mg/L	70.5	0.100 - 294	126756646
2,4-Dichlorophenylacetic Acid		CCV	0.158	0.200	mg/L	79.0	0.100 - 294	126756656
2,4-Dichlorophenylacetic Acid	1136321	Blank	0.0761	0.200	mg/L	38.0	0.100 - 294	126756651
2,4-Dichlorophenylacetic Acid	1137054	Blank	0.063	0.200	mg/L	31.5	0.100 - 294	126756647
2,4-Dichlorophenylacetic Acid	1137054	LCS	0.0763	0.200	mg/L	38.2	0.100 - 294	126756648
2,4-Dichlorophenylacetic Acid	1137054	LCS Dup	0.0857	0.200	mg/L	42.8	0.100 - 294	126756649
2,4-Dichlorophenylacetic Acid	2330205	Unknown	0.948	2.00	mg/L	47.4	0.100 - 294	126756652
2,4-Dichlorophenylacetic Acid	2330220	MS	0.735	2.00	mg/L	36.8	0.100 - 294	126756654

Analytical Set 1138101 — EPA 8270C

Blank

Parameter	*PrepSet*	*Reading*	*MDL*	*MQL*	*Units*	*File*
TCLP 2,4,5-Trichlorophenol	1136321	ND	0.000734	0.001	mg/L	126769637
TCLP 2,4,6-Trichlorophenol	1136321	ND	0.000704	0.001	mg/L	126769637
TCLP 2,4-Dinitrotoluene	1136321	ND	0.00335	0.0035	mg/L	126769637
TCLP 2-Methylphenol (o-Cresol)	1136321	ND	0.00513	0.0052	mg/L	126769637
TCLP 3&4-Methylphenol (m&p-Creso	1136321	ND	0.00615	0.0062	mg/L	126769637
TCLP bis(2-Chloroethyl)ether	1136321	ND	0.000434	0.001	mg/L	126769637
TCLP Hexachlorobenzene	1136321	ND	0.000187	0.001	mg/L	126769637
TCLP Hexachlorobutadiene	1136321	ND	0.000618	0.001	mg/L	126769637
TCLP Hexachloroethane	1136321	ND	0.000789	0.001	mg/L	126769637
TCLP Nitrobenzene	1136321	ND	0.00039	0.001	mg/L	126769637
TCLP Pentachlorophenol	1136321	0.00096	0.000129	0.001	mg/L	126769637
TCLP Pyridine (Reg. Limit 5)	1136321	ND	0.00533	0.0054	mg/L	126769637
TCLP 2,4,5-Trichlorophenol	1137658	ND	0.000734	0.001	mg/L	126769634
TCLP 2,4,6-Trichlorophenol	1137658	ND	0.000704	0.001	mg/L	126769634
TCLP 2,4-Dinitrotoluene	1137658	ND	0.00335	0.0035	mg/L	126769634
TCLP 2-Methylphenol (o-Cresol)	1137658	ND	0.00513	0.0052	mg/L	126769634
TCLP 3&4-Methylphenol (m&p-Creso	1137658	ND	0.00615	0.0062	mg/L	126769634
TCLP bis(2-Chloroethyl)ether	1137658	ND	0.000434	0.001	mg/L	126769634
TCLP Hexachlorobenzene	1137658	ND	0.000187	0.001	mg/L	126769634
TCLP Hexachlorobutadiene	1137658	ND	0.000618	0.001	mg/L	126769634
TCLP Hexachloroethane	1137658	ND	0.000789	0.001	mg/L	126769634
TCLP Nitrobenzene	1137658	ND	0.00039	0.001	mg/L	126769634
TCLP Pentachlorophenol	1137658	0.00096	0.000129	0.001	mg/L	126769634

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Blank

Parameter	*PrepSet*	*Reading*	*MDL*	*MQL*	*Units*	*File*
TCLP Pyridine (Reg. Limit 5)	1137658	ND	0.00533	0.0054	mg/L	126769634

CCV

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
TCLP 2,4,5-Trichlorophenol	52.0	50.0	mg/L	104	70.0 - 130	126769632
TCLP 2,4,6-Trichlorophenol	51.7	50.0	mg/L	103	70.0 - 130	126769632
TCLP 2,4-Dinitrotoluene	47.3	50.0	mg/L	94.5	70.0 - 130	126769632
TCLP 2-Methylphenol (o-Cresol)	47.8	50.0	mg/L	95.6	70.0 - 130	126769632
TCLP 3&4-Methylphenol (m&p-Creso	47.8	50.0	mg/L	95.5	70.0 - 130	126769632
TCLP bis(2-Chloroethyl)ether	45.5	50.0	mg/L	90.9	70.0 - 130	126769632
TCLP Hexachlorobenzene	49.0	50.0	mg/L	97.9	70.0 - 130	126769632
TCLP Hexachlorobutadiene	48.8	50.0	mg/L	97.5	70.0 - 130	126769632
TCLP Hexachloroethane	49.6	50.0	mg/L	99.2	70.0 - 130	126769632
TCLP Nitrobenzene	47.0	50.0	mg/L	94.0	70.0 - 130	126769632
TCLP Pentachlorophenol	48.0	50.0	mg/L	96.1	70.0 - 130	126769632
TCLP Pyridine (Reg. Limit 5)	48.4	50.0	mg/L	96.7	70.0 - 130	126769632

DFTPP

Parameter		*RefMass*	*Reading*	*%*	*Limits%*	*File*
DFTPP Mass 127	626753	198	43472	50.5	40.0 - 60.0	126769631
DFTPP Mass 197	626753	198	0	0.0	0 - 1.00	126769631
DFTPP Mass 198	626753	198	86134	100.0	100 - 100	126769631
DFTPP Mass 199	626753	198	5746	6.7	5.00 - 9.00	126769631
DFTPP Mass 275	626753	198	17174	19.9	10.0 - 30.0	126769631
DFTPP Mass 365	626753	198	2041	2.4	1.00 - 100	126769631
DFTPP Mass 441	626753	443	6626	79.8	0 - 100	126769631
DFTPP Mass 442	626753	198	43992	51.1	40.0 - 100	126769631
DFTPP Mass 443	626753	442	8303	18.9	17.0 - 23.0	126769631
DFTPP Mass 51	626753	198	26536	30.8	30.0 - 60.0	126769631
DFTPP Mass 68	626753	69.0	335	1.0	0 - 2.00	126769631
DFTPP Mass 69	626753	198	31997	37.1	0 - 100	126769631
DFTPP Mass 70	626753	69.0	162	0.5	0 - 2.00	126769631

IS Areas

Parameter	*Sample*	*Type*	*Reading*	*CCVISM*	*Low*	*High*	*File*	*PrepSet*
1,4-Dichlorobenzene-d4-ISTD	626417	CCV	218500	218500	109200	327700	126769632	626417
Acenaphthene-d10-ISTD	626417	CCV	426700	426700	213300	640000	126769632	626417
Naphthalene-d8-ISTD	626417	CCV	837000	837000	418500	1255000	126769632	626417
Phenanthrene-d10-ISTD	626417	CCV	610100	610100	305000	915100	126769632	626417
1,4-Dichlorobenzene-d4-ISTD	1136321	Blank	136000	218500	109200	327700	126769637	1136321
Acenaphthene-d10-ISTD	1136321	Blank	266600	426700	213300	640000	126769637	1136321
Naphthalene-d8-ISTD	1136321	Blank	509000	837000	418500	1255000	126769637	1136321
Phenanthrene-d10-ISTD	1136321	Blank	391100	610100	305000	915100	126769637	1136321
1,4-Dichlorobenzene-d4-ISTD	1137658	Blank	172900	218500	109200	327700	126769634	1137658
1,4-Dichlorobenzene-d4-ISTD	1137658	LCS	138900	218500	109200	327700	126769635	1137658
1,4-Dichlorobenzene-d4-ISTD	1137658	LCS Dup	154100	218500	109200	327700	126769636	1137658

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IS Areas

Parameter	*Sample*	*Type*	*Reading*	*CCVISM*	*Low*	*High*	*File*	*PrepSet*
Acenaphthene-d10-ISTD	1137658	Blank	332400	426700	213300	640000	126769634	1137658
Acenaphthene-d10-ISTD	1137658	LCS	260100	426700	213300	640000	126769635	1137658
Acenaphthene-d10-ISTD	1137658	LCS Dup	275600	426700	213300	640000	126769636	1137658
Naphthalene-d8-ISTD	1137658	Blank	638000	837000	418500	1255000	126769634	1137658
Naphthalene-d8-ISTD	1137658	LCS	521000	837000	418500	1255000	126769635	1137658
Naphthalene-d8-ISTD	1137658	LCS Dup	569400	837000	418500	1255000	126769636	1137658
Phenanthrene-d10-ISTD	1137658	Blank	484700	610100	305000	915100	126769634	1137658
Phenanthrene-d10-ISTD	1137658	LCS	349800	610100	305000	915100	126769635	1137658
Phenanthrene-d10-ISTD	1137658	LCS Dup	376700	610100	305000	915100	126769636	1137658
1,4-Dichlorobenzene-d4-ISTD	2330205	Unknown	145500	218500	109200	327700	126769638	1137658
1,4-Dichlorobenzene-d4-ISTD	2330205	MS	138200	218500	109200	327700	126769639	1137658
Acenaphthene-d10-ISTD	2330205	Unknown	258900	426700	213300	640000	126769638	1137658
Acenaphthene-d10-ISTD	2330205	MS	261700	426700	213300	640000	126769639	1137658
Naphthalene-d8-ISTD	2330205	Unknown	524100	837000	418500	1255000	126769638	1137658
Naphthalene-d8-ISTD	2330205	MS	516800	837000	418500	1255000	126769639	1137658
Phenanthrene-d10-ISTD	2330205	Unknown	354000	610100	305000	915100	126769638	1137658
Phenanthrene-d10-ISTD	2330205	MS	365000	610100	305000	915100	126769639	1137658

IS RetTime

Parameter	*Sample*	*Type*	*Reading*	*CCVISM*	*Low*	*High*	*File*	*PrepSet*
1,4-Dichlorobenzene-d4-ISTD	626417	CCV	7.580	7.580	7.520	7.640	126769632	626417
Acenaphthene-d10-ISTD	626417	CCV	13.92	13.92	13.86	13.98	126769632	626417
Naphthalene-d8-ISTD	626417	CCV	9.960	9.960	9.900	10.02	126769632	626417
Phenanthrene-d10-ISTD	626417	CCV	16.74	16.74	16.68	16.80	126769632	626417
1,4-Dichlorobenzene-d4-ISTD	1136321	Blank	7.580	7.580	7.520	7.640	126769637	1136321
Acenaphthene-d10-ISTD	1136321	Blank	13.91	13.92	13.86	13.98	126769637	1136321
Naphthalene-d8-ISTD	1136321	Blank	9.950	9.960	9.900	10.02	126769637	1136321
Phenanthrene-d10-ISTD	1136321	Blank	16.73	16.74	16.68	16.80	126769637	1136321
1,4-Dichlorobenzene-d4-ISTD	1137658	Blank	7.580	7.580	7.520	7.640	126769634	1137658
1,4-Dichlorobenzene-d4-ISTD	1137658	LCS	7.580	7.580	7.520	7.640	126769635	1137658
1,4-Dichlorobenzene-d4-ISTD	1137658	LCS Dup	7.580	7.580	7.520	7.640	126769636	1137658
Acenaphthene-d10-ISTD	1137658	Blank	13.91	13.92	13.86	13.98	126769634	1137658
Acenaphthene-d10-ISTD	1137658	LCS	13.91	13.92	13.86	13.98	126769635	1137658
Acenaphthene-d10-ISTD	1137658	LCS Dup	13.91	13.92	13.86	13.98	126769636	1137658
Naphthalene-d8-ISTD	1137658	Blank	9.960	9.960	9.900	10.02	126769634	1137658
Naphthalene-d8-ISTD	1137658	LCS	9.960	9.960	9.900	10.02	126769635	1137658
Naphthalene-d8-ISTD	1137658	LCS Dup	9.960	9.960	9.900	10.02	126769636	1137658
Phenanthrene-d10-ISTD	1137658	Blank	16.73	16.74	16.68	16.80	126769634	1137658
Phenanthrene-d10-ISTD	1137658	LCS	16.73	16.74	16.68	16.80	126769635	1137658
Phenanthrene-d10-ISTD	1137658	LCS Dup	16.73	16.74	16.68	16.80	126769636	1137658
1,4-Dichlorobenzene-d4-ISTD	2330205	Unknown	7.580	7.580	7.520	7.640	126769638	1137658
1,4-Dichlorobenzene-d4-ISTD	2330205	MS	7.580	7.580	7.520	7.640	126769639	1137658
Acenaphthene-d10-ISTD	2330205	Unknown	13.91	13.92	13.86	13.98	126769638	1137658
Acenaphthene-d10-ISTD	2330205	MS	13.91	13.92	13.86	13.98	126769639	1137658
Naphthalene-d8-ISTD	2330205	Unknown	9.950	9.960	9.900	10.02	126769638	1137658

QUALITY CONTROL

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IS RetTime

Parameter	Sample	Type	Reading	CCVISM	Low	High	File	PrepSet
Naphthalene-d8-ISTD	2330205	MS	9.960	9.960	9.900	10.02	126769639	1137658
Phenanthrene-d10-ISTD	2330205	Unknown	16.73	16.74	16.68	16.80	126769638	1137658
Phenanthrene-d10-ISTD	2330205	MS	16.73	16.74	16.68	16.80	126769639	1137658

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
TCLP 2,4,5-Trichlorophenol	1137658	0.0192	0.0196	0.025	39.3 - 111	76.8	78.4	mg/L	2.06	30.0
TCLP 2,4,6-Trichlorophenol	1137658	0.0193	0.0202	0.025	38.2 - 109	77.2	80.8	mg/L	4.56	30.0
TCLP 2,4-Dinitrotoluene	1137658	0.0184	0.0189	0.025	36.3 - 132	73.6	75.6	mg/L	2.68	30.0
TCLP 2-Methylphenol (o-Cresol)	1137658	0.0152	0.0153	0.025	23.0 - 87.8	60.8	61.2	mg/L	0.656	30.0
TCLP 3&4-Methylphenol (m&p-Creso	1137658	0.0138	0.0138	0.025	14.9 - 92.5	55.2	55.2	mg/L	0	30.0
TCLP bis(2-Chloroethyl)ether	1137658	0.0185	0.0189	0.025	22.9 - 122	74.0	75.6	mg/L	2.14	30.0
TCLP Hexachlorobenzene	1137658	0.020	0.0202	0.025	44.4 - 117	80.0	80.8	mg/L	0.995	30.0
TCLP Hexachlorobutadiene	1137658	0.011	0.0112	0.025	17.2 - 88.9	44.0	44.8	mg/L	1.80	30.0
TCLP Hexachloroethane	1137658	0.0108	0.011	0.025	14.6 - 88.8	43.2	44.0	mg/L	1.83	30.0
TCLP Nitrobenzene	1137658	0.0193	0.0198	0.025	34.3 - 113	77.2	79.2	mg/L	2.56	30.0
TCLP Pentachlorophenol	1137658	0.0165	0.0172	0.025	15.7 - 129	66.0	68.8	mg/L	4.15	30.0
TCLP Pyridine (Reg. Limit 5)	1137658	0.0112	0.00996	0.025	0.0753 - 83.4	44.8	39.8	mg/L	11.8	30.0

MS

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
TCLP 2,4,5-Trichlorophenol	2330205	0.187	0	0.0038	0.250	33.7 - 116	73.3		mg/L		30.0
TCLP 2,4,6-Trichlorophenol	2330205	0.188	0	0.0038	0.250	20.1 - 131	73.7		mg/L		30.0
TCLP 2,4-Dinitrotoluene	2330205	0.185	0	0.0038	0.250	31.8 - 135	72.5		mg/L		30.0
TCLP 2-Methylphenol (o-Cresol)	2330205	0.156	0	ND	0.250	10.6 - 106	62.4		mg/L		30.0
TCLP 3&4-Methylphenol (m&p-Creso	2330205	0.145	0	ND	0.250	0.100 - 149	58.0		mg/L		30.0
TCLP bis(2-Chloroethyl)ether	2330205	0.176	0	0.0038	0.250	10.8 - 128	68.9		mg/L		30.0
TCLP Hexachlorobenzene	2330205	0.194	0	0.0038	0.250	35.9 - 125	76.1		mg/L		30.0
TCLP Hexachlorobutadiene	2330205	0.0995	0	0.0038	0.250	11.1 - 88.5	38.3		mg/L		30.0
TCLP Hexachloroethane	2330205	0.0989	0	0.0038	0.250	8.41 - 88.1	38.0		mg/L		30.0
TCLP Nitrobenzene	2330205	0.186	0	0.0038	0.250	28.7 - 119	72.9		mg/L		30.0
TCLP Pentachlorophenol	2330205	0.176	0	0.0095	0.250	8.33 - 141	66.6		mg/L		30.0
TCLP Pyridine (Reg. Limit 5)	2330205	0.0965	0	ND	0.250	0.100 - 97.2	38.6		mg/L		30.0

SPCC

Parameter	Sample	RF	Minimum	File
TCLP 2,4-Dinitrophenol	626417	44.9	0.050	126769632
TCLP 4-Nitrophenol	626417	42.0	0.050	126769632
TCLP Hexachlorocyclopentadiene	626417	50.9	0.050	126769632
TCLP N-Nitroso-n-propylamine	626417	48.0	0.050	126769632

Surrogate

Parameter	Sample	Type	Reading	Known	Units	Recover%	Limits%	File
2,4,6-Tribromophenol	626417	CCV	42.9	100	mg/L	42.9	9.79 - 123	126769632
2-Fluorobiphenyl-SURR	626417	CCV	49.2	50.0	mg/L	98.4	0.100 - 131	126769632
2-Fluorophenol-SURR	626417	CCV	49.0	100	mg/L	49.0	5.36 - 80.2	126769632

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Surrogate

Parameter	*Sample*	*Type*	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
4-Terphenyl-d14-SURR	626417	CCV	47.3	50.0	mg/L	94.6	0.100 - 137	126769632
Nitrobenzene-d5-SURR	626417	CCV	48.9	50.0	mg/L	97.8	0.100 - 131	126769632
Phenol-d6-SURR	626417	CCV	47.8	100	mg/L	47.8	0.100 - 66.5	126769632
2,4,6-Tribromophenol	1136321	Blank	0.0565	0.100	mg/L	56.5	9.79 - 123	126769637
2-Fluorobiphenyl-SURR	1136321	Blank	30.9	50.0	mg/L	61.8	0.100 - 131	126769637
2-Fluorophenol-SURR	1136321	Blank	44.2	100	mg/L	44.2	5.36 - 80.2	126769637
4-Terphenyl-d14-SURR	1136321	Blank	32.5	50.0	mg/L	65.0	0.100 - 137	126769637
Nitrobenzene-d5-SURR	1136321	Blank	33.3	50.0	mg/L	66.6	0.100 - 131	126769637
Phenol-d6-SURR	1136321	Blank	29.4	100	mg/L	29.4	0.100 - 66.5	126769637
2,4,6-Tribromophenol	1137658	Blank	0.0578	0.100	mg/L	57.8	9.79 - 123	126769634
2,4,6-Tribromophenol	1137658	LCS	0.0598	0.100	mg/L	59.8	9.79 - 123	126769635
2,4,6-Tribromophenol	1137658	LCS Dup	0.0624	0.100	mg/L	62.4	9.79 - 123	126769636
2-Fluorobiphenyl-SURR	1137658	Blank	32.6	50.0	mg/L	65.2	0.100 - 131	126769634
2-Fluorobiphenyl-SURR	1137658	LCS	35.5	50.0	mg/L	71.0	0.100 - 131	126769635
2-Fluorobiphenyl-SURR	1137658	LCS Dup	36.1	50.0	mg/L	72.2	0.100 - 131	126769636
2-Fluorophenol-SURR	1137658	Blank	47.1	100	mg/L	47.1	5.36 - 80.2	126769634
2-Fluorophenol-SURR	1137658	LCS	47.4	100	mg/L	47.4	5.36 - 80.2	126769635
2-Fluorophenol-SURR	1137658	LCS Dup	47.8	100	mg/L	47.8	5.36 - 80.2	126769636
4-Terphenyl-d14-SURR	1137658	Blank	32.5	50.0	mg/L	65.0	0.100 - 137	126769634
4-Terphenyl-d14-SURR	1137658	LCS	33.6	50.0	mg/L	67.2	0.100 - 137	126769635
4-Terphenyl-d14-SURR	1137658	LCS Dup	33.7	50.0	mg/L	67.4	0.100 - 137	126769636
Nitrobenzene-d5-SURR	1137658	Blank	35.6	50.0	mg/L	71.2	0.100 - 131	126769634
Nitrobenzene-d5-SURR	1137658	LCS	39.0	50.0	mg/L	78.0	0.100 - 131	126769635
Nitrobenzene-d5-SURR	1137658	LCS Dup	40.1	50.0	mg/L	80.2	0.100 - 131	126769636
Phenol-d6-SURR	1137658	Blank	30.6	100	mg/L	30.6	0.100 - 66.5	126769634
Phenol-d6-SURR	1137658	LCS	31.5	100	mg/L	31.5	0.100 - 66.5	126769635
Phenol-d6-SURR	1137658	LCS Dup	31.6	100	mg/L	31.6	0.100 - 66.5	126769636
2,4,6-Tribromophenol	2330205	Unknown	0.508	1.00	mg/L	50.8	9.79 - 123	126769638
2,4,6-Tribromophenol	2330205	MS	0.601	1.00	mg/L	60.1	9.79 - 123	126769639
2-Fluorobiphenyl-SURR	2330205	Unknown	0.312	0.500	mg/L	62.4	0.100 - 131	126769638
2-Fluorobiphenyl-SURR	2330205	MS	0.331	0.500	mg/L	66.2	0.100 - 131	126769639
2-Fluorophenol-SURR	2330205	Unknown	0.444	1.00	mg/L	44.4	5.36 - 80.2	126769638
2-Fluorophenol-SURR	2330205	MS	0.441	1.00	mg/L	44.1	5.36 - 80.2	126769639
4-Terphenyl-d14-SURR	2330205	Unknown	0.312	0.500	mg/L	62.4	0.100 - 137	126769638
4-Terphenyl-d14-SURR	2330205	MS	0.349	0.500	mg/L	69.8	0.100 - 137	126769639
Nitrobenzene-d5-SURR	2330205	Unknown	0.338	0.500	mg/L	67.6	0.100 - 131	126769638
Nitrobenzene-d5-SURR	2330205	MS	0.373	0.500	mg/L	74.6	0.100 - 131	126769639
Phenol-d6-SURR	2330205	Unknown	0.280	1.00	mg/L	28.0	0.100 - 66.5	126769638
Phenol-d6-SURR	2330205	MS	0.299	1.00	mg/L	29.9	0.100 - 66.5	126769639

Analytical Set 1137361 — EPA 350.1 2

Blank

Parameter	*PrepSet*	*Reading*	*MDL*	*MQL*	*Units*	*File*
Ammonia Nitrogen	1136490	ND	0.509	1.00	mg/kg	126750195

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CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Ammonia Nitrogen	2.09	2.00	mg/kg	104	90.0 - 110	126750191
Ammonia Nitrogen	2.15	2.00	mg/kg	108	90.0 - 110	126750192
Ammonia Nitrogen	2.15	2.00	mg/kg	108	90.0 - 110	126750193
Ammonia Nitrogen	2.18	2.00	mg/kg	109	90.0 - 110	126750194
Ammonia Nitrogen	2.15	2.00	mg/kg	108	90.0 - 110	126750202
Ammonia Nitrogen	2.14	2.00	mg/kg	107	90.0 - 110	126750203
Ammonia Nitrogen	2.13	2.00	mg/kg	106	90.0 - 110	126750204
Ammonia Nitrogen	2.14	2.00	mg/kg	107	90.0 - 110	126750205
Ammonia Nitrogen	2.12	2.00	mg/kg	106	90.0 - 110	126750206
Ammonia Nitrogen	2.16	2.00	mg/kg	108	90.0 - 110	126750207

Duplicate

Parameter	Sample	Result	Unknown	Unit	RPD	Limit%
Ammonia Nitrogen	2330210	77.7	84.2	mg/kg	8.03	20.0

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Ammonia Nitrogen	2.10	2.00	mg/kg	105	90.0 - 110	126750190

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Ammonia Nitrogen	1136490	98.4	99.9	100	90.0 - 110	98.4	99.9	mg/kg	1.51	20.0

Mat. Spike

Parameter	Sample	Spike	Unknown	Known	Units	Recovery %	Limits %	File	
Ammonia Nitrogen	2330210	109	84.2	100	mg/kg	24.8	80.0 - 120	126750200	*

Analytical Set 1136752 — SM 2540 G-1997

ControlBlk

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Total Solids	1136752	0.0001			grams	126734314

Duplicate

Parameter	Sample	Result	Unknown	Unit	RPD	Limit%
Total Solids	2330603	22.7	22.7	%	0	20.0

Analytical Set 1136551 — EPA 9056

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Nitrate-Nitrogen	1136320	ND	0.0185	0.0226	mg/kg	126731133
Nitrite-Nitrogen	1136320	ND	0.00717	0.0152	mg/kg	126731133

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Nitrate-Nitrogen	2.07	2.26	mg/kg	91.6	90.0 - 110	126731132
Nitrite-Nitrogen	2.96	3.04	mg/kg	97.4	90.0 - 110	126731132

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LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Nitrate-Nitrogen	1136320	0.936	0.914	1.13	75.0 - 120	82.8	80.9	mg/kg	2.38	20.0
Nitrite-Nitrogen	1136320	1.29	1.31	1.52	72.0 - 115	84.9	86.2	mg/kg	1.54	20.0

Analytical Set 1136606 — EPA 7471B 2

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Mercury	1136476	0.0000531	0.0000419	0.0001	mg/kg	126732206

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Mercury	0.00511	0.005	mg/kg	102	90.0 - 110	126732204
Mercury	0.00491	0.005	mg/kg	98.2	90.0 - 110	126732205
Mercury	0.00473	0.005	mg/kg	94.6	90.0 - 110	126732212
Mercury	0.00469	0.005	mg/kg	93.8	90.0 - 110	126732216

ICL

Parameter	Reading	Known	Units	Recover%	Limits%	File
Mercury	0.0201	0.02	mg/kg	100	90.0 - 110	126732203

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Mercury	0.0049	0.005	mg/kg	98.0	90.0 - 110	126732202

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Mercury	1136476	0.00984	0.00962	0.010	78.6 - 104	98.4	96.2	mg/kg	2.26	20.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Mercury	2330034	0.822	0.884	0.0328	0.997	74.3 - 109	79.2	85.4	mg/kg	7.56	25.0

Analytical Set 1137010 — EPA 6010C

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Phosphorus	1136861	0.0603	0.00734	0.100	mg/kg	126740729

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Phosphorus	1.04	1.00	mg/kg	104	90.0 - 110	126740728
Phosphorus	1.05	1.00	mg/kg	105	90.0 - 110	126740737

ICL

Parameter	Reading	Known	Units	Recover%	Limits%	File
Phosphorus	25.2	25.0	mg/kg	101	95.0 - 105	126740726

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File

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ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Phosphorus	1.04	1.00	mg/kg	104	90.0 - 110	126740727

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Phosphorus	1136861	19.9	19.8	20.0	80.0 - 120	99.5	99.0	mg/kg	0.504	25.0

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Phosphorus	2330210	225	225	129	98.0	23.3 - 179	98.4	98.4	mg/kg	0	25.0

Analytical Set 1137019 — EPA 6010C

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Potassium	1136861	ND	0.111	0.500	mg/kg	126740935

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Potassium	25.6	25.0	mg/kg	102	90.0 - 110	126740934
Potassium	24.0	25.0	mg/kg	96.0	90.0 - 110	126740944
Potassium	25.0	25.0	mg/kg	100	90.0 - 110	126740953

ICL

Parameter	Reading	Known	Units	Recover%	Limits%	File
Potassium	51.2	50.0	mg/kg	102	95.0 - 105	126740928

ICV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Potassium	25.9	25.0	mg/kg	104	90.0 - 110	126740932

LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Potassium	1136861	23.8	23.7	25.0	78.0 - 116	95.2	94.8	mg/kg	0.421	25.0

LDR

Parameter	Reading	Known	Units	Recover%	Limits%	File
Potassium	98.7	100	mg/kg	98.7	90.0 - 110	126740929

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Potassium	2330210	182	181	55.7	123	33.6 - 179	104	103	mg/kg	0.795	25.0

Analytical Set 1137141 — EPA 6020A

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units		File
Cadmium, Total	1136861	0.000791	0.00011	0.001	mg/kg		126743947
Chromium, Total	1136861	0.00328	0.000409	0.001	mg/kg	*	126743947
Lead, Total	1136861	0.00142	0.000262	0.001	mg/kg	*	126743947

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Parameter	*PrepSet*	*Reading*	*MDL*	*MQL*	*Units*	*File*
Molybdenum, Total	1136861	ND	0.000865	0.003	mg/kg	126743947
Nickel, Total	1136861	ND	0.000287	0.001	mg/kg	126743947
Selenium, Total	1136861	ND	0.000353	0.001	mg/kg	126743947
Zinc, Total	1136861	ND	0.00479	0.010	mg/kg	126743947

CCV

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
Cadmium, Total	0.0511	0.05	mg/kg	102	90.0 - 110	126743946
Cadmium, Total	0.049	0.05	mg/kg	98.0	90.0 - 110	126743950
Cadmium, Total	0.0512	0.05	mg/kg	102	90.0 - 110	126743959
Cadmium, Total	0.0517	0.05	mg/kg	103	90.0 - 110	126743969
Chromium, Total	0.0489	0.05	mg/kg	97.8	90.0 - 110	126743946
Chromium, Total	0.0497	0.05	mg/kg	99.4	90.0 - 110	126743950
Chromium, Total	0.0484	0.05	mg/kg	96.8	90.0 - 110	126743959
Lead, Total	0.0493	0.05	mg/kg	98.6	90.0 - 110	126743946
Lead, Total	0.0493	0.05	mg/kg	98.6	90.0 - 110	126743950
Lead, Total	0.0488	0.05	mg/kg	97.6	90.0 - 110	126743959
Molybdenum, Total	0.0508	0.05	mg/kg	102	90.0 - 110	126743946
Molybdenum, Total	0.0503	0.05	mg/kg	101	90.0 - 110	126743950
Molybdenum, Total	0.0504	0.05	mg/kg	101	90.0 - 110	126743959
Nickel, Total	0.0501	0.05	mg/kg	100	90.0 - 110	126743946
Nickel, Total	0.0501	0.05	mg/kg	100	90.0 - 110	126743950
Nickel, Total	0.0491	0.05	mg/kg	98.2	90.0 - 110	126743959
Selenium, Total	0.0526	0.05	mg/kg	105	90.0 - 110	126743946
Selenium, Total	0.0533	0.05	mg/kg	107	90.0 - 110	126743950
Selenium, Total	0.0542	0.05	mg/kg	108	90.0 - 110	126743959
Zinc, Total	0.050	0.05	mg/kg	100	90.0 - 110	126743946
Zinc, Total	0.0475	0.05	mg/kg	95.0	90.0 - 110	126743950
Zinc, Total	0.0467	0.05	mg/kg	93.4	90.0 - 110	126743959

ICV

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
Cadmium, Total	0.0501	0.05	mg/kg	100	90.0 - 110	126743940
Chromium, Total	0.0482	0.05	mg/kg	96.4	90.0 - 110	126743940
Lead, Total	0.0495	0.05	mg/kg	99.0	90.0 - 110	126743940
Molybdenum, Total	0.0502	0.05	mg/kg	100	90.0 - 110	126743940
Nickel, Total	0.0495	0.05	mg/kg	99.0	90.0 - 110	126743940
Selenium, Total	0.0503	0.05	mg/kg	101	90.0 - 110	126743940
Zinc, Total	0.0497	0.05	mg/kg	99.4	90.0 - 110	126743940

LCS Dup

Parameter	*PrepSet*	*LCS*	*LCSD*	*Known*	*Limits%*	*LCS%*	*LCSD%*	*Units*	*RPD*	*Limit%*
Cadmium, Total	1136861	1.26	1.19	1.25	80.0 - 120	101	95.2	mg/kg	5.71	20.0
Chromium, Total	1136861	2.53	2.41	2.50	80.0 - 120	101	96.4	mg/kg	4.86	20.0
Lead, Total	1136861	2.45	2.33	2.50	80.0 - 120	98.0	93.2	mg/kg	5.02	20.0
Molybdenum, Total	1136861	2.45	2.35	2.50	80.0 - 120	98.0	94.0	mg/kg	4.17	20.0

