



Technical 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. Second notice (NAPD-Notice of Preliminary Decision)
4. Application materials
5. Draft permit
6. Technical summary or fact sheet

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 Texas Administrative Code Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations of the permit application.

The City of Lewisville (CN600535140) operates the Prairie Creek Wastewater Treatment Plant (RN102075298), a conventional activated sludge facility located at 897 Treatment Plant Rd, near Lewisville, Denton County, Texas 75057. This application requests a renewal for the discharge of treated domestic wastewater at an annual average flow of 12,000,000 gallons per day via Outfall 001. The facility's discharges are expected to include parameters such as five-day biochemical oxygen demand (BOD), total suspended solids (TSS), total lead, and Escherichia coli. Additional potential pollutants are outlined in the Domestic Technical Report 1.0, Section 7 (Pollutant Analysis of Treated Effluent), and Domestic Worksheet 4.0 of the permit application package. The plant uses an activated sludge process, with treatment units including a bar screen, grit chamber, aeration basins, final clarifiers, sludge digesters, belt filter press, chlorine contact chambers, and a dichlorination chamber.

Se adjunta el siguiente resumen para la solicitud de permiso de calidad del agua pendiente, en revisión por la Comisión de Calidad ambiental de Texas, de conformidad con lo exige el Capítulo 39 del Código Administrativo de Texas 30. El resumen puede variar durante la revisión técnica de la solicitud y no es una representación federal ejecutable de la solicitud de permiso

La ciudad de Lewisville (CN600535140) opera la planta de tratamiento de aguas residuales de Prairie Creek (RN102075298), una instalación de lodos activados convencional ubicada en 897 Treatment Plant Rd, cerca de Lewisville, condado de Denton, Texas 75057. Esta solicitud requiere un reemplazo para la recolección de aguas residuales domésticas tratadas. Las aguas residuales tienen un flujo medio anual de 12,000,000 galones por día mediante el Emisario 001. Se espera que la instalación incluya parámetros como la demanda bioquímica de oxígeno (DBO) de cinco días, el total de sólidos suspendidos (SST), el plomo total y Escherichia coli. Los contaminantes adicionales se presentan en el informe técnico nacional 1.0, sección 7 (Análisis de contaminantes del efluente tratado) y en la Hoja de Trabajo Nacional 4.0 del paquete de solicitud de permiso. La planta usa lodos activados en un proceso de tratamiento llamado criba de barras, desarenador, tanques de aireación, clarificadores finales, digestores de lodos, filtro, prensa de banda, cámaras de contacto de cloro y una cámara de decoloración.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



NOTICE OF RECEIPT OF APPLICATION AND INTENT TO OBTAIN WATER QUALITY PERMIT RENEWAL

PERMIT NO. WQ0010662001

APPLICATION. City of Lewisville, P.O. Box 299002, Lewisville, Texas 75029, has applied to the Texas Commission on Environmental Quality (TCEQ) to renew Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0010662001 (EPA I.D. No. TX0052892) to authorize the discharge of treated wastewater at a volume not to exceed an annual average flow of 18,000,000 gallons per day. The domestic wastewater treatment facility is located at 897 Treatment Plant Road, in the city of Lewisville, in Denton County, Texas 75057. The discharge route is from the plant site to Prairie Creek; thence to Elm Fork Trinity River Below Lewisville Lake. TCEQ received this application on May 12, 2025. The permit application will be available for viewing and copying at Lewisville Public Library, 1197 West Main Street, Lewisville, in Denton 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/tpdes-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=-96.981388,33.056666&level=18>

ALTERNATIVE LANGUAGE NOTICE. Alternative language notice in Spanish is available at: <https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications>.

El aviso de idioma alternativo en español está disponible en

<https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications>.

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.**

TCEQ may act on an application to renew a permit for discharge of wastewater without providing an opportunity for a contested case hearing if certain criteria are met.

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 City of Lewisville at the address stated above or by calling Mr. Cedric West, Superintendent, at 972-219-5051.

Issuance Date: June 9, 2025

Texas Commission on Environmental Quality



NOTICE OF APPLICATION AND PRELIMINARY DECISION FOR TPDES PERMIT FOR MUNICIPAL WASTEWATER

RENEWAL

PERMIT NO. WQ0010662001

APPLICATION AND PRELIMINARY DECISION. City of Lewisville, P.O. Box 299002, Lewisville, Texas 75029, has applied to the Texas Commission on Environmental Quality (TCEQ) for a renewal of Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0010662001, which authorizes the discharge of treated domestic wastewater at an annual average flow not to exceed 18,000,000 gallons per day. TCEQ received this application on May 12, 2025.

The facility is located at 897 Treatment Plant Road, in the City of Lewisville, Denton County, Texas 75057. The treated effluent is discharged to Prairie Creek, thence Elm Fork Trinity River Below Lewisville Lake in Segment No. 0822 of the Trinity River Basin. The unclassified receiving water use is minimal aquatic life use for Prairie Creek. The designated uses for Segment No. 0822 are primary contact recreation, public water supply, and high aquatic life use. This link to an electronic map of the site or facility's general location is provided as a public courtesy and is not part of the application or notice. For the exact location, refer to the application.

<https://gisweb.tceq.texas.gov/LocationMapper/?marker=-96.981388,33.056666&level=18>

The TCEQ Executive Director has completed the technical review of the application and prepared a draft permit. The draft permit, if approved, would establish the conditions under which the facility must operate. The Executive Director has made a preliminary decision that this permit, if issued, meets all statutory and regulatory requirements. The permit application, Executive Director's preliminary decision, and draft permit are available for viewing and copying at Lewisville Public Library, 1197 West Main Street, Lewisville, in Denton County, Texas. The application is available for viewing and copying at the following webpage:

<https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications>.

PUBLIC COMMENT / PUBLIC MEETING. You may submit public comments or request a public meeting about this application. The purpose of a public meeting is to provide the opportunity to submit comments or to ask questions about the application. TCEQ holds 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 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 a contested case hearing or reconsideration of the Executive Director's decision.** A contested case hearing is a legal proceeding similar to a civil trial in a 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. TCEQ may act on an application to renew a permit for discharge of wastewater without providing an opportunity for a contested case hearing if certain criteria are met.**

EXECUTIVE DIRECTOR ACTION. The Executive Director may issue final approval of the application unless a timely contested case hearing request or request for reconsideration is filed. If a timely hearing request or request for reconsideration is filed, the Executive Director will not issue final approval of the permit and will forward the application and request to the TCEQ Commissioners for their consideration at a scheduled Commission meeting.

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.

All written public comments and public meeting requests must be submitted to the Office of the Chief Clerk, MC 105, Texas Commission on Environmental Quality, P.O. Box 13087, Austin, TX 78711-3087 or electronically at www.tceq.texas.gov/goto/comment within 30 days from the date of newspaper publication of this notice.

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. Public comments and requests must be submitted either electronically at www.tceq.texas.gov/goto/comment, 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. Any personal information you submit to the TCEQ will become part of the agency's record; this includes email addresses. 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 City of Lewisville at the address stated above or by calling Mr. Cedric West, Superintendent, at 972-219-5051.

Issuance Date: December 4, 2025



LEWISVILLE

Deep Roots. Broad Wings. Bright Future.

Public Services

Cedric West
Wastewater Superintendent
City of Lewisville
P.O. Box 299002
Lewisville, TX 75029
972-219-5051
Cwest@cityoflewisville.com

04/01/2025

Texas Commission on Environmental Quality (TCEQ)
Applications Review and Processing Team (MC-148)
P.O. Box 13087
Austin, Texas 78711-3087

Subject: Submission of Permit Renewal for Prairie Creek Wastewater Treatment Plant
TPDES Permit No. WQ0010662001

Dear Administrator,

Enclosed in this binder is the permit renewal application for the Prairie Creek Wastewater Treatment Plant, TPDES Permit No. WQ0010662001. The submission includes the required forms as follows:

- Form 10400 – Core Data form
- Form 10053 – Domestic Wastewater Permit Application Administrative Report
- Form 10054 – Domestic Wastewater Permit Application Technical Report
- Form 10056 – Domestic Wastewater Permit Application Sludge Technical Report

Please find these completed forms in the binder for your review and processing. Please do not hesitate to contact me if you require any further information or clarification regarding this submission.

Sincerely,

Cedric West
Wastewater Superintendent
City of Lewisville



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
**DOMESTIC WASTEWATER PERMIT APPLICATION
 CHECKLIST**

Complete and submit this checklist with the application.

APPLICANT NAME: City Of Lewisville

PERMIT NUMBER (If new, leave blank): WQ00 10662001

Indicate if each of the following items is included in your application.

	Y	N		Y	N
Administrative Report 1.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Original USGS Map	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Administrative Report 1.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Affected Landowners Map	<input type="checkbox"/>	<input checked="" type="checkbox"/>
SPIF	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Landowner Disk or Labels	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Core Data Form	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Buffer Zone Map	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Public Involvement Plan Form	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Flow Diagram	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Technical Report 1.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>	Site Drawing	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Technical Report 1.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Original Photographs	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Worksheet 2.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Design Calculations	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Worksheet 2.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Solids Management Plan	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Worksheet 3.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>	Water Balance	<input type="checkbox"/>	<input checked="" type="checkbox"/>
Worksheet 3.1	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 3.2	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 3.3	<input type="checkbox"/>	<input checked="" type="checkbox"/>			
Worksheet 4.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Worksheet 5.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Worksheet 6.0	<input checked="" type="checkbox"/>	<input type="checkbox"/>			
Worksheet 7.0	<input type="checkbox"/>	<input checked="" type="checkbox"/>			

For TCEQ Use Only

Segment Number _____ County _____
 Expiration Date _____ Region _____
 Permit Number _____



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
**DOMESTIC WASTEWATER PERMIT APPLICATION
 ADMINISTRATIVE REPORT 1.0**

For any questions about this form, please contact the Applications Review and Processing Team at 512-239-4671.

Section 1. Application Fees (Instructions Page 26)

Indicate the amount submitted for the application fee (check only one).

Flow	New/Major Amendment	Renewal
<0.05 MGD	\$350.00 <input type="checkbox"/>	\$315.00 <input type="checkbox"/>
≥0.05 but <0.10 MGD	\$550.00 <input type="checkbox"/>	\$515.00 <input type="checkbox"/>
≥0.10 but <0.25 MGD	\$850.00 <input type="checkbox"/>	\$815.00 <input type="checkbox"/>
≥0.25 but <0.50 MGD	\$1,250.00 <input type="checkbox"/>	\$1,215.00 <input type="checkbox"/>
≥0.50 but <1.0 MGD	\$1,650.00 <input type="checkbox"/>	\$1,615.00 <input type="checkbox"/>
≥1.0 MGD	\$2,050.00 <input type="checkbox"/>	\$2,015.00 <input checked="" type="checkbox"/>

Minor Amendment (for any flow) \$150.00

Payment Information:

Mailed Check/Money Order Number: Click to enter text.
 Check/Money Order Amount: \$2015.00
 Name Printed on Check: City of Lewisville

EPAY Voucher Number: Click to enter text.

Copy of Payment Voucher enclosed? Yes

Section 2. Type of Application (Instructions Page 26)

- a. Check the box next to the appropriate authorization type.
- Publicly-Owned Domestic Wastewater
 - Privately-Owned Domestic Wastewater
 - Conventional Wastewater Treatment
- b. Check the box next to the appropriate facility status.
- Active Inactive

c. Check the box next to the appropriate permit type.

- TPDES Permit
- TLAP
- TPDES Permit with TLAP component
- Subsurface Area Drip Dispersal System (SADDS)

d. Check the box next to the appropriate application type

- New
- Major Amendment with Renewal
- Major Amendment without Renewal
- Renewal without changes
- Minor Amendment with Renewal
- Minor Amendment without Renewal
- Minor Modification of permit

e. For amendments or modifications, describe the proposed changes: [Click to enter text.](#)

f. For existing permits:

Permit Number: WQ00 10662001

EPA I.D. (TPDES only): TX 0052892

Expiration Date: Feb. 5th 2026

Section 3. Facility Owner (Applicant) and Co-Applciant Information (Instructions Page 26)

A. The owner of the facility must apply for the permit.

What is the Legal Name of the entity (applicant) applying for this permit?

City of Lewisville

(The legal name must be spelled exactly as filed with the Texas Secretary of State, County, or in the legal documents forming the entity.)

If the applicant is currently a customer with the TCEQ, what is the Customer Number (CN)?
You may search for your CN on the TCEQ website at <http://www15.tceq.texas.gov/crpub/>

CN: 600535140

What is the name and title of the person signing the application? The person must be an executive official meeting signatory requirements in 30 TAC § 305.44.

Prefix: Mrs.

Last Name, First Name: Hearon, Katelyn

Title: Assistant Director of Public Service Credential: [Click to enter text.](#)

B. Co-applicant information. Complete this section only if another person or entity is required to apply as a co-permittee.

What is the Legal Name of the co-applicant applying for this permit?

N/A

(The legal name must be spelled exactly as filed with the TX SOS, with the County, or in the legal documents forming the entity.)

If the co-applicant is currently a customer with the TCEQ, what is the Customer Number (CN)? You may search for your CN on the TCEQ website at: <http://www15.tceq.texas.gov/crpub/>

CN: N/A

What is the name and title of the person signing the application? The person must be an executive official meeting signatory requirements in 30 TAC § 305.44.

Prefix: Click to enter text.

Last Name, First Name: Click to enter text.

Title: Click to enter text.

Credential: Click to enter text.

Provide a brief description of the need for a co-permittee: Click to enter text.

C. Core Data Form

Complete the Core Data Form for each customer and include as an attachment. If the customer type selected on the Core Data Form is **Individual**, complete **Attachment 1** of Administrative Report 1.0. Click to enter text.

Section 4. Application Contact Information (Instructions Page 27)

This is the person(s) TCEQ will contact if additional information is needed about this application. Provide a contact for administrative questions and technical questions.

- A. Prefix: Mrs. Last Name, First Name: Hearon, Katelyn
Title: Assistant Director of Public Service Credential: Click to enter text.
Organization Name: City of Lewisville
Mailing Address: PO Box 299002 City, State, Zip Code: Lewisville, TX 75029
Phone No.: 9722193509 E-mail Address: khearon@cityoflewisville.com
Check one or both: Administrative Contact Technical Contact
- B. Prefix: Mr Last Name, First Name: West, Cedric
Title: Superintendent Credential: Click to enter text.
Organization Name: City of Lewisville
Mailing Address: PO Box 299002 City, State, Zip Code: Lewisville, TX 75029
Phone No.: 9722195051 E-mail Address: cwest@cityoflewisville.com
Check one or both: Administrative Contact Technical Contact

Section 5. Permit Contact Information (Instructions Page 27)

Provide the names and contact information for two individuals that can be contacted throughout the permit term.

- A. Prefix: Mr Last Name, First Name: West, Cedric
Title: Superintendent Credential: Click to enter text.
Organization Name: City of Lewisville
Mailing Address: PO Box 299002 City, State, Zip Code: Lewisville, TX 75029
Phone No.: 9722195051 E-mail Address: cwest@cityoflewisville.com

B. Prefix: Mrs Last Name, First Name: Hearon, Katelyn
Title: Assistant Director Of public Service Credential: Click to enter text.
Organization Name: City of Lewisville
Mailing Address: PO Box 299002 City, State, Zip Code: Lewisville, TX 75029
Phone No.: 9722193509 E-mail Address: khearon@cityoflewisville.com

Section 6. Billing Contact Information (Instructions Page 27)

The permittee is responsible for paying the annual fee. The annual fee will be assessed to permits *in effect on September 1 of each year*. The TCEQ will send a bill to the address provided in this section. The permittee is responsible for terminating the permit when it is no longer needed (using form TCEQ-20029).

Prefix: Mr Last Name, First Name: West, Cedric
Title: Superintendent Credential: Click to enter text.
Organization Name: City of Lewisville
Mailing Address: PO Box 299002 City, State, Zip Code: Lewisville, TX 75029
Phone No.: 9722195051 E-mail Address: cwest@cityoflewisville.com

Section 7. DMR/MER Contact Information (Instructions Page 27)

Provide the name and complete mailing address of the person delegated to receive and submit Discharge Monitoring Reports (DMR) (EPA 3320-1) or maintain Monthly Effluent Reports (MER).

Prefix: Mr Last Name, First Name: West, Cedric
Title: Superintendent Credential: Click to enter text.
Organization Name: City of Lewisville
Mailing Address: PO Box 299002 City, State, Zip Code: Lewisville, TX 75029
Phone No.: 9722195051 E-mail Address: cwest@cityoflewisville.com

Section 8. Public Notice Information (Instructions Page 27)

A. Individual Publishing the Notices

Prefix: Mr Last Name, First Name: West, Cedric
Title: Superintendent Credential: Click to enter text.
Organization Name: City of Lewisville
Mailing Address: PO Box 299002 City, State, Zip Code: Lewisville, TX 75029
Phone No.: 9722195051 E-mail Address: cwest@cityoflewisville.com

B. Method for Receiving Notice of Receipt and Intent to Obtain a Water Quality Permit Package

Indicate by a check mark the preferred method for receiving the first notice and instructions:

- E-mail Address
- Fax
- Regular Mail

C. Contact permit to be listed in the Notices

Prefix: Mr Last Name, First Name: West, Cedric
Title: Superintendent Credential: Click to enter text.
Organization Name: City of Lewisville
Mailing Address: PO Box 299002 City, State, Zip Code: Lewisville, TX 75029
Phone No.: 9722195051 E-mail Address: cwest@cityoflewisville.com

D. Public Viewing Information

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

Public building name: City of Lewisville Public Library

Location within the building: Main Desk

Physical Address of Building: 1197 W. Main St.

City: Lewisville County: Denton

Contact (Last Name, First Name): Booker, Carolyn

Phone No.: 9722193571 Ext.: Click to enter text.

E. Bilingual Notice Requirements

This information is required for new, major amendment, minor amendment or minor modification, and renewal applications.

This section of the application is only used to determine if alternative language notices will be needed. Complete instructions on publishing the alternative language notices will be in your public notice package.

Please call the bilingual/ESL coordinator at the nearest elementary and middle schools and obtain the following information to determine whether an alternative language notices are required.

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

Yes No

If **no**, publication of an alternative language notice is not required; **skip to** Section 9 below.

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 **question 1, 2, 3, or 4**, public notices in an alternative language are required. Which language is required by the bilingual program? Spanish

F. Plain Language Summary Template

Complete the Plain Language Summary (TCEQ Form 20972) and include as an attachment.

Attachment: #1

G. Public Involvement Plan Form

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

Attachment: N/A

Section 9. Regulated Entity and Permitted Site Information (Instructions Page 29)

A. If the site is currently regulated by TCEQ, provide the Regulated Entity Number (RN) issued to this site. RN 102075298

Search the TCEQ's Central Registry at <http://www15.tceq.texas.gov/crpub/> to determine if the site is currently regulated by TCEQ.

B. Name of project or site (the name known by the community where located):

Prairie Creek Wastewater Treatment Plant

C. Owner of treatment facility: City of Lewisville

Ownership of Facility: Public Private Both Federal

D. Owner of land where treatment facility is or will be:

Prefix: Click to enter text. Last Name, First Name: Click to enter text.

Title: Click to enter text. Credential: Click to enter text.

Organization Name: City of Lewisville

Mailing Address: PO Box 299002 City, State, Zip Code: Lewisville, Tx 75029

Phone No.: E-mail Address: Click to enter text.

If the landowner is not the same person as the facility owner or co-applicant, attach a lease agreement or deed recorded easement. See instructions.

Attachment: Click to enter text.

E. Owner of effluent disposal site:

Prefix: [Click to enter text.](#)

Last Name, First Name: [Click to enter text.](#)

Title: [Click to enter text.](#)

Credential: [Click to enter text.](#)

Organization Name: [Click to enter text.](#)

Mailing Address: [Click to enter text.](#)

City, State, Zip Code: [Click to enter text.](#)

Phone No.: [Click to enter text.](#)

E-mail Address: [Click to enter text.](#)

If the landowner is not the same person as the facility owner or co-applicant, attach a lease agreement or deed recorded easement. See instructions.

Attachment: [Click to enter text.](#)

F. Owner sewage sludge disposal site (if authorization is requested for sludge disposal on property owned or controlled by the applicant)::

Prefix: [Click to enter text.](#)

Last Name, First Name: [Click to enter text.](#)

Title: [Click to enter text.](#)

Credential: [Click to enter text.](#)

Organization Name: [Click to enter text.](#)

Mailing Address: [Click to enter text.](#)

City, State, Zip Code: [Click to enter text.](#)

Phone No.: [Click to enter text.](#)

E-mail Address: [Click to enter text.](#)

If the landowner is not the same person as the facility owner or co-applicant, attach a lease agreement or deed recorded easement. See instructions.

Attachment: [Click to enter text.](#)

Section 10. TPDES Discharge Information (Instructions Page 31)

A. Is the wastewater treatment facility location in the existing permit accurate?

Yes No

If **no, or a new permit application**, please give an accurate description:

[Click to enter text.](#)

B. Are the point(s) of discharge and the discharge route(s) in the existing permit correct?

Yes No

If **no, or a new or amendment permit application**, provide an accurate description of the point of discharge and the discharge route to the nearest classified segment as defined in 30 TAC Chapter 307:

[Click to enter text.](#)

City nearest the outfall(s): City of Lewisville

County in which the outfalls(s) is/are located: Denton

C. Is or will the treated wastewater discharge to a city, county, or state highway right-of-way, or a flood control district drainage ditch?

Yes No

If **yes**, indicate by a check mark if:

- Authorization granted Authorization pending

For **new and amendment** applications, provide copies of letters that show proof of contact and the approval letter upon receipt.

Attachment: [Click to enter text.](#)

- D. For all applications involving an average daily discharge of 5 MGD or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge: Denton, Dallas, Tarrant, Wise, Bosque, Collin, Rockwall, Kaufman, Johnson, Ellis, Parker, Jack, Hill, McLennan, Navarro, Henderson, Freestone, Erath, Van Zant, Hopkins, Hunt Franklin, Rains, Palo Pinto, Stephens, Young, Somervell, Hood, Wood, Smith, Limestone, Comanche, Leon, Mills, Lampasas, and Coryell.

Section 11. TLAP Disposal Information (Instructions Page 32)

- A. For TLAPs, is the location of the effluent disposal site in the existing permit accurate?

- Yes No

If **no**, or a **new or amendment permit application**, provide an accurate description of the disposal site location:

[Click to enter text.](#)

- B. City nearest the disposal site: [Click to enter text.](#)

- C. County in which the disposal site is located: [Click to enter text.](#)

- D. For **TLAPs**, describe the routing of effluent from the treatment facility to the disposal site:

[Click to enter text.](#)

- E. For **TLAPs**, please identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: [Click to enter text.](#)

Section 12. Miscellaneous Information (Instructions Page 32)

- A. Is the facility located on or does the treated effluent cross American Indian Land?

- Yes No

- B. If the existing permit contains an onsite sludge disposal authorization, is the location of the sewage sludge disposal site in the existing permit accurate?

- Yes No Not Applicable

If **No**, or if a new onsite sludge disposal authorization is being requested in this permit application, provide an accurate location description of the sewage sludge disposal site.

[Click to enter text.](#)

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

Yes No

If yes, list each person formerly employed by the TCEQ who represented your company and was paid for service regarding the application: [Click to enter text.](#)

D. Do you owe any fees to the TCEQ?

Yes No

If yes, provide the following information:

Account number: [Click to enter text.](#)

Amount past due: [Click to enter text.](#)

E. Do you owe any penalties to the TCEQ?

Yes No

If yes, please provide the following information:

Enforcement order number: [Click to enter text.](#)

Amount past due: [Click to enter text.](#)

Section 13. Attachments (Instructions Page 33)

Indicate which attachments are included with the Administrative Report. Check all that apply:

Lease agreement or deed recorded easement, if the land where the treatment facility is located or the effluent disposal site are not owned by the applicant or co-applicant.

Original full-size USGS Topographic Map with the following information:

- Applicant's property boundary
- Treatment facility boundary
- Labeled point of discharge for each discharge point (TPDES only)
- Highlighted discharge route for each discharge point (TPDES only)
- Onsite sewage sludge disposal site (if applicable)
- Effluent disposal site boundaries (TLAP only)
- New and future construction (if applicable)
- 1 mile radius information
- 3 miles downstream information (TPDES only)
- All ponds.

Attachment 1 for Individuals as co-applicants

Other Attachments. Please specify: 2

Section 14. Signature Page (Instructions Page 34)

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

Permit Number: 10662001

Applicant: City of Lewisville

Certification:

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the 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 and imprisonment for knowing violations.

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 (typed or printed): Katelyn Hearon

Signatory title: Utilities Manager / Assistant Director of Public Services

Signature: *Katelyn Hearon* Date: 4/1/2025
(Use blue ink)

Subscribed and Sworn to before me by the said Katelyn Hearon
on this 1st day of April, 2025.
My commission expires on the 25th day of March, 2026.

Roseann Davis
Notary Public

[SEAL]

Denton
County, Texas



DOMESTIC WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.0

The following information is required for new and amendment applications.

Section 1. Affected Landowner Information (Instructions Page 36)

- A. Indicate by a check mark that the landowners map or drawing, with scale, includes the following information, as applicable:
- The applicant's property boundaries
 - The facility site boundaries within the applicant's property boundaries
 - The distance the buffer zone falls into adjacent properties and the property boundaries of the landowners located within the buffer zone
 - The property boundaries of all landowners surrounding the applicant's property (Note: if the application is a major amendment for a lignite mine, the map must include the property boundaries of all landowners adjacent to the new facility (ponds).)
 - The point(s) of discharge and highlighted discharge route(s) clearly shown for one mile downstream
 - The property boundaries of the landowners located on both sides of the discharge route for one full stream mile downstream of the point of discharge
 - The property boundaries of the landowners along the watercourse for a one-half mile radius from the point of discharge if the point of discharge is into a lake, bay, estuary, or affected by tides
 - The boundaries of the effluent disposal site (for example, irrigation area or subsurface drainfield site) and all evaporation/holding ponds within the applicant's property
 - The property boundaries of all landowners surrounding the effluent disposal site
 - The boundaries of the sludge land application site (for land application of sewage sludge for beneficial use) and the property boundaries of landowners surrounding the applicant's property boundaries where the sewage sludge land application site is located
 - The property boundaries of landowners within one-half mile in all directions from the applicant's property boundaries where the sewage sludge disposal site (for example, sludge surface disposal site or sludge monofill) is located
- B. Indicate by a check mark that a separate list with the landowners' names and mailing addresses cross-referenced to the landowner's map has been provided.
- C. Indicate by a check mark in which format the landowners list is submitted:
- USB Drive
 - Four sets of labels
- D. Provide the source of the landowners' names and mailing addresses: [Click to enter text.](#)
- E. As required by *Texas Water Code § 5.115*, is any permanent school fund land affected by this application?
- Yes
 - No

If **yes**, provide the location and foreseeable impacts and effects this application has on the land(s):

Click to enter text.

Section 2. Original Photographs (Instructions Page 38)

Provide original ground level photographs. Indicate with checkmarks that the following information is provided.

- At least one original photograph of the new or expanded treatment unit location
- At least two photographs of the existing/proposed point of discharge and as much area downstream (photo 1) and upstream (photo 2) as can be captured. If the discharge is to an open water body (e.g., lake, bay), the point of discharge should be in the right or left edge of each photograph showing the open water and with as much area on each respective side of the discharge as can be captured.
- At least one photograph of the existing/proposed effluent disposal site
- A plot plan or map showing the location and direction of each photograph

Section 3. Buffer Zone Map (Instructions Page 38)

A. Buffer zone map. Provide a buffer zone map on 8.5 x 11-inch paper with all of the following information. The applicant's property line and the buffer zone line may be distinguished by using dashes or symbols and appropriate labels.

- The applicant's property boundary;
- The required buffer zone; and
- Each treatment unit; and
- The distance from each treatment unit to the property boundaries.

B. Buffer zone compliance method. Indicate how the buffer zone requirements will be met. Check all that apply.

- Ownership
- Restrictive easement
- Nuisance odor control
- Variance

C. Unsuitable site characteristics. Does the facility comply with the requirements regarding unsuitable site characteristic found in 30 TAC § 309.13(a) through (d)?

- Yes No

DOMESTIC WASTEWATER PERMIT APPLICATION

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

This form applies to TPDES permit applications only. Complete and attach the Supplemental Permit information Form (SPIF) (TCEQ Form 20971).

Attachment: #3

WATER QUALITY PERMIT

PAYMENT SUBMITTAL FORM

Use this form to submit the Application Fee, if the mailing the payment.

- Complete items 1 through 5 below.
- Staple the check or money order in the space provided at the bottom of this document.
- **Do Not mail this form with the application form.**
- Do not mail this form to the same address as the application.
- Do not submit a copy of the application with this form as it could cause duplicate permit entries.

Mail this form and the check or money order to:

BY REGULAR U.S. MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, Texas 78711-3088

BY OVERNIGHT/EXPRESS MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, Texas 78753

Fee Code: WQP **Waste Permit No: WQ0010662001**

1. Check or Money Order Number: Click to enter text.
2. Check or Money Order Amount: \$2015.00
3. Date of Check or Money Order: Click to enter text.
4. Name on Check or Money Order: City of Lewisville
5. APPLICATION INFORMATION

Name of Project or Site: Prairie Creek

Physical Address of Project or Site: 897 Treatment Plant Rd Lewisville, Tx 75057

If the check is for more than one application, attach a list which includes the name of each Project or Site (RE) and Physical Address, exactly as provided on the application.

Staple Check or Money Order in This Space

ATTACHMENT 1

INDIVIDUAL INFORMATION

Section 1. Individual Information (Instructions Page 41)

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

Prefix (Mr., Ms., Miss): [Click to enter text.](#)

Full legal name (Last Name, First Name, Middle Initial): [Click to enter text.](#)

Driver's License or State Identification Number: [Click to enter text.](#)

Date of Birth: [Click to enter text.](#)

Mailing Address: [Click to enter text.](#)

City, State, and Zip Code: [Click to enter text.](#)

Phone Number: [Click to enter text.](#) Fax Number: [Click to enter text.](#)

E-mail Address: [Click to enter text.](#)

CN: [Click to enter text.](#)

For Commission Use Only:

Customer Number:

Regulated Entity Number:

Permit Number:

DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST OF COMMON DEFICIENCIES

Below is a list of common deficiencies found during the administrative review of domestic wastewater permit applications. To ensure the timely processing of this application, please review the items below and indicate by checking Yes that each item is complete and in accordance applicable rules at 30 TAC Chapters 21, 281, and 305. If an item is not required this application, indicate by checking N/A where appropriate. Please do not submit the application until the items below have been addressed.

Core Data Form (TCEQ Form No. 10400) Yes
(Required for all application types. Must be completed in its entirety and signed.
Note: Form may be signed by applicant representative.)

Correct and Current Industrial Wastewater Permit Application Forms Yes
(TCEQ Form Nos. 10053 and 10054. Version dated 6/25/2018 or later.)

Water Quality Permit Payment Submittal Form (Page 19) Yes
(Original payment sent to TCEQ Revenue Section. See instructions for mailing address.)

7.5 Minute USGS Quadrangle Topographic Map Attached Yes
(Full-size map if seeking "New" permit.
8 ½ x 11 acceptable for Renewals and Amendments)

Current/Non-Expired, Executed Lease Agreement or Easement N/A Yes

Landowners Map N/A Yes
(See instructions for landowner requirements)

Things to Know:

- All the items shown on the map must be labeled.
- The applicant's complete property boundaries must be delineated which includes boundaries of contiguous property owned by the applicant.
- The applicant cannot be its own adjacent landowner. You must identify the landowners immediately adjacent to their property, regardless of how far they are from the actual facility.
- If the applicant's property is adjacent to a road, creek, or stream, the landowners on the opposite side must be identified. Although the properties are not adjacent to applicant's property boundary, they are considered potentially affected landowners. If the adjacent road is a divided highway as identified on the USGS topographic map, the applicant does not have to identify the landowners on the opposite side of the highway.

Landowners Cross Reference List N/A Yes
(See instructions for landowner requirements)

Landowners Labels or USB Drive attached N/A Yes
(See instructions for landowner requirements)

Original signature per 30 TAC § 305.44 - Blue Ink Preferred Yes
(If signature page is not signed by an elected official or principle executive officer, a copy of signature authority/delegation letter must be attached)

Plain Language Summary Yes



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
**DOMESTIC WASTEWATER PERMIT APPLICATION
TECHNICAL REPORT 1.0**

For any questions about this form, please contact the Domestic Wastewater Permitting Team at 512-239-4671.

The following information is required for all renewal, new, and amendment applications.

Section 1. Permitted or Proposed Flows (Instructions Page 43)

A. Existing/Interim I Phase

Design Flow (MGD): 12

2-Hr Peak Flow (MGD): 29.9

Estimated construction start date: Click to enter text.

Estimated waste disposal start date: Click to enter text.

B. Interim II Phase

Design Flow (MGD): 12

2-Hr Peak Flow (MGD): 29.9

Estimated construction start date: Click to enter text.

Estimated waste disposal start date: Click to enter text.

C. Final Phase

Design Flow (MGD): 18

2-Hr Peak Flow (MGD): 45

Estimated construction start date: 2025

Estimated waste disposal start date: Click to enter text.

D. Current Operating Phase

Provide the startup date of the facility: 07/2014

Section 2. Treatment Process (Instructions Page 43)

A. Current Operating Phase

Provide a detailed description of the treatment process. **Include the type of treatment plant, mode of operation, and all treatment units.** Start with the plant's head works and

finish with the point of discharge. Include all sludge processing and drying units. **If more than one phase exists or is proposed, a description of *each phase* must be provided.**

Attachment #5

B. Treatment Units

In Table 1.0(1), provide the treatment unit type, the number of units, and dimensions (length, width, depth) of each treatment unit, accounting for *all* phases of operation.

Table 1.0(1) - Treatment Units

Treatment Unit Type	Number of Units	Dimensions (L x W x D)
Attachment #6		

C. Process Flow Diagram

Provide flow diagrams for the existing facilities and **each** proposed phase of construction.

Attachment: Attachment #7

Section 3. Site Information and Drawing (Instructions Page 44)

Provide the TPDES discharge outfall latitude and longitude. Enter N/A if not applicable.

- Latitude: 33.056474
- Longitude: -96.975311

Provide the TLAP disposal site latitude and longitude. Enter N/A if not applicable.

- Latitude: Click to enter text.
- Longitude: Click to enter text.

Provide a site drawing for the facility that shows the following:

- The boundaries of the treatment facility;
- The boundaries of the area served by the treatment facility;
- If land disposal of effluent, the boundaries of the disposal site and all storage/holding ponds; and
- If sludge disposal is authorized in the permit, the boundaries of the land application or disposal site.

Attachment: Attachment #8

Provide the name **and** a description of the area served by the treatment facility.

The City of Lewisville Prairie Creek Wastewater Treatment Plant provides wastewater treatment services for the City of Lewisville and Castle Hills. The City of Lewisville has a population of 137,315 and 18 lift stations located within the City limits. The wastewater flows received by the wastewater treatment plant are from both domestic and industrial sources.

Collection System Information for wastewater TPDES permits only: Provide information for each **uniquely owned** collection system, existing and new, served by this facility, including satellite collection systems. **Please see the instructions for a detailed explanation and examples.**

Collection System Information

Collection System Name	Owner Name	Owner Type	Population Served
Wastewater Collection System	City Of Lewisville	Publicly Owned	137,315
		Choose an item.	
		Choose an item.	
		Choose an item.	

Section 4. Unbuilt Phases (Instructions Page 45)

Is the application for a renewal of a permit that contains an unbuilt phase or phases?

Yes No

If yes, does the existing permit contain a phase that has not been constructed **within five years** of being authorized by the TCEQ?

Yes No

If yes, provide a detailed discussion regarding the continued need for the unbuilt phase. **Failure to provide sufficient justification may result in the Executive Director recommending denial of the unbuilt phase or phases.**

The City of Lewisville's Prairie Creek Wastewater Treatment Plant reached 90% of the permitted daily or annual average flow for three consecutive months and is in the TAC 30. §305.126 (75%/90% rule). The city has commissioned a Master Plan evaluation of the Wastewater Treatment Plant and Collection system. The collection system master plan has been completed, and the wastewater master plan should be complete as well. The City of Lewisville is currently scheduled to begin construction late 2025.

Section 5. Closure Plans (Instructions Page 45)

Have any treatment units been taken out of service permanently, or will any units be taken out of service in the next five years?

Yes No

If yes, was a closure plan submitted to the TCEQ?

Yes No

If yes, provide a brief description of the closure and the date of plan approval.

Click to enter text.

Section 6. Permit Specific Requirements (Instructions Page 45)

For applicants with an existing permit, check the Other Requirements or Special Provisions of the permit.

A. Summary transmittal

Have plans and specifications been approved for the existing facilities and each proposed phase?

Yes No

If yes, provide the date(s) of approval for each phase: Attachment #9

Provide information, including dates, on any actions taken to meet a *requirement or provision* pertaining to the submission of a summary transmittal letter. **Provide a copy of an approval letter from the TCEQ, if applicable.**

Not Applicable

B. Buffer zones

Have the buffer zone requirements been met?

Yes No

Provide information below, including dates, on any actions taken to meet the conditions of the buffer zone. If available, provide any new documentation relevant to maintaining the buffer zones.

Not Applicable

C. Other actions required by the current permit

Does the *Other Requirements* or *Special Provisions* section in the existing permit require submission of any other information or other required actions? Examples include Notification of Completion, progress reports, soil monitoring data, etc.

Yes No

If yes, provide information below on the status of any actions taken to meet the conditions of an *Other Requirement* or *Special Provision*.

Groundwater Monitoring samples are taken from each of the four monitoring well quarterly. A Geotechnical Evaluation report was submitted to the TCEQ June 1st 2024.

D. Grit and grease treatment

1. Acceptance of grit and grease waste

Does the facility have a grit and/or grease processing facility onsite that treats and decants or accepts transported loads of grit and grease waste that are discharged directly to the wastewater treatment plant prior to any treatment?

Yes No

If No, stop here and continue with Subsection E. Stormwater Management.

2. Grit and grease processing

Describe below how the grit and grease waste is treated at the facility. In your description, include how and where the grit and grease is introduced to the treatment works and how it is separated or processed. Provide a flow diagram showing how grit and grease is processed at the facility.

Not Applicable

3. Grit disposal

Does the facility have a Municipal Solid Waste (MSW) registration or permit for grit disposal?

Yes No

If No, contact the TCEQ Municipal Solid Waste team at 512-239-2335. Note: A registration or permit is required for grit disposal. Grit shall not be combined with treatment plant sludge. See the instruction booklet for additional information on grit disposal requirements and restrictions.

Describe the method of grit disposal.

Not Applicable

4. Grease and decanted liquid disposal

Note: A registration or permit is required for grease disposal. Grease shall not be combined with treatment plant sludge. For more information, contact the TCEQ Municipal Solid Waste team at 512-239-2335.

Describe how the decant and grease are treated and disposed of after grit separation.

Not Applicable

E. Stormwater management

1. Applicability

Does the facility have a design flow of 1.0 MGD or greater in any phase?

Yes No

Does the facility have an approved pretreatment program, under 40 CFR Part 403?

Yes No

If no to both of the above, then skip to Subsection F, Other Wastes Received.

2. MSGP coverage

Is the stormwater runoff from the WWTP and dedicated lands for sewage disposal currently permitted under the TPDES Multi-Sector General Permit (MSGP), TXR050000?

Yes No

If yes, please provide MSGP Authorization Number and skip to Subsection F, Other Wastes Received:

TXR05 5DE73 or TXRNE [Click to enter text.](#)

If no, do you intend to seek coverage under TXR050000?

Yes No

3. Conditional exclusion

Alternatively, do you intend to apply for a conditional exclusion from permitting based TXR050000 (Multi Sector General Permit) Part II B.2 or TXR050000 (Multi Sector General Permit) Part V, Sector T 3(b)?

Yes No

If yes, please explain below then proceed to Subsection F, Other Wastes Received:

Not Applicable

4. Existing coverage in individual permit

Is your stormwater discharge currently permitted through this individual TPDES or TLAP permit?

Yes No

If yes, provide a description of stormwater runoff management practices at the site that are authorized in the wastewater permit then skip to Subsection F, Other Wastes Received.

Not Applicable

5. Zero stormwater discharge

Do you intend to have no discharge of stormwater via use of evaporation or other means?

Yes No

If yes, explain below then skip to Subsection F. Other Wastes Received.

Not Applicable

Note: If there is a potential to discharge any stormwater to surface water in the state as the result of any storm event, then permit coverage is required under the MSGP or an individual discharge permit. This requirement applies to all areas of facilities with treatment plants or systems that treat, store, recycle, or reclaim domestic sewage, wastewater or sewage sludge (including dedicated lands for sewage sludge disposal located within the onsite property boundaries) that meet the applicability criteria of above. You have the option of obtaining coverage under the MSGP for direct discharges, (recommended), or obtaining coverage under this individual permit.

6. Request for coverage in individual permit

Are you requesting coverage of stormwater discharges associated with your treatment plant under this individual permit?

Yes No

If yes, provide a description of stormwater runoff management practices at the site for which you are requesting authorization in this individual wastewater permit and describe whether you intend to comingle this discharge with your treated effluent or discharge it via a separate dedicated stormwater outfall. Please also indicate if you

intend to divert stormwater to the treatment plant headworks and indirectly discharge it to water in the state.

Not Applicable

Note: Direct stormwater discharges to waters in the state authorized through this individual permit will require the development and implementation of a stormwater pollution prevention plan (SWPPP) and will be subject to additional monitoring and reporting requirements. Indirect discharges of stormwater via headworks recycling will require compliance with all individual permit requirements including 2-hour peak flow limitations. All stormwater discharge authorization requests will require additional information during the technical review of your application.

F. Discharges to the Lake Houston Watershed

Does the facility discharge in the Lake Houston watershed?

Yes No

If yes, attach a Sewage Sludge Solids Management Plan. See Example 5 in the instructions.
[Click to enter text.](#)

G. Other wastes received including sludge from other WWTPs and septic waste

1. Acceptance of sludge from other WWTPs

Does or will the facility accept sludge from other treatment plants at the facility site?

Yes No

If yes, attach sewage sludge solids management plan. See Example 5 of instructions.

In addition, provide the date the plant started or is anticipated to start accepting sludge, an estimate of monthly sludge acceptance (gallons or millions of gallons), an estimate of the BOD₅ concentration of the sludge, and the design BOD₅ concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

Not Applicable

Note: Permits that accept sludge from other wastewater treatment plants may be required to have influent flow and organic loading monitoring.

2. Acceptance of septic waste

Is the facility accepting or will it accept septic waste?

Yes No

If yes, does the facility have a Type V processing unit?

Yes No

If yes, does the unit have a Municipal Solid Waste permit?

Yes No

If yes to any of the above, provide the date the plant started or is anticipated to start accepting septic waste, an estimate of monthly septic waste acceptance (gallons or millions of gallons), an estimate of the BOD₅ concentration of the septic waste, and the design BOD₅ concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

Not Applicable

Note: Permits that accept sludge from other wastewater treatment plants may be required to have influent flow and organic loading monitoring.

3. **Acceptance of other wastes (not including septic, grease, grit, or RCRA, CERCLA or as discharged by IUs listed in Worksheet 6)**

Is or will the facility accept wastes that are not domestic in nature excluding the categories listed above?

Yes No

If yes, provide the date that the plant started accepting the waste, an estimate how much waste is accepted on a monthly basis (gallons or millions of gallons), a description of the entities generating the waste, and any distinguishing chemical or other physical characteristic of the waste. Also note if this information has or has not changed since the last permit action.

Not Applicable

Section 7. Pollutant Analysis of Treated Effluent (Instructions Page 50)

Is the facility in operation?

Yes No

If no, this section is not applicable. Proceed to Section 8.

If yes, provide effluent analysis data for the listed pollutants. **Wastewater treatment facilities** complete Table 1.0(2). **Water treatment facilities** discharging filter backwash water, complete Table 1.0(3). Provide copies of the laboratory results sheets. **These tables are not applicable for a minor amendment without renewal.** See the instructions for guidance.

Note: The sample date must be within 1 year of application submission.

Table1.0(2) – Pollutant Analysis for Wastewater Treatment Facilities

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
CBOD ₅ , mg/l	2.66	2.66	1	Composite	1/27/25 @7:30 am
Total Suspended Solids, mg/l	3.30	3.30	1	Composite	1/27/25 @7:30 am
Ammonia Nitrogen, mg/l	5.7	5.7	1	Composite	1/27/25 @7:30 am
Nitrate Nitrogen, mg/l	10.4	10.4	1	Composite	1/16/25 @7:30 am
Total Kjeldahl Nitrogen, mg/l	4.82	4.82	1	Composite	1/16/25 @7:30 am
Sulfate, mg/l	207	207	1	Composite	1/16/25 @7:30 am
Chloride, mg/l	99.5	99.5	1	Composite	2/14/25 @ 8:00 am
Total Phosphorus, mg/l	0.834	0.834	1	Composite	1/16/25 @7:30 am
pH, standard units	7.12	7.12	1	Composite	1/16/25 @7:30 am
Dissolved Oxygen*, mg/l	3.3	3.3	1	Composite	1/16/25 @7:30 am
Chlorine Residual, mg/l	<0.05	<0.05	1	Grab	1/16/25 @7:30 am
<i>E.coli</i> (CFU/100ml) freshwater	2.0	2.0	1	Grab	1/28/25 @ 8:00am
Enterococci (CFU/100ml) saltwater	N/A	N/A	N/A	N/A	N/A
Total Dissolved Solids, mg/l	512	512	1	Composite	1/27/25 @7:30 am
Electrical Conductivity, μmohs/cm, †	955	955	1	Composite	1/27/25 @7:30 am
Oil & Grease, mg/l	<5.0	<5.0	1	Grab	1/27/25 @7:30 am
Alkalinity (CaCO ₃)*, mg/l	128	128	1	Composite	1/27/25 @7:30 am

*TPDES permits only

†TLAP permits only

Table1.0(3) – Pollutant Analysis for Water Treatment Facilities

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
Total Suspended Solids, mg/l					
Total Dissolved Solids, mg/l					
pH, standard units					
Fluoride, mg/l					

Pollutant	Average Conc.	Max Conc.	No. of Samples	Sample Type	Sample Date/Time
Aluminum, mg/l					
Alkalinity (CaCO ₃), mg/l					

Section 8. Facility Operator (Instructions Page 50)

Facility Operator Name: Cedric West

Facility Operator's License Classification and Level: Wastewater "A"

Facility Operator's License Number: WW0066067

Section 9. Sludge and Biosolids Management and Disposal (Instructions Page 51)

A. WWTP's Biosolids Management Facility Type

Check all that apply. See instructions for guidance

- Design flow \geq 1 MGD
- Serves \geq 10,000 people
- Class I Sludge Management Facility (per 40 CFR § 503.9)
- Biosolids generator
- Biosolids end user - land application (onsite)
- Biosolids end user - surface disposal (onsite)
- Biosolids end user - incinerator (onsite)

B. WWTP's Biosolids Treatment Process

Check all that apply. See instructions for guidance.

- Aerobic Digestion
- Air Drying (or sludge drying beds)
- Lower Temperature Composting
- Lime Stabilization
- Higher Temperature Composting
- Heat Drying
- Thermophilic Aerobic Digestion
- Beta Ray Irradiation
- Gamma Ray Irradiation
- Pasteurization
- Preliminary Operation (e.g. grinding, de-gritting, blending)
- Thickening (e.g. gravity thickening, centrifugation, filter press, vacuum filter)

- Sludge Lagoon
- Temporary Storage (< 2 years)
- Long Term Storage (>= 2 years)
- Methane or Biogas Recovery
- Other Treatment Process: [Click to enter text.](#)

C. Biosolids Management

Provide information on the *intended* biosolids management practice. Do not enter every management practice that you want authorized in the permit, as the permit will authorize all biosolids management practices listed in the instructions. Rather indicate the management practice the facility plans to use.

Biosolids Management

Management Practice	Handler or Preparer Type	Bulk or Bag Container	Amount (dry metric tons)	Pathogen Reduction Options	Vector Attraction Reduction Option
Disposal in Landfill	On-Site Owner or Operator	Bulk	3171	Class B: PSRP Aerobic Digestion	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.		Choose an item.	Choose an item.

If "Other" is selected for Management Practice, please explain (e.g. monofill or transport to another WWTP): [Click to enter text.](#)

D. Disposal site

Disposal site name: DFW Recycling and Disposal Facility/ Camelot Landfill

TCEQ permit or registration number: 1025b/1312a

County where disposal site is located: Denton

E. Transportation method

Method of transportation (truck, train, pipe, other): Truck

Name of the hauler: Republic Services of Lewisville 25470 / City of Lewisville 22190

Hauler registration number: 25470/22190

Sludge is transported as a:

- Liquid semi-liquid semi-solid solid

Section 10. Permit Authorization for Sewage Sludge Disposal (Instructions Page 53)

A. Beneficial use authorization

Does the existing permit include authorization for land application of sewage sludge for beneficial use?

Yes No

If **yes**, are you requesting to continue this authorization to land apply sewage sludge for beneficial use?

Yes No

If **yes**, is the completed **Application for Permit for Beneficial Land Use of Sewage Sludge (TCEQ Form No. 10451)** attached to this permit application (see the instructions for details)?

Yes No

B. Sludge processing authorization

Does the existing permit include authorization for any of the following sludge processing, storage or disposal options?

Sludge Composting	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Marketing and Distribution of sludge	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Sludge Surface Disposal or Sludge Monofill	<input type="checkbox"/> Yes	<input checked="" type="checkbox"/> No
Temporary storage in sludge lagoons	<input checked="" type="checkbox"/> Yes	<input type="checkbox"/> No

If **yes** to any of the above sludge options and the applicant is requesting to continue this authorization, is the completed **Domestic Wastewater Permit Application: Sewage Sludge Technical Report (TCEQ Form No. 10056)** attached to this permit application?

Yes No

Section 11. Sewage Sludge Lagoons (Instructions Page 53)

Does this facility include sewage sludge lagoons?

Yes No

If **yes**, complete the remainder of this section. If **no**, proceed to Section 12.

A. Location information

The following maps are required to be submitted as part of the application. For each map, provide the Attachment Number.

- Original General Highway (County) Map:
Attachment: #10
- USDA Natural Resources Conservation Service Soil Map:
Attachment: #10
- Federal Emergency Management Map:
Attachment: #10
- Site map:
Attachment: #10

Discuss in a description if any of the following exist within the lagoon area. Check all that apply.

- Overlap a designated 100-year frequency flood plain
- Soils with flooding classification
- Overlap an unstable area
- Wetlands
- Located less than 60 meters from a fault
- None of the above

Attachment: #10

If a portion of the lagoon(s) is located within the 100-year frequency flood plain, provide the protective measures to be utilized including type and size of protective structures:

Attachment #10

B. Temporary storage information

Provide the results for the pollutant screening of sludge lagoons. These results are in addition to pollutant results in *Section 7 of Technical Report 1.0*.

Nitrate Nitrogen, mg/kg: <10.0

Total Kjeldahl Nitrogen, mg/kg: 4710

Total Nitrogen (=nitrate nitrogen + TKN), mg/kg: 4710

Phosphorus, mg/kg: 2930

Potassium, mg/kg: 705

pH, standard units: 7.12

Ammonia Nitrogen mg/kg: 215

Arsenic: 0.434

Cadmium: 0.0552

Chromium: 1.73

Copper: 50.8

Lead: 1.49

Mercury: <0.400

Molybdenum: 0.970

Nickel: 2.05

Selenium: 0.473

Zinc: 63.9

Total PCBs: Non-Detect

Provide the following information:

Volume and frequency of sludge to the lagoon(s): Used only in emergency

Total dry tons stored in the lagoons(s) per 365-day period: 0 all removed October 2005

Total dry tons stored in the lagoons(s) over the life of the unit: 0

C. Liner information

Does the active/proposed sludge lagoon(s) have a liner with a maximum hydraulic conductivity of 1×10^{-7} cm/sec?

Yes No

If yes, describe the liner below. Please note that a liner is required.

Attachment 11

D. Site development plan

Provide a detailed description of the methods used to deposit sludge in the lagoon(s):

Attachment 12

Attach the following documents to the application.

- Plan view and cross-section of the sludge lagoon(s)
Attachment: #13
- Copy of the closure plan
Attachment: #13
- Copy of deed recordation for the site
Attachment: #14
- Size of the sludge lagoon(s) in surface acres and capacity in cubic feet and gallons
Attachment: #15
- Description of the method of controlling infiltration of groundwater and surface water from entering the site
Attachment: #15
- Procedures to prevent the occurrence of nuisance conditions
Attachment: #15

E. Groundwater monitoring

Is groundwater monitoring currently conducted at this site, or are any wells available for groundwater monitoring, or are groundwater monitoring data otherwise available for the sludge lagoon(s)?

Yes No

If groundwater monitoring data are available, provide a copy. Provide a profile of soil types encountered down to the groundwater table and the depth to the shallowest groundwater as a separate attachment.

Attachment: 16

Section 12. Authorizations/Compliance/Enforcement (Instructions Page 55)

A. Additional authorizations

Does the permittee have additional authorizations for this facility, such as reuse authorization, sludge permit, etc?

Yes No

If yes, provide the TCEQ authorization number and description of the authorization:

The City of Lewisville Reclaimed Water Authorization #R10662-001. Type I and Type II reclaimed water from Prairie Creek Wastewater Treatment Facility. Reclaimed water to be used for irrigation, including open access and restricted access locations, sod farms and silviculture.

B. Permittee enforcement status

Is the permittee currently under enforcement for this facility?

Yes No

Is the permittee required to meet an implementation schedule for compliance or enforcement?

Yes No

If yes to either question, provide a brief summary of the enforcement, the implementation schedule, and the current status:

N/A

Section 13. RCRA/CERCLA Wastes (Instructions Page 55)

A. RCRA hazardous wastes

Has the facility received in the past three years, does it currently receive, or will it receive RCRA hazardous waste?

Yes No

B. Remediation activity wastewater

Has the facility received in the past three years, does it currently receive, or will it receive CERCLA wastewater, RCRA remediation/corrective action wastewater or other remediation activity wastewater?

Yes No

C. Details about wastes received

If **yes** to either Subsection A or B above, provide detailed information concerning these wastes with the application.

Attachment: [Click to enter text.](#)

Section 14. Laboratory Accreditation (Instructions Page 56)

All laboratory tests performed must meet the requirements of *30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification*, which includes 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; or
 - located in another state and is accredited or inspected by that state; or
 - 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. See the Signature Page section in the Instructions, for a list of designated representatives who may sign the certification.

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: Jason Hunt

Title: Environmental Quality Manager

Signature: -----

Date: 4-1-20-----

DOMESTIC WASTEWATER PERMIT APPLICATION

TECHNICAL REPORT 1.1 *Not Applicable*

The following information is required for new and amendment major applications.

Section 1. Justification for Permit (Instructions Page 57)

A. Justification of permit need

Provide a detailed discussion regarding the need for any phase(s) not currently permitted. Failure to provide sufficient justification may result in the Executive Director recommending denial of the proposed phase(s) or permit.

[Click to enter text.](#)

B. Regionalization of facilities

For additional guidance, please review [TCEQ's Regionalization Policy for Wastewater Treatment¹](#).

Provide the following information concerning the potential for regionalization of domestic wastewater treatment facilities:

1. *Municipally incorporated areas*

If the applicant is a city, then Item 1 is not applicable. Proceed to Item 2 Utility CCN areas.

Is any portion of the proposed service area located in an incorporated city?

Yes No Not Applicable

If yes, within the city limits of: [Click to enter text.](#)

If yes, attach correspondence from the city.

Attachment: [Click to enter text.](#)

If consent to provide service is available from the city, attach a justification for the proposed facility and a cost analysis of expenditures that includes the cost of connecting to the city versus the cost of the proposed facility or expansion attached.

Attachment: [Click to enter text.](#)

2. *Utility CCN areas*

Is any portion of the proposed service area located inside another utility's CCN area?

Yes No

¹ <https://www.tceq.texas.gov/permitting/wastewater/tceq-regionalization-for-wastewater>

If **yes**, attach a justification for the proposed facility and a cost analysis of expenditures that includes the cost of connecting to the CCN facilities versus the cost of the proposed facility or expansion.

Attachment: [Click to enter text.](#)

3. *Nearby WWTPs or collection systems*

Are there any domestic permitted wastewater treatment facilities or collection systems located within a three-mile radius of the proposed facility?

Yes No

If **yes**, attach a list of these facilities and collection systems that includes each permittee's name and permit number, and an area map showing the location of these facilities and collection systems.

Attachment: [Click to enter text.](#)

If **yes**, attach proof of mailing a request for service to each facility and collection system, the letters requesting service, and correspondence from each facility and collection system.

Attachment: [Click to enter text.](#)

If the facility or collection system agrees to provide service, attach a justification for the proposed facility and a cost analysis of expenditures that includes the cost of connecting to the facility or collection system versus the cost of the proposed facility or expansion.

Attachment: [Click to enter text.](#)

Section 2. Proposed Organic Loading (Instructions Page 59)

Is this facility in operation?

Yes No

If **no**, proceed to Item B, Proposed Organic Loading.

If **yes**, provide organic loading information in Item A, Current Organic Loading

A. Current organic loading

Facility Design Flow (flow being requested in application): [Click to enter text.](#)

Average Influent Organic Strength or BOD₅ Concentration in mg/l: [Click to enter text.](#)

Average Influent Loading (lbs/day = total average flow X average BOD₅ conc. X 8.34): [Click to enter text.](#)

Provide the source of the average organic strength or BOD₅ concentration.

[Click to enter text.](#)

B. Proposed organic loading

This table must be completed if this application is for a facility that is not in operation or if this application is to request an increased flow that will impact organic loading.

Table 1.1(1) – Design Organic Loading

Source	Total Average Flow (MGD)	Influent BOD5 Concentration (mg/l)
Municipality		
Subdivision		
Trailer park - transient		
Mobile home park		
School with cafeteria and showers		
School with cafeteria, no showers		
Recreational park, overnight use		
Recreational park, day use		
Office building or factory		
Motel		
Restaurant		
Hospital		
Nursing home		
Other		
TOTAL FLOW from all sources		
AVERAGE BOD ₅ from all sources		

Section 3. Proposed Effluent Quality and Disinfection (Instructions Page 59)

A. Existing/Interim I Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: [Click to enter text.](#)

Total Suspended Solids, mg/l: [Click to enter text.](#)

Ammonia Nitrogen, mg/l: [Click to enter text.](#)

Total Phosphorus, mg/l: [Click to enter text.](#)

Dissolved Oxygen, mg/l: [Click to enter text.](#)

Other: [Click to enter text.](#)

B. Interim II Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: [Click to enter text.](#)

Total Suspended Solids, mg/l: [Click to enter text.](#)

Ammonia Nitrogen, mg/l: [Click to enter text.](#)

Total Phosphorus, mg/l: [Click to enter text.](#)

Dissolved Oxygen, mg/l: [Click to enter text.](#)

Other: [Click to enter text.](#)

C. Final Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: [Click to enter text.](#)

Total Suspended Solids, mg/l: [Click to enter text.](#)

Ammonia Nitrogen, mg/l: [Click to enter text.](#)

Total Phosphorus, mg/l: [Click to enter text.](#)

Dissolved Oxygen, mg/l: [Click to enter text.](#)

Other: [Click to enter text.](#)

D. Disinfection Method

Identify the proposed method of disinfection.

- Chlorine: [Click to enter text.](#) mg/l after [Click to enter text.](#) minutes detention time at peak flow

Dechlorination process: [Click to enter text.](#)

- Ultraviolet Light: [Click to enter text.](#) seconds contact time at peak flow
- Other: [Click to enter text.](#)

Section 4. Design Calculations (Instructions Page 59)

Attach design calculations and plant features for each proposed phase. Example 4 of the instructions includes sample design calculations and plant features.

Attachment: [Click to enter text.](#)

Section 5. Facility Site (Instructions Page 60)

A. 100-year floodplain

Will the proposed facilities be located above the 100-year frequency flood level?

- Yes No

If **no**, describe measures used to protect the facility during a flood event. Include a site map showing the location of the treatment plant within the 100-year frequency flood level. If applicable, provide the size and types of protective structures.

[Click to enter text.](#)

Provide the source(s) used to determine 100-year frequency flood plain.

[Click to enter text.](#)

For a new or expansion of a facility, will a wetland or part of a wetland be filled?

Yes No

If yes, has the applicant applied for a US Corps of Engineers 404 Dredge and Fill Permit?

Yes No

If yes, provide the permit number: [Click to enter text.](#)

If no, provide the approximate date you anticipate submitting your application to the Corps: [Click to enter text.](#)

B. Wind rose

Attach a wind rose: [Click to enter text.](#)

Section 6. Permit Authorization for Sewage Sludge Disposal (Instructions Page 60)

A. Beneficial use authorization

Are you requesting to include authorization to land apply sewage sludge for beneficial use on property located adjacent to the wastewater treatment facility under the wastewater permit?

Yes No

If yes, attach the completed **Application for Permit for Beneficial Land Use of Sewage Sludge (TCEQ Form No. 10451)**: [Click to enter text.](#)

B. Sludge processing authorization

Identify the sludge processing, storage or disposal options that will be conducted at the wastewater treatment facility:

- Sludge Composting
- Marketing and Distribution of sludge
- Sludge Surface Disposal or Sludge Monofill

If any of the above, sludge options are selected, attach the completed **Domestic Wastewater Permit Application: Sewage Sludge Technical Report (TCEQ Form No. 10056)**: [Click to enter text.](#)

Section 7. Sewage Sludge Solids Management Plan (Instructions Page 61)

Attach a solids management plan to the application.

Attachment: [Click to enter text.](#)

The sewage sludge solids management plan must contain the following information:

- Treatment units and processes dimensions and capacities

- Solids generated at 100, 75, 50, and 25 percent of design flow
- Mixed liquor suspended solids operating range at design and projected actual flow
- Quantity of solids to be removed and a schedule for solids removal
- Identification and ownership of the ultimate sludge disposal site
- For facultative lagoons, design life calculations, monitoring well locations and depths, and the ultimate disposal method for the sludge from the facultative lagoon

An example of a sewage sludge solids management plan has been included as Example 5 of the instructions.

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 2.0: RECEIVING WATERS

The following information is required for all TPDES permit applications.

Section 1. Domestic Drinking Water Supply (Instructions Page 64)

Is there a surface water intake for domestic drinking water supply located within 5 miles downstream from the point or proposed point of discharge?

Yes No

If **no**, proceed to Section 2. If **yes**, provide the following:

Owner of the drinking water supply: [Click to enter text.](#)

Distance and direction to the intake: [Click to enter text.](#)

Attach a USGS map that identifies the location of the intake.

Attachment: [Click to enter text.](#)

Section 2. Discharge into Tidally Affected Waters (Instructions Page 64)

Does the facility discharge into tidally affected waters?

Yes No

If **no**, proceed to Section 3. If **yes**, complete the remainder of this section. If no, proceed to Section 3.

A. Receiving water outfall

Width of the receiving water at the outfall, in feet: [Click to enter text.](#)

B. Oyster waters

Are there oyster waters in the vicinity of the discharge?

Yes No

If **yes**, provide the distance and direction from outfall(s).

[Click to enter text.](#)

C. Sea grasses

Are there any sea grasses within the vicinity of the point of discharge?

Yes No

If **yes**, provide the distance and direction from the outfall(s).

[Click to enter text.](#)

Section 3. Classified Segments (Instructions Page 64)

Is the discharge directly into (or within 300 feet of) a classified segment?

- Yes No

If **yes**, this Worksheet is complete.

If **no**, complete Sections 4 and 5 of this Worksheet.

Section 4. Description of Immediate Receiving Waters (Instructions Page 65)

Name of the immediate receiving waters: [Click to enter text.](#)

A. Receiving water type

Identify the appropriate description of the receiving waters.

- Stream
- Freshwater Swamp or Marsh
- Lake or Pond

Surface area, in acres: [Click to enter text.](#)

Average depth of the entire water body, in feet: [Click to enter text.](#)

Average depth of water body within a 500-foot radius of discharge point, in feet:
[Click to enter text.](#)

- Man-made Channel or Ditch
- Open Bay
- Tidal Stream, Bayou, or Marsh
- Other, specify: [Click to enter text.](#)

B. Flow characteristics

If a stream, man-made channel or ditch was checked above, provide the following. For existing discharges, check one of the following that best characterizes the area *upstream* of the discharge. For new discharges, characterize the area *downstream* of the discharge (check one).

- Intermittent - dry for at least one week during most years
- Intermittent with Perennial Pools - enduring pools with sufficient habitat to maintain significant aquatic life uses
- Perennial - normally flowing

Check the method used to characterize the area upstream (or downstream for new dischargers).

- USGS flow records
- Historical observation by adjacent landowners
- Personal observation
- Other, specify: [Click to enter text.](#)

C. Downstream perennial confluences

List the names of all perennial streams that join the receiving water within three miles downstream of the discharge point.

[Click to enter text.](#)

D. Downstream characteristics

Do the receiving water characteristics change within three miles downstream of the discharge (e.g., natural or man-made dams, ponds, reservoirs, etc.)?

- Yes No

If yes, discuss how.

[Click to enter text.](#)

E. Normal dry weather characteristics

Provide general observations of the water body during normal dry weather conditions.

[Click to enter text.](#)

Date and time of observation: [Click to enter text.](#)

Was the water body influenced by stormwater runoff during observations?

- Yes No

Section 5. General Characteristics of the Waterbody (Instructions Page 66)

A. Upstream influences

Is the immediate receiving water upstream of the discharge or proposed discharge site influenced by any of the following? Check all that apply.

- | | |
|---|--|
| <input type="checkbox"/> Oil field activities | <input type="checkbox"/> Urban runoff |
| <input type="checkbox"/> Upstream discharges | <input type="checkbox"/> Agricultural runoff |
| <input type="checkbox"/> Septic tanks | <input type="checkbox"/> Other(s), specify: Click to enter text. |

B. Waterbody uses

Observed or evidences of the following uses. Check all that apply.

- | | |
|--|--|
| <input type="checkbox"/> Livestock watering | <input type="checkbox"/> Contact recreation |
| <input type="checkbox"/> Irrigation withdrawal | <input type="checkbox"/> Non-contact recreation |
| <input type="checkbox"/> Fishing | <input type="checkbox"/> Navigation |
| <input type="checkbox"/> Domestic water supply | <input type="checkbox"/> Industrial water supply |
| <input type="checkbox"/> Park activities | <input type="checkbox"/> Other(s), specify: Click to enter text. |

C. Waterbody aesthetics

Check one of the following that best describes the aesthetics of the receiving water and the surrounding area.

- Wilderness: outstanding natural beauty; usually wooded or unpastured area; water clarity exceptional
- Natural Area: trees and/or native vegetation; some development evident (from fields, pastures, dwellings); water clarity discolored
- Common Setting: not offensive; developed but uncluttered; water may be colored or turbid
- Offensive: stream does not enhance aesthetics; cluttered; highly developed; dumping areas; water discolored

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 2.1: STREAM PHYSICAL CHARACTERISTICS

Required for new applications, major facilities, and applications adding an outfall.

Worksheet 2.1 is not required for discharges to intermittent streams or discharges directly to (or within 300 feet of) a classified segment.

Not Applicable

Section 1. General Information (Instructions Page 66)

Date of study: [Click to enter text.](#) Time of study: [Click to enter text.](#)

Stream name: [Click to enter text.](#)

Location: [Click to enter text.](#)

Type of stream upstream of existing discharge or downstream of proposed discharge (check one).

- Perennial Intermittent with perennial pools

Section 2. Data Collection (Instructions Page 66)

Number of stream bends that are well defined: [Click to enter text.](#)

Number of stream bends that are moderately defined: [Click to enter text.](#)

Number of stream bends that are poorly defined: [Click to enter text.](#)

Number of riffles: [Click to enter text.](#)

Evidence of flow fluctuations (check one):

- Minor moderate severe

Indicate the observed stream uses and if there is evidence of flow fluctuations or channel obstruction/modification.

[Click to enter text.](#)

Stream transects

In the table below, provide the following information for each transect downstream of the existing or proposed discharges. Use a separate row for each transect.

Table 2.1(1) - Stream Transect Records

Stream type at transect	Transect location	Water surface width (ft)	Stream depths (ft) at 4 to 10 points along each transect from the channel bed to the water surface. Separate the measurements with commas.
Select riffle, run, glide, or pool. See Instructions, Definitions section.			
Choose an item.			

Section 3. Summarize Measurements (Instructions Page 66)

Streambed slope of entire reach, from USGS map in feet/feet: [Click to enter text.](#)

Approximate drainage area above the most downstream transect (from USGS map or county highway map, in square miles): [Click to enter text.](#)

Length of stream evaluated, in feet: [Click to enter text.](#)

Number of lateral transects made: [Click to enter text.](#)

Average stream width, in feet: [Click to enter text.](#)

Average stream depth, in feet: [Click to enter text.](#)

Average stream velocity, in feet/second: [Click to enter text.](#)

Instantaneous stream flow, in cubic feet/second: [Click to enter text.](#)

Indicate flow measurement method (type of meter, floating chip timed over a fixed distance, etc.): [Click to enter text.](#)

Size of pools (large, small, moderate, none): [Click to enter text.](#)

Maximum pool depth, in feet: [Click to enter text.](#)

Not Applicable

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.0: LAND DISPOSAL OF EFFLUENT

The following is required for renewal, new, and amendment permit applications.

Section 1. Type of Disposal System (Instructions Page 68)

Identify the method of land disposal:

- Surface application
- Irrigation
- Drip irrigation system
- Evaporation
- Other (describe in detail): [Click to enter text.](#)
- Subsurface application
- Subsurface soils absorption
- Subsurface area drip dispersal system
- Evapotranspiration beds

NOTE: All applicants without authorization or proposing new/amended subsurface disposal MUST complete and submit Worksheet 7.0.

For existing authorizations, provide Registration Number: [Click to enter text.](#)

Section 2. Land Application Site(s) (Instructions Page 68)

In table 3.0(1), provide the requested information for the land application sites. Include the agricultural or cover crop type (wheat, cotton, alfalfa, bermuda grass, native grasses, etc.), land use (golf course, hayland, pastureland, park, row crop, etc.), irrigation area, amount of effluent applied, and whether or not the public has access to the area. Specify the amount of land area and the amount of effluent that will be allotted to each agricultural or cover crop, if more than one crop will be used.

Table 3.0(1) – Land Application Site Crops

Crop Type & Land Use	Irrigation Area (acres)	Effluent Application (GPD)	Public Access? Y/N

Section 3. Storage and Evaporation Lagoons/Ponds (Instructions Page 68)

Table 3.0(2) – Storage and Evaporation Ponds

Pond Number	Surface Area (acres)	Storage Volume (acre-feet)	Dimensions	Liner Type

Attach a copy of a liner certification that was prepared, signed, and sealed by a Texas licensed professional engineer for each pond.

Attachment: [Click to enter text.](#)

Section 4. Flood and Runoff Protection (Instructions Page 68)

Is the land application site within the 100-year frequency flood level?

- Yes No

If yes, describe how the site will be protected from inundation.

[Click to enter text.](#)

Provide the source used to determine the 100-year frequency flood level:

[Click to enter text.](#)

Provide a description of tailwater controls and rainfall run-on controls used for the land application site.

[Click to enter text.](#)

Section 5. Annual Cropping Plan (Instructions Page 68)

Attach an Annual Cropping Plan which includes a discussion of each of the following items. If not applicable, provide a detailed explanation indicating why. **Attachment:** [Click to enter text.](#)

- Soils map with crops
- Cool and warm season plant species
- Crop yield goals
- Crop growing season
- Crop nutrient requirements
- Additional fertilizer requirements
- Minimum/maximum harvest height (for grass crops)
- Supplemental watering requirements
- Crop salt tolerances
- Harvesting method/number of harvests
- Justification for not removing existing vegetation to be irrigated

Section 6. Well and Map Information (Instructions Page 69)

Attach a USGS map with the following information shown and labeled. If not applicable, provide a detailed explanation indicating why. **Attachment:** [Click to enter text.](#)

- The boundaries of the land application site(s)
- Waste disposal or treatment facility site(s)
- On-site buildings
- Buffer zones
- Effluent storage and tailwater control facilities
- All water wells within 1-mile radius of the disposal site or property boundaries
- All springs and seeps onsite and within 500 feet of the property boundaries
- All surface waters in the state onsite and within 500 feet of the property boundaries
- All faults and sinkholes onsite and within 500 feet of the property

List and cross reference all water wells located within a half-mile radius of the disposal site or property boundaries shown on the USGS map in the following table. Attach additional pages as necessary to include all of the wells.

Table 3.0(3) – Water Well Data

Well ID	Well Use	Producing? Y/N	Open, cased, capped, or plugged?	Proposed Best Management Practice
			Choose an item.	
			Choose an item.	
			Choose an item.	
			Choose an item.	
			Choose an item.	

If water quality data or well log information is available please include the information in an attachment listed by Well ID.

Attachment: [Click to enter text.](#)

Section 7. Groundwater Quality (Instructions Page 69)

Attach a Groundwater Quality Technical Report which assesses the impact of the wastewater disposal system on groundwater. This report shall include an evaluation of the water wells (including the information in the well table provided in Item 6. above), the wastewater application rate, and pond liners. Indicate by a check mark that this report is provided.

Attachment: [Click to enter text.](#)

Are groundwater monitoring wells available onsite? Yes No

Do you plan to install ground water monitoring wells or lysimeters around the land application site? Yes No

If yes, provide the proposed location of the monitoring wells or lysimeters on a site map.

Attachment: [Click to enter text.](#)

Section 8. Soil Map and Soil Analyses (Instructions Page 70)

A. Soil map

Attach a USDA Soil Survey map that shows the area to be used for effluent disposal.

Attachment: [Click to enter text.](#)

B. Soil analyses

Attach the laboratory results sheets from the soil analyses. **Note:** for renewal applications, the current annual soil analyses required by the permit are acceptable as long as the test date is less than one year prior to the submission of the application.

Attachment: [Click to enter text.](#)

List all USDA designated soil series on the proposed land application site. Attach additional pages as necessary.

Table 3.0(4) – Soil Data

Soil Series	Depth from Surface	Permeability	Available Water Capacity	Curve Number

Provide a discussion of all persistent excursions above the permitted limits and any corrective actions taken.

Click to enter text.

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.1: SURFACE LAND DISPOSAL OF EFFLUENT

The following is required for new and major amendment permit applications. Renewal and minor amendment permit applications may be asked for this worksheet on a case by case basis.

Not Applicable

Section 1. Surface Disposal (Instructions Page 72)

Complete the item that applies for the method of disposal being used.

A. Irrigation

Area under irrigation, in acres: [Click to enter text.](#)

Design application frequency:

hours/day [Click to enter text.](#) And days/week [Click to enter text.](#)

Land grade (slope):

average percent (%): [Click to enter text.](#)

maximum percent (%): [Click to enter text.](#)

Design application rate in acre-feet/acre/year: [Click to enter text.](#)

Design total nitrogen loading rate, in lbs N/acre/year: [Click to enter text.](#)

Soil conductivity (mmhos/cm): [Click to enter text.](#)

Method of application: [Click to enter text.](#)

Attach a separate engineering report with the water balance and storage volume calculations, method of application, irrigation efficiency, and nitrogen balance.

Attachment: [Click to enter text.](#)

B. Evaporation ponds

Daily average effluent flow into ponds, in gallons per day: [Click to enter text.](#)

Attach a separate engineering report with the water balance and storage volume calculations.

Attachment: [Click to enter text.](#)

C. Evapotranspiration beds

Number of beds: [Click to enter text.](#)

Area of bed(s), in acres: [Click to enter text.](#)

Depth of bed(s), in feet: [Click to enter text.](#)

Void ratio of soil in the beds: [Click to enter text.](#)

Storage volume within the beds, in acre-feet: [Click to enter text.](#)

Attach a separate engineering report with the water balance and storage volume calculations, and a description of the lining.

Attachment: [Click to enter text.](#)

D. Overland flow

Area used for application, in acres: [Click to enter text.](#)

Slopes for application area, percent (%): [Click to enter text.](#)

Design application rate, in gpm/foot of slope width: [Click to enter text.](#)

Slope length, in feet: [Click to enter text.](#)

Design BOD₅ loading rate, in lbs BOD₅/acre/day: [Click to enter text.](#)

Design application frequency:

hours/day: [Click to enter text.](#) **And** days/week: [Click to enter text.](#)

Attach a separate engineering report with the method of application and design requirements according to *30 TAC Chapter 217*.

Attachment: [Click to enter text.](#)

Section 2. Edwards Aquifer (Instructions Page 73)

Is the facility subject to *30 TAC Chapter 213*, Edwards Aquifer Rules?

Yes No

If **yes**, is the facility located on the Edwards Aquifer Recharge Zone?

Yes No

If **yes**, attach a geological report addressing potential recharge features.

Attachment: [Click to enter text.](#)

Not Applicable

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.2: SURFACE LAND DISPOSAL OF EFFLUENT

The following is required for new and major amendment permit applications. Renewal and minor amendments applicants may be asked for the worksheet on a case by case basis.

NOTE: All applicants proposing new/amended subsurface disposal MUST complete and submit Worksheet 7.0. This worksheet applies to any subsurface disposal system that **does not meet** the definition of a subsurface area drip dispersal system as defined in 30 TAC Chapter 222, *Subsurface Area Drip Dispersal System*.

Section 1. Subsurface Application (Instructions Page 74)

Identify the type of system:

- Conventional Gravity Drainfield, Beds, or Trenches (new systems must be less than 5,000 GPD)
- Low Pressure Dosing
- Other, specify: [Click to enter text.](#)

Application area, in acres: [Click to enter text.](#)

Area of drainfield, in square feet: [Click to enter text.](#)

Application rate, in gal/square foot/day: [Click to enter text.](#)

Depth to groundwater, in feet: [Click to enter text.](#)

Area of trench, in square feet: [Click to enter text.](#)

Dosing duration per area, in hours: [Click to enter text.](#)

Number of beds: [Click to enter text.](#)

Dosing amount per area, in inches/day: [Click to enter text.](#)

Infiltration rate, in inches/hour: [Click to enter text.](#)

Storage volume, in gallons: [Click to enter text.](#)

Area of bed(s), in square feet: [Click to enter text.](#)

Soil Classification: [Click to enter text.](#)

Attach a separate engineering report with the information required in 30 TAC § 309.20, excluding the requirements of § 309.20 b(3)(A) and (B) design analysis which may be asked for on a case by case basis. Include a description of the schedule of dosing basin rotation.

Attachment: [Click to enter text.](#)

Section 2. Edwards Aquifer (Instructions Page 74)

Is the subsurface system over the Edwards Aquifer Recharge Zone as mapped by TCEQ?

- Yes No

Is the subsurface system over the Edwards Aquifer Transition Zone as mapped by TCEQ?

- Yes No

If **yes to either question**, the subsurface system may be prohibited by 30 TAC §213.8. Please call the Municipal Permits Team, at 512-239-4671, to schedule a pre-application meeting.

Not Applicable

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 3.3: SUBSURFACE AREA DRIP DISPERSAL (SADDS) LAND DISPOSAL OF EFFLUENT

The following is required for new and major amendment subsurface area drip dispersal system permit applications. Renewal and minor amendments applicants may be asked for the worksheet on a case by case basis.

NOTE: All applicants proposing new/amended subsurface disposal MUST complete and submit Worksheet 7.0. This worksheet applies to any subsurface disposal system that meets the definition of a subsurface area drip dispersal system as defined in 30 TAC Chapter 222, *Subsurface Area Drip Dispersal System*.

Section 1. Administrative Information (Instructions Page 75)

A. Provide the legal name of all corporations or other business entities managed, owned, or otherwise closely related to the owner of the treatment facility:

B. Click to enter text. Is the owner of the land where the treatment facility is located the same as the owner of the treatment facility?

Yes No

If **no**, provide the legal name of all corporations or other business entities managed, owned, or otherwise closely related to the owner of the land where the treatment facility is located.

Click to enter text.

C. Owner of the subsurface area drip dispersal system: Click to enter text.

D. Is the owner of the subsurface area drip dispersal system the same as the owner of the wastewater treatment facility or the site where the wastewater treatment facility is located?

Yes No

If **no**, identify the names of all corporations or other business entities managed, owned, or otherwise closely related to the entity identified in Item 1.C.

Click to enter text.

E. Owner of the land where the subsurface area drip dispersal system is located: Click to enter text.

F. Is the owner of the land where the subsurface area drip dispersal system is located the same as owner of the wastewater treatment facility, the site where the wastewater treatment facility is located, or the owner of the subsurface area drip dispersal system?

Yes No

If **no**, identify the name of all corporations or other business entities managed, owned, or otherwise closely related to the entity identified in item 1.E.

Click to enter text.

Section 2. Subsurface Area Drip Dispersal System (Instructions Page 75)

A. Type of system

- Subsurface Drip Irrigation
- Surface Drip Irrigation
- Other, specify: [Click to enter text.](#)

B. Irrigation operations

Application area, in acres: [Click to enter text.](#)

Infiltration Rate, in inches/hour: [Click to enter text.](#)

Average slope of the application area, percent (%): [Click to enter text.](#)

Maximum slope of the application area, percent (%): [Click to enter text.](#)

Storage volume, in gallons: [Click to enter text.](#)

Major soil series: [Click to enter text.](#)

Depth to groundwater, in feet: [Click to enter text.](#)

C. Application rate

Is the facility located **west** of the boundary shown in *30 TAC § 222.83* **and** also using a vegetative cover of non-native grasses over seeded with cool season grasses during the winter months (October-March)?

- Yes No

If **yes**, then the facility may propose a hydraulic application rate not to exceed 0.1 gal/square foot/day.

Is the facility located **east** of the boundary shown in *30 TAC § 222.83* **or** in any part of the state when the vegetative cover is any crop other than non-native grasses?

- Yes No

If **yes**, the facility must use the formula in *30 TAC §222.83* to calculate the maximum hydraulic application rate.

Do you plan to submit an alternative method to calculate the hydraulic application rate for approval by the executive director?

- Yes No

Hydraulic application rate, in gal/square foot/day: [Click to enter text.](#)

Nitrogen application rate, in lbs/gal/day: [Click to enter text.](#)

D. Dosing information

Number of doses per day: [Click to enter text.](#)

Dosing duration per area, in hours: [Click to enter text.](#)

Rest period between doses, in hours: [Click to enter text.](#)

Dosing amount per area, in inches/day: [Click to enter text.](#)

Number of zones: [Click to enter text.](#)

Does the proposed subsurface drip irrigation system use tree vegetative cover as a crop?

Yes No

If yes, provide a vegetation survey by a certified arborist. Please call the Water Quality Assessment Team at (512) 239-4671 to schedule a pre-application meeting.

Attachment: [Click to enter text.](#)

Section 3. Required Plans (Instructions Page 75)

A. Recharge feature plan

Attach a Recharge Feature Plan with all information required in *30 TAC §222.79*.

Attachment: [Click to enter text.](#)

B. Soil evaluation

Attach a Soil Evaluation with all information required in *30 TAC §222.73*.

Attachment: [Click to enter text.](#)

C. Site preparation plan

Attach a Site Preparation Plan with all information required in *30 TAC §222.75*.

Attachment: [Click to enter text.](#)

D. Soil sampling/testing

Attach soil sampling and testing that includes all information required in *30 TAC §222.157*.

Attachment: [Click to enter text.](#)

Section 4. Floodway Designation (Instructions Page 76)

A. Site location

Is the existing/proposed land application site within a designated floodway?

Yes No

B. Flood map

Attach either the FEMA flood map or alternate information used to determine the floodway.

Attachment: [Click to enter text.](#)

Section 5. Surface Waters in the State (Instructions Page 76)

A. Buffer Map

Attach a map showing appropriate buffers on surface waters in the state, water wells, and springs/seeps.

Attachment: [Click to enter text.](#)

B. Buffer variance request

Do you plan to request a buffer variance from water wells or waters in the state?

- Yes No

If yes, then attach the additional information required in *30 TAC § 222.81(c)*.

Attachment: [Click to enter text.](#)

Section 6. Edwards Aquifer (Instructions Page 76)

A. Is the SADDs located over the Edwards Aquifer Recharge Zone as mapped by TCEQ?

- Yes No

B. Is the SADDs located over the Edwards Aquifer Transition Zone as mapped by TCEQ?

- Yes No

If yes to either question, then the SADDs may be prohibited by *30 TAC §213.8*. Please call the Municipal Permits Team at 512-239-4671 to schedule a pre-application meeting.

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 4.0: POLLUTANT ANALYSIS REQUIREMENTS

The following is **required** for facilities with a permitted or proposed flow of **1.0 MGD or greater**, facilities with an approved **pretreatment** program, or facilities classified as a **major** facility. See instructions for further details.

This worksheet is not required minor amendments without renewal.

Section 1. Toxic Pollutants (Instructions Page 78)

For pollutants identified in Table 4.0(1), indicate the type of sample.

Grab Composite

Date and time sample(s) collected: 1/16/2025

Table 4.0(1) – Toxics Analysis

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Acrylonitrile	<50	<50	1	50
Aldrin	<0.01	<0.01	1	0.01
Aluminum	<2.5	<2.5	1	2.5
Anthracene	<10.0	<10.0	1	10
Antimony	<5.0	<5.0	1	5
Arsenic	<0.5	<0.5	1	0.5
Barium	<3.0	<3.0	1	3
Benzene	<10.0	<10.0	1	10
Benzidine	<50.0	<50.0	1	50
Benzo(a)anthracene	<5.0	<5.0	1	5
Benzo(a)pyrene	<5.0	<5.0	1	5
Bis(2-chloroethyl)ether	<10.0	<10.0	1	10
Bis(2-ethylhexyl)phthalate	<10.0	<10.0	1	10
Bromodichloromethane	<10.0	<10.0	1	10
Bromoform	<10.0	<10.0	1	10
Cadmium	<1.0	<1.0	1	1
Carbon Tetrachloride	<2.0	<2.0	1	2
Carbaryl	<2.37	<2.37	1	5
Chlordane*	<0.2	<0.2	1	0.2
Chlorobenzene	<10.0	<10.0	1	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Chlorodibromomethane	<10.0	<10.0	1	10
Chloroform	<10.0	<10.0	1	10
Chlorpyrifos	<0.05	<0.05	1	0.05
Chromium (Total)	<3.0	<3.0	1	3
Chromium (Tri) (*1)	<3.0	<3.0	1	N/A
Chromium (Hex)	<3.0	<3.0	1	3
Copper	3.72	3.72	1	2
Chrysene	<5.0	<5.0	1	5
p-Chloro-m-Cresol	<10.0	<10.0	1	10
4,6-Dinitro-o-Cresol	<50.0	<50.0	1	50
p-Cresol	<10	<10	1	10
Cyanide (*2)	<10.0	<10.0	1	10
4,4'- DDD	<0.1	<0.1	1	0.1
4,4'- DDE	0.0077	0.0077	1	0.1
4,4'- DDT	<0.02	<0.02	1	0.02
2,4-D	<0.7	<0.7	1	0.7
Demeton (O and S)	<0.2	<0.2	1	0.20
Diazinon	<0.0476	<0.0476	1	0.5/0.1
1,2-Dibromoethane	<10.0	<10.0	1	10
m-Dichlorobenzene	<10.0	<10.0	1	10
o-Dichlorobenzene	<10.0	<10.0	1	10
p-Dichlorobenzene	<10.0	<10.0	1	10
3,3'-Dichlorobenzidine	<5.0	<5.0	1	5
1,2-Dichloroethane	<10.0	<10.0	1	10
1,1-Dichloroethylene	<10.0	<10.0	1	10
Dichloromethane	<20.0	<20.0	1	20
1,2-Dichloropropane	<10.0	<10.0	1	10
1,3-Dichloropropene	<10.0	<10.0	1	10
Dicofol	<1.0	<1.0	1	1
Dieldrin	<0.02	<0.02	1	0.02
2,4-Dimethylphenol	<10.0	<10.0	1	10
Di-n-Butyl Phthalate	<10.0	<10.0	1	10
Diuron	<0.09	<0.09	1	0.09

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Endosulfan I (alpha)	<0.01	<0.01	1	0.01
Endosulfan II (beta)	<0.02	<0.02	1	0.02
Endosulfan Sulfate	<0.1	<0.1	1	0.1
Endrin	<0.02	<0.02	1	0.02
Ethylbenzene	<10.0	<10.0	1	10
Fluoride	549	549	1	500
Guthion	<0.1	<0.1	1	0.1
Heptachlor	<0.01	<0.01	1	0.01
Heptachlor Epoxide	<0.01	<0.01	1	0.01
Hexachlorobenzene	<5.0	<5.0	1	5
Hexachlorobutadiene	<10.0	<10.0	1	10
Hexachlorocyclohexane (alpha)	<0.05	<0.05	1	0.05
Hexachlorocyclohexane (beta)	<0.05	<0.05	1	0.05
gamma-Hexachlorocyclohexane (Lindane)	<0.05	<0.05	1	0.05
Hexachlorocyclopentadiene	<10.0	<10.0	1	10
Hexachloroethane	<20.0	<20.0	1	20
Hexachlorophene	<10.0	<10.0	1	10
Lead	<0.5	<0.5	1	0.5
Malathion	<0.1	<0.1	1	0.1
Mercury	<0.005	<0.005	1	0.005
Methoxychlor	<2.0	<2.0	1	2
Methyl Ethyl Ketone	<50.0	<50.0	1	50
Mirex	<0.02	<0.02	1	0.02
Nickel	2.4	2.4	1	2
Nitrate-Nitrogen	10400	10400	1	100
Nitrobenzene	<10.0	<10.0	1	10
N-Nitrosodiethylamine	<20.0	<20.0	1	20
N-Nitroso-di-n-Butylamine	<20.0	<20.0	1	20
Nonylphenol	<333.00	<333.00	1	333
Parathion (ethyl)	<0.1	<0.1	1	0.1
Pentachlorobenzene	<20.0	<20.0	1	20
Pentachlorophenol	<5.0	<5.0	1	5

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Phenanthrene	<10.0	<10.0	1	10
Polychlorinated Biphenyls (PCB's) (*3)	<0.2	<0.2	1	0.2
Pyridine	<20	<20	1	20
Selenium	<5.0	<5.0	1	5
Silver	<0.5	<0.5	1	0.5
1,2,4,5-Tetrachlorobenzene	<20	<20	1	20
1,1,2,2-Tetrachloroethane	<10.0	<10.0	1	10
Tetrachloroethylene	<10.0	<10.0	1	10
Thallium	<0.5	<0.5	1	0.5
Toluene	<10.0	<10.0	1	10
Toxaphene	<0.3	<0.3	1	0.3
2,4,5-TP (Silvex)	<0.3	<0.3	1	0.3
Tributyltin (see instructions for explanation)	N/A	N/A	N/A	0.01
1,1,1-Trichloroethane	<10.0	<10.0	1	10
1,1,2-Trichloroethane	<10.0	<10.0	1	10
Trichloroethylene	<10.0	<10.0	1	10
2,4,5-Trichlorophenol	<50.0	<50.0	1	50
TTHM (Total Trihalomethanes)	<10.0	<10.0	1	10
Vinyl Chloride	<10.0	<10.0	1	10
Zinc	32.1	32.1	1	5

(*1) Determined by subtracting hexavalent Cr from total Cr.

(*2) Cyanide, amenable to chlorination or weak-acid dissociable.

(*3) The sum of seven PCB congeners 1242, 1254, 1221, 1232, 1248, 1260, and 1016.

Section 2. Priority Pollutants

For pollutants identified in Tables 4.0(2)A-E, indicate type of sample.

Grab Composite

Date and time sample(s) collected: [Click to enter text.](#)

Table 4.0(2)A – Metals, Cyanide, and Phenols

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Antimony	<5.0	<5.0	1	5
Arsenic	0.862	0.862	1	0.5
Beryllium	<0.5	<0.5	1	0.5
Cadmium	<1.0	<1.0	1	1
Chromium (Total)	<3.0	<3.0	1	3
Chromium (Hex)	<3.0	<3.0	1	3
Chromium (Tri) (*1)	<3.0	<3.0	1	N/A
Copper	3.72	3.72	1	2
Lead	<0.5	<0.5	1	0.5
Mercury	<0.005	<0.005	1	0.005
Nickel	2.38	2.38	1	2
Selenium	<5.0	<5.0	1	5
Silver	<0.5	<0.5	1	0.5
Thallium	<0.5	<0.5	1	0.5
Zinc	32.1	32.1	1	5
Cyanide (*2)	<10.0	<10.0	1	10
Phenols, Total	<10.0	<10.0	1	10

(*1) Determined by subtracting hexavalent Cr from total Cr.

(*2) Cyanide, amenable to chlorination or weak-acid dissociable

Table 4.0(2)B – Volatile Compounds

Table 4.0(2)B – Volatile Compounds

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Acrolein	<50.0	<50.0	1	50
Acrylonitrile	<50.0	<50.0	1	50
Benzene	<10.0	<10.0	1	10
Bromoform	<10.0	<10.0	1	10
Carbon Tetrachloride	<2.0	<2.0	1	2
Chlorobenzene	<10.0	<10.0	1	10
Chlorodibromomethane	<10.0	<10.0	1	10
Chloroethane	<50.0	<50.0	1	50
2-Chloroethylvinyl Ether	<10.0	<10.0	1	10
Chloroform	<10.0	<10.0	1	10
Dichlorobromomethane [Bromodichloromethane]	<10.0	<10.0	1	10
1,1-Dichloroethane	<10.0	<10.0	1	10
1,2-Dichloroethane	<10.0	<10.0	1	10
1,1-Dichloroethylene	<10.0	<10.0	1	10
1,2-Dichloropropane	<10.0	<10.0	1	10
1,3-Dichloropropylene [1,3-Dichloropropene]	<10.0	<10.0	1	10
1,2-Trans-Dichloroethylene	<10.0	<10.0	1	10
Ethylbenzene	<10.0	<10.0	1	10
Methyl Bromide	<50.0	<50.0	1	50
Methyl Chloride	<50.0	<50.0	1	50
Methylene Chloride	<20.0	<20.0	1	20
1,1,2,2-Tetrachloroethane	<10.0	<10.0	1	10
Tetrachloroethylene	<10.0	<10.0	1	10
Toluene	<10.0	<10.0	1	10
1,1,1-Trichloroethane	<10.0	<10.0	1	10
1,1,2-Trichloroethane	<10.0	<10.0	1	10
Trichloroethylene	<10.0	<10.0	1	10
Vinyl Chloride	<10.0	<10.0	1	10

Table 4.0(2)C – Acid Compounds

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
2-Chlorophenol	<10.0	<10.0	1	10
2,4-Dichlorophenol	<10.0	<10.0	1	10
2,4-Dimethylphenol	<10.0	<10.0	1	10
4,6-Dinitro-o-Cresol	<50.0	<50.0	1	50
2,4-Dinitrophenol	<50.0	<50.0	1	50
2-Nitrophenol	<20.0	<20.0	1	20
4-Nitrophenol	<50.0	<50.0	1	50
P-Chloro-m-Cresol	<10.0	<10.0	1	10
Pentalchlorophenol	<5.0	<5.0	1	5
Phenol	<10.0	<10.0	1	10
2,4,6-Trichlorophenol	<10.0	<10.0	1	10

Table 4.0(2)D – Base/Neutral Compounds

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Acenaphthene	<10.0	<10.0	1	10
Acenaphthylene	<10.0	<10.0	1	10
Anthracene	<10.0	<10.0	1	10
Benzidine	<50.0	<50.0	1	50
Benzo(a)Anthracene	<5.0	<5.0	1	5
Benzo(a)Pyrene	<5.0	<5.0	1	5
3,4-Benzofluoranthene	<10.0	<10.0	1	10
Benzo(ghi)Perylene	<20.0	<20.0	1	20
Benzo(k)Fluoranthene	<5.0	<5.0	1	5
Bis(2-Chloroethoxy)Methane	<10.0	<10.0	1	10
Bis(2-Chloroethyl)Ether	<10.0	<10.0	1	10
Bis(2-Chloroisopropyl)Ether	<10.0	<10.0	1	10
Bis(2-Ethylhexyl)Phthalate	<10.0	<10.0	1	10
4-Bromophenyl Phenyl Ether	<10.0	<10.0	1	10
Butyl benzyl Phthalate	<10.0	<10.0	1	10
2-Chloronaphthalene	<10.0	<10.0	1	10
4-Chlorophenyl phenyl ether	<10.0	<10.0	1	10
Chrysene	<5.0	<5.0	1	5
Dibenzo(a,h)Anthracene	<5.0	<5.0	1	5
1,2-(o)Dichlorobenzene	<10.0	<10.0	1	10
1,3-(m)Dichlorobenzene	<10.0	<10.0	1	10
1,4-(p)Dichlorobenzene	<10.0	<10.0	1	10
3,3-Dichlorobenzidine	<5.0	<5.0	1	5
Diethyl Phthalate	<10.0	<10.0	1	10
Dimethyl Phthalate	<10.0	<10.0	1	10
Di-n-Butyl Phthalate	<10.0	<10.0	1	10
2,4-Dinitrotoluene	<10.0	<10.0	1	10
2,6-Dinitrotoluene	<10.0	<10.0	1	10
Di-n-Octyl Phthalate	<10.0	<10.0	1	10
1,2-Diphenylhydrazine (as Azo-benzene)	<20.0	<20.0	1	20
Fluoranthene	<10.0	<10.0	1	10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Fluorene	<10.0	<10.0	1	10
Hexachlorobenzene	<5.0	<5.0	1	5
Hexachlorobutadiene	<10.0	<10.0	1	10
Hexachlorocyclo-pentadiene	<10.0	<10.0	1	10
Hexachloroethane	<20.0	<20.0	1	20
Indeno(1,2,3-cd)pyrene	<5.0	<5.0	1	5
Isophorone	<10.0	<10.0	1	10
Naphthalene	<10.0	<10.0	1	10
Nitrobenzene	<10.0	<10.0	1	10
N-Nitrosodimethylamine	<50.0	<50.0	1	50
N-Nitrosodi-n-Propylamine	<20.0	<20.0	1	20
N-Nitrosodiphenylamine	<20.0	<20.0	1	20
Phenanthrene	<10.0	<10.0	1	10
Pyrene	<10.0	<10.0	1	10
1,2,4-Trichlorobenzene	<10.0	<10.0	1	10

Table 4.0(2)E - Pesticides

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Aldrin	<0.01	<0.01	1	0.01
alpha-BHC (Hexachlorocyclohexane)	<0.05	<0.05	1	0.05
beta-BHC (Hexachlorocyclohexane)	<0.05	<0.05	1	0.05
gamma-BHC (Hexachlorocyclohexane)	<0.05	<0.05	1	0.05
delta-BHC (Hexachlorocyclohexane)	<0.05	<0.05	1	0.05
Chlordane	<0.2	<0.2	1	0.2
4,4-DDT	<0.02	<0.02	1	0.02
4,4-DDE	<0.1	<0.1	1	0.1
4,4,-DDD	<0.1	<0.1	1	0.1
Dieldrin	<0.02	<0.02	1	0.02
Endosulfan I (alpha)	<0.01	<0.01	1	0.01
Endosulfan II (beta)	<0.02	<0.02	1	0.02
Endosulfan Sulfate	<0.1	<0.1	1	0.1
Endrin	<0.02	<0.02	1	0.02
Endrin Aldehyde	<0.1	<0.1	1	0.1
Heptachlor	<0.01	<0.01	1	0.01
Heptachlor Epoxide	0.00639	0.00639	1	0.01
PCB-1242	<0.2	<0.2	1	0.2
PCB-1254	<0.190	<0.190	1	0.2
PCB-1221	<0.190	<0.190	1	0.2
PCB-1232	<0.190	<0.190	1	0.2
PCB-1248	<0.190	<0.190	1	0.2
PCB-1260	<0.190	<0.190	1	0.2
PCB-1016	<0.192	<0.192	1	0.2
Toxaphene	<0.3	<0.3	1	0.3

* For PCBs, if all are non-detects, enter the highest non-detect preceded by a "<".

Section 3. Dioxin/Furan Compounds

A. Indicate which of the following compounds from may be present in the influent from a contributing industrial user or significant industrial user. Check all that apply.

- 2,4,5-trichlorophenoxy acetic acid
Common Name 2,4,5-T, CASRN 93-76-5
- 2-(2,4,5-trichlorophenoxy) propanoic acid
Common Name Silvex or 2,4,5-TP, CASRN 93-72-1
- 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate
Common Name Erbon, CASRN 136-25-4
- 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothioate
Common Name Ronnel, CASRN 299-84-3
- 2,4,5-trichlorophenol
Common Name TCP, CASRN 95-95-4
- hexachlorophene
Common Name HCP, CASRN 70-30-4

For each compound identified, provide a brief description of the conditions of its/their presence at the facility.

Click to enter text.

B. Do you know or have any reason to believe that 2,3,7,8 Tetrachlorodibenzo-P-Dioxin (TCDD) or any congeners of TCDD may be present in your effluent?

- Yes No

If **yes**, provide a brief description of the conditions for its presence.

Click to enter text.

C. If any of the compounds in Subsection A or B are present, complete Table 4.0(2)F.

For pollutants identified in Table 4.0(2)F, indicate the type of sample.

Grab Composite

Date and time sample(s) collected: [Click to enter text.](#)

Table 4.0(2)F – Dioxin/Furan Compounds

Compound	Toxic Equivalency Factors	Wastewater Concentration (ppq)	Wastewater Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Equivalents (ppt)	MAL (ppq)
2,3,7,8 TCDD	1					10
1,2,3,7,8 PeCDD	0.5					50
2,3,7,8 HxCDDs	0.1					50
1,2,3,4,6,7,8 HpCDD	0.01					50
2,3,7,8 TCDF	0.1					10
1,2,3,7,8 PeCDF	0.05					50
2,3,4,7,8 PeCDF	0.5					50
2,3,7,8 HxCDFs	0.1					50
2,3,4,7,8 HpCDFs	0.01					50
OCDD	0.0003					100
OCDF	0.0003					100
PCB 77	0.0001					0.5
PCB 81	0.0003					0.5
PCB 126	0.1					0.5
PCB 169	0.03					0.5
Total						

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 5.0: TOXICITY TESTING REQUIREMENTS

The following is **required** for facilities with a current operating design flow of **1.0 MGD or greater**, with an EPA-approved **pretreatment** program (or those required to have one under 40 CFR Part 403), or are required to perform Whole Effluent Toxicity testing. See instructions for further details.

This worksheet is not required for minor amendments without renewal.

Section 1. Required Tests (Instructions Page 88)

Indicate the number of 7-day chronic or 48-hour acute Whole Effluent Toxicity (WET) tests performed in the four and one-half years prior to submission of the application.

7-day Chronic: 32

48-hour Acute: 16

Section 2. Toxicity Reduction Evaluations (TREs)

Has this facility completed a TRE in the past four and a half years? Or is the facility currently performing a TRE?

Yes No

If yes, describe the progress to date, if applicable, in identifying and confirming the toxicant.

Click to enter text.

DOMESTIC WASTEWATER PERMIT APPLICATION WORKSHEET 6.0: INDUSTRIAL WASTE CONTRIBUTION

The following is required for all publicly owned treatment works.

Section 1. All POTWs (Instructions Page 89)

A. Industrial users (IUs)

Provide the number of each of the following types of industrial users (IUs) that discharge to your POTW and the daily flows from each user. See the Instructions for definitions of Categorical IUs, Significant IUs - non-categorical, and Other IUs.

If there are no users, enter 0 (zero).

Categorical IUs:

Number of IUs: 2

Average Daily Flows, in MGD: .082

Significant IUs - non-categorical:

Number of IUs: 10

Average Daily Flows, in MGD: .147

Other IUs:

Number of IUs: N/A

Average Daily Flows, in MGD: N/A

B. Treatment plant interference

In the past three years, has your POTW experienced treatment plant interference (see instructions)?

Yes No

If yes, identify the dates, duration, description of interference, and probable cause(s) and possible source(s) of each interference event. Include the names of the IUs that may have caused the interference.

Click to enter text.

C. Treatment plant pass through

In the past three years, has your POTW experienced pass through (see instructions)?

Yes No

If yes, identify the dates, duration, a description of the pollutants passing through the treatment plant, and probable cause(s) and possible source(s) of each pass through event. Include the names of the IUs that may have caused pass through.

On February 23, 2024, a pass-through event occurred at the POTW, lasting approximately 24 hours. During this time, large amounts of foam were observed floating through the treatment system. Wastewater operators and the Environmental Compliance division closely monitored the POTW and receiving waters throughout the event. No environmental hazards were identified, and there were no permit excursions.

The source of the pass-through was traced to Lily of the Desert, a nutraceutical company, which had inadvertently released several thousand gallons of body wash into the sewer system. As a result of this incident, the company was designated as a Significant Industrial User and was issued an Industrial Permit to ensure compliance with wastewater discharge regulations.

D. Pretreatment program

Does your POTW have an approved pretreatment program?

Yes No

If yes, complete Section 2 only of this Worksheet.

Is your POTW required to develop an approved pretreatment program?

Yes No

If yes, complete Section 2.c. and 2.d. only, and skip Section 3.

If no to either question above, skip Section 2 and complete Section 3 for each significant industrial user and categorical industrial user.

Section 2. POTWs with Approved Programs or Those Required to Develop a Program (Instructions Page 90)

A. Substantial modifications

Have there been any **substantial modifications** to the approved pretreatment program that have not been submitted to the TCEQ for approval according to 40 CFR §403.18?

Yes No

If yes, identify the modifications that have not been submitted to TCEQ, including the purpose of the modification.

Click to enter text.

B. Non-substantial modifications

Have there been any **non-substantial modifications** to the approved pretreatment program that have not been submitted to TCEQ for review and acceptance?

- Yes No

If yes, identify all non-substantial modifications that have not been submitted to TCEQ, including the purpose of the modification.

Click to enter text.

C. Effluent parameters above the MAL

In Table 6.0(1), list all parameters measured above the MAL in the POTW's effluent monitoring during the last three years. Submit an attachment if necessary.

Table 6.0(1) - Parameters Above the MAL

Pollutant	Concentration	MAL	Units	Date
Attachment #18				

D. Industrial user interruptions

Has any SIU, CIU, or other IU caused or contributed to any problems (excluding interferences or pass throughs) at your POTW in the past three years?

- Yes No

If yes, identify the industry, describe each episode, including dates, duration, description of the problems, and probable pollutants.

Click to enter text.

Section 3. Significant Industrial User (SIU) Information and Categorical Industrial User (CIU) (Instructions Page 90)

A. General information

NOT Applicable

Company Name: [Click to enter text.](#)

SIC Code: [Click to enter text.](#)

Contact name: [Click to enter text.](#)

Address: [Click to enter text.](#)

City, State, and Zip Code: [Click to enter text.](#)

Telephone number: [Click to enter text.](#)

Email address: [Click to enter text.](#)

B. Process information

Describe the industrial processes or other activities that affect or contribute to the SIU(s) or CIU(s) discharge (i.e., process and non-process wastewater).

[Click to enter text.](#)

C. Product and service information

Provide a description of the principal product(s) or services performed.

[Click to enter text.](#)

D. Flow rate information

See the Instructions for definitions of "process" and "non-process wastewater."

Process Wastewater:

Discharge, in gallons/day: [Click to enter text.](#)

Discharge Type: Continuous Batch Intermittent

Non-Process Wastewater:

Discharge, in gallons/day: [Click to enter text.](#)

Discharge Type: Continuous Batch Intermittent

E. Pretreatment standards

Is the SIU or CIU subject to technically based local limits as defined in the instructions?

- Yes No

Is the SIU or CIU subject to categorical pretreatment standards found in *40 CFR Parts 405-471*?

- Yes No

If subject to categorical pretreatment standards, indicate the applicable category and subcategory for each categorical process.

Category: Subcategories: Click to enter text.

Click or tap here to enter text. Click to enter text.

Category: Click to enter text.

Subcategories: Click to enter text.

Category: Click to enter text.

Subcategories: Click to enter text.

Category: Click to enter text.

Subcategories: Click to enter text.

Category: Click to enter text.

Subcategories: Click to enter text.

F. Industrial user interruptions

Has the SIU or CIU caused or contributed to any problems (e.g., interferences, pass through, odors, corrosion, blockages) at your POTW in the past three years?

- Yes No

If yes, identify the SIU, describe each episode, including dates, duration, description of problems, and probable pollutants.

Click to enter text.

WORKSHEET 7.0

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CLASS V INJECTION WELL INVENTORY/AUTHORIZATION FORM

Submit the completed form to:

TCEQ
IUC Permits Team
Radioactive Materials Division
MC-233
PO Box 13087
Austin, Texas 78711-3087
512-239-6466

For TCEQ Use Only
Reg. No.
Date Received
Date Authorized

Not Applicable

Section 1. General Information (Instructions Page 92)

1. TCEQ Program Area

Program Area (PST, VCP, IHW, etc.): [Click to enter text.](#)

Program ID: [Click to enter text.](#)

Contact Name: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

2. Agent/Consultant Contact Information

Contact Name: [Click to enter text.](#)

Address: [Click to enter text.](#)

City, State, and Zip Code: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

3. Owner/Operator Contact Information

Owner Operator

Owner/Operator Name: [Click to enter text.](#)

Contact Name: [Click to enter text.](#)

Address: [Click to enter text.](#)

City, State, and Zip Code: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

4. Facility Contact Information

Facility Name: [Click to enter text.](#)

Address: [Click to enter text.](#)

City, State, and Zip Code: [Click to enter text.](#)

Location description (if no address is available): [Click to enter text.](#)

Facility Contact Person: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

5. Latitude and Longitude, in degrees-minutes-seconds

Latitude: [Click to enter text.](#)

Longitude: [Click to enter text.](#)

Method of determination (GPS, TOPO, etc.): [Click to enter text.](#)

Attach topographic quadrangle map as attachment A.

6. Well Information

Type of Well Construction, select one:

- Vertical Injection
- Subsurface Fluid Distribution System
- Infiltration Gallery
- Temporary Injection Points
- Other, Specify: [Click to enter text.](#)

Number of Injection Wells: [Click to enter text.](#)

7. Purpose

Detailed Description regarding purpose of Injection System:

[Click to enter text.](#)

Attach a Site Map as Attachment B (Attach the Approved Remediation Plan, if appropriate.)

8. Water Well Driller/Installer

Water Well Driller/Installer Name: [Click to enter text.](#)

City, State, and Zip Code: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

License Number: [Click to enter text.](#)

Section 2: Proposed Down Hole Design

Attach a diagram signed and sealed by a licensed engineer as Attachment C.

Table 7.0(1) – Down Hole Design Table

Name of String	Size	Setting Depth	Sacks Cement/Grout - Slurry Volume - Top of Cement	Hole Size	Weight (lbs/ft) PVC/Steel
Casing					
Tubing					
Screen					

Section 3. Proposed Trench System, Subsurface Fluid Distribution System, or Infiltration Gallery

Attach a diagram signed and sealed by a licensed engineer as Attachment D.

System(s) Dimensions: [Click to enter text.](#)

System(s) Construction: [Click to enter text.](#)

Section 4. Site Hydrogeological and Injection Zone Data

1. Name of Contaminated Aquifer: [Click to enter text.](#)
2. Receiving Formation Name of Injection Zone: [Click to enter text.](#)
3. Well/Trench Total Depth: [Click to enter text.](#)
4. Surface Elevation: [Click to enter text.](#)
5. Depth to Ground Water: [Click to enter text.](#)
6. Injection Zone Depth: [Click to enter text.](#)
7. Injection Zone vertically isolated geologically? Yes No
Impervious Strata between Injection Zone and nearest Underground Source of Drinking Water:
Name: [Click to enter text.](#)
Thickness: [Click to enter text.](#)
8. Provide a list of contaminants and the levels (ppm) in contaminated aquifer
Attach as Attachment E.
9. Horizontal and Vertical extent of contamination and injection plume
Attach as Attachment F.
10. Formation (Injection Zone) Water Chemistry (Background levels) TDS, etc.
Attach as Attachment G.
11. Injection Fluid Chemistry in PPM at point of injection
Attach as Attachment H.
12. Lowest Known Depth of Ground Water with < 10,000 PPM TDS: [Click to enter text.](#)
13. Maximum injection Rate/Volume/Pressure: [Click to enter text.](#)
14. Water wells within 1/4 mile radius (attach map as Attachment I): [Click to enter text.](#)
15. Injection wells within 1/4 mile radius (attach map as Attachment J): [Click to enter text.](#)
16. Monitor wells within 1/4 mile radius (attach drillers logs and map as Attachment K): [Click to enter text.](#)
17. Sampling frequency: [Click to enter text.](#)
18. Known hazardous components in injection fluid: [Click to enter text.](#)

Section 5. Site History

1. Type of Facility: [Click to enter text.](#)
2. Contamination Dates: [Click to enter text.](#)
3. Original Contamination (VOCs, TPH, BTEX, etc.) and Concentrations (attach as Attachment L): [Click to enter text.](#)
4. Previous Remediation (attach results of any previous remediation as attachment M): [Click to enter text.](#)

NOTE: Authorization Form should be completed in detail and authorization given by the TCEQ before construction, operation, and/or conversion can begin. Attach additional pages as necessary.

Class V Injection Well Designations

- 5A07 Heat Pump/AC return (IW used for groundwater to heat and/or cool buildings)
- 5A19 Industrial Cooling Water Return Flow (IW used to cool industrial process equipment)
- 5B22 Salt Water Intrusion Barrier (IW used to inject fluids to prevent the intrusion of salt water into an aquifer)
- 5D02 Storm Water Drainage (IW designed for the disposal of rain water)
- 5D04 Industrial Stormwater Drainage Wells (IW designed for the disposal of rain water associated with industrial facilities)
- 5F01 Agricultural Drainage (IW that receive agricultural runoff)
- 5R21 Aquifer Recharge (IW used to inject fluids to recharge an aquifer)
- 5S23 Subsidence Control Wells (IW used to control land subsidence caused by ground water withdrawal)
- 5W09 Untreated Sewage
- 5W10 Large Capacity Cesspools (Cesspools that are designed for 5,000 gpd or greater)
- 5W11 Large Capacity Septic systems (Septic systems designed for 5,000 gpd or greater)
- 5W12 WTPP disposal
- 5W20 Industrial Process Waste Disposal Wells
- 5W31 Septic System (Well Disposal method)
- 5W32 Septic System Drainfield Disposal
- 5X13 Mine Backfill (IW used to control subsidence, dispose of mining byproducts, and/or fill sections of a mine)
- 5X25 Experimental Wells (Pilot Test) (IW used to test new technologies or tracer dye studies)
- 5X26 Aquifer Remediation (IW used to clean up, treat, or prevent contamination of a USDW)
- 5X27 Other Wells
- 5X28 Motor Vehicle Waste Disposal Wells (IW used to dispose of waste from a motor vehicle site - These are currently banned)
- 5X29 Abandoned Drinking Water Wells (waste disposal)



DOMESTIC WASTEWATER PERMIT APPLICATION: SEWAGE SLUDGE TECHNICAL REPORT 1.0

GENERAL INFORMATION

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

SECTION 1. TREATMENT PROCESSING INFORMATION

A. Attach the engineering report and/or plans and specifications for the proposed facility which must include the following:

Renewal

- Description of the type of process facility
- Process flow diagram
- Design calculations, features, and functional arrangements
- Site controls
- Groundwater protection
- Odor, dust, and bio-aerosol management
- Ultimate product

Attachment Number: [REDACTED]

B. Is the facility located or proposed to be located above the 100-year frequency flood plain? Yes No

If No, provide a separate site map indicating the location of the sludge units within the 100-year frequency flood plain and a detailed description of the type and size of protective measures.

Not Applicable

SECTION 2. SOURCES OF SLUDGE

A. Provide the sources of generation, any water quality or public water supply permit number issued by TCEQ, and the quantity for each source.

Facility Name	Permit Number	Annual Quantity
City Of Lewisville	WQ0010662-001	
City Of Lewisville	TCEQ #07154	Sludge Transporter

Facility Name	Permit Number	Annual Quantity

B. For each source of sludge, complete Table 1 located at the end of this form.

SECTION 3. PATHOGEN AND VECTOR ATTRACTION REDUCTION

A. For each source of sludge, complete Tables 2 and 3 located at the end of this form.

B. Indicate by a checkmark that all of the following are being followed for Class B land application.

- Food crop harvesting restrictions
- Animal grazing restrictions
- Public access restrictions

Not Applicable

SECTION 4. WELL INFORMATION

In the table below, provide information about each well located on-site and within 500 feet of the processing, application, and/or disposal 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**

* Casing, capping, and plugging rules are located in 16 TAC Chapter 76.

** The following protective measures are required prior to initial sludge/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. ADDITIONAL TECHNICAL REPORTS

Identify which additional technical reports are submitted with this application.

- Technical Report 2.0, Sewage Sludge Composting
- Technical Report 3.0, Marketing and Distribution
- Technical Report 4.0, Sewage Sludge Surface Disposal

Sludge IS Landfilled

SITE OPERATOR SIGNATURE PAGE

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

Permit Number: WQ0010662-001

Applicant: City Of Lewisville

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: Katelyn Hearon

Title: Assistant Director of Public Services

Signature (use blue ink): Katelyn Hearon Date: 4/1/2025

SUBSCRIBED AND SWORN to before me by the said Katelyn Hearon on this 1st day of April, 2025

My commission expires on the 25th day of March, 2026

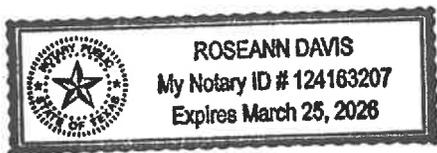
Roseann Davis

(Seal)

Notary Public

Henton

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: _____

Not Applicable

Applicant: _____

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 _____ (*identify the type(s) of sludge*). 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: _____

Title: _____

Signature (use blue ink): _____ Date: _____

SUBSCRIBED AND SWORN to before me by the said _____ on

this _____ day of _____, 20_____

My commission expires on the _____ day of _____, 20_____

(Seal)

Notary Public

County, Texas

**DOMESTIC WASTEWATER PERMIT APPLICATION:
SEWAGE SLUDGE TECHNICAL REPORT 2.0
SEWAGE SLUDGE COMPOSTING**

SECTION 1. RENEWAL OF EXISTING AUTHORIZATION *Not Applicable*

Provide the following information if you are requesting continued authorization to compost sewage sludge. Complete this section only if composting is currently authorized in the existing permit.

Date operation commenced: [REDACTED]

Location of operation: [REDACTED]

Type of bulking agent: [REDACTED]

Sludge is landfilled

Approximate amount of sludge composted: [REDACTED]

Provide a brief discussion of the composting process and any significant changes since the permit was last issued.

SECTION 2. NEW AUTHORIZATION TO COMPOST SEWAGE SLUDGE

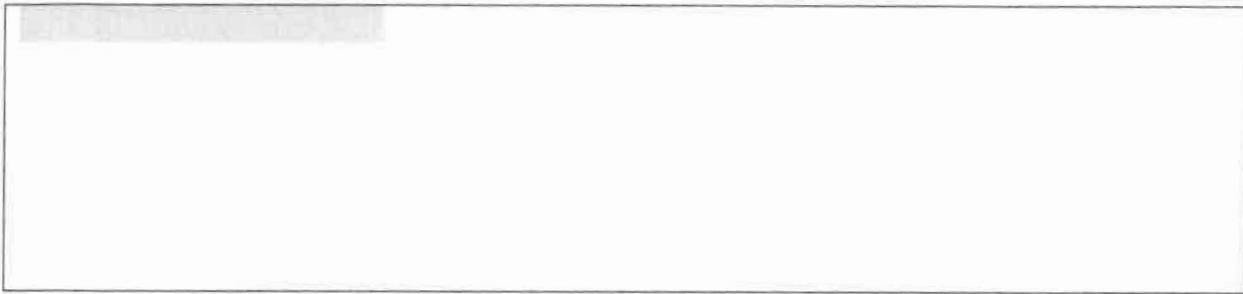
A. Submit an ORIGINAL General Highway (County) Map. See instructions for information that must be displayed on the map.

Attachment Number: [REDACTED]

B. Has sewage sludge/septage previously been composted at this facility?

Yes No

If Yes, provide a use history of the composting operations.



C. Provide a detailed description of the composting operation. The description must include the following information:

- Amount of sludge originating off-site to be composted;
- Total amount of sludge to be composted and total amount of feedstocks;
- Fecal coliform or Salmonella bacteria analysis (in MPN or CFU);
- Type, origin, and amount of bulking material to be used;
- Set back distances from facility boundaries for receiving, processing, or storing feedstocks or final product;
- Plan view of site;
- Type of composting proposed;
- Construction, maintenance, and operation to manage run-on and run-off during a 25-year, 24-hour rainfall event, including all calculations and sources used;
- Leachate collection system and leachate processing and disposal method;
- Construction, maintenance, and operations for groundwater protection;
- Design plan to line all surfaces used for delivery, mixing, composting, curing, screening, and storage to control seepage; and
- Design to minimize windblown material, odor, and vector control.

Attachment Number: XXXXXXXXXX

D. Does the end product meet the requirements in 30 TAC 332.72(d)(2)(A)-(D)?

Yes No

E. Submit a site operating plan which provides guidance from the design engineer to site management and operating personnel in sufficient detail to enable them to conduct day to day operations in a manner consistent with the engineer's design. The plan must include the following information:

- Process description (feedstock identification, tipping process, process, post-processing, product distribution, process diagram);
- Minimum number of personnel and their functions provided by the site operator;
- Minimum equipment;
- Security, site access control, traffic control, and safety;
- Control of the delivery material in designated areas;
- Screening for unprocessable, prohibited, and unauthorized material;
- Fire prevention and suppression plan;
- Control of windblown material;

- Equipment failures;
- Anticipated final grade of materials; and
- Description of handling and/or disposal of materials that doesn't meet 30 TAC Chapter 312.

Attachment Number: [REDACTED]

Not Applicable

**DOMESTIC WASTEWATER PERMIT APPLICATION:
SEWAGE SLUDGE TECHNICAL REPORT 3.0
SEWAGE SLUDGE MARKETING AND DISTRIBUTION**

- A. What is the TCEQ Permit number for the Wastewater Treatment Plant that is generating the Class A or Class AB sewage sludge? [REDACTED]
- B. What is the name and location of the distribution storage center? [REDACTED]
- C. Provide a description of the marketing and distribution plan.

[REDACTED]

Sludge is Landfilled

- D. Provide the following information for all entities receiving sludge directly from the permittee. If more than 2, submit an attachment which includes the follow information.

1. Contact Name: [REDACTED]

Company Name: [REDACTED]

Mailing Address: [REDACTED]

City, State, and Zip Code: [REDACTED]

Phone Number: [REDACTED] Fax Number: [REDACTED]

Longitude: [REDACTED]

Latitude: [REDACTED]

Permits: [REDACTED]

2. Contact Name: [REDACTED]

Company Name: [REDACTED]

Mailing Address: [REDACTED]

City, State, and Zip Code: [REDACTED]

Phone Number: [REDACTED] Fax Number: [REDACTED]

Longitude: [REDACTED]

Latitude: [REDACTED]

Permits: [REDACTED]

- E. Provide a copy of the label or information sheet that is provided to each entity receiving the sewage sludge.

