Administrative Package Cover Page

This file contains the following documents:

1. Summary of application (in plain language)

2. First Notice (NORI-Notice of Receipt of Application and Intent to Obtain a Permit)

3. Application Materials

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUMMARY OF APPLICATION IN PLAIN LANGUAGE FOR TPDES OR TLAP PERMIT APPLICATIONS

Summary of Application (in plain language) Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

Applicants should use this template to develop a plain language summary of your facility and application as required by Title 30, Texas Administrative Code (30 TAC), Chapter 39, Subchapter H. You may modify the template as necessary to accurately describe your facility as long as the summary includes the following information: (1) the function of the proposed plant or facility; (2) the expected output of the proposed plant or facility; (3) the expected pollutants that may be emitted or discharged by the proposed plant or facility; and (4) how you will control those pollutants, so that the proposed plant will not have an adverse impact on human health or the environment.

Fill in the highlighted areas below to describe your facility and application in plain language. Instructions and examples are provided below. Make any other edits necessary to improve readability or grammar and to comply with the rule requirements. After filling in the information for your facility delete these instructions.

If you are subject to the alternative language notice requirements in 30 TAC Section 39.426, **you must provide a translated copy of the completed plain language summary in the appropriate alternative language as part of your application package**. For your convenience, a Spanish template has been provided below.

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS DOMESTIC WASTEWATER/STORMWATER
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 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

City of Poth (CN600664882) operates Poth WWTP (RN101610053), a 0.22 gallon per day land application plant. The facility is located at 1 mile south of the intersection of Hwy 181 and FM 541 , in Poth, Wilson County, Texas 78147. This is for a renewal permit. This permit will not authorize a discharge of pollutants into water in the state.

Discharges from the facility are expected to contain CBOD5, E Coli. domestic is treated by three effluent storage ponds, slow sand filters, Imhoff tank, sludge drying beds, and a stabilization pond.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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

PROPOSED PERMIT NO. WQ0016796001

APPLICATION. City of Poth, P.O. Box 579, Poth, Texas 78147, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Land Application Permit (TLAP) No. WQ0016796001 to authorize the disposal of treated wastewater at a volume not to exceed a daily average flow of 220,00 gallons per day via irrigation of approximately 105.6 acres of non-public access pastureland. The domestic wastewater treatment facility and disposal area are located at 801 County Road 201, near the city of Poth, in Wilson County, Texas 78113. TCEQ received this application on April 28, 2025. Authorization to discharge was previously permitted by expired permit No. WQ0010052001. The permit application will be available for viewing and copying at Poth City Hall, 200 North Carroll Street, Poth, in Wilson 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/tlap-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=-98.0821,29.0547&level=18

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

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

OPPORTUNITY FOR A CONTESTED CASE HEARING. After the deadline for submitting public comments, the Executive Director will consider all timely comments and prepare a response to all relevant and material, or significant public comments. **Unless the application is directly referred for a contested case hearing, the response to comments, and the**

Executive Director's decision on the application, will be mailed to everyone who submitted public comments and to those persons who are on the mailing list for this application. If comments are received, the mailing will also provide instructions for requesting reconsideration of the Executive Director's decision and for requesting a contested case hearing. A contested case hearing is a legal proceeding similar to a civil trial in state district court.

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

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

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

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

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

AGENCY CONTACTS AND INFORMATION. All public comments and requests must be submitted either electronically at **https://www14.tceq.texas.gov/epic/eComment/**, or in writing to the Texas Commission on Environmental Quality, Office of the Chief Clerk, MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Please be aware that any contact information you provide, including your name, phone number, email address and physical address will become part of the agency's public record. For more information about this permit application or the permitting process, please call the TCEQ Public Education Program, Toll

Free, at 1-800-687-4040 or visit their website at www.tceq.texas.gov/goto/pep. Si desea información en Español, puede llamar al 1-800-687-4040.

Further information may also be obtained from City of Poth at the address stated above or by calling Mr. Jerry Shepherd, P.E., Director of Public Infrastructure/Southwest Engineers Inc, at 830-672-7546.

Issuance Date: June 12, 2025

Brooke T. Paup, *Chairwoman*
Bobby Janecka, *Commissioner*
Catarina R. Gonzales, *Commissioner*
Kelly Keel, *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

April 28, 2025

Re: Confirmation of Submission of the New Public Domestic Wastewater Individual Permit Application

Dear Applicant:

This is an acknowledgement that you have successfully completed Public Domestic Wastewater Individual Permit Application.

ER Account Number: ER110094
Application Reference Number: 770728
Authorization Number: WQ0016796001
Site Name: City of Poth
Regulated Entity: RN101610053 - CITY OF POTH
Customer(s): CN600664882 - City of Poth

Please be aware that TCEQ staff may contact your designated contact for any additional information.

If you have any questions, you may contact the Applications Review and Processing Team by email at WQ-ARPTeam@tceq.texas.gov or by telephone at (512) 239-4671.

Sincerely,
Applications Review and Processing Team
Water Quality Division

Texas Commission on Environmental Quality
New Domestic or Industrial Individual Permit

Site Information (Regulated Entity)

What is the name of the site to be authorized?	CITY OF POTH
Does the site have a physical address?	No
Because there is no physical address, describe how to locate this site:	1 ML S OF HWY 181 AND FM 541 INTERSECTION
City	POTH
State	TX
ZIP	78113
County	WILSON
Latitude (N) (##.######)	29.0547
Longitude (W) (-###.######)	-98.0821
Primary SIC Code	
Secondary SIC Code	
Primary NAICS Code	221320
Secondary NAICS Code	
Regulated Entity Site Information	
What is the Regulated Entity's Number (RN)?	RN101610053
What is the name of the Regulated Entity (RE)?	CITY OF POTH
Does the RE site have a physical address?	No
Because there is no physical address, describe how to locate this site:	1 ML S OF HWY 181 AND FM 541 INTERSECTION
City	POTH
State	TX
ZIP	78113
County	WILSON
Latitude (N) (##.######)	
Longitude (W) (-###.######)	
Facility NAICS Code	221320
What is the primary business of this entity?	DOMESTIC N/D

City of-Customer (Applicant) Information (Owner Operator)

How is this applicant associated with this site?	Owner Operator
What is the applicant's Customer Number (CN)?	CN600664882
Type of Customer	City Government
Full legal name of the applicant:	

Legal Name	City of Poth
Texas SOS Filing Number	
Federal Tax ID	
State Franchise Tax ID	
State Sales Tax ID	
Local Tax ID	
DUNS Number	
Number of Employees	
Independently Owned and Operated?	No
I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas.	Yes

Responsible Authority Contact

Organization Name	City of Poth
Prefix	
First	Rose
Middle	
Last	Huizar
Suffix	
Credentials	
Title	City Secretary

Responsible Authority Mailing Address

Enter new address or copy one from list:	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 579
Routing (such as Mail Code, Dept., or Attn:)	
City	POTH
State	TX
ZIP	78147
Phone (###-###-####)	8304842111
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	cityhall@cityofpoth.org

Billing Contact

Responsible contact for receiving billing statements:

Select the permittee that is responsible for payment of the annual fee.	CN600664882, City of Poth
Organization Name	City of Poth
Prefix	

First

Middle

Last

Suffix

Credentials

Title

Enter new address or copy one from list:

Mailing Address

Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 579
Routing (such as Mail Code, Dept., or Attn:)	
City	POTH
State	TX
ZIP	78147
Phone (###-###-####)	8304842111
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	cityhall@cityofpoth.org

Application Contact

Person TCEQ should contact for questions about this application:

Same as another contact?	CN600664882, City of Poth
Organization Name	City of Poth
Prefix	
First	Rose
Middle	
Last	Huizar
Suffix	
Credentials	
Title	City Secretary

Enter new address or copy one from list:

Mailing Address

Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 579
Routing (such as Mail Code, Dept., or Attn:)	
City	POTH
State	TX
ZIP	78147

Phone (###-###-####)	8304842111
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	cityhall@cityofpoth.org

Technical Contact

Person TCEQ should contact for questions about this application:

Same as another contact?	Application Contact
Organization Name	City of Poth
Prefix	MS
First	Rose
Middle	
Last	Huizar
Suffix	
Credentials	
Title	City Secretary
Enter new address or copy one from list:	

Mailing Address

Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 579
Routing (such as Mail Code, Dept., or Attn:)	
City	POTH
State	TX
ZIP	78147
Phone (###-###-####)	8304842111
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	cityhall@cityofpoth.org

DMR Contact

Person responsible for submitting Discharge Monitoring Report Forms:

Same as another contact?	Application Contact
Organization Name	City of Poth
Prefix	
First	Rose
Middle	

Last	Huizar
Suffix	
Credentials	
Title	City Secretary
Enter new address or copy one from list:	

Mailing Address:

Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 579
Routing (such as Mail Code, Dept., or Attn:)	
City	POTH
State	TX
ZIP	78147
Phone (###-###-####)	8304842111
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	cityhall@cityofpoth.org

Section 1# Permit Contact

Permit Contact#: 1

Person TCEQ should contact throughout the permit term.

1) Same as another contact?	Application Contact
2) Organization Name	City of Poth
3) Prefix	
4) First	Rose
5) Middle	
6) Last	Huizar
7) Suffix	
8) Credentials	
9) Title	City Secretary

Mailing Address

10) Enter new address or copy one from list	
11) Address Type	Domestic
11.1) Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 579
11.2) Routing (such as Mail Code, Dept., or Attn:)	
11.3) City	POTH
11.4) State	TX
11.5) ZIP	78147
12) Phone (###-###-####)	8304842111

13) Extension

14) Alternate Phone (###-###-####)

15) Fax (###-###-####)

16) E-mail   cityhall@cityofpoth.org

Section 2# Permit Contact

Permit Contact#: 2

Person TCEQ should contact throughout the permit term.

1) Same as another contact?

2) Organization Name   Southwest Engineers Inc

3) Prefix

4) First   Jerry

5) Middle

6) Last   Shepherd

7) Suffix

8) Credentials   PE

9) Title   Director of Public Infrastructure

Mailing Address

10) Enter new address or copy one from list

11) Address Type   Domestic

11.1) Mailing Address (include Suite or Bldg. here, if applicable)   307 SAINT LAWRENCE ST

11.2) Routing (such as Mail Code, Dept., or Attn:)

11.3) City   GONZALES

11.4) State   TX

11.5) ZIP   78629

12) Phone (###-###-####)   8306727546

13) Extension

14) Alternate Phone (###-###-####)

15) Fax (###-###-####)

16) E-mail   jerry.shepherd@swengineers.com

Public Notice Information

Individual Publishing the Notices

1) Prefix

2) First and Last Name   Jerry Shepherd

3) Credential   PE

4) Title   Director of Public Infrastructure

5) Organization Name   Southwest Engineers Inc

6) Mailing Address	307 SAINT LAWRENCE ST
7) Address Line 2	
8) City	GONZALES
9) State	TX
10) Zip Code	78629
11) Phone (###-###-####)	8306727546
12) Extension	
13) Fax (###-###-####)	
14) Email	jerry.shepherd@swengineers.com

Contact person to be listed in the Notices

15) Prefix	
16) First and Last Name	Jerry Shepherd
17) Credential	PE
18) Title	Director of Public Infrastructure
19) Organization Name	Southwest Engineers Inc
20) Phone (###-###-####)	8306727546
21) Fax (###-###-####)	
22) Email	jerry.shepherd@swengineers.com

Bilingual Notice Requirements

23) Is a bilingual education program required by the Texas Education Code at the elementary or middle school nearest to the facility or proposed facility?	No

Section 1# Public Viewing Information

County#: 1

1) County	WILSON
2) Public building name	Poth City Hall
3) Location within the building	
4) Physical Address of Building	200 N Carroll St
5) City	Poth
6) Contact Name	Rose Huizar
7) Phone (###-###-####)	8304842111
8) Extension	
9) Is the location open to the public?	Yes

Owner Information

Owner of Treatment Facility

1) Prefix	
2) First and Last Name	

3) Organization Name	City of Poth
4) Mailing Address	PO Box 579
5) City	Poth
6) State	TX
7) Zip Code	78147
8) Phone (###-###-####)	8304842111
9) Extension	
10) Email	cityhall@cityofpoth.org
11) What is ownership of the treatment facility?	Public

Owner of Land (where treatment facility is or will be)

12) Prefix	
13) First and Last Name	
14) Organization Name	City of Poth
15) Mailing Address	PO Box 579
16) City	Poth
17) State	TX
18) Zip Code	78147
19) Phone (###-###-####)	8304842111
20) Extension	
21) Email	cityhall@cityofpoth.org
22) Is the landowner the same person as the facility owner or co-applicant?	Yes

Admin General Information

1) Is the facility located on or does the treated effluent cross American Indian Land?	No
2) What is the authorization type that you are seeking?	Public Domestic Wastewater
2.1) Is the facility previously authorized under a Water Quality individual permit?	Yes
2.1.1) Do you want to continue with your previously assigned individual permit number?	No
2.2) What is the proposed total flow in MGD discharged at the facility?	0.22
2.3) Select the applicable fee	>=0.10 MGD but < 0.25 MGD - $850
3) What is your facility operational status?	Active
3.1) What is your facility operational start date?	12/06/1988
4) What is the classification for your authorization?	TLAP
4.1) Provide an accurate description of the effluent disposal site location:	1 ML S OF HWY 181 AND FM 541 INTERSECTION
4.2) City nearest the disposal site:	Poth
4.3) County in which the disposal site is located:	WILSON

4.4) Describe the routing of effluent from the treatment facility to the disposal site:	From the treatment plant into ponds to disposal site
4.5) Identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained:	Upper San Antonio River 1911
4.6) Is onsite sludge disposal requested?	No

Owner of Effluent TLAP Disposal Site

4.7) Prefix	
4.8) First and Last Name	
4.9) Organization Name	City of Poth
4.10) Mailing Address	PO Box 579
4.11) City	Poth
4.12) State	TX
4.13) Zip Code	78147
4.14) Phone (###-###-####)	8304842111
4.15) Extension	
4.16) Email	cityhall@cityofpoth.org
4.17) Is the landowner the same person as the facility owner or co-applicant?	Yes
5) Did any person formerly employed by the TCEQ represent your company and get paid for service regarding this application?	No

Plain Language

1) Plain Language	
[File Properties]	
File Name	LANG_Plain Language.pdf
Hash	CEBE7857E15751F0F6842EEDBB8D54B089E4AACECD3C6574663DC5F8794B641D
MIME-Type	application/pdf

Domestic Attachments

1) Have you clearly outlined and labeled the required information on the original full size USGS Topographic Map?	Yes

1.1) I certify that I have clearly outlined and labeled the required information on the Topographic map and attached here.