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LCS Dup

Parameter	PrepSet	LCS	LCSD	Known	Limits%	LCS%	LCSD%	Units	RPD	Limit%
Nickel, Total	1136861	2.49	2.35	2.50	80.0 - 120	99.6	94.0	mg/kg	5.79	20.0
Selenium, Total	1136861	2.52	2.43	2.50	80.0 - 120	101	97.2	mg/kg	3.64	20.0
Zinc, Total	1136861	2.39	2.28	2.50	80.0 - 120	95.6	91.2	mg/kg	4.71	20.0

LDR

Parameter	Reading	Known	Units	Recover%	Limits%	File
Cadmium, Total	9.39	10	mg/kg	93.9	90.0 - 110	126743945
Chromium, Total	9.31	10	mg/kg	93.1	90.0 - 110	126743945
Lead, Total	0.982	1	mg/kg	98.2	90.0 - 110	126743944
Molybdenum, Total	0.985	1	mg/kg	98.5	90.0 - 110	126743944
Nickel, Total	9.20	10	mg/kg	92.0	90.0 - 110	126743945
Selenium, Total	9.76	10	mg/kg	97.6	90.0 - 110	126743945
Zinc, Total	9.05	10	mg/kg	90.5	90.0 - 110	126743945

MSD

Parameter	Sample	MS	MSD	UNK	Known	Limits	MS%	MSD%	Units	RPD	Limit%
Cadmium, Total	2330210	5.57	5.58	0.00661	6.13	86.3 - 114	91.2	91.4	mg/kg	0.180	20.0
Chromium, Total	2330210	11.2	11.4	0.336	12.3	80.1 - 122	89.0	90.7	mg/kg	1.82	20.0
Lead, Total	2330210	11.1	11.2	0.163	12.3	78.8 - 123	89.6	90.5	mg/kg	0.910	20.0
Molybdenum, Total	2330210	10.8	10.8	0.0602	12.3	62.9 - 137	88.0	88.0	mg/kg	0	20.0
Nickel, Total	2330210	10.9	11.1	0.161	12.3	76.5 - 121	88.0	89.7	mg/kg	1.85	20.0
Selenium, Total	2330210	11.3	11.4	0.203	12.3	63.9 - 122	91.0	91.8	mg/kg	0.897	20.0
Zinc, Total	2330210	21.8	22.4	11.5	12.3	28.6 - 157	84.4	89.3	mg/kg	5.66	20.0

Analytical Set 1137960 — EPA 6010C

Blank

Parameter	PrepSet	Reading	MDL	MQL	Units	File
Arsenic	1136861	ND	0.014	0.050	mg/kg	126765410
Copper	1136861	ND	0.00321	0.025	mg/kg	126765410

CCV

Parameter	Reading	Known	Units	Recover%	Limits%	File
Arsenic	2.59	2.50	mg/kg	104	90.0 - 110	126765330
Arsenic	2.60	2.50	mg/kg	104	90.0 - 110	126765331
Arsenic	2.57	2.50	mg/kg	103	90.0 - 110	126765383
Arsenic	2.58	2.50	mg/kg	103	90.0 - 110	126765392
Arsenic	2.58	2.50	mg/kg	103	90.0 - 110	126765401
Arsenic	2.57	2.50	mg/kg	103	90.0 - 110	126765411
Arsenic	2.59	2.50	mg/kg	104	90.0 - 110	126765419
Arsenic	2.56	2.50	mg/kg	102	90.0 - 110	126765429
Copper	2.55	2.50	mg/kg	102	90.0 - 110	126765330
Copper	2.53	2.50	mg/kg	101	90.0 - 110	126765383
Copper	2.54	2.50	mg/kg	102	90.0 - 110	126765392
Copper	2.54	2.50	mg/kg	102	90.0 - 110	126765401
Copper	2.53	2.50	mg/kg	101	90.0 - 110	126765411
Copper	2.54	2.50	mg/kg	102	90.0 - 110	126765419

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CCV

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
Copper	2.53	2.50	mg/kg	101	90.0 - 110	126765429

ICL

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
Arsenic	5.00	5.00	mg/kg	100	95.0 - 105	126765324
Copper	4.89	5.00	mg/kg	97.8	95.0 - 105	126765324

ICV

Parameter	*Reading*	*Known*	*Units*	*Recover%*	*Limits%*	*File*
Arsenic	2.52	2.50	mg/kg	101	90.0 - 110	126765328
Copper	2.52	2.50	mg/kg	101	90.0 - 110	126765328

LCS Dup

Parameter	*PrepSet*	*LCS*	*LCSD*	*Known*	*Limits%*	*LCS%*	*LCSD%*	*Units*	*RPD*	*Limit%*
Arsenic	1136861	2.38	2.37	2.50	84.7 - 113	95.2	94.8	mg/kg	0.421	25.0
Copper	1136861	2.53	2.50	2.50	83.8 - 115	101	100	mg/kg	1.19	25.0

MSD

Parameter	*Sample*	*MS*	*MSD*	*UNK*	*Known*	*Limits*	*MS%*	*MSD%*	*Units*	*RPD*	*Limit%*
Arsenic	2330210	11.6	11.7	0.146	12.3	77.7 - 119	93.9	94.7	mg/kg	0.869	25.0
Copper	2330210	18.4	18.5	6.18	12.3	75.8 - 122	100	101	mg/kg	0.815	25.0

* Out RPD is Relative Percent Difference: abs(r1-r2) / mean(r1,r2) * 100% Recover% is Recovery Percent: result / known * 100%

Blank - Method Blank (reagent water or other blank matrices that contains all reagents except standard(s) and is processed simultaneously with and under the same conditions as samples; carried through preparation and analytical procedures exactly like a sample; monitors); CCV - Continuing Calibration Verification (same standard used to prepare the curve; typically a mid-range concentration; verifies the continued validity of the calibration curve); LCS Dup - Laboratory Control Sample Duplicate (replicate LCS; analyzed when there is insufficient sample for duplicate or MSD; quantifies accuracy and precision.); MSD - Matrix Spike Duplicate (replicate of the matrix spike; same solution and amount of target analyte added to the MS is added to a third aliquot of sample; quantifies matrix bias and precision.); ICV - Initial Calibration Verification; BFB - Bromofluorobenzene, GC/MS Tuning Compound (mass intensity used as tuning acceptance criteria.); Surrogate - Surrogate (mimics the analyte of interest but is unlikely to be found in environmental samples; added to analytical samples for QC purposes. **ANSI/ASQC E4 1994 Ref #4 TRADE QA Resources Guide.); IS Areas - Internal Standard Area (The area of the internal stadard relative to a check standard. Internal Standard is a known concentration of an analyte(s) that is not a sample component or standard that is added to the sample and standard and is used to measure the relative responses of other analytes in the same sample or standard.); IS RetTime - Internal Standard Retention Time (the time the internal standard comes off the column. Internal Stardard is a known concentration of an analyte(s) that is not a sample component or standard that is added to the sample and standard and is used to measure the relative responses of other analytes in the same sample or standard.); LDR - Linear Dynamic Range Standard; MS - Matrix Spike (same solution and amount of target analyte added to the LCS is added to a second aliquot of sample; quantifies matrix bias.); DFTPP - GC/MS Tuning Compound

1116350 CoC Print Group 001 of 001

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Chain-of-Custody & Analysis Request

T104704371

SHIPPED TO:
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C-O-C #

866 - H028341

All analyses must be performed by a TNI approved method certified by the TCEQ. Contact ATL's sample custodian via voice and email if your methods do not meet this criteria.

Analysis Request for: **Sample ID: H028341-01** Sampled: 08/29/24 15:35 Matrix: Non Potable **Laboratory ID >>** 2330205

TCLP Pesticides - EPA 8081A
TCLP Herbicides - EPA 8151
TCLP Volatiles - EPA 8260B
TCLP SemiVol - EPA 8270C
TCLP EXT Metals - SW-846 131
TCLP EXT Non-Vol - SW-846 131
TCLP EXT Vol - SW-846 131
TCLP Metals (7) - SW-846 6020
TCLP Hg - SW-846 7470A

Analysis Request for: **Sample ID: H028341-02** Sampled: 08/29/24 13:30 Matrix: Solid **Laboratory ID >>** 210

Solids, Percent - % calculation
NH3N SL SUB - EPA 350.1 R2.0
NO3N + NO2N SL - EPA 353.2
K - EPA 6010B 1996
Mo SL - EPA 6010B 1996
P - EPA 6010B 1996
As SL - EPA 6020A
Cd SL - EPA 6020A
Cr SL - EPA 6020A
Cu SL - EPA 6020A
Ni SL - EPA 6020A
Pb SL - EPA 6020A
Se SL - EPA 6020A
Zn SL - EPA 6020A
Hg SL - EPA 7471A 1994
TS - SM2540 G 2011
NO2N - SM4500 NO2- B, 2000

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Solids, Percent - % calculation

Analysis Request for: **Sample ID: H028341-04** Sampled: 09/05/24 00:00 Matrix: Solid **Laboratory ID >>**

Solids, Percent - % calculation

Analysis Request for: **Sample ID: H028341-05** Sampled: 09/05/24 00:00 Matrix: Solid **Laboratory ID >>**

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Solids, Percent - % calculation

Analysis Request for: **Sample ID: H028341-08** Sampled: 09/05/24 00:00 Matrix: Solid **Laboratory ID >>**

Solids, Percent - % calculation

Analysis Request for: **Sample ID: H028341-09** Sampled: 09/05/24 00:00 Matrix: Solid **Laboratory ID >>**

Solids, Percent - % calculation

AQUA-TECH LABORATORIES, INC.

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(512) 301-9559
Fax (512) 301-9552

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T104704371

C-O-C #

866 - H028341

All analyses must be performed by a TNI approved method certified by the TCEQ. Contact ATL's sample custodian via voice and email if your methods do not meet this criteria.

CONTAINERS SUPPLIED: (ATL indicates cooler number in parentheses for each container - only required if more than one cooler listed below.)

( ) H028341-01 [A] - TCLP FULL 1LG
( ) H028341-01 [B] - TCLP FULL 1LG
( ) H028341-01 [C] - TCLP FULL 1LG
( ) H028341-01 [D] - TCLP FULL 1LG
( ) H028341-02 [B] - Sludge Metals & Hg 0.25LP
( ) H028341-02 [C] - Sludge Nutrients 0.25LP
( ) H028341-02 [E] - [SUB] ANA PCB 0.33LG

See next page(s) for list of analytes requested.

Relinquished by: (print & sign) [X] ATL-Austin [ ] ATL - Bryan [ ] Sampler Suzanne Rudd		Date 8/29/24	Time 1625	[X] Iced [X] Custody Sealed [ ] Not Chilled	**Abbreviations:** DW - Drinking Water; NP - Non-Potable Water; S - Solid; CTU - Custody Transfer Unbroken; STP - Sterile Plastic; LP - Liter Plastic; LG - Liter Glass
Carrier & Tracking Number: Fed Ex	Cooler 1: AQU1 7777 6010 0442			Sample Info "X" all that apply	**Aqua-Tech Comments and Special Instructions**
Received by: (print & sign) [✓] Received in Lab Rayshawn Thompson SPL, Inc.		Date 8/30/24	Time 1015	[✓] Received Iced [ ] CTU [ ] Condition Good [ ] Not Rec'd Iced	Use sample ID as PO# Need new 2010 MALs. Please J Flag metals < MRL & note all metals < MDL on reports.

Line below documents condition at receipt in lab (shipped to) listed above.

Cooler Temperature (°C)	Temp. Read (TR)	Corrected Temp. (CT)	Thermometer ID
Cooler 1			
N/A	N/A	N/A	

Please email reports to:
reporting@aqua-techlabs.com

Please return cooler(s) to:
Austin Facility

Do not further sub-contract any analysis.
Keep in house or call for further instructions.

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866 - H028341

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Analytes Requested for Multiple Component Tests

H028341-01

TCLP Herbicides EPA 8151

2,4,5-TP (Silvex) | 2,4-D

TCLP Hg SW-846 7470A

Mercury

TCLP Metals (7) SW-846 6020

Arsenic	Barium	Cadmium	Chromium
Lead	Selenium	Silver	

TCLP Pesticides EPA 8081A

Chlordane	Endrin	gamma-BHC (Lindane)	Heptachlor
Heptachlor epoxide	Methoxychlor	Toxaphene	

TCLP SemiVol EPA 8270C

2,4,5-Trichlorophenol	2,4,6-Trichlorophenol	2,4-Dinitrotoluene	3&4-Methylphenol (m&p-Cresol)
Bis(2-chloroethyl)ether	Cresol(s)	Hexachlorobenzene	Hexachlorobutadiene
Hexachloroethane	Nitrobenzene	o-Cresol	Pentachlorophenol
Pyridine			

TCLP Volatiles EPA 8260B

1,1-Dichloroethene	1,2-Dichloroethane	1,4-Dichlorobenzene	Benzene
Carbon tetrachloride	Chlorobenzene	Chloroform	Methyl Ethyl Ketone (2-Butanone)
Tetrachloroethylene	Trichloroethylene	Vinyl chloride	

H028341-02

As SL EPA 6020A

Arsenic

Cd SL EPA 6020A

Cadmium

Cr SL EPA 6020A

Chromium

Cu SL EPA 6020A

Copper

Hg SL EPA 7471A 1994

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866 - H028341

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Analytes Requested for Multiple Component Tests

Mercury

K EPA 6010B 1996
Potassium

Mo SL EPA 6010B 1996
Molybdenum

NH3N SL SUB EPA 350.1 R2.0
Ammonia as N

Ni SL EPA 6020A
Nickel

NO2N SM4500 NO2- B, 2000
Nitrite as N

NO3N + NO2N SL EPA 353.2
Nitrate/Nitrite as N

P EPA 6010B 1996
Phosphorus-Total

Pb SL EPA 6020A
Lead

Se SL EPA 6020A
Selenium

Solids, Percent % calculation
% Solids

TS SM2540 G 2011
Total Solids

Zn SL EPA 6020A
Zinc

H028341-03

Solids, Percent % calculation
% Solids

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Analytes Requested for Multiple Component Tests

H028341-04

Solids, Percent % calculation
% Solids

H028341-05

Solids, Percent % calculation
% Solids

H028341-06

Solids, Percent % calculation
% Solids

H028341-07

Solids, Percent % calculation
% Solids

H028341-08

Solids, Percent % calculation
% Solids

H028341-09

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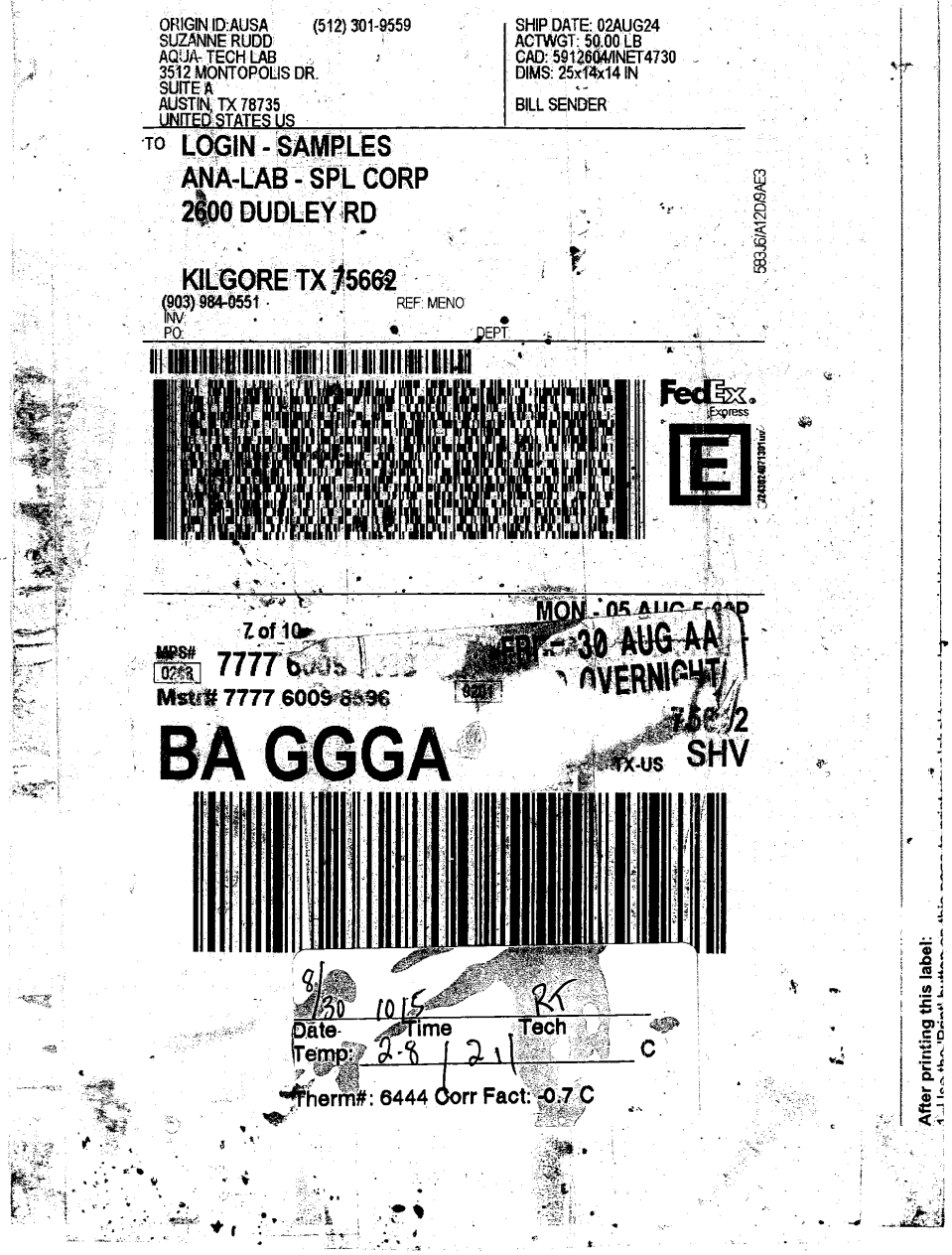

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SUZANNE RUDD
AQUA- TECH LAB
3512 MONTOPOLIS DR.
SUITE A
AUSTIN, TX 78735
UNITED STATES US

SHIP DATE: 02AUG24
ACTWGT: 50.00 LB
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TO LOGIN - SAMPLES
ANA-LAB - SPL CORP
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KILGORE TX 75662
(903) 984-0551 REF: MENO
INV:
PO: DEPT:

583J6/A12D/9AE3

FedEx Express

7 of 10
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TX-US SHV

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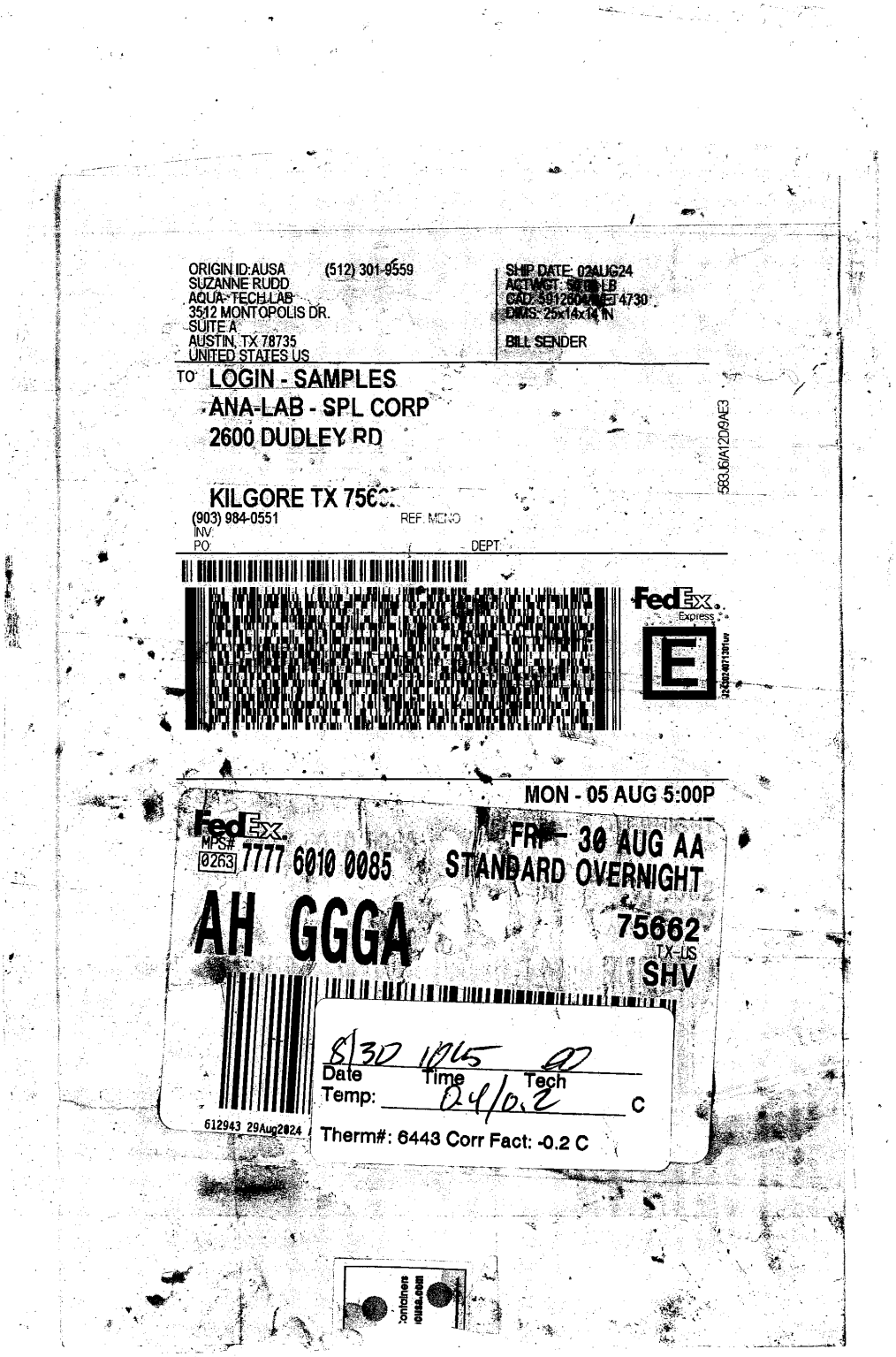
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SUZANNE RUDD
AQUA-TECH LAB
3512 MONTOPOLIS DR.
SUITE A
AUSTIN, TX 78735
UNITED STATES US
SHIP DATE: 02AUG24
ACTWGT: SEE LB
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DIMS: 25x14x14 IN
BILL SENDER
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SHV
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Date Time Tech
Temp: 04/0.2 C
612943 29Aug2024
Therm#: 6443 Corr Fact: -0.2 C

Attachment N

Texas Water Development Board

Report 345

Aquifers of Texas

by
John B. Ashworth, Geologist
and
Janie Hopkins, Geologist

November 1995

Texas Water Development Board

Craig D. Pedersen, Executive Administrator

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Table of Contents

Page

INTRODUCTION. 1

GENERAL GROUND-WATER PRINCIPLES. 7

MAJOR AQUIFERS
- Ogallala 10
- Gulf Coast 12
- Edwards (Balcones Fault Zone) 14
- Carrizo-Wilcox 16
- Trinity 18
- Edwards-Trinity (Plateau) 20
- Seymour 22
- Hueco-Mesilla Bolson 24
- Cenozoic Pecos Alluvium 26

MINOR AQUIFERS
- Bone Spring-Victorio Peak 30
- Dockum 32
- Brazos River Alluvium 34
- Hickory 36
- West Texas Bolsons 38
- Queen City 40
- Woodbine 42
- Edwards-Trinity (High Plains) 44
- Blaine 46
- Sparta 48
- Nacatoch 50
- Lipan 52
- Igneous 54
- Rita Blanca 56
- Ellenburger-San Saba 58
- Blossom 60
- Marble Falls 62
- Rustler 64
- Capitan Reef Complex 66
- Marathon 68

Figures

1. 1992 Ground-Water Pumpage 2
2. 1992 Ground-Water Use 3
3. 1992 Water Use by Type 4

Major Aquifers 9
Minor Aquifers 29

Table

1. Geologic Ages of Aquifers in Texas 5

INTRODUCTION

Water is one of the state's most precious natural resources and basic economic commodities. It interrelates with and affects almost every aspect of human and natural existence. The purpose of this report is to provide a general overview of this resource in Texas and the aquifers in which it resides.

Ground-water sources supplied 56 percent of the 13.5 million acre-feet of water used in the state in 1992. Figure 1 illustrates the level of ground-water pumpage by county in 1992. More than 75 percent of the 7.6 million acre-feet of ground-water pumpage was for irrigated agriculture, with municipal use accounting for almost 17 percent of the total pumpage (Fig. 2). Due to its widespread availability and relatively low cost, ground water accounts for about 69 percent of the total water used for irrigation and about 41 percent of the water used for municipal needs (Fig. 3).

The Texas Water Development Board (TWDB) has identified and characterized nine major and 20 minor aquifers in the state based on the quantity of water supplied by each. A major aquifer is generally defined as supplying large quantities of water in large areas of the state. Minor aquifers typically supply large quantities of water in small areas or relatively small quantities in large areas. The major and minor aquifers, as presently defined, underlie approximately 81 percent of the state. Lesser quantities of water may also be found in the remainder of the state.

The surface extent, or outcrop, of each aquifer is the area in which the host formations are exposed at the land surface. This area corresponds to the principal recharge zone for the aquifers. Ground water encountered within this area is normally under unconfined, water-table conditions and is most susceptible to contamination.

Some water-bearing formations dip below the surface and are covered by other formations. Aquifers with this characteristic are common, although not exclusive, east and south of Interstate Highway 35. Aquifers covered by less permeable formations, such as clay, are confined under artesian pressure. Delineations of the downdip boundaries of such aquifers as the Edwards (BFZ), Trinity, and Carrizo-Wilcox are based on chemical quality criteria.

Aquifer water quality is described in terms of dissolved-solids concentrations expressed in milligrams per liter (mg/l) and is classified as fresh (less than 1,000 mg/l), slightly saline (1,000 - 3,000 mg/l), moderately saline (3,000 - 10,000 mg/l), and very saline (10,000 - 35,000 mg/l). Aquifer downdip boundaries shown on the maps delineate extents of the aquifers that contain ground water with dissolved-solids concentrations that meet the needs of the aquifers' primary uses. The quality limit for most aquifers is 3,000 mg/l dissolved solids, which meets most agricultural and industrial needs. However, the limit for the Edwards (BFZ) is 1,000 mg/l for public water supply use. The limit for the Dockum and Rustler is 5,000 mg/l, and10,000 mg/l for the Blaine for specific irrigation and industrial uses. Some aquifers, such as the Hueco Bolson and Lipan, have depth limitations at which water of acceptable quality can be obtained.

The following descriptions provide general information pertaining to location, geology, quality, yield, common use, and specific problems of the aquifers throughout their Texas extents. Geologic ages of the aquifers are summarized in Table 1. The aquifers are organized in the order of their magnitude of annual withdrawals, with the aquifer experiencing the largest amount of pumpage listed first. A more thorough understanding of each aquifer may be gained by referring to the suggested reports following each aquifer description.

The characterization of the state's ground-water resources and the development of the maps depicting these aquifers have been accomplished by many staff members of the TWDB over many years. The aquifer maps and reports undergo continual revision to reflect the latest information available. Individual aquifer maps accompanying each description are shown at different scales, but are configured from the same map projection as the major and minor aquifer maps.

The authors gratefully acknowledge all who provided input into this report and specifically thank Phil Nordstrom, Richard Preston, and David Thorkildsen for their valuable contributions. Mark Hayes and Steve Gifford also gave significantly of their time and talents in producing the illustrations.