Attachment Number: [REDACTED]

- F. Indicate by a checkmark that the sewage sludge meets the following:

- Metal concentrations in 30 TAC §312.43(b)(3)
- Vector attraction reduction requirements
- Class A, Class AB or Class B pathogen requirements

- G. Indicate the type of recordkeeping: [REDACTED]

PLEASE NOTE: If Class AB sewage sludge, attach a topographic map that shows the required buffer zones stated in 30 TAC §312.44.

Not Applicable

**DOMESTIC WASTEWATER PERMIT APPLICATION:
SEWAGE SLUDGE TECHNICAL REPORT 4.0
SEWAGE SLUDGE SURFACE DISPOSAL**

SECTION 1. LOCATION INFORMATION

A. Attach the following maps. See instructions for information that must be displayed on each map.

- Original General Highway (County) map;
- USDA Natural Resources Conservation Service Soil Map;
- Federal Emergency Management Agency Map; and
- Site Map.

Sludge is Landfilled

Attachment Numbers: [REDACTED]

B. Indicate by checkmarks if the disposal unit contains any of the following:

- Overlaps a designated 100-year frequency floodplain
- Soils with flooding classification
- Wetlands
- Located less than 60 meters from a fault
- Overlaps an unstable area
- None of these

If the sludge disposal unit contains any of the above features, provide a detailed description of the type and size of protective measures.

SECTION 2. DISPOSAL INFORMATION

A. What is the volume and frequency of sludge disposal? [REDACTED]

B. What is the total dry tons placed on the disposal unit per 365-day period? [REDACTED]

C. What is the total dry tons placed on the disposal unit over the life of the unit?

D. Attach a current TCLP test result from each sludge source.

Attachment Number:

SECTION 3. FACILITY INFORMATION

A. Does the disposal unit have a liner with a maximum hydraulic conductivity of 1×10^{-7} cm/sec? Yes No

If yes, describe the liner.

B. Does the disposal unit have a leachate collection system?

Yes No

If yes, describe the leachate collection system and the method used for leachate treatment and disposal.

C. If you answered No to A. and B., is the boundary of the disposal unit less than 150 meters from the nearest property boundary?

Yes No

If you answered No to C., what is the actual distance to the nearest property boundary in meters?

[Click here to enter text.](#)

Yes No

D. Do the design calculations for the disposal unit show that stormwater will not run-

off of the disposal unit during a 25-year, 24-hour rainfall event?

Yes No

E. If sludge dewatering is used, describe the method of sludge dewatering and the average percent solids disposed of in the disposal unit.

F. Are crops grown or animals allowed to graze at the disposal site?

Yes No

If yes, provide a detailed description of management practices that protect human health from accumulation of metals in the sewage sludge.

SECTION 4. SITE DEVELOPMENT PLAN

A. Provide a detailed description of the methods used to deposit sludge in the disposal unit.

B. Indicate by a checkmark that the following information is provided with this application.

Plan view and cross-sectional view of the disposal unit

- Source and physical properties of the soil and/or other media for sludge bulking
- Locations of stockpiles of media and the area for sludge loading and unloading
- Operation procedures detailing mixing, ratio of mixture, handling of mixture, placement of the mixture, and daily cover
- Copy of the closure plan and post-closure maintenance requirements developed in accordance with 30 TAC §312.62(c) and (d)
- Copy of deed record for the site
- Description of the method of controlling infiltration of groundwater and surface water from entering the site
- Financial assurances of proper operation and final closure of the disposal unit and storage in accordance with 30 TAC §312.62(g)
- Description of methane gas monitoring if cover is placed on the disposal unit
- Description of method to restrict public access to the site.

SECTION 5. GROUNDWATER MONITORING

A. Is groundwater monitoring currently conducted at this disposal unit, or is groundwater monitoring data otherwise available?

Yes No

If yes, attach a copy of available groundwater monitoring data.

Attachment Number: [REDACTED]

B. Has a groundwater monitoring program been prepared for this disposal unit? Yes

No

If yes, attach a copy of the groundwater monitoring program.

Attachment Number: [REDACTED]

C. Provide a certification from a qualified groundwater scientist that the aquifer below the disposal unit will not be contaminated.

Attachment Number: [REDACTED]

D. Provide a profile of soil types encountered down to the groundwater table and the depth to the shallowest groundwater.

Attachment Number: [REDACTED]

Appendix A Pollutant Concentrations in Sewage Sludge

Complete this table for each source of sludge.

Facility Name: Prairie Creek WWTP

TCEQ Authorization Number: WQ0010662-001

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	.434	12/13/2024	.195	Grab
Cadmium (Cd)	85	.0552	12/13/2024	.0487	Grab
Chromium (Cr)	3000	1.73	12/13/2024	.0973	Grab
Copper (Cu)	4300	50.8	12/13/2024	.195	Grab
Lead (Pb)	840	1.49	12/13/2024	.0487	Grab
Mercury (Hg)	57	ND	12/13/2024	.0400	Grab
Molybdenum (Mo)	75	.0970	12/13/2024	.0487	Grab
Nickel (Ni)	420	2.05	12/13/2024	.195	Grab
Selenium (Se)	100	.473	12/13/2024	.195	Grab
Zinc (Zn)	7500	63.9	12/13/2024	.0973	Grab
PCB (ppm)	50.0 ppm	ND	12/13/2024	ND	Grab
Fecal Coliform (MPN)	N/A	N/A	12/13/2024	N/A	Grab

Appendix B PATHOGEN REDUCTION REQUIREMENTS

For each source, select the pathogen reduction alternative that will be used prior to land application of sewage sludge. 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
	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.			
	Choose an item.			
	Choose an item.			
	Choose an item.			

*Applicable to Option 1 only.

**Applicable to Option 2a - f.

If Other or PFRP Equivalent is selected as the Alternative Used, please explain:

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 sewage sludge/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 O ₂ /hr/g total solids at 20C (<2% solids)	Aerobically digested, 2.0% solids, SOUR=1.3 mg/g
WQ0010662-001	Option 10. Incorporate within 6 hrs	Sent to Landfill
	Choose an item.	

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

ATTACHMENT 1

Plain Language Summary for TPDES

Se adjunta el siguiente resumen para la solicitud de permiso de calidad del agua pendiente, en revisión por la Comisión de Calidad ambiental de Texas, de conformidad con lo exige el Capítulo 39 del Código Administrativo de Texas 30. El resumen puede variar durante la revisión técnica de la solicitud y no es una representación federal ejecutable de la solicitud de permiso

La ciudad de Lewisville (CN600535140) opera la planta de tratamiento de aguas residuales de Prairie Creek (RN102075298), una instalación de lodos activados convencional ubicada en 897 Treatment Plant Rd, cerca de Lewisville, condado de Denton, Texas 75057. Esta solicitud requiere un reemplazo para la recolección de aguas residuales domésticas tratadas. Las aguas residuales tienen un flujo medio anual de 12,000,000 galones por día mediante el Emisario 001. Se espera que la instalación incluya parámetros como la demanda bioquímica de oxígeno (DBO) de cinco días, el total de sólidos suspendidos (SST), el plomo total y Escherichia coli. Los contaminantes adicionales se presentan en el informe técnico nacional 1.0, sección 7 (Análisis de contaminantes del efluente tratado) y en la Hoja de Trabajo Nacional 4.0 del paquete de solicitud de permiso. La planta usa lodos activados en un proceso de tratamiento llamado criba de barras, desarenador, tanques de aireación, clarificadores finales, digestores de lodos, filtro, prensa de banda, cámaras de contacto de cloro y una cámara de decoloración.

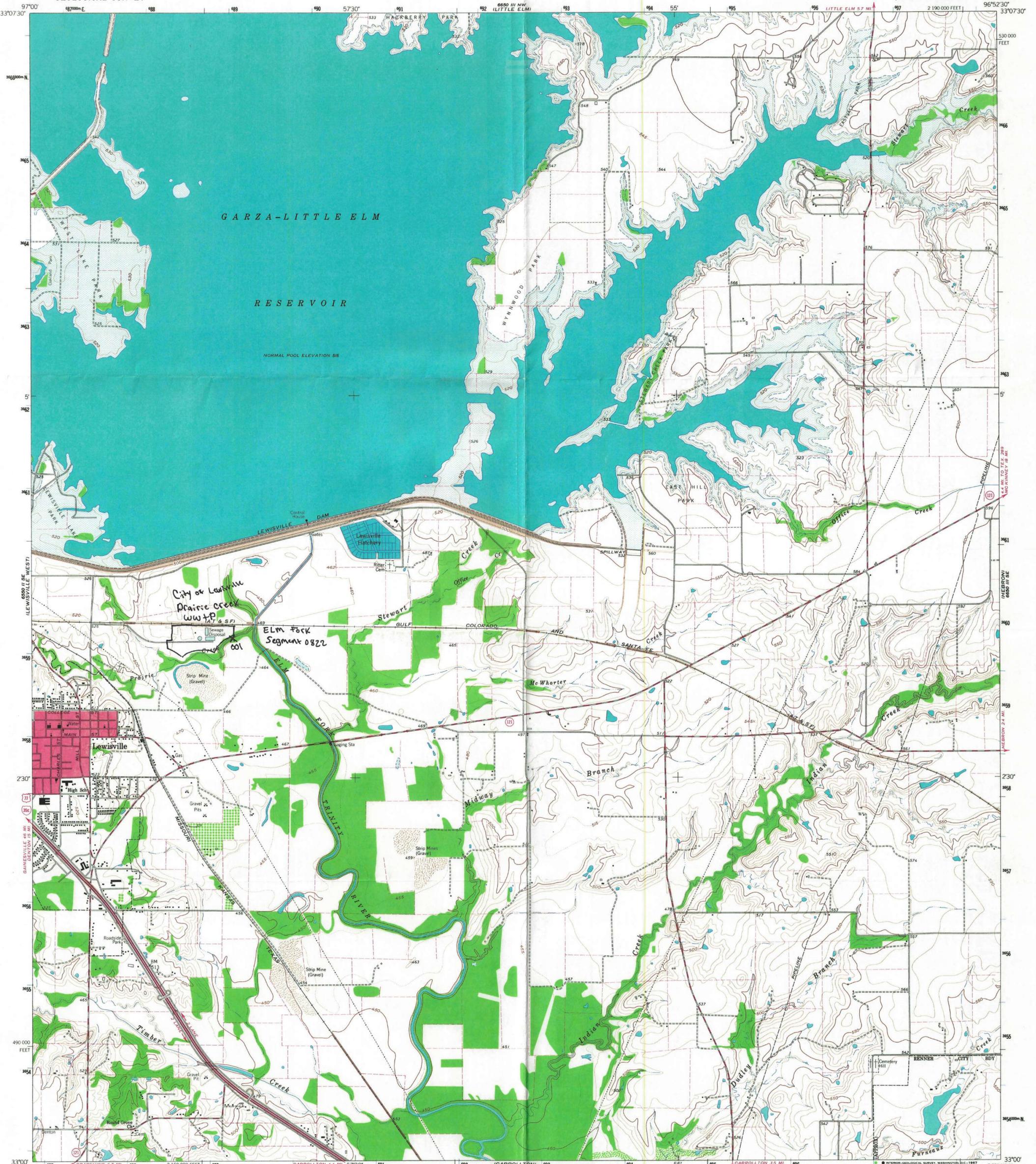
The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 Texas Administrative Code Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations of the permit application.

The City of Lewisville (CN600535140) operates the Prairie Creek Wastewater Treatment Plant (RN102075298), a conventional activated sludge facility located at 897 Treatment Plant Rd, near Lewisville, Denton County, Texas 75057. This application requests a renewal for the discharge of treated domestic wastewater at an annual average flow of 12,000,000 gallons per day via Outfall 001. The facility's discharges are expected to include parameters such as five-day biochemical oxygen demand (BOD), total suspended solids (TSS), total lead, and Escherichia coli. Additional potential pollutants are outlined in the Domestic Technical Report 1.0, Section 7 (Pollutant Analysis of Treated Effluent), and Domestic Worksheet 4.0 of the permit application package. The plant uses an activated sludge process, with treatment units including a bar screen, grit chamber, aeration basins, final clarifiers, sludge digesters, belt filter press, chlorine contact chambers, and a dichlorination chamber.

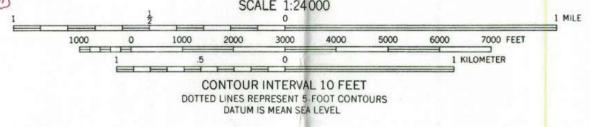
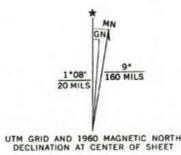
ATTACHMENT 2

USGS Topographic map

Section 13



Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1957. Field check 1960
Polyconic projection 1927 North American datum
10,000 foot grid based on Texas coordinate system,
north central zone
1000-meter Universal Transverse Mercator grid ticks,
zone 14, shown in blue
Fine red dashed lines indicate selected fence and field lines
where generally visible on aerial photographs
This information is unchecked
Red tint indicates area in which only landmark buildings are shown
Areas covered by dashed light-blue pattern are subject
to controlled inundation to 532 feet



U.S.G.S.
FINE COPY
TOPOGRAPHIC DIVISION
TEXAS

ROAD CLASSIFICATION

Heavy-duty	Light-duty
Medium-duty	Unimproved dirt
Interstate Route	U.S. Route
	State Route

THIS MAP COMPLIES WITH NATIONAL MAP ACCURACY STANDARDS
FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

LEWISVILLE EAST, TEX.
SW/4 FRISCO 15 QUADRANGLE
N3300-W9652.5/7.5
1960
AMS 6650 III SW-SERIES V882

5130
OCT 20 1967

ATTACHMENT 3

SPIF

**TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)**

**FOR AGENCIES REVIEWING DOMESTIC OR INDUSTRIAL
TPDES WASTEWATER PERMIT APPLICATIONS**

TCEQ USE ONLY:

Application type: ___ Renewal ___ Major Amendment ___ Minor Amendment ___ New

County: _____ Segment Number: _____

Admin Complete Date: _____

Agency Receiving SPIF:

___ Texas Historical Commission

___ U.S. Fish and Wildlife

___ Texas Parks and Wildlife Department

___ U.S. Army Corps of Engineers

This form applies to TPDES permit applications only. (Instructions, Page 53)

Complete this form as a separate document. TCEQ will mail a copy to each agency as required by our agreement with EPA. If any of the items are not completely addressed or further information is needed, we will contact you to provide the information before issuing the permit. Address each item completely.

Do not refer to your response to any item in the permit application form. Provide each attachment for this form separately from the Administrative Report of the application. The application will not be declared administratively complete without this SPIF form being completed in its entirety including all attachments. Questions or comments concerning this form may be directed to the Water Quality Division's Application Review and Processing Team by email at WQ-ARPTeam@tceq.texas.gov or by phone at (512) 239-4671.

The following applies to all applications:

1. Permittee: City of Lewisville

Permit No. WQ00 10662001

EPA ID No. TX 0052892

Address of the project (or a location description that includes street/highway, city/vicinity, and county):

897 Treatment Plant Rd. Lewisville, TX 75057

Provide the name, address, phone and fax number of an individual that can be contacted to answer specific questions about the property.

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

First and Last Name: Cedric West

Credential (P.E, P.G., Ph.D., etc.): [REDACTED]

Title: Superintendent

Mailing Address: PO Box 299002

City, State, Zip Code: Lewisville, Tx 75029

Phone No.: 9722195051 Ext.: [REDACTED]

Fax No.: [REDACTED]

E-mail Address: cwest@cityoflewisville.com

2. List the county in which the facility is located: Denton
3. If the property is publicly owned and the owner is different than the permittee/applicant, please list the owner of the property.

N/A

4. Provide a description of the effluent discharge route. The discharge route must follow the flow of effluent from the point of discharge to the nearest major watercourse (from the point of discharge to a classified segment as defined in 30 TAC Chapter 307). If known, please identify the classified segment number.

To Prairie Creek thence to the Elm Fork Trinity River below Lewisville Lake segment 0822 of the Trinity River Basin.

5. Please provide a separate 7.5-minute USGS quadrangle map with the project boundaries plotted and a general location map showing the project area. Please highlight the discharge route from the point of discharge for a distance of one mile downstream. (This map is required in addition to the map in the administrative report).

Provide original photographs of any structures 50 years or older on the property.

Does your project involve any of the following? Check all that apply.

- Proposed access roads, utility lines, construction easements
- Visual effects that could damage or detract from a historic property's integrity
- Vibration effects during construction or as a result of project design
- Additional phases of development that are planned for the future
- Sealing caves, fractures, sinkholes, other karst features

Disturbance of vegetation or wetlands

1. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves, or other karst features):

N/A

2. Describe existing disturbances, vegetation, and land use:

N/A

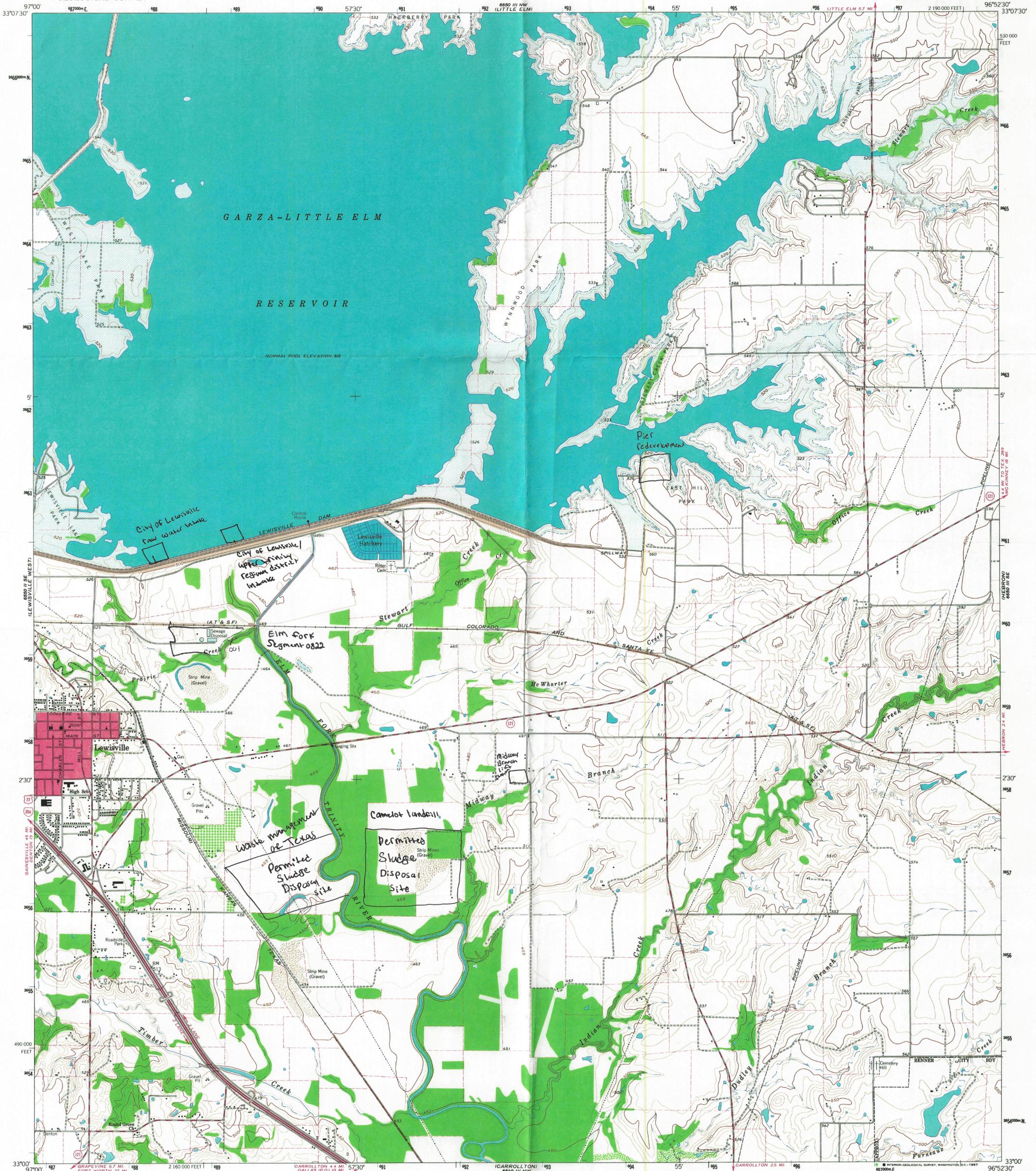
THE FOLLOWING ITEMS APPLY ONLY TO APPLICATIONS FOR NEW TPDES PERMITS AND MAJOR AMENDMENTS TO TPDES PERMITS

3. List construction dates of all buildings and structures on the property:

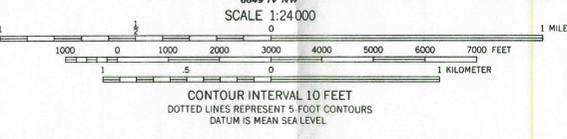
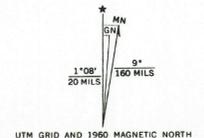
N/A

4. Provide a brief history of the property, and name of the architect/builder, if known.

N/A



Mapped, edited, and published by the Geological Survey
Control by USGS and USC&GS
Topography from aerial photographs by photogrammetric methods
Aerial photographs taken 1957. Field check 1960
Polyconic projection. 1927 North American datum
10,000-foot grid based on Texas coordinate system,
north central zone
1000 meter Universal Transverse Mercator grid ticks,
zone 14, shown in blue
Fine red dashed lines indicate selected fence and field lines
where generally visible on aerial photographs
This information is unchecked
Red tint indicates area in which only landmark buildings are shown
Areas covered by dashed light-blue pattern are subject
to controlled inundation to 532 feet



U.S.G.S.
FILE COPY
TOPOGRAPHIC DIVISION
TEXAS

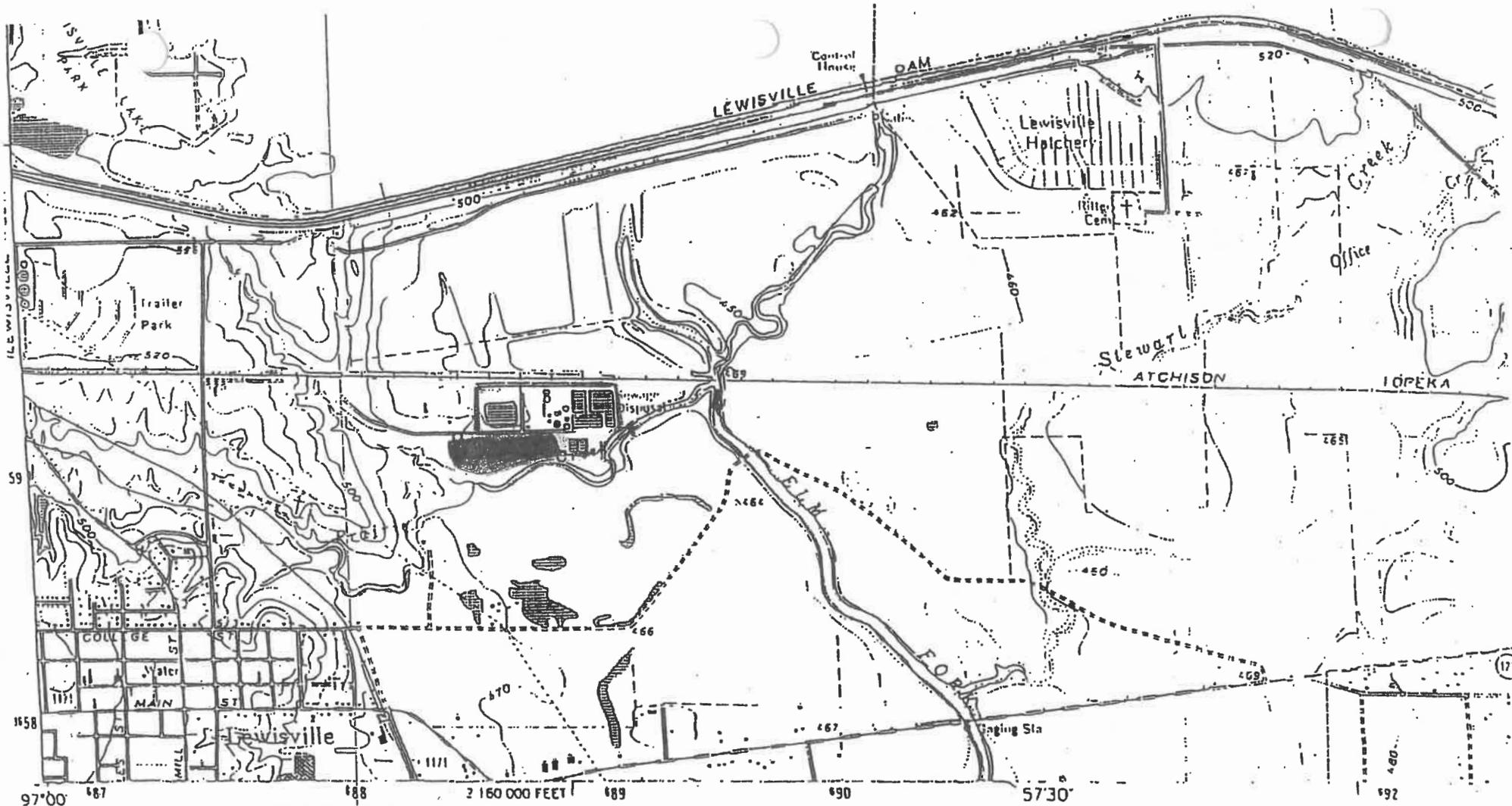
ROAD CLASSIFICATION

Heavy-duty	Light-duty
Medium-duty	Unimproved dirt
Interstate Route	U.S. Route
	State Route

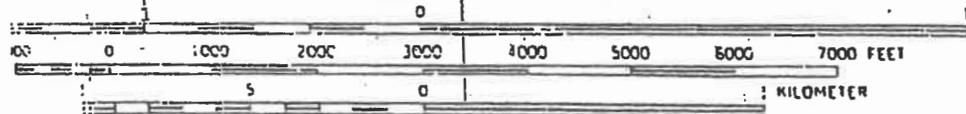
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FOR SALE BY U. S. GEOLOGICAL SURVEY, DENVER, COLORADO 80225, OR WASHINGTON, D. C. 20242
A FOLDER DESCRIBING TOPOGRAPHIC MAPS AND SYMBOLS IS AVAILABLE ON REQUEST

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AMS 6650 III SW-SERIES V882

5130
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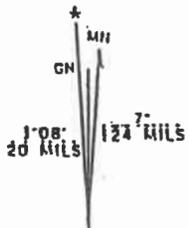


SCALE 1:24 000



CONTOUR INTERVAL 10 FEET
 DOTTED LINES REPRESENT 5-FOOT CONTOURS
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

"Location Map"
 From U.S. Geological Survey Map, 1981
 Prairie Creek Wastewater Treatment Plant
 Lewisville, Denton County Texas
 March 20, 1991



UTM GRID AND 1981 MAGNETIC NORTH
 DECLINATION AT CENTER OF SHEET.

ATTACHMENT 2

Monitoring Well Locations



PRAIRIE CREEK

CITY OF LEWISVILLE
PRAIRIE CREEK
WASTEWATER
TREATMENT
PLANT

M-4

SLUDGE
AREA
(15.95 ACRES)

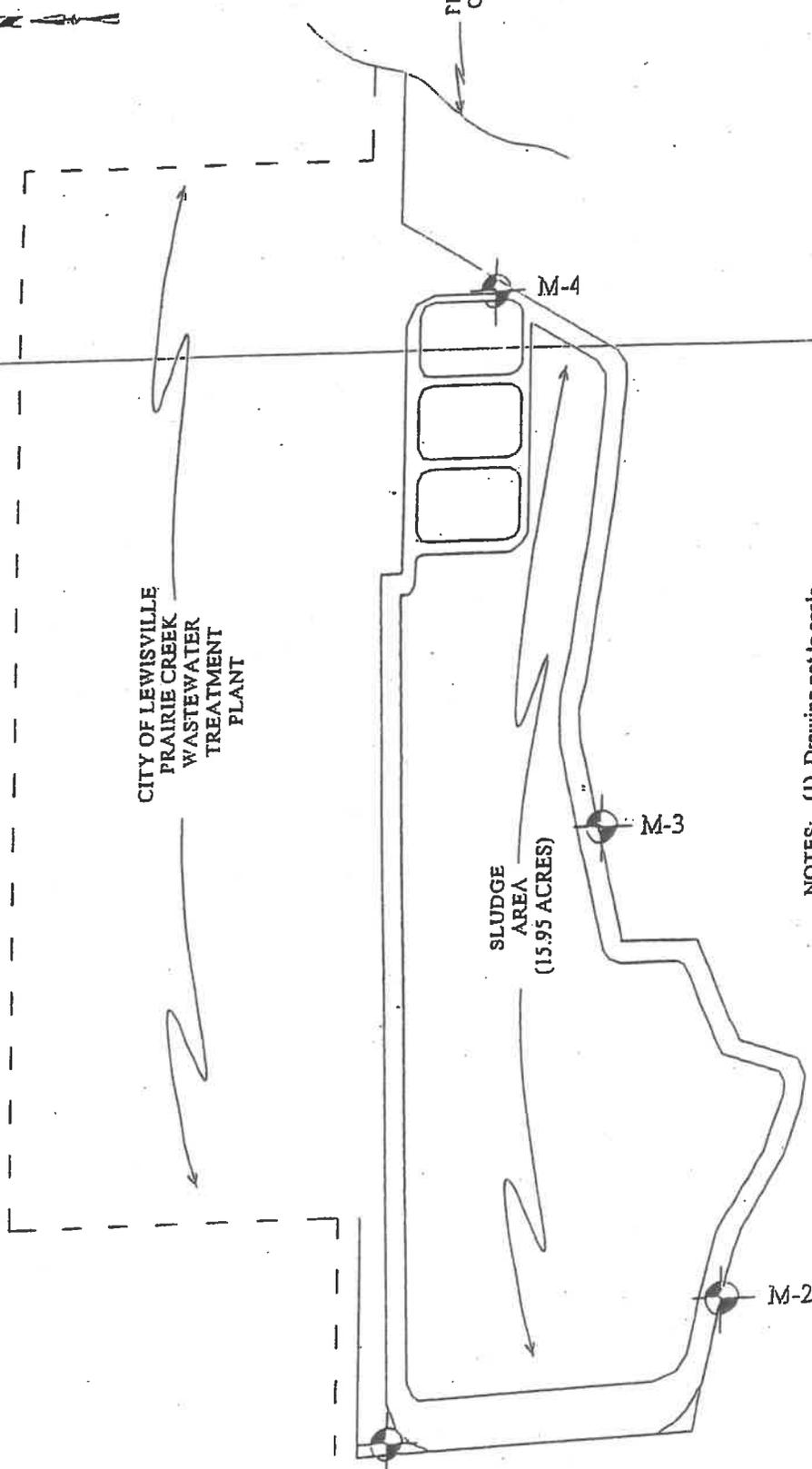
M-3

M-2

M-1

NOTES: (1) Drawing not to scale
(2) Locations shown are approximate

MONITORING WELL LOCATIONS
PRAIRIE CREEK WASTEWATER TREATMENT PLANT



ATTACHMENT 3

Certification of Liner Integrity

SHIMEK, JACOBS & FINKLEA, L.L.P.
CONSULTING ENGINEERS

8333 Douglas Avenue, #620

Dallas, Texas 75225-5816

Fax (214) 361-0204

Phone (214) 361-7900

L. JACOBS, P.E.
JEDY CONWAY, P.E.
W. BIRKHOF, P.E.
CARTER, P.E.
C. HENDRICKS, P.E.
MCKEE, P.E.
J. CARLINE, P.E.
HICKEY, P.E.

August 27, 1999

Ms. Carol Bassinger, Utilities Manager
Public Services
City of Lewisville
P.O. Box 299002
Lewisville, Texas 75029-9002

Re: Certification of Clay Liner
on the Sludge Storage Fields
at Fair Creek WWTP Site

Dear Ms. Bassinger:

These sludge fields are part of the treatment system you operate under TNRCC Discharge Permit 10662.001. Section IV, Subsection D, of that permit sets forth certain requirements for clay liners. We hereby certify the liners meet the criteria set forth.

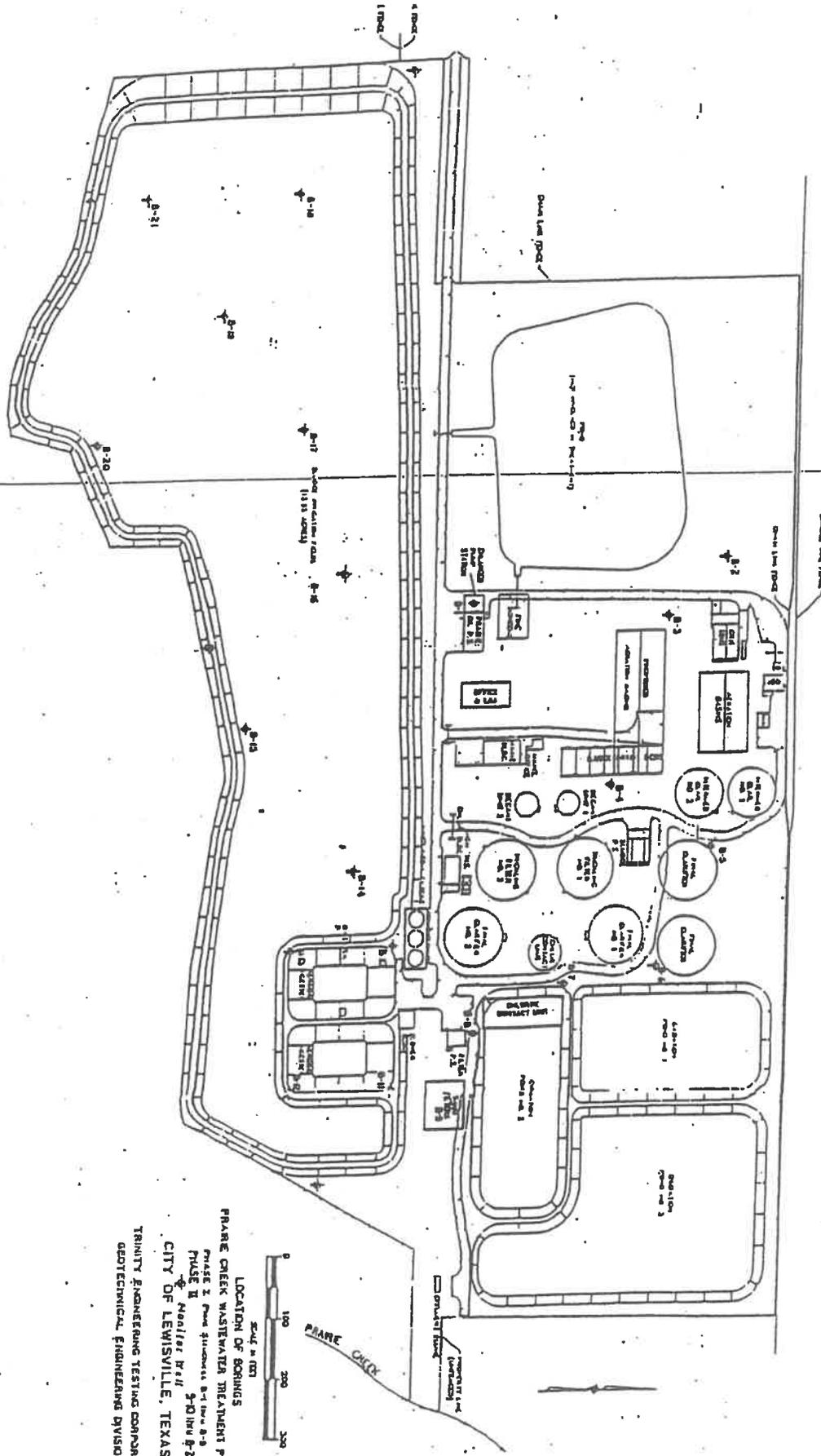
Sincerely yours,



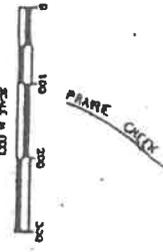
James E. Laughlin, P.E.

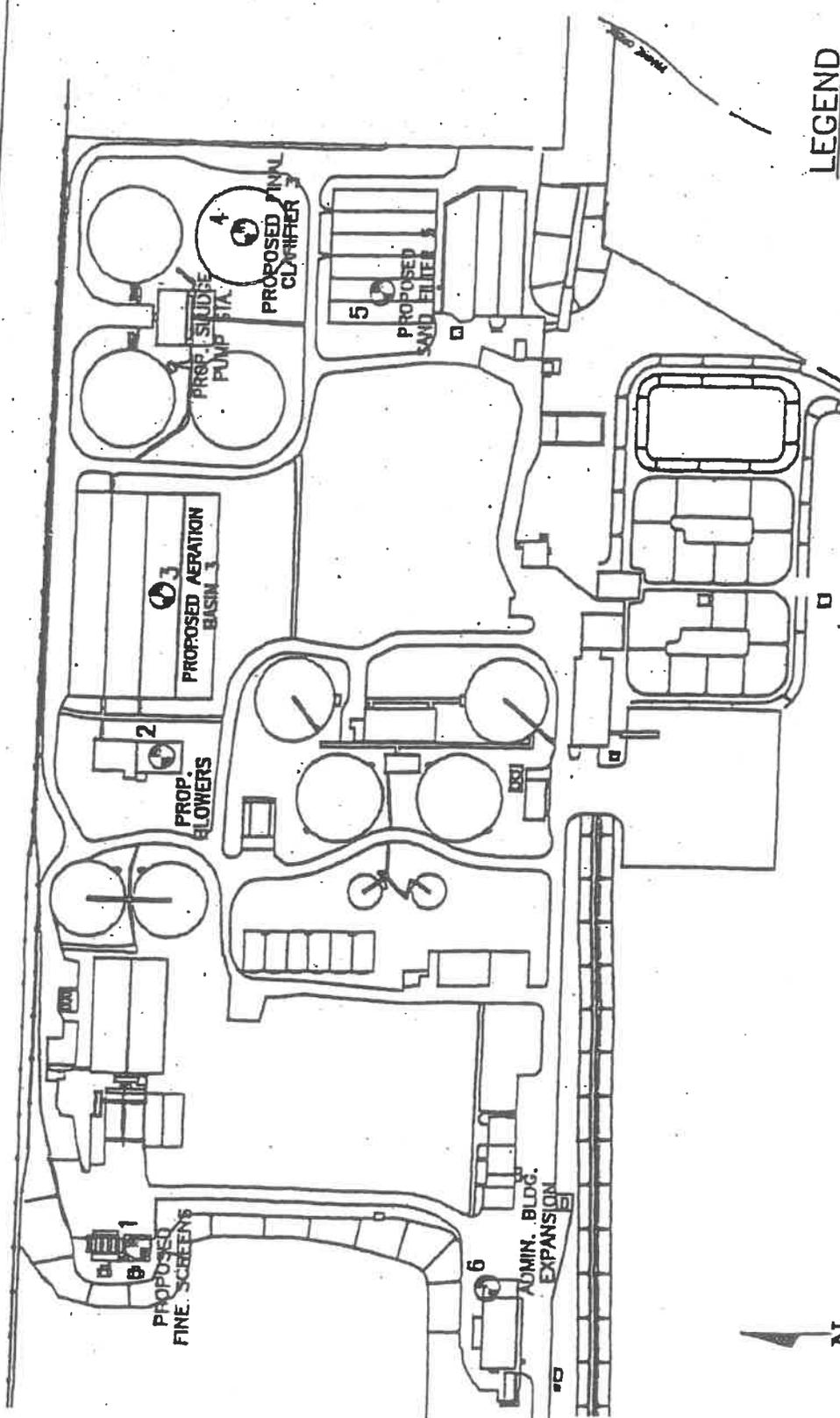
ATTACHMENT 4

- **Location of Boring & Monitoring Wells**
- **Boring Profiles**
- **Summary of Classification Tests**



LOCATION OF BORINGS
 FRARE CREEK WASTEWATER TREATMENT PLANT
 PHASE II
 2015000
 CITY OF LEWISVILLE, TEXAS
 TRINITY ENGINEERING TESTING CORPORATION
 GEOTECHNICAL ENGINEERING DIVISION





LEGEND
 BORING LOCATION

WASTEWATER TREATMENT PLANT EXPANSION
 LEWISVILLE, TEXAS

BORING LOCATION PLAN

HENLEY-JOHNSTON & ASSOCIATES, INC.
 engineering geoscience consultants

HJA No.: 7487

DATE: SEPTEMBER 2002

PLATE 1



**WASTEWATER TREATMENT PLANT EXPANSION
LEWISVILLE, TEXAS**

SUMMARY OF INDEX PROPERTIES

BORING NUMBER	DEPTH (ft.)	LL (%)	PI	MC (%)	DUW (pcf)	-200 (% finer)	UNIFIED SOIL CLASSIFICATION
1	0.0-1.5	37	22	15.4			CL (FILL)
1	1.5-3.0			13.0			
1	3.0-4.5			14.2		33.3	
1	4.5-6.0			16.3			
1	6.0-7.5	42	27	19.5			CL (FILL)
1	7.5-9.0			22.7			
1	9.0-10.5	32	20	21.8			CL (FILL)
1	10.5-12.0			16.9			
1	14.0-15.0			17.6	110.1		
2	0.0-1.5			11.1			
2	1.5-3.0	37	20	20.4	95.9		CL
2	3.0-4.5			9.4			
2	4.5-5.5			10.2			
2	5.5-6.5	30	17	10.9	122.8		CL
2	6.5-8.0			10.8			
2	8.0-9.5			10.4			
2	9.5-11.0			6.1		9.8	
2	13.5-15.0			9.8		6.0	
3	0.0-1.5			11.9			
3	1.5-3.0			6.3			
3	3.0-4.5			18.8			
3	4.5-6.0	41	26	21.0			CL
3	6.0-7.5			16.2			
3	7.5-9.0	36	23	15.7			CL
3	9.0-10.5			14.0			
3	10.5-12.0			14.8		34.0	

SUMMARY OF CLASSIFICATION TESTS

PRAIRE CREEK WASTEWATER TREATMENT PLANT
PHASE II (GROUNDWATER PROTECTION)
LEWISVILLE, TEXAS

Boring Number	Depth (feet)	Liquid Limit %	Plasticity Index %	% Passing 200-Mesh Sieve	Moisture Content	Unified Soil Classification	Material Description
15	2.5-3.0	51	31	--	20	CH	CLAY: Dark Gray
	3.5-4.0	29	16	84	30	CL	SANDY CLAY: Brown
16	0.5-1.0	28	14	--	--	CL-SC	SANDY CLAY: Orange-Brown and Brown
	2.5-3.0	33	15	--	18	CL-SC	SANDY CLAY: Dark Brown
	3.5-4.0	31	18	47	26	SC	SANDY CLAY: Brown & Light Brown
	4.0-4.5	31	17	--	--	SC	SANDY CLAY: Brown & Light Brown
17	1.5-2.0	50	31	83	24	CH	CLAY: Brown & Yellowish-Brown
18	1.5-2.0	37	23	75	26	CL	SANDY CLAY: Brown
	2.5-3.0	45	30	77	25	CL-CH	SANDY CLAY: Dark Gray
19	1.5-2.0	49	30	85	22	CL-CH	CLAY: Dark Gray
20	3.5-4.0	46	30	76	21	CL-CH	SANDY CLAY: Brown
21	2.5-3.0	44	28	79	15	CL	SANDY CLAY: Brown & Yellowish-Brown

SUMMARY OF CLASSIFICATION TESTS

PRAIRE CREEK WASTEWATER TREATMENT PLANT
PHASE II (GROUNDWATER PROTECTION)
LEWISVILLE, TEXAS

Boring Number	Depth (feet)	Liquid Limit %	Plasticity Index %	% Passing 200-Mesh Sieve	Moisture Content	Unified Soil	Material Description
						Classi- fication	
10	1.5- 3.0	47	30	62	22	CL-CH	SANDY CLAY: Dark Brown
	6.0- 7.5	41	27	63	15	CL	SANDY CLAY: Brown & Gray
	10.5-12.0	--	--	10	31	SP-SC	SAND: Light Brown
11	1.5- 3.0	63	42	--	21	CH	CLAY: Brown t Dark Gray
	3.0- 4.5	33	17	51	18	CL	SANDY CLAY: Gray & Brown
	13.5-15.0	--	--	9	39	SC-SP	CLAYEY SAND: Gray & Yellowish- Brown
12	0.0- 1.5	47	30	59	33	CL-CH	SANDY CLAY: Brown
	4.5- 6.0	71	45	86	29	CH	CLAY: Dark Gr
	13.5-15.0	--	--	6	49	SP-SC	SAND: Yellowis Brown & Gray
13	4.5- 6.0	44	24	71	48	CL	SANDY CLAY: Brown to Dar Gray
	9.0-10.5	43	29	67	39	CL	SANDY CLAY: Gray & Yellowish- Brown
14	1.5- 2.0	48	28	--	20	CH-CL	CLAY: Dark Gr
	2.5- 3.0	24	10	29	19	SC	CLAYEY SAND: Brown
	4.5- 5.0	--	--	15	30	SC	CLAYEY SAND: Light Brown

LOG OF BORING

Project: PRAIRIE CREEK WWTP - PHASE II

Hand Auger/

Location: Lewisville, TX

Date: 7-9-86

Type:

Disturbed

Boring No: 21

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEV.	DEPTH SCALE
							464.60	
				SANDY CLAY: Brown and Yellowish-Brown				
				LL=44, PI=28 (-)200=79%				
2				(CL)			462.60	
				SANDY CLAY: Dark Gray				
				(CL-CH)			461.10	
4				SANDY CLAY: Brown and Yellowish-Brown, Some Gravel (CL)			460.60	
				TOTAL DEPTH OF BORING: 4.0-Feet				
				NOTE: Ground surface inundated at time of drilling.				

LOG OF BORING

Project: PRAIRIE CREEK WWTP - PHASE II

Location: Lewisville, TX

Date: 7-9-86

Type: Auger

Boring No: 20

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEV.	DEPTH SCALE
							464.70	
				SANDY CLAY: Brown				
2				(CL-CH)			462.70	
				SANDY CLAY: Dark Gray			461.70	
				SANDY CLAY: Brown LL=46, PI=30 (-) 200=76%			460.70	
4								
				TOTAL DEPTH OF BORING: 4.0 Feet				
				NOTE: Ground surface inundated at time of drilling.				

LOG OF BORING

Project: PARIIE CREEK WWTP - PAHSE II

**Hand Auger/
Disturbed**

Location: Lewisville, TX

Date: 7-9-86

Type:

Boring No: 19

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEV.	DEPTH SCALE
							464.14	
				SANDY CLAY: Brown				
				(CL)			462.91	
2				LL=49, PI=30 (-)200=85%				
				CLAY: Dark Gray			461.41	
				(CL-CH)				
4				SANDY CLAY: Brown			460.41	
				TOTAL DEPTH OF BORING: 4.0-Feet				
				NOTE: Ground surface inundated at time of drilling.				

LOG OF BORING

Project: PRAIRIE CREEK WWTP- PHASE II

Hand Auger/

Location: Lewisville, TX

Date: 7-9-86

Type: Disturbed

Boring No: 18

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEV.	DEPTH SCALE
							466.25	
2				SANDY CLAY: Brown LL=37, PI=23 (-) 200=75% (CL)			464.25	
				SANDY CLAY: Dark Gray LL=45, PI=30 (-) 200=77% (CL-CH)			463.25	
4				SANDY CLAY: Brown (CL)			462.25	
				TOTAL DEPTH OF BORING: 4.0-Feet				
				NOTE: Ground surface inundated at time of drilling.				

LOG OF BORING

Project: PRAIRIE CREEK WWTP - PHASE II

Location: Lewisville, TX

Date: 7-9-86

Type: Hand Auger/
Disturbed

Boring No: 17

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEV.	DEPTH SCALE
							464.47	
2				CLAY: Brown and Yellowish-Brown LL=50, PI=31, (-)200=83%			460.47	
4				SANDY CLAY: Dark Gray	(CH)		459.47	
				TOTAL DEPTH OF BORING: 4.0-Feet				
				NOTE: Ground surface inundated at time of drilling.				

LOG OF BORING

Project: PRAIRIE CREEK WWTP - PHASE II

Hand Auger/

Location: Lewisville, Tx

Date: 7-9-86

Type: Disturbed

Boring No: 16

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEV.	DEPTH SCALE
							464.15	
2				SANDY CLAY: Orange-Brown and Brown LL=28, PI=14 (CL-SC)			461.40	
				LL=38, PI=15 SANDY CLAY: Dark Brown (CL-SC)			460.65	
4				LL=31, PI=18 (-) 200=47% CLAYEY SAND: Brown and Light Brown, Wet, LL=31, PI=17 Some Gravel (SC)			459.15	
6				TOTAL DEPTH OF BORING: 5.0-Feet NOTE: Ground surface inundated at time of drilling.				

LOG OF BORING

Project: PRAIRIE CREEK WWTP -PHASE II

Location: Lewisville, TX

Date: 7-9-86

Type: Hand Auger/
Disturbed

Boring No: 15

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEV.	DEPTH SCALE
							463.92	
				SANDY CLAY: Brown and Yellowish-Brown with some-Gravel (CL-CH)			462.42	
2				LL=51, PI=31 CLAY: Dark Gray (CH)			460.92	
				SANDY CLAY: Brown LL=29, PI=16 (-) 200=89% (CL)			459.92	
4								
				TOTAL DEPTH OF BORING: 4.0-Feet				
				NOTE: Ground surface inundated at time of drilling.				

LOG OF BORING

Project: PRAIRIE CREEK WWTP - PHASE II

Hand Auger/

Location: Lewisville, TX

Date: 7-9-86

Type: Disturbed

Boring No: 14

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEV.	DEPTH SCALE
							463.78	
				SANDY CLAY: Brown (CL-CH)			462.78	
2				SANDY CLAY: Dark Gray (CL-CH) LL=48, PI=28			461.78	
4				CLAYEY SAND: Brown (SC) LL=24, PI=10 (-) 200=29%			459.78	
				(-) 200=15% CLAYEY SAND: Light Brown (SC)			458.78	
6				TOTAL DEPTH OF BORING: 5.0-Feet				
				NOTE: Ground surface inundated at time of drilling.				

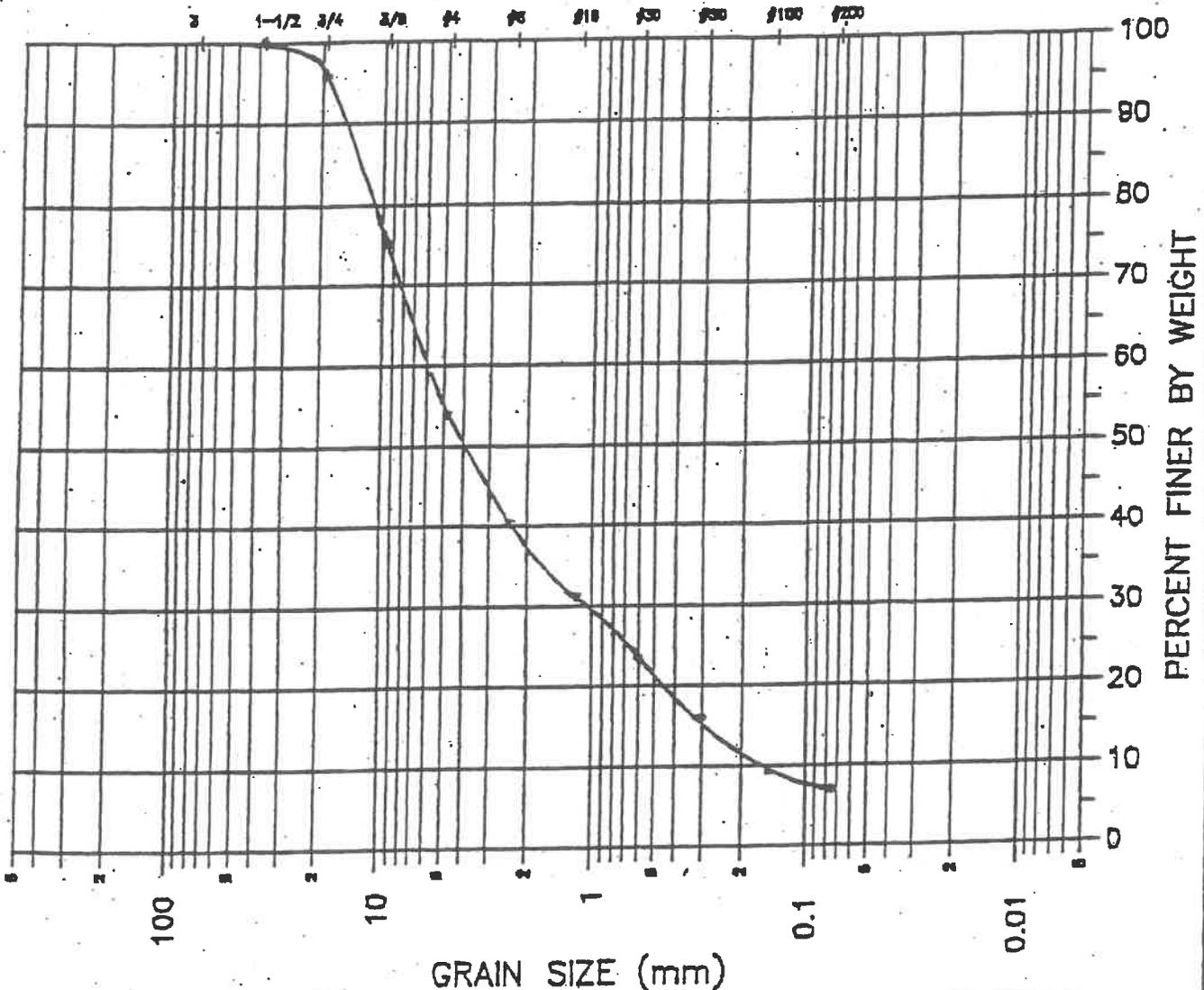
WASTEWATER TREATMENT PLANT EXPANSION
LEWISVILLE, TEXAS

SUMMARY OF INDEX PROPERTIES

BORING NUMBER	DEPTH (ft.)	LL (%)	PI	MC (%)	DUW (pcf)	-200 (% finer)	UNIFIED SOIL CLASSIFICATION
4	0.0-1.5			29.5			
4	1.5-3.0			16.4			
4	3.0-4.5	18	3	7.7			ML or OL (FILL)
4	4.5-6.0			8.6			
4	6.0-7.5			14.3		34.8	
4	18.5-19.6			8.3		7.0	
5	0.0-1.5			9.8			
5	2.0-3.0			4.5			
5	3.0-3.7			8.5		21.0	
5	4.5-6.0	23	10	12.1			CL
5	7.5-9.0			5.4		13.4	
5	15.5-17.0			16.2		10.7	
6	0.7-1.5			22.3			
6	1.5-3.0	44	26	20.3	112.5		CL
6	3.0-4.5			15.6			
6	4.5-6.0	31	17	14.9	118.3		CL
6	6.0-7.5			13.3			
6	9.0-10.5			17.8		28.4	
6	18.5-19.2			10.7		9.5	

BORING NO.: 4
 DEPTH (FT): 18.5-19.6
 GRAVEL, fine to medium,
 sandy, slightly silty,
 very dense, brown.

U.S. STANDARD SIEVE SIZES

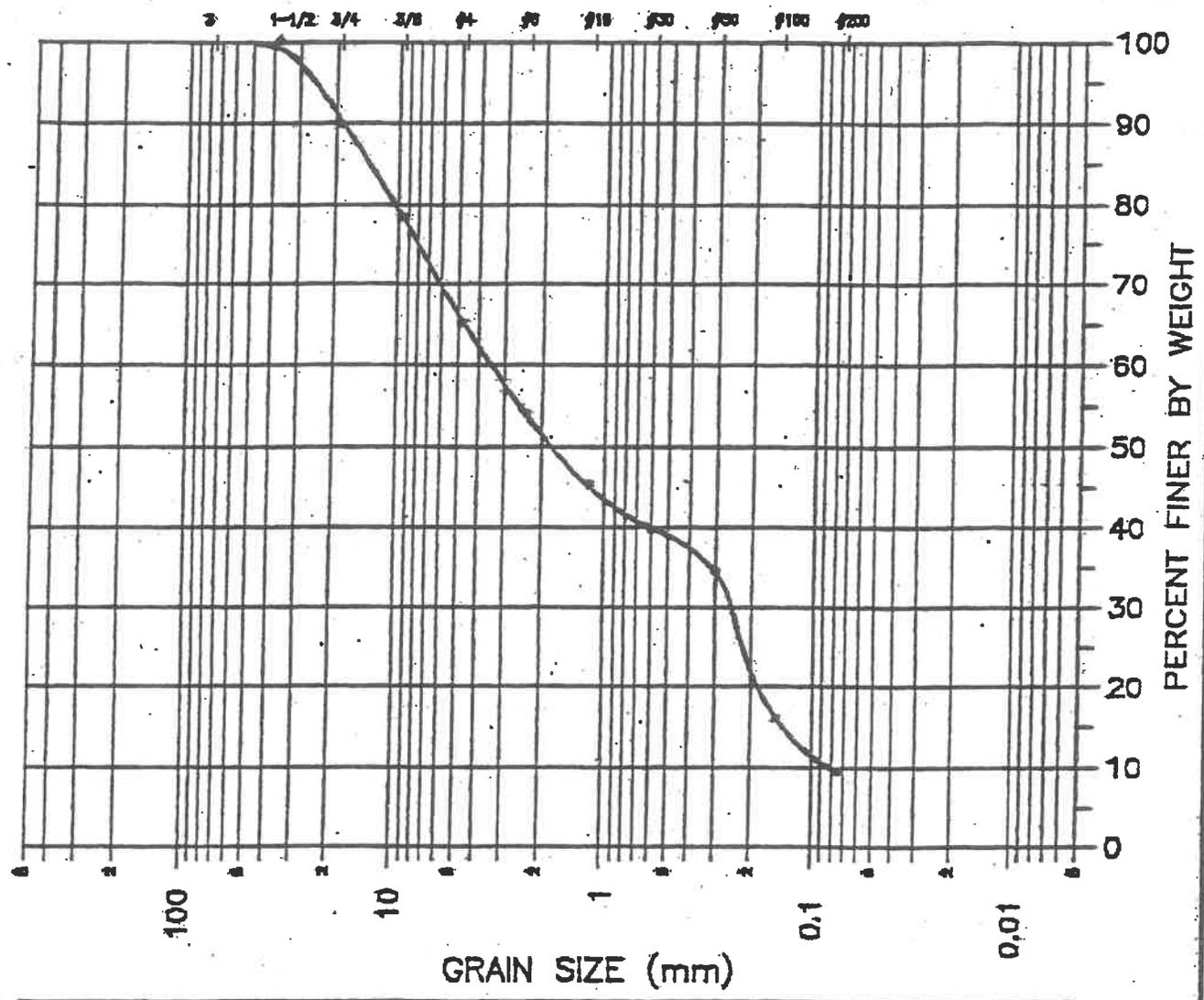


COBBLES	GRAVEL		SAND			SILT or CLAY
	COARSE	FINE	COARSE	MEDIUM	FINE	

WASTEWATER TREATMENT PLANT EXPANSION LEWISVILLE, TEXAS	
GRAIN SIZE DISTRIBUTION	
HENLEY-JOHNSTON & ASSOCIATES, INC. engineering geoscience consultants	
HJA NO.: 7487	PLATE 7
DATE TESTED: 08/16/02	

BORING NO.: 6
 DEPTH (FT): 18.5-19.2
 GRAVEL, fine to medium,
 sandy, silty, very
 dense, brown

U.S. STANDARD SIEVE SIZES

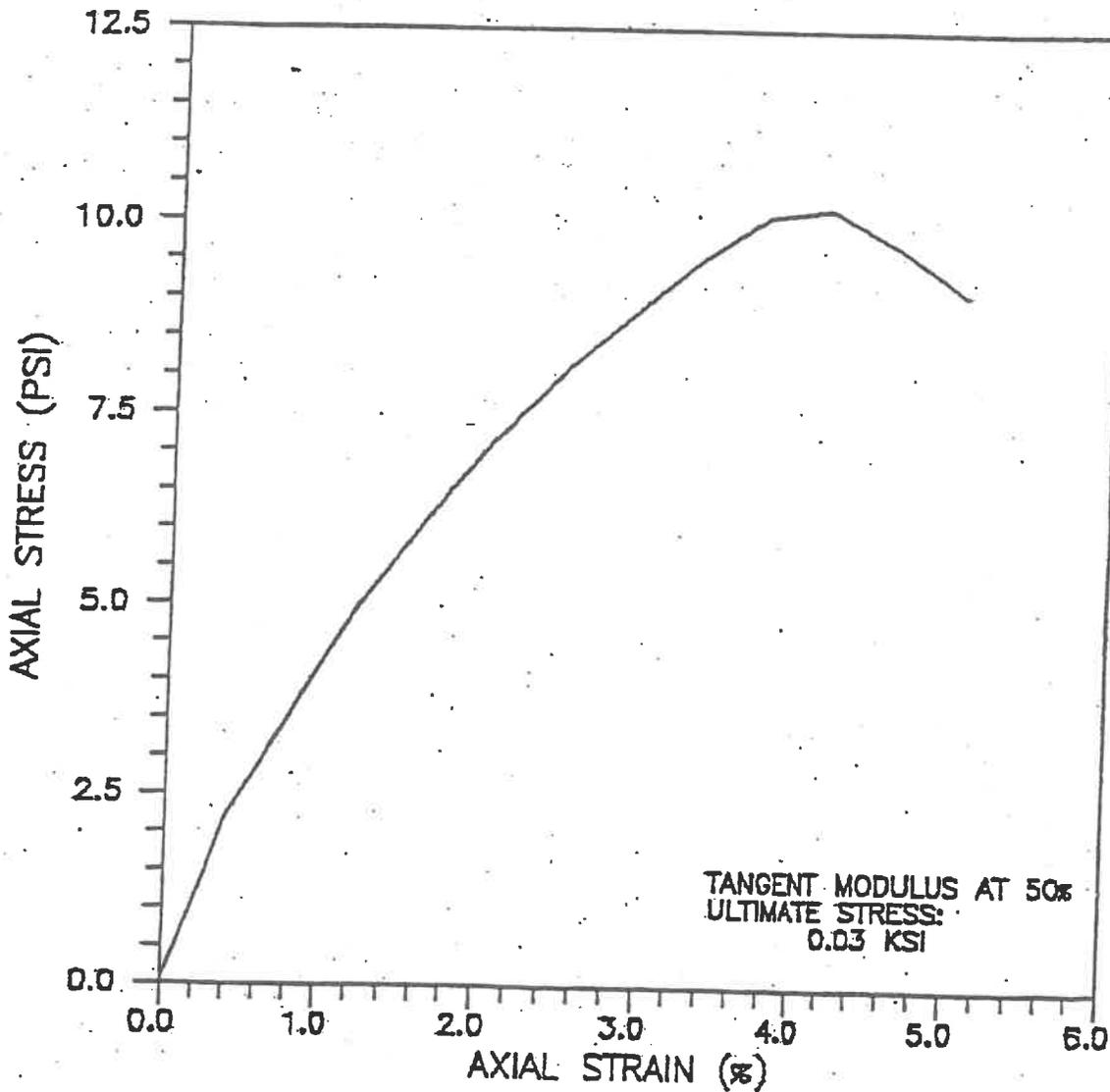


WASTEWATER TREATMENT PLANT EXPANSION
LEWISVILLE, TEXAS

SUMMARY OF LABORATORY STRENGTH TESTS

BORING NUMBER	DEPTH (ft.)	PEAK STRESS (psi)	FAILURE STRAIN (%)	TANGENT MODULUS (ksf)	MATERIAL TYPE
<u>SOIL</u>					
1	14.0-15.0	10.2	4.2	0.03	CLAY (CL)
2	5.5-6.5	160.4	5.0	3.54	CLAY (CL)
6	4.5-6.0	37.6	9.8	0.89	CLAY (CL)
<u>ROCK</u>					
1	31.7-32.4	9935.6			SANDSTONE
1	34.9-35.2	315.7			SANDSTONE
1	37.0-37.8	4424.5			SANDSTONE
1	41.0-42.4	423.8			SANDSTONE
2	21.0-21.4	30.9			SHALE
3	18.2-18.6	58.3			SHALE
3	21.3-22.1	69.3			SHALE
3	24.3-24.8	49.6			SHALE
3	29.9-30.2	111.6			SANDSTONE
4	23.1-23.8	133.7			SHALE
4	25.5-26.2	66.1			SHALE
4	27.8-28.2	70.8			SHALE
4	31.6-32.3	177.5			SANDSTONE
4	35.4-35.8	135.2			SANDSTONE
5	22.8-23.7	60.4			SHALE
5	28.3-29.3	53.4			SHALE
5	33.0-33.4	18.0			SHALE
6	21.5-21.8	4701.8			SANDSTONE
6	28.1-28.4	329.9			SANDSTONE
6	33.2-33.6	77.8			SHALE

BORING NO.: 1
 DEPTH (FT): 14.0-15.0
 CLAY, silty, sandy, brown
 and light brown, with
 gray and reddish brown
 mottling



TEST TYPE: UNCONFINED COMPRESSION TEST
 (ASTM D 2166)

MOISTURE CONTENT (%): 17.6
 DRY UNIT WEIGHT (PCF): 110.1

WASTEWATER TREATMENT PLANT EXPANSION
 LEWISVILLE, TEXAS

UNCONFINED COMPRESSION TEST
 STRESS-STRAIN PLOT

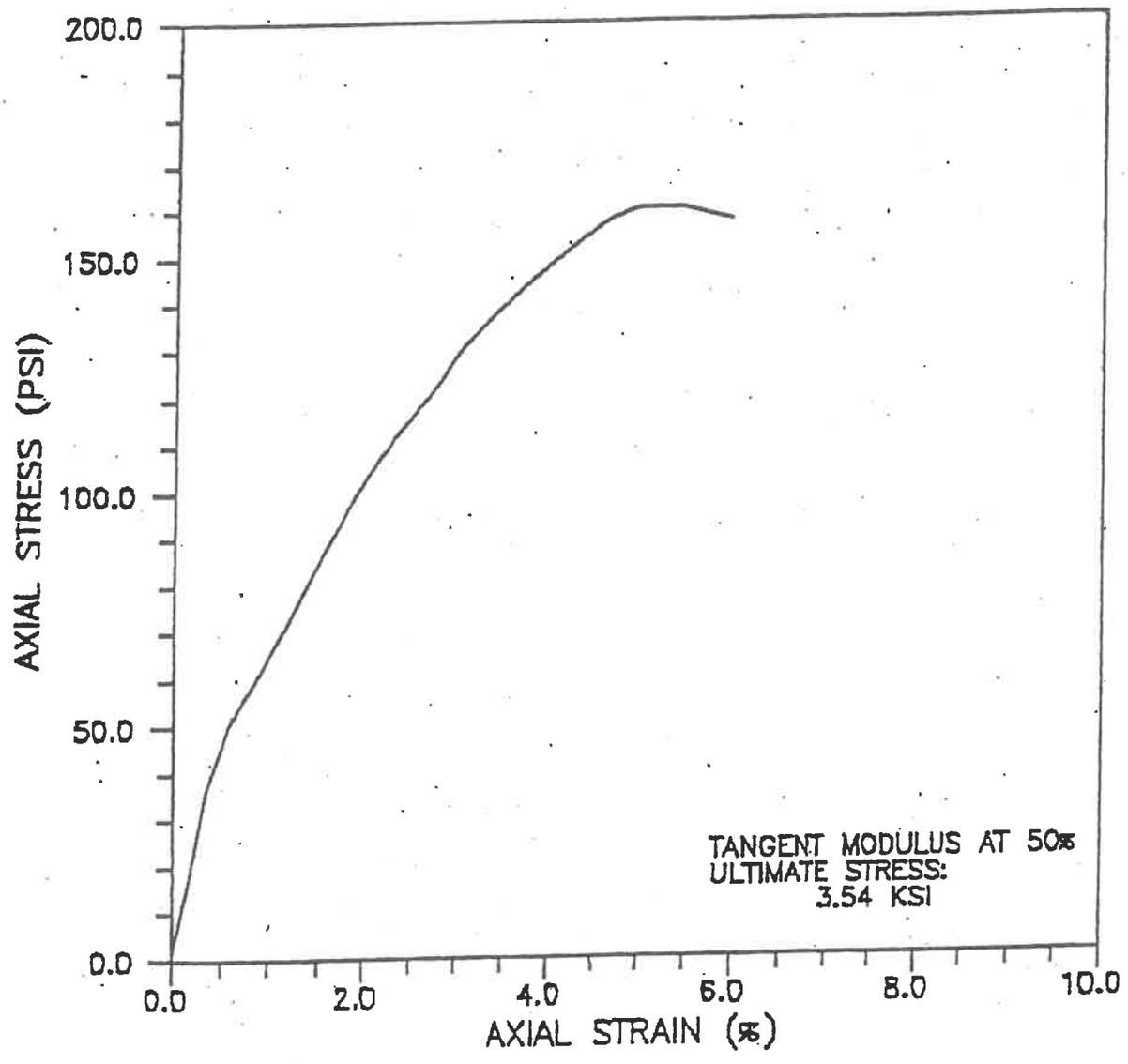
HENLEY-JOHNSTON & ASSOCIATES, INC.
 engineering geoscience consultants

HJA NO.: 7487

DATE TESTED: 09/12/02

PLATE 10

BORING NO.: 2
 DEPTH (FT): 5.5-6.5
 CLAY, silty, slightly sandy,
 brown, light brown and
 reddish brown

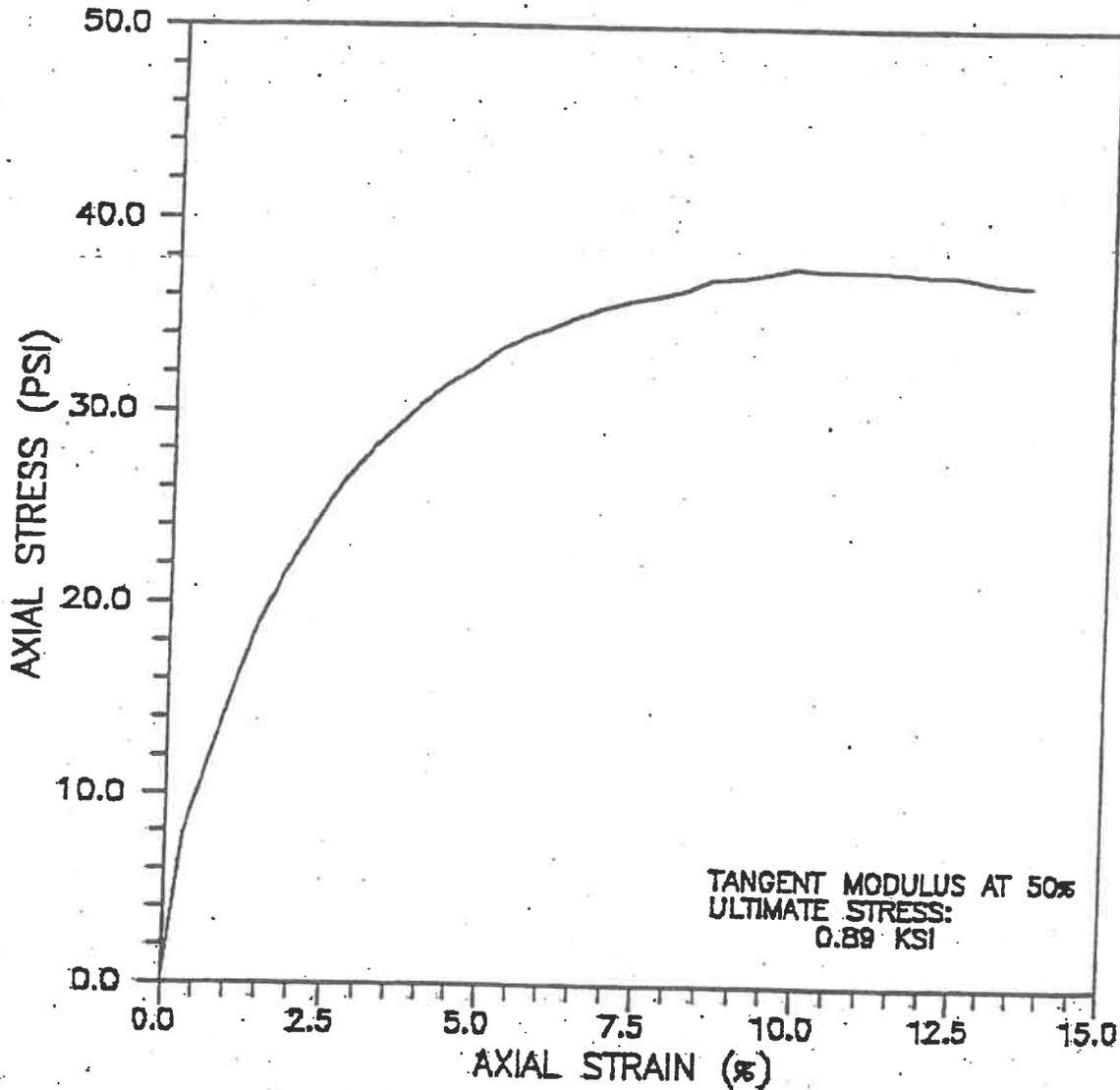


TEST TYPE: UNCONFINED COMPRESSION TEST
 (ASTM D 2166)

MOISTURE CONTENT (%): 10.9
 DRY UNIT WEIGHT (PCF): 122.8

WASTEWATER TREATMENT PLANT EXPANSION LEWISVILLE, TEXAS	
UNCONFINED COMPRESSION TEST STRESS-STRAIN PLOT	
HENLEY-JOHNSTON & ASSOCIATES, INC. engineering geoscience consultants	
HJA NO.: 7487	PLATE 11
DATE TESTED: 09/17/02	

BORING NO.: 6
DEPTH (FT): 4.5-6.0
CLAY, silty, sandy, brown
and light brown, with
gray and reddish brown
mottling



TEST TYPE: UNCONFINED COMPRESSION TEST
(ASTM D 2166)

MOISTURE CONTENT (%): 14.9
DRY UNIT WEIGHT (PCF): 118.3

WASTEWATER TREATMENT PLANT EXPANSION
LEWISVILLE, TEXAS

UNCONFINED COMPRESSION TEST
STRESS-STRAIN PLOT

HENLEY-JOHNSTON & ASSOCIATES, INC.
engineering geoscience consultants

HJA NO.: 7487

DATE TESTED: 08/12/02

PLATE 12

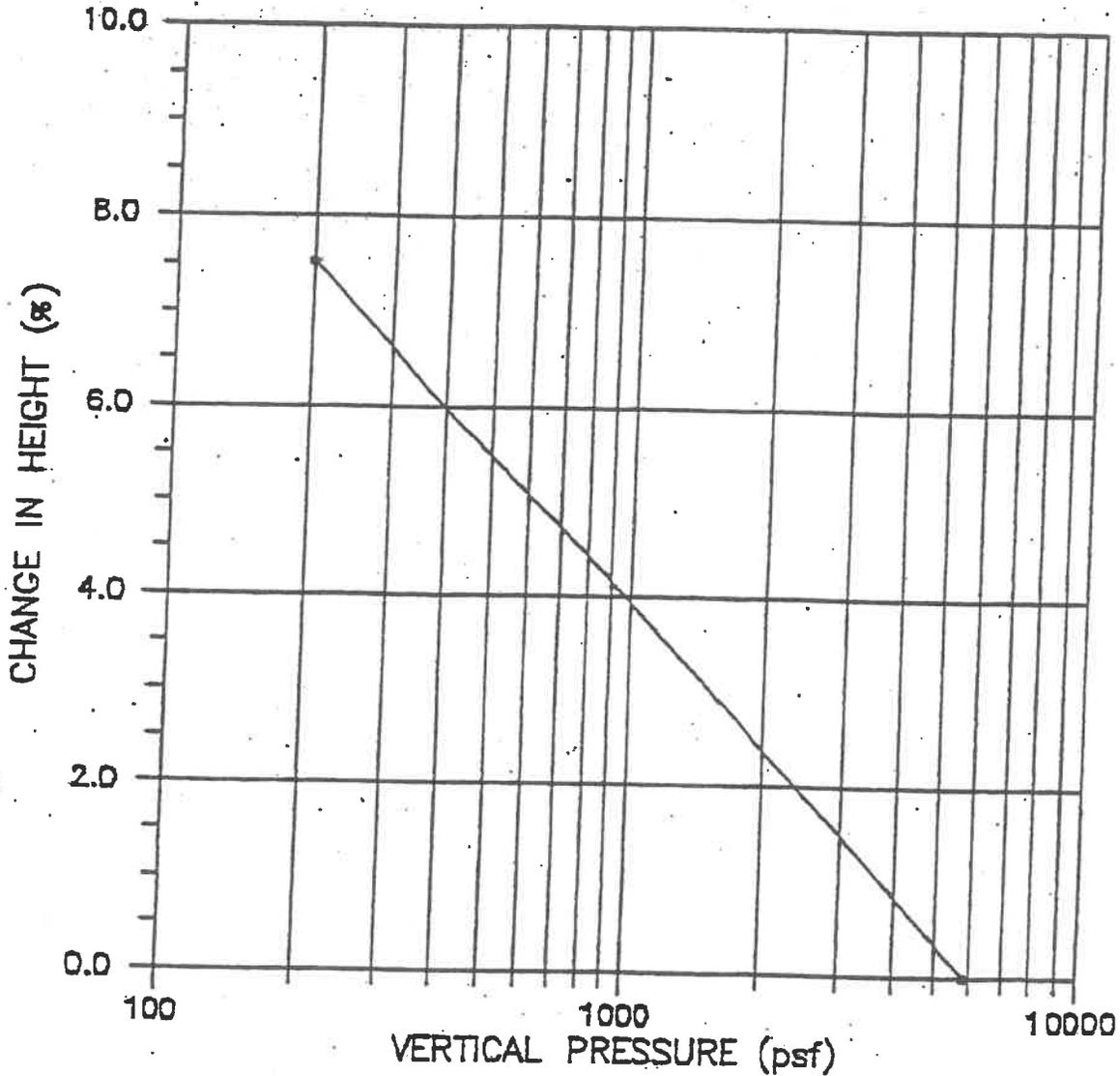
WASTEWATER TREATMENT PLANT EXPANSION
LEWISVILLE, TEXAS

SUMMARY OF PRESSURE - SWELL TESTS

BORING NUMBER	DEPTH (ft.)	SWELL (%)	SWELL PRESSURE (psf)	MATERIAL DESCRIPTION
2	1.5-3.0	7.52	5820.6	CLAY, silty, with few organics and scattered calcareous nodules, very stiff, dark brown and occasionally brown
6	1.5-3.0	0.43	776.1	CLAY, slightly silty, very stiff, dark gray

BORING NO.: 2
DEPTH (FT): 1.5-3.0
CLAY, silty, dark brown
and occasionally brown

MOISTURE CONTENT:
BEFORE (%): 20.4 AFTER (%): 32.2
UNIT DRY WEIGHT (pcf): 95.9
LIQUID LIMIT (%): 37
PLASTICITY INDEX: 20



WASTEWATER TREATMENT PLANT EXPANSION
LEWISVILLE, TEXAS

PRESSURE-SWELL TEST

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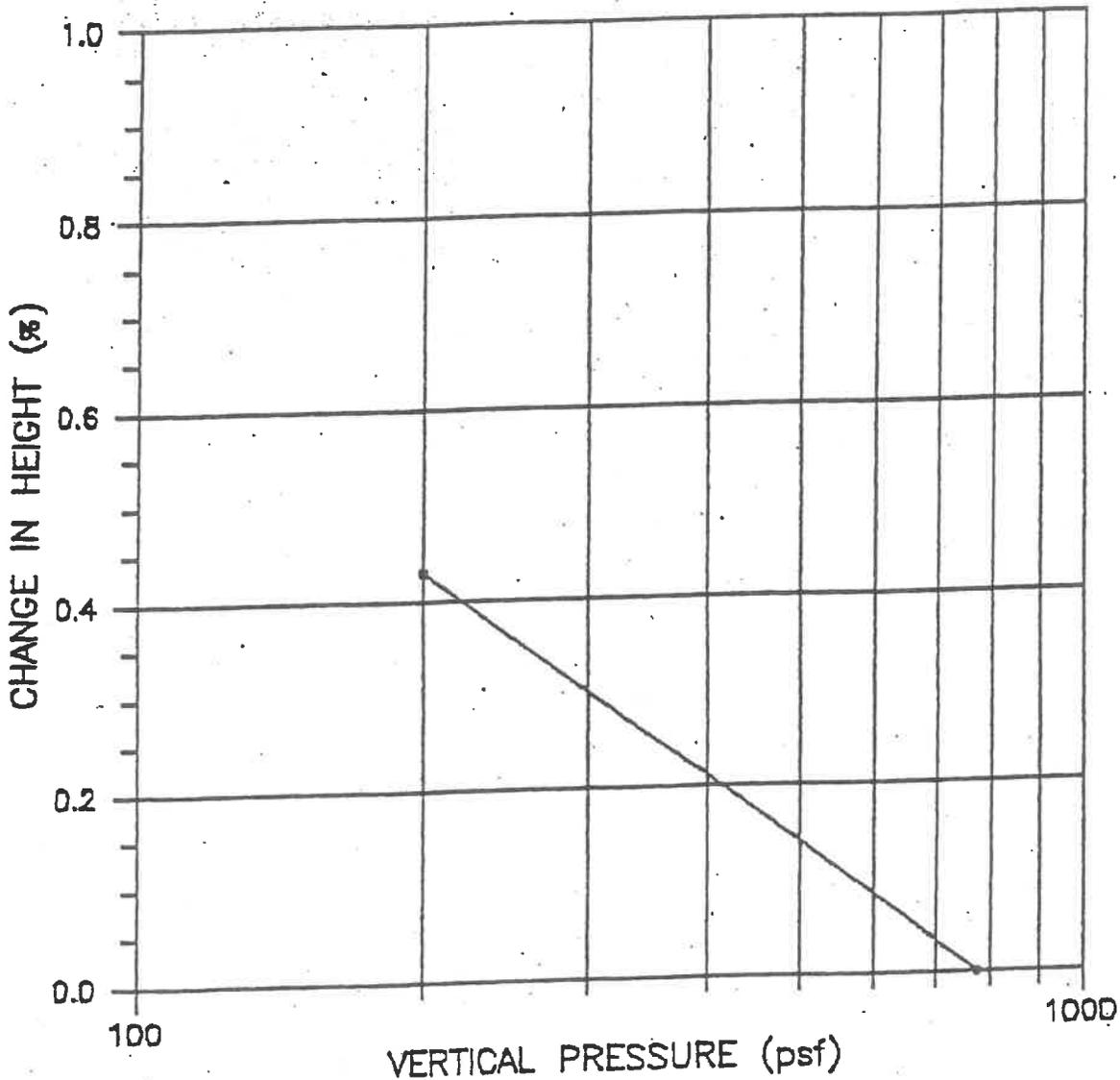
HJA NO.: 7487

DATE TESTED: 09/01/02

PLATE 14

BORING NO.: 6
DEPTH (FT): 1.5-3.0
CLAY, slightly silty,
dark gray

MOISTURE CONTENT:
BEFORE (%): 20.3 AFTER (%): 22.7
UNIT DRY WEIGHT (pcf): 112.5
LIQUID LIMIT (%): 44
PLASTICITY INDEX: 26



WASTEWATER TREATMENT PLANT EXPANSION
LEWISVILLE, TEXAS

PRESSURE-SWELL TEST

HENLEY-JOHNSTON & ASSOCIATES, INC.
engineering geoscience consultants

HJA NO.: 7487.

PLATE 15

DATE TESTED: 08/01/07

WASTEWATER TREATMENT PLANT EXPANSION
LEWISVILLE, TEXAS

SUMMARY OF CORROSION POTENTIAL TESTS

BORING NUMBER	DEPTH (ft.)	pH	RESISTIVITY (ohm-cm)	SULFATE CONTENT (mg/kg)	MATERIAL TYPE
3	0.0-1.5	7.4	1021.3	44.6	FILL: clay, silty, with scattered calcareous nodules, occasional crushed rock and few organics, very stiff, light brown and brown
5	2.0-3.0	7.7	3800.0	51.3	FILL: sand, silty, with some clay, medium, light brown and brown
5	3.7-6.8	7.5	2078.1	91.2	CLAY, silty, sandy, very stiff, dark brown

CLASSIFICATION SYMBOLS

ABBREVIATIONS

CONSISTENCIES AND HARDNESS DESCRIPTIONS

FOR SANDS, GRAVELS, & SANDY SILTS

Peck, Hanson & Thornburn (1974)

Consistency	Standard Penetration Resistance N
Very Loose	Less than 4
Loose	4 to 10
Medium	10 to 30
Dense	30 to 50
Very Dense	Greater than 50

FOR CLAYS & SANDY CLAYS (COHESIVE SOILS)

Peck, Hanson, & Thornburn (1974)

Consistency	Unconfined Compression σ_c	Standard Penetration Resistance N
Very Soft	Less than 0.25	Less than 2
Soft	0.25 to 0.5	2 to 4
Medium	0.5 to 1.0	4 to 8
Stiff	1.0 to 2.0	8 to 15
Very Stiff	2.0 to 4.0	15 to 30
Hard	Greater than 4.0	Greater than 30

RELATIVE HARDNESS MODIFIERS (ROCK) (RELATED TO FRESH SAMPLE)

Modified from SCS EWP. Tech Guide No. 4

Hardness	Rule of Thumb Test
Soft	Permits denting by moderate finger pressure
Firm	Resists denting by fingers but can be penetrated by pencil point to medium to shallow depth (No. 2 pencil)
Mod. Hard	Very shallow penetration of pencil point, can be scratched by knife and in some instances cut with knife
Hard	No pencil penetration, can be scratched with knife, can be broken by light to moderate hammer blows
Very Hard	Cannot be scratched by knife, can be broken by repeated heavy hammer blows

SOIL	
	Asphalt or Lignite
	Concrete
	Fill
	Gravel or Sandy Gravel well graded
	Gravel or Sandy Gravel poorly graded
	Silty Gravel or Silty Sandy Gravel
	Clayey Gravel or Clayey Sandy Gravel
	Sand or Gravelly Sand well graded
	Sand or Gravelly Sand poorly graded
	Silty Sand or Silty Gravelly Sand
	Clayey Sand or Clayey Gravelly Sand
	Silts, Sandy Silts, Gravelly Silts, or Diatomaceous Soils
	Lean Clays, Sandy Clays, or Gravelly Clays
	Organic Silts or Lean Organic Clays
	Micaceous Clays or Diatomaceous Soil
	Fat Clays
	Fat Organic Clays
ROCK	
	Limestone
	Shale
	Marl
	Sandstone
	Fracture Zone
	Weathered Zone

abnt.	abundant
ang.	angular
aren.	arenaceous
arg.	argillaceous
bdd.	bedded
bdg.	bedding
bent.	bentonite
bldr.	boulder
BT	Brazil Tensile
calc.	calcareous
carb.	carbonaceous
cbl.	cobble
cgl.	conglomerate
clst.	claystone
cmf.	cemented
dia.	diameter
dk.	dark
DUW	Dry Unit Weight
El.	elevation
fossil.	fossiliferous
frac.	fracture
gyp.	gypsiferous
incl.	inclusion
intbdd.	interbedded
jnt.	joint
lam.	laminated
LL	Liquid Limit
lt.	light
MC	Moisture Content
ME	Modulus of Elasticity
med.	medium
min.	minutes
mod.	moderately
nod.	nodule
occ.	occasional
part.	particle
Pen.	Penetrometer
phos.	phosphatic
PI	Plasticity Index
py.	pyritized
Qu	Unconfined Compression
Rec.	recovery
rnd.	rounded
RQD	Rock Quality Designation
sat.	saturated
sept.	septarian
sev.	severely
sil.	siliceous
slt.	slightly
slk.	slickensided
T.D.	Total Depth
v.	very
wea.	weathered

WASTEWATER TREATMENT PLANT EXPANSION
LEWISVILLE, TEXAS

LEGEND, LITHOLOGY, SOIL CONSISTENCY,
& RELATIVE ROCK HARDNESS

HENLEY-JOHNSTON & ASSOCIATES, INC.
engineering geoscience consultants

HJA No.: 7487

SEPTEMBER 2002

HENLEY-JOHNSTON & ASSOCIATES, INC.
 engineering geoscience consultants

LOG OF BORING
WASTEWATER TREATMENT PLANT EXPANSION
 LEWISVILLE, TEXAS

PROJECT No.: 7487
 BORING No.: 1
 SHEET 2 of 2
 LOCATION: SEE PLATE 1
 GROUND ELEVATION: 471.7±

DRILL DATE: 09/04/02
 METHOD: SHELBY TUBE / SPLIT SPOON
 TO 28.5', Nc CORE TO 45.5'

DEPTH (feet)	SYMBOL	SAMPLES	MATERIAL DESCRIPTION	ELEVATION, (feet)	CORE		STANDARD PENETRATION (BPF) + INFLATION TEST ←								
					DROLLED	RECOVERED	POCKET PENETROMETER READING x (ft)								
							1.0	2.0	3.0	4.0	5.0	6.0			
			SAND, fine, silty, gravelly, dense, light brown and brown	445.2											
27.5			GRAVEL, fine to medium, sandy, silty, very dense, brown	443.2											
30.0			SANDSTONE, glauconitic, moderately well to well cemented, with occasional thin moderately hard weakly cemented seams, very hard, greenish gray												
32.5					5.0	4.6									
35.0			lignite												
37.5			SHALE, silty, sandy, with occasional thin sandstone seams, firm to moderately hard, dark gray and gray limestone seam, light brown	433.2											
40.0					5.0	4.7									
42.5															
45.0				426.2											
			TOTAL DEPTH: 45.5'												
22.5															

SET CASING
 TO 28.5'

THD
 50=1/8"
 50=0"

RQD = 22%

RQD = 56%

RQD = 24%

ATTACHMENT 5

**USDA Natural Resources
Conservation Service Soil Map
and Legend**

TABLE 3.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

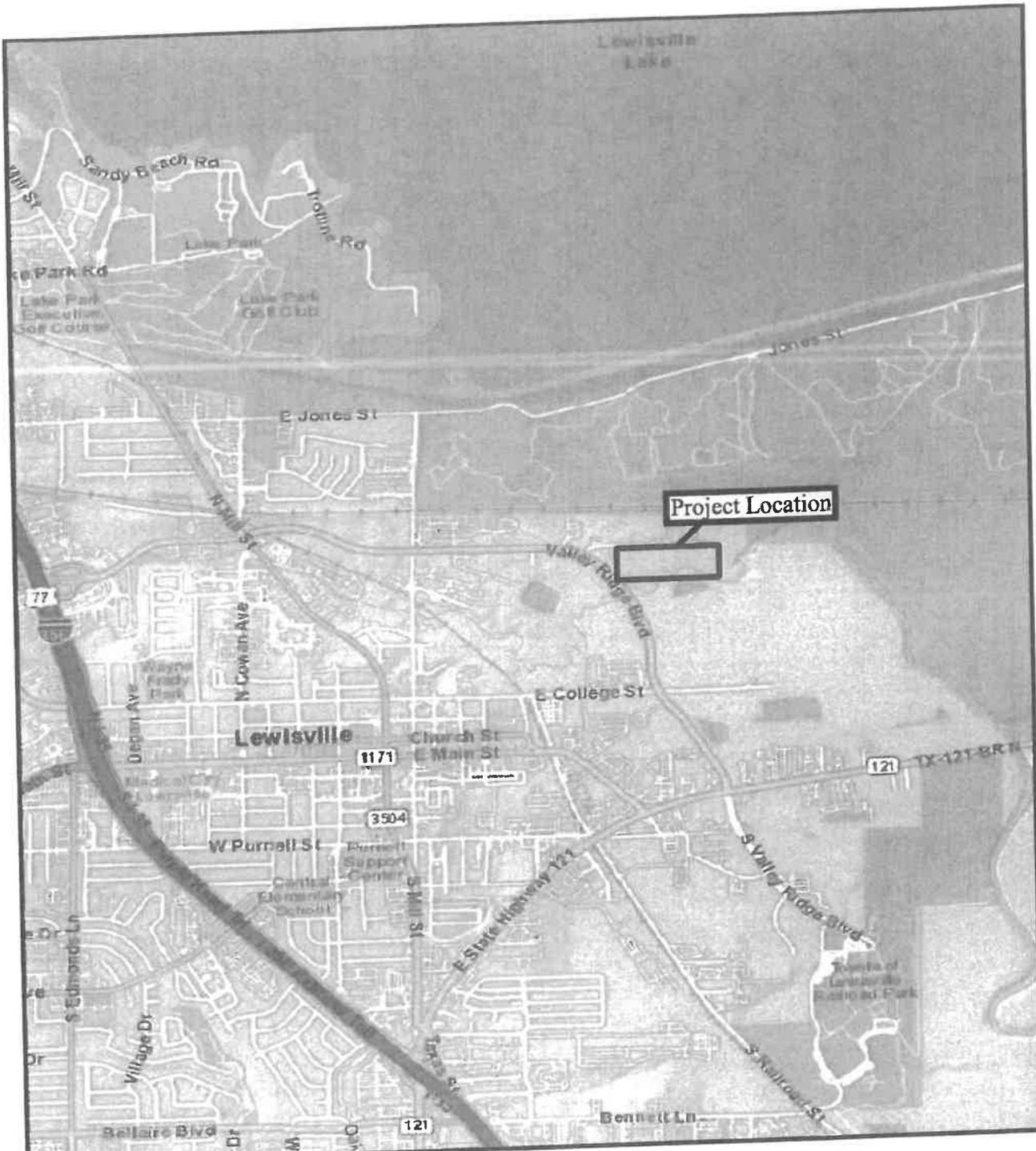
Symbol	Soil name	Acres	Percent
	Alledo association, undulating	12,380	2.0
	Altoga silty clay, 3 to 5 percent slopes	5,220	0.8
	Altoga silty clay, 5 to 8 percent slopes	3,250	0.5
	Altoga silty clay, 5 to 12 percent slopes	450	0.1
	Altoga silty clay, 5 to 12 percent slopes, eroded	420	0.1
	Aquilla loamy fine sand, 2 to 5 percent slopes	450	0.1
	Arents, gently undulating	1,760	0.3
	Arents, hilly	500	0.1
	Aubrey fine sandy loam, 2 to 5 percent slopes	4,250	0.7
	Bastrop fine sandy loam, 1 to 3 percent slopes	1,000	0.2
	Bastrop fine sandy loam, 3 to 5 percent slopes	3,150	0.5
	Birome fine sandy loam, 1 to 3 percent slopes	20,800	3.4
	Birome fine sandy loam, 3 to 5 percent slopes	19,040	3.1
	Birome-Rayex-Aubrey complex, 2 to 15 percent slopes	1,020	0.2
	Birome-Rayex-Urban land complex, 2 to 12 percent slopes	1,490	0.2
	Birome-Urban land complex, 1 to 5 percent slopes	1,780	0.3
	Bolar clay loam, 1 to 3 percent slopes	2,390	0.4
	Bolar clay loam, 3 to 5 percent slopes	16,820	2.7
	Braxton clay, 0 to 1 percent slopes	8,460	1.4
	Branyon clay, 1 to 3 percent slopes	2,920	0.5
	Bunyan fine sandy loam, frequently flooded	9,400	1.5
	Burleson clay, 0 to 1 percent slopes	14,520	2.4
	Burleson clay, 1 to 3 percent slopes	18,610	3.0
	Callisburg fine sandy loam, 1 to 3 percent slopes	4,870	0.8
	Callisburg fine sandy loam, 3 to 5 percent slopes	1,900	0.3
	Callisburg soils, 2 to 5 percent slopes, severely eroded	2,780	0.4
	Crockett fine sandy loam, 0 to 1 percent slopes	7,260	1.2
	Crockett fine sandy loam, 1 to 3 percent slopes	1,800	0.3
	Crockett-Urban land complex, 0 to 2 percent slopes	530	0.1
	Eddy gravelly clay loam, 3 to 15 percent slopes	2,250	0.4
	Energy fine sandy loam, frequently flooded	2,120	0.3
	Ferris-Heiden clays, 3 to 5 percent slopes	5,520	0.9
	Ferris-Heiden clays, 5 to 15 percent slopes	8,830	1.4
	Frio silty clay, occasionally flooded	19,700	3.2
	Frio silty clay, frequently flooded	18,130	3.0
	Gasil fine sandy loam, 1 to 3 percent slopes	9,100	1.5
	Gasil fine sandy loam, 3 to 8 percent slopes	2,630	0.4
	Gasil-Urban land complex, 1 to 4 percent slopes	460	0.1
	Gasil and Konsil soils, 1 to 5 percent slopes	3,740	0.6
	Gowen clay loam, occasionally flooded	3,380	0.5
	Gowen clay loam, frequently flooded	10,710	1.7
	Heiden clay, 1 to 3 percent slopes	7,970	1.3
	Heiden clay, 3 to 5 percent slopes	1,110	0.2
	Houston Black clay, 0 to 1 percent slopes	2,440	0.4
	Houston Black clay, 1 to 3 percent slopes	1,510	0.2
	Justin fine sandy loam, 0 to 1 percent slopes	10,570	1.7
	Justin fine sandy loam, 1 to 3 percent slopes	1,060	0.2
	Justin fine sandy loam, 3 to 5 percent slopes	1,910	0.3
	Justin-Urban land complex, 0 to 3 percent slopes	2,320	0.4
	Kaufman clay, frequently flooded	5,220	0.9
	Konsil fine sandy loam, 1 to 3 percent slopes	4,270	0.7
	Konsil fine sandy loam, 3 to 8 percent slopes	2,150	0.4
	Lewisville clay loam, 1 to 3 percent slopes	2,680	0.4
	Lewisville clay loam, 3 to 5 percent slopes	7,410	1.2
	Lindale clay loam, 1 to 3 percent slopes	610	0.1
	Lindale-Urban land complex, 1 to 5 percent slopes	5,510	0.9
	Medlin-Sanger clays, 5 to 15 percent slopes	5,660	0.9
	Medlin-Sanger stony clays, 5 to 12 percent slopes	12,000	2.0
	Mingo clay loam, 1 to 3 percent slopes	1,640	0.3
	Navo clay loam, 0 to 1 percent slopes	22,170	3.6
	Navo clay loam, 1 to 3 percent slopes	6,630	1.1
	Navo clay loam, 3 to 5 percent slopes	1,000	0.2
	Navo-Urban land complex, 0 to 3 percent slopes	4,760	0.8
	Ovan clay, occasionally flooded	12,270	2.0
	Ovan clay, frequently flooded	1,690	0.3
	Ponder loam, 0 to 1 percent slopes	21,560	3.5
	Ponder loam, 1 to 3 percent slopes	50,750	8.3
	Sanger clay, 1 to 3 percent slopes	17,800	2.9
	Sanger clay, 3 to 5 percent slopes	1,220	0.2
	Sanger-Urban land complex, 1 to 4 percent slopes	800	0.1
	Seagoville clay, occasionally flooded	2,190	0.4
	Silawa loamy fine sand, 2 to 5 percent slopes	4,520	0.7
	Silstad loamy fine sand, 1 to 5 percent slopes		

TABLE 3.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Soil name	Acres	Percent
Silstid-Urban land complex, 1 to 5 percent slopes-----	570	0.1
Slidell clay, 1 to 3 percent slopes-----	26,898	4.4
Somervell gravelly loam, 1 to 5 percent slopes-----	31,150	5.1
Speck clay loam, 1 to 3 percent slopes-----	1,090	0.2
Stephen silty clay, 1 to 5 percent slopes-----	2,130	0.3
Trinity clay, occasionally flooded-----	6,700	1.1
Trinity clay, frequently flooded-----	1,440	0.2
Vertel clay, 1 to 3 percent slopes-----	2,380	0.4
Vertel clay, 3 to 5 percent slopes-----	4,600	0.8
Vertel clay, 5 to 12 percent slopes-----	1,900	0.3
Wilson clay loam, 0 to 1 percent slopes-----	8,850	1.4
Wilson clay loam, 1 to 3 percent slopes-----	13,070	2.1
Wilson-Urban land complex, 0 to 2 percent slopes-----	2,880	0.5
Water-----	30,272	4.9
Total-----	613,120	100.0

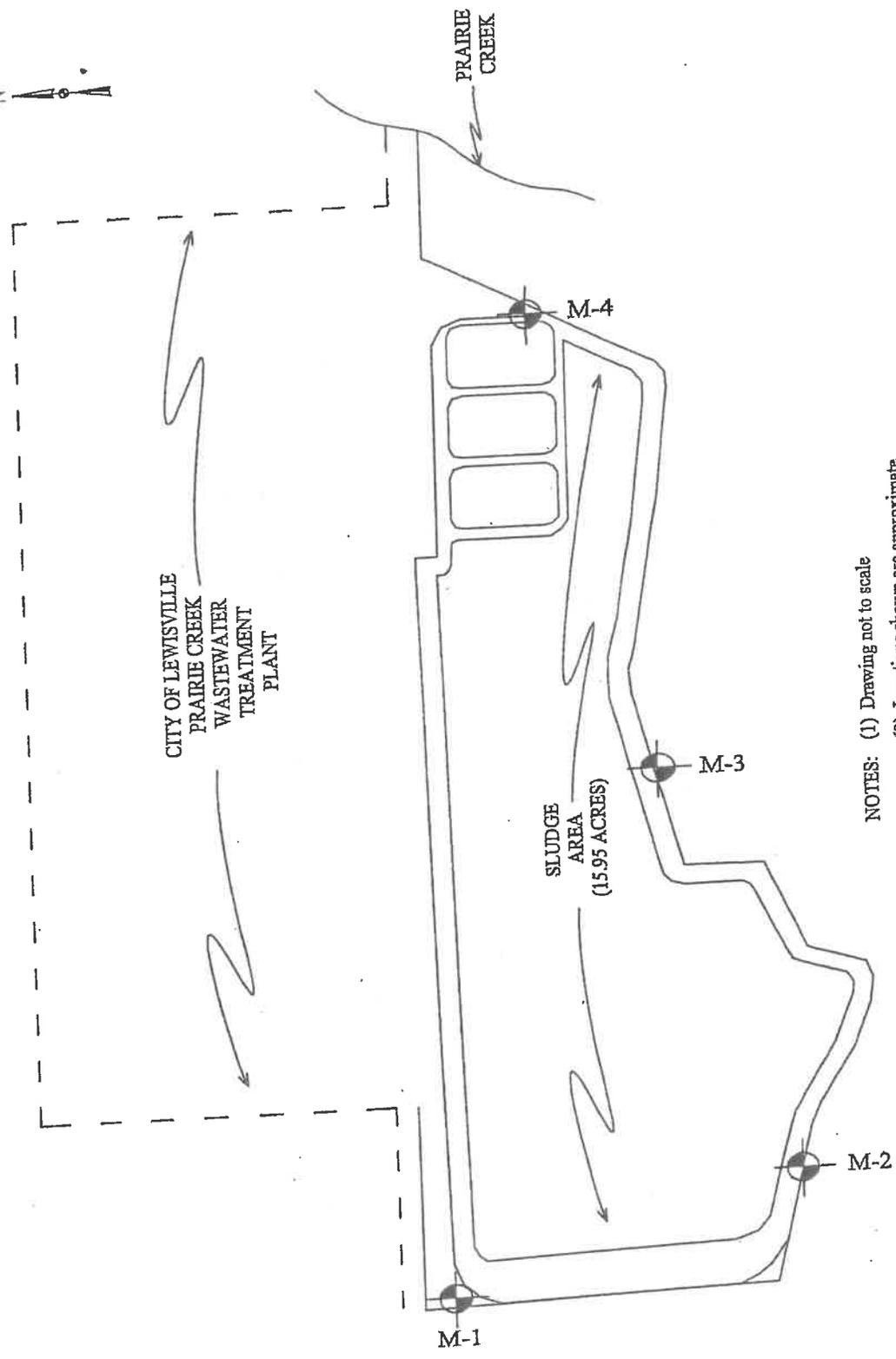
ATTACHMENT 6

**Geotechnical Report
February 2024**



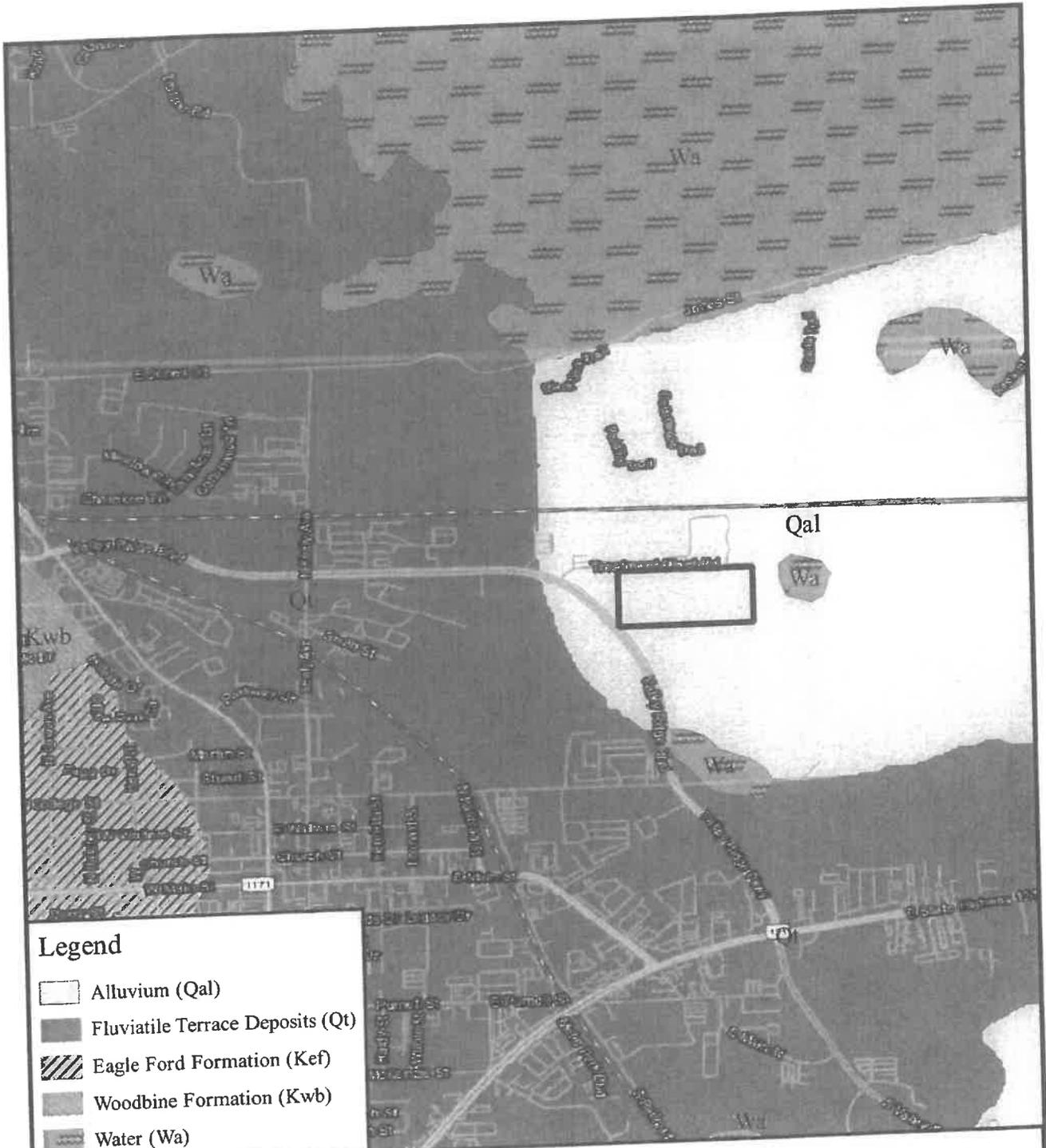
Map Created using QGIS 3.30

<p>TEAM Consultants, Inc.</p>	<p>ANNUAL EVALUATION 2023 GROUNDWATER MONITORING DATA PRAIRIE CREEK WASTEWATER TREATMENT PLANT LEWISVILLE, TEXAS</p>		<p>SITE VICINITY MAP</p>
			<p>DATE: MARCH 2024</p>
			<p>PLATE 1</p>



NOTES: (1) Drawing not to scale
 (2) Locations shown are approximate

TEAM Consultants, Inc.	ANNUAL EVALUATION 2023 GROUNDWATER MONITORING DATA PRAIRIE CREEK WASTEWATER TREATMENT PLANT LEWISVILLE, TEXAS	GENERAL SITE LAYOUT
		DATE: MARCH 2024
		PLATE 2



TEAM Consultants, Inc.