[File Properties]	
File Name	MAP_USGS.pdf
Hash	2D0175DE957DFEDA5E1ADD92A2AD347389834BB33F473C302CB5B47C603FD9D1
MIME-Type	application/pdf

2) Public Involvement Plan attachment (TCEQ Form 20960)

[File Properties]

File Name	PIP_pip-form-tceq-20960.pdf
Hash	D86190DBED21D9E9E12A7ED655AB27188DC6464E671F54D03E408B913D9D95A0
MIME-Type	application/pdf

3) Administrative Report 1.1

[File Properties]

File Name	ARPT_ADMIN.docx
Hash	F1FC714DE8AE74E31142E6CB6EEA51D878C5FBDC73D20BFE9DEDF7D6E11BD7D2
MIME-Type	application/vnd.openxmlformats-officedocument.wordprocessingml.document

4) I confirm that all required sections of Technical Report 1.0 are complete and will be included in the Technical Attachment.	Yes
4.1) I confirm that Technical Report 1.1 is complete and included in the Technical Attachment.	Yes
4.2) Are you planning to include Worksheet 2.1 (Stream Physical Characteristics) in the Technical Attachment?	No
4.3) I confirm that Worksheet 3.0 (Land Disposal of Effluent) is complete and included in the Technical Attachment.	Yes
4.4) I confirm that Worksheet 3.1 (Surface Land Disposal of Effluent) is complete and included in the Technical Attachment.	Yes
4.5) I confirm that Worksheet 3.2 (Subsurface Land Disposal of Effluent) is complete and included in the Technical Attachment.	Yes
4.6) Are you planning to include Worksheet 4.0 (Pollutant Analyses Requirements) in the Technical Attachment?	No
4.7) Are you planning to include Worksheet 5.0 (Toxicity Testing Requirements) in the Technical Attachment?	No
4.8) I confirm that Worksheet 6.0 (Industrial Waste Contribution) is complete and included in the Technical Attachment.	Yes
4.9) Are you planning to include Worksheet 7.0 (Class V Injection Well Inventory/Authorization Form) in the Technical Attachment?	No

4.10) Technical Attachment

[File Properties]

File Name	TECH_TECH.docx
Hash	8EF87BEC460DA323EA374AF740004DBDED449FC1029396A5921AD8DE521107EE
MIME-Type	application/vnd.openxmlformats-officedocument.wordprocessingml.document

[File Properties]

File Name	TECH_20250318084243333.pdf
Hash	1A2C235D382541D1FBD297A82D1ED221B25504D09160713495F8383893FB13D5
MIME-Type	application/pdf

5) Affected Landowners Map

[File Properties]

File Name	LANDMP_Landowner.pdf
Hash	E9C3FDC9888E60B3D3CE451AF3ED97622D9C0366628C816DC391984FFECD76FE
MIME-Type	application/pdf

6) Landowners Cross Reference List

[File Properties]

File Name	LANDCRL_Landowner List.xlsx
Hash	629033689998A667D280FB773420D74A515E352677FEE4D9CDDAF1435492E538
MIME-Type	application/vnd.openxmlformats-officedocument.spreadsheetml.sheet

7) Landowner Avery Template

[File Properties]

File Name	LANDAT_Landowner List.docx
Hash	0B091F65100E4065C6B8FC691D2A4E542B598F5FE11A117138EBED04C269BACE
MIME-Type	application/vnd.openxmlformats-officedocument.wordprocessingml.document

8) Buffer Zone Map

[File Properties]

File Name	BUFF_ZM_Buffer Zone.pdf
Hash	CC5E1CE0659DB8289967A11F8FC8E41DEA1A3D654EBAD155EAD43D5F80BDFB1B
MIME-Type	application/pdf

9) Flow Diagram

[File Properties]

File Name	FLDIA_flow diagram.pdf
Hash	54C634F8E63B1CCFDE10A7BD856868DFD5389E3B7AD7C6FED79AA318A325D2F6
MIME-Type	application/pdf

10) Site Drawing

[File Properties]

File Name	SITEDR_Site Map.pdf
Hash	E472EDE8B365097EE702715960066D508FFE25C039BAE2DBFF0140151705EF98
MIME-Type	application/pdf

11) Original Photographs

[File Properties]

File Name	ORIGPH_Photos.pdf
Hash	358D353FCB98C52F49D5FF3A7DE3D04D9E5911060DBB01C200DCF31112D70A52
MIME-Type	application/pdf

12) Design Calculations

[File Properties]

File Name	DES_CAL_L-DESIGN FEATURES.docx
Hash	5B2311079B840CBFA8E21A687BCEBEDC40CF1DF01D86A9B368BEC1F1F28D076B
MIME-Type	application/vnd.openxmlformats-officedocument.wordprocessingml.document

13) Solids Management Plan

[File Properties]

File Name	SMP_R- Sewage Sludge Solids Management Plan.docx
Hash	F61CE9D425E0F33EAD24367C4705D9045186584DB1F6B3ED7F25B79027C25EED
MIME-Type	application/vnd.openxmlformats-officedocument.wordprocessingml.document

14) Water Balance

[File Properties]

File Name	WB_Copy of Irrigation Spreadsheet 2019-3-28.xlsm
Hash	AE11967C13E001135C72BD8874698515F19EE57FAACF100656CC47A97FDE1CAF
MIME-Type	application/vnd.ms-excel.sheet.macroEnabled.12

15) Other Attachments

[File Properties]

File Name	OTHER_L-DESIGN FEATURES.docx
Hash	5B2311079B840CBFA8E21A687BCEBEDC40CF1DF01D86A9B368BEC1F1F28D076B
MIME-Type	application/vnd.openxmlformats-officedocument.wordprocessingml.document

[File Properties]

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MIME-Type	application/pdf

[File Properties]

File Name	OTHER_CCC_QAQC_WIP_POTH.pdf
Hash	67EBF45DF65008324DBB99592020256A3281CEAC10239D1A361D92A9CDCA327D
MIME-Type	application/pdf

[File Properties]

File Name	OTHER_Custom Soil Resource Report for Wilson County Texas.pdf

Hash	0C4CB56ACED8B9CB9F3D1C61A0F5BBBDDBBE874FCCF116DDC3E49B0E5B2FA01D
MIME-Type	application/pdf

[File Properties]

File Name	OTHER_Soil Sample Map.pdf
Hash	5A28606EB578C9C962BD2D8167F057B5346941E317953202BF0714A17FFF0AB5
MIME-Type	application/pdf

Certification

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

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.

1. I am Jerry Shepherd, the owner of the STEERS account ER110094.
2. I have the authority to sign this data on behalf of the applicant named above.
3. I have personally examined the foregoing and am familiar with its content and the content of any attachments, and based upon my personal knowledge and/or inquiry of any individual responsible for information contained herein, that this information is true, accurate, and complete.
4. I further certify that I have not violated any term in my TCEQ STEERS participation agreement and that I have no reason to believe that the confidentiality or use of my password has been compromised at any time.
5. I understand that use of my password constitutes an electronic signature legally equivalent to my written signature.
6. I also understand that the attestations of fact contained herein pertain to the implementation, oversight and enforcement of a state and/or federal environmental program and must be true and complete to the best of my knowledge.
7. I am aware that criminal penalties may be imposed for statements or omissions that I know or have reason to believe are untrue or misleading.
8. I am knowingly and intentionally signing New Domestic or Industrial Individual Permit.
9. My signature indicates that I am in agreement with the information on this form, and authorize its submittal to the TCEQ.

OWNER OPERATOR Signature: Jerry Shepherd OWNER OPERATOR

Customer Number:	CN600664882
Legal Name:	City of Poth
Account Number:	ER110094
Signature IP Address:	38.68.39.9
Signature Date:	2025-04-28
Signature Hash:	70CCBF80D8BF53FC89B71EF26391978FE751A6B920C121CB4AE1A12FF1C5EE5F
Form Hash Code at time of Signature:	9E22B8343141232224BFF0E8B1CB4ED39487301522100D3C2A3AF8664BD6A98E

Fee Payment

Transaction by:	The application fee payment transaction was made by JOHN LITTLEFIELD
Paid by:	The application fee was paid by JOHN LITTLEFIELD
Fee Amount:	$800.00
Paid Date:	The application fee was paid on 2025-03-18
Transaction/Voucher number:	The transaction number is 582EA000659951 and the voucher number is 758149

Submission

Reference Number:	The application reference number is 770728
Submitted by:	The application was submitted by ER110094/ Jerry Shepherd
Submitted Timestamp:	The application was submitted on 2025-04-28 at 09:16:42 CDT
Submitted From:	The application was submitted from IP address 50.202.48.42
Confirmation Number:	The confirmation number is 649187
Steers Version:	The STEERS version is 6.90

Additional Information

Application Creator: This account was created by Jerry Shepherd

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

DOMESTIC WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the application.

APPLICANT NAME: Click to enter text.

PERMIT NUMBER (If new, leave blank): WQ00Click to enter text.

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

	Y	N		Y	N
Administrative Report 1.0	☐	☐	Original USGS Map	☐	☐
Administrative Report 1.1	☐	☐	Affected Landowners Map	☐	☐
SPIF	☐	☐	Landowner Disk or Labels	☐	☐
Core Data Form	☐	☐	Buffer Zone Map	☐	☐
Summary of Application (PLS)	☐	☐	Flow Diagram	☐	☐
Public Involvement Plan Form	☐	☐	Site Drawing	☐	☐
Technical Report 1.0	☐	☐	Original Photographs	☐	☐
Technical Report 1.1	☐	☐	Design Calculations	☐	☐
Worksheet 2.0	☐	☐	Solids Management Plan	☐	☐
Worksheet 2.1	☐	☐	Water Balance	☐	☐
Worksheet 3.0	☐	☐			
Worksheet 3.1	☐	☐			
Worksheet 3.2	☐	☐			
Worksheet 3.3	☐	☐			
Worksheet 4.0	☐	☐			
Worksheet 5.0	☐	☐			
Worksheet 6.0	☐	☐			
Worksheet 7.0	☐	☐			

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 ☐	$315.00 ☐
≥0.05 but <0.10 MGD	$550.00 ☐	$515.00 ☐
≥0.10 but <0.25 MGD	$850.00 ☐	$815.00 ☐
≥0.25 but <0.50 MGD	$1,250.00 ☐	$1,215.00 ☐
≥0.50 but <1.0 MGD	$1,650.00 ☐	$1,615.00 ☐
≥1.0 MGD	$2,050.00 ☐	$2,015.00 ☐

Minor Amendment (for any flow) $150.00 ☐

Payment Information:

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

              Check/Money Order Amount: Click to enter text.

              Name Printed on Check: Click to enter text.

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 Water 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   ☐ Minor Amendment _with_ Renewal

☐ Major Amendment _without_ Renewal   ☐ Minor Amendment _without_ Renewal

☐ Renewal without changes   ☐ Minor Modification of permit

e. For amendments or modifications, describe the proposed changes: Click to enter text.

f. **For existing permits**:

Permit Number: WQ00 Click to enter text.

EPA I.D. (TPDES only): TX Click to enter text.

Expiration Date: Click to enter text.

Section 3. Facility Owner (Applicant) and Co-Applicant 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?

Click to enter text.

(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: Click to enter text.

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.

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?

Click to enter text.

(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: Click to enter text.

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: 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.

Check one or both: ☐   Administrative Contact   ☐   Technical Contact

B. 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.

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: 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.

B. 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.

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: 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.

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: 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.

Section 8.　Public Notice Information (Instructions Page 27)

A. Individual Publishing the Notices

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.

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: 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.

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: Click to enter text.

Location within the building: Click to enter text.

Physical Address of Building: Click to enter text.

City: Click to enter text.   County: Click to enter text.

Contact (Last Name, First Name): Click to enter text.

Phone No.: Click to enter text. 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? Click to enter text.

F. Summary of Application in Plain Language Template

Complete the F. Summary of Application in Plain Language Template (TCEQ Form 20972), also known as the plain language summary or PLS, and include as an attachment.

Attachment: Click to enter text.

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: Click to enter text.

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** Click to enter text.

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):

Click to enter text.

C. Owner of treatment facility: Click to enter text.

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: 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.

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): Click to enter text.

County in which the outfalls(s) is/are located: Click to enter text.

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: Click to enter text.

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: Click to enter text.

Section 14. Signature Page (Instructions Page 34)

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

Permit Number: Click to enter text.