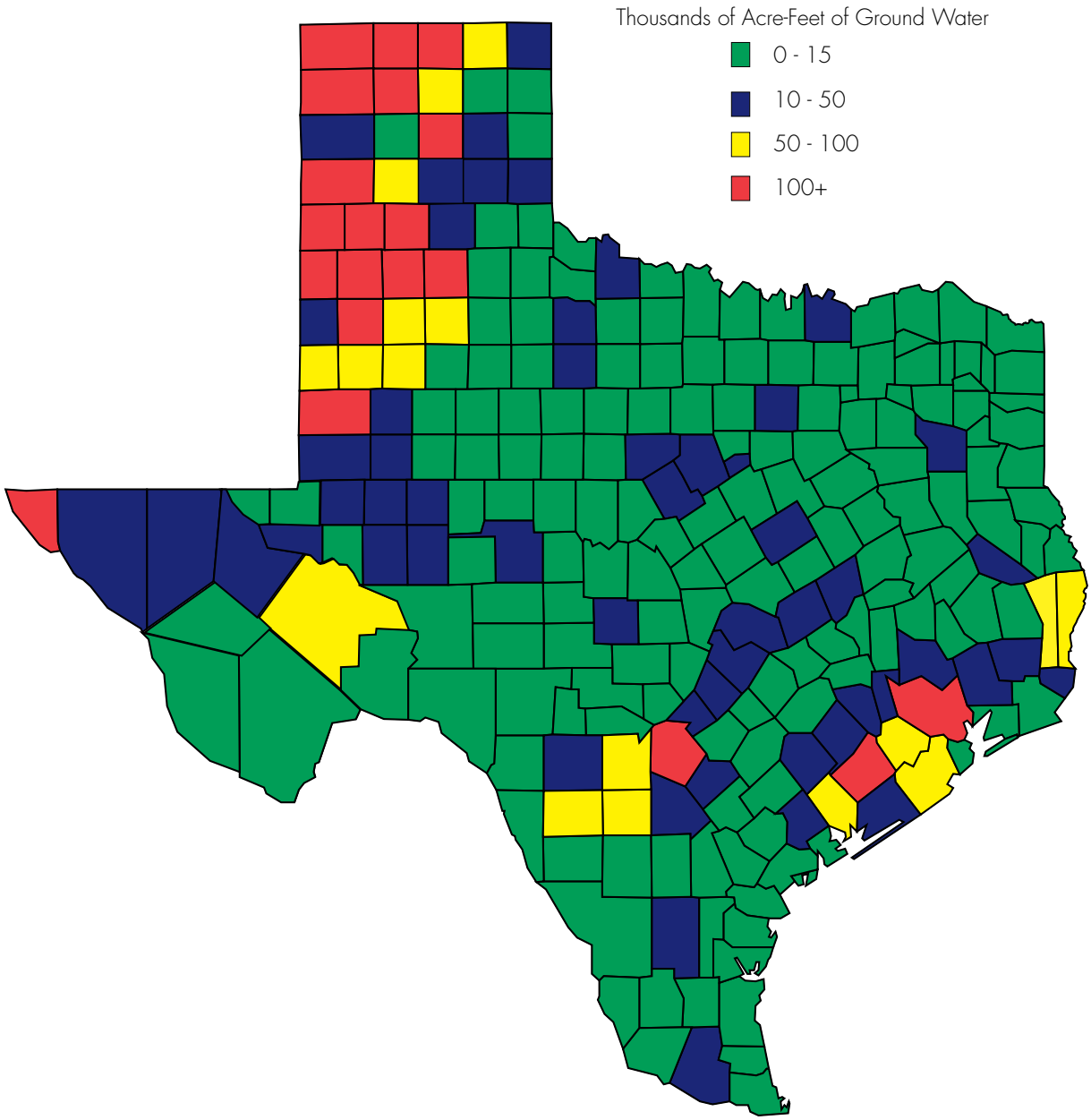


Figure 1. 1992 Ground-Water Pumpage

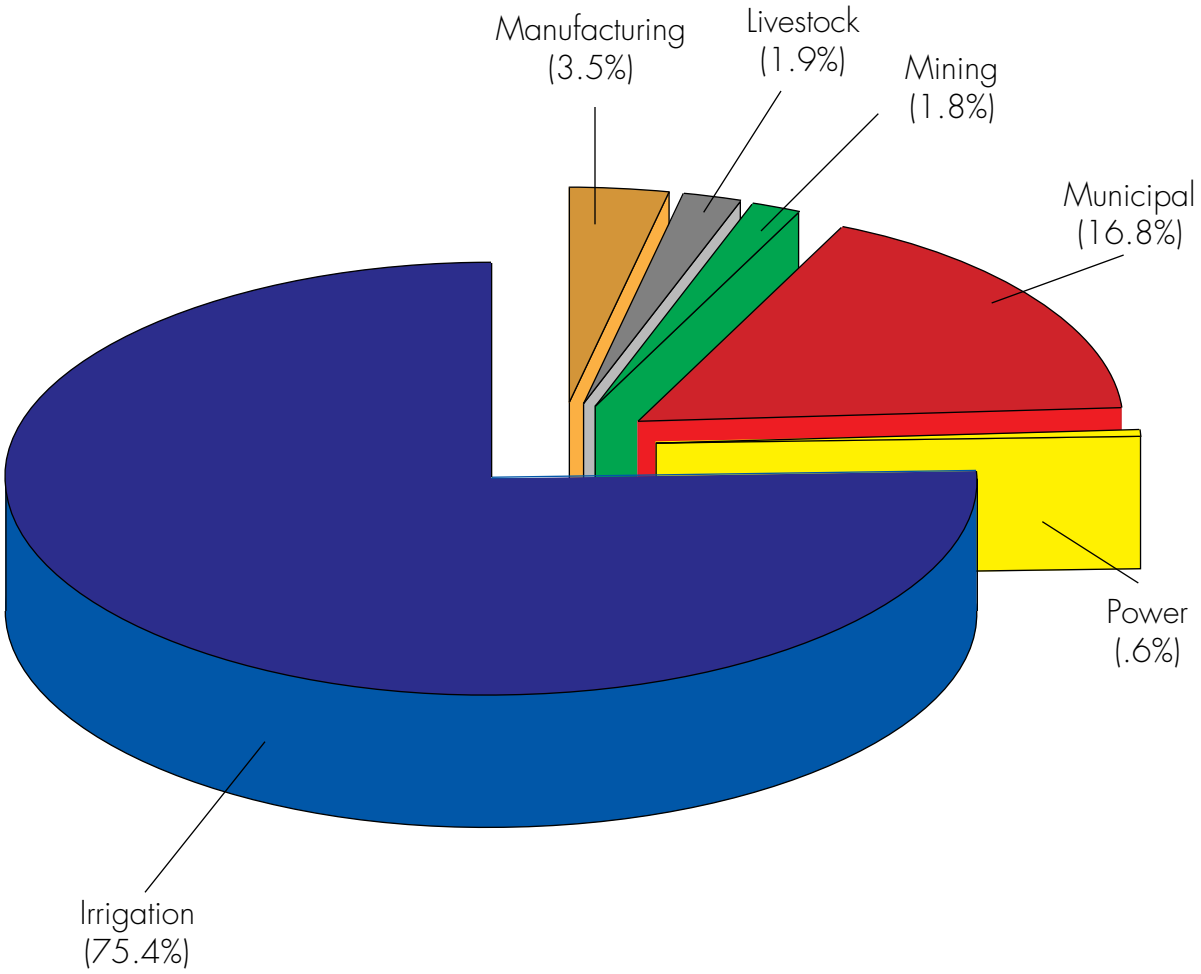


Figure 2. 1992 Ground-Water Use

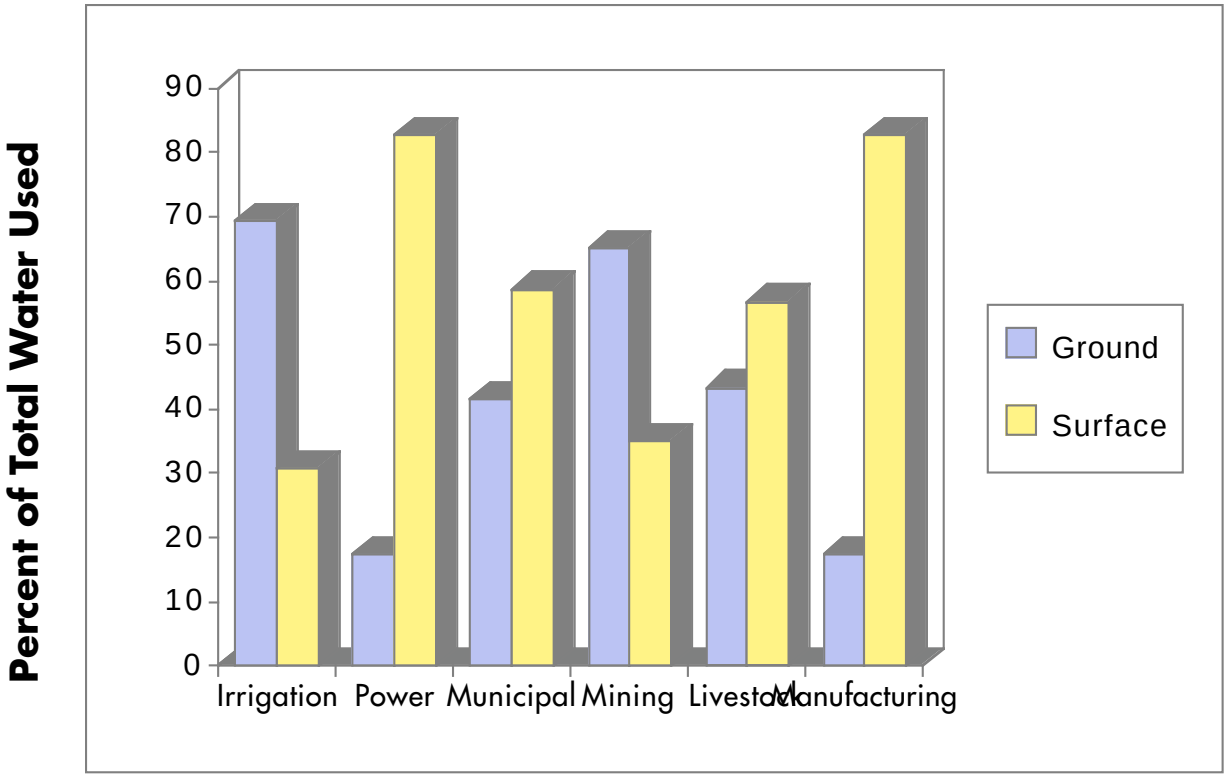


Figure 3. 1992 Water Use by Type

Table 1. Geologic Ages of Aquifers in Texas

Era	Period	Aquifer
Cenozoic	Quaternary	Cenozoic Pecos Alluvium Brazos River Alluvium West Texas Bolsons Seymour Lipan
	Tertiary	Gulf Coast Carrizo-Wilcox Hueco-Mesilla Bolson Ogallala Sparta Igneous Queen City
Mesozoic	Cretaceous	Woodbine Edwards-Trinity (Plateau) Edwards-Trinity (High Plains) Edwards (BFZ) Trinity Nacatoch Blossom Rita Blanca
	Jurassic	Rita Blanca
	Triassic	Dockum
Paleozoic	Permian	Blaine Bone Spring-Victorio Peak Capitan Reef Complex Rustler Lipan
	Pennsylvanian	Marble Falls Marathon
	Mississippian	Marathon
	Devonian	Marathon
	Silurian	Marathon
	Ordovician	Ellenburger-San Saba Marathon
	Cambrian	Ellenburger-San Saba Hickory
Precambrian		

GENERAL GROUND-WATER PRINCIPLES

Vast quantities of water percolate underground through geologic formations known as *aquifers*. The occurrence of water within the formations takes different forms. In sedimentary rocks, such as those composed of sand and gravel, water is contained in the spaces between grains. Some of the largest aquifers in Texas, including the Ogallala, Gulf Coast, and Carrizo-Wilcox, hold water in this fashion. Limestone formations, such as the Edwards, contain water in crevices and caverns caused in part by dissolution of the limestone by ground water. A third occurrence of ground water is within the cracks, fractures, and joints developed in harder formations such as granite and volcanic rock.

Two rock characteristics of fundamental importance related to the occurrence of ground water are *porosity,* which is the amount of open space contained in the rock, and *permeability,* the ability of the porous material to allow fluids to move through it. In sedimentary rocks consisting of sandstone, gravel, clay, and silt, the porosity is a function of the size, shape, sorting, and degree of cementation of the grains. In limestone and other harder rock, the porosity is a function of openings such as cracks, crevices, and caverns. Fine-grained sediments, such as clay and silt, usually have high porosity. However, due to the small size of the voids in these sediments, the permeability is low, and these formations do not readily yield or transmit water. For a geologic formation to be an aquifer, it must be porous, permeable, and yield water in sufficient quantities to provide a usable supply.

Recharge is the addition of water to an aquifer. This water may be absorbed from precipitation, streams, and lakes either directly into a formation or indirectly by way of leakage from another formation. Generally, only a small portion of the total precipitation seeps down through the soil cover to reach the water table. Among the factors that influence the amount of recharge to an aquifer are the amount and frequency of precipitation; the areal extent of the outcrop or intake area; the topography, type and amount of vegetation, and condition of soil cover in the outcrop area; and the ability of the aquifer to accept recharge and transmit it to areas of discharge.

Ground water is said to occur under either *water-table* or *artesian* conditions. Ground water in the outcrop of many aquifers is unconfined and under water-table conditions. Water under these conditions is under atmospheric pressure and will rise or fall in response to changes in the volume of water stored. In most places, the configuration of the water table approximates the topography of the land surface. In a well penetrating an unconfined aquifer, water will rise to the level of the water table.

Away from the outcrop, ground water in the aquifer may occur beneath a relatively impermeable bed. Here, water is under artesian, or confined, conditions, and the impermeable bed confines the water under a pressure greater than atmospheric. In a well penetrating an artesian aquifer, water will rise above the confining bed. If the pressure head is large enough to cause the water in the well to rise above the land surface, the well will flow.

Ground water moves from areas of recharge to areas of discharge, or from points of higher water level to points of lower water level. Under normal artesian conditions, movement of ground water usually is in the direction of the aquifer's regional dip. Under water-table conditions, the slope of the water table, and consequently the direction of ground-water movement, are usually closely related to the slope of the land surface. However, in the case of both artesian and water-table conditions, local anomalies develop in which some water moves toward pumpage areas. The rate of ground-water movement in an aquifer is normally very slow, or in the magnitude of a few feet to a few hundred feet per year.

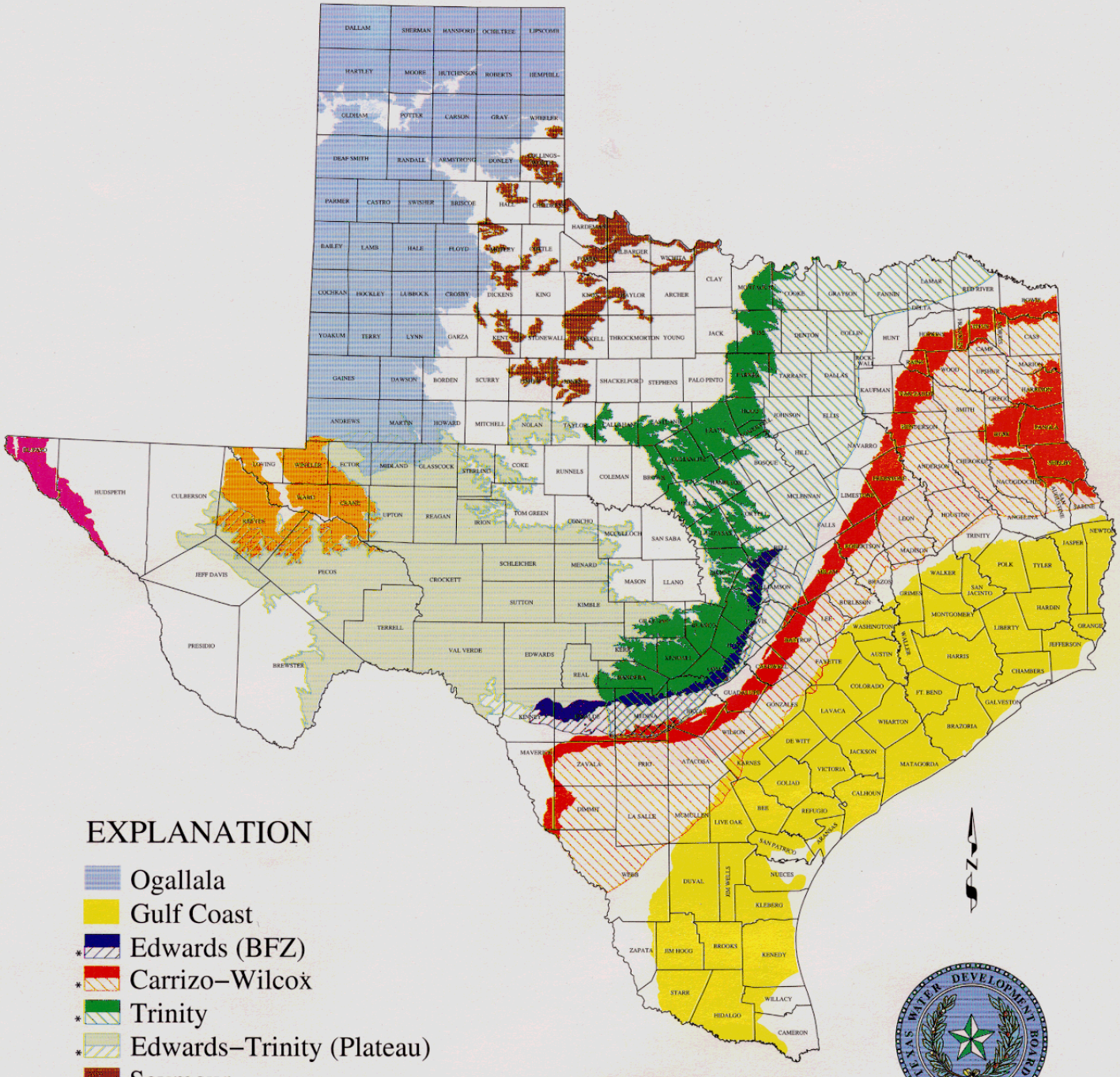
Discharge is the loss of water from an aquifer by either artificial or natural means. Artificial discharge takes place from flowing and pumped water wells, and from drainage ditches, gravel pits, or other excavations that intersect the water table. Natural discharge occurs as springs, evaporation, transpiration, and leakage between formations.

Changes in water levels indicate a change in the ground-water storage in an aquifer. These changes can be due to many causes, with some regionally significant and others confined to more local areas. In short, water-level fluctuations are caused by changes in recharge and discharge.

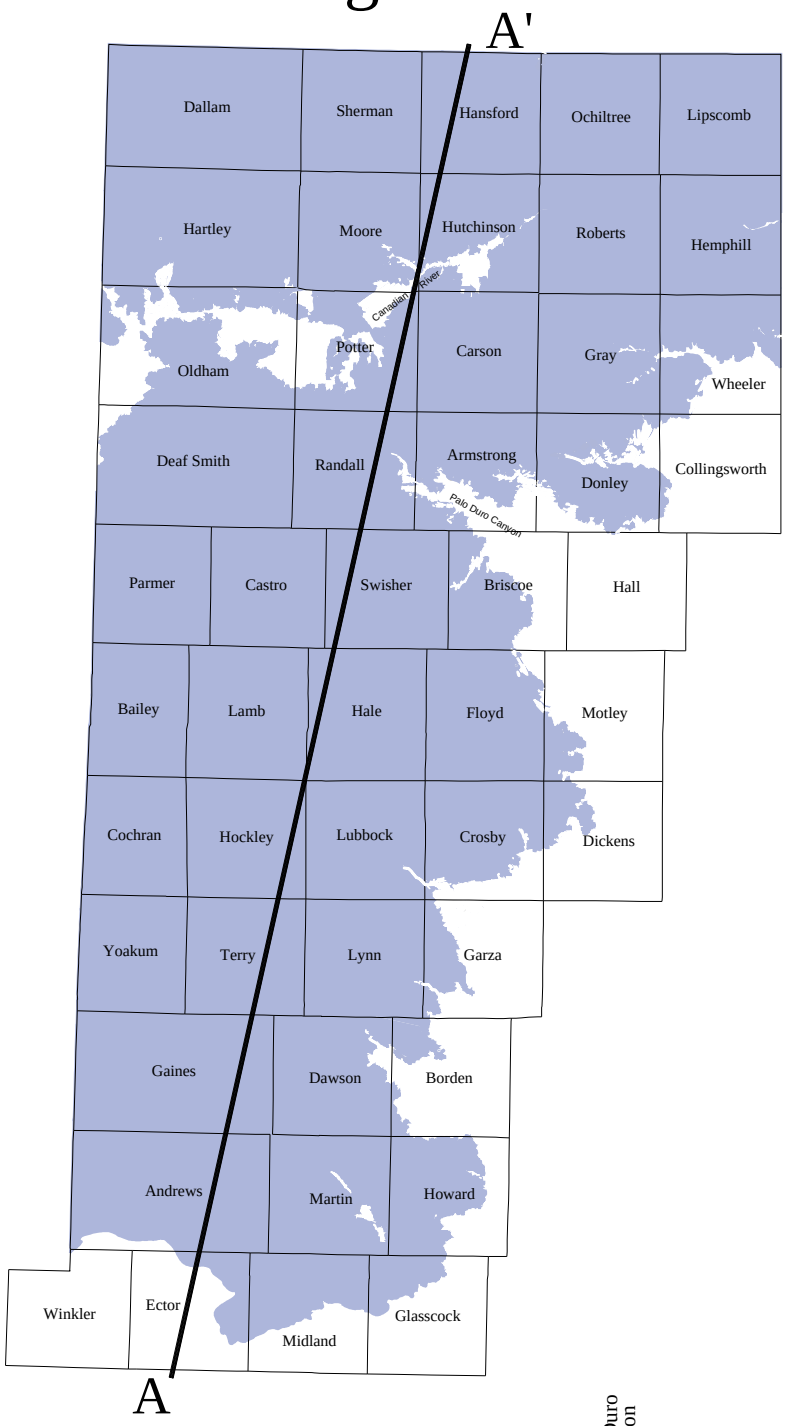
When recharge is reduced, as in the case of a drought, or when pumpage is greater than recharge, some of the water discharged from the aquifer must be withdrawn from storage, resulting in a decline of water levels. If water levels are lowered excessively, springs and shallow wells may go dry. However, when sufficient precipitation resumes or pumpage is reduced, the volume of water drained from storage may be replaced and water levels will rise accordingly. Changes in water levels in water-table aquifers are generally less pronounced than in artesian aquifers.

When a water well is pumped, water levels in the vicinity are drawn down in the shape of an inverted cone with its apex at the pumped well. The development of these *cones of depression* depends on the aquifer's ability to store and move water and on the rate of pumping. If the cone of one well overlaps the cone of another, additional lowering of water levels will occur as the wells compete for the same water.

MAJOR AQUIFERS OF TEXAS



Ogallala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Gray
Wheeler
Deaf Smith
Randall
Armstrong
Donley
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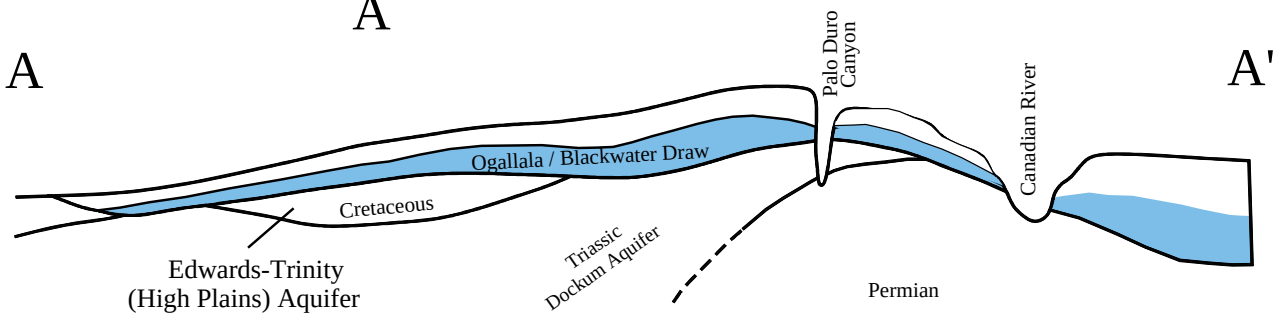
A
Palo Duro Canyon
A'
Canadian River
Ogallala / Blackwater Draw
Cretaceous
Edwards-Trinity
(High Plains) Aquifer
Triassic
Dockum Aquifer
Permian

Ogallala Aquifer

The Ogallala aquifer, the major water-bearing unit in the High Plains of Texas, provides water to all or parts of 46 counties. Water-bearing areas of the Ogallala are laterally connected except where the Canadian River has eroded through the formation, thereby forming the boundary between two separate flow systems referred to as the Northern and Southern High Plains. Vertical hydrologic communication also occurs between the Ogallala and the underlying Cretaceous, Jurassic, and Triassic formations in many areas and between the overlying Quaternary Blackwater Draw Formation where present. Although many communities use the Ogallala aquifer as their sole source of drinking water, approximately 95 percent of the water is used for irrigation.

The Ogallala is composed primarily of sand, gravel, clay, and silt deposited during the Tertiary Period. Ground water, under water-table conditions, moves slowly through the Ogallala Formation in a southeastward direction toward the caprock edge or eastern escarpment of the High Plains. Saturated thickness of the aquifer is generally greater in the northern part of the region and thinner in the southern part where the formation overlaps Cretaceous rocks. The saturated thickness, greatest where sediments have filled previously eroded drainage channels, ranges up to approximately 600 feet. Coarse-grained sediments in these channels also have the greatest permeability and supply water to wells with yields of up to 2,000 gal/min. Average yield of Ogallala wells is approximately 500 gal/min.

The chemical quality of the water in the aquifer is generally fresh; however, both dissolved-solids and chloride concentrations increase from north to south. In the Northern High Plains, dissolved solids are usually less than 400 mg/l. Dissolved-solids concentrations typically exceed 400 mg/l in the Southern High Plains, where extensive areas with concentrations exceeding 1,000 mg/l are common, especially in the vicinity of alkali lakes. The chemical quality in the south is probably influenced by upward leakage and subsequent mixing of water from the underlying Cretaceous aquifers. Fluoride content is commonly high, and selenium concentrations locally are in excess of drinking water standards.

Recharge to the Ogallala occurs principally by infiltration of precipitation on the surface and, to a lesser extent, by upward leakage from underlying formations. Only about one inch of the precipitation actually reaches the water table annually because rainfall is minimal, the evaporation rate is high, and the infiltration rate is slow. The highest recharge infiltration rates occur in areas overlain by sandy soils and in playa-lake basins.

Since the expansion of irrigated agriculture in the mid-1940s, greater amounts of water have been pumped from the aquifer than have been recharged. As a result, some areas have experienced water-level declines in excess of 100 feet from predevelopment to 1990. Reduced pumpage in some areas of the High Plains has resulted in a reduction in the rate of water-level decline.

References

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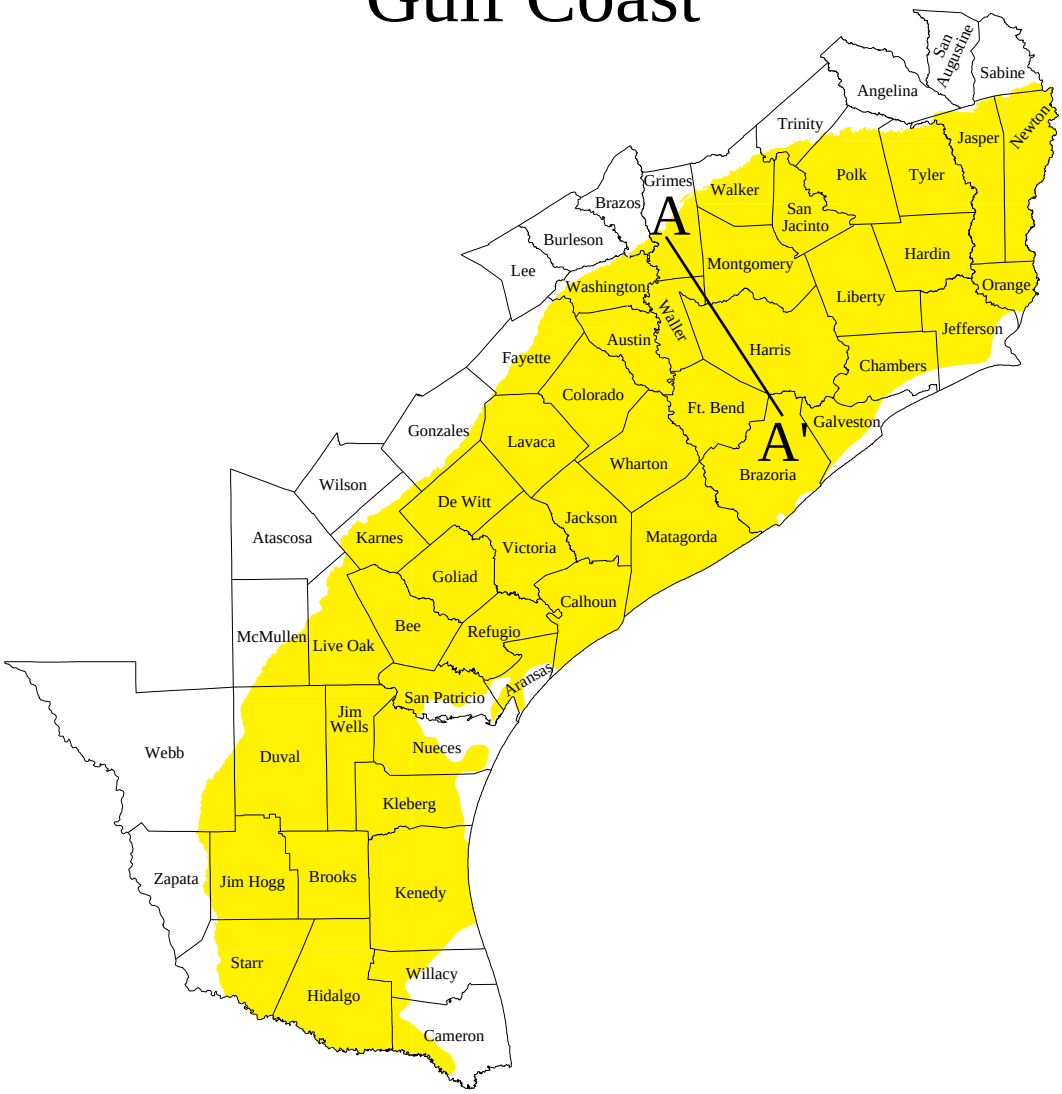
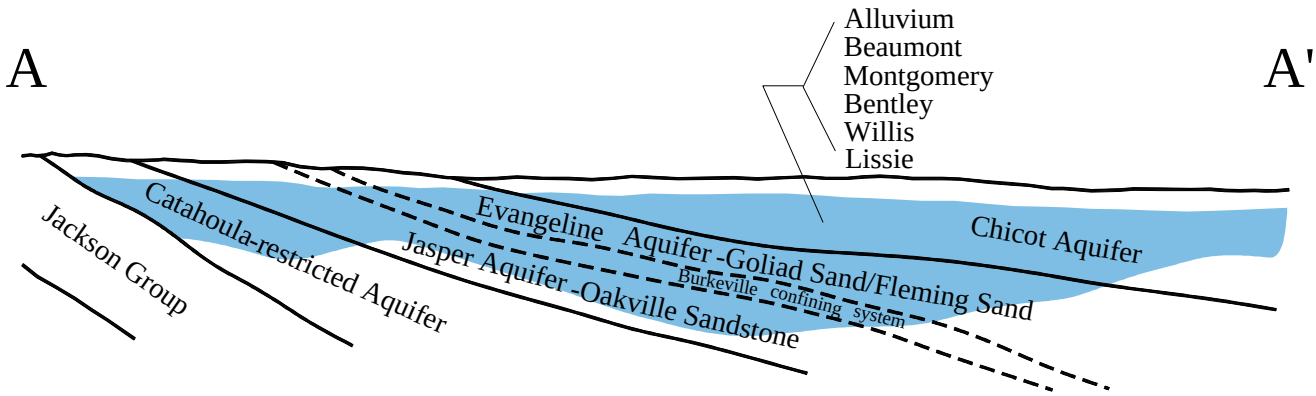
Gulf Coast





Modified from Baker, 1979

Gulf Coast Aquifer

The Gulf Coast aquifer forms a wide belt along the Gulf of Mexico from Florida to Mexico. In Texas, the aquifer provides water to all or parts of 54 counties and extends from the Rio Grande northeastward to the Louisiana-Texas border. Municipal and irrigation uses account for 90 percent of the total pumpage from the aquifer. The Greater Houston metropolitan area is the largest municipal user, where well yields average about 1,600 gal/min.

The aquifer consists of complex interbedded clays, silts, sands, and gravels of Cenozoic age, which are hydrologically connected to form a large, leaky artesian aquifer system. This system comprises four major components consisting of the following generally recognized water-producing formations. The deepest is the Catahoula, which contains ground water near the outcrop in relatively restricted sand layers. Above the Catahoula is the Jasper aquifer, primarily contained within the Oakville Sandstone. The Burkeville confining layer separates the Jasper from the overlying Evangeline aquifer, which is contained within the Fleming and Goliad sands. The Chicot aquifer, or upper component of the Gulf Coast aquifer system, consists of the Lissie, Willis, Bentley, Montgomery, and Beaumont formations, and overlying alluvial deposits. Not all formations are present throughout the system, and nomenclature often differs from one end of the system to the other. Maximum total sand thickness ranges from 700 feet in the south to 1,300 feet in the northern extent.

Water quality is generally good in the shallower portion of the aquifer. Ground water containing less than 500 mg/l dissolved solids is usually encountered to a maximum depth of 3,200 feet in the aquifer from the San Antonio River Basin northeastward to Louisiana. From the San Antonio River Basin southwestward to Mexico, quality deterioration is evident in the form of increased chloride concentration and saltwater encroachment along the coast. Little of this ground water is suitable for prolonged irrigation due to either high salinity or alkalinity, or both. In several areas at or near the coast, including Galveston Island and the central and southern parts of Orange County, heavy municipal or industrial pumpage had previously caused an updip migration, or saltwater intrusion, of poor-quality water into the aquifer. Recent reductions in pumpage here have resulted in a stabilization and, in some cases, even improvement of ground-water quality.

Years of heavy pumpage for municipal and manufacturing use in portions of the aquifer have resulted in areas of significant water-level decline. Declines of 200 feet to 300 feet have been measured in some areas of eastern and southeastern Harris and northern Galveston counties. Other areas of significant water-level declines include the Kingsville area in Kleberg County and portions of Jefferson, Orange, and Wharton counties. Some of these declines have resulted in compaction of dewatered clays and significant land surface subsidence. Subsidence is generally less than 0.5 foot over most of the Texas coast, but has been as much as nine feet in Harris and surrounding counties. As a result, structural damage and flooding have occurred in many low-lying areas along Galveston Bay in Baytown, Texas City, and Houston. Conversion to surface-water use in many of the problem areas has reversed the decline trend.