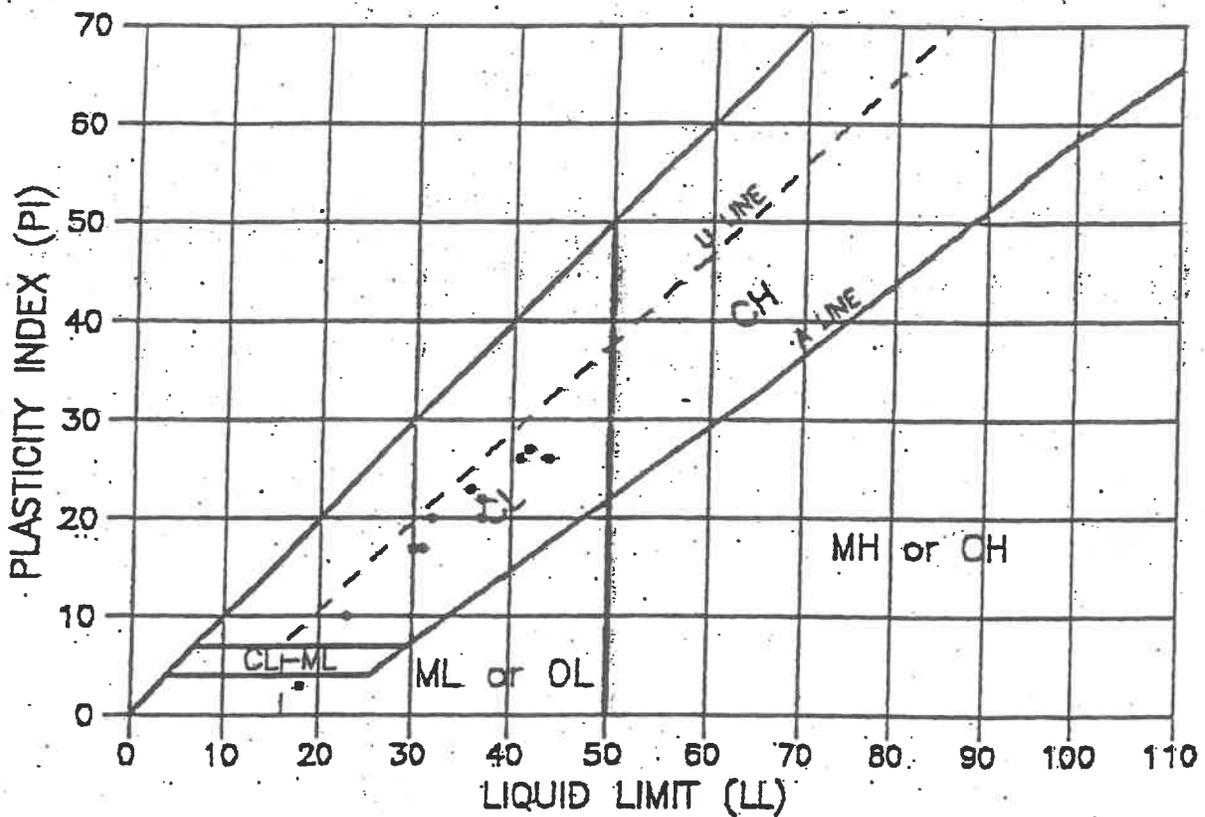
**ANNUAL EVALUATION
2023 GROUNDWATER MONITORING DATA
PRAIRIE CREEK
WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

SITE GEOLOGIC MAP

DATE: MARCH 2024

PLATE 3

Map Created using QGIS 3.30



SUMMARY OF ATTERBERG LIMITS

BORING NUMBER	SAMPLE DEPTH, ft.	LIQUID LIMIT	PLASTICITY INDEX	UNIFIED SOIL CLASSIFICATION
1	0.0-1.5	37	22	CL (FILL)
1	6.0-7.5	42	27	CL (FILL)
1	9.0-10.5	32	20	CL (FILL)
2	1.5-3.0	37	20	CL
2	5.5-6.5	30	17	CL
3	4.5-6.0	41	26	CL
3	7.5-9.0	36	23	CL
4	3.0-4.5	18	3	ML or OL (FILL)
5	4.5-6.0	23	10	CL
6	1.5-3.0	44	26	CL
6	4.5-6.0	31	17	CL

WASTEWATER TREATMENT PLANT EXPANSION
LEWISVILLE, TEXAS

SUMMARY OF ATTERBERG LIMITS

HENLEY-JOHNSTON & ASSOCIATES, INC.
engineering geoscience consultants

HJA NO.: 7487

DATE TESTED: 09/13/02

PLATE

4

**SUMMARY OF MONITOR WELL DATA TEST RESULTS
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Monitoring Well No. 1																											
Quarterly Monitoring Parameters																											
Date	Annual Monitoring Parameters										Quarterly Monitoring Parameters			Ground Water, (Feet-MSL)													
	Iron*	Manganese	Phenol	Arsenic	Mercury	Chemical Oxygen Demand	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Silver		Fecal Coliform (1)	Specific Conductance (2)	Total Organic Carbon	Chloride (Total)*	Total Dissolved Solids	Sulfate (Total)*	Ammonia Nitrogen*	Nitrate Nitrogen	Total Alkalinity	pH			
Low	<0.005	0.007	<0.005	<0.001	<0.0002	<4.0	<0.0001	0.001	0.0027	0.001	<0.001	<0.002	0.001	0	600	0.01	18	360	<1.0	<0.01	<0.01	170	5.98	455.09			
High	3.40	0.48	0.088	<0.055	<0.20	105	<0.025	0.300	0.018	0.018	0.83	0.04	<0.05	TNTC	3730	272	280	3043	784	1.72	12	672	9.30	462.29			
Data Summary Prior to February 2013														250	250	1.50	10.0										
gw GW _{ing} -Tier 1 Residential PCL for Ingestion of Groundwater, May 10, 2023 (Concentrations exceeding the Tier 1 Residential PCLs/ Secondary MCL's are bolded)														250	250	1.50	10.0										
Feb-13	0.30	1.10	7.30	0.01	0.002	-	0.005	0.100	1.30	0.015	0.49	7.30	0.12	0	1070	0.99	72.6	718	233	<0.10	0.470	304	7.51	457.59			
May-13	<0.50	<0.010	<0.005	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	<0.005	<0.025	<0.002	0	1180	0.91	62.5	806	280	<0.10	0.580	308	7.10	458.26			
Aug-13														TNTC	1070	0.64	51.4	666	206	<0.10	0.550	308	8.73	455.27			
Sep-13														45	1060	0.88	54.0	672	204	<0.10	0.530	312	7.33	(4)			
Dec-13														TNTC	1160	1.00	60.0	782	283	<0.10	0.360	296	7.02	456.99			
Mar-14														0	1120	1.00	30.6	726	120	<0.10	0.580	306	6.90	456.79			
Jun-14	0.61	<0.010	<0.005	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	<0.005	<0.025	<0.002	0	1000	0.66	42.9	647	180	<0.10	0.760	308	6.73	455.59			
Sep-14														<1	1010	0.77	43.8	694	177	<0.10	0.610	292	6.97	455.49			
Nov-14														0	1180	0.79	58.4	732	215	<0.10	0.460	302	6.69	457.16			
Feb-15	<0.50	0.077	<0.005	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	<0.025	<0.002	0	<1	1350	1.10	60.5	910	271	0.10	0.290	338	6.89	461.49			
Jun-15														0	1260	1.30	63.7	842	243	<0.10	0.560	344	6.52	458.09			
Sep-15														0	1360	1.10	66.7	842	252	<0.10	0.500	322	6.82	460.29			
Nov-15	<0.50	<0.010	<0.005	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	0.0066	<0.025	<0.002	<1	1430	2.10	80.1	1050	316	0.15	0.280	366	6.97	460.99			
Jan-16														0	1540	1.50	93.8	1110	365	<0.10	0.270	314	6.64	460.29			
May-16														0	1570	1.40	81.3	1070	340	<0.10	0.480	416	6.57	458.89			
Sep-16														1	1520	1.80	75.4	1030	297	<0.10	0.260	398	6.79	459.79			
Nov-16														0	1580	1.80	90.6	1110	316	0.15	0.210	404	6.56	460.59			
Jan-17	0.83	0.04	0.10	<0.004	<0.0001	<19	<0.001	<0.005	<0.01	<0.005	<0.025	<0.002	0	0	28900	2.10	110.0	1440	435	<0.10	<0.10	444	6.40	459.10			
May-17														11.1	1220	6.30	68.2	864	232	<0.10	0.340	386	6.66	459.29			
Aug-17														45.3													
Aug-17														58.0													
Aug-17														1													
Aug-17														0	940	48.10	58.2	840	183	<0.10	-	360	6.81	458.69			
Aug-17														0	1190	0.90	62.8	952	197	<0.10	***	358	6.71	459.59			
Oct-17														1	1190	0.90	62.8	952	197	<0.10	***	358	6.71	459.59			
Jan-18	2.40	0.04	<0.005	<0.006	<0.0002	<35	<0.005	<0.007	<0.02	<0.01	<0.025	<0.005	0														
Feb-18														TNTC	1390	0.84	99.9	1050	273	0.04	<0.5	416	6.22	458.89			
May-18														TNTC	1210	1.10	64.2	883	248	<0.10	0.560	382	6.83	457.39			
Aug-18														7	1480	2.00	97.5	1010	298	<0.10	0.560	300	6.88	460.89			
Nov-18														192	1480	2.00	97.5	1010	298	<0.10	0.560	300	6.88	460.89			

**SUMMARY OF MONITOR WELL DATA TEST RESULTS
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Date	Annual Monitoring Parameters													Quarterly Monitoring Parameters											
	Iron*	Manganese	Phenol	Arsenic	Mercury	Chemical Oxygen Demand	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Silver	Fecal Coliform (1)	Specific Conductance (2)	Total Organic Carbon	Chloride (Total)*	Total Dissolved Solids	Sulfate (Total)*	Ammonia Nitrogen*	Nitrate Nitrogen	Total Alkalinity	pH	Ground Water, (Feet-MSL)	
Low	<0.005	0.007	<0.005	<0.001	<0.0002	<4.0	<0.0001	0.001	0.0027	0.001	<0.001	<0.002	0.001	0	600	0.01	18	360	<1.0	<0.01	<0.01	170	5.98	455.09	
High	3.40	0.48	0.088	<0.055	<0.20	105	<0.025	0.300	0.018	0.018	0.83	0.04	<0.05	TNTC	3730	272	280	3043	784	1.72	12	672	9.30	462.29	
gw GW_{ing} - Tier 1 Residential PCL for Ingestion of Groundwater, May 10, 2023 (Concentrations exceeding the Tier 1 Residential PCLs/ Secondary MCL's are bolded)																									
	0.30	1.10	7.30	0.01	0.002	-	0.005	0.100	1.30	0.015	0.49	7.30	0.12	-	-	-	250	-	250	1.50	10.0	-	-	-	-
Nov-18																									
Feb-19	0.15	0.05	<0.20	<0.006	<0.0002	28.9	<0.005	<0.007	<0.02	<0.01	0.0048	<0.025	<0.005	32.3	1720	1.10	135.0	1290	413	<0.10	<0.5	434	6.84	460.39	
May-19														0	1600	1.10		1180		<0.10	<0.5	440	6.57	460.89	
May-19														0	1500	2.50	85.4	993	277	<0.10	<0.5	432	6.64	459.09	
Aug-19														579.4	1500	1.40	84.9	1120	278	<0.10	***	368	6.80	458.99	
Nov-19																				0.550					
Dec-19														29.2	1690	2.80	93.6	1080	347	<0.10	0.69	345	6.85	460.39	
Feb-20	0.37	0.033	<0.20	<0.006	<0.0002	<35	<0.005	<0.007	<0.02	0.0023	0.0065	<0.025	<0.005	0	1560	2.80	89.9	932	261	<0.10	0.25	404	6.89	460.39	
Jun-20														0	1580	2.80	105.0	975	292	<0.10	1.50	260	6.81	459.69	
Sep-20														0	1600	3.10	82.8	1000	282	<0.10	0.90	376	6.81	459.89	
Nov-20														17.3	1680	2.40	94.6	1160	382	<0.10	0.83	426	6.83	460.69	
Mar-21	0.70	0.16	<0.20	<0.005	<0.002	<35	0.0004	0.0009	<0.02	0.0064	0.0053	<0.025	<0.005	0	1510	2.24	71.3	1170	259	<0.10	0.54	388	6.67	460.99	
Jun-21														0	1460	2.45	69.4	887	260	<0.10	<0.5	444	6.76	459.69	
Aug-21														0	1270	14.3	58.9	825	214	<0.10	0.89	384	6.96	459.39	
Nov-21														0	1450	3.18	89.0	967	293	<0.10	0.73	370	6.90	459.09	
Mar-22	<0.5	0.16	<0.20	<0.005	<0.0002	<35	<0.005	<0.007	<0.02	0.011	<0.01	<0.025	<0.005	0	1510	<1.0	84.3	985	273	<0.10	<0.5	390	6.60	458.89	
May-22														0	1470	10.4	72.5	1020	295	<0.10	0.60	392	6.94	458.09	
Jul-22														0	1290	39.7	75.7	876	231	<0.25	<0.5	344	6.89	459.59	
Dec-22														0	1310	32.1	69.7	1110	253	<0.25	<0.5	386	6.77	460.19	
Feb-23	<0.5	0.09	<0.20	<0.02	<0.0002	<35	<0.005	<0.007	<0.02	<0.01	<0.01	<0.025	<0.005	<1.0	1350	50.9	74.1	831	211	<0.10	<0.5	380	6.76	459.39	
May-23														0	1160	2.02	56.2	797	188	<0.10	0.69	345	6.77	456.39	
Sep-23														0	1130	1.83	60.3	677	176	<0.10	<0.5	338	6.76	458.39	
Dec-23																									

NOTES: All units in mg/liter except as noted.
 (1) Colonies/100 ml
 < Less Than
 * Secondary MCLs - These compounds are not necessarily of concern from a human health standpoint, however, aesthetics and ecological criteria may apply.
 ** No Secondary MCL standard in TCEQ Tier 1 Groundwater Tables, therefore EPA Secondary MCL Standard used.
 *** Laboratory Reported Test Error

TNTC: Too numerous to count
 Top of Casing elevation: 473.39 ft (msl)

**SUMMARY OF MONITOR WELL DATA TEST RESULTS
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Monitoring Well No. 2																									
Quarterly Monitoring Parameters																									
Date	Annual Monitoring Parameters																								
	Iron*	Manganese	Phenol	Arsenic	Mercury	Chemical Oxygen Demand	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Silver	Fecal Coliform (1)	Specific Conductance (2)	Total Organic Carbon	Chloride (Total)*	Total Dissolved Solids	Sulfate (Total)*	Ammonia Nitrogen*	Nitrate Nitrogen	Total Alkalinity	pH	Ground Water, (Feet-MSL)	
Low	<0.005	0.113	<0.005	<0.001	<0.00002	<4.0	0.0005	0.0010	0.0038	<0.002	<0.001	<0.002	<0.001	0	520	0.65	8.0	360	14	<0.01	<0.01	200	5.92	449.86	
High	1.40	1.40	0.210	0.09	0.06	87.5	<0.025	0.290	0.010	0.015	0.062	0.21	<0.05	<3	3830	95	248	4118	458	2.00	27	946	8.73	458.41	
Data Summary Prior to February 2013																									
	cwGW_{int}	-Tier 1 Residential PCL for Ingestion of Groundwater, May 10, 2023 (Concentrations exceeding the Tier 1 Residential PCLs/ Secondary MCL's are bolded)																							
Feb-13	0.30	1.10	7.30	0.01	0.002	-	0.005	0.10	1.30	0.015	0.49	7.30	0.12	0	935	2.10	57.5	656	161	0.21	0.24	326	7.25	451.61	
May-13	<0.50	0.390	<0.05	<0.005	<0.0002	22.3	<0.001	<0.005	<0.010	<0.005	<0.005	<0.025	<0.002	0	917	2.00	37.2	624	162	0.20	0.36	318	7.09	451.96	
Aug-13														2	962	1.50	46.3	598	152	0.30	0.26	324	8.57	449.36	
Sep-13														0	1050	2.00	49.9	712	30	0.18	0.36	350	7.10	450.51	
Dec-13														0	1050	2.20	53.4	566	194	0.26	0.21	324	6.98	(4)	
Mar-14														0	1220	2.10	54.6	806	207	0.25	0.42	290	6.93	450.21	
Jun-14	<0.50	0.350	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.010	<0.005	<0.005	<0.025	<0.002	0	1240	1.30	60.3	839	230	0.12	0.37	330	6.76	449.51	
Sep-14														<1	1300	2.00	65.4	904	282	0.34	0.41	330	6.91	449.71	
Nov-14														0	1490	2.20	80.5	982	309	0.20	0.30	366	6.62	450.96	
Feb-15	<0.50	0.630	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.010	<0.005	<0.005	<0.025	<0.002	<1	1560	2.00	82.9	1100	364	0.35	0.29	350	6.93	457.72	
Jun-15														0	1590	1.80	74.5	1070	382	0.48	0.31	316	6.58	452.71	
Sep-15														0	1640	1.90	73.3	1110	387	0.46	0.18	360	6.84	455.41	
Nov-15														<1	1630	2.30	94.0	1190	385	0.56	0.40	372	6.96	458.81	
Jan-16	<0.50	0.55	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	0.0075	<0.025	<0.002	0	1930	2.00	505	1530	568	0.70	0.27	232	6.75	456.01	
May-16														0	2120	2.90	139	1520	620	0.55	0.26	402	6.67	453.31	
Sep-16														0	2200	3.70	134	1520	580	0.51	<0.01	408	6.81	454.41	
Nov-16														0	2090	3.20	136	1560	572	0.37	<0.01	450	6.61	455.81	
Jan-17	<0.50	0.65	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	0.01	<0.025	<0.002	0	1880	3.10	104	1390	561	0.48	<0.02	406	6.51	454.72	
May-17														0	1680	3.30	95.2	1210	413	0.45	<0.01	470	6.68	453.71	
Aug-17														0	1340	70.0	118	1340	386	0.48	-	438	6.74	453.11	
Oct-17														63.7	1620	1.50	96.0	1320	364	0.27	***	434	6.60	453.71	
Jan-18	0.68	0.85	87.40	<0.006	<0.0002	23.6	<0.005	<0.007	<0.02	<0.01	0.0035	<0.025	<0.005								<0.5	424	6.26	454.31	
Feb-18														248.9	1600	1.60	111	1270	430	0.041	<0.5	424	6.26	454.31	
May-18														TNTC											
Aug-18														724.0	1770	3.70	132	1520	568	0.038	<0.5	456	6.67	452.21	
Nov-18														488.4	1470	11.80	103	1170	323	0.480	-	440	6.91	457.71	
Nov-18																					0.017				

**SUMMARY OF MONITOR WELL DATA TEST RESULTS
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Monitoring Well No. 2

Date	Annual Monitoring Parameters													Quarterly Monitoring Parameters											
	Iron*	Manganese	Phenol	Arsenic	Mercury	Chemical Oxygen Demand	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Silver	Fecal Coliform (1)	Specific Conductance (2)	Total Organic Carbon	Chloride (Total)*	Total Dissolved Solids	Sulfate (Total)*	Ammonia Nitrogen*	Nitrate Nitrogen	Total Alkalinity	pH	Ground Water, (Feet-MSL)	
Low	<0.005	0.113	<0.005	<0.001	<0.0002	<4.0	0.0005	0.0010	0.0038	<0.002	<0.001	<0.002	<0.001	0	520	0.65	8.0	360	14	<0.01	<0.01	200	5.92	449.86	
High	1.40	1.40	0.210	0.09	0.06	87.5	<0.025	0.290	0.010	0.015	0.062	0.21	<0.05	<3	3830	95	248	4118	458	2.00	27	946	8.73	458.41	
Data Summary Prior to February 2013																									
gwGW_{reg} - Tier 1 Residential PCL for Ingestion of Groundwater, May 10, 2023 (Concentrations exceeding the Tier 1 Residential PCLs/ Secondary MCL's are bolded)																									
Feb-19	0.30	1.10	7.30	0.01	0.002	-	0.005	0.10	1.30	0.015	0.49	7.30	0.12	-	-	-	250	-	250	1.50	10.0	-	-	-	-
May-19	0.38	0.67	<0.20	<0.006	<0.0002	20.5	<0.005	<0.007	<0.007	<0.01	0.0080	<0.025	<0.005	63.7	1810	1.60	123	1350	471	0.18	<0.5	442	6.72	453.31	
May-19														2	1470	1.50		1110		0.52		402	6.47	456.31	
Aug-19														0	1960	3.60	113	1400	494	0.19	<0.5	446	6.59	453.51	
Nov-19														410.6	1250	7.30	97.1	1070	412	0.46	0.38	430	6.71	453.31	
Feb-20	0.78	0.55	<0.20	<0.006	<0.0002	11.3	<0.005	<0.007	<0.02	<0.01	0.0076	<0.025	<0.005	7.3	1620	3.50	75.7	1140	318	0.63	<0.5	434	6.90	455.81	
Jun-20														0	1600	3.80	73.5	1020	325	0.66	<0.5	374	6.84	456.01	
Sep-20														0	1580	3.80	83.9	1010	545	0.51	<0.5	240	6.93	453.81	
Nov-20														0	1630	4.10	81.3	1050	320	0.63	0.34	396	6.73	453.81	
Mar-21	1.70	0.61	<0.20	<0.005	<0.002	18.0	0.0004	0.0013	<0.02	0.0069	0.0065	<0.025	<0.005	613.1	1550	3.50	89.2	1090	337	0.48	0.34	416	6.80	455.01	
Jun-21														0	1670	3.65	85.4	1170	321	0.67	<0.5	370	6.61	455.71	
Aug-21														0	1640	4.29	88.8	1030	323	0.57	<0.5	390	6.68	453.71	
Nov-21														0	1630	2.24	88.3	1130	342	0.42	0.61	432	6.84	453.21	
Mar-22	1.44	0.78	<0.20	<0.005	<0.0002	<0.35	<0.005	<0.007	<0.02	<0.01	<0.01	<0.025	<0.005	0	1570	5.04	96.0	1100	314	0.55	<0.5	402	6.85	453.41	
May-22														0	1550	1.80	90.7	1020	287	0.63	<0.5	405	6.53	453.31	
Jul-22														0	1600	16.1	91.4	1080	323	0.48	<0.5	422	6.86	452.11	
Dec-22														0	1460	54.9	73.8	995	278	0.52	<0.5	410	6.81	453.91	
Feb-23	<0.5	0.67	<0.20	<0.02	<0.0002	<0.35	<0.005	<0.007	<0.02	<0.01	<0.01	<0.025	<0.005	0	1370	39.2	77.8	1040	299	0.45	1.04	398	6.69	455.21	
May-23														<1	1480	58.9	76.3	995	265	0.43	<0.5	400	6.68	453.91	
Sep-23														0	1430	36.4	77.3	1020	262	0.53	<0.5	398	6.68	451.11	
Dec-23														0	1470	3.17	78.3	926	273	0.52	<0.5	413	6.65	452.71	

NOTES: All units in mg/liter except as noted.
 (1) Colonies/100 ml
 < Less Than
 * Secondary MCLs - These compounds are not necessarily of concern from a human health standpoint, however, aesthetics and ecological criteria may apply.
 ** No Secondary MCL standard in TCEQ Tier 1 Groundwater Tables, therefore EPA Secondary MCL Standard used.
 *** Laboratory Reported Test Error
 TNTC: Too numerous to count

(3) Water level near or below pump intake, i.e., insufficient and/or no water to sample
 (4) Unable to detect water level below screen or water level below pump head
 Top of Casing elevation: 468.11 ft (msl)

**SUMMARY OF MONITOR WELL DATA TEST RESULTS
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Monitoring Well No. 3																									
Annual Monitoring Parameters										Quarterly Monitoring Parameters															
Date	Iron*	Manganese	Phenol	Arsenic	Mercury	Chemical Oxygen Demand	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Silver	Fecal Coliform (1)	Specific Conductance (2)	Total Organic Carbon	Chloride (Total)*	Total Dissolved Solids	Sulfate (Total)*	Ammonia Nitrogen*	Nitrate Nitrogen	Total Alkalinity	pH	Ground Water, (Feet-MSL)	
Data Summary Prior to February 2013																									
Low	<0.005	<0.005	<0.005	<0.001	<0.0002	<20	<0.0001	0.0013	0.0049	0.0016	0.0068	<0.002	0.001	0	1120	0.88	4.9	708	65.3	<0.03	<0.01	270	5.93	(4)	
High	7.00	0.11	0.039	<0.055	0.04	210	1.60	0.058	0.023	0.013	0.227	0.018	<0.05	2	3970	153	927	2500	599	77.3	280	1126	9.22	457.50	
gw _{ing} - Tier 1 Residential PCL for Ingestion of Groundwater, May 10, 2023 (Concentrations exceeding the Tier 1 Residential PCLs/ Secondary MCL's are bolded)																									
Feb-13	0.30	1.10	7.30	0.01	0.002	-	0.005	0.10	1.30	0.015	0.49	7.30	0.12	-	-	-	250	-	250	1.50	10.0	-	-	-	-
May-13	<0.50	0.130	<0.05	<0.005	<0.0002	24.6	<0.001	<0.005	<0.010	<0.005	<0.005	<0.025	<0.002	0	1090	3.50	26.1	788	174	<0.10	27.0	334	6.95	448.95	
Aug-13														0	1150	3.80	23.2	832	168	<0.10	32.0	324	7.01	449.33	
Sep-13														7	1180	3.10	33.5	782	199	<0.10	20.4	328	8.48	(4)	
Dec-13														(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(4)	
Mar-14														(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(4)	
Jun-14	1.0	0.074	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.010	<0.005	<0.005	<0.025	<0.002	0	1220	2.40	35.8	824	192	<0.10	15.8	314	6.90	448.05	
Sep-14														0	1260	1.60	47.9	846	181	0.120	12.8	372	6.71	447.95	
Nov-14														<1	1450	2.00	44.3	1040	201	<0.10	39.1	346	6.91	447.45	
Feb-15	<0.50	0.26	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.010	<0.005	<0.005	<0.025	<0.002	0	1430	2.00	45.4	916	207	<0.10	25.3	340	6.74	447.90	
Jun-15														<1	1310	2.60	49.0	888	214	<0.10	9.6	370	6.95	457.95	
Sep-15														0	1340	3.10	28.9	822	188	0.12	33.2	316	6.58	453.15	
Nov-15														0	1060	3.30	18.0	645	138	<0.10	13.2	304	6.91	453.65	
Jan-16	<0.50	0.12	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	0.0092	<0.025	<0.002	<1	777	4.30	6.6	502	99	0.26	4.8	266	7.16	458.15	
May-16														0	763	3.20	3.5	505	105	<0.10	19.6	336	6.92	455.85	
Sep-16														0	796	3.20	12.5	517	120	<0.10	7.8	240	6.85	452.65	
Nov-16														0	856	3.30	20.1	560	129	<0.10	2.8	280	7.08	452.55	
Jan-17	<0.50	0.44	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	0.01	<0.025	<0.002	0	837	2.50	22.5	551	119	<0.10	2.3	296	6.89	454.35	
May-17														0	27700	2.30	29.5	668	135	<0.11	2.6	312	6.76	453.96	
Aug-17														0	800	2.40	22.5	524	102	<0.10	1.6	316	6.87	452.35	
Oct-17														0	656	2.30	33.7	498	89	<0.10	---	266	7.07	451.05	
Jan-18	0.40	1.60	<0.05	<0.006	<0.0002	17.2	<0.005	<0.007	<0.02	<0.01	<0.01	<0.025	<0.005	82.0	759	2.10	40.5	540	114	<0.10	0.77	290	6.94	451.70	
Feb-18														410.6	663	2.30	21.0	435	91.7	<0.10	0.82	236	6.65	454.05	
May-18														1553.1											
Aug-18														5.2	801	2.80	38.7	731	154	<0.10	0.36	260	7.08	449.85	
Nov-18														88.6	505	3.00	7.6	307	45	<0.10	0.86	280	7.40	457.35	

**SUMMARY OF MONITOR WELL DATA TEST RESULTS
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Monitoring Well No. 3

Date	Annual Monitoring Parameters										Quarterly Monitoring Parameters													
	Iron*	Manganese	Phenol	Arsenic	Mercury	Chemical Oxygen Demand	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Silver	Fecal Coliform (1)	Specific Conductance (2)	Total Organic Carbon	Chloride (Total)*	Total Dissolved Solids	Sulfate (Total)*	Ammonia Nitrogen*	Nitrate Nitrogen	Total Alkalinity	pH	Ground Water, (Feet-MSL)
Low	<0.005	<0.005	<0.005	<0.001	<0.0002	<20	<0.0001	0.0013	0.0049	0.0016	0.0068	<0.002	0.001	0	1120	0.88	4.9	708	65.3	<0.03	<0.01	270	5.93	(4)
High	7.00	0.11	0.039	0.055	0.04	210	1.60	0.058	0.023	0.013	0.227	0.018	<0.05	2	3970	153	927	2500	599	77.3	280	1126	9.22	457.50
<p align="center">Data Summary Prior to February 2013</p> <p align="center">GW_{MSL} -Tier 1 Residential PCL for Ingestion of Groundwater, May 10, 2023 (Concentrations exceeding the Tier 1 Residential PCLs/ Secondary MCL's are bolded)</p>																								
Feb-19	0.30	1.10	7.30	0.01	0.002	-	0.005	0.10	1.30	0.015	0.49	7.30	0.12	24.1	555	2.60	8.6	345	52.7	<0.10	0.93	262	7.25	454.65
May-19	0.092	0.62	<0.20	<0.006	<0.0002	20.5	<0.005	<0.007	<0.02	<0.01	0.0039	<0.025	<0.005	37.4	603	3.00		404		<0.10		218	6.87	455.55
May-19														6.3	620	3.00	14.3	462	76.5	<0.10	3.2	268	6.97	452.55
Aug-19														11.0	1670	2.60	21.5	473	94.7	0.048	0.89	280	7.13	450.55
Nov-19														5.1	844	3.30	20.6	553	101	<0.10	0.35	320	7.15	453.85
Feb-20	0.13	0.96	<0.20	<0.006	<0.0002	19.9	<0.005	<0.007	<0.02	0.002	0.0059	<0.025	<0.005	0	28700	31.4	30.4	3450	125	<0.10	1.5	290	7.20	455.45
Jun-20														0	914	3.10	29.2	554	149	<0.10	1.0	360	7.27	452.45
Sep-20														0	979	3.60	34.3	607	152	<0.10	0.76	308	6.98	452.00
Nov-20														2.0	958	2.90	40.3	609	142	<0.10	1.00	340	7.10	453.25
Mar-21	0.27	2.50	<0.20	<0.005	<0.002	18.0	<0.005	0.0006	<0.02	0.0056	0.0057	<0.025	<0.005	0	1180	2.79	48.3	729	176	<0.10	<0.5	350	6.93	454.75
Jun-21														0	1100	3.09	45.7	645	154	<0.10	<0.5	324	6.93	452.25
Aug-21														0	1030	18.2	43.3	636	137	<0.10	<0.5	344	7.17	450.75
Nov-21														0	977	3.67	48.8	630	131	<0.10	<0.5	324	7.15	451.25
Mar-22	<0.5	1.17	<0.20	<0.005	<0.0002	<35.0	<0.005	<0.007	<0.02	<0.01	<0.01	<0.025	<0.005	0	1080	1.50	50.9	729	161	<0.10	<0.5	324	6.84	451.85
May-22														0	1230	13.5	54.6	801	233	<0.10	<0.5	323	7.13	450.75
Jul-22														0	1180	47.6	49.2	875	262	<0.25	<0.5	302	7.04	451.25
Dec-22														0.0	1110	30.3	50.3	809	256	<0.25	<0.5	310	6.94	452.75
Feb-23	<0.5	0.97	<0.20	<0.002	<0.0002	<35.0	<0.005	<0.007	<0.02	<0.01	<0.01	<0.025	<0.005	<1	1170	45.4	47.8	772	205	<0.10	<0.5	332	6.92	452.25
May-23														0	1110	3.08	50.3	757	208	<0.10	<0.5	298	6.91	448.75
Sep-23														0	1140	2.80	56.7	727	227	0.15	<0.5	300	6.88	449.95
Dec-23																								

NOTES: All units in mg/liter except as noted.
 (1) Colonies/100 ml
 < Less Than
 * Secondary MCLs - These compounds are not necessarily of concern from a human health standpoint, however, aesthetics and ecological criteria may apply.
 ** No Secondary MCL standard in TCEQ Tier 1 Groundwater Tables, therefore EPA Secondary MCL Standard used.
 *** Laboratory Reported Test Error
 TNTC: Too numerous to count

(3) Water level near or below pump intake, i.e., insufficient and/or no water to sample
 (4) Unable to detect water level below screen or water level below pump head

Top of Casing elevation: 467.75 ft (msl)

**SUMMARY OF MONITOR WELL DATA TEST RESULTS
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Monitoring Well No. 4

Date	Annual Monitoring Parameters											Quarterly Monitoring Parameters													
	Iron *	Manganese	Phenol	Arsenic	Mercury	Chemical Oxygen Demand	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Silver	Fecal Coliform (1)	Specific Conductance (2)	Total Organic Carbon	Chloride (Total)*	Total Dissolved Solids	Sulfate (Total)*	Ammonia Nitrogen*	Nitrate Nitrogen	Total Alkalinity	pH	Ground Water, (Feet-MSL)	
Low	<0.005	0.076	<0.005	<0.002	<0.0002	<4.0	0.0004	<0.002	<0.005	<0.002	0.008	<0.002	<0.002	0	660	0.08	6.9	506	55.5	<0.03	<0.01	121	6.14	<446.9	
High	4.10	8.90	0.430	0.046	0.05	290	1.60	0.573	0.040	0.020	0.327	0.02	<0.05	<3	2720	92	486	2500	454	27.0	7.40	520	9.17	457.00	
Data Summary Prior to February 2013																									
	0.30	1.10	7.30	0.01	0.002	0.005	0.10	1.30	0.015	0.49	7.30	0.12		250		250		250		1.50	10.0				
Feb-13	<0.50	0.340	<0.05	<0.005	<0.0002	20.1	<0.001	<0.005	<0.01	<0.005	0.0130	<0.002	<0.002	0	1360	3.50	193	965	224	0.55	6.00	278	7.13	448.55	
May-13														0	1140	2.90	135	758	181	<0.10	5.40	220	7.17	448.56	
Aug-13														0	1070	1.30	95.1	666	144	<0.10	9.70	250	8.50	448.30	
Sep-13														0	1180	2.70	96.1	752	174	<0.10	6.90	330	7.20	(4)	
Dec-13														2	1040	1.50	69.5	622	131	<0.10	9.05	286	7.08	(4)	
Mar-14														0	1170	2.20	70.0	750	188	<0.10	12.3	300	6.90	448.55	
Jun-14	<0.50	0.037	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	0.0078	<0.025	<0.002	0	962	1.70	44.3	604	123	<0.10	3.70	310	6.95	448.25	
Sep-14														<1	1020	2.10	62.1	634	132	<0.10	8.20	270	6.99	448.55	
Nov-14														0	1040	1.50	85.0	594	97	<0.10	10.8	228	6.92	(4)	
Feb-15	<0.50	0.21	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.010	<0.005	<0.005	<0.025	<0.002	<1	1400	3.80	92.6	946	206	<0.10	26.1	246	7.08	457.25	
Jun-15														0	1360	2.10	81.4	792	236	<0.10	11.3	280	6.66	451.65	
Sep-15														1	1280	3.30	66.2	815	213	<0.10	2.3	340	6.82	453.95	
Nov-15														<1	1390	2.90	87.6	950	224	0.11	3.90	340	6.98	458.55	
Jan-16	<0.50	0.29	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	0.0064	<0.025	<0.002	0	1390	2.70	115	968	263	<0.10	1.80	336	6.83	454.95	
May-16														0	1340	3.50	64.6	866	256	<0.10	1.80	396	6.83	450.75	
Sep-16														0	1150	3.40	66.5	752	176	<0.10	1.80	290	6.95	450.65	
Nov-16														0	1120	3.40	54.1	776	194	<0.10	8.10	336	6.73	452.15	
Jan-17	0.71	0.35	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	0.01	<0.025	<0.002	0	1330	4.70	54.4	940	263	0.16	0.24	392	6.48	451.36	
May-17														0	1470	6.40	63.2	1140	394	0.40	<0.10	396	6.58	450.35	
Aug-17														0	920	48.1	35.1	841	196	<0.10	---	382	6.70	449.75	
Oct-17														2	1270	1.50	137	982	168	0.32	***	238	6.73	449.65	
Jan-18	0.36	0.29	<0.05	<0.006	<0.0002	25.8	<0.005	<0.007	<0.02	<0.01	0.0063	<0.025	<0.005									11.9			
Feb-18														23.3	1190	2.30	86.5	868	268	<0.1	1.60	352	6.46	451.35	
May-18														83.0											
May-18														2.0	1130	3.30	98.0	1050	219	<0.1	11.5	250	6.97	449.95	
Aug-18														260	1370	4.00	178	944	152	<0.1		280	7.02	456.05	
Nov-18																									

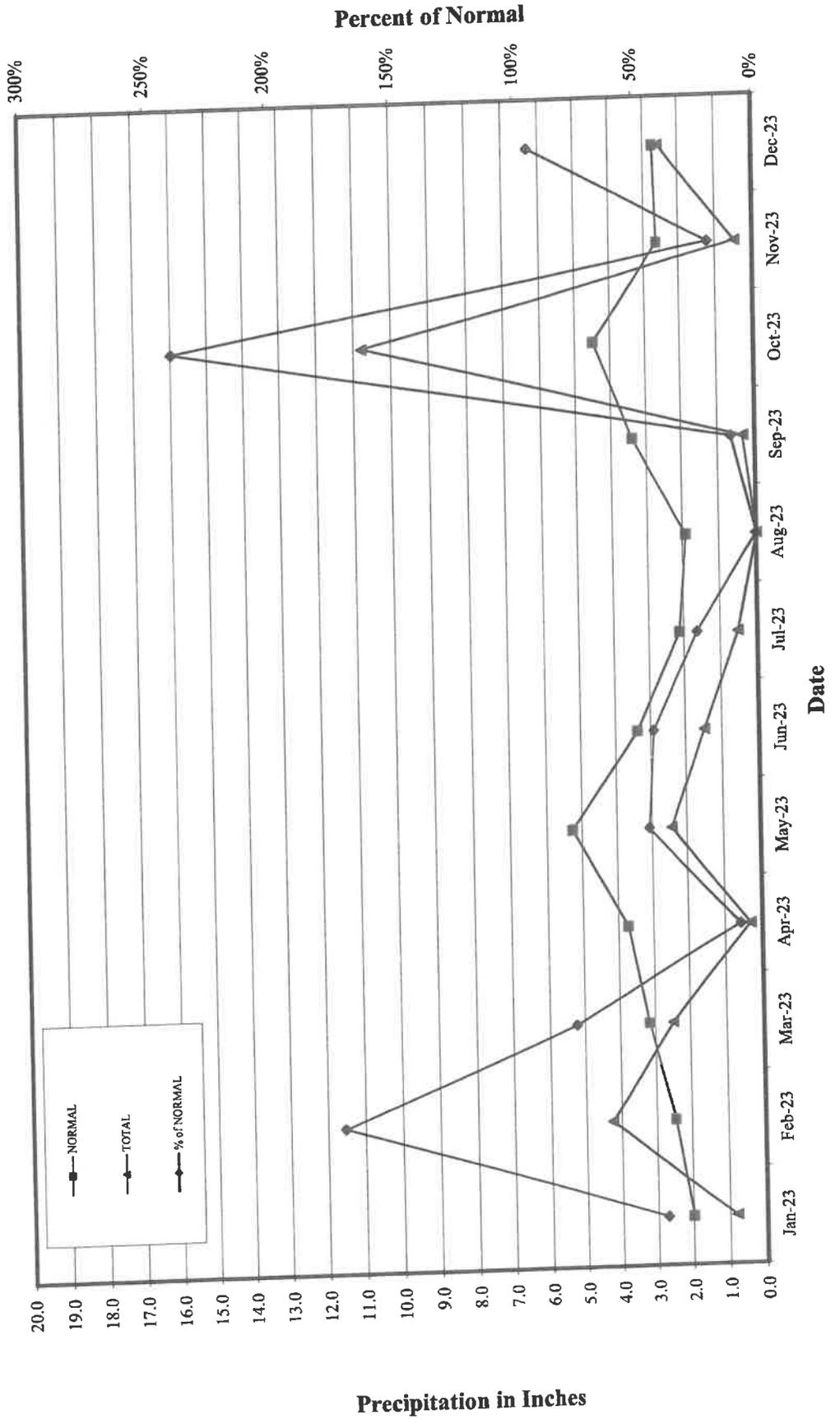
**SUMMARY OF MONITOR WELL DATA TEST RESULTS
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Monitoring Well No. 4

Date	Annual Monitoring Parameters											Quarterly Monitoring Parameters													
	Iron *	Manganese	Phenol	Arsenic	Mercury	Chemical Oxygen Demand	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Silver	Fecal Coliform (1)	Specific Conductance (2)	Total Organic Carbon	Chloride (Total)*	Total Dissolved Solids	Sulfate (Total)*	Ammonia Nitrogen*	Nitrate Nitrogen	Total Alkalinity	pH	Ground Water, (Feet-MSL)	
Low	<0.005	0.076	<0.005	<0.002	<0.0002	<4.0	<0.0004	<0.002	<0.005	<0.002	0.008	<0.002	<0.002	0	660	0.08	6.9	506	55.5	<0.03	<0.01	121	6.14	<446.9	
High	4.10	8.90	0.430	0.046	0.05	290	1.60	0.573	0.040	0.020	0.327	0.02	<0.05	<3	2720	92	486	2500	454	27.0	7.40	520	9.17	457.00	
Data Summary Prior to February 2013																									
gw GW_{ms} - Tier 1 Residential PCL for Ingestion of Groundwater, May 10, 2023 (Concentrations exceeding the Tier 1 Residential PCLs/ Secondary MCL's are bolded)																									
Feb-19	0.30	1.10	7.30	0.01	0.002	0.005	0.10	1.30	0.015	0.49	7.30	0.12					250	250	250	1.50	10.0				
May-19	<0.5	0.047	<0.20	<0.006	<0.0002	67	<0.005	<0.007	<0.02	<0.01	0.0093	<0.025	<0.005	2	2250	1.70	348	1490	239	0.10	3.70	520	6.66	451.75	
Aug-19														4.1	1400	2.80		1030		0.26		396	6.42	453.15	
Nov-19																									
Feb-20	0.22	0.15	<0.20	<0.006	<0.0002	<35	<0.005	<0.007	<0.02	0.0028	<0.025	<0.005													
Jun-20																									
Sep-20																									
Nov-20																									
Mar-21	0.50	0.32	<0.20	<0.005	<0.002	28.6	<0.005	0.0009	<0.02	0.0070	0.018	<0.025	<0.005	387	1520	6.10	105	1210	328	0.52	0.79	304	6.81	450.75	
Jun-21														0	1340	6.30	108	880	227	1.13	<0.5	352	6.85	449.75	
Aug-21														0	1530	5.16	82.8	1000	271	0.91	1.49	356	6.65	452.45	
Nov-21														0	1290	5.26	51.2	797	245	0.60	<0.5	342	6.76	451.05	
Mar-22	<0.5	0.34	<0.20	<0.005	<0.0002	<35.0	<0.005	<0.007	<0.02	0.01	0.03	<0.025	<0.005	0	1510	25.4	44.9	1110	370	0.55	1.51	394	6.83	449.95	
May-22														0	1340	6.30	108	880	227	1.13	<0.5	352	6.85	449.75	
Jul-22														0	1080	3.3	89.7	1060	288	1.43	0.76	380	6.52	450.85	
Dec-22														0	1400	19.2	87.2	893	217	0.90	13.2	320	6.92	449.75	
May-23														0	1170	44.2	91.3	773	157	<0.25	9.47	260	6.96	449.55	
Sep-23														0	1300	23.0	87.1	1010	246	<0.25	17.6	298	6.75	450.25	
Dec-23														<1	1370	59.3	64.4	884	243	0.40	2.79	364	6.72	450.75	
														0	1190	3.29	106	797	164	<0.10	9.79	238	6.89	448.95	
														0	1160	3.59	88.4	695	173	<0.10	5.95	206	6.84	449.15	

NOTES: All units in mg/liter except as noted.
 (1) Colonies/100 ml (2) micromhos (umho/cm)
 < Less Than - Water Level not recorded
 * Secondary MCLs - These compounds are not necessarily of concern from a human health standpoint, however, aesthetics and ecological criteria may apply.
 ** No Secondary MCL standard in TCEQ Tier 1 Groundwater Tables, therefore EPA Secondary MCL Standard used.
 *** Laboratory Reported Test Error
 TNTC: Too numerous to count
 (3) Water level near or below pump intake, i.e., insufficient and/or no water to sample
 (4) Unable to detect water level below screen or water level below pump head
 Top of Casing elevation: 466.95 ft (msl)

**ANNUAL PRECIPITATION DATA
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**



ATTACHMENT 7

Sludge Analysis



ANALYTICAL REPORT

February 18, 2024

- Cp
- Tc
- Ss
- Cn
- Sr
- Qc
- Gl
- Al
- Sc

City of Lewisville

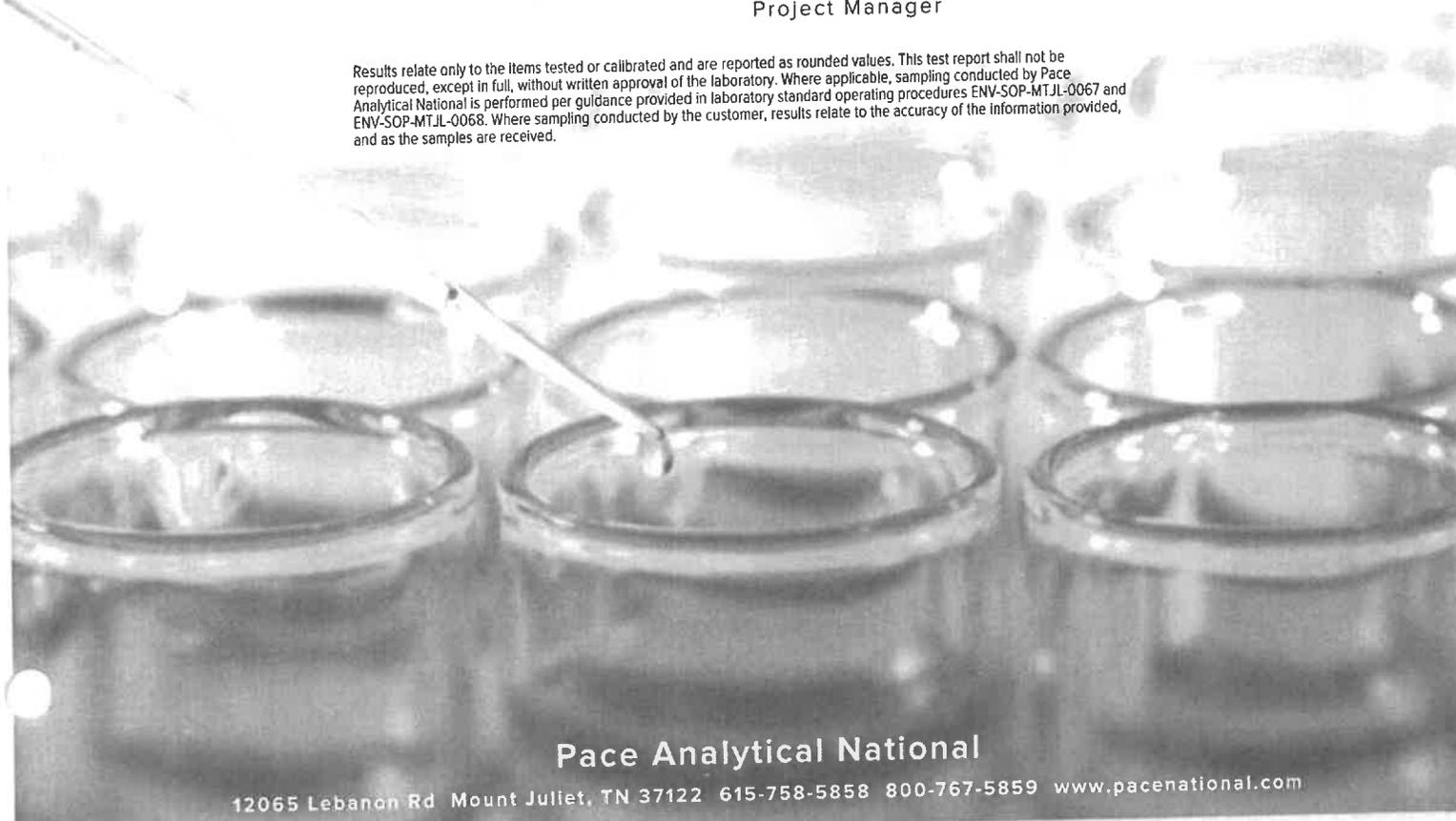
Sample Delivery Group: L1701258
 Samples Received: 02/01/2024
 Project Number:
 Description: TCLP SLUDGE

Report To: Kimberly Morris
 PO Box 299002
 Lewisville, TX 75029

Entire Report Reviewed By:

Justin Carr
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

ACCOUNT:
City of Lewisville

PROJECT:

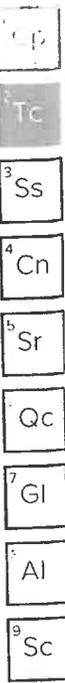
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L1701258

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02/18/24 16:33

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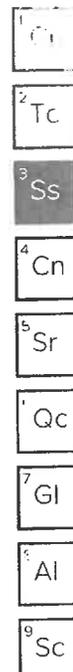
SAMPLE SUMMARY

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	Collected by	Collected date/time	Received date/time
							Justin Maness	01/31/24 09:40	02/01/24 12:55
21733, 21744 - FINE SCREENS L1701258-01 Waste									
Preparation by Method 1311	WG2220728	1	02/06/24 18:15	02/06/24 18:15	AMM	Allen, TX			
Preparation by Method 1311	WG2220736	1	02/06/24 17:55	02/06/24 17:55	AMM	Allen, TX			
Mercury by Method 7470	WG2222399	1	02/08/24 10:30	02/08/24 16:05	SKH	Allen, TX			
Metals (ICP) by Method 6010	WG2222126	1	02/07/24 18:22	02/07/24 23:29	EJS	Allen, TX			
Metals (ICP) by Method 6010	WG2222126	1	02/07/24 18:22	02/08/24 08:50	SKH	Allen, TX			
Volatile Organic Compounds (GC/MS) by Method 8260	WG2222703	1	02/08/24 15:54	02/08/24 15:54	ZST	Allen, TX			
Chlorinated Acid Herbicides (GC) by Method 8151A	WG2223027	1	02/12/24 10:57	02/13/24 18:51	MEW	Mt. Juliet, TN			
Pesticides (GC) by Method 8081B	WG2223113	1	02/11/24 20:40	02/12/24 14:36	HLA	Mt. Juliet, TN			
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG2221636	10	02/07/24 18:10	02/08/24 20:40	XLY	Allen, TX			

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	Collected by	Collected date/time	Received date/time
							Justin Maness	01/31/24 09:40	02/01/24 12:55
21733, 21744 - FINE SCREENS L1701258-02 Solid									
Total Solids by Method D2974	WG2221104	1	02/06/24 16:21	02/06/24 16:52	EIG	Allen, TX			
Wet Chemistry by Method 9014.	WG2219367	.988	02/02/24 09:30	02/02/24 16:29	KCM	Allen, TX			
Wet Chemistry by Method 9034-9030B	WG2218922	1	02/04/24 10:14	02/05/24 09:00	KRW	Mt. Juliet, TN			
Wet Chemistry by Method 9056A	WG2220174	9.83	02/05/24 13:01	02/06/24 00:33	EIG	Allen, TX			
Wet Chemistry by Method 9095	WG2222471	1	02/08/24 09:38	02/08/24 09:38	QQT	Allen, TX			
Wet Chemistry by Method EPA 1030	WG2222432	1	02/08/24 09:33	02/08/24 09:33	QQT	Allen, TX			
Wet Chemistry by Method EPA 9045	WG2218599	1	02/02/24 08:49	02/02/24 09:49	SEN	Allen, TX			

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	Collected by	Collected date/time	Received date/time
							Justin Maness	01/31/24 09:43	02/01/24 12:55
21735, 21736 - GRIT L1701258-03 Waste									
Preparation by Method 1311	WG2220728	1	02/06/24 18:15	02/06/24 18:15	AMM	Allen, TX			
Preparation by Method 1311	WG2220736	1	02/06/24 17:55	02/06/24 17:55	AMM	Allen, TX			
Mercury by Method 7470	WG2222399	1	02/08/24 10:30	02/08/24 16:11	SKH	Allen, TX			
Metals (ICP) by Method 6010	WG2222126	1	02/07/24 18:22	02/07/24 23:33	EJS	Allen, TX			
Metals (ICP) by Method 6010	WG2222126	1	02/07/24 18:22	02/08/24 08:54	SKH	Allen, TX			
Volatile Organic Compounds (GC/MS) by Method 8260	WG2222703	1	02/08/24 17:08	02/08/24 17:08	ZST	Allen, TX			
Chlorinated Acid Herbicides (GC) by Method 8151A	WG2223027	1	02/12/24 10:57	02/13/24 19:01	MEW	Mt. Juliet, TN			
Pesticides (GC) by Method 8081B	WG2223113	1	02/11/24 20:40	02/12/24 14:45	HLA	Mt. Juliet, TN			
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG2221636	10	02/07/24 18:10	02/08/24 21:10	XLY	Allen, TX			

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	Collected by	Collected date/time	Received date/time
							Justin Maness	01/31/24 09:43	02/01/24 12:55
21735, 21736 - GRIT L1701258-04 Solid									
Total Solids by Method D2974	WG2222077	1	02/07/24 17:08	02/07/24 17:32	EIG	Allen, TX			
Wet Chemistry by Method 9014.	WG2221597	.99	02/07/24 10:14	02/07/24 16:12	KCM	Allen, TX			
Wet Chemistry by Method 9034-9030B	WG2218922	1	02/04/24 10:14	02/05/24 09:00	KRW	Mt. Juliet, TN			
Wet Chemistry by Method 9056A	WG2220174	9.7	02/05/24 13:01	02/06/24 00:51	EIG	Allen, TX			
Wet Chemistry by Method 9095	WG2222471	1	02/08/24 09:38	02/08/24 09:38	QQT	Allen, TX			
Wet Chemistry by Method EPA 1030	WG2222432	1	02/08/24 09:33	02/08/24 09:33	QQT	Allen, TX			
Wet Chemistry by Method EPA 9045	WG2218599	1	02/02/24 08:49	02/02/24 09:49	SEN	Allen, TX			



SAMPLE SUMMARY

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	Collected by	Collected date/time	Received date/time
							Justin Maness	01/31/24 09:48	02/01/24 12:55
21737, 21738 - SLUDGE L1701258-05 Waste									
Preparation by Method 1311	WG2220728	1	02/06/24 18:15	02/06/24 18:15	AMM	Allen, TX			
Preparation by Method 1311	WG2220736	1	02/06/24 17:55	02/06/24 17:55	AMM	Allen, TX			
Mercury by Method 7470	WG2222399	1	02/08/24 10:30	02/08/24 16:13	SKH	Allen, TX			
Metals (ICP) by Method 6010	WG2222126	1	02/07/24 18:22	02/07/24 23:37	EJS	Allen, TX			
Metals (ICP) by Method 6010	WG2222126	1	02/07/24 18:22	02/08/24 08:58	SKH	Allen, TX			
Volatile Organic Compounds (GC/MS) by Method 8260	WG2222703	1	02/08/24 17:32	02/08/24 17:32	ZST	Allen, TX			
Chlorinated Acid Herbicides (GC) by Method 8151A	WG2223027	1	02/12/24 10:57	02/13/24 22:14	MEW	Mt. Juliet, TN			
Pesticides (GC) by Method 8081B	WG2223113	1	02/11/24 20:40	02/12/24 14:54	HLA	Mt. Juliet, TN			
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG2221636	10	02/07/24 18:10	02/08/24 21:40	XLY	Allen, TX			

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	Collected by	Collected date/time	Received date/time
							Justin Maness	01/31/24 09:48	02/01/24 12:55
21737, 21738 - SLUDGE L1701258-06 Solid									
Total Solids by Method D2974	WG2222077	1	02/07/24 17:08	02/07/24 17:32	EIG	Allen, TX			
Wet Chemistry by Method 9014.	WG2219367	1.01	02/02/24 09:30	02/02/24 16:29	KCM	Allen, TX			
Wet Chemistry by Method 9034-9030B	WG2218922	1	02/04/24 10:14	02/05/24 09:00	KRW	Mt. Juliet, TN			
Wet Chemistry by Method 9056A	WG2220174	.975	02/05/24 13:01	02/06/24 10:39	EIG	Allen, TX			
Wet Chemistry by Method 9095	WG2222471	1	02/08/24 09:38	02/08/24 09:38	QQT	Allen, TX			
Wet Chemistry by Method EPA 1030	WG2222432	1	02/08/24 09:33	02/08/24 09:33	QQT	Allen, TX			
Wet Chemistry by Method EPA 9045	WG2218599	1	02/02/24 08:49	02/02/24 09:49	SEN	Allen, TX			

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	Collected by	Collected date/time	Received date/time
							Justin Maness	01/31/24 10:10	02/01/24 12:55
21739, 21740 - TIMBERCREEK L1701258-07 Waste									
Preparation by Method 1311	WG2220728	1	02/06/24 18:15	02/06/24 18:15	AMM	Allen, TX			
Preparation by Method 1311	WG2220736	1	02/06/24 17:55	02/06/24 17:55	AMM	Allen, TX			
Mercury by Method 7470	WG2222399	1	02/08/24 10:30	02/08/24 16:15	SKH	Allen, TX			
Metals (ICP) by Method 6010	WG2222126	1	02/07/24 18:22	02/07/24 23:41	EJS	Allen, TX			
Metals (ICP) by Method 6010	WG2222126	1	02/07/24 18:22	02/08/24 09:02	SKH	Allen, TX			
Volatile Organic Compounds (GC/MS) by Method 8260	WG2222703	1	02/08/24 17:57	02/08/24 17:57	ZST	Allen, TX			
Chlorinated Acid Herbicides (GC) by Method 8151A	WG2223027	1	02/12/24 10:57	02/13/24 19:11	MEW	Mt. Juliet, TN			
Pesticides (GC) by Method 8081B	WG2223113	1	02/11/24 20:40	02/12/24 15:03	HLA	Mt. Juliet, TN			
Semi Volatile Organic Compounds (GC/MS) by Method 8270C	WG2221636	10	02/07/24 18:10	02/08/24 22:10	XLY	Allen, TX			

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	Collected by	Collected date/time	Received date/time
							Justin Maness	01/31/24 10:10	02/01/24 12:55
21739, 21740 - TIMBERCREEK L1701258-08 Solid									
Total Solids by Method D2974	WG2222077	1	02/07/24 17:08	02/07/24 17:32	EIG	Allen, TX			
Wet Chemistry by Method 9014.	WG2219367	1	02/02/24 09:30	02/02/24 16:29	KCM	Allen, TX			
Wet Chemistry by Method 9034-9030B	WG2218922	1	02/04/24 10:14	02/05/24 09:00	KRW	Mt. Juliet, TN			
Wet Chemistry by Method 9056A	WG2220174	9.87	02/05/24 13:01	02/06/24 01:26	EIG	Allen, TX			
Wet Chemistry by Method 9095	WG2222471	1	02/08/24 09:38	02/08/24 09:38	QQT	Allen, TX			
Wet Chemistry by Method EPA 1030	WG2222432	1	02/08/24 09:33	02/08/24 09:33	QQT	Allen, TX			
Wet Chemistry by Method EPA 9045	WG2218599	1	02/02/24 08:49	02/02/24 09:49	SEN	Allen, TX			



CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Justin Carr
Project Manager

Project Narrative

All Reactive Cyanide results reported in the attached report were determined as totals using method 9014.
All Reactive Sulfide results reported in the attached report were determined as totals using method 9034-9030B.

- 1.
- 2. Tc
- 3. Ss
- 4. Cn
- 5. Sr
- 6. Qc
- 7. Gl
- 8. Al
- 9. Sc

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
ALLTCLP Extraction	-		2/6/2024 5:55:00 PM	WG2220736
ALLTCLP ZHE Extraction	-		2/6/2024 6:15:00 PM	WG2220728
Fluid	1		2/6/2024 5:55:00 PM	WG2220736
Initial pH	5.80		2/6/2024 5:55:00 PM	WG2220736
Final pH	5.05		2/6/2024 5:55:00 PM	WG2220736

Mercury by Method 7470

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND	J5	0.000200	0.20	1	02/08/2024 16:05	WG2222399

Metals (ICP) by Method 6010

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	02/07/2024 23:29	WG2222126
Barium	ND		0.100	100	1	02/08/2024 08:50	WG2222126
Cadmium	ND		0.100	1	1	02/07/2024 23:29	WG2222126
Chromium	ND		0.100	5	1	02/08/2024 08:50	WG2222126
Lead	ND		0.100	5	1	02/08/2024 08:50	WG2222126
Selenium	ND		0.100	1	1	02/07/2024 23:29	WG2222126
Silver	ND		0.100	5	1	02/07/2024 23:29	WG2222126

Volatile Organic Compounds (GC/MS) by Method 8260

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
1,1-Dichloroethene	ND	J3 J5	0.00500	0.70	1	02/08/2024 15:54	WG2222703
1,2-Dichloroethane	ND		0.00500	0.50	1	02/08/2024 15:54	WG2222703
1,4-Dichlorobenzene	ND		0.00200	7.50	1	02/08/2024 15:54	WG2222703
Benzene	ND		0.00200	0.50	1	02/08/2024 15:54	WG2222703
Carbon tetrachloride	ND		0.00200	0.50	1	02/08/2024 15:54	WG2222703
Chlorobenzene	ND		0.00200	100	1	02/08/2024 15:54	WG2222703
Chloroform	ND		0.00500	6	1	02/08/2024 15:54	WG2222703
Methyl Ethyl Ketone	0.0289	J3 J5	0.0250	200	1	02/08/2024 15:54	WG2222703
Tetrachloroethene	ND		0.00500	0.70	1	02/08/2024 15:54	WG2222703
Trichloroethene	ND	J3 J5	0.00200	0.50	1	02/08/2024 15:54	WG2222703
Vinyl chloride	ND	J3 J5	0.00500	0.20	1	02/08/2024 15:54	WG2222703
Xylenes, Total	ND		0.00600	600	1	02/08/2024 15:54	WG2222703
(S) 1,2-Dichloroethane-d4	108		70.0-130			02/08/2024 15:54	WG2222703
(S) 4-Bromofluorobenzene	95.8		70.0-130			02/08/2024 15:54	WG2222703
(S) Toluene-d8	107		70.0-130			02/08/2024 15:54	WG2222703

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
2,4,5-TP (Silvex)	ND		0.00200		1	02/13/2024 18:51	WG2223027
2,4-D	ND		0.00200		1	02/13/2024 18:51	WG2223027
(S) 2,4-Dichlorophenyl Acetic Acid	108		14.0-158			02/13/2024 18:51	WG2223027

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

21733, 21744 - FINE SCREENS

SAMPLE RESULTS - 01

Collected date/time: 01/31/24 09:40

L1701258

Pesticides (GC) by Method 8081B

alyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
Chlordane	ND		0.00500	0.03	1	02/12/2024 14:36	WG2223113
Endrin	ND		0.00500	0.02	1	02/12/2024 14:36	WG2223113
Heptachlor	ND		0.00400	0.0080	1	02/12/2024 14:36	WG2223113
Lindane	ND		0.00500	0.40	1	02/12/2024 14:36	WG2223113
Methoxychlor	ND		0.00500	10	1	02/12/2024 14:36	WG2223113
Toxaphene	ND		0.0100	0.50	1	02/12/2024 14:36	WG2223113
(S) Decachlorobiphenyl	50.0		10.0-128			02/12/2024 14:36	WG2223113
(S) Tetrachloro-m-xylene	59.8		10.0-127			02/12/2024 14:36	WG2223113

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
1,4-Dichlorobenzene	ND		0.0250	7.50	10	02/08/2024 20:40	WG2221636
2,4-Dinitrotoluene	ND		0.0500	0.13	10	02/08/2024 20:40	WG2221636
Hexachlorobenzene	ND		0.0250	0.13	10	02/08/2024 20:40	WG2221636
Hexachloro-1,3-butadiene	ND		0.0250	0.50	10	02/08/2024 20:40	WG2221636
Hexachloroethane	ND		0.0250	3	10	02/08/2024 20:40	WG2221636
Nitrobenzene	ND		0.0250	2	10	02/08/2024 20:40	WG2221636
Pyridine	ND		0.0250	5	10	02/08/2024 20:40	WG2221636
3&4-Methyl Phenol	0.0267		0.0250	400	10	02/08/2024 20:40	WG2221636
2-Methylphenol	ND		0.0500	200	10	02/08/2024 20:40	WG2221636
Pentachlorophenol	ND		0.0500	100	10	02/08/2024 20:40	WG2221636
2,4,5-Trichlorophenol	ND		0.0250	400	10	02/08/2024 20:40	WG2221636
2,4,6-Trichlorophenol	ND		0.0250	2	10	02/08/2024 20:40	WG2221636
(S) 2-Fluorophenol	76.4	J1	10.0-66.0			02/08/2024 20:40	WG2221636
(S) Phenol-d5	71.6	J1	10.0-54.0			02/08/2024 20:40	WG2221636
(S) Nitrobenzene-d5	81.2		15.0-106			02/08/2024 20:40	WG2221636
(S) 2-Fluorobiphenyl	77.2		26.0-102			02/08/2024 20:40	WG2221636
(S) 2,4,6-Tribromophenol	84.6		29.0-132			02/08/2024 20:40	WG2221636
(S) p-Terphenyl-d14	92.8		10.0-120			02/08/2024 20:40	WG2221636

- 1 Cp
- 4 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 1 Qc
- 7 Gl
- 1 Al
- 9 Sc

Total Solids by Method D2974

Analyte	Result	Units	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	14.6	%		1	02/06/2024 16:52	WG2221104

Wet Chemistry by Method 9014.

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Cyanide	ND		4.94	.988	02/02/2024 16:29	WG2219367

Wet Chemistry by Method 9034-9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Sulfide	ND		75.0	1	02/05/2024 09:00	WG2218922

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	190		98.3	9.83	02/06/2024 00:33	WG2220174

Wet Chemistry by Method 9095

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Paint Filter Test	See Footnote		1	02/08/2024 09:38	WG2222471

Sample Narrative:

L1701258-02 WG2222471: FAIL

Wet Chemistry by Method EPA 1030

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Ignitability	Not Ignitable		1	02/08/2024 09:33	WG2222432

Wet Chemistry by Method EPA 9045

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	5.86		1	02/02/2024 09:49	WG2218599

Sample Narrative:

L1701258-02 WG2218599: 5.86 at 21.3C

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
ALLTCLP Extraction	-		2/6/2024 5:55:00 PM	WG2220736
ALLTCLP ZHE Extraction	-		2/6/2024 6:15:00 PM	WG2220728
Fluid	1		2/6/2024 5:55:00 PM	WG2220736
Initial pH	5.60		2/6/2024 5:55:00 PM	WG2220736
Final pH	5.82		2/6/2024 5:55:00 PM	WG2220736

Mercury by Method 7470

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	0.000383		0.000200	0.20	1	02/08/2024 16:11	WG2222399

Metals (ICP) by Method 6010

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	02/07/2024 23:33	WG2222126
Barium	0.438		0.100	100	1	02/08/2024 08:54	WG2222126
Cadmium	ND		0.100	1	1	02/07/2024 23:33	WG2222126
Chromium	ND		0.100	5	1	02/08/2024 08:54	WG2222126
Lead	ND		0.100	5	1	02/08/2024 08:54	WG2222126
Selenium	ND		0.100	1	1	02/07/2024 23:33	WG2222126
Silver	ND		0.100	5	1	02/07/2024 23:33	WG2222126

Volatile Organic Compounds (GC/MS) by Method 8260

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
1,1-Dichloroethene	ND		0.00500	0.70	1	02/08/2024 17:08	WG2222703
1,2-Dichloroethane	ND		0.00500	0.50	1	02/08/2024 17:08	WG2222703
1,4-Dichlorobenzene	0.00475		0.00200	7.50	1	02/08/2024 17:08	WG2222703
Benzene	ND		0.00200	0.50	1	02/08/2024 17:08	WG2222703
Carbon tetrachloride	ND		0.00200	0.50	1	02/08/2024 17:08	WG2222703
Chlorobenzene	ND		0.00200	100	1	02/08/2024 17:08	WG2222703
Chloroform	ND		0.00500	6	1	02/08/2024 17:08	WG2222703
Methyl Ethyl Ketone	0.0317		0.0250	200	1	02/08/2024 17:08	WG2222703
Tetrachloroethene	ND		0.00500	0.70	1	02/08/2024 17:08	WG2222703
Trichloroethene	ND		0.00200	0.50	1	02/08/2024 17:08	WG2222703
Vinyl chloride	ND		0.00500	0.20	1	02/08/2024 17:08	WG2222703
Xylenes, Total	ND		0.00600	600	1	02/08/2024 17:08	WG2222703
(S) 1,2-Dichloroethane-d4	100		70.0-130			02/08/2024 17:08	WG2222703
(S) 4-Bromofluorobenzene	102		70.0-130			02/08/2024 17:08	WG2222703
(S) Toluene-d8	100		70.0-130			02/08/2024 17:08	WG2222703

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
2,4,5-TP (Silvex)	ND		0.00200		1	02/13/2024 19:01	WG2223027
2,4-D	ND		0.00200		1	02/13/2024 19:01	WG2223027
(S) 2,4-Dichlorophenyl Acetic Acid	108		14.0-158			02/13/2024 19:01	WG2223027



21735, 21736 - GRIT

Collected date/time: 01/31/24 09:43

SAMPLE RESULTS - 03

L1701258

Pesticides (GC) by Method 8081B

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
lyte	mg/l		mg/l	mg/l			
Chlordane	ND		0.00500	0.03	1	02/12/2024 14:45	WG2223113
Endrin	ND		0.00500	0.02	1	02/12/2024 14:45	WG2223113
Heptachlor	ND		0.00400	0.0080	1	02/12/2024 14:45	WG2223113
Lindane	ND		0.00500	0.40	1	02/12/2024 14:45	WG2223113
Methoxychlor	ND		0.00500	10	1	02/12/2024 14:45	WG2223113
Toxaphene	ND		0.0100	0.50	1	02/12/2024 14:45	WG2223113
(S) Decachlorobiphenyl	18.2		10.0-128			02/12/2024 14:45	WG2223113
(S) Tetrachloro-m-xylene	63.4		10.0-127			02/12/2024 14:45	WG2223113

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l	mg/l			
1,4-Dichlorobenzene	ND		0.0250	7.50	10	02/08/2024 21:10	WG2221636
2,4-Dinitrotoluene	ND		0.0500	0.13	10	02/08/2024 21:10	WG2221636
Hexachlorobenzene	ND		0.0250	0.13	10	02/08/2024 21:10	WG2221636
Hexachloro-1,3-butadiene	ND		0.0250	0.50	10	02/08/2024 21:10	WG2221636
Hexachloroethane	ND		0.0250	3	10	02/08/2024 21:10	WG2221636
Nitrobenzene	ND		0.0250	2	10	02/08/2024 21:10	WG2221636
Pyridine	ND		0.0250	5	10	02/08/2024 21:10	WG2221636
3&4-Methyl Phenol	0.118		0.0250	400	10	02/08/2024 21:10	WG2221636
2-Methylphenol	ND		0.0500	200	10	02/08/2024 21:10	WG2221636
Pentachlorophenol	ND		0.0500	100	10	02/08/2024 21:10	WG2221636
2,4,5-Trichlorophenol	ND		0.0250	400	10	02/08/2024 21:10	WG2221636
2,4,6-Trichlorophenol	ND		0.0250	2	10	02/08/2024 21:10	WG2221636
(S) 2-Fluorophenol	84.0	J1	10.0-66.0			02/08/2024 21:10	WG2221636
(S) Phenol-d5	79.8	J1	10.0-54.0			02/08/2024 21:10	WG2221636
(S) Nitrobenzene-d5	89.0		15.0-106			02/08/2024 21:10	WG2221636
(S) 2-Fluorobiphenyl	84.6		26.0-102			02/08/2024 21:10	WG2221636
(S) 2,4,6-Tribromophenol	89.0		29.0-132			02/08/2024 21:10	WG2221636
(S) p-Terphenyl-d14	101		10.0-120			02/08/2024 21:10	WG2221636

- 1
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Total Solids by Method D2974

Analyte	Result	Units	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	37.7	%		1	02/07/2024 17:32	WG2222077

Wet Chemistry by Method 9014

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Cyanide	ND		4.95	.99	02/07/2024 16:12	WG2221597

Wet Chemistry by Method 9034-9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Sulfide	1600	V	75.0	1	02/05/2024 09:00	WG2218922

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	272	J6	97.0	9.7	02/06/2024 00:51	WG2220174

Wet Chemistry by Method 9095

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Paint Filter Test	See Footnote		1	02/08/2024 09:38	WG2222471

Sample Narrative:
 L1701258-04 WG2222471: PASS

Wet Chemistry by Method EPA 1030

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Ignitability	Not Ignitable		1	02/08/2024 09:33	WG2222432

Wet Chemistry by Method EPA 9045

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	7.13		1	02/02/2024 09:49	WG2218599

Sample Narrative:
 L1701258-04 WG2218599: 7.13 at 21.2C

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Preparation by Method 1311

Analyte	Result	Qualifier	Prep date / time	Batch
ALLTCLP Extraction	-		2/6/2024 5:55:00 PM	WG2220736
ALLTCLP ZHE Extraction	-		2/6/2024 6:15:00 PM	WG2220728
Fluid	1		2/6/2024 5:55:00 PM	WG2220736
Initial pH	6.98		2/6/2024 5:55:00 PM	WG2220736
Final pH	5.05		2/6/2024 5:55:00 PM	WG2220736

Mercury by Method 7470

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	0.20	1	02/08/2024 16:13	WG2222399

Metals (ICP) by Method 6010

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	02/07/2024 23:37	WG2222126
Barium	ND		0.100	100	1	02/08/2024 08:58	WG2222126
Cadmium	ND		0.100	1	1	02/07/2024 23:37	WG2222126
Chromium	ND		0.100	5	1	02/08/2024 08:58	WG2222126
Lead	ND		0.100	5	1	02/08/2024 08:58	WG2222126
Selenium	ND		0.100	1	1	02/07/2024 23:37	WG2222126
Silver	ND		0.100	5	1	02/07/2024 23:37	WG2222126

Volatile Organic Compounds (GC/MS) by Method 8260

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
1,1-Dichloroethene	ND		0.00500	0.70	1	02/08/2024 17:32	WG2222703
1,2-Dichloroethane	ND		0.00500	0.50	1	02/08/2024 17:32	WG2222703
1,4-Dichlorobenzene	ND		0.00200	7.50	1	02/08/2024 17:32	WG2222703
Benzene	ND		0.00200	0.50	1	02/08/2024 17:32	WG2222703
Carbon tetrachloride	ND		0.00200	0.50	1	02/08/2024 17:32	WG2222703
Chlorobenzene	ND		0.00200	100	1	02/08/2024 17:32	WG2222703
Chloroform	ND		0.00500	6	1	02/08/2024 17:32	WG2222703
Methyl Ethyl Ketone	0.909		0.0250	200	1	02/08/2024 17:32	WG2222703
Tetrachloroethene	ND		0.00500	0.70	1	02/08/2024 17:32	WG2222703
Trichloroethene	ND		0.00200	0.50	1	02/08/2024 17:32	WG2222703
Vinyl chloride	ND		0.00500	0.20	1	02/08/2024 17:32	WG2222703
Xylenes, Total	ND		0.00600	600	1	02/08/2024 17:32	WG2222703
(S) 1,2-Dichloroethane-d4	107		70.0-130			02/08/2024 17:32	WG2222703
(S) 4-Bromofluorobenzene	101		70.0-130			02/08/2024 17:32	WG2222703
(S) Toluene-d8	101		70.0-130			02/08/2024 17:32	WG2222703

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
2,4,5-TP (Silvex)	ND		0.00200		1	02/13/2024 22:14	WG2223027
2,4-D	ND		0.00200		1	02/13/2024 22:14	WG2223027
(S) 2,4-Dichlorophenyl Acetic Acid	109		14.0-158			02/13/2024 22:14	WG2223027



21737, 21738 - SLUDGE

Collected date/time: 01/31/24 09:48

SAMPLE RESULTS - 05

L1701258

Pesticides (GC) by Method 8081B

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
Allyte	mg/l		mg/l	mg/l			
Chlordane	ND		0.00500	0.03	1	02/12/2024 14:54	WG2223113
Endrin	ND		0.00500	0.02	1	02/12/2024 14:54	WG2223113
Heptachlor	ND		0.00400	0.0080	1	02/12/2024 14:54	WG2223113
Lindane	ND		0.00500	0.40	1	02/12/2024 14:54	WG2223113
Methoxychlor	ND		0.00500	10	1	02/12/2024 14:54	WG2223113
Toxaphene	ND		0.0100	0.50	1	02/12/2024 14:54	WG2223113
(S) Decachlorobiphenyl	58.1		10.0-128			02/12/2024 14:54	WG2223113
(S) Tetrachloro-m-xylene	78.0		10.0-127			02/12/2024 14:54	WG2223113

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
1,4-Dichlorobenzene	ND		0.0250	7.50	10	02/08/2024 21:40	WG2221636
2,4-Dinitrotoluene	ND		0.0500	0.13	10	02/08/2024 21:40	WG2221636
Hexachlorobenzene	ND		0.0250	0.13	10	02/08/2024 21:40	WG2221636
Hexachloro-1,3-butadiene	ND		0.0250	0.50	10	02/08/2024 21:40	WG2221636
Hexachloroethane	ND		0.0250	3	10	02/08/2024 21:40	WG2221636
Nitrobenzene	ND		0.0250	2	10	02/08/2024 21:40	WG2221636
Pyridine	ND		0.0250	5	10	02/08/2024 21:40	WG2221636
3&4-Methyl Phenol	ND		0.0250	400	10	02/08/2024 21:40	WG2221636
2-Methylphenol	ND		0.0500	200	10	02/08/2024 21:40	WG2221636
Pentachlorophenol	ND		0.0500	100	10	02/08/2024 21:40	WG2221636
2,4,5-Trichlorophenol	ND		0.0250	400	10	02/08/2024 21:40	WG2221636
2,4,6-Trichlorophenol	ND		0.0250	2	10	02/08/2024 21:40	WG2221636
(S) 2-Fluorophenol	63.2		10.0-66.0			02/08/2024 21:40	WG2221636
(S) Phenol-d5	63.6	J1	10.0-54.0			02/08/2024 21:40	WG2221636
(S) Nitrobenzene-d5	68.6		15.0-106			02/08/2024 21:40	WG2221636
(S) 2-Fluorobiphenyl	67.8		26.0-102			02/08/2024 21:40	WG2221636
(S) 2,4,6-Tribromophenol	85.0		29.0-132			02/08/2024 21:40	WG2221636
(S) p-Terphenyl-d14	94.2		10.0-120			02/08/2024 21:40	WG2221636

- 1
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

21737, 21738 - SLUDGE

Collected date/time: 01/31/24 09:48

SAMPLE RESULTS - 06

L1701258

Total Solids by Method D2974

Analyte	Result	Units	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	13.2	%		1	02/07/2024 17:32	WG2222077

Wet Chemistry by Method 9014

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Cyanide	ND		5.05	1.01	02/02/2024 16:29	WG2219367

Wet Chemistry by Method 9034-9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Sulfide	ND		75.0	1	02/05/2024 09:00	WG2218922

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	31.6		9.75	.975	02/06/2024 10:39	WG2220174

Wet Chemistry by Method 9095

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Paint Filter Test	See Footnote		1	02/08/2024 09:38	WG2222471

Sample Narrative:

L1701258-06 WG2222471: PASS

Wet Chemistry by Method EPA 1030

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Ignitability	Not Ignitable		1	02/08/2024 09:33	WG2222432

Wet Chemistry by Method EPA 9045

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	6.74		1	02/02/2024 09:49	WG2218599

Sample Narrative:

L1701258-06 WG2218599: 6.74 at 21.1C

- 1 P
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

Preparation by Method 1311

	Result	Qualifier	Prep date / time	Batch
alyte				
ALLTCLP Extraction	-		2/6/2024 5:55:00 PM	WG2220736
ALLTCLP ZHE Extraction	-		2/6/2024 6:15:00 PM	WG2220728
Fluid	1		2/6/2024 5:55:00 PM	WG2220736
Initial pH	5.64		2/6/2024 5:55:00 PM	WG2220736
Final pH	5.12		2/6/2024 5:55:00 PM	WG2220736

Mercury by Method 7470

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	0.20	1	02/08/2024 16:15	WG2222399

Metals (ICP) by Method 6010

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
Arsenic	ND		0.100	5	1	02/07/2024 23:41	WG2222126
Barium	ND		0.100	100	1	02/08/2024 09:02	WG2222126
Cadmium	ND		0.100	1	1	02/07/2024 23:41	WG2222126
Chromium	ND		0.100	5	1	02/08/2024 09:02	WG2222126
Lead	ND		0.100	5	1	02/08/2024 09:02	WG2222126
Selenium	ND		0.100	1	1	02/07/2024 23:41	WG2222126
Silver	ND		0.100	5	1	02/07/2024 23:41	WG2222126

Volatile Organic Compounds (GC/MS) by Method 8260

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
1,1-Dichloroethene	ND		0.00500	0.70	1	02/08/2024 17:57	WG2222703
1,2-Dichloroethane	ND		0.00500	0.50	1	02/08/2024 17:57	WG2222703
1,4-Dichlorobenzene	ND		0.00200	7.50	1	02/08/2024 17:57	WG2222703
Benzene	ND		0.00200	0.50	1	02/08/2024 17:57	WG2222703
Carbon tetrachloride	ND		0.00200	0.50	1	02/08/2024 17:57	WG2222703
Chlorobenzene	ND		0.00200	100	1	02/08/2024 17:57	WG2222703
Chloroform	ND		0.00500	6	1	02/08/2024 17:57	WG2222703
Methyl Ethyl Ketone	0.0538		0.0250	200	1	02/08/2024 17:57	WG2222703
Tetrachloroethene	ND		0.00500	0.70	1	02/08/2024 17:57	WG2222703
Trichloroethene	ND		0.00200	0.50	1	02/08/2024 17:57	WG2222703
Vinyl chloride	ND		0.00500	0.20	1	02/08/2024 17:57	WG2222703
Xylenes, Total	ND		0.00600	600	1	02/08/2024 17:57	WG2222703
(S) 1,2-Dichloroethane-d4	102		70.0-130			02/08/2024 17:57	WG2222703
(S) 4-Bromofluorobenzene	105		70.0-130			02/08/2024 17:57	WG2222703
(S) Toluene-d8	102		70.0-130			02/08/2024 17:57	WG2222703

Chlorinated Acid Herbicides (GC) by Method 8151A

Analyte	Result mg/l	Qualifier	RDL mg/l	Limit mg/l	Dilution	Analysis date / time	Batch
2,4,5-TP (Silvex)	ND		0.00200		1	02/13/2024 19:11	WG2223027
2,4-D	ND		0.00200		1	02/13/2024 19:11	WG2223027
(S) 2,4-Dichlorophenyl Acetic Acid	98.8		14.0-158			02/13/2024 19:11	WG2223027



Pesticides (GC) by Method 8081B

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
Allyl	mg/l		mg/l	mg/l			
Chlordane	ND		0.00500	0.03	1	02/12/2024 15:03	WG2223113
Endrin	ND		0.00500	0.02	1	02/12/2024 15:03	WG2223113
Heptachlor	ND		0.00400	0.0080	1	02/12/2024 15:03	WG2223113
Lindane	ND		0.00500	0.40	1	02/12/2024 15:03	WG2223113
Methoxychlor	ND		0.00500	10	1	02/12/2024 15:03	WG2223113
Toxaphene	ND		0.0100	0.50	1	02/12/2024 15:03	WG2223113
(S) Decachlorobiphenyl	40.8		10.0-128			02/12/2024 15:03	WG2223113
(S) Tetrachloro-m-xylene	51.5		10.0-127			02/12/2024 15:03	WG2223113

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

Analyte	Result	Qualifier	RDL	Limit	Dilution	Analysis date / time	Batch
1,4-Dichlorobenzene	ND		0.0250	7.50	10	02/08/2024 22:10	WG2221636
2,4-Dinitrotoluene	ND		0.0500	0.13	10	02/08/2024 22:10	WG2221636
Hexachlorobenzene	ND		0.0250	0.13	10	02/08/2024 22:10	WG2221636
Hexachloro-1,3-butadiene	ND		0.0250	0.50	10	02/08/2024 22:10	WG2221636
Hexachloroethane	ND		0.0250	3	10	02/08/2024 22:10	WG2221636
Nitrobenzene	ND		0.0250	2	10	02/08/2024 22:10	WG2221636
Pyridine	ND		0.0250	5	10	02/08/2024 22:10	WG2221636
3&4-Methyl Phenol	0.193		0.0250	400	10	02/08/2024 22:10	WG2221636
2-Methylphenol	ND		0.0500	200	10	02/08/2024 22:10	WG2221636
Pentachlorophenol	ND		0.0500	100	10	02/08/2024 22:10	WG2221636
2,4,5-Trichlorophenol	ND		0.0250	400	10	02/08/2024 22:10	WG2221636
2,4,6-Trichlorophenol	ND		0.0250	2	10	02/08/2024 22:10	WG2221636
(S) 2-Fluorophenol	54.8		10.0-66.0			02/08/2024 22:10	WG2221636
(S) Phenol-d5	55.8	J1	10.0-54.0			02/08/2024 22:10	WG2221636
(S) Nitrobenzene-d5	51.4		15.0-106			02/08/2024 22:10	WG2221636
(S) 2-Fluorobiphenyl	48.8		26.0-102			02/08/2024 22:10	WG2221636
(S) 2,4,6-Tribromophenol	48.0		29.0-132			02/08/2024 22:10	WG2221636
(S) p-Terphenyl-d14	54.0		10.0-120			02/08/2024 22:10	WG2221636



Total Solids by Method D2974

Analyte	Result	Units	Qualifier	Dilution	Analysis date / time	Batch
Total Solids	50.2	%		1	02/07/2024 17:32	WG2222077

Wet Chemistry by Method 9014.

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Cyanide	ND		5.00 mg/kg	1	02/02/2024 16:29	WG2219367

Wet Chemistry by Method 9034-9030B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Reactive Sulfide	ND		75.0 mg/kg	1	02/05/2024 09:00	WG2218922

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Sulfate	121		98.7 mg/kg	9.87	02/06/2024 01:26	WG2220174

Wet Chemistry by Method 9095

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Paint Filter Test	See Footnote		1	02/08/2024 09:38	WG2222471

Sample Narrative:

L1701258-08 WG2222471: PASS

Wet Chemistry by Method EPA 1030

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
Ignitability	Not Ignitable		1	02/08/2024 09:33	WG2222432

Wet Chemistry by Method EPA 9045

Analyte	Result	Qualifier	Dilution	Analysis date / time	Batch
pH	5.64		1	02/02/2024 09:49	WG2218599

Sample Narrative:

L1701258-08 WG2218599: 5.64 at 21.2C



WG2221104

Total Solids by Method D2974

QUALITY CONTROL SUMMARY

L1701258-02

L1701101-04 Original Sample (OS) • Duplicate (DUP)

(OS) L1701101-04 02/06/24 16:52 • (DUP) R4030902-1 02/06/24 16:52

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
	%	%		%		%
Total Solids	82.9	82.5	1	0.496		20

1	2	3	4	5	6	7	8	9
PC	TC	SS	CN	SR	OC	GI	AI	SC

ACCOUNT:

PROJECT:

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WG2222077

Total Solids by Method D2974

QUALITY CONTROL SUMMARY

L1701258-04,06,08

L1701304-13 Original Sample (OS) • Duplicate (DUP)

(OS) L1701304-13 02/07/24 17:32 • (DUP) R4031386-1 02/07/24 17:32

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP Qualifier	DUP RPD Limits
Total Solids	87.1	87.1	1	0.0804	%	20

- 1. Cd
- 2. Tc
- 3. Ss
- 4. Cn
- 5. Sr
- 6. Qc
- 7. Gl
- 8. Al
- 9. Sc

WG2219367

Wet Chemistry by Method 9014.

QUALITY CONTROL SUMMARY

L1701258-02.06.08

Method Blank (MB)

(MB) R4029438-1 02/02/24 16:29

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Reactive Cyanide	U		0.634	5.00

Laboratory Control Sample (LCS)

(LCS) R4029438-2 02/02/24 16:29

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Cyanide	10.0	8.61	86.1	85.0-115	

CP	Tc	³ Ss	⁴ Cn	⁵ Sr	⁶ Qc	⁷ Gl	Al	⁹ Sc
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WG2221597

Wet Chemistry by Method 9014.

QUALITY CONTROL SUMMARY

L1701258-04

Method Blank (MB)

(MB) R4031006-1 02/07/24 16:12	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/kg	mg/kg	mg/kg	mg/kg
Reactive Cyanide	U	0.634	0.634	5.00

Laboratory Control Sample (LCS)

(LCS) R4031006-2 02/07/24 16:12	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/kg	mg/kg	%	%	
Reactive Cyanide	10.0	8.69	86.9	85.0-115	

L1701201-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1701201-02 02/07/24 16:12 • (MS) R4031006-3 02/07/24 16:12 • (MSD) R4031006-4 02/07/24 16:12	Spike Amount	Original Result	MS Result	MS Rec.	MSD Result	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/kg	mg/kg	mg/kg	%	mg/kg	%		%			%	%
Reactive Cyanide	9.98	ND	6.80	68.1	5.88	59.7	.998	75.0-125	J5	J5	14.5	20

1	Cu
2	Pb
3	Ss
4	Cn
5	Sr
6	Qc
7	Gl
8	Al
9	Sc

WG2218922

Wet Chemistry by Method 9034-9030B

QUALITY CONTROL SUMMARY

L1701258-02,04,05,08

Method Blank (MB)

(MB) R4029709-1 02/05/24 09:00

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Reactive Sulfide	U		30.0	75.0

Laboratory Control Sample (LCS)

(LCS) R4029709-2 02/05/24 09:00

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Reactive Sulfide	100	60.0	60.0	53.8-124	

L1701258-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1701258-04 02/05/24 09:00 • (MS) R4029709-3 02/05/24 09:00 • (MSD) R4029709-4 02/05/24 09:00

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Reactive Sulfide	100	1600	2240	639	1	10.0-136	V	V	4.19	20

Sample Narrative:

MS: spike failed due to high parent hit
MSD: spike failed due to high parent hit

1	2	3	4	5	6	7	8	9
	Tc	Ss	Cn	Sr	Qc	GI	AI	Sc

ACCOUNT:

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1177158

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WG22220174

Wet Chemistry by Method 9056A

QUALITY CONTROL SUMMARY

L1701258-02.04.06.08

Method Blank (MB)

(MB) R4030297-1 02/05/24 23:57

Analyte	MB Result mg/kg	MB Qualifier	MB MDL mg/kg	MB RDL mg/kg
Sulfate	U		2.02	10.0

Laboratory Control Sample (LCS)

(LCS) R4030297-2 02/06/24 00:15

Analyte	Spike Amount mg/kg	LCS Result mg/kg	LCS Rec. %	Rec. Limits %	LCS Qualifier
Sulfate	50.0	49.6	99.2	80.0-120	

L1701258-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1701258-04 02/06/24 00:51 • (MS) R4030297-3 02/06/24 10:03 • (MSD) R4030297-4 02/06/24 10:21

Analyte	Spike Amount mg/kg	Original Result mg/kg	MS Result mg/kg	MS Rec. %	MSD Result mg/kg	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfate	500	272	715	88.6	588	63.2	9.86	80.0-120	J5	J5	19.5	20

Ca
Tc
3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
Al
9 Sc

WG2222471

Wet Chemistry by Method 9095

QUALITY CONTROL SUMMARY

L1701258-02,04,06,08

L1701258-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1701258-02 02/08/24 09:38 • (DUP) R4031249-1 02/08/24 09:38

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP RPD Limits
Paint Filter Test	% See Footnote	% See Footnote	1	0.000	% 20

Sample Narrative:

OS: FAIL

DUP: FAIL

- Cp
- Tc
- ³Ss
- ⁴Cn
- ⁵Sr
- ⁶Cc
- ⁷Gl
- Al
- ⁹Sc

ACCOUNT:

PROJECT:

SDG:
1770158

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WG2218599

Wet Chemistry by Method EPA 9045

QUALITY CONTROL SUMMARY

L1701258-02,04,06,08

L1699815-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1699815-01 02/02/24 09:49 • (DUP) R4029152-2 02/02/24 09:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
pH	SU 8.54	SU 8.32	1	2.61		20

Sample Narrative:

OS: 8.54 at 21C

DUP: 8.32 at 21.2C

L1701104-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1701104-02 02/02/24 09:49 • (DUP) R4029152-3 02/02/24 09:49

Analyte	Original Result	DUP Result	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
pH	SU 9.37	SU 9.35	1	0.214		20

Sample Narrative:

OS: 9.37 at 20.9C

DUP: 9.35 at 20.9C

Laboratory Control Sample (LCS)

(LCS) R4029152-1 02/02/24 09:49

Analyte	Spike Amount	LCS Result	LCS Rec. %	Rec. Limits %	LCS Qualifier
pH	SU 6.00	SU 5.98	99.7	99.0-101	

Sample Narrative:

LCS: 5.98 at 21.7C

- CP
- TC
- 3 Ss
- 4 Ch
- 5 Sr
- 6 Qc
- 7 GI
- Al
- 9 Sc

ACCOUNT:

PROJECT:

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WG2222599
Mercury by Method 7470

QUALITY CONTROL SUMMARY

L1701258-01,03,05,07

Method Blank (MB)

(MB) R4031609-1	02/08/24 16:00	MB Result	MB MDL	MB RDL
Analyte	mg/l			
Mercury	U	0.000167	0.000200	

Laboratory Control Sample (LCS)

(LCS) R4031609-2	02/08/24 16:02	Spike Amount	LCS Result	LCS Rec.	Rec. Limits
Analyte	mg/l				
Mercury	0.00250	0.00243	97.2	80.0-120	

L1701258-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1701258-01	02/08/24 16:05 • (MS) R4031609-3	02/08/24 16:07 • (MSD) R4031609-4	02/08/24 16:09							
Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Mercury	mg/l	mg/l	mg/l	%		%	%	%	%	%
	0.00250	ND	0.00306	122	1	80.0-120	122	120	2.31	20

1	2	3	4	5	6	7	8	9
		SS	Cn	Sr	QC	Gl	Al	Sc

WG2222126

Metals (ICP) by Method 6010

QUALITY CONTROL SUMMARY

L1701258-01.03.05.07

Method Blank (MB)

(MB) R4031174-3 02/07/24 23:21

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	U	0.0200	0.100	0.100
Cadmium	U	0.0140	0.100	0.100
Selenium	0.0239	-	0.0200	0.100
Silver	U	0.00800	0.100	0.100

Method Blank (MB)

(MB) R4031285-1 02/08/24 08:42

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Barium	0.0159	-	0.00400	0.100
Chromium	U	0.0120	0.100	0.100
Lead	U	0.0100	0.100	0.100

Laboratory Control Sample (LCS)

(LCS) R4031174-4 02/07/24 23:25

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	1.00	0.950	95.0	80.0-120	
Cadmium	1.00	0.997	99.7	80.0-120	
Selenium	1.00	0.921	92.1	80.0-120	
Silver	0.500	0.477	95.4	80.0-120	

Laboratory Control Sample (LCS)

(LCS) R4031285-2 02/08/24 08:46

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Barium	1.00	0.888	88.8	80.0-120	
Chromium	1.00	0.867	86.7	80.0-120	
Lead	1.00	0.964	96.4	80.0-120	

1 Cu 2 Pb 3 Sn 4 Cd 5 Ni 6 Cr 7 Mn 8 Al 9 Fe 10 Zn

ACCOUNT:

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WG2222126

Metals (ICP) by Method 6010

QUALITY CONTROL SUMMARY

L1701258-01,03,05,07

L1702468-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1702468-01 02/07/24 22:57 • (MS) R403174-1 02/07/24 23:01 • (MSD) R403174-2 02/07/24 23:05

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Arsenic	10.0	ND	9.71	9.74	97.1	97.4	1	80.0-120			0.298	20
Cadmium	10.0	ND	10.0	10.1	100	101	1	80.0-120			0.995	20
Selenium	10.0	ND	9.44	9.46	94.1	94.3	1	80.0-120			0.233	20
Silver	5.00	ND	4.77	4.86	95.3	97.3	1	80.0-120			2.04	20

L1702468-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1702468-01 02/08/24 09:06 • (MS) R4031285-3 02/08/24 09:10 • (MSD) R4031285-4 02/08/24 09:14

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	MSD Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	mg/l	%	%		%			%	%
Barium	10.0	3.86	13.1	13.1	92.5	92.2	1	80.0-120			0.229	20
Chromium	10.0	ND	8.72	9.23	87.0	92.1	1	80.0-120			5.61	20
Lead	10.0	ND	9.62	9.41	96.2	94.1	1	80.0-120			2.21	20

- Cd
- Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- Al
- 9 Sc

WG2222703

Volatile Organic Compounds (GC/MS) by Method 8260

QUALITY CONTROL SUMMARY

L1701258-01.03.05.07

Method Blank (MB)

(MB) R4031675-2 02/08/24 13:20

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,1-Dichloroethene	U	0.00109	0.00500	0.00500
1,2-Dichloroethane	U	0.00112	0.00500	0.00500
1,4-Dichlorobenzene	U	0.000396	0.00200	0.00200
Benzene	U	0.000493	0.00200	0.00200
Carbon tetrachloride	U	0.00113	0.00200	0.00200
Chlorobenzene	U	0.000366	0.00200	0.00200
Chloroform	U	0.00123	0.00500	0.00500
Methyl Ethyl Ketone	U	0.00491	0.0250	0.0250
Tetrachloroethene	U	0.00155	0.00500	0.00500
Trichloroethene	U	0.000595	0.00200	0.00200
Vinyl chloride	U	0.000932	0.00500	0.00500
Xylenes, Total	U	0.00132	0.00600	0.00600
(S) 1,2-Dichloroethane-d4	97.8		70.0-130	70.0-130
(S) 4-Bromofluorobenzene	104		70.0-130	70.0-130
(S) Toluene-d8	102		70.0-130	70.0-130

Laboratory Control Sample (LCS)

(LCS) R4031675-1 02/08/24 12:52

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,1-Dichloroethene	0.0200	0.0178	89.0	58.0-137	
1,2-Dichloroethane	0.0200	0.0210	105	80.0-128	
1,4-Dichlorobenzene	0.0200	0.0200	100	80.0-129	
Benzene	0.0200	0.0223	112	80.0-131	
Carbon tetrachloride	0.0200	0.0199	99.5	70.0-140	
Chlorobenzene	0.0200	0.0216	108	75.0-123	
Chloroform	0.0200	0.0231	116	72.0-131	
Methyl Ethyl Ketone	0.100	0.124	124	75.0-130	
Tetrachloroethene	0.0200	0.0222	111	72.0-136	
Trichloroethene	0.0200	0.0202	101	70.0-130	
Vinyl chloride	0.0200	0.0168	84.0	70.0-130	
Xylenes, Total	0.0600	0.0656	109	78.0-124	
(S) 1,2-Dichloroethane-d4			101	70.0-130	
(S) 4-Bromofluorobenzene			102	70.0-130	
(S) Toluene-d8			99.9	70.0-130	

WG2222703

Volatile Organic Compounds (GC/MS) by Method 8260

QUALITY CONTROL SUMMARY

L1701258-01,03,05,07

L1701258-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1701258-01 02/08/24 15:54 • (MS) R4031675-3 02/08/24 16:19 • (MSD) R4031675-4 02/08/24 16:43

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,1-Dichloroethene	0.0200	ND	0.0398	0.0246	199	123	1	49.0-134	J5	J3	47.2	20
1,2-Dichloroethane	0.0200	ND	0.0217	0.0238	109	119	1	49.0-134			9.23	20
1,4-Dichlorobenzene	0.0200	ND	0.0235	0.0227	117	114	1	49.0-134			3.46	20
Benzene	0.0200	ND	0.0200	0.0238	100	119	1	49.0-134	V3		17.4	20
Carbon tetrachloride	0.0200	ND	0.0229	0.0211	115	105	1	49.0-134	V3		8.18	20
Chlorobenzene	0.0200	ND	0.0226	0.0229	113	115	1	49.0-134			1.32	20
Chloroform	0.0200	ND	0.0206	0.0248	103	124	1	49.0-134			18.5	20
Methyl Ethyl Ketone	0.100	0.0289	0.139	0.179	110	150	1	49.0-134	J3 J5		25.2	20
Tetrachloroethene	0.0200	ND	0.0221	0.0222	111	111	1	49.0-134	J5 V3		0.451	20
Trichloroethene	0.0200	ND	0.0423	0.0223	211	112	1	49.0-134	J3		61.9	20
Vinyl chloride	0.0200	ND	0.0349	0.0167	174	83.5	1	49.0-134	J5		70.5	20
Xylenes, Total	0.0600	ND	0.0705	0.0709	118	118	1	71.0-133			0.566	20
(S) 1,2-Dichloroethane-d4					97.3	105		70.0-130				
(S) 4-Bromofluorobenzene					100	100		70.0-130				
(S) Toluene-d8					102	97.7		70.0-130				

GC
TC
3 Ss
4 Cn
5 Sr
6 GC
7 GI
8 AI
9 Sc

ACCOUNT:

PROJECT:

SDG: 177759

DATE/TIME: 02/18/24 16:33

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WG2223027

Chlorinated Acid Herbicides (GC) by Method 8151A

QUALITY CONTROL SUMMARY

L1701258-01,03,05,07

Method Blank (MB)

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
2,4,5-TP (Silvex)	U	0.000667	0.000667	0.00200
2,4-D	U	0.000667	0.000667	0.00200
(S) 2,4-Dichlorophenyl Acetic Acid	83.0			14.0-158

Laboratory Control Sample (LCS)

Analyte	Spike Amount		LCS Result		LCS Rec.		Rec. Limits		LCS Qualifier	
	mg/l	%	mg/l	%	mg/l	%	mg/l	%	mg/l	%
2,4,5-TP (Silvex)	0.0500	116	0.0579	116	50.0-125	50.0-125	E	E	E	E
2,4-D	0.0500	110	0.0548	110	50.0-120	50.0-120	E	E	E	E
(S) 2,4-Dichlorophenyl Acetic Acid		96.0		96.0	14.0-158	14.0-158				

L1702511-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier		MSD Qualifier		RPD Limits	
							MS Rec. %	MSD Rec. %	MS Qualifier	MSD Qualifier	RPD %	RPD %
2,4,5-TP (Silvex)	0.0500	ND	0.0627	0.0628	1	50.0-125	125	126	E, J5	E, J5	0.159	20
2,4-D	0.0500	ND	0.0624	0.0606	1	50.0-120	125	121	E, J5	E, J5	2.93	20
(S) 2,4-Dichlorophenyl Acetic Acid						14.0-158	105	104				

WG2223113

Pesticides (GC) by Method 8081B

QUALITY CONTROL SUMMARY

L1701258-01.03.05.07

Method Blank (MB)

(MB) R4032866-1 02/12/24 12:59

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
	mg/l	mg/l	mg/l	mg/l
Chlordane	U	0.00167	0.00500	0.00500
Endrin	U	0.00167	0.00500	0.00500
Heptachlor	U	0.00167	0.00400	0.00400
Lindane	U	0.00167	0.00500	0.00500
Methoxychlor	U	0.00167	0.00500	0.00500
Toxaphene	U	0.00333	0.0100	0.0100
(S) Decachlorobiphenyl	61.8		10.0-128	10.0-128
(S) Tetrachloro-m-xylene	73.7		10.0-127	10.0-127

Laboratory Control Sample (LCS)

(LCS) R4032866-2 02/12/24 13:17

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
	mg/l	mg/l	%	%	
Endrin	0.0100	0.00981	98.1	57.0-134	
Heptachlor	0.0100	0.00856	85.6	27.0-132	
Lindane	0.0100	0.00964	96.4	55.0-129	
Methoxychlor	0.0100	0.0107	107	54.0-155	
(S) Decachlorobiphenyl		71.4	71.4	10.0-128	
(S) Tetrachloro-m-xylene		74.6	74.6	10.0-127	

L1700626-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1700626-03 02/12/24 13:35 • (MS) R4032866-3 02/12/24 13:43 • (MSD) R4032866-4 02/12/24 13:52

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
	mg/l	mg/l	mg/l	%		%			%	%
Endrin	0.0100	ND	0.00521	48.3	1	10.0-160	10.0-160	52.1	7.57	39
Heptachlor	0.0100	ND	0.00468	44.1	1	16.0-136	16.0-136	46.8	5.94	40
Lindane	0.0100	ND	0.00752	66.7	1	14.0-141	14.0-141	75.2	12.0	40
Methoxychlor	0.0100	ND	0.00506	46.7	1	10.0-160	10.0-160	50.6	8.02	34
(S) Decachlorobiphenyl		ND	15.8	15.8		10.0-128	10.0-128	17.9		
(S) Tetrachloro-m-xylene		ND	38.4	38.4		10.0-127	10.0-127	39.2		

WG2221636

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

QUALITY CONTROL SUMMARY

L1701258-01,03,05,07

Method Blank (MB)

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
1,4-Dichlorobenzene	U		0.0180	0.0250
2,4-Dinitrotoluene	U		0.0270	0.0500
Hexachlorobenzene	U		0.0100	0.0250
Hexachloro-1,3-butadiene	U		0.0180	0.0250
Hexachloroethane	U		0.0190	0.0250
Nitrobenzene	U		0.0120	0.0250
Pyridine	U		0.0120	0.0250
3&4-Methyl Phenol	U		0.00800	0.0250
2-Methylphenol	U		0.00800	0.0500
Pentachlorophenol	U		0.0210	0.0500
2,4,5-Trichlorophenol	U		0.0190	0.0250
2,4,6-Trichlorophenol	U		0.0180	0.0250
(S) 2-fluorophenol	84.0	U		10.0-66.0
(S) phenol-d6	77.0	U		10.0-54.0
(S) nitrobenzene-d5	89.6			15.0-106
(S) 2-Fluorobiphenyl	81.4			26.0-102
(S) 2,4,6-tribromophenol	82.0			29.0-132
(S) p-Terphenyl-d14	92.6			10.0-120

Laboratory Control Sample (LCS)

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
1,4-Dichlorobenzene	0.500	0.418	83.6	35.0-110	
2,4-Dinitrotoluene	0.500	0.444	88.8	59.0-133	
Hexachlorobenzene	0.500	0.430	86.0	61.0-115	
Hexachloro-1,3-butadiene	0.500	0.411	82.2	28.0-110	
Hexachloroethane	0.500	0.430	86.0	26.0-110	
Nitrobenzene	0.500	0.477	95.4	46.0-108	
Pyridine	0.500	0.209	41.8	12.0-110	
3&4-Methyl Phenol	1.00	0.920	92.0	33.0-110	
2-Methylphenol	0.500	0.474	94.8	38.0-110	
Pentachlorophenol	0.500	0.369	73.8	40.0-140	
2,4,5-Trichlorophenol	0.500	0.451	90.2	60.0-118	
2,4,6-Trichlorophenol	0.500	0.445	89.0	60.0-117	
(S) 2-fluorophenol			86.4	10.0-66.0	U
(S) phenol-d6			82.6	10.0-54.0	U
(S) nitrobenzene-d5			92.2	15.0-106	

ACCOUNT:

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WG2221636

Semi Volatile Organic Compounds (GC/MS) by Method 8270C

QUALITY CONTROL SUMMARY

L1701258-01.03.05.07

Laboratory Control Sample (LCS)

(LCS) R4031985-2 02/08/24 18:11

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
(S) 2-Fluorobiphenyl	0.500	ND	86.8	26.0-102	
(S) 2,4,6-tribromophenol	0.500	ND	85.0	29.0-132	
(S) p-Terphenyl-d14	0.500	ND	98.2	10.0-120	

L1699336-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1699336-02 02/08/24 19:41 • (MS) R4031985-3 02/08/24 18:41 • (MSD) R4031985-4 02/08/24 19:11

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
1,4-Dichlorobenzene	0.500	ND	0.395	0.378	79.0	75.6	10	35.0-110			4.40	40
2,4-Dinitrotoluene	0.500	ND	0.437	0.418	87.4	83.6	10	59.0-133			4.44	40
Hexachlorobenzene	0.500	ND	0.438	0.408	87.6	81.6	10	61.0-115			7.09	40
Hexachloro-1,3-butadiene	0.500	ND	0.407	0.380	81.4	76.0	10	28.0-110			6.86	40
Hexachloroethane	0.500	ND	0.346	0.346	69.2	69.2	10	26.0-110			0.000	40
Nitrobenzene	0.500	ND	0.403	0.400	80.6	80.0	10	46.0-108			0.747	40
Pyridine	0.500	ND	0.327	0.244	65.4	48.8	10	12.0-110			29.1	40
3,4-Methyl Phenol	1.00	ND	0.650	0.728	65.0	72.8	10	33.0-110			11.3	40
2-Methylphenol	0.500	ND	0.406	0.406	81.2	81.2	10	38.0-110			0.000	40
Pentachlorophenol	0.500	ND	0.367	0.337	73.4	67.4	10	40.0-140			8.52	40
2,4,5-Trichlorophenol	0.500	ND	0.389	0.395	77.8	79.0	10	60.0-118			1.53	40
2,4,6-Trichlorophenol	0.500	ND	0.367	0.356	73.4	71.2	10	60.0-117			3.04	40
(S) 2-fluorophenol					73.2	77.0		10.0-66.0	J1	J1		
(S) phenol-d6					69.8	72.6		10.0-54.0	J1	J1		
(S) nitrobenzene-d5					85.2	86.4		15.0-106				
(S) 2-Fluorobiphenyl					84.6	83.6		26.0-102				
(S) 2,4,6-tribromophenol					80.4	81.2		29.0-132				
(S) p-Terphenyl-d14					97.6	98.0		10.0-120				

ACCOUNT:

PROJECT:

SDG: 11701258

DATE/TIME: 02/18/24 16:33

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GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
(S)	Surrogate (Surrogate Standard) - Analytes added to every blank, sample, Laboratory Control Sample/Duplicate and Matrix Spike/Duplicate; used to evaluate analytical efficiency by measuring recovery. Surrogates are not expected to be detected in all environmental media.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
-----------	-------------

E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J1	Surrogate recovery limits have been exceeded; values are outside upper control limits.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
V	The sample concentration is too high to evaluate accurate spike recoveries.
V3	The internal standard exhibited poor recovery due to sample matrix interference. The analytical results will be biased high. BDL results will be unaffected.



ACCREDITATIONS & LOCATIONS



Pace Analytical National		12065 Lebanon Rd Mount Juliet, TN 37122	
Alabama	40660	Nebraska	NE-05-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey--NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio--VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	A130792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	AZLA
A2LA -- ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA -- ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA--Crypto	TN00003		

Pace Analytical Services, LLC -Dallas		400 W. Bethany Drive Suite 190 Allen, TX 75013	
Arkansas	88-0647	Kansas	E10388
Florida	E871118	Texas	T104704232-23-39
Iowa	408	Oklahoma	8727
Louisiana	30686		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable
 * Not all certifications held by the laboratory are applicable to the results reported in the attached report.
 * Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



CHAIN-OF-CUSTODY / Analytical Request Document

The Chain-of-Custody is a LEGAL DOCUMENT. All relevant fields must be completed accurately.

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Section A
Required Client Information:

Company: City of Lewisville
 Address: 807 Trinchard Blvd, Lewisville, TX 75007
 Phone: 972-219-3548 Fax: 972-219-3506
 Requested Due Date/TAT: ASAP

Section B
Required Project Information:

Report To: [Blank]
 City: [Blank]
 Project Name: TCLP Sludge
 Project Number: [Blank]

Section C
Trace Information

Company Name: [Blank]
 Address: [Blank]
 City: [Blank]
 State: TX

REGULATORY AGENCY

NPDES GROUNDWATER DRINKING WATER
 UST RCRA OTHER

ITEM #	MATRIX CODE	MATRIX CODES	COLLECTED		SAMPLE TYPE (G-GRAB C-COMP)	ANALYSIS TESTS		ACCEPTED BY / AFFILIATION	DATE	TIME	DATE	TIME	SAMPLE CONDITIONS
			DATE	TIME		DATE	TIME						
1	21733 & 21734 - Fine Screens/TCLP	Drinking Water DW	1/31/2024	9:40 AM	G	Paint Filter Test	✓	J. Maness / ECS Inspector	1/31/2024	10:25 AM	1/11/2024	10:25 AM	
2	21735 & 21736 - Grit/TCLP	Waste Water WW	1/31/2024	9:43 AM	G	Reactivity, Corrosivity, & Ignitability	✓	J. Maness / ECS Inspector	2/1/24	11:55 AM	2/1/24	11:55 AM	
3	21737 & 21738 - Sludge/TCLP	Product P	1/31/2024	9:48 AM	G	Toxicity Characteristic Leaching Procedure	✓	J. Maness / ECS Inspector	2/1/24	12:55 PM	2/1/24	12:55 PM	
4	21739 & 21740 - Timbercreek/TCLP	Other O	1/31/2024	10:10 AM	G	Total Solids	✓	J. Maness / ECS Inspector					
5						Percent Solids	✓						
6						Reactivity, Corrosivity, & Ignitability	✓						
7						Toxicity Characteristic Leaching Procedure	✓						
8						Paint Filter Test	✓						
9						Zinc Acetate	✓						
10						H ₂ SO ₄	✓						
11						HNO ₃	✓						
12						HCl	✓						
						NaOH	✓						
						Na ₂ S ₂ O ₃	✓						
						Material	✓						
						Other	✓						

Residual Chrome (Y/N)

Pace Project No./Lab I.D.
82710417
01/03
03/04
05/06
07/08

Section D
Requested Client Information:

Sample ID: (A-Z, 0-9 / - / -)
 Sample IDs MUST BE UNIQUE

ADDITIONAL COMMENTS

Analyze only for Paint Filter Test.
 Toxicity Characteristic Leaching Procedure.
 Reactivity, Corrosivity, & Ignitability, Percent Solids
 pH: 6.96 S.U. Temp. 18.2°C

Requested Due Date/TAT: ASAP

Section E
SAMPLER NAME AND SIGNATURE

PRINT Name of SAMPLER: Justin Maness
 SIGNATURE OF SAMPLER: [Signature]
 DATE SIGNED (MM/DD/YYYY): 01/31/24

	Document Name: Sample Condition Upon Receipt	Document Revised: 7/27/20 Page 1 of 1
	Document No.: F-DAL-C-001-rev.14	Issuing Authority: Pace Dallas Quality Office

Sample Condition Upon Receipt

Dallas Ft Worth Corpus Christi Austin

Client Name: City of Lewisville Project Work order (place label): _____

Courier: FedEX UPS USPS Client LSO PACE Other: _____

Tracking #: _____

Custody Seal on Cooler/Box: Yes No

Received on ice: Wet Blue No ice

Receiving Lab 1 Thermometer Used: 1219 Cooler Temp °C: 4.6 (Recorded) 10.2 (Correction Factor) 48 (Actual)

Receiving Lab 2 Thermometer Used: _____ Cooler Temp °C: _____ (Recorded) _____ (Correction Factor) _____ (Actual)

Temperature should be above freezing to 6°C unless collected same day as receipt in which evidence of cooling is acceptable

Triage Person: AL Date: 2/1

Chain of Custody relinquished	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sampler name & signature on COC	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Short HT analyses (<72 hrs)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Login Person: OC Date: 2/1

Sufficient Volume received	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Correct Container used	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Container Intact	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample pH Acceptable pH Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Residual Chlorine Present Cl Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Sulfide Present Lead Acetate Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Are soil samples (volatiles, TPH) received in 5035A Kits (not applicable to TCLP VOA or PST Program TPH)	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Unpreserved 5035A soil frozen within 48 hrs	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Headspace in VOA (>6mm)	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Project sampled in USDA Regulated Area outside of Texas State Sampled: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Non-Conformance(s):	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Labeling Person (if different than log-in): _____ Date: _____

Time estimate: oh

Time spent: oh

Members

OC Olivia Currie (responsible) JGC Justin Carr

1. If Chain-of-custody (COC) is not received: contact client and if necessary, fill out a COC and indicate that it was filled out by lab personnel. Note issues on this NCF.

2. If COC is incomplete, check applicable issues below and add details where appropriate:

*Collection date/time missing or incorrect

*Analyses or analytes: missing or Clarification needed

*Samples listed on COC do not match samples recieved (missing, additional,etc.)

*Sample IDs on COC do not match sample Labels

*Required trip blanks were not received

*Required signatures are missing

3. Sample integrity issues: check applicable issues below and add details where appropriate:

*Samples: Past holding time

*Samples: Not Field Filtered

*samples: Insufficient volume received

*Samples: Cooler damaged or compromised

*Samples: contain Chlorine or Sulfide

*Samples: condition needs to be brought to lab personnel's attention (details below)

*Containers: Broken or compromised

*Containers: Incorrect

*Custody Seals: missing or compromised on samples, trip blanks or coolers

*Packing Material: Insufficient/Improper

*Preservation: improper

*Temperature: not witin acceptance criteria (typically 0-6C)

*Temperature: Samples arrived frozen

*Vials received with improper headspace

*Other:

4. If Samples not preserved properly and Sample Receiving adjusts pH, add details below:

Sample ID: _____

Preserved by: _____

Date/Time: _____

Initial and Final pH: _____

Amount/type pres added: _____

Lot # of Pres added: _____

5. Client contact: If Client is Contacted for any issue listed above, fill in details below:

Client:

PM Initials: JGC

Contacted per: email

Date/Time: 2/2/24 @ 10:14AM

Comments

Olivia Currie

1 February 2024 3:51 PM

clarify TCLP

Justin Carr

2 February 2024 10:29 AM

Please run full TCLP

	Document Name: Sample Condition Upon Receipt	Document Revised: 7/27/20 Page 1 of 1
	Document No F-DAL C-001 rev.14	Issuing Authority Pace Dallas Quality Office

Sample Condition Upon Receipt

Dallas Ft Worth Corpus Christi Austin

Client Name: City of Lewisville Project Work order (place label): _____
 Courier: FedEX UPS USPS Client LSO PACE Other: _____
 Tracking #: _____
 Custody Seal on Cooler/Box: Yes No
 Received on ice: Wet Blue No ice
 Receiving Lab 1 Thermometer Used: 1219 Cooler Temp °C: 4.6 (Recorded) 10.2 (Correction Factor) 4.8 (Actual)
 Receiving Lab 2 Thermometer Used: _____ Cooler Temp °C: _____ (Recorded) _____ (Correction Factor) _____ (Actual)

Temperature should be above freezing to 6 C unless collected same day as receipt in which evidence of cooling is acceptable

Triage Person: AR Date: 2/11

Chain of Custody relinquished	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sampler name & signature on COC	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Short HT analyses (<72 hrs)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Log in Person: OC Date: 2/11

Sufficient Volume received	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Correct Container used	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Container Intact	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample pH Acceptable pH Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Residual Chlorine Present Cl Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Sulfide Present Lead Acetate Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Are soil samples (volatiles, TPH) received in 5035A Kits (not applicable to TCLP VOA or PST Program TPH)	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
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Project sampled in USDA Regulated Area outside of Texas State Sampled: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Non-Conformance(s):	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Labeling Person (if different than log-in): _____ Date: _____



ANALYTICAL REPORT

April 08, 2024

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

City of Lewisville

Sample Delivery Group: L1722259
 Samples Received: 04/04/2024
 Project Number:
 Description: WWTP / COL
 Report To: Kimberly Morris
 PO Box 299002
 Lewisville, TX 75029

Entire Report Reviewed By: *Reagan Johnson*

Reagan Johnson
Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

TABLE OF CONTENTS

Cp: Cover Page	1	¹ Cp
Tc: Table of Contents	2	
Ss: Sample Summary	3	² Tc
Cn: Case Narrative	4	
Sr: Sample Results	5	³ Ss
0328 - DRY GRIT L1722259-01	5	⁴ Cn
Qc: Quality Control Summary	6	
Wet Chemistry by Method 9034-9030B	6	⁵ Sr
Gl: Glossary of Terms	7	
Al: Accreditations & Locations	8	⁶ Qc
Sc: Sample Chain of Custody	9	⁷ Gl
		⁸ Al
		⁹ Sc

SAMPLE SUMMARY

0328 - DRY GRIT L1722259-01 Solid

Collected by: Jae-Do Tae
 Collected date/time: 04/04/24 11:08
 Received date/time: 04/04/24 12:05

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9034-9030B	WG2262753	1	04/07/24 10:13	04/08/24 17:00	KRW	Mt. Juliet, TN

- 1 Cp
- 2 Tc
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Reagan Johnson
Project Manager

Project Narrative

All Reactive Sulfide results reported in the attached report were determined as totals using method 9034-9030B.

1 Cp

2 Tc

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

8 AI

9 Sc

0328 - DRY GRIT

Collected date/time: 04/04/24 11:08

SAMPLE RESULTS - 01

L1722259

Wet Chemistry by Method 9034-9030B

Analyte	Result mg/kg	Qualifier	RDL mg/kg	Dilution	Analysis date / time	Batch
Reactive Sulfide	156		75.0	1	04/08/2024 17:00	WG2262753

- 1 Cp
- 2 Tr
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

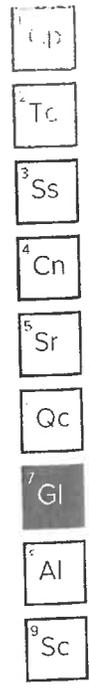
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
------------------	--------------------

J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
----	---



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ¹⁶	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	A130792	Tennessee ¹⁴	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA - ISO 17025 ⁷	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA - ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable
⁷ Not all certifications held by the laboratory are applicable to the results reported in the attached report.
⁸ Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.





Pace® Location Requested (City/State)

Company Name City of Lewisville
Street Address:
897 Treatment Plant Rd., Lewisville TX 75057

Customer Project #
Project Name:
Annual TCLP sludge grit recollect (Dry)
Site Collection Info/Facility ID (as applicable):
WWTP / COL

Time Zone Collected: | AK | PT | MT | CT | ET
Date Deliverables:
Level II | Level III | Level IV
Level I EQUIS
Level I Other

Regulatory Program (DW, RW, etc.) applicable
Rush (Pre-approval required):
Day | 3 day | 5 day | Other
Other Results

Matrix *
WWG

Customer Sample ID
0328 - Dry grit

Collected for Composite Start Date Time
04/04/24 11:08

Composite End Date Time
04/04/24 11:08

Res. CLZ
1

Number & Type of Containers
1

Field Filtered (if applicable) | Yes | No
Analysis:

DW PWSD # or WW Permit # as applicable

County/State of origin of samples: Denton, Texas

Contact/Report To: Kimberly Morris
Phone #: 972-219-5050
E-Mail: KimberlyMorris@CityofLewisville.com
CC E-Mail: jmbass@cityoflewisville.com, jlae@cityoflewisville.com

Invoice to:
Invoice Email:
Purchase Order # (if applicable)
Quote #:

Specify Container Size **
Identify Container Preservative Type***
Analysis Requested

LAB USE ONLY. Affix Workorder/Login Label Here



Scan QR Code for instructions

**Container: (a) 1.1L, (b) 500mL, (c) 1.5L, (d) 2L, (e) 3L, (f) 4L, (g) 5L, (h) 10L, (i) 20L, (j) 30L, (k) 40L, (l) 50L, (m) 60L, (n) 70L, (o) 80L, (p) 90L, (q) 100L, (r) 150L, (s) 200L, (t) 300L, (u) 400L, (v) 500L, (w) 600L, (x) 700L, (y) 800L, (z) 900L, (aa) 1000L
*** Preservative Type: (1) None, (2) HNO3, (3) H2SO4, (4) HCl, (5) NaOH, (6) Zn Acetate, (7) Na2S2O4, (8) Sulf, (9) No preservative, (10) Ascorbic Acid, (11) MeOH, (12) Other

Pro, Mgr:
807 - Justin Carr
Account / Client ID:
DSCLEWEL TX
Table #
Profile / Template:
Protog / Bottle Ord. ID:
Sample Comment:
L1722269-01

Lab Use Only
Preservation non-performance identified for sample

Reactive Sulfide M9034-9030 B

Additional Instructions from Pace:
Coasters Thermometer ID: Correction Factor [C] Obs. Temp [C] Connected Temp [C]

Date/Time
4/4/24 @ 11:08
Delivered by: | Person | Counter
4/4/24 @ 11:25
9424 1005
Date/Time
4/4/24 @ 11:08

Received by/Signature
Jared True
Received by/Signature
Jared True
Received by/Signature
Jared True
Received by/Signature
Jared True

Customer Remarks / Special Conditions / Possible Hazards:
Reactive sulfide recollect only

Submitting a sample via this Chain of Custody constitutes acknowledgment and acceptance of the Pace® Terms and Conditions found at <https://www.pacelabs.com/resource-library/resources/pace-terms-and-conditions/>

Page: 1 of 1
ENV-FRM-CORQ-0019_v01_082123 ©

	Document Name: Sample Condition Upon Receipt	Document Revised: 7/27/20 Page 1 of 1
	Document No.: F-DAL-C-001-rev.14	Issuing Authority: Pace Dallas Quality Office

Sample Condition Upon Receipt

Dallas
 Ft Worth
 Corpus Christi
 Austin

Client Name: 897 Treatment Plant, KD - Project Work order (place label): L1722259
 Courier: FedEX UPS USPS Client LSO PACE Other: _____
 Tracking #: _____

Custody Seal on Cooler/Box: Yes No
 Received on ice: Wet Blue No ice
 Receiving Lab 1 Thermometer Used: 1K-19 Cooler Temp °C: 0.8 (Recorded) 10.2 (Correction Factor) 1.0 (Actual)
 Receiving Lab 2 Thermometer Used: _____ Cooler Temp °C: _____ (Recorded) _____ (Correction Factor) _____ (Actual)

Temperature should be above freezing to 6°C unless collected same day as receipt in which evidence of cooling is acceptable

Triage Person: AM Date: 4.4.24

Chain of Custody relinquished	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sampler name & signature on COC	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Short HT analyses (<72 hrs)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Login Person: JW Date: 4/4/24

Sufficient Volume received	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Correct Container used	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Container Intact	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample pH Acceptable pH Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Residual Chlorine Present Cl Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
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Project sampled in USDA Regulated Area outside of Texas State Sampled: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Non-Conformance(s):	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Labeling Person (if different than log-in): _____ Date: _____

Face Analytical	Document Name Sample Condition Upon Receipt	Document Revised: 7/27/20 Page 1 of 1
	Document No. F DAL C 001 rev. 14	Issuing Authority Pace Dallas Quality Office

Sample Condition Upon Receipt

Dallas Ft Worth Corpus Christi Austin

Client Name: 897 Treatment Plant RD - Project Work order (place label)

Courier: FedEX UPS USPS Client LSO PACE Other: _____

L1722259

Tracking #: _____

Custody Seal on Cooler/Box: Yes No

Received on ice: Wet Blue No ice

Receiving Lab 1 Thermometer Used: 1K-19 Cooler Temp °C: 0.8 (Recorded) 10.6 (Correction Factor) 1.0 (Actual)

Receiving Lab 2 Thermometer Used: _____ Cooler Temp °C: _____ (Recorded) _____ (Correction Factor) _____ (Actual)

Temperature should be above freezing to 6 C unless collected same day as receipt in which evidence of cooling is acceptable

Triage Person: AM Date: 4.4.24

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Headspace in VOA (>6mm)	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Project sampled in USDA Regulated Area outside of Texas State Sampled: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Non-Conformance(s):	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Labeling Person (if different than log-in): _____ Date: _____

ATTACHMENT 14

Section 11. Sewage Sludge Lagoons

(D) Deed Recordation of the Site

Domestic Technical Report 1.0

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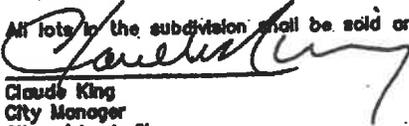
"Stockard
Trinity Regional

onal Water

igional Water
s.

other improvements shall be constructed or placed upon, over or across the easement strips on a
of Lewisville and any public utility shall have the right to remove and keep removed all or part of
fences, trees, shrubs, signs, or other improvements of growths which in any way endanger or inter
construction, maintenance, or efficiency of its respective system on any of these easement strips,
Lewisville and any public utility shall at all times have the right of ingress and egress to and from
said easement strips for the purpose of constructing, reconstructing, inspecting, patrolling, maintai
to or removing all or part of its respective system without necessity at any time of procuring the
anyone. A blanket easement of a three (3) foot radius from the center point of all fire hydrants
radius from the center point of all other appurtenances (fire hydrant valves, water meters, meter
granted to the City of Lewisville for the purpose of constructing, reconstructing, inspecting, and m
above named appurtenances.

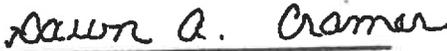
We do further dedicate, subject to the exceptions and reservations set forth hereinafter, to the pu
all public use spaces shown on the face of the plat.

All lots in the subdivision shall be sold and developed subject to the building lines shown on the p

Claude King
City Manager
City of Lewisville

STATE OF TEXAS
COUNTY OF DENTON

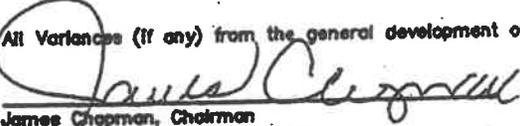
BEFORE ME, the undersigned, a Notary Public in and for the State of Texas, on this day personally
King, known to me to be the person whose name is subscribed to the foregoing instrument and a
that he executed the same for the purposes and considerations therein expressed.

GIVEN UNDER MY HAND AND SEAL OF OFFICE this the 2nd day of June 1998.


Dawn A. Cramer
Notary Public, State of Texas



All Variances (if any) from the general development ordinance approved by City Council

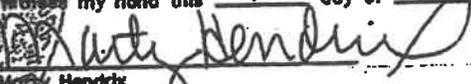

James Chapman, Chairman
Planning and Zoning Commission
City of Lewisville, Texas

6-2-98
Date



The undersigned, the City Secretary of the City of Lewisville, Texas, hereby certifies that the forego
Lewisville Service Center, Lots 1 - 5, Block A", an addition to the City of Lewisville, was submitted
appropriate Planning And Zoning Commission or City Council as required by the ordinances of the C
on the 2nd day of JUNE 1998, and such body by formal action, then and there of
dedication of streets, alleys, parks, easements, public places, and water and sewer lines as shown i
and upon said plat, and said body further authorized acceptance in the capacity stated thereof by
above subscribed.

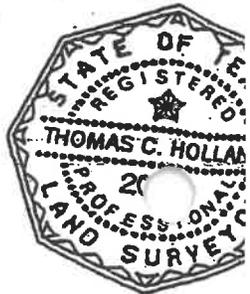
Witness my hand this 4th day of June 1998.


Mary Hendrix
City Secretary
City of Lewisville, Texas

SURVEYOR'S CERTIFICATE

I, Thomas C. Holland, do hereby certify that I have prepared this plat from an actual survey of the
the corner monuments shown were found or properly placed under my supervision, and that the cor
shown hereon are correctly described by location size and material, and that all of the easements
rights-of-way which we discovered in our research or which we were advised by other parties
are correctly shown hereon.


Thomas C. Holland
Registered Professional Land Surveyor
Registration No. 2036



ville recorded in Cabinet B Page 345 in the Denton County Map Records, and being more particularly
as follows:

found 1/2-inch iron rod on the east right-of-way line of Kealy Avenue (30' east of the centerline)
at the southwest corner of said Lot 1 being also the northwest corner of the "Upper Trinity Regional
Plant Addition", an addition to the City of Lewisville recorded in Cabinet L Page 19 in the Denton
County Deed Records;

0° 22' 52" East 644.94 feet along the east line of Kealy Avenue to a set 1/2-inch iron rod;

89° 44' 40" East 5,175.14 feet along the south right-of-way line of Gulf, Colorado and Santa Fe
Highway to a found concrete monument (A-17);

10° 38' 40" West 583.00 feet along the west side of the 56.2 acres tract described in the deed to
American recorded in Volume 353 Page 530 in the Denton County Deed Records to a set 1/2-inch
iron rod;

8° 56' 44" East 153.74 feet continuing along the south side of said 56.2 acres to the center of
the corner being referenced by a found 1/2-inch iron rod which bears South 89° 56' 44" West 50.00

12° 43' 31" West 73.54 feet along the center of Prairie Creek from which a found 1/2-inch iron rod
bears North 32° 58' West 22.01 feet, and a found concrete monument (A-17-3) bears North 89° 32' 58" West

19° 51' 21" West 22.01 feet along the north side of Lot 3 Block A of the "Stockard Addition", on
the City of Lewisville recorded in Cabinet B Page 345 in the Denton County Map Records, to a set
1/2-inch iron rod;

19° 32' 58" West 184.08 feet continuing along the north side of Lot 3 Block A of the "Stockard
Addition" to a set 1/2-inch iron rod;

71° 08' 05" West 282.81 feet along the east side of the 0.7990 acres tract described in the deed to
American recorded as document no. 94-0080897 in the Denton County Deed Records, to a set 1/2-inch
iron rod;

then on arc distance of 203.55 feet continuing along the east side of said 0.7990 acres tract and
to the right to a set 1/2-inch iron rod, said curve having a radius of 150.00 feet, a central angle of
the long chord bears South 40° 00' 33" West 188.28 feet;

10° 55' 53" West 5.85 feet along the west side of said Lot 3 Block A "Stockard Addition" to a set
1/2-inch iron rod;

38° 40' 33" West 523.14 feet continuing along the north side of said Lot 3 Block A "Stockard
Addition" to a set 1/2-inch iron rod;

18° 14' 24" West 194.45 feet continuing along the north side of said Lot 3 Block A "Stockard
Addition" to a found 1/2-inch iron rod;

77° 42' 15" West 426.52 feet continuing along the north side of said Lot 3 Block A "Stockard
Addition" to a set 1/2-inch iron rod;

32° 05' 00" East 128.55 feet continuing along the west side of said Lot 3 Block A "Stockard
Addition" to a set 1/2-inch iron rod;

35° 24' 33" West 175.82 feet along the north side of Lot 2 Block A of said "Stockard Addition", to a
set 1/2-inch iron rod;

14° 32' 50" West 125.10 feet continuing along the north side of Lot 2 Block A of said "Stockard
Addition" to a set 1/2-inch iron rod;

11° 54' 53" West 217.61 feet continuing along the north side of Lot 2 Block A of said "Stockard
Addition" to a set 1/2-inch iron rod;

30° 02' 41" West 81.78 feet continuing along the north side of Lot 2 Block A of said "Stockard
Addition" to a set 1/2-inch iron rod;

14° 31' 55" West 385.13 feet continuing along the north side of Lot 2 Block A of said "Stockard
Addition" to a set 1/2-inch iron rod;

71° 58' 38" West 617.99 feet continuing along the north side of Lot 2 Block A of said "Stockard
Addition" to a set 1/2-inch iron rod;

39° 53' 25" West 911.12 feet continuing along the north side of Lot 2 Block A of said "Stockard
Addition" (found 1/2-inch iron rod), and continuing along the north side of said "Upper Trinity Regional
Plant Addition", to a set 1/2-inch iron rod;

30° 08' 35" East 72.80 feet continuing along the north side of said "Upper Trinity Regional Water
Plant Addition" to a set 1/2-inch iron rod;

39° 53' 25" West 2,115.11 feet continuing along the north side of said "Upper Trinity Regional Water
Plant Addition" to the Point of Beginning and Containing 101.898 acres of land more or less.

Lewisville on
said easement
to be removed
from
granted to
above name

We do further
oil public use

All lots to be
Claude King
City Manager
City of Lewis

STATE OF
COUNTY OF

BEFORE ME,
King, known
that he exec

GIVEN UNDER

Notary Public

All Variations

James Chapman
Planning and
Lewis

The undersigned
Lewisville Set
appropriate. P
the
dedication of
and upon said
above subject

Witness my hand

Henry
Secretary
City of Lewis



SURVEYOR'S

i, Thomas C. H
the corner me
shown hereon
rights-of-way
are correctly

Thomas C. H
Registered P
Registration N

ATTACHMENT 15

Section 11. Sewage Sludge Lagoons

(D)

- **Size of the Sludge Lagoons in Surface Area and Capacity in Cubic Feet and Gallons**
- **Description of the Method of Controlling Infiltration of Ground and Surface Water from Entering the Site**
- **Procedures to Prevent the Occurrence of Nuisance Condition**

Domestic Technical Report 1.0

ATTACHMENT TECHNICAL REPORT

Size of the Sludge Lagoon(s)

15.95 Surface Acres

694,782 Cubic Feet

5,196,969 Gallons

ATTACHMENT TECHNICAL REPORT

Description of the Method of Controlling Infiltration of Groundwater and Surface water from entering the site

The Lagoon is used only in Emergency situations, where normal operations have been interrupted. Sludge has not been added to the Lagoon since September 2001.

The entire sludge drying area is lined by an in-situ clay liner and is surrounded by an earthen dike several feet higher in elevation than the disposal area, which excludes extraneous surface runoff. The grading of the sludge lagoons is at a gradual slope from West to East thus permitting drainage of liquid from the drying area. At the East most end of the drying area is a tailwater drain system, which includes a concrete collection vault, submersible pumps and a level float system used for automatic function of the pumps. The runoff is then pumped to the head of the plant for treatment.

ATTACHMENT TECHNICAL REPORT

Procedures to Prevent the Occurrence of Nuisance Conditions

The Lagoon is used only in Emergency situations, where normal operations have been interrupted. Sludge has not been added to the Lagoon since September 2001.