Applicant: Click to enter text.

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): Click to enter text.

Signatory title: Click to enter text.

Signature:_____Date:_____

      (Use blue ink)

Subscribed and Sworn to before me by the said_____

on this_____day of_____, 20_____.

My commission expires on the_____day of_____, 20_____.

_____
Notary Public   *[SEAL]*

_____
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 that the landowners list has also been provided as mailing labels in electronic format (Avery 5160).

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: Click to enter text.

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: Click to enter text.

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

   Name of Project or Site: Click to enter text.

   Physical Address of Project or Site: Click to enter text.

   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 Labels and Cross Reference List ☐ N/A ☐ Yes
(See instructions for landowner requirements)

Electronic Application Submittal ☐ Yes
(See application submittal requirements on page 23 of the instructions.)

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)

Summary of Application (in Plain Language) ☐ Yes

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUMMARY OF APPLICATION IN PLAIN LANGUAGE FOR TPDES OR TLAP PERMIT APPLICATIONS

Summary of Application (in plain language) Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

Applicants should use this template to develop a plain language summary of your facility and application as required by Title 30, Texas Administrative Code (30 TAC), Chapter 39, Subchapter H. You may modify the template as necessary to accurately describe your facility as long as the summary includes the following information: (1) the function of the proposed plant or facility; (2) the expected output of the proposed plant or facility; (3) the expected pollutants that may be emitted or discharged by the proposed plant or facility; and (4) how you will control those pollutants, so that the proposed plant will not have an adverse impact on human health or the environment.

Fill in the highlighted areas below to describe your facility and application in plain language. Instructions and examples are provided below. Make any other edits necessary to improve readability or grammar and to comply with the rule requirements. After filling in the information for your facility delete these instructions.

If you are subject to the alternative language notice requirements in 30 TAC Section 39.426, you must provide a translated copy of the completed plain language summary in the appropriate alternative language as part of your application package. For your convenience, a Spanish template has been provided below.

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS DOMESTIC WASTEWATER/STORMWATER
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 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

City of Poth (CN600664882) operates Poth WWTP (RN101610053), a 0.22 gallon per day land application plant. The facility is located at 1 mile south of the intersection of Hwy 181 and FM 541 , in Poth, Wilson County, Texas 78147. This is for a renewal permit. This permit will not authorize a discharge of pollutants into water in the state.

Discharges from the facility are expected to contain CBOD5, E Coli. domestic is treated by three effluent storage ponds, slow sand filters, Imhoff tank, sludge drying beds, and a stabilization pond.

Texas Commission on Environmental Quality

Public Involvement Plan Form
for Permit and Registration Applications

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

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

Section 1. Preliminary Screening

    New Permit or Registration Application
    New Activity – modification, registration, amendment, facility, etc. (see instructions)

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

Section 2. Secondary Screening

    Requires public notice,

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

    Located within any of the following geographical locations:

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

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

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

Section 3. Application Information

Type of Application (check all that apply):

Air   Initial   Federal   Amendment   Standard Permit   Title V

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

Water Quality

  Texas Pollutant Discharge Elimination System (TPDES)

    Texas Land Application Permit (TLAP)

    State Only Concentrated Animal Feeding Operation (CAFO)

    Water Treatment Plant Residuals Disposal Permit

  Class B Biosolids Land Application Permit

  Domestic Septage Land Application Registration

Water Rights New Permit

  New Appropriation of Water

  New or existing reservoir

Amendment to an Existing Water Right

  Add a New Appropriation of Water

  Add a New or Existing Reservoir

  Major Amendment that could affect other water rights or the environment

Section 4. Plain Language Summary

Provide a brief description of planned activities.

Section 5. Community and Demographic Information

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

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

(City)

(County)

(Census Tract)
Please indicate which of these three is the level used for gathering the following information.

          City   County   Census Tract

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

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

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

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

(e) Languages commonly spoken in area by percentage

(f) Community and/or Stakeholder Groups

(g) Historic public interest or involvement

Section 6. Planned Public Outreach Activities

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

      Yes   No

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

      Yes   No

If Yes, please describe.

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

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

      Yes   No

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

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

      Publish in alternative language newspaper

      Posted on Commissioner's Integrated Database Website

      Mailed by TCEQ's Office of the Chief Clerk

      Other (specify)

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

      Yes   No

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

      Yes   No

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

      TCEQ Regional Office   TCEQ Central Office

      Public Place (specify)

Section 7. Voluntary Submittal

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

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

      Yes   No

What types of notice will be provided?

      Publish in alternative language newspaper

      Posted on Commissioner's Integrated Database Website

      Mailed by TCEQ's Office of the Chief Clerk

      Other (specify)

Attachment "A"
Site Map
City of Poth
TCEQ Permit No. WQ0010052001

WWTP BOUNDARY

EFFLUENT DISPOSAL SITE

7
6
5
4
11
3
2
1
8
9
10

N

GRAPHIC SCALE

1000   0   500

(IN FEET)

SCALE: 1" = 1000'

AFFECTED LANDOWNERS

CITY OF POTH WASTE WATER TREATMENT PLANT

CITY OF POTH

POTH, TEXAS

BODDEN JOHN G III & JANICE
PO BOX 471
POTH TX 78147-0474

BEASLEY JAMES E & TERESA F
TRUSTEES
PO BOX 370
POTH TX 78147-0474

RICHTER RICHARD D
WARD RICHTER
526 FENWICK DR
SAN ANTONIO TX 78239-2531

RICHTER RICHARD D
WARD RICHTER
526 FENWICK DR
SAN ANTONIO TX 78239-2531

PEREZ YOLANDA
PO BOX 1101
POTH TX 78147-0474

SALINAS JUANA H
PO BOX 1306
POTH TX 78147-0474

JAKOBS CATHERINE CONLEY
5893 FERDINAND DR
WEST CHESTER OH 45069

PENA DAVID
882 CR 201
FALLS CITY TX 78113

TRIPLEC J PROPERTIES LLC
2203 10TH ST
FLORESVILLE TX 78114

JONES GERTRUDE
155 CR 249 UNIT B
FALLS CITY TX 78113

WEST LESTER J
PO BOX 474
POTH TX 78147-0474

Name	Care of
BODDEN JOHN G III & JANICE	
BEASLEY JAMES E & TERESA F TRUSTEES	
RICHTER RICHARD D	WARD RICHTER
RICHTER RICHARD D	WARD RICHTER
PEREZ YOLANDA	
SALINAS JUANA H	
JAKOBS CATHERINE CONLEY	
PENA DAVID	
TRIPLEC J PROPERTIES LLC	
JONES GERTRUDE	
WEST LESTER J	

Address	City	State	Zip
PO BOX 471	POTH	TX	78147-0474
PO BOX 370	POTH	TX	78147-0474
526 FENWICK DR	SAN ANTONIO	TX	78239-2531
526 FENWICK DR	SAN ANTONIO	TX	78239-2531
PO BOX 1101	POTH	TX	78147-0474
PO BOX 1306	POTH	TX	78147-0474
5893 FERDINAND DR	WEST CHESTER	OH	45069
882 CR 201	FALLS CITY	TX	78113
2203 10TH ST	FLORESVILLE	TX	78114
155 CR 249 UNIT B	FALLS CITY	TX	78113
PO BOX 474	POTH	TX	78147-0474

EXIST IRRIGATION AREA AND PROP. POND 4
SITE LOOKING EAST FROM CENTER PIVOT NO.
1(LOCATED CLOSEST TO PONDS).

EXIST. IRRIGATION AREA AND POND 4 SITE
LOOKING WEST FROM BETWEEN EXIST. POND NOs.
1&2

ORIGINAL PHOTOS
CITY OF POTH
WILSON COUNTY, TEXAS

EXHIBIT IV
RE: D.A.R.; PG. 12; PAR. 2.A
BUFFER ZONE MAP
CITY OF POTH
WILSON COUNTY, TEXAS

EXIST INFLUENT WWL
EXIST METER FLUME
2-EXIST IMHOFF TANKS
2-EXIST DUNBAR BEDS

EXIST TRANSFER PUMP STATION

FENCED PL FOR CITY OWNED LAND

APPX. LIMITS 100. YR. FLOOD ZONE

EXIST EFFLUENT STORAGE POND NO. 1

EXIST EFFLUENT STORAGE POND NO. 3

EXIST EFFLUENT STORAGE POND NO. 2

FENCED PL FOR CITY OWNED LAND

EXIST IRRIGATION PUMP

PROPOSED EFFLUENT STORAGE POND NO. 4
TOB=487.00'

150 FOOT BUFFER ZONE FROM TOP OF BERM

EXIST CENTER PIVOT IRRIGATION SYSTEM NO. 1

PROPOSED TAILWATER CONTAINMENT BERM

UNDEVELOPED PASTURE LAND

Approximate Scale in Feet

300'   150'   0   300'

SOUTHWEST ENGINEERS, INC.
ENGINEERS - PLANNERS
307 St. Lawrence   Gonzales, Texas 78629-3935

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 42)

A. Existing/Interim I Phase

Design Flow (MGD): <u>0.22</u>

2-Hr Peak Flow (MGD): <u>0.88</u>

Estimated construction start date: <u>Existing</u>

Estimated waste disposal start date: <u>Existing</u>

B. Interim II Phase

Design Flow (MGD): Click to enter text.

2-Hr Peak Flow (MGD): Click to enter text.

Estimated construction start date: Click to enter text.

Estimated waste disposal start date: Click to enter text.

C. Final Phase

Design Flow (MGD): Click to enter text.

2-Hr Peak Flow (MGD): Click to enter text.

Estimated construction start date: Click to enter text.

Estimated waste disposal start date: Click to enter text.

D. Current Operating Phase

Provide the startup date of the facility: Click to enter text.

Section 2.   Treatment Process (Instructions Page 42)

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**.

> The influent flows in by gravity to a bar screen for large solids. Then to two Imhoff digestion tanks. Then effluent flows to slow sand filters for removal of additional solids and soluble organics. Then to a lift station which pumps the effluent to a series of four lagoons for additional treatment and storage for land application to Bermuda fields. The plant has two center-pivot irrigation distributors and one reel-type distributor for disposal on 105.6 acres of the plant site. A third center-pivot distributor is available for use of the effluent on an adjoining tract. There is no discharge of effluent from the plant

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)
Imhoff	2	10'x12'x24', 8'x10'x24'
Sand Drying beds	2	90'x120'x5' 120'x180'x5'
Lagoon 1	1	300'x300'x20'
Lagoon 2	1	530'x330'x20'
Lagoon 3	1	570'x250'x20'
Lagoon 4	1	700'x300'x50'

C. Process Flow Diagram

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

Attachment: Flow Diagram

Section 3.   Site Information and Drawing (Instructions Page 43)

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

- Latitude: N/A
- Longitude: N/A

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

- Latitude: 29.0547
- Longitude: -98.0821

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: <u>Site Drawing</u>

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

> City of Poth WWTP serves the community of the City of Poth

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
City of Poth	**City of Poth**	**Publicly Owned**	2,000
		Choose an item.	
		Choose an item.	
		Choose an item.	

Section 4.   Unbuilt Phases (Instructions Page 44)

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.**

> Click to enter text.

Section 5.   Closure Plans (Instructions Page 44)

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 44)

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: Click to enter text.

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**.

> Click to enter text.

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.

> Click to enter text.

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.*

> Click to enter text.

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.

> Click to enter text.

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.

> Click to enter text.

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.

> Click to enter text.

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 Click to enter text. 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:

> Click to enter text.

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.

> Click to enter text.

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.

> Click to enter text.

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.

> Click to enter text.

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 BOD_5 concentration of the sludge, and the design BOD_5 concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

> Click to enter text.

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 BOD_5 concentration of the septic waste, and the design BOD_5 concentration of the influent from the collection system. Also note if this information has or has not changed since the last permit action.

> Click to enter text.

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.

    > Click to enter text.

Section 7.   Pollutant Analysis of Treated Effluent (Instructions Page 49)

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	See Results				
Total Suspended Solids, mg/l					
Ammonia Nitrogen, mg/l					
Nitrate Nitrogen, mg/l					
Total Kjeldahl Nitrogen, mg/l					
Sulfate, mg/l					
Chloride, mg/l					
Total Phosphorus, mg/l					
pH, standard units					
Dissolved Oxygen*, mg/l					
Chlorine Residual, mg/l					
E.coli (CFU/100ml) freshwater					
Entercocci (CFU/100ml) saltwater					
Total Dissolved Solids, mg/l					
Electrical Conductivity, µmohs/cm, †					
Oil & Grease, mg/l					
Alkalinity (CaCO$_3$)*, mg/l					

*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					
Aluminum, mg/l					
Alkalinity (CaCO3), mg/l					

Section 8.   Facility Operator (Instructions Page 49)

Facility Operator Name: Kristian Freeze

Facility Operator's License Classification and Level: Class C Wastewater

Facility Operator's License Number: WQ0060693

Section 9.   Sludge and Biosolids Management and Disposal (Instructions Page 50)

A. WWTP's Sewage Sludge or Biosolids Management Facility Type

Check all that apply. See instructions for guidance

- ☐   Design flow>= 1 MGD
- ☒   Serves >= 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 Sewage Sludge or 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. Sewage Sludge or Biosolids Management

Provide information on the *intended* sewage sludge or biosolids management practice. Do not enter every management practice that you want authorized in the permit, as the

permit will authorize all sewage sludge or 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
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.	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: BFI/Tessman Road Landfill

TCEQ permit or registration number: 1410C

County where disposal site is located: Bexar

E. **Transportation method**

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

Name of the hauler: City of Poth

Hauler registration number: 23986

Sludge is transported as a:

Liquid ☐   semi-liquid ☐   semi-solid ☐   solid ☒

Section 10. Permit Authorization for Sewage Sludge Disposal (Instructions Page 52)

A. **Beneficial use authorization**

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

☐   Yes   ☒   No

If yes, are you requesting to continue this authorization to land apply biosolids 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	☐ Yes	☒ No
Marketing and Distribution of Biosolids	☐ Yes	☒ No
Sludge Surface Disposal or Sludge Monofill	☐ Yes	☒ No
Temporary storage in sludge lagoons	☐ Yes	☒ 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: Click to enter text.