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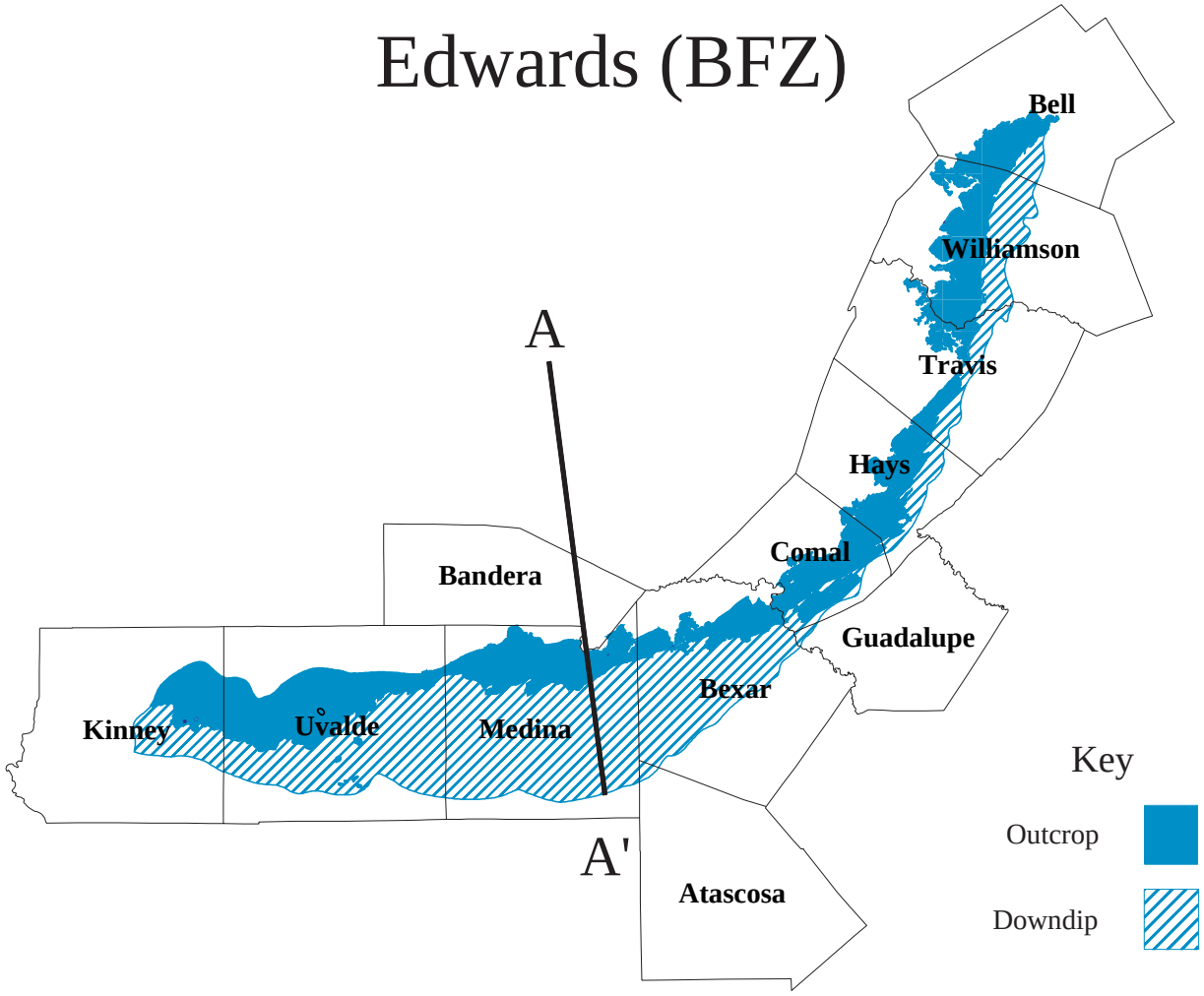
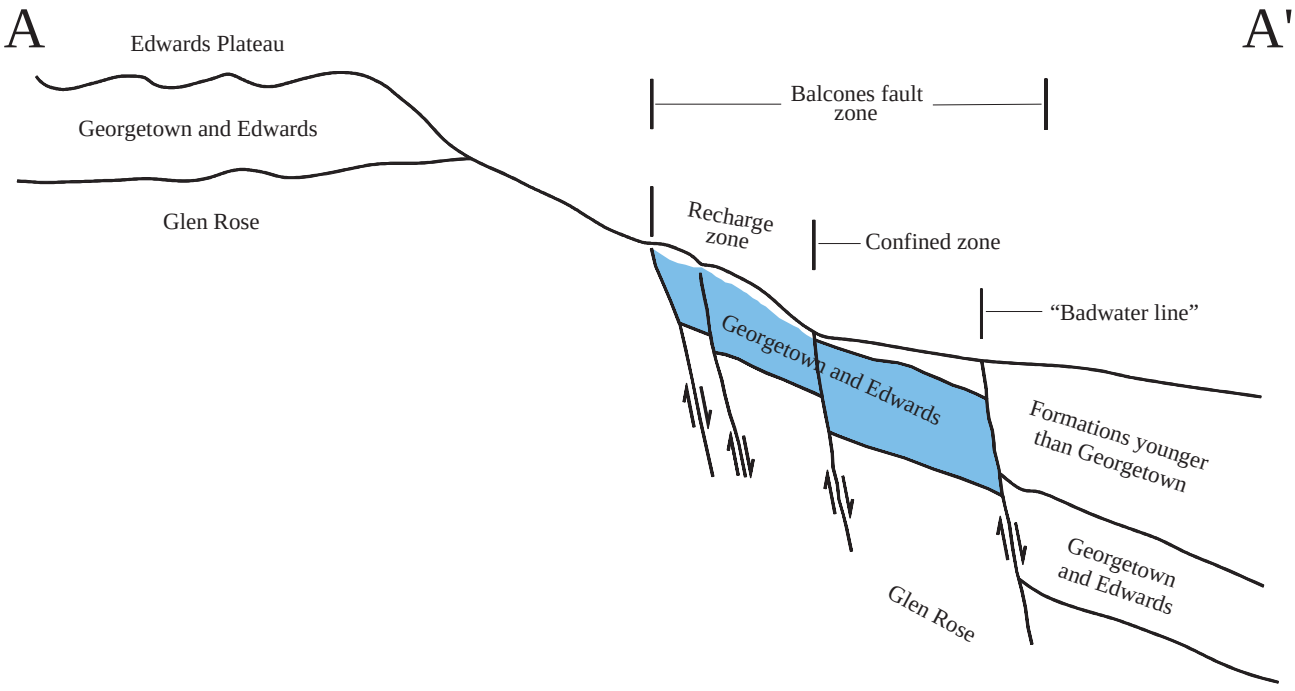
Edwards (BFZ)





Modified from Maclay and Small, 1986

Edwards (Balcones Fault Zone)

The Edwards (Balcones Fault Zone, or BFZ) aquifer covers approximately 4,350 square miles in parts of 11 counties. The aquifer forms a narrow belt extending from a ground-water divide in Kinney County through the San Antonio area northeastward to the Leon River in Bell County. A poorly defined ground-water divide near Kyle in Hays County hydrologically separates the aquifer into the San Antonio and Austin regions. The name Edwards (BFZ) distinguishes this aquifer from the Edwards-Trinity (Plateau) and the Edwards-Trinity (High Plains) aquifers.

Water from the aquifer is primarily used for municipal, irrigation, and recreational purposes; approximately 54 percent is used for municipal supply. San Antonio, which obtains its entire municipal water supply from the Edwards aquifer, is one of the largest cities in the world to rely solely on a single ground-water source. The aquifer feeds several well-known recreational springs and underlies some of the most environmentally sensitive areas in the state.

The aquifer, composed predominantly of limestone formed during the early Cretaceous Period, exists under water-table conditions in the outcrop and under artesian conditions where it is confined below the overlying Del Rio Clay. The Edwards aquifer consists of the Georgetown Limestone, formations of the Edwards Group (the primary water-bearing unit) and their equivalents, and the Comanche Peak Limestone where it exists. Thickness ranges from 200 feet to 600 feet.

Recharge to the aquifer occurs primarily by the downward percolation of surface water from streams draining off the Edwards Plateau to the north and west and by direct infiltration of precipitation on the outcrop. This recharge reaches the aquifer through crevices, faults, and sinkholes in the unsaturated zone. Unknown amounts of ground water enter the aquifer as lateral underflow from the Glen Rose Formation. Water in the aquifer generally moves from the recharge zone toward natural discharge points such as Comal, San Marcos, Barton, and Salado springs. Water is also discharged artificially from hundreds of pumping wells, particularly municipal supply wells in the San Antonio region and irrigation wells in the western extent.

In the updip portion, ground water moving through the aquifer system has dissolved large amounts of rock to create highly permeable solution zones and channels that facilitate rapid flow and relatively high storage capacity within the aquifer. Highly fractured strata in fault zones have also been preferentially dissolved to form conduits capable of transmitting large amounts of water. Due to its extensive honeycombed and cavernous character, the aquifer yields moderate to large quantities of water. Some wells yield in excess of 16,000 gal/min, and one well drilled in Bexar County flowed 24,000 gal/min from a 30-inch diameter well. The aquifer is significantly less permeable farther downdip where the concentration of dissolved solids in the water exceeds 1,000 mg/l.

The chemical quality of water in the aquifer is typically fresh, although hard, with dissolved-solids concentrations averaging less than 500 mg/l. The downdip interface between fresh and slightly saline water represents the extent of water containing less than 1,000 mg/l. Within a short distance downgradient of this “bad water line,” the ground water becomes increasingly mineralized.

Due to its highly permeable nature in the fresh-water zone, the Edwards aquifer responds quickly to changes and extremes of stress placed on the system. This is indicated by rapid water-level fluctuations during relatively short periods of time. During times of adequate rainfall and recharge, the Edwards aquifer is able to supply sufficient amounts of water for all demands as well as sustain spring flows at many locations throughout its extent. However, under conditions of below-average rainfall or drought when discharge exceeds recharge, spring flows may be reduced to environmentally detrimental levels, and mandatory rationing may be established.

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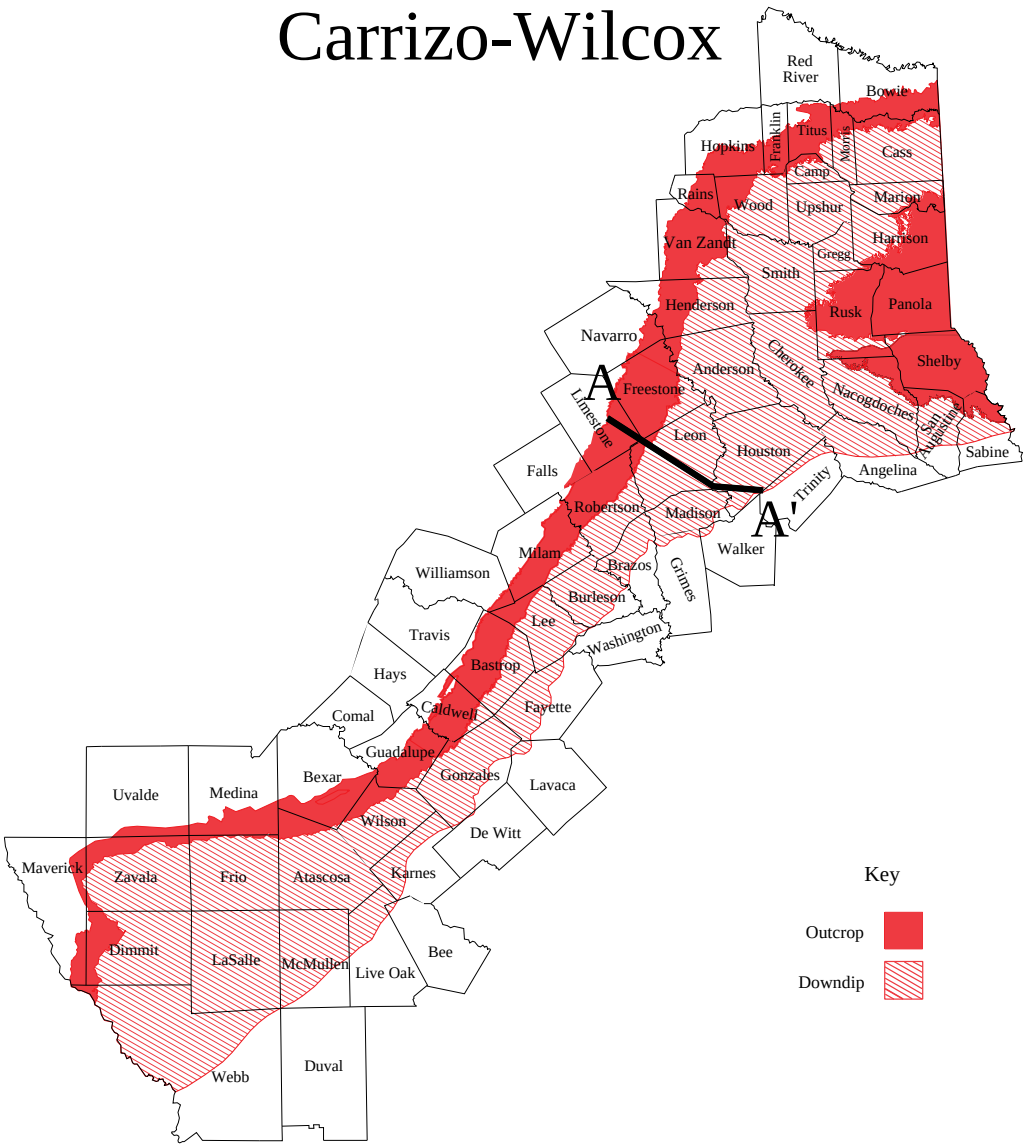
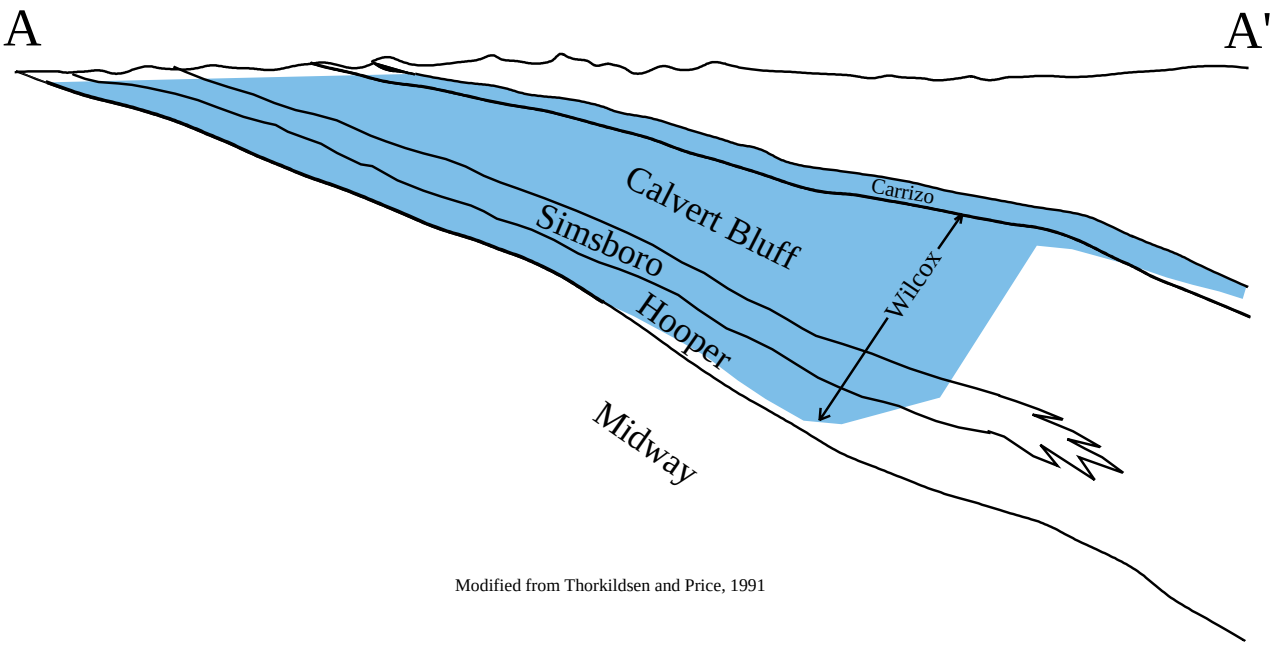
Carrizo-Wilcox





Modified from Thorkildsen and Price, 1991

Carrizo-Wilcox Aquifer

The Wilcox Group and the overlying Carrizo Formation of the Claiborne Group form a hydrologically connected system known as the Carrizo-Wilcox aquifer. This aquifer extends from the Rio Grande in South Texas northeastward into Arkansas and Louisiana, providing water to all or parts of 60 counties. The Carrizo Sand and Wilcox Group crop out along a narrow band that parallels the Gulf Coast and dips beneath the land surface toward the coast, except in the East Texas structural basin adjacent to the Sabine Uplift, where the formations form a trough.

Municipal and irrigation pumpage account for about 35 percent and 51 percent, respectively, of total pumpage. The largest metropolitan areas dependent on ground water from the Carrizo-Wilcox aquifer are Bryan-College Station, Lufkin-Nacogdoches, and Tyler. Irrigation is the predominant use in the Winter Garden region of South Texas.

The Carrizo-Wilcox aquifer is predominantly composed of sand locally interbedded with gravel, silt, clay, and lignite deposited during the Tertiary Period. South of the Trinity River and north of the Colorado River, the Wilcox Group is divided into three distinct formations: the Hooper, Simsboro, and Calvert Bluff. Of the three, the Simsboro typically contains the most massive water-bearing sands. This division cannot be made south of the Colorado River or north of the Trinity River due to the absence of the Simsboro as a distinct unit. Aquifer thickness in the downdip artesian portion ranges from less than 200 feet to more than 3,000 feet.

Well yields are commonly 500 gal/min, and some may reach 3,000 gal/min downdip where the aquifer is under artesian conditions. Some of the greatest yields (more than 1,000 gal/min) are produced from the Carrizo Sand in the southern, or Winter Garden, area of the aquifer. Yields of greater than 500 gal/min are also obtained from the Carrizo and Simsboro formations in the central region.

Regionally, water from the Carrizo-Wilcox aquifer is fresh to slightly saline. In the outcrop, the water is hard, yet usually low in dissolved solids. Downdip, the water is softer, has a higher temperature, and contains more dissolved solids. Hydrogen sulfide and methane may occur locally. Excessively corrosive water with a high iron content is common throughout much of the northeastern part of the aquifer. Localized contamination of the aquifer in the Winter Garden area is attributed to direct infiltration of oil field brines on the surface and to downward leakage of saline water to the overlying Bigford Formation.

Significant water-level declines have developed in the semiarid Winter Garden portion of the Carrizo aquifer, as the region is heavily dependent on ground water for irrigation. Since 1920, water levels have declined as much as 100 feet in much of the area and more than 250 feet in the Crystal City area of Zavala County. Significant water-level declines resulting from extensive municipal and industrial pumpage also have occurred in Northeast Texas. Tyler and the Lufkin-Nacogdoches area have experienced declines in excess of 400 feet, and in a few wells, as much as 500 feet since the 1940s. In this area, conversion to surface-water use is slowing the rate of water-level decline. The northeast outcrop area has been dewatered in the vicinity of lignite surface-mining operations, and the Simsboro Sand Formation of the Wilcox Group has been affected by water-level declines in parts of Robertson and Milam counties.

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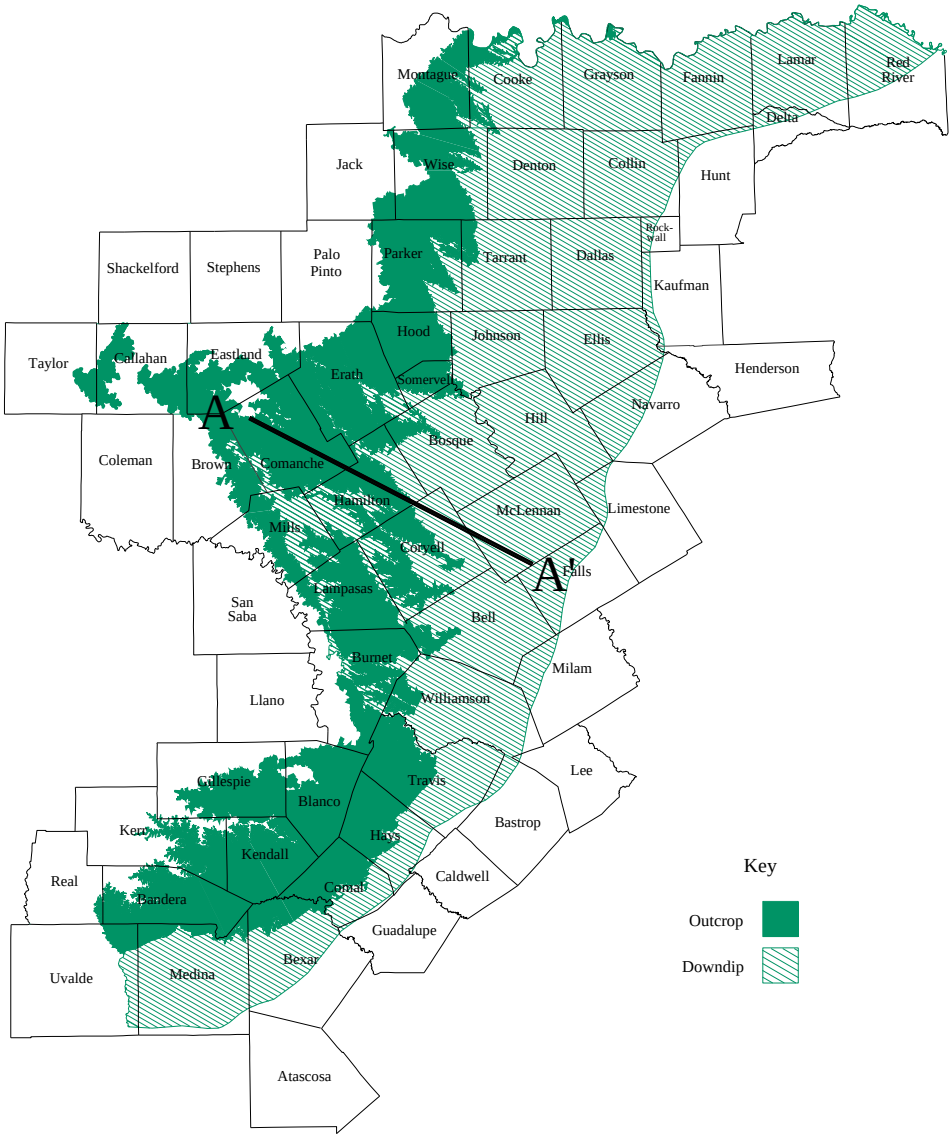
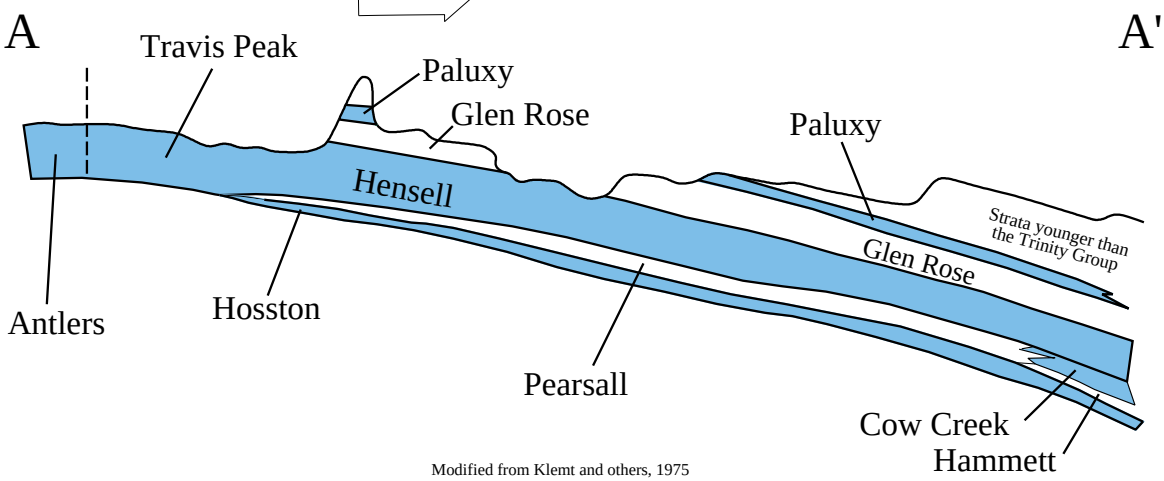
Trinity





Modified from Klemt and others, 1975

Trinity Aquifer

The Trinity aquifer consists of early Cretaceous age formations of the Trinity Group where they occur in a band extending through the central part of the state in all or parts of 55 counties, from the Red River in North Texas to the Hill Country of South-Central Texas. Trinity Group deposits also occur in the Panhandle and Edwards Plateau regions where they are included as part of the Edwards-Trinity (High Plains and Plateau) aquifers.

Formations comprising the Trinity Group are (from youngest to oldest) the Paluxy, Glen Rose, and Twin Mountains-Travis Peak. Updip, where the Glen Rose thins or is missing, the Paluxy and Twin Mountains coalesce to form the Antlers Formation. The Antlers consists of up to 900 feet of sand and gravel, with clay beds in the middle section. Water from the Antlers is mainly used for irrigation in the outcrop area of North and Central Texas.

Forming the upper unit of the Trinity Group, the Paluxy Formation consists of up to 400 feet of predominantly fine- to coarse-grained sand interbedded with clay and shale. The formation pinches out downdip and does not occur south of the Colorado River.

Underlying the Paluxy, the Glen Rose Formation forms a gulfward-thickening wedge of marine carbonates consisting primarily of limestone. South of the Colorado River, the Glen Rose is the upper unit of the Trinity Group and is divisible into an upper and lower member. In the north, the downdip portion of the aquifer becomes highly mineralized and is a source of contamination to wells that are drilled into the underlying Twin Mountains.

The basal unit of the Trinity Group consists of the Twin Mountains and Travis Peak formations, which are laterally separated by a facies change. To the north, the Twin Mountains Formation consists mainly of medium- to coarse-grained sands, silty clays, and conglomerates. The Twin Mountains is the most prolific of the Trinity aquifers in North-Central Texas; however, the quality of the water is generally not as good as that from the Paluxy or Antlers Formations. To the south, the Travis Peak Formation contains calcareous sands and silts, conglomerates, and limestones. The formation is subdivided into the following members in descending order: Hensell, Pearsall, Cow Creek, Hammett, Sligo, Hosston, and Sycamore.

Extensive development of the Trinity aquifer has occurred in the Fort Worth-Dallas region where water levels have historically dropped as much as 550 feet. Since the mid-1970s, many public supply wells have been abandoned in favor of a surface-water supply, and water levels have responded with slight rises. Water-level declines of as much as 100 feet are still occurring in Denton and Johnson counties. The Trinity aquifer is most extensively developed from the Hensell and Hosston members in the Waco area, where the water level has declined by as much as 400 feet.

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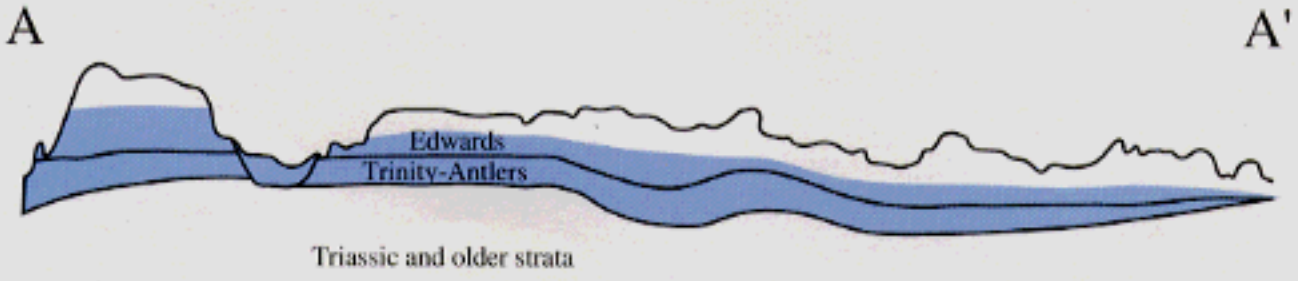
Edwards-Trinity (Plateau)



Modified from Walker, 1979

Edwards-Trinity (Plateau) Aquifer

The Edwards-Trinity (Plateau) aquifer underlies the Edwards Plateau east of the Pecos River and the Stockton Plateau west of the Pecos River, providing water to all or parts of 38 counties. The aquifer extends from the Hill Country of Central Texas to the Trans-Pecos region of West Texas. Irrigation accounts for 70 percent of the total pumpage, whereas municipal use accounts for 15 percent.

The aquifer consists of saturated sediments of lower Cretaceous age Trinity Group formations and overlying limestones and dolomites of the Comanche Peak, Edwards, and Georgetown formations. The Glen Rose Limestone is the primary unit of the Trinity in the southern part of the plateau and is replaced by the Antlers Sand north of the Glen Rose pinchout. The Maxon Sand is present in the western Stockton Plateau region. Maximum saturated thickness of the aquifer is greater than 800 feet.

The aquifer generally exists under water-table conditions; however, where the Trinity is fully saturated and a zone of low permeability occurs near the base of the overlying Edwards aquifer, artesian conditions may exist in the Trinity. Reported well yields commonly range from less than 50 gal/min, where saturated thickness is thin, to more than 1,000 gal/min, where large-capacity wells are completed in jointed and cavernous limestone.

Chemical quality of Edwards-Trinity (Plateau) water ranges from fresh to slightly saline. The water is typically hard and may vary widely in concentrations of dissolved solids made up mostly of calcium and bicarbonate. The salinity of the ground water tends to increase toward the west. Certain areas have unacceptable levels of fluoride.

There is little pumpage from the aquifer over most of its extent, and water levels have remained constant or have fluctuated only with seasonal precipitation. In some instances, water levels have declined as a result of increased pumpage. Although historical declines have occurred in the northwestern part of the aquifer in Reagan, Upton, Midland, and Glasscock counties as a result of irrigation, none of the areas has experienced declines greater than 20 feet since 1980.

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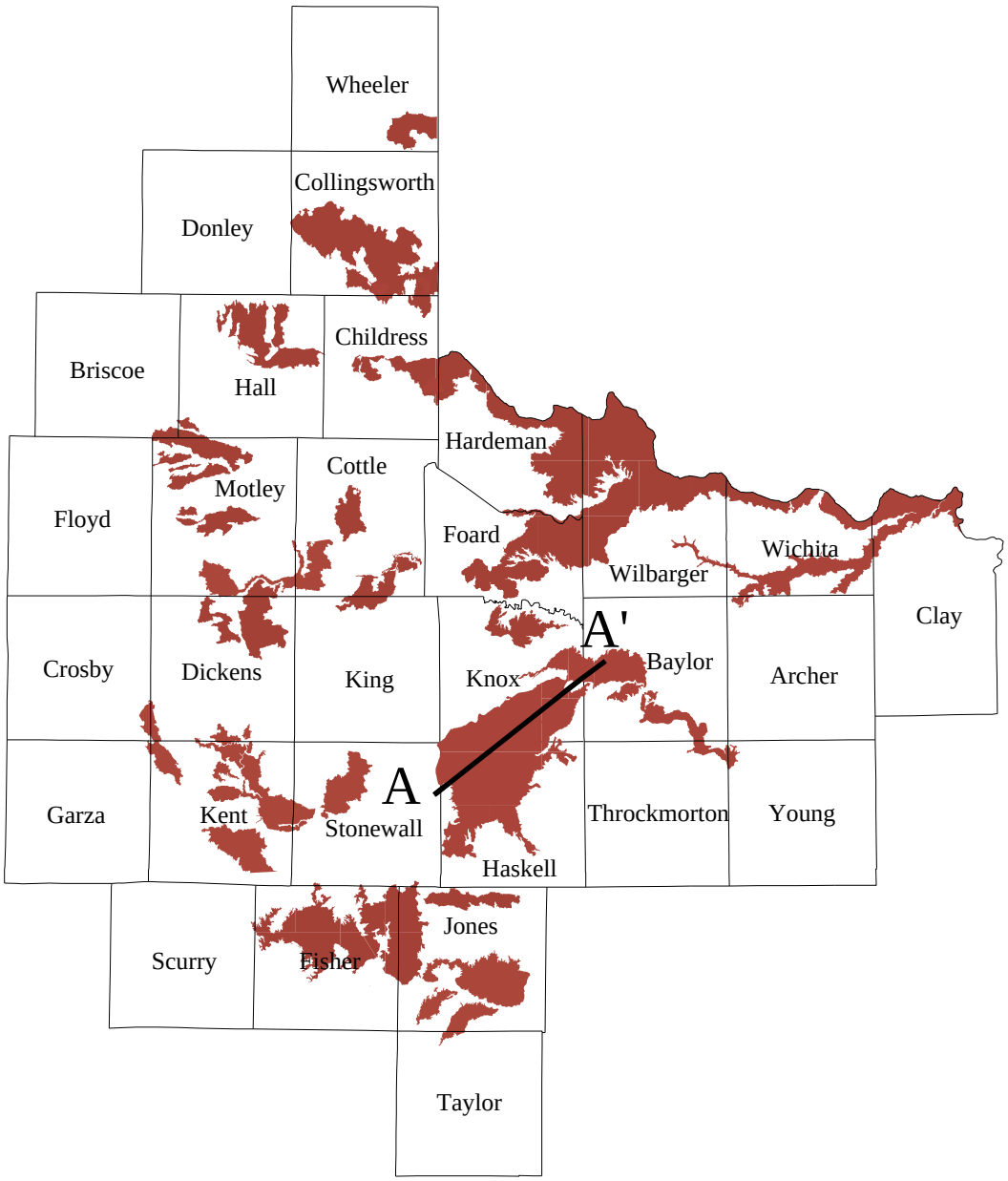
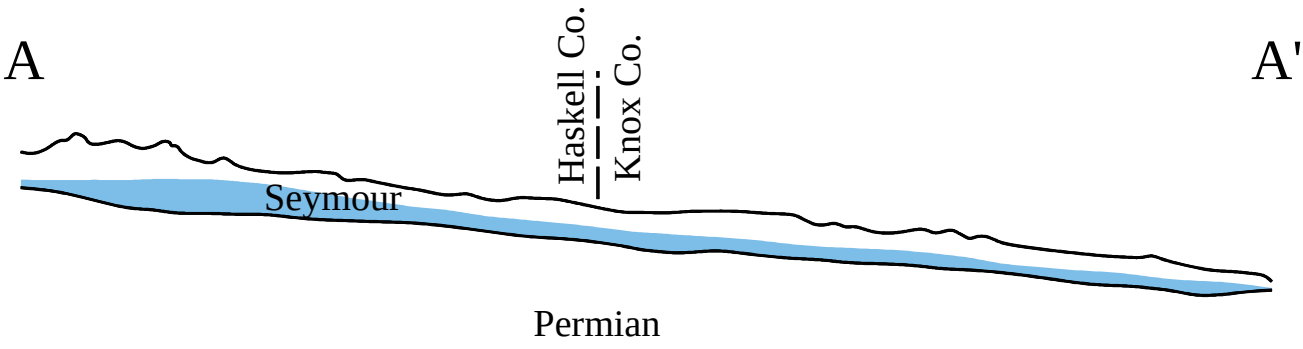
Seymour





Modified from R.W. Harden and Assoc., 1978

Seymour Aquifer

The Seymour Formation consists of isolated areas of alluvium found in parts of 23 north-central and Panhandle counties. Approximately 90 percent of the water pumped from the aquifer is used for irrigation. Municipal pumpage, primarily for the communities of Vernon, Burkburnett, and Electra, accounts for eight percent.