The Prairie Creek Wastewater Treatment Plant is totally enclosed by security fencing to prevent unauthorized entry. The entrance gate is locked and access into the facility is gained only through authorization from plant personnel. All persons entering the facility must sign in at the office.

The entire sludge drying area is lined by an in-situ clay liner and is surrounded by an earthen dike several feet higher in elevation than the disposal area, which excludes extraneous surface runoff. The grading of the sludge lagoons is at a gradual slope from West to East thus permitting drainage of liquid from the drying area. At the East most end of the drying area is a tailwater drain system, which includes a concrete collection vault, submersible pumps and a level float system used for automatic function of the pumps. The runoff is then pumped to the head of the plant for treatment.

The solids are pumped from the Digester onto the sludge lagoon drying area in small batches through a distribution header. The distribution header contains thirteen valves; each valve serves as a zone averaging 1.2 acres per zone, this allows the sludge to be spread very thinly over the surface eliminating sludge islands. The sludge is air dried and conditioned with a front-end loader which promotes further drying by turning and piling the sludge. The dried sludge is removed by the City of Lewisville and commercial haulers to DFW Landfill.

ATTACHMENT 16

Section 11. Sewage Sludge Lagoons

(E) Groundwater Monitoring

Domestic Technical Report

**ANNUAL EVALUATION
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK
WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Prepared for

**City of Lewisville
Department of Public Services**

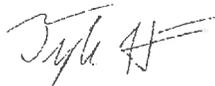
Prepared by

**TEAM Consultants, Inc.
Dallas, Texas**

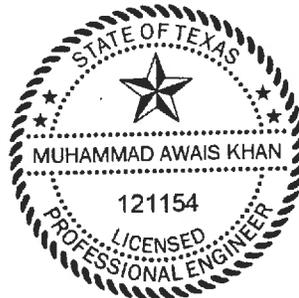
Firm Registration No.: F-2894

March 18, 2024

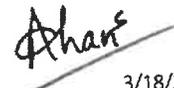
Prepared by:



Tyler Hoerster, E.I.T.



Reviewed by:



3/18/2024

Muhammad Awais Khan, P.E.

TEAM Consultants, Inc.

Geotechnical, Environmental, Construction Materials Testing

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SUMMARY AND CONCLUSIONS.....	7

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SUMMARY OF MONITOR WELL DATA TEST RESULTS.....	4 – 11
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ATTACHMENTS

APPENDIX A: 2023 MONITORING WELL SAMPLE DATA AND ANALYSIS OF RESULTS

INTRODUCTION

This report summarizes the results of groundwater monitoring in connection with an existing sludge drying field at the Prairie Creek Wastewater Treatment Plant in Lewisville, Denton County, Texas. Groundwater monitoring originated in 1987 in accordance with the Texas Water Commission (TPDES Permit No. 10662-001 corresponding to NPDES Permit No. TX0052892) for treating and discharging wastes from the Prairie Creek Wastewater Treatment Facility, SIC Code 4952. The permit was renewed and issued on October 26, 2017. As part of the permit requirements, an annual evaluation of the groundwater monitoring data is required for the sludge field at the site. This report has been prepared to satisfy that requirement for the period January 2023 through December 2023.

PROJECT DESCRIPTION

The Prairie Creek Wastewater Treatment Plant is located in the northeast portion of the City of Lewisville, Denton County, Texas. A Site Vicinity Map is presented on Plate 1 in the Illustrations section of this report. A General Layout Map of the facility is reflected on Plate 2. As noted, the sludge field occupies approximately 16 acres and is located along the southern portion of the facility. Prairie Creek, a tributary of the Elm Fork Trinity River, parallels the eastern and southern portions of the site.

GENERAL SUBSURFACE CONDITIONS

The Wastewater Treatment Plant is geologically located in an area overlain by Alluvium (Qal) flood plain deposits of Quaternary geologic age as mapped on the Geologic Atlas of Texas (GAT), published by the Bureau of Economic Geology, University of Texas at Austin. The Site Geologic Map shown on Plate 3 was created from a digital GAT version, provided by the Texas Natural Resources Information System (TNRIS), using QGIS 3.30 geographic information systems software. The flood deposits in this area are composed of gravel, sand, silt, silty clay and clay of different ages. The deposits in this area are underlain by the Eagle Ford (Kef) formation consisting primarily of gray shale.

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Geotechnical investigations were accomplished by Trinity Engineering and Testing Corporation, Dallas, Texas, in the summer of 1986 in connection with the sludge field. These studies, which included 12 shallow borings and laboratory classification tests, revealed that the sludge field contained a natural liner of sandy clay or clay from two to generally four feet in thickness and concluded that the liner materials were sufficiently impermeable to retard flow into the groundwater. A concurrent investigation in connection with planned expansions of the Wastewater Treatment Plant revealed conditions similar to those in the sludge field area and concluded that the near surface soil deposits were alluvial in nature, comprised of an upper zone of clay or sandy clay underlain by clayey sands, sands and/or sand-gravel combinations extending to the level of the primary geologic formation as identified on the Geologic Atlas of Texas as the Eagle Ford formation. Perched groundwater levels were reported at depths on the order of 12.9 to 19.0 feet below the ground surface in the sludge field area, i.e., at Elevations 448.75 to 460.19 at the time of the field investigations.

In November 1986, four groundwater monitoring wells, M-1 through M-4, were installed at the approximate locations reflected on Plate 2. Overburden soils penetrated by the wells were similar to those described previously. The wells penetrated from about five to seven feet into the primary deposits and were screened through the granular basal soils and sealed near the surface. Initial groundwater sampling and testing was accomplished in February 1987.

MONITORING DATA

The approved permit defines in detail the frequency and types of tests to be accomplished as part of the groundwater monitoring program for the sludge field. The program includes quarterly and annual groundwater sampling and testing of the existing four monitoring wells. Analytical laboratory sample analyses for the 2023 quarterly and annual sampling events were performed by Pace Analytical Services, LLC, 400 West Bethany Drive, Allen, Texas 75013. The pH and Fecal Coliform analyses were conducted by City of Lewisville personnel.

The permit requires an independent annual evaluation of the groundwater monitoring data. Previous reports including an October 1988 review by Mason Johnston and Associates, Inc., and reports from June 1989 through December 2022 by TEAM Consultants, Inc., concluded that the

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required testing was accomplished in general accordance with the permit and that no significant changes in groundwater quality were noted throughout the sampling periods. This evaluation was performed utilizing data provided to TEAM Consultants, Inc. by Mr. Cedric West of the City of Lewisville. This report includes a historical summation of the pertinent previous test data prior to 2013 and a complete tabulation of available data for the 2013 to 2023 sampling events. The analytical laboratory data for the current four sampling events is included in Appendix A. The summaries of results are provided on Plates 4 through 11.

EVALUATION OF RESULTS

Monitoring Well M-1 is located hydrologically upgradient of the sludge field and is considered indicative of upgradient groundwater quality conditions. Monitoring Well M-2, located at the southwest end of the sludge field, and Monitoring Well M-4, located at the northeast end of the sludge field, are indicative of laterally downgradient conditions, and Monitoring Well M-3 is located hydrologically downgradient of the sludge field and is indicative of downgradient groundwater quality conditions. Normal groundwater flow in the area is believed to be toward Prairie Creek paralleling the eastern and southern portions of the site. Groundwater surface elevations obtained in the wells from the four sampling events generally indicate the gradient to be in a southeasterly direction towards Prairie Creek.

Per permit requirements, the purpose of the annual report of groundwater monitoring data is to evaluate and show that groundwater quality conditions are not deteriorating. The permit does not specify acceptable quality guidelines for the quarterly or annual sampling parameters. Comparison of the groundwater quality has been accomplished using data obtained between January 2023 and December 2023 with all data obtained prior to January 2023, and through comparison of the data obtained in corresponding wells. In addition, current analytical sample results were compared to historical values. Since acceptable groundwater quality specifications were not specified in the permit, the Tier 1 Residential Protective Concentration Levels (PCLs) for groundwater ingestion ($^{GW}GW_{ing}$) and the Secondary Maximum Contaminant Levels (MCLs) established by the Texas Commission on Environmental Quality (TCEQ) under the Texas Risk Reduction Program (TRRP) Title 30 of the Texas Administrative Code, Chapter 350, were used to give a relative measure of the groundwater quality. The Secondary MCLs are not indicative of health threatening

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concentrations but are established as guidelines in managing water for aesthetic considerations such as taste, color and odor.

Based on the results of analytical test results for 2023, our evaluations follow:

- Monitor Well M-1: This monitoring well is located hydrologically upgradient of the sludge field and is indicative of background groundwater conditions. The constituents analyzed in the annual and quarterly sampling events for groundwater in this well are within the range of historical values. This is an upgradient well representing groundwater entering the site and indicative of background water conditions.

The concentration of Iron in the 2023 annual sampling was not detected above 0.50 mg/L however the Secondary MCL for Iron which is 0.30 mg/L. This value is within the range of historical values. This compound is not necessarily of concern from a human health standpoint, however is evaluated in accordance with guidelines for taste, color and odor.

The concentration of Arsenic in the 2023 annual sampling was not detected above 0.02 mg/L however the Tier 1 PCL for Arsenic is 0.01 mg/L. This value is also within the range of historical values.

Historically, Total Sulfate concentrations were sporadically observed at levels above the published Secondary MCL guideline of 250 mg/L. Only one of the quarterly sampling events in 2023 yielded Total Sulfate concentrations above the Secondary MCL's for groundwater ingestion with 253 mg/L in the first quarter, while the second, third and fourth quarter were under the Secondary MCL concentration limits. These concentrations are also within the historical range for this well. It should also be noted that the Total Sulfate constituent is not health threatening but reflects the guidelines for taste, color and odor.

Fecal Coliform levels were not present in Monitor Well M-1 during the 2023 annual sampling event. The presence of the coliforms should continue to be monitored in future

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sampling events for potential deterioration of groundwater quality. All other constituents will also continue to be monitored in the next years testing cycle.

All other constituent concentrations reported are below the Tier 1 groundwater PCLs or within the range of historical values. It should be noted this is an upgradient well and indicative of background groundwater conditions.

- Monitor Well M-2: This monitoring well is a laterally downgradient well. The reported Iron in the 2023 annual sampling was not detected above 0.50 mg/L however the Secondary MCL for Iron which is 0.30 mg/L. This value is within the range of historical values for this well. This compound is not necessarily of concern from a human health standpoint, however is evaluated in accordance with guidelines for taste, color and odor.

The concentration of Arsenic in the 2023 annual sampling was not detected above 0.02 mg/L however the Tier 1 PCL for Arsenic is 0.01 mg/L. This value is also within the range of historical values.

The reported concentrations of Total Sulfates have exceeded the Secondary MCL of 250 mg/L in the past 36 consecutive quarters from 2015 to 2023. However, the sulfate concentrations are well within the range of historical data for this well. In the current sampling events of 2023, the recorded concentrations of Total Sulfates ranged from 262 mg/L to 299 mg/L recorded in the first and third quarters, respectively. Several years of data shows periodic cycles of increase and decrease of sulfate contents in this well. It should also be noted that the Total Sulfate concentrations in the upgradient Monitoring Well M-1, representing groundwater conditions entering the site, has periodically recorded values greater than this well and also exceeded the secondary MCL. This constituent is not health threatening but reflects the guidelines for taste, color and odor.

Fecal Coliform levels were not present in Monitor Well M-2 during the 2023 annual sampling event. The presence of the coliforms should continue to be monitored in future sampling events for potential deterioration of groundwater quality.

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All other constituent concentrations reported are below the Tier 1 groundwater PCLs or within the range of historical values.

- Monitor Well M-3: This monitoring well is a downgradient monitoring well. The reported Iron in the 2023 annual sampling was not detected above 0.50 mg/L however the Secondary MCL for Iron which is 0.30 mg/L. This value is within the range of historical values for this well. This compound is not necessarily of concern from a human health standpoint, however is evaluated in accordance with guidelines for taste, color and odor.

The concentration of Arsenic in the 2023 annual sampling was not detected above 0.02 mg/L however the Tier 1 PCL for Arsenic is 0.01 mg/L. This value is also within the range of historical values.

Historically, Total Sulfate concentrations were sporadically observed at levels above the published Secondary MCL guideline of 250 mg/L. Only one of the quarterly sampling events in 2023 yielded Total Sulfate concentrations above the Secondary MCL's for groundwater ingestion with 256 mg/L in the first quarter. This concentration is within the historical range for this well. It should also be noted that the Total Sulfate constituent is not health threatening but reflects the guidelines for taste, color and odor.

Fecal Coliform levels were not present in Monitor Well M-3 during the 2023 annual sampling event. The presence of the coliforms should continue to be monitored in future sampling events for potential deterioration of groundwater quality.

All other constituent concentrations reported are below the Tier 1 groundwater PCLs or within the range of historical values.

- Monitor Well M-4: This monitoring well is also a laterally downgradient well. The reported Iron in the 2023 annual sampling was not detected above 0.50 mg/L however the Secondary MCL for Iron which is 0.30 mg/L. This value is within the range of historical

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values for this well. This compound is not necessarily of concern from a human health standpoint, however is evaluated in accordance with guidelines for taste, color and odor.

The concentration of Arsenic in the 2023 annual sampling was not detected above 0.02 mg/L however the Tier 1 PCL for Arsenic is 0.01 mg/L. This value is also within the range of historical values.

Fecal Coliform levels were not present in Monitor Well M-4 during the 2023 annual sampling event. The presence of the coliforms should continue to be monitored in future sampling events for potential deterioration of groundwater quality.

All other constituent concentrations reported are below the Tier 1 groundwater PCLs or within the range of historical values.

A review of climatologic records for the Lewisville area indicates that precipitation for 2023 was below normal with approximately 26.51 inches of total rainfall, or approximately 71% of the normal total annual rainfall of 37.37 inches. Monthly precipitation values for 2023 were above normal in two (2) of 12 months with October recording the greatest increase in rainfall with 240% above normal values. In contrast, August recorded the greatest decrease with no rainfall, well below the normal value of 1.92 inches. A representation of total and normal precipitation, as well as percent of normal, is shown on Plate 12. It is indeterminate what impact the cyclical nature of rainfall received during the year has on observed analytical values.

SUMMARY AND CONCLUSIONS

Based on a review and evaluation of all current and historical groundwater monitoring data, there appear to be no contaminants of concern at this time, though there were three constituents of note. Wells MW-1, MW-2 and MW-3 had periodic exceedances of the Total Sulfate Secondary MCL during 2023. It should also be noted that the Total Sulfate concentration in the upgradient Monitoring Well M-1, representing groundwater conditions entering the site, has periodically recorded values greater than these wells and has also exceeded the secondary MCL.

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However, the Total Sulfate constituent is not health threatening but reflects the guidelines for taste, color and odor.

The Arsenic concentration was measured at a detection level of 0.02 mg/L which is above the Tier 1 Residential PCL for Arsenic which is 0.01 mg/L. Although there were no exceedances in any of the wells, this detection value is within the range of historical values.

The Iron concentration was measured at a detection level of 0.50 mg/L which is above the Secondary MCL for Iron which is 0.30 mg/L. Although there were no exceedances in any of the wells, this detection value is within the range of historical values. This compound is not necessarily of concern from a human health standpoint, however is evaluated in accordance with guidelines for taste, color and odor.

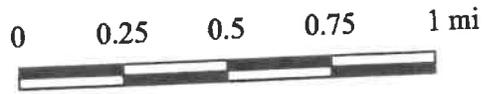
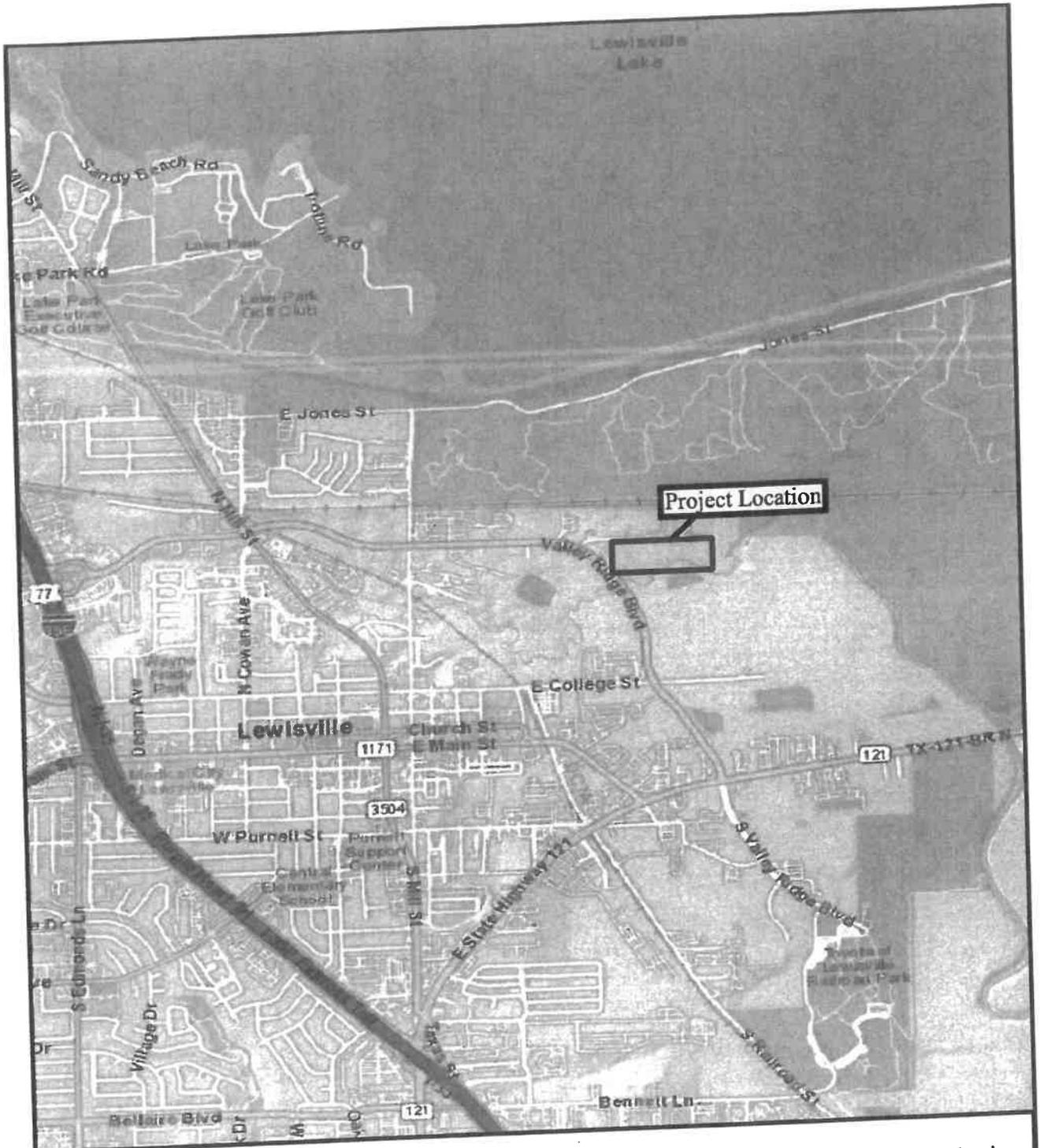
Fecal Coliform levels were not present in any of the wells during the 2023 annual sampling event. The presence of the coliforms should continue to be monitored in future sampling events for potential deterioration of groundwater quality. All other constituents will also continue to be monitored in the next years testing cycle.

As previously stated, since acceptable groundwater quality specifications were not specified in the permit, comparisons to Tier 1 Residential PCL, and Secondary MCLs established by the TCEQ under TRRP, were only used to give a relative measure of the groundwater quality.

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ILLUSTRATIONS



Map Created using QGIS 3.30

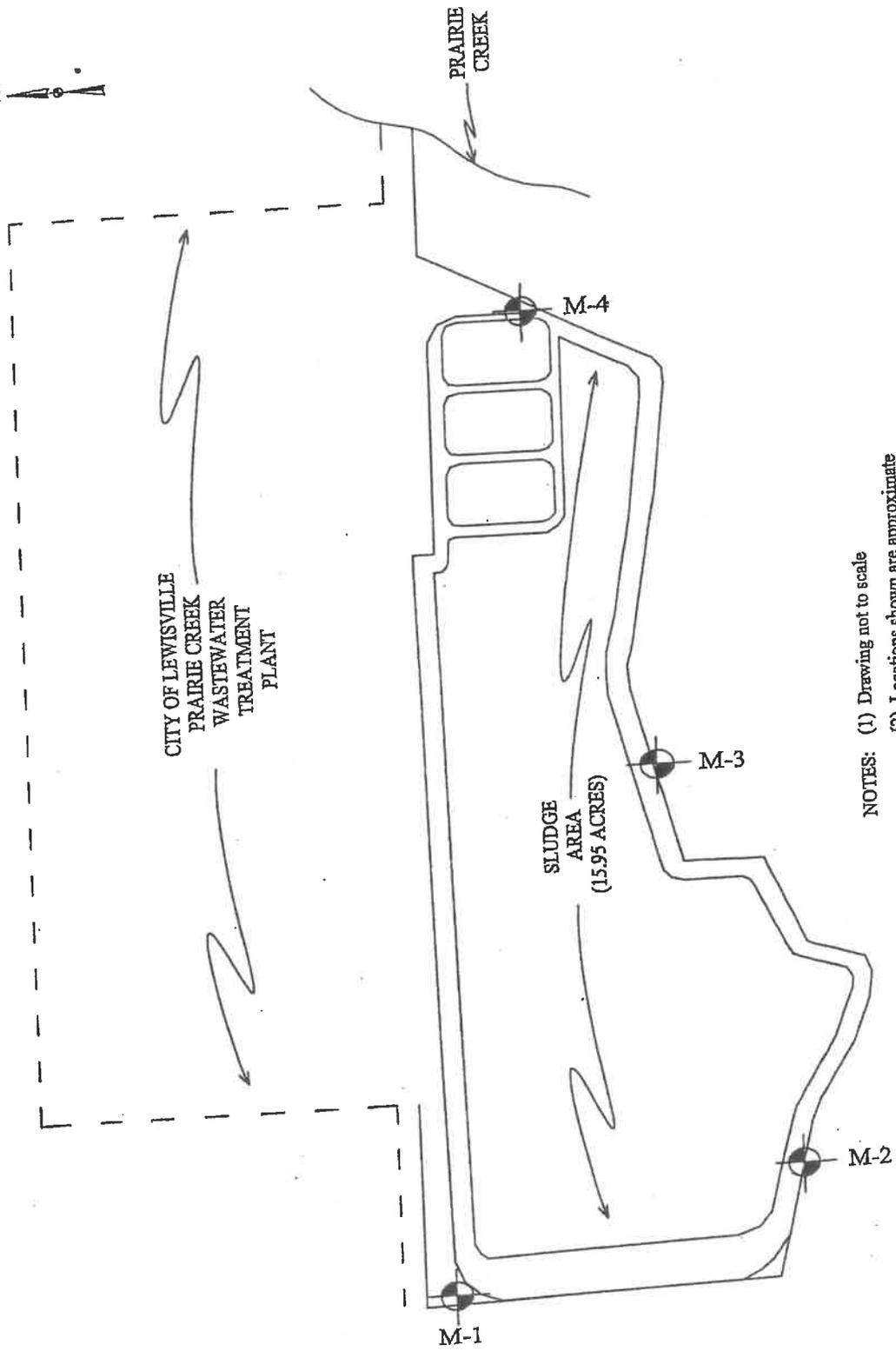
TEAM Consultants, Inc.

**ANNUAL EVALUATION
2023 GROUNDWATER MONITORING DATA
PRAIRIE CREEK
WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

SITE VICINITY MAP

DATE: MARCH 2024

PLATE 1



CITY OF LEWISVILLE
PRAIRIE CREEK
WASTEWATER
TREATMENT
PLANT

PRAIRIE
CREEK

M-4

M-3

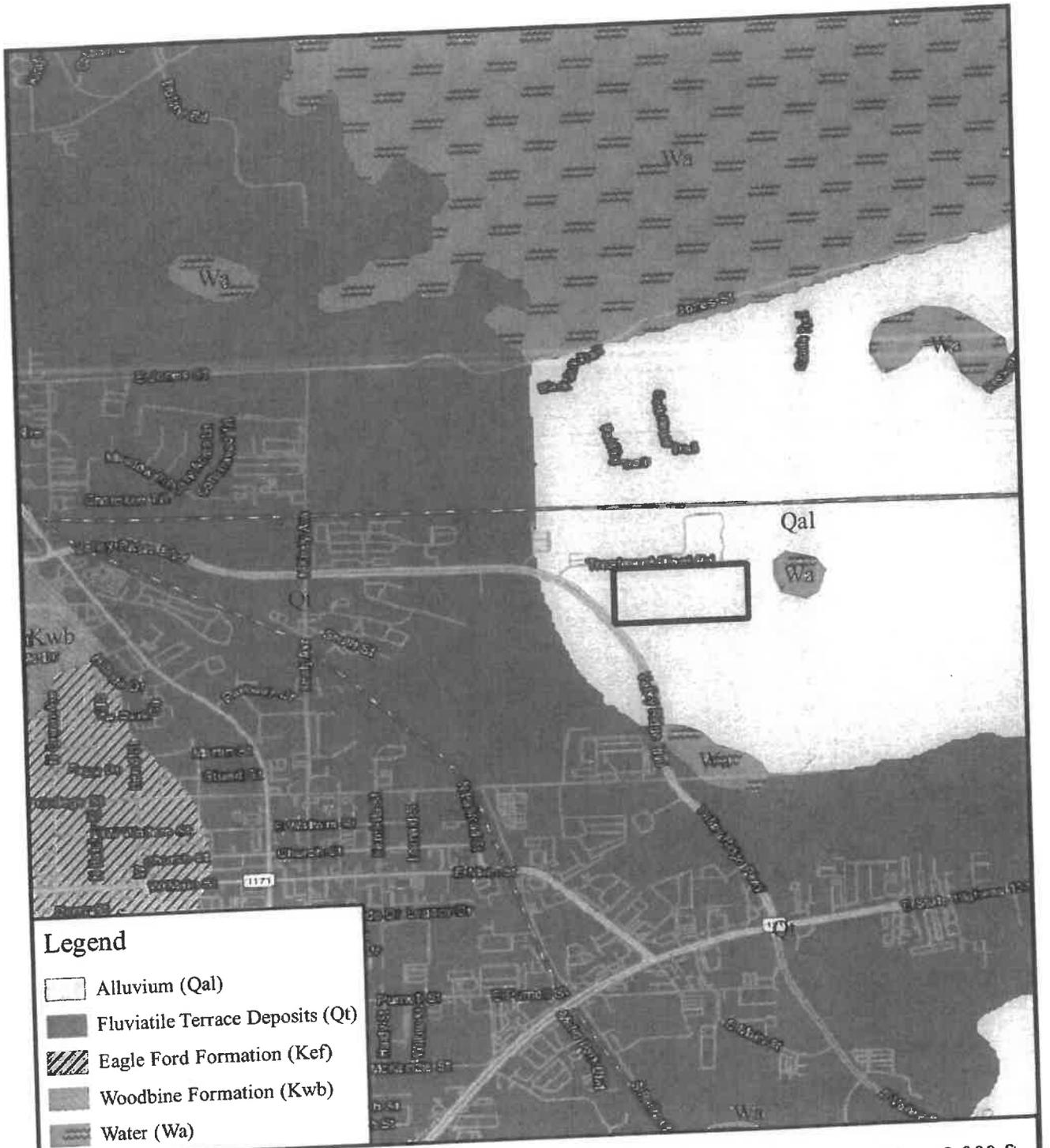
M-2

M-1

SLUDGE
AREA
(15.95 ACRES)

NOTES: (1) Drawing not to scale
(2) Locations shown are approximate

TEAM Consultants, Inc.	ANNUAL EVALUATION 2023 GROUNDWATER MONITORING DATA PRAIRIE CREEK WASTEWATER TREATMENT PLANT LEWISVILLE, TEXAS	GENERAL SITE LAYOUT
		DATE: MARCH 2024
		PLATE 2



Legend

-  Alluvium (Qal)
-  Fluvialite Terrace Deposits (Qt)
-  Eagle Ford Formation (Kef)
-  Woodbine Formation (Kwb)
-  Water (Wa)



Map Created using QGIS 3.30

TEAM Consultants, Inc.

**ANNUAL EVALUATION
2023 GROUNDWATER MONITORING DATA
PRAIRIE CREEK
WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

SITE GEOLOGIC MAP

DATE: MARCH 2024

PLATE 3

**SUMMARY OF MONITOR WELL DATA TEST RESULTS
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Monitoring Well No. 1																										
Quarterly Monitoring Parameters																										
Date	Iron *	Manganese	Phenol	Arsenic	Mercury	Chemical Oxygen Demand	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Silver	Fecal Coliform (1)	Specific Conductance (2)	Carbon Chloride (Total)*	Total Dissolved Solids	Sulfate (Total)*	Ammonia Nitrogen*	Nitrate Nitrogen	Total Alkalinity	pH	Ground Water, (Feet-MSL)			
																								Annual Monitoring Parameters		
Data Summary Prior to February 2013													0	600	0.01	18	360	<1.0	<0.01	<0.01	<0.01	<0.01	<0.01	170	5.98	455.09
Low	<0.005	0.007	<0.005	<0.001	<0.0002	<4.0	<0.0001	0.001	0.0027	0.001	<0.001	<0.002	0.001	0	1070	0.99	72.6	718	233	<0.10	0.470	304	7.51	457.59		
High	3.40	0.48	0.088	<0.055	<0.20	105	<0.025	0.300	0.018	0.018	0.83	0.04	<0.05	TNTC	1180	0.91	62.5	806	280	<0.10	0.580	308	7.10	458.26		
gw GW _{mg} -Tier 1 Residential PCL for Ingestion of Groundwater, May 10, 2023 (Concentrations exceeding the Tier 1 Residential PCL's are bolded)													TNTC	1070	0.64	51.4	666	206	<0.10	0.550	308	8.73	455.27			
Feb-13																										
May-13														128												
Aug-13														45	1060	0.88	54.0	672	204	<0.10	0.530	312	7.33	(4)		
Sep-13														TNTC	1160	1.00	60.0	782	283	<0.10	0.360	296	7.02	456.99		
Dec-13															1120	1.00	30.6	726	120	<0.10	0.580	306	6.90	456.79		
Mar-14														0	1000	0.66	42.9	647	180	<0.10	0.760	308	6.73	455.59		
Jun-14														<1	1010	0.77	43.8	694	177	<0.10	0.610	292	6.97	455.49		
Sep-14														0	1180	0.79	58.4	732	215	<0.10	0.460	302	6.69	457.16		
Nov-14														<1	1350	1.10	60.5	910	271	0.10	0.290	338	6.89	461.49		
Feb-15														0	1260	1.30	63.7	784	243	<0.10	0.560	344	6.52	458.09		
Jun-15														0	1360	1.10	66.7	842	252	<0.10	0.500	322	6.82	460.29		
Sep-15														<1	1430	2.10	80.1	1050	316	0.15	0.280	366	6.97	460.99		
Nov-15														0	1540	1.50	93.8	1110	365	<0.10	0.270	314	6.64	460.29		
Jan-16														0	1570	1.40	81.3	1070	340	<0.10	0.480	416	6.57	458.89		
May-16														1	1520	1.80	75.4	1030	297	<0.10	0.260	398	6.79	459.79		
Sep-16														0	1580	1.80	90.6	1110	316	0.15	0.210	404	6.56	460.59		
Nov-16														0	18900	2.10	110.0	1440	435	<0.10	<0.10	444	6.40	459.10		
Jan-17														11.1	1220	6.30	68.2	864	232	<0.10	0.340	386	6.66	459.29		
May-17														45.3												
Aug-17														58.0												
Aug-17														1												
Aug-17														0	940	48.10	58.2	840	183	<0.10	-	360	6.81	458.69		
Aug-17														0	1190	0.90	62.8	952	197	<0.10	***	358	6.71	459.59		
Oct-17														1	1190	0.90	62.8	952	197	<0.10	<0.5	<0.5	<0.5	<0.5		
Jan-18														TNTC	1390	0.84	99.9	1050	273	0.04	<0.5	416	6.22	458.89		
Feb-18														TNTC	1390	0.84	99.9	1050	273	0.04	<0.5	416	6.22	458.89		
May-18														7	1210	1.10	64.2	883	248	<0.10	0.560	382	6.83	457.39		
May-18														192	1480	2.00	97.5	1010	298	<0.10	<0.10	300	6.88	460.89		
Nov-18																										

**SUMMARY OF MONITOR WELL DATA TEST RESULTS
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Date	Annual Monitoring Parameters											Quarterly Monitoring Parameters													
	Iron*	Manganese	Phenol	Arsenic	Mercury	Chemical Oxygen Demand	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Silver	Fecal Coliform (1)	Specific Conductance (2)	Total Organic Carbon	Chloride (Total)*	Total Dissolved Solids	Sulfate (Total)*	Ammonia Nitrogen*	Nitrate Nitrogen	Total Alkalinity	pH	Ground Water, (Feet-MSL)	
Data Summary Prior to February 2013																									
Low	<0.005	0.007	<0.005	<0.001	<0.0002	<4.0	<0.0001	0.001	0.0027	0.001	<0.001	<0.002	0.001	0	600	0.01	18	360	<1.0	<0.01	<0.01	170	5.98	455.09	
High	3.40	0.48	0.088	<0.055	<0.20	105	<0.025	0.300	0.018	0.018	0.83	0.04	<0.05	TNTC	3730	272	280	3043	784	1.72	12	672	9.30	462.29	
GW _{ing} - Tier 1 Residential PCL for Ingestion of Groundwater, May 10, 2023 (Concentrations exceeding the Tier 1 Residential PCLs/ Secondary MCL's are bolded)																									
	0.30	1.10	7.30	0.01	0.002	-	0.005	0.100	1.30	0.015	0.49	7.30	0.12	-	-	-	250	-	250	1.50	10.0	-	-	-	-
Nov-18																									
Feb-19	0.15	0.05	<0.20	<0.006	<0.0002	28.9	<0.005	<0.007	<0.02	<0.01	0.0048	<0.025	<0.005	32.3	1720	1.10	135.0	1290	413	<0.10	<0.5	434	6.84	460.39	
May-19														0	1600	1.10		1180		<0.10		440	6.57	460.89	
May-19														0	1500	2.50	85.4	993	277	<0.10	<0.5	432	6.64	459.09	
Aug-19														579.4	1500	1.40	84.9	1120	278	<0.10	***	368	6.80	458.99	
Nov-19																									
Dec-19														29.2	1690	2.80	93.6	1080	347	<0.10	0.69	345	6.85	460.39	
Feb-20	0.37	0.033	<0.20	<0.006	<0.0002	<35	<0.005	<0.007	<0.02	0.0023	0.0065	<0.025	<0.005	0	1560	2.80	89.9	932	261	<0.10	0.25	404	6.89	460.39	
Jun-20														0	1580	2.80	105.0	975	292	<0.10	1.50	260	6.90	459.69	
Sep-20														0	1600	3.10	82.8	1000	292	<0.10	0.90	376	6.81	459.89	
Nov-20														17.3	1680	2.40	94.6	1160	382	<0.10	0.83	426	6.83	460.69	
Mar-21	0.70	0.16	<0.20	<0.005	<0.002	<35	0.0004	0.0009	<0.02	0.0064	0.0053	<0.025	<0.005	0	1510	2.24	71.3	1170	259	<0.10	0.54	388	6.67	460.99	
Jun-21														0	1460	2.45	69.4	887	260	<0.10	<0.5	444	6.76	459.69	
Aug-21														0	1270	14.3	58.9	825	214	<0.10	0.89	384	6.96	459.39	
Nov-21														0	1450	3.18	89.0	967	293	<0.10	0.73	370	6.90	459.09	
Mar-22	<0.5	0.16	<0.20	<0.005	<0.0002	<35	<0.005	<0.007	<0.02	0.011	<0.01	<0.025	<0.005	0	1510	<1.0	84.3	985	273	<0.10	<0.5	390	6.60	458.89	
May-22														0	1470	10.4	72.5	1020	295	<0.10	0.60	392	6.94	458.09	
Jul-22														0	1290	39.7	75.7	876	231	<0.25	<0.5	344	6.89	459.59	
Dec-22														0	1310	32.1	69.7	1110	253	<0.25	<0.5	386	6.77	460.19	
Feb-23	<0.5	0.09	<0.20	<0.002	<0.0002	<35	<0.005	<0.007	<0.02	<0.01	<0.01	<0.025	<0.005	<1.0	1350	50.9	74.1	831	211	<0.10	<0.5	380	6.76	459.39	
May-23														0	1160	2.02	56.2	797	188	<0.10	0.69	345	6.77	456.39	
Sep-23														0	1130	1.83	60.3	677	176	<0.10	<0.5	338	6.76	458.39	
Dec-23														0	1130	1.83	60.3	677	176	<0.10	<0.5	338	6.76	458.39	

NOTES: All units in mg/liter except as noted.

(1) Colonies/100 ml
< Less Than
* Water Level not recorded

** Secondary MCLs - These compounds are not necessarily of concern from a human health standpoint, however, aesthetics and ecological criteria may apply.
*** No Secondary MCL standard in TCEQ Tier 1 Groundwater Tables, therefore EPA Secondary MCL Standard used.
*** Laboratory Reported Test Error
*** Too numerous to count

(3) Water level near or below pump intake, i.e., insufficient and/or no water to sample
(4) Unable to detect water level below screen or water level below pump head

Top of Casing elevation: 473.39 ft (msl)

**SUMMARY OF MONITOR WELL DATA TEST RESULTS
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Monitoring Well No. 2																								
Quarterly Monitoring Parameters																								
Date	Iron*	Manganese	Phenol	Arsenic	Mercury	Chemical Oxygen Demand	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Silver	Annual Monitoring Parameters										
														Fecal Coliform (1)	Specific Conductance (2)	Total Organic Carbon	Chloride (Total)*	Total Dissolved Solids	Sulfate (Total)*	Ammonia Nitrogen*	Nitrate Nitrogen	Total Alkalinity	pH	Ground Water, (Feet-MSL)
Data Summary Prior to February 2013																								
Low	<0.005	0.113	<0.005	<0.001	<0.0002	<4.0	0.0005	0.0010	0.0038	<0.002	<0.001	<0.002	<0.001	0	520	0.65	8.0	360	14	<0.01	<0.01	200	5.92	449.86
High	1.40	1.40	0.210	0.09	0.06	87.5	<0.025	0.290	0.010	0.015	0.062	0.21	<0.05	<3	3830	95	248	4118	458	2.00	27	946	8.73	458.41
GW_{mg} - Tier 1 Residential PCL for Ingestion of Groundwater, May 10, 2023 (Concentrations exceeding the Tier 1 Residential PCLs/ Secondary MCL's are bolded)																								
Feb-13	0.30	1.10	7.30	0.01	0.002	-	0.005	0.10	1.30	0.015	0.49	7.30	0.12	0	935	2.10	57.5	656	161	0.21	0.24	326	7.25	451.61
May-13	<0.50	0.390	<0.05	<0.005	<0.0002	22.3	<0.001	<0.005	<0.010	<0.005	<0.005	<0.025	<0.002	0	917	2.00	37.2	624	162	0.20	0.36	318	7.09	451.96
Aug-13														2	962	1.50	46.3	598	152	0.30	0.26	324	8.57	449.36
Sep-13														0	1050	2.00	49.9	712	30	0.18	0.36	350	7.10	450.51
Dec-13														0	1050	2.20	53.4	566	194	0.26	0.21	324	6.98	450.51
Mar-14														0	1220	2.10	54.6	806	207	0.25	0.42	290	6.93	450.21
Jun-14	<0.50	0.350	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.010	<0.005	<0.005	<0.025	<0.002	0	1240	1.30	60.3	839	230	0.12	0.37	330	6.76	449.51
Sep-14														<1	1300	2.00	65.4	904	282	0.34	0.41	330	6.91	449.71
Nov-14														0	1490	2.20	80.5	982	309	0.20	0.30	366	6.62	450.96
Feb-15	<0.50	0.630	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.010	<0.005	<0.005	<0.025	<0.002	<1	1560	2.00	82.9	1100	364	0.35	0.29	350	6.93	457.72
Jun-15														0	1590	1.80	74.5	1070	382	0.48	0.31	316	6.58	452.71
Sep-15														0	1640	1.90	73.3	1110	387	0.46	0.18	360	6.84	455.41
Nov-15														<1	1630	2.30	94.0	1190	385	0.56	0.40	372	6.96	458.81
Jan-16	<0.50	0.55	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	0.0075	<0.025	<0.002	0	1930	2.00	505	1530	568	0.70	0.27	232	6.75	456.01
May-16														0	2120	2.90	139	1520	620	0.55	0.26	402	6.67	453.31
Sep-16														0	2200	3.70	134	1520	580	0.51	<0.01	408	6.61	454.41
Nov-16														0	2090	3.20	136	1560	572	0.37	<0.01	450	6.61	455.81
Jan-17	<0.50	0.65	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	0.01	<0.025	<0.002	0	1880	3.10	104	1390	561	0.48	<0.02	406	6.51	454.72
May-17														0	1680	3.30	95.2	1210	413	0.45	<0.01	470	6.68	453.71
Aug-17														0	1340	70.0	118	1340	386	0.48	-	438	6.74	453.11
Oct-17														63.7	1620	1.50	96.0	1320	364	0.27	***	434	6.60	453.71
Jan-18	0.68	0.85	87.40	<0.006	<0.0002	23.6	<0.005	<0.007	<0.02	<0.01	0.0035	<0.025	<0.005	248.9	1600	1.60	111	1270	430	0.041	<0.5	424	6.26	454.31
Feb-18														TNTC										
May-18														724.0	1770	3.70	132	1520	568	0.038	<0.5	456	6.67	452.21
Aug-18														488.4	1470	11.80	103	1170	323	0.480	-	440	6.91	457.71
Nov-18																					0.017			

**SUMMARY OF MONITOR WELL DATA TEST RESULTS
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Monitoring Well No. 2

Date	Annual Monitoring Parameters													Quarterly Monitoring Parameters										
	Iron*	Manganese	Phenol	Arsenic	Mercury	Chemical Oxygen Demand	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Silver	Fecal Coliform (1)	Specific Conductance (2)	Total Organic Carbon	Chloride (Total)*	Total Dissolved Solids	Sulfate (Total)*	Ammonia Nitrogen*	Nitrate Nitrogen	Total Alkalinity	pH	Ground Water, (Feet-MSL)
Low	<0.005	0.113	<0.005	<0.001	<0.0002	<4.0	0.0005	0.0010	0.0038	<0.002	<0.001	<0.002	<0.001	0	520	0.65	8.0	360	14	<0.01	<0.01	200	5.92	449.86
High	1.40	1.40	0.210	0.09	0.06	87.5	<0.025	0.290	0.010	0.015	0.062	0.21	<0.05	<3	3830	95	248	4118	458	2.00	27	946	8.73	458.41
<p align="center">Data Summary Prior to February 2013</p> <p align="center">gw.GW_{mg} -Tier 1 ResidentialPCL for Ingestion of Groundwater, May 10, 2023 (Concentrations exceeding the Tier 1 Residential PCLs/ Secondary MCL's are bolded)</p>																								
Feb-19	0.30	1.10	7.30	0.01	0.002		0.005	0.10	1.30	0.015	0.49	7.30	0.12	63.7	1810	1.60	123	1350	471	1.50	10.0	442	6.72	453.31
May-19	0.38	0.67	<0.20	<0.006	<0.0002	20.5	<0.005	<0.007	<0.007	<0.01	0.0080	<0.025	<0.005	2	1470	1.50		1110		0.52	<0.5	402	6.47	456.31
May-19														0	1960	3.60	113	1400	494	0.19	<0.5	446	6.59	453.51
Aug-19														410.6	1250	7.30	97.1	1070	412	0.46	0.38	430	6.71	453.31
Nov-19														7.3	1620	3.50	75.7	1140	318	0.63	<0.5	434	6.90	455.81
Feb-20	0.78	0.55	<0.20	<0.006	<0.0002	11.3	<0.005	<0.007	<0.02	<0.01	0.0076	<0.025	<0.005	0	1600	3.80	73.5	1020	325	0.66	<0.5	374	6.84	456.01
Jun-20														0	1580	3.80	83.9	1010	545	0.51	<0.5	240	6.93	453.81
Sep-20														0	1630	4.10	81.3	1050	320	0.63	0.34	396	6.73	453.81
Nov-20														613.1	1550	3.50	89.2	1090	337	0.48	0.34	416	6.80	455.01
Mar-21	1.70	0.61	<0.20	<0.005	<0.002	18.0	0.0004	0.0013	<0.02	0.0069	0.0065	<0.025	<0.005	0	1670	3.65	85.4	1170	321	0.67	<0.5	370	6.61	455.71
Jun-21														0	1640	4.29	88.8	1030	323	0.57	<0.5	390	6.68	453.71
Aug-21														0	1630	22.4	88.3	1130	342	0.42	0.61	432	6.84	453.21
Nov-21														0	1570	5.04	96.0	1100	314	0.55	<0.5	402	6.85	453.41
Mar-22	1.44	0.78	<0.20	<0.005	<0.0002	<0.35	<0.005	<0.007	<0.02	<0.01	<0.025	<0.005	0	0	1550	1.80	90.7	1020	287	0.63	<0.5	405	6.53	453.31
May-22														0	1600	16.1	91.4	1080	323	0.48	<0.5	422	6.86	452.11
Jul-22														0	1460	54.9	73.8	995	278	0.52	<0.5	410	6.81	453.91
Dec-22														0	1370	39.2	77.8	1040	299	0.45	1.04	398	6.69	455.21
Feb-23	<0.5	0.67	<0.20	<0.02	<0.0002	<0.35	<0.005	<0.007	<0.02	<0.01	<0.025	<0.005	<0.005	<1	1480	58.9	76.3	995	265	0.43	<0.5	400	6.68	453.91
May-23														0	1430	36.4	77.3	1020	262	0.53	<0.5	398	6.68	451.11
Sep-23														0	1470	3.17	78.3	926	273	0.52	<0.5	413	6.65	452.71
Dec-23														0	1470	3.17	78.3	926	273	0.52	<0.5	413	6.65	452.71

NOTES: All units in mg/liter except as noted.

(1) Colonies/100 ml

(2) micromhos (umho/cm)

< Less Than - Water Level not recorded

* Secondary MCLs - These compounds are not necessarily of concern from a human health standpoint, however, aesthetics and ecological criteria may apply.

** No Secondary MCL standard in TCEQ Tier 1 Groundwater Tables, therefore EPA Secondary MCL Standard used.

*** Laboratory Reported Test Error

TNIC: Too numerous to count

(3) Water level near or below pump intake, i.e., insufficient and/or no water to sample

(4) Unable to detect water level below screen or water level below pump head

Top of Casing elevation: 468.11 ft (msl)

**SUMMARY OF MONITOR WELL DATA TEST RESULTS
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Monitoring Well No. 3

Date	Annual Monitoring Parameters											Quarterly Monitoring Parameters												
	Iron*	Manganese	Phenol	Arsenic	Mercury	Chemical Oxygen Demand	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Silver	Fecal Coliform (1)	Specific Conductance (2)	Total Organic Carbon	Chloride (Total)*	Total Dissolved Solids	Sulfate (Total)*	Ammonia Nitrogen*	Nitrate Nitrogen	Total Alkalinity	pH	Ground Water, (Feet-MSL)
Low	<0.005	<0.005	<0.001	<0.0002	<0.0001	<0.0001	0.0013	0.0049	0.0016	0.0068	<0.002	0.001	0	1120	0.88	4.9	708	65.3	<0.03	<0.01	270	5.93	(4)	
High	7.00	0.11	0.039	0.055	0.04	210	1.60	0.058	0.023	0.013	0.227	<0.05	2	3970	153	927	2500	599	77.3	280	1126	9.22	457.50	
Data Summary Prior to February 2013																								
GW₁₀₀ - Tier 1 Residential PCL for Ingestion of Groundwater, May 10, 2023 (Concentrations exceeding the Tier 1 Residential PCLs/ Secondary MCL's are bolded)																								
Feb-19	0.30	1.10	7.30	0.01	0.002	0.005	0.10	1.30	0.015	0.49	7.30	0.12	24.1	555	2.60	8.6	345	52.7	<0.10	0.93	262	7.25	454.65	
May-19	0.092	0.62	<0.20	<0.006	<0.0002	20.5	<0.005	<0.007	<0.02	<0.01	0.0039	<0.025	37.4	603	3.00	404			<0.10		218	6.87	455.55	
May-19													6.3	620	3.00	14.3	462	76.5	<0.10	3.2	268	6.97	452.55	
May-19													11.0	1670	2.60	21.5	473	94.7	0.048	0.89	280	7.13	450.55	
Aug-19													5.1	844	3.30	20.6	553	101	<0.10	0.35	320	7.15	453.85	
Nov-19													0	28700	31.4	30.4	3450	125	<0.10	1.5	290	7.20	455.45	
Feb-20	0.13	0.96	<0.20	<0.006	<0.0002	19.9	<0.005	<0.007	<0.02	0.0059	<0.025	<0.005	0	914	3.10	29.2	554	149	<0.10	1.0	360	7.27	452.45	
Jun-20													0	979	3.60	34.3	607	152	<0.10	0.76	308	6.98	452.00	
Sep-20													2.0	958	2.90	40.3	609	142	<0.10	1.00	340	7.10	453.25	
Nov-20													0	1180	2.79	48.3	729	176	<0.10	<0.5	350	6.93	454.75	
Mar-21	0.27	2.50	<0.20	<0.005	<0.002	18.0	<0.005	0.0006	<0.02	0.0056	<0.025	<0.005	0	1100	3.09	45.7	645	154	<0.10	<0.5	324	6.93	452.25	
Jun-21													0	1030	18.2	43.3	636	137	<0.10	<0.5	344	7.17	450.75	
Aug-21													0	977	3.67	48.8	630	131	<0.10	<0.5	324	7.15	451.25	
Nov-21													0	1080	1.50	50.9	729	161	<0.10	<0.5	324	6.84	451.85	
Mar-22	<0.5	1.17	<0.20	<0.005	<0.0002	<35.0	<0.005	<0.007	<0.02	<0.01	<0.025	<0.005	0	1230	13.5	54.6	801	233	<0.10	<0.5	323	7.13	450.75	
May-22													0	1180	47.6	49.2	875	262	<0.25	<0.5	302	7.04	451.25	
Jul-22													0.0	1110	30.3	50.3	809	256	<0.25	<0.5	310	6.94	452.75	
Dec-22													<1	1170	45.4	47.8	772	205	<0.10	<0.5	332	6.92	452.25	
Feb-23	<0.5	0.97	<0.20	<0.02	<0.0002	<35.0	<0.005	<0.007	<0.02	<0.01	<0.025	<0.005	0	1110	3.08	50.3	757	208	<0.10	<0.5	298	6.91	448.75	
May-23													0	1140	2.80	56.7	727	227	0.15	<0.5	300	6.88	449.95	
Sep-23													0	1140	2.80	56.7	727	227	0.15	<0.5	300	6.88	449.95	
Dec-23													0	1140	2.80	56.7	727	227	0.15	<0.5	300	6.88	449.95	

NOTES: All units in mg/liter except as noted.
 (1) Colonies/100 ml
 < Less Than
 * Water Level not recorded
 * Secondary MCLs - These compounds are not necessarily of concern from a human health standpoint, however, aesthetics and ecological criteria may apply.
 ** No Secondary MCL standard in TCEQ Tier 1 Groundwater Tables, therefore EPA Secondary MCL Standard used.
 *** Laboratory Reported Test Error
 TNTC: Too numerous to count

(3) Water level near or below pump intake, i.e., insufficient and/or no water to sample
 (4) Unable to detect water level below screen or water level below pump head
 Top of Casing elevation: 467.75 ft (msl)

**SUMMARY OF MONITOR WELL DATA TEST RESULTS
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Monitoring Well No. 4

Date	Annual Monitoring Parameters													Quarterly Monitoring Parameters											
	Iron *	Manganese	Phenol	Arsenic	Mercury	Chemical Oxygen Demand	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Silver	Fecal Coliform (1)	Specific Conductance (2)	Total Organic Carbon	Chloride (Total) *	Total Dissolved Solids	Sulfate (Total) *	Ammonia Nitrogen *	Nitrate Nitrogen	Total Alkalinity	pH	Ground Water, (Feet-MSL)	
Low	<0.005	0.076	<0.005	<0.002	<0.0002	<4.0	<0.0004	<0.002	<0.005	<0.002	0.008	<0.002	<0.002	0	660	0.08	6.9	506	55.5	<0.03	<0.01	121	6.14	<446.9	
High	4.10	8.90	0.430	0.046	0.05	290	1.60	0.573	0.040	0.020	0.327	0.02	<0.05	<3	2720	92	486	2500	454	27.0	7.40	520	9.17	457.00	
Data Summary Prior to February 2013																									
gw_{ing} - Tier 1 Residential PCL for Ingestion of Groundwater, May 10, 2023 (Concentrations exceeding the Tier 1 Residential PCLs/ Secondary MCL's are bolded)																									
	0.30	1.10	7.30	0.01	0.002		0.005	0.10	1.30	0.015	0.49	7.30	0.12					250	250	1.50	10.0				
Feb-13	<0.50	0.340	<0.05	<0.005	<0.0002	20.1	<0.001	<0.005	<0.01	<0.005	0.0130	<0.025	<0.002	0	1360	3.50	193	965	224	0.55	6.00	278	7.13	448.55	
May-13														0	1140	2.90	135	758	181	<0.10	5.40	220	7.17	448.56	
Aug-13														0	1070	1.30	95.1	666	144	<0.10	9.70	250	8.50	448.30	
Sep-13														0											
Dec-13														2	1040	1.50	69.5	622	131	<0.10	9.05	286	7.08	(4)	
Mar-14														0	1170	2.20	70.0	750	188	<0.10	12.3	300	6.90	448.55	
Jun-14	<0.50	0.037	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	0.0078	<0.025	<0.002	0	962	1.70	44.3	604	123	<0.10	3.70	310	6.95	448.25	
Sep-14														<1	1020	2.10	62.1	634	132	<0.10	8.20	270	6.99	448.55	
Nov-14														0	1040	1.50	85.0	594	97	<0.10	10.8	228	6.92	(4)	
Feb-15	<0.50	0.21	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.010	<0.005	<0.005	<0.025	<0.002	<1	1400	3.80	92.6	946	206	<0.10	26.1	246	7.08	457.25	
Jun-15														0	1360	2.10	81.4	792	236	<0.10	11.3	280	6.66	451.65	
Sep-15														1	1280	3.30	66.2	815	213	<0.10	2.3	340	6.82	453.95	
Nov-15														<1	1390	2.90	87.6	950	224	0.11	3.90	340	6.98	458.55	
Jan-16	<0.50	0.29	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	0.0064	<0.025	<0.002	0	1390	2.70	115	968	263	<0.10	1.90	336	6.83	454.95	
May-16														0	1340	3.50	64.6	866	256	<0.10	1.80	396	6.83	450.75	
Sep-16														0	1150	3.40	66.5	752	176	<0.10	9.60	290	6.95	450.65	
Nov-16														0	1120	3.40	54.1	776	194	<0.10	8.10	336	6.73	452.15	
Jan-17	0.71	0.35	<0.05	<0.005	<0.0002	<20	<0.001	<0.005	<0.01	<0.005	0.01	<0.025	<0.002	0	1330	4.70	54.4	940	263	0.16	0.24	392	6.48	451.36	
May-17														0	1470	6.40	63.2	1140	394	0.40	<0.10	396	6.58	450.35	
Aug-17														0	920	48.1	35.1	841	196	<0.10	--	382	6.70	449.75	
Oct-17														2	1270	1.50	137	982	168	0.32	***	238	6.73	449.65	
Jan-18	0.36	0.29	<0.05	<0.006	<0.0002	25.8	<0.005	<0.007	<0.02	<0.01	0.0063	<0.025	<0.005								11.9				
Feb-18														23.3	1190	2.30	86.5	868	268	<0.1	1.60	352	6.46	451.35	
May-18														83.0											
Aug-18														2.0	1130	3.30	98.0	1050	219	<0.1	11.5	250	6.97	449.95	
Nov-18														260	1370	4.00	178	944	152	<0.1	280	7.02	456.05		

**SUMMARY OF MONITOR WELL DATA TEST RESULTS
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**

Monitoring Well No. 4

Date	Annual Monitoring Parameters											Quarterly Monitoring Parameters													
	Iron*	Manganese	Phenol	Arsenic	Mercury	Chemical Oxygen Demand	Cadmium	Chromium	Copper	Lead	Nickel	Zinc	Silver	Fecal Coliform (1)	Specific Conductance (2)	Total Organic Carbon	Chloride (Total)*	Total Dissolved Solids	Sulfate (Total)*	Ammonia Nitrogen*	Nitrate Nitrogen	Total Alkalinity	pH	Ground Water, (Feet-MSL)	
Low	<0.005	0.076	<0.005	<0.002	<0.0002	<4.0	<0.0004	<0.002	<0.005	<0.002	0.008	<0.002	<0.002	0	660	0.08	6.9	506	55.5	<0.03	<0.01	121	6.14	<446.9	
High	4.10	8.90	0.430	0.046	0.05	290	1.60	0.573	0.040	0.020	0.327	0.02	<0.05	<3	2720	92	486	2500	454	27.0	7.40	520	9.17	457.00	
Data Summary Prior to February 2013																									
gw GW_{inf} - Tier 1 Residential PCL for Ingestion of Groundwater, May 10, 2023 (Concentrations exceeding the Tier 1 Residential PCLs/ Secondary MCL's are bolded)																									
	0.30	1.10	7.30	0.01	0.002		0.005	0.10	1.30	0.015	0.49	7.30	0.12				250	250	250	1.50	10.0				
Feb-19	<0.5	0.047	<0.20	<0.006	<0.0002	67	<0.005	<0.007	<0.02	<0.01	0.0093	<0.025	<0.005	2	2250	1.70	348	1490	239	0.10	3.70	520	6.66	451.75	
May-19														4.1	1400	2.80	1030			0.26		396	6.42	453.15	
Aug-19																									
Nov-19																									
Feb-20	0.22	0.15	<0.20	<0.006	<0.0002	<35	<0.005	<0.007	<0.02	0.0088	<0.025	<0.005		0	1560	4.70	129	1090	258	0.43	3.60	308	6.92	454.95	
Jun-20														0	1520	7.10	58.0	992	347	0.38	2.20	364	6.81	450.95	
Sep-20														0	1380	6.80	45.9	905	277	0.52	0.79	304	6.81	450.75	
Nov-20	0.50	0.32	<0.20	<0.005	<0.002	28.6	<0.005	0.0009	<0.02	0.0070	0.018	<0.025	<0.005	387	1520	6.10	105	1210	328	0.91	1.49	356	6.65	452.45	
Mar-21														0	1530	5.16	82.8	1000	271	0.60	<0.5	342	6.76	451.05	
Jun-21														0	1290	5.26	51.2	797	245	0.55	1.51	394	6.83	449.95	
Aug-21														0	1510	25.4	44.9	1110	370	0.55	<0.5	352	6.85	449.75	
Nov-21										0.03	<0.025	<0.005		0	1340	6.3	108	880	227	1.13	<0.5	352	6.85	449.75	
Mar-22	<0.5	0.34	<0.20	<0.005	<0.0002	<35.0	<0.005	<0.007	<0.02	0.01	<0.025	<0.005		0	1080	3.3	89.7	1060	288	1.43	0.76	380	6.52	450.85	
May-22														0	1400	19.2	87.2	893	217	0.90	13.2	320	6.92	449.75	
Jul-22														0	1170	44.2	91.3	773	157	<0.25	9.47	260	6.96	449.55	
Dec-22														0	1300	23.0	87.1	1010	246	<0.25	17.6	298	6.75	450.25	
Feb-23	<0.5	0.15	<0.20	<0.002	<0.0002	<35.0	<0.005	<0.007	<0.02	<0.01	0.015	<0.025	<0.005	<1	1370	59.3	64.4	884	243	0.40	2.79	364	6.72	450.75	
May-23														0	1190	3.29	106	797	164	<0.10	9.79	238	6.89	448.95	
Sep-23														0	1160	3.59	88.4	695	173	<0.10	5.95	206	6.84	449.15	
Dec-23														0	1160	3.59	88.4	695	173	<0.10	5.95	206	6.84	449.15	

NOTES: All units in mg/liter except as noted.

(1) Colonies/100 ml
< Less Than

(2) micromhos (umho/cm)
- Water Level not recorded

* Secondary MCLs - These compounds are not necessarily of concern from a human health standpoint, however, aesthetics and ecological criteria may apply.

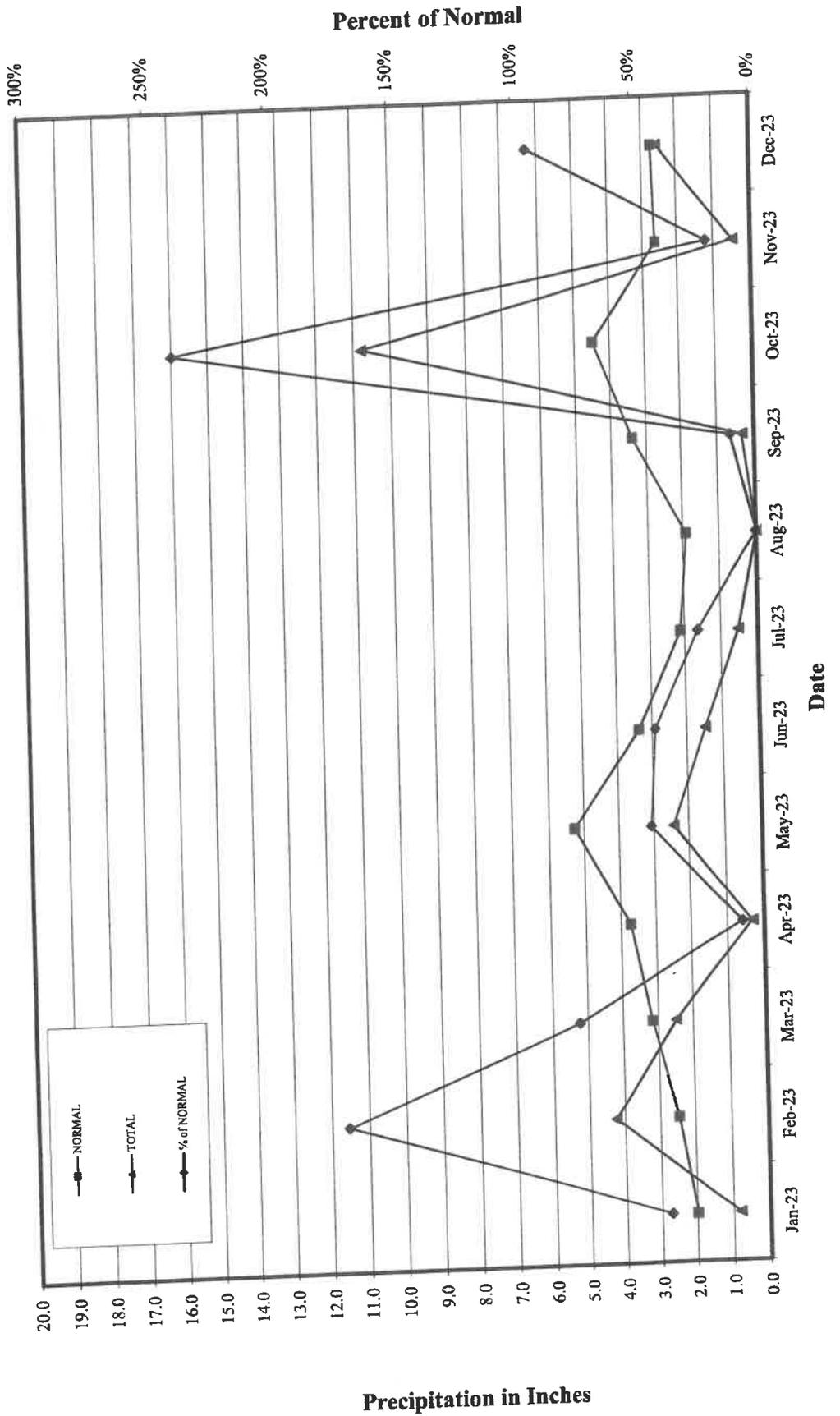
** No Secondary MCL standard in TCEQ Tier 1 Groundwater Tables, therefore EPA Secondary MCL Standard used.

*** Laboratory Reported Test Error
TNTC: Too numerous to count

(3) Water level near or below pump intake, i.e., insufficient and/or no water to sample
(4) Unable to detect water level below screen or water level below pump head

Top of Casing elevation: 466.95 ft (msl)

**ANNUAL PRECIPITATION DATA
2023 GROUNDWATER MONITORING REPORT
PRAIRIE CREEK WASTEWATER TREATMENT PLANT
LEWISVILLE, TEXAS**



APPENDIX A

2023 MONITORING WELL SAMPLE DATA AND ANALYTICAL RESULTS



ANALYTICAL REPORT

March 02, 2023

- Cp
- 1
- 2
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 Gl
- 8 Al
- 9 Sc

City of Lewisville

Sample Delivery Group: L1588704
 Samples Received: 02/23/2023
 Project Number: ANNUAL MONITORING WE
 Description: Annual Monitoring Wells

Report To: Kimberly Morris
 PO Box 299002
 Lewisville, TX 75029

Entire Report Reviewed By: *Justin Carr*

Justin Carr
 Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

ACCOUNT:
 City of Lewisville

PROJECT:
 ANNUAL MONITORING WE

SDG:
 L1588704

DATE/TIME:
 03/02/23 16:42

PAGE:
 1 of 31

TEAM Consultants, Inc.

Geotechnical, Environmental, Construction Materials Testing

APPENDIX A

2023 MONITORING WELL SAMPLE DATA AND ANALYTICAL RESULTS



ANALYTICAL REPORT

March 02, 2023

- Cp
- Te
- ³Ss
- ⁴Cn
- ⁵Sr
- ⁵Qc
- ⁷Gl
- ⁸Al
- ⁹Sc

City of Lewisville

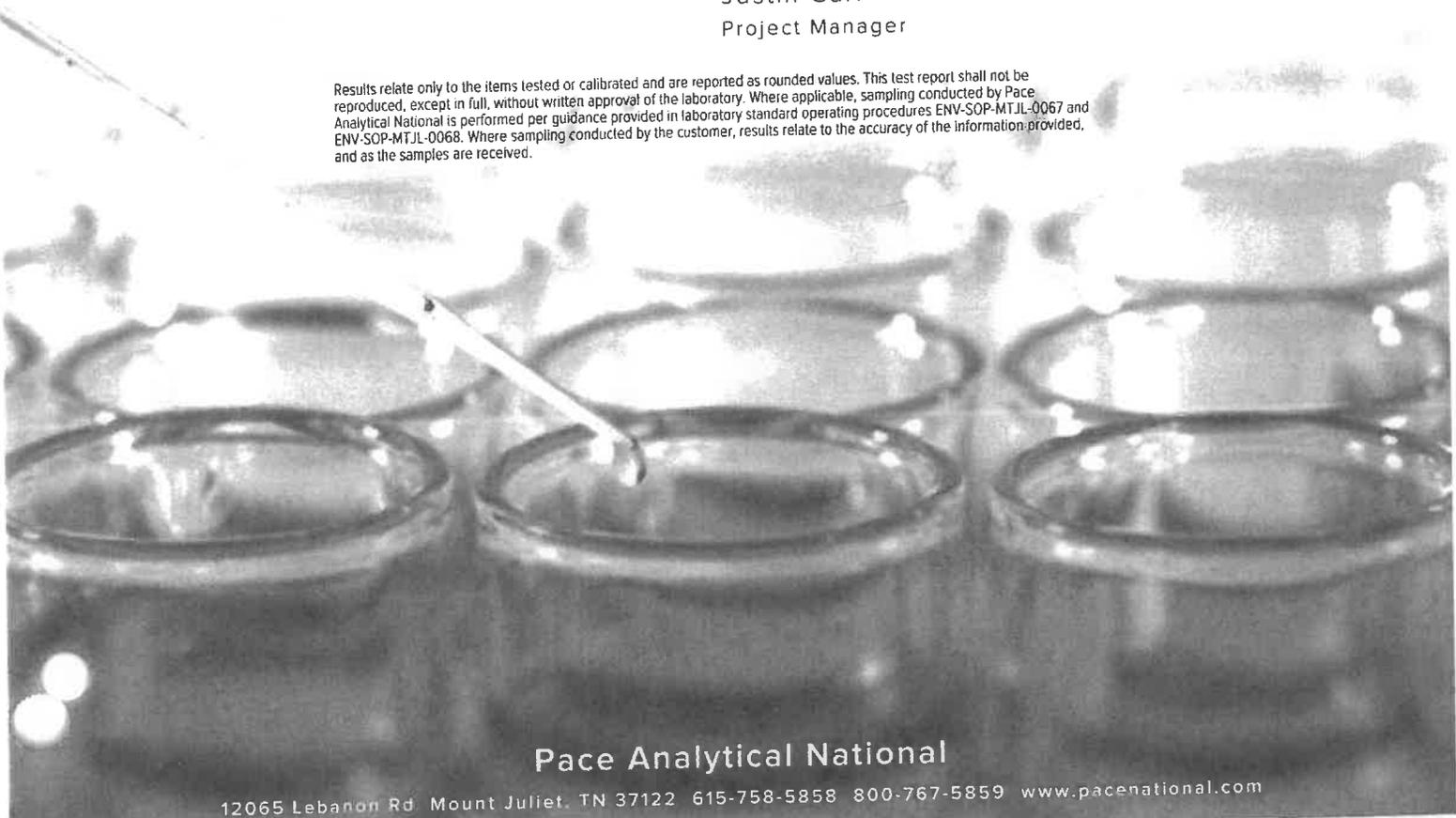
Sample Delivery Group: L1588704
 Samples Received: 02/23/2023
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 Lewisville, TX 75029

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Pace Analytical National

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TEAM Consultants, Inc.

Geotechnical, Environmental, Construction Materials Testing

APPENDIX A

2023 MONITORING WELL SAMPLE DATA AND ANALYTICAL RESULTS



ANALYTICAL REPORT

March 02, 2023

- Cp
- Pc
- 3 Ss
- 4 Cn
- 5 Sr
- 5 Qc
- 7 Gl
- 8 Al
- 9 Sc

City of Lewisville

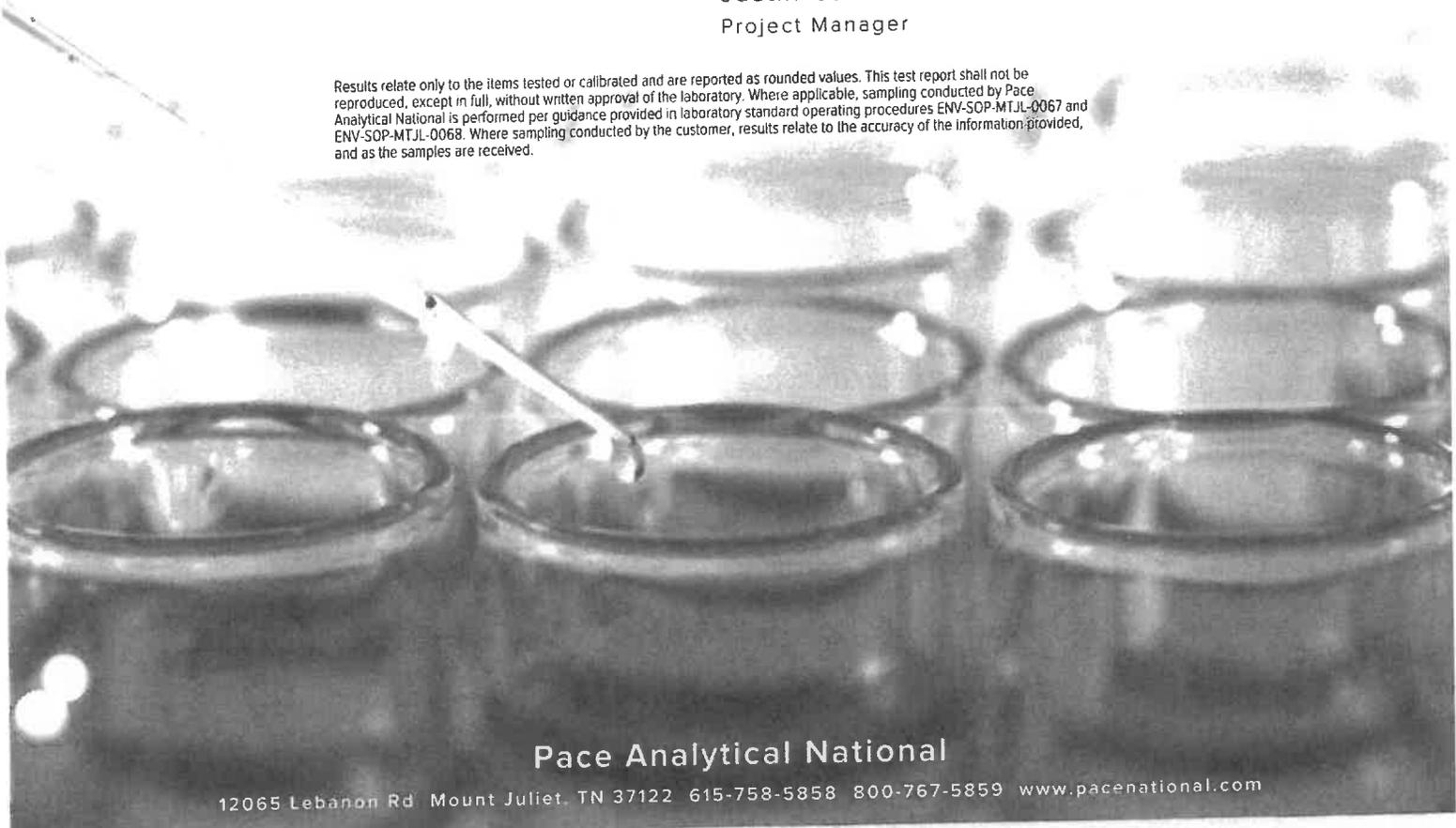
Sample Delivery Group: L1588704
 Samples Received: 02/23/2023
 Project Number: ANNUAL MONITORING WE
 Description: Annual Monitoring Wells

Report To: Kimberly Morris
 PO Box 299002
 Lewisville, TX 75029

Entire Report Reviewed By:

Justin Carr
 Project Manager

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Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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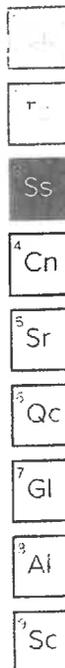
SAMPLE SUMMARY

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	Collected by	Collected date/time	Received date/time
							J Manness, J Tae	02/20/23 09:53	02/23/23 12:45
Gravimetric Analysis by Method 2540C	WG2012237	1	02/24/23 09:02	02/24/23 11:32	QQT	Allen, TX			
Wet Chemistry by Method 2320B	WG2013472	1	02/27/23 11:03	02/27/23 11:03	SMC	Allen, TX			
Wet Chemistry by Method 350.1	WG2013121	1	02/26/23 15:24	02/26/23 15:24	BMD	Mt. Juliet, TN			
Wet Chemistry by Method 5220D	WG2013932	1	02/28/23 08:32	02/28/23 11:45	SMC	Allen, TX			
Wet Chemistry by Method 9050	WG2012493	1	02/24/23 13:47	02/24/23 13:47	QQT	Allen, TX			
Wet Chemistry by Method 9056A	WG2012266	1	02/24/23 18:27	02/24/23 18:27	EIG	Allen, TX			
Wet Chemistry by Method 9056A	WG2012266	1	02/24/23 18:45	02/24/23 18:45	EIG	Allen, TX			
Wet Chemistry by Method 9060	WG2012272	2	02/26/23 08:37	02/26/23 08:37	EIG	Allen, TX			
Wet Chemistry by Method 9065	WG2013934	1	02/28/23 09:19	02/28/23 17:56	KCM	Allen, TX			
Mercury by Method 7470	WG2011942	1	02/23/23 16:54	02/27/23 14:37	TDM	Allen, TX			
Metals (ICP) by Method 6010	WG2012305	1	02/24/23 10:34	02/24/23 15:04	EJS	Allen, TX			

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	Collected by	Collected date/time	Received date/time
							J Manness, J Tae	02/20/23 10:17	02/23/23 12:45
Gravimetric Analysis by Method 2540C	WG2012237	1	02/24/23 09:02	02/24/23 11:32	QQT	Allen, TX			
Wet Chemistry by Method 2320B	WG2013472	1	02/27/23 11:03	02/27/23 11:03	SMC	Allen, TX			
Wet Chemistry by Method 350.1	WG2013121	1	02/26/23 15:26	02/26/23 15:26	BMD	Mt. Juliet, TN			
Wet Chemistry by Method 5220D	WG2013932	1	02/28/23 08:32	02/28/23 11:45	SMC	Allen, TX			
Wet Chemistry by Method 9050	WG2012493	1	02/24/23 13:47	02/24/23 13:47	QQT	Allen, TX			
Wet Chemistry by Method 9056A	WG2012266	1	02/24/23 19:02	02/24/23 19:02	EIG	Allen, TX			
Wet Chemistry by Method 9056A	WG2012266	1	02/24/23 19:20	02/24/23 19:20	EIG	Allen, TX			
Wet Chemistry by Method 9060	WG2012272	2	02/26/23 09:17	02/26/23 09:17	EIG	Allen, TX			
Wet Chemistry by Method 9065	WG2013934	1	02/28/23 09:19	02/28/23 17:56	KCM	Allen, TX			
Mercury by Method 7470	WG2011942	1	02/23/23 16:54	02/27/23 14:43	TDM	Allen, TX			
Metals (ICP) by Method 6010	WG2012305	1	02/24/23 10:34	02/24/23 15:09	EJS	Allen, TX			

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	Collected by	Collected date/time	Received date/time
							J Manness, J Tae	02/20/23 10:42	02/23/23 12:45
Gravimetric Analysis by Method 2540C	WG2012237	1	02/24/23 09:02	02/24/23 11:32	QQT	Allen, TX			
Wet Chemistry by Method 2320B	WG2013472	1	02/27/23 11:03	02/27/23 11:03	SMC	Allen, TX			
Wet Chemistry by Method 350.1	WG2013121	1	02/26/23 15:27	02/26/23 15:27	BMD	Mt. Juliet, TN			
Wet Chemistry by Method 5220D	WG2013932	1	02/28/23 08:32	02/28/23 11:45	SMC	Allen, TX			
Wet Chemistry by Method 9050	WG2012493	1	02/24/23 13:47	02/24/23 13:47	QQT	Allen, TX			
Wet Chemistry by Method 9056A	WG2012266	1	02/24/23 19:38	02/24/23 19:38	EIG	Allen, TX			
Wet Chemistry by Method 9056A	WG2012266	1	02/24/23 19:56	02/24/23 19:56	EIG	Allen, TX			
Wet Chemistry by Method 9060	WG2012272	2	02/26/23 09:55	02/26/23 09:55	EIG	Allen, TX			
Wet Chemistry by Method 9065	WG2013934	1	02/28/23 09:19	02/28/23 17:56	KCM	Allen, TX			
Mercury by Method 7470	WG2011942	1	02/23/23 16:54	02/27/23 14:45	TDM	Allen, TX			
Metals (ICP) by Method 6010	WG2012305	1	02/24/23 10:34	02/24/23 15:15	EJS	Allen, TX			

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	Collected by	Collected date/time	Received date/time
							J Manness, J Tae	02/20/23 11:08	02/23/23 12:45
Gravimetric Analysis by Method 2540C	WG2012237	1	02/24/23 09:02	02/24/23 11:32	QQT	Allen, TX			
Wet Chemistry by Method 2320B	WG2013472	1	02/27/23 11:03	02/27/23 11:03	SMC	Allen, TX			
Wet Chemistry by Method 350.1	WG2013121	1	02/26/23 15:29	02/26/23 15:29	BMD	Mt. Juliet, TN			
Wet Chemistry by Method 5220D	WG2013932	1	02/28/23 08:32	02/28/23 11:45	SMC	Allen, TX			
Wet Chemistry by Method 9050	WG2012493	1	02/24/23 13:47	02/24/23 13:47	QQT	Allen, TX			



SAMPLE SUMMARY

V. M-4 L1588704-04 GW

 Collected by: J Manness, J Tae
 Collected date/time: 02/20/23 11:08
 Received date/time: 02/23/23 12:45

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Wet Chemistry by Method 9056A	WG2012266	1	02/24/23 20:32	02/24/23 20:32	EIG	Allen, TX
Wet Chemistry by Method 9060	WG2012272	2	02/26/23 10:33	02/26/23 10:33	EIG	Allen, TX
Wet Chemistry by Method 9065	WG2013934	1	02/28/23 09:19	02/28/23 17:56	KCM	Allen, TX
Mercury by Method 7470	WG2011942	1	02/23/23 16:54	02/27/23 14:47	TDM	Allen, TX
Metals (ICP) by Method 6010	WG2012305	1	02/24/23 10:34	02/24/23 15:20	EJS	Allen, TX

-
-
- Ss
- 4
Cn
- 5
Sr
- 6
Qc
- 7
Gl
- 8
Ai
- 9
Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or noted within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Justin Carr
Project Manager

1

2

3 Ss

4 Cn

5 Sr

6 Qc

7 GI

8 Ai

9 Sc

WELL M-1

Collected date/time: 02/20/23 09:53

SAMPLE RESULTS - 01

L1588704

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	1110	J3	33.3	1	02/24/2023 11:32	WG2012237

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	386		20.0	1	02/27/2023 11:03	WG2013472
Alkalinity,Bicarbonate	386		20.0	1	02/27/2023 11:03	WG2013472
Alkalinity,Carbonate	ND		20.0	1	02/27/2023 11:03	WG2013472
Alkalinity,Hydroxide	ND		20.0	1	02/27/2023 11:03	WG2013472
Phenolphthalein Alkalinity	ND		20.0	1	02/27/2023 11:03	WG2013472

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	ND		0.250	1	02/26/2023 15:24	WG2013121

Wet Chemistry by Method 5220D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
COD	ND		35.0	1	02/28/2023 11:45	WG2013932

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1310		1.00	1	02/24/2023 13:47	WG2012493

Sample Narrative:

L1588704-01 WG2012493: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	69.7		0.800	1	02/24/2023 18:45	WG2012266
Nitrate	ND	T8	0.500	1	02/24/2023 18:27	WG2012266
Sulfate	253	J5	0.700	1	02/24/2023 18:45	WG2012266

Wet Chemistry by Method 9060

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	32.1		1.40	2	02/26/2023 08:37	WG2012272

Wet Chemistry by Method 9065

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Phenolics, Total Recoverable	ND		0.200	1	02/28/2023 17:56	WG2013934

Mercury by Method 7470

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	02/27/2023 14:37	WG2011942



WELL M-1

Collected date/time: 02/20/23 09:53

SAMPLE RESULTS - 01

L1588704

Metals (ICP) by Method 6010

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Arsenic	ND		0.0200	1	02/24/2023 15:04	WG2012305
Cadmium	ND		0.00500	1	02/24/2023 15:04	WG2012305
Chromium	ND		0.00700	1	02/24/2023 15:04	WG2012305
Copper	ND		0.0200	1	02/24/2023 15:04	WG2012305
Iron	ND		0.500	1	02/24/2023 15:04	WG2012305
Lead	ND		0.0100	1	02/24/2023 15:04	WG2012305
Manganese	0.0905		0.0500	1	02/24/2023 15:04	WG2012305
Nickel	ND		0.0100	1	02/24/2023 15:04	WG2012305
Silver	ND		0.00500	1	02/24/2023 15:04	WG2012305
Zinc	ND		0.0250	1	02/24/2023 15:04	WG2012305

- 1
- 2
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 GI
- 8 AI
- 9 Sc

WELL M-2

Collected date/time: 02/20/23 10:17

SAMPLE RESULTS - 02

L1588704

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	1040		33.3	1	02/24/2023 11:32	WG2012237

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	398		20.0	1	02/27/2023 11:03	WG2013472
Alkalinity,Bicarbonate	398		20.0	1	02/27/2023 11:03	WG2013472
Alkalinity,Carbonate	ND		20.0	1	02/27/2023 11:03	WG2013472
Alkalinity,Hydroxide	ND		20.0	1	02/27/2023 11:03	WG2013472
Phenolphthalein Alkalinity	ND		20.0	1	02/27/2023 11:03	WG2013472

Wet Chemistry by Method 3501

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	0.454		0.250	1	02/26/2023 15:26	WG2013121

Wet Chemistry by Method 5220D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
COD	ND		35.0	1	02/28/2023 11:45	WG2013932

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1370		1.00	1	02/24/2023 13:47	WG2012493

Sample Narrative:

L1588704-02 WG2012493: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	77.8		0.800	1	02/24/2023 19:20	WG2012266
Nitrate	1.04	T8	0.500	1	02/24/2023 19:02	WG2012266
Sulfate	299		0.700	1	02/24/2023 19:20	WG2012266

Wet Chemistry by Method 9060

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	39.2		1.40	2	02/26/2023 09:17	WG2012272

Wet Chemistry by Method 9065

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Phenolics, Total Recoverable	ND		0.200	1	02/28/2023 17:56	WG2013934

Mercury by Method 7470

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	02/27/2023 14:43	WG2011942



WELL M-2

Collected date/time: 02/20/23 10:17

SAMPLE RESULTS - 02

L1588704

Metals (ICP) by Method 6010

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
	mg/l		mg/l			
Arsenic	ND		0.0200	1	02/24/2023 15:09	<u>WG2012305</u>
Cadmium	ND		0.00500	1	02/24/2023 15:09	<u>WG2012305</u>
Chromium	ND		0.00700	1	02/24/2023 15:09	<u>WG2012305</u>
Copper	ND		0.0200	1	02/24/2023 15:09	<u>WG2012305</u>
Iron	ND		0.500	1	02/24/2023 15:09	<u>WG2012305</u>
Lead	ND		0.0100	1	02/24/2023 15:09	<u>WG2012305</u>
Manganese	0.666		0.0500	1	02/24/2023 15:09	<u>WG2012305</u>
Nickel	ND		0.0100	1	02/24/2023 15:09	<u>WG2012305</u>
Silver	ND		0.00500	1	02/24/2023 15:09	<u>WG2012305</u>
Zinc	ND		0.0250	1	02/24/2023 15:09	<u>WG2012305</u>

1

2

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

WELL M-3

Collected date/time: 02/20/23 10:42

SAMPLE RESULTS - 03

L1588704

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	809		33.3	1	02/24/2023 11:32	WG2012237

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	310		20.0	1	02/27/2023 11:03	WG2013472
Alkalinity,Bicarbonate	310		20.0	1	02/27/2023 11:03	WG2013472
Alkalinity,Carbonate	ND		20.0	1	02/27/2023 11:03	WG2013472
Alkalinity,Hydroxide	ND		20.0	1	02/27/2023 11:03	WG2013472
Phenolphthalein Alkalinity	ND		20.0	1	02/27/2023 11:03	WG2013472

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	ND		0.250	1	02/26/2023 15:27	WG2013121

Wet Chemistry by Method 5220D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
COD	ND		35.0	1	02/28/2023 11:45	WG2013932

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1110		1.00	1	02/24/2023 13:47	WG2012493

Sample Narrative:

L1588704-03 WG2012493: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	50.3		0.800	1	02/24/2023 19:56	WG2012266
Nitrate	ND	T8	0.500	1	02/24/2023 19:38	WG2012266
Sulfate	256		0.700	1	02/24/2023 19:56	WG2012266

Wet Chemistry by Method 9060

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	30.3		1.40	2	02/26/2023 09:55	WG2012272

Wet Chemistry by Method 9065

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Phenolics, Total Recoverable	ND		0.200	1	02/28/2023 17:56	WG2013934

Mercury by Method 7470

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	02/27/2023 14:45	WG2011942



WELL M-3

Collected date/time: 02/20/23 10:42

Metals (ICP) by Method 6010

SAMPLE RESULTS - 03

L1588704

	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Allyte	mg/l		mg/l			
Arsenic	ND		0.0200	1	02/24/2023 15:15	<u>WG2012305</u>
Cadmium	ND		0.00500	1	02/24/2023 15:15	<u>WG2012305</u>
Chromium	ND		0.00700	1	02/24/2023 15:15	<u>WG2012305</u>
Copper	ND		0.0200	1	02/24/2023 15:15	<u>WG2012305</u>
Iron	ND		0.500	1	02/24/2023 15:15	<u>WG2012305</u>
Lead	ND		0.0100	1	02/24/2023 15:15	<u>WG2012305</u>
Manganese	0.971		0.0500	1	02/24/2023 15:15	<u>WG2012305</u>
Nickel	ND		0.0100	1	02/24/2023 15:15	<u>WG2012305</u>
Silver	ND		0.00500	1	02/24/2023 15:15	<u>WG2012305</u>
Zinc	ND		0.0250	1	02/24/2023 15:15	<u>WG2012305</u>



WELL M-4

Collected date/time: 02/20/23 11:08

SAMPLE RESULTS - 04

L1588704

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	1010		33.3	1	02/24/2023 11:32	WG2012237

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	298		20.0	1	02/27/2023 11:03	WG2013472
Alkalinity,Bicarbonate	298		20.0	1	02/27/2023 11:03	WG2013472
Alkalinity,Carbonate	ND		20.0	1	02/27/2023 11:03	WG2013472
Alkalinity,Hydroxide	ND		20.0	1	02/27/2023 11:03	WG2013472
Phenolphthalein Alkalinity	ND		20.0	1	02/27/2023 11:03	WG2013472

Wet Chemistry by Method 350.1

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	ND		0.250	1	02/26/2023 15:29	WG2013121

Wet Chemistry by Method 5220D

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
COD	ND		35.0	1	02/28/2023 11:45	WG2013932

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1300		1.00	1	02/24/2023 13:47	WG2012493

Sample Narrative:

L1588704-04 WG2012493: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	87.1		0.800	1	02/24/2023 20:32	WG2012266
Nitrate	17.6	T8	0.500	1	02/24/2023 20:32	WG2012266
Sulfate	246		0.700	1	02/24/2023 20:32	WG2012266

Wet Chemistry by Method 9060

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	23.0		1.40	2	02/26/2023 10:33	WG2012272

Wet Chemistry by Method 9065

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Phenolics, Total Recoverable	ND		0.200	1	02/28/2023 17:56	WG2013934

Mercury by Method 7470

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Mercury	ND		0.000200	1	02/27/2023 14:47	WG2011942



WELL M-4

Collected date/time: 02/20/23 11:08

Metals (ICP) by Method 6010

SAMPLE RESULTS - 04

L1588704

	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Analyte	mg/l		mg/l			
Arsenic	ND		0.0200	1	02/24/2023 15:20	<u>WG2012305</u>
Cadmium	ND		0.00500	1	02/24/2023 15:20	<u>WG2012305</u>
Chromium	ND		0.00700	1	02/24/2023 15:20	<u>WG2012305</u>
Copper	ND		0.0200	1	02/24/2023 15:20	<u>WG2012305</u>
Iron	ND		0.500	1	02/24/2023 15:20	<u>WG2012305</u>
Lead	ND		0.0100	1	02/24/2023 15:20	<u>WG2012305</u>
Manganese	0.148		0.0500	1	02/24/2023 15:20	<u>WG2012305</u>
Nickel	0.0146		0.0100	1	02/24/2023 15:20	<u>WG2012305</u>
Silver	ND		0.00500	1	02/24/2023 15:20	<u>WG2012305</u>
Zinc	ND		0.0250	1	02/24/2023 15:20	<u>WG2012305</u>



Method Blank (MB)

(MB) R3894943-1 02/24/23 11:32

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Total Dissolved Solids	U		25.0	25.0

L1588704-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1588704-01 02/24/23 11:32 • (DUP) R3894943-3 02/24/23 11:32

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Dissolved Solids	110	935	1	17.1	LS	5

L1588704-02 Original Sample (OS) • Duplicate (DUP)

(OS) L1588704-02 02/24/23 11:32 • (DUP) R3894943-4 02/24/23 11:32

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Dissolved Solids	1040	1030	1	1.25		5

Laboratory Control Sample (LCS)

(LCS) R3894943-2 02/24/23 11:32

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Dissolved Solids	2340	2560	109	85.0-115	

1	2	3 SS	4 Cn	5 Sr	6 Oc	7 GI	8 Al	9 Sc
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QUALITY CONTROL SUMMARY

L1588704-01.0.04

Method Blank (MB)

(MB) R3895315-1 02/27/23 11:03

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Alkalinity	U		20.0	20.0
Alkalinity,Bicarbonate	U		20.0	20.0
Alkalinity,Carbonate	U		20.0	20.0
Alkalinity,Hydroxide	U		20.0	20.0
Phenolphthalein Alkalinity	U		20.0	20.0

(OS) R3895315-3 02/27/23 11:03 • (DUP) R3895315-3 02/27/23 11:03 • Duplicate (DUP)

(OS) L1588704-04 02/27/23 11:03 • (DUP) R3895315-3 02/27/23 11:03

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	456	468	1	2.60		20

(OS) L1588704-01 02/27/23 11:03 • (DUP) R3895315-4 02/27/23 11:03 • Duplicate (DUP)

(OS) L1588704-01 02/27/23 11:03 • (DUP) R3895315-4 02/27/23 11:03

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	386	380	1	1.57		20

(LCS) R3895315-2 02/27/23 11:03

(LCS) R3895315-2 02/27/23 11:03

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Alkalinity	250	244	97.6	90.0-110	

QC
Sr
Cn
Ss
Al
Gl
Sc

WG2013

Wet Chemistry by Method 350.1

Method Blank (MB)

(MB) R3894970-1 02/26/23 15:20

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Ammonia Nitrogen	mg/l	mg/l	0.117	0.250
	U			

L158878-01 Original Sample (OS) • Duplicate (DUP)

(OS) L158878-01 02/26/23 15:39 • (DUP) R3894970-5 02/26/23 15:41

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP RPD Limits
Ammonia Nitrogen	mg/l	mg/l	%	%	%
	ND	ND	1	0.000	10

L158889-01 Original Sample (OS) • Duplicate (DUP)

(OS) L158889-01 02/26/23 15:51 • (DUP) R3894970-7 02/26/23 15:53

Analyte	Original Result	DUP Result	Dilution	DUP RPD	DUP RPD Limits
Ammonia Nitrogen	mg/l	mg/l	%	%	%
	ND	ND	1	1.65	10

Laboratory Control Sample (LCS)

(LCS) R3894970-2 02/26/23 15:21

Analyte	Spike Amount	LCS Result	Rec. Limits	LCS Qualifier
Ammonia Nitrogen	mg/l	mg/l	%	
	7.50	7.10	94.7	90.0-110

L158878-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L158878-01 02/26/23 15:30 • (MS) R3894970-3 02/26/23 15:32 • (MSD) R3894970-4 02/26/23 15:33

Analyte	Spike Amount	Original Result	MS Result	MSD Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Ammonia Nitrogen	mg/l	mg/l	mg/l	mg/l	%	%	%	%	%	%	%
	5.00	3.03	7.83	7.71	96.0	1	90.0-110	1.53	1.53	10	10

L158882-01 Original Sample (OS) • Matrix Spike (MS)

(OS) L158882-01 02/26/23 15:48 • (MS) R3894970-6 02/26/23 15:50

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier
Ammonia Nitrogen	mg/l	mg/l	mg/l	%	%	%	
	5.00	ND	4.95	95.9	1	90.0-110	

ACCOUNT:
City of Lewisville

PROJECT:
ANNUAL MONITORING WE

SDG:
L1588704

DATE/TIME:
03/02/23 16:42

PAGE:
16 of 31

QUALITY CONTROL SUMMARY

L1588704-01.02.04



(MB) R3895761-1 02/28/23 11:44

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
COD	U	16.1	35.0	

Comparative Control Sample (LCS)

(LCS) R3895761-2 02/28/23 11:44

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
COD	500	510	102	80.0-120	

(OS) R3895761-3 02/28/23 11:46 • (MS) R3895761-4 02/28/23 11:46

(OS) L158877-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
COD	500	ND	529	100	1	80.0-120		4.00	4.00	20

(OS) R3895761-5 02/28/23 11:46 • (MSD) R3895761-6 02/28/23 11:46

(OS) L1588877-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
COD	500	ND	523	105	1	80.0-120		2.45	2.45	20

1	2	3	4	5	6	7	8	9
Al	Ca	SS	Cn	Sr	OC	Gl	Al	Sc

WG201

Wet Chemistry by method 9050

QUALITY CONTROL SUMMARY

L1588704-01.01.24

Method Blank (MB)

(MB) R3894623-1 02/24/23 13:47

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U	1.00	1.00	1.00

Sample Narrative:
BLANK at 25C

(OS) L1588704-01 Original Sample (OS) - Duplicate (DUP)

(OS) L1588704-01 02/24/23 13:47 • (DUP) R3894623-3 02/24/23 13:47

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1310	1310	1	0.000		20

Sample Narrative:
OS at 25C
DUP at 25C

Laboratory Control Sample (LCS)

(LCS) R3894623-2 02/24/23 13:47

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	200	188	93.8	80.0-120	

Sample Narrative:
LCS at 25C

1 1 3 4 5 6 7 8 9
Fe Cr Ss Cn Sr OC Gl Al Sc

QUALITY CONTROL SUMMARY

L1588704-01.0. 4

WG201
Wet Chemistry by Method 9056A

Method Blank (MB)

(MB) R3895142-1 02/24/23 17:51

Analyte	MB Result	MB Qualifier	MB MDL	MB RDL
Chloride	0.155	J	0.0541	0.800
Nitrate	U	U	0.207	0.500
Sulfate	0.357	J	0.199	0.700

Laboratory Control Sample (LCS)

(LCS) R3895142-2 02/24/23 18:09

Analyte	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Chloride	5.00	5.22	104	80.0-120	
Nitrate	5.00	5.00	100	80.0-120	
Sulfate	5.00	5.27	105	80.0-120	

L1588704-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588704-01 02/24/23 18:27 • (MS) R3895142-3 02/25/23 13:44 • (MSD) R3895142-4 02/25/23 14:02

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Nitrate	5.00	ND	5.26	100	1	80.0-120			0.899	20

L1588704-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588704-01 02/24/23 18:45 • (MS) R3895142-5 02/25/23 14:20 • (MSD) R3895142-6 02/25/23 14:38

Analyte	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Chloride	100	69.7	183	114	1	80.0-120			0.837	20
Sulfate	100	253	385	132	1	80.0-120	E J5	E J5	1.39	20

1

2

3 Ss

4 Cn

5 Sr

6 Oc

7 Gl

8 Al

9 Sc

QUALITY CONTROL SUMMARY

L1588704-01.0 0.4

WG201
Wet Chemistry by Method 9060

Method Blank (MB)

(MB) R3895166-1 02/26/23 04:45	MB Result	MB Qualifier	MB MDL	MB RDL
Analyte	mg/l	mg/l	mg/l	mg/l
TOC (Total Organic Carbon)	0.297	-	0.125	0.700

Laboratory Control Sample (LCS)

(LCS) R3895166-2 02/28/23 05:17	Spike Amount	LCS Result	LCS Rec.	Rec. Limits	LCS Qualifier
Analyte	mg/l	mg/l	%	%	
TOC (Total Organic Carbon)	10.0	10.4	104	80.0-120	

L1587016-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1587016-01 02/26/23 05:54 • (MS) R3895166-3 02/26/23 07:09 • (MSD) R3895166-4 02/26/23 07:58	Spike Amount	Original Result	MS Result	MS Rec.	Dilution	Rec. Limits	MS Qualifier	MSD Qualifier	RPD	RPD Limits
Analyte	mg/l	mg/l	mg/l	%		%			%	%
TOC (Total Organic Carbon)	20.0	43.5	67.7	121	2	80.0-120	±	±	4.11	20

1

1

3 Ss

4 Cn

5 Sr

6 Oc

7 Gl

8 Al

9 Sc

(MB) R3896010-1 02/28/23 17:56

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Phenolics, Total Recoverable	U	0.0730	0.200	

Laboratory Control Sample (LCS)

(LCS) R3896010-2 02/28/23 17:56

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Phenolics, Total Recoverable	0.400	0.339	84.7	80.0-120	

L1588704-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588704-04 02/28/23 17:56 • (MS) R3896010-3 02/28/23 17:56 • (MSD) R3896010-4 02/28/23 17:56

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Phenolics, Total Recoverable	0.400	ND	0.392	98.0	1	80.0-120		3.45	20	

1	2	3	4	5	6	7	8	9
	1	SS	Cn	Sr	OE	Gl	Al	Sc

QUALITY CONTROL SUMMARY

L1588704-01.0.0.04

WG2011

Mercury by Method 7470

Method Blank (MB)

(MB) R3895324-1 02/27/23 14:32

Analyte	MB Result mg/l	MB MDL mg/l	MB RDL mg/l
Mercury	U	0.0000430	0.000200

Laboratory Control Samples (LCS)

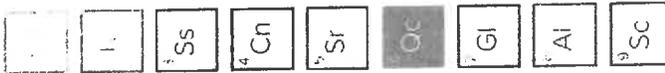
(LCS) R3895324-2 02/27/23 14:34

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Mercury	0.00250	0.00228	91.2	80.0-120	

L1588704-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588704-01 02/27/23 14:37 • (MS) R3895324-3 02/27/23 14:39 • (MSD) R3895324-4 02/27/23 14:41

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Mercury	0.00250	ND	0.00229	0.00230	91.6	92.0	1	80.0-120		0.436	20	



WG201

Metals (ICP) by Method 6010

Method Blank (MB)

(MB) R3894731-1 02/24/23 14:54

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Arsenic	U	0.00193	0.00193	0.0200
Cadmium	U	0.000385	0.000385	0.00500
Chromium	U	0.000572	0.000572	0.00700
Copper	U	0.00434	0.00434	0.0200
Iron	U	0.0545	0.0545	0.500
Lead	U	0.00185	0.00185	0.0100
Manganese	U	0.00549	0.00549	0.0500
Nickel	U	0.00291	0.00291	0.0100
Silver	U	0.000822	0.000822	0.00500
Zinc	U	0.0119	0.0119	0.0250

Laboratory Control Sample (LCS)

(LCS) R3894731-2 02/24/23 14:59

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Arsenic	1.00	0.969	96.9	80.0-120	
Cadmium	1.00	0.984	98.4	80.0-120	
Chromium	1.00	0.984	98.4	80.0-120	
Copper	1.00	0.991	99.1	80.0-120	
Iron	10.0	9.64	96.4	80.0-120	
Lead	1.00	1.04	104	80.0-120	
Manganese	1.00	1.03	103	80.0-120	
Nickel	1.00	1.03	103	80.0-120	
Silver	0.500	0.469	93.9	80.0-120	
Zinc	1.00	0.991	99.1	80.0-120	

L1588704 04 Unlabeled Sample (US) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1588704-04 02/24/23 15:20 • (MS) R3894731-3 02/24/23 15:26 • (MSD) R3894731-4 02/24/23 15:31

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Arsenic	1.00	ND	1.02	1.01	102	101	1	75.0-125		0.787	0.787	20
Cadmium	1.00	ND	1.01	1.01	101	101	1	75.0-125		0.0988	0.0988	20
Chromium	1.00	ND	0.975	0.974	97.5	97.4	1	75.0-125		0.185	0.185	20
Copper	1.00	ND	1.01	1.00	101	100	1	75.0-125		0.398	0.398	20
Iron	10.0	ND	9.52	9.48	95.2	94.8	1	75.0-125		0.495	0.495	20
Lead	1.00	ND	0.984	0.991	98.4	99.1	1	75.0-125		0.739	0.739	20
Manganese	1.00	0.148	1.17	1.16	102	101	1	75.0-125		0.945	0.945	20

ACCOUNT:
City of Lewisville

PROJECT:
ANNUAL MONITORING WE

SDG:
L1588704

DATE/TIME:
03/02/23 16:42

PAGE:
23 of 31



WG201

Metals (ICP) by Method 6010

QUALITY CONTROL SUMMARY

L1588704-01.0.0.04

(OS) L1588704-04 02/24/23 15:20 • (MS) R3894731-3 02/24/23 15:26 • (MSD) R3894731-4 02/24/23 15:31

(OS) L1588704-04 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nickel	1.00	0.0146	1.00	1.00	98.8	98.7	1	75.0-125			0.0998	20
Silver	0.500	ND	0.489	0.485	97.8	96.9	1	75.0-125			0.863	20
Zinc	1.00	ND	0.963	0.973	96.3	97.3	1	75.0-125			1.00	20

1 2 3 4 5 6 7 8 9 10 11 12

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

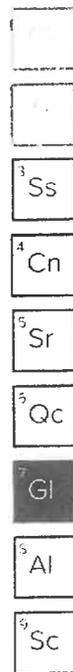
Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
------------------	--------------------

E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
T8	Sample(s) received past/too close to holding time expiration.



ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122

Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ³	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	AI30792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA - ISO 17025	1461.01	AIHA-LAP,LLC EMLAP	100789
A2LA - ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

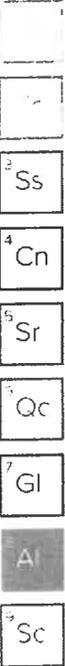
Pace Analytical Services, LLC -Dallas 400 W Bethany Drive Suite 190 Allen, TX 75013

Arkansas	88-0647	Kansas	E10388
Florida	E871118	Texas	T104704232-22-37
Iowa	408	Oklahoma	8727
Louisiana	30686		

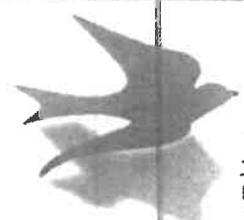
¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable

* Not all certifications held by the laboratory are applicable to the results reported in the attached report.

* Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



L158 8704



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**ENVIRONMENTAL CONTROL SERVICES
INSTRUCTIONS FOR ANALYSIS**

LABORATORY: Pace Analytical Services **Date:** 2/20/2023 AMW

Containers:	Well M-1	# 20530	Pres. With 2 mL HNO ₃	500mL (P)
		# 20531	Cooled to 4.0°C only	1 L (AG)
		# 20532	Pres. With 3 mL H ₂ SO ₄	1 L (AG)
	Well M-2	# 20533	Pres. With 2 mL HNO ₃	500mL (P)
		# 20534	Cooled to 4.0°C only	1 L (AG)
		# 20535	Pres. With 3 mL H ₂ SO ₄	1 L (AG)
	Well M-3	# 20536	Pres. With 2 mL HNO ₃	500mL (P)
		# 20537	Cooled to 4.0°C only	1 L (AG)
		# 20538	Pres. With 3 mL H ₂ SO ₄	1 L (AG)
	Well M-4	# 20539	Pres. With 2 mL HNO ₃	500mL (P)
		# 20540	Cooled to 4.0°C only	1 L (AG)
		# 20541	Pres. With 3 mL H ₂ SO ₄	1 L (AG)

-01
-02
-03
-04

**ANALYZE EACH GROUP OF WELL
SAMPLES SEPARATELY FOR:**

BID #17-09-A, ITEM #8-01	
(Group A- Monitoring Wells, Quarterly)	&
ITEM #8-02 (Group B-Monitoring Wells, Annual)	

TURN AROUND TIME: NORMAL, SPECIFY OTHER Normal

A COPY OF THESE INSTRUCTIONS HAS BEEN MADE FOR OUR FILES. PLEASE INCLUDE QA/QC AND MINIMUM DETECTION LIMITS WITH REPORT. PLEASE REFER TO 40 CFR 138 FOR APPROVED ANALYTICAL METHODS. SOLID WASTE METHODS ARE NOT ACCEPTABLE FOR WASTEWATER ANALYSIS.

NOTES: _____

SAMPLING PERSON: J. Maness & J. Tae



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CHAIN OF CUSTODY ENVIRONMENTAL CONTROL SERVICES

Report Name: 2/20/2023 Annual Monitoring Wells

Process producing waste: Groundwater

Date sample taken: Grab samples on 2/20/2023

Time of time span sample taken:	#1	9:53 AM	#2	10:17 AM
	#3	10:42 AM	#4	11:08 AM

Preservation:

Yes Temperature reduction

Yes pH adjustment

Initial pH N/A adjusted to See Instructions

chemical See Instructions amount See Instructions

Signature of Sampler [Signature]

Analysis to be done: Annual Well Analysis, (Item #17-09-A-6-01, Item#17-09-A-6-02)

Bottle Numbers: 20530,20531,20532,20533,20534,20535,20536,20537,20538,20539,20540,20541

Relinquished By:	<u>J. Manes</u>	<u>Inspector/ECS</u>	<u>2/20/2023 11:30</u>
	Name	Title/Organization	Date/Time

Received By:	<u>ECS Refrigerator</u>	<u>City of Lewisville</u>	<u>2/20/2023 11:30</u>
	Name	Title/Organization	Date/Time

Relinquished By:	<u>[Signature]</u>	<u>Inspector/ECS</u>	<u>2/21/23 1152</u>
	Name	Title/Organization	Date/Time

Received By:	<u>[Signature]</u>	<u>[Signature]</u>	<u>2/21/23 1152</u>
	Name	Title/Organization	Date/Time

Relinquished By:	<u>[Signature]</u>	<u>[Signature]</u>	<u>[Signature]</u>
	Name	Title/Organization	Date/Time

Received By:	<u>[Signature]</u>	<u>PACE</u>	<u>2/21/23 1245</u>
	Name	Title/Organization	Date/Time

DAL 2/21 - L1588704 DSCLEWELTX NCF - OC

Time estimate: oh

Time spent: oh

Members

OC Olivia Currie (responsible) RJ Reagan Johnson

1. If Chain-of-custody (COC) is not received: contact client and if necessary, fill out a COC and indicate that it was filled out by lab personnel. Note issues on this NCF.

2. If COC is incomplete, check applicable issues below and add details where appropriate:

- *Collection date/time missing or incorrect
- *Analyses or analytes: missing or Clarification needed
- *Samples listed on COC do not match samples received (missing, additional, etc.)
- *Sample IDs on COC do not match sample Labels
- *Required trip blanks were not received
- *Required signatures are missing

3. Sample integrity issues: check applicable issues below and add details where appropriate:

- *Samples: Past holding time
- *Samples: Not Field Filtered
- *samples: Insufficient volume received
- *Samples: Cooler damaged or compromised
- *Samples: contain Chlorine or Sulfide
- *Samples: condition needs to be brought to lab personnel's attention (details below)
- *Containers: Broken or compromised
- *Containers: Incorrect
- *Custody Seals: missing or compromised on samples, trip blanks or coolers
- *Packing Material: Insufficient/Improper
- *Preservation: improper
- *Temperature: not within acceptance criteria (typically 0-6C)
- *Temperature: Samples arrived frozen
- *Vials received with improper headspace
- *Other:

4. If Samples not preserved properly and Sample Receiving adjusts pH, add details below:

- Sample ID: _____
- Preserved by: _____
- Date/Time: _____
- Initial and Final pH: _____
- Amount/type pres added: _____
- Lot # of Pres added: _____

5. Client contact: If Client is Contacted for any issue listed above, fill in details below:

- Client:
- PM Initials:
- Contacted per:
- Date/Time:

Comments

21 February 2023 5:07 PM

Olivia Currie

Did not rec. COC

Container IDs:

20530 - 500ml hno3

20531 - 1L amb unpres

20532 - 1L amb h2so4

20533 - 500ml hno3

20534 - 1L amb unpres

20535 - 1L amb h2so4

20536 - 500ml hno3

20537 - 1L amb unpres

20538 - 1L amb h2so4

20539 - 500ml hno3

20540 - 1L amb. unpres

20541 - 1L amb h2so4

23 February 2023 12:46 PM

Reagan Johnson

Match L1468006. Attaching chain they want added. [Swwtprn0223022212270.pdf](#)

23 February 2023 3:10 PM

Olivia Currie

Nitrates OOH

	Document Name: Sample Condition Upon Receipt	Document Revised: 7/27/20 Page 1 of 1
	Document No.: F-DAL-C-001-rev.14	Issuing Authority: Pace Dallas Quality Office

Sample Condition Upon Receipt

Dallas
 Ft Worth
 Corpus Christi
 Austin

Client Name: City of Lewisville Project Work order (place label): _____

Courier: FedEX UPS USPS Client LSO PACE Other: _____

Tracking #: _____

Custody Seal on Cooler/Box: Yes No

Received on ice: Wet Blue No ice

Receiving Lab 1 Thermometer Used: 1218 Cooler Temp °C: 0.5 (Recorded) +0.1 (Correction Factor) 0.6 (Actual)

Receiving Lab 2 Thermometer Used: _____ Cooler Temp °C: _____ (Recorded) _____ (Correction Factor) _____ (Actual)

Temperature should be above freezing to 6°C unless collected same day as receipt in which evidence of cooling is acceptable

Triage Person: DG Date: 2/21

Chain of Custody relinquished	Yes <input type="checkbox"/> No <input type="checkbox"/>
Sampler name & signature on COC	Yes <input type="checkbox"/> No <input type="checkbox"/>
Short HT analyses (<72 hrs)	Yes <input type="checkbox"/> No <input type="checkbox"/>

Login Person: OC Date: 2/21

Sufficient Volume received	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Correct Container used	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Container Intact	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample pH Acceptable pH Strips: <u>62010002</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input type="checkbox"/>
Residual Chlorine Present Cl Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Sulfide Present Lead Acetate Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Are soil samples (volatiles, TPH) received in 5035A Kits (not applicable to TCLP VOA or PST Program TPH)	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Unpreserved 5035A soil frozen within 48 hrs	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Headspace in VOA (>6mm)	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Project sampled in USDA Regulated Area outside of Texas State Sampled: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Non-Conformance(s):	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Labeling Person (if different than log-in): _____ Date: _____

Annual Wells

Date Collected 2/20/2023

Bottle Number	Type	Analysis	Preservation	Time Collected
20530	500 mL (P)	BID #17-09-A, ITEM #6-01, ITEM#6-02	3 mL HNO ₃	9:53 AM
20531	1 L (AG)	BID #17-09-A, ITEM #6-01, ITEM#6-02	None	
20532	1 L (AG)	BID #17-09-A, ITEM #6-01, ITEM#6-02	3 mL H ₂ SO ₄	
20533	500 mL (P)	BID #17-09-A, ITEM #6-01, ITEM#6-02	3 mL HNO ₃	10:17 AM
20534	1 L (AG)	BID #17-09-A, ITEM #6-01, ITEM#6-02	None	
20535	1 L (AG)	BID #17-09-A, ITEM #6-01, ITEM#6-02	3 mL H ₂ SO ₄	
20536	500 mL (P)	BID #17-09-A, ITEM #6-01, ITEM#6-02	3 mL HNO ₃	#####
20537	1 L (AG)	BID #17-09-A, ITEM #6-01, ITEM#6-02	None	
20538	1 L (AG)	BID #17-09-A, ITEM #6-01, ITEM#6-02	3 mL H ₂ SO ₄	
20539	500 mL (P)	BID #17-09-A, ITEM #6-01, ITEM#6-02	3 mL HNO ₃	#####
20540	1 L (AG)	BID #17-09-A, ITEM #6-01, ITEM#6-02	None	
20541	1 L (AG)	BID #17-09-A, ITEM #6-01, ITEM#6-02	3 mL H ₂ SO ₄	



LEWISVILLE

Deep Roots. Broad Wings. Bright Future.

**Environmental Control Services
Sampling Record and Field Notes
For Monitoring Wells
(PART I)**

Well M-1				Well M-2			
Date:	2/20/2023			Date:	2/20/2023		
Purge Start Time:	9:43 AM			Purge Start Time:	10:07 AM		
Purge End Time:	9:52 AM			Purge End Time:	10:16 AM		
Sample Time:	9:53 AM			Sample Time:	10:17 AM		
Containers & ID:	20530	20531	20532	Containers & ID:	20533	20534	20535
pH	6.77 S.U.	Temperature:	19.9°C	pH	6.69 S.U.	Temperature:	18.8°C
DO Start:	1.07 mg/L	DO End:	0.58 mg/L	DO Start:	0.42 mg/L	DO End:	0.19 mg/L
SpC Start:	1316 µS/cm	SpC End:	1332 µS/cm	SpC Start:	1388 µS/cm	SpC End:	1393 µS/cm
Notes:	Water level found 13.2 ft.			Notes:	Water level found 12.9 ft.		
Well M-3				Well M-4			
Date:	2/20/2023			Date:	2/20/2023		
Purge Start Time:	10:32 AM			Purge Start Time:	10:58 AM		
Purge End Time:	10:41 AM			Purge End Time:	11:07 AM		
Sample Time:	10:42 AM			Sample Time:	11:08 AM		
Containers & ID:	20536	20537	20538	Containers & ID:	20539	20540	20541
pH	6.94 S.U.	Temperature:	18.9°C	pH	6.75 S.U.	Temperature:	20.9°C
DO Start:	0.54 mg/L	DO End:	0.27 mg/L	DO Start:	0.64 mg/L	DO End:	0.33 mg/L
SpC Start:	1140 µS/cm	SpC End:	1126 µS/cm	SpC Start:	1323 µS/cm	SpC End:	1332 µS/cm
Notes:	Water level found 15.0 ft.			Notes:	Water level found 16.7 ft.		



LEWISVILLE

Deep Roots. Broad Wings. Bright Future.

**Environmental Control Services
Sampling Record and Field Notes
For Monitoring Wells
(PART II)**

Well Number	M-1	M-2	M-3	M-4
Well Elevation in Feet	473.39	468.11	467.75	466.95
Static Level in Feet	13.2	12.9	15	16.7
MSL in Feet*	460.19	455.21	452.75	450.25
Pump Intake in Feet	19.5	19.11	19.10	19.11
Well Volume in Feet**	6.3	6.21	4.1	2.41
Conversion Factor	0.1632	0.1632	0.1632	0.1632
Well Volume in Gallons***	1.0282	1.0135	0.6691	0.3933

* To Find MSL (Mean Sea Level), subtract Static Level from Well Elevation.