- USDA Natural Resources Conservation Service Soil Map:

  Attachment: Click to enter text.

- Federal Emergency Management Map:

  Attachment: Click to enter text.

- Site map:

  Attachment: Click to enter text.

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: Click to enter text.

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:

Click to enter text.

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: Click to enter text.

Total Kjeldahl Nitrogen, mg/kg: Click to enter text.

Total Nitrogen (=nitrate nitrogen + TKN), mg/kg: Click to enter text.

Phosphorus, mg/kg: Click to enter text.

Potassium, mg/kg: Click to enter text.

pH, standard units: Click to enter text.

Ammonia Nitrogen mg/kg: Click to enter text.

Arsenic: Click to enter text.

Cadmium: Click to enter text.

Chromium: Click to enter text.

Copper: Click to enter text.

Lead: Click to enter text.

Mercury: Click to enter text.

Molybdenum: Click to enter text.

Nickel: Click to enter text.

Selenium: Click to enter text.

Zinc: Click to enter text.

Total PCBs: Click to enter text.

Provide the following information:

Volume and frequency of sludge to the lagoon(s): Click to enter text.

Total dry tons stored in the lagoons(s) per 365-day period: Click to enter text.

Total dry tons stored in the lagoons(s) over the life of the unit: Click to enter text.

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.

> Click to enter text.

D. Site development plan

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

> Click to enter text.

Attach the following documents to the application.

- Plan view and cross-section of the sludge lagoon(s)

  Attachment: Click to enter text.

- Copy of the closure plan

  Attachment: Click to enter text.

- Copy of deed recordation for the site

  Attachment: Click to enter text.

- Size of the sludge lagoon(s) in surface acres and capacity in cubic feet and gallons

  Attachment: Click to enter text.

- Description of the method of controlling infiltration of groundwater and surface water from entering the site

  Attachment: Click to enter text.

- Procedures to prevent the occurrence of nuisance conditions

  Attachment: Click to enter text.

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: Click to enter text.

Section 12. Authorizations/Compliance/Enforcement (Instructions Page 54)

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:

Click to enter text.

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:

Click to enter text.

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 55)

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: <u>Jerry Shepherd</u>

Title: <u>Director of Public Infrastructure</u>

Signature: _____

Date: _____

DOMESTIC WASTEWATER PERMIT APPLICATION TECHNICAL REPORT 1.1

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

Section 1.   Justification for Permit (Instructions Page 56)

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.

> This is a current system which serves the City of Poth. The renewal was not completed in time and is going through the new permit process.

B. Regionalization of facilities

For additional guidance, please review [TCEQ's Regionalization Policy for Wastewater Treatment](#)[1].

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 58)

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): 0.22

Average Influent Organic Strength or BOD$_5$ Concentration in mg/l: 91.4

Average Influent Loading (lbs/day = total average flow X average BOD$_5$ conc. X 8.34): 762

Provide the source of the average organic strength or BOD$_5$ concentration.

Lab results

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 58)

A. Existing/Interim I Phase Design Effluent Quality

Biochemical Oxygen Demand (5-day), mg/l: 91.4

Total Suspended Solids, mg/l: 112

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: <u>0.9</u> mg/l after <u>10</u> 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 58)

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

Attachment: <u>no proposed phases</u>

Section 5. Facility Site (Instructions Page 59)

A. 100-year floodplain

Will the proposed facilities be located <u>above</u> 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.

FEMA Map

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: N/A

Section 6. Permit Authorization for Sewage Sludge Disposal (Instructions Page 59)

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 60)

Attach a solids management plan to the application.

Attachment: Solid management plan

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 63)

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 it 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 63)

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 63)

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 63)

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 65)

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.

☐ Oil field activities   ☐ Urban runoff

☐ Upstream discharges   ☐ Agricultural runoff

☐ Septic tanks   ☐ Other(s), specify: Click to enter text.

B. Waterbody uses

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

☐ Livestock watering   ☐ Contact recreation

☐ Irrigation withdrawal   ☐ Non-contact recreation

☐ Fishing   ☐ Navigation

☐ Domestic water supply   ☐ Industrial water supply

☐ Park activities   ☐ 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.

Section 1.   General Information (Instructions Page 65)

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 65)

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 Select riffle, run, glide, or pool. See Instructions, Definitions section.	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.
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.			

Section 3.   Summarize Measurements (Instructions Page 65)

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.

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 67)

Identify the method of land disposal:

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

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 67)

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
Bermuda Grass, Effluent Disposal	105.6	220,000	N

Section 3.   Storage and Evaporation Lagoons/Ponds (Instructions Page 67)

Table 3.0(2) – Storage and Evaporation Ponds

Pond Number	Surface Area (acres)	Storage Volume (acre-feet)	Dimensions	Liner Type
1,2,3,4	14.1	115.1	See 3b	Clay Polyethylen

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 67)

Is the land application site <u>within</u> 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:

FEMA Map

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

The site is protected by tailwater catchment berms and terraces. Based on historic observations we do not expect significant tailwater to collect but if it does, it will be pumped into ponds.

Section 5.   Annual Cropping Plan (Instructions Page 67)

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 68)

Attach a USGS map with the following information shown and labeled. If not applicable, provide a detailed explanation indicating why. **Attachment**: Well Map

- 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 68)

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: N/A

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 69)

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: Soil Map

> 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
See Results				

Section 9.   Effluent Monitoring Data (Instructions Page 70)

Is the facility in operation?

    ☒   Yes ☐   No

If no, this section is not applicable and the worksheet is complete.

If yes, provide the effluent monitoring data for the parameters regulated in the existing permit. If a parameter is not regulated in the existing permit, enter N/A.

Table 3.0(5) – Effluent Monitoring Data

Date	30 Day Avg Flow MGD	BOD5 mg/l	TSS mg/l	pH	Chlorine Residual mg/l	Acres irrigated

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

N/A

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.

Section 1.   Surface Disposal (Instructions Page 71)

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

A. Irrigation

Area under irrigation, in acres: <u>105.6</u>

Design application frequency:

hours/day <u>24</u> **And** days/week <u>7</u>

Land grade (slope):

average percent (%): <u>0.11%</u>

maximum percent (%): <u>0.12%</u>

Design application rate in acre-feet/acre/year: <u>2</u>

Design total nitrogen loading rate, in lbs N/acre/year: <u>4</u>

Soil conductivity (mmhos/cm): <u>1.18</u>

Method of application: <u>spray irrigation</u>

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

Attachment: <u>Water balance</u>

B. Evaporation ponds

Daily average effluent flow into ponds, in gallons per day: <u>220,000</u>

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

Attachment: <u>Water balance</u>

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: <u>Water balance</u>

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 BOD_5 loading rate, in lbs BOD_5/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 72)

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.

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 73)

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 73)

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.

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 74)

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 74)

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 74)

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 75)

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 75)

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 75)

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 76)

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

Grab ☐   Composite ☐

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

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
Aldrin				0.01
Aluminum				2.5
Anthracene				10
Antimony				5
Arsenic				0.5
Barium				3
Benzene				10
Benzidine				50
Benzo(a)anthracene				5
Benzo(a)pyrene				5
Bis(2-chloroethyl)ether				10
Bis(2-ethylhexyl)phthalate				10
Bromodichloromethane				10
Bromoform				10
Cadmium				1
Carbon Tetrachloride				2
Carbaryl				5
Chlordane*				0.2
Chlorobenzene				10
Chlorodibromomethane				10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Chloroform				10
Chlorpyrifos				0.05
Chromium (Total)				3
Chromium (Tri) **(*1)**				N/A
Chromium (Hex)				3
Copper				2
Chrysene				5
p-Chloro-m-Cresol				10
4,6-Dinitro-o-Cresol				50
p-Cresol				10
Cyanide **(*2)**				10
4,4'- DDD				0.1
4,4'- DDE				0.1
4,4'- DDT				0.02
2,4-D				0.7
Demeton (O and S)				0.20
Diazinon				0.5/0.1
1,2-Dibromoethane				10
m-Dichlorobenzene				10
o-Dichlorobenzene				10
p-Dichlorobenzene				10
3,3'-Dichlorobenzidine				5
1,2-Dichloroethane				10
1,1-Dichloroethylene				10
Dichloromethane				20
1,2-Dichloropropane				10
1,3-Dichloropropene				10
Dicofol				1
Dieldrin				0.02
2,4-Dimethylphenol				10
Di-n-Butyl Phthalate				10
Diuron				0.09
Endosulfan I (alpha)				0.01

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Endosulfan II (beta)				0.02
Endosulfan Sulfate				0.1
Endrin				0.02
Epichlorohydrin				---
Ethylbenzene				10
Ethylene Glycol				---
Fluoride				500
Guthion				0.1
Heptachlor				0.01
Heptachlor Epoxide				0.01
Hexachlorobenzene				5
Hexachlorobutadiene				10
Hexachlorocyclohexane (alpha)				0.05
Hexachlorocyclohexane (beta)				0.05
gamma-Hexachlorocyclohexane (Lindane)				0.05
Hexachlorocyclopentadiene				10
Hexachloroethane				20
Hexachlorophene				10
4,4'-Isopropylidenediphenol				1
Lead				0.5
Malathion				0.1
Mercury				0.005
Methoxychlor				2
Methyl Ethyl Ketone				50
Methyl tert-butyl ether				---
Mirex				0.02
Nickel				2
Nitrate-Nitrogen				100
Nitrobenzene				10
N-Nitrosodiethylamine				20
N-Nitroso-di-n-Butylamine				20
Nonylphenol				333

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Parathion (ethyl)				0.1
Pentachlorobenzene				20
Pentachlorophenol				5
Phenanthrene				10
Polychlorinated Biphenyls (PCB's) **(*3)**				0.2
Pyridine				20
Selenium				5
Silver				0.5
1,2,4,5-Tetrachlorobenzene				20
1,1,2,2-Tetrachloroethane				10
Tetrachloroethylene				10
Thallium				0.5
Toluene				10
Toxaphene				0.3
2,4,5-TP (Silvex)				0.3
Tributyltin (see instructions for explanation)				0.01
1,1,1-Trichloroethane				10
1,1,2-Trichloroethane				10
Trichloroethylene				10
2,4,5-Trichlorophenol				50
TTHM (Total Trihalomethanes)				10
Vinyl Chloride				10
Zinc				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
Arsenic				0.5
Beryllium				0.5
Cadmium				1
Chromium (Total)				3
Chromium (Hex)				3
Chromium (Tri) **(*1)**				N/A
Copper				2
Lead				0.5
Mercury				0.005
Nickel				2
Selenium				5
Silver				0.5
Thallium				0.5
Zinc				5
Cyanide **(*2)**				10
Phenols, Total				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

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Acrolein				50
Acrylonitrile				50
Benzene				10
Bromoform				10
Carbon Tetrachloride				2
Chlorobenzene				10
Chlorodibromomethane				10
Chloroethane				50
2-Chloroethylvinyl Ether				10
Chloroform				10
Dichlorobromomethane [Bromodichloromethane]				10
1,1-Dichloroethane				10
1,2-Dichloroethane				10
1,1-Dichloroethylene				10
1,2-Dichloropropane				10
1,3-Dichloropropylene [1,3-Dichloropropene]				10
1,2-Trans-Dichloroethylene				10
Ethylbenzene				10
Methyl Bromide				50
Methyl Chloride				50
Methylene Chloride				20
1,1,2,2-Tetrachloroethane				10
Tetrachloroethylene				10
Toluene				10
1,1,1-Trichloroethane				10
1,1,2-Trichloroethane				10
Trichloroethylene				10
Vinyl Chloride				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
2,4-Dichlorophenol				10
2,4-Dimethylphenol				10
4,6-Dinitro-o-Cresol				50
2,4-Dinitrophenol				50
2-Nitrophenol				20
4-Nitrophenol				50
P-Chloro-m-Cresol				10
Pentalchlorophenol				5
Phenol				10
2,4,6-Trichlorophenol				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
Acenaphthylene				10
Anthracene				10
Benzidine				50
Benzo(a)Anthracene				5
Benzo(a)Pyrene				5
3,4-Benzofluoranthene				10
Benzo(ghi)Perylene				20
Benzo(k)Fluoranthene				5
Bis(2-Chloroethoxy)Methane				10
Bis(2-Chloroethyl)Ether				10
Bis(2-Chloroisopropyl)Ether				10
Bis(2-Ethylhexyl)Phthalate				10
4-Bromophenyl Phenyl Ether				10
Butyl benzyl Phthalate				10
2-Chloronaphthalene				10
4-Chlorophenyl phenyl ether				10
Chrysene				5
Dibenzo(a,h)Anthracene				5
1,2-(o)Dichlorobenzene				10
1,3-(m)Dichlorobenzene				10
1,4-(p)Dichlorobenzene				10
3,3-Dichlorobenzidine				5
Diethyl Phthalate				10
Dimethyl Phthalate				10
Di-n-Butyl Phthalate				10
2,4-Dinitrotoluene				10
2,6-Dinitrotoluene				10
Di-n-Octyl Phthalate				10
1,2-Diphenylhydrazine (as Azo-benzene)				20
Fluoranthene				10

Pollutant	AVG Effluent Conc. (µg/l)	MAX Effluent Conc. (µg/l)	Number of Samples	MAL (µg/l)
Fluorene				10
Hexachlorobenzene				5
Hexachlorobutadiene				10
Hexachlorocyclo-pentadiene				10
Hexachloroethane				20
Indeno(1,2,3-cd)pyrene				5
Isophorone				10
Naphthalene				10
Nitrobenzene				10
N-Nitrosodimethylamine				50
N-Nitrosodi-n-Propylamine				20
N-Nitrosodiphenylamine				20
Phenanthrene				10
Pyrene				10
1,2,4-Trichlorobenzene				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
alpha-BHC (Hexachlorocyclohexane)				0.05
beta-BHC (Hexachlorocyclohexane)				0.05
gamma-BHC (Hexachlorocyclohexane)				0.05
delta-BHC (Hexachlorocyclohexane)				0.05
Chlordane				0.2
4,4-DDT				0.02
4,4-DDE				0.1
4,4,-DDD				0.1
Dieldrin				0.02
Endosulfan I (alpha)				0.01
Endosulfan II (beta)				0.02
Endosulfan Sulfate				0.1
Endrin				0.02
Endrin Aldehyde				0.1
Heptachlor				0.01
Heptachlor Epoxide				0.01
PCB-1242				0.2
PCB-1254				0.2
PCB-1221				0.2
PCB-1232				0.2
PCB-1248				0.2
PCB-1260				0.2
PCB-1016				0.2
Toxaphene				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 Page 86 of the instructions for further details.