The Seymour aquifer consists of discontinuous beds of poorly sorted gravel, conglomerate, sand, and silty clay deposited during the Quaternary Period by eastward-flowing streams. Individual accumulations vary greatly in thickness, although most of the Seymour is less than 100 feet thick. In isolated northern parts of the aquifer, the formation may be as thick as 360 feet.

The aquifer exists under water-table conditions throughout much of its extent, but artesian conditions may occur where the water-bearing zone is overlain by clay. The lower, more permeable part of the aquifer produces the greatest amount of ground water. Yields of wells range from less than 100 gal/min to as much as 1,300 gal/min, depending on saturated thickness, and average about 300 gal/min. No significant water-level declines have occurred in the aquifer.

Water quality in these alluvial remnants generally ranges from fresh to slightly saline; however, higher salinity problems occur. The salinity has increased in many heavily pumped areas to the point where the water has become unsuitable for domestic and municipal uses. Natural salt pollution in the upper reaches of the Red and Brazos river basins precludes the full utilization of these water resources. Brine pollution from earlier oil field activities has resulted in localized contamination of fresh ground- and surface-water supplies. High nitrate concentrations in excess of drinking water standards in Seymour ground water are widespread.

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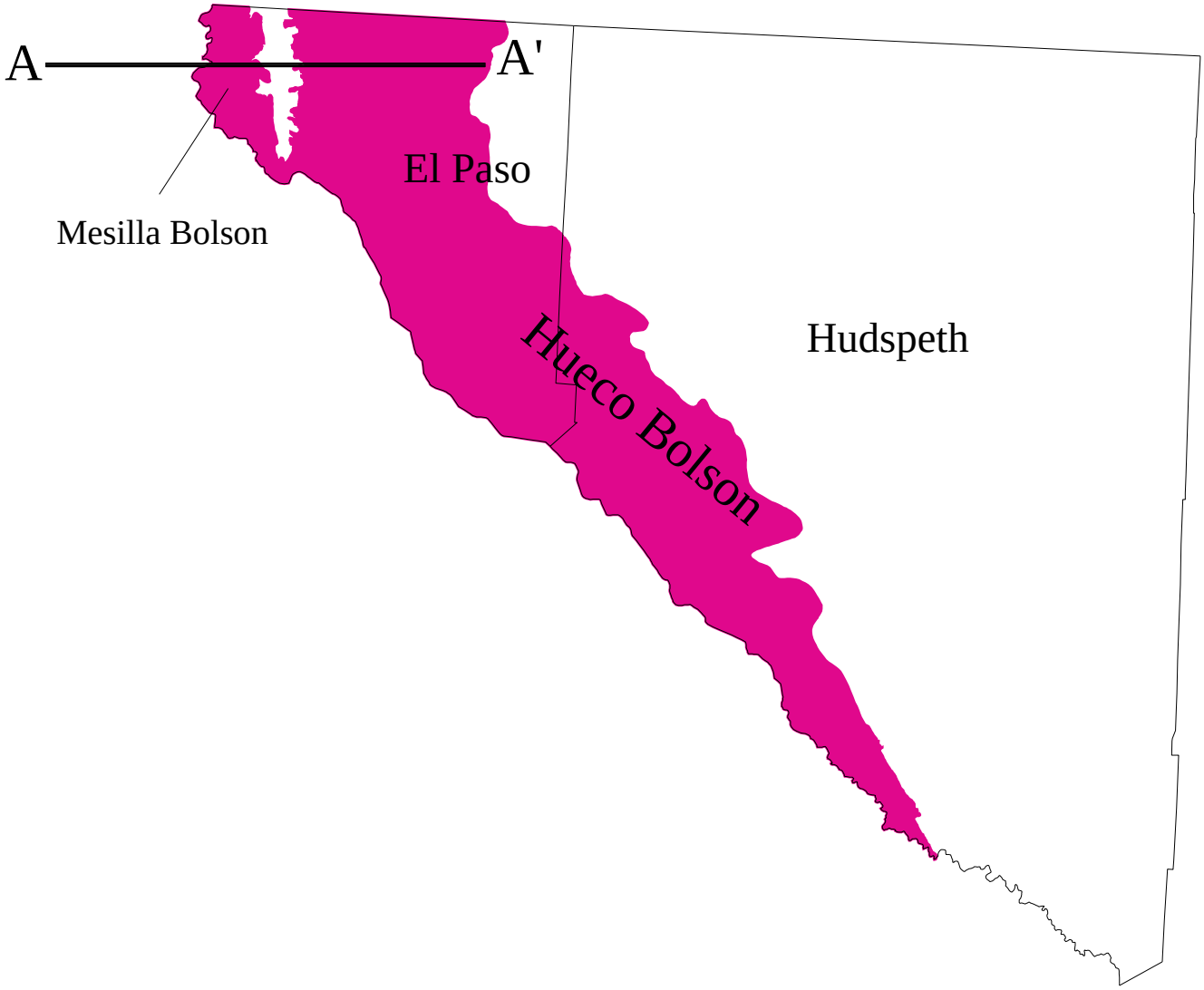
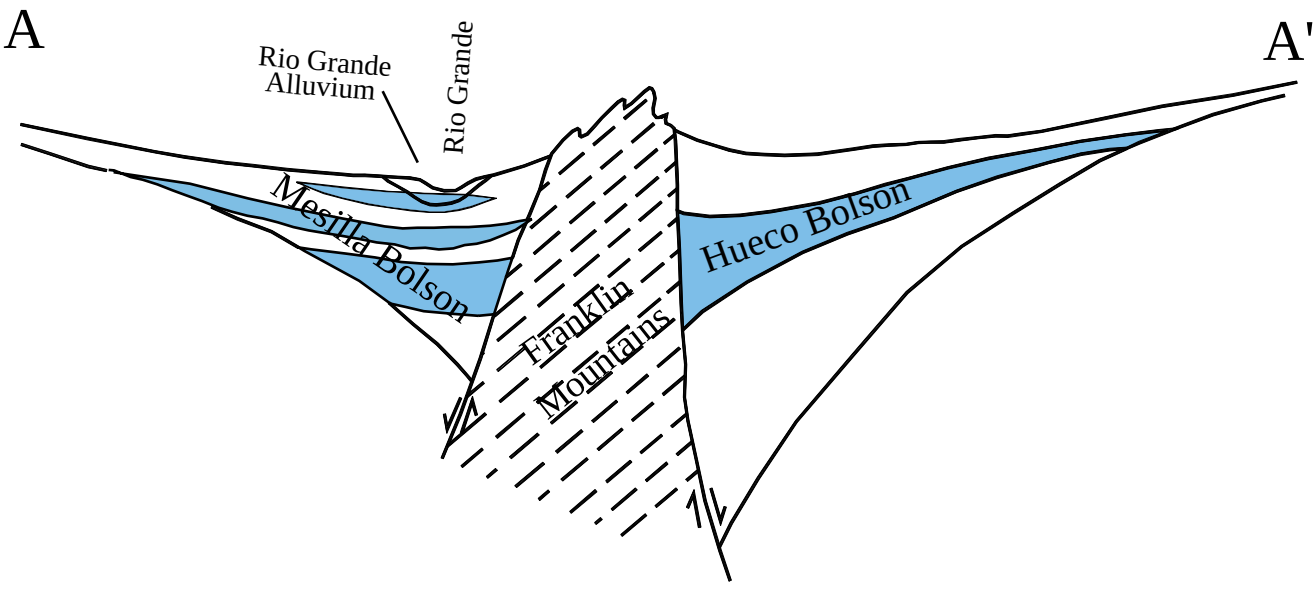
Hueco-Mesilla Bolson





Hueco-Mesilla Bolson Aquifers

The Hueco and Mesilla Bolson aquifers are located in El Paso and Hudspeth counties in the far western tip of Texas. The aquifers are composed of Tertiary and Quaternary basin-fill (bolson) deposits that extend northward into New Mexico and westward into Mexico. The Hueco Bolson, east of the Franklin Mountains, is the principal aquifer in the El Paso area; to the west is the Mesilla Bolson. Eighty-seven percent of the water pumped from the aquifers is used for municipal supply, primarily for the city of El Paso. Across the international border, water for Ciudad Juarez is supplied from the Hueco Bolson.

The Hueco Bolson, approximately 9,000 feet in total thickness, consists of silt, sand, and gravel in the upper part, and clay and silt in the lower part. Only the upper several hundred feet of the bolson contain fresh to slightly saline water. The majority of the Hueco water in Texas occurs in the El Paso metropolitan area; very little occurs in Hudspeth County.

The Mesilla Bolson consists of approximately 2,000 feet of clay, silt, sand, and gravel. Three water-bearing zones in the Mesilla (shallow, intermediate, and deep) have been identified based on water levels and quality. The shallow water-bearing zone includes the overlying Rio Grande Alluvium.

The chemical quality of the ground water in the Hueco Bolson differs according to its location and depth. Dissolved-solids concentrations in the upper, fresher part of the aquifer range from less than 500 mg/l to more than 1,500 mg/l and average about 640 mg/l. Quality of Hueco Bolson water in Mexico is slightly poorer.

Chemical quality of ground water in the Mesilla Bolson ranges from fresh to saline, with salinity generally increasing to the south along the valley. The water is commonly freshest in the deep zone of the aquifer and contains progressively higher concentrations of dissolved solids in the shallower zones. Increasing deterioration of quality of these aquifers is the result of large-scale ground-water withdrawals, which are depleting the aquifers of the freshest water.

Historical large-scale ground-water withdrawals, especially from municipal well fields in the downtown areas of El Paso and Ciudad Juarez, have caused major water-level declines. These declines, in turn, have significantly changed the direction of flow, rate of flow, and chemical quality of ground water in the aquifers. Declining water levels have also resulted in a minor amount of land-surface subsidence.

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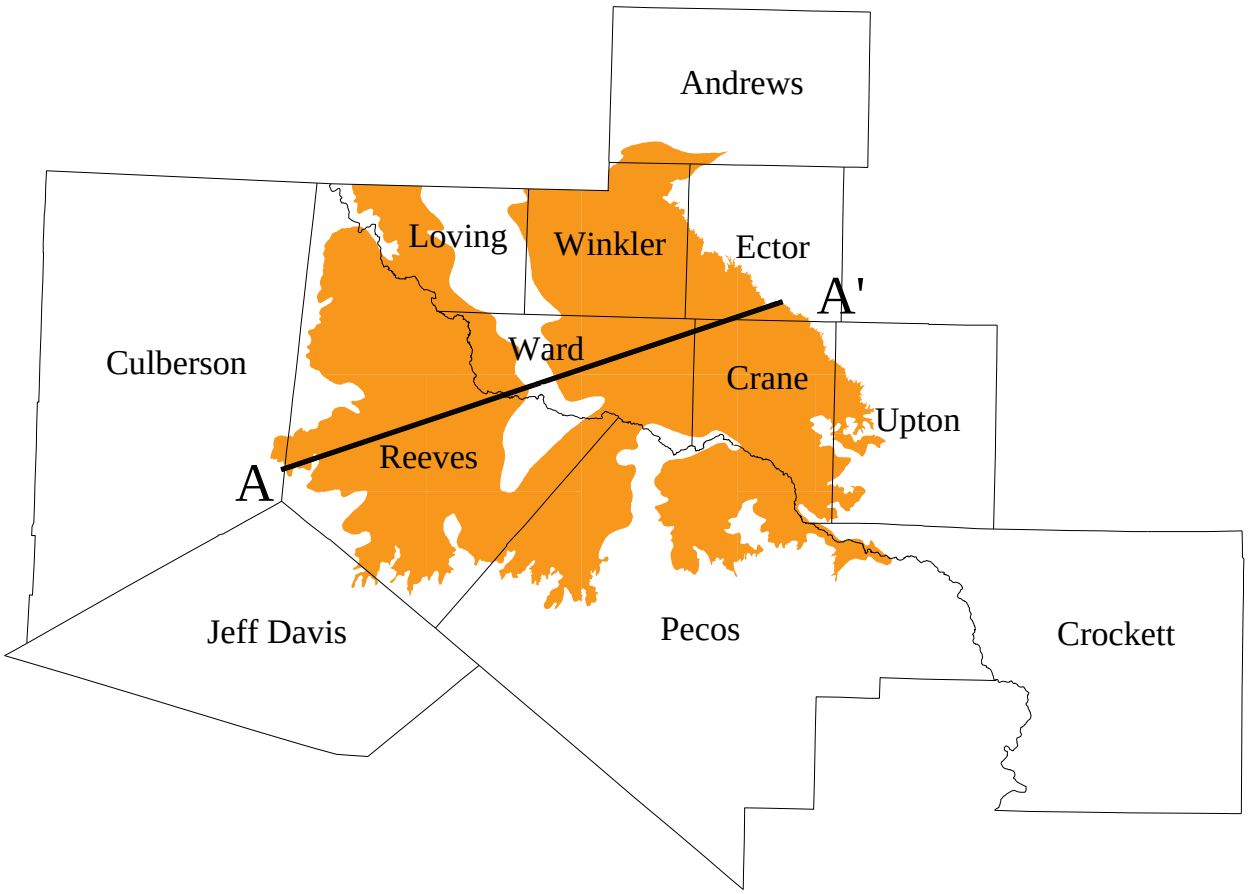
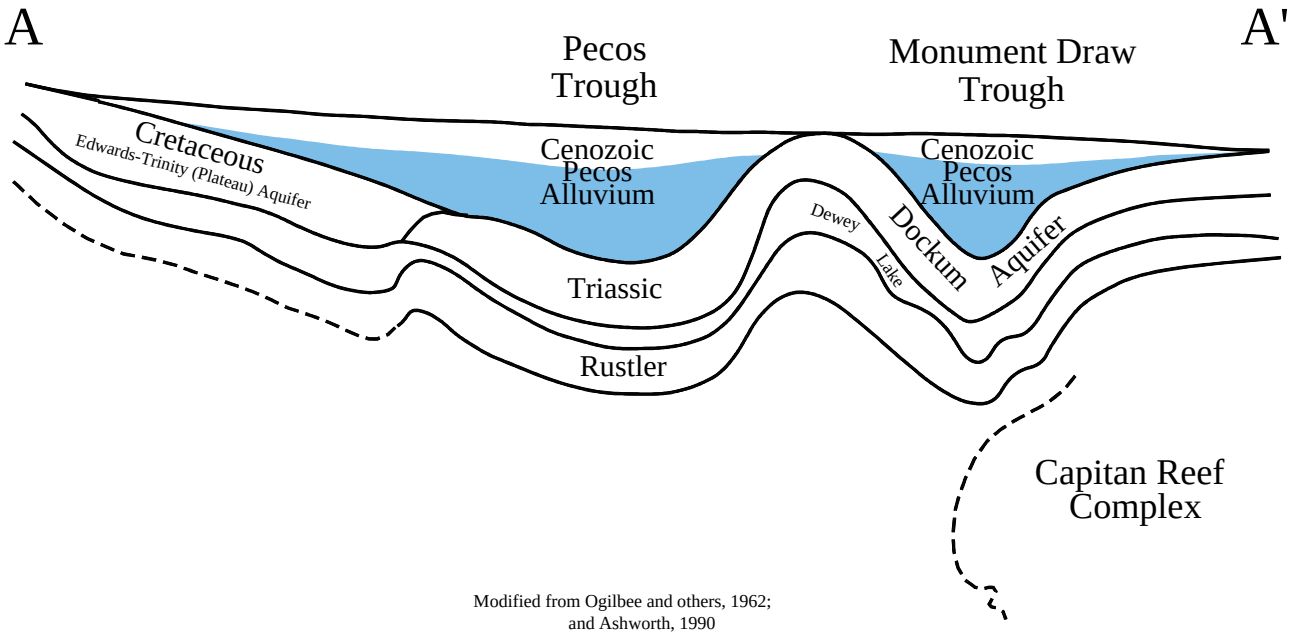
Cenozoic Pecos Alluvium





Modified from Ogilbee and others, 1962;
and Ashworth, 1990

Cenozoic Pecos Alluvium Aquifer

The Cenozoic Pecos Alluvium aquifer, located in the upper part of the Pecos River Valley of West Texas, provides water to parts of Andrews, Crane, Ector, Loving, Pecos, Reeves, Upton, Ward, and Winkler counties. The aquifer is the principal source of water for irrigation in Reeves and northwestern Pecos counties, and for industrial, power generation, and public supply uses elsewhere. A significant amount of water is exported to cities east of the area. Approximately 81 percent of the water pumped from the aquifer is used for irrigation.

The Cenozoic Pecos Alluvium of Quaternary age consists of up to 1,500 feet of alluvial fill and occupies two hydrologically separate basins: the Pecos Trough in the west and the Monument Draw Trough in the east. The aquifer is hydrologically connected to underlying water-bearing strata, including the Edwards-Trinity in Pecos and Reeves counties and the Triassic Dockum in Ward and Winkler counties.

Ground water in the Cenozoic Pecos Alluvium aquifer occurs under semiconfined or unconfined (water-table) conditions, although confining clay beds may create localized artesian conditions. Moderate to large yields can generally be expected from wells completed in this aquifer.

The chemical quality of water in the aquifer is highly variable, differing naturally with location and depth, and is generally better in the Monument Draw Trough. Water from the aquifer is typically hard and contains dissolved-solids concentrations ranging from less than 300 mg/l to more than 5,000 mg/l. Sulfate and chloride are the two predominant constituents. A natural deterioration of quality occurs with increasing depth of the water-bearing strata. Some quality deterioration has resulted from past petroleum industry activities in Loving, Ward, and Winkler counties, and from irrigation in Pecos, Reeves, and Ward counties.

Water-level declines in excess of 200 feet historically have occurred in south-central Reeves and northwest Pecos counties, but have moderated since the mid-1970s with the decrease in irrigation pumpage. Ground water that once rose to the surface and flowed into the Pecos River, now flows in the subsurface toward areas of heavy pumpage. As a consequence, baseflow to the Pecos River has declined. Elsewhere, only moderate water-level declines have occurred as a result of less intense pumpage for industrial and public supply uses in Ward and Winkler counties.

References

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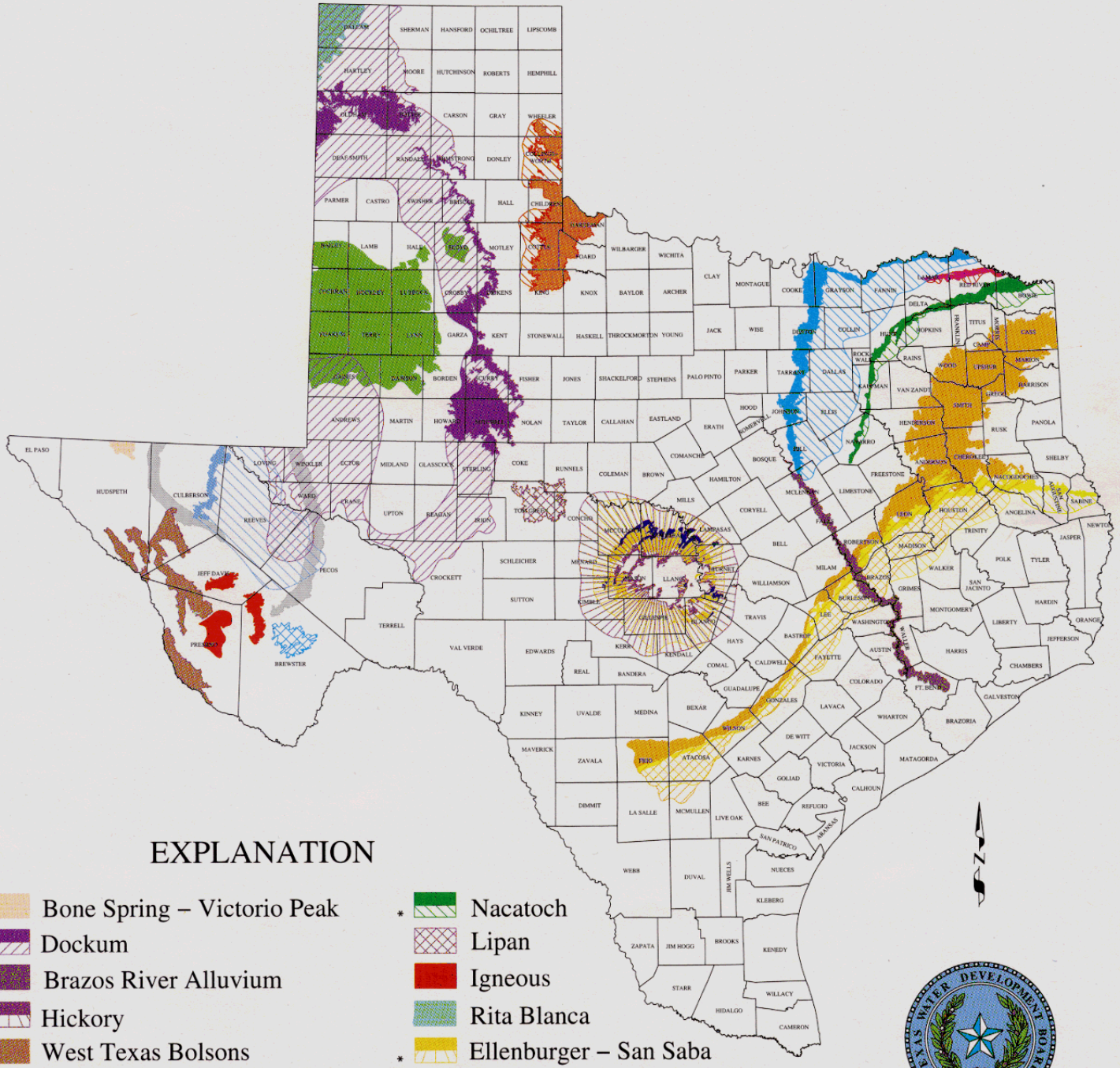
MINOR AQUIFERS OF TEXAS



EXPLANATION

- Bone Spring – Victorio Peak
- * Dockum
- Brazos River Alluvium
- * Hickory
- West Texas Bolsons
- * Queen City
- * Woodbine
- Edwards – Trinity (High Plains)
- * Blaine
- * Sparta
- * Nacatoch
- Lipan
- Igneous
- Rita Blanca
- * Ellenburger – San Saba
- * Blossom
- Marble Falls
- * Rustler
- Capitan Reef Complex
- Marathon

OUTCROP (That part of a water-bearing rock layer which appears at the land surface.)
* DOWNDIP (That part of a water-bearing rock layer which dips below other rock layers.)

Miles
0 25 50 75 100

January 1994

Bone Spring - Victorio Peak

Bone Spring-Victorio Peak Aquifer

The Bone Spring-Victorio Peak aquifer occupies the eastern edge of the Diablo Plateau west of the Guadalupe Mountains in northeast Hudspeth County and extends northward into the Crow Flats area of New Mexico. The Bone Spring and Victorio Peak formations are composed of as much as 2,000 feet of early Permian age limestone beds and contain ground water in joints, fractures, and solution cavities. Permeability of the limestones is highly variable, and well yields differ widely from about 150 gal/min to more than 2,000 gal/min.

The aquifer is used almost exclusively for irrigation. Dell City is the only community that withdraws water from the aquifer for public supply. Water levels have declined in the aquifer since pre-irrigation times; however, the levels have remained relatively constant since the late 1970s.

Ground water withdrawn from the aquifer commonly contains between 2,000 mg/l and 6,000 mg/l dissolved solids, but is acceptable for irrigation because the high permeability of the soil alleviates soil salinity. Because the water does not meet drinking water standards, the community of Dell City must use a demineralization process. The quality of the ground water has deteriorated somewhat as salts, leached from surface soils by irrigation return flow, percolate downward to the aquifer.

References

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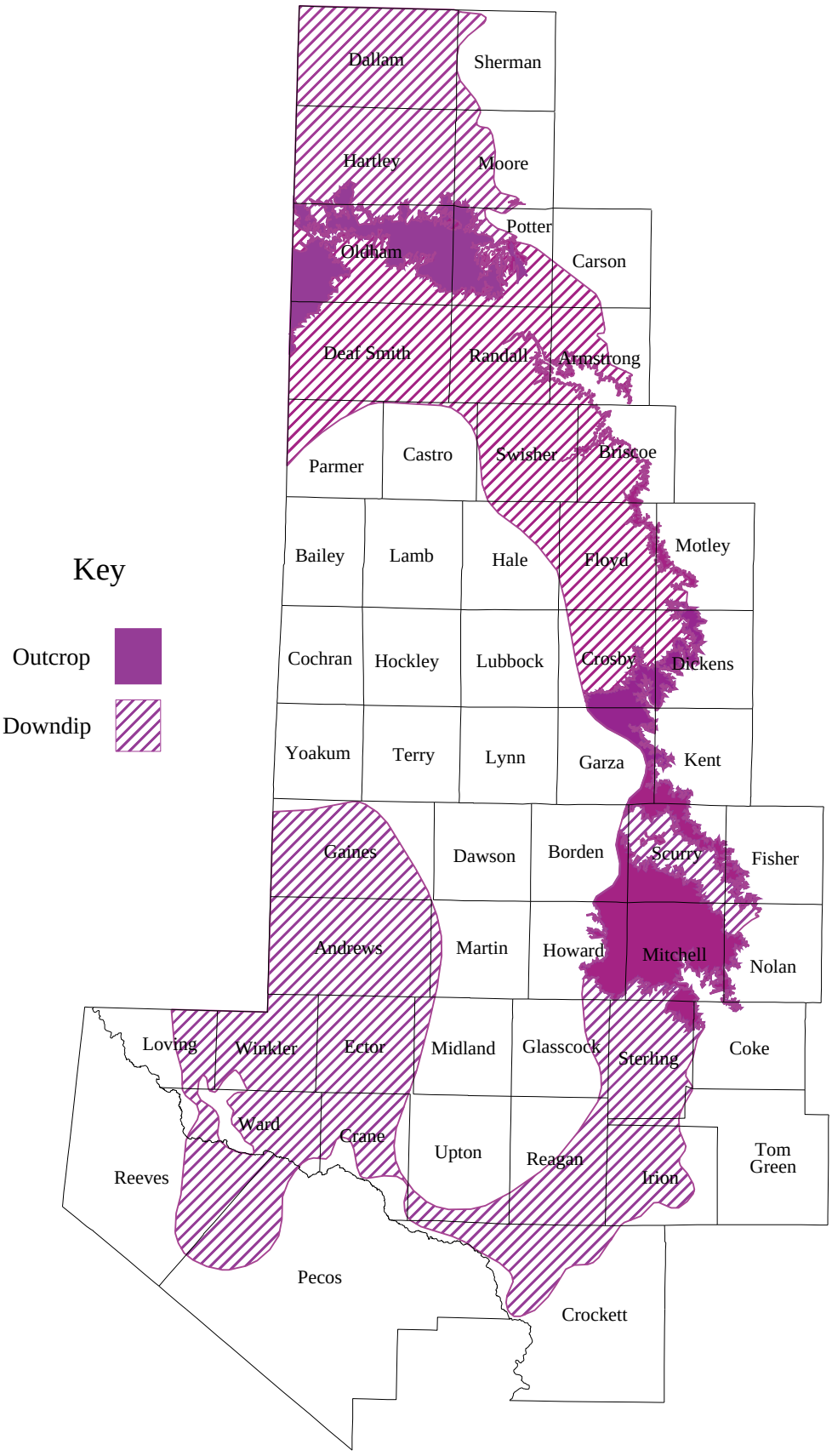
Dockum


Key
Outcrop
Downdip
Dallam
Sherman
Hartley
Moore
Oldham
Potter
Carson
Deaf Smith
Randall
Armstrong
Parmer
Castro
Swisher
Briscoe
Bailey
Lamb
Hale
Floyd
Motley
Cochran
Hockley
Lubbock
Crosby
Dickens
Yoakum
Terry
Lynn
Garza
Kent
Gaines
Dawson
Borden
Scurry
Fisher
Andrews
Martin
Howard
Mitchell
Nolan
Loving
Winkler
Ector
Midland
Glasscock
Sterling
Coke
Ward
Crane
Upton
Reagan
Irion
Tom Green
Reeves
Pecos
Crockett

Dockum Aquifer

The Dockum Group of Triassic age underlies much of the Ogallala Formation of the High Plains area of Texas and New Mexico, the northern part of the Edwards Plateau, and the eastern part of the Cenozoic Pecos Alluvium. Where exposed east of the High Plains caprock and in the Canadian River Basin, the land surface takes on a reddish color. In the subsurface, the Dockum is commonly referred to as the "red bed." The primary water-bearing zone in the formation, the Santa Rosa, consists of up to 700 feet of sand and conglomerate interbedded with layers of silt and shale.

Ground water from the Dockum aquifer is used for irrigation in the eastern outcrop area of Scurry and Mitchell counties, and for municipal water supply in the central part of the High Plains where marginally acceptable quality conditions prevail. Elsewhere, the aquifer is used extensively for oil field water-flooding operations, particularly in the southern part of the High Plains.

Concentrations of dissolved solids in the ground water range from less than 1,000 mg/l near the eastern outcrop to more than 20,000 mg/l in the deeper parts of the aquifer to the west. Relatively high sodium concentrations pose a salinity hazard for soils, thereby limiting regional long-term use of the water for irrigation. The extent of the aquifer as delineated includes the area in which the Dockum ground water contains less than 5,000 mg/l dissolved solids.

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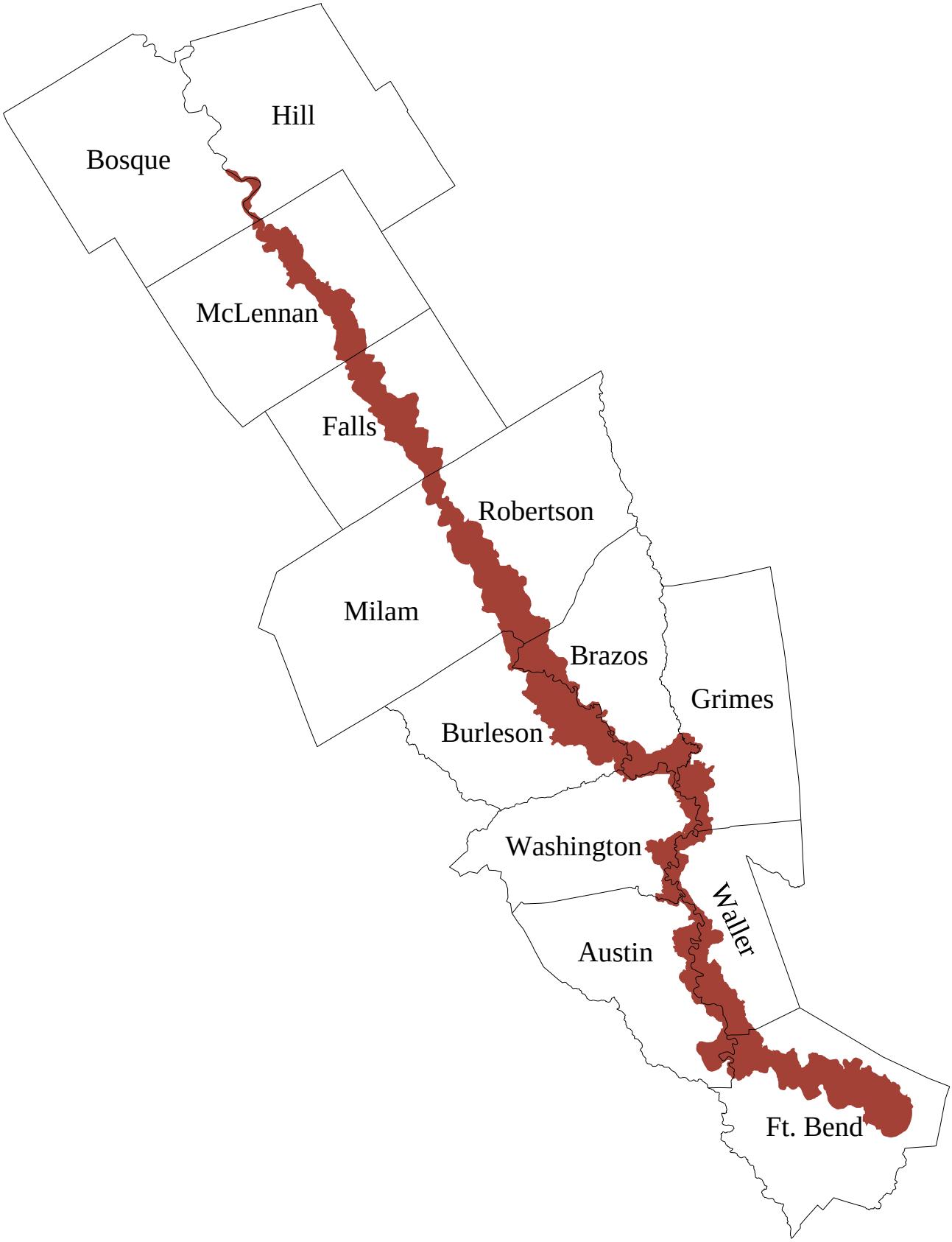
Brazos River Alluvium



Brazos River Alluvium Aquifer

Water-bearing alluvial sediments occur in floodplain and terrace deposits of the Brazos River of southeast Texas. The Brazos River Alluvium aquifer, up to seven miles wide, stretches for 350 miles along the sinuous course of the river between southern Hill and Bosque counties and eastern Fort Bend County. Irrigation accounts for almost all of the pumpage from the aquifer.