** To find Well Volume in feet, subtract Static Level from Pump Intake.

*** To find Well Volume in gallons ,multiply Well Volume in feet by Conversion Factor 0.1632

GROUNDWATER SAMPLING LOG

SITE NAME: <u>City of Lewisville</u>	SITE LOCATION: <u>WWTP</u>	DATE: <u>2/20/23</u>
WELL NO: <u>AMW#1</u>	SAMPLE ID: <u>20530, 20531, 20532</u>	

PURGING DATA

WELL DIAMETER (Inches):	TUBING DIAMETER (Inches):	WELL SCREEN INTERVAL DEPTH: <u> </u> feet to <u> </u> feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (<u> </u> feet - <u> </u> feet) X <u> </u> gallons/foot = <u> </u> gallons											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) = <u> </u> gallons + (<u> </u> gallons/foot X <u> </u> feet) + <u> </u> gallons = <u> </u> gallons											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):					
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mV)	TURBIDITY (NTUs)	COND. (micro mhos/cm) <u>25°C</u>	DISSOLVED OXYGEN (micro mhos/cm) <u>% sat.</u>	COLOR & ODOR (describe)
<u>9:43a</u>				<u>13.2</u>	<u>19.8</u>	<u>6.78</u>	<u>90.1</u>		<u>1316</u>	<u>1.07</u>	
<u>9:46a</u>					<u>19.8</u>	<u>6.78</u>	<u>57.0</u>		<u>1336</u>	<u>0.76</u>	
<u>9:49a</u>					<u>19.9</u>	<u>6.79</u>	<u>48.4</u>		<u>1332</u>	<u>0.64</u>	
<u>9:52a</u>					<u>19.9</u>	<u>6.77</u>	<u>46.0</u>		<u>1332</u>	<u>0.58</u>	
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.66; 5" = 1.02; 6" = 1.47; 12" = 6.88 TUBING INSIDE DIA. CAPACITY (Gal/FL): 1/8" = 0.0008; 3/16" = 0.0014; 1/4" = 0.0028; 5/16" = 0.004; 3/8" = 0.008; 1/2" = 0.010; 5/8" = 0.016 PURGING EQUIPMENT CODES: B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

24.7

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:		
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:				FIELD-FILTERED: Y N		FILTER SIZE: <u> </u> µm		
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N				
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE		SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH						
REMARKS:												
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicons; T = Teflon; O = Other (Specify)												
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)												

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS
 pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater)
 Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

GROUNDWATER SAMPLING LOG

SITE NAME: <u>City of Louisville</u>	SITE LOCATION: <u>WWTTP</u>
WELL NO: <u>AMW#2</u>	SAMPLE ID: <u>20533, 20534, 20535</u>
DATE: <u>2/10/23</u>	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: <u> </u> feet to <u> </u> feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)											
= (<u> </u> feet - <u> </u> feet) X <u> </u> gallons/foot = <u> </u> gallons											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)											
= <u> </u> gallons + (<u> </u> gallons/foot X <u> </u> feet) + <u> </u> gallons = <u> </u> gallons											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):					
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mV)	TURBIDITY (NTUs)	COND. (micro units) <small>OR µS/cm</small>	DISSOLVED OXYGEN (circles units) <small>OR % saturation</small>	COLOR & ODOR (describe)
24.0 10:07A				12.9	18.5	6.69	67.5		1388	0.42	
10:10A					18.7	6.69	25.7		1387	0.24	
10:13A					18.7	6.69	17.4		1391	0.30	
10:16A					18.8	6.69	13.9		1393	0.19	
<small>WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 6" = 1.02; 8" = 1.47; 12" = 5.68 TUBING INSIDE DIA CAPACITY (Gal./ft.): 1/8" = 0.0009; 3/16" = 0.0014; 1/4" = 0.0028; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016 PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)</small>											

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:			
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:				FIELD-FILTERED: Y N		FILTER SIZE: _____ µm			
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N					
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE		SAMPLE PUMP FLOW RATE (mL per minute)	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH							
REMARKS:													
<small>MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify) SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)</small>													

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater)
Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

GROUNDWATER SAMPLING LOG

SITE NAME: <u>City of Louisville</u>	SITE LOCATION: <u>WWTP</u>
WELL NO: <u>AMW #3</u>	SAMPLE ID: <u>20536, 20537, 20538</u> DATE: <u>2/20/23</u>

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: <u> </u> feet to <u> </u> feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)											
= (<u> </u> feet - <u> </u> feet) X <u> </u> gallons/foot = <u> </u> gallons											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)											
= <u> </u> gallons + (<u> </u> gallons/foot X <u> </u> feet) + <u> </u> gallons = <u> </u> gallons											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):					
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mV)	TURBIDITY (NTUs)	COND. (micro mhos/cm or µmhos/cm)	DISSOLVED OXYGEN (single units) (% of % saturation)	COLOR & ODOR (describe)
<u>10:32 AM</u>				<u>15.0</u>	<u>18.6</u>	<u>6.95</u>	<u>50.3</u>		<u>1140</u>	<u>0.54</u>	
<u>10:35 AM</u>					<u>18.8</u>	<u>6.95</u>	<u>22.6</u>		<u>1127</u>	<u>0.29</u>	
<u>10:38 AM</u>					<u>18.8</u>	<u>6.94</u>	<u>15.9</u>		<u>1126</u>	<u>0.23</u>	
<u>10:41 AM</u>					<u>18.9</u>	<u>6.94</u>	<u>16.9</u>		<u>1126</u>	<u>0.27</u>	
<small>WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.5" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 6" = 1.02; 8" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016 PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)</small>											

24.6

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:		
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:				FIELD-FILTERED: Y N		FILTER SIZE: <u> </u> µm		
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N				
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE		SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH						
REMARKS:												
<small>MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify) SAMPLING EQUIPMENT CODES: AFP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)</small>												

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater)
Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

GROUNDWATER SAMPLING LOG

SITE NAME: <u>City of Lewisville</u>	SITE LOCATION: <u>WWTTP</u>
WELL NO: <u>AMWF4</u>	SAMPLE ID: <u>20539, 20540, 20541</u>
DATE: <u>2/20/23</u>	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: <u> </u> feet to <u> </u> feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)											
= (<u> </u> feet - <u> </u> feet) X <u> </u> gallons/foot = <u> </u> gallons											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)											
= <u> </u> gallons + (<u> </u> gallons/foot X <u> </u> feet) + <u> </u> gallons = <u> </u> gallons											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):					
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mV)	TURBIDITY (NTU)	COND. (micro mhos/cm or % saturation)	DISSOLVED OXYGEN (micro mhos/cm or % saturation)	COLOR & ODOR (describe)
<u>10:58a</u>				<u>16.7'</u>	<u>20.8</u>	<u>6.77</u>	<u>48.0</u>		<u>1323</u>	<u>0.64</u>	
<u>11:01a</u>					<u>20.9</u>	<u>6.76</u>	<u>29.7</u>		<u>1331</u>	<u>0.34</u>	
<u>11:04a</u>					<u>20.9</u>	<u>6.75</u>	<u>28.1</u>		<u>1332</u>	<u>0.31</u>	
<u>11:07a</u>					<u>20.9</u>	<u>6.75</u>	<u>27.9</u>		<u>1332</u>	<u>0.33</u>	
<small>WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.38" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 6" = 1.02; 8" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./ft.): 1/8" = 0.0008; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.018 PURGING EQUIPMENT CODES: B = Bailor, BP = Bladder Pump, ESP = Electric Submersible Pump, PP = Peristaltic Pump, O = Other (Specify)</small>											

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:		
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:				FIELD-FILTERED: Y N		FILTER SIZE: <u> </u> µm		
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N				
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE		SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH						
REMARKS:												
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)												
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPF = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)												

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS
pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater)
Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)



City of Lewisville Laboratory - Water Bacteriology

Name of Water System City of Lewisville
AMW #3 JEM BJD Collected By
Point of Collection
2/20/23 Date
10:42 AM Time

Sample is: Distribution Special Construction
(Circle One)

Water Source: Well Lake
(Circle One) River
Chlorine Residual: _____

ANALYTICAL METHOD & RESULTS

Present/Absent: Total Coliform Present Absent
(Coli) Present Absent
M.P.N.: 0 / 100 ml
(Coli) 0 / 100 ml
E. coli / T. Coliform
(Circle One)

Membrane Filter/ Fecal Coliform:

1st Dilution / ml
2nd Dilution / ml
Average /100ml

2-20-23 11:20 AM
Date & Time Sample Received

2-20-23 11:40 AM Date & Time Analysis Began
2-21-23 11:50 AM Date & Time Analysis Reported

Analyzed By: [Signature]

* Make Copy for File*



City of Lewisville Laboratory - Water Bacteriology

Name of Water System City of Lewisville
AMW #4 JEM BJD Collected By
Point of Collection
2/20/23 Date
11:08 AM Time

Sample is: Distribution Special Construction
(Circle One)

Water Source: Well Lake
(Circle One) River
Chlorine Residual: _____

ANALYTICAL METHOD & RESULTS

Present/Absent: Total Coliform Present Absent
(Coli) Present Absent
M.P.N.: 0 / 100 ml
(Coli) 0 / 100 ml
E. coli / T. Coliform
(Circle One)

Membrane Filter/ Fecal Coliform:

1st Dilution / ml
2nd Dilution / ml
Average /100ml

2-20-23 11:20 AM
Date & Time Sample Received

2-20-23 11:40 AM Date & Time Analysis Began
2-20-23 11:50 AM Date & Time Analysis Reported

Analyzed By: [Signature]

* Make Copy for File*



ANALYTICAL REPORT

May 18, 2023

- Cp
- Ss
- ⁴Cn
- ⁵Sr
- ⁶Qc
- ⁷Gl
- Al
- ⁹Sc

City of Lewisville

Sample Delivery Group: L1611268
 Samples Received: 05/02/2023
 Project Number:
 Description: 05/02/2023 Quarterly Monitoring Wells

Report To: Kimberly Morris
 PO Box 299002
 Lewisville, TX 75029

Entire Report Reviewed By: *Cassandra Foster*
 Cassandra Foster
 Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical Services, LLC -Dallas

400 W. Bethany Drive Suite 190 Allen, TX 75013 972-727-1123 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

WELL M-1 20842-44 L1611268-01 GW

Collected by: Justin Maness
 Collected date/time: 05/02/23 08:20
 Received date/time: 05/02/23 15:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG2053407	1	05/03/23 13:48	05/03/23 14:47	QQT	Allen, TX
Wet Chemistry by Method 2320B	WG2056486	1	05/09/23 08:50	05/09/23 08:50	JBS	Allen, TX
Wet Chemistry by Method 5310C	WG2056587	5	05/09/23 19:23	05/09/23 19:23	EIG	Allen, TX
Wet Chemistry by Method 9050	WG2053483	1	05/03/23 14:59	05/03/23 14:59	QQT	Allen, TX
Wet Chemistry by Method 9056A	WG2058915	1	05/12/23 17:05	05/12/23 17:05	EIG	Allen, TX
Wet Chemistry by Method 9056A	WG2060096	1	05/15/23 20:01	05/15/23 20:01	EIG	Allen, TX
Wet Chemistry by Method SM4500NH3H	WG2058825	1	05/12/23 16:14	05/12/23 16:14	EIG	Allen, TX

WELL M-2 20845-47 L1611268-02 GW

Collected by: Justin Maness
 Collected date/time: 05/02/23 08:40
 Received date/time: 05/02/23 15:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG2053407	1	05/03/23 13:48	05/03/23 14:47	QQT	Allen, TX
Wet Chemistry by Method 2320B	WG2056486	1	05/09/23 08:50	05/09/23 08:50	JBS	Allen, TX
Wet Chemistry by Method 5310C	WG2056587	5	05/09/23 19:42	05/09/23 19:42	EIG	Allen, TX
Wet Chemistry by Method 9050	WG2053483	1	05/03/23 14:59	05/03/23 14:59	QQT	Allen, TX
Wet Chemistry by Method 9056A	WG2058915	1	05/12/23 17:25	05/12/23 17:25	EIG	Allen, TX
Wet Chemistry by Method 9056A	WG2060096	1	05/15/23 20:21	05/15/23 20:21	EIG	Allen, TX
Wet Chemistry by Method SM4500NH3H	WG2058825	1	05/12/23 16:16	05/12/23 16:16	EIG	Allen, TX

WELL M-3 20848-50 L1611268-03 GW

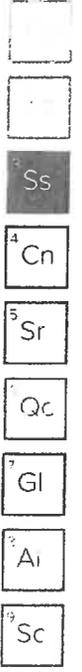
Collected by: Justin Maness
 Collected date/time: 05/02/23 09:03
 Received date/time: 05/02/23 15:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG2053407	1	05/03/23 13:48	05/03/23 14:47	QQT	Allen, TX
Wet Chemistry by Method 2320B	WG2056486	1	05/09/23 08:50	05/09/23 08:50	JBS	Allen, TX
Wet Chemistry by Method 5310C	WG2056587	5	05/09/23 20:00	05/09/23 20:00	EIG	Allen, TX
Wet Chemistry by Method 9050	WG2053483	1	05/03/23 14:59	05/03/23 14:59	QQT	Allen, TX
Wet Chemistry by Method 9056A	WG2058915	1	05/12/23 17:44	05/12/23 17:44	EIG	Allen, TX
Wet Chemistry by Method 9056A	WG2060096	1	05/15/23 20:41	05/15/23 20:41	EIG	Allen, TX
Wet Chemistry by Method SM4500NH3H	WG2058825	1	05/12/23 16:21	05/12/23 16:21	EIG	Allen, TX

WELL M-4 20851-53 L1611268-04 GW

Collected by: Justin Maness
 Collected date/time: 05/02/23 09:29
 Received date/time: 05/02/23 15:00

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location
Gravimetric Analysis by Method 2540C	WG2053407	1	05/03/23 13:48	05/03/23 14:47	QQT	Allen, TX
Wet Chemistry by Method 2320B	WG2056486	1	05/09/23 08:50	05/09/23 08:50	JBS	Allen, TX
Wet Chemistry by Method 5310C	WG2056587	5	05/09/23 20:19	05/09/23 20:19	EIG	Allen, TX
Wet Chemistry by Method 9050	WG2053483	1	05/03/23 14:59	05/03/23 14:59	QQT	Allen, TX
Wet Chemistry by Method 9056A	WG2058915	1	05/12/23 18:04	05/12/23 18:04	EIG	Allen, TX
Wet Chemistry by Method 9056A	WG2060096	1	05/15/23 21:00	05/15/23 21:00	EIG	Allen, TX
Wet Chemistry by Method SM4500NH3H	WG2058825	1	05/12/23 16:23	05/12/23 16:23	EIG	Allen, TX

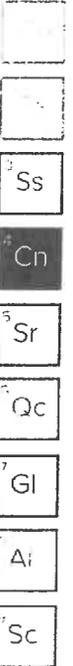


CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Cassandra Foster
Project Manager



WELL M-1 20842-44

SAMPLE RESULTS - 01

ected date/time: 05/02/23 08:20

L1611268

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	831		33.3	1	05/03/2023 14:47	WG2053407

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	380		20.0	1	05/09/2023 08:50	WG2056486
Alkalinity,Bicarbonate	380		20.0	1	05/09/2023 08:50	WG2056486
Alkalinity,Carbonate	ND		20.0	1	05/09/2023 08:50	WG2056486
Alkalinity,Hydroxide	ND		20.0	1	05/09/2023 08:50	WG2056486
Phenolphthalein Alkalinity	ND		20.0	1	05/09/2023 08:50	WG2056486

Wet Chemistry by Method 5310C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	50.9	J5	3.50	5	05/09/2023 19:23	WG2056587

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1350		1.00	1	05/03/2023 14:59	WG2053483

e Narrative:

L1611268-01 WG2053483: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	74.1		0.800	1	05/15/2023 20:01	WG2060096
Nitrate	ND	Q	0.500	1	05/12/2023 17:05	WG2058915
Sulfate	211		0.700	1	05/15/2023 20:01	WG2060096

Wet Chemistry by Method SM4500NH3H

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	ND		0.100	1	05/12/2023 16:14	WG2058825



WELL M-2 20845-47

Created date/time: 05/02/23 08:40

SAMPLE RESULTS - 02

L1611268

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	995		33.3	1	05/03/2023 14:47	WG2053407

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	400		20.0	1	05/09/2023 08:50	WG2056486
Alkalinity,Bicarbonate	400		20.0	1	05/09/2023 08:50	WG2056486
Alkalinity,Carbonate	ND		20.0	1	05/09/2023 08:50	WG2056486
Alkalinity,Hydroxide	ND		20.0	1	05/09/2023 08:50	WG2056486
Phenolphthalein Alkalinity	ND		20.0	1	05/09/2023 08:50	WG2056486

Wet Chemistry by Method 5310C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	58.9		3.50	5	05/09/2023 19:42	WG2056587

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1480		1.00	1	05/03/2023 14:59	WG2053483

Field Narrative:

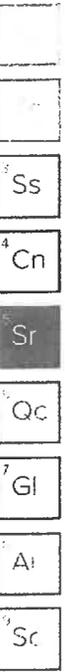
L1611268-02 WG2053483: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	76.3		0.800	1	05/15/2023 20:21	WG2060096
Nitrate	ND	Q	0.500	1	05/12/2023 17:25	WG2058915
Sulfate	265		0.700	1	05/15/2023 20:21	WG2060096

Wet Chemistry by Method SM4500NH3H

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	0.434		0.100	1	05/12/2023 16:16	WG2058825



WELL M-3 20848-50

Created date/time: 05/02/23 09:03

SAMPLE RESULTS - 03

L1611268

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	772		33.3	1	05/03/2023 14:47	WG2053407

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	332		20.0	1	05/09/2023 08:50	WG2056486
Alkalinity,Bicarbonate	332		20.0	1	05/09/2023 08:50	WG2056486
Alkalinity,Carbonate	ND		20.0	1	05/09/2023 08:50	WG2056486
Alkalinity,Hydroxide	ND		20.0	1	05/09/2023 08:50	WG2056486
Phenolphthalein Alkalinity	ND		20.0	1	05/09/2023 08:50	WG2056486

Wet Chemistry by Method 5310C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	45.4		3.50	5	05/09/2023 20:00	WG2056587

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1170		1.00	1	05/03/2023 14:59	WG2053483

Field Narrative:

L1611268-03 WG2053483: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	47.8		0.800	1	05/15/2023 20:41	WG2060096
Nitrate	ND	Q	0.500	1	05/12/2023 17:44	WG2058915
Sulfate	205		0.700	1	05/15/2023 20:41	WG2060096

Wet Chemistry by Method SM4500NH3H

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	ND		0.100	1	05/12/2023 16:21	WG2058825

³Ss
 ⁴Cn
 Sr
 Qc
 GI
 Al
 Sc

WELL M-4 20851-53

SAMPLE RESULTS - 04

Created date/time: 05/02/23 09:29

L1611268

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	884		33.3	1	05/03/2023 14:47	WG2053407

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	364		20.0	1	05/09/2023 08:50	WG2056486
Alkalinity,Bicarbonate	364		20.0	1	05/09/2023 08:50	WG2056486
Alkalinity,Carbonate	ND		20.0	1	05/09/2023 08:50	WG2056486
Alkalinity,Hydroxide	ND		20.0	1	05/09/2023 08:50	WG2056486
Phenolphthalein Alkalinity	ND		20.0	1	05/09/2023 08:50	WG2056486

Wet Chemistry by Method 5310C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	59.3		3.50	5	05/09/2023 20:19	WG2056587

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1370		1.00	1	05/03/2023 14:59	WG2053483

Field Narrative:
L1611268-04 WG2053483: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	64.4		0.800	1	05/15/2023 21:00	WG2060096
Nitrate	2.79	Q	0.500	1	05/12/2023 18:04	WG2058915
Sulfate	243		0.700	1	05/15/2023 21:00	WG2060096

Wet Chemistry by Method SM4500NH3H

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	0.400		0.100	1	05/12/2023 16:23	WG2058825



WG205 07

Gravimetric Analysis by Method 2540C

Method Blank (MB)

QUALITY CONTROL SUMMARY

L1611268-01.02.03.0

(MB) R3920960-1 05/03/23 14:47

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Total Dissolved Solids	U	25.0	25.0	25.0

(OS) L1611014-01 05/03/23 14:47 • (DUP) R3920960-3 05/03/23 14:47

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Dissolved Solids	1500	1500	1	0.533		10

(OS) L1611015-01 05/03/23 14:47 • (DUP) R3920960-4 05/03/23 14:47

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Dissolved Solids	1690	1730	1	2.69		10

(LCS) R3920960-2 05/03/23 14:47

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Dissolved Solids	2410	2550	106	85.0-115	

3 Ss
4 Cn
5 Sr
6 Qc
7 Gl
8 Al
9 SC

ACCOUNT:
City of Lewisville

PROJECT:

SDG:
L1611268

DATE/TIME:
05/18/23 10:38

PAGE:
9 of 20

QUALITY CONTROL SUMMARY

L1611268-01.02.03.04

Method Blank (MB)

(MB) R3922912-1 05/09/23 15:08

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TOC (Total Organic Carbon)	0.521		0.270	0.700

Laboratory Control Sample (LCS)

(LCS) R3922912-2 05/09/23 15:27

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TOC (Total Organic Carbon)	10.0	10.5	105	90.0-110	

L1612232 01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1612232-01 05/09/23 20:58 • (MS) R3922912-3 05/09/23 16:30 • (MSD) R3922912-4 05/09/23 16:50

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	10.0	21.2	30.3	30.7	90.8	95.5	1	80.0-120		1.54	20	20

L161268 01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L161268-01 05/09/23 19:23 • (MS) R3922912-5 05/09/23 17:09 • (MSD) R3922912-6 05/09/23 17:27

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	50.0	50.9	99.6	114	97.4	127	5	80.0-120		13.7	20	20

(MB) R3920466-1 05/03/23 14:59

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U	1.00	1.00	1.00

Sample Narrative:

BLANK: at 25C

L1611268-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1611268-01 05/03/23 14:59 • (DUP) R3920466-3 05/03/23 14:59

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1350	1350	1	0.000		20

Sample Narrative:

OS: at 25C
DUP: at 25C

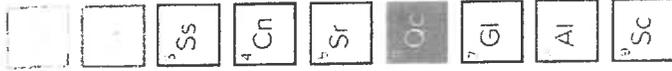
Laboratory Control Sample (LCS)

(LCS) R3920466-2 05/03/23 14:59

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	200	200	99.9	80.0-120	

Sample Narrative:

LCS: at 25C



(MB) R3924788-1 05/12/23 15:46

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Nitrate	U		0.207	0.500

Laboratory Control Sample (LCS)

(LCS) R3924788-2 05/12/23 16:05

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Nitrate	5.00	4.65	93.1	80.0-120	

L161268 01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L161268-01 05/12/23 17:05 • (MS) R3924788-3 05/12/23 16:25 • (MSD) R3924788-4 05/12/23 16:45

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	MS Rec. %	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate	5.00	ND	4.63	4.69	92.6	93.9	1	80.0-120		1.32	20	

QUALITY CONTROL SUMMARY

L1611268-01.02.03.C



Method Blank (MB)

(MB) R3926041-1 05/15/23 18:42

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	0.0994	J	0.0541	0.800
Sulfate	U		0.199	0.700

Laboratory Control Sample (LCS)

(LCS) R3926041-2 05/15/23 19:01

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %
Chloride	5.00	4.83	96.5	80.0-120
Sulfate	5.00	4.81	96.2	80.0-120

L1611268-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1611268-01 05/15/23 20:01 • (MS) R3926041-3 05/15/23 19:21 • (MSD) R3926041-4 05/15/23 19:41

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD	RPD Limits %
Chloride	250	74.1	321	322	1	80.0-120	98.8	99.2	0.361	20
Sulfate	250	211	465	466	1	80.0-120	101	102	0.250	20

Li
³Ss
⁴Cn
⁵Sr
⁹Oc
⁷Gl
Al
³Sc

QUALITY CONTROL SUMMARY

L1611268-01.02.03.

Method Blank (MB)

(MB) R3924823-1 05/12/23 16:00

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Ammonia Nitrogen	U		0.0280	0.100

Lab-Added Control Substrate (LCS)

(LCS) R3924823-2 05/12/23 16:02

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits mg/l	LCS Qualifier %
Ammonia Nitrogen	5.00	4.76	95.2	80.0-120	

(OS) L1611268-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

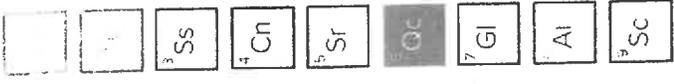
(OS) L1611268-01 05/12/23 16:14 • (MS) R3924823-3 05/12/23 16:04 • (MSD) R3924823-4 05/12/23 16:06

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier %	MSD Qualifier %	RPD %	RPD Limits %
Ammonia Nitrogen	5.00	ND	4.80	4.82	1	80.0-120	96.0	96.4	0.416	20

(OS) L1611268-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1611268-02 05/12/23 16:16 • (MS) R3924823-5 05/12/23 16:07 • (MSD) R3924823-6 05/12/23 16:09

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier %	MSD Qualifier %	RPD %	RPD Limits %
Ammonia Nitrogen	5.00	0.434	5.27	5.28	1	80.0-120	96.7	96.9	0.190	20



GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier Description

J	The identification of the analyte is acceptable; the reported value is an estimate.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.



ACCREDITATIONS & LOCATIONS

Pace Analytical Services, LLC -Dallas 400 W. Bethany Drive Suite 190 Allen, Tx 75013

Arkansas	88-0647	Kansas	E10388
Florida	E871118	Texas	T104704232-22-37
Iowa	408	Oklahoma	8727
Louisiana	30686		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable
 * Not all certifications held by the laboratory are applicable to the results reported in the attached report.
 * Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



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L1611268

ENVIRONMENTAL CONTROL SERVICES INSTRUCTIONS FOR ANALYSIS

LABORATORY:

Pace Analytical Services

Date: 5/2/2023 QMW

Containers
All 1 (L)(A)(G)

Well M-1	# 20842	Pres. With 3 mL H ₂ SO ₄
	# 20843	Cooled to 4.0°C only
	# 20844	Cooled to 4.0°C only
Well M-2	# 20845	Pres. With 3 mL H ₂ SO ₄
	# 20846	Cooled to 4.0°C only
	# 20847	Cooled to 4.0°C only
Well M-3	# 20848	Pres. With 3 mL H ₂ SO ₄
	# 20849	Cooled to 4.0°C only
	# 20850	Cooled to 4.0°C only
Well M-4	# 20851	Pres. With 3 mL H ₂ SO ₄
	# 20852	Cooled to 4.0°C only
	# 20853	Cooled to 4.0°C only

-01
-02
-03
-04

COMPOSITE AND ANALYZE EACH GROUP
OF WELL SAMPLES SEPARATELY FOR:

BID #17-09-A, ITEM #6-01
(Group A Monitoring Well Quarterly)

TURN AROUND TIME: NORMAL, SPECIFY OTHER Normal

A COPY OF THESE INSTRUCTIONS HAS BEEN MADE FOR OUR FILES. PLEASE
INCLUDE QA/QC AND MINIMUM DETECTION LIMITS WITH REPORT. PLEASE
REFER TO 40 CFR 136 FOR APPROVED ANALYTICAL METHODS. SOLID
WASTE METHODS ARE NOT ACCEPTABLE FOR WASTEWATER ANALYSIS.

NOTES: _____

SAMPLING PERSON: J. Maness & J. Tae

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CHAIN OF CUSTODY ENVIRONMENTAL CONTROL SERVICES

L1661 12/68

Report Name: 5/2/2023 Quarter Monitoring Wells

Process producing waste: Groundwater

Date sample taken: Grab samples on 5/2/2023

Time of time span sample taken:	#1	8:20 AM	#2	8:40 AM
	#3	9:03 AM	#4	9:29 AM

Preservation:

Yes Temperature reduction

Yes pH adjustment

initial pH N/A adjusted See Instructions

chemical See Instructions amount See Instructions

Signature of Sampler [Signature]

Analysis to be done: Quarterly Well Analysis, Group A

Bottle Numbers: 20842,20843,20844,20845,20846,20847,20848,20849,20850,20851,20852,20853

Relinquished By:	<u>J. Maness</u>	Inspector/ECS	<u>5/2/23 9:45am</u>
Name		Title/Organization	Date/Time

Received By:	<u>ECS Refrigerator</u>	COL	<u>5/2/23 9:45am</u>
Name		Title/Organization	Date/Time

Relinquished By:	<u>J. Maness</u>	Inspector/ECS	<u>5-2-23 11:40am</u>
Name		Title/Organization	Date/Time

Received By:	<u>[Signature]</u>	<u>PACE</u>	<u>5/2/23 1140</u>
Name		Title/Organization	Date/Time

Relinquished By:	<u>[Signature]</u>	<u>PACE</u>	<u>5/2/23 1500</u>
Name		Title/Organization	Date/Time

Received By:	<u>CRISTIA RAMOS</u>	<u>PACE</u>	<u>5/2/23 1500</u>
Name		Title/Organization	Date/Time

	Document Name: Sample Condition Upon Receipt	Document Revised: 7/27/20 Page 1 of 1
	Document No.: F-DAL-C-001-rev.14	Issuing Authority: Pace Dallas Quality Office

Sample Condition Upon Receipt

Dallas
 Ft Worth
 Corpus Christi
 Austin

Client Name: City of Lewisville Project Work order (place label): _____

Carrier: FedEX UPS USPS Client LSO PACE Other: _____

Tracking #: _____

Custody Seal on Cooler/Box: Yes No

Received on ice: Wet Blue No ice

Receiving Lab 1 Thermometer Used: IR17 Cooler Temp °C: 0.6 (Recorded) -0.2 (Correction Factor) 0.4 (Actual)

Receiving Lab 2 Thermometer Used: _____ Cooler Temp °C: _____ (Recorded) _____ (Correction Factor) _____ (Actual)

Temperature should be above freezing to 6°C unless collected same day as receipt in which evidence of cooling is acceptable

Triage Person: AR Date: 5/2

Chain of Custody relinquished	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sampler name & signature on COC	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Short HT analyses (<72 hrs)	Yes <input type="checkbox"/> No <input type="checkbox"/>

Login Person: OL Date: 5/2

Sufficient Volume received	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Correct Container used	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Container Intact	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample pH Acceptable pH Strips: <u>6206002</u>	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/> <u>ME 512</u>
Residual Chlorine Present Cl Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Sulfide Present Lead Acetate Strips: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Are soil samples (volatiles, TPH) received in 5035A Kits (not applicable to TCLP VOA or PST Program TPH)	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Unpreserved 5035A soil frozen within 48 hrs	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Headspace in VOA (>6mm)	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Project sampled in USDA Regulated Area outside of Texas State Sampled: _____	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
on-Conformance(s):	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Labeling Person (if different than log-in): _____ Date: _____

Date Collected 5/2/2023

Bottle Number	Type	Analysis	Preservation	Time Collected
20842	1 L (AG)	BID #17-09-A, ITEM #6-01	3 mL H ₂ SO ₄	8:20 AM
20843	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
20844	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
20845	1 L (AG)	BID #17-09-A, ITEM #6-01	3 mL H ₂ SO ₄	8:40 AM
20846	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
20847	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
20848	1 L (AG)	BID #17-09-A, ITEM #6-01	3 mL H ₂ SO ₄	9:03 AM
20849	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
20850	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
20851	1 L (AG)	BID #17-09-A, ITEM #6-01	3 mL H ₂ SO ₄	9:29 AM
20852	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
20853	1 L (AG)	BID #17-09-A, ITEM #6-01	None	

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**Environmental Control Services
Sampling Record and Field Notes
For Monitoring Wells
(PART I)**

Well M-1				Well M-2			
Date:	5/2/2023			Date:	5/2/2023		
Purge Start Time:	8:10 AM			Purge Start Time:	8:33 AM		
Purge End Time:	8:19 AM			Purge End Time:	8:39 AM		
Sample Time:	8:20 AM			Sample Time:	8:40 AM		
Containers & ID:	20842	20843	20844	Containers & ID:	20845	20846	20847
pH	6.76 S.U.	Temperature:	19.3 °C	pH	6.68 S.U.	Temperature:	18.3 °C
SpC Start:	1.23 µS/cm	SpC End:	1.19 µS/cm	SpC Start:	1.29 µS/cm	SpC End:	1.30 µS/cm
DO Start:	1.12 mg/L	DO End:	0.65 mg/L	DO Start:	0.77 mg/L	DO End:	0.51 mg/L
Well M-3				Well M-4			
Date:	5/2/2023			Date:	5/2/2023		
Purge Start Time:	8:53 AM			Purge Start Time:	9:19 AM		
Purge End Time:	9:02 AM			Purge End Time:	9:28 AM		
Sample Time:	9:03 AM			Sample Time:	9:29 AM		
Containers & ID:	20848	20849	20850	Containers & ID:	20851	20852	20853
pH	6.92 S.U.	Temperature:	17.8 °C	pH	6.72 S.U.	Temperature:	19.5 °C
SpC Start:	1.04 µS/cm	SpC End:	1.02 µS/cm	SpC Start:	1.20 µS/cm	SpC End:	1.20 µS/cm
DO Start:	0.69 mg/L	DO End:	0.44 mg/L	DO Start:	0.83 mg/L	DO End:	0.55 mg/L

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**Environmental Control Services
Sampling Record and Field Notes
For Monitoring Wells
(PART II)**

Well Number	M-1	M-2	M-3	M-4
Well Elevation in Feet	473.39	468.11	467.75	466.95
Static Level in Feet	14	14.2	15.5	16.2
MSL in Feet*	459.39	453.91	452.25	450.75
Total Well Depth in Feet	24.6	24.2	24.6	22.3
Well Volume in Feet**	10.6	10	9.1	6.1
Conversion Factor	0.6519	0.6519	0.6519	0.6519
Well Volume in Gallons***	6.91	6.52	5.93	3.98

* To Find MSL (Mean Sea Level), subtract Static Level from Well Elevation.

** To find Well Volume in feet, subtract Static Level from Pump Intake.

*** To find Well Volume in gallons ,multiply Well Volume in feet by Conversion Factor 0.1632

GROUNDWATER SAMPLING LOG

SITE NAME: <u>City of Louisville</u>	SITE LOCATION: <u>WWTP</u>	DATE: <u>5/2/23</u>
WELL NO: <u>QMW#1</u>	SAMPLE ID: <u>20842, 20843, 20844</u>	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: <u> </u> feet to <u> </u> feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		PURGING ENDED AT:							
TOTAL VOLUME PURGED (gallons):		PURGING INITIATED AT:		TOTAL VOLUME PURGED (gallons):							
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mV)	TURBIDITY (NTUs)	COND. (circle units) <u>µmhos/cm</u> or <u>µS</u>	DISSOLVED OXYGEN (circle units) mg/L or % saturation	COLOR & ODOR (describe)
<u>8:10A</u>				<u>14.0</u>	<u>19.3</u>	<u>6.70</u>	<u>87.1</u>		<u>1.23</u>		<u>1.12</u>
<u>8:13A</u>					<u>19.3</u>	<u>6.74</u>	<u>78.3</u>		<u>1.22</u>		<u>0.76</u>
<u>8:16A</u>					<u>19.3</u>	<u>6.75</u>	<u>74.9</u>		<u>1.20</u>		<u>0.76</u>
<u>8:19A</u>					<u>19.3</u>	<u>6.76</u>	<u>71.7</u>		<u>1.19</u>		<u>0.65</u>
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 6" = 1.02; 8" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016 PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

24.7

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:	
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:				FIELD-FILTERED: Y N		FILTER SIZE: _____ µm	
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH					
REMARKS:											
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify) SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RPPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)											

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS
 pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater)
 Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

GROUNDWATER SAMPLING LOG

SITE NAME: <u>City of Lewisville</u>	SITE LOCATION: <u>WWTP</u>	DATE: <u>5/2/23</u>
WELL NO: <u>QMW#2</u>	SAMPLE ID: <u>20845, 20846, 20847</u>	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: <u> </u> feet to <u> </u> feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BALER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		TOTAL VOLUME PURGED (gallons):							
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mV)	TURBIDITY (NTUs)	COND. (circle units) $\mu\text{mhos/cm}$ at 25°C	DISSOLVED OXYGEN (circle units) mg/L or % saturation	COLOR & ODOR (describe)
24.0" <u>8:33a</u>				<u>14.4</u>	<u>18.2</u>	<u>6.68</u>	<u>41.0</u>		<u>1.29</u>	<u>0.77</u>	
<u>8:36a</u>					<u>18.3</u>	<u>6.68</u>	<u>41.3</u>		<u>1.29</u>	<u>0.53</u>	
<u>8:39a</u>					<u>18.3</u>	<u>6.68</u>	<u>36.6</u>		<u>1.30</u>	<u>0.51</u>	
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 6" = 1.02; 8" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0008; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.008; 1/2" = 0.010; 5/8" = 0.016 PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:		
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:				FIELD-FILTERED: Y N Filtration Equipment Type:		FILTER SIZE: _____ μm		
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N				
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE		SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH						
REMARKS:												
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify) SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)												

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS
 pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: $\pm 5\%$ Dissolved Oxygen: all readings $\leq 20\%$ saturation; optionally, ± 0.2 mg/L or $\pm 10\%$ (whichever is greater)
 Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or $\pm 10\%$ (whichever is greater)

GROUNDWATER SAMPLING LOG

SITE NAME: <u>City of Lewisville</u>	SITE LOCATION: <u>WWTP</u>	DATE: <u>5/2/23</u>
WELL NO: <u>QUW#3</u>	SAMPLE ID: <u>20848, 20849, 20850</u>	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: <u> </u> feet to <u> </u> feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		PURGING INITIATED AT:							
PURGING ENDED AT:		TOTAL VOLUME PURGED (gallons):									
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mV)	TURBIDITY (NTU)	COND. (circles units) <small>µmhos/cm @ 25°C</small>	DISSOLVED OXYGEN (circles units) <small>mg/L @ % saturation</small>	COLOR & ODOR (describe)
<u>8:53a</u>				<u>15.5</u>	<u>17.8</u>	<u>6.97</u>	<u>51.3</u>		<u>1.04</u>	<u>0.69</u>	
<u>8:56a</u>					<u>17.8</u>	<u>6.93</u>	<u>51.5</u>		<u>1.02</u>	<u>0.47</u>	
<u>8:59a</u>					<u>17.8</u>	<u>6.91</u>	<u>50.0</u>		<u>1.02</u>	<u>0.43</u>	
<u>9:02a</u>					<u>17.8</u>	<u>6.92</u>	<u>48.1</u>		<u>1.02</u>	<u>0.44</u>	
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 6" = 1.02; 8" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016 PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:			
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:				FIELD-FILTERED: Y N		FILTER SIZE: _____ µm			
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N					
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE		SAMPLE PUMP FLOW RATE (mL per minute)	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL. ADDED IN FIELD (mL)	FINAL pH							
REMARKS:													
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)													
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)													

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS
 pH: ± 0.2 units; Temperature: ± 0.2 °C; Specific Conductance: ± 5%; Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater)
 Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

24.6

GROUNDWATER SAMPLING LOG

SITE NAME: <u>City of Louisville</u>	SITE LOCATION: <u>WWTP</u>	DATE: <u>5/2/23</u>
WELL NO: <u>QMW#4</u>	SAMPLE ID: <u>20851, 20852, 20853</u>	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		TOTAL VOLUME PURGED (gallons):							
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mV)	TURBIDITY (NTU)	COND. (circles units) <u>µmhos/cm @ 25°C</u>	DISSOLVED OXYGEN (circles units) mg/L or % saturation	COLOR & ODOR (descriptive)
<u>22nd</u> 9:19 AM				16.2	19.6	6.72	20.5		1.20	0.83	
9:22 AM					19.5	6.72	11.9		1.20	0.67	
9:25 AM					19.5	6.72	11.8		1.19	0.58	
9:28 AM					19.5	6.72	18.8		1.20	0.55	
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.68; 5" = 1.02; 6" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./ft.): 1/8" = 0.0005; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.008; 1/2" = 0.016; 5/8" = 0.031											
PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:		
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:				FIELD-FILTERED: Y N		FILTER SIZE: _____ µm		
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N				
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE		SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH						
REMARKS:												
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)												
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RPPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)												

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS
 pH: ± 0.2 units; Temperature: ± 0.2 °C; Specific Conductance: ± 5%; Dissolved Oxygen: all readings ≤ 20% saturation, optionally, ± 0.2 mg/L or ± 10% (whichever is greater);
 Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)



LEWISVILLE
Deep Roots. Bright Wings. Bright Future.

City of Lewisville Laboratory - Water Bacteriology

Name of Water System City of Lewisville
Point of Collection QMW #2 Collected By JEM B JDI
Date 5/2/23 Time 8:40 AM

Sample is: Distribution Special Construction

Water Source: River Lake Well

Chlorine Residual: _____

ANALYTICAL METHOD & RESULTS

Present/Absent: Total Coliform Present Absent
E. coli Present Absent
M.P.N.: E. coli / T. Coliform 1st Dilution 100 ml
2nd Dilution / ml
Average < / 100ml

Membrane Filter/ Fecal Coliform:
1st Dilution / ml
2nd Dilution / ml
Average / 100ml

Date & Time Analysis Began 5/2/23 9:50 Date & Time Sample Received 5/3/23 10:00
Analyzed By: Am Date & Time Analysis Reported _____

Make Copy for File



LEWISVILLE
Deep Roots. Bright Wings. Bright Future.

City of Lewisville Laboratory - Water Bacteriology

Name of Water System City of Lewisville
Point of Collection QMW #1 Collected By JEM B JDI
Date 5/2/23 Time 8:20 AM

Sample is: Distribution Special Construction

Water Source: River Lake Well

Chlorine Residual: _____

ANALYTICAL METHOD & RESULTS

Present/Absent: Total Coliform Present Absent
E. coli Present Absent
M.P.N.: E. coli / T. Coliform 1st Dilution 100 ml
2nd Dilution / ml
Average < / 100ml

Membrane Filter/ Fecal Coliform:
1st Dilution / ml
2nd Dilution / ml
Average / 100ml

Date & Time Analysis Began 5/2/23 9:50 Date & Time Sample Received 5/3/23 10:00
Analyzed By: Am Date & Time Analysis Reported _____

Make Copy for File



LEWISVILLE
 Deep Access. Broad Wings. Bright Future.

City of Lewisville Laboratory - Water Bacteriology

Name of Water System City of Lewisville
 Point of Collection QNW #4 Collected By JEM #JDT
 Date 5/2/23 Time 9:29 AM

Sample is: Distribution Special Construction

Water Source: River Lake Well
 Chlorine Residual: _____

ANALYTICAL METHOD & RESULTS

Present/Absent: Total Coliform Present Absent
 (Collect) E.Coli Present Absent
 M.P.N.: 1st Dilution < / 100 ml
 (Collect) 2nd Dilution / ml
 Average < / 100ml

Membrane Filter/ Fecal Coliform:

1st Dilution / ml
 2nd Dilution / ml
 Average / /100ml

Date & Time Sample Received 5/2/23 9:43
 Date & Time Analysis Began 5-2-23 9:50 Date & Time Analysis Reported 5/3/23 1200
 Analyzed By: Am
 Make Copy for File



LEWISVILLE
 Deep Access. Broad Wings. Bright Future.

City of Lewisville Laboratory - Water Bacteriology

Name of Water System City of Lewisville
 Point of Collection QNW #3 Collected By JEM #JDT
 Date 5/2/23 Time 9:03 AM

Sample is: Distribution Special Construction

Water Source: River Lake Well
 Chlorine Residual: _____

ANALYTICAL METHOD & RESULTS

Present/Absent: Total Coliform Present Absent
 (Collect) E.Coli Present Absent
 M.P.N.: 1st Dilution < / 100 ml
 (Collect) 2nd Dilution / ml
 Average < / 100ml

Membrane Filter/ Fecal Coliform:

1st Dilution / ml
 2nd Dilution / ml
 Average / /100ml

Date & Time Sample Received 5/2/23 9:43
 Date & Time Analysis Began 5-2-23 9:50 Date & Time Analysis Reported 5/3/23 1200
 Analyzed By: Am
 Make Copy for File



ANALYTICAL REPORT

September 19, 2023

- Cp
- ..
- ³Ss
- ⁴Cn
- ⁵Sr
- ⁶Qc
- ⁷Gl
- ⁸Al
- ⁹Sc

City of Lewisville

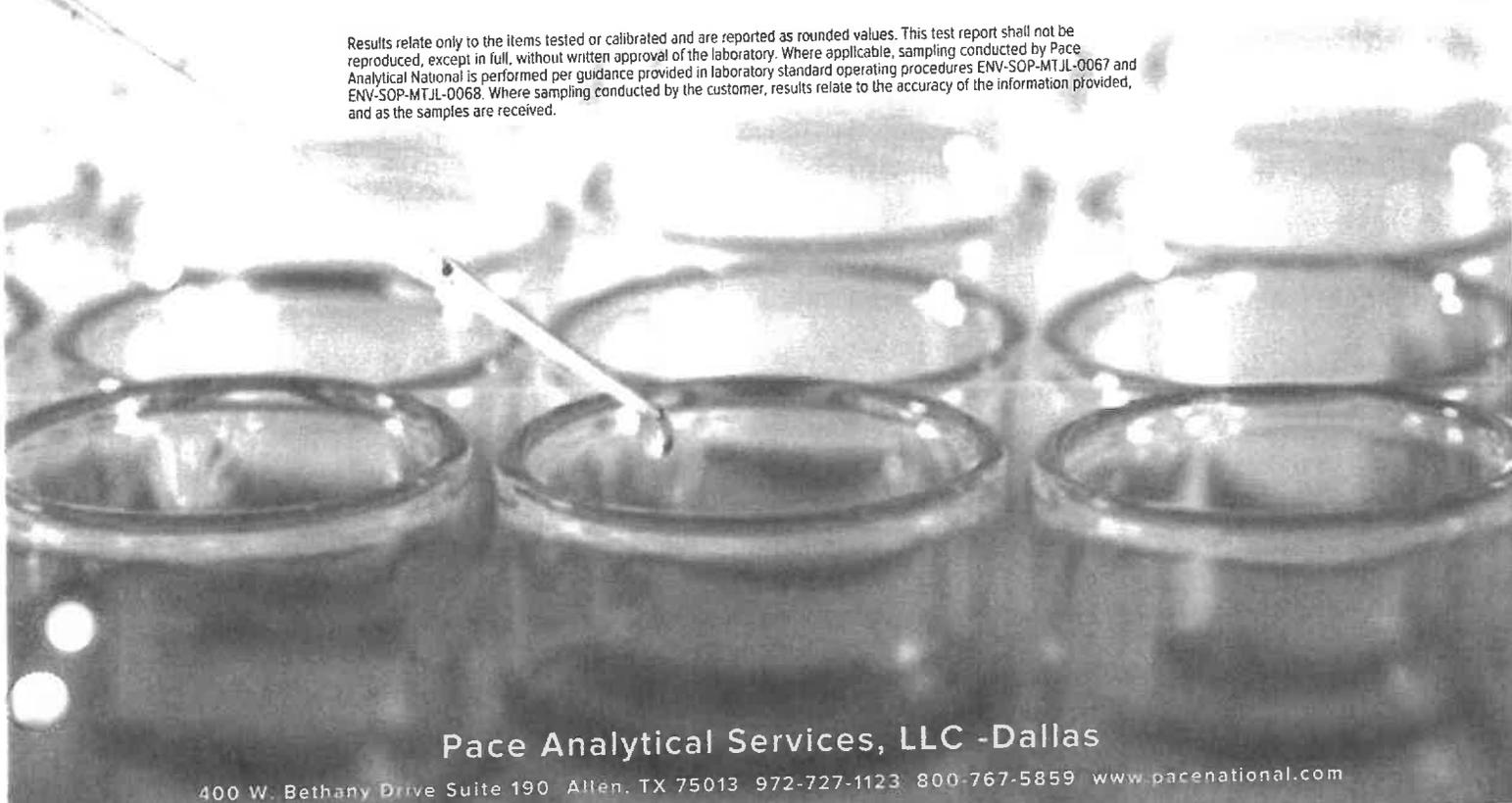
Sample Delivery Group: L1653466
 Samples Received: 09/07/2023
 Project Number:
 Description: 09/06/2023 Quarterly Monitoring Wells

Report To: Kimberly Morris
 PO Box 299002
 Lewisville, TX 75029

Entire Report Reviewed By: *Justin Carr*

Justin Carr
 Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.

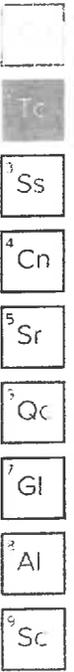


Pace Analytical Services, LLC -Dallas

400 W. Bethany Drive Suite 190 Allen, TX 75013 972-727-1123 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

			Collected by	Collected date/time	Received date/time		
WELL M-1 21289-91 L1653466-01 GW			Justin Maness	09/06/23 08:12	09/07/23 16:10		
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Gravimetric Analysis by Method 2540C	WG2128969	1	09/08/23 13:59	09/08/23 15:53	QQT	Allen, TX	
Wet Chemistry by Method 2320B	WG2134843	1	09/19/23 08:47	09/19/23 08:47	JBS	Allen, TX	
Wet Chemistry by Method 5310C	WG2131506	1	09/13/23 16:37	09/13/23 16:37	EIG	Allen, TX	
Wet Chemistry by Method 9050	WG2130045	1	09/11/23 10:24	09/11/23 10:24	QQT	Allen, TX	
Wet Chemistry by Method 9056A	WG2128721	1	09/08/23 09:54	09/08/23 09:54	SMC	Allen, TX	
Wet Chemistry by Method 9056A	WG2128721	1	09/08/23 10:33	09/08/23 10:33	SMC	Allen, TX	
Wet Chemistry by Method 9056A	WG2128721	1	09/08/23 10:50	09/08/23 10:50	SMC	Allen, TX	
Wet Chemistry by Method SM4500NH3H	WG2131394	1	09/13/23 11:38	09/13/23 11:38	EIG	Allen, TX	

			Collected by	Collected date/time	Received date/time		
WELL M-2 21292-94 L1653466-02 GW			Justin Maness	09/06/23 08:34	09/07/23 16:10		
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Gravimetric Analysis by Method 2540C	WG2128969	1	09/08/23 13:59	09/08/23 15:53	QQT	Allen, TX	
Wet Chemistry by Method 2320B	WG2134843	1	09/19/23 08:47	09/19/23 08:47	JBS	Allen, TX	
Wet Chemistry by Method 5310C	WG2131506	1	09/13/23 18:51	09/13/23 18:51	EIG	Allen, TX	
Wet Chemistry by Method 9050	WG2130045	1	09/11/23 10:24	09/11/23 10:24	QQT	Allen, TX	
Wet Chemistry by Method 9056A	WG2128721	1	09/08/23 10:12	09/08/23 10:12	SMC	Allen, TX	
Wet Chemistry by Method 9056A	WG2128721	1	09/08/23 11:08	09/08/23 11:08	SMC	Allen, TX	
Wet Chemistry by Method 9056A	WG2128721	1	09/08/23 11:26	09/08/23 11:26	SMC	Allen, TX	
Wet Chemistry by Method SM4500NH3H	WG2131394	1	09/13/23 11:43	09/13/23 11:43	EIG	Allen, TX	

			Collected by	Collected date/time	Received date/time		
WELL M-3 21295-97 L1653466-03 GW			Justin Maness	09/06/23 08:58	09/07/23 16:10		
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Gravimetric Analysis by Method 2540C	WG2128969	1	09/08/23 13:59	09/08/23 15:53	QQT	Allen, TX	
Wet Chemistry by Method 2320B	WG2134843	1	09/19/23 08:47	09/19/23 08:47	JBS	Allen, TX	
Wet Chemistry by Method 5310C	WG2131506	1	09/13/23 20:17	09/13/23 20:17	EIG	Allen, TX	
Wet Chemistry by Method 9050	WG2130045	1	09/11/23 10:24	09/11/23 10:24	QQT	Allen, TX	
Wet Chemistry by Method 9056A	WG2128721	1	09/08/23 09:36	09/08/23 09:36	SMC	Allen, TX	
Wet Chemistry by Method 9056A	WG2128721	1	09/08/23 11:44	09/08/23 11:44	SMC	Allen, TX	
Wet Chemistry by Method 9056A	WG2128721	1	09/08/23 12:02	09/08/23 12:02	SMC	Allen, TX	
Wet Chemistry by Method SM4500NH3H	WG2131394	1	09/13/23 11:45	09/13/23 11:45	EIG	Allen, TX	

			Collected by	Collected date/time	Received date/time		
WELL M-4 21298-21300 L1653466-04 GW			Justin Maness	09/06/23 09:20	09/07/23 16:10		
Method	Batch	Dilution	Preparation date/time	Analysis date/time	Analyst	Location	
Gravimetric Analysis by Method 2540C	WG2128969	1	09/08/23 13:59	09/08/23 15:53	QQT	Allen, TX	
Wet Chemistry by Method 2320B	WG2134843	1	09/19/23 08:47	09/19/23 08:47	JBS	Allen, TX	
Wet Chemistry by Method 5310C	WG2131506	1	09/13/23 20:44	09/13/23 20:44	EIG	Allen, TX	
Wet Chemistry by Method 9050	WG2130045	1	09/11/23 10:24	09/11/23 10:24	QQT	Allen, TX	
Wet Chemistry by Method 9056A	WG2128721	1	09/08/23 09:18	09/08/23 09:18	SMC	Allen, TX	
Wet Chemistry by Method 9056A	WG2128721	1	09/08/23 12:55	09/08/23 12:55	SMC	Allen, TX	
Wet Chemistry by Method 9056A	WG2128721	1	09/08/23 13:13	09/08/23 13:13	SMC	Allen, TX	
Wet Chemistry by Method SM4500NH3H	WG2131394	1	09/13/23 11:46	09/13/23 11:46	EIG	Allen, TX	

1

2

3

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Justin Carr
Project Manager

1

2

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Al

9 Sc

WELL M-1 21289-91

SAMPLE RESULTS - 01

Created date/time: 09/06/23 08:12

L1653466

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	797		33.3	1	09/08/2023 15:53	WG2128969

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	345		20.0	1	09/19/2023 08:47	WG2134843
Alkalinity,Bicarbonate	345		20.0	1	09/19/2023 08:47	WG2134843
Alkalinity,Carbonate	ND		20.0	1	09/19/2023 08:47	WG2134843
Alkalinity,Hydroxide	ND		20.0	1	09/19/2023 08:47	WG2134843
Phenolphthalein Alkalinity	ND		20.0	1	09/19/2023 08:47	WG2134843

Wet Chemistry by Method 5310C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	2.02	J3 J5	0.700	1	09/13/2023 16:37	WG2131506

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1160		100	1	09/11/2023 10:24	WG2130045

Field Narrative:

L1653466-01 WG2130045: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	56.2		0.800	1	09/08/2023 10:33	WG2128721
Nitrate	0.686	Q	0.500	1	09/08/2023 09:54	WG2128721
Sulfate	188		0.700	1	09/08/2023 10:50	WG2128721

Wet Chemistry by Method SM4500NH3H

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	ND		0.100	1	09/13/2023 11:38	WG2131394

- 1
- 2
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 GI
- 8 AI
- 9 Sc

WELL M-2 21292-94

SAMPLE RESULTS - 02

Created date/time: 09/06/23 08:34

L1653466

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	1020		33.3	1	09/08/2023 15:53	WG2128969

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	398		20.0	1	09/19/2023 08:47	WG2134843
Alkalinity,Bicarbonate	398		20.0	1	09/19/2023 08:47	WG2134843
Alkalinity,Carbonate	ND		20.0	1	09/19/2023 08:47	WG2134843
Alkalinity,Hydroxide	ND		20.0	1	09/19/2023 08:47	WG2134843
Phenolphthalein Alkalinity	ND		20.0	1	09/19/2023 08:47	WG2134843

Wet Chemistry by Method 5310C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	36.4	J6	0.700	1	09/13/2023 18:51	WG2131506

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1430		1.00	1	09/11/2023 10:24	WG2130045

Narrative:

L1653466-02 WG2130045: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	77.3		0.800	1	09/08/2023 11:08	WG2128721
Nitrate	ND	Q	0.500	1	09/08/2023 10:12	WG2128721
Sulfate	262		0.700	1	09/08/2023 11:26	WG2128721

Wet Chemistry by Method SM4500NH3H

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	0.530		0.100	1	09/13/2023 11:43	WG2131394

- 1
- 2
- 3 Ss
- 4 Cn
- 5 Sr
- 6 Qc
- 7 GI
- 8 Ai
- 9 Sc

WELL M-3 21295-97

SAMPLE RESULTS - 03

Created date/time: 09/06/23 08:58

L1653466

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	757		33.3	1	09/08/2023 15:53	WG2128969

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	298		20.0	1	09/19/2023 08:47	WG2134843
Alkalinity,Bicarbonate	298		20.0	1	09/19/2023 08:47	WG2134843
Alkalinity,Carbonate	ND		20.0	1	09/19/2023 08:47	WG2134843
Alkalinity,Hydroxide	ND		20.0	1	09/19/2023 08:47	WG2134843
Phenolphthalein Alkalinity	ND		20.0	1	09/19/2023 08:47	WG2134843

Wet Chemistry by Method 5310C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	3.08		0.700	1	09/13/2023 20:17	WG2131506

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1110		1.00	1	09/11/2023 10:24	WG2130045

Field Narrative:

L1653466-03 WG2130045: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	50.3		0.800	1	09/08/2023 11:44	WG2128721
Nitrate	ND	Q	0.500	1	09/08/2023 09:36	WG2128721
Sulfate	208		0.700	1	09/08/2023 12:02	WG2128721

Wet Chemistry by Method SM4500NH3H

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	ND		0.100	1	09/13/2023 11:45	WG2131394



WELL M-4 21298-21300

Collected date/time: 09/06/23 09:20

SAMPLE RESULTS - 04

L1653466

Gravimetric Analysis by Method 2540C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Total Dissolved Solids	797		33.3	1	09/08/2023 15:53	WG2128969

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	238		20.0	1	09/19/2023 08:47	WG2134843
Alkalinity,Bicarbonate	238		20.0	1	09/19/2023 08:47	WG2134843
Alkalinity,Carbonate	ND		20.0	1	09/19/2023 08:47	WG2134843
Alkalinity,Hydroxide	ND		20.0	1	09/19/2023 08:47	WG2134843
Phenolphthalein Alkalinity	ND		20.0	1	09/19/2023 08:47	WG2134843

Wet Chemistry by Method 5310C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	3.29		0.700	1	09/13/2023 20:44	WG2131506

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	190		1.00	1	09/11/2023 10:24	WG2130045

See Narrative:

L1653466-04 WG2130045: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	106		0.800	1	09/08/2023 12:55	WG2128721
Nitrate	9.79		0.500	1	09/08/2023 09:18	WG2128721
Sulfate	164		0.700	1	09/08/2023 13:13	WG2128721

Wet Chemistry by Method SM4500NH3H

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	ND		0.100	1	09/13/2023 11:46	WG2131394



Method Blank (MB)

(MB) R3971081-1 09/08/23 15:53

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Total Dissolved Solids	U	25.0	25.0	25.0

L1652667-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1652667-01 09/08/23 15:53 • (DUP) R3971081-3 09/08/23 15:53

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Dissolved Solids	589	324	1	58.1	13	10

L1652667-06 Original Sample (OS) • Duplicate (DUP)

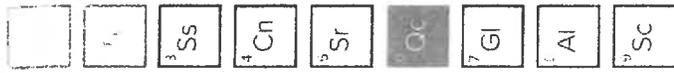
(OS) L1652667-06 09/08/23 15:53 • (DUP) R3971081-4 09/08/23 15:53

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Total Dissolved Solids	ND	ND	1	0.000		10

Laboratory Control Sample (LCS)

(LCS) R3971081-2 09/08/23 15:53

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Total Dissolved Solids	2380	2430	102	85.0-115	



Method Blank (MB)

(MB) R3974795-1 09/19/23 08:47

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Alkalinity	U		20.0	20.0
Alkalinity,Bicarbonate	U		20.0	20.0
Alkalinity,Carbonate	U		20.0	20.0
Alkalinity,Hydroxide	U		20.0	20.0
Phenolphthalein Alkalinity	U		20.0	20.0

Item 4463 Out Control Sample (OS) - Duplicate (DUP)

(OS) L1654463-04 09/19/23 08:47 • (DUP) R3974795-3 09/19/23 08:47

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	30.0	30.0	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R3974795-2 09/19/23 08:47

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Alkalinity	250	238	95.2	90.0-110	

1
3 Ss
4 Cn
5 Sr
Qc
Gl
Al
Sc

Method Blank (MB)

(MB) R3973119-1 09/13/23 15:38

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TOC (Total Organic Carbon)	U	0.270	0.700	

Laboratory Control Sample (LCS)

(LCS) R3973119-2 09/13/23 16:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TOC (Total Organic Carbon)	10.0	10.1	101	90.0-110	

L1653466-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1653466-01 09/13/23 16:37 • (MS) R3973119-3 09/13/23 17:17 • (MSD) R3973119-4 09/13/23 17:43

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	MSD Result mg/l	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	10.0	2.02	11.6	95.5	15.4	133	1	80.0-120	13.35	28.1	20	20

L1653466-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1653466-02 09/13/23 18:51 • (MS) R3973119-5 09/13/23 18:03 • (MSD) R3973119-6 09/13/23 18:24

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	MSD Result mg/l	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
TOC (Total Organic Carbon)	10.0	36.4	13.1	0.000	13.0	0.000	1	80.0-120	46	1.23	20	20

(MB) R3971412-1 09/11/23 10:24

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U	1.00	1.00	1.00

Sample Narrative:
BLANK: at 25C

L1653466-01 Original Sample (OS) - Duplicate (DUP)

(OS) L1653466-01 09/11/23 10:24 • (DUP) R3971412-3 09/11/23 10:24

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1160	1160	1	0.000		20

Sample Narrative:
OS: at 25C
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R3971412-2 09/11/23 10:24

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	200	179	89.4	80.0-120	

Sample Narrative:
LCS: at 25C

1
3 Ss
4 Cn
5 Sr
6 Qc
7 GI
8 AI
9 Sc

(MB) R3971430-1 09/08/23 13:31

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U	0.0541	0.800	0.800
Nitrate	U	0.207	0.500	0.500
Sulfate	U	0.199	0.700	0.700

1653466-01 Laboratory Control Sample (LCS)

(LCS) R3971430-2 09/08/23 13:49

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	5.00	4.86	97.2	80.0-120	
Nitrate	5.00	4.73	94.6	80.0-120	
Sulfate	5.00	4.88	97.6	80.0-120	

1653466-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1653466-01 09/08/23 09:54 • (MS) R3971430-3 09/08/23 14:07 • (MSD) R3971430-4 09/08/23 14:25

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate	5.00	0.686	5.39	5.07	1	80.0-120	94.0	87.7	6.07	20

1653466-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

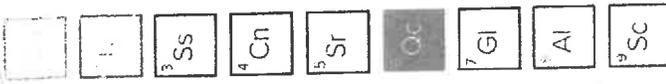
(OS) L1653466-01 09/08/23 10:33 • (MS) R3971430-5 09/08/23 14:43 • (MSD) R3971430-6 09/08/23 15:00

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	50.0	56.2	108	108	1	80.0-120	104	103	0.595	20

1653466-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1653466-01 09/08/23 10:50 • (MS) R3971430-7 09/08/23 15:18 • (MSD) R3971430-8 09/08/23 15:36

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Sulfate	100	188	303	297	1	80.0-120	115	110	1.85	20



Method Blank (MB)

(MB) R3972638-1 09/13/23 11:00

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Ammonia Nitrogen	U	0.0280	0.100	

Laboratory Control Sample (LCS)

(LCS) R3972638-2 09/13/23 11:04

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Ammonia Nitrogen	5.00	5.24	105	80.0-120	

L1653706-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

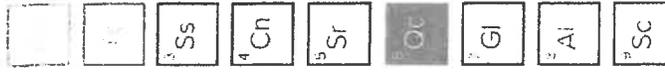
(OS) L1653706-01 09/13/23 11:50 • (MS) R3972638-3 09/13/23 11:06 • (MSD) R3972638-4 09/13/23 11:08

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier %	MSD Qualifier %	RPD %	RPD Limits %
Ammonia Nitrogen	5.00	ND	5.28	5.34	1	80.0-120	104	1.13	1.13	20

L1653706-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1653706-02 09/13/23 11:52 • (MS) R3972638-5 09/13/23 11:09 • (MSD) R3972638-6 09/13/23 11:11

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier %	MSD Qualifier %	RPD %	RPD Limits %
Ammonia Nitrogen	5.00	ND	5.23	5.25	1	80.0-120	103	0.382	0.382	20



GLOSSARY OF TERMS

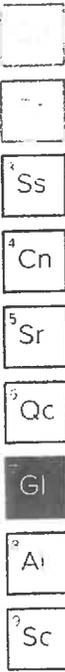
Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - Information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received.

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.



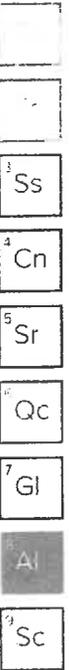
Qualifier	Description
E	The analyte concentration exceeds the upper limit of the calibration range of the instrument established by the initial calibration (ICAL).
J3	The associated batch QC was outside the established quality control range for precision.
J5	The sample matrix interfered with the ability to make any accurate determination; spike value is high.
J6	The sample matrix interfered with the ability to make any accurate determination; spike value is low.
Q	Sample was prepared and/or analyzed past holding time as defined in the method. Concentrations should be considered minimum values.

ACCREDITATIONS & LOCATIONS

Pace Analytical Services, LLC -Dallas 400 W. Bethany Drive Suite 190 Allen, TX 75013

Arkansas	88-0647	Kansas	E10388
Florida	E871118	Texas	T104704232-23-39
Iowa	408	Oklahoma	8727
Louisiana	30686		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater *n/a* Accreditation not applicable
 * Not all certifications held by the laboratory are applicable to the results reported in the attached report.
 * Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



L1653466

LEWISVILLE

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CHAIN OF CUSTODY ENVIRONMENTAL CONTROL SERVICES

Report Name: 9/6/2023 Quarter Monitoring Wells

Process producing waste: Groundwater

Date sample taken: Grab samples on 9/6/2023

Time of time span sample taken:	#1	8:12 AM	#2	8:34 AM
	#3	8:58 AM	#4	9:20 AM

Preservation:

Yes Temperature reduction

Yes pH adjustment

initial pH N/A adjusted See Instructions

chemical See Instructions amount See Instructions

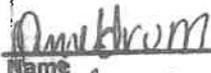
Signature of Sampler: 

Analysis to be done: Quarterly Well Analysis, Group A

Bottle Numbers: 21289,21290,21291,21292,21293,21294,21295,21296,21297,21298,21299,21300

Relinquished By:	<u>J Moness</u>	Inspector/ECS	<u>9/6/2023 9:40am</u>
	Name	Title/Organization	Date/Time

Received By:	<u>ECS Refrigerator</u>	COL	<u>9/6/2023 9:40am</u>
	Name	Title/Organization	Date/Time

Relinquished By:		Inspector/ECS	<u>9/7/23 2:40p</u>
	Name	Title/Organization	Date/Time

Received By:		DAEA	<u>9/7/23 1440</u>
	Name	Title/Organization	Date/Time

Relinquished By:		DAEA	<u>9/7/23 1610</u>
	Name	Title/Organization	Date/Time

Received By:		PACE	<u>9/7/23 1610</u>
	Name	Title/Organization	Date/Time

2 of 2
L1653466

LEWISVILLE

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ENVIRONMENTAL CONTROL SERVICES INSTRUCTIONS FOR ANALYSIS

LABORATORY:

Pace Analytical Services Date: 9/6/2023 QMW

Containers
All 1 (L)(A)(G)

Well M-1	# 21289	Pres. With 3 mL H ₂ SO ₄
	# 21290	Cooled to 4.0°C only
	# 21291	Cooled to 4.0°C only
Well M-2	# 21292	Pres. With 3 mL H ₂ SO ₄
	# 21293	Cooled to 4.0°C only
	# 21294	Cooled to 4.0°C only
Well M-3	# 21295	Pres. With 3 mL H ₂ SO ₄
	# 21296	Cooled to 4.0°C only
	# 21297	Cooled to 4.0°C only
Well M-4	# 21298	Pres. With 3 mL H ₂ SO ₄
	# 21299	Cooled to 4.0°C only
	# 21300	Cooled to 4.0°C only

COMPOSITE AND ANALYZE EACH GROUP
OF WELL SAMPLES SEPARATELY FOR:

BID #17-09-A, ITEM #6-01
(Group A Monitoring Well Quarterly)

TURN AROUND TIME: NORMAL, SPECIFY OTHER Normal

A COPY OF THESE INSTRUCTIONS HAS BEEN MADE FOR OUR FILES. PLEASE
INCLUDE QA/QC AND MINIMUM DETECTION LIMITS WITH REPORT. PLEASE
REFER TO 40 CFR 136 FOR APPROVED ANALYTICAL METHODS. SOLID
WASTE METHODS ARE NOT ACCEPTABLE FOR WASTEWATER ANALYSIS.

NOTES: _____

SAMPLING PERSON: J. Maness & J. Tae



Document Name:
Sample Condition Upon Receipt

Document Revised: 7/27/20
Page 1 of 1

Document No.:
F-DAL-C-001-rev.14

Issuing Authority:
Pace Dallas Quality Office

Sample Condition Upon Receipt

Dallas Ft Worth Corpus Christi Austin

Client Name: City of Lewisville Project Work order (place label):

Courier: FedEX UPS USPS Client LSO PACE Other: _____

Tracking #: _____

Custody Seal on Cooler/Box: Yes No

Received on ice: Wet Blue No ice

Receiving Lab 1 Thermometer Used: 1218 Cooler Temp °C: 2.3 (Recorded) +0.1 (Correction Factor) 2.4 (Actual)

Receiving Lab 2 Thermometer Used: _____ Cooler Temp °C: _____ (Recorded) _____ (Correction Factor) _____ (Actual)

Temperature should be above freezing to 6°C unless collected same day as receipt in which evidence of cooling is acceptable

Triage Person: Ab Date: 9/7/23

Chain of Custody relinquished	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sampler name & signature on COC	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Short HT analyses (<72 hrs)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Login Person: OL Date: 9/7

Sufficient Volume received	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Correct Container used	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Container Intact	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample pH Acceptable	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
pH Strips: _____	
Residual Chlorine Present	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Cl Strips: _____	
Sulfide Present	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Lead Acetate Strips: _____	
Are soil samples (volatiles, TPH) received in 5035A Kits (not applicable to TCLP VOA or PST Program TPH)	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Unpreserved 5035A soil frozen within 48 hrs	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Headspace in VOA (>6mm)	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Project sampled in USDA Regulated Area outside of Texas	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
State Sampled: _____	
Non-Conformance(s):	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Labeling Person (if different than log-in): _____ Date: _____

L1653466

Date Collected 9/6/2023

Bottle Number	Type	Analysis	Preservation	Time Collected
21289	1 L (AG)	BID #17-09-A, ITEM #6-01	3 mL H ₂ SO ₄	<i>8:12 AM</i>
21290	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
21291	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
21292	1 L (AG)	BID #17-09-A, ITEM #6-01	3 mL H ₂ SO ₄	<i>8:34 AM</i>
21293	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
21294	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
21295	1 L (AG)	BID #17-09-A, ITEM #6-01	3 mL H ₂ SO ₄	<i>8:58 AM</i>
21296	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
21297	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
21298	1 L (AG)	BID #17-09-A, ITEM #6-01	3 mL H ₂ SO ₄	<i>9:20 AM</i>
21299	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
21300	1 L (AG)	BID #17-09-A, ITEM #6-01	None	

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Environmental Control Services
 Sampling Record and Field Notes
 For Monitoring Wells
 (PART I)

Well M-1				Well M-2			
Date:	9/6/2023			Date:	9/6/2023		
Purge Start Time:	8:05 AM			Purge Start Time:	8:27 AM		
Purge End Time:	8:11 AM			Purge End Time:	8:33 AM		
Sample Time:	8:12 AM			Sample Time:	8:34 AM		
Containers & ID:	21289	21290	21291	Containers & ID:	21292	21293	21294
pH	6.77 S.U.	Temperature:	22.2 °C	pH	6.68 S.U.	Temperature:	20.7 °C
SpC Start:	1.20 µS/cm	SpC End:	1.19 µS/cm	SpC Start:	1.47 µS/cm	SpC End:	1.47 µS/cm
DO Start:	1.36 mg/L	DO End:	0.87 mg/L	DO Start:	5.91 mg/L	DO End:	4.29 mg/L
Well M-3				Well M-4			
Date:	9/6/2023			Date:	9/6/2023		
Purge Start Time:	8:51 AM			Purge Start Time:	9:13 AM		
Purge End Time:	8:57 AM			Purge End Time:	9:19 AM		
Sample Time:	8:58 AM			Sample Time:	9:20 AM		
Containers & ID:	21295	21296	21297	Containers & ID:	21298	21299	21300
pH	6.91 S.U.	Temperature:	20.2 °C	pH	6.89 S.U.	Temperature:	23.7 °C
SpC Start:	1.14 µS/cm	SpC End:	1.13 µS/cm	SpC Start:	1.25 µS/cm	SpC End:	1.22 µS/cm
DO Start:	2.15 mg/L	DO End:	0.97 mg/L	DO Start:	5.16 mg/L	DO End:	2.82 mg/L

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Deep Roots. Broad Wings. Bright Future.

Environmental Control Services
Sampling Record and Field Notes
For Monitoring Wells
(PART II)

Well Number	M-1	M-2	M-3	M-4
Well Elevation in Feet	473.39	468.11	467.75	466.95
Static Level in Feet	17	17	19	18
MSL in Feet*	456.39	451.11	448.75	448.95
Total Well Depth in Feet	24.6	24.0	24.6	22.1
Well Volume in Feet**	7.6	7	5.6	4.1
Conversion Factor	0.6519	0.6519	0.6519	0.6519
Well Volume in Gallons***	4.95	4.56	3.65	2.67

* To Find MSL (Mean Sea Level), subtract Static Level from Well Elevation.

** To find Well Volume in feet, subtract Static Level from Pump Intake.

*** To find Well Volume in gallons ,multiply Well Volume in feet by Conversion Factor 0.1632

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CHAIN OF CUSTODY ENVIRONMENTAL CONTROL SERVICES

Report Name: 9/6/2023 Quarter Monitoring Wells

Process producing waste: Groundwater

Date sample taken: Grab samples on 9/6/2023

Time of time span sample taken:	#1	8:12 AM	#2	8:34 AM
	#3	8:58 AM	#4	9:20 AM

Preservation:

Yes Temperature reduction

Yes pH adjustment

initial pH N/A adjusted See Instructions

chemical See Instructions amount See Instructions

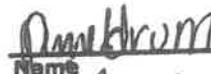
Signature of Sampler 

Analysis to be done: Quarterly Well Analysis, Group A

Bottle Numbers: 21289,21290,21291,21292,21293,21294,21295,21296,21297,21298,21299,21300

Relinquished By:	<u>J. Moness</u>	<u>Inspector/ECS</u>	<u>9/6/2023 9:40am</u>
	Name	Title/Organization	Date/Time

Received By:	<u>ECS Refrigerator</u>	<u>COL</u>	<u>9/6/2023 9:40am</u>
	Name	Title/Organization	Date/Time

Relinquished By:		<u>Inspector/ECS</u>	<u>9/7/23 2:40p</u>
	Name	Title/Organization	Date/Time

Received By:		<u>DAEA</u>	<u>9/7/23 1:40</u>
	Name	Title/Organization	Date/Time

Relinquished By:			
	Name	Title/Organization	Date/Time

Received By:			
	Name	Title/Organization	Date/Time

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ENVIRONMENTAL CONTROL SERVICES INSTRUCTIONS FOR ANALYSIS

LABORATORY: Pace Analytical Services Date: 9/8/2023 QMW

Containers All 1 (L)(A)(G)	Well M-1	# 21289	Pres. With 3 mL H ₂ SO ₄
		# 21290	Cooled to 4.0°C only
		# 21291	Cooled to 4.0°C only
	Well M-2	# 21292	Pres. With 3 mL H ₂ SO ₄
		# 21293	Cooled to 4.0°C only
		# 21294	Cooled to 4.0°C only
	Well M-3	# 21295	Pres. With 3 mL H ₂ SO ₄
		# 21296	Cooled to 4.0°C only
		# 21297	Cooled to 4.0°C only
Well M-4	# 21298	Pres. With 3 mL H ₂ SO ₄	
	# 21299	Cooled to 4.0°C only	
	# 21300	Cooled to 4.0°C only	

COMPOSITE AND ANALYZE EACH GROUP
OF WELL SAMPLES SEPARATELY FOR:

BID #17-09-A, ITEM #6-01
(Group A Monitoring Well Quarterly)

TURN AROUND TIME: NORMAL, SPECIFY OTHER Normal

A COPY OF THESE INSTRUCTIONS HAS BEEN MADE FOR OUR FILES. PLEASE
INCLUDE QA/QC AND MINIMUM DETECTION LIMITS WITH REPORT. PLEASE
REFER TO 40 CFR 136 FOR APPROVED ANALYTICAL METHODS. SOLID
WASTE METHODS ARE NOT ACCEPTABLE FOR WASTEWATER ANALYSIS.

NOTES: _____

SAMPLING PERSON: J. Maness & J. Tae

GROUNDWATER SAMPLING LOG

SITE NAME: <u>QTR Monitoring Wells</u>	SITE LOCATION: <u>WWTP</u>	DATE: <u>9/6/2023</u>
WELL NO: <u>QMW #1</u>	SAMPLE ID: <u>21289, 21290, 21291</u>	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: <u> </u> foot to <u> </u> foot	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAUER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):					
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mV)	TURBIDITY (NTU)	COND. (circle units) <u>µmhos/cm or µS/cm</u>	DISSOLVED OXYGEN (circle units) <u>% saturation</u>	COLOR & ODOR (describe)
<u>8:05a</u>				<u>17.0</u>	<u>22.3</u>	<u>6.76</u>	<u>133.9</u>		<u>1.20</u>	<u>1.86</u>	
<u>8:08a</u>					<u>22.2</u>	<u>6.77</u>	<u>126.4</u>		<u>1.19</u>	<u>0.75</u>	
<u>8:11a</u>					<u>22.2</u>	<u>6.77</u>	<u>125</u>		<u>1.19</u>	<u>0.87</u>	
<small>WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.50" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 6" = 1.02; 8" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0028; 5/16" = 0.004; 3/8" = 0.008; 1/2" = 0.016; 5/8" = 0.016 PURGING EQUIPMENT CODES: B = Bauer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)</small>											

24.6 fl.

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:			
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:				FIELD-FILTERED: Y N		FILTER SIZE: _____ µm			
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N					
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE		SAMPLE PUMP FLOW RATE (mL per minute)	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH							
REMARKS:													
<small>MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify) SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bauer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)</small>													

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS
 pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater)
 Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

GROUNDWATER SAMPLING LOG

SITE NAME: <u>GTR Monitoring Wells</u>	SITE LOCATION: <u>WWTP</u>	DATE: <u>9/6/2023</u>
WELL NO: <u>QM W#2</u>	SAMPLE ID: <u>21292, 21293, 21294</u>	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: <small>feet to</small> <small>feet</small>	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAUER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY <small>(only fill out if applicable)</small>											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME <small>(only fill out if applicable)</small>											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		TOTAL VOLUME PURGED (gallons):							
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mv)	TURBIDITY (NTU)	COND. (micro mhos/cm @ 25°C)	DISSOLVED OXYGEN (micro mhos/cm % saturation)	COLOR & ODOR (describe)
<u>8:27am</u>				<u>17.0</u>	<u>21.1</u>	<u>6.70</u>	<u>88.1</u>		<u>1.47</u>	<u>5.91</u>	
<u>8:30am</u>					<u>20.8</u>	<u>6.68</u>	<u>58.8</u>		<u>1.47</u>	<u>5.02</u>	
<u>8:33am</u>					<u>20.7</u>	<u>6.68</u>	<u>48.8</u>		<u>1.47</u>	<u>4.29</u>	
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 6" = 1.02; 8" = 1.47; 12" = 5.58 TUBING INSIDE DIA. CAPACITY (Gal./ft.): 1/8" = 0.0008; 3/16" = 0.0014; 1/4" = 0.0028; 5/16" = 0.004; 3/8" = 0.008; 1/2" = 0.010; 5/8" = 0.018 PURGING EQUIPMENT CODES: B = Sailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

Total (1) 24.0'

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:			
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:		FIELD-FILTERED: Y N		FILTER SIZE: _____ µm					
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N					
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE		SAMPLE PUMP FLOW RATE (mL per minute)	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH							
REMARKS:													
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify) SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Sailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPP = Reverse Flow Peristaltic Pump; SM = Sizer Method (Tubing Gravity Drain); O = Other (Specify)													

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS
 pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater)
 Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

GROUNDWATER SAMPLING LOG

SITE NAME: <u>QTR Monitoring Wells</u>	SITE LOCATION: <u>W/WTP</u>	DATE: <u>9/6/2023</u>
WELL NO: <u>QMW#3</u>	SAMPLE ID: <u>21295, 21296, 21297</u>	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: feet to feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BALER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		PURGING INITIATED AT:							
PURGING ENDED AT:		TOTAL VOLUME PURGED (gallons):									
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mV)	TURBIDITY (NTUs)	COND. (micro units) <u>µmho/cm</u>	DISSOLVED OXYGEN (micro units) <u>% sat</u>	COLOR & ODOR (describe)
<u>8:51a</u>				<u>19.0</u>	<u>20.9</u>	<u>6.93</u>	<u>102.1</u>		<u>1.14</u>	<u>2.15</u>	
<u>8:54a</u>					<u>20.3</u>	<u>6.92</u>	<u>97.8</u>		<u>1.13</u>	<u>1.11</u>	
<u>8:57a</u>					<u>20.2</u>	<u>6.91</u>	<u>95.7</u>		<u>1.13</u>	<u>0.97</u>	
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0008; 3/16" = 0.0014; 1/4" = 0.0025; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.018 PURGING EQUIPMENT CODES: B = Baler; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

24.6 ft

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:	
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:				FIELD-FILTERED: Y N		FILTER SIZE: _____ µm	
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH					
REMARKS:											
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)											
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Baler; BP = Bladder Pump; ESP = Electric Submersible Pump; RFP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)											

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS
 pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater)
 Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

GROUNDWATER SAMPLING LOG

SITE NAME: <u>QTR Monitoring Wells</u>	SITE LOCATION: <u>WWTP</u>
WELL NO: <u>QHW #4</u>	SAMPLE ID: <u>21298, 21299, 21300</u> DATE: <u>9/6/2023</u>

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: <small>feet to feet</small>	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR SAILER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY <small>(only fill out if applicable)</small>											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME <small>(only fill out if applicable)</small>											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		PURGING INITIATED AT:							
PURGING ENDED AT:		TOTAL VOLUME PURGED (gallons):									
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mV)	TURBIDITY (NTU)	COND. (circles units) <small>µmhos/cm</small>	DISSOLVED OXYGEN (circles units) <small>mg/L</small> % saturation	COLOR & ODOR (describe)
<u>22.1 ft</u> 9:13 AM				18.0	24.0	6.90	56.7		1.25	5.16	
9:16 AM					23.7	6.90	48.6		1.22	3.59	
9:19 AM					23.7	6.89	55.1		1.22	2.82	
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 5" = 1.02; 6" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0028; 5/16" = 0.004; 3/8" = 0.008; 1/2" = 0.010; 5/8" = 0.016 PURGING EQUIPMENT CODES: S = Sailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:			
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:				FIELD-FILTERED: Y N		FILTER SIZE: _____ µm			
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N					
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE		SAMPLE PUMP FLOW RATE (mL per minute)	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH							
REMARKS:													
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)													
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; S = Sailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFPF = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)													

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater)
 Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)



ANALYTICAL REPORT

December 12, 2023

- Cp
- Tm
- ³Ss
- ⁴Cn
- ⁵Sr
- ⁶Qc
- ⁷Gl
- ⁸Al
- ³Sc

City of Lewisville

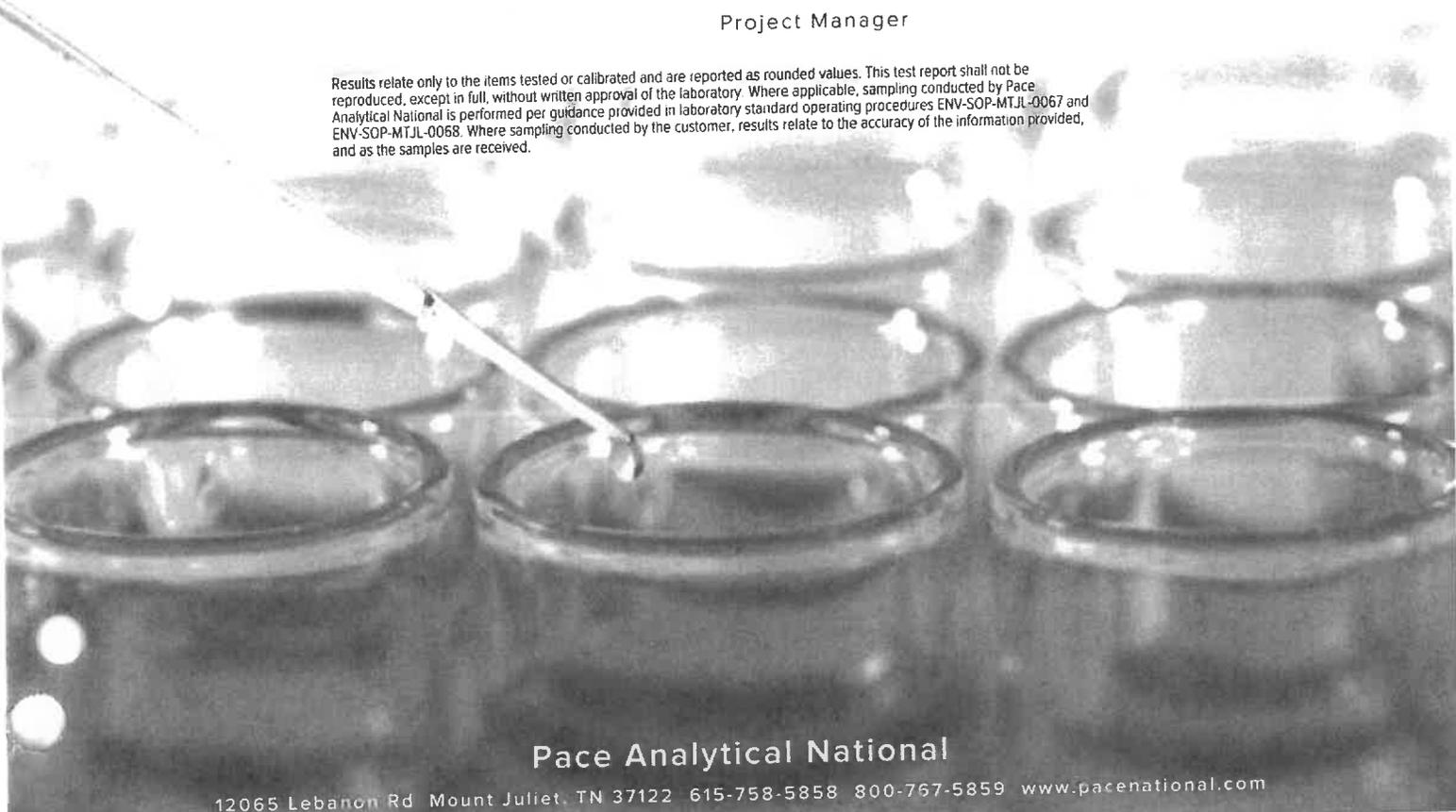
Sample Delivery Group: L1684250
 Samples Received: 12/05/2023
 Project Number: QTR MONITORING WELLS
 Description: 12/04/23 Quarterly Monitoring Wells

Report To: Kimberly Morris
 PO Box 299002
 Lewisville, TX 75029

Entire Report Reviewed By: *Justin Carr*

Justin Carr
 Project Manager

Results relate only to the items tested or calibrated and are reported as rounded values. This test report shall not be reproduced, except in full, without written approval of the laboratory. Where applicable, sampling conducted by Pace Analytical National is performed per guidance provided in laboratory standard operating procedures ENV-SOP-MTJL-0067 and ENV-SOP-MTJL-0068. Where sampling conducted by the customer, results relate to the accuracy of the information provided, and as the samples are received.



Pace Analytical National

12065 Lebanon Rd Mount Juliet, TN 37122 615-758-5858 800-767-5859 www.pacenational.com

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SAMPLE SUMMARY

WELL M-1 21580-82 L1684250-01 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Collected by	Collected date/time	Received date/time
					Justin Maness	12/04/23 09:38	12/05/23 14:20
Gravimetric Analysis by Method 2540 C-2011	WG2184729	1	12/08/23 10:35	12/08/23 15:59	MMF		Mt. Juliet, TN
Wet Chemistry by Method 2320B	WG2183738	1	12/06/23 08:20	12/06/23 08:20	JBS		Allen, TX
Wet Chemistry by Method 5310C	WG2184795	1	12/07/23 16:03	12/07/23 16:03	EIG		Allen, TX
Wet Chemistry by Method 9050	WG2184950	1	12/07/23 12:32	12/07/23 12:32	QQT		Allen, TX
Wet Chemistry by Method 9056A	WG2183310	1	12/05/23 16:54	12/05/23 16:54	SMC		Allen, TX
Wet Chemistry by Method 9056A	WG2183310	1	12/05/23 17:30	12/05/23 17:30	SMC		Allen, TX
Wet Chemistry by Method SM4500NH3H	WG2185791	1	12/08/23 15:03	12/08/23 15:03	EIG		Allen, TX

WELL M-2 21583-85 L1684250-02 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Collected by	Collected date/time	Received date/time
					Justin Maness	12/04/23 10:01	12/05/23 14:20
Gravimetric Analysis by Method 2540 C-2011	WG2184729	1	12/08/23 10:35	12/08/23 15:59	MMF		Mt. Juliet, TN
Wet Chemistry by Method 2320B	WG2183738	1	12/06/23 08:20	12/06/23 08:20	JBS		Allen, TX
Wet Chemistry by Method 5310C	WG2184795	1	12/07/23 17:02	12/07/23 17:02	EIG		Allen, TX
Wet Chemistry by Method 9050	WG2184950	1	12/07/23 12:32	12/07/23 12:32	QQT		Allen, TX
Wet Chemistry by Method 9056A	WG2183310	1	12/05/23 17:48	12/05/23 17:48	SMC		Allen, TX
Wet Chemistry by Method 9056A	WG2183310	1	12/05/23 18:23	12/05/23 18:23	SMC		Allen, TX
Wet Chemistry by Method SM4500NH3H	WG2185796	1	12/08/23 15:18	12/08/23 15:18	EIG		Allen, TX

WELL M-3 21586-88 L1684250-03 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Collected by	Collected date/time	Received date/time
					Justin Maness	12/04/23 10:23	12/05/23 14:20
Gravimetric Analysis by Method 2540 C-2011	WG2184729	1	12/08/23 10:35	12/08/23 15:59	MMF		Mt. Juliet, TN
Wet Chemistry by Method 2320B	WG2183738	1	12/06/23 08:20	12/06/23 08:20	JBS		Allen, TX
Wet Chemistry by Method 5310C	WG2184795	1	12/07/23 17:22	12/07/23 17:22	EIG		Allen, TX
Wet Chemistry by Method 9050	WG2184950	1	12/07/23 12:32	12/07/23 12:32	QQT		Allen, TX
Wet Chemistry by Method 9056A	WG2183310	1	12/05/23 19:17	12/05/23 19:17	SMC		Allen, TX
Wet Chemistry by Method 9056A	WG2183310	1	12/05/23 19:35	12/05/23 19:35	SMC		Allen, TX
Wet Chemistry by Method 9056A	WG2183310	1	12/05/23 19:53	12/05/23 19:53	SMC		Allen, TX
Wet Chemistry by Method SM4500NH3H	WG2185796	1	12/08/23 15:20	12/08/23 15:20	EIG		Allen, TX

WELL M-4 21589-91 L1684250-04 GW

Method	Batch	Dilution	Preparation date/time	Analysis date/time	Collected by	Collected date/time	Received date/time
					Justin Maness	12/04/23 10:44	12/05/23 14:20
Gravimetric Analysis by Method 2540 C-2011	WG2184729	1	12/08/23 10:35	12/08/23 15:59	MMF		Mt. Juliet, TN
Wet Chemistry by Method 2320B	WG2183738	1	12/06/23 08:20	12/06/23 08:20	JBS		Allen, TX
Wet Chemistry by Method 5310C	WG2184795	1	12/07/23 17:42	12/07/23 17:42	EIG		Allen, TX
Wet Chemistry by Method 9050	WG2184950	1	12/07/23 12:32	12/07/23 12:32	QQT		Allen, TX
Wet Chemistry by Method 9056A	WG2183310	1	12/05/23 20:11	12/05/23 20:11	SMC		Allen, TX
Wet Chemistry by Method 9056A	WG2183310	1	12/05/23 20:46	12/05/23 20:46	SMC		Allen, TX
Wet Chemistry by Method SM4500NH3H	WG2185796	1	12/08/23 15:22	12/08/23 15:22	EIG		Allen, TX

Ss

4 Cn

5 Sr

6 Qc

7 Gl

5 Al

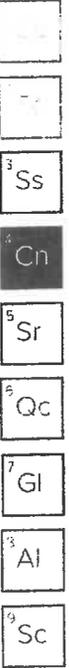
3 Sc

CASE NARRATIVE

All sample aliquots were received at the correct temperature, in the proper containers, with the appropriate preservatives, and within method specified holding times, unless qualified or notated within the report. Where applicable, all MDL (LOD) and RDL (LOQ) values reported for environmental samples have been corrected for the dilution factor used in the analysis. All Method and Batch Quality Control are within established criteria except where addressed in this case narrative, a non-conformance form or properly qualified within the sample results. By my digital signature below, I affirm to the best of my knowledge, all problems/anomalies observed by the laboratory as having the potential to affect the quality of the data have been identified by the laboratory, and no information or data have been knowingly withheld that would affect the quality of the data.



Justin Carr
Project Manager



WELL M-1 21580-82

SAMPLE RESULTS - 01

Created date/time: 12/04/23 09:38

L1684250

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	677		13.3	1	12/08/2023 15:59	WG2184729

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	338		20.0	1	12/06/2023 08:20	WG2183738
Alkalinity,Bicarbonate	338		20.0	1	12/06/2023 08:20	WG2183738
Alkalinity,Carbonate	ND		20.0	1	12/06/2023 08:20	WG2183738
Alkalinity,Hydroxide	ND		20.0	1	12/06/2023 08:20	WG2183738
Phenolphthalein Alkalinity	ND		20.0	1	12/06/2023 08:20	WG2183738

Wet Chemistry by Method 5310C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	1.83		0.700	1	12/07/2023 16:03	WG2184795

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1130		1.00	1	12/07/2023 12:32	WG2184950

Sample Narrative:

L1684250-01 WG2184950: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	60.3		0.800	1	12/05/2023 17:30	WG2183310
Nitrate	ND		0.500	1	12/05/2023 16:54	WG2183310
Sulfate	176		0.700	1	12/05/2023 17:30	WG2183310

Wet Chemistry by Method SM4500NH3H

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	ND		0.100	1	12/08/2023 15:03	WG2185791



WELL M-2 21583-85

Collected date/time: 12/04/23 10:01

SAMPLE RESULTS - 02

L1684250

Colorimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	926		20.0	1	12/08/2023 15:59	WG2184729

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	413		20.0	1	12/06/2023 08:20	WG2183738
Alkalinity,Bicarbonate	413		20.0	1	12/06/2023 08:20	WG2183738
Alkalinity,Carbonate	ND		20.0	1	12/06/2023 08:20	WG2183738
Alkalinity,Hydroxide	ND		20.0	1	12/06/2023 08:20	WG2183738
Phenolphthalein Alkalinity	ND		20.0	1	12/06/2023 08:20	WG2183738

Wet Chemistry by Method 5310C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	3.17		0.700	1	12/07/2023 17:02	WG2184795

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1470		1.00	1	12/07/2023 12:32	WG2184950

Field Narrative:

L1684250-02 WG2184950: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	78.3		0.800	1	12/05/2023 18:23	WG2183310
Nitrate	ND		0.500	1	12/05/2023 17:48	WG2183310
Sulfate	273		0.700	1	12/05/2023 18:23	WG2183310

Wet Chemistry by Method SM4500NH3H

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	0.518		0.100	1	12/08/2023 15:18	WG2185796



WELL M-3 21586-88

SAMPLE RESULTS - 03

Created date/time: 12/04/23 10:23

L1684250

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	727		13.3	1	12/08/2023 15:59	WG2184729

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	300		20.0	1	12/06/2023 08:20	WG2183738
Alkalinity,Bicarbonate	300		20.0	1	12/06/2023 08:20	WG2183738
Alkalinity,Carbonate	ND		20.0	1	12/06/2023 08:20	WG2183738
Alkalinity,Hydroxide	ND		20.0	1	12/06/2023 08:20	WG2183738
Phenolphthalein Alkalinity	ND		20.0	1	12/06/2023 08:20	WG2183738

Wet Chemistry by Method 5310C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	2.80		0.700	1	12/07/2023 17:22	WG2184795

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1140		1.00	1	12/07/2023 12:32	WG2184950

Sample Narrative:

L1684250-03 WG2184950: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	56.7		0.800	1	12/05/2023 19:35	WG2183310
Nitrate	ND		0.500	1	12/05/2023 19:17	WG2183310
Sulfate	227		0.700	1	12/05/2023 19:53	WG2183310

Wet Chemistry by Method SM4500NH3H

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	0.146	B	0.100	1	12/08/2023 15:20	WG2185796

1

2

3 Ss

4 Cn

5 Sr

6 Qc

7 Gl

8 Ai

9 Sc

WELL M-4 21589-91

SAMPLE RESULTS - 04

L1684250

Created date/time: 12/04/23 10:44

Gravimetric Analysis by Method 2540 C-2011

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Dissolved Solids	695		13.3	1	12/08/2023 15:59	WG2184729

Wet Chemistry by Method 2320B

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Alkalinity	206		20.0	1	12/06/2023 08:20	WG2183738
Alkalinity,Bicarbonate	206		20.0	1	12/06/2023 08:20	WG2183738
Alkalinity,Carbonate	ND		20.0	1	12/06/2023 08:20	WG2183738
Alkalinity,Hydroxide	ND		20.0	1	12/06/2023 08:20	WG2183738
Phenolphthalein Alkalinity	ND		20.0	1	12/06/2023 08:20	WG2183738

Wet Chemistry by Method 5310C

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
TOC (Total Organic Carbon)	3.59		0.700	1	12/07/2023 17:42	WG2184795

Wet Chemistry by Method 9050

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Specific Conductance	1160		1.00	1	12/07/2023 12:32	WG2184950

Sample Narrative:

L1684250-04 WG2184950: at 25C

Wet Chemistry by Method 9056A

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Chloride	88.4		0.800	1	12/05/2023 20:46	WG2183310
Nitrate	5.95		0.500	1	12/05/2023 20:11	WG2183310
Sulfate	173		0.700	1	12/05/2023 20:46	WG2183310

Wet Chemistry by Method SM4500NH3H

Analyte	Result	Qualifier	RDL	Dilution	Analysis date / time	Batch
Ammonia Nitrogen	ND		0.100	1	12/08/2023 15:22	WG2185796



Method Blank (fMB)

(MB) R4010896-1 12/08/23 15:59

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Dissolved Solids	U	10.0	10.0	10.0

L1683968-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1683968-01 12/08/23 15:59 • (DUP) R4010896-3 12/09/23 13:20

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	2790	2630	1	5.72	U3	5

L1684064-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1684064-01 12/08/23 15:59 • (DUP) R4010896-4 12/09/23 13:20

Analyte	Original Result mg/l	DUP Result mg/l	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Dissolved Solids	1560	1550	1	0.322		5

Labatory Control Sample (LCS)

(LCS) R4010896-2 12/08/23 15:59

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Dissolved Solids	8800	8600	97.7	85.0-115	

- 1
- 11
- 2 Ss
- 4 Cn
- 5 Sr
- 6 Oc
- 7 Gl
- 8 Al
- 9 Sc

1
2
3 Ss
4 Cn
5 Sr
6 QC
7 Gl
8 Al
9 Sc

(MB) R4008693-1 12/06/23 08:20

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Alkalinity	U		20.0	20.0
Alkalinity,Bicarbonate	U		20.0	20.0
Alkalinity,Carbonate	U		20.0	20.0
Alkalinity,Hydroxide	U		20.0	20.0
Phenolphthalein Alkalinity	U		20.0	20.0

(OS) L1683968-03 Original Sample (OS) • Duplicate (DUP)

(OS) L1683968-03 12/06/23 08:20 • (DUP) R4008693-3 12/06/23 08:20

Analyte	Original Result mg/l	DUP Result mg/l	Dilution %	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Alkalinity	38.0	38.0	1	0.000		20

Laboratory Control Sample (LCS)

(LCS) R4008693-2 12/06/23 08:20

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Alkalinity	250	242	96.8	90.0-110	

(MB) R4009763-1 12/07/23 12:57

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
TOC (Total Organic Carbon)	U	0.270	0.270	0.700

Laboratory Control Sample (LCS)

(LCS) R4009763-2 12/07/23 13:17

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
TOC (Total Organic Carbon)	10.0	9.53	95.3	90.0-110	

L1683968-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

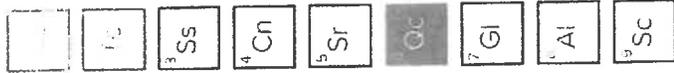
(OS) L1683968-03 12/07/23 15:44 • (MS) R4009763-3 12/07/23 14:23 • (MSD) R4009763-4 12/07/23 14:43

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier %	MSD Qualifier %	RPD %	RPD Limits %
TOC (Total Organic Carbon)	10.0	1.08	10.5	10.5	1	80.0-120	94.2	0.286	0.286	20

L1684250-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1684250-01 12/07/23 15:03 • (MS) R4009763-5 12/07/23 15:04 • (MSD) R4009763-6 12/07/23 15:24

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier %	MSD Qualifier %	RPD %	RPD Limits %
TOC (Total Organic Carbon)	10.0	1.83	11.1	11.0	1	80.0-120	92.9	1.08	1.08	20



(MB) R4009313-1 12/07/23 12:32

Analyte	MB Result umhos/cm	MB Qualifier	MB MDL umhos/cm	MB RDL umhos/cm
Specific Conductance	U	1.00	1.00	1.00

Sample Narrative:
BLANK: at 25C

L1684250-01 Original Sample (OS) • Duplicate (DUP)

(OS) L1684250-01 12/07/23 12:32 • (DUP) R4009313-3 12/07/23 12:32

Analyte	Original Result umhos/cm	DUP Result umhos/cm	Dilution	DUP RPD %	DUP Qualifier	DUP RPD Limits %
Specific Conductance	1130	1130	1	0.000		20

Sample Narrative:
OS: at 25C
DUP: at 25C

Laboratory Control Sample (LCS)

(LCS) R4009313-2 12/07/23 12:32

Analyte	Spike Amount umhos/cm	LCS Result umhos/cm	LCS Rec. %	Rec. Limits %	LCS Qualifier
Specific Conductance	200	186	93.1	80.0-120	

Sample Narrative:
LCS: at 25C

Pb
 Cu
 Ss
 Cr
 Sr
 OC
 GI
 Al
 SC

Method Blank (MB)

(MB) R4008696-1 12/05/23 16:19

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Chloride	U	0.0541	0.800	
Nitrate	U	0.207	0.500	
Sulfate	U	0.199	0.700	

Laboratory Control Sample (LCS)

(LCS) R4008696-2 12/05/23 16:36

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Chloride	5.00	4.88	97.6	80.0-120	
Nitrate	5.00	4.72	94.4	80.0-120	
Sulfate	5.00	4.96	99.1	80.0-120	

i 1684250-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1684250-01 12/05/23 16:54 • (MS) R4008696-3 12/06/23 09:42 • (MSD) R4008696-4 12/06/23 10:00

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	MSD Result mg/l	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Nitrate	5.00	ND	5.13	95.4	5.15	95.8	1	80.0-120	0.387	0.387	20	20

L1684250-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1684250-01 12/05/23 17:30 • (MS) R4008696-5 12/06/23 10:18 • (MSD) R4008696-6 12/06/23 10:36

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MS Rec. %	MSD Result mg/l	MSD Rec. %	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Chloride	250	60.3	306	98.2	306	98.2	1	80.0-120	0.0507	0.0507	20	20
Sulfate	250	176	415	95.5	418	96.6	1	80.0-120	0.642	0.642	20	20



Method Blank (MB)

(MB) R4010126-1 12/08/23 14:11

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Ammonia Nitrogen	U		0.0280	0.100

Laboratory Control Sample (LCS)

(LCS) R4010126-2 12/08/23 14:13

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Ammonia Nitrogen	5.00	5.33	107	80.0-120	

L1683903-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

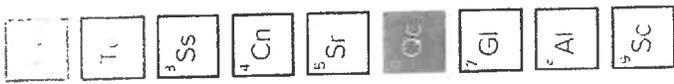
(OS) L1683903-02 12/08/23 14:25 • (MS) R4010126-3 12/08/23 14:15 • (MSD) R4010126-4 12/08/23 14:17

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier %	MSD Qualifier %	RPD %	RPD Limits %
Ammonia Nitrogen	5.00	ND	5.28	5.26	1	80.0-120	105	104	0.380	20

L1684204-01 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1684204-01 12/08/23 14:57 • (MS) R4010126-5 12/08/23 14:18 • (MSD) R4010126-6 12/08/23 14:20

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier %	MSD Qualifier %	RPD %	RPD Limits %
Ammonia Nitrogen	5.00	0.631	5.76	5.77	1	80.0-120	103	103	0.173	20



WG218 J6

West Chemistry by Methanex SM4500NH3H

QUALITY CONTROL SUMMARY

L1684250-02,03,04

Method Blank (MB)

(MB) R4010127-1 12/08/23 15:08

Analyte	MB Result mg/l	MB Qualifier	MB MDL mg/l	MB RDL mg/l
Ammonia Nitrogen	0.0448		0.0280	0.100

Laboratory Control Sample (LCS)

(LCS) R4010127-2 12/08/23 15:10

Analyte	Spike Amount mg/l	LCS Result mg/l	LCS Rec. %	Rec. Limits %	LCS Qualifier
Ammonia Nitrogen	5.00	5.30	106	80.0-120	

L1684250-02 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1684250-02 12/08/23 15:18 • (MS) R4010127-3 12/08/23 15:11 • (MSD) R4010127-4 12/08/23 15:13

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Ammonia Nitrogen	5.00	0.518	5.50	5.51	1	80.0-120			0.182	20

L1684250-03 Original Sample (OS) • Matrix Spike (MS) • Matrix Spike Duplicate (MSD)

(OS) L1684250-03 12/08/23 15:20 • (MS) R4010127-5 12/08/23 15:15 • (MSD) R4010127-6 12/08/23 15:17

Analyte	Spike Amount mg/l	Original Result mg/l	MS Result mg/l	MSD Result mg/l	Dilution	Rec. Limits %	MS Qualifier	MSD Qualifier	RPD %	RPD Limits %
Ammonia Nitrogen	5.00	0.146	5.22	5.24	1	80.0-120			0.382	20

11
3 Ss
4 Cn
5 Sr
Ac
7 GI
8 Al
9 Sc

GLOSSARY OF TERMS

Guide to Reading and Understanding Your Laboratory Report

The information below is designed to better explain the various terms used in your report of analytical results from the Laboratory. This is not intended as a comprehensive explanation, and if you have additional questions please contact your project representative.

Results Disclaimer - information that may be provided by the customer, and contained within this report, include Permit Limits, Project Name, Sample ID, Sample Matrix, Sample Preservation, Field Blanks, Field Spikes, Field Duplicates, On-Site Data, Sampling Collection Dates/Times, and Sampling Location. Results relate to the accuracy of this information provided, and as the samples are received

Abbreviations and Definitions

MDL	Method Detection Limit.
ND	Not detected at the Reporting Limit (or MDL where applicable).
RDL	Reported Detection Limit.
Rec.	Recovery.
RPD	Relative Percent Difference.
SDG	Sample Delivery Group.
U	Not detected at the Reporting Limit (or MDL where applicable).
Analyte	The name of the particular compound or analysis performed. Some Analyses and Methods will have multiple analytes reported.
Dilution	If the sample matrix contains an interfering material, the sample preparation volume or weight values differ from the standard, or if concentrations of analytes in the sample are higher than the highest limit of concentration that the laboratory can accurately report, the sample may be diluted for analysis. If a value different than 1 is used in this field, the result reported has already been corrected for this factor.
Limits	These are the target % recovery ranges or % difference value that the laboratory has historically determined as normal for the method and analyte being reported. Successful QC Sample analysis will target all analytes recovered or duplicated within these ranges.
Original Sample	The non-spiked sample in the prep batch used to determine the Relative Percent Difference (RPD) from a quality control sample. The Original Sample may not be included within the reported SDG.
Qualifier	This column provides a letter and/or number designation that corresponds to additional information concerning the result reported. If a Qualifier is present, a definition per Qualifier is provided within the Glossary and Definitions page and potentially a discussion of possible implications of the Qualifier in the Case Narrative if applicable.
Result	The actual analytical final result (corrected for any sample specific characteristics) reported for your sample. If there was no measurable result returned for a specific analyte, the result in this column may state "ND" (Not Detected) or "BDL" (Below Detectable Levels). The information in the results column should always be accompanied by either an MDL (Method Detection Limit) or RDL (Reporting Detection Limit) that defines the lowest value that the laboratory could detect or report for this analyte.
Uncertainty (Radiochemistry)	Confidence level of 2 sigma.
Case Narrative (Cn)	A brief discussion about the included sample results, including a discussion of any non-conformances to protocol observed either at sample receipt by the laboratory from the field or during the analytical process. If present, there will be a section in the Case Narrative to discuss the meaning of any data qualifiers used in the report.
Quality Control Summary (Qc)	This section of the report includes the results of the laboratory quality control analyses required by procedure or analytical methods to assist in evaluating the validity of the results reported for your samples. These analyses are not being performed on your samples typically, but on laboratory generated material.
Sample Chain of Custody (Sc)	This is the document created in the field when your samples were initially collected. This is used to verify the time and date of collection, the person collecting the samples, and the analyses that the laboratory is requested to perform. This chain of custody also documents all persons (excluding commercial shippers) that have had control or possession of the samples from the time of collection until delivery to the laboratory for analysis.
Sample Results (Sr)	This section of your report will provide the results of all testing performed on your samples. These results are provided by sample ID and are separated by the analyses performed on each sample. The header line of each analysis section for each sample will provide the name and method number for the analysis reported.
Sample Summary (Ss)	This section of the Analytical Report defines the specific analyses performed for each sample ID, including the dates and times of preparation and/or analysis.

Qualifier	Description
B	The same analyte is found in the associated blank.
J	The identification of the analyte is acceptable; the reported value is an estimate.
J3	The associated batch QC was outside the established quality control range for precision.

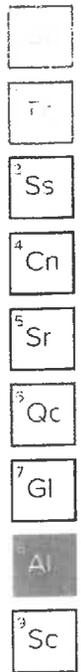


ACCREDITATIONS & LOCATIONS

Pace Analytical National 12065 Lebanon Rd Mount Juliet, TN 37122			
Alabama	40660	Nebraska	NE-OS-15-05
Alaska	17-026	Nevada	TN000032021-1
Arizona	AZ0612	New Hampshire	2975
Arkansas	88-0469	New Jersey-NELAP	TN002
California	2932	New Mexico ¹	TN00003
Colorado	TN00003	New York	11742
Connecticut	PH-0197	North Carolina	Env375
Florida	E87487	North Carolina ¹	DW21704
Georgia	NELAP	North Carolina ²	41
Georgia ¹	923	North Dakota	R-140
Idaho	TN00003	Ohio-VAP	CL0069
Illinois	200008	Oklahoma	9915
Indiana	C-TN-01	Oregon	TN200002
Iowa	364	Pennsylvania	68-02979
Kansas	E-10277	Rhode Island	LA000356
Kentucky ^{1,6}	KY90010	South Carolina	84004002
Kentucky ²	16	South Dakota	n/a
Louisiana	A130792	Tennessee ^{1,4}	2006
Louisiana	LA018	Texas	T104704245-20-18
Maine	TN00003	Texas ⁵	LAB0152
Maryland	324	Utah	TN000032021-11
Massachusetts	M-TN003	Vermont	VT2006
Michigan	9958	Virginia	110033
Minnesota	047-999-395	Washington	C847
Mississippi	TN00003	West Virginia	233
Missouri	340	Wisconsin	998093910
Montana	CERT0086	Wyoming	A2LA
A2LA – ISO 17025	1461.01	AIHA-LAP, LLC EMLAP	100789
A2LA – ISO 17025 ⁵	1461.02	DOD	1461.01
Canada	1461.01	USDA	P330-15-00234
EPA-Crypto	TN00003		

Pace Analytical Services, LLC -Dallas 400 W Bethany Drive Suite 190 Allen, TX 75013			
Arkansas	88-0647	Kansas	E10388
Florida	E871118	Texas	T104704232-23-39
Iowa	408	Oklahoma	8727
Louisiana	30686		

¹ Drinking Water ² Underground Storage Tanks ³ Aquatic Toxicity ⁴ Chemical/Microbiological ⁵ Mold ⁶ Wastewater n/a Accreditation not applicable
^{*} Not all certifications held by the laboratory are applicable to the results reported in the attached report.
^{*} Accreditation is only applicable to the test methods specified on each scope of accreditation held by Pace Analytical.



L11684250

LEWISVILLE

Deep Roots. Broad Wings. Bright Future.

CHAIN OF CUSTODY ENVIRONMENTAL CONTROL SERVICES

Report Name: 12/4/2023 Quarter Monitoring Wells

Process producing waste: Groundwater

Date sample taken: Grab samples on 12/4/2023

Time of time span sample taken:	#1	9:38 AM	#2	10:01 AM
	#3	10:23 AM	#4	10:44 AM

Preservation:

Yes Temperature reduction

Yes pH adjustment

initial pH N/A adjusted See Instructions

chemical See Instructions amount See Instructions

Signature of Sampler [Signature]

Analysis to be done: Quarterly Well Analysis, Group A

Bottle Numbers: 21580,21581,21582,21583,21584,21585,21586,21587,21588,21589,21590,21591

Relinquished By: J. Maness / COL Inspector/ECS 12/4/23 11:00 AM
Name Title/Organization Date/Time

Received By: ECS Refrigerator COL 12/4/23 11:00 AM
Name Title/Organization Date/Time

Relinquished By: [Signature] / COL Inspector/ECS 12/5/23 @ 1310
Name Title/Organization Date/Time

Received By: [Signature] PAGE 12/5/23 1318
Name Title/Organization Date/Time

Relinquished By: [Signature] PAGE 12/5/23 1420
Name Title/Organization Date/Time

Received By: [Signature] PAGE 12/5/23 1420
Name Title/Organization Date/Time

L1684250

LEWISVILLE

Deep Roots. Broad Wings. Bright Future.

ENVIRONMENTAL CONTROL SERVICES INSTRUCTIONS FOR ANALYSIS

LABORATORY:

Pace Analytical Services Date: 12/4/2023 QMW

Containers
All 1 (L)(A)(G)

Well M-1	# 21580	Pres. With 3 mL H ₂ SO ₄
	# 21581	Cooled to 4.0°C only
	# 21582	Cooled to 4.0°C only
Well M-2	# 21583	Pres. With 3 mL H ₂ SO ₄
	# 21584	Cooled to 4.0°C only
	# 21585	Cooled to 4.0°C only
Well M-3	# 21586	Pres. With 3 mL H ₂ SO ₄
	# 21587	Cooled to 4.0°C only
	# 21588	Cooled to 4.0°C only
Well M-4	# 21589	Pres. With 3 mL H ₂ SO ₄
	# 21590	Cooled to 4.0°C only
	# 21591	Cooled to 4.0°C only

01
02
03
04

COMPOSITE AND ANALYZE EACH GROUP
OF WELL SAMPLES SEPARATELY FOR:

BID #17-09-A, ITEM #6-01
(Group A Monitoring Well Quarterly)

TURN AROUND TIME: NORMAL, SPECIFY OTHER Normal

A COPY OF THESE INSTRUCTIONS HAS BEEN MADE FOR OUR FILES. PLEASE
INCLUDE QA/QC AND MINIMUM DETECTION LIMITS WITH REPORT. PLEASE
REFER TO 40 CFR 136 FOR APPROVED ANALYTICAL METHODS. SOLID
WASTE METHODS ARE NOT ACCEPTABLE FOR WASTEWATER ANALYSIS.

NOTES: _____

SAMPLING PERSON: J. Maness & J. Tae

	Document Name: Sample Condition Upon Receipt	Document Revised: 7/27/20 Page 1 of 1
	Document No. F-DAL-C-001-rev.14	Issuing Authority: Pace Dallas Quality Office

Sample Condition Upon Receipt

Dallas
 Ft Worth
 Corpus Christi
 Austin

Client Name: City of Louisville Project Work order (place label): _____

Courier: FedEX UPS USPS Client LSO PACE Other: _____

Tracking #: _____

Custody Seal on Cooler/Box: Yes No

Received on ice: Wet Blue No ice

Receiving Lab 1 Thermometer Used: 1218 Cooler Temp °C: 2.9 (Recorded) to 2.2 (Correction Factor) 2.2 (Actual)

Receiving Lab 2 Thermometer Used: _____ Cooler Temp °C: _____ (Recorded) _____ (Correction Factor) _____ (Actual)

Temperature should be above freezing to 6°C unless collected same day as receipt in which evidence of cooling is acceptable

Triage Person AG Date: 12/5/23

Chain of Custody relinquished	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sampler name & signature on COC	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Short HT analyses (<72 hrs)	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Log-in Person OL Date: 12/5

Sufficient Volume received	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Correct Container used	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Container Intact	Yes <input checked="" type="checkbox"/> No <input type="checkbox"/>
Sample pH Acceptable	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
pH Strips: _____	
Residual Chlorine Present	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Cl Strips: _____	
Sulfide Present	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Lead Acetate Strips: _____	
Are soil samples (volatiles, TPH) received in 5035A Kits (not applicable to TCLP VOA or PST Program TPH)	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Unpreserved 5035A soil frozen within 48 hrs	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Headspace in VOA (>6mm)	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
Project sampled in USDA Regulated Area outside of Texas	Yes <input type="checkbox"/> No <input type="checkbox"/> NA <input checked="" type="checkbox"/>
State Sampled: _____	
Non-Conformance(s): _____	Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>

Labeling Person (if different than log-in): _____ Date: _____

1012

L1684250

LEWISVILLE

Deep Roots. Broad Wings. Bright Future.

CHAIN OF CUSTODY ENVIRONMENTAL CONTROL SERVICES

Report Name: 12/4/2023 Quarter Monitoring Wells

Process producing waste: Groundwater

Date sample taken: Grab samples on 12/4/2023

Time of time span sample taken:	#1	9:38 AM	#2	10:01 AM
	#3	10:23 AM	#4	10:44 AM

Preservation:

Yes Temperature reduction

Yes pH adjustment

initial pH N/A adjusted See Instructions

chemical See Instructions amount See Instructions

Signature of Sampler [Signature]

Analysis to be done: Quarterly Well Analysis, Group A

Bottle Numbers: 21580,21581,21582,21583,21584,21585,21586,21587,21588,21589,21590,21591

Relinquished By: J. Mores / COL Inspector/ECS 12/4/23 11:00 AM
 Name Title/Organization Date/Time

Received By: ECS Refrigerator COL 12/4/23 11:00 AM
 Name Title/Organization Date/Time

Relinquished By: [Signature] / COL Inspector/ECS 12/5/23 @ 1310
 Name Title/Organization Date/Time

Received By: [Signature] PAGE 12/5/23 1310
 Name Title/Organization Date/Time

Relinquished By: [Signature] PAGE 12/5/23 1420
 Name Title/Organization Date/Time

Received By: [Signature] PAGE 12/5/23 1420
 Name Title/Organization Date/Time

Rel: [Signature] / PAGE 12/5/23 1700

Rec: FedEx 12/5/23 1700

Rel: FedEx
Rec:

Er: 17 12-6-23 900

DPAG 2.9 + 0 = 2.9

2-2

L1684250

LEWISVILLE

Deep Roots. Broad Wings. Bright Future.

ENVIRONMENTAL CONTROL SERVICES INSTRUCTIONS FOR ANALYSIS

LABORATORY: Pace Analytical Services Date: 12/4/2023 QMW

Containers
All 1 (L)(A)(G)

Well M-1	# 21580	Pres. With 3 mL H ₂ SO ₄
	# 21581	Cooled to 4.0°C only
	# 21582	Cooled to 4.0°C only
Well M-2	# 21583	Pres. With 3 mL H ₂ SO ₄
	# 21584	Cooled to 4.0°C only
	# 21585	Cooled to 4.0°C only
Well M-3	# 21586	Pres. With 3 mL H ₂ SO ₄
	# 21587	Cooled to 4.0°C only
	# 21588	Cooled to 4.0°C only
Well M-4	# 21589	Pres. With 3 mL H ₂ SO ₄
	# 21590	Cooled to 4.0°C only
	# 21591	Cooled to 4.0°C only

01
02
03
04

COMPOSITE AND ANALYZE EACH GROUP
OF WELL SAMPLES SEPARATELY FOR:

BID #17-09-A, ITEM #6-01
(Group A Monitoring Well Quarterly)

TURN AROUND TIME: NORMAL, SPECIFY OTHER Normal

A COPY OF THESE INSTRUCTIONS HAS BEEN MADE FOR OUR FILES. PLEASE
INCLUDE QA/QC AND MINIMUM DETECTION LIMITS WITH REPORT. PLEASE
REFER TO 40 CFR 136 FOR APPROVED ANALYTICAL METHODS. SOLID
WASTE METHODS ARE NOT ACCEPTABLE FOR WASTEWATER ANALYSIS.

NOTES: _____

SAMPLING PERSON: J. Maness & J. Tae

Ei J. Maness 17 12-6-23 900
DPA8 2.9+0=2.9

Document Name: Pace Analytical
 Document ID: 12/15/23
 Document Type: Sample Condition Upon Receipt

Sample Condition Upon Receipt

Dallas Ft Worth Corpus Christi Austin

Client Name: City of Louisville Project Work order (place label):

Courier: FedEx UPS USPS Client LSO PACE Other

Tracking #

Custody Seal on Cooler/Box: Yes No

Received on ice: Wet Dry No ice

Receiving Lab 1 Thermometer Used: 1218 Cooler Temp (C): 2.9 to 2.2 (Actual) 2.1 (Target)

Receiving Lab 2 Thermometer Used: Cooler Temp (C): (Actual) (Target)

Temperature should be placed freezing if container reflects the temperature receipt is which evidence of cooling is acceptable

Frage Person: AG Date: 12/15/23

Chain of Custody relinquished: Yes No

Sampler name & signature on COC: Yes No

Short HT analyses (< 72 hrs): Yes No

Login Person: OL Date: 12/15

Sufficient Volume received	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Correct Container used	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Container Intact	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Sample pH Acceptable	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
pH Strips:			
Residual Chlorine Present	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Cl Strips			
Sulfide Present	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Lead Acetate Strips:			
Are soil samples (volatiles, TPH) received in 5035A Kits (not applicable to TCLP VOA or PST Program TPH)	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Unpreserved 5035A soil frozen within 18 hrs	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Headspace in VOA (26mm)	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
Project sampled in USDA Regulated Area outside of Texas	Yes <input type="checkbox"/>	No <input type="checkbox"/>	NA <input checked="" type="checkbox"/>
State Sampled			
Non-Conformance(s)	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	

Labeling Person (if different than log in)

Ei Navarro 17 12-6-23 900
 DPAS 2.9 + 0 = 2.9

Date Collected 12/4/2023

Bottle Number	Type	Analysis	Preservation	Time Collected
21580	1 L (AG)	BID #17-09-A, ITEM #6-01	3 mL H ₂ SO ₄	9:38 AM
21581	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
21582	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
21583	1 L (AG)	BID #17-09-A, ITEM #6-01	3 mL H ₂ SO ₄	10:01 AM
21584	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
21585	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
21586	1 L (AG)	BID #17-09-A, ITEM #6-01	3 mL H ₂ SO ₄	10:23 AM
21587	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
21588	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
21589	1 L (AG)	BID #17-09-A, ITEM #6-01	3 mL H ₂ SO ₄	10:44 AM
21590	1 L (AG)	BID #17-09-A, ITEM #6-01	None	
21591	1 L (AG)	BID #17-09-A, ITEM #6-01	None	

LEWISVILLE

Deep Roots. Broad Wings. Bright Future.

**Environmental Control Services
Sampling Record and Field Notes
For Monitoring Wells
(PART I)**

Well M-1				Well M-2			
Date:	12/4/2023			Date:	12/4/2023		
Purge Start Time:	9:31 AM			Purge Start Time:	9:54 AM		
Purge End Time:	9:37 AM			Purge End Time:	10:00 AM		
Sample Time:	9:38 AM			Sample Time:	10:01 AM		
Containers & ID:	21580	21581	21582	Containers & ID:	21583	21584	21585
pH	6.76 S.U.	Temperature:	22.4 °C	pH	6.65 S.U.	Temperature:	20.6 °C
SpC Start:	1049 µS/cm	SpC End:	1045 µS/cm	SpC Start:	1326 µS/cm	SpC End:	1334 µS/cm
DO Start:	17.3 %	DO End:	13.40%	DO Start:	6.50%	DO End:	3.40%
Well M-3				Well M-4			
Date:	12/4/2023			Date:	12/4/2023		
Purge Start Time:	10:16 AM			Purge Start Time:	10:37 AM		
Purge End Time:	10:22 AM			Purge End Time:	10:43 AM		
Sample Time:	10:23 AM			Sample Time:	10:44 AM		
Containers & ID:	21586	21587	21588	Containers & ID:	21589	21590	21591
pH	6.88 S.U.	Temperature:	20.1 °C	pH	6.84 S.U.	Temperature:	23.4 °C
SpC Start:	1040 µS/cm	SpC End:	1035 µS/cm	SpC Start:	1131 µS/cm	SpC End:	1056 µS/cm
DO Start:	19.20%	DO End:	10.80%	DO Start:	12.90%	DO End:	11.60%

LEWISVILLE

Deep Roots. Broad Wings. Bright Future.

Environmental Control Services
Sampling Record and Field Notes
For Monitoring Wells
(PART II)

Well Number	M-1	M-2	M-3	M-4
Well Elevation in Feet	473.39	468.11	467.75	466.95
Static Level in Feet	15	15.4	17.8	17.8
MSL in Feet*	458.39	452.71	449.95	449.15
Total Well Depth in Feet	24.6	24.0	24.6	22.1
Well Volume in Feet**	9.6	8.6	6.8	4.3
Conversion Factor	0.6519	0.6519	0.6519	0.6519
Well Volume in Gallons***	6.26	5.61	4.43	2.80

* To Find MSL (Mean Sea Level), subtract Static Level from Well Elevation.

** To find Well Volume in feet, subtract Static Level from Pump Intake.

*** To find Well Volume in gallons ,multiply Well Volume in feet by Conversion Factor 0.1632

GROUNDWATER SAMPLING LOG

SITE NAME: <u>City of Louisville</u>	SITE LOCATION: <u>WWTP</u>	DATE: <u>12/4/23</u>
WELL NO: <u>QMW #1</u>	SAMPLE ID: <u>21580, 21581, 21582</u>	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: <u> </u> foot to <u> </u> foot	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):					
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mV)	TURBIDITY (NTUs)	COND. (circles units) <u>µmhos/cm</u> or <u>µS/cm</u>	DISSOLVED OXYGEN (circles units) <u>mg/L</u> or <u>% saturation</u>	COLOR & ODOR (describe)
<u>9:31a</u>				<u>15.0</u>	<u>22.0</u>	<u>6.78</u>	<u>52.4</u>		<u>1049</u>	<u>17.3</u>	
<u>9:34a</u>					<u>22.4</u>	<u>6.76</u>	<u>46.7</u>		<u>1049</u>	<u>15.0</u>	
<u>9:37a</u>					<u>22.4</u>	<u>6.76</u>	<u>44.3</u>		<u>1045</u>	<u>13.4</u>	
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.66; 6" = 1.02; 8" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal/Ft): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0025; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016 PURGING EQUIPMENT CODES: B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

246 fl.