This worksheet is not required minor amendments without renewal.

Section 1.   Required Tests

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: Click to enter text.

48-hour Acute: Click to enter text.

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.

Section 3.   Summary of WET Tests

If the required biomonitoring test information has not been previously submitted via both the Discharge Monitoring Reports (DMRs) and the Table 1 (as found in the permit), provide a summary of the testing results for all valid and invalid tests performed over the past four and one-half years. Make additional copies of this table as needed.

Table 5.0(1) Summary of WET Tests

Test Date	Test Species	NOEC Survival	NOEC Sub-lethal

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 87)

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: <u>998</u>

Average Daily Flows, in MGD: <u>0.22</u>

Significant IUs – non-categorical:

Number of IUs: Click to enter text.

Average Daily Flows, in MGD: Click to enter text.

Other IUs:

Number of IUs: Click to enter text.

Average Daily Flows, in MGD: Click to enter text.

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.

> Click to enter text.

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 87)

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

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 88)

A. General information

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 *i*nstructions?

☐ 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

Section 1.   General Information (Instructions Page 90)

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: <u>Click to enter text.</u>

System(s) Construction: <u>Click to enter text.</u>

Section 4. Site Hydrogeological and Injection Zone Data

1. Name of Contaminated Aquifer: <u>Click to enter text.</u>

2. Receiving Formation Name of Injection Zone: <u>Click to enter text.</u>

3. Well/Trench Total Depth: <u>Click to enter text.</u>

4. Surface Elevation: <u>Click to enter text.</u>

5. Depth to Ground Water: <u>Click to enter text.</u>

6. Injection Zone Depth: <u>Click to enter text.</u>

7. Injection Zone vertically isolated geologically? ☐ Yes ☐ No

    Impervious Strata between Injection Zone and nearest Underground Source of Drinking Water:

    Name: <u>Click to enter text.</u>

    Thickness: <u>Click to enter text.</u>

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: <u>Click to enter text.</u>

13. Maximum injection Rate/Volume/Pressure: <u>Click to enter text.</u>

14. Water wells within 1/4 mile radius (attach map as Attachment I): <u>Click to enter text.</u>

15. Injection wells within 1/4 mile radius (attach map as Attachment J): <u>Click to enter text.</u>

16. Monitor wells within 1/4 mile radius (attach drillers logs and map as Attachment K): <u>Click to enter text.</u>

17. Sampling frequency: <u>Click to enter text.</u>

18. Known hazardous components in injection fluid: <u>Click to enter text.</u>

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 WTTP 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)

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: Jerry Shepherd

Title: Director of Public Infrastructure

Signature: _____

Date: __18 March 2025__

CITY OF POTH WWTP DESIGN FEATURES

- The area occupied by the WWTP is a small-scale community is serviced by an area electric power system which ensures reliable electric power.
- Back-up generator with capacity to power entire WWTP.
- Generator will have an Automatic Transfer Switch (ATS) for automatic transfer to generator in the event of power loss from electric utility.
- Tanks are over sized to allow for surges in flow.
- Control systems and pumps will be in an enclosed building for protection from weather induced problems.
- Alarm systems monitored by the use of SCADA

SOUTHWEST ENGINEERS, INC.

ENGINEERS · PLANNERS

307 St. Lawrence   Gonzales, Texas 78629-3935

EXIST. GRAVITY INFLUENT

EXIST. FLOW METER

EXIST. BAR SCREEN

EXIST. IMHOFF TANKS

EXIST. DUNBAR BEDS

EXIST. PUMP STATION

EXIST. POND #1
DEPTH VARIES-
468.67 TO 470.67

W.S. 474.47

EXIST. POND #2
DEPTH VARIES-
466.39 TO 469.99

W.S. 473.59

EXIST. POND #3
DEPTH VARIES-
466.26 TO 468.16

W.S. 474.66

POND #4
EFFLUENT STORAGE
(UNDER CONSTRUCTION
IN SEPT. 2004)

W.S. 484.00

EXIST. IRRIGATION PUMP

EXIST. IRRIGATION SITE

EXHIBIT B
RE: D.T.R.; PG. 1 OF 31; PAR. 3.B
FLOW DIAGRAM
CITY OF POTH
WILSON COUNTY, TEXAS
SEPTEMBER 2004

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
David Cobos **Nueces River Authority** **539 US HWY 83 S.** **Uvalde, TX 78801**	**Project Name: Annual** §**Sample ID: 0-6"** **Matrix: Soil** **Date/Time Taken: 4/25/2024 0800**	**PCS Sample #: 759261 Page 1 of 1** **Date/Time Received: 4/26/2024 09:00** **Report Date: 5/10/2024** Approved by: _____ Chuck Wallgren, President

Test Description	Flag	Result	Units	RL	Analysis Date/Time	Method	Analyst
pH		9.1	S.U.	N/A	05/01/2024 12:40	SW846 9045	PML
Conductivity, Specific		1,295	μmhos/cm at 25° C	N/A	05/01/2024 14:10	SM 2510B	PML
Nitrate-N		25.3	mg/kg	0.1	05/06/2024 16:10	EPA 352.1	EMV
Kjeldahl-N, Total	!	690	mg/kg	3	05/09/2024 10:00	SM 4500-N B/C	PML
Phosphorous/ICP (Mehlich III)		32.0	mg/kg	5.56	05/01/2024 09:23	Mehlich 3/EPA 200.7	DJL
Potassium/ICP (Mehlich III)		180	mg/kg	5.56	05/01/2024 09:23	Mehlich 3/EPA 200.7	DJL
Total Solids		87.9	%	0.10	04/26/2024 15:05	SM 2540 G	EMV

Quality Assurance Summary

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit	Blank
pH	N/A	N/A	N/A			N/A			
Conductivity, Specific	N/A	N/A	N/A			N/A			
Nitrate-N	3	10	70	100	103	130	99	85 - 115	
Kjeldahl-N, Total	2	13	83	99	97	114	106	85 - 115	<3
Phosphorous/ICP (Mehlich III)	<1	20	75	*N/C	*N/C	125	100	85 - 115	
Potassium/ICP (Mehlich III)	1	20	70	*N/C	*N/C	130	90	85 - 115	
Total Solids	4	12	N/A			N/A			

Quality Statement: All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are available on request.

*Approved for release per QA Plan, Exception to Limits - QAM Section 13-4
! *Parameter not NELAP certifiable*
§ *Reported on a Dry Weight Basis*

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits
*N/C = Not Calculated, Sample Concentration Greater than 5 times the Spike Level

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chuck@pcslab.net

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Main: 210-340-0343
Fax: 210-658-7903

POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
David Cobos **Nueces River Authority** **539 US HWY 83 S.** Uvalde, TX 78801	**Project Name: Annual** §**Sample ID: 6-18"** **Matrix: Soil** **Date/Time Taken: 4/25/2024 0815**	**PCS Sample #: 759262 Page 1 of 1** **Date/Time Received: 4/26/2024 09:00** **Report Date: 5/10/2024** Approved by: _Chuck Wallgren, President_

Test Description	Flag	Result	Units	RL	Analysis Date/Time	Method	Analyst
pH		9.0	S.U.	N/A	05/01/2024 12:40	SW846 9045	PML
Conductivity, Specific		1,104	µmhos/cm at 25° C	N/A	05/01/2024 14:10	SM 2510B	PML
Nitrate-N		7.6	mg/kg	0.1	05/06/2024 16:10	EPA 352.1	EMV
Kjeldahl-N, Total	!	726	mg/kg	3	05/09/2024 10:00	SM 4500-N B/C	PML
Phosphorous/ICP (Mehlich III)		24.0	mg/kg	5.33	05/01/2024 09:23	Mehlich 3/EPA 200.7	DJL
Potassium/ICP (Mehlich III)		150	mg/kg	5.33	05/01/2024 09:23	Mehlich 3/EPA 200.7	DJL
Total Solids		93.6	%	0.10	04/26/2024 15:05	SM 2540 G	EMV

Quality Assurance Summary

Test Description	Precision	Limit	LCL	MS	MSD	UCL	LCS	LCS Limit	Blank
pH	N/A	N/A	N/A			N/A			
Conductivity, Specific	N/A	N/A	N/A			N/A			
Nitrate-N	3	10	70	100	103	130	99	85 - 115	
Kjeldahl-N, Total	2	13	83	99	97	114	106	85 - 115	<3
Phosphorous/ICP (Mehlich III)	<1	20	75	*N/C	*N/C	125	100	85 - 115	
Potassium/ICP (Mehlich III)	1	20	70	*N/C	*N/C	130	90	85 - 115	
Total Solids	4	12	N/A			N/A			

Quality Statement: *All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are available on request.*

*Approved for release per QA Plan, Exception to Limits - QAM Section 13-4
! *Parameter not NELAP certifiable*
§ *Reported on a Dry Weight Basis*

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits
N/C = Not Calculated, Sample Concentration Greater than 5 times the Spike Level

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POLLUTION CONTROL SERVICES

Report of Sample Analysis

Client Information	Sample Information	Laboratory Information
David Cobos **Nueces River Authority** **539 US HWY 83 S.** **Uvalde, TX 78801**	**Project Name: Annual** §**Sample ID: 18-30"** **Matrix: Soil** **Date/Time Taken: 4/25/2024 0930**	**PCS Sample #: 759263 Page 1 of 1** **Date/Time Received: 4/26/2024 09:00** **Report Date: 5/10/2024** Approved by: _____ Chuck Wallgren, President

Test Description	Flag	Result	Units	RL	Analysis Date/Time	Method	Analyst
pH		8.5	S.U.	N/A	05/01/2024 12:40	SW846 9045	PML
Conductivity, Specific		1,148	µmhos/cm at 25° C	N/A	05/01/2024 14:10	SM 2510B	PML
Nitrate-N		15.2	mg/kg	0.1	05/06/2024 16:10	EPA 352.1	EMV
Kjeldahl-N, Total	!	929	mg/kg	3	05/09/2024 10:00	SM 4500-N B/C	PML
Phosphorous/ICP (Mehlich III)		24.0	mg/kg	5.37	05/01/2024 09:23	Mehlich 3/EPA 200.7	DJL
Potassium/ICP (Mehlich III)		160	mg/kg	5.37	05/01/2024 09:23	Mehlich 3/EPA 200.7	DJL
Total Solids		92.8	%	0.10	04/26/2024 15:05	SM 2540 G	EMV

Test Description	Precision	Quality Assurance Summary Limit	LCL	MS	MSD	UCL	LCS	LCS Limit	Blank
pH	N/A	N/A	N/A			N/A			
Conductivity, Specific	N/A	N/A	N/A			N/A			
Nitrate-N	3	10	70	100	103	130	99	85 - 115	
Kjeldahl-N, Total	2	13	83	99	97	114	106	85 - 115	<3
Phosphorous/ICP (Mehlich III)	<1	20	75	*N/C	*N/C	125	100	85 - 115	
Potassium/ICP (Mehlich III)	1	20	70	*N/C	*N/C	130	90	85 - 115	
Total Solids	4	12	N/A			N/A			

Quality Statement: *All supporting quality data adhered to data quality objectives and test results meet the requirements of NELAC unless otherwise noted as flagged exceptions or in a case narrative attachment. Reports with full quality data deliverables are available on request.*

*Approved for release per QA Plan, Exception to Limits - QAM Section 13-4
! Parameter not NELAP certifiable
§ Reported on a Dry Weight Basis

These analytical results relate only to the sample tested.
All data is reported on an 'As Is' basis unless designated as 'Dry Wt'.
RL = Reporting Limits
*N/C = Not Calculated, Sample Concentration Greater than 5 times the Spike Level

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POLLUTION CONTROL SERVICES

Chain of Custody Number

759261

Stamp 1st sample and COC as same number

MULTIPLE SAMPLE ANALYSIS REQUEST AND CHAIN OF CUSTODY FORM

CUSTOMER INFORMATION
Name: CITY OF POTH

REPORT INFORMATION
Attention: | Phone: | Fax:

SAMPLE INFORMATION

Project Information:

Report "Soils" ☐ As Is ☐ Dry Wt.