The Quaternary alluvial sediments consist of clay, silt, sand, and gravel, and generally are coarsest in the lower part of the accumulations. Saturated thickness of the alluvium is as much as 85 feet or more, with maximum thickness occurring in the central and southeastern parts of the aquifer. Some wells yield up to 1,000 gal/min, but the majority yield between 250 gal/min and 500 gal/min.

The chemical quality of the ground water varies widely. In many areas, concentrations of dissolved solids exceed 1,000 mg/l. Most of the Brazos River Valley irrigated with this ground water contains soils sufficiently permeable to alleviate any soil salinity problems. In some places, the water from the aquifer is fresh enough to meet drinking water standards.

References

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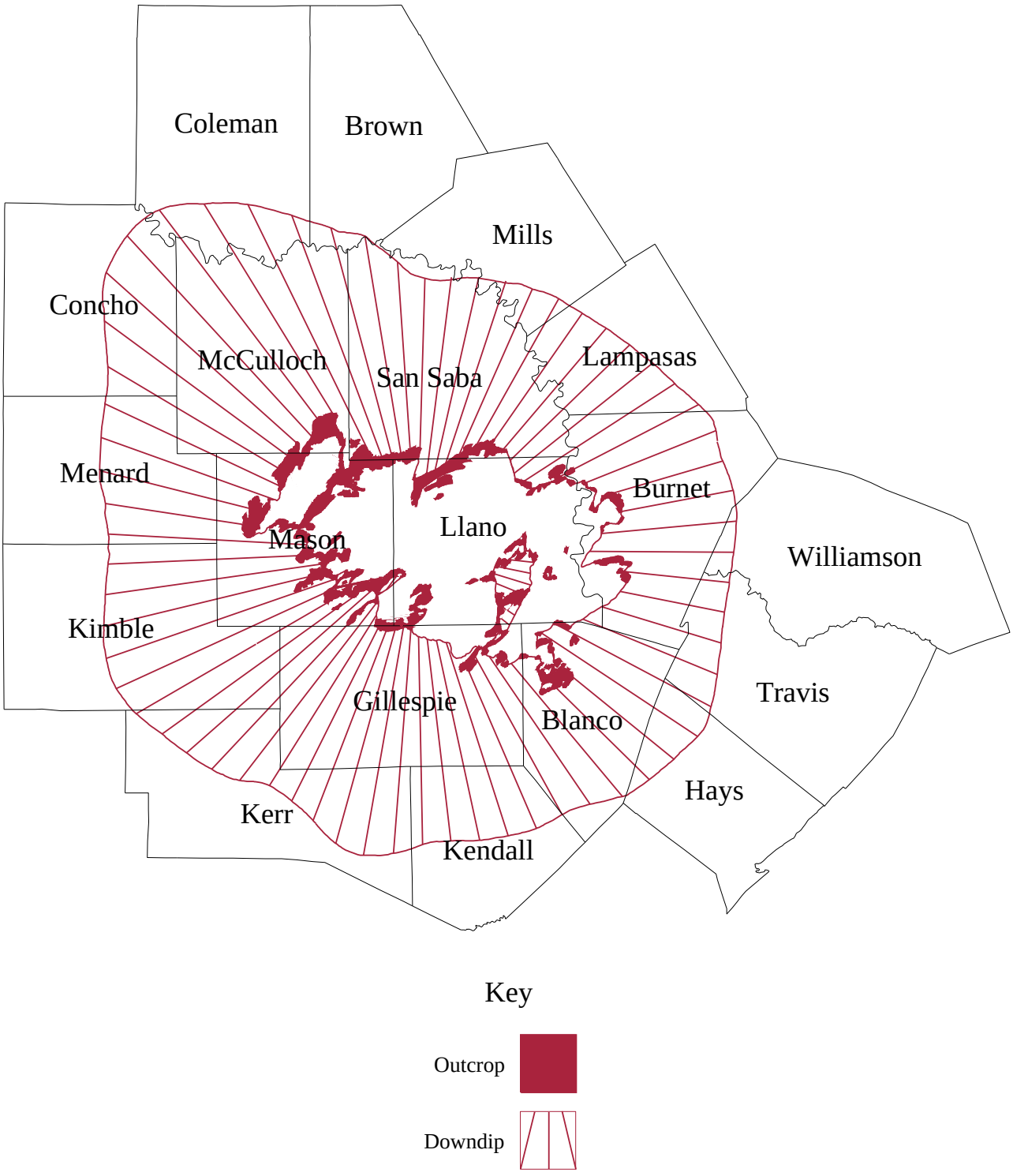
Hickory


Coleman
Brown
Mills
Concho
McCulloch
San Saba
Lampasas
Menard
Burnet
Llano
Mason
Williamson
Kimble
Travis
Gillespie
Blanco
Hays
Kerr
Kendall
Key
Outcrop
Downdip

Hickory Aquifer

The Hickory aquifer occurs in parts of 19 counties in the Llano Uplift region of Central Texas. Discontinuous outcrops of the Hickory Sandstone overlie and flank exposed Precambrian rocks that form the central core of the uplift. The downdip artesian portion of the aquifer encircles the uplift and extends to maximum depths approaching 4,500 feet. Most of the water pumped from the aquifer is used for irrigation. The largest capacity wells, however, have been completed for municipal water-supply purposes at Brady, Mason, and Fredericksburg.

The Hickory Sandstone Member of the Cambrian Riley Formation is composed of some of the oldest sedimentary rocks found in Texas. In most of the northern and western portions of the aquifer, the Hickory can be differentiated into lower, middle, and upper units, which reach a maximum thickness of 480 feet in southwestern McCulloch County. In the southern and eastern extents of the aquifer, the Hickory consists of only two units. Block faulting has compartmentalized the Hickory aquifer, thus restricting flow.

Ground water from the aquifer is generally fresh. However, locally, the aquifer produces water with excessive alpha particles and total radium concentrations in excess of drinking water standards. The water can also contain radon gas. The upper unit of the Hickory produces ground water containing concentrations of iron in excess of drinking water standards.

References

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West Texas Bolsons

West Texas Bolsons Aquifer

In the western part of the Trans-Pecos region of Texas, several deep basins filled with erosional material of Quaternary age, contain significant quantities of ground water. These filled basins, or bolsons, are the Red Light Draw, Eagle Flat, Green River Valley, Presidio-Redford, and Salt Basin. The Salt Basin can be subdivided into the Wild Horse, Michigan, Lobo, and Ryan flats. The upper part of the Salt Basin extending north of Wild Horse Flat contains ground water with dissolved solids well in excess of 3,000 mg/l and is, therefore, not included as part of the designated aquifer. These bolsons provide variable amounts of water mainly for irrigation and municipal water supplies in parts of Culberson, Hudspeth, Jeff Davis, and Presidio counties. The communities of Presidio, Sierra Blanca, Valentine, and Van Horn use these aquifers for municipal water supplies.

Bolson deposits in each of these basins differ according to the type of rock material that was eroded from the adjacent uplands and the manner in which this material was deposited. Sediments range from coarse-grained volcanics and limestones redeposited as alluvial fans to fine-grained silt and clay lake deposits. Yields of some wells exceed 3,000 gal/min, but most wells produce less than 1,000 gal/min. Water quality differs from basin to basin, ranging from fresh to slightly saline. Recharge is minimal in this region due to low annual rainfall and high evaporation rates.

References

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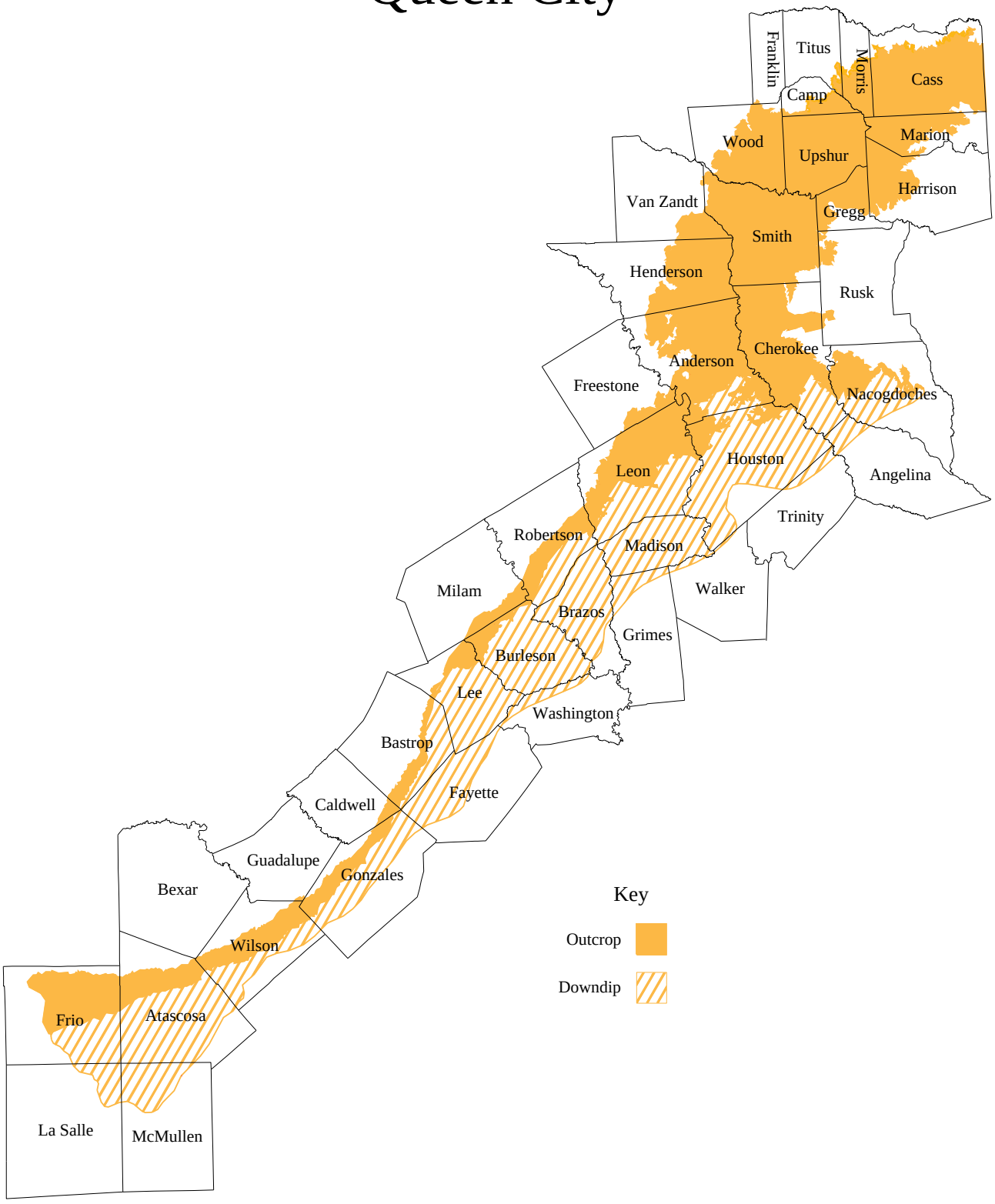
Queen City


Franklin
Titus
Morris
Cass
Camp
Marion
Wood
Upshur
Harrison
Van Zandt
Gregg
Smith
Henderson
Rusk
Cherokee
Anderson
Freestone
Nacogdoches
Houston
Leon
Angelina
Trinity
Robertson
Madison
Milam
Walker
Brazos
Grimes
Burleson
Lee
Washington
Bastrop
Fayette
Caldwell
Guadalupe
Gonzales
Bexar
Wilson
Frio
Atascosa
La Salle
McMullen
Key
Outcrop
Downdip

Queen City Aquifer

The Queen City aquifer extends across Texas from the Frio River in South Texas northeastward into Louisiana. The aquifer provides water for domestic and livestock purposes throughout most of its extent, significant amounts of water for municipal and industrial supplies in Northeast Texas, and water for irrigation in Wilson County. Yields of individual wells are commonly low, but a few exceed 400 gal/min.

Sand, loosely cemented sandstone, and interbedded clay units of the Queen City Formation of the Tertiary Claiborne Group make up the aquifer. These beds fill the East Texas structural basin adjacent to the Sabine Uplift and then dip gently to the south and southeast toward the Gulf Coast. Although total aquifer thickness is usually less than 500 feet, it can approach 700 feet in some areas of Northeast Texas.

Water of excellent quality is generally found within the outcrop and for a few miles downdip, but water quality deteriorates with depth in the downdip direction. In some areas, water of acceptable quality may occur at depths of approximately 2,000 feet. The water may be acidic in much of Northeast Texas and relatively high in iron concentrations in some locations.

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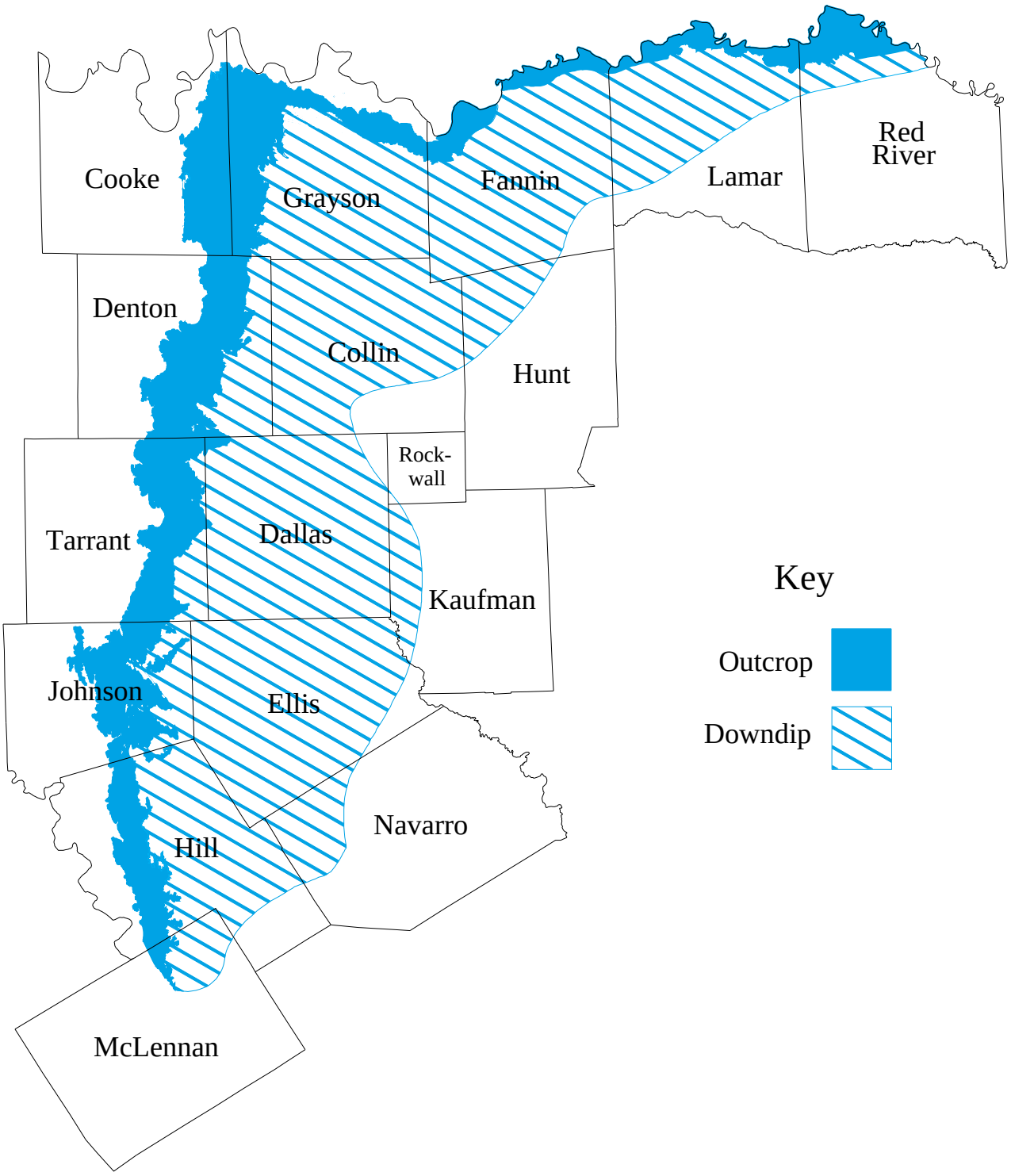
Woodbine


Cooke
Grayson
Fannin
Lamar
Red River
Denton
Collin
Hunt
Rock-wall
Tarrant
Dallas
Kaufman
Johnson
Ellis
Navarro
Hill
McLennan
Key
Outcrop
Downdip

Woodbine Aquifer

The Woodbine aquifer extends from McLennan County in North-Central Texas northward to Cooke County and eastward to Red River County, paralleling the Red River. Water produced from the aquifer furnishes municipal, industrial, domestic, livestock, and small irrigation supplies throughout its North Texas extent.

The Woodbine Formation of Cretaceous age is composed of water-bearing sandstone beds interbedded with shale and clay. The aquifer dips eastward into the subsurface where it reaches a maximum depth of 2,500 feet below land surface and a maximum thickness of approximately 700 feet. The Woodbine aquifer is divided into three water-bearing zones that differ considerably in productivity and quality. Only the lower two zones of the aquifer are developed to supply water for domestic and municipal uses. Heavy municipal and industrial pumpage has contributed to water-level declines in excess of 100 feet in the Sherman-Denison area of Grayson and surrounding counties.

Chemical quality deteriorates rapidly in well depths below 1,500 feet. In areas between the outcrop and this depth, quality is considered good overall as long as ground water from the upper Woodbine is sealed off. The upper Woodbine contains water of extremely poor quality in downdip locales and contains excessive iron concentrations along the outcrop.

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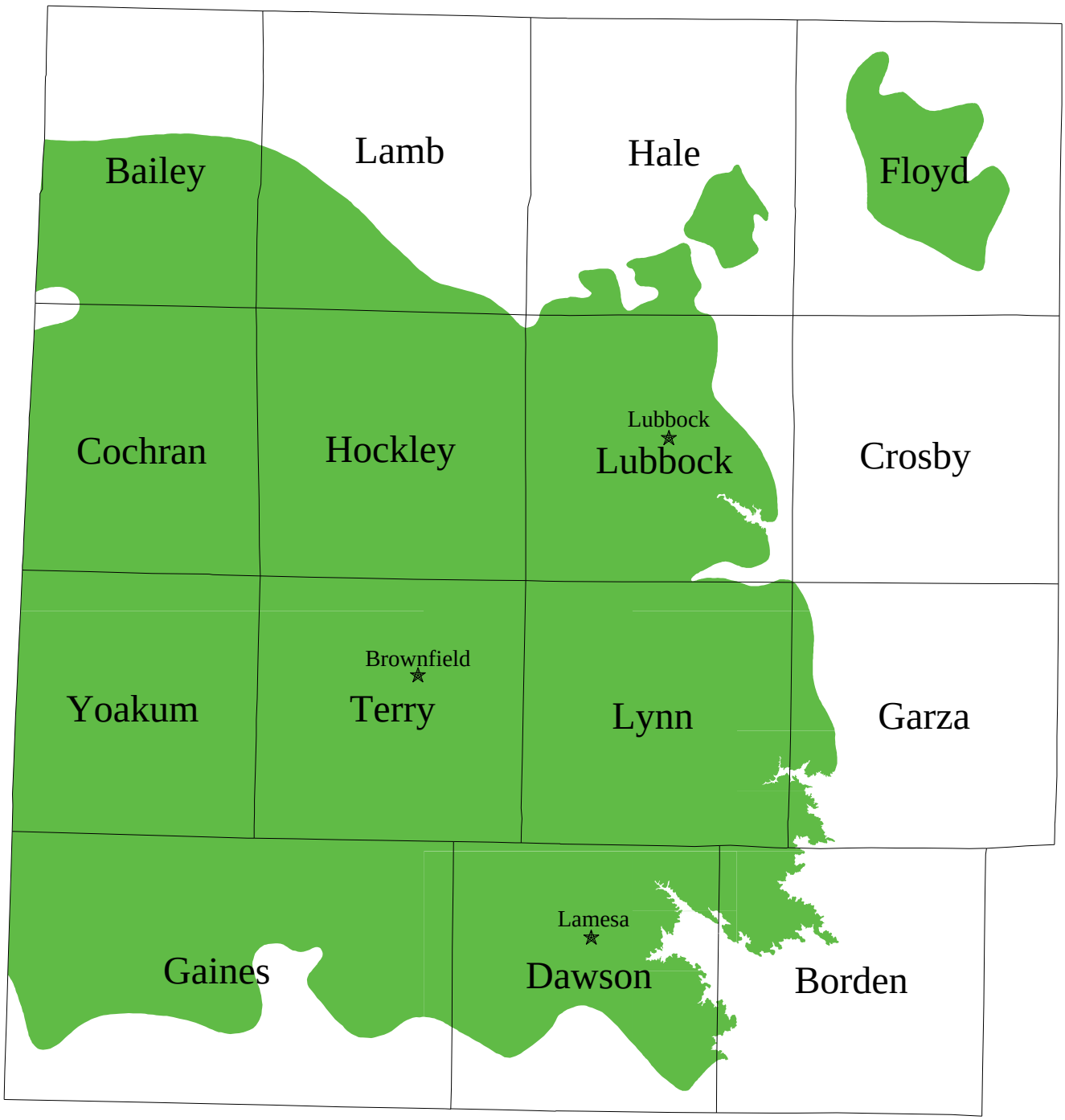
Edwards-Trinity (High Plains)



Edwards-Trinity (High Plains) Aquifer

The Edwards-Trinity (High Plains) aquifer includes Cretaceous age water-bearing formations of the Fredericksburg and Trinity Groups. These formations underlie the Ogallala Formation in the south-central part of the Texas High Plains and extend westward into New Mexico. The majority of the wells completed in the aquifer provide water for irrigation and yield 50 gal/min to 200 gal/min.

Two distinct ground-water zones occur in the aquifer. One occurs in the basal sand and sandstone deposits of the Antlers Formation (Trinity Group) and is usually under artesian pressure. The other water-bearing zone occurs primarily in joints, solution cavities, and bedding planes in limestones of the Comanche Peak and Edwards formations. In much of the area, this zone is hydrologically connected to the overlying Ogallala aquifer. Recharge to the aquifer occurs directly from the bounding Ogallala Formation along northern and western parts of the subcrop and by downward percolation from overlying units at other locations. Upward movement of ground water from the Triassic Dockum into the Edwards-Trinity is also believed to occur in Lynn County.

Ground-water movement is generally to the southeast. In many places, the ground-water potentiometric surface in the Edwards-Trinity aquifer is higher than in the Ogallala aquifer, resulting in the upward migration of water from the Edwards-Trinity. In these areas, the Edwards-Trinity has a significant impact on the water level and quality of the Ogallala. Wells drilled into the Edwards-Trinity are usually completed also in the overlying Ogallala. Water-level declines of up to 30 feet have occurred in such wells in western Gaines County.

Water in the aquifer is typically fresh to slightly saline and is generally poorer in quality than water in the overlying Ogallala aquifer. Water quality deteriorates in areas where these formations are overlain by saline lakes and the gypsiferous Tahoka and Double Lakes formations.

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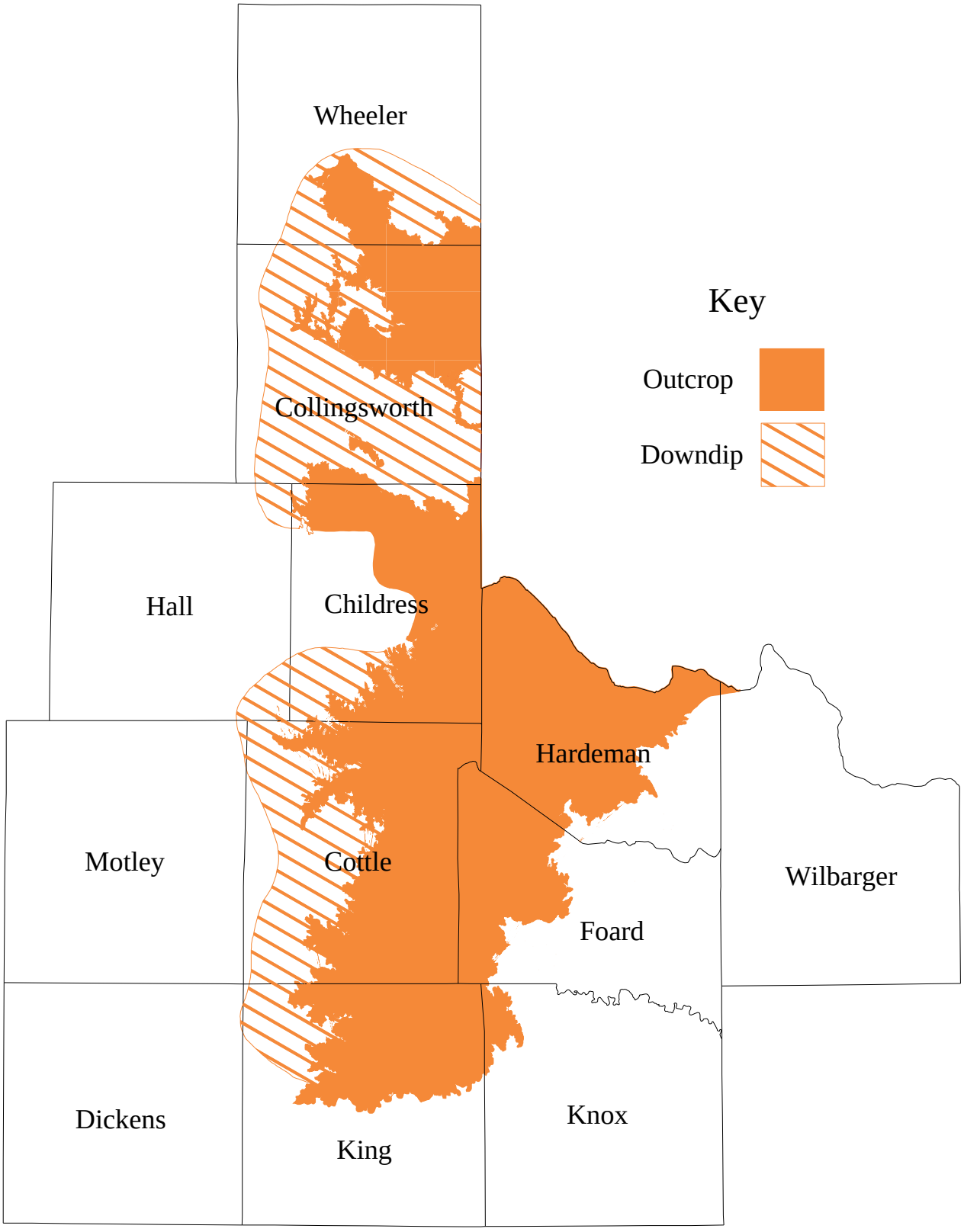
Blaine


Wheeler
Collingsworth
Hall
Childress
Hardeman
Motley
Cottle
Foard
Wilbarger
Dickens
King
Knox
Key
Outcrop
Downdip

Blaine Aquifer

The Blaine aquifer provides water in nine counties in West-Central Texas from Wheeler County to King County, extending eastward in the subsurface to adjacent counties. Although the formation is present farther south, the limited use of its water does not justify its inclusion as a minor aquifer in that area. Saturated thickness of the aquifer approaches 300 feet in its northern extent. The Blaine Formation, of Permian age, contains water primarily in numerous solution channels.

Water recharged to the aquifer moves along solution channels in the formation dissolving evaporite deposits of anhydrite and halite, which, in turn, contribute to its overall poor quality. Dissolved-solids concentrations in the Blaine increases with depth of the aquifer and in natural discharge areas along surface drainages. The extent of the aquifer, based on usage, includes water containing less than 10,000 mg/l dissolved solids.

The primary use of Blaine ground water is for irrigation of highly salt-tolerant crops. Well yields vary from a few gallons per minute to more than 1,500 gal/min. Seasonal water-level declines are limited to those areas dependent on ground water for irrigation.

References

Maderak, M.L., 1972, Ground-water resources of Hardeman County, Texas: TWDB Rept. 161, 45 p.

Richter, B.C., and Kreitler, C.W., 1986, Geochemistry of salt-spring and shallow subsurface brines in the Rolling Plains of Texas and Southwestern Oklahoma: Univ. of Texas, Bureau of Economic Geology Rept. of Inv. No. 155, 47 p.

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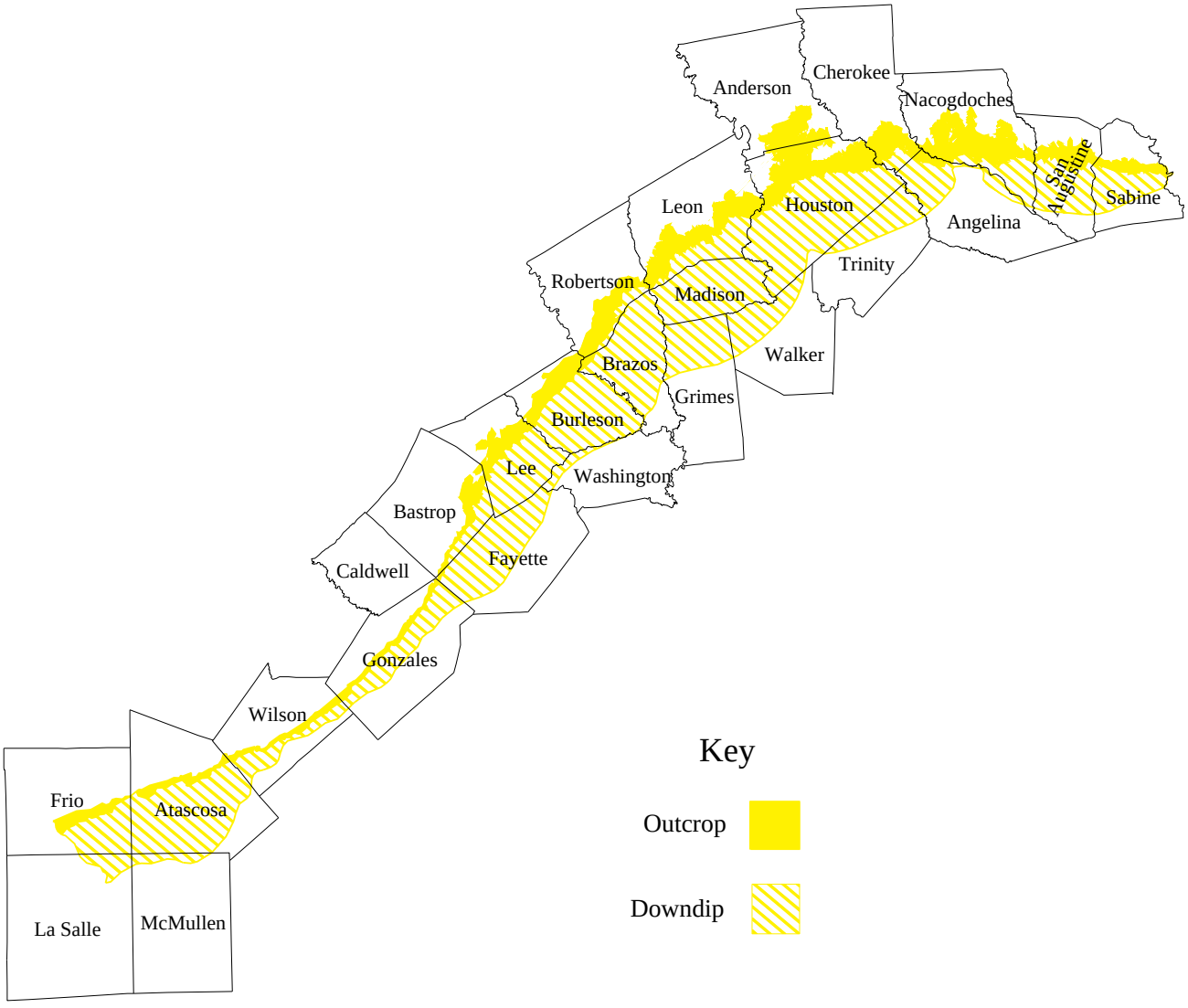
Sparta


Anderson
Cherokee
Nacogdoches
San Augustine
Sabine
Leon
Houston
Angelina
Trinity
Robertson
Madison
Walker
Brazos
Grimes
Burleson
Lee
Washington
Bastrop
Fayette
Caldwell
Gonzales
Wilson
Frio
Atascosa
La Salle
McMullen
Key
Outcrop
Downdip

Sparta Aquifer

The Sparta aquifer extends in a narrow band from the Frio River in South Texas northeastward to the Louisiana border in Sabine County. The Sparta provides water for domestic and livestock supplies throughout its extent, and water for municipal, industrial, and irrigation purposes in much of the region. Yields of individual wells are generally less than 100 gal/min, although most high-capacity wells average 400 gal/min to 500 gal/min. A few wells produce as much as 1,200 gal/min.