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:		
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:				FIELD-FILTERED: Y N		FILTER SIZE: _____ µm		
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N				
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE		SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	S CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH						
REMARKS:												
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)												
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailor; BP = Bladder Pump; ESP = Electric Submersible Pump; RFP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)												

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS
 pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater)
 Turbidity: all readings ≤ 20 NTU, optionally ± 5 NTU or ± 10% (whichever is greater)

GROUNDWATER SAMPLING LOG

SITE NAME: <u>City of Lewisville</u>	SITE LOCATION: <u>WWTP</u>	DATE: <u>12/4/23</u>
WELL NO: <u>QMW #2</u>	SAMPLE ID: <u>21583, 21584, 21585</u>	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: <u> </u> feet to <u> </u> feet	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable)											
= (<u> </u> feet - <u> </u> feet) X <u> </u> gallons/foot = <u> </u> gallons											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable)											
= <u> </u> gallons + (<u> </u> gallons/foot X <u> </u> feet) + <u> </u> gallons = <u> </u> gallons											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):					
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mV)	TURBIDITY (NTUs)	COND. (circle units) <u>µS/cm</u>	DISSOLVED OXYGEN (circle units) <u>% saturation</u>	COLOR & OOR (describe)
<u>9:54A</u>				<u>15.4</u>	<u>20.4</u>	<u>6.63</u>	<u>58.7</u>		<u>1326</u>	<u>6.5</u>	
<u>9:57A</u>					<u>20.6</u>	<u>6.65</u>	<u>56.0</u>		<u>1332</u>	<u>9.9</u>	
<u>10:00A</u>					<u>20.6</u>	<u>6.65</u>	<u>54.4</u>		<u>1334</u>	<u>3.4</u>	
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.16; 3" = 0.37; 4" = 0.65; 6" = 1.02; 8" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./ft): 1/8" = 0.0006; 3/16" = 0.0014; 1/4" = 0.0025; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.016 PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:		
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:				FIELD-FILTERED: Y N		FILTER SIZE: _____ µm		
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N				
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE		SAMPLE PUMP FLOW RATE (mL per minute)
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH						
REMARKS:												
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)												
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RPPP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)												

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS
 pH: ± 0.2 units; Temperature: ± 0.2 °C; Specific Conductance: ± 5%; Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater)
 Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)

24.0

GROUNDWATER SAMPLING LOG

SITE NAME: <i>City of Lewisville</i>	SITE LOCATION: <i>WWTP</i>	DATE: <i>12/4/23</i>
WELL NO: <i>QMW #3</i>	SAMPLE ID: <i>21586, 21587, 21588</i>	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: <small>foot to foot</small>	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY <small>(only fill out if applicable)</small>											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME <small>(only fill out if applicable)</small>											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		TOTAL VOLUME PURGED (gallons):							
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mV)	TURBIDITY (NTUs)	COND. (micro mhos/cm @ 25°C)	DISSOLVED OXYGEN (mg/L or % saturation)	COLOR & ODOR (describe)
<i>24.6ft.</i> 10:16a				17.8	19.8	6.88	57.2		1040	19.2	
10:19a					20.1	6.87	57.0		1037	9.8	
10:22a					20.1	6.88	57.1		1035	10.8	
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.18; 3" = 0.37; 4" = 0.65; 6" = 1.02; 8" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal/ft): 1/8" = 0.0008; 3/16" = 0.0014; 1/4" = 0.0028; 5/16" = 0.004; 3/8" = 0.008; 1/2" = 0.016; 5/8" = 0.016 PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:	
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:				FIELD-FILTERED: Y N		FILTER SIZE: _____ µm	
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL ADDED IN FIELD (mL)	FINAL pH					
REMARKS:											
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)											
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)											

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater)
 Turbidity: all readings ≤ 20 NTU; optionally ± 6 NTU or ± 10% (whichever is greater)

GROUNDWATER SAMPLING LOG

SITE NAME: <u>City of Lewisville</u>	SITE LOCATION: <u>WWTP</u>	DATE: <u>12/4/23</u>
WELL NO: <u>QMW #4</u>	SAMPLE ID: <u>21589, 21590, 21591</u>	

PURGING DATA

WELL DIAMETER (inches):	TUBING DIAMETER (inches):	WELL SCREEN INTERVAL DEPTH: <u> </u> foot to <u> </u> foot	STATIC DEPTH TO WATER (feet):	PURGE PUMP TYPE OR BAILER:							
WELL VOLUME PURGE: 1 WELL VOLUME = (TOTAL WELL DEPTH - STATIC DEPTH TO WATER) X WELL CAPACITY (only fill out if applicable) = (<u> </u> foot - <u> </u> foot) X <u> </u> gallons/foot = <u> </u> gallons											
EQUIPMENT VOLUME PURGE: 1 EQUIPMENT VOL. = PUMP VOLUME + (TUBING CAPACITY X TUBING LENGTH) + FLOW CELL VOLUME (only fill out if applicable) = <u> </u> gallons + (<u> </u> gallons/foot X <u> </u> feet) + <u> </u> gallons = <u> </u> gallons											
INITIAL PUMP OR TUBING DEPTH IN WELL (feet):		FINAL PUMP OR TUBING DEPTH IN WELL (feet):		PURGING INITIATED AT:	PURGING ENDED AT:	TOTAL VOLUME PURGED (gallons):					
TIME	VOLUME PURGED (gallons)	CUMUL. VOLUME PURGED (gallons)	PURGE RATE (gpm)	DEPTH TO WATER (feet)	TEMP. (°C)	pH (standard units)	ORP (mV)	TURBIDITY (NTU)	COND. (circle units) <u> </u> <small>µmhos/cm at 25°C</small>	DISSOLVED OXYGEN (circle units) <u> </u> <small>mg/L at saturation</small>	COLOR & ODOR (describe)
<u>22.2ft</u> 10:37a				<u>17.8</u>	<u>22.9</u>	<u>6.82</u>	<u>61.9</u>		<u>1131</u>	<u>12.9</u>	
10:40a					<u>23.4</u>	<u>6.84</u>	<u>60.9</u>		<u>1066</u>	<u>12.9</u>	
10:43a					<u>23.4</u>	<u>6.84</u>	<u>61.4</u>		<u>1056</u>	<u>11.6</u>	
WELL CAPACITY (Gallons Per Foot): 0.75" = 0.02; 1" = 0.04; 1.25" = 0.06; 2" = 0.18; 3" = 0.37; 4" = 0.65; 6" = 1.02; 8" = 1.47; 12" = 5.88 TUBING INSIDE DIA. CAPACITY (Gal./Ft.): 1/8" = 0.0008; 3/16" = 0.0014; 1/4" = 0.0026; 5/16" = 0.004; 3/8" = 0.006; 1/2" = 0.010; 5/8" = 0.018 PURGING EQUIPMENT CODES: B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; PP = Peristaltic Pump; O = Other (Specify)											

SAMPLING DATA

SAMPLED BY (PRINT) / AFFILIATION:				SAMPLER(S) SIGNATURE(S):				SAMPLING INITIATED AT:		SAMPLING ENDED AT:	
PUMP OR TUBING DEPTH IN WELL (feet):				TUBING MATERIAL CODE:				FIELD-FILTERED: Y N		FILTER SIZE: <u> </u> µm	
FIELD DECONTAMINATION: PUMP Y N				TUBING Y N (replaced)				DUPLICATE: Y N			
SAMPLE CONTAINER SPECIFICATION				SAMPLE PRESERVATION				INTENDED ANALYSIS AND/OR METHOD		SAMPLING EQUIPMENT CODE	
SAMPLE ID CODE	# CONTAINERS	MATERIAL CODE	VOLUME	PRESERVATIVE USED	TOTAL VOL. ADDED IN FIELD (mL)	FINAL pH					
REMARKS:											
MATERIAL CODES: AG = Amber Glass; CG = Clear Glass; PE = Polyethylene; PP = Polypropylene; S = Silicone; T = Teflon; O = Other (Specify)											
SAMPLING EQUIPMENT CODES: APP = After Peristaltic Pump; B = Bailer; BP = Bladder Pump; ESP = Electric Submersible Pump; RFP = Reverse Flow Peristaltic Pump; SM = Straw Method (Tubing Gravity Drain); O = Other (Specify)											

STABILIZATION CRITERIA FOR RANGE OF VARIATION OF LAST THREE CONSECUTIVE READINGS

pH: ± 0.2 units Temperature: ± 0.2 °C Specific Conductance: ± 5% Dissolved Oxygen: all readings ≤ 20% saturation; optionally, ± 0.2 mg/L or ± 10% (whichever is greater)
 Turbidity: all readings ≤ 20 NTU; optionally ± 5 NTU or ± 10% (whichever is greater)



LEWISVILLE
Deep Roots. Broad Wings. Bright Future.

Quarterly Monitoring Wells and Swim Beaches MPN

Water System/Source: Monitoring Well (COL) Lake Lewisville
 Collection Point: QMW #1 Date & Time: 12/4/23 @ 9:38 AM
 Well Chlorine Residual: _____ MPN (Colilert) E. coli: 0 per 100 ml

Water System/Source: Monitoring Well (COL) Lake Lewisville
 Collection Point: QMW #2 Date & Time: 12/4/23 @ 10:01 AM
 Well Chlorine Residual: _____ MPN (Colilert) E. coli: 0 per 100 ml

Water System/Source: Monitoring Well (COL) Lake Lewisville
 Collection Point: QMW #3 Date & Time: 12/4/23 @ 10:23 AM
 Well Chlorine Residual: _____ MPN (Colilert) E. coli: 0 per 100 ml

Water System/Source: Monitoring Well (COL) Lake Lewisville
 Collection Point: QMW #4 Date & Time: 12/4/23 @ 10:44 AM
 Well Chlorine Residual: _____ MPN (Colilert) E. coli: 0 per 100 ml

Relinquished by: [Signature] Date & Time: 10:50p 12-4-23
 Received by: Calvin Ingram Date & Time: 10:50p 12-4-23
 Analyzed by: Calvin Ingram Date & Time (began): 12-4-23 @ 11:00 AM
 Results Reported Date & Time: 12-5-23 12:00p

ATTACHMENT 17

Domestic Worksheet 5.0

Toxicity Testing Requirements

Section 3. Summary of WET Tests

Test Number	Test Date	Test Species	NOEC Survival	NOEC Sub-lethal
1	1/6/2021	Ceriodaphnia Dubia	40	pass
2	1/6/2021	Pimephales Promelas	40	pass
3	1/6/2021	Pimephales Promelas	Acute - Pass	N/A
4	1/6/2021	Daphnia Pulex	Acute - Pass	N/A
5	4/6/2021	Ceriodaphnia Dubia	40	pass
6	4/6/2021	Pimephales Promelas	40	pass
7	7/6/2021	Ceriodaphnia Dubia	40	pass
8	7/6/2021	Pimephales Promelas	40	pass
9	7/6/2021	Pimephales Promelas	Acute - Pass	N/A
10	7/6/2021	Daphnia Pulex	Acute - Pass	N/A
11	10/5/2021	Ceriodaphnia Dubia	40	pass
12	10/5/2021	Pimephales Promelas	40	pass
13	1/4/2022	Ceriodaphnia Dubia	40	pass
14	1/4/2022	Pimephales Promelas	40	pass
15	1/4/2022	Pimephales Promelas	Acute - Pass	N/A
16	1/4/2022	Daphnia Pulex	Acute - Pass	N/A
17	4/5/2022	Ceriodaphnia Dubia	40	pass
18	4/5/2022	Pimephales Promelas	40	pass
19	7/12/2022	Ceriodaphnia Dubia	40	pass
20	7/12/2022	Pimephales Promelas	40	pass
21	7/12/2022	Pimephales Promelas	Acute - Pass	N/A
22	7/12/2022	Daphnia Pulex	Acute - Pass	N/A
23	10/25/2022	Ceriodaphnia Dubia	40	pass
24	10/25/2022	Pimephales Promelas	40	pass
25	1/10/2023	Ceriodaphnia Dubia	40	pass
26	1/10/2023	Pimephales Promelas	40	pass
27	1/10/2023	Pimephales Promelas	Acute - Pass	N/A
28	1/10/2023	Daphnia Pulex	Acute - Pass	N/A
29	4/23/2023	Ceriodaphnia Dubia	40	pass

30	4/23/2023	Pimephales Promelas	40	pass
31	7/11/2023	Pimephales Promelas	40	pass
32	7/11/2023	Daphnia Pulex	40	pass
33	7/11/2023	Ceriodaphnia Dubia	Acute - Pass	N/A
34	7/11/2023	Pimephales Promelas	Acute - Pass	N/A
35	10/3/2023	Ceriodaphnia Dubia	Failed(Passed on retest)	pass
36	10/3/2023	Pimephales Promelas	40	pass
37	1/9/2024	Pimephales Promelas	40	pass
38	1/9/2024	Daphnia Pulex	40	pass
39	1/9/2024	Ceriodaphnia Dubia	Acute - Pass	N/A
40	1/9/2024	Pimephales Promelas	Acute - Pass	N/A
41	4/2/2024	Ceriodaphnia Dubia	40	pass
42	4/2/2024	Pimephales Promelas	40	pass
43	8/27/2024	Pimephales Promelas	40	pass
44	8/27/2024	Daphnia Pulex	40	pass
45	8/27/2024	Ceriodaphnia Dubia	Acute - Pass	N/A
46	8/27/2024	Pimephales Promelas	Acute - Pass	N/A
47	10/8/2024	Ceriodaphnia Dubia	40	pass
48	10/8/2024	Pimephales Promelas	40	pass

ATTACHMENT 18

Domestic Worksheet 6.0

Industrial Waste Contribution

(C) Effluent Parameters Above The MAL

Domestic Worksheet: Industrial Waste Contribution Part 2C Table 6.0 (1)

Pollutant	Concentration (µg/l)	MAL (µg/l)	Date	Pollutant	Concentration (µg/l)	MAL (µg/l)	Date	Pollutant	Concentration (µg/l)	MAL (µg/l)	Date
Arsenic	0.98	1	1/20/2022	Arsenic	0.773	0.5	1/19/2023	Arsenic	1.2	0.5	1/11/2024
Arsenic	0.96	1	5/18/2022	Copper	3.53	2	1/19/2023	Mercury	0.00131	0.0005	1/11/2024
Arsenic	2.27	1	9/20/2022	Nickel	3.26	2	1/19/2023	Nickel	2.84	2	1/11/2024
Arsenic	1.51	1	11/15/2022	Zinc	25.3	5	1/19/2023	Zinc	14.3	5	1/11/2024
Arsenic	0.842	1	2/22/2022	Aluminum	11.8	2.5	1/19/2023	Aluminum	11.8	2.5	1/11/2024
Arsenic	0.767	1	3/23/2022	Barium	24.3	3	1/19/2023	Barium	21.8	3	1/11/2024
Arsenic	0.81	1	4/21/2022	Nitrate-Nitrogen	2349.36	100	1/19/2023	Fluoride	642	500	1/11/2024
Arsenic	1.36	1	6/15/2022	Arsenic	1.07	0.5	2/15/2023	Nitrate-Nitrogen	1251.4	100	1/11/2024
Arsenic	3.87	1	7/19/2022	Copper	2.15	2	2/15/2023	Arsenic	1.1	0.5	2/15/2024
Arsenic	2.55	1	8/24/2022	Nickel	2.81	2	2/15/2023	Copper	2.54	2	2/15/2024
Arsenic	1.56	1	10/26/2022	Zinc	13.6	5	2/15/2023	Nickel	5.09	2	2/15/2024
Arsenic	0.967	1	12/21/2022	Arsenic	0.833	0.5	3/15/2023	Thallium	0.697	0.5	2/15/2024
Beryllium	19.3	1	9/20/2022	Copper	3.3	2	3/15/2023	Zinc	8.2	5	2/15/2024
Copper	12.3	2	1/20/2022	Nickel	2.22	2	3/15/2023	Arsenic	1.31	0.5	3/14/2024
Copper	2.63	2	5/18/2022	Zinc	24.6	5	3/15/2023	Copper	2.75	2	3/14/2024
Copper	4.29	2	9/20/2022	Arsenic	0.928	0.5	4/26/2023	Nickel	4.56	2	3/14/2024
Copper	2.03	2	7/19/2022	Copper	2.26	2	4/26/2023	Zinc	12.3	5	3/14/2024
Copper	2.17	2	8/24/2022	Nickel	2.85	2	4/26/2023	Arsenic	0.953	0.5	4/24/2024
Copper	2.4	2	10/26/2022	Zinc	29.4	5	4/26/2023	Copper	2.51	2	4/24/2024
Copper	2.98	2	12/21/2022	Arsenic	0.964	0.5	5/24/2023	Mercury	0.24	0.0005	4/24/2024
Copper	3.99	2	11/15/2022	Copper	2.37	2	5/24/2023	Nickel	2.66	2	4/24/2024
Mercury	0.0291	0.0005	11/15/2022	Nickel	2.88	2	5/24/2023	Zinc	12	5	4/24/2024
Nickel	3.53	2	1/20/2022	Zinc	18.4	5	5/24/2023	Arsenic	1.23	0.5	5/15/2024
Nickel	3.94	2	5/18/2022	Arsenic	1.83	0.5	6/21/2023	Copper, Total	2.54	2	5/15/2024
Nickel	2.88	2	9/20/2022	Copper	2.55	2	6/21/2023	Mercury	0.000761	0.0005	5/15/2024
Nickel	2.69	2	11/15/2022	Nickel	2.99	2	6/21/2023	Nickel	3.2	2	5/15/2024
Nickel	3.16	2	2/22/2022	Zinc	22.7	5	6/21/2023	Zinc, Total	13.7	5	5/15/2024
Nickel	3.45	2	3/23/2022	Arsenic	2.64	0.5	7/19/2023	Arsenic	1.26	0.5	6/5/2024
Nickel	3.79	2	4/21/2022	Copper	2.42	2	7/19/2023	Copper	2.11	2	6/5/2024
Nickel	3.89	2	6/15/2022	Nickel	2.56	2	7/19/2023	Nickel	3.16	2	6/5/2024
Nickel	22.7	5	1/20/2022	Zinc	19.8	5	7/19/2023	Zinc, Total	17.8	5	6/5/2024
Zinc	23.7	5	5/18/2022	Cyanide, Total	22	10	7/19/2023	Arsenic	1.67	0.5	7/17/2024
Zinc	21	5	9/20/2022	Chloroform	18.5	10	7/19/2023	Copper	3.27	2	7/17/2024
Zinc	23.4	5	11/15/2022	Aluminum	19.5	2.5	7/19/2023	Mercury	0.000738	0.0005	7/17/2024
Zinc	18.7	5	2/22/2022	Barium	16.8	3	7/19/2023	Nickel	2.98	2	7/17/2024
Zinc	20.3	5	3/23/2022	TTHM	30	10	7/19/2023	Thallium	0.618	0.5	7/17/2024
Zinc	34.8	5	4/21/2022	Arsenic	1.77	0.5	8/16/2023	Zinc	17.2	5	7/17/2024
Zinc	22.5	5	6/15/2022	Chromium, Total	26.3	3	8/16/2023	Arsenic	2.32	0.5	8/21/2024
Zinc	21.6	5	7/19/2022	Copper	5.99	2	8/16/2023	Copper	4.95	2	8/21/2024
Zinc	25.6	5	8/24/2022	Nickel	101	2	8/16/2023	Nickel	3.07	2	8/21/2024
Zinc	21.7	5	10/26/2022	Zinc	27.1	5	8/16/2023	Zinc	10.9	5	8/21/2024
Zinc	18.8	5	12/21/2022	Arsenic	2.49	0.5	9/13/2023	Phenols	10.8	10	8/21/2024
Phenols	44.3	10	3/22/2022	Chromium, Total	10.5	3	9/13/2023	Aluminum	12.1	2.5	8/21/2024
Phenols	134	10	7/19/2022	Copper	3.89	2	9/13/2023	Barium	21.1	3	8/21/2024
Phenols	13.9	10	1/20/2022	Nickel	44.3	2	9/13/2023	Chlorpyrifos	0.575	0.05	8/21/2024
Phenols	16.6	10	5/18/2022	Zinc	18.7	5	9/13/2023	Diazinon	0.59	0.05	8/21/2024
Phenols	277	10	11/15/2022	Arsenic	1.89	0.5	10/18/2023	Nitrate-Nitrogen	587.37	100	8/21/2024
Barium	18.5	3	1/19/2022	Chromium, Total	6.03	3	10/18/2023	Arsenic	1.3	0.5	9/11/2024
Barium	19.3	3	9/20/2022	Nickel	26.2	2	10/18/2023	Copper	4.86	2	9/11/2024
Aluminum	8.7	3	1/19/2022	Zinc	16.8	5	10/18/2023	Nickel	2.45	2	9/11/2024
Nitrate-Nitrogen	10200	100	1/19/2022	Arsenic	1.11	0.5	11/15/2023	Zinc	19.2	5	9/11/2024
Nitrate-Nitrogen	9400	100	9/20/22	Chromium, Total	14.4	3	11/15/2023	Arsenic	1.4	0.5	10/8/2024
				Copper	2.18	2	11/15/2023	Copper	3.84	2	10/8/2024
				Nickel	53.5	2	11/15/2023	Nickel	2.35	2	10/8/2024
				Zinc	16.9	5	11/15/2023	Zinc	23	5	10/8/2024
				Arsenic	1.03	0.5	12/13/2023	Zinc	23.4	5	11/20/2024
				Copper	2.03	2	12/13/2023	Copper	3.1	2	12/18/2024
				Nickel	2.31	2	12/13/2023	Nickel	2.6	2	12/18/2024
				Zinc	22.3	5	12/13/2023	Zinc	24.4	5	12/18/2024



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
**DOMESTIC WASTEWATER PERMIT APPLICATION
 ADMINISTRATIVE REPORT 1.0**

For any questions about this form, please contact the Applications Review and Processing Team at 512-239-4671.

Section 1. Application Fees (Instructions Page 26)

Indicate the amount submitted for the application fee (check only one).

Flow	New/Major Amendment	Renewal
<0.05 MGD	\$350.00 <input type="checkbox"/>	\$315.00 <input type="checkbox"/>
≥0.05 but <0.10 MGD	\$550.00 <input type="checkbox"/>	\$515.00 <input type="checkbox"/>
≥0.10 but <0.25 MGD	\$850.00 <input type="checkbox"/>	\$815.00 <input type="checkbox"/>
≥0.25 but <0.50 MGD	\$1,250.00 <input type="checkbox"/>	\$1,215.00 <input type="checkbox"/>
≥0.50 but <1.0 MGD	\$1,650.00 <input type="checkbox"/>	\$1,615.00 <input type="checkbox"/>
≥1.0 MGD	\$2,050.00 <input type="checkbox"/>	\$2,015.00 <input checked="" type="checkbox"/>

Minor Amendment (for any flow) \$150.00

Payment Information:

Mailed Check/Money Order Number: 420718
 Check/Money Order Amount: \$2015.00
 Name Printed on Check: City of Lewisville
 EPAY Voucher Number: Click to enter text.
 Copy of Payment Voucher enclosed? Yes

Section 2. Type of Application (Instructions Page 26)

- a. Check the box next to the appropriate authorization type.
- Publicly-Owned Domestic Wastewater
 - Privately-Owned Domestic Wastewater
 - Conventional Wastewater Treatment
- b. Check the box next to the appropriate facility status.
- Active Inactive



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.) <input type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.) <input checked="" type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)			<input type="checkbox"/> Other
2. Customer Reference Number (if issued) CN 600535140	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number (if issued) RN 102075298	

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)	
<input type="checkbox"/> New Customer <input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)		<input type="checkbox"/> Update to Customer Information <input type="checkbox"/> Change in Regulated Entity Ownership	
<i>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).</i>			
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)		If new Customer, enter previous Customer below:	
City of Lewisville			
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:		<input type="checkbox"/> Corporation <input type="checkbox"/> Individual Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited	
Government: <input checked="" type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship <input type="checkbox"/> Other:	
12. Number of Employees		13. Independently Owned and Operated?	
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input checked="" type="checkbox"/> 501 and higher		<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following			
<input type="checkbox"/> Owner <input type="checkbox"/> Operator <input checked="" type="checkbox"/> Owner & Operator <input type="checkbox"/> Other: <input type="checkbox"/> Occupational Licensee <input type="checkbox"/> Responsible Party <input type="checkbox"/> VCP/BSA Applicant			
15. Mailing Address:	P.O. Box 299002		
City	State	ZIP	ZIP + 4
Lewisville	TX	75029	
16. Country Mailing Information (if outside USA)		17. E-Mail Address (if applicable)	
		cwest@cityoflewisville.com	
18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)	
972-219-5051			

<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input checked="" type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input checked="" type="checkbox"/> Wastewater	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:

TX0610004
TXR0SDE73
WA001066200

SECTION IV: Preparer Information

40. Name:	Katelyn Hearon			41. Title:	Assistant Director of Public Services
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address		
(972) 219-3509		() -	khearon@cityoflewisville.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:	City of Lewisville	Job Title:	Assistant Director of Public Services		
Name (In Print):	Katelyn Hearon	Phone:	(972) 219-3509		
Signature:	Katelyn Hearon	Date:	3/31/2025		

ATTACHMENT 4

Core Data



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.) <input type="checkbox"/> New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.) <input checked="" type="checkbox"/> Renewal (Core Data Form should be submitted with the renewal form)			<input type="checkbox"/> Other		
2. Customer Reference Number (if issued) CN 600535140		Follow this link to search for CN or RN numbers in Central Registry**		3. Regulated Entity Reference Number (if issued) RN 102075298	

SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)			
<input type="checkbox"/> New Customer		<input type="checkbox"/> Update to Customer Information		<input type="checkbox"/> Change in Regulated Entity Ownership	
<input type="checkbox"/> Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)					
<i>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).</i>					
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)				If new Customer, enter previous Customer below:	
City of Lewisville					
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:		<input type="checkbox"/> Corporation		<input type="checkbox"/> Individual	Partnership: <input type="checkbox"/> General <input type="checkbox"/> Limited
Government: <input checked="" type="checkbox"/> City <input type="checkbox"/> County <input type="checkbox"/> Federal <input type="checkbox"/> Local <input type="checkbox"/> State <input type="checkbox"/> Other		<input type="checkbox"/> Sole Proprietorship		<input type="checkbox"/> Other:	
12. Number of Employees				13. Independently Owned and Operated?	
<input type="checkbox"/> 0-20 <input type="checkbox"/> 21-100 <input type="checkbox"/> 101-250 <input type="checkbox"/> 251-500 <input checked="" type="checkbox"/> 501 and higher				<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following					
<input type="checkbox"/> Owner		<input type="checkbox"/> Operator		<input checked="" type="checkbox"/> Owner & Operator	<input type="checkbox"/> Other:
<input type="checkbox"/> Occupational Licensee		<input type="checkbox"/> Responsible Party		<input type="checkbox"/> VCP/BSA Applicant	
15. Mailing Address:		P.O. Box 299002			
City		Lewisville	State	TX	ZIP
				75029	ZIP + 4
16. Country Mailing Information (if outside USA)				17. E-Mail Address (if applicable)	
				cwestecityoflewisville.com	
18. Telephone Number		19. Extension or Code		20. Fax Number (if applicable)	
972-219-5051					

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.)

Prairie Creek Wastewater Treatment Plant

23. Street Address of the Regulated Entity: <i>(No PO Boxes)</i>	897 Treatment Plant Rd						
	City	Lewisville	State	TX	ZIP	75057	ZIP + 4
24. County	Denton						

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

25. Description to Physical Location:		
26. Nearest City	State	Nearest ZIP Code

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:			28. Longitude (W) In Decimal:		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds

29. Primary SIC Code (4 digits) 4952	30. Secondary SIC Code (4 digits) 9199	31. Primary NAICS Code (5 or 6 digits) 221320	32. Secondary NAICS Code (5 or 6 digits) 921140
---	---	--	--

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

Local Government ; Municipal owned WWTP

34. Mailing Address:	P.O. Box 299002						
	City	Lewisville	State	TX	ZIP	75029	ZIP + 4

35. E-Mail Address: cwest@cityoflewisville.com

36. Telephone Number	37. Extension or Code	38. Fax Number (if applicable)
972-29-5051		() -

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.

<input type="checkbox"/> Dam Safety	<input type="checkbox"/> Districts	<input type="checkbox"/> Edwards Aquifer	<input type="checkbox"/> Emissions Inventory Air	<input type="checkbox"/> Industrial Hazardous Waste
<input type="checkbox"/> Municipal Solid Waste	<input type="checkbox"/> New Source Review Air	<input type="checkbox"/> OSSF	<input type="checkbox"/> Petroleum Storage Tank	<input checked="" type="checkbox"/> PWS
<input type="checkbox"/> Sludge	<input checked="" type="checkbox"/> Storm Water	<input type="checkbox"/> Title V Air	<input type="checkbox"/> Tires	<input type="checkbox"/> Used Oil
<input type="checkbox"/> Voluntary Cleanup	<input checked="" type="checkbox"/> Wastewater	<input type="checkbox"/> Wastewater Agriculture	<input type="checkbox"/> Water Rights	<input type="checkbox"/> Other:
	TXR05DE73			TX0610004
	WQ001066200			

SECTION IV: Preparer Information

40. Name:	Katelyn Hearon			41. Title:	Assistant Director of Public Services
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address		
(972) 219-3509		() -	khearon@cityoflewisville.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:	City of Louisville	Job Title:	Assistant Director of Public Services
Name (In Print):	Katelyn Hearon	Phone:	(972) 219-3509
Signature:	Katelyn Hearon	Date:	3/31/2025

ATTACHMENT 5

Section 2 (A) Treatment Process

Domestic Technical Report 1.0

Technical Report 2(A)

Detailed Description of the treatment Process

The City of Lewisville has been in the Interim II Phase of the permit since Phase I expired on September 1, 2001.

INTERIM II PHASE

Design capacity for the Prairie Creek Wastewater Treatment Plant consists of:

- *3.22 MGD (Completed 1974) Conventional Activated Sludge, Plant #1.
- *3.0 MGD (Completed 1988) Conventional Activated Sludge, Plant #2, Trains #1 and #2
- *2.78 MGD Trickling Filter, Solids Contact obtained from Treatment train #3.
- *3.0 MGD (Completed 2-2007) Conventional Activated Sludge, Plant #2 Treatment train #3.
- *3.0 MGD (Completed 7-2014) Conventional Activated Sludge, Plant #2 Treatment train #4.

In July 2014, the City of Lewisville completed the expansion of Prairie Creek Wastewater Treatment Plant. One Aeration Basin and one Clarifier were added. The influent wastewater flow enters the first stage of treatment at Prairie Creek Wastewater Treatment Plant at the automatic Bar Screen located at the head works. Influent flow is then pumped from three 2-speed pumps and three variable-speed pumps to the Fine Screen Splitter Box, where weir gates divide and direct the flow to any of the five Fine Screens on an elevated deck.

Fine Screens

The screens are rotary-drum type. Each screen has a nominal diameter of 5 feet and an overall length of 18 feet. Each is rated for a peak flow of 15 MGD. Screen openings are 0.060-inch, and screening efficiency is similar to that of a 20-mesh screen. In the Interim II phase (15 MGD Completed 2-19-2007), a second Fine Screen splitter box and fourth and fifth rotary drum were added. These screens are identical to the original screens.

In July 2015, the City of Lewisville completed the Prairie Creek Wastewater Treatment Plant Odor Abatement project. The fine screens and grit units were upgraded with a bioscrubber, 6400 CFM fan, and all associated valves and piping.

Grit Removal

By gravity, flow proceeds from the Fine Screens into the two Vortex Grit Units. This facility consists of two parallel vortex Grit units with bypass piping for the units. Grit is collected in floor hoppers and then pumped by two suction lift pumps to two gravity concentrators with a spiral screw classifier delivered to a disposal container. The Vortex Grit removal system was completed in July 2015.

Aeration Splitter Box

The flow then splits between three separate treatment plants. In the Interim II Phase (15 MGD Completed 2-2007), a fourth splitter box was added to provide flow to the new treatment train.

Treatment Plant #1

Aeration Basins:

Flow proceeds from the Aeration Splitter Box by gravity into two Aeration Basins that operate in parallel. Each basin is 123 feet long, 40 feet wide, and has a water depth of 12 feet. Each basin is supplied with ceramic fine bubble aeration diffusers.

Final Clarifiers:

From the Plant #1 Aeration Basins, flow proceeds to the two Plant #1 Final Clarifiers, which are arranged to operate in parallel. Each has a diameter of 85 feet and a water depth of 10 feet.

Activated Sludge Pumping:

Return-activated sludge (RAS) pumps are driven by variable speed controls and draw from the sludge-wet well located on the north side of the building. Waste-activated sludge (WAS) pumps draw from the same wet well and operate on a timed basis.

Treatment Plant #2

Aeration Basins:

Flow proceeds from the Aeration Splitter Box by gravity into four Aeration Basins that operate in parallel. Each basin is 232 feet long, 40 feet wide, and has a water depth of 12 feet. Each basin is supplied with membrane fine bubble aeration diffusers.

Final Clarifiers:

From the Plant #2 Aeration Basins, flow proceeds to the four Plant #2 Final Clarifiers, which are arranged to operate in parallel. Each clarifier has a diameter of 110 feet and a water depth of 16 feet.

A third Aeration Basin and Clarifier were added in the Interim II phase (Completed 2-2007). The Aeration Basin and Clarifier are identical to the original ones. In the Interim II phase (Completed 7-2014), a fourth Aeration basin and Clarifier were added. The Aeration Basin and Clarifier are identical to the original ones.

Activated Sludge Pumping:

Each clarifier has dedicated sludge pumps. Return-activated sludge (RAS) pumps are driven by variable-frequency drive controls and draw from the suction and on the clarifier. Waste-activated sludge is siphoned off the RAS line, and waste is controlled manually.

Treatment Plant #3

Trickling Filters:

Flow proceeds from the Aeration Splitter Box by gravity into two rock media Trickling Filters that operate in parallel. Each Trickling Filter is 100 feet in diameter and 6 feet in depth.

Solids Contact Basins:

From the Trickling Filters, flow proceeds to the Plant #3 Solids Contact Basin. Each basin is 43 feet long, 24 feet wide, and has a 15-foot water depth. It is supplied with ceramic fine bubble aeration diffusers.

Final Clarifiers:

The Clarifiers are arranged to operate in parallel. Each has a diameter of 95 feet and a water depth of 12 feet.

Activated Sludge Pumping:

Each clarifier has dedicated sludge pumps. Return-activated sludge (RAS) pumps are driven by variable-frequency drive controls and draw from the suction and on the clarifier. Waste-activated sludge (WAS) pumps also draw from the suction manifold and operate on a timed basis.

Sand Filters

The treated Effluent from Plants #1, #2, and #3 recombine at the five chlorinated Sand Filters. Each Sand Filter is 100 feet long, 16 feet wide, and 6 feet deep, with a media depth of 12 inches. The fifth Sand Filter was added in the Interim II phase (15 MGD Completed 2-19-2007). The size of the new sand filter is identical to that of the original units.

New media was installed in the five Sand filters in June and July 2016.

Contact Basins

Flow from the Sand Filters then flows to one of the two Chlorine Contact Basins. Each Contact Basin is 142 feet long and 25 feet wide. In the Interim II phase (15 MGD), modifications were made to the effluent troughs of Each Contact Basin to accommodate the increase in peak flow.

Plant Water Pump Station

Flow from the Contact Basin then flows to the Plant Water Pump Station. At the Plant Water Pump Station, six pumps supply plant water for the following systems:

- a. Chlorine solution ejectors.
- b. Water seal lubrication for pumps
- c. Cleaning sprays for the Fine Screens, Clarifiers, Wash down and Filter Belt Presses.

Dechlorination

As the flow leaves the Plant Water Pump Station before it reaches the Plant Flow, the meter and Flume are directed through the Sulfur Dioxide Inducers, where Sulfur Dioxide is added to remove the remaining residual chlorine.

Flume

Flow then enters the 72-inch Parshall Flume, where an ultrasonic level flow meter records it for permanent record. The flow is then discharged to outfall 001 to Prairie Creek, thence to the Elm Fork Trinity River below Lewisville Lake in segment No. 0822 of the Trinity River Basin.

Disinfection

Chlorine:

The Chlorine Building houses one-ton chlorine containers, chlorine feed equipment, and handling facilities, including the one-ton container tracks and cranes. Four parallel chlorinators feed the chlorine gas; all four are manually operated feeders.

Sulfur Dioxide:

The Sulfur Dioxide Building houses one-ton sulfur dioxide containers, feed equipment, and handling facilities, including ton container racks and cranes. Three parallel Sulfunators feed the gas: all three are manually operated feeders.

Solids Handling

Waste Waste-activated sludge is discharged to one of three Aerobic Digesters with the volumes as listed:

Digester #1, volume 1,159,400 gallons.

Digester #2, volume 1,107,040 gallons.

Digester #3, volume 2,393,600 gallons.

Waste sludge from the Digester is dewatered by one of two 2-meter Filter Belt Presses into roll-off containers and transported to a Type 1 landfill.

*Based on 317 Design Criteria for Domestic Wastewater Systems

Dechlorination

As the flow leaves the Plant Water Pump Station before it reaches the Plant Flow, the meter and Flume are directed through the Sulfur Dioxide Inducers, where Sulfur Dioxide is added to remove the remaining residual chlorine.

Flume

Flow then enters the 72-inch Parshall Flume, where an ultrasonic level flow meter records it for permanent record. The flow is then discharged to outfall 001 to Prairie Creek, thence to the Elm Fork Trinity River below Lewisville Lake in segment No. 0822 of the Trinity River Basin.

Disinfection

Chlorine:

The Chlorine Building houses one-ton chlorine containers, chlorine feed equipment, and handling facilities, including the one-ton container tracks and cranes. Four parallel chlorinators feed the chlorine gas; all four are manually operated feeders.

Sulfur Dioxide:

The Sulfur Dioxide Building houses one-ton sulfur dioxide containers, feed equipment, and handling facilities, including ton container racks and cranes. Three parallel Sulfunators feed the gas: all three are manually operated feeders.

Solids Handling

Waste Waste-activated sludge is discharged to one of three Aerobic Digesters with the volumes as listed:

Digester #1, volume 1,159,400 gallons.

Digester #2, volume 1,107,040 gallons.

Digester #3, volume 2,393,600 gallons.

Waste sludge from the Digester is dewatered by one of two 2-meter Filter Belt Presses into roll-off containers and transported to a Type 1 landfill.

*Based on 317 Design Criteria for Domestic Wastewater Systems

ATTACHMENT 6

Section 2 (B) Treatment units
Domestic Technical report 1.0

TYPE OF UNIT	NUMBER OF UNITS	SIZE (LENGTH X WIDTH X HEIGHT)
BAR SCREEN	1	4.6' x 18.8'
FINE SCREEN	5	18' x 5' Dia.
GRIT VORTEX UNIT	2	56.3'x 20'
AERATION BASIN	2	123' X 40' X 12'
AERATION BASIN	4	232' X 40' X 12'
CONTACT / AERATION BASIN	2	43'X 24'X 15'
TRICKLING FILTERS	2	100' DIA X 6'
CLARIFIERS	2	85' DIA. X 10'
CLARIFIERS	4	110' DIA X 16'
CLARIFIERS	2	95' DIA X 12'
SAND FILTERS	5	100' X 16' X 6'
CHLORINE CONTACT	2	140' X 25' X 8'
AEROBIC DIGESTERS	3	197' X 119' X 12' (WALL 3:1) 207' X 121' X 12 (WALL 3:1) 192' X 112' X 14.5' (WALL 1:1)

INTERIM II PHASE, EXPANSION COMPLETE 7-2014

AERATION BASIN	1	232' X 40' X 12'
CLARIFIER	1	110' DIA. X 16'

INTERIM III PHASE, EXPANSION COMPLETE 2026

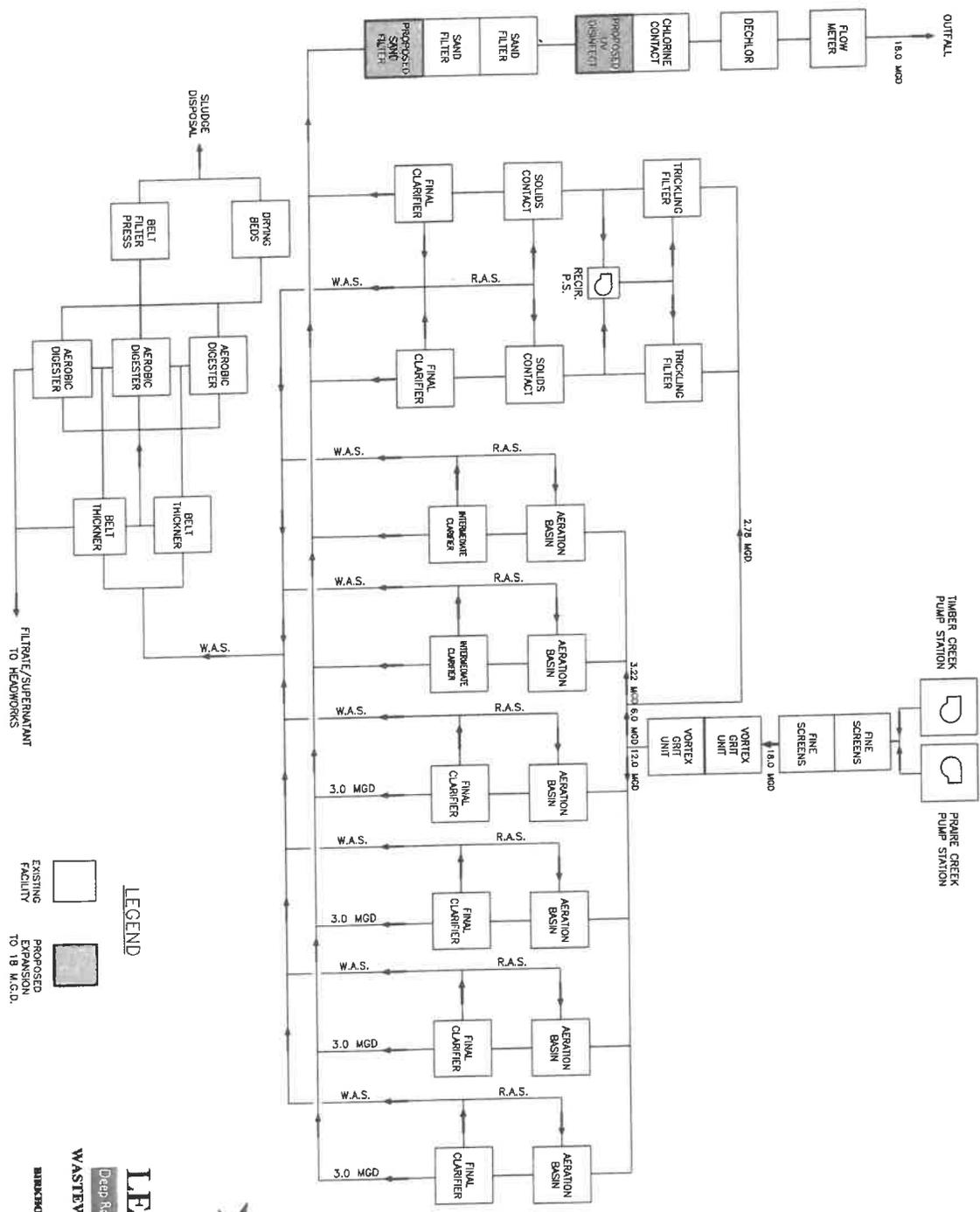
AERATION BASIN	4	280' X 40' X 18'
----------------	---	------------------

**Estimate, based on 2020 WWTP master plan*

ATTACHMENT 7

Section 2 (c) Flow Diagram

Flow Diagram



LEGEND

EXISTING FACILITY

PROPOSED EXPANSION TO 18 M.G.D.



LEWISVILLE
 Deep Roots. Bold Wings. Bright Future

WASTEWATER TREATMENT PLANT
FLOW DIAGRAM

BERKHOF, BENDRICKS & CARTER, L.L.P.
 PROFESSIONAL ENGINEERS
 15000 N. STATE ST.
 DALLAS, TEXAS 75244
 October 2016

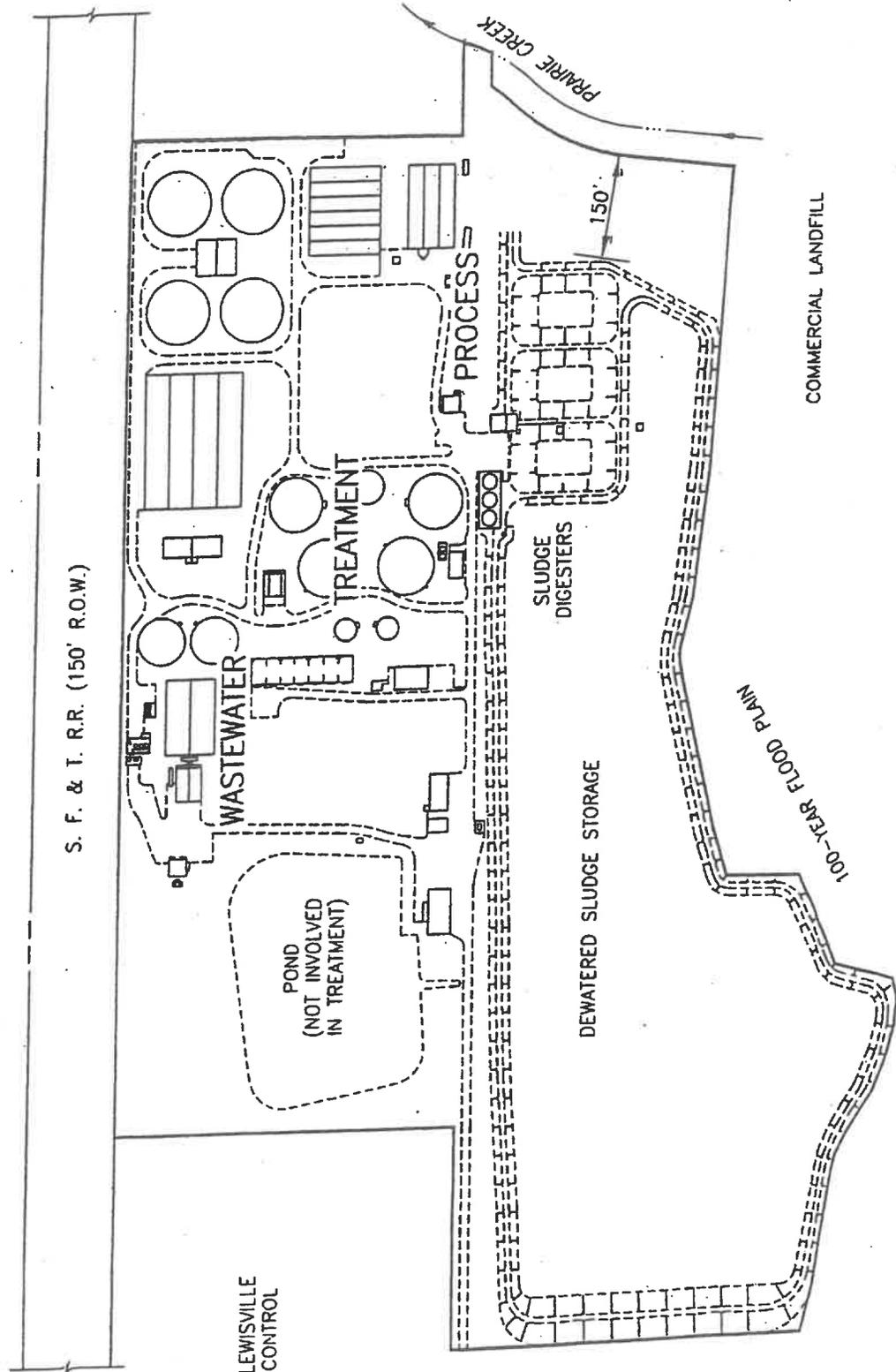
ATTACHMENT 8

**Section 3 Site Drawing
Domestic Technical Report 1.0**

CORPS OF ENGINEERS (RESTRICTED AREA)

S. F. & T. R.R. (150' R.O.W.)

CITY OF LEWISVILLE
ANIMAL CONTROL



SCALE IN FEET



TREATMENT PLANT SITE PL

SHIMEK, JACOBS & FINKLEA, L.L.
Consulting Engineers
Dallas, Texas
MAY, 2000

ATTACHMENT 9

**Section 6 Summary Transmittal
Domestic Technical Report 1.0**

DOMESTIC TECHNICAL REPORT 1.0 (7)

The treatment facility startup 2-19-2007; approval 11-9-2001

The current treatment facility expansion startup 8-22-2014; approval 1-29-2013



TEXAS WATER DEVELOPMENT BOARD



E. G. Rod Pittman, *Chairman*
 William W. Meadows, *Member*
 David Vidal Guerra, Jr., *Member*

J. Kevin Ward
Executive Administrator

Jack Hunt, *Vice Chairman*
 Thomas Weir Labott III, *Member*
 James E. Herring, *Member*

November 9, 2004

Ms. Susan E. Weaver, P. E.
 Project Engineer
 City of Lewisville
 P.O. Box 299002
 Lewisville, Texas 75029-9002

Re: City of Lewisville
 TWDB Project # 71072 / CWSRF - 3065-01
 Contract CWSRF 3065-01-02
 TNRCC Permit No. 10662-001
 Wastewater Treatment Plant Expansion

Dear Ms. Weaver:

The contract documents, including plans and specifications for the above referenced contract have been approved for compliance with all Texas Water Development Board requirements, compliance with 30 TAC Chapter 317, Design Criteria for Sewerage Systems, and state permit conditions that apply to construction activities. This approval does not relieve the design engineer of the legal responsibility for integrity of the design. You are authorized to begin advertising for bids on this contract. Please do not begin construction on the project until we have reviewed the bid tabulations and contingently executed bid documents and authorize you to issue a notice to proceed as instructed in your Program Guidance Manual.

Approved construction includes a 3.0 mgd expansion of the current WWTP from 12.0 mgd to 15.0 mgd. Improvements include additional influent screening capacity, aeration capacity, clarifier capacity, and filter capacity.

The materials and methods of construction are to be in accordance with the specifications provided by the project engineer. All construction items on the plans are considered eligible for CWSRF participation.

Please be reminded that the Texas Water Development Board will not fund testing, remediation, removal, disposal, or related work for contaminated or potentially contaminated material. However, the City of Lewisville should insure that such materials are tested, removed, and disposed of in accordance with applicable state and federal laws.

Our Mission

To provide leadership, planning, financial assistance, information, and education for the conservation and responsible development of water for Texas.

P.O. Box 13231 • 1700 N. Congress Avenue • Austin, Texas 78711-3231
 Telephone (512) 463-7847 • Fax (512) 475-2053 • 1-800-RELAYTX (for the hearing impaired)
 URL Address: <http://www.twdb.state.tx.us> • E-Mail Address: info@twdb.state.tx.us
 TNRIS • The Texas Information Gateway • www.inrl.state.tx.us
 A Member of the Texas Geographic Information Council (TGIC)

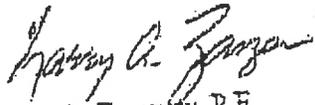


08/31/2005 03:31 2143610204

Ms. Susan E. Weaver, P.E.
November 9, 2004
Page 2

If you have any questions, you may call me at 512-463-8507.

Sincerely,



Larry A. Zamzow, P.E.
North Texas Region

LAZ:kk

cc: Texas Commission on Environmental Quality (w/o enclosures)
Attn: Mr. Firoj Vahora, Mail Code 148

Mr. Ron Conway, P.E.
Birkhoff, Hendricks & Conway, L.L.P.
7502 Greenville Avenue #220,
Dallas, Texas 75231-3838 (w/o enclosures)



January 21, 2013

Mr. Louis C. Herrin III, P.E.
TCEQ Wastewater Permits Section – MC 148
Water Quality Division
P.O. Box 13087
Austin, Texas 78711-3087

RE: Chapter 217 Summary Transmittal Letter
Permittee: City of Lewisville
Permit Number: TPDES WQ0010662001 Prairie Creek Wastewater Treatment
Facility, SIC Code 4952
Project Name: Solids and Treatment Plant Improvements Project 2012
County: Denton
Grant No.: N/A

Dear Mr. Herrin:

The purpose of this letter is to provide the TCEQ with the information necessary to comply with the requirements of §217.6(c) of the TCEQ's rules entitled, Submittal Requirements and Review Process. The necessary information includes:

1. Provide the name and address of the design firm:
Freese and Nichols, Inc.
4055 International Plaza, Suite 200
Fort Worth, Texas 76109
2. Provide the name, phone number and facsimile number of the design engineer:
Ignacio Cadena, P.E.
Texas #: 94946
817-735-7283 (phone)
817-735-7491 (fax)
3. Provide the county(s) where the project will be located:
Denton County
4. Provide an identifying name for the project:
Prairie Creek Wastewater Treatment Plant Solids and Treatment Plant Improvements Project
5. Provide the name of the person(s) that proposes to operate the collection system or treatment facility:
Doug Lipscomb, Operations Supervisor, City of Lewisville, Texas

6. Provide the collection system or treatment facility owner's name, and if applicable, the treatment facility permit number, and facility name:
Owner: City of Lewisville, Texas
Permit number: TPDES WQ0010662001
Facility Name: Prairie Creek Wastewater Treatment Facility
7. Provide a statement certifying that the plans and specifications are in substantial compliance with all requirements of this chapter, with the exception of any listed variance requests:
The plans and specifications which describe the project identified in this letter are in substantial compliance with all the requirements of Chapter 217.
8. Provide a statement certifying that any variances from the requirements will not threaten public health or environment, based on the best professional judgment of the engineer who prepared the report and the project plans and specifications.
No variances are required.
9. Provide a brief description of the project scope that includes:
 - a. Provide a brief engineering summary of the collection system or treatment facility:
The scope of this project consists of the addition of a new aeration basin, new final clarifier, new return and waste activated sludge pumps, and mixing modifications to the existing aerobic digesters. Wastewater sent to the treatment plant will flow through the existing headworks, grit removal units, and splitter boxes and continue to flow by gravity through the new facilities. The new treatment train is not required for capacity or additional nutrient removal purposes at this time. The major modifications will include the following:
 - **A new fourth rectangular aeration basin will be similar in size and shape as the existing three aeration basins. The aeration basin will include an anoxic zone occupying approximately 10% of the total aeration basin volume. The anoxic zone will be mechanically mixed with a submersible mixer and separated from the aerobic zone by a FRP baffle wall.**
 - **The aeration zone will include fine bubble diffusers. The existing blowers have adequate capacity to serve the existing three basins as well as the new fourth aeration basin. Stainless steel air piping with an isolation valve will be installed as well as a blind flange for future blower installations.**
 - **The aeration basin effluent will flow by gravity into a new circular final clarifier. The new clarifier will be similar in design to the existing three clarifiers. The fourth clarifier will include a suction type collector mechanism for return activated sludge and a scraper type mechanism for the waste activated sludge.**
 - **The clarifier will include a scum collector arm and will collect scum into a scum hopper where the scum will flow by gravity into a scum pit. A submersible chopper pump will send scum to the waste activated sludge pipeline.**

- The clarifier will also be equipped with a spray nozzle system to control algae and foam.
 - The last plant expansion provided necessary provisions for a fourth treatment train including stub-outs and blind flanges for future return (RAS) and waste (WAS) activated sludge pumps. One WAS and one RAS pump will be installed in the existing activated sludge pump station. Existing interconnections between the new WAS and RAS pumps will allow the RAS pump to provide redundancy to the WAS pump. An existing redundant RAS pump provides the necessary redundancy to the new RAS pump. This redundant pump also serves as Train No. 3's redundant RAS pump. However, a dedicated second RAS pump for the new treatment train will be bid as an alternate additive item.
 - All related piping to connect the new aeration basin, clarifier, sludge pumps, and related equipment will be included.
 - Hose bibs will be installed at the aeration basin and clarifier to allow for basin cleaning when necessary.
 - Drain lines are provided in the new aeration basin, new clarifier, and clarifier scum pit to drain to a nearby manhole.
 - The existing diffusers will be removed from the existing earthen and geomembrane-lined Aerobic Digester No. 2 and floating mechanical aerators will be installed to facilitate mixing.
 - The existing diffusers will be removed from the existing earthen and geomembrane-lined Aerobic Digester No. 3 and submersible mechanical mixers along with wideband aerators will be installed to facilitate mixing. To provide the necessary air requirements to aerate Aerobic Digester No. 3, an existing blower in the aerobic digester blower room will be replaced with a rotary lobe compressor type blower.
 - All electrical, instrumentation, grading, drainage, valves, and all miscellaneous components necessary for the construction of the new treatment train and site improvements will be included.
 - Construction sequencing notes and details are included in the specifications and plans to minimize plant operation interruption and to provide continued treatment of the wastewater and solids at all times.
- b. Provide a description of variances from the requirements of this chapter, including the use of nonconforming or innovative technology:
No variances are required.

- c. Provide an explanation of the reasons for such variances in accordance with Chapter 217.4 rules entitled Variances:
No variances are required.

If you have any questions regarding this project, please contact me or Angellia Points.

Contact Information:

Ignacio Cadena

Phone: 817-735-7283
Fax: 817-735-7492
Email: ica@freese.com

Angellia C. Points

Phone: 214-217-2274
Fax: 214-217-2201
Email: acp@freese.com

Sincerely,
Freese and Nichols, Inc.



Ignacio Cadena, P.E.
Project Manager



FREESE AND NICHOLS, INC.
TEXAS REGISTERED
ENGINEERING FIRM
F-2144

cc: Karen Emadiazar – Utilities Manager, City of Lewisville, Texas
Doug Lipscomb – Operations Supervisor, City of Lewisville, Texas
Sid Slocum – TCEQ Region 4, Water Section Manager, 2309 Gravel Dr.
Fort Worth, TX 76118-6951

Bryan W. Shaw, Ph.D., *Chairman*
Carlus Rubinstein, *Commissioner*
Toby Baker, *Commissioner*
Zak Cowar, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 29, 2013

Ignacio Cadena, P.E.
Freese and Nichols, Inc.
4055 International Plaza, Suite 200
Fort Worth, Texas 76109-

Re: City of Lewisville
Solids and Treatment Plant Improvements Project 2012
Permit No. 10662-00;
WWPR Log No. 0113/057
CN600535140; RN102075298
Denton County

Dear Mr. Cadena:

We have received the project summary transmittal letter dated January 21, 2013.

The rules which regulate the design, installation and testing of domestic wastewater projects are found in 30 TAC, Chapter 217, of the Texas Commission on Environmental Quality (TCEQ) rules titled, Design Criteria for Wastewater Systems.

Section 217.6(d), relating to case-by-case reviews, states in part that upon submittal of a summary transmittal letter, the executive director may approve of the project without reviewing a complete set of plans and specifications.

Under the authority of §217.6(e) a technical review of complete plans and specifications is not required. **However, the project proposed in the summary transmittal letter is not approved for construction. Please note, that this conditional approval does not relieve the applicant of any responsibilities to obtain all other necessary permits or authorizations, such as wastewater treatment permit or other authorization as required by Chapter 26 of the Texas Water Code.** Below are provisions of the Chapter 217 regulations, which must be met as a condition of approval. These items are provided as a reminder. If you have already met these requirements, please disregard this additional notice.

1. You must keep certain materials on file for the life of the project and provide them to TCEQ upon request. These materials include an engineering report, test results, a summary transmittal letter, and the final version of the project plans and specifications. These materials shall be prepared and sealed by a Professional Engineer licensed in the State of Texas and must show substantial compliance with Chapter 217. All plans and specifications must conform to any waste discharge requirements authorized in a permit by the TCEQ. Certain specific items which shall be addressed in the engineering report are discussed in §217.6(c). Additionally, the engineering report

Ignacio Cadena, P.E.

Page 2

January 29, 2013

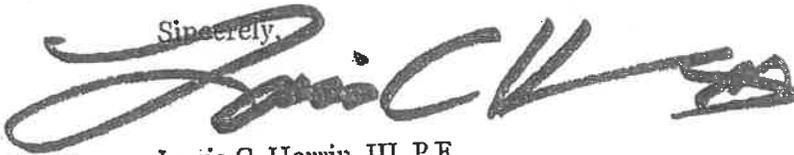
must include all constants, graphs, equations, and calculations needed to show substantial compliance with Chapter 217. The items which shall be included in the summary transmittal letter are addressed in §217.6(c)(1)-(10).

2. Any deviations from Chapter 217 shall be disclosed in the summary transmittal letter and the technical justifications for those deviations shall be provided in the engineering report. Any deviations from Chapter 217 shall be based on the best professional judgement of the licensed professional engineer sealing the materials and the engineer's judgement that the design would not result in a threat to public health or the environment.
3. Any variance from a Chapter 217 requirement disclosed in your summary transmittal letter is approved. If in the future, additional variances from the Chapter 217 requirements are desired for the project, each variance must be requested in writing by the design engineer. Then, the TCEQ will consider granting a written approval to the variance from the rules for the specific project and the specific circumstances.
4. Within 60 days of the completion of construction, an appointed engineer shall notify both the Wastewater Permits Section of the TCEQ and the appropriate Region Office of the date of completion. The engineer shall also provide written certification that all construction, materials, and equipment were substantially in accordance with the approved project, the rules of the TCEQ, and any change orders filed with the TCEQ. All notifications, certifications, and change orders must include the signed and dated seal of a Professional Engineer licensed in the State of Texas.

This approval does not mean that future projects will be approved without a complete plans and specifications review. The TCEQ will provide a notification of intent to review whenever a project is to undergo a complete plans and specifications review. Please be reminded of §217.5 of the rules which states, "Approval given by the executive director...shall not relieve the sewerage system owner or the design engineer of any liabilities or responsibilities with respect to the proper design, construction, or authorized operation of the project in accordance with applicable commission rules."

If you have any questions or if we can be of any further assistance, please call me at (512) 239-4552.

Sincerely,



Louis C. Herrin, III, P.E.
Wastewater Permits Section (MC 148)
Water Quality Division
Texas Commission on Environmental Quality

LCH/mac

cc: TCEQ, Region 04 Office

ATTACHMENT 10

Section 11. Sewage Sludge Lagoons

(A) Location Information

(B) Temporary storage information

Domestic Technical Report 1.0

ATTACHMENT 10

Protective Measures Utilized Including Type and Size of Structures.

The Lagoon is used only in Emergency situations, were normal operations have been interrupted. Sludge has not been added to the Lagoon since September 2001.

The sludge drying area is 15.95 acres of available surface. The entire sludge drying area is lined by an in-situ clay liner and is surrounded by an earthen dike several feet higher in elevation than the disposal area, which excludes extraneous surface runoff. The solids are discharged on to the sludge drying area through any of thirteen valves. These valves are situated so that each discharges onto about 1.2 acres of drying area. In addition, the drying area includes a tailwater drain system from which runoff from the field is returned to the head of the plant for treatment.

TABLE 3.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS

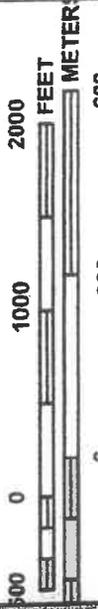
Map symbol	Soil name	Acres	Percent
		12,380	2.0
		5,220	0.8
		3,250	0.5
		450	0.1
2	Altoga silty clay, 3 to 5 percent slopes	420	0.1
3	Altoga silty clay, 5 to 8 percent slopes	450	0.1
4	Altoga silty clay, 5 to 12 percent slopes, eroded	1,760	0.3
5	Aquilla loamy fine sand, 2 to 5 percent slopes	500	0.1
6	Arents, gently undulating	4,250	0.7
7	Arents, hilly	1,000	0.2
8	Aubrey fine sandy loam, 2 to 5 percent slopes	3,150	0.5
9	Bastrop fine sandy loam, 1 to 3 percent slopes	20,800	3.4
10	Bastrop fine sandy loam, 3 to 5 percent slopes	19,040	3.1
11	Birome fine sandy loam, 1 to 3 percent slopes	1,020	0.2
12	Birome fine sandy loam, 3 to 5 percent slopes	1,490	0.2
13	Birome-Rayex-Aubrey complex, 2 to 15 percent slopes	1,780	0.3
14	Birome-Rayex-Urban land complex, 2 to 12 percent slopes	2,390	0.4
15	Birome-Urban land complex, 1 to 5 percent slopes	16,820	2.7
16	Bolar clay loam, 1 to 3 percent slopes	8,460	1.4
17	Bolar clay loam, 3 to 5 percent slopes	2,920	0.5
18	Branyon clay, 0 to 1 percent slopes	9,400	1.5
19	Branyon clay, 1 to 3 percent slopes	14,520	2.4
20	Bunyan fine sandy loam, frequently flooded	18,610	3.0
21	Burleson clay, 0 to 1 percent slopes	4,870	0.8
22	Burleson clay, 1 to 3 percent slopes	1,900	0.3
23	Callisburg fine sandy loam, 1 to 3 percent slopes	2,780	0.4
24	Callisburg fine sandy loam, 3 to 5 percent slopes	7,260	1.2
25	Callisburg soils, 2 to 5 percent slopes, severely eroded	1,800	0.3
26	Crockett fine sandy loam, 0 to 1 percent slopes	530	0.1
27	Crockett fine sandy loam, 1 to 3 percent slopes	2,250	0.4
28	Crockett-Urban land complex, 0 to 2 percent slopes	2,120	0.3
	Eddy gravelly clay loam, 3 to 15 percent slopes	5,520	0.9
	Energy fine sandy loam, frequently flooded	8,830	1.4
31	Ferris-Heiden clays, 3 to 5 percent slopes	19,700	3.2
32	Ferris-Heiden clays, 5 to 15 percent slopes	18,130	3.0
33	Frio silty clay, occasionally flooded	9,100	1.5
34	Frio silty clay, frequently flooded	2,630	0.4
35	Gasil fine sandy loam, 1 to 3 percent slopes	460	0.1
36	Gasil fine sandy loam, 3 to 8 percent slopes	3,740	0.6
37	Gasil-Urban land complex, 1 to 4 percent slopes	3,380	0.5
38	Gasil and Konsil soils, 1 to 5 percent slopes	10,710	1.7
39	Gowen clay loam, occasionally flooded	7,970	1.3
40	Gowen clay loam, frequently flooded	1,110	0.2
41	Heiden clay, 1 to 3 percent slopes	2,440	0.4
42	Heiden clay, 3 to 5 percent slopes	1,510	0.2
43	Houston Black clay, 0 to 1 percent slopes	10,570	1.7
44	Houston Black clay, 1 to 3 percent slopes	1,060	0.2
45	Justin fine sandy loam, 0 to 1 percent slopes	1,910	0.3
46	Justin fine sandy loam, 1 to 3 percent slopes	2,320	0.4
47	Justin fine sandy loam, 3 to 5 percent slopes	5,220	0.9
48	Justin-Urban land complex, 0 to 3 percent slopes	4,270	0.7
49	Kaufman clay, frequently flooded	2,150	0.4
50	Konsil fine sandy loam, 1 to 3 percent slopes	2,680	0.4
51	Konsil fine sandy loam, 3 to 8 percent slopes	7,410	1.2
52	Lewisville clay loam, 1 to 3 percent slopes	610	0.1
53	Lewisville clay loam, 3 to 5 percent slopes	5,510	0.9
54	Lindale clay loam, 1 to 3 percent slopes	5,660	0.9
55	Lindale-Urban land complex, 1 to 5 percent slopes	12,000	2.0
56	Medlin-Sanger clays, 5 to 15 percent slopes	1,640	0.3
57	Medlin-Sanger stony clays, 5 to 12 percent slopes	22,170	3.6
58	Mingo clay loam, 1 to 3 percent slopes	6,630	1.1
59	Navo clay loam, 0 to 1 percent slopes	1,000	0.2
60	Navo clay loam, 1 to 3 percent slopes	4,760	0.8
61	Navo clay loam, 3 to 5 percent slopes	12,270	2.0
62	Navo-Urban land complex, 0 to 3 percent slopes	1,690	0.3
63	Ovan clay, occasionally flooded	21,560	3.5
64	Ovan clay, frequently flooded	50,750	8.3
65	Ponder loam, 0 to 1 percent slopes	17,800	2.9
66	Ponder loam, 1 to 3 percent slopes	1,220	0.2
67	Ponder loam, 3 to 5 percent slopes	800	0.1
68	Sanger clay, 1 to 3 percent slopes	2,190	0.4
69	Sanger clay, 3 to 5 percent slopes	4,520	0.7
70	Sanger-Urban land complex, 1 to 4 percent slopes		
71	Seagoville clay, occasionally flooded		
72	Silawa loamy fine sand, 2 to 5 percent slopes		
73	Silstid loamy fine sand, 1 to 5 percent slopes		

TABLE 3.--ACREAGE AND PROPORTIONATE EXTENT OF THE SOILS--Continued

Map symbol	Soil name	Acres	Percent
		570	0.1
73	Silstid-Urban land complex, 1 to 5 percent slopes	26,098	4.4
74	Slidell clay, 1 to 3 percent slopes	31,150	5.1
75	Somervell gravelly loam, 1 to 5 percent slopes	1,090	0.2
76	Speck clay loam, 1 to 3 percent slopes	2,130	0.3
77	Stephen silty clay, 1 to 5 percent slopes	6,700	1.1
78	Trinity clay, occasionally flooded	1,440	0.2
79	Trinity clay, frequently flooded	2,380	0.4
80	Vertel clay, 1 to 3 percent slopes	4,600	0.8
81	Vertel clay, 3 to 5 percent slopes	1,900	0.3
82	Vertel clay, 5 to 12 percent slopes	8,850	1.4
83	Wilson clay loam, 0 to 1 percent slopes	13,070	2.1
84	Wilson clay loam, 1 to 3 percent slopes	2,880	0.5
85	Wilson-Urban land complex, 0 to 2 percent slopes	30,272	4.9
	Water		
	Total	613,120	100.0



MAP SCALE 1" = 1000'



NFIP NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0565G

FIRM
FLOOD INSURANCE RATE MAP
DENTON COUNTY,
TEXAS
AND INCORPORATED AREAS

PANEL 565 OF 750
(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

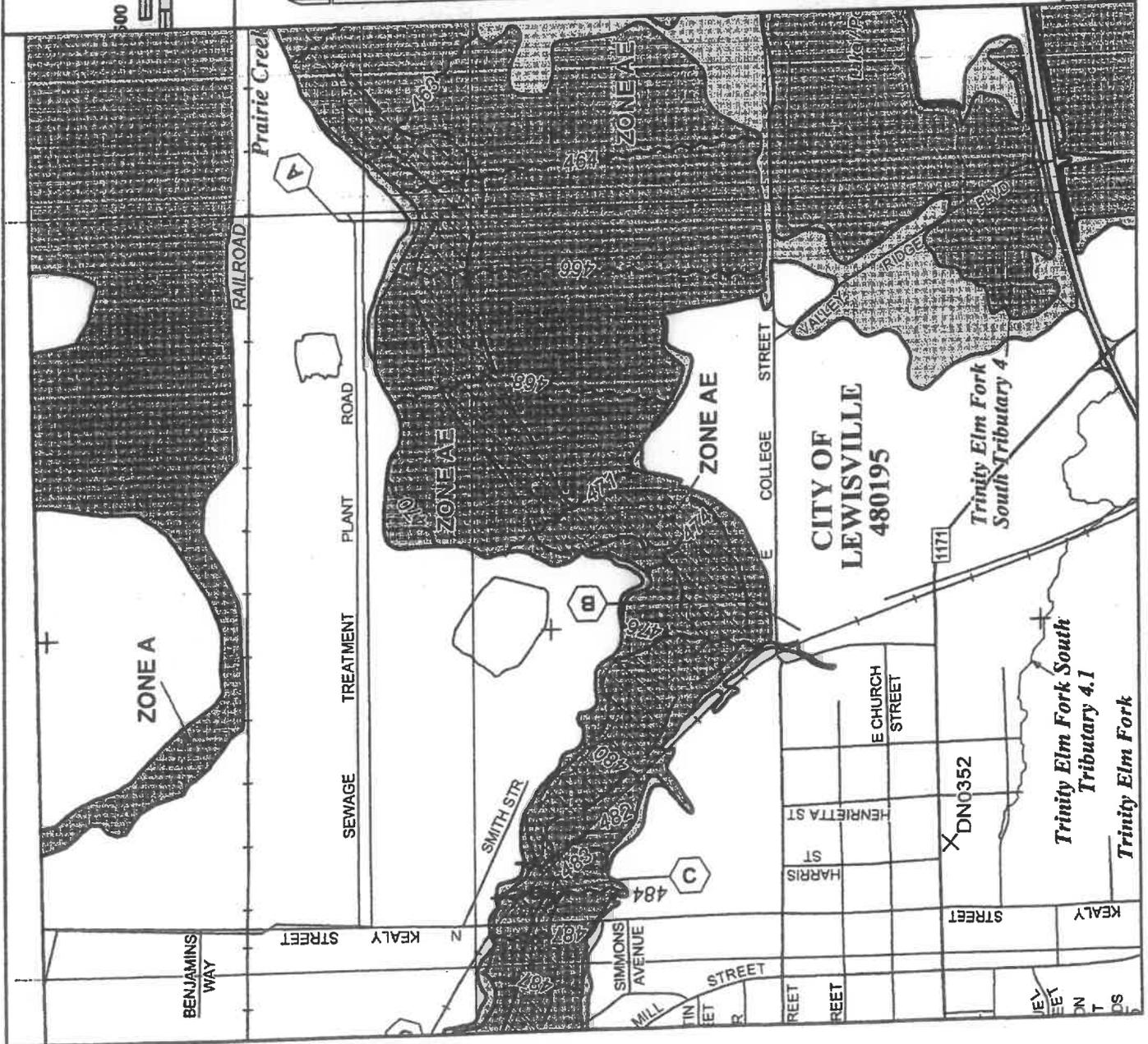
CONTAINS:
COMMUNITY 480195
CARROLLTON, CITY OF
LEWISVILLE, CITY OF
PANEL 0565
SUFFIXES G G

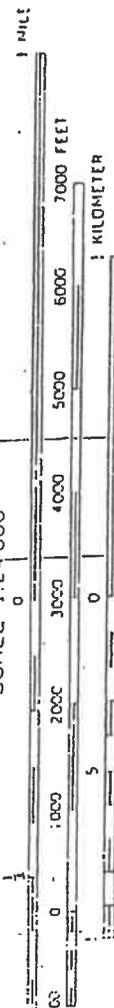
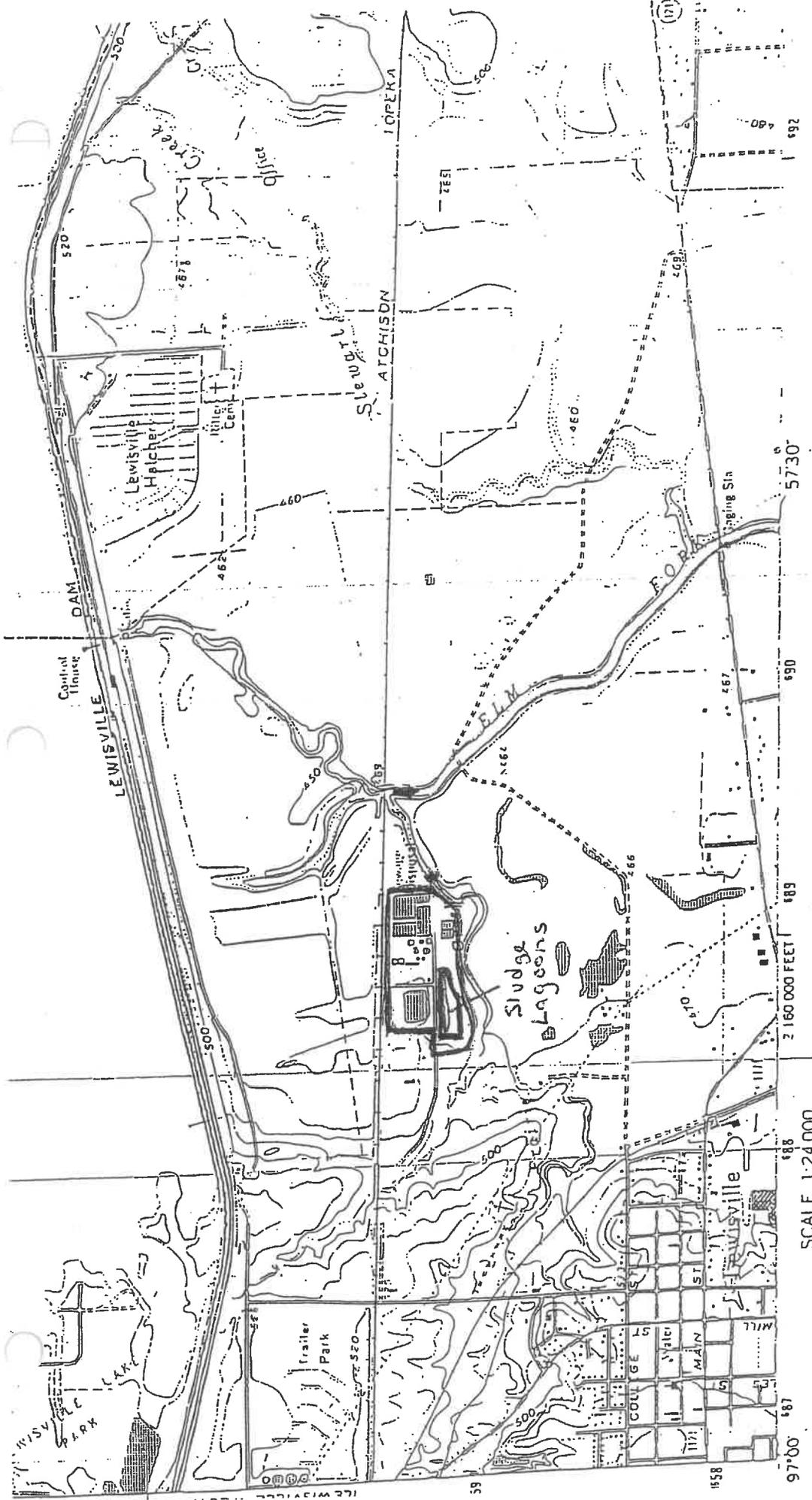
Notice to User: The Map Number shown below should be used when placing map orders; the Community Number shown above should be used on insurance applications for the subject community.



MAP NUMBER
48121C0565G
MAP REVISED
APRIL 18, 2011
Federal Emergency Management Agency

This is an official copy of a portion of the above referenced flood map. It was extracted using F-MIT On-Line. This map does not reflect changes or amendments which may have been made subsequent to the date on the title block. For the latest product information about National Flood Insurance Program flood maps check the FEMA Flood Map Store at www.msc.fema.gov





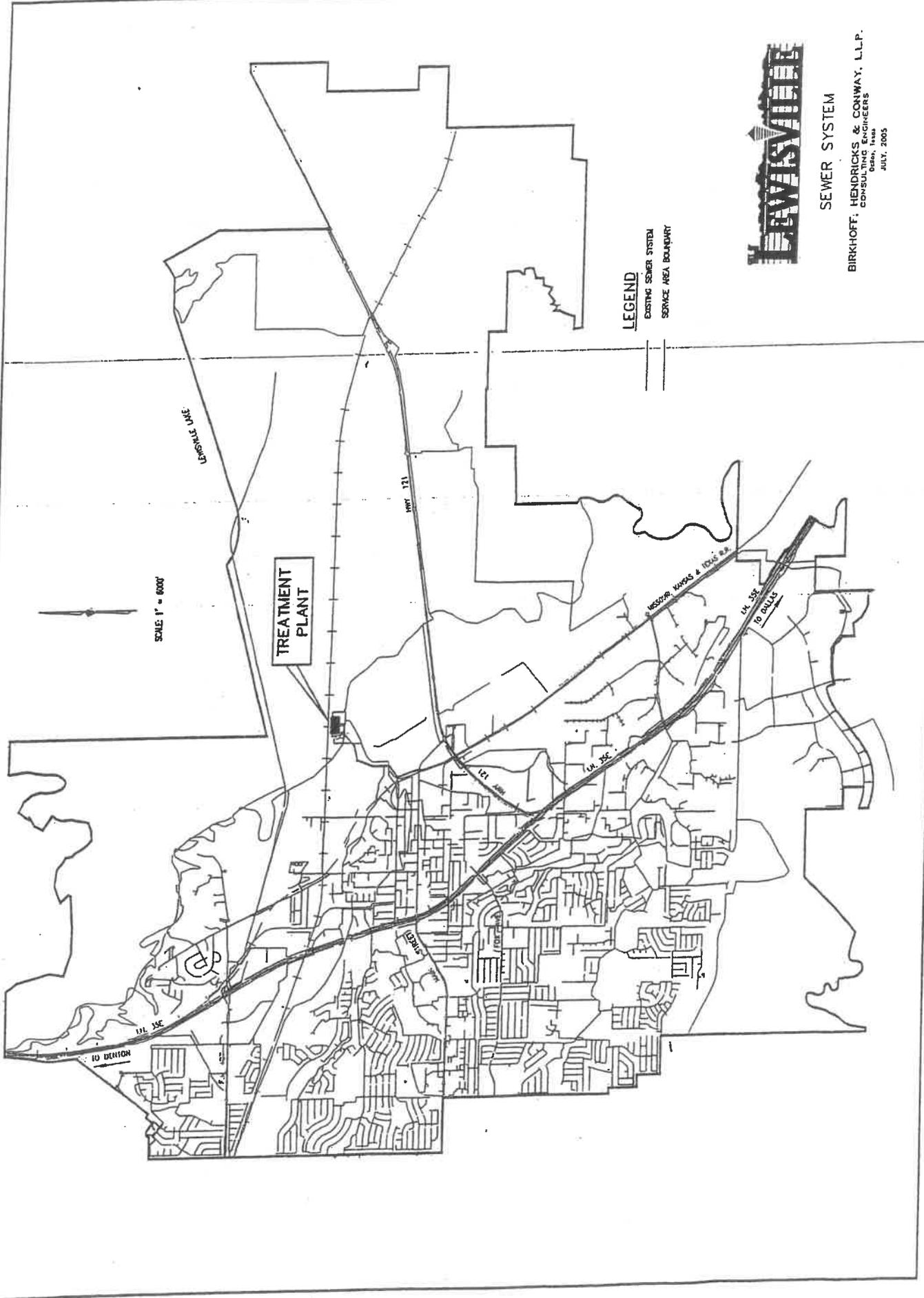
CONTOUR INTERVAL 10 FEET
 DOTTED LINES REPRESENT 5-FOOT CONTOURS
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

"Location Map"
 From U.S. Geological Survey Map, 1981
 Prairie Creek Wastewater Treatment Plant
 Lewisville, Deaton County Texas
 March 20, 1991

1708' 20 MILLS
 124 MILLS

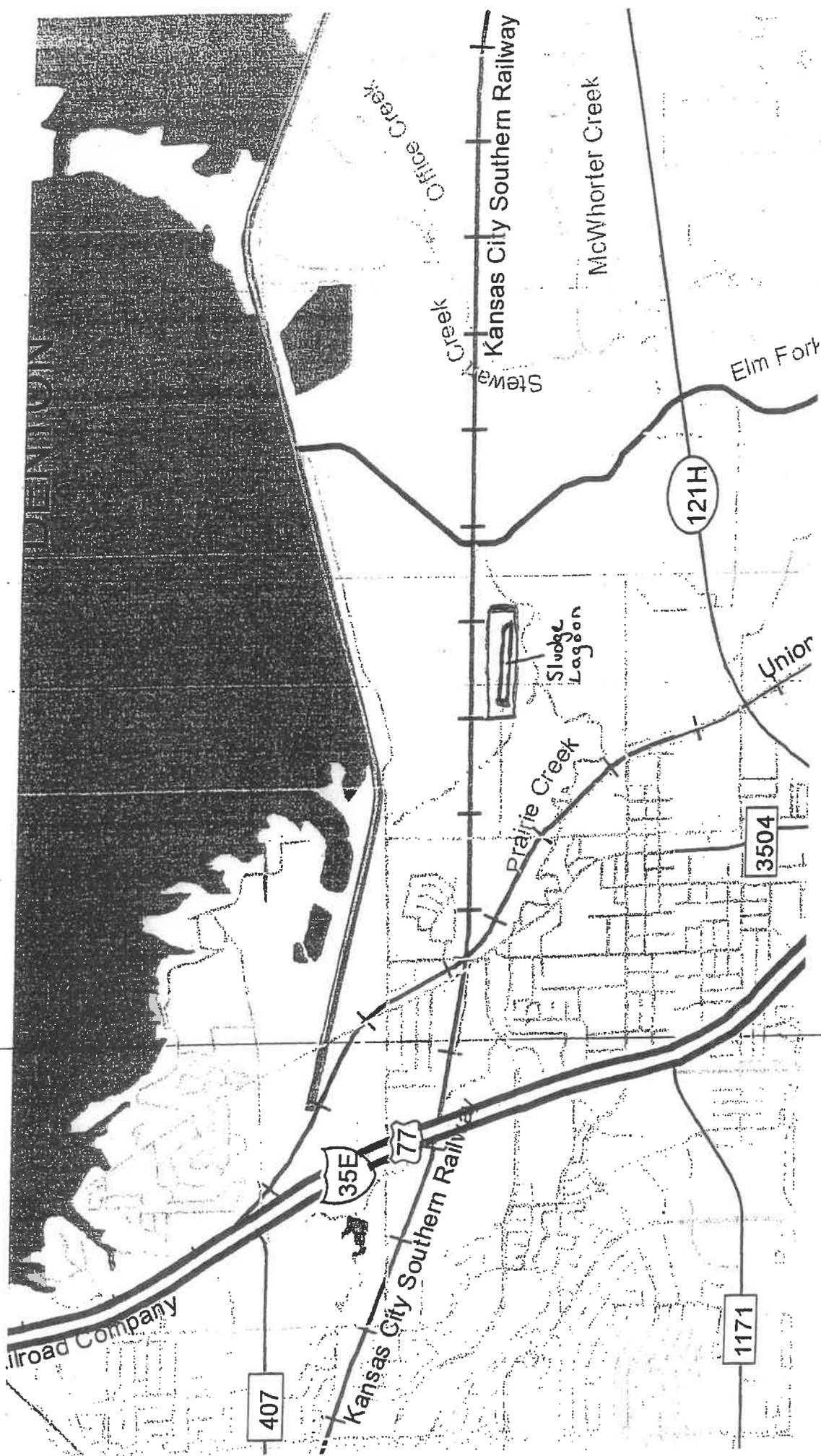
UTM GRID AND 1981 MAGNETIC NORTH
 DECLINATION AT CENTER OF SHEET

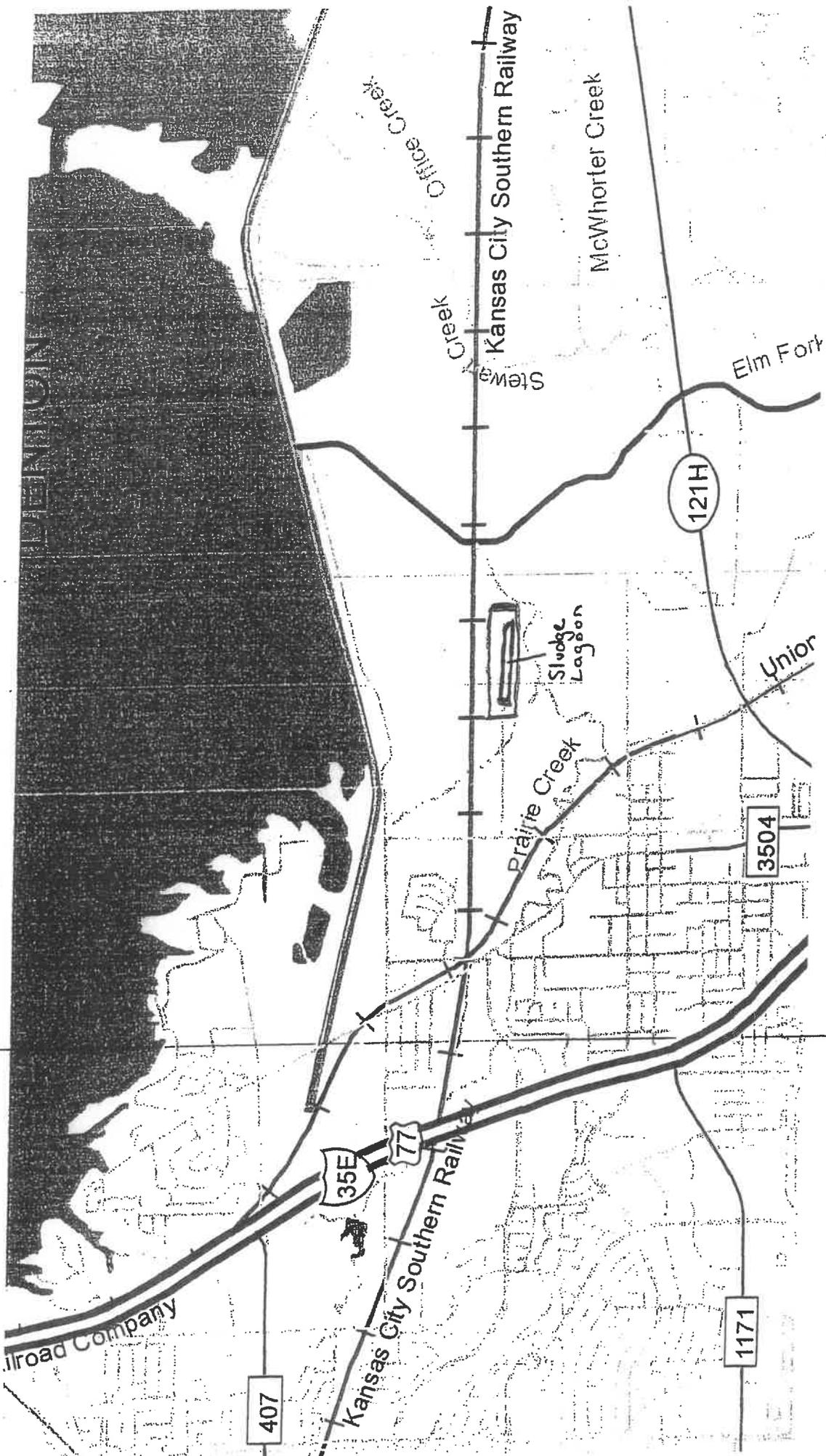
REVISED: 07/20/2005 EWH H:\Projects\Lew\99136\EASFIG1ondEXHIBIT3.dwg



SEWER SYSTEM

BIRKHOFF, HENDRICKS & CONWAY, L.L.P.
CONSULTING ENGINEERS
JULY, 2005





Railroad Company

407

35E

77

Kansas City Southern Railway

Office Creek

Kansas City Southern Railway

Stewarts Creek

McWhorter Creek

Prairie Creek

Sludge Lagoon

1171

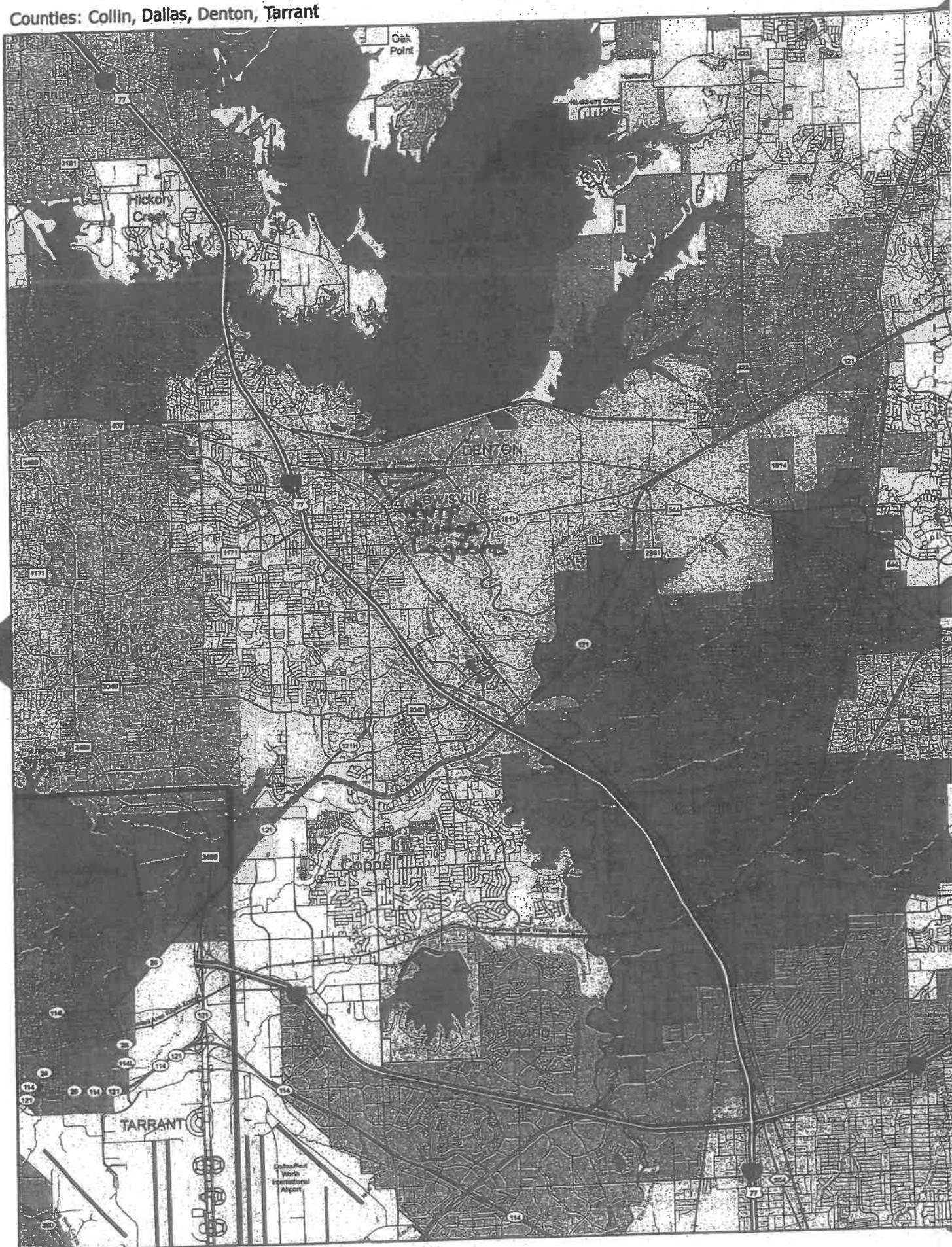
3504

Union

121H

Elm Fork

Counties: Collin, Dallas, Denton, Tarrant



ATTACHMENT 11

Section 11. Sewage Sludge Lagoons

(C) Liner Information

Domestic Technical Report 1.0

SHIMEK, JACOBS & FINKLEA, L.L.P.
CONSULTING ENGINEERS

8355 Douglas Avenue, #820

Dallas, Texas 75225-5816

Fax (214) 361-0204

Phone (214) 361-7900

OSCAR JACOBS, P.E.
DONALD V. CONWAY, P.E.
JOHN W. BURKHOFF, P.E.
DEE F. CARTER, P.E.
MARY C. HENDRICKS, P.E.
L. FINKLEA, P.E.
JULIA CARLINE, P.E.
MATT HICKEY, P.E.

August 27, 1999

Ms. Carol Bassinger, Utilities Manager

Public Services

City of Lewisville

P. O. Box 299002

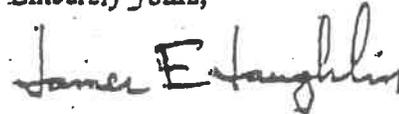
Lewisville, Texas 75029-9002

Re: Certification of Clay Liner
on the Sludge Storage Fields
at Prairie Creek WWTP Site

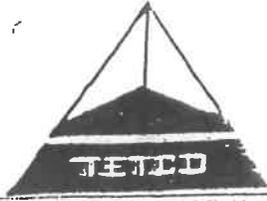
Dear Ms. Bassinger:

These sludge fields are part of the treatment system you operate under INRCC Discharge Permit 10662.001. Section IV, Subsection D, of that permit sets forth certain requirements for clay liners. We hereby certify the clay liners meet the criteria set forth.

Sincerely yours,



James E. Laughlin, P.E.



TRINITY ENGINEERING TESTING CORPORATION

BOX 223571

2772 WEST COMMERCE ST.

214/688-0954

DALLAS, TEXAS 75222

METRO: 263-D487

September 8, 1986

Shimek, Jacobs & Finklea
820 Dallas Federal Tower
8333 Douglas Avenue
Dallas, Texas 75251

Attention: Mr. James E. Laughlin, P.E.
Project Manager

Reference: Geotechnical Investigation
Prairie Creek Wastewater Treatment Plant
Phase II (Groundwater Protection)
Lewisville, Texas
TETCO Report No. D86-1352

Gentlemen:

The results of our geotechnical investigation for the above referenced project are included in the following report. This study includes a description of the subsurface and field exploration, results of laboratory testing, and engineering analyses.

We appreciate the opportunity to provide our professional services on this project. If there are any questions concerning our report, or if we may be of additional assistance on Phase II of this project, please call us.

Currently, we are prepared to begin Phase III which will consist of the installation of four monitor wells. It is understood that the City of Lewisville has given their approval to begin this project as soon as you reconfirm the location of each monitor well. The monitor wells are located approximately as shown on Plate 1, "Location of Borings", in Appendix B of this report.

Sincerely yours,

TRINITY ENGINEERING TESTING CORPORATION

D. Brian Kendrick

D. Brian Kendrick

DBK/es
enclosures

TABLE OF CONTENTS

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INTRODUCTION	1
SUBSURFACE INVESTIGATION	2
GEOLOGY AND SITE CONDITIONS	4
ANALYSES OF RESULTS AND RECOMMENDATIONS	6
APPENDIX A	
APPENDIX B	
APPENDIX C	

- 4) evaluation of the permeability characteristics of existing soil stratigraphy;
- 5) provide soil strength characteristics;
- 6) provide analyses and recommendation regarding the existing soil stratigraphy in reference to groundwater protection; and
- 7) other geotechnical design criteria and recommendations revealed by this study.

SUBSURFACE INVESTIGATION

Field Exploration: Conditions at the aerobic digesters were investigated by four (4) sample borings located approximately as shown on Plate I, "Location of Borings", in Appendix B. The conditions at the sludge irrigation field were investigated by eight (8) hand augered borings also shown on Plate I. Boring depths ranged from approximately 15 feet for the aerobic digesters to 4 to 5 feet for the sludge irrigation field. Test boring locations and procedures were in general compliance with the Texas Department of Health, Bureau of Solid Waste Management, Technical Guide No. 3 dated April 15, 1986. The field investigation was conducted on July 9, 1986.

Both undisturbed and disturbed sampling procedures were utilized during the field exploration. Three-inch diameter Shelby tubes were utilized to obtain undisturbed samples of cohesive materials. Cohesionless materials were recovered using a two-inch outside diameter (O.D.) split-spoon sampler. The in situ bearing strength characteristics of subsurface materials were

Engineering Study: An engineering study utilizing the results of field exploration, laboratory testing, and our Phase I (Plant Structures) report dated August 8, 1986 was performed. This study evaluated the properties and characteristics of subsurface materials encountered to determine the overall effectiveness of the existing aerobic digester and sludge irrigation field soil stratigraphy and to provide recommendations which are compatible with the soil conditions existing at the site. Results and findings of this investigation are discussed herein.

GEOLOGY AND SITE CONDITIONS

Site Geology: The project site is located in the projected outcrop of the Lewisville member of the Woodbine Formation of Lower Cretaceous Age. The Lewisville member is primarily a shale unit with numerous lenticular sandstones. The shales are generally sandy, silty, and carbonaceous.

Quaternary terrace or alluvial deposits associated with the Elm Fork of the Trinity River, Prairie Creek and nearby tributaries overlie the primary formation in the study area. These Quaternary deposits consist of a heterogenous mixture of gravels, sands, clayey sands, sandy clays, and clays of an alluvial type nature. In general, the cleaner, granular materials predominate near the bottom of these deposits.

Groundwater: Groundwater was encountered in the moderately deep borings (numbers 10 through 13) approximately 9.1- to 11.0-feet below existing

Sludge Irrigation Field: Borings No. 14 and 15 encountered 2.0 and 3.0 feet respectively, of surficial clays and sandy clays with plasticity indices ranging from 28 to 31. The clays and sandy clays are underlain by very sandy clays and clayey sands with plasticity indices ranging from 10 to 16. Boring Number 16 consisted of 5.0 feet of sandy soil having plasticity indices between 14 and 18. It is speculated that Boring Number 16 is anomalous due to an ancient stream channel. The remaining Borings No. 17 through 21 encountered a minimum of 4 feet of surficial clays and sandy clays with plastic indices ranging from 23 to 31.

ANALYSES OF RESULTS AND RECOMMENDATIONS

General: This study includes analyses of laboratory test results in evaluating the current soil stratigraphy existing under the aerobic digesters and sludge irrigation field. The results will be compared to Texas Department of Health regulations concurrent with the time of construction of both structures.

Regulations: The aerobic digesters and sludge irrigation field were constructed in accordance to the 1977-1983 Texas Department of Health Municipal Solid Waste Management Regulations¹. The groundwater protection regulations state that "the minimum acceptable protection separating solid waste from groundwater or perched water shall be a naturally occurring barrier of in situ soil or a man-made liner which provides the equivalent protection of three feet of soil with a permeability of not more than 1×10^{-7}

Aerobic Digesters: Test borings located in the area of the aerobic digesters (Borings Number 10 through 13) indicated surficial clays and sandy clays underlain by clayey sands and sands, beginning approximately 10.0- to 11.0- feet below the existing ground surface. Coarse grained sands and gravels with coefficients of permeability greater than 1×10^{-7} cm/sec are anticipated to overlie the shale/sandstone stratum of the Woodbine formation.

~~The test borings also indicated that highly permeable soils are present between elevations 453 and 456. The bottom of the aerobic digesters (elevation 452) exists 15.0 feet below the top of the levees; therefore, the deeper portion of the aerobic digesters extends approximately one to four feet into highly permeable soils. Unless this lower portion is lined, there is potential for leachate migration.~~

Recommendations: Currently, the aerobic digesters are being utilized. In order to verify the existence of a soil liner, the structures would require complete drainage. In lieu of draining, installation of monitor wells close to the digesters is recommended to verify any leachate migration.

Phase III of this project will consist of the installation of four monitor wells located approximately as shown on Plate I, "Location of Borings", in Appendix B. The wells will be constructed in accordance to the attached schematic as shown on Plate VIII, in Appendix B and will extend into the top of the sandstone/shale stratum of the Woodbine formation. It is anticipated that any

REFERENCES

1. Texas Department of Health Municipal Solid Waste Management Regulations, Volume 1: General and Nonhazardous Solid Waste Regulations, adopted July 12, 1983.

FIELD INVESTIGATIVE PROCEDURES

The following investigative procedures are utilized as applicable for each specific geotechnical investigation.

Drilling Operations

Core borings are drilled in order to, 1) obtain samples and/or cores of subsurface materials for laboratory analysis, 2) to investigate existing in-place conditions of subsurface materials by field penetration tests, and 3) to investigate groundwater conditions at each site.

~~To fulfill the conditions outlined above, continuous sampling procedures are utilized in the drilling program. The distinct advantage to this type of drilling procedure is that it allows for accurate detection of groundwater, strata depth and classification. When groundwater is detected, drilling operations are temporarily halted until measurements can be made. After water level measurements are completed, sampling is continued. Another advantage to continuous sampling is that samples of cohesive and cohesionless soil are returned for each sample interval throughout the depth of the boring.~~

Undisturbed samples of the cohesive soils are obtained from the borings by 3-inch diameter Shelby tube samplers. Disturbed samples are obtained by a 2 inch O.D. split-spoon sampler. NX-size double tube core barrels are used in obtaining continuous cores of harder rock formations. Samples and cores of subsurface materials are extracted and classified in the field. Undisturbed samples and typical NX-size cores are identified according to boring number and depth and sealed in plastic sheeting to prevent moisture changes. Disturbed samples are identified according to boring number and depth and placed in moisture proof plastic bags. All samples and cores are then placed in core boxes and transported to the laboratory for tests and further study.

Field Strength Relationships

Hand penetrometer tests are performed on undisturbed samples as a gauge of relative consistency during the logging process. Results of the hand penetrometer tests are shown in tons per square foot in the "N-Blows Per Foot" column on the Logs of Borings.

LABORATORY ANALYSIS PROCEDURES

Upon returning from the field, samples are unwrapped one at a time and are closely examined. Strata depths or material changes are easily observed at this time. Field data and appropriate modifications are logged and returned to the Engineer-of-Record for test assignment. The following methods of analysis may be utilized as needed.

- a. Visual examination and classification. Soil classifications refer to the "Unified Soil Classification System": ASTM D 2487-83.
- b. Atterberg Limits Tests: ASTM D 4318-84.
- c. Sieve Analysis of Fine and Coarse Aggregates, Minus 200-Mesh Sieve Tests: ASTM D 422-72 and ASTM D 1140-71.
- d. Moisture Content Tests: ASTM D 2216.
- e. Unconfined Compression and Unit Dry Weight Determinations: ASTM 2166.
- f. Specific Gravities of Soils: Corps of Engineers - EM 1110-2-1906.
- g. Controlled Expansion Consolidation Tests: ASTM D 2435.
- h. Absorption Pressure and Absorption-Swell Tests.
Expansive qualities of clay soils are partially determined by these tests, which are performed by placing the sample in a consolidation machine and maintaining a constant volume (by adding vertical loads) as the sample is permitted to absorb moisture. The unit vertical load required to prevent a volume increase is recorded as the absorption-pressure. The vertical load is then reduced and the sample permitted to expand during additional moisture increases. When the sample exhibits very little tendency for further expansion, the volume increase is recorded as the absorption-swell and the total moisture gain determined.
- i. Unit Weight: EM 1110-1-1906.
- j. Triaxial Compression Test: EM 1110-1-1906.
- k. Compaction Tests (Standard and Modified Proctor): EM 1110-2-1906.
ASTM D 698, D 1557, TEX 113-E.
- l. Hydrogen Ion Concentration Determination: pH testing.
- m. Permeability Testing: ASTM D 2434 - EM 1110-2-1906.

LOCATION OF BORINGS

PLATE I

SUMMARY OF CLASSIFICATION TESTS

PRAIRE CREEK WASTEWATER TREATMENT PLANT
 PHASE II (GROUNDWATER PROTECTION)
 LEWISVILLE, TEXAS

Boring Number	Depth (feet)	Liquid Limit %	Plasticity Index %	% Passing 200-Mesh Sieve	Moisture Content	Unified Soil Classification	Material Description
10	1.5- 3.0	47	30	62	22	CL-CH	SANDY CLAY: Dark Brown
	6.0- 7.5	41	27	63	15	CL	SANDY CLAY: Brown & Gray
	10.5-12.0	--	--	10	31	SP-SC	SAND: Light Brown
11	1.5- 3.0	63	42	--	21	CH	CLAY: Brown to Dark Gray
	3.0- 4.5	33	17	51	18	CL	SANDY CLAY: Gray & Brown
	13.5-15.0	--	--	9	39	SC-SP	CLAYEY SAND: Gray & Yellowish- Brown
12	0.0- 1.5	47	30	59	33	CL-CH	SANDY CLAY: Brown
	4.5- 6.0	71	45	86	29	CH	CLAY: Dark Gray
	13.5-15.0	--	--	6	49	SP-SC	SAND: Yellowish- Brown & Gray
13	4.5- 6.0	44	24	71	48	CL	SANDY CLAY: Brown to Dark Gray
	9.0-10.5	43	29	67	39	CL	SANDY CLAY: Gray & Yellowish- Brown
14	1.5- 2.0	48	28	--	20	CH-CL	CLAY: Dark Gray
	2.5- 3.0	24	10	29	19	SC	CLAYEY SAND: Brown
	4.5- 5.0	--	--	15	30	SC	CLAYEY SAND: Light Brown

SUMMARY OF UNIT WEIGHT, MOISTURE CONTENT, AND
UNCONFINED COMPRESSION TEST RESULTS

PRAIRIE CREEK WASTEWATER TREATMENT PLANT
PHASE II (GROUNDWATER PROTECTION)
LEWISVILLE, TEXAS

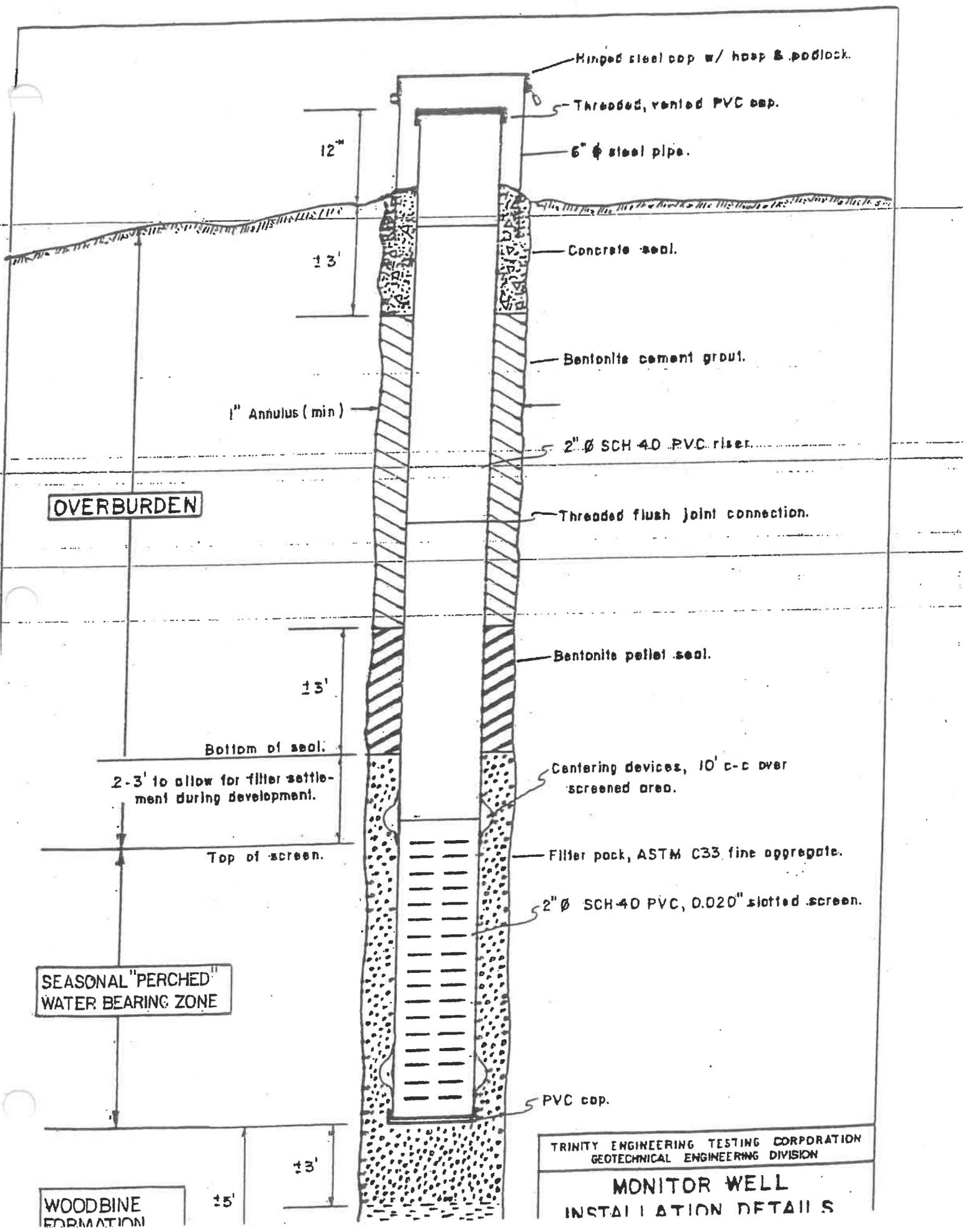
Boring Number	Depth (feet)	U.D.W. Lbs./Cu. Ft.	M.C. %	Air Voids %	Q _u T/Sq. Ft.	Material Description
10	6.0- 7.5	116	15	2	1.7	SANDY CLAY: Brown
11	3.0- 4.5	111	13	11	2.5	SANDY CLAY: Gray & Brown
	7.5- 9.0	109	17	5	2.1	SANDY CLAY: Gray & Yellowish-Brown
12	4.5- 6.0	80	30	15	2.4	CLAY: Dark Gray
	9.0-10.5	109	18	4	3.7	SANDY CLAY: Gray & Yellowish-Brown
13	4.5- 6.0	98	21	8	3.2	SANDY CLAY: Dark Gray
	9.0-10.5	109	18	3	2.5	SANDY CLAY: Gray & Yellowish-Brown

U.D.W. - Unit dry weight
M.C. - Moisture content
Q_u - Unconfined compressive strength

SUMMARY OF CONSTANT HEAD FLEX WALL PERMEABILITY TESTING

PRAIRIE CREEK WASTEWATER TREATMENT PLANT
PHASE II (GROUNDWATER PROTECTION)
LEWISVILLE, TEXAS

BORING NUMBER:	12
DEPTH:	4.5-6.0
DESCRIPTION:	Dark Gray Clay
CLASSIFICATION:	CH
LIQUID LIMIT:	71%
PLASTIC LIMIT:	26%
PLASTICITY INDEX:	45
% PASSING #200 SIZE SIEVE:	86%
DENSITY	
Before Test	77.9 pcf
After Test	76.9 pcf
MOISTURE CONTENT	
Before Test	24.9%
After Test	26.6%
CONSTANT HEAD	15 psi
CONFINING PRESSURE	20 psi
TEST DURATION	66 hours
COEFFICIENT OF PERMEABILITY	1.53×10^{-9} cm/sec



Hinged steel cap w/ hoop & padlock.

Threaded, vented PVC cap.

12"

6" ϕ steel pipe.

13'

Concrete seal.

Bentonite cement grout.

1" Annulus (min)

2" ϕ SCH 40 PVC riser.

OVERBURDEN

Threaded flush joint connection.

13'

Bentonite pellet seal.

Bottom of seal.

Centering devices, 10' c-c over screened area.

2-3' to allow for filter settlement during development.

Filter pack, ASTM C33 fine aggregate.

Top of screen.

2" ϕ SCH 40 PVC, 0.020" slotted screen.

SEASONAL "PERCHED" WATER BEARING ZONE

PVC cap.

WOODBINE FORMATION

15'

13'

TRINITY ENGINEERING TESTING CORPORATION
 GEOTECHNICAL ENGINEERING DIVISION
**MONITOR WELL
 INSTALLATION DETAILS**

LOG OF BORING

Project: PRAIRIE CREEK WWTP - PHASE II

Location: Lewisville, TX

Date: 7-9-86

Type: Undisturbed

Boring No: 11

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEV	DEPTH SCALE
							465.59	
5			4.5+	CLAY: Hard, Brown to Dark Gray LL=63, PI=42, (-)200=65% (CH)			462.59	
			4.5+	SANDY CLAY: Hard, Gray and Brown LL=33, PI=17 (-)200=51% (CL)			461.09	
			4.5+	CLAYEY SAND: Light Brown (SC)			459.59	
			4.5	SANDY CLAY: Very Stiff, to Hard, Gray and Yellowish-Brown (CL)				
				Water Table July 9, 1986				
10			4.0				455.09	
			4.5+	CLAYEY SAND TO SAND: Medium Dense to Dense Gray and Yellowish-Brown (-)200=9% (SC-SP)			450.59	
15			22					
			36					
				TOTAL DEPTH OF BORING: 15.0-Feet				
				NOTE: The boring was advanced to a depth of 15.0 feet below the ground surface without using drilling fluid and groundwater was encountered at the 7.8-foot depth.				

LOG OF BORING

Project: PRAIRIE CREEK WWTP - PHASE II

Location: Lewisville, Tx

Date: 7-9-86

Type: Undisturbed

Boring No: 13

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEV.	DEPTH SCALE
							466.29	
			4.5+	SANDY CLAY: Hard, Gray and Tan (CL)			463.29	
			4.5+	SANDY CLAY: Very Stiff, Brown to Dark Gray				
			4.0	LL=44, PI=24 (-)200=71% (CL)			460.29	
5			4.5	CLAYEY SAND: Gray and Yellowish-Brown				
				(SC)			457.29	
				(CL)				
			4.5	LL=43 PI=29 (-)200=67% SANDY CLAY: Very Stiff,  Water Table 10 minutes late			454.29	
10			4.5	Gray and Yellowish-Brown  Water Table July 7, 1986				
				CLAYEY SAND: Medium Dense, Gray and Yellowish-Brown (SC)			451.29	
			29					
15				TOTAL DEPTH OF BORING: 15.0-Feet				
				NOTE: The boring was advanced to a depth of 15.0-feet below the ground surface without using drilling fluid and groundwater was encountered at the 13.0-foot depth. After 10 minutes, the water surface was 11.0-feet below the ground surface.				

LOG OF BORING

Project: PRAIRIE CREEK WWTP - PHASE 11

Location: Lewisville, TX

Date: 7-9-86

Type: Hand Auger/
Disturbed

Boring No: 15

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEV.	DEPTH SCALE
							463.92	
2				SANDY CLAY: Brown and Yellowish-Brown with some Gravel (CL-CH)			462.42	
				LL=51, PI=31				
				CLAY: Dark Gray (CH)			460.92	
4				SANDY CLAY: Brown (CL)			459.92	
				LL=29, PI=16 (-) 200=89%				
				TOTAL DEPTH OF BORING: 4.0-Feet				
				NOTE: Ground surface inundated at time of drilling.				

LOG OF BORING

Project: PRAIRIE CREEK WTP - PHASE II

Location: Lewisville, TX

Date: 7-9-86

Type: Hand Auger/
Disturbed

Boring No: 17

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEV.	DEPTH SCALE
							464.47	
2				CLAY: Brown and Yellowish-Brown LL=50, PI=31, (-)200=83% (CH)			460.47	
4				SANDY CLAY: Dark Gray (CL)			459.47	
				TOTAL DEPTH OF BORING: 4.0-Feet				
				NOTE: Ground surface inundated at time of drilling.				

LOG OF BORING

Project: PARIPIE CREEK WWTP - PHASE II

Hand Auger/
Disturbed

Boring No: 19

Location: Lewisville, TX

Date: 7-9-86 Type:

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEV.	DEPTH SCALE
							464.14	
2	[Diagonal Hatching]	[Vertical Hatching]		SANDY CLAY: Brown (CL)			462.91	
				LL=49, PI=30 (-) 200=85%			461.41	
				CLAY: Dark Gray (CL-CH)			460.41	
				(CL)				
4				SANDY CLAY: Brown				
				TOTAL DEPTH OF BORING: 4.0-Feet				
				NOTE: Ground surface inundated at time of drilling.				

LOG OF BORING

Project: PRAIRIE CREEK WWTW - PHASE II

Hand Auger/

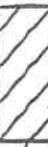
Date: 7-9-86

Type:

Disturbed

Boring No: 21

Location: Lewisville, TX

DEPTH FEET	SYMBOL	SAMPLE	N-BLOWS PER FOOT	MATERIAL DESCRIPTION	CORE DRILLED	CORE RECOVERED	ELEV.	DEPTH SCALE
							464.60	
2				SANDY CLAY: Brown and Yellowish-Brown LL=44, PI=28 (-) 200=79% (CL)			462.60	
				SANDY CLAY: Dark Gray (CL-CH)			461.10	
4				SANDY CLAY: Brown and Yellowish-Brown, Some Gravel (CL)			460.60	
				TOTAL DEPTH OF BORING: 4.0-Feet				
				NOTE: Ground surface inundated at time of drilling.				

ATTACHMENT 12

Section 11. Sewage Sludge Lagoons

(D) Site Development Plan

Domestic Technical Report 1.0

ATTACHMENT TECHNICAL REPORT 13(d)

Description of Method Used to Deposit Sludge in the Lagoon

The Lagoon is used only in Emergency situations, where normal operations have been interrupted. Sludge has not been added to the Lagoon since September 2001.

In an emergency situation, where normal sludge management operations have been interrupted, various alternatives would be discussed on handling excess solids including; supernatant of the Digester and/or batch feeding small amounts sludge onto the Lagoons until the problem was resolved.

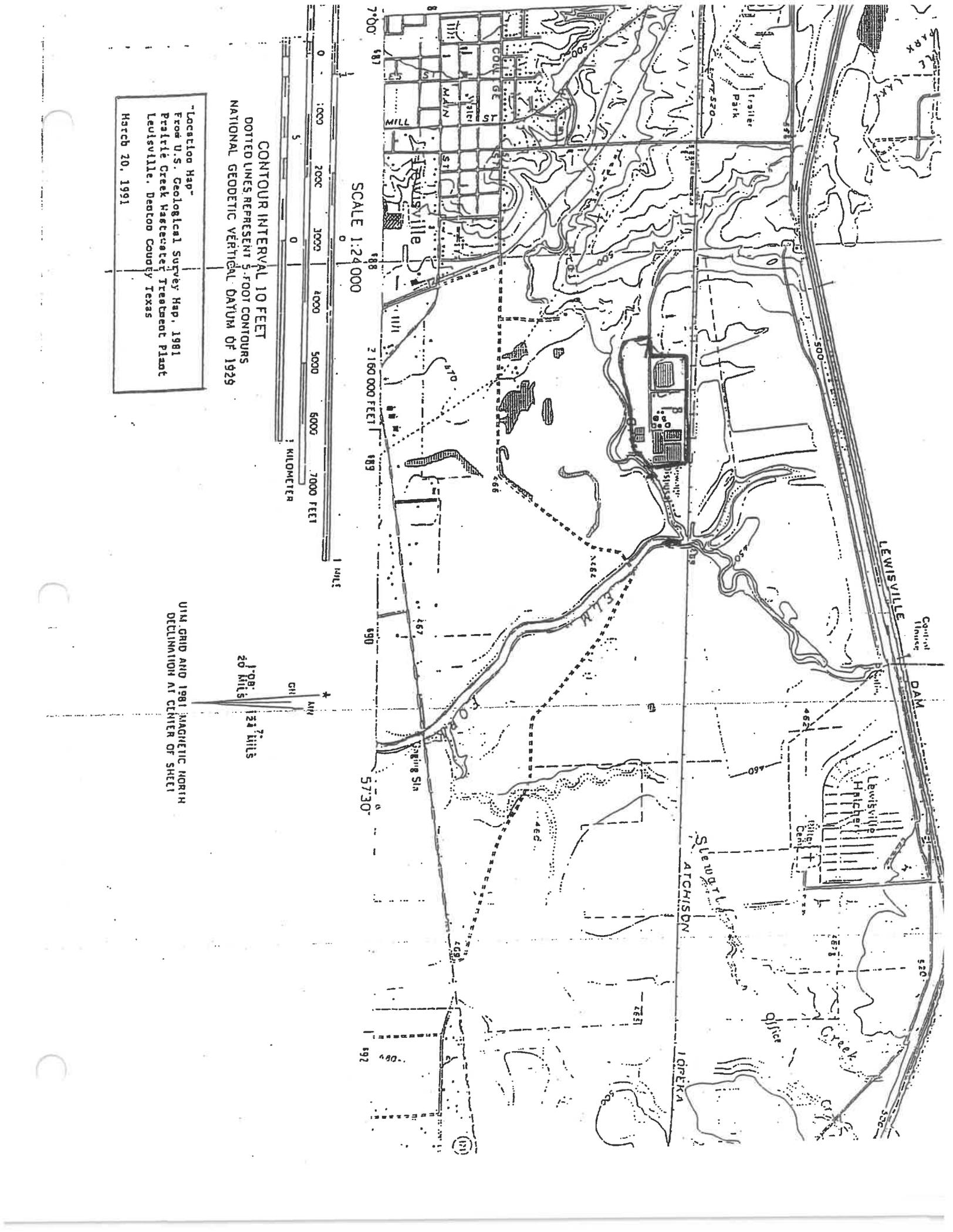
The solids are pumped from the Digester onto the sludge lagoon drying area in small batches through a distribution header. The distribution header contains thirteen valves; each valve serves as a zone averaging 1.2 acres per zone, this allows the sludge to be spread very thinly over the surface eliminating sludge islands. The sludge is air dried and conditioned with a front-end loader which promotes further drying by turning and piling the sludge. The dried sludge is removed by the City of Lewisville and commercial haulers to DFW Landfill, located at 1600 South Railroad Street Lewisville, Texas 75067.