Collected By: City of Poth

Client / Field Sample ID	Collected Date	Collected Time	Field Chlorine Residual mg/L	Composite or Grab	Matrix (DW-Drinking Water; NPW-Non-potable water; WW-Wastewater; LW-Liquid Waste)	Type	Number	Preservative	ANNUAL SOIL	PCS Sample Number
6" Sample	Start: 4/25/24 End:	Start: 0800 End:		■C ☐G	☐DW ☐NPW ☐WW ■Soil ☐Sludge ☐LW ☐Other	☐P ☐G ☑O	1	☐H₂SO₄ ☐HNO₃ ☐H₃PO₄ ☐NaOH ☐ICE ☐___	★	759261 ☐S ☐B ☐N ☐HEM Other:
12" Sample	Start: 4/24/24 End:	Start: 0815 End:		■C ☐G	☐DW ☐NPW ☐WW ■Soil ☐Sludge ☐LW ☐Other	☐P ☐G ☑O	1	☐H₂SO₄ ☐HNO₃ ☐H₃PO₄ ☐NaOH ☐ICE ☐___	★	759262 ☐S ☐B ☐N ☐HEM Other:
18" Sample	Start: 4/24/24 End:	Start: 0930 End:		■C ☐G	☐DW ☐NPW ☐WW ■Soil ☐Sludge ☐LW ☐Other	☐P ☐G ☑O	1	☐H₂SO₄ ☐HNO₃ ☐H₃PO₄ ☐NaOH ☐ICE ☐___	★	759263 ☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐DW ☐NPW ☐WW ☐Soil ☐Sludge ☐LW ☐Other	☐P ☐G ☐O		☐H₂SO₄ ☐HNO₃ ☐H₃PO₄ ☐NaOH ☐ICE ☐___		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐DW ☐NPW ☐WW ☐Soil ☐Sludge ☐LW ☐Other	☐P ☐G ☐O		☐H₂SO₄ ☐HNO₃ ☐H₃PO₄ ☐NaOH ☐ICE ☐___		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐DW ☐NPW ☐WW ☐Soil ☐Sludge ☐LW ☐Other	☐P ☐G ☐O		☐H₂SO₄ ☐HNO₃ ☐H₃PO₄ ☐NaOH ☐ICE ☐___		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐DW ☐NPW ☐WW ☐Soil ☐Sludge ☐LW ☐Other	☐P ☐G ☐O		☐H₂SO₄ ☐HNO₃ ☐H₃PO₄ ☐NaOH ☐ICE ☐___		☐S ☐B ☐N ☐HEM Other:
	Start: End:	Start: End:		☐C ☐G	☐DW ☐NPW ☐WW ☐Soil ☐Sludge ☐LW ☐Other	☐P ☐G ☐O		☐H₂SO₄ ☐HNO₃ ☐H₃PO₄ ☐NaOH ☐ICE ☐___		☐S ☐B ☐N ☐HEM Other:

Required Turnaround: ☒ Routine (6-10 days) | **EXPEDITE:** (See Surcharge Schedule) | ☐ < 8 Hrs. ☐ < 16 Hrs. ☐ < 24 Hrs. ☐ 5 days ☐ Other: _____ | **Rush Charges Authorized by:**

Sample Archive/Disposal: ☒ Laboratory Standard ☐ Hold for client pick up | **Container Type:** P = Plastic, G = Glass, O = Other Ziploc Bag | Carrier ID: _____

| Relinquished By: [signature] | Date: 4/25/24 | Time: 1515 | Received By: | | Date: | Time: |
| Relinquished By: | Date: | Time: | Received By: Jason Aguillen | Date: 4-26-24 | Time: 0900 |

Rev. Multiple Sample COC_20180628

1532 Universal City Blvd., Ste. 100, Universal City, Texas 78148
P (210) 340-0343 or (800) 880-4616 - F (210) 658-7903

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Robstown, TX 78380

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78380	04/26/24	$ 59.70

Date Accepted (MM/DD/YY)	Scheduled Delivery Time	Insurance Fee	COD Fee
04/25/24	☒ 6:00 PM	$	$

Time Accepted		Return Receipt Fee	Live Animal Transportation Fee
332 ☐ AM ☒ PM		$	$

Special Handling/Fragile	Sunday/Holiday Premium Fee	Total Postage & Fees
$	$	59.70

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Delivery Attempt (MM/DD/YY)	Time	Employee Signature
	☐ AM ☐ PM	

LABEL 11-B, MAY 2021   PSN 7690-02-000-9996

Pollution Control Services
Sample Log-In Checklist

759263

759261

759261

PCS Sample No(s) 759261 **COC No.**

Client/Company Name: Poth **Checklist Completed by:** J AA

Sample Delivery to Lab Via:
Client Drop Off _____ Commercial Carrier: Bus _____ UPS _____ Lone Star _____ FedEx _____ USPS ✓
PCS Field Services: Collection/Pick Up _____ Other:_____

Sample Kit/Coolers
Sample Kit/Cooler? Yes ___ No ✓ _____ Sample Kit/Cooler: Intact? Yes ✓ No___
    Custody Seals on Sample Kit/Cooler: Not Present ✓ If Present, Intact ___ Broken ___
Sample Containers Intact; Unbroken and Not Leaking? Yes ✓ No ___
    Custody Seals on Sample Bottles: Not Present ✓ If Present, Intact ___ Broken ___
COC Present with Shipment or Delivery or Completed at Drop Off? Yes ✓ No ___
Has COC sample date/time and other pertinent information been provided by client/sampler? Yes: ✓ No: ___
Has COC been properly Signed when Received/Relinquished? Yes ✓ No ___
Does COC agree with Sample Bottle Information, Bottle Types, Preservation, etc.? Yes ✓ No ___
All Samples Received before Hold Time Expiration? Yes ✓ No ___
Sufficient Sample Volumes for Analysis Requested? Yes ✓ No ___
Zero Headspace in VOA Vial? Yes ___ No ___

Sample Preservation:
* Cooling: Not Required ✓ or Required _____
If cooling required, record temperature of submitted samples Observed/Corrected **23** / **20** °C
Is Ice Present in Sample Kit/Cooler? _____ Yes ✓ No   Samples received same day as collected? _____ Yes ✓ No
Lab Thermometer Make and Serial Number: Vaughan 1807009583 Other: _____

Acid Preserved Sample - If present, is pH <2?   Yes ___ No ___ ** _____H_2SO_4 _____HNO_3 _____H_3PO_4
Base Preserved Sample - If present, is pH >12?   Yes ___ No ___ _____NaOH
Other Preservation:_____ If Present, Meets Requirements? Yes _____ No _____
Sample Preservations Checked by:_____ Date _____ Time _____
pH paper used to check sample preservation (PCS log #): _____ (HEM pH checked at analysis).
Samples Preserved/Adjusted by Lab: Lab #   Parameters Preserved   Preservative Used   Log #

_____	_____	_____	_____
_____	_____	_____	_____
_____	_____	_____	_____

Adjusted by Tech/Analyst:_____ Date :_____ Time:_____

Client Notification/ Documentation for "No" Responses Above/ Discrepancies/ RevisionComments
Person Notified: _____ Contacted by:_____
  Notified Date: _____ Time: _____
Method of Contact: At Drop Off:_____ Phone ___ Left Voice Mail _____ E-Mail _____ Fax _____
Unable to Contact_____ Authorized Laboratory to Proceed :_____(Lab Director)
Regarding / Comments:_____

_____

Actions taken to correct problems/discrepancies:_____

_____

Receiving qualifier needed (*requires client notification above*) Temp. ___ Holding Time ___ Initails: _____
Receiving qualifier entered into LIMS at login   Initial/Date: _____
Revision Comments: _____

City of Corpus Christi
Water Utilities Laboratory
13101 Leopard Street
361-826-1200   Fax: 361-242-9131

Analytical Report

Client Info	City of Poth
	200 North Carroll St.
	Poth, TX 78147
	830-484-2111

Report# /Lab ID#: AC52042   **Report Date:** 2/25/25
Sample Name: POND #1
Date Received: 02/19/2025   **Time:** 14:26
Date Sampled: 02/19/2025   **Time:** 09:22

Phone: **EMAIL:** UTILITIESNRA@nueces-ra.org

Parameter	Result	Unit	Flag	RL $_5$	Date/Time Analyzed	Method	Analyst	Analysis Comments
Biochemical Oxygen Demand	91.4	mg/L		42.9	2/20/25 12:01	SM 5210 B	FK/CF	
Total Suspended Solids	112.0	mg/L		2.5	2/24/25 11:02	SM 2540 D	FK/MS	

Sample Comments:

This analytical report is respectfully submitted by the Water Utilities Laboratory. The enclosed results reflect only the sample(s) identified above. The results have been carefully reviewed and, unless otherwise indicated, meet the NELAC requirements as described by the Water Utilities Lab's QA/QC program. No part of this report shall be reproduced or transmitted in any form or by any means without the written consent of the City of Corpus Christi-Water Utilities Lab.

Respectfully Submitted,

Technical Director (or designee)

1. Quality assurance data for the sample batch which included this sample.
2. Precision (PREC) is the absolute value of the relative percent difference between duplicate results .
3. Recovery (RECOV) is the percent of analyte recovered from a spiked sample.
4. Laboratory Control Sample (LCS) results are expressed as the percent recovery of analyte.
5. Reporting Limit (RL), typically at or above the Limit of Quantitation (LOQ) of the analytical method.
6. Data Qualifiers:

N=Analysis not performed as per client request.   **H**=Sample exceeded holding time.   **P**=Analysis is from an unpreserved sample.   **J**=Value reported is less than the RL but greater than the MDL .

X=MS/MSD recovery or duplicates analysis exceeded the acceptance limit or Standard failed.   **LA**=Lab accident.   **LE**=Lab error. **OA**=Outside the scope of the lab's NELAC accreditation.

U=Unsuitable; sample turned turbid after incubation.   **T**=Sample below temp requirement; not on ice.   **EQ**=Equipment failure.   **I**=Information on sample bottle and COC does not match.

S=Slow to filter; sample contains floc and/or large amount of residue on filter.   **O**=Analysis performed by an outside NELAC accredited lab;   **O^**=Analysis flagged by outside laboratory.

Z=Too many colonies present to provide a result (TNTC).   **A**=Value reported is the mean of two or more determinations .   **R**=Reagent water contamination suspected.   **B**=Sample broken in transit.

NI=Not analyzed due to interferences.   **K**=BOD result estimated due to blank exceeding the allowable oxygen depletion.   **D**=Sample dilution required for analysis/ quality control.

SC=BOD/CBOD calculated using a seed correction factor not within acceptable range.   **QB**=No QC data assigned to sample; sample result not affected.

EL=Oxygen usage is less than 2mg/L for all dilutions analyzed. The reported value is an estimated less than value and is calculated for the dilution containing the greatest concentration of sample.

EG=Less than 1mg/L DO remained for all dilutions analyzed . The reported value is an estimated greater than value and is calculated for the dilution containing the least concentration of sample.

E= The data exceed the upper calibration limit; therefore the concentration is reported as an estimate.

CHAIN OF CUSTODY RECORD

Client Name: _Poth_

Address: _____

City: _Poth_ State: _TX_ Zip: _____

Phone: _____ Fax: _____

Send Email report to _____

Water Utilities Laboratory
13101 Leopard St.
Corpus Christi, TX 78410
Ph: (361) 826-1200
Fax: (361) 242-9131

Sampler (PLEASE PRINT) _David Baillio_

Sample ID	Lab ID# (Lab Use Only)	Date Sampled	Time Sampled	Grab	Composite	Other	H₂SO₄	HNO₃	Thio	None	WW Influent	WW Effluent	Water	Other-Specify	Total mg/L	Free mg/L	CBOD	BOD	TSS	TDS	Ammonia-N	TKN	Chloride	Sulfate	Phosphorus	Nitrate	Nitrite	Total Alkalinity	TOC	Fecal Coliform	Total Coliform	Enterococci	E. coli	Other*
1 Pond #1	AC52042	2-19-25	0922	✔						✔			✔					✔	✔																
2																																		
3																																		
4																																		
5																																		
6																																		

					***** For Laboratory Use Only *****	
Relinquished By: _David Baillio_	Date: 2-19-25	Time: 1426				
Received By: _Renee Bt_	Date: 2/19/25	Time: 1426	Sample(s) on ice: (YES) NO	pH Strip Lot/ ID:	
Relinquished By:	Date:	Time:	Receiving Temp (°C): 4.8	pH < 2? YES NO	Line(s) #:
Received By:	Date:	Time:	Corrected Temp (°C): 4.8		
			Temp. Device ID: A		

Special Instructions/Comments: _____

Corpus Christi Water
CCW
Serving the Coastal Bend

![USDA logo] United States
Department of
Agriculture

NRCS

Natural
Resources
Conservation
Service

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

Custom Soil Resource Report for
Wilson County, Texas

April 21, 2025

Preface

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

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

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

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

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

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

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

Contents

How Soil Surveys Are Made

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

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

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

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

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

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

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

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

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

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

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

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

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

Soil Map

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

Map Scale: 1:8,620 if printed on A portrait (8.5" x 11") sheet.