The Sparta Formation, part of the Claiborne Group deposited during the Tertiary, consists of sand and interbedded clay with massive sand beds in the basal section. These beds dip gently to the south and southeast toward the Gulf Coast and reach a total thickness of up to 300 feet.

Water of excellent quality is commonly found within the outcrop and for a few miles downdip, but it deteriorates with depth in the downdip direction. Locally, water within the aquifer may contain iron concentrations in excess of drinking water standards.

References

Alexander, W.H., Jr., and White, D.E., 1966, Ground-water resources of Atascosa and Frio counties, Texas: TWDB Rept. 32, 211 p.

Anders, R.B., 1957, Ground-water geology of Wilson County, Texas: TBWE Bull. 5710, 66 p.

Baker, E.T., Jr., Follett, C.D., McAdoo, G.D., and Bonnet, C.W., 1974, Ground-water resources of Grimes County, Texas: TWDB Rept. 186, 34 p.

Guyton, W.F., and Associates, 1972, Ground-water conditions in Anderson, Cherokee, Freestone, and Henderson counties, Texas: TWDB Rept. 150, 80 p.

Harris, H.B., 1965, Ground-water resources of La Salle and McMullen counties, Texas: TWC Bull. 6520, 96 p.

Klemt, W.B., Duffin, G.L., and Elder, G.R., 1976, Ground-water resources of the Carrizo aquifer in the Winter Garden area of Texas: TWDB Rept. 210, 2 vols.

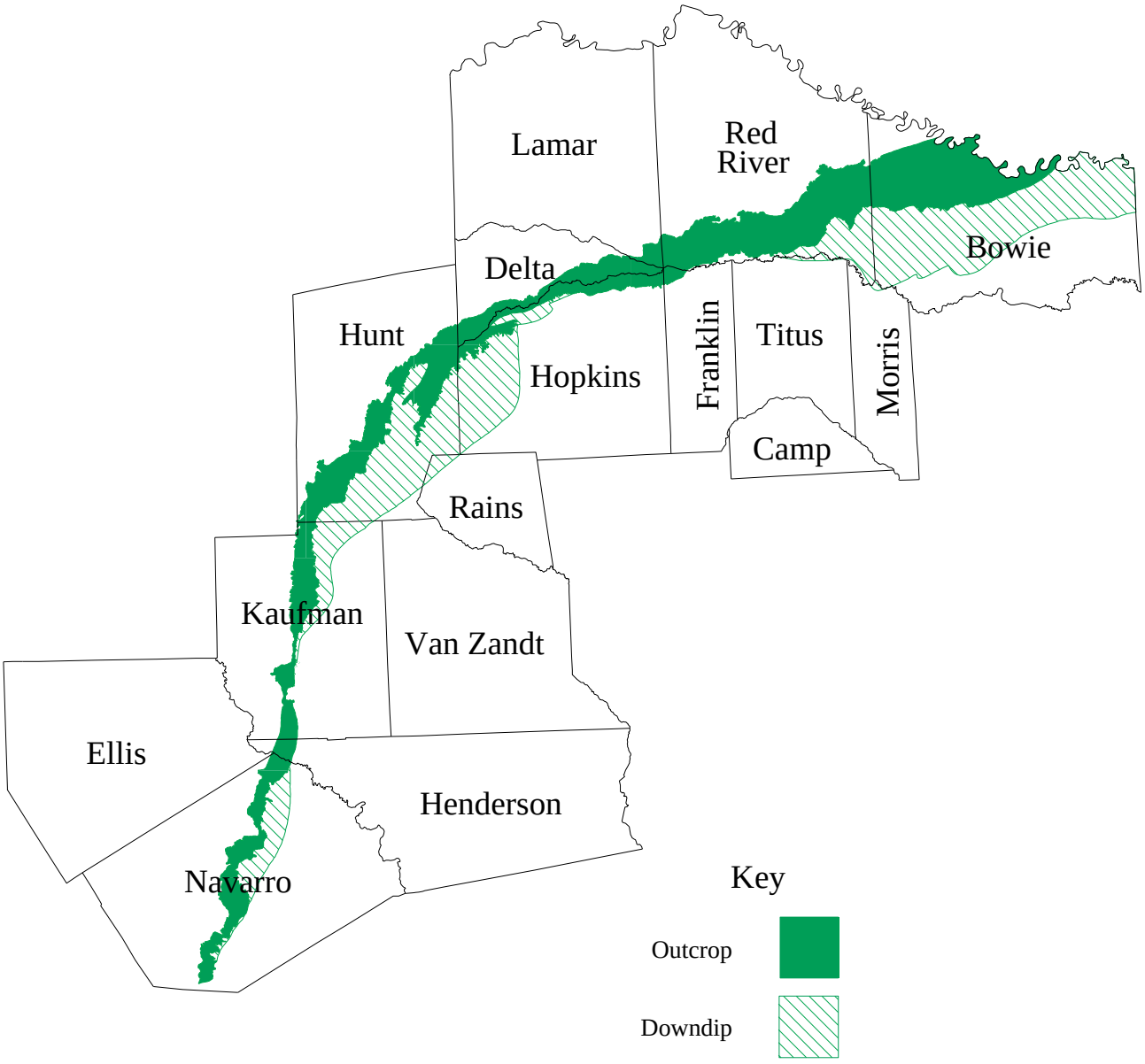
McCoy, T.W., 1991, Evaluation of the ground-water resources of the western portion of the Winter Garden area, Texas: TWDB Rept. 334, 64 p.

Rodgers, L.T., 1967, Availability and quality of ground water in Fayette County, Texas: TWDB Rept. 56, 56 p.

Shafer, G.H., 1965, Ground-water resources of Gonzales County, Texas: TWDB Rept. 4, 89 p.

Thompson, G.L., 1966, Ground-water resources of Lee County, Texas: TWDB Rept. 20, 62 p.

Nacatoch


Lamar
Red River
Bowie
Delta
Hunt
Hopkins
Franklin
Titus
Morris
Camp
Rains
Kaufman
Van Zandt
Ellis
Henderson
Navarro
Key
Outcrop
Downdip

Nacatoch Aquifer

The Nacatoch aquifer occurs in a narrow band in Northeast Texas and extends eastward into Arkansas and Louisiana. The Nacatoch Formation, composed of one to three sequences of sand beds separated by impermeable layers of mudstone or clay, was deposited in the East Texas Basin during the Cretaceous Period. A hydrologically connected mantle of alluvium up to 80 feet thick covers the Nacatoch along major drainageways. The south and east basinward dip of the formation is interrupted by the Mexia-Talco fault zone, which alters the normal flow direction and adversely affects the chemical quality of the ground water.

The quality of ground water in the aquifer is generally alkaline, high in sodium bicarbonate, soft, and increases in dissolved-solids concentrations in the downdip portion of the aquifer. The downdip limit of usable water (less than 3,000 mg/l), especially in the northern region, is controlled by the Mexia-Talco fault system. In areas where the Nacatoch occurs as multiple sand layers, the upper layer contains the best-quality water.

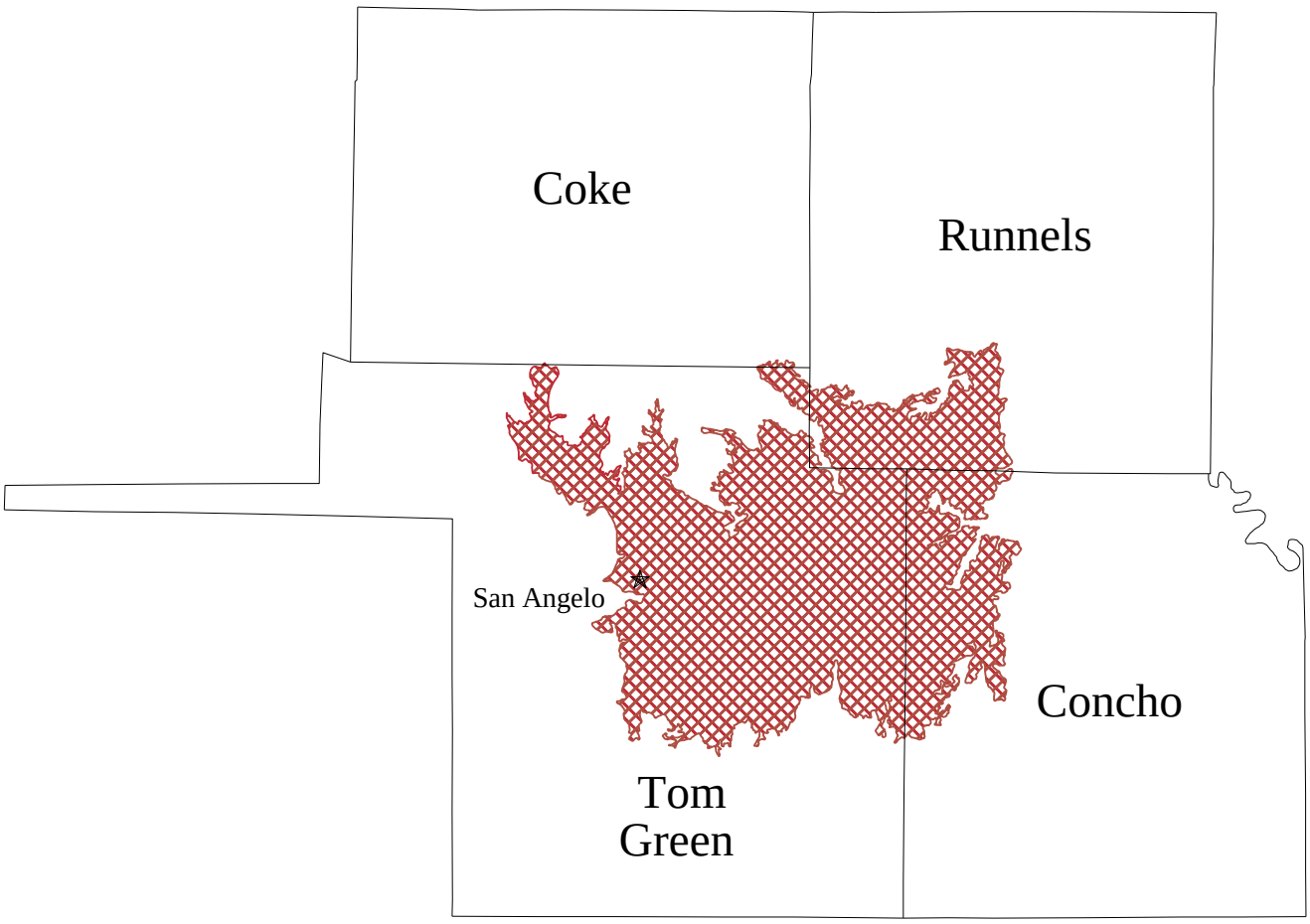
Water from the aquifer is extensively used for rural domestic and livestock purposes; however, the town of Commerce has historically pumped the greatest amount from the aquifer. Declining water levels that had developed around Commerce in Delta and Hunt counties have begun to stabilize as a result of conversion to surface water.

References

Ashworth, J.B., 1988, Ground-water resources of the Nacatoch aquifer: TWDB Rept. 305, 50 p.

McGowen M.K., and Lopez, C.M., 1983, Depositional systems in the Nacatoch Formation (upper Cretaceous), Northeast Texas and Southwest Arkansas: Univ. of Texas, Bureau of Economic Geology Rept. of Inv. No. 137, 59 p.

Lipan



Lipan Aquifer

The Lipan aquifer is located in the Lipan Flats area of eastern Tom Green, western Concho, and southern Runnels counties. The water is principally used for irrigation, with limited amounts used for rural domestic and livestock purposes.

The aquifer comprises up to 125 feet of saturated alluvial deposits of the Leona Formation of Quaternary age. Also included in the aquifer are the updip portions of the underlying Choza Formation and Bullwagon Dolomite of Permian age that are hydrologically continuous with the Leona and contain fresh to slightly saline water.

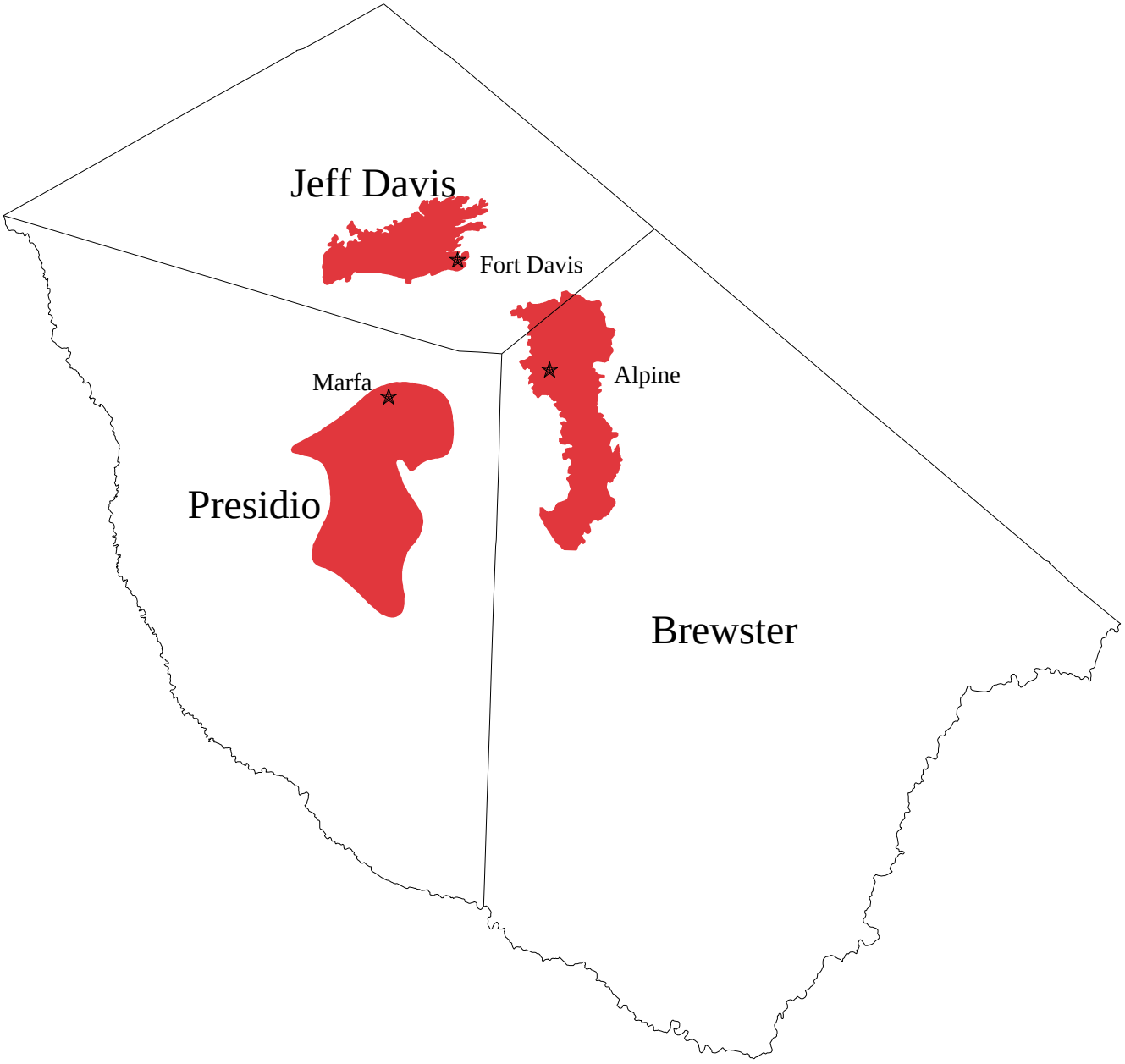
Ground water in the Lipan aquifer naturally discharges by seepage to the Concho River and by evapotranspiration in areas where the water table is at or near land surface. Well yields commonly range from 100 gal/min to more than 1,000 gal/min.

Ground water in the Leona Formation ranges from fresh to slightly saline and is very hard. Water in the underlying updip portions of the Choza and Bullwagon tends to be slightly saline. The chemical quality of ground water in the Lipan aquifer often does not meet drinking water standards; however, it is generally suitable for irrigation.

References

Lee, J.N., 1986, Shallow ground-water conditions, Tom Green County, Texas: U.S. Geological Survey Water-Resources Inv. Rept. 86-4177, 41 p.

Igneous



Igneous Aquifer

The Igneous aquifer occurs in three separate areas in the arid Trans-Pecos region of West Texas within Brewster, Presidio, and Jeff Davis counties. Ground water occurs in fissures and fractures of lava flows, tuffs, and related intrusive and extrusive igneous rocks of Tertiary age. These rocks reach an average thickness of 900 feet to 1,000 feet. The cities of Alpine, Fort Davis, and Marfa use water for municipal supply from the aquifer.

The aquifer in the Alpine area includes the Cottonwood Springs Basalt, Sheep Canyon Basalt, Crossen Trachyte, and associated alluvium; of these, the principal water-bearing unit of the aquifer is the Crossen Trachyte. The aquifer in the Marfa area includes parts of the Petan Basalt and the Tascotal Formation. The Davis Mountains aquifer includes the Barrel Springs Formation and associated alluvium.

Well yields are moderate to large in the Marfa area, and small to moderate in the Alpine and Fort Davis areas. Yields of wells in the Igneous aquifer vary widely because the basalts have a wide range in permeability; lower permeabilities generally occur in the lower sections, and moderately high permeabilities occur in the faulted and fractured upper layers. Water quality is good for municipal and domestic uses. Elevated levels of silica and fluoride have been found in water from some wells, reflecting the igneous origin of the rock.

References

Davis, M.E., 1961, Ground-water reconnaissance of the Marfa area, Presidio County, Texas: TBWE Bull. 6110, 23 p.

Littleton, R.T., and Audsley, G.L., 1957, Ground-water geology of the Alpine area, Brewster, Jeff Davis, and Presidio counties, Texas: TBWE Bull. 5712, 37 p.

Rita Blanca

Rita Blanca Aquifer

The Rita Blanca aquifer underlies the Ogallala Formation in western Dallam and Hartley counties in the northwest corner of the Texas Panhandle and is a small part of a large aquifer that extends into Oklahoma, Colorado, and New Mexico. Irrigation accounts for most of the ground-water use from this aquifer, with Texline being the only community that uses the aquifer for municipal water supply.

Ground water occurs in coarse-grained Cretaceous age sands and gravels of the Lytle and Dakota formations. Ground water also occurs in the Exeter Sandstone and the Morrison Formation of Jurassic age. Highest yields of 600 gal/min to 800 gal/min are obtained from wells completed in the Lytle and Dakota sandstones.

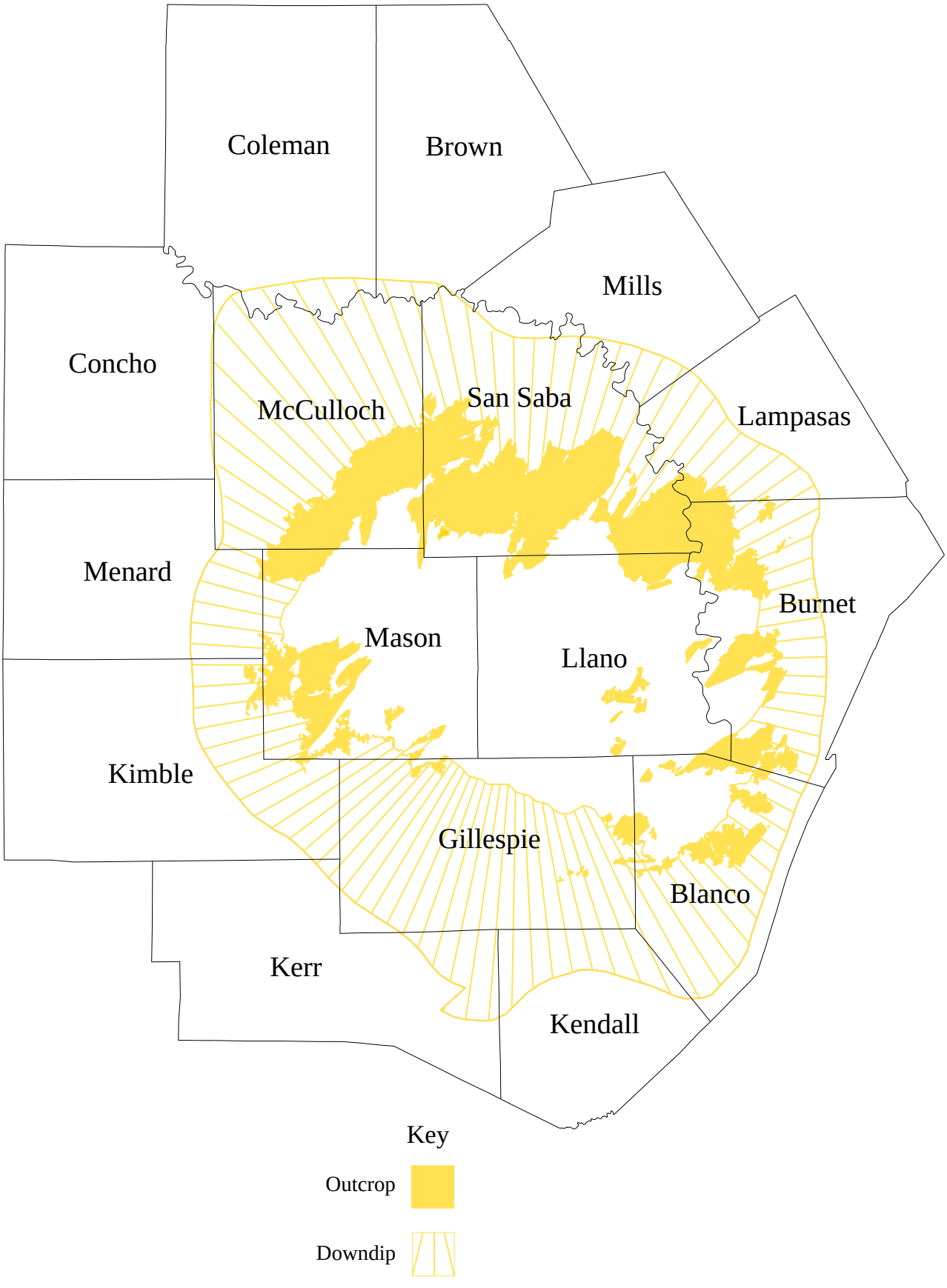
Water quality in the aquifer is usually fresh, but very hard. Some formations, however, produce water that is slightly saline, which is unsuitable for irrigating most crops grown in the region. Water-level declines have developed in excess of 50 feet in some irrigated areas. As a result, many springs in the northern part of Dallam County have disappeared that once contributed to the constant flow in creeks.

References

Christian, P., 1989, Evaluation of ground-water resources in Dallam County, Texas: TWDB Rept. 315, 27 p.

Knowles, T., Nordstrom, P., and Klemt, W.B., 1984, Evaluating the ground-water resources of the High Plains of Texas: TDWR Rept. 288, 4 vols.

Ellenburger-San Saba



Ellenburger-San Saba Aquifer

The Ellenburger-San Saba aquifer occurs in parts of 15 counties in the Llano Uplift area of Central Texas. Discontinuous outcrops of the aquifer encircle older rocks in the core of the uplift, and the remaining downdip portion extends to depths of approximately 3,000 feet below land surface. Regional block faulting has significantly compartmentalized the aquifer.

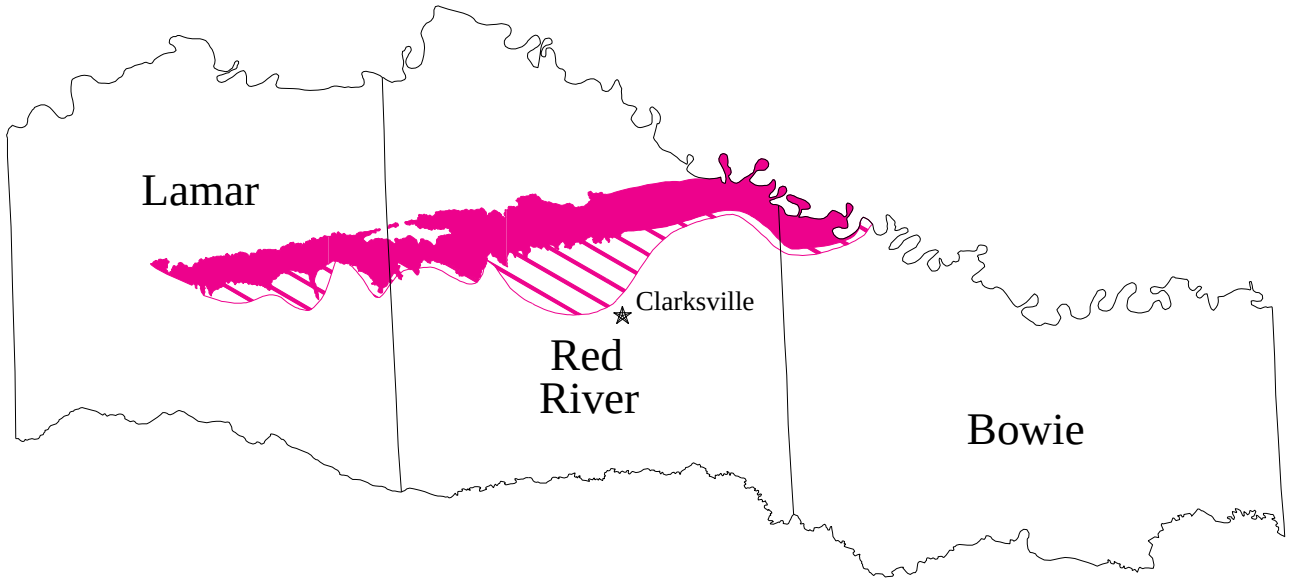
Three-fourths of the water pumped from the aquifer is used for municipal water supplies at Fredericksburg, Johnson City, Bertram, and Richland Springs. Also, a large portion of water flowing from San Saba Springs, which is the water supply for the city of San Saba, is believed to be from the Ellenburger-San Saba and Marble Falls aquifers.

The aquifer occurs in limestone and dolomite facies in the San Saba Member of the Wilberns Formation of late Cambrian age, and in the Honeycut, Gorman, and Tanyard formations of the Ellenburger Group of early Ordovician age. Water in the aquifer primarily occurs in solution cavities formed along faults and related fractures. The Ellenburger-San Saba aquifer in some areas may be hydrologically connected to the Marble Falls aquifer. Water produced from the aquifer is inherently hard and usually has less than 1,000 mg/l dissolved solids.

References

Bluntzer, R.L., 1992, Evaluation of the ground-water resources of the Paleozoic and Cretaceous aquifers in the Hill Country of Central Texas: TWDB Rept. 339, 139 p.

Blossom



Key

Outcrop

Downdip

Blossom Aquifer

The Blossom aquifer occupies a narrow east-west band in parts of Bowie, Red River, and Lamar counties in the northeast corner of Texas. The Blossom Sand Formation consists of alternating sequences of sand and clay deposited during the Cretaceous Period. In places, the formation attains a thickness of 400 feet, although no more than 29 percent of this thickness consists of water-bearing sand.

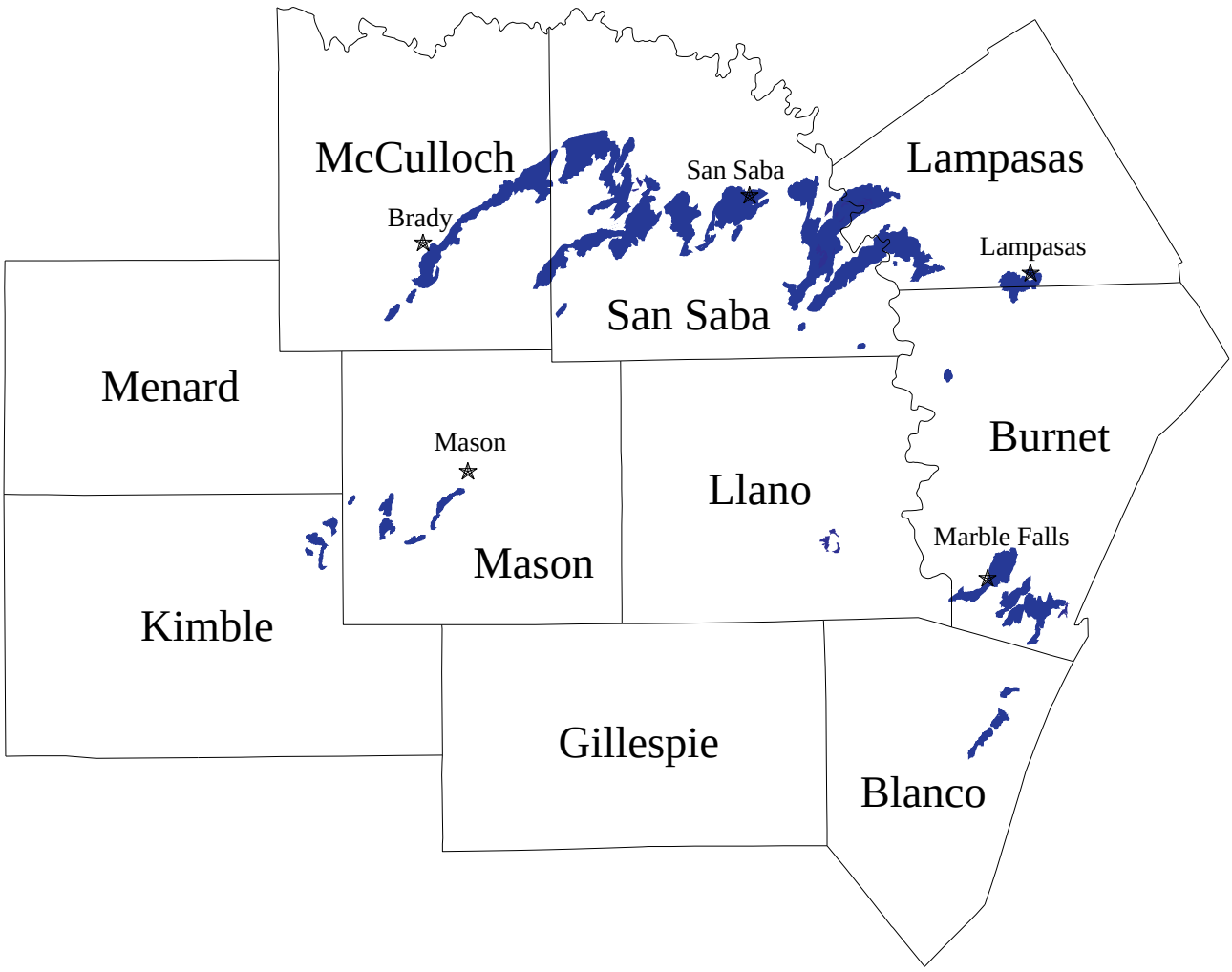
Ground water from the Blossom aquifer is generally soft, slightly alkaline, and, in some areas, high in sodium, bicarbonate, and iron. Water quality, although not acceptable for irrigation due to its high sodium adsorption ratio (SAR) and residual sodium carbonate (RSC) values, is generally acceptable for most nonindustrial uses.

The Blossom aquifer yields water in small to moderate amounts over a limited area on and south of the outcrop, with the largest well yields of 650 gal/min occurring in Red River County. Production decreases in the western half of the aquifer, where yields of 35 gal/min to 85 gal/min are more typical. Historically, Clarksville and the Red River Water Supply Corporation in Red River County have pumped the greatest amounts from the aquifer, which resulted in a water-level deline; however, in recent years, the rate of decline has slowed or even stabilized in some wells as a result of more surface-water use in the area.

References

McLaurin, C., 1988, Occurrence, availability, and chemical quality of ground water in the Blossom Sand aquifer: TWDB Rept. 307, 32 p.

Marble Falls



Marble Falls Aquifer

The Marble Falls aquifer occurs in several separated outcrops, primarily along the northern and eastern flanks of the Llano Uplift. It provides water to parts of Blanco, Burnet, Lampasas, McCulloch, and San Saba counties, and to even smaller parts of Kimble, Llano, and Mason counties in Central Texas. San Saba and Rochelle are the two largest communities that withdraw water from the aquifer for public supply use. Wells have been reported to yield as much as 2,000 gal/min; however, most wells produce substantially less.