ATTACHMENT 13

Section 11. Sewage Sludge Lagoons

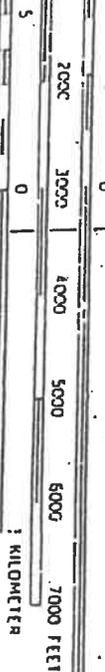
**(D) Plan View and Cross Section of the Sludge Lagoons,
Copy of the Closure Plan**

Domestic Technical Report 1.0



CONTOUR INTERVAL 10 FEET
 DOTTED LINES REPRESENT 5-FOOT CONTOURS
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

SCALE 1:24 000



"Location Map"
 From U.S. Geological Survey Map, 1981
 Prairie Creek Wastewater Treatment Plant
 Lewisville, Denton County, Texas
 March 20, 1991

UTM GRID AND 1981 MAGNETIC NORTH
 DECLINATION AT CENTER OF SHEET





LEWISVILLE

Deep Roots. Broad Wings. Bright Future.

Public Services

September 17, 2024

Texas Commission on Environmental Quality
Agriculture and Sludge Team (MC-148)
P.O. Box 13087
Austin, TX 78711-3087

CERTIFIED MAIL

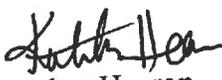
**RE: CLOSURE PLAN, PRAIRIE CREEK WWTP
TPDES PERMIT #10662-001**

Dear Administrator:

The City of Lewisville Prairie Creek Wastewater Treatment Plant TPDES Permit 10662-001, issued on February 5th, 2021, requires the submission of a Closure Plan for the Sludge Disposal Field within one year from the date of issuance. Additional requirements of the above-referenced permit require the Closure Plan to be updated once every two years. The latest Closure Plan was submitted to the TCEQ in October 2022. Enclosed is the current Closure Plan for the Prairie Creek Wastewater Treatment Plant's Sludge Disposal Field. The Closure Plan has been modified to represent current operations and disposal costs in 2024 dollars. Also included for your reference are the most recent sludge analyses dated March and September 2024 and the Geotechnical Study and monitoring well results for 2023.

If you need any additional information, please contact Katelyn Hearon at (972) 219-5078 or Wastewater Superintendent Cedric West at (972) 219-5051.

Sincerely,


Katelyn Hearon
Utilities Manager

KH/CW

Enclosures

c: Sid Slocum, TCEQ
Katelyn Hearon
Cedric West
File

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P.O. Box 299002 • Lewisville, Texas 75029-9002
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Prairie Creek WWTP **WQ Permit No. 10662-001**

I. INTRODUCTION

This closure plan has been prepared per the Texas Commission on Environmental Quality (TCEQ) requirements outlined in TPDES Texas Water Quality Permit No. 10662-001 as authorized on February 5th, 2021. The permit provides for the storage of digested sludge on approximately 16 acres of sludge field located along the southern portion of the treatment facility. The City of Lewisville plans to operate the existing sludge field for an indefinite time period is elected, the City of Lewisville will accomplish an environmentally acceptable closure in full compliance with state and federal requirements and in adherence with the procedures set forth in this document.

II. PROJECT DESCRIPTION

The Prairie Creek Wastewater Treatment Plant is in the northeast portion of the City of Lewisville, Latitude 33° 03' 20" N, Longitude 96° 58' 45" W in Denton County, Texas. The location of the facility is reflected on the attached "Location Map" (*Attachment 1*). Plate 1 provides a general layout of the facility, the sludge field area, and the monitoring wells that surround the perimeter of the sludge field (*Attachment 2*). Prairie Creek, which is a tributary of the Trinity River, parallels the eastern and southern portions of the site.

III. GENERAL SUBSURFACE CONDITIONS

The sludge field area lies from east to west along the southernmost portion of the facility property. An earthen dike several feet higher in elevation than the sludge storage area, to contain, and thereby, preclude sludge and/or run-off, borders the sludge field. A natural in-situ clay liner several feet in thickness covers the floor of the sludge field to control seepage. Trinity Engineering Testing Corporation conducted compaction testing of the sludge field, Report No. D86-1352, September 1986. These studies, which included twelve shallow borings and laboratory classification tests, revealed that the sludge field contained a natural liner of sandy clay or clay from two to generally four feet in thickness and concluded that the liner materials were sufficiently impermeable to retard flow into the groundwater, (R. Tolson, P.E., April 1998). A certification statement of the liner's adequacy is included as (*Attachment 3*).

A concurrent investigation conducted during planned expansion of the Wastewater Treatment Plant, revealed conditions like those in the sludge field area and containing an upper zone of clay or sandy clay underlain by clayey sands, sands and/or sand-gravel combinations. (*Attachment 4*) consists of a Location of Borings and Monitoring Well Site Plan, 1989; Boring Profiles or vertical cross sections of the sludge field (14-21) and the Summary of Constant Head Flex Wall Permeability Testing (14-21) taken from Trinity Engineering Testing Corporation's study D89-1210. These soils were found to extend to the level of the primary geologic formation which was identified as the Woodbine Formation of Cretaceous Age. Perched groundwater levels were reported at depths on the order of 9 to 11 feet below the ground surface in the sludge field area, or at elevations 453.5 to 457.8 msl at the time of the field investigation.

IV. TOPOGRAPHY AND VEGETATIVE COVER

The Treatment Plant facility, identified on the USDA Natural Resources Conservation Service Soil Map and Legend (*Attachment 5*) consists of three soil types. Bastrop fine sandy loam, 1 to 3 percent slopes on the northeast and southwestern most corners of the facility, Gasil and Konsil soils, 1 to 5 percent slopes on the northwestern corner of the facility property. The sludge field itself and approximately 78 percent of the facility area is predominantly Seagoville clay.

Bastrop fine sandy loam consists of deep, gently sloping soil on high terraces above the flood plains of major streams. The surface layer is neutral, brown sandy loam about 5 inches thick. The next layer, which extends to a depth of about 16 inches is also neutral, reddish-brown sandy clay loam. From 16 to 56 inches is neutral, yellowish-red sandy clay loam, and from 56 to 80 inches is neutral, reddish-yellow sandy clay loam with a few dark brown mottles. The soil is well drained and surface runoff is medium; permeability is moderate.

The Gasil series consists of deep, loamy soils that formed in loamy material interbedded with sandstone. The slopes range from 1 to 8 percent. The surface layer of 0 to 7 inches is neutral, dark brown fine sandy loam. The next layer, which extends to a depth of 16 inches, is neutral, dark brown sandy clay loam. From 16 to 37 inches is medium acidic, light yellowish brown sandy clay loam with a few fine faint strong brown mottles. From 37 to 57 inches is medium acidic, light yellowish brown sandy clay loam with few fine faint strong brown mottles, and from 57 to 80 inches is neutral, mottled light brownish gray, strong brown, and red sandy clay loam. The Konsil series consists of loamy soils on uplands that formed in loamy material and interbedded sandstone. The slopes range from 1 to 8 percent. The surface layer of 1 to 12 inches is neutral, brown fine sandy loam. The next layer extends to 21 inches and is slightly acid, yellowish-red sandy clay loam. From 21 to 32 inches is slightly acid, reddish yellow sandy clay loam and strong brown. From 32 to 44 inches are medium acid, reddish yellow sandy clay loam, strong brown, and common medium distinct red mottles.

The layer from 44 to 66 inches is medium acid, reddish yellow sandy clay loam, strong brown, common coarse distinct red and reddish yellow mottles.

The Seagoville series consists of deep, clayey soils that formed in recent alluvium on bottom land. The slopes range from 0 to 1 percent. The first layer from 0 to 11 inches is moderately alkaline, dark grayish brown clay, and very dark grayish brown. The next layer from 11 to 28 inches is moderately alkaline, dark grayish brown clay, and very dark grayish brown. From 28 to 37 inches is moderately alkaline dark brown sandy clay loam and dark brown with common fine yellowish-brown mottles. The layer from 37 to 80 inches is mildly alkaline, brownish yellow loamy sand, yellowish brown, with common medium distinct dark brown mottles.

Plant Names:	Percent Vegetative Cover / Soil types		
	Bastrop	Gasil & Konsil	Seagoville
Big bluestem		10	10
Little bluestem	50	45	40
Canada wildrye			15
Indiangrass	10	10	10
Switchgrass	5		10
Purpletop	5		5
Texas wintergrass			
Sideoats grama	5		
Fall witchgrass	5		
Post oak	5	10	
Blackjack oak	5	5	
Lindheimer hackberry	5		
Sand lovegrass		5	
Beaked panicum	3	10	
Virginia wildrye	2	5	
Pecan			5
American elm			5
Other perennial forbs		5	5
Other annual forbs			5
Other shrubs		5	
Other perennial grasses		5	5
Other trees		15	5

V. PROJECT HISTORY

An original closure plan was submitted to the Texas Water Commission in January 1990. The most recent closure plan was submitted to the TCEQ on October, 2022. This document covers the same basic closure methodology and current estimated costs associated with formal closure activities. Recommendations or procedures to be followed to achieve closure objectives have also been included.

The Prairie Creek Wastewater Treatment Plant facilities were initially placed into operation in the 1970's. As part of the initial construction, the existing earthen dike surrounding the sludge field was constructed. Grading plans for the site indicate that controlled filling of the area was accomplished to result in a gradual slope from west to east, allowing drainage of liquid from the field area. In September 1979, the Prairie Creek Wastewater Treatment Plant was granted a permit by the Texas Water Commission. Subsequent TCEQ permit provisions since 1987 have required continued sampling and testing of the treated sludge, periodic sampling and testing of the four monitoring wells located around the sludge field and a Geotechnical Report of the analysis. A summary from the last Geotechnical Report can be found as (Attachment 6). Groundwater data has reflected constituent concentrations generally below acceptable values for groundwater. Nothing has been detected that would indicate an imminent threat to the environment or to human health.

Treated sludge is monitored upon discharge to the sludge field and analyzed for both metals and conventional pollutants, as well as annual Toxicity Characteristic Leaching Procedure (TCLP) results, Polychlorinated Biphenols (PCB), and other required testing to meet 30 TAC Chapter 330. Sampling methodologies and analytical test methods are in accordance with the U.S. EPA's *Test Methods for Evaluating Solid Waste - Physical/Chemical Methods, SW-846*. The resulting sludge data have been summarized and forwarded to the TCEQ in accordance with permit requirements. A copy has been included with this Closure Plan as (Attachment 7).

Beginning in late 1988 and by mid 1989, the operation of the sludge field was altered to facilitate maintenance and assure the integrity of the clay liner. An earthen dike was constructed in the north-south direction across the western portion of the facility. The grade of the sludge field floor was re-established to near original levels to correct for excavation irregularities using highly plastic clay borrow soil obtained off-site. The borrow was compacted under field moisture and density testing controls. Additional soil samples were obtained from three test pits located within the sludge field, prior to regrading. The results of these tests were comparable to constituent concentration previously observed and tend to indicate that toxic conditions do not exist within the soil liner materials.

On October 21, 2004, a comprehensive compliance investigation (CCI) of the Prairie Creek Wastewater Treatment Facility was conducted by Texas Commission on Environmental Quality's (TCEQ) Dallas/Ft. Worth Region Office. In the TCEQ's letter dated December 14, 2004, the City of Lewisville was cited with "Failure to obtain authorization to store digested sludge on the sludge field for greater than two years." A compliance plan requesting a deadline of one year for the removal of sludge on the sludge field was submitted to the TCEQ for review and approval.

Sludge was removed from the sludge field for final disposal during April, May, June, September, and October 2005. An estimated 7,785 cubic yards of sludge was hauled to DFW Recycling and Disposal Facility, a Type 1 Landfill (Permit 1025) by L. H. Chaney Materials, Inc. Their Transporter Registration Number is 21470.

VI. CLOSURE METHODOLOGY

The City of Lewisville will provide prior notification to both the TCEQ and the U.S. EPA of its intent to initiate closure procedures. The approved closure will be in full compliance with state and federal requirements and generally conform to the procedures outlined within this document. In general, the final contour of the site is expected to match the original grade of the sludge field area and reestablish the gradual slope from west to east, preventing the pooling of rainwater. This will restore the land contours to a condition superior to that which existed prior to the initial construction of the facility in the 1970s. Any filling that may be required to achieve the finished grade will be accomplished using acceptable soil sources. In meeting these closure objectives, the following tasks will be accomplished:

- 1) All sludge remaining on the field will be removed and disposed of off-site in accordance with state and federal regulations. Currently, there is no sludge stored on the sludge field. In previous years the sludge was stockpiled for removal during the summer months. Treated sludge is monitored upon discharge to the sludge field and analyzed for both heavy metals and conventional pollutants, which include Antimony, Arsenic, Beryllium, Cadmium, Chromium, Copper, Lead, Manganese, Mercury, Molybdenum, Nickel, Selenium, Silver, Thallium, Zinc, Total Cyanide, Total Phenols, Ammonia-Nitrogen, Nitrate-Nitrogen, Total Nitrogen, Total Phosphorus, and Total Potassium. In addition, sludge is tested annually for Toxicity Characteristic Leaching Procedure (TCLP) results, Polychlorinated Biphenols (PCB), and other required testing to meet 30 TAC Chapter 330. Sampling methodologies and analytical test methods are in accordance with the U.S. EPA's *Test Methods for Evaluating Solid Waste – Physical/Chemical Methods, SW-846*.
- 2) Following sludge removal, test pits will be excavated through the in-situ clay liner and soil samples will be obtained under controlled conditions at frequent intervals. Selected samples will be tested for heavy metals and Toxicity Characteristic Leaching Procedure (TCLP).
- 3) Concomitant with the test pit sampling efforts within the sludge field, samples will also be obtained at approximately five selected locations near the site, within a two-mile radius. These samples will be used to establish background levels of heavy metals naturally occurring within the soils similar to those soils beneath the sludge field.

Following analysis of the test results, closure details will be formulated under the direction of a Registered Professional Engineer experienced in similar closure activities. In general, soils beneath the sludge field containing heavy metals, which exceed established background levels of the surrounding area would be excavated and disposed of off-site in accordance with state and federal regulations.

Background levels from the surrounding areas will be calculated by determining the mean and standard deviation of the mean using the plus side of the standard deviation as illustrated below:

Sample	Total Lead (mg/Kg) (X)	d (M-X)	d ²
1	47.5	6.33	40.07
2	56.7	2.87	8.24
3	47.4	6.43	41.34
4	63.7	9.87	97.42
	<u>N = 215.30</u>		<u>187.07</u>

Mean

$$M = \frac{215.3}{4} = 53.83$$

Standard Deviation

$$SD = \left(\frac{1d^2 + 2d^2 + 3d^2 + 4d^2}{N - 1} \right)^{1/2}$$

$$SD = \left(\frac{187.07}{3} \right)^{1/2} = \left(62.36 \right)^{1/2}$$

$$SD = 7.90$$

$$\text{Mean (M) plus standard deviation (SD)} = 53.83 + 7.9$$

$$M + SD = 61.73 \text{ mg/kg}$$

Accordingly, the calculated results define the background level for this area as 61.73 mg/Kg.

If the initial sample analyses indicate the level of contamination in the soils beneath the sludge field floor to be above the established background level, additional soil will be excavated and disposed of off-site in an approved facility. The depth of the excavation will depend on the depth of the sample found to have contaminant concentrations above the acceptable level. After removal of contaminated soil, a second set of samples will be collected. This procedure will be repeated until all the contaminated materials have been satisfactorily removed and subsequent samples do not show contamination levels above the established background level. If more than

one set of samples is collected the last set of samples which shows the contaminant concentration within acceptable levels will be designated as the final set. After the final sampling and analysis, all data will be submitted to the TCEQ within ten (10) working days.

Certification of closure will be accomplished in a manner and format acceptable to the TCEQ by both the City of Lewisville and the independent Registered Professional Engineer. The closure certification will be filed in a timely manner and attest to completion of the formal closure activities in accordance with specifications provided in the approved closure plan.

VII. ANTICIPATED CLOSURE SCHEDULE AND COST

Requirements specified in this closure plan are estimated to be complete within 180 days after final approval of the closure plan in accordance with the following schedule:

- 1) Within six weeks following receipt of final TCEQ approval of the closure plan, a Purchase Order for closure services will be issued.
- 2) Within twenty weeks following issuance of the Purchase Order, the closure will be completed.
- 3) Within two weeks following completion, the closure certification will be submitted. The estimated total cost of the closure is **\$846,231**, which includes a fifteen-percent contingency factor.

VIII. IMPLEMENTATION

A. Security

The Prairie Creek Wastewater Treatment Plant is totally enclosed by security fencing to prevent unauthorized entry. The entrance gate is locked, and access is gained only through authorization from plant personnel. All persons entering the facility must sign-in at the office. These security measures or equally acceptable alternative measures will remain in effect during closure.

B. Closure Procedures

All work will be completed under the supervision of the City of Lewisville's Director of Public Services or the Director of Public Services designee. The city will retain an independent Registered Professional Engineer to verify that the closure activities have been executed in accordance with the approved closure plan and applicable regulations. The Region 4 office of the TCEQ will be given advance notification of closure activities.

C. Routine and Emergency Plan

All closure activities will be conducted in such a manner as to prevent the release or discharge of waste from the site. All waste loading areas will be inspected and cleaned daily or as required to prevent any loss of waste materials. All equipment used during closure operations will be thoroughly cleaned prior to release. Equipment used or structures will be decontaminated in a manner and format acceptable to TCEQ guidelines. Contaminated equipment will be washed to remove residual contaminants. Final rinsate analyses will be used to document final decontamination. Contaminated rinsate will be transported by a permitted waste hauler for off-site disposal in an approved facility. In the event of an unexpected loss during the closure, all fugitive wastes will be collected and returned to the waste storage area for proper handling.

A report of these findings will be included in the closure document.

D. Monitoring

The closure operations are designed to remove all contaminated soils/materials. Monitoring during the closure will include laboratory analyses of the soil samples to ensure the complete removal of all contaminated soils and rinsate. Sampling methodologies and analytical test methods will be conducted in accordance with the U.S. EPA's *Test Methods for Evaluating Solid Waste – Physical/Chemical Methods, SW-846* and *40CFR Part 136*.

E. Record Keeping

A log of activities will be maintained throughout the closure procedure, including a record of daily activities and weather conditions. The City of Lewisville will keep a copy of this log on-site. Upon completion of closure, an independent Registered Professional Engineer will prepare and certify a report for the City of Lewisville's permanent files, and a copy will be forwarded to the TCEQ. The TCEQ will be notified of any unusual or significant event occurring during closure activities within 24-hours of the incident.

F. Personnel Training and Supervision

The personnel involved in the closure process, for sampling, removal and/or transportation of wastes, will be trained in waste management and safety, or will be constantly supervised by one who is experienced and trained in these areas. All personnel involved with the closure process will be trained in and informed of the nature of the work required.

IX. POST CLOSURE TESTING AND MAINTENANCE

Groundwater monitoring will continue as required by the permit, for a period of two years following the closure of the Sludge Field unless otherwise required by the permit. If no significant changes in groundwater quality are detected, groundwater testing activities will also be terminated. If substantial changes to groundwater quality are detected, a modification to the closure plan will be prepared and submitted for TCEQ approval.

COST ESTIMATE FOR CLOSURE PLAN
Prairie Creek WWTP Sludge Field

1. Excavate and Transport Sludge from Sludge Field to Approved Off-Site Sanitary Landfill.

Assumptions: The Wastewater Treatment Plant currently disposes of all processed sludge and maintains the sludge field only as an alternative emergency measure in case of an operational or equipment failure. Assuming mechanical failure, the largest digester, digester #3, approximately 1,000,000 gallons of sludge could be temporarily stored on the sludge field at the time of closure (about 15 acres of operating area). The excavation, transportation, and disposal costs in terms of 2024 dollars are estimated to be:

$$\text{Sludge Volume} = \frac{1,000,000 \text{ gallons}}{(27) (7.48)} = 4,950 \text{ cubic yards}$$

Current disposal costs are \$19.75 per cubic yard. The total disposal cost would be \$97,762.50.

Transportation of the 4,950 cubic yards is estimated at \$60 per 5 cubic yards, which would be:

$$\$60 \times \frac{(4,950) \text{ cubic yards}}{5} = \$59,400$$

2. Excavate and Transport Contaminated Soil from the Sludge Field to an Approved Off-Site Sanitary Landfill.

Assumptions: An average 6-inch-thick zone of contaminated soil is present on the surface of the floor and the earthen dike that encloses the sludge field. Excavation, transportation, and disposal costs are estimated to be the same as for sludge.

$$\text{Contaminated Soil Volume on surface} = \frac{15(43,560)}{27} (0.5) = 12,100 \text{ cubic yards}$$

$$\text{Contaminated Soil Volume in dike} = \frac{(3400)(2.5)(.5)}{27} = 157 \text{ cubic yards}$$

$$\begin{aligned} \text{Soil Disposal Cost} &= 12,100 + 157 = 12,257 \text{ cubic yards } (\$19.75 \text{ per cubic yard}) \\ &= \$242,075.75 \end{aligned}$$

Transportation Cost = $\frac{12,257}{5}$ cubic yards (\$60 per 5 cubic yards) = \$147,084

3. Regrading Costs

Amount of soil to be replaced = 12,257 cubic yards

Off-Site Borrow required = 12,257 cubic yards

Assume On-Site Soils and Off-Site Borrow Excavation, Transportation, Leveling, and Compaction at \$50.00 per cubic yard average.

Regrading Cost = 12,327 x \$50.00 = \$616,350

4. Engineering and Testing Allowances

Collection of Field Data	=	\$23,000
Development of Closure Details	=	\$3,250
Construction Phase Activities	=	\$6,375
Final Report and Certification	=	\$2,080
Engineering/Testing Total	=	<u>\$34,705</u>

5. Summary

Sludge Removal/Disposal	=	\$ 157,162.50
Soil Removal/Disposal	=	\$ 389,159.75
Site Regrading	=	\$ 616,350.00
Engineering/Testing	=	<u>\$ 34,705.00</u>
Estimated Total	=	<u>\$1,197,377.52</u>
15% Contingency	=	<u>\$179,606.58</u>
Recommended Total in 2024 Dollars	=	<u>\$ 1,376,983.84</u>



LEWISVILLE

Deep Roots. Broad Wings. Bright Future.

Prairie Creek WWTP **WQ Permit No. 10662-001**

I. INTRODUCTION

This closure plan has been prepared per the Texas Commission on Environmental Quality (TCEQ) requirements outlined in TPDES Texas Water Quality Permit No. 10662-001 as authorized on February 5th, 2021. The permit provides for the storage of digested sludge on approximately 16 acres of sludge field located along the southern portion of the treatment facility. The City of Lewisville plans to operate the existing sludge field for an indefinite time period. If elected, the City of Lewisville will accomplish an environmentally acceptable closure in full compliance with state and federal requirements and in adherence with the procedures set forth in this document.

II. PROJECT DESCRIPTION

The Prairie Creek Wastewater Treatment Plant is in the northeast portion of the City of Lewisville, Latitude 33° 03' 20" N, Longitude 96° 58' 45" W in Denton County, Texas. The location of the facility is reflected on the attached "Location Map" (*Attachment 1*). Plate 1 provides a general layout of the facility, the sludge field area, and the monitoring wells that surround the perimeter of the sludge field (*Attachment 2*). Prairie Creek, which is a tributary of the Trinity River, parallels the eastern and southern portions of the site.

III. GENERAL SUBSURFACE CONDITIONS

The sludge field area lies from east to west along the southernmost portion of the facility property. An earthen dike several feet higher in elevation than the sludge storage area, to contain, and thereby, preclude sludge and/or run-off, borders the sludge field. A natural in-situ clay liner several feet in thickness covers the floor of the sludge field to control seepage. Trinity Engineering Testing Corporation conducted compaction testing of the sludge field, Report No. D86-1352, September 1986. These studies, which included twelve shallow borings and laboratory classification tests, revealed that the sludge field contained a natural liner of sandy clay or clay from two to generally four feet in thickness and concluded that the liner materials were sufficiently impermeable to retard flow into the groundwater, (R. Tolson, P.E., April 1998). A certification statement of the liner's adequacy is included as (*Attachment 3*).

A concurrent investigation conducted during planned expansion of the Wastewater Treatment Plant, revealed conditions like those in the sludge field area and containing an upper zone of clay or sandy clay underlain by clayey sands, sands and/or sand-gravel combinations. (*Attachment 4*) consists of a Location of Borings and Monitoring Well Site Plan, 1989; Boring Profiles or vertical cross sections of the sludge field (14-21) and the Summary of Constant Head Flex Wall Permeability Testing (14-21) taken from Trinity Engineering Testing Corporation's study D89-1210. These soils were found to extend to the level of the primary geologic formation which was identified as the Woodbine Formation of Cretaceous Age. Perched groundwater levels were reported at depths on the order of 9 to 11 feet below the ground surface in the sludge field area, or at elevations 453.5 to 457.8 msl at the time of the field investigation.

IV. TOPOGRAPHY AND VEGETATIVE COVER

The Treatment Plant facility, identified on the USDA Natural Resources Conservation Service Soil Map and Legend (*Attachment 5*) consists of three soil types. Bastrop fine sandy loam, 1 to 3 percent slopes on the northeast and southwestern most corners of the facility, Gasil and Konsil soils, 1 to 5 percent slopes on the northwestern corner of the facility property. The sludge field itself and approximately 78 percent of the facility area is predominantly Seagoville clay.

Bastrop fine sandy loam consists of deep, gently sloping soil on high terraces above the flood plains of major streams. The surface layer is neutral, brown sandy loam about 5 inches thick. The next layer, which extends to a depth of about 16 inches is also neutral, reddish-brown sandy clay loam. From 16 to 56 inches is neutral, yellowish-red sandy clay loam, and from 56 to 80 inches is neutral, reddish-yellow sandy clay loam with a few dark brown mottles. The soil is well drained and surface runoff is medium; permeability is moderate.

The Gasil series consists of deep, loamy soils that formed in loamy material interbedded with sandstone. The slopes range from 1 to 8 percent. The surface layer of 0 to 7 inches is neutral, dark brown fine sandy loam. The next layer, which extends to a depth of 16 inches, is neutral, dark brown sandy clay loam. From 16 to 37 inches is medium acidic, light yellowish brown sandy clay loam with a few fine faint strong brown mottles. From 37 to 57 inches is medium acidic, light yellowish brown sandy clay loam with a few fine faint strong brown mottles, and from 57 to 80 inches is neutral, mottled light brownish gray, strong brown, and red sandy clay loam. The Konsil series consists of loamy soils on uplands that formed in loamy material and interbedded sandstone. The slopes range from 1 to 8 percent. The surface layer of 1 to 12 inches is neutral, brown fine sandy loam. The next layer extends to 21 inches and is slightly acid, yellowish-red sandy clay loam. From 21 to 32 inches is slightly acid, reddish yellow sandy clay loam and strong brown. From 32 to 44 inches are medium acid, reddish yellow sandy clay loam, strong brown, and common medium distinct red mottles.

The layer from 44 to 66 inches is medium acid, reddish yellow sandy clay loam, strong brown, common coarse distinct red and reddish yellow mottles.

The Seagoville series consists of deep, clayey soils that formed in recent alluvium on bottom land. The slopes range from 0 to 1 percent. The first layer from 0 to 11 inches is moderately alkaline, dark grayish brown clay, and very dark grayish brown. The next layer from 11 to 28 inches is moderately alkaline, dark grayish brown clay, and very dark grayish brown. From 28 to 37 inches is moderately alkaline dark brown sandy clay loam and dark brown with common fine yellowish-brown mottles. The layer from 37 to 80 inches is mildly alkaline, brownish yellow loamy sand, yellowish brown, with common medium distinct dark brown mottles.

Plant Names:	Percent Vegetative Cover / Soil types		
	Bastrop	Gasil & Konsil	Seagoville
Big bluestem		10	10
Little bluestem	50	45	40
Canada wildrye			15
Indiangrass	10	10	10
Switchgrass	5		10
Purpletop	5		5
Texas wintergrass			
Sideoats grama	5		
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The personnel involved in the closure process, for sampling, removal and/or transportation of wastes, will be trained in waste management and safety, or will be constantly supervised by one who is experienced and trained in these areas. All personnel involved with the closure process will be trained in and informed of the nature of the work required.

IX. POST CLOSURE TESTING AND MAINTENANCE

Groundwater monitoring will continue as required by the permit, for a period of two years following the closure of the Sludge Field unless otherwise required by the permit. If no significant changes in groundwater quality are detected, groundwater testing activities will also be terminated. If substantial changes to groundwater quality are detected, a modification to the closure plan will be prepared and submitted for TCEQ approval.

COST ESTIMATE FOR CLOSURE PLAN
Prairie Creek WWTP Sludge Field

1. Excavate and Transport Sludge from Sludge Field to Approved Off-Site Sanitary Landfill.

Assumptions: The Wastewater Treatment Plant currently disposes of all processed sludge and maintains the sludge field only as an alternative emergency measure in case of an operational or equipment failure. Assuming mechanical failure, the largest digester, digester #3, approximately 1,000,000 gallons of sludge could be temporarily stored on the sludge field at the time of closure (about 15 acres of operating area). The excavation, transportation, and disposal costs in terms of 2024 dollars are estimated to be:

$$\text{Sludge Volume} = \frac{1,000,000}{27} \text{ gallons} = 4,950 \text{ cubic yards} \quad (7.48)$$

Current disposal costs are \$19.75 per cubic yard. The total disposal cost would be \$97,762.50.

Transportation of the 4,950 cubic yards is estimated at \$60 per 5 cubic yards, which would be:

$$\$60 \times \frac{(4,950)}{5} \text{ cubic yards} = \$59,400$$

2. Excavate and Transport Contaminated Soil from the Sludge Field to an Approved Off-Site Sanitary Landfill.

Assumptions: An average 6-inch-thick zone of contaminated soil is present on the surface of the floor and the earthen dike that encloses the sludge field. Excavation, transportation, and disposal costs are estimated to be the same as for sludge.

$$\text{Contaminated Soil Volume on surface} = \frac{15(43,560)}{27} (0.5) = 12,100 \text{ cubic yards}$$

$$\text{Contaminated Soil Volume in dike} = \frac{(3400)(2.5)(.5)}{27} = 157 \text{ cubic yards}$$

$$\text{Soil Disposal Cost} = 12,100 + 157 = 12,257 \text{ cubic yards} (\$19.75 \text{ per cubic yard}) \\ = \$242,075.75$$

$$\text{Transportation Cost} = \frac{12,257 \text{ cubic yards} (\$60 \text{ per } 5 \text{ cubic yards})}{5} = \$147,084$$

3. **Regrading Costs**

Amount of soil to be replaced = 12,257 cubic yards

Off-Site Borrow required = 12,257 cubic yards

Assume On-Site Soils and Off-Site Borrow Excavation, Transportation, Leveling, and Compaction at \$50.00 per cubic yard average.

$$\text{Regrading Cost} = 12,327 \times \$50.00 = \$616,350$$

4. **Engineering and Testing Allowances**

Collection of Field Data	=	\$23,000
Development of Closure Details	=	\$3,250
Construction Phase Activities	=	\$6,375
Final Report and Certification	=	\$2,080
Engineering/Testing Total	=	<u>\$34,705</u>

5. **Summary**

Sludge Removal/Disposal	=	\$ 157,162.50
Soil Removal/Disposal	=	\$ 389,159.75
Site Regrading	=	\$ 616,350.00
Engineering/Testing	=	\$ 34,705.00
Estimated Total	=	<u>\$1,197,377.52</u>
15% Contingency	=	<u>\$179,606.58</u>
Recommended Total in 2024 Dollars	=	<u>\$ 1,376,983.84</u>

Closure Plan
Prairie Creek Wastewater Treatment Plant
Sludge Field

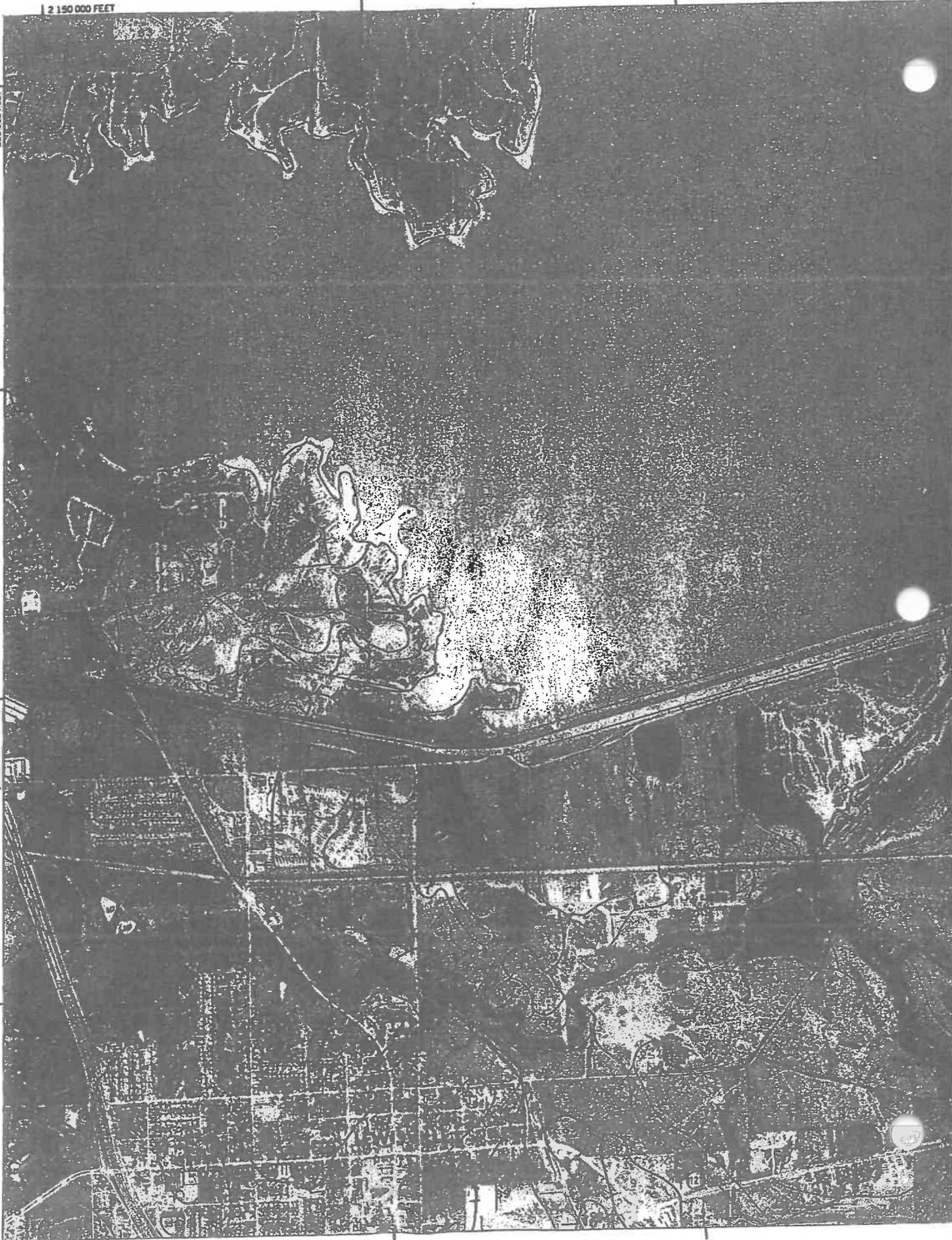
ATTACHMENT 1

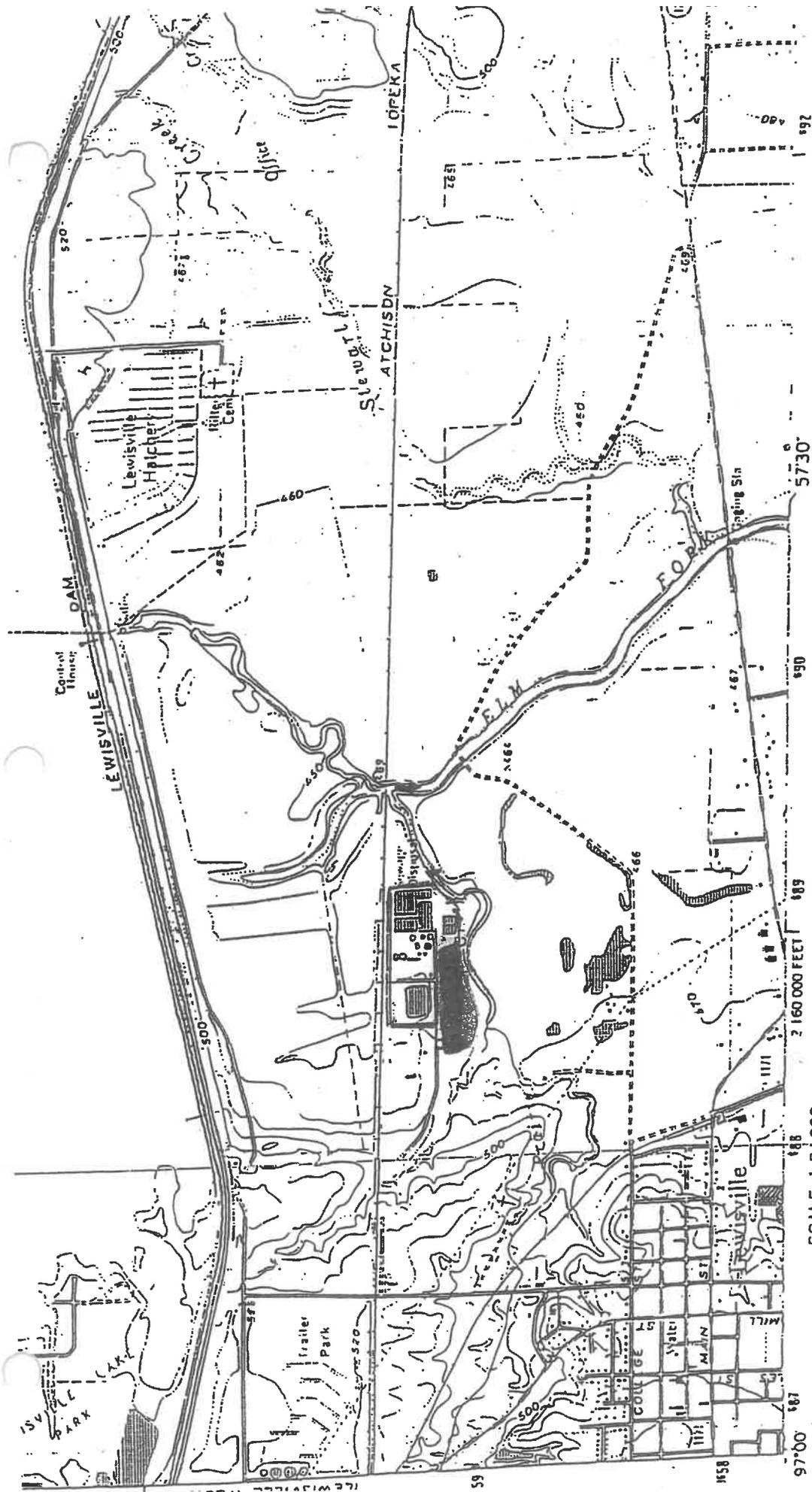
Location Map

2 150 000 FEET

520 000 FEET

(Joins sheet 40)





CONTOUR INTERVAL 10 FEET
 DOTTED LINES REPRESENT 5-FOOT CONTOURS
 NATIONAL GEODETIC VERTICAL DATUM OF 1929

"Location Map"
 From U.S. Geological Survey Map, 1981
 Prairie Creek Wastewater Treatment Plant
 Lewisville, Denton County Texas
 March 20, 1991

UTM GRID AND 1981 MAGNETIC NORTH
 DECLINATION AT CENTER OF SHEET.

ATTACHMENT 2

Monitoring Well Locations

Francesca Findlay

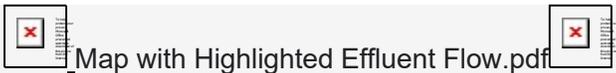
From: Cedric West <cwest@cityoflewisville.com>
Sent: Friday, May 16, 2025 8:29 AM
To: Francesca Findlay
Cc: khearon@cityoflewisville.com
Subject: Re: WQ0010662001 City of Lewisville
Attachments: Check number and check.pdf; Missing Attachments includes Core Data Starts after Large Topographic map.pdf

Follow Up Flag: Follow up
Flag Status: Flagged

Good morning Francesca,

Please find the missing Core Data form along with the missing attachments to the application and the attached check number.

Due to its size, the revised USGS 7.5-minute topographic map is included as a separate attachment below.



Thank you,

Cedric

On Wed, May 14, 2025 at 11:26 AM Francesca Findlay <Francesca.Findlay@tceq.texas.gov> wrote:

Good morning,

When we complete the Nori, we use the final phase of the application. I will only need the attachments you don't need to resend everything,

Please let me know if you have any questions.

Thank you,

Francesca Findlay

License & Permit Specialist

ARP Team | Water Quality Division

512-239-2441

Texas Commission on Environmental Quality



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

From: Cedric West <cwest@cityoflewisville.com>
Sent: Wednesday, May 14, 2025 10:40 AM
To: Francesca Findlay <Francesca.Findlay@tceq.texas.gov>
Cc: khearon@cityoflewisville.com
Subject: Re: WQ0010662001 City of Lewisville

Good morning Francesca,

I have a couple of questions regarding the Notice of Deficiency letter. Are items 1 and 3 missing from both the hard and digital copies of our application?

I will upload a complete file with the check number to the FTP. The original submission seems to have had some missing attachments.

Additionally, the NORI mentions a discharge volume of 18 million gallons per day (mgd). As we renew our 12 mgd interim permit, should this value be 12 mgd in the notice?

Thank you for your assistance with these clarifications.

1. Please provide the Core Data Form.

2. Please provide a check number for payment of the application.

3. Please provide a revised USGS 7.5 minute topographic map, (8 ½ by 11 inch portions of the full size map may be provided, as long as they are photocopies of the most current USGS map, are of original quality and have a scale. Please submit just the areas in question. Do not scale down the map.) which shows and labels all of the following information included in the checklist below: • the applicant's property boundary • location of the treatment facility within the applicant's property boundaries • point of discharge (indicate it with a dot, X, or arrow) • a highlighted discharge route (please use a transparent highlighter) for three miles downstream from the point of discharge and an area of not less than one mile in all directions from the facility.

On Tue, May 13, 2025 at 3:01 PM Francesca Findlay <Francesca.Findlay@tceq.texas.gov> wrote:

Dear Ms. Hearon:

The attached Notice of Deficiency letter sent on May 13, 2025, requesting additional information needed to declare the application administratively complete. Please send the complete response to my attention May 28, 2025.

Thank you,

Francesca Findlay

License & Permit Specialist

ARP Team | Water Quality Division

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DISCLAIMER: <http://www.cityoflewisville.com/index.aspx?page=905>

DISCLAIMER: <http://www.cityoflewisville.com/index.aspx?page=905>

Francesca Findlay

From: Cedric West <cwest@cityoflewisville.com>
Sent: Thursday, June 5, 2025 2:32 PM
To: Francesca Findlay
Cc: khearon@cityoflewisville.com
Subject: Re: WQ0010662001 City of Lewisville
Attachments: Municipal Discharge Renewal Spanish NORI COL.docx; COL Core Data updated 6-5-25.pdf

Good Afternoon,

I have attached the Spanish NORI and the updated core data form with the latitude and longitude.

Thanks!

On Wed, Jun 4, 2025 at 3:23 PM Cedric West <cwest@cityoflewisville.com> wrote:
Thank you. I will get right on that

On Wed, Jun 4, 2025 at 2:25 PM Francesca Findlay <Francesca.Findlay@tceq.texas.gov> wrote:

Good afternoon,

I have noticed that I am missing the translated Spanish Nori. I have attached the document. Please let me know if you have any questions.

Thank you,

Francesca Findlay

License & Permit Specialist

ARP Team | Water Quality Division

512-239-2441

Texas Commission on Environmental Quality



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

From: Francesca Findlay
Sent: Wednesday, June 4, 2025 2:05 PM
To: Cedric West <cwest@cityoflewisville.com>
Cc: khearon@cityoflewisville.com
Subject: RE: WQ0010662001 City of Lewisville

Good afternoon,

I am reviewing your documents that were sent to me. The Core Data Form is incomplete. Please provide the information for Section III, items 27-28. Please provide the Latitude and Longitude.

Please let me know if have any questions.

Thank you,

Francesca Findlay

License & Permit Specialist

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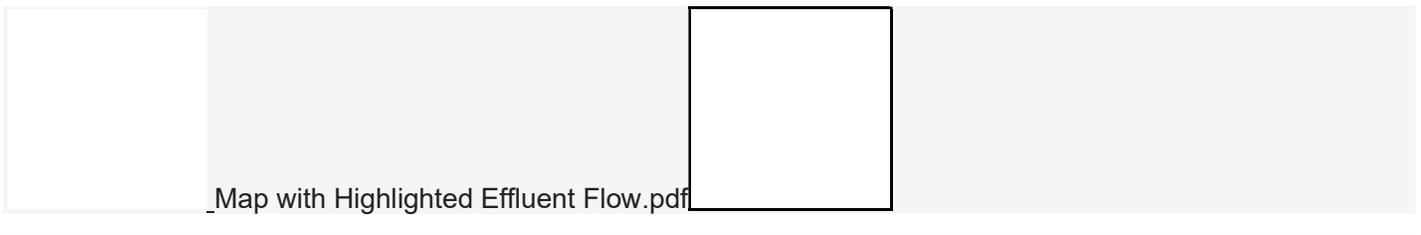
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Francesca Findlay

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DISCLAIMER: <http://www.cityoflewisville.com/index.aspx?page=905>

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DISCLAIMER: <http://www.cityoflewisville.com/index.aspx?page=905>



TPDES PERMIT NO.
WQ0010662001
*[For TCEQ office use only - EPA I.D.
No. TX0052892]*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
P.O. Box 13087
Austin, Texas 78711-3087

This is a renewal that replaces TPDES
Permit No. WQ0010662001 issued on
february 5, 2021.

PERMIT TO DISCHARGE WASTES
under provisions of
Section 402 of the Clean Water Act
and Chapter 26 of the Texas Water Code

City of Lewisville

whose mailing address is

P.O. Box 299002
Lewisville, Texas 75029

is authorized to treat and discharge wastes from the Prairie Creek Wastewater Treatment
Facility, SIC Code 4952

located at 897 Treatment Plant Road, in the City of Lewisville, Denton County, Texas 75057

to Prairie Creek, thence Elm Fork Trinity River Below Lewisville Lake in Segment No. 0822 of
the Trinity River Basin

only according to effluent limitations, monitoring requirements, and other conditions set forth
in this permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ),
the laws of the State of Texas, and other orders of the TCEQ. The issuance of this permit does
not grant to the permittee the right to use private or public property for conveyance of
wastewater along the discharge route described in this permit. This includes, but is not limited
to, property belonging to any individual, partnership, corporation, or other entity. Neither does
this permit authorize any invasion of personal rights nor any violation of federal, state, or local
laws or regulations. It is the responsibility of the permittee to acquire property rights as may be
necessary to use the discharge route.

This permit shall expire at midnight, **three years from the date of issuance.**

ISSUED DATE:

For the Commission

INTERIM I EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 001

1. During the period beginning upon the date of issuance and lasting through two years and three hundred sixty-four days, the permittee is authorized to discharge subject to the following effluent limitations:

The annual average flow of effluent shall not exceed 12.0 million gallons per day (MGD), nor shall the average discharge during any two-hour period (2-hour peak) exceed 20,833 gallons per minute.

Effluent Characteristic	Discharge Limitations				Min. Self-Monitoring Requirements	
	Daily Avg mg/l (lbs/day)	7-day Avg mg/l	Daily Max mg/l	Single Grab mg/l	Report Daily Avg. & Daily Max. Measurement Frequency	Sample Type
Flow, MGD	Report	N/A	Report	N/A	Continuous	Totalizing Meter
Biochemical Oxygen Demand (5-day)	10 (1,001)	15	25	35	One/day	Composite
Total Suspended Solids	15 (1,501)	25	40	60	One/day	Composite
Total Lead	0.042 (4.2)	N/A	0.088	0.126	One/year	Composite
Heptachlor Epoxide	Report (Report)	N/A	Report	N/A	Five/week	Composite
<i>E. coli</i> , colony-forming units or most probable number per 100 ml	126	N/A	399	N/A	Five/week	Grab

2. The effluent shall contain a total chlorine residual of at least 1.0 mg/l after a detention time of at least 20 minutes (based on peak flow) and shall be monitored daily by grab sample at each chlorine contact chamber. The permittee shall dechlorinate the chlorinated effluent to less than 0.1 mg/l total chlorine residual and shall monitor total chlorine residual daily by grab sample after the dechlorination process. An equivalent method of disinfection may be substituted only with prior approval of the Executive Director.
3. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per day by grab sample.
4. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.
5. Effluent monitoring samples shall be taken at the following location(s): Following the final treatment unit.
6. The effluent shall contain a minimum dissolved oxygen of 6.0 mg/l and shall be monitored once per day by grab sample.
7. The annual average flow and maximum 2-hour peak flow shall be reported monthly.

INTERIM II EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 001

1. During the period beginning upon three years from the date of issuance and lasting through completion of expansion to the 18.0 million gallons per day (MGD), the permittee is authorized to discharge subject to the following effluent limitations:

The annual average flow of effluent shall not exceed 12.0 MGD, nor shall the average discharge during any two-hour period (2-hour peak) exceed 20,833 gallons per minute.

Effluent Characteristic	Discharge Limitations				Min. Self-Monitoring Requirements	
	Daily Avg	7-day Avg	Daily Max	Single Grab	Report Daily Avg. & Daily Max.	
	mg/l (lbs/day)	mg/l	mg/l	mg/l	Measurement Frequency	Sample Type
Flow, MGD	Report	N/A	Report	N/A	Continuous	Totalizing Meter
Biochemical Oxygen Demand (5-day)	10 (1,001)	15	25	35	One/day	Composite
Total Suspended Solids	15 (1,501)	25	40	60	One/day	Composite
Total Lead	0.042 (4.2)	N/A	0.088	0.126	One/year	Composite
Heptachlor Epoxide	0.000035 (0.00035)	N/A	0.00000731	0.0000105	Five/week	Composite
<i>E. coli</i> , colony-forming units or most probable number per 100 ml	126	N/A	399	N/A	Five/week	Grab

2. The effluent shall contain a total chlorine residual of at least 1.0 mg/l after a detention time of at least 20 minutes (based on peak flow) and shall be monitored daily by grab sample at each chlorine contact chamber. The permittee shall dechlorinate the chlorinated effluent to less than 0.1 mg/l total chlorine residual and shall monitor total chlorine residual daily by grab sample after the dechlorination process. An equivalent method of disinfection may be substituted only with prior approval of the Executive Director.
3. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per day by grab sample.
4. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.
5. Effluent monitoring samples shall be taken at the following location(s): Following the final treatment unit.
6. The effluent shall contain a minimum dissolved oxygen of 6.0 mg/l and shall be monitored once per day by grab sample.
7. The annual average flow and maximum 2-hour peak flow shall be reported monthly.

FINAL EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

Outfall Number 001

1. During the period beginning upon the completion of expansion to the 18.0 million gallons per day (MGD) facility and lasting through the date of expiration, the permittee is authorized to discharge subject to the following effluent limitations:

The annual average flow of effluent shall not exceed 18.0 MGD, nor shall the average discharge during any two-hour period (2-hour peak) exceed 31,250 gallons per minute.

Effluent Characteristic	Discharge Limitations				Min. Self-Monitoring Requirements	
	Daily Avg mg/l (lbs/day)	7-day Avg mg/l	Daily Max mg/l	Single Grab mg/l	Report Daily Avg. & Daily Max. Measurement Frequency	Sample Type
Flow, MGD	Report	N/A	Report	N/A	Continuous	Totalizing Meter
Carbonaceous Biochemical Oxygen Demand (5-day)	6.7 (1,006)	12	22	32	One/day	Composite
Total Suspended Solids	15 (2,252)	25	40	60	One/day	Composite
Ammonia Nitrogen	7 (1,051)	10	12	15	One/day	Composite
Total Lead	0.042 (6.3)	N/A	0.088	0.126	One/year	Composite
Heptachlor Epoxide	0.0000035 (0.00052)	N/A	0.00000731	0.0000105	Five/week	Composite
<i>E. coli</i> , colony-forming units or most probable number per 100 ml	126	N/A	399	N/A	Daily	Grab

2. The permittee shall utilize an Ultraviolet Light (UV) system for disinfection purposes. An equivalent method of disinfection may be substituted only with prior approval of the Executive Director.
3. The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per day by grab sample.
4. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.
5. Effluent monitoring samples shall be taken at the following location(s): Following the final treatment unit.
6. The effluent shall contain a minimum dissolved oxygen of 4.0 mg/l and shall be monitored once per day by grab sample.
7. The annual average flow and maximum 2-hour peak flow shall be reported monthly.

DEFINITIONS AND STANDARD PERMIT CONDITIONS

As required by Title 30 Texas Administrative Code (TAC) Chapter 305, certain regulations appear as standard conditions in waste discharge permits. 30 TAC § 305.121 - 305.129 (relating to Permit Characteristics and Conditions) as promulgated under the Texas Water Code (TWC) §§ 5.103 and 5.105, and the Texas Health and Safety Code (THSC) §§ 361.017 and 361.024(a), establish the characteristics and standards for waste discharge permits, including sewage sludge, and those sections of 40 Code of Federal Regulations (CFR) Part 122 adopted by reference by the Commission. The following text includes these conditions and incorporates them into this permit. All definitions in TWC § 26.001 and 30 TAC Chapter 305 shall apply to this permit and are incorporated by reference. Some specific definitions of words or phrases used in this permit are as follows:

1. Flow Measurements

- a. Annual average flow - the arithmetic average of all daily flow determinations taken within the preceding 12 consecutive calendar months. The annual average flow determination shall consist of daily flow volume determinations made by a totalizing meter, charted on a chart recorder and limited to major domestic wastewater discharge facilities with one million gallons per day or greater permitted flow.
- b. Daily average flow - the arithmetic average of all determinations of the daily flow within a period of one calendar month. The daily average flow determination shall consist of determinations made on at least four separate days. If instantaneous measurements are used to determine the daily flow, the determination shall be the arithmetic average of all instantaneous measurements taken during that month. Daily average flow determination for intermittent discharges shall consist of a minimum of three flow determinations on days of discharge.
- c. Daily maximum flow - the highest total flow for any 24-hour period in a calendar month.
- d. Instantaneous flow - the measured flow during the minimum time required to interpret the flow measuring device.
- e. 2-hour peak flow (domestic wastewater treatment plants) - the maximum flow sustained for a two-hour period during the period of daily discharge. The average of multiple measurements of instantaneous maximum flow within a two-hour period may be used to calculate the 2-hour peak flow.
- f. Maximum 2-hour peak flow (domestic wastewater treatment plants) - the highest 2-hour peak flow for any 24-hour period in a calendar month.

2. Concentration Measurements

- a. Daily average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar month, consisting of at least four separate representative measurements.
 - i. For domestic wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values in the previous four consecutive month period consisting of at least four measurements shall be utilized as the daily average concentration.

- ii. For all other wastewater treatment plants - When four samples are not available in a calendar month, the arithmetic average (weighted by flow) of all values taken during the month shall be utilized as the daily average concentration.
- b. 7-day average concentration - the arithmetic average of all effluent samples, composite or grab as required by this permit, within a period of one calendar week, Sunday through Saturday.
- c. Daily maximum concentration - the maximum concentration measured on a single day, by the sample type specified in the permit, within a period of one calendar month.
- d. Daily discharge - the discharge of a pollutant measured during a calendar day or any 24-hour period that reasonably represents the calendar day for purposes of sampling. For pollutants with limitations expressed in terms of mass, the daily discharge is calculated as the total mass of the pollutant discharged over the sampling day. For pollutants with limitations expressed in other units of measurement, the daily discharge is calculated as the average measurement of the pollutant over the sampling day.

The daily discharge determination of concentration made using a composite sample shall be the concentration of the composite sample. When grab samples are used, the daily discharge determination of concentration shall be the arithmetic average (weighted by flow value) of all samples collected during that day.

- e. Bacteria concentration (*E. coli* or Enterococci) - Colony Forming Units (CFU) or Most Probable Number (MPN) of bacteria per 100 milliliters effluent. The daily average bacteria concentration is a geometric mean of the values for the effluent samples collected in a calendar month. The geometric mean shall be determined by calculating the n th root of the product of all measurements made in a calendar month, where n equals the number of measurements made; or, computed as the antilogarithm of the arithmetic mean of the logarithms of all measurements made in a calendar month. For any measurement of bacteria equaling zero, a substituted value of one shall be made for input into either computation method. If specified, the 7-day average for bacteria is the geometric mean of the values for all effluent samples collected during a calendar week.
 - f. Daily average loading (lbs/day) - the arithmetic average of all daily discharge loading calculations during a period of one calendar month. These calculations must be made for each day of the month that a parameter is analyzed. The daily discharge, in terms of mass (lbs/day), is calculated as (Flow, MGD x Concentration, mg/l x 8.34).
 - g. Daily maximum loading (lbs/day) - the highest daily discharge, in terms of mass (lbs/day), within a period of one calendar month.
3. Sample Type
- a. Composite sample - For domestic wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC § 319.9 (a). For industrial wastewater, a composite sample is a sample made up of a minimum of three effluent portions collected in a continuous 24-hour period or during the period of daily discharge if less than 24 hours, and combined in volumes proportional to flow, and collected at the intervals required by 30 TAC § 319.9 (b).

- b. Grab sample - an individual sample collected in less than 15 minutes.
4. Treatment Facility (facility) - wastewater facilities used in the conveyance, storage, treatment, recycling, reclamation and/or disposal of domestic sewage, industrial wastes, agricultural wastes, recreational wastes, or other wastes including sludge handling or disposal facilities under the jurisdiction of the Commission.
5. The term "sewage sludge" is defined as solid, semi-solid, or liquid residue generated during the treatment of domestic sewage in 30 TAC Chapter 312. This includes the solids that have not been classified as hazardous waste separated from wastewater by unit processes.
6. The term "biosolids" is defined as sewage sludge that has been tested or processed to meet Class A, Class AB, or Class B pathogen standards in 30 TAC Chapter 312 for beneficial use.
7. Bypass - the intentional diversion of a waste stream from any portion of a treatment facility.

MONITORING AND REPORTING REQUIREMENTS

1. Self-Reporting

Monitoring results shall be provided at the intervals specified in the permit. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall conduct effluent sampling and reporting in accordance with 30 TAC §§ 319.4 - 319.12. Unless otherwise specified, effluent monitoring data shall be submitted each month, to the Enforcement Division (MC 224), by the 20th day of the following month for each discharge which is described by this permit whether or not a discharge is made for that month. Monitoring results must be submitted online using the NetDMR reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver. Monitoring results must be signed and certified as required by Monitoring and Reporting Requirements No. 10.

As provided by state law, the permittee is subject to administrative, civil and criminal penalties, as applicable, for negligently or knowingly violating the Clean Water Act (CWA); TWC §§ 26, 27, and 28; and THSC § 361, including but not limited to knowingly making any false statement, representation, or certification on any report, record, or other document submitted or required to be maintained under this permit, including monitoring reports or reports of compliance or noncompliance, or falsifying, tampering with or knowingly rendering inaccurate any monitoring device or method required by this permit or violating any other requirement imposed by state or federal regulations.

2. Test Procedures

- a. Unless otherwise specified in this permit, test procedures for the analysis of pollutants shall comply with procedures specified in 30 TAC §§ 319.11 - 319.12. Measurements, tests, and calculations shall be accurately accomplished in a representative manner.
- b. All laboratory tests submitted to demonstrate compliance with this permit must meet the requirements of 30 TAC § 25, Environmental Testing Laboratory Accreditation and Certification.

3. Records of Results

- a. Monitoring samples and measurements shall be taken at times and in a manner so as to be representative of the monitored activity.

- b. Except for records of monitoring information required by this permit related to the permittee's sewage sludge or biosolids use and disposal activities, which shall be retained for a period of at least five years (or longer as required by 40 CFR Part 503), monitoring and reporting records, including strip charts and records of calibration and maintenance, copies of all records required by this permit, records of all data used to complete the application for this permit, and the certification required by 40 CFR § 264.73(b)(9) shall be retained at the facility site, or shall be readily available for review by a TCEQ representative for a period of three years from the date of the record or sample, measurement, report, application or certification. This period shall be extended at the request of the Executive Director.
- c. Records of monitoring activities shall include the following:
 - i. date, time and place of sample or measurement;
 - ii. identity of individual who collected the sample or made the measurement.
 - iii. date and time of analysis;
 - iv. identity of the individual and laboratory who performed the analysis;
 - v. the technique or method of analysis; and
 - vi. the results of the analysis or measurement and quality assurance/quality control records.

The period during which records are required to be kept shall be automatically extended to the date of the final disposition of any administrative or judicial enforcement action that may be instituted against the permittee.

4. Additional Monitoring by Permittee

If the permittee monitors any pollutant at the location(s) designated herein more frequently than required by this permit using approved analytical methods as specified above, all results of such monitoring shall be included in the calculation and reporting of the values submitted on the approved self-report form. Increased frequency of sampling shall be indicated on the self-report form.

5. Calibration of Instruments

All automatic flow measuring or recording devices and all totalizing meters for measuring flows shall be accurately calibrated by a trained person at plant start-up and as often thereafter as necessary to ensure accuracy, but not less often than annually unless authorized by the Executive Director for a longer period. Such person shall verify in writing that the device is operating properly and giving accurate results. Copies of the verification shall be retained at the facility site and/or shall be readily available for review by a TCEQ representative for a period of three years.

6. Compliance Schedule Reports

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than 14 days following each schedule date to the Regional Office and the Enforcement

Division (MC 224).

7. Noncompliance Notification

- a. In accordance with 30 TAC § 305.125(9) any noncompliance which may endanger human health or safety, or the environment shall be reported by the permittee to the TCEQ. Except as allowed by 30 TAC § 305.132, report of such information shall be provided orally or by facsimile transmission (FAX) to the Regional Office within 24 hours of becoming aware of the noncompliance. A written submission of such information shall also be provided by the permittee to the Regional Office and the Enforcement Division (MC 224) within five working days of becoming aware of the noncompliance. For Publicly Owned Treatment Works (POTWs), effective December 21, 2025, the permittee must submit the written report for unauthorized discharges and unanticipated bypasses that exceed any effluent limit in the permit using the online electronic reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver. The written submission shall contain a description of the noncompliance and its cause; the potential danger to human health or safety, or the environment; the period of noncompliance, including exact dates and times; if the noncompliance has not been corrected, the time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance, and to mitigate its adverse effects.
 - b. The following violations shall be reported under Monitoring and Reporting Requirement 7.a.:
 - i. Unauthorized discharges as defined in Permit Condition 2(g).
 - ii. Any unanticipated bypass that exceeds any effluent limitation in the permit.
 - iii. Violation of a permitted maximum daily discharge limitation for pollutants listed specifically in the Other Requirements section of an Industrial TPDES permit.
 - c. In addition to the above, any effluent violation which deviates from the permitted effluent limitation by more than 40% shall be reported by the permittee in writing to the Regional Office and the Enforcement Division (MC 224) within 5 working days of becoming aware of the noncompliance.
 - d. Any noncompliance other than that specified in this section, or any required information not submitted or submitted incorrectly, shall be reported to the Enforcement Division (MC 224) as promptly as possible. For effluent limitation violations, noncompliances shall be reported on the approved self-report form.
8. In accordance with the procedures described in 30 TAC §§ 35.301 - 35.303 (relating to Water Quality Emergency and Temporary Orders) if the permittee knows in advance of the need for a bypass, it shall submit prior notice by applying for such authorization.
9. Changes in Discharges of Toxic Substances

All existing manufacturing, commercial, mining, and silvicultural permittees shall notify the Regional Office, orally or by facsimile transmission within 24 hours, and both the Regional Office and the Enforcement Division (MC 224) in writing within five (5) working days, after becoming aware of or having reason to believe:

- a. That any activity has occurred or will occur which would result in the discharge, on a routine or frequent basis, of any toxic pollutant listed at 40 CFR Part 122, Appendix D, Tables II and III (excluding Total Phenols) which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:
 - i. One hundred micrograms per liter (100 µg/L);
 - ii. Two hundred micrograms per liter (200 µg/L) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/L) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/L) for antimony;
 - iii. Five (5) times the maximum concentration value reported for that pollutant in the permit application; or
 - iv. The level established by the TCEQ.
- b. That any activity has occurred or will occur which would result in any discharge, on a nonroutine or infrequent basis, of a toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following “notification levels”:
 - i. Five hundred micrograms per liter (500 µg/L);
 - ii. One milligram per liter (1 mg/L) for antimony;
 - iii. Ten (10) times the maximum concentration value reported for that pollutant in the permit application; or
 - iv. The level established by the TCEQ.

10. Signatories to Reports

All reports and other information requested by the Executive Director shall be signed by the person and in the manner required by 30 TAC § 305.128 (relating to Signatories to Reports).

11. All POTWs must provide adequate notice to the Executive Director of the following:

- a. Any new introduction of pollutants into the POTW from an indirect discharger which would be subject to CWA § 301 or § 306 if it were directly discharging those pollutants;
- b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the POTW at the time of issuance of the permit; and
- c. For the purpose of this paragraph, adequate notice shall include information on:
 - i. The quality and quantity of effluent introduced into the POTW; and
 - ii. Any anticipated impact of the change on the quantity or quality of effluent to be discharged from the POTW.

PERMIT CONDITIONS

1. General

- a. When the permittee becomes aware that it failed to submit any relevant facts in a permit application, or submitted incorrect information in an application or in any report to the Executive Director, it shall promptly submit such facts or information.
- b. This permit is granted on the basis of the information supplied and representations made by the permittee during action on an application, and relying upon the accuracy and completeness of that information and those representations. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked, in whole or in part, in accordance with 30 TAC Chapter 305, Subchapter D, during its term for good cause including, but not limited to, the following:
 - i. Violation of any terms or conditions of this permit;
 - ii. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
 - iii. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
- c. The permittee shall furnish to the Executive Director, upon request and within a reasonable time, any information to determine whether cause exists for amending, revoking, suspending or terminating the permit. The permittee shall also furnish to the Executive Director, upon request, copies of records required to be kept by the permit.

2. Compliance

- a. Acceptance of the permit by the person to whom it is issued constitutes acknowledgment and agreement that such person will comply with all the terms and conditions embodied in the permit, and the rules and other orders of the Commission.
- b. The permittee has a duty to comply with all conditions of the permit. Failure to comply with any permit condition constitutes a violation of the permit and the Texas Water Code or the Texas Health and Safety Code, and is grounds for enforcement action, for permit amendment, revocation, or suspension, or for denial of a permit renewal application or an application for a permit for another facility.
- c. It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit.
- d. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal or other permit violation that has a reasonable likelihood of adversely affecting human health or the environment.
- e. Authorization from the Commission is required before beginning any change in the permitted facility or activity that may result in noncompliance with any permit requirements.
- f. A permit may be amended, suspended and reissued, or revoked for cause in accordance

with 30 TAC §§ 305.62 and 305.66 and TWC§ 7.302. The filing of a request by the permittee for a permit amendment, suspension and reissuance, or termination, or a notification of planned changes or anticipated noncompliance, does not stay any permit condition.

- g. There shall be no unauthorized discharge of wastewater or any other waste. For the purpose of this permit, an unauthorized discharge is considered to be any discharge of wastewater into or adjacent to water in the state at any location not permitted as an outfall or otherwise defined in the Other Requirements section of this permit.
- h. In accordance with 30 TAC § 305.535(a), the permittee may allow any bypass to occur from a TPDES permitted facility which does not cause permitted effluent limitations to be exceeded or an unauthorized discharge to occur, but only if the bypass is also for essential maintenance to assure efficient operation.
- i. The permittee is subject to administrative, civil, and criminal penalties, as applicable, under TWC §§ 7.051 - 7.075 (relating to Administrative Penalties), 7.101 - 7.111 (relating to Civil Penalties), and 7.141 - 7.202 (relating to Criminal Offenses and Penalties) for violations including, but not limited to, negligently or knowingly violating the federal CWA §§ 301, 302, 306, 307, 308, 318, or 405, or any condition or limitation implementing any sections in a permit issued under the CWA § 402, or any requirement imposed in a pretreatment program approved under the CWA §§ 402 (a)(3) or 402 (b)(8).

3. Inspections and Entry

- a. Inspection and entry shall be allowed as prescribed in the TWC Chapters 26, 27, and 28, and THSC § 361.
- b. The members of the Commission and employees and agents of the Commission are entitled to enter any public or private property at any reasonable time for the purpose of inspecting and investigating conditions relating to the quality of water in the state or the compliance with any rule, regulation, permit or other order of the Commission. Members, employees, or agents of the Commission and Commission contractors are entitled to enter public or private property at any reasonable time to investigate or monitor or, if the responsible party is not responsive or there is an immediate danger to public health or the environment, to remove or remediate a condition related to the quality of water in the state. Members, employees, Commission contractors, or agents acting under this authority who enter private property shall observe the establishment's rules and regulations concerning safety, internal security, and fire protection, and if the property has management in residence, shall notify management or the person then in charge of his presence and shall exhibit proper credentials. If any member, employee, Commission contractor, or agent is refused the right to enter in or on public or private property under this authority, the Executive Director may invoke the remedies authorized in TWC § 7.002. The statement above, that Commission entry shall occur in accordance with an establishment's rules and regulations concerning safety, internal security, and fire protection, is not grounds for denial or restriction of entry to any part of the facility, but merely describes the Commission's duty to observe appropriate rules and regulations during an inspection.

4. Permit Amendment and/or Renewal

- a. The permittee shall give notice to the Executive Director as soon as possible of any planned physical alterations or additions to the permitted facility if such alterations or additions would require a permit amendment or result in a violation of permit requirements. Notice shall also be required under this paragraph when:
 - i. The alteration or addition to a permitted facility may meet one of the criteria for determining whether a facility is a new source in accordance with 30 TAC § 305.534 (relating to New Sources and New Dischargers); or
 - ii. The alteration or addition could significantly change the nature or increase the quantity of pollutants discharged. This notification applies to pollutants that are subject neither to effluent limitations in the permit, nor to notification requirements in Monitoring and Reporting Requirements No. 9; or
 - iii. The alteration or addition results in a significant change in the permittee's sludge use or disposal practices, and such alteration, addition, or change may justify the application of permit conditions that are different from or absent in the existing permit, including notification of additional use or disposal sites not reported during the permit application process or not reported pursuant to an approved land application plan.
- b. Prior to any facility modifications, additions, or expansions that will increase the plant capacity beyond the permitted flow, the permittee must apply for and obtain proper authorization from the Commission before commencing construction.
- c. The permittee must apply for an amendment or renewal at least 180 days prior to expiration of the existing permit in order to continue a permitted activity after the expiration date of the permit. If an application is submitted prior to the expiration date of the permit, the existing permit shall remain in effect until the application is approved, denied, or returned. If the application is returned or denied, authorization to continue such activity shall terminate upon the effective date of the action. If an application is not submitted prior to the expiration date of the permit, the permit shall expire and authorization to continue such activity shall terminate.
- d. Prior to accepting or generating wastes which are not described in the permit application or which would result in a significant change in the quantity or quality of the existing discharge, the permittee must report the proposed changes to the Commission. The permittee must apply for a permit amendment reflecting any necessary changes in permit conditions, including effluent limitations for pollutants not identified and limited by this permit.
- e. In accordance with the TWC § 26.029(b), after a public hearing, notice of which shall be given to the permittee, the Commission may require the permittee, from time to time, for good cause, in accordance with applicable laws, to conform to new or additional conditions.
- f. If any toxic effluent standard or prohibition (including any schedule of compliance specified in such effluent standard or prohibition) is promulgated under CWA § 307(a) for a toxic pollutant which is present in the discharge and that standard or prohibition is more stringent than any limitation on the pollutant in this permit, this permit shall be modified or revoked and reissued to conform to the toxic effluent standard or prohibition. The permittee shall comply with effluent standards or prohibitions established under CWA § 307(a) for toxic pollutants within the time provided in the

regulations that established those standards or prohibitions, even if the permit has not yet been modified to incorporate the requirement.

5. Permit Transfer

- a. Prior to any transfer of this permit, Commission approval must be obtained. The Commission shall be notified in writing of any change in control or ownership of facilities authorized by this permit. Such notification should be sent to the Applications Review and Processing Team (MC 148) of the Water Quality Division.
- b. A permit may be transferred only according to the provisions of 30 TAC § 305.64 (relating to Transfer of Permits) and 30 TAC § 50.133 (relating to Executive Director Action on Application or WQMP update).

6. Relationship to Hazardous Waste Activities

This permit does not authorize any activity of hazardous waste storage, processing, or disposal that requires a permit or other authorization pursuant to the Texas Health and Safety Code.

7. Relationship to Water Rights

Disposal of treated effluent by any means other than discharge directly to water in the state must be specifically authorized in this permit and may require a permit pursuant to TWC Chapter 11.

8. Property Rights

A permit does not convey any property rights of any sort, or any exclusive privilege.

9. Permit Enforceability

The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstances, is held invalid, the application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

10. Relationship to Permit Application

The application pursuant to which the permit has been issued is incorporated herein; provided, however, that in the event of a conflict between the provisions of this permit and the application, the provisions of the permit shall control.

11. Notice of Bankruptcy

- a. Each permittee shall notify the Executive Director, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any chapter of Title 11 (Bankruptcy) of the United States Code (11 USC) by or against:
 - i. the permittee;
 - ii. an entity (as that term is defined in 11 USC, § 101(14)) controlling the permittee or listing the permit or permittee as property of the estate; or
 - iii. an affiliate (as that term is defined in 11 USC, § 101(2)) of the permittee.

- b. This notification must indicate:
 - i. the name of the permittee;
 - ii. the permit number(s);
 - iii. the bankruptcy court in which the petition for bankruptcy was filed; and
 - iv. the date of filing of the petition.

OPERATIONAL REQUIREMENTS

1. The permittee shall at all times ensure that the facility and all of its systems of collection, treatment, and disposal are properly operated and maintained. This includes, but is not limited to, the regular, periodic examination of wastewater solids within the treatment plant by the operator in order to maintain an appropriate quantity and quality of solids inventory as described in the various operator training manuals and according to accepted industry standards for process control. Process control, maintenance, and operations records shall be retained at the facility site, or shall be readily available for review by a TCEQ representative, for a period of three years.
2. Upon request by the Executive Director, the permittee shall take appropriate samples and provide proper analysis in order to demonstrate compliance with Commission rules. Unless otherwise specified in this permit or otherwise ordered by the Commission, the permittee shall comply with all applicable provisions of 30 TAC Chapter 312 concerning sewage sludge or biosolids use and disposal and 30 TAC §§ 319.21 - 319.29 concerning the discharge of certain hazardous metals.
3. Domestic wastewater treatment facilities shall comply with the following provisions:
 - a. The permittee shall notify the Domestic Permits Team, Domestic Wastewater Section (MC 148) of the Water Quality Division, in writing, of any facility expansion at least 90 days prior to conducting such activity.
 - b. The permittee shall submit a closure plan for review and approval to the Domestic Permits Team, Domestic Wastewater Section (MC 148) of the Water Quality Division, for any closure activity at least 90 days prior to conducting such activity. Closure is the act of permanently taking a waste management unit or treatment facility out of service and includes the permanent removal from service of any pit, tank, pond, lagoon, surface impoundment and/or other treatment unit regulated by this permit.
4. The permittee is responsible for installing prior to plant start-up, and subsequently maintaining, adequate safeguards to prevent the discharge of untreated or inadequately treated wastes during electrical power failures by means of alternate power sources, standby generators, and/or retention of inadequately treated wastewater.
5. Unless otherwise specified, the permittee shall provide a readily accessible sampling point and, where applicable, an effluent flow measuring device or other acceptable means by which effluent flow may be determined.
6. The permittee shall remit an annual water quality fee to the Commission as required by 30

TAC Chapter 21. Failure to pay the fee may result in revocation of this permit under TWC § 7.302(b)(6).

7. Documentation

For all written notifications to the Commission required of the permittee by this permit, the permittee shall keep and make available a copy of each such notification under the same conditions as self-monitoring data are required to be kept and made available. Except for information required for TPDES permit applications, effluent data, including effluent data in permits, draft permits and permit applications, and other information specified as not confidential in 30 TAC §§ 1.5(d), any information submitted pursuant to this permit may be claimed as confidential by the submitter. Any such claim must be asserted in the manner prescribed in the application form or by stamping the words confidential business information on each page containing such information. If no claim is made at the time of submission, information may be made available to the public without further notice. If the Commission or Executive Director agrees with the designation of confidentiality, the TCEQ will not provide the information for public inspection unless required by the Texas Attorney General or a court pursuant to an open records request. If the Executive Director does not agree with the designation of confidentiality, the person submitting the information will be notified.

8. Facilities that generate domestic wastewater shall comply with the following provisions; domestic wastewater treatment facilities at permitted industrial sites are excluded.

- a. Whenever flow measurements for any domestic sewage treatment facility reach 75% of the permitted daily average or annual average flow for three consecutive months, the permittee must initiate engineering and financial planning for expansion and/or upgrading of the domestic wastewater treatment and/or collection facilities. Whenever the flow reaches 90% of the permitted daily average or annual average flow for three consecutive months, the permittee shall obtain necessary authorization from the Commission to commence construction of the necessary additional treatment and/or collection facilities. In the case of a domestic wastewater treatment facility which reaches 75% of the permitted daily average or annual average flow for three consecutive months, and the planned population to be served or the quantity of waste produced is not expected to exceed the design limitations of the treatment facility, the permittee shall submit an engineering report supporting this claim to the Executive Director of the Commission.

If in the judgment of the Executive Director the population to be served will not cause permit noncompliance, then the requirement of this section may be waived. To be effective, any waiver must be in writing and signed by the Director of the Enforcement Division (MC 219) of the Commission, and such waiver of these requirements will be reviewed upon expiration of the existing permit; however, any such waiver shall not be interpreted as condoning or excusing any violation of any permit parameter.

- b. The plans and specifications for domestic sewage collection and treatment works associated with any domestic permit must be approved by the Commission and failure to secure approval before commencing construction of such works or making a discharge is a violation of this permit and each day is an additional violation until approval has been secured.

- c. Permits for domestic wastewater treatment plants are granted subject to the policy of the Commission to encourage the development of area-wide waste collection, treatment, and disposal systems. The Commission reserves the right to amend any domestic wastewater permit in accordance with applicable procedural requirements to require the system covered by this permit to be integrated into an area-wide system, should such be developed; to require the delivery of the wastes authorized to be collected in, treated by or discharged from said system, to such area-wide system; or to amend this permit in any other particular to effectuate the Commission's policy. Such amendments may be made when the changes required are advisable for water quality control purposes and are feasible on the basis of waste treatment technology, engineering, financial, and related considerations existing at the time the changes are required, exclusive of the loss of investment in or revenues from any then existing or proposed waste collection, treatment or disposal system.
9. Domestic wastewater treatment plants shall be operated and maintained by sewage plant operators holding a valid certificate of competency at the required level as defined in 30 TAC Chapter 30.
 10. For Publicly Owned Treatment Works (POTWs), the 30-day average (or monthly average) percent removal for BOD and TSS shall not be less than 85%, unless otherwise authorized by this permit.
 11. Facilities that generate industrial solid waste as defined in 30 TAC § 335.1 shall comply with these provisions:
 - a. Any solid waste, as defined in 30 TAC § 335.1 (including but not limited to such wastes as garbage, refuse, sludge from a waste treatment, water supply treatment plant or air pollution control facility, discarded materials, discarded materials to be recycled, whether the waste is solid, liquid, or semisolid), generated by the permittee during the management and treatment of wastewater, must be managed in accordance with all applicable provisions of 30 TAC Chapter 335, relating to Industrial Solid Waste Management.
 - b. Industrial wastewater that is being collected, accumulated, stored, or processed before discharge through any final discharge outfall, specified by this permit, is considered to be industrial solid waste until the wastewater passes through the actual point source discharge and must be managed in accordance with all applicable provisions of 30 TAC Chapter 335.
 - c. The permittee shall provide written notification, pursuant to the requirements of 30 TAC § 335.8(b)(1), to the Corrective Action Section (MC 127) of the Remediation Division informing the Commission of any closure activity involving an Industrial Solid Waste Management Unit, at least 90 days prior to conducting such an activity.
 - d. Construction of any industrial solid waste management unit requires the prior written notification of the proposed activity to the Registration and Reporting Section (MC 129) of the Permitting and Registration Support Division. No person shall dispose of industrial solid waste, including sludge or other solids from wastewater treatment processes, prior to fulfilling the deed recordation requirements of 30 TAC § 335.5.
 - e. The term "industrial solid waste management unit" means a landfill, surface impoundment, waste-pile, industrial furnace, incinerator, cement kiln, injection well,

container, drum, salt dome waste containment cavern, or any other structure vessel, appurtenance, or other improvement on land used to manage industrial solid waste.

- f. The permittee shall keep management records for all sludge (or other waste) removed from any wastewater treatment process. These records shall fulfill all applicable requirements of 30 TAC § 335 and must include the following, as it pertains to wastewater treatment and discharge:
 - i. Volume of waste and date(s) generated from treatment process;
 - ii. Volume of waste disposed of on-site or shipped off-site;
 - iii. Date(s) of disposal;
 - iv. Identity of hauler or transporter;
 - v. Location of disposal site; and
 - vi. Method of final disposal.

The above records shall be maintained on a monthly basis. The records shall be retained at the facility site, or shall be readily available for review by authorized representatives of the TCEQ for at least five years.

12. For industrial facilities to which the requirements of 30 TAC § 335 do not apply, sludge and solid wastes, including tank cleaning and contaminated solids for disposal, shall be disposed of in accordance with THSC § 361.

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SLUDGE PROVISIONS

The permittee is authorized to dispose of sludge only at a Texas Commission on Environmental Quality (TCEQ) authorized land application site, co-disposal landfill, wastewater treatment facility, or facility that further processes sludge. **The disposal of sludge or biosolids by land application on property owned, leased or under the direct control of the permittee is a violation of the permit unless the site is authorized with the TCEQ. This provision does not authorize Distribution and Marketing of Class A or Class AB Biosolids. This provision does not authorize the permittee to land apply biosolids on property owned, leased or under the direct control of the permittee.**

SECTION I. REQUIREMENTS APPLYING TO ALL SEWAGE SLUDGE OR BIOSOLIDS LAND APPLICATION

A. General Requirements

1. The permittee shall handle and dispose of sewage sludge or biosolids in accordance with 30 TAC § 312 and all other applicable state and federal regulations in a manner that protects public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants that may be present in the sludge or biosolids.
2. In all cases, if the person (permit holder) who prepares the sewage sludge supplies the sewage sludge to another person for land application use or to the owner or lease holder of the land, the permit holder shall provide necessary information to the parties who receive the sludge to assure compliance with these regulations.
3. The land application of processed or unprocessed chemical toilet waste, grease trap waste, grit trap waste, milk solids, or similar non-hazardous municipal or industrial solid wastes, or any of the wastes listed in this provision combined with biosolids, WTP residuals or domestic septage is prohibited unless the grease trap waste is added at a fats, oil and grease (FOG) receiving facility as part of an anaerobic digestion process.

B. Testing Requirements

1. Sewage sludge or biosolids shall be tested annually in accordance with the method specified in both 40 CFR Part 261, Appendix II and 40 CFR Part 268, Appendix I [Toxicity Characteristic Leaching Procedure (TCLP)] or other method that receives the prior approval of the TCEQ for the contaminants listed in 40 CFR Part 261.24, Table 1. Sewage sludge or biosolids failing this test shall be managed according to RCRA standards for generators of hazardous waste, and the waste's disposition must be in accordance with all applicable requirements for hazardous waste processing, storage, or disposal. Following failure of any TCLP test, the management or disposal of sewage sludge or biosolids at a facility other than an authorized hazardous waste processing, storage, or disposal facility shall be prohibited until such time as the permittee can demonstrate the sewage sludge or biosolids no longer exhibits the hazardous waste toxicity characteristics (as demonstrated by the results of the TCLP tests). A written report shall be provided to both the TCEQ Registration and Reporting Section (MC 129) of the Permitting and Registration Support Division and the Regional Director (MC Region 4) within seven (7) days after failing the TCLP Test.

The report shall contain test results, certification that unauthorized waste management has stopped, and a summary of alternative disposal plans that comply with RCRA standards for the management of hazardous waste. The report shall be addressed to: Director, Permitting and Registration Support Division (MC 129), Texas Commission on Environmental Quality, P.O. Box 13087, Austin, Texas 78711-3087. In addition, the permittee shall prepare an annual report on the results of all sludge toxicity testing. The permittee shall submit the following information in an annual report to the TCEQ by September 30th of each year. The permittee must submit this annual report using the online electronic reporting system available through TCEQ’s website. If the permittee requests and obtains an electronic reporting waiver, the annual report can be submitted in hard copy to the TCEQ Regional Office (MC Region 4) and the Enforcement Division (MC 224).

2. Biosolids shall not be applied to the land if the concentration of the pollutants exceeds the pollutant concentration criteria in Table 1. The frequency of testing for pollutants in Table 1 is found in Section I.C. of this permit.

TABLE 1

<u>Pollutant</u>	<u>Ceiling Concentration</u> <u>(Milligrams per kilogram)*</u>
Arsenic	75
Cadmium	85
Chromium	3000
Copper	4300
Lead	840
Mercury	57
Molybdenum	75
Nickel	420
PCBs	49
Selenium	100
Zinc	7500

* Dry weight basis

3. Pathogen Control

All sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site must be treated by one of the following methods to ensure that the sludge meets either the Class A, Class AB or Class B biosolids pathogen requirements.

- a. For sewage sludge to be classified as Class A biosolids with respect to pathogens, the density of fecal coliform in the sewage sludge must be less than 1,000 most probable number (MPN) per gram of total solids (dry weight basis), or the density of Salmonella sp. bacteria in the sewage sludge must be less than three MPN per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed. In addition, one of the alternatives listed below must be met:

Alternative 1 - The temperature of the sewage sludge that is used or disposed shall be maintained at or above a specific value for a period of time. See 30 TAC § 312.82(a)(3)(A) for specific information;

Alternative 5 (PFRP) - Sewage sludge that is used or disposed of must be treated in one of the Processes to Further Reduce Pathogens (PFRP) described in 40 CFR Part 503, Appendix B. PFRP include composting, heat drying, heat treatment, and thermophilic aerobic digestion; or

Alternative 6 (PFRP Equivalent) - Sewage sludge that is used or disposed of must be treated in a process that has been approved by the U. S. Environmental Protection Agency as being equivalent to those in Alternative 5.

- b. For sewage sludge to be classified as Class AB biosolids with respect to pathogens, the density of fecal coliform in the sewage sludge must be less than 1,000 MPN per gram of total solids (dry weight basis), or the density of *Salmonella* sp. bacteria in the sewage sludge be less than three MPN per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed. In addition, one of the alternatives listed below must be met:

Alternative 2 - The pH of the sewage sludge that is used or disposed shall be raised to above 12 std. units and shall remain above 12 std. units for 72 hours.

The temperature of the sewage sludge shall be above 52° Celsius for 12 hours or longer during the period that the pH of the sewage sludge is above 12 std. units.

At the end of the 72-hour period during which the pH of the sewage sludge is above 12 std. units, the sewage sludge shall be air dried to achieve a percent solids in the sewage sludge greater than 50%; or

Alternative 3 - The sewage sludge shall be analyzed for enteric viruses prior to pathogen treatment. The limit for enteric viruses is less than one Plaque-forming Unit per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 30 TAC § 312.82(a)(2)(C)(i-iii) for specific information. The sewage sludge shall be analyzed for viable helminth ova prior to pathogen treatment. The limit for viable helminth ova is less than one per four grams of total solids (dry weight basis) either before or following pathogen treatment. See 30 TAC § 312.82(a)(2)(C)(iv-vi) for specific information; or

Alternative 4 - The density of enteric viruses in the sewage sludge shall be less than one Plaque-forming Unit per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed. The density of viable helminth ova in the sewage sludge shall be less than one per four grams of total solids (dry weight basis) at the time the sewage sludge is used or disposed.

- c. Sewage sludge that meets the requirements of Class AB biosolids may be classified a Class A biosolids if a variance request is submitted in writing that is supported by substantial documentation demonstrating equivalent methods for reducing odors and written approval is granted by the executive director. The executive director may deny the variance request or revoke that approved variance if it is determined that the variance may potentially endanger human health or the environment, or create nuisance odor conditions.
- d. Three alternatives are available to demonstrate compliance with Class B biosolids criteria.

Alternative 1

- i. A minimum of seven random samples of the sewage sludge shall be collected within 48 hours of the time the sewage sludge is used or disposed of during each monitoring episode for the sewage sludge.
- ii. The geometric mean of the density of fecal coliform in the samples collected shall be less than either 2,000,000 MPN per gram of total solids (dry weight basis) or 2,000,000 Colony Forming Units per gram of total solids (dry weight basis).

Alternative 2 - Sewage sludge that is used or disposed of shall be treated in one of the Processes to Significantly Reduce Pathogens (PSRP) described in 40 CFR Part 503, Appendix B, so long as all of the following requirements are met by the generator of the sewage sludge.

- i. Prior to use or disposal, all the sewage sludge must have been generated from a single location, except as provided in paragraph v. below;
- ii. An independent Texas Licensed Professional Engineer must make a certification to the generator of a sewage sludge that the wastewater treatment facility generating the sewage sludge is designed to achieve one of the PSRP at the permitted design loading of the facility. The certification need only be repeated if the design loading of the facility is increased. The certification shall include a statement indicating the design meets all the applicable standards specified in Appendix B of 40 CFR Part 503;
- iii. Prior to any off-site transportation or on-site use or disposal of any sewage sludge generated at a wastewater treatment facility, the chief certified operator of the wastewater treatment facility or other responsible official who manages the processes to significantly reduce pathogens at the wastewater treatment facility for the permittee, shall certify that the sewage sludge underwent at least the minimum operational requirements necessary in order to meet one of the PSRP. The acceptable processes and the minimum operational and record keeping requirements shall be in accordance with established U.S. Environmental Protection Agency final guidance;
- iv. All certification records and operational records describing how the requirements of this paragraph were met shall be kept by the generator for a minimum of three years and be available for inspection by commission staff for review; and
- v. If the sewage sludge is generated from a mixture of sources, resulting from a person who prepares sewage sludge from more than one wastewater treatment facility, the resulting derived product shall meet one of the PSRP, and shall meet the certification, operation, and record keeping requirements of this paragraph.

Alternative 3 - Sewage sludge shall be treated in an equivalent process that has been approved by the U.S. Environmental Protection Agency, so long as all of the following requirements are met by the generator of the sewage sludge.

- i. Prior to use or disposal, all the sewage sludge must have been generated from a single location, except as provided in paragraph v. below;

- ii. Prior to any off-site transportation or on-site use or disposal of any sewage sludge generated at a wastewater treatment facility, the chief certified operator of the wastewater treatment facility or other responsible official who manages the processes to significantly reduce pathogens at the wastewater treatment facility for the permittee, shall certify that the sewage sludge underwent at least the minimum operational requirements necessary in order to meet one of the PSRP. The acceptable processes and the minimum operational and record keeping requirements shall be in accordance with established U.S. Environmental Protection Agency final guidance;
- iii. All certification records and operational records describing how the requirements of this paragraph were met shall be kept by the generator for a minimum of three years and be available for inspection by commission staff for review;
- iv. The Executive Director will accept from the U.S. Environmental Protection Agency a finding of equivalency to the defined PSRP; and
- v. If the sewage sludge is generated from a mixture of sources resulting from a person who prepares sewage sludge from more than one wastewater treatment facility, the resulting derived product shall meet one of the Processes to Significantly Reduce Pathogens, and shall meet the certification, operation, and record keeping requirements of this paragraph.

In addition to the Alternatives 1 – 3, the following site restrictions must be met if Class B biosolids are land applied:

- i. Food crops with harvested parts that touch the biosolids/soil mixture and are totally above the land surface shall not be harvested for 14 months after application of biosolids.
- ii. Food crops with harvested parts below the surface of the land shall not be harvested for 20 months after application of biosolids when the biosolids remain on the land surface for 4 months or longer prior to incorporation into the soil.
- iii. Food crops with harvested parts below the surface of the land shall not be harvested for 38 months after application of biosolids when the biosolids remain on the land surface for less than 4 months prior to incorporation into the soil.
- iv. Food crops, feed crops, and fiber crops shall not be harvested for 30 days after application of biosolids.
- v. Domestic livestock shall not be allowed to graze on the land for 30 days after application of biosolids.
- vi. Turf grown on land where biosolids are applied shall not be harvested for 1 year after application of the biosolids when the harvested turf is placed on either land with a high potential for public exposure or a lawn.
- vii. Public access to land with a high potential for public exposure shall be restricted for 1 year after application of biosolids.

- viii. Public access to land with a low potential for public exposure shall be restricted for 30 days after application of biosolids.
 - ix. Land application of biosolids shall be in accordance with the buffer zone requirements found in 30 TAC § 312.44.
4. Vector Attraction Reduction Requirements

All bulk sewage sludge that is applied to agricultural land, forest, a public contact site, or a reclamation site shall be treated by one of the following Alternatives 1 through 10 for vector attraction reduction.

- Alternative 1 - The mass of volatile solids in the sewage sludge shall be reduced by a minimum of 38%.
- Alternative 2 - If Alternative 1 cannot be met for an anaerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge anaerobically in the laboratory in a bench-scale unit for 40 additional days at a temperature between 30° and 37° Celsius. Volatile solids must be reduced by less than 17% to demonstrate compliance.
- Alternative 3 - If Alternative 1 cannot be met for an aerobically digested sludge, demonstration can be made by digesting a portion of the previously digested sludge with percent solids of two percent or less aerobically in the laboratory in a bench-scale unit for 30 additional days at 20° Celsius. Volatile solids must be reduced by less than 15% to demonstrate compliance.
- Alternative 4 - The specific oxygen uptake rate (SOUR) for sewage sludge treated in an aerobic process shall be equal to or less than 1.5 milligrams of oxygen per hour per gram of total solids (dry weight basis) at a temperature of 20° Celsius.
- Alternative 5 - Sewage sludge shall be treated in an aerobic process for 14 days or longer. During that time, the temperature of the sewage sludge shall be higher than 40° Celsius and the average temperature of the sewage sludge shall be higher than 45° Celsius.
- Alternative 6 - The pH of sewage sludge shall be raised to 12 or higher by alkali addition and, without the addition of more alkali shall remain at 12 or higher for two hours and then remain at a pH of 11.5 or higher for an additional 22 hours at the time the sewage sludge is prepared for sale or given away in a bag or other container.
- Alternative 7 - The percent solids of sewage sludge that does not contain unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 75% based on the moisture content and total solids prior to mixing with other materials. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

Alternative 8 - The percent solids of sewage sludge that contains unstabilized solids generated in a primary wastewater treatment process shall be equal to or greater than 90% based on the moisture content and total solids prior to mixing with other materials at the time the sludge is used. Unstabilized solids are defined as organic materials in sewage sludge that have not been treated in either an aerobic or anaerobic treatment process.

- Alternative 9 -
- i. Biosolids shall be injected below the surface of the land.
 - ii. No significant amount of the biosolids shall be present on the land surface within one hour after the biosolids are injected.
 - iii. When sewage sludge that is injected below the surface of the land is Class A or Class AB with respect to pathogens, the biosolids shall be injected below the land surface within eight hours after being discharged from the pathogen treatment process.

- Alternative 10-
- i. Biosolids applied to the land surface or placed on a surface disposal site shall be incorporated into the soil within six hours after application to or placement on the land.
 - ii. When biosolids that are incorporated into the soil is Class A or Class AB with respect to pathogens, the biosolids shall be applied to or placed on the land within eight hours after being discharged from the pathogen treatment process.

C. Monitoring Requirements

Toxicity Characteristic Leaching Procedure (TCLP) Test - annually
 PCBs - annually

All metal constituents and fecal coliform or *Salmonella* sp. bacteria shall be monitored at the appropriate frequency shown below, pursuant to 30 TAC § 312.46(a)(1):

<u>Amount of biosolids (*) metric tons per 365-day period</u>	<u>Monitoring Frequency</u>
0 to less than 290	Once/Year
290 to less than 1,500	Once/Quarter
1,500 to less than 15,000	Once/Two Months
15,000 or greater	Once/Month

(*) *The amount of bulk biosolids applied to the land (dry wt. basis).*

Representative samples of sewage sludge shall be collected and analyzed in accordance with the methods referenced in 30 TAC § 312.7

Identify each of the analytic methods used by the facility to analyze enteric viruses, fecal coliforms, helminth ova, *Salmonella* sp., and other regulated parameters.

Identify in the following categories (as applicable) the sewage sludge or biosolids treatment process or processes at the facility: preliminary operations (e.g., sludge or biosolids grinding and degritting), thickening (concentration), stabilization, anaerobic digestion, aerobic digestion, composting, conditioning, disinfection (e.g., beta ray irradiation, gamma ray irradiation, pasteurization), dewatering (e.g., centrifugation, sludge drying beds, sludge lagoons), heat drying, thermal reduction, and methane or biogas capture and recovery.

Identify the nature of material generated by the facility (such as a biosolid for beneficial use or land-farming, or sewage sludge or biosolids for disposal at a landfill) and whether the material is ultimately conveyed off-site in bulk or in bags.

SECTION II. REQUIREMENTS SPECIFIC TO BULK SEWAGE SLUDGE OR BIOSOLIDS FOR APPLICATION TO THE LAND MEETING CLASS A, CLASS AB or B PATHOGEN REDUCTION AND THE CUMULATIVE LOADING RATES IN TABLE 2, OR CLASS B PATHOGEN REDUCTION AND THE POLLUTANT CONCENTRATIONS IN TABLE 3

For those permittees meeting Class A, Class AB or B pathogen reduction requirements and that meet the cumulative loading rates in Table 2 below, or the Class B pathogen reduction requirements and contain concentrations of pollutants below listed in Table 3, the following conditions apply:

A. Pollutant Limits

Table 2

<u>Pollutant</u>	Cumulative Pollutant Loading Rate (pounds per acre)*
Arsenic	36
Cadmium	35
Chromium	2677
Copper	1339
Lead	268
Mercury	15
Molybdenum	Report Only
Nickel	375
Selenium	89
Zinc	2500

Table 3

<u>Pollutant</u>	Monthly Average Concentration (milligrams per kilogram)*
Arsenic	41
Cadmium	39
Chromium	1200
Copper	1500
Lead	300
Mercury	17
Molybdenum	Report Only
Nickel	420
Selenium	36
Zinc	2800

*Dry weight basis

B. Pathogen Control

All bulk sewage sludge that is applied to agricultural land, forest, a public contact site, a reclamation site, shall be treated by either Class A, Class AB or Class B biosolids pathogen reduction requirements as defined above in Section I.B.3.

C. Management Practices

1. Bulk biosolids shall not be applied to agricultural land, forest, a public contact site, or a reclamation site that is flooded, frozen, or snow-covered so that the bulk sewage sludge enters a wetland or other waters in the State.
2. Bulk biosolids not meeting Class A requirements shall be land applied in a manner which complies with Applicability in accordance with 30 TAC §312.41 and the Management Requirements in accordance with 30 TAC § 312.44.
3. Bulk biosolids shall be applied at or below the agronomic rate of the cover crop.
4. An information sheet shall be provided to the person who receives bulk Class A or AB biosolids sold or given away. The information sheet shall contain the following information:
 - a. The name and address of the person who prepared the Class A or AB biosolids that are sold or given away in a bag or other container for application to the land.
 - b. A statement that application of the biosolids to the land is prohibited except in accordance with the instruction on the label or information sheet.
 - c. The annual whole sludge application rate for the biosolids application rate for the biosolids that does not cause any of the cumulative pollutant loading rates in Table 2 above to be exceeded, unless the pollutant concentrations in Table 3 found in Section II above are met.

D. Notification Requirements

1. If bulk biosolids are applied to land in a State other than Texas, written notice shall be provided prior to the initial land application to the permitting authority for the State in which the bulk biosolids are proposed to be applied. The notice shall include:
 - a. The location, by street address, and specific latitude and longitude, of each land application site.
 - b. The approximate time period bulk biosolids will be applied to the site.
 - c. The name, address, telephone number, and National Pollutant Discharge Elimination System permit number (if appropriate) for the person who will apply the bulk biosolids.

E. Record Keeping Requirements

The documents will be retained at the facility site and/or shall be readily available for review by a TCEQ representative. The person who prepares bulk sewage sludge or a biosolids material shall develop the following information and shall retain the information at the facility site and/or shall be readily available for review by a TCEQ representative for a period of five years. If the permittee supplies the sludge to another person who land applies the sludge, the permittee shall notify the land applier of the requirements for record keeping found in 30 TAC § 312.47 for persons who land apply.

1. The concentration (mg/kg) in the sludge of each pollutant listed in Table 3 above and the applicable pollutant concentration criteria (mg/kg), or the applicable cumulative pollutant loading rate and the applicable cumulative pollutant loading rate limit (lbs/ac) listed in Table 2 above.
2. A description of how the pathogen reduction requirements are met (including site restrictions for Class AB and Class B biosolids, if applicable).
3. A description of how the vector attraction reduction requirements are met.
4. A description of how the management practices listed above in Section II.C are being met.
5. The following certification statement:

“I certify, under penalty of law, that the applicable pathogen requirements in 30 TAC § 312.82(a) or (b) and the vector attraction reduction requirements in 30 TAC § 312.83(b) have been met for each site on which bulk biosolids are applied. This determination has been made under my direction and supervision in accordance with the system designed to ensure that qualified personnel properly gather and evaluate the information used to determine that the management practices have been met. I am aware that there are significant penalties for false certification including fine and imprisonment.”
6. The recommended agronomic loading rate from the references listed in Section II.C.3. above, as well as the actual agronomic loading rate shall be retained. The person who applies bulk biosolids shall develop the following information and shall retain the information at the facility site and/or shall be readily available for review by a TCEQ representative indefinitely. If the permittee supplies the sludge to another person who land applies the sludge, the permittee shall notify the land applier of the requirements for record keeping found in 30 TAC § 312.47 for persons who land apply:
 - a. A certification statement that all applicable requirements (specifically listed) have been met, and that the permittee understands that there are significant penalties for false certification including fine and imprisonment. See 30 TAC § 312.47(a)(4)(A)(ii) or 30 TAC § 312.47(a)(5)(A)(ii), as applicable, and to the permittee’s specific sludge treatment activities.
 - b. The location, by street address, and specific latitude and longitude, of each site on which biosolids are applied.
 - c. The number of acres in each site on which bulk biosolids are applied.
 - d. The date and time biosolids are applied to each site.
 - e. The cumulative amount of each pollutant in pounds/acre listed in Table 2 applied to each site.
 - f. The total amount of biosolids applied to each site in dry tons.

The above records shall be maintained on-site on a monthly basis and shall be made available to the Texas Commission on Environmental Quality upon request.

F. Reporting Requirements

The permittee shall submit the following information in an annual report to the TCEQ by September 30th of each year. The permittee must submit this annual report using the online electronic reporting system available through TCEQ's website. If the permittee requests and obtains an electronic reporting waiver, the annual report can be submitted in hard copy to the TCEQ Regional Office (MC Region 4) and the Enforcement Division (MC 224).

1. Identify in the following categories (as applicable) the sewage sludge or biosolids treatment process or processes at the facility: preliminary operations (e.g., sludge or biosolids grinding and degritting), thickening (concentration), stabilization, anaerobic digestion, aerobic digestion, composting, conditioning, disinfection (e.g., beta ray irradiation, gamma ray irradiation, pasteurization), dewatering (e.g., centrifugation, sludge drying beds, sludge lagoons), heat drying, thermal reduction, and methane or biogas capture and recovery.
2. Identify the nature of material generated by the facility (such as a biosolid for beneficial use or land-farming, or sewage sludge for disposal at a monofill) and whether the material is ultimately conveyed off-site in bulk or in bags.
3. Results of tests performed for pollutants found in either Table 2 or 3 as appropriate for the permittee's land application practices.
4. The frequency of monitoring listed in Section I.C. that applies to the permittee.
5. Toxicity Characteristic Leaching Procedure (TCLP) results.
6. PCB concentration in sludge or biosolids in mg/kg.
7. Identity of hauler(s) and TCEQ transporter number.
8. Date(s) of transport.
9. Texas Commission on Environmental Quality registration number, if applicable.
10. Amount of sludge or biosolids disposal dry weight (lbs/acre) at each disposal site.
11. The concentration (mg/kg) in the sludge of each pollutant listed in Table 1 (defined as a monthly average) as well as the applicable pollutant concentration criteria (mg/kg) listed in Table 3 above, or the applicable pollutant loading rate limit (lbs/acre) listed in Table 2 above if it exceeds 90% of the limit.
12. Level of pathogen reduction achieved (Class A, Class AB or Class B).
13. Alternative used as listed in Section I.B.3.(a. or b.). Alternatives describe how the pathogen reduction requirements are met. If Class B biosolids, include information on how site restrictions were met.
14. Identify each of the analytic methods used by the facility to analyze enteric viruses, fecal coliforms, helminth ova, *Salmonella* sp., and other regulated parameters.
15. Vector attraction reduction alternative used as listed in Section I.B.4.
16. Amount of sludge or biosolids transported in dry tons/year.

17. The certification statement listed in either 30 TAC § 312.47(a)(4)(A)(ii) or 30 TAC § 312.47(a)(5)(A)(ii) as applicable to the permittee's sludge or biosolids treatment activities, shall be attached to the annual report.
18. When the amount of any pollutant applied to the land exceeds 90% of the cumulative pollutant loading rate for that pollutant, as described in Table 2, the permittee shall report the following information as an attachment to the annual report.
 - a. The location, by street address, and specific latitude and longitude.
 - b. The number of acres in each site on which bulk biosolids are applied.
 - c. The date and time bulk biosolids are applied to each site.
 - d. The cumulative amount of each pollutant (i.e., pounds/acre) listed in Table 2 in the bulk biosolids applied to each site.
 - e. The amount of biosolids (i.e., dry tons) applied to each site.

The above records shall be maintained on a monthly basis and shall be made available to the Texas Commission on Environmental Quality upon request.

SECTION III. REQUIREMENTS APPLYING TO ALL SEWAGE SLUDGE OR BIOSOLIDS DISPOSED IN A MUNICIPAL SOLID WASTE LANDFILL

- A. The permittee shall handle and dispose of sewage sludge or biosolids in accordance with 30 TAC § 330 and all other applicable state and federal regulations to protect public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants that may be present. The permittee shall ensure that the sewage sludge meets the requirements in 30 TAC § 330 concerning the quality of the sludge or biosolids disposed in a municipal solid waste landfill.
- B. If the permittee generates sewage sludge and supplies that sewage sludge or biosolids to the owner or operator of a municipal solid waste landfill (MSWLF) for disposal, the permittee shall provide to the owner or operator of the MSWLF appropriate information needed to be in compliance with the provisions of this permit.
- C. Sewage sludge or biosolids shall be tested annually in accordance with the method specified in both 40 CFR Part 261, Appendix II and 40 CFR Part 268, Appendix I (Toxicity Characteristic Leaching Procedure) or other method, which receives the prior approval of the TCEQ for contaminants listed in Table 1 of 40 CFR § 261.24. Sewage sludge or biosolids failing this test shall be managed according to RCRA standards for generators of hazardous waste, and the waste's disposition must be in accordance with all applicable requirements for hazardous waste processing, storage, or disposal.

Following failure of any TCLP test, the management or disposal of sewage sludge or biosolids at a facility other than an authorized hazardous waste processing, storage, or disposal facility shall be prohibited until such time as the permittee can demonstrate the sewage sludge or biosolids no longer exhibits the hazardous waste toxicity characteristics (as demonstrated by the results of the TCLP tests). A written report shall be provided to both the TCEQ Registration and Reporting Section (MC 129) of the Permitting and Registration Support Division and the Regional Director (MC Region 4) of the appropriate TCEQ field office within 7 days after failing the TCLP Test.

The report shall contain test results, certification that unauthorized waste management has stopped, and a summary of alternative disposal plans that comply with RCRA standards for the management of hazardous waste. The report shall be addressed to: Director, Permitting and Registration Support Division (MC 129), Texas Commission on Environmental Quality, P. O. Box 13087, Austin, Texas 78711-3087. In addition, the permittee shall prepare an annual report on the results of all sludge toxicity testing. This annual report shall be submitted to the TCEQ Regional Office (MC Region 4) and the Enforcement Division (MC 224), by September 30 of each year.

- D. Sewage sludge or biosolids shall be tested as needed, in accordance with the requirements of 30 TAC Chapter 330.
- E. Record Keeping Requirements

The permittee shall develop the following information and shall retain the information for five years.

1. The description (including procedures followed and the results) of all liquid Paint Filter Tests performed.
2. The description (including procedures followed and results) of all TCLP tests performed.

The above records shall be maintained on-site on a monthly basis and shall be made available to the Texas Commission on Environmental Quality upon request.

F. Reporting Requirements

The permittee shall submit the following information in an annual report to the TCEQ by September 30th of each year. The permittee must submit this annual report using the online electronic reporting system available through TCEQ's website. If the permittee requests and obtains an electronic reporting waiver, the annual report can be submitted in hard copy to the TCEQ Regional Office (MC Region 4) and the Enforcement Division (MC 224).

1. Identify in the following categories (as applicable) the sewage sludge or biosolids treatment process or processes at the facility: preliminary operations (e.g., sludge or biosolids grinding and dewatering), thickening (concentration), stabilization, anaerobic digestion, aerobic digestion, composting, conditioning, disinfection (e.g., beta ray irradiation, gamma ray irradiation, pasteurization), dewatering (e.g., centrifugation, sludge drying beds, sludge lagoons), heat drying, thermal reduction, and methane or biogas capture and recovery.
2. Toxicity Characteristic Leaching Procedure (TCLP) results.
3. Annual sludge or biosolids production in dry tons/year.
4. Amount of sludge or biosolids disposed in a municipal solid waste landfill in dry tons/year.
5. Amount of sludge or biosolids transported interstate in dry tons/year.
6. A certification that the sewage sludge or biosolids meets the requirements of 30 TAC § 330 concerning the quality of the sludge disposed in a municipal solid waste landfill.
7. Identity of hauler(s) and transporter registration number.
8. Owner of disposal site(s).
9. Location of disposal site(s).
10. Date(s) of disposal.

The above records shall be maintained on-site on a monthly basis and shall be made available to the Texas Commission on Environmental Quality upon request.

SECTION IV. REQUIREMENTS APPLYING TO SLUDGE OR BIOSOLIDS TRANSPORTED TO ANOTHER FACILITY FOR FURTHER PROCESSING

These provisions apply to sludge or biosolids that is transported to another wastewater treatment facility or facility that further processes sludge or biosolids. These provisions are intended to allow transport of sludge or biosolids to facilities that have been authorized to accept sludge or biosolids. These provisions do not limit the ability of the receiving facility to determine whether to accept the sludge or biosolids, nor do they limit the ability of the receiving facility to request additional testing or documentation.

A. General Requirements

1. The permittee shall handle and dispose of sewage sludge or biosolids in accordance with 30 TAC Chapter 312 and all other applicable state and federal regulations in a manner that protects public health and the environment from any reasonably anticipated adverse effects due to any toxic pollutants that may be present in the sludge.
2. Sludge or biosolids may only be transported using a registered transporter or using an approved pipeline.

B. Record Keeping Requirements

1. For sludge transported by an approved pipeline, the permittee must maintain records of the following:
 - a. the amount of sludge or biosolids transported;
 - b. the date of transport;
 - c. the name and TCEQ permit number of the receiving facility or facilities;
 - d. the location of the receiving facility or facilities;
 - e. the name and TCEQ permit number of the facility that generated the waste; and
 - f. copy of the written agreement between the permittee and the receiving facility to accept sludge or biosolids.
2. For sludge or biosolids transported by a registered transporter, the permittee must maintain records of the completed trip tickets in accordance with 30 TAC § 312.145(a)(1)-(7) and amount of sludge or biosolids transported.
3. The above records shall be maintained on-site on a monthly basis and shall be made available to the TCEQ upon request. These records shall be retained for at least five years.

C. Reporting Requirements

The permittee shall submit the following information in an annual report to the TCEQ by September 30th of each year. The permittee must submit this annual report using the online electronic reporting system available through TCEQ's website. If the permittee requests and obtains an electronic reporting waiver, the annual report can be submitted in hard copy to the TCEQ Regional Office (MC Region 4) and the Enforcement Division (MC 224).

1. Identify in the following categories (as applicable) the sewage sludge or biosolids treatment process or processes at the facility: preliminary operations (e.g., sludge or biosolids grinding and degritting), thickening (concentration), stabilization, anaerobic digestion, aerobic digestion, composting, conditioning, disinfection (e.g., beta ray irradiation, gamma ray irradiation, pasteurization), dewatering (e.g., centrifugation, sludge drying beds, sludge lagoons), heat drying, thermal reduction, and methane or biogas capture and recovery.
2. the annual sludge or biosolids production;
3. the amount of sludge or biosolids transported;
4. the owner of each receiving facility;
5. the location of each receiving facility; and
6. the date(s) of disposal at each receiving facility.

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SECTION V. THE PERMITTEE IS AUTHORIZED TO USE THE SLUDGE STORAGE AREA AT THE SITE IN ACCORDANCE WITH THE FOLLOWING PROVISIONS:

- A. The permittee is authorized to store the digested sludge in the dewatered sludge storage area indicated on Attachment A for a period not to exceed two years unless otherwise authorized by the Executive Director.

The permittee is authorized to store the digested sludge in the dewatered sludge storage area for a period not to exceed five years if the person who prepares the sludge demonstrates that the land on which the sewage sludge remains is not an active sludge unit or surface disposal site pursuant to 30 TAC § 312.61(c). The demonstration shall include the following information, which shall be reviewed by the Executive Director and retained by the person who prepares the sewage sludge for the period that the sewage sludge remains on the land:

1. the name and address of the person who prepared the sewage sludge;
 2. the name and address of the person who either owns the land or leases the land;
 3. the location of the land, by latitude and longitude, street address if available, and boundary shown on a 7-1/2 minute quadrangle USGS map;
 4. an explanation of why sewage sludge needs to remain on the land for longer than two years prior to final use or disposal; and
 5. the date by which the sewage sludge will be used or disposed. This date must clearly maintain a storage period less than five years.
- B. The permittee shall keep records of all sludge placed in the storage area. Such records will include the following information:
1. the volume of sludge disposed (in dry tons);
 2. the percentage of total solids in the sludge disposed; and
 3. the date of disposal.

The above records shall be maintained on a monthly basis and be available at the plant site for inspection by authorized representatives of the Commission for at least three years.

- C. **The final disposal of the sludge at the plant site is a violation of this permit. Sludge placed in the storage areas for temporary storage only.** Sludge will ultimately be disposed in accordance with the closure plan as required in item (G).

- D. The storage area shall be adequately lined to control seepage. The following methods of pond lining are acceptable.
1. In-situ clay soils or placed and compacted clay soils meeting the following requirements:
 - a. More than 30% passing a No. 200 mesh sieve
 - b. Liquid limit greater than 30%
 - c. Plasticity index greater than 15
 - d. A minimum thickness of 2 feet
 - e. Permeability equal to or less than 1×10^{-7} cm/sec (*)
 - f. Soil compaction will be 95 percent standard proctor at optimum moisture

content (*)
 (*) For new and/or modified ponds only.

2. Membrane lining with a minimum thickness of 20 mils, and an underdrain leak detection system.
3. An alternate method of pond lining may be utilized with prior approval from the Executive Director.

The permittee shall furnish certification by a Texas Licensed Professional Engineer that the completed pond lining meets the appropriate criteria above. The certification shall be sent to the Enforcement Division (MC 224), Land Application Team (MC 150), and the TCEQ Regional Office (MC Region 4).

- E. The permittee shall, on an annual basis, analyze the digested sludge and the sludge in the storage area for the following parameters:

Arsenic, mg/kg	Molybdenum, mg/kg	Nitrate Nitrogen, mg/kg
Cadmium, mg/kg	Nickel, mg/kg	Total Nitrogen, mg/kg
Chromium, mg/kg	Selenium, mg/kg	Phosphorus, mg/kg
Copper, mg/kg	Zinc, mg/kg	Potassium, mg/kg
Lead, mg/kg	Total PCBs, mg/kg	pH, Standard Units
Mercury, mg/kg	Ammonia Nitrogen, mg/kg	

Records of analytical results of the sampling performed shall be maintained and shall be reported to the Enforcement Division (MC 224) by September 30th of each year. Additionally, any other analysis that may be performed on the sludge (i.e. TCLP toxicity, priority pollutants) shall be maintained and shall be reported to the Enforcement Division (MC 224) by September 30th of each year.

Analytical procedures for sludge testing shall be in accordance with the extraction methods specified in Standard Methods for the Examination of Water and Wastewater and American Society of Agronomy's Methods of Soil Analysis. Sludge test results shall be reported on a dry weight basis.

- F. The permittee shall maintain a minimum of two feet of freeboard in the sludge field(s).
- G. The permittee shall submit a closure plan for the sludge field(s) within one year from the date of issuance of this permit to the Executive Director in care of the Land Application Team (MC 150) of the Water Quality Division for approval and submit updates to the closure plan at least once every two years to the Land Application Team (MC 150) of the Water Quality Division for approval.
- H. The permittee shall ensure that the disposal of sludge does not cause any contamination of the ground or surface waters in the State.
- I. The sludge storage area shall be designed and managed to prevent the occurrence of nuisance conditions associated with the storage areas.

OTHER REQUIREMENTS

1. The permittee shall employ or contract with one or more licensed wastewater treatment facility operators or wastewater system operations companies holding a valid license or registration according to the requirements of 30 TAC Chapter 30, Occupational Licenses and Registrations, and in particular 30 TAC Chapter 30, Subchapter J, Wastewater Operators and Operations Companies.

This Category A facility must be operated by a chief operator or an operator holding a Class A license or higher. The facility must be operated a minimum of five days per week by the licensed chief operator or an operator holding the required level of license or higher. The licensed chief operator or operator holding the required level of license or higher must be available by telephone or pager seven days per week. Where shift operation of the wastewater treatment facility is necessary, each shift that does not have the on-site supervision of the licensed chief operator must be supervised by an operator in charge who is licensed not less than one level below the category for the facility.

2. The facility is not located in the Coastal Management Program boundary.
3. There is no mixing zone established for this discharge to an intermittent stream. Acute toxic criteria apply at the point of discharge.
4. Prior to construction of the Final phase, the permittee shall submit sufficient evidence of legal restrictions prohibiting residential structures within the part of the buffer zone not owned by the permittee according to 30 TAC § 309.13(e)(3). The evidence of legal restrictions shall be submitted to the Executive Director in care of the TCEQ Domestic Wastewater Section (MC 148). The permittee shall comply with the requirements of 30 TAC § 309.13(a) through (d). (See Attachment A.)
5. The permittee shall provide facilities for the protection of its wastewater treatment facility from a 100-year flood.
6. In accordance with 30 TAC § 319.9, a permittee that has at least twelve months of uninterrupted compliance with its bacteria limit may notify the commission in writing of its compliance and request a less frequent measurement schedule. To request a less frequent schedule, the permittee shall submit a written request to the TCEQ Domestic Wastewater Section (MC 148) for each phase that includes a different monitoring frequency. The request must contain all of the reported bacteria values (Daily Avg. and Daily Max/Single Grab) for the twelve consecutive months immediately prior to the request. If the Executive Director finds that a less frequent measurement schedule is protective of human health and the environment, the permittee may be given a less frequent measurement schedule. For this permit, five/week may be reduced to three/week in the Interim phase and Daily may be reduced to Five/week in the Final phase. **A violation of any bacteria limit by a facility that has been granted a less frequent measurement schedule will require the permittee to return to the standard frequency schedule and submit written notice to the TCEQ Domestic Wastewater Section (MC 148).** The permittee may not apply for another reduction in measurement frequency for at least 24 months from the date of the last violation. The Executive Director may establish a more frequent measurement schedule if necessary to protect human health or the environment.
7. Prior to construction of the Final phase treatment facility, the permittee shall submit to the

TCEQ Domestic Wastewater Section (MC 148) a summary transmittal letter in accordance with the requirements in 30 TAC § 217.6(d). If requested by the Domestic Wastewater Section, the permittee shall submit plans, specifications, and a final engineering design report which comply with 30 TAC Chapter 217, Design Criteria for Domestic Wastewater Systems. The permittee shall clearly show how the treatment system will meet the effluent limitations required on Page 2b of this permit. A copy of the summary transmittal letter shall be available at the plant site for inspection by authorized representatives of the TCEQ.

8. The permittee shall notify the TCEQ Regional Office (MC Region 4), and the Applications Review and Processing Team (MC 148) of the Water Quality Division, in writing at least forty-five days prior to the completion of the Final phase facility on Notification of Completion Form 20007.

9. The permittee is authorized to use the sludge field(s) at the site in accordance with the following provisions:
 - A. In the event that conditions are noted that show actual or potential deterioration of groundwater quality, the permittee shall notify the TCEQ Water Quality Assessment Team (MC 150) of the Water Quality Division.

 - B. The permittee shall collect representative groundwater samples from each of the existing four monitoring wells quarterly. Each sample shall be analyzed for the following parameters:

<ol style="list-style-type: none"> 1. pH (standard units) 2. Specific conductance (millihoms/cm) 3. Chloride (mg/l) 4. Sulfate (mg/l) 5. Nitrate Nitrogen (mg/l) 6. Depth of Groundwater (msl) 	<ol style="list-style-type: none"> 7. Coliform (colonies/100 ml) 8. Total Organic Carbon (TOC) (mg/l) 9. Total Dissolved Solids (mg/l) 10. Ammonia Nitrogen (mg/l) 11. Total Alkalinity (mg/l as CaCO₃)
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 - C. The permittee shall also test the groundwater samples for the following parameters annually:

<ol style="list-style-type: none"> 1. Iron (mg/l) 2. Phenols (mg/l) 3. Mercury (mg/l) 4. Cadmium (mg/l) 5. Copper (mg/l) 6. Nickel (mg/l) 7. Silver (mg/l) 	<ol style="list-style-type: none"> 8. Manganese (mg/l) 9. Arsenic (mg/l) 10. Chemical Oxygen Demand (mg/l) 11. Chromium (mg/l) 12. Lead (mg/l) 13. Zinc (mg/l)
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 - D. The permittee shall submit to the TCEQ Enforcement Division (MC 224), Land Application Team (MC 150), and the TCEQ Region 4 Office (MC Region 4) by April 15 of each year an annual evaluation of the monitoring data for the disposal site prepared by a Texas licensed professional engineer or licensed professional geoscientist.