Meters
0   100   200   400   600

Feet
0   400   800   1600   2400

Map projection: Web Mercator   Corner coordinates: WGS84   Edge tics: UTM Zone 14N WGS84

9

MAP LEGEND

Area of Interest (AOI)

- ☐ Area of Interest (AOI)

Soils

- ☐ Soil Map Unit Polygons
- ∿ Soil Map Unit Lines
- ■ Soil Map Unit Points

Special Point Features

- ☺ Blowout
- ⊠ Borrow Pit
- ✳ Clay Spot
- ◇ Closed Depression
- ✂ Gravel Pit
- ⁖ Gravelly Spot
- ⊕ Landfill
- ⋀ Lava Flow
- ⚓ Marsh or swamp
- ⊕ Mine or Quarry
- ◎ Miscellaneous Water
- ○ Perennial Water
- ⌄ Rock Outcrop
- ⊹ Saline Spot
- ⁖ Sandy Spot
- ⊜ Severely Eroded Spot
- ◈ Sinkhole
- ⟩ Slide or Slip
- ⌀ Sodic Spot

- ⊟ Spoil Area
- ⊘ Stony Spot
- ⊗ Very Stony Spot
- ⚘ Wet Spot
- △ Other
- ▬ Special Line Features

Water Features

- ∼ Streams and Canals

Transportation

- ┼┼┼ Rails
- ∿ Interstate Highways
- ∿ US Routes
- ∿ Major Roads
- ∿ Local Roads

Background

- ▨ Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

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

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

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

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

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

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

Soil Survey Area: Wilson County, Texas
Survey Area Data: Version 24, Aug 30, 2024

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

Date(s) aerial images were photographed: Nov 15, 2020—Nov 16, 2020

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

Map Unit Legend

Map Unit Symbol	Map Unit Name	Acres in AOI	Percent of AOI
FoB	Floresville fine sandy loam, 1 to 3 percent slopes	0.0	0.0%
Gz	Degola and Zavala soils, frequently flooded	13.3	10.7%
MgA	Miguel fine sandy loam, 0 to 1 percent slopes	23.6	19.1%
MgB	Miguel fine sandy loam, 1 to 3 percent slopes	50.6	41.0%
MgC2	Miguel fine sandy loam, 2 to 5 percent slopes, eroded	26.4	21.4%
WmA	Orelia fine sandy loam, 0 to 2 percent slopes	9.6	7.8%
Totals for Area of Interest		**123.4**	**100.0%**

Map Unit Descriptions

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

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

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

was impractical to make enough observations to identify all the soils and miscellaneous areas on the landscape.

The presence of minor components in a map unit in no way diminishes the usefulness or accuracy of the data. The objective of mapping is not to delineate pure taxonomic classes but rather to separate the landscape into landforms or landform segments that have similar use and management requirements. The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas.

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

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

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

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

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

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

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

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

Wilson County, Texas

FoB—Floresville fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2sf5h
Elevation: 240 to 790 feet
Mean annual precipitation: 26 to 32 inches
Mean annual air temperature: 70 to 74 degrees F
Frost-free period: 275 to 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Floresville and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Floresville

Setting

Landform: Ridges
Landform position (two-dimensional): Backslope, footslope
Landform position (three-dimensional): Side slope
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy residuum weathered from sandstone

Typical profile

A - 0 to 10 inches: fine sandy loam
Bt - 10 to 30 inches: clay
Bk - 30 to 44 inches: sandy clay loam
BCk - 44 to 80 inches: sandy clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: High
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.20 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)
Available water supply, 0 to 60 inches: Moderate (about 8.7 inches)

Interpretive groups

Land capability classification (irrigated): 2e
Land capability classification (nonirrigated): 2e
Hydrologic Soil Group: C
Ecological site: R083AY024TX - Tight Sandy Loam
Hydric soil rating: No

Minor Components

Miguel
Percent of map unit: 3 percent
Landform: Terraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R083AY024TX - Tight Sandy Loam
Hydric soil rating: No

Wilco
Percent of map unit: 2 percent
Landform: Paleoterraces
Landform position (two-dimensional): Backslope
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R083AY022TX - Loamy Sand
Hydric soil rating: No

Gz—Degola and Zavala soils, frequently flooded

Map Unit Setting
National map unit symbol: djrr
Elevation: 100 to 1,200 feet
Mean annual precipitation: 26 to 39 inches
Mean annual air temperature: 70 to 73 degrees F
Frost-free period: 260 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition
Degola and similar soils: 55 percent
Zavala and similar soils: 35 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Degola

Setting
Landform: Flood plains
Down-slope shape: Linear
Across-slope shape: Linear
Parent material: Loamy alluvium of holocene age derived from mixed sources

Typical profile
H1 - 0 to 40 inches: clay loam
H2 - 40 to 62 inches: clay loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): Moderately high to high (0.57 to 1.98 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Frequent

Frequency of ponding: None

Calcium carbonate, maximum content: 10 percent

Maximum salinity: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)

Sodium adsorption ratio, maximum: 2.0

Available water supply, 0 to 60 inches: Moderate (about 9.0 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: B

Ecological site: R083AY013TX - Loamy Bottomland

Hydric soil rating: No

Description of Zavala

Setting

Landform: Flood plains on river valleys

Down-slope shape: Linear

Across-slope shape: Linear

Parent material: Loamy alluvium

Typical profile

H1 - 0 to 10 inches: fine sandy loam

H2 - 10 to 80 inches: fine sandy loam

Properties and qualities

Slope: 0 to 1 percent

Depth to restrictive feature: More than 80 inches

Drainage class: Well drained

Runoff class: Negligible

Capacity of the most limiting layer to transmit water (Ksat): High (1.98 to 5.95 in/hr)

Depth to water table: More than 80 inches

Frequency of flooding: Frequent

Frequency of ponding: None

Calcium carbonate, maximum content: 4 percent

Maximum salinity: Nonsaline to very slightly saline (0.0 to 2.0 mmhos/cm)

Available water supply, 0 to 60 inches: Moderate (about 8.4 inches)

Interpretive groups

Land capability classification (irrigated): None specified

Land capability classification (nonirrigated): 5w

Hydrologic Soil Group: A

Ecological site: R083AY013TX - Loamy Bottomland

Hydric soil rating: No

Minor Components

Unnamed
Percent of map unit: 10 percent
Hydric soil rating: No

MgA—Miguel fine sandy loam, 0 to 1 percent slopes

Map Unit Setting
National map unit symbol: 2wt09
Elevation: 300 to 850 feet
Mean annual precipitation: 27 to 35 inches
Mean annual air temperature: 70 to 72 degrees F
Frost-free period: 270 to 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition
Miguel and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Miguel

Setting
Landform: Low hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy and/or clayey residuum weathered from sandstone and/or
    mudstone

Typical profile
A - 0 to 11 inches: fine sandy loam
Bt - 11 to 33 inches: sandy clay
Btk - 33 to 43 inches: sandy clay loam
BC - 43 to 80 inches: sandy clay loam

Properties and qualities
Slope: 0 to 1 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Low
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to
    moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent

Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 30.0
Available water supply, 0 to 60 inches: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R083AY024TX - Tight Sandy Loam
Hydric soil rating: No

Minor Components

Leming

Percent of map unit: 2 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R083AY022TX - Loamy Sand
Hydric soil rating: No

Wilco

Percent of map unit: 2 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R083AY022TX - Loamy Sand
Hydric soil rating: No

Tiocano

Percent of map unit: 1 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R083AY007TX - Lakebed
Hydric soil rating: Yes

MgB—Miguel fine sandy loam, 1 to 3 percent slopes

Map Unit Setting

National map unit symbol: 2wt0c
Elevation: 200 to 850 feet
Mean annual precipitation: 27 to 35 inches
Mean annual air temperature: 70 to 72 degrees F
Frost-free period: 270 to 300 days
Farmland classification: Prime farmland if irrigated

Map Unit Composition

Miguel and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Miguel

Setting

Landform: Low hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy and/or clayey residuum weathered from sandstone and/or mudstone

Typical profile

A - 0 to 11 inches: fine sandy loam
Bt - 11 to 33 inches: sandy clay
Btk - 33 to 43 inches: sandy clay loam
BC - 43 to 80 inches: sandy clay loam

Properties and qualities

Slope: 1 to 3 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Well drained
Runoff class: Medium
Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)
Depth to water table: More than 80 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 15 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)
Sodium adsorption ratio, maximum: 30.0
Available water supply, 0 to 60 inches: Moderate (about 7.1 inches)

Interpretive groups

Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: C
Ecological site: R083AY024TX - Tight Sandy Loam
Hydric soil rating: No

Minor Components

Bryde

Percent of map unit: 2 percent
Landform: Low hills
Landform position (two-dimensional): Summit, shoulder, backslope
Landform position (three-dimensional): Interfluve, side slope
Down-slope shape: Convex
Across-slope shape: Convex
Ecological site: R083AY024TX - Tight Sandy Loam
Hydric soil rating: No

Wilco

Percent of map unit: 2 percent
Landform: Stream terraces
Landform position (three-dimensional): Tread
Down-slope shape: Convex
Across-slope shape: Linear
Ecological site: R083AY022TX - Loamy Sand
Hydric soil rating: No

Tiocano

Percent of map unit: 1 percent
Landform: Depressions
Landform position (three-dimensional): Dip
Down-slope shape: Concave
Across-slope shape: Concave
Ecological site: R083AY007TX - Lakebed
Hydric soil rating: Yes

MgC2—Miguel fine sandy loam, 2 to 5 percent slopes, eroded

Map Unit Setting

National map unit symbol: 2wt0f
Elevation: 100 to 700 feet
Mean annual precipitation: 27 to 35 inches
Mean annual air temperature: 70 to 72 degrees F
Frost-free period: 270 to 300 days
Farmland classification: Not prime farmland

Map Unit Composition

Miguel, eroded, and similar soils: 90 percent
Minor components: 10 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Miguel, Eroded

Setting

Landform: Low hills
Landform position (two-dimensional): Shoulder, backslope
Landform position (three-dimensional): Side slope
Down-slope shape: Convex
Across-slope shape: Convex
Parent material: Loamy and/or clayey residuum weathered from sandstone and/or mudstone

Typical profile

A - 0 to 6 inches: fine sandy loam
Bt - 6 to 33 inches: sandy clay
Btk - 33 to 43 inches: sandy clay loam
BC - 43 to 80 inches: sandy clay loam

Properties and qualities

    Slope: 2 to 5 percent

    Depth to restrictive feature: More than 80 inches

    Drainage class: Well drained

    Runoff class: Medium

    Capacity of the most limiting layer to transmit water (Ksat): Moderately low to moderately high (0.06 to 0.57 in/hr)

    Depth to water table: More than 80 inches

    Frequency of flooding: None

    Frequency of ponding: None

    Calcium carbonate, maximum content: 15 percent

    Gypsum, maximum content: 5 percent

    Maximum salinity: Nonsaline to moderately saline (0.0 to 8.0 mmhos/cm)

    Sodium adsorption ratio, maximum: 30.0

    Available water supply, 0 to 60 inches: Moderate (about 7.2 inches)

Interpretive groups

    Land capability classification (irrigated): 4e

    Land capability classification (nonirrigated): 4e

    Hydrologic Soil Group: C

    Ecological site: R083AY024TX - Tight Sandy Loam

    Hydric soil rating: No

Minor Components

Bryde

    Percent of map unit: 4 percent

    Landform: Low hills

    Landform position (two-dimensional): Shoulder, backslope

    Landform position (three-dimensional): Side slope

    Down-slope shape: Convex

    Across-slope shape: Convex

    Ecological site: R083AY024TX - Tight Sandy Loam

    Hydric soil rating: No

Weesatche

    Percent of map unit: 4 percent

    Landform: Ridges

    Landform position (two-dimensional): Backslope, footslope, toeslope

    Landform position (three-dimensional): Side slope, base slope

    Down-slope shape: Convex

    Across-slope shape: Linear

    Ecological site: R083AY023TX - Sandy Loam

    Hydric soil rating: No

Wilco

    Percent of map unit: 2 percent

    Landform: Stream terraces

    Landform position (three-dimensional): Riser

    Down-slope shape: Convex

    Across-slope shape: Linear

    Ecological site: R083AY022TX - Loamy Sand

    Hydric soil rating: No

WmA—Orelia fine sandy loam, 0 to 2 percent slopes

Map Unit Setting
National map unit symbol: djsv
Elevation: 30 to 500 feet
Mean annual precipitation: 25 to 30 inches
Mean annual air temperature: 70 to 73 degrees F
Frost-free period: 260 to 320 days
Farmland classification: Not prime farmland

Map Unit Composition
Orelia and similar soils: 95 percent
Minor components: 5 percent
Estimates are based on observations, descriptions, and transects of the mapunit.

Description of Orelia

Setting
Landform: Flats
Landform position (three-dimensional): Rise
Down-slope shape: Linear
Across-slope shape: Convex
Parent material: Loamy fluviomarine deposits

Typical profile
H1 - 0 to 7 inches: fine sandy loam
H2 - 7 to 22 inches: sandy clay loam
H3 - 22 to 62 inches: sandy clay loam

Properties and qualities
Slope: 0 to 2 percent
Depth to restrictive feature: More than 80 inches
Drainage class: Somewhat poorly drained
Runoff class: Very high
Capacity of the most limiting layer to transmit water (Ksat): Very low to moderately low (0.00 to 0.06 in/hr)
Depth to water table: About 6 to 12 inches
Frequency of flooding: None
Frequency of ponding: None
Calcium carbonate, maximum content: 20 percent
Gypsum, maximum content: 5 percent
Maximum salinity: Nonsaline to strongly saline (1.0 to 16.0 mmhos/cm)
Sodium adsorption ratio, maximum: 20.0
Available water supply, 0 to 60 inches: Moderate (about 7.9 inches)

Interpretive groups
Land capability classification (irrigated): 3e
Land capability classification (nonirrigated): 3e
Hydrologic Soil Group: D
Ecological site: R083AY026TX - Eastern Clay Loam

Hydric soil rating: No

Minor Components

Unnamed

Percent of map unit: 5 percent

Hydric soil rating: No

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CITY OF POTH WWTP DESIGN FEATURES

- The area occupied by the WWTP is a small-scale community is serviced by an area electric power system which ensures reliable electric power.
- Back-up generator with capacity to power entire WWTP.
- Generator will have an Automatic Transfer Switch (ATS) for automatic transfer to generator in the event of power loss from electric utility.
- Tanks are over sized to allow for surges in flow.
- Control systems and pumps will be in an enclosed building for protection from weather induced problems.
- Alarm systems monitored by the use of SCADA

SOIL SAMPLE AREA

N

GRAPHIC SCALE

500   0   250

(IN FEET)

SCALE: 1" = 500'

SOIL MAP

CITY OF POTH WASTE WATER TREATMENT PLANT

CITY OF POTH

POTH, TEXAS

ATTACHMENT A
SITE PLAN

EXHIBIT VII
RE: D.T.R.; PG. 4 OF 31; PAR. 11
SITE DRAWING
CITY OF POTH
WILSON COUNTY, TEXAS

SOUTHWEST ENGINEERS, INC.
ENGINEERS   PLANNERS
307 St. Lawrence   Gonzales, Texas 78629-3935

Sewage Sludge Solids Management Plan
City of Poth Wastewater Treatment Plant
Municipal Wastewater Permit Application

The City of Poth has a permanent 220,000 gpd wastewater treatment plant.

Solids collected by the membrane filters will be diverted to the sludge press at a rate of 7,844 gpd. This flow will contain 410 pounds (lbs.) of solid sludge. The sludge press will dewater the liquid sludge to a semi-solid state containing approximately twenty four percent (24%) solids resulting in a production of six cubic yards 37 cubic feet) of semi-solid sludge produced daily.   Supernatant from the sludge press will be returned to the headworks of the plant for treatment.

The thickened sludge from the screw press drops directly into containers provided by a licensed hauler will transfer the boxes to their licensed facility for disposal.

The following chart presents the sludge solids generated by the process as well as the sludge solids and volumes that would need to be removed from the plant.

% Plant Capacity	Flow GPD	Pounds Sludge Solids Removed/Day	Semi-Solid Volume (ft^3)/Day
100%	220,000	410	37
75%	165,000	307	27
50%	110,000	205	18
25%	55,000	102	9

WATER BALANCE CALCULATIONS, all units in inches (unless otherwise specified)

Permittee: **City of Poth** TWDB Data Quadrangle:
Permit No.: **810**

The water balance calculations are designed to evaluate the maximum application rate (hydraulic loading rate) for the land area where irrigation is to occur. The applicant's proposed application rate must not must not exceed the maximum calculated application rate or the maximum application rate based on agronomic analyis.

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)	(10)	(11)
Month	Avg Rain	Avg Runoff	Avg Infilt Rainfall	Evapo-trans.	Required Leach	Total Water Needs	Effluent Needed in Root Zone	Raw Net Evap. from Reservoir	Reservoir Net Evap. (as inches on plot acres)	Effluent Needed Based on Irrigation Efficiency	Reservoir Consumtion (as inches on plot acres)
Units →	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches
January	2.56	0.24	2.32	0.04	0.00	0.04	0.00	-0.33	-0.18	0.00	-0.18
February	1.63	0.03	1.61	0.05	0.00	0.05	0.00	0.63	0.34	0.00	0.34
March	2.57	0.24	2.33	0.07	0.00	0.07	0.00	1.01	0.54	0.00	0.54
April	2.81	0.33	2.49	0.09	0.00	0.09	0.00	1.43	0.76	0.00	0.76
May	4.18	0.96	3.22	0.11	0.00	0.11	0.00	0.53	0.28	0.00	0.28
June	3.05	0.42	2.63	0.12	0.00	0.12	0.00	2.81	1.50	0.00	1.50
July	2.68	0.28	2.40	0.14	0.00	0.14	0.00	3.77	2.01	0.00	2.01
August	2.55	0.23	2.31	0.12	0.00	0.12	0.00	3.91	2.09	0.00	2.09
September	3.27	0.51	2.76	0.09	0.00	0.09	0.00	1.77	0.95	0.00	0.95
October	3.52	0.62	2.89	0.08	0.00	0.08	0.00	0.58	0.31	0.00	0.31
November	2.67	0.28	2.40	0.05	0.00	0.05	0.00	0.16	0.09	0.00	0.09
December	2.07	0.10	1.97	0.04	0.00	0.04	0.00	0.01	0.00	0.00	0.00
Totals	33.57	4.24	29.33	1.00	0.00	1.00	0.00	16.28	8.69	0.00	8.69

Crop is **bermuda grass**

CN	62.00	dimensionless
Ce	5.10	mmhos/cm
Cl	1.18	mmhos/cm
Pond area	56.40	acres
Irrigation area	105.60	acres

Maximum calculated application rate = 0.72 ac-in/ac/$month$ **OR** ac-ft/ac/$year$
Applicant's proposed application rate = ac-in/ac/$month$ **OR** ac-ft/ac/$year$
Maximum rate from agronomic analysis = N/A ac-in/ac/$month$ **OR** ac-ft/ac/$year$

WARNING: The wastewater salt content of the effluent is too high for the crop.

Irrigation Efficiency, K	0.85	dimensionless
Design Flow	0.220	MGD

Recommended rate for permit = 0.72 ac-in/ac/$month$ **OR** ac-ft/ac/$year$

Limiting factor = Click this cell to choose from list.
Gross rate check (from flow, acres) = 2.33 **Reduce flow or increase area.**

(2) Average rainfall – Data source: Texas Water Development Board (see Quadrangle above)
(3) Average runoff $= (average\ rainfall - (0.2*((1000/CN) - 10)))\ ^2/((average\ rainfall + (0.8*((1000/CN) - 10))))$
(4) Average infiltrated rainfall = ($average\ rainfall - average\ runoff$)
(5) Evapotranspiration – Data Source: Borelli, Bulletin 6019
(6) Required leaching =   ← Edit
    If: $evapotranspiration - average\ infiltrated\ rainfall \le 0$, then 0;
    If: $evapotranspiration - average\ infiltrated\ rainfall > 0$, $Ce/(Cl - Ce)*(evapotranspiration - avg\ infiltrated\ rainfall)$
(7) Total water needs = $evapotranspiration + required\ leaching$
(8) Effluent needed in root zone = $total\ water\ needs - average\ infiltrated\ rainfall$

(9a) Net evaporation – Data source: Texas Water Development Board (see Quadrangle above)
(9b) Raw net evaporation from reservoir surface = (*net evaporation from reservoir*)*((*pond area*)/(*irrigation area*))
(10) Effluent needed based on irrigation efficiency = (*effluent needed in root zone*)/(*irrigation efficiency*)
(11) Consumption from reservoir = *net evaporation from reservoir surface* + effluent needed based on irrigation efficiency

STORAGE CALCULATIONS, all units in inches (unless otherwise specified)

Permittee: City of Poth
Permit No.: 0

The storage calculations are designed to evaluate the storage capacity and surface area of the

(12) Month	(13) Effluent Available (as inches on plot acres)	(14a) Average Rainfall Distrib. (%)	(14b) Rain Worst Year	(15) Field Runoff Worst Year	(16) Infiltrated Rain	(17) Avail Water	(18a) Average Net Evap. Distrib. (%)	(18b) Low Net Evap. from Reservoir Surface	(19) Effluent to Storage (as inches on plot acres)	(20) Accum Storage (as inches on plot acres)
Units →	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches
January	2.33	7.61%	3.82	0.77	3.05	5.38	-2.05%	-0.09	2.42	-2.34
February	2.33	4.87%	2.44	0.20	2.24	4.58	3.89%	0.16	2.17	-0.17
March	2.33	7.65%	3.85	0.78	3.06	5.39	6.19%	0.26	2.07	1.90
April	2.33	8.38%	4.21	0.98	3.23	5.57	8.77%	0.37	1.96	3.86
May	2.33	12.45%	6.25	2.27	3.99	6.32	3.26%	0.14	2.20	6.06
June	2.33	9.09%	4.57	1.18	3.39	5.72	17.25%	0.73	1.61	7.67
July	2.33	7.99%	4.02	0.87	3.14	5.48	23.17%	0.98	1.36	9.02
August	2.33	7.59%	3.81	0.77	3.05	5.38	24.02%	1.01	1.32	10.35
September	2.33	9.76%	4.90	1.38	3.52	5.86	10.90%	0.46	1.87	12.22
October	2.33	10.48%	5.26	1.60	3.66	5.99	3.58%	0.15	2.18	14.40
November	2.33	7.96%	4.00	0.86	3.13	5.47	0.98%	0.04	2.29	16.70
December	2.33	6.18%	3.10	0.44	2.66	5.00	0.04%	0.00	2.33	19.03
Totals	28.01	100%	50.24	12.11	38.13	66.14	100%	4.21	—	WARNING

2.32 ← You must manually enter a starting value for accumulated storage. **Click the link for instructions.**

WARNING: A discharge will likely occur under these conditions. Re-evaluate pond size, flow, and land area.

Instructions for setting the accumulated storage start value'

Worst (low) net evap. =	-7.89 inches	Storage required =	460.40 *ac-ft*
Corresponding rain =	50.24 inches	Actual storage =	460.4 *ac-ft*
Worst-case net year =	2004	Additional storage required =	None *ac-ft*
		Storage days =	682 *days*

TRUE ← Special case (all positive storage values)

(13) Effluent available for irrigation (assumes design flow is applied to entire acerage unless different flow values are justified).
(14a) Average rainfall distribution - Data source: Texas Water Development Board (see Quadrangle in Water Balance Calculations above)
(14b) Rainfall worst year = (*rainfall distribution* as fraction or %/100)*maximum annual rainfall
(15) Field runoff worst year = (*rainfall worst year* − (0.2*((1000/*CN*) − 10))) ^2/((*rainfall worst year* + (0.8*((1000/*CN*) − 10))))
(16) Infiltrated rainfall = (rainfall worst year- field runoff worst year)
(17) Available water = (effluent available for land application + infiltrated rainfall check)
(18a) Average net evaporation distribution - Data source: Texas Water Development Board (see Quadrangle in Water Balance Calculations above)
(18b) Net low evaporation from reservoir surface = [(|*low net evaporation*|)*(*net low evaporation avg. dist*)]*[(*pond area*)/(*irrigation area*)]
(19) Storage =
    If: (*total water needs − infiltrated rainfall*) < 0, (*effluent available for land application − net low evaporation from reservoir surface*);
    If: (*total water needs − infiltrated rainfall*) ≥ 0,
    (effluent available for land application − net low evaporation from reservoir surface) * [(total water needs − infiltrated rainfall)/(irrigation efficiency)]
(20) Accumulated storage =

WATER BALANCE CALCULATIONS, all units in inches (unless otherwise specified)

Permittee: **City of Poth**   TWDB Data Quadrangle:
Permit No.: **0**   **810**

The water balance calculations are designed to evaluate the maximum application rate (hydraulic loading rate) for the land area where irrigation is to occur. The applicant's proposed application rate must not must not exceed the maximum calculated application rate or the maximum application rate based on agronomic analyis.

Month (1)	Avg. Precip. (2)	Average Runoff (3)	Average Infiltrated Rainfall (4)	Evapotrans-piration (5)	Required Leaching (6)	Total Water Needs (5)+(6) (7)	Effluent Needed in Root Zone (7)-(4) (8)	Evaporation from Reservoir Surface (9)	Effluent to be Applied to Land (8)/K (10)	Consumption from Reservoir (9)+(10) (11)
Units →	inches	inches	inches	inches	inches	inches	inches	inches	inches	inches
January	2.56	0.24	2.32	0.90	0.00	0.90	0.00	-0.18	0.00	-0.18
February	1.63	0.03	1.61	1.30	0.00	1.30	0.00	0.34	0.00	0.34
March	2.57	0.24	2.33	3.10	-1.00	2.10	0.00	0.54	0.00	0.54
April	2.81	0.33	2.49	3.80	-1.71	2.09	0.00	0.76	0.00	0.76
May	4.18	0.96	3.22	6.80	-4.66	2.14	0.00	0.28	0.00	0.28
June	3.05	0.42	2.63	7.20	-5.95	1.25	0.00	1.50	0.00	1.50
July	2.68	0.28	2.40	7.40	-6.50	0.90	0.00	2.01	0.00	2.01
August	2.55	0.23	2.31	5.10	-3.63	1.47	0.00	2.09	0.00	2.09
September	3.27	0.51	2.76	5.70	-3.83	1.87	0.00	0.95	0.00	0.95
October	3.52	0.62	2.89	4.50	-2.09	2.41	0.00	0.31	0.00	0.31
November	2.67	0.28	2.40	2.30	0.00	2.30	0.00	0.09	0.00	0.09
December	2.07	0.10	1.97	1.10	0.00	1.10	0.00	0.00	0.00	0.00
Totals	33.57	4.24	29.33	49.20	-29.37	19.83	0.00	8.69	0.00	8.69

Crop is