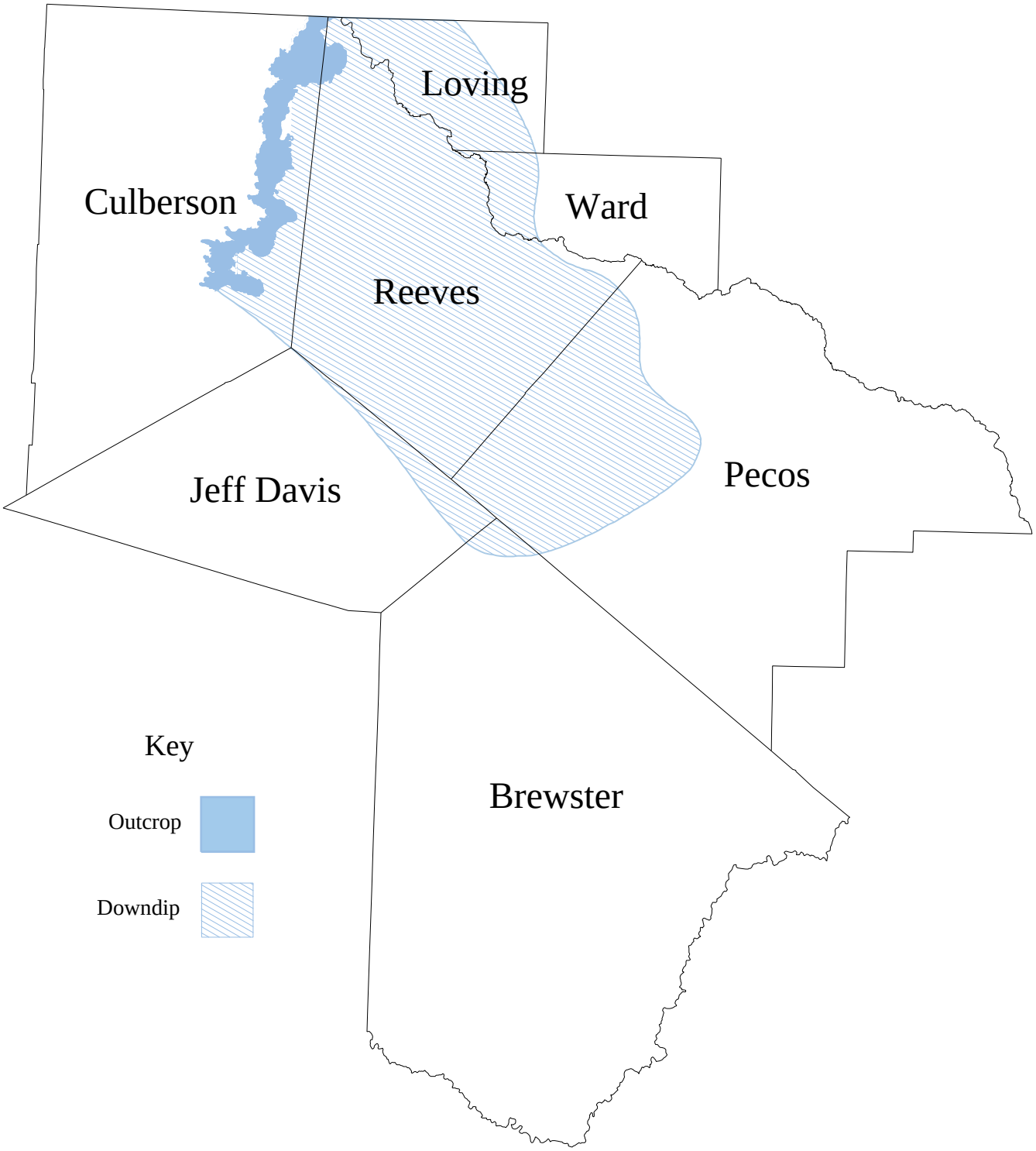
Ground water occurs in fractures, solution cavities, and channels in the limestone of the Marble Falls Formation of the Pennsylvanian Bend Group. Maximum thickness of the formation is 600 feet. Where underlying beds are thin or absent, the Marble Falls and Ellenburger-San Saba aquifers may be hydrologically connected. Numerous large springs issue from the aquifer and provide a significant part of the baseflow to the San Saba River in McCulloch and San Saba counties, and to the Colorado River in San Saba and Lampasas counties.

The quality of water produced from the aquifer is suitable for most purposes. The downdip artesian portion in most areas is not extensive and becomes significantly mineralized within relatively short distances from the outcrop recharge area.

References

Bluntzer, R.L., 1992, Evaluation of the ground-water resources of the Paleozoic and Cretaceous aquifers in the Hill Country of Central Texas: TWDB Rept. 339, 130 p.

Rustler


Loving
Culberson
Ward
Reeves
Jeff Davis
Pecos
Brewster
Key
Outcrop
Downdip

Rustler Aquifer

The Rustler Formation of Permian age crops out in eastern Culberson County in the Trans-Pecos region of Texas and extends eastward into the subsurface of the Delaware Basin. The aquifer is principally located in Loving, Pecos, Reeves, and Ward counties where it yields water for irrigation, livestock, and water-flooding operations in oil-producing areas. High dissolved-solids concentrations render the water unsuitable for human consumption.

Water occurs in highly permeable solution zones that have developed in dolomite, limestone, and gypsum beds of the Rustler Formation. The dissolved-solids concentrations of the water increase downgradient, eastward into the basin, with a shift from sulfate to chloride as the predominant anion.

References

Armstrong, C.A., and McMillion, L.G., 1961, Geology and ground-water resources of Pecos County, Texas: TBWE Bull. 6106, 2 vols.

Maley, V.C., and Huffington, R.M., 1953, Cenozoic fill and evaporite solution in the Delaware Basin, Texas and New Mexico: Geological Society of America Bull. Vol. 64, No. 5, pp. 539-546.

Rickey, S.F., Wells, J.G., and Stephens, K.T., 1985, Geohydrology of the Delaware Basin and vicinity, Texas and New Mexico: U.S. Geological Survey Water-Resources Inv. 84-4077, 99 p.

Capitan Reef Complex

Capitan Reef Complex Aquifer

The Capitan Reef formed along the margins of the Delaware Basin, an embayment covered by a shallow Permian sea. In Texas, two arcuate strips of the reef, 10 to 14 miles wide, are exposed in the Guadalupe, Apache, and Glass mountains; elsewhere, the reef is in the subsurface. The reef extends northward into New Mexico where it provides abundant fresh water to the city of Carlsbad.

Most of the ground water pumped from the aquifer in Texas is used for oil reservoir water-flooding operations in Ward and Winkler counties. A small amount is used for irrigation of salt-tolerant crops in Pecos and Culberson counties.

In Texas, the aquifer is composed of up to 2,360 feet of dolomite and limestone deposited as reef, fore-reef, and back-reef facies. Water-bearing formations include the Capitan Limestone, Goat Seep Limestone, and most of the Carlsbad facies of the Artesia Group—including the Grayburg, Queen, Seven Rivers, Yates, and Tansill formations.

The aquifer generally contains water of poor quality and yields small to large quantities of moderately saline to brine water. Water of the freshest quality is located on and near areas of recharge where the reef is exposed at the surface in the three mountain ranges.

References

Hiss, W.L., 1975, Stratigraphy and ground-water hydrology of the Capitan aquifer, Southeastern New Mexico and Western Texas: U.S. Geological Survey and New Mexico State Engineer Open-File Rept., 396 p.

Rickey, S.F., Wells, J.G., and Stephens, K.T., 1985, Geohydrology of the Delaware Basin and vicinity, Texas and New Mexico: U.S. Geological Survey Water-Resources Inv. 84-4077, 99 p.

Marathon

Marathon Aquifer

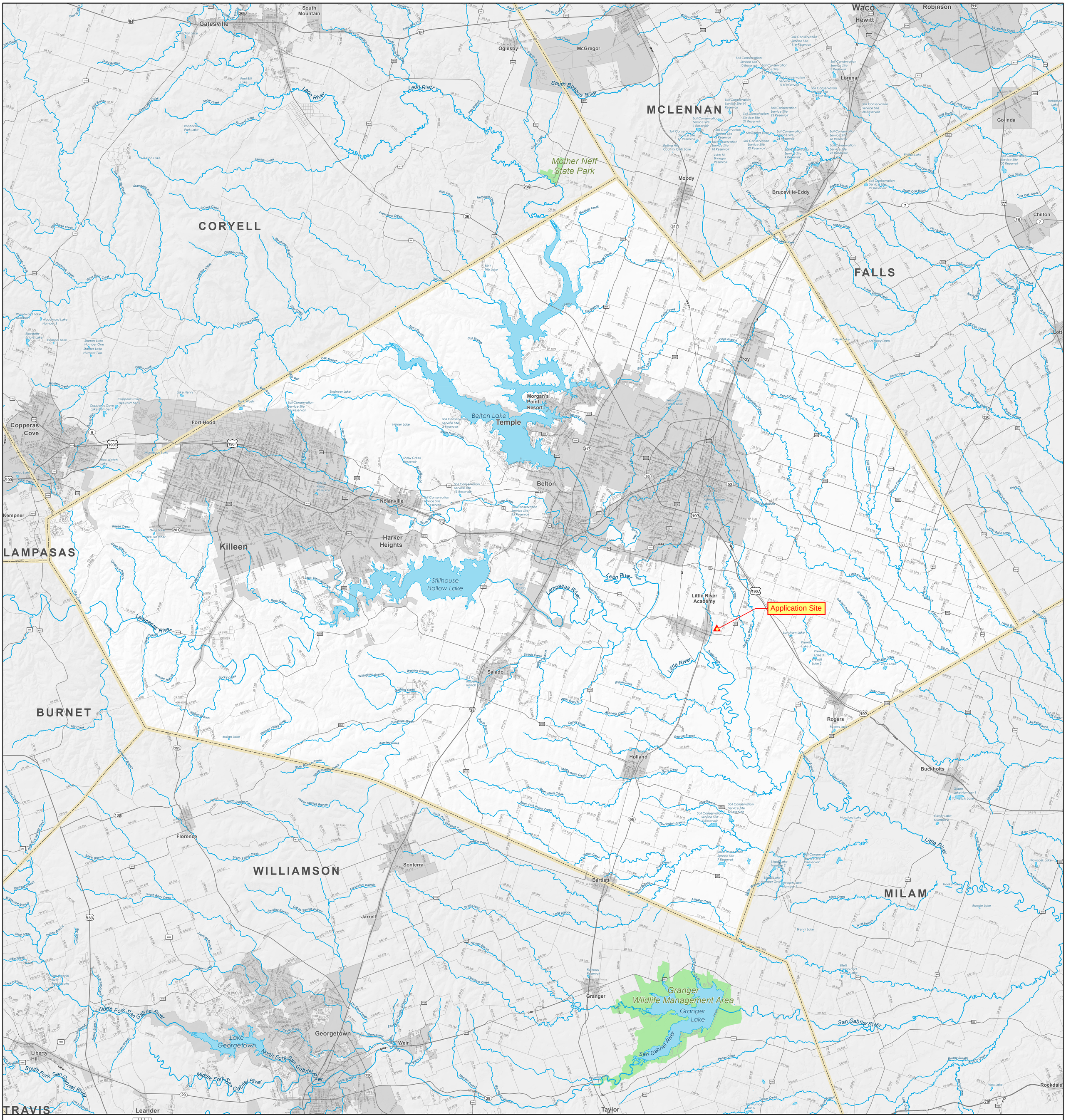
The Marathon aquifer occurs entirely within north-central Brewster County. Ground water is used primarily for municipal water supply by the city of Marathon and for domestic and livestock purposes. Water from the aquifer is typically of good quality but hard, with dissolved solids usually ranging from 500 mg/l to 1,000 mg/l.

The Marathon aquifer is contained within the Gaptank, Dimple, Tesnus, Caballos, Maraviallas, Fort Pena, and Marathon Limestone formations; of these, the Marathon Limestone Formation is the most productive unit. These Early Paleozoic (Pennsylvanian through Ordovician) formations occur in a region of complex folding and faulting within the Marathon Uplift.

Water in the Marathon aquifer occurs in numerous crevices, joints, and cavities, and extends to depths ranging from 350 feet to about 900 feet. The depth of most wells is less than 250 feet, and well yields range from less than 10 gal/min to more than 300 gal/min. Many of the shallow wells in the region actually produce water from alluvial deposits that cover portions of the rock formations.

References

DeCook, K.J., 1961, A reconnaissance of the ground-water resources of the Marathon area, Brewster County, Texas: TBWE Bull. 6111, 51 p.



DISCLAIMER
This data was generated by the Texas Water Development Board using GIS (Geographical Information System) software. No claims are made to the accuracy or completeness of the information shown herein nor to its suitability for a particular use. The scale and location of all mapped data are approximate. 08/01/2020

DATA SOURCES
Transportation and Boundaries:
Texas Department of Transportation (TxDOT) & US Census Bureau (USCB)
Hydrography:
United States Geological Survey (USGS)
National Hydrography Data Set (NHD)

TNRIS

Texas Water Development Board

GEOLOGY OF TEXAS

1992

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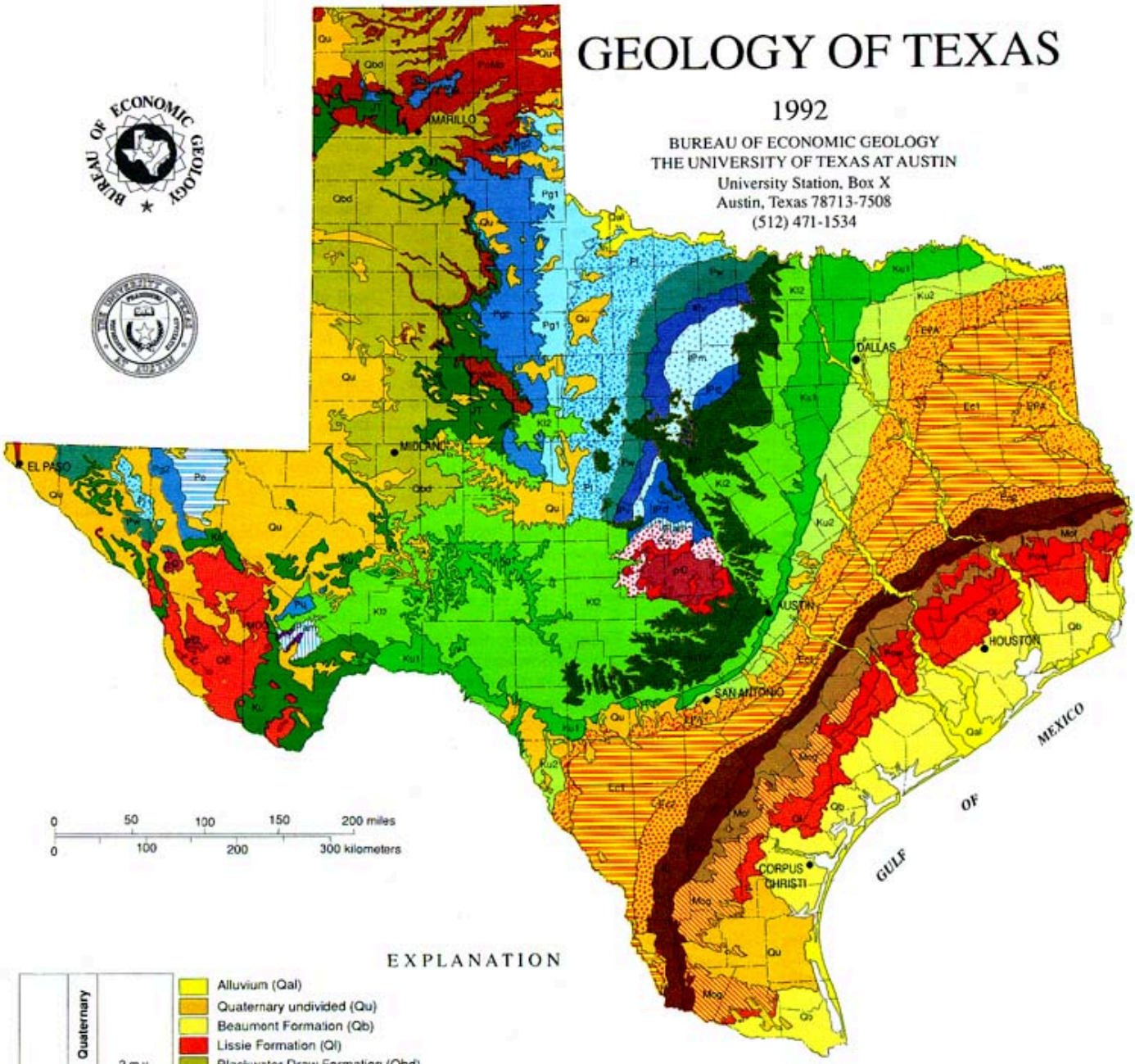

EXPLANATION

CENOZOIC	Quaternary	2 m.y.	Alluvium (Qal)
			Quaternary undivided (Qu)
			Beaumont Formation (Qb)
			Lissie Formation (Ql)
			Blackwater Draw Formation (Qbd)
	Tertiary	Pliocene 5 m.y.	Willis Formation (Pow)
			Ogallala Formation (PoMo)
		Miocene 24 m.y.	Goliad Formation (Mog)
			Fleming and Oakville Formations (Mof)
		Oligocene 38 m.y.	Catahoula Formation (Oc)
			Oligocene and Eocene undivided (OE) (volcanic rocks and conglomerates in Trans-Pecos Texas)
		Eocene 58 m.y.	Jackson Group (Whitsett, Manning, Wellborn, Caddell, Yazoo, and Moodys Branch Fms.) (Ej)
			Claiborne Group (Yegua Formation) (Ec2)
			Claiborne Group (Cook Mountain, Sparta, Weches, Queen City, and Reklaw) (Ec1)
		Paleocene	Wilcox and Midway Groups (EPA)
MESOZOIC		66 m.y.	Navarro and Taylor Groups (Ku2)
	Cretaceous		Austin, Eagle Ford, Woodbine, and U. Washita Groups (Ku1)
			Fredericksburg and L. Washita Groups (Kl2)
		144 m.y.	Trinity Group (Kl1)
			Cretaceous undivided (Ku)
	Jurassic Triassic 245 m.y		Jurassic Triassic undivided (JT)

		245 m.y.	
PALEOZOIC			Ochoan Series (Po)
			Guadalupian Series (Whitehorse and Quartermaster Formations) (Pg2)
			Guadalupian Series (Blaine and San Angelo Formations) (Pg1)
			Leonardian Series (Pl)
			Wolfcampian Series (Pw)
		286 m.y.	Permian undivided (Pu)
			Virgilian Series (IPv)
			Missourian Series (IP m)
			Desmoinesian Series (IP d)
		320 m.y.	Atokan and Morrowan Series (IP am)
		505 m.y.	Mississippian, Devonian, and Ordovician undivided (MDO)
			Cambrian (-C)
		570 m.y.	Paleozoic undivided (Pau)
Pre-cambrian		1200 m.y.	Precambrian undivided (p-C)
		2000 m.y.	

USGS 305242097340701 AX-58-04-812

Bell County, Texas
Latitude 30°52'42", Longitude 97°34'07" NAD83
Land-surface elevation 811 feet above NAVD88
The depth of the well is 231 feet below land surface.
This well is completed in the Edwards-Trinity aquifer system (S500EDRTRN) national aquifer.

Output formats

- Table of data
- Tab-separated data
- Graph of data
- Reselect period

Date	Time	Water-level date-time accuracy	Parameter code	Water level, feet below land surface	Water level, feet above specific vertical datum	Referenced vertical datum	Status	Method of measurement	Measuring agency	Source of measurement	Water-level approval status
2005-05-25		D	62610		610.64	NGVD29	1	V	USGS	S	A
2005-05-25		D	62611		611.00	NAVD88	1	V	USGS	S	A
2005-05-25		D	72019	200.00			1	V	USGS	S	A

Explanation

Section	Code	Description
Water-level date-time accuracy	D	Date is accurate to the Day
Parameter code	62610	Groundwater level above NGVD 1929, feet
Parameter code	62611	Groundwater level above NAVD 1988, feet
Parameter code	72019	Depth to water level, feet below land surface
Referenced vertical datum	NAVD88	North American Vertical Datum of 1988
Referenced vertical datum	NGVD29	National Geodetic Vertical Datum of 1929
Status	1	Static
Method of measurement	V	Calibrated electric-tape measurement.
Measuring agency	USGS	U.S. Geological Survey
Source of measurement	S	Measured by personnel of reporting agency.
Water-level approval status	A	Approved for publication -- Processing and review completed.

RIVER BASIN MAP OF TEXAS

1996

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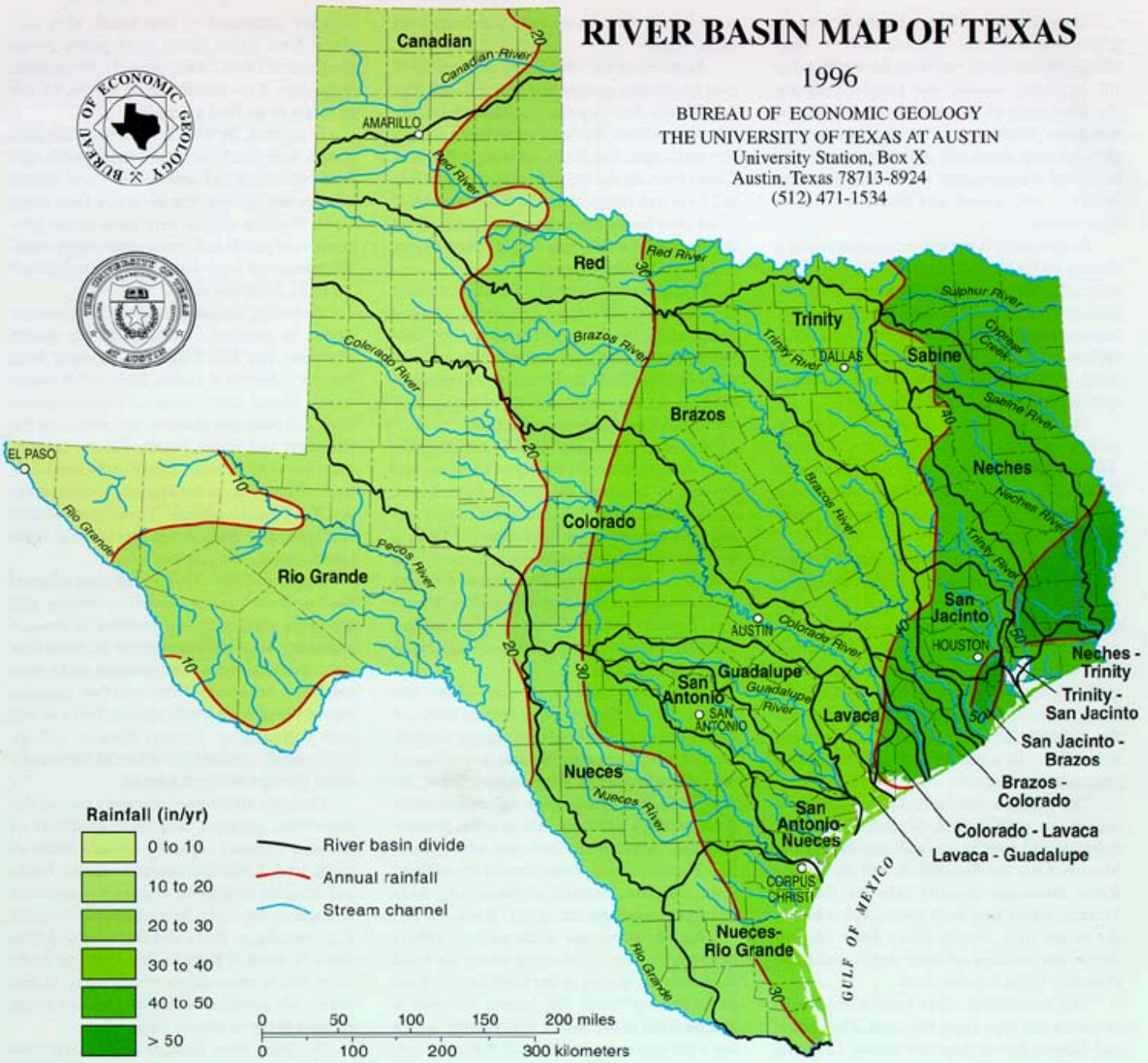

River basins	Texas length (miles)	Texas area (sq mi)	Number of major reservoirs*	Conservation storage (acre ft)*	Storage (acre ft/sq mi)
Brazos	840	42,800	19	3,322,880	75
Canadian	200	12,700	2	560,900	44
Colorado	600	39,893	11	3,803,900	95
Guadalupe	250	6,070	2	420,000	70
Lavaca	74	2,309	1	157,900	68
Neches	416	10,011	4	3,455,500	345
Nueces	315	16,950	2	931,640	60
Red	680	30,823	7	4,593,460	149
Rio Grande	1,250	48,259	3	3,772,000	78
Sabine	360	7,426	2	6,041,300	814
San Jacinto	70	5,600	2	570,400	102
Trinity	550	17,696	14	6,969,710	388

Data from Texas Water Development Board.

Attachment O

Quarterly Sludge Summary Report

Beneficial Land Application Site

Permit # WQ0004436000

Permittee Name: Bell County WCID #2

For TCEQ Quarter: 1st

Reporting period from: September 1, 2023 to November 30, 2023

✖ **December 15th Report (Q1)** ____ March 15th Report (Q2)

____ June 15th Report (Q3) ____ September 15th Report (Q4)

Location of the land application site:

Latitude 30 59’07.5”

Longitude 97 20’01.2”

Acreage used for sludge application at this site or field: 3.27 acres of a 5.3 acre site

Site vegetation: Native Bermuda and Rye Grass

1. Metal concentration, pathogen analysis data and vector attraction certifications of sludge for each source: N/A – sludge was not land applied during this reporting period
2. Provide a list containing the name & permit number of each source of sludge:

   Academy WWTP – Permit # TX0020249

   Little River WWTP – Permit # TX0020257
3. Date of delivery of each load of sludge land applied.

   N/A – sludge was not land applied during this reporting period
4. Date of land application of each load of sludge.

   N/A – sludge was not land applied during this reporting period
5. The cumulative metal loading rates for any metals as listed in Table 2 of 30 TAC 312.43(b)

   N/A – sludge was not land applied during this reporting period
6. The suggested agronomic rate for the Class B sludge: 1.97 dry tons/acre/year

Quarterly Sludge Summary Report Form

Note 1: If your site has more than one land application field, please submit a separate form for each field.
Note 2: Please place this sheet at the top of your Quarterly Sludge Report.
Note 3: If you operate other registered/permitted sludge land application sites, a form should be submitted for each site.
Note 4: Please send a copy of this sheet and all attachments to the TCEQ Central Office and the TCEQ regional office in your area.

For TCEQ Quarter 1 **Reporting Period from** September 1, 2023 **to** November 30, 2023

Permit No.: WQ00004436000 **Date:** 12/12/23

Permittee Name: Bell County WCID #2

Mailing Address: P.O. Box 338, Little River-Academy TX, 76554

Contact Name: Christopher Parker **Telephone No.:** (254) 982-4685

Field Number (if any): **(Submit separate form for each field, if the site has two or more fields)**

1. Class B Sewage Sludge land applied: 0.00 dry tons/quarter
2. Treated Domestic Septage land applied: 0.00 gallons/quarter
3. Water Treatment Plant Sludge land applied: N/A dry tons/quarter
   a. Acreage used for sludge application at this site or field: N/A acres
   b. Site Vegetation (such as grass type, etc.) and # of cuttings or indicate if grazing: Native Bermuda & Rye Grass
   c. Did any of the sludge you have generated or received NOT MEET concentration limits for any of the metals listed in Table 3 of 30 TAC §312.43 (b)? (Yes or No) N/A
   d. Did the cumulative metal loading rates for any metal equal or exceed 90% of the limits in Table 2 of §312.43 (b)? (Yes or No) N/A
   e. Were the site management practices per 30 TAC 312.44 met? (Yes or No) N/A
   f. Was an insurance policy required per 30 TAC 312.11(d)(5)? (Yes or No) N/A

Sewage Sludge Only- Please attach information regarding the following items:
* Please note the following information should be provided in computer generated report format:
* Please place check mark before each item below to indicate that the item is attached to this report.
* Please include all information in manner such as listed in the attached instructions on Page 2.

1. Metal concentration, pathogen analysis data and vector attraction certifications of sludge for each source.
x 2. Provide a list containing the name and permit number of each source.
3. Date of delivery of each load of sludge land applied.
4. Date of land application of each load of sludge.
5. The cumulative metal loading rates for any metals as listed in Table 2 of 30 TAC §312.43(b)?
x 6. The suggested agronomic rate for the Class B sludge.

PLEASE MAIL THE COMPLETED QUARTERLY REPORT TO:

Texas Commission on Environmental Quality
Land Application Team (MC 150)
Water Quality Division
P.O. Box 13087
Austin, Texas 78711-3087

Quarterly Sludge Summary Report
Beneficial Land Application Site
Permit # WQ0004436000

Permittee Name: Bell County WCID #2

For TCEQ Quarter: 4th

Reporting period from: June 1, 2023 to August 31, 2023

____ December 15th Report (Q1) ____ March 15th Report (Q2)

____ June 15th Report (Q3) **__X__ September 15th Report (Q4)**

Location of the land application site:

Latitude 30 59'07.5"

Longitude 97 20'01.2"

Acreage used for sludge application at this site or field: 3.27 acres of a 5.3 acre site

Site vegetation: Native Bermuda and Rye Grass

1. Metal concentration, pathogen analysis data and vector attraction certifications of sludge for each source: N/A – sludge was not land applied during this reporting period
2. Provide a list containing the name & permit number of each source of sludge:

   Academy WWTP – Permit # TX0020249

   Little River WWTP – Permit # TX0020257
3. Date of delivery of each load of sludge land applied.

   N/A – sludge was not land applied during this reporting period
4. Date of land application of each load of sludge.

   N/A – sludge was not land applied during this reporting period
5. The cumulative metal loading rates for any metals as listed in Table 2 of 30 TAC 312.43(b)

   N/A – sludge was not land applied during this reporting period
6. The suggested agronomic rate for the Class B sludge: 1.97 dry tons/acre/year

Quarterly Sludge Summary Report Form

Note 1: If your site has more than one land application field, please submit a separate form for each field.
Note 2: Please place this sheet at the top of your Quarterly Sludge Report.
Note 3: If you operate other registered/permitted sludge land application sites, a form should be submitted for each site.
Note 4: Please send a copy of this sheet and all attachments to the TCEQ Central Office and the TCEQ regional office in your area.

For TCEQ Quarter 4 **Reporting Period from** June 1, 2023 **to** August 31, 2023

Permit No.: WQ00004436000 **Date:** 09/15/23

Permittee Name: Bell County WCID #2

Mailing Address: P.O. Box 338, Little River TX, 76554

Contact Name: Christopher Parker **Telephone No.:** (254) 982-4685

Field Number (if any): **(Submit separate form for each field, if the site has two or more fields)**

1. Class B Sewage Sludge land applied: 0.00 dry tons/quarter
2. Treated Domestic Septage land applied: N/A gallons/quarter
3. Water Treatment Plant Sludge land applied: N/A dry tons/quarter
   a. Acreage used for sludge application at this site or field: N/A acres
   b. Site Vegetation (such as grass type, etc.) and # of cuttings or indicate if grazing: N/A
   c. Did any of the sludge you have generated or received NOT MEET concentration limits for any of the metals listed in Table 3 of 30 TAC §312.43 (b)? (Yes or No) N/A
   d. Did the cumulative metal loading rates for any metal equal or exceed 90% of the limits in Table 2 of §312.43 (b)? (Yes or No) N/A
   e. Were the site management practices per 30 TAC 312.44 met? (Yes or No) N/A
   f. Was an insurance policy required per 30 TAC 312.11(d)(5)? (Yes or No) N/A

Sewage Sludge Only- Please attach information regarding the following items:
* Please note the following information should be provided in computer generated report format:
* Please place check mark before each item below to indicate that the item is attached to this report.
* Please include all information in manner such as listed in the attached instructions on Page 2.

1. Metal concentration, pathogen analysis data and vector attraction certifications of sludge for each source.
x 2. Provide a list containing the name and permit number of each source.
3. Date of delivery of each load of sludge land applied.
4. Date of land application of each load of sludge.
5. The cumulative metal loading rates for any metals as listed in Table 2 of 30 TAC §312.43(b)?
x 6. The suggested agronomic rate for the Class B sludge.

PLEASE MAIL THE COMPLETED QUARTERLY REPORT TO:

Texas Commission on Environmental Quality
Land Application Team (MC 150)
Water Quality Division
P.O. Box 13087
Austin, Texas 78711-3087