10. Violations of daily maximum limitations for the following pollutants shall be reported orally or by facsimile to TCEQ Region 4 within 24 hours from the time the permittee becomes aware of the violation followed by a written report within five working days to TCEQ Region 4 (MC Region 4) and the Enforcement Division (MC 224).

<u>POLLUTANT</u>	<u>MAL (mg/l)</u>
Total Lead	0.0005
Heptachlor Epoxide	0.00001

Test methods utilized shall be sensitive enough to demonstrate compliance with the permit effluent limitations. Permit compliance/noncompliance determinations will be based on the effluent limitations contained in this permit with consideration given to the MAL for the parameters specified above.

When an analysis of an effluent sample for any of the parameters listed above indicates no detectable levels above the MAL and the test method detection level is as sensitive as the specified MAL, a value of zero (o) shall be used for that measurement when making calculations for the self-reporting form. This applies to determinations of daily maximum concentration, calculations of loading and daily averages, and other reportable results.

When a reported value is zero (o) based on this MAL provision, the permittee shall submit the following statement with the self-reporting form either as a separate attachment to the form or as a statement in the comments section of the form.

"The reported value(s) of zero (o) for [list parameter(s)] on the self-reporting form for [monitoring period date range] is based on the following conditions: 1) the analytical method used had a method detection level as sensitive as the MAL specified in the permit, and 2) the analytical results contained no detectable levels above the specified MAL."

When an analysis of an effluent sample for a parameter indicates no detectable levels and the test method detection level is not as sensitive as the MAL specified in the permit, or an MAL is not specified in the permit for that parameter, the level of detection achieved shall be used for that measurement when making calculations for the self-reporting form. A zero (o) may not be used.

11. The permittee shall comply with the following schedule of activities for the attainment of water quality-based final effluent limitations on page 2a for Heptachlor Epoxide at Outfall 001:
 - a. Determine exceedance cause(s);
 - b. Develop control options;
 - c. Evaluate and select control mechanisms;
 - d. Implement corrective action; and
 - e. Attain final effluent limitations no later than three years from the date of permit issuance

The permittee shall submit quarterly progress reports in accordance with the following schedule. The requirement to submit quarterly progress reports shall expire three years from the date of permit issuance.

PROGRESS REPORT DATES

- January 1
- April 1
- July 1
- October 1

The quarterly progress reports shall include a discussion of the interim requirements that

have been completed at the time of the report and shall address the progress towards attaining the water quality-based final effluent limitations on page 2a for Heptachlor Epoxide at Outfall 001 no later than three years from the date of permit issuance.

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this permit shall be submitted no later than 14 days following each schedule date. Any reports of noncompliance shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

All reports shall be submitted to the TCEQ Regional Office (MC Region 4) and the Enforcement Division (MC 224) of the TCEQ.

CONTRIBUTING INDUSTRIES AND PRETREATMENT REQUIREMENTS

1. The permittee shall operate an industrial pretreatment program in accordance with Sections 402(b)(8) and (9) of the Clean Water Act, the General Pretreatment Regulations (40 CFR Part 403), and the approved **City of Lewisville** publicly owned treatment works (POTW) pretreatment program submitted by the permittee. The pretreatment program was approved on **August 22, 1984**, and modified on **July 16, 1993, July 17, 2001, August 10, 2011,** and **April 10, 2020** (nonsubstantial Streamlining Rule).

The POTW pretreatment program is hereby incorporated by reference and shall be implemented in a manner consistent with the following requirements:

- a. Industrial user (IU) information shall be kept current according to 40 CFR §§403.8(f)(2)(i) and (ii) and updated at a frequency set forth in the approved pretreatment program to reflect the accurate characterization of all IUs.
- b. The frequency and nature of IU compliance monitoring activities by the permittee shall be consistent with the approved POTW pretreatment program and commensurate with the character, consistency, and volume of waste. The permittee is required to inspect and sample the effluent from each significant industrial user (SIU) at least once per year, except as specified in 40 CFR §403.8(f)(2)(v). This is in addition to any industrial self-monitoring activities.
- c. The permittee shall enforce and obtain remedies for IU noncompliance with applicable pretreatment standards and requirements and the approved POTW pretreatment program.
- d. The permittee shall control through permit, order, or similar means, the contribution to the POTW by each IU to ensure compliance with applicable pretreatment standards and requirements and the approved POTW pretreatment program. In the case of SIUs (identified as significant under 40 CFR §403.3(v)), this control shall be achieved through individual permits or general control mechanisms, in accordance with 40 CFR §403.8(f)(1)(iii).

Both individual and general control mechanisms must be enforceable and contain, at a minimum, the following conditions:

- (1) Statement of duration (in no case more than five years);
- (2) Statement of non-transferability without, at a minimum, prior notification to the POTW and provision of a copy of the existing control mechanism to the new owner or operator;
- (3) Effluent limits, which may include enforceable best management practices (BMPs), based on applicable general pretreatment standards, categorical pretreatment standards, local limits, and State and local law;
- (4) Self-monitoring, sampling, reporting, notification and record keeping requirements, identification of the pollutants to be monitored (including, if applicable, the process for seeking a waiver for a pollutant neither present nor expected to be present in the IU's discharge in accordance with 40 CFR §403.12(e)(2), or a specific waived pollutant in the case of an individual control mechanism), sampling location, sampling frequency, and sample type, based on the applicable general pretreatment standards in 40 CFR Part 403, categorical pretreatment standards, local limits, and State and local law;

- (5) Statement of applicable civil and criminal penalties for violation of pretreatment standards and requirements, and any applicable compliance schedule. Such schedules may not extend the compliance date beyond federal deadlines; and
 - (6) Requirements to control slug discharges, if determined by the POTW to be necessary.
- e. For those IUs who are covered by a general control mechanism, in order to implement 40 CFR §403.8(f)(1)(iii)(A)(2), a monitoring waiver for a pollutant neither present nor expected to be present in the IU's discharge is not effective in the general control mechanism until after the POTW has provided written notice to the SIU that such a waiver request has been granted in accordance with 40 CFR §403.12(e)(2).
 - f. The permittee shall evaluate whether each SIU needs a plan or other action to control slug discharges, in accordance with 40 CFR §403.8(f)(2)(vi). If the POTW decides that a slug control plan is needed, the plan shall contain at least the minimum elements required in 40 CFR §403.8(f)(2)(vi).
 - g. The permittee shall provide adequate staff, equipment, and support capabilities to carry out all elements of the pretreatment program.
 - h. The approved program shall not be modified by the permittee without the prior approval of the Executive Director, according to 40 CFR §403.18.
2. The permittee is under a continuing duty to establish and enforce specific local limits to implement the provisions of 40 CFR §403.5, develop and enforce local limits as necessary, and modify the approved pretreatment program as necessary to comply with federal, state, and local law, as amended. The permittee may develop BMPs to implement 40 CFR §403.5(c)(1) and (2). Such BMPs shall be considered local limits and pretreatment standards. The permittee is required to effectively enforce such limits and to modify its pretreatment program, including the Legal Authority, Enforcement Response Plan, and Standard Operating Procedures (including forms), if required by the Executive Director to reflect changing conditions at the POTW. Substantial modifications will be approved in accordance with 40 CFR §403.18, and modifications will become effective upon approval by the Executive Director in accordance with 40 CFR §403.18.

The permittee shall submit to the TCEQ Pretreatment Team (MC 148) of the Water Quality Division, within **sixty (60) days** of the issued date of this permit, either:

- 1) a written certification that a technical reassessment has been performed, and that the evaluation demonstrates that existing technically based local limits (TBLLs) attain the Texas Surface Water Quality Standards [30 TAC Chapter 307] in water in the state, and are adequate to prevent pass through of pollutants, inhibition of or interference with the treatment facility, worker health and safety problems, and sludge contamination [submit the Reassessment Form No. TCEQ-20221]; **or**
- 2) a written notification that a technical redevelopment of the current TBLLs, draft legal authority which incorporates such revisions, and any additional modifications to the pretreatment program, as required by 40 CFR Part 403 [rev. 10/14/05], and applicable state and local law, including an Enforcement Response Plan and Standard Operating Procedures (including forms), will be submitted within **twelve**

(12) months of the issued date of this permit. The POTW is required to evaluate any enforceable BMP loadings during the redevelopment of the current TBLs. The technical redevelopment of the current TBLs should be developed in accordance with EPA's *Local Limits Development Guidance*, July 2004, and EPA Region 6's *Technically Based Local Limits Development Guidance*, October 12, 1993. This submission shall be signed and certified by the permittee [*according to 40 CFR §122.41(k)*].

3. The permittee shall analyze the treatment facility influent and effluent for the presence of the toxic pollutants listed in the Texas Surface Water Quality Standards [30 TAC Chapter 307], and 40 CFR Part 122, Appendix D, Table II at least **once per six months** and the toxic pollutants listed in 40 CFR Part 122, Appendix D, Table III at least **once per three months**. If, based upon information available to the permittee, there is reason to suspect the presence of any toxic or hazardous pollutant listed in 40 CFR Part 122, Appendix D, Table V, or any other pollutant, known or suspected to adversely affect treatment plant operation, receiving water quality, or solids disposal procedures, analysis for those pollutants shall be performed at least **once per three months** on both the influent and the effluent.

The influent and effluent samples collected shall be composite samples consisting of at least 12 aliquots collected at approximately equal intervals over a representative 24-hour period and composited according to flow. Sampling and analytical procedures shall be in accordance with guidelines established in 40 CFR Part 136, as amended; as approved by the EPA through the application for alternate test procedures; or as suggested in Tables E-1 and E-2 of the *Procedures to Implement the Texas Surface Water Quality Standards* (RG-194), June 2010, as amended and adopted by the TCEQ. The effluent samples shall be analyzed to the minimum analytical level (MAL), if necessary, to determine compliance with the daily average water quality based effluent concentration from the TCEQ's Texas Toxicity Modeling Program (TEXTOX) and other applicable water quality discharge standards. Where composite samples are inappropriate due to sampling, holding time, or analytical constraints, at least four (4) grab samples shall be taken at equal intervals over a representative 24-hour period.

4. The permittee shall prepare annually a list of IUs, which during the preceding twelve (12) months were in significant noncompliance (SNC) with applicable pretreatment requirements. For the purposes of this section of the permit, "CONTRIBUTING INDUSTRIES AND PRETREATMENT REQUIREMENTS," SNC shall be determined based upon the more stringent of either criteria established at 40 CFR §403.8(f)(2)(viii) [*rev. 10/14/05*] or criteria established in the approved POTW pretreatment program. This list is to be published annually during the month of **January** in a newspaper of general circulation that provides meaningful public notice within the jurisdiction(s) served by the POTW.

In addition, each **January** the permittee shall submit an updated pretreatment program annual status report, in accordance with 40 CFR §§403.12(i) [*rev. 10/22/15*] and (m), to the TCEQ Pretreatment Team (MC148) of the Water Quality Division. The report summary shall be submitted on the Pretreatment Performance Summary (PPS) form [TCEQ-20218]. The report shall contain the following information as well as the information on the tables in this section:

- a. An updated list of all regulated IUs as indicated in this section. For each listed IU,

the following information shall be included:

- (1) Standard Industrial Classification (SIC) or North American Industry Classification System (NAICS) code *and* categorical determination.
- (2) If the pretreatment program has been modified and approved to incorporate reduced monitoring for any of the categorical IUs as provided by 40 CFR Part 403 [rev. 10/14/05], then the list must also identify:
 - categorical IUs subject to the conditions for reduced monitoring and reporting requirements under 40 CFR § 403.12(e)(1) [rev. 10/22/15] and (3);
 - those IUs that are non-significant categorical industrial users (NSCIUs) under 40 CFR §403.3(v)(2); and
 - those IUs that are middle tier categorical industrial users (MTCIUs) under 40 CFR §403.12(e)(3).
- (3) Control mechanism status.
 - Indicate whether the IU has an effective individual or general control mechanism, and the date such control mechanism was last issued, reissued, or modified;
 - Indicate which IUs were added to the system, or newly identified, during the pretreatment year reporting period;
 - Include the type of general control mechanisms; and
 - Report all NSCIU annual evaluations performed, as applicable.
- (4) A summary of all compliance monitoring activities performed by the POTW during the pretreatment year reporting period. The following information shall be reported:
 - Total number of inspections performed; and
 - Total number of sampling events conducted.
- (5) Status of IU compliance with effluent limitations, reporting, and narrative standard (which may include enforceable BMPs, narrative limits, and/or operational standards) requirements. Compliance status shall be defined as follows:
 - Compliant (C) - no violations during the pretreatment year reporting period;
 - Non-compliant (NC) - one or more violations during the pretreatment year reporting period but does not meet the criteria for SNC; and
 - Significant Noncompliance (SNC) - in accordance with requirements

described above in this section.

- (6) For noncompliant IUs, indicate the nature of the violations, the type and number of actions taken (notice of violation, administrative order, criminal or civil suit, fines or penalties collected, etc.), and the current compliance status. If any IU was on a schedule to attain compliance with effluent limits or narrative standards, indicate the date the schedule was issued and the date compliance is to be attained.
- b. A list of each IU whose authorization to discharge was terminated or revoked during the pretreatment year reporting period and the reason for termination.
- c. A report on any interference, pass through, Act of God, or POTW permit violations known or suspected to be caused by IUs and response actions taken by the permittee.
- d. The results of all influent and effluent analyses performed pursuant to Item 3 of this section.
- e. An original newspaper public notice, or copy of the newspaper publication with official affidavit, of the list of IUs that meet the criteria of SNC, giving the name of the newspaper and date the list was published.
- f. The daily average water quality based effluent concentrations (from the TCEQ's Texas Toxicity Modeling Program (TexTox)) necessary to attain the Texas Surface Water Quality Standards, 30 TAC Chapter 307, in water in the state.
- g. The maximum allowable headworks loading (MAHL) in pounds per day (lb/day) of the approved TBLLs or for each pollutant of concern (POC) for which the permittee has calculated a MAHL. In addition, the influent loading as a percent of the MAHL, using the annual average flow of the wastewater treatment plant in million gallons per day (MGD) during the pretreatment year reporting period, for each pollutant that has an adopted TBLL or for each POC for which the permittee has calculated a MAHL. (*See Endnotes No. 2 at the end of this section for the influent loading as a percent of the MAHL equation.*)
- h. The permittee may submit the updated pretreatment program annual status report information in tabular form using the example table format provided. Please attach, on a separate sheet, explanations to document the various pretreatment activities, including IU permits that have expired, BMP violations, and any sampling events that were not conducted by the permittee as required.
- i. A summary of changes to the POTW's approved pretreatment program that have not been previously reported to the Approval Authority.

Effective December 21, 2025, the permittee must submit the updated pretreatment program annual status report required by this section electronically using the online electronic reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver. [*rev. Federal Register/ Vol. 80/ No. 204/ Friday, October 22, 2015/ Rules and Regulations, pages 64064-64158*].

5. The permittee shall provide adequate written notification to the Executive Director, care of

the Wastewater Permitting Section (MC 148) of the Water Quality Division, within 30 days of the permittee's knowledge of the following:

- a. Any new introduction of pollutants into the treatment works from an indirect discharger that would be subject to Sections 301 and 306 of the Clean Water Act, if the indirect discharger was directly discharging those pollutants; and
- b. Any substantial change in the volume or character of pollutants being introduced into the treatment works by a source introducing pollutants into the treatment works at the time of issuance of the permit.

Adequate notice shall include information on the quality and quantity of effluent to be introduced into the treatment works and any anticipated impact of the change on the quality or quantity of effluent to be discharged from the POTW.

Revised March 2022

TPDES Pretreatment Program Annual Report Form for Updated Industrial Users List

Reporting month/year: _____, _____ **to** _____, _____

TPDES Permit No.: _____ **Permittee:** _____ **Treatment Plant:** _____

PRETREATMENT PROGRAM STATUS REPORT UPDATED INDUSTRIAL USERS' LIST																
Industrial User Name	SIC or NAICS Code	CIU ²	CONTROL MECHANISM				New User ³ (Y or N)	Times Inspected by the CA	Times Sampled by the CA	COMPLIANCE STATUS During the Pretreatment Year Reporting Period ⁴ (C = Compliant, NC = Noncompliant, SNC= Significant Noncompliance)						
			Y/N or NR ⁵	IND or GEN or NR	Last Action ⁶	TBLLs or TBLLs only ⁷				REPORTS				NSCIU Certifications	Effluent Limits	Narrative Standards
										BMR	90-Day	Semi-Annual	Self-Monitoring ⁸			

- 1 Include all significant industrial users (SIUs), non-significant categorical industrial users (NSCIUs) as defined in 40 CFR §403.3(v)(2), and/or middle tier categorical industrial users (MTCIUs) as defined in 40 CFR §403.12(e)(3). Please do not include non-significant noncategorical IUs that are covered under best management practices (BMPs) or general control mechanisms.
- 2 Categorical determination (include 40 CFR citation and NSCIU or MTCIU status, if applicable).
- 3 Indicate whether the IU is a new user. If the answer is No or N, then indicate the expiration date of the last issued IU permit.
- 4 The term SNC applies to a broader range of violations, such as daily maximum, long-term average, instantaneous limits, and narrative standards (which may include enforceable BMPs, narrative limits and/or operational standards). Any other violation, or group of violations, which the POTW determines will adversely affect the operation or implementation of the local Pretreatment Program now includes BMP violations (40 CFR §403.8(f)(2)(viii)(H)).
- 5 Code NR= None required (NSCIUs only); IND = individual control mechanism; GEN = general control mechanism. Include as a footnote (or on a separate page) the name of the general control mechanism used for similar groups of IUs, identify the similar types of operations and types of wastes that are the same for each general control mechanism. Any BMPs through general control mechanisms that are applied to nonsignificant IUs need to be reported separately, e.g. the sector type and BMP description.
- 6 Permit or NSCIU evaluations as applicable.
- 7 According to 40 CFR §403.12(i)(1), indicate whether the IU is subject to technically based local limits (TBLLs) that are more stringent than categorical pretreatment standards, e.g. where there is one end-of-pipe sampling point at a CIU, and you have determined that the TBLLs are more stringent than the categorical pretreatment standards for any pollutant at the end-of-pipe sampling point; **OR** the IU is subject only to local limits (TBLLs only), e.g. the IU is a non-categorical SIU subject only to TBLLs at the end-of-pipe sampling point.
- 8 For those IUs where a monitoring waiver has been granted, please add the code "W" (after either C, NC, or SNC codes) and indicate the pollutant(s) for which the waiver has been granted.

**TPDES Pretreatment Program Annual Report Form for
Industrial User Inventory Modifications**

Reporting month/year: _____, _____ **to** _____, _____

TPDES Permit No: _____ **Permittee:** _____ **Treatment Plant:** _____

INDUSTRIAL USER INVENTORY MODIFICATIONS					
FACILITY NAME, ADDRESS AND CONTACT PERSON	ADD, CHANGE, DELETE (Including categorical reclassification to NSCIU or MTCIU)	IF DELETION: Reason For Deletion	IF ADDITION OR SIGNIFICANT CHANGE:		
			PROCESS DESCRIPTION	POLLUTANTS (Including any sampling waiver given for each pollutant not present)	FLOW RATE ⁹ (In gpd) R = Regulated U = Unregulated T = Total

9 For NSCIUs, total flow must be given, if regulated flow is not determined.

TPDES Pretreatment Program Annual Report Form for Enforcement Actions Taken

Reporting month/year: _____, _____ **to** _____, _____

TPDES Permit No: _____ **Permittee:** _____ **Treatment Plant:** _____

Overall SNC ____% **SNC ¹⁰ based on:** **Effluent Violations** ____%
Reporting Violations ____% **Narrative Standard Violations** ____%

Noncompliant Industrial Users - Enforcement Actions Taken															
Industrial User Name	Nature of Violation ¹¹				Number of Actions Taken					Penalties Collected (Do not Include Surcharge)	Compliance Schedule			Current Status Returned to Compliance: (Y or N)	Comments
	Effluent Limits	Reports	NSCIU Certifications	Narrative Standards	NOV	A.O.	Civil	Criminal	Other		Y or N	Date Issued	Date Due		

10 # %
 ___ Pretreatment Standards [WENDB-PSNC] (Local Limits/Categorical Standards)
 ___ Reporting Requirements [WENDB-PSNC]
 ___ Narrative Standards

11 Please specify a separate number for each type of violation, e.g. report, notification, and/or NSCIU certification.

**TPDES Pretreatment Program Annual Report Form for
Influent and Effluent Monitoring Results¹**

Reporting month/year: _____, _____ to _____, _____

TPDES Permit No.: _____ **Permittee:** _____ **Treatment Plant:** _____

PRETREATMENT PROGRAM INFLUENT AND EFFLUENT MONITORING RESULTS											
POLLUTANT	MAHL, if Applicable in lb/day	Influent Measured in µg/L (Actual Concentration or < MAL)				Average Influent % of the MAHL ²	Daily Average Effluent Limit (µg/L) ³	Effluent Measured in µg/L (Actual Concentration or < MAL) ⁴			
		Date	Date	Date	Date			Date	Date	Date	Date
METALS, CYANIDE AND PHENOLS											
Antimony, Total											
Arsenic, Total											
Beryllium, Total											
Cadmium, Total											
Chromium, Total											
Chromium (Hex)											
Chromium (Tri) ⁵											
Copper, Total											
Lead, Total											
Mercury, Total											
Nickel, Total											
Selenium, Total											
Silver, Total											
Thallium, Total											
Zinc, Total											

PRETREATMENT PROGRAM INFLUENT AND EFFLUENT MONITORING RESULTS											
POLLUTANT	MAHL, if Applicable in lb/day	Influent Measured in µg/L (Actual Concentration or < MAL)				Average Influent % of the MAHL ²	Daily Average Effluent Limit (µg/L) ³	Effluent Measured in µg/L (Actual Concentration or < MAL) ⁴			
		Date	Date	Date	Date			Date	Date	Date	Date
Cyanide, Available ⁶											
Cyanide, Total											
Phenols, Total											
VOLATILE COMPOUNDS											
Acrolein											
Acrylonitrile											
Benzene											
Bromoform							See TTHM				
Carbon Tetrachloride											
Chlorobenzene											
Chlorodibromomethane							See TTHM				
Chloroethane											
2-Chloroethylvinyl Ether											
Chloroform							See TTHM				
Dichlorobromomethane							See TTHM				
1,1-Dichloroethane											
1,2-Dichloroethane											
1,1-Dichloroethylene											
1,2-Dichloropropane											

PRETREATMENT PROGRAM INFLUENT AND EFFLUENT MONITORING RESULTS											
POLLUTANT	MAHL, if Applicable in lb/day	Influent Measured in µg/L (Actual Concentration or < MAL)				Average Influent % of the MAHL ²	Daily Average Effluent Limit (µg/L) ³	Effluent Measured in µg/L (Actual Concentration or < MAL) ⁴			
		Date	Date	Date	Date			Date	Date	Date	Date
1,3-Dichloropropylene											
Ethyl benzene											
Methyl Bromide											
Methyl Chloride											
Methylene Chloride											
1,1,2,2-Tetra-chloroethane											
Tetrachloroethylene											
Toluene											
1,2-Trans-Dichloroethylene											
1,1,1-Trichloroethane											
1,1,2-Trichloroethane											
Trichloroethylene											
Vinyl Chloride											
ACID COMPOUNDS											
2-Chlorophenol											
2,4-Dichlorophenol											
2,4-Dimethylphenol											
4,6-Dinitro-o-Cresol											
2,4-Dinitrophenol											
2-Nitrophenol											

PRETREATMENT PROGRAM INFLUENT AND EFFLUENT MONITORING RESULTS											
POLLUTANT	MAHL, if Applicable in lb/day	Influent Measured in µg/L (Actual Concentration or < MAL)				Average Influent % of the MAHL ²	Daily Average Effluent Limit (µg/L) ³	Effluent Measured in µg/L (Actual Concentration or < MAL) ⁴			
		Date	Date	Date	Date			Date	Date	Date	Date
4-Nitrophenol											
P-Chloro-m-Cresol											
Pentachlorophenol											
Phenol											
2,4,6-Trichlorophenol											
BASE/NEUTRAL COMPOUNDS											
Acenaphthene											
Acenaphthylene											
Anthracene											
Benzidine											
Benzo(a)Anthracene											
Benzo(a)Pyrene											
3,4-Benzofluoranthene											
Benzo(ghi)Perylene											
Benzo(k)Fluoranthene											
Bis(2-Chloroethoxy)Methane											
Bis(2-Chloroethyl)Ether											
Bis(2-Chloroisopropyl)Ether											
Bis(2-Ethylhexyl)Phthalate											
4-Bromophenyl Phenyl Ether											

PRETREATMENT PROGRAM INFLUENT AND EFFLUENT MONITORING RESULTS											
POLLUTANT	MAHL, if Applicable in lb/day	Influent Measured in µg/L (Actual Concentration or < MAL)				Average Influent % of the MAHL ²	Daily Average Effluent Limit (µg/L) ³	Effluent Measured in µg/L (Actual Concentration or < MAL) ⁴			
		Date	Date	Date	Date			Date	Date	Date	Date
Butylbenzyl Phthalate											
2-Chloronaphthalene											
4-Chlorophenyl Phenyl Ether											
Chrysene											
Dibenzo(a,h)Anthracene											
1,2-Dichlorobenzene											
1,3-Dichlorobenzene											
1,4-Dichlorobenzene											
3,3-Dichlorobenzidine											
Diethyl Phthalate											
Dimethyl Phthalate											
Di-n-Butyl Phthalate											
2,4-Dinitrotoluene											
2,6-Dinitrotoluene											
Di-n-Octyl Phthalate											
1,2-Diphenyl Hydrazine											
Fluoranthene											
Fluorene											
Hexachlorobenzene											
Hexachlorobutadiene											

PRETREATMENT PROGRAM INFLUENT AND EFFLUENT MONITORING RESULTS											
POLLUTANT	MAHL, if Applicable in lb/day	Influent Measured in µg/L (Actual Concentration or < MAL)				Average Influent % of the MAHL ²	Daily Average Effluent Limit (µg/L) ³	Effluent Measured in µg/L (Actual Concentration or < MAL) ⁴			
		Date	Date	Date	Date			Date	Date	Date	Date
Hexachloro- cyclopentadiene											
Hexachloroethane											
Indeno(1,2,3-cd)pyrene											
Isophorone											
Naphthalene											
Nitrobenzene											
N-Nitrosodimethylamine											
N-Nitrosodi-n-Propylamine											
N-Nitrosodiphenylamine											
Phenanthrene											
Pyrene											
1,2,4-Trichlorobenzene											
PESTICIDES											
Aldrin											
Alpha-hexachlorocyclohexane (BHC)											
beta-BHC											
gamma-BHC (Lindane)											
delta-BHC											
Chlordane											

PRETREATMENT PROGRAM INFLUENT AND EFFLUENT MONITORING RESULTS											
POLLUTANT	MAHL, if Applicable in lb/day	Influent Measured in µg/L (Actual Concentration or < MAL)				Average Influent % of the MAHL ²	Daily Average Effluent Limit (µg/L) ³	Effluent Measured in µg/L (Actual Concentration or < MAL) ⁴			
		Date	Date	Date	Date			Date	Date	Date	Date
4,4-DDT											
4,4-DDE											
4,4-DDD											
Dieldrin											
alpha-Endosulfan											
beta-Endosulfan											
Endosulfan Sulfate											
Endrin											
Endrin Aldehyde											
Heptachlor											
Heptachlor Epoxide											
Polychlorinated biphenols (PCBs) <i>The sum of PCB concentrations not to exceed daily average value.</i>											
PCB-1242							See PCBs				
PCB-1254							See PCBs				
PCB-1221							See PCBs				
PCB-1232							See PCBs				
PCB-1248							See PCBs				
PCB-1260							See PCBs				

PRETREATMENT PROGRAM INFLUENT AND EFFLUENT MONITORING RESULTS											
POLLUTANT	MAHL, if Applicable in lb/day	Influent Measured in µg/L (Actual Concentration or < MAL)				Average Influent % of the MAHL ²	Daily Average Effluent Limit (µg/L) ³	Effluent Measured in µg/L (Actual Concentration or < MAL) ⁴			
		Date	Date	Date	Date			Date	Date	Date	Date
PCB-1016							See PCBs				
Toxaphene											
ADDITIONAL TOXIC POLLUTANTS REGULATED UNDER 30 TAC CHAPTER 307											
Aluminum											
Barium											
Bis(chloromethyl)ether ⁷											
Carbaryl											
Chloropyrifos											
Cresols											
2,4-D											
Danitol ⁸											
Demeton											
Diazinon											
Dicofol											
Dioxin/Furans ⁹											
Diuron											
Epichlorohydrin ⁹											
Ethylene glycol ⁹											
Fluoride											
Guthion											

PRETREATMENT PROGRAM INFLUENT AND EFFLUENT MONITORING RESULTS											
POLLUTANT	MAHL, if Applicable in lb/day	Influent Measured in µg/L (Actual Concentration or < MAL)				Average Influent % of the MAHL ²	Daily Average Effluent Limit (µg/L) ³	Effluent Measured in µg/L (Actual Concentration or < MAL) ⁴			
		Date	Date	Date	Date			Date	Date	Date	Date
Hexachlorophene											
4,4-Isopropylidenediphenol (bisphenol A) ⁹											
Malathion											
Methoxychlor											
Methyl Ethyl Ketone											
Methyl tert-butyl-ether (MTBE) ⁹											
Mirex											
Nitrate-Nitrogen											
N-Nitrosodiethylamine											
N-Nitroso-di-n-Butylamine											
Nonylphenol											
Parathion											
Pentachlorobenzene											
Pyridine											
1,2-Dibromoethane											
1,2,4,5-Tetrachlorobenzene											
2,4,5-TP (Silvex)											
Tributyltin ⁹											
2,4,5-Trichlorophenol											
TTHM (Total											

PRETREATMENT PROGRAM INFLUENT AND EFFLUENT MONITORING RESULTS											
POLLUTANT	MAHL, if Applicable in lb/day	Influent Measured in µg/L (Actual Concentration or < MAL)				Average Influent % of the MAHL ²	Daily Average Effluent Limit (µg/L) ³	Effluent Measured in µg/L (Actual Concentration or < MAL) ⁴			
		Date	Date	Date	Date			Date	Date	Date	Date
Trihalomethanes)											

Endnotes:

1. It is advised that the permittee collect the influent and effluent samples considering flow detention time through each wastewater treatment plant (WWTP).
2. The MAHL of the approved TBLLs or for each pollutant of concern (POC) for which the permittee has calculated a MAHL. Only complete the column labeled "Average Influent % of the MAHL," as a percentage, for pollutants that have approved TBLLs or for each POC for which the permittee has calculated a MAHL (U.S. Environmental Protection Agency *Local Limits Development Guidance*, July 2004, EPA933-R-04-002A).

The % of the MAHL is to be calculated using the following formulas:

$$\text{Equation A: } L_{\text{INF}} = (C_{\text{POLL}} \times Q_{\text{WWTP}} \times 8.34) / 1000$$

$$\text{Equation B: } L\% = (L_{\text{INF}} / \text{MAHL}) \times 100$$

Where:

L_{INF} =	Current Average (Avg) influent loading in lb/day
C_{POLL} =	Avg concentration in $\mu\text{g/L}$ of all influent samples collected during the pretreatment year.
Q_{WWTP} =	Annual average flow of the WWTP in MGD, defined as the arithmetic average of all daily flow determinations taken within the preceding 12 consecutive calendar months (or during the pretreatment year), and as described in the Definitions and Standard Permit Conditions section.
$L\%$ =	% of the MAHL
MAHL =	Calculated MAHL in lb/day
8.34 =	Unit conversion factor

3. Daily average effluent limit (metal values are for total metals) as derived by the Texas Toxicity Modeling Program (TexTox). Effluent limits as calculated are designed to be protective of the Texas Surface Water Quality Standards. The permittee shall determine and indicate which effluent limit is the most stringent between the 30 TAC Chapter 319, Subchapter B (Hazardous Metals) limit, TexTox values, or any applicable limit in the Effluent Limitations and Monitoring Requirements Section of this TPDES permit. Shaded blocks need not be filled in unless the permittee has received a permit requirement/limit for the particular parameter.
4. Minimum analytical levels (MALs) and analytical methods as suggested in Tables E-1 and E-2 of the *Procedures to Implement the Texas Surface Water Quality Standards* (June 2010), as amended and adopted by the TCEQ. Pollutants that are not detectable above the MAL need to be reported as less than (<) the MAL numeric value.
5. Report result by subtracting Hexavalent Chromium from Total Chromium.
6. Either the method for Amenable to Chlorination or Weak-Acid Dissociable is authorized.
7. Hydrolyzes in water. Will not require permittee to analyze at this time.
8. EPA procedure not approved. Will not require permittee to analyze at this time.
9. Analyses are not required at this time for these pollutants unless there is reason to believe that these pollutants may be present.

BIOMONITORING REQUIREMENTS

CHRONIC BIOMONITORING REQUIREMENTS: FRESHWATER

The provisions of this section apply to Outfall 001 for whole effluent toxicity (WET) testing.

1. Scope, Frequency, and Methodology

- a. The permittee shall test the effluent for toxicity in accordance with the provisions below. Such testing will determine if an appropriately dilute effluent sample adversely affects the survival, reproduction, or growth of the test organisms.
- b. The permittee shall conduct the following toxicity tests using the test organisms, procedures, and quality assurance requirements specified in this part of this permit and in accordance with "Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Freshwater Organisms," fourth edition (EPA-821-R-02-013) or its most recent update:
 - 1) Chronic static renewal survival and reproduction test using the water flea (*Ceriodaphnia dubia*) (Method 1002.0). This test should be terminated when 60% of the surviving adults in the control produce three broods or at the end of eight days, whichever occurs first. This test shall be conducted once per quarter.
 - 2) Chronic static renewal 7-day larval survival and growth test using the fathead minnow (*Pimephales promelas*) (Method 1000.0). A minimum of five replicates with eight organisms per replicate shall be used in the control and in each dilution. This test shall be conducted once per quarter.

The permittee must perform and report a valid test for each test species during the prescribed reporting period. An invalid test must be repeated during the same reporting period. An invalid test is defined as any test failing to satisfy the test acceptability criteria, procedures, and quality assurance requirements specified in the test methods and permit.

- c. The permittee shall use five effluent dilution concentrations and a control in each toxicity test. These effluent dilution concentrations are 11%, 15%, 20%, 27%, and 36% effluent. The critical dilution, defined as 27% effluent, is the effluent concentration representative of the proportion of effluent in the receiving water during critical low flow or critical mixing conditions.
- d. This permit may be amended to require a WET limit, a chemical-specific effluent limit, a best management practice, or other appropriate actions to address toxicity. The permittee may be required to conduct a toxicity reduction evaluation (TRE) after multiple toxic events.
- e. Should a water flea test fail (i.e., demonstrate significant toxicity), the testing frequency for that test species increases to monthly until three consecutive tests pass (i.e., do not demonstrate significant toxicity), at which time the testing frequency of once per quarter resumes. If three or more failures are

demonstrated during the permit term, a WET limit will be included in the subsequently reissued permit. Any two lethal failures in a three month period will require the permittee to initiate a TRE (see Part 5. Toxicity Reduction Evaluation).

f. Testing Frequency Reduction

- 1) If none of the first four consecutive quarterly fathead minnow tests demonstrates significant toxicity, the permittee may submit this information in writing and, upon approval, reduce the testing frequency to once per year.
- 2) If one or more of the first four consecutive quarterly fathead minnow tests demonstrates significant toxicity, the permittee shall continue quarterly testing until this permit is reissued. If a testing frequency reduction had been previously granted and a subsequent test demonstrates significant toxicity, the permittee shall resume a quarterly testing frequency until this permit is reissued.

2. Required Toxicity Testing Conditions

a. Test Acceptance - The permittee shall repeat any toxicity test, including the control and all effluent dilutions, which fail to meet the following criteria:

- 1) a control mean survival of 80% or greater;
- 2) a control mean number of water flea neonates per surviving adult of 15 or greater;
- 3) a control mean dry weight of surviving fathead minnow larvae of 0.25 mg or greater;
- 4) a control coefficient of variation percent (CV%) of 40 or less in between replicates for the young of surviving females in the water flea test; and the growth and survival endpoints in the fathead minnow test;
- 5) a critical dilution CV% of 40 or less for the young of surviving females in the water flea test; and the growth and survival endpoints for the fathead minnow test. However, if statistically significant lethal or nonlethal effects are exhibited at the critical dilution, a CV% greater than 40 shall not invalidate the test;
- 6) a percent minimum significant difference of 47 or less for water flea reproduction; and
- 7) a percent minimum significant difference of 30 or less for fathead minnow growth.

b. Statistical Interpretation

- 1) For the water flea survival test, the statistical analyses used to determine

if there is a significant difference between the control and an effluent dilution shall be the Fisher's exact test as described in the manual referenced in in Part 1.b.

- 2) For the water flea reproduction test and the fathead minnow larval survival and growth tests, the statistical analyses used to determine if there is a significant difference between the control and an effluent dilution shall be in accordance with the manual referenced in Part 1.b.
- 3) The permittee is responsible for reviewing test concentration-response relationships to ensure that calculated test-results are interpreted and reported correctly. The document entitled "Method Guidance and Recommendation for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)" (EPA 821-B-00-004) provides guidance on determining the validity of test results.
- 4) If significant lethality is demonstrated (that is, there is a statistically significant difference in survival at the critical dilution when compared to the survival in the control), the conditions of test acceptability are met, and the survival of the test organisms are equal to or greater than 80% in the critical dilution and all dilutions below that, then the permittee shall report a survival No Observed Effect Concentration (NOEC) of not less than the critical dilution for the reporting requirements.
- 5) The NOEC is defined as the greatest effluent dilution at which no significant effect is demonstrated. The Lowest Observed Effect Concentration (LOEC) is defined as the lowest effluent dilution at which a significant effect is demonstrated. A significant effect is defined as a statistically significant difference between the survival, reproduction, or growth of the test organism in a specified effluent dilution when compared to the survival, reproduction, or growth of the test organism in the control.
- 6) The use of NOECs and LOECs assumes either a monotonic (continuous) concentration-response relationship or a threshold model of the concentration-response relationship. For any test result that demonstrates a non-monotonic (non-continuous) response, the NOEC should be determined based on the guidance manual referenced in Item 3.
- 7) Pursuant to the responsibility assigned to the permittee in Part 2.b.3), test results that demonstrate a non-monotonic (non-continuous) concentration-response relationship may be submitted, prior to the due date, for technical review. The guidance manual referenced in Item 3 will be used when making a determination of test acceptability.
- 8) TCEQ staff will review test results for consistency with rules, procedures, and permit requirements.

c. Dilution Water

- 1) Dilution water used in the toxicity tests must be the receiving water

collected at a point upstream of the discharge point as close as possible to the discharge point but unaffected by the discharge. Where the toxicity tests are conducted on effluent discharges to receiving waters that are classified as intermittent streams, or where the toxicity tests are conducted on effluent discharges where no receiving water is available due to zero flow conditions, the permittee shall:

- a) substitute a synthetic dilution water that has a pH, hardness, and alkalinity similar to that of the closest downstream perennial water unaffected by the discharge; or
 - b) use the closest downstream perennial water unaffected by the discharge.
- 2) Where the receiving water proves unsatisfactory as a result of pre-existing instream toxicity (i.e. fails to fulfill the test acceptance criteria of Part 2.a.), the permittee may substitute synthetic dilution water for the receiving water in all subsequent tests provided the unacceptable receiving water test met the following stipulations:
- a) a synthetic lab water control was performed (in addition to the receiving water control) which fulfilled the test acceptance requirements of Part 2.a;
 - b) the test indicating receiving water toxicity was carried out to completion (i.e., 7 days); and
 - c) the permittee submitted all test results indicating receiving water toxicity with the reports and information required in Part 3.
- 3) The synthetic dilution water shall consist of standard, moderately hard, reconstituted water. Upon approval, the permittee may substitute other appropriate dilution water with chemical and physical characteristics similar to that of the receiving water.
- d. Samples and Composites
- 1) The permittee shall collect a minimum of three composite samples from Outfall 001. The second and third composite samples will be used for the renewal of the dilution concentrations for each toxicity test.
 - 2) The permittee shall collect the composite samples such that the samples are representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance being discharged on an intermittent basis.
 - 3) The permittee shall initiate the toxicity tests within 36 hours after collection of the last portion of the first composite sample. The holding time for any subsequent composite sample shall not exceed 72 hours. Samples shall be maintained at a temperature of 0-6 degrees Centigrade during collection, shipping, and storage.

- 4) If Outfall 001 ceases discharging during the collection of effluent samples, the requirements for the minimum number of effluent samples, the minimum number of effluent portions, and the sample holding time are waived during that sampling period. However, the permittee must have collected an effluent composite sample volume sufficient to complete the required toxicity tests with renewal of the effluent. When possible, the effluent samples used for the toxicity tests shall be collected on separate days if the discharge occurs over multiple days. The sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report.
- 5) The effluent samples shall not be dechlorinated after sample collection.

3. Reporting

All reports, tables, plans, summaries, and related correspondence required in this section shall be submitted to the attention of the Standards Implementation Team (MC 150) of the Water Quality Division.

- a. The permittee shall prepare a full report of the results of all tests conducted in accordance with the manual referenced in Part 1.b. for every valid and invalid toxicity test initiated whether carried to completion or not.
- b. The permittee shall routinely report the results of each biomonitoring test on the Table 1 forms provided with this permit.
 - 1) Annual biomonitoring test results are due on or before January 20th for biomonitoring conducted during the previous 12-month period.
 - 2) Semiannual biomonitoring test results are due on or before July 20th and January 20th for biomonitoring conducted during the previous 6-month period.
 - 3) Quarterly biomonitoring test results are due on or before April 20th, July 20th, October 20th, and January 20th for biomonitoring conducted during the previous calendar quarter.
 - 4) Monthly biomonitoring test results are due on or before the 20th day of the month following sampling.
- c. Enter the following codes for the appropriate parameters for valid tests only:
 - 1) For the water flea, Parameter TLP3B, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
 - 2) For the water flea, Parameter TOP3B, report the NOEC for survival.
 - 3) For the water flea, Parameter TXP3B, report the LOEC for survival.
 - 4) For the water flea, Parameter TWP3B, enter a "1" if the NOEC for

reproduction is less than the critical dilution; otherwise, enter a “o.”

- 5) For the water flea, Parameter TPP3B, report the NOEC for reproduction.
 - 6) For the water flea, Parameter TYP3B, report the LOEC for reproduction.
 - 7) For the fathead minnow, Parameter TLP6C, enter a “1” if the NOEC for survival is less than the critical dilution; otherwise, enter a “o.”
 - 8) For the fathead minnow, Parameter TOP6C, report the NOEC for survival.
 - 9) For the fathead minnow, Parameter TXP6C, report the LOEC for survival.
 - 10) For the fathead minnow, Parameter TWP6C, enter a “1” if the NOEC for growth is less than the critical dilution; otherwise, enter a “o.”
 - 11) For the fathead minnow, Parameter TPP6C, report the NOEC for growth.
 - 12) For the fathead minnow, Parameter TYP6C, report the LOEC for growth.
- d. Enter the following codes for fathead minnow retests only:
- 1) For retest number 1, Parameter 22415, enter a “1” if the NOEC for survival is less than the critical dilution; otherwise, enter a “o.”
 - 2) For retest number 2, Parameter 22416, enter a “1” if the NOEC for survival is less than the critical dilution; otherwise, enter a “o.”

4. Persistent Toxicity

The requirements of this Part apply only to the fathead minnow and only when a test demonstrates a significant effect at the critical dilution. Significant lethality and significant effect were defined in Part 2.b. Significant sublethality is defined as a statistically significant difference in growth/reproduction at the critical dilution when compared to the growth/reproduction in the control.

- a. The permittee shall conduct a total of 2 additional tests (retests) for any test that demonstrates a significant effect (lethal or sublethal) at the critical dilution. The two retests shall be conducted monthly during the next two consecutive months. The permittee shall not substitute either of the two retests in lieu of routine toxicity testing. All reports shall be submitted within 20 days of test completion. Test completion is defined as the last day of the test.
- b. If the retests are performed due to a demonstration of significant lethality, and one or both of the two retests specified in Part 4.a. demonstrates significant lethality, the permittee shall initiate the TRE requirements as specified in Part 5. The provisions of Part 4.a. are suspended upon completion of the two retests and submittal of the TRE action plan and schedule defined in Part 5.

If neither test demonstrates significant lethality and the permittee is testing under the reduced testing frequency provision of Part 1.e., the permittee shall

return to a quarterly testing frequency.

- c. If the two retests are performed due to a demonstration of significant sublethality, and one or both of the two retests specified in Part 4.a. demonstrates significant lethality, the permittee shall again perform two retests as stipulated in Part 4.a.
- d. If the two retests are performed due to a demonstration of significant sublethality, and neither test demonstrates significant lethality, the permittee shall continue testing at the quarterly frequency.
- e. Regardless of whether retesting for lethal or sublethal effects, or a combination of the two, no more than one retest per month is required for a species.

5. Toxicity Reduction Evaluation

- a. Within 45 days of the retest that demonstrates significant lethality, or within 45 days of being so instructed due to multiple toxic events, the permittee shall submit a general outline for initiating a TRE. The outline shall include, but not be limited to, a description of project personnel, a schedule for obtaining consultants (if needed), a discussion of influent and effluent data available for review, a sampling and analytical schedule, and a proposed TRE initiation date.
- b. Within 90 days of the retest that demonstrates significant lethality, or within 90 days of being so instructed due to multiple toxic events, the permittee shall submit a TRE action plan and schedule for conducting a TRE. The plan shall specify the approach and methodology to be used in performing the TRE. A TRE is a step-wise investigation combining toxicity testing with physical and chemical analyses to determine actions necessary to eliminate or reduce effluent toxicity to a level not effecting significant lethality at the critical dilution. The TRE action plan shall describe an approach for the reduction or elimination of lethality for both test species defined in Part 1.b. At a minimum, the TRE action plan shall include the following:
 - 1) Specific Activities - The TRE action plan shall specify the approach the permittee intends to utilize in conducting the TRE, including toxicity characterizations, identifications, confirmations, source evaluations, treatability studies, and alternative approaches. When conducting characterization analyses, the permittee shall perform multiple characterizations and follow the procedures specified in the document entitled "Toxicity Identification Evaluation: Characterization of Chronically Toxic Effluents, Phase I" (EPA/600/6-91/005F) or alternate procedures. The permittee shall perform multiple identifications and follow the methods specified in the documents entitled "Methods for Aquatic Toxicity Identification Evaluations, Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/080) and "Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity" (EPA/600/R-92/081). All characterization, identification, and confirmation tests shall be conducted in an orderly and logical progression;

- 2) Sampling Plan - The TRE action plan should describe sampling locations, methods, holding times, chain of custody, and preservation techniques. The effluent sample volume collected for all tests shall be adequate to perform the toxicity characterization/identification/confirmation procedures and chemical-specific analyses when the toxicity tests show significant lethality. Where the permittee has identified or suspects a specific pollutant and source of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical-specific analyses for the identified and suspected pollutant and source of effluent toxicity;
 - 3) Quality Assurance Plan - The TRE action plan should address record keeping and data evaluation, calibration and standardization, baseline tests, system blanks, controls, duplicates, spikes, toxicity persistence in the samples, randomization, reference toxicant control charts, and mechanisms to detect artifactual toxicity; and
 - 4) Project Organization - The TRE action plan should describe the project staff, project manager, consulting engineering services (where applicable), consulting analytical and toxicological services, etc.
- c. Within 30 days of submittal of the TRE action plan and schedule, the permittee shall implement the TRE.
- d. The permittee shall submit quarterly TRE activities reports concerning the progress of the TRE. The quarterly reports are due on or before April 20th, July 20th, October 20th, and January 20th. The report shall detail information regarding the TRE activities including:
- 1) results and interpretation of any chemical-specific analyses for the identified and suspected pollutant performed during the quarter;
 - 2) results and interpretation of any characterization, identification, and confirmation tests performed during the quarter;
 - 3) any data and substantiating documentation which identifies the pollutant(s) and source of effluent toxicity;
 - 4) results of any studies/evaluations concerning the treatability of the facility's effluent toxicity;
 - 5) any data that identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to meet no significant lethality at the critical dilution; and
 - 6) any changes to the initial TRE plan and schedule that are believed necessary as a result of the TRE findings.

Copies of the TRE activities report shall also be submitted to the U.S. EPA Region 6 office.

- e. During the TRE, the permittee shall perform, at a minimum, quarterly testing using the more sensitive species. Testing for the less sensitive species shall continue at the frequency specified in Part 1.b.
- f. If the effluent ceases to effect significant lethality, i.e., there is a cessation of lethality, the permittee may end the TRE. A cessation of lethality is defined as no significant lethality for a period of 12 consecutive months with at least monthly testing. At the end of the 12 months, the permittee shall submit a statement of intent to cease the TRE and may then resume the testing frequency specified in Part 1.b.

This provision accommodates situations where operational errors and upsets, spills, or sampling errors triggered the TRE, in contrast to a situation where a single toxicant or group of toxicants cause lethality. This provision does not apply as a result of corrective actions taken by the permittee. Corrective actions are defined as proactive efforts that eliminate or reduce effluent toxicity. These include, but are not limited to, source reduction or elimination, improved housekeeping, changes in chemical usage, and modifications of influent streams and effluent treatment.

The permittee may only apply this cessation of lethality provision once. If the effluent again demonstrates significant lethality to the same species, the permit will be amended to add a WET limit with a compliance period, if appropriate. However, prior to the effective date of the WET limit, the permittee may apply for a permit amendment removing and replacing the WET limit with an alternate toxicity control measure by identifying and confirming the toxicant and an appropriate control measure.

- g. The permittee shall complete the TRE and submit a final report on the TRE activities no later than 28 months from the last test day of the retest that confirmed significant lethal effects at the critical dilution. The permittee may petition the Executive Director (in writing) for an extension of the 28-month limit. However, to warrant an extension the permittee must have demonstrated due diligence in its pursuit of the toxicity identification evaluation/TRE and must prove that circumstances beyond its control stalled the toxicity identification evaluation/TRE. The report shall provide information pertaining to the specific control mechanism selected that will, when implemented, result in the reduction of effluent toxicity to no significant lethality at the critical dilution. The report shall also provide a specific corrective action schedule for implementing the selected control mechanism. A copy of the TRE final report shall also be submitted to the U.S. EPA Region 6 office.
- h. Based on the results of the TRE and proposed corrective actions, this permit may be amended to modify the biomonitoring requirements, where necessary, require a compliance schedule for implementation of corrective actions, specify a WET limit, specify a best management practice, and specify a chemical-specific limit.

TABLE 1 (SHEET 1 OF 4)

BIOMONITORING REPORTING

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION

Dates and Times Composites Collected

No. 1 FROM: _____ Date Time _____ TO: _____ Date Time _____

No. 2 FROM: _____ TO: _____

No. 3 FROM: _____ TO: _____

Test initiated: _____ am/pm _____ date

Dilution water used: _____ Receiving water _____ Synthetic Dilution water

NUMBER OF YOUNG PRODUCED PER ADULT AT END OF TEST

REP	Percent effluent					
	0%	11%	15%	20%	27%	36%
A						
B						
C						
D						
E						
F						
G						
H						
I						
J						
Survival Mean						
Total Mean						
CV%*						
PMSD						

*Coefficient of Variation = standard deviation x 100/mean (calculation based on young of the surviving adults)

Designate males (M), and dead females (D), along with number of neonates (x) released prior to death.

TABLE 1 (SHEET 2 OF 4)

CERIODAPHNIA DUBIA SURVIVAL AND REPRODUCTION TEST

1. Dunnett’s Procedure or Steel’s Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean number of young produced per adult significantly less than the number of young per adult in the control for the % effluent corresponding to significant nonlethal effects?

CRITICAL DILUTION (27%): _____ YES _____ NO

PERCENT SURVIVAL

Time of Reading	Percent effluent					
	0%	11%	15%	20%	27%	36%
24h						
48h						
End of Test						

2. Fisher’s Exact Test:

Is the mean survival at test end significantly less than the control survival for the % effluent corresponding to lethality?

CRITICAL DILUTION (27%): _____ YES _____ NO

3. Enter percent effluent corresponding to each NOEC\LOEC below:

a.) NOEC survival = _____% effluent

b.) LOEC survival = _____% effluent

c.) NOEC reproduction = _____% effluent

d.) LOEC reproduction = _____% effluent

TABLE 1 (SHEET 3 OF 4)

BIOMONITORING REPORTING

FATHEAD MINNOW LARVAE GROWTH AND SURVIVAL

Dates and Times Composites Collected

No. 1 FROM: _____ Date Time _____ TO: _____ Date Time _____

No. 2 FROM: _____ TO: _____

No. 3 FROM: _____ TO: _____

Test initiated: _____ am/pm _____ date

Dilution water used: _____ Receiving water _____ Synthetic dilution water

FATHEAD MINNOW GROWTH DATA

Effluent Concentration	Average Dry Weight in replicate chambers					Mean Dry Weight	CV%*
	A	B	C	D	E		
0%							
11%							
15%							
20%							
27%							
36%							
PMSD							

* Coefficient of Variation = standard deviation x 100/mean

- Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean dry weight (growth) at 7 days significantly less than the control's dry weight (growth) for the % effluent corresponding to significant nonlethal effects?

CRITICAL DILUTION (27%): _____ YES _____ NO

TABLE 1 (SHEET 4 OF 4)
 BIOMONITORING REPORTING
 FATHEAD MINNOW GROWTH AND SURVIVAL TEST
 FATHEAD MINNOW SURVIVAL DATA

Effluent Concentration	Percent Survival in replicate chambers					Mean percent survival			CV%*
	A	B	C	D	E	24h	48h	7 day	
0%									
11%									
15%									
20%									
27%									
36%									

* Coefficient of Variation = standard deviation x 100/mean

2. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean survival at 7 days significantly less than the control survival for the % effluent corresponding to lethality?

CRITICAL DILUTION (27%): _____ YES _____ NO

3. Enter percent effluent corresponding to each NOEC\LOEC below:

a.) NOEC survival = _____ % effluent

b.) LOEC survival = _____ % effluent

c.) NOEC growth = _____ % effluent

d.) LOEC growth = _____ % effluent

24-HOUR ACUTE BIOMONITORING REQUIREMENTS: FRESHWATER

The provisions of this section apply to Outfall 001 for whole effluent toxicity (WET) testing.

1. Scope, Frequency, and Methodology

- a. The permittee shall test the effluent for lethality in accordance with the provisions in this section. Such testing will determine compliance with Texas Surface Water Quality Standard 30 TAC § 307.6(e)(2)(B), which requires greater than 50% survival of the appropriate test organisms in 100% effluent for a 24-hour period.
- b. The toxicity tests specified shall be conducted once per six months. The permittee shall conduct the following toxicity tests using the test organisms, procedures, and quality assurance requirements specified in this section of the permit and in accordance with “Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,” fifth edition (EPA-821-R-02-012) or its most recent update:
 - 1) Acute 24-hour static toxicity test using the water flea (*Daphnia pulex* or *Ceriodaphnia dubia*). A minimum of five replicates with eight organisms per replicate shall be used in the control and each dilution.
 - 2) Acute 24-hour static toxicity test using the fathead minnow (*Pimephales promelas*). A minimum of five replicates with eight organisms per replicate shall be used in the control and each dilution.

A valid test result must be submitted for each reporting period. The permittee must report, and then repeat, an invalid test during the same reporting period. The repeat test shall include the control and the 100% effluent dilution and use the appropriate number of organisms and replicates, as specified above. An invalid test is defined as any test failing to satisfy the test acceptability criteria, procedures, and quality assurance requirements specified in the test methods and permit.

- c. In addition to an appropriate control, a 100% effluent concentration shall be used in the toxicity tests. The control and dilution water shall consist of standard, synthetic, moderately hard, reconstituted water.
 - d. This permit may be amended to require a WET limit, a best management practice, a chemical-specific limit, or other appropriate actions to address toxicity. The permittee may be required to conduct a toxicity reduction evaluation (TRE) after multiple toxic events.
2. Required Toxicity Testing Conditions
- a. Test Acceptance - The permittee shall repeat any toxicity test, including the control, if the control fails to meet a mean survival equal to or greater than 90%.
 - b. Dilution Water - In accordance with Part 1.c., the control and dilution water shall consist of standard, synthetic, moderately hard, reconstituted water.

c. Samples and Composites

- 1) The permittee shall collect one composite sample from Outfall 001.
- 2) The permittee shall collect the composite sample such that the sample is representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance being discharged.
- 3) The permittee shall initiate the toxicity tests within 36 hours after collection of the last portion of the composite sample. The sample shall be maintained at a temperature of 0-6 degrees Centigrade during collection, shipping, and storage.
- 4) If Outfall 001 ceases discharging during the collection of the effluent composite sample, the requirements for the minimum number of effluent portions are waived. However, the permittee must have collected a composite sample volume sufficient for completion of the required test. The abbreviated sample collection, duration, and methodology must be documented in the full report.
- 5) The effluent sample shall not be dechlorinated after sample collection.

3. Reporting

All reports, tables, plans, summaries, and related correspondence required in this section shall be submitted to the attention of the Standards Implementation Team (MC 150) of the Water Quality Division.

- a. The permittee shall prepare a full report of the results of all tests conducted in accordance with the manual referenced in Part 1.b. for every valid and invalid toxicity test initiated.
- b. The permittee shall routinely report the results of each biomonitoring test on the Table 2 forms provided with this permit.
 - 1) Semiannual biomonitoring test results are due on or before July 20th and January 20th for biomonitoring conducted during the previous 6-month period.
 - 2) Quarterly biomonitoring test results are due on or before April 20th, July 20th, and October 20th, and January 20th for biomonitoring conducted during the previous calendar quarter.
- c. Enter the following codes for the appropriate parameters for valid tests only:
 - 1) For the water flea, Parameter TIE3D, enter a "0" if the mean survival at 24 hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."
 - 2) For the fathead minnow, Parameter TIE6C, enter a "0" if the mean

survival at 24 hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."

- d. Enter the following codes for retests only:
- 1) For retest number 1, Parameter 22415, enter a "0" if the mean survival at 24 hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."
 - 2) For retest number 2, Parameter 22416, enter a "0" if the mean survival at 24 hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."

4. Persistent Mortality

The requirements of this part apply when a toxicity test demonstrates significant lethality, which is defined as a mean mortality of 50% or greater of organisms exposed to the 100% effluent concentration for 24 hours.

- a. The permittee shall conduct 2 additional tests (retests) for each species that demonstrates significant lethality. The two retests shall be conducted once per week for 2 weeks. Five effluent dilution concentrations in addition to an appropriate control shall be used in the retests. These effluent concentrations are 6%, 13%, 25%, 50% and 100% effluent. The first retest shall be conducted within 15 days of the laboratory determination of significant lethality. All test results shall be submitted within 20 days of test completion of the second retest. Test completion is defined as the 24th hour.
- b. If one or both of the two retests specified in Part 4.a. demonstrates significant lethality, the permittee shall initiate the TRE requirements as specified in Part 5.

5. Toxicity Reduction Evaluation

- a. Within 45 days of the retest that demonstrates significant lethality, the permittee shall submit a general outline for initiating a TRE. The outline shall include, but not be limited to, a description of project personnel, a schedule for obtaining consultants (if needed), a discussion of influent and effluent data available for review, a sampling and analytical schedule, and a proposed TRE initiation date.
- b. Within 90 days of the retest that demonstrates significant lethality, the permittee shall submit a TRE action plan and schedule for conducting a TRE. The plan shall specify the approach and methodology to be used in performing the TRE. A TRE is a step-wise investigation combining toxicity testing with physical and chemical analyses to determine actions necessary to eliminate or reduce effluent toxicity to a level not effecting significant lethality at the critical dilution. The TRE action plan shall lead to the successful elimination of significant lethality for both test species defined in Part 1.b. At a minimum, the TRE action plan shall include the following:
 - 1) Specific Activities - The TRE action plan shall specify the approach the permittee intends to utilize in conducting the TRE, including toxicity

characterizations, identifications, confirmations, source evaluations, treatability studies, and alternative approaches. When conducting characterization analyses, the permittee shall perform multiple characterizations and follow the procedures specified in the document entitled “Methods for Aquatic Toxicity Identification Evaluations: Phase I Toxicity Characterization Procedures” (EPA/600/6-91/003) or alternate procedures. The permittee shall perform multiple identifications and follow the methods specified in the documents entitled “Methods for Aquatic Toxicity Identification Evaluations: Phase II Toxicity Identification Procedures for Samples Exhibiting Acute and Chronic Toxicity” (EPA/600/R-92/080) and “Methods for Aquatic Toxicity Identification Evaluations: Phase III Toxicity Confirmation Procedures for Samples Exhibiting Acute and Chronic Toxicity” (EPA/600/R-92/081). All characterization, identification, and confirmation tests shall be conducted in an orderly and logical progression;

- 2) Sampling Plan - The TRE action plan should describe sampling locations, methods, holding times, chain of custody, and preservation techniques. The effluent sample volume collected for all tests shall be adequate to perform the toxicity characterization/identification/confirmation procedures and chemical-specific analyses when the toxicity tests show significant lethality. Where the permittee has identified or suspects specific pollutant and source of effluent toxicity, the permittee shall conduct, concurrent with toxicity testing, chemical-specific analyses for the identified and suspected pollutant and source of effluent toxicity;
 - 3) Quality Assurance Plan - The TRE action plan should address record keeping and data evaluation, calibration and standardization, baseline tests, system blanks, controls, duplicates, spikes, toxicity persistence in the samples, randomization, reference toxicant control charts, and mechanisms to detect artifactual toxicity; and
 - 4) Project Organization - The TRE Action Plan should describe the project staff, project manager, consulting engineering services (where applicable), consulting analytical and toxicological services, etc.
- c. Within 30 days of submittal of the TRE action plan and schedule, the permittee shall implement the TRE.
- d. The permittee shall submit quarterly TRE activities reports concerning the progress of the TRE. The quarterly TRE activities reports are due on or before April 20th, July 20th, October 20th, and January 20th. The report shall detail information regarding the TRE activities including:
- 1) results and interpretation of any chemical-specific analyses for the identified and suspected pollutant performed during the quarter;
 - 2) results and interpretation of any characterization, identification, and confirmation tests performed during the quarter;
 - 3) any data and substantiating documentation that identifies the pollutant

and source of effluent toxicity;

- 4) results of any studies/evaluations concerning the treatability of the facility's effluent toxicity;
- 5) any data that identifies effluent toxicity control mechanisms that will reduce effluent toxicity to the level necessary to eliminate significant lethality; and
- 6) any changes to the initial TRE plan and schedule that are believed necessary as a result of the TRE findings.

Copies of the TRE activities report shall also be submitted to the U.S. EPA Region 6 office.

- e. During the TRE, the permittee shall perform, at a minimum, quarterly testing using the more sensitive species. Testing for the less sensitive species shall continue at the frequency specified in Part 1.b.
- f. If the effluent ceases to effect significant lethality, i.e., there is a cessation of lethality, the permittee may end the TRE. A cessation of lethality is defined as no significant lethality for a period of 12 consecutive weeks with at least weekly testing. At the end of the 12 weeks, the permittee shall submit a statement of intent to cease the TRE and may then resume the testing frequency specified in Part 1.b.

This provision accommodates situations where operational errors and upsets, spills, or sampling errors triggered the TRE, in contrast to a situation where a single toxicant or group of toxicants cause lethality. This provision does not apply as a result of corrective actions taken by the permittee. Corrective actions are defined as proactive efforts that eliminate or reduce effluent toxicity. These include, but are not limited to, source reduction or elimination, improved housekeeping, changes in chemical usage, and modifications of influent streams and effluent treatment.

The permittee may only apply this cessation of lethality provision once. If the effluent again demonstrates significant lethality to the same species, the permit will be amended to add a WET limit with a compliance period, if appropriate. However, prior to the effective date of the WET limit, the permittee may apply for a permit amendment removing and replacing the WET limit with an alternate toxicity control measure by identifying and confirming the toxicant and an appropriate control measure.

- g. The permittee shall complete the TRE and submit a final report on the TRE activities no later than 18 months from the last test day of the retest that demonstrates significant lethality. The permittee may petition the Executive Director (in writing) for an extension of the 18-month limit. However, to warrant an extension the permittee must have demonstrated due diligence in its pursuit of the toxicity identification evaluation/TRE and must prove that circumstances beyond its control stalled the toxicity identification evaluation/TRE. The report shall specify the control mechanism that will, when implemented, reduce effluent

toxicity as specified in Part 5.h. The report shall also specify a corrective action schedule for implementing the selected control mechanism. A copy of the TRE final report shall also be submitted to the U.S. EPA Region 6 office.

- h. Within 3 years of the last day of the test confirming toxicity, the permittee shall comply with 30 TAC § 307.6(e)(2)(B), which requires greater than 50% survival of the test organism in 100% effluent at the end of 24-hours. The permittee may petition the Executive Director (in writing) for an extension of the 3-year limit. However, to warrant an extension the permittee must have demonstrated due diligence in its pursuit of the toxicity identification evaluation/TRE and must prove that circumstances beyond its control stalled the toxicity identification evaluation/TRE.

The permittee may be exempted from complying with 30 TAC § 307.6(e)(2)(B) upon proving that toxicity is caused by an excess, imbalance, or deficiency of dissolved salts. This exemption excludes instances where individually toxic components (e.g., metals) form a salt compound. Following the exemption, this permit may be amended to include an ion-adjustment protocol, alternate species testing, or single species testing.

- i. Based upon the results of the TRE and proposed corrective actions, this permit may be amended to modify the biomonitoring requirements where necessary, require a compliance schedule for implementation of corrective actions, specify a WET limit, specify a best management practice, and specify a chemical-specific limit.

TABLE 2 (SHEET 1 OF 2)

WATER FLEA SURVIVAL

GENERAL INFORMATION

	Time	Date
Composite Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Time	Rep	Percent effluent					
		0%	6%	13%	25%	50%	100%
24h	A						
	B						
	C						
	D						
	E						
	MEAN						

Enter percent effluent corresponding to the LC50 below:

24 hour LC50 = _____% effluent

TABLE 2 (SHEET 2 OF 2)
 FATHEAD MINNOW SURVIVAL

GENERAL INFORMATION

	Time	Date
Composite Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Time	Rep	Percent effluent					
		0%	6%	13%	25%	50%	100%
24h	A						
	B						
	C						
	D						
	E						
	MEAN						

Enter percent effluent corresponding to the LC50 below:

24 hour LC50 = _____% effluent

FACT SHEET AND EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

For draft Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0010662001, EPA I.D. No. TX0052892, to discharge to water in the state.

Issuing Office: Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

Applicant: City of Lewisville
P.O. Box 299002
Lewisville, Texas 75029

Prepared By: Sumitra Pokharel
Domestic Permits Team
Domestic Wastewater Section (MC 148)
Water Quality Division
(512) 239-4722

Date: November 12, 2025

Permit Action: Renewal

1. EXECUTIVE DIRECTOR RECOMMENDATION

The Executive Director has made a preliminary decision that this permit, if issued, meets all statutory and regulatory requirements. The draft permit includes an expiration date of **three years from the date of issuance**.

2. APPLICANT ACTIVITY

The applicant has applied to the Texas Commission on Environmental Quality (TCEQ) for a renewal of the existing permit that authorizes the discharge of treated domestic wastewater at an annual average flow not to exceed 12.0 million gallons per day (MGD) in the Interim phase, and an annual average flow not to exceed 18.0 MGD in the Final phase. The existing wastewater treatment facility serves the City of Lewisville and Castle Hills.

3. FACILITY AND DISCHARGE LOCATION

The plant site is located at 897 Treatment Plant Road, in the City of Lewisville, Denton County, Texas 75057.

Outfall Location:

Outfall Number	Latitude	Longitude
001	33.056651 N	96.975283 W

The treated effluent is discharged to Prairie Creek, thence Elm Fork Trinity River Below Lewisville Lake in Segment No. 0822 of the Trinity River Basin. The unclassified receiving water use is minimal aquatic life use for Prairie Creek. The designated uses for

Segment No. 0822 are primary contact recreation, public water supply, and high aquatic life use.

4. TREATMENT PROCESS DESCRIPTION AND SEWAGE SLUDGE DISPOSAL

The Prairie Creek Wastewater Treatment Facility is an activated sludge process plant operated in the conventional mode. Treatment units in the Interim phase include a bar screen, five rotatory drum fine screens, two grit vortex units, two trickling filters, two aerated solids contact basins, six aeration basins, eight final clarifiers, three sludge digesters, five sand filters, two belt filter presses, two chlorine contact chambers, and dechlorination using sulfur dioxide. Treatment units in the Final phase will include four aeration basins, two cloth media filter channels, a final clarifier and two Ultraviolet light (UV) channels. The facility is operating in the Interim phase.

Sludge generated from the treatment facility is hauled by a registered transporter and disposed of at a TCEQ-permitted landfill, DFW Recycling and Disposal Facility, Permit No. 1025B, and Camelot Landfill, Permit No. 1312A in Denton County. The draft permit also authorizes the disposal of sludge at a TCEQ-authorized land application site, co-disposal landfill, wastewater treatment facility, or facility that further processes sludge.

5. INDUSTRIAL WASTE CONTRIBUTION

The draft permit includes pretreatment requirements that are appropriate for a facility of this size and complexity. The Prairie Creek WWTP receives significant industrial wastewater contributions.

6. SUMMARY OF SELF-REPORTED EFFLUENT ANALYSES

The following is a summary of the applicant's effluent monitoring data for the period September 2023 through September 2025. The average of Daily Average value is computed by the averaging of all 30-day average values for the reporting period for each parameter: flow, five-day biochemical oxygen demand (BOD₅), total suspended solids (TSS), and Total Lead (Pb). The average of Daily Average value for *Escherichia coli* (*E. coli*) in colony-forming units (CFU) or most probable number (MPN) per 100 ml is calculated via geometric mean.

<u>Parameter</u>	<u>Average of Daily Avg</u>
Flow, MGD	11.14
BOD ₅ , mg/l	4.8
TSS, mg/l	2.0
Total Pb, mg/l	ND
<i>E. coli</i> , CFU or MPN per 100 ml	2.0

7. DRAFT PERMIT CONDITIONS AND MONITORING REQUIREMENTS

The effluent limitations and monitoring requirements for those parameters that are limited in the draft permit are as follows:

A. INTERIM I PHASE EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The annual average flow of effluent shall not exceed 12.0 MGD, nor shall the average discharge during any two-hour period (2-hour peak) exceed 20,833 gallons per minute (gpm).

<u>Parameter</u>	<u>30-Day Average</u>		<u>7-Day</u>	<u>Daily</u>
	<u>mg/l</u>	<u>lbs/day</u>	<u>Average</u> <u>mg/l</u>	<u>Maximum</u> <u>mg/l</u>
BOD ₅	10	1,001	15	25
TSS	15	1,501	25	40
Total Lead	0.042	4.2	N/A	0.088
Heptachlor Epoxide	Report	Report	N/A	Report
DO (minimum)	6.0	N/A	N/A	N/A
E. coli, CFU or MPN per 100 ml	126	N/A	N/A	399

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per day by grab sample. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

The effluent shall contain a total chlorine residual of at least 1.0 mg/l after a detention time of at least 20 minutes (based on peak flow) and shall be monitored daily by grab sample at each chlorine contact chamber. The permittee shall dechlorinate the chlorinated effluent to less than 0.1 mg/l total chlorine residual and shall monitor total chlorine residual daily by grab sample after the dechlorination process. An equivalent method of disinfection may be substituted only with prior approval of the Executive Director.

<u>Parameter</u>	<u>Monitoring Requirement</u>
Flow, MGD	Continuous
BOD ₅	One/day
TSS	One/day
Total Pb	One/year
Heptachlor Epoxide	Five/week
DO	One/day
<i>E. coli</i>	Five/week

B. INTERIM II PHASE EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The annual average flow of effluent shall not exceed 12.0 MGD, nor shall the average discharge during any two-hour period (2-hour peak) exceed 20,833 gallons per minute (gpm).

<u>Parameter</u>	<u>30-Day Average</u>		<u>7-Day</u>	<u>Daily</u>
	<u>mg/l</u>	<u>lbs/day</u>	<u>Average</u> <u>mg/l</u>	<u>Maximum</u> <u>mg/l</u>
BOD ₅	10	1,001	15	25
TSS	15	1,501	25	40
Total Lead	0.042	4.2	N/A	0.088
Heptachlor Epoxide	0.0000035	0.00035	N/A	0.00000731

City of Lewisville TPDES Permit No. WQ0010662001
 Fact Sheet and Executive Director's Preliminary Decision

DO (minimum)	6.0	N/A	N/A	N/A
E. coli, CFU or MPN per 100 ml	126	N/A	N/A	399

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per day by grab sample. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

The effluent shall contain a total chlorine residual of at least 1.0 mg/l after a detention time of at least 20 minutes (based on peak flow) and shall be monitored daily by grab sample at each chlorine contact chamber. The permittee shall dechlorinate the chlorinated effluent to less than 0.1 mg/l total chlorine residual and shall monitor total chlorine residual daily by grab sample after the dechlorination process. An equivalent method of disinfection may be substituted only with prior approval of the Executive Director.

<u>Parameter</u>	<u>Monitoring Requirement</u>
Flow, MGD	Continuous
BOD ₅	One/day
TSS	One/day
Total Pb	One/year
Heptachlor Epoxide	Five/week
DO	One/day
<i>E. coli</i>	Five/week

C. FINAL PHASE EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

The annual average flow of effluent shall not exceed 18.0 MGD, nor shall the average discharge during any two-hour period (2-hour peak) exceed 31,250 gpm.

<u>Parameter</u>	<u>30-Day Average</u>		<u>7-Day Average</u>	<u>Daily Maximum</u>
	<u>mg/l</u>	<u>lbs/day</u>	<u>mg/l</u>	<u>mg/l</u>
CBOD ₅	6.7	1,006	12	22
TSS	15	2,252	25	40
NH ₃ -N	7	1,051	10	12
Total Lead	0.042	6.3	N/A	0.088
Heptachlor Epoxide	0.0000035	0.00052	N/A	0.00000731
DO (minimum)	4.0	N/A	N/A	N/A
<i>E. coli</i> , CFU or MPN/100 ml	126	N/A	N/A	399

The pH shall not be less than 6.0 standard units nor greater than 9.0 standard units and shall be monitored once per day by grab sample. There shall be no discharge of floating solids or visible foam in other than trace amounts and no discharge of visible oil.

The permittee shall utilize an Ultraviolet Light (UV) system for disinfection purposes. An equivalent method of disinfection may be substituted only with prior

approval of the Executive Director.

<u>Parameter</u>	<u>Monitoring Requirement</u>
Flow, MGD	Continuous
CBOD ₅	One/day
TSS	One/day
NH ₃ -N	One/day
Total Pb	One/year
Heptachlor Epoxide	Five/week
DO	One/day
<i>E. coli</i>	Daily

C. SEWAGE SLUDGE REQUIREMENTS

The draft permit includes Sludge Provisions according to the requirements of 30 TAC Chapter 312, Sludge Use, Disposal, and Transportation. Sludge generated from the treatment facility is hauled by a registered transporter and disposed of at a TCEQ-permitted landfill, DFW Recycling and Disposal Facility, MSW Permit No. 1025B, and Camelot Landfill, MSW Permit No. 1312A in Denton County. The draft permit also authorizes the disposal of sludge at a TCEQ-authorized land application site, co-disposal landfill, wastewater treatment facility, or facility that further processes sludge.

D. PRETREATMENT REQUIREMENTS

Permit requirements for pretreatment are based on TPDES regulations contained in 30 TAC Chapter 305, which references 40 Code of Federal Regulations (CFR) Part 403, "General Pretreatment Regulations for Existing and New Sources of Pollution" [*rev. Federal Register/ Vol. 70/ No. 198/ Friday, October 14, 2005/ Rules and Regulations, pages 60134-60798*]. The permit includes specific requirements that establish responsibilities of local government, industry, and the public to implement the standards to control pollutants which pass through or interfere with treatment processes in publicly owned treatment works or which may contaminate the sewage sludge. This permit has appropriate pretreatment language for a facility of this size and complexity.

The permittee has a pretreatment program which was approved by the U.S. Environmental Protection Agency (EPA) on **August 22, 1984**, and modified on **July 16, 1993, July 17, 2001, August 10, 2011**, and **April 10, 2020** (nonsubstantial Streamlining Rule). The permittee is required, under the conditions of the approved pretreatment program, to prepare annually a list of industrial users which during the preceding twelve months were in significant noncompliance with applicable pretreatment requirements for those facilities covered under the program. This list is to be published annually during the month of **January** in a newspaper of general circulation that provides meaningful public notice within the jurisdiction(s) served by the POTW.

Effective December 21, 2025, the permittee must submit the pretreatment program annual status report electronically using the online electronic reporting system available through the TCEQ website unless the

permittee requests and obtains an electronic reporting waiver. [rev. Federal Register/ Vol. 80/ No. 204/ Friday, October 22, 2015/ Rules and Regulations, pages 64064-64158].

The permittee is under a continuing duty to: establish and enforce specific local limits to implement the provisions of 40 CFR §403.5, to develop and enforce local limits as necessary, and to modify the approved POTW pretreatment program as necessary to comply with federal, state, and local law, as amended. The permittee is required to effectively enforce such limits and to modify their pretreatment program, including the Legal Authority, Enforcement Response Plan, and/or Standard Operating Procedures, if required by the Executive Director to reflect changing conditions at the POTW.

The permittee shall submit to the TCEQ Pretreatment Team (MC 148) of the Water Quality Division, within **sixty (60) days** of the issued date of this permit, either: (1) a **WRITTEN CERTIFICATION** that a technical reassessment has been performed and that the evaluation demonstrates that the existing technically based local limits (TBLLs) attain the Texas Surface Water Quality Standards [30 TAC Chapter 307] in water in the state, and are adequate to prevent pass through of pollutants, inhibition of or interference with the treatment facility, worker health and safety problems, and sludge contamination [submit the TBLLs Reassessment Form No. TCEQ-20221], **OR** (2) a **WRITTEN NOTIFICATION** that a technical redevelopment of the current TBLLs, a draft legal authority, which incorporates such revisions, and any additional modifications to the approved Pretreatment Program, as required by 40 CFR Part 403 [rev. 10/14/05] and applicable state and local law, including an Enforcement Response Plan and Standard Operating Procedures (including forms), will be submitted within **twelve (12) months** of the issued date of the permit.

Substantial modifications will be approved in accordance with 40 CFR §403.18, and the modification will become effective upon approval by the Executive Director in accordance with 40 CFR §403.18.

E. WHOLE EFFLUENT TOXICITY (BIOMONITORING) REQUIREMENTS

- (1) The draft permit includes chronic freshwater biomonitoring requirements as follows. The permit requires five dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional effluent concentrations shall be 11%, 15%, 20%, 27%, and 36%. The low-flow effluent concentration (critical dilution) is defined as 27% effluent. The critical dilution is in accordance with the "Aquatic Life Criteria" section of the "Water Quality Based Effluent Limitations/Conditions" section.
 - (a) Chronic static renewal survival and reproduction test using the water flea (*Ceriodaphnia dubia*). The frequency of the testing is once per quarter for at least the first year of testing, after which the permittee may apply for a testing frequency reduction.
 - (b) Chronic static renewal 7-day larval survival and growth test using the fathead minnow (*Pimephales promelas*). The frequency of the

testing is once per quarter for at least the first year of testing, after which the permittee may apply for a testing frequency reduction.

- (2) The draft permit includes the following minimum 24-hour acute freshwater biomonitoring requirements at a frequency of once per six months:
 - (a) Acute 24-hour static toxicity test using the water flea (*Daphnia pulex* or *Ceriodaphnia dubia*).
 - (b) Acute 24-hour static toxicity test using the fathead minnow (*Pimephales promelas*).

F. SUMMARY OF CHANGES FROM APPLICATION

None.

G. SUMMARY OF CHANGES FROM EXISTING PERMIT

Disinfection method in the Final phase has been updated from chlorination in the existing permit to UV system in the draft permit.

An Interim three-year compliance period is being established for Heptachlor Epoxide at Outfall 001 according to the requirements of 30 TAC § 307.2(f) and 40 CFR § 122.47. A compliance schedule is included in the draft permit according to the requirements of 40 CFR § 122.47(a)(3).

After retest result for Heptachlor Epoxide, reporting limit requirement has been added to the Interim I phase and effluent limits have been added to the Interim II and Final phases of the draft permit due to exceeding the human health criteria.

Other Requirement (O.R.) No. 6 of the existing permit has been revised in the draft permit.

O.R. No. 10 in the existing permit has been revised to add Heptachlor Epoxide with the appropriate MAL in the draft permit.

O.R. No. 11 of the draft permit has been added for the compliance schedule of Heptachlor Epoxide.

Bacteria monitoring frequency in the Final phase has been updated from Five/week in the existing permit to Daily in the draft permit.

Language in Section V., relating to the authorization of the sludge storage area, has been updated in the draft permit.

The Standard Permit Conditions, Sludge Provisions, Other Requirements, and Biomonitoring sections of the draft permit have been updated. Pretreatment requirements have been updated to the draft permit.

For Publicly Owned Treatment Works (POTWs), effective December 21, 2025, the permittee must submit the written report for unauthorized discharges and unanticipated bypasses that exceed any effluent limit in the permit using the online electronic reporting system available through the TCEQ website unless the permittee requests and obtains an electronic reporting waiver.

The draft permit includes all updates based on the 30 TAC § 312 rule change effective April 23, 2020.

8. DRAFT PERMIT RATIONALE

A. TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

Regulations promulgated in Title 40 of the CFR require that technology-based limitations be placed in wastewater discharge permits based on effluent limitations guidelines, where applicable, or on best professional judgment (BPJ) in the absence of guidelines.

Effluent limitations for maximum and minimum pH are in accordance with 40 CFR § 133.102(c) and 30 TAC § 309.1(b).

B. WATER QUALITY SUMMARY AND COASTAL MANAGEMENT PLAN

(1) WATER QUALITY SUMMARY

The treated effluent is discharged to Prairie Creek, thence Elm Fork Trinity River Below Lewisville Lake in Segment No. 0822 of the Trinity River Basin. The unclassified receiving water use is minimal aquatic life use for Prairie Creek. The designated uses for Segment No. 0822 are primary contact recreation, public water supply, and high aquatic life use. The effluent limitations in the draft permit will maintain and protect the existing instream uses. All determinations are preliminary and subject to additional review and/or revisions.

The discharge from this permit action is not expected to have an effect on any federal endangered or threatened aquatic or aquatic dependent species or proposed species or their critical habitat. This determination is based on the United States Fish and Wildlife Service's (USFWS) biological opinion on the State of Texas authorization of the TPDES; (September 14, 1998; October 21, 1998 update). To make this determination for TPDES permits, TCEQ and EPA only considered aquatic or aquatic dependent species occurring in watersheds of critical concern or high priority as listed in Appendix A of the USFWS biological opinion. The determination is subject to reevaluation due to subsequent updates or amendments to the biological opinion. The permit does not require EPA review with respect to the presence of endangered or threatened species.

Segment No. 0822 is currently listed on the State's inventory of impaired and threatened waters (the 2024 CWA § 303(d) list). The listing is for Cadmium in water from 4.5 mi upstream to 7.5 mi downstream DWU intake (Assessment Unit [AU] 0822_02).

Based on Domestic Worksheet 4.0, Cadmium results were non-detect; therefore it will not result in any further impairment due to Cadmium to this segment.

The pollutant analysis of treated effluent provided by the permittee in the application indicated 512 mg/l total dissolved solids (TDS), 207 mg/l sulfate, and 99.5 mg/l chloride present in the effluent. The segment criteria for Segment No. 0822 are 500 mg/l for TDS, 60 mg/l for sulfate, and 80 mg/l for chlorides. The submitted effluent values passed total dissolved solids screening; therefore, no additional limits or monitoring are recommended. See Attachment A of this Fact Sheet.

The effluent limitations and conditions in the draft permit comply with EPA-approved portions of the 2018 Texas Surface Water Quality Standards (TSWQS), 30 TAC §§ 307.1 - 307.10, effective March 1, 2018; 2014 TSWQS, effective March 6, 2014; 2010 TSWQS, effective July 22, 2010; and 2000 TSWQS, effective July 26, 2000.

(2) CONVENTIONAL PARAMETERS

Effluent limitations for the conventional effluent parameters (i.e., Five-Day Biochemical Oxygen Demand or Five-Day Carbonaceous Biochemical Oxygen Demand, Ammonia Nitrogen, etc.) are based on stream standards and waste load allocations for water quality-limited streams as established in the TSWQS and the State of Texas Water Quality Management Plan (WQMP).

The existing effluent limits have been reviewed for consistency with the State of Texas WQMP. The existing limits are consistent with the approved WQMP.

The effluent limitations in the draft permit meet the requirements for secondary treatment and the requirements for disinfection according to 30 TAC Chapter 309, Subchapter A: Effluent Limitations.

(3) COASTAL MANAGEMENT PLAN

The facility is not located in the Coastal Management Program boundary.

C. WATER QUALITY-BASED EFFLUENT LIMITATIONS/CONDITIONS

(1) GENERAL COMMENTS

The Texas Surface Water Quality Standards (30 TAC Chapter 307) state that surface waters will not be toxic to man, or to terrestrial or aquatic life. The methodology outlined in the "Procedures to Implement the Texas Surface Water Quality Standards" is designed to ensure compliance with 30 TAC Chapter 307. Specifically, the methodology is designed to ensure that no source will be allowed to discharge any wastewater that: (1) results in instream aquatic toxicity; (2) causes a violation of an applicable

narrative or numerical state water quality standard; (3) results in the endangerment of a drinking water supply; or (4) results in aquatic bioaccumulation that threatens human health.

(2) AQUATIC LIFE CRITERIA

(a) SCREENING

Water quality-based effluent limitations are calculated from freshwater aquatic life criteria found in Table 1 of the Texas Surface Water Quality Standards (30 TAC Chapter 307).

There is no mixing zone or zone of initial dilution for this discharge directly to an intermittent stream; acute freshwater criteria apply at the end of pipe. Chronic freshwater criteria are applied in the perennial freshwater stream.

For the intermittent stream, the percent effluent for acute protection of aquatic life is 100% because the 7Q2 of the intermittent stream is 0.0 cfs. This effluent percentage also provides acute protection of aquatic life in the perennial stream. TCEQ uses the mass balance equation to estimate dilution in the perennial stream during critical conditions. The estimated dilution for chronic protection of aquatic life is calculated using the permitted flow of 18 MGD and the 7-day, 2-year (7Q2) flow of 75.02 cfs for Elm Fork Trinity River Below Lewisville Lake, the perennial stream. The following critical effluent percentages are being used:

Acute Effluent %:	100%	Chronic Effluent %:	27.07%
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Waste load allocations (WLAs) are calculated using the above estimated effluent percentages, criteria outlined in the Texas Surface Water Quality Standards, and partitioning coefficients for metals (when appropriate and designated in the implementation procedures). The WLA is the end-of-pipe effluent concentration that can be discharged when, after mixing in the receiving stream, instream numerical criteria will not be exceeded. From the WLA, a long-term average (LTA) is calculated using a log normal probability distribution, a given coefficient of variation (0.6), and a 90th percentile confidence level. The LTA is the long-term average effluent concentration for which the WLA will never be exceeded using a selected percentile confidence level. The lower of the two LTAs (acute and chronic) is used to calculate a daily average and daily maximum effluent limitation for the protection of aquatic life using the same statistical considerations with the 99th percentile confidence level and a standard number of monthly effluent samples collected (12). Assumptions used in deriving the effluent limitations include segment values for hardness, chlorides, pH, and total suspended solids (TSS) according to the segment-specific values contained in the TCEQ guidance document "Procedures to Implement the Texas Surface Water Quality Standards." The segment values are 115 mg/l for hardness (as calcium carbonate), 24 mg/l chlorides, 7.5 standard units for pH, and 13 mg/l for TSS. For additional details on the calculation of water quality-based effluent limitations, refer

to the TCEQ guidance document.

TCEQ practice for determining significant potential is to compare the reported analytical data against percentages of the calculated daily average water quality-based effluent limitation. Permit limitations are required when analytical data reported in the application exceeds 85% of the calculated daily average water quality-based effluent limitation. Monitoring and reporting is required when analytical data reported in the application exceeds 70% of the calculated daily average water quality-based effluent limitation. See Attachment B of this Fact Sheet.

(b) PERMIT ACTION

Analytical data reported in the application was screened against calculated water quality-based effluent limitations for the protection of aquatic life. Reported analytical data does not exceed 70% of the calculated daily average water quality-based effluent limitations for aquatic life protection.

The effluent limitations for Total Lead from the existing permit are continued in the draft permit.

(3) AQUATIC ORGANISM BIOACCUMULATION CRITERIA

(a) SCREENING

Water quality-based effluent limitations for the protection of human health are calculated using criteria for the consumption of freshwater fish tissue and drinking water found in Table 2 of the Texas Surface Water Quality Standards (30 TAC Chapter 307). Freshwater fish tissue bioaccumulation and drinking water criteria are applied for human health protection in the perennial stream. TCEQ uses the mass balance equation to estimate dilution in the perennial stream during average flow conditions. The estimated dilution for human health protection is calculated using the permitted flow of 18.0 MGD and the harmonic mean flow of 214.95 cfs for Elm Fork Trinity River Below Lewisville Lake. The following critical effluent percentage is being used:

Human Health Effluent %: 11.470%

Water quality-based effluent limitations for human health protection against the consumption of fish tissue are calculated using the same procedure as outlined for calculation of water quality-based effluent limitations for aquatic life protection. A 99th percentile confidence level in the long-term average calculation is used with only one long-term average value being calculated.

Significant potential is again determined by comparing reported analytical data against 70% and 85% of the calculated daily average water quality-based effluent limitation. See Attachment B of this Fact Sheet.

(b) PERMIT ACTION

Reported analytical data for Heptachlor epoxide exceeds 85% of the calculated daily average water quality-based effluent limitation for human health protection (using consumption of fish tissue criteria).

An interim three-year compliance period is included in the draft permit for Heptachlor Epoxide in accordance with 30 TAC § 307.2(f). A three-year compliance period is necessary in order to determine exceedance cause(s), develop control options, evaluate and select control mechanisms, implement corrective action, and attain final effluent limitations.

(4) DRINKING WATER SUPPLY PROTECTION

(a) SCREENING

Water Quality Segment No. 0822, which receives the discharge from this facility, is designated as a public water supply. The screening procedure used to calculate water quality-based effluent limitations and determine the need for effluent limitations or monitoring requirements is identical to the procedure outlined in the aquatic organism bioaccumulation section of this fact sheet. Criteria used in the calculation of water quality-based effluent limitations for the protection of a drinking water supply are outlined in Table 2 (Water and Fish) of the Texas Surface Water Quality Standards (30 TAC Chapter 307). These criteria are developed from either drinking water maximum contaminant level (MCL) criteria outlined in 30 TAC Chapter 290 or from the combined human health effects of exposure to consumption of fish tissue and ingestion of drinking water.

(b) PERMIT ACTION

Criteria in the "Water and Fish" section of Table 2 do not distinguish if the criteria is based on a drinking water standard or the combined effects of ingestion of drinking water and fish tissue. Effluent limitations or monitoring requirements to protect the drinking water supply (and other human health effects) were previously calculated and outlined in the aquatic organism bioaccumulation criteria section of this fact sheet.

(5) WHOLE EFFLUENT TOXICITY (BIOMONITORING) CRITERIA

(a) SCREENING

TCEQ has determined that there may be pollutants present in the effluent that may have the potential to cause toxic conditions in the receiving stream. Whole effluent biomonitoring is the most direct measure of potential toxicity that incorporates the effects of synergism of effluent components and receiving stream water quality characteristics. Biomonitoring of the effluent is, therefore, required as a condition of this permit to assess potential toxicity.

The existing permit includes chronic freshwater biomonitoring requirements. A summary of the biomonitoring testing for the facility indicates that in the past three years, the permittee has performed twenty-two chronic tests, with one demonstration of significant toxicity (i.e., one failure) by the water flea.

REASONABLE POTENTIAL (RP) DETERMINATION

A RP determination was performed in accordance with 40 CFR §122.44(d)(1)(ii) to determine whether the discharge will reasonably be expected to cause or contribute to an exceedance of a state water quality standard or criterion within that standard. Each test species is evaluated separately. The RP determination is based on representative data from the previous three years of chronic WET testing. This determination was performed in accordance with the methodology outlined in the TCEQ letter to the EPA dated December 28, 2015 and approved by the EPA in a letter dated December 28, 2015.

With zero failures by the fathead minnow, a determination of no RP was made. WET limits are not required, and this test species may be eligible for the testing frequency reduction after one year of quarterly testing occurs.

(b) PERMIT ACTION

The test species are appropriate to measure the toxicity of the effluent consistent with the requirements of the State water quality standards. The biomonitoring frequency has been established to reflect the likelihood of ambient toxicity and to provide data representative of the toxic potential of the facility's discharge. This permit may be reopened to require effluent limits, additional testing, and/or other appropriate actions to address toxicity if biomonitoring data show actual or potential ambient toxicity to be the result of the permittee's discharge to the receiving stream or water body.

With the failure by the water flea, a three-year permit will be issued in accordance with the methodology referenced above. This test species is ineligible for the testing frequency reduction.

(6) WHOLE EFFLUENT TOXICITY CRITERIA (24-HOUR ACUTE)

(a) SCREENING

The existing permit includes 24-hour acute freshwater biomonitoring language. A summary of the biomonitoring testing for the facility indicates that in the past three years, the permittee has performed ten 24-hour acute tests, with zero demonstrations of significant mortality (i.e., zero failures).

(b) PERMIT ACTION

The draft permit includes 24-hour 100% acute biomonitoring tests for the

life of the permit.

9. WATER QUALITY VARIANCE REQUESTS

No variance requests have been received.

10. PROCEDURES FOR FINAL DECISION

When an application is declared administratively complete, the Chief Clerk sends a letter to the applicant advising the applicant to publish the Notice of Receipt of Application and Intent to Obtain Permit in the newspaper. In addition, the Chief Clerk instructs the applicant to place a copy of the application in a public place for review and copying in the county where the facility is or will be located. This application will be in a public place throughout the comment period. The Chief Clerk also mails this notice to any interested persons and, if required, to landowners identified in the permit application. This notice informs the public about the application and provides that an interested person may file comments on the application or request a contested case hearing or a public meeting.

Once a draft permit is completed, it is sent, along with the Executive Director's preliminary decision, as contained in the technical summary or fact sheet, to the Chief Clerk. At that time, the Notice of Application and Preliminary Decision will be mailed to the same people and published in the same newspaper as the prior notice. This notice sets a deadline for making public comments. The applicant must place a copy of the Executive Director's preliminary decision and draft permit in the public place with the application.

Any interested person may request a public meeting on the application until the deadline for filing public comments. A public meeting is intended for the taking of public comment and is not a contested case proceeding.

After the public comment deadline, the Executive Director prepares a response to all significant public comments on the application or the draft permit raised during the public comment period. The Chief Clerk then mails the Executive Director's response to comments and final decision to people who have filed comments, requested a contested case hearing, or requested to be on the mailing list. This notice provides that if a person is not satisfied with the Executive Director's response and decision, they can request a contested case hearing or file a request to reconsider the Executive Director's decision within 30 days after the notice is mailed.

The Executive Director will issue the permit unless a written hearing request or request for reconsideration is filed within 30 days after the Executive Director's response to comments and final decision is mailed. If a hearing request or request for reconsideration is filed, the Executive Director will not issue the permit and will forward the application and request to the TCEQ Commissioners for their consideration at a scheduled Commission meeting. If a contested case hearing is held, it will be a legal proceeding similar to a civil trial in state district court.

If the Executive Director calls a public meeting or the Commission grants a contested case hearing as described above, the Commission will give notice of the date, time, and place of the meeting or hearing. If a hearing request or request for reconsideration is

made, the Commission will consider all public comments in making its decision and shall either adopt the Executive Director's response to public comments or prepare its own response.

For additional information about this application, contact Sumitra Pokharel at (512) 239-4722.

11. ADMINISTRATIVE RECORD

The following items were considered in developing the draft permit:

A. PERMIT(S)

TPDES Permit No. WQ0010662001 issued on february 5, 2021.

B. APPLICATION

Application received on May 12, 2025, and additional information received on October 24, 2025 and November 12, 2025.

C. MEMORANDA

Interoffice Memoranda from the Water Quality Assessment Section of the TCEQ Water Quality Division. Interoffice Memorandum from the Pretreatment Team of the TCEQ Water Quality Division.

D. MISCELLANEOUS

Federal Clean Water Act § 402; Texas Water Code § 26.027; 30 TAC Chapters 30, 305, 309, 312, and 319; Commission policies; and U.S. Environmental Protection Agency guidelines.

Texas Surface Water Quality Standards, 30 TAC §§ 307.1 - 307.10.

Procedures to Implement the Texas Surface Water Quality Standards (IP), Texas Commission on Environmental Quality, June 2010, as approved by the U.S. Environmental Protection Agency, and the IP, January 2003, for portions of the 2010 IP not approved by the U.S. Environmental Protection Agency.

Texas 2024 CWA § 303(d) List, Texas Commission on Environmental Quality, June 26, 2024; approved by the EPA on November 13, 2024.

Texas Natural Resource Conservation Commission, Guidance Document for Establishing Monitoring Frequencies for Domestic and Industrial Wastewater Discharge Permits, Document No. 98-001.000-OWR-WQ, May 1998.

Attachment A: Screening Calculations for Total Dissolved Solids, Chloride, and Sulfate

Menu 2 - Discharge to an Intermittent Stream within 3 Miles of a Perennial Stream

Screen the Perennial Stream

Applicant Name:	City of Lewisville
Permit Number, Outfall:	10662-001, 001
Segment Number:	0822

Enter values needed for screening:			Data Source (edit if different)
QE - Average effluent flow	12	MGD	
QS - Perennial stream harmonic mean flow	215.00	cfs	Critical conditions memo
QE - Average effluent flow	18.5668	cfs	Calculated
CA - TDS - ambient segment concentration	259	mg/L	2010 IP, Appendix D
CA - chloride - ambient segment concentration	24	mg/L	2010 IP, Appendix D
CA - sulfate - ambient segment concentration	41	mg/L	2010 IP, Appendix D
CC - TDS - segment criterion	500	mg/L	Latest appr'vd TSWQS, Appendix A
CC - chloride - segment criterion	80	mg/L	Latest appr'vd TSWQS, Appendix A
CC - sulfate - segment criterion	60	mg/L	Latest appr'vd TSWQS, Appendix A
CE - TDS - average effluent concentration	512	mg/L	Permit application
CE - chloride - average effluent concentration	99.5	mg/L	Permit application
CE - sulfate - average effluent concentration	207	mg/L	Permit application

Screening Equation

$$CC \geq [(QS)(CA) + (QE)(CE)] / [QE + QS]$$

No further screening for TDS needed if:	279.11	≤	500
No further screening for chloride needed if:	30.00	≤	80
No further screening for sulfate needed if:	54.20	≤	60

Permit Limit Calculations

TDS

Calculate the WLA	WLA = [CC(QE+QS) - (QS)(CA)]/QE	3290.74
Calculate the LTA	LTA = WLA * 0.93	3060.39
Calculate the daily average	Daily Avg. = LTA * 1.47	4498.77
Calculate the daily maximum	Daily Max. = LTA * 3.11	9517.81
Calculate 70% of the daily average	70% of Daily Avg. =	3149.14

City of Lewisville TPDES Permit No. WQ0010662001
 Fact Sheet and Executive Director's Preliminary Decision

Calculate 85% of the daily average		85% of Daily Avg. =		3823.96
No permit limitations needed if:	512	≤	3149.14	
Reporting needed if:	512	>	3149.14	but ≤ 3823.96
Permit limits may be needed if:	512	>	3823.96	

No permit limitations needed for TDS

Chloride

Calculate the WLA		$WLA = [CC(QE+QS) - (QS)(CA)]/QE$		728.47
Calculate the LTA		$LTA = WLA * 0.93$		677.48
Calculate the daily average		$Daily\ Avg. = LTA * 1.47$		995.89
Calculate the daily maximum		$Daily\ Max. = LTA * 3.11$		2106.96
Calculate 70% of the daily average		70% of Daily Avg. =		697.12
Calculate 85% of the daily average		85% of Daily Avg. =		846.51
No permit limitations needed if:	99.5	≤	697.12	
Reporting needed if:	99.5	>	697.12	but ≤ 846.51
Permit limits may be needed if:	99.5	>	846.51	

No permit limitations needed for chloride

Sulfate

Calculate the WLA		$WLA = [CC(QE+QS) - (QS)(CA)]/QE$		280.02
Calculate the LTA		$LTA = WLA * 0.93$		260.42
Calculate the daily average		$Daily\ Avg. = LTA * 1.47$		382.81
Calculate the daily maximum		$Daily\ Max. = LTA * 3.11$		809.89
Calculate 70% of the daily average		70% of Daily Avg. =		267.97
Calculate 85% of the daily average		85% of Daily Avg. =		325.39
No permit limitations needed if:	207	≤	267.97	
Reporting needed if:	207	>	267.97	but ≤ 325.39
Permit limits may be needed if:	207	>	325.39	

No permit limitations needed for sulfate

Attachment B: Calculated Water Quality Based Effluent Limitations

TEXTTOX MENU #2 - INTERMITTENT STREAM WITHIN 3 MILES OF A FRESHWATER PERENNIAL STREAM/RIVER

The water quality-based effluent limitations developed below are calculated using:

Table 1, 2014 Texas Surface Water Quality Standards (30 TAC 307) for Freshwater Aquatic Life

Table 2, 2018 Texas Surface Water Quality Standards for Human Health

"Procedures to Implement the Texas Surface Water Quality Standards," TCEQ, June 2010

PERMIT INFORMATION

Permittee Name:	City of Lewisville
TPDES Permit No.:	WQ0010662001
Outfall No.:	001
Prepared by:	Sumitra Pokharel
Date:	October 23, 2025

DISCHARGE INFORMATION

Intermittent Receiving Waterbody:	Prairie Creek
Perennial Stream/River within 3 Miles:	Prairie Creek
Segment No.:	0822
TSS (mg/L):	13
pH (Standard Units):	7.5
Hardness (mg/L as CaCO ₃):	115
Chloride (mg/L):	24
Effluent Flow for Aquatic Life (MGD):	18
Critical Low Flow [7Q2] (cfs) for intermittent:	0
Critical Low Flow [7Q2] (cfs) for perennial:	75.02
% Effluent for Chronic Aquatic Life (Mixing Zone):	27.07
% Effluent for Acute Aquatic Life (ZID):	100
Effluent Flow for Human Health (MGD):	18
Harmonic Mean Flow (cfs) for perennial:	214.95
% Effluent for Human Health:	11.470
Human Health Criterion (select: PWS, FISH, or INC)	PWS

CALCULATE DISSOLVED FRACTION (AND ENTER WATER EFFECT RATIO IF APPLICABLE):

<i>Stream/River Metal</i>	<i>Intercept (b)</i>	<i>Slope (m)</i>	<i>Partition Coefficient (Kp)</i>	<i>Dissolved Fraction (Cd/Ct)</i>	<i>Source</i>	<i>Water Effect Ratio (WER)</i>	<i>Source</i>
Aluminum	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Arsenic	5.68	-0.73	73590.43	0.511		1.00	Assumed
Cadmium	6.60	-1.13	219403.73	0.260		1.00	Assumed
Chromium (total)	6.52	-0.93	304812.44	0.202		1.00	Assumed
Chromium (trivalent)	6.52	-0.93	304812.44	0.202		1.00	Assumed
Chromium (hexavalent)	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Copper	6.02	-0.74	156921.31	0.329		1.00	Assumed
Lead	6.45	-0.80	362114.00	0.175		1.00	Assumed
Mercury	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Nickel	5.69	-0.57	113514.75	0.404		1.00	Assumed
Selenium	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Silver	6.38	-1.03	170859.19	0.310		1.00	Assumed
Zinc	6.10	-0.70	209044.94	0.269		1.00	Assumed

AQUATIC LIFE

CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS:

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<i>Parameter</i>	<i>FW Acute Criterion (µg/L)</i>	<i>FW Chronic Criterion (µg/L)</i>	<i>WLAa (µg/L)</i>	<i>WLAc (µg/L)</i>	<i>LTAa (µg/L)</i>	<i>LTAc (µg/L)</i>	<i>Daily Avg. (µg/L)</i>	<i>Daily Max. (µg/L)</i>
Aldrin	3.0	N/A	3.00	N/A	1.72	N/A	2.52	5.34
Aluminum	991	N/A	991	N/A	568	N/A	834	1765
Arsenic	340	150	665	1084	381	835	560	1185
Cadmium	9.8	0.271	37.9	3.86	21.7	2.97	4.36	9.23
Carbaryl	2.0	N/A	2.00	N/A	1.15	N/A	1.68	3.56
Chlordane	2.4	0.004	2.40	0.0148	1.38	0.0114	0.0167	0.0353
Chlorpyrifos	0.083	0.041	0.0830	0.151	0.0476	0.117	0.0699	0.147
Chromium (trivalent)	639	83	3170	1523	1817	1173	1724	3647
Chromium (hexavalent)	15.7	10.6	15.7	39.2	9.00	30.1	13.2	27.9
Copper	16.2	10.7	49.2	120	28.2	92.3	41.4	87.7
Cyanide (free)	45.8	10.7	45.8	39.5	26.2	30.4	38.5	81.6
4,4'-DDT	1.1	0.001	1.10	0.00369	0.630	0.00284	0.00418	0.00884
Demeton	N/A	0.1	N/A	0.369	N/A	0.284	0.418	0.884
Diazinon	0.17	0.17	0.170	0.628	0.0974	0.484	0.143	0.302
Dicofol [Kelthane]	59.3	19.8	59.3	73.1	34.0	56.3	49.9	105
Dieldrin	0.24	0.002	0.240	0.00739	0.138	0.00569	0.00836	0.0176
Diuron	210	70	210	259	120	199	176	374
Endosulfan I (<i>alpha</i>)	0.22	0.056	0.220	0.207	0.126	0.159	0.185	0.392
Endosulfan II (<i>beta</i>)	0.22	0.056	0.220	0.207	0.126	0.159	0.185	0.392
Endosulfan sulfate	0.22	0.056	0.220	0.207	0.126	0.159	0.185	0.392
Endrin	0.086	0.002	0.0860	0.00739	0.0493	0.00569	0.00836	0.0176
Guthion [Azinphos Methyl]	N/A	0.01	N/A	0.0369	N/A	0.0284	0.0418	0.0884
Heptachlor	0.52	0.004	0.520	0.0148	0.298	0.0114	0.0167	0.0353
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	1.126	0.08	1.13	0.295	0.645	0.228	0.334	0.707
Lead	75	2.93	429	61.8	246	47.6	69.9	147
Malathion	N/A	0.01	N/A	0.0369	N/A	0.0284	0.0418	0.0884
Mercury	2.4	1.3	2.40	4.80	1.38	3.70	2.02	4.27
Methoxychlor	N/A	0.03	N/A	0.111	N/A	0.0853	0.125	0.265
Mirex	N/A	0.001	N/A	0.00369	N/A	0.00284	0.00418	0.00884
Nickel	527	58.5	1305	535	748	412	605	1281
Nonylphenol	28	6.6	28.0	24.4	16.0	18.8	23.5	49.8
Parathion (ethyl)	0.065	0.013	0.0650	0.0480	0.0372	0.0370	0.0543	0.114
Pentachlorophenol	14.4	11.1	14.4	40.9	8.26	31.5	12.1	25.6
Phenanthrene	30	30	30.0	111	17.2	85.3	25.2	53.4
Polychlorinated Biphenyls [PCBs]	2.0	0.014	2.00	0.0517	1.15	0.0398	0.0585	0.123
Selenium	20	5	20.0	18.5	11.5	14.2	16.8	35.6
Silver	0.8	N/A	6.26	N/A	3.59	N/A	5.27	11.1
Toxaphene	0.78	0.0002	0.780	0.000739	0.447	0.000569	0.000836	0.00176
Tributyltin [TBT]	0.13	0.024	0.130	0.0886	0.0745	0.0683	0.100	0.212
2,4,5 Trichlorophenol	136	64	136	236	77.9	182	114	242
Zinc	132	133	490	1826	281	1406	413	873

HUMAN HEALTH

CALCULATE DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS:

<i>Parameter</i>	<i>Water and Fish Criterion (µg/L)</i>	<i>Fish Only Criterion (µg/L)</i>	<i>Incidental Fish Criterion (µg/L)</i>	<i>WLAh (µg/L)</i>	<i>LTAh (µg/L)</i>	<i>Daily Avg. (µg/L)</i>	<i>Daily Max. (µg/L)</i>
Acrylonitrile	1.0	115	1150	8.72	8.11	11.9	25.2
Aldrin	1.146E-05	1.147E-05	1.147E-04	0.0000999	0.0000929	0.000136	0.000288
Anthracene	1109	1317	13170	9668	8992	13217	27963
Antimony	6	1071	10710	52.3	48.6	71.5	151

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Arsenic	10	N/A	N/A	171	159	233	493
Barium	2000	N/A	N/A	17436	16216	23837	50430
Benzene	5	581	5810	43.6	40.5	59.5	126
Benzidine	0.0015	0.107	1.07	0.0131	0.0122	0.0178	0.0378
Benzo(a)anthracene	0.024	0.025	0.25	0.209	0.195	0.286	0.605
Benzo(a)pyrene	0.0025	0.0025	0.025	0.0218	0.0203	0.0297	0.0630
Bis(chloromethyl)ether	0.0024	0.2745	2.745	0.0209	0.0195	0.0286	0.0605
Bis(2-chloroethyl)ether	0.60	42.83	428.3	5.23	4.86	7.15	15.1
Bis(2-ethylhexyl) phthalate [Di(2-ethylhexyl) phthalate]	6	7.55	75.5	52.3	48.6	71.5	151
Bromodichloromethane [Dichlorobromomethane]	10.2	275	2750	88.9	82.7	121	257
Bromoform [Tribromomethane]	66.9	1060	10600	583	542	797	1686
Cadmium	5	N/A	N/A	168	156	229	485
Carbon Tetrachloride	4.5	46	460	39.2	36.5	53.6	113
Chlordane	0.0025	0.0025	0.025	0.0218	0.0203	0.0297	0.0630
Chlorobenzene	100	2737	27370	872	811	1191	2521
Chlorodibromomethane [Dibromochloromethane]	7.5	183	1830	65.4	60.8	89.3	189
Chloroform [Trichloromethane]	70	7697	76970	610	568	834	1765
Chromium (hexavalent)	62	502	5020	541	503	738	1563
Chrysene	2.45	2.52	25.2	21.4	19.9	29.2	61.7
Cresols [Methylphenols]	1041	9301	93010	9076	8440	12407	26249
Cyanide (free)	200	N/A	N/A	1744	1622	2383	5043
4,4'-DDD	0.002	0.002	0.02	0.0174	0.0162	0.0238	0.0504
4,4'-DDE	0.00013	0.00013	0.0013	0.00113	0.00105	0.00154	0.00327
4,4'-DDT	0.0004	0.0004	0.004	0.00349	0.00324	0.00476	0.0100
2,4'-D	70	N/A	N/A	610	568	834	1765
Danitol [Fenpropathrin]	262	473	4730	2284	2124	3122	6606
1,2-Dibromoethane [Ethylene Dibromide]	0.17	4.24	42.4	1.48	1.38	2.02	4.28
<i>m</i> -Dichlorobenzene [1,3-Dichlorobenzene]	322	595	5950	2807	2611	3837	8119
<i>o</i> -Dichlorobenzene [1,2-Dichlorobenzene]	600	3299	32990	5231	4865	7151	15129
<i>p</i> -Dichlorobenzene [1,4-Dichlorobenzene]	75	N/A	N/A	654	608	893	1891
3,3'-Dichlorobenzidine	0.79	2.24	22.4	6.89	6.41	9.41	19.9
1,2-Dichloroethane	5	364	3640	43.6	40.5	59.5	126
1,1-Dichloroethylene [1,1-Dichloroethene]	7	55114	551140	61.0	56.8	83.4	176
Dichloromethane [Methylene Chloride]	5	13333	133330	43.6	40.5	59.5	126
1,2-Dichloropropane	5	259	2590	43.6	40.5	59.5	126
1,3-Dichloropropene [1,3-Dichloropropylene]	2.8	119	1190	24.4	22.7	33.3	70.6
Dicofof [Kelthane]	0.30	0.30	3	2.62	2.43	3.57	7.56
Dieldrin	2.0E-05	2.0E-05	2.0E-04	0.000174	0.000162	0.000238	0.000504
2,4-Dimethylphenol	444	8436	84360	3871	3600	5291	11195
Di- <i>n</i> -Butyl Phthalate	88.9	92.4	924	775	721	1059	2241
Dioxins/Furans [TCDD Equivalents]	7.80E-08	7.97E-08	7.97E-07	6.80E-07	6.32E-07	9.29E-07	0.0000020
Endrin	0.02	0.02	0.2	0.174	0.162	0.238	0.504
Epichlorohydrin	53.5	2013	20130	466	434	637	1349
Ethylbenzene	700	1867	18670	6103	5676	8342	17650
Ethylene Glycol	46744	1.68E+07	1.68E+08	407521	378994	557121	1178671
Fluoride	4000	N/A	N/A	34873	32431	47674	100861
Heptachlor	8.0E-05	0.0001	0.001	0.000697	0.000649	0.000953	0.00201
Heptachlor Epoxide	0.00029	0.00029	0.0029	0.00253	0.00235	0.00345	0.00731
Hexachlorobenzene	0.00068	0.00068	0.0068	0.00593	0.00551	0.00810	0.0171
Hexachlorobutadiene	0.21	0.22	2.2	1.83	1.70	2.50	5.29
Hexachlorocyclohexane (<i>alpha</i>)	0.0078	0.0084	0.084	0.0680	0.0632	0.0929	0.196
Hexachlorocyclohexane (<i>beta</i>)	0.15	0.26	2.6	1.31	1.22	1.78	3.78
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	0.2	0.341	3.41	1.74	1.62	2.38	5.04
Hexachlorocyclopentadiene	10.7	11.6	116	93.3	86.8	127	269
Hexachloroethane	1.84	2.33	23.3	16.0	14.9	21.9	46.3

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Hexachlorophene	2.05	2.90	29	17.9	16.6	24.4	51.6
4,4'-Isopropylidenediphenol [Bisphenol A]	1092	15982	159820	9520	8854	13015	27535
Lead	1.15	3.83	38.3	57.2	53.2	78.2	165
Mercury	0.0122	0.0122	0.122	0.106	0.0989	0.145	0.307
Methoxychlor	2.92	3.0	30	25.5	23.7	34.8	73.6
Methyl Ethyl Ketone	13865	9.92E+05	9.92E+06	120877	112416	165250	349612
Methyl <i>tert</i> -butyl ether [MTBE]	15	10482	104820	131	122	178	378
Nickel	332	1140	11400	7166	6664	9796	20725
Nitrate-Nitrogen (as Total Nitrogen)	10000	N/A	N/A	87181	81079	119185	252154
Nitrobenzene	45.7	1873	18730	398	371	544	1152
N-Nitrosodiethylamine	0.0037	2.1	21	0.0323	0.0300	0.0440	0.0932
N-Nitroso-di- <i>n</i> -Butylamine	0.119	4.2	42	1.04	0.965	1.41	3.00
Pentachlorobenzene	0.348	0.355	3.55	3.03	2.82	4.14	8.77
Pentachlorophenol	0.22	0.29	2.9	1.92	1.78	2.62	5.54
Polychlorinated Biphenyls [PCBs]	6.4E-04	6.4E-04	6.40E-03	0.00558	0.00519	0.00762	0.0161
Pyridine	23	947	9470	201	186	274	579
Selenium	50	N/A	N/A	436	405	595	1260
1,2,4,5-Tetrachlorobenzene	0.23	0.24	2.4	2.01	1.86	2.74	5.79
1,1,2,2-Tetrachloroethane	1.64	26.35	263.5	14.3	13.3	19.5	41.3
Tetrachloroethylene [Tetrachloroethylene]	5	280	2800	43.6	40.5	59.5	126
Thallium	0.12	0.23	2.3	1.05	0.973	1.43	3.02
Toluene	1000	N/A	N/A	8718	8108	11918	25215
Toxaphene	0.011	0.011	0.11	0.0959	0.0892	0.131	0.277
2,4,5-TP [Silvex]	50	369	3690	436	405	595	1260
1,1,1-Trichloroethane	200	784354	7843540	1744	1622	2383	5043
1,1,2-Trichloroethane	5	166	1660	43.6	40.5	59.5	126
Trichloroethylene [Trichloroethene]	5	71.9	719	43.6	40.5	59.5	126
2,4,5-Trichlorophenol	1039	1867	18670	9058	8424	12383	26198
TTHM [Sum of Total Trihalomethanes]	80	N/A	N/A	697	649	953	2017
Vinyl Chloride	0.23	16.5	165	2.01	1.86	2.74	5.79

CALCULATE 70% AND 85% OF DAILY AVERAGE EFFLUENT LIMITATIONS:

Aquatic Life	70% of	85% of
Parameter	Daily Avg.	Daily Avg.
	(µg/L)	(µg/L)
Aldrin	1.76	2.14
Aluminum	584	709
Arsenic	392	476
Cadmium	3.05	3.71
Carbaryl	1.17	1.43
Chlordane	0.0117	0.0142
Chlorpyrifos	0.0489	0.0594
Chromium (trivalent)	1206	1465
Chromium (hexavalent)	9.25	11.2
Copper	29.0	35.2
Cyanide (free)	27.0	32.7
4,4'-DDT	0.00292	0.00355
Demeton	0.292	0.355
Diazinon	0.100	0.121
Dicofol [Kelthane]	34.9	42.4
Dieldrin	0.00585	0.00710
Diuron	123	150
Endosulfan I (<i>alpha</i>)	0.129	0.157

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Endosulfan II (<i>beta</i>)	0.129	0.157
Endosulfan sulfate	0.129	0.157
Endrin	0.00585	0.00710
Guthion [Azinphos Methyl]	0.0292	0.0355
Heptachlor	0.0117	0.0142
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	0.234	0.284
Lead	48.9	59.4
Malathion	0.0292	0.0355
Mercury	1.41	1.71
Methoxychlor	0.0877	0.106
Mirex	0.00292	0.00355
Nickel	424	514
Nonylphenol	16.5	20.0
Parathion (ethyl)	0.0380	0.0461
Pentachlorophenol	8.50	10.3
Phenanthrene	17.6	21.4
Polychlorinated Biphenyls [PCBs]	0.0409	0.0497
Selenium	11.7	14.3
Silver	3.68	4.47
Toxaphene	0.000585	0.000710
Tributyltin [TBT]	0.0702	0.0852
2,4,5 Trichlorophenol	80.1	97.3
Zinc	289	351

Human Health	70% of Daily Avg.	85% of Daily Avg.
Parameter	(µg/L)	(µg/L)
Acrylonitrile	8.34	10.1
Aldrin	0.0000956	0.000116
Anthracene	9252	11235
Antimony	50.0	60.7
Arsenic	163	198
Barium	16685	20261
Benzene	41.7	50.6
Benzidine	0.0125	0.0151
Benzo(a)anthracene	0.200	0.243
Benzo(a)pyrene	0.0208	0.0253
Bis(chloromethyl)ether	0.0200	0.0243
Bis(2-chloroethyl)ether	5.00	6.07
Bis(2-ethylhexyl) phthalate [Di(2-ethylhexyl) phthalate]	50.0	60.7
Bromodichloromethane [Dichlorobromomethane]	85.0	103
Bromoform [Tribromomethane]	558	677
Cadmium	160	195
Carbon Tetrachloride	37.5	45.5
Chlordane	0.0208	0.0253
Chlorobenzene	834	1013
Chlorodibromomethane [Dibromochloromethane]	62.5	75.9
Chloroform [Trichloromethane]	584	709
Chromium (hexavalent)	517	628
Chrysene	20.4	24.8
Cresols [Methylphenols]	8685	10546
Cyanide (free)	1668	2026
4,4'-DDD	0.0166	0.0202
4,4'-DDE	0.00108	0.00131

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4,4'-DDT	0.00333	0.00405
2,4'-D	584	709
Danitol [Fenprothrin]	2185	2654
1,2-Dibromoethane [Ethylene Dibromide]	1.41	1.72
<i>m</i> -Dichlorobenzene [1,3-Dichlorobenzene]	2686	3262
<i>o</i> -Dichlorobenzene [1,2-Dichlorobenzene]	5005	6078
<i>p</i> -Dichlorobenzene [1,4-Dichlorobenzene]	625	759
3,3'-Dichlorobenzidine	6.59	8.00
1,2-Dichloroethane	41.7	50.6
1,1-Dichloroethylene [1,1-Dichloroethene]	58.4	70.9
Dichloromethane [Methylene Chloride]	41.7	50.6
1,2-Dichloropropane	41.7	50.6
1,3-Dichloropropene [1,3-Dichloropropylene]	23.3	28.3
Dicofol [Kelthane]	2.50	3.03
Dieldrin	0.000166	0.000202
2,4-Dimethylphenol	3704	4498
Di- <i>n</i> -Butyl Phthalate	741	900
Dioxins/Furans [TCDD Equivalents]	6.50E-07	7.90E-07
Endrin	0.166	0.202
Epichlorohydrin	446	541
Ethylbenzene	5840	7091
Ethylene Glycol	389985	473553
Fluoride	33371	40523
Heptachlor	0.000667	0.000810
Heptachlor Epoxide	0.00241	0.00293
Hexachlorobenzene	0.00567	0.00688
Hexachlorobutadiene	1.75	2.12
Hexachlorocyclohexane (<i>alpha</i>)	0.0650	0.0790
Hexachlorocyclohexane (<i>beta</i>)	1.25	1.51
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	1.66	2.02
Hexachlorocyclopentadiene	89.2	108
Hexachloroethane	15.3	18.6
Hexachlorophene	17.1	20.7
4,4'-Isopropylidenediphenol [Bisphenol A]	9110	11062
Lead	54.7	66.4
Mercury	0.101	0.123
Methoxychlor	24.3	29.5
Methyl Ethyl Ketone	115675	140463
Methyl <i>tert</i> -butyl ether [MTBE]	125	151
Nickel	6857	8326
Nitrate-Nitrogen (as Total Nitrogen)	83429	101307
Nitrobenzene	381	462
N-Nitrosodiethylamine	0.0308	0.0374
N-Nitroso-di- <i>n</i> -Butylamine	0.992	1.20
Pentachlorobenzene	2.90	3.52
Pentachlorophenol	1.83	2.22
Polychlorinated Biphenyls [PCBs]	0.00533	0.00648
Pyridine	191	233
Selenium	417	506
1,2,4,5-Tetrachlorobenzene	1.91	2.33
1,1,2,2-Tetrachloroethane	13.6	16.6
Tetrachloroethylene [Tetrachloroethylene]	41.7	50.6
Thallium	1.00	1.21
Toluene	8342	10130
Toxaphene	0.0917	0.111

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2,4,5-TP [Silvex]	417	506
1,1,1-Trichloroethane	1668	2026
1,1,2-Trichloroethane	41.7	50.6
Trichloroethylene [Trichloroethene]	41.7	50.6
2,4,5-Trichlorophenol	8668	10525
TTHM [Sum of Total Trihalomethanes]	667	810
Vinyl Chloride	1.91	2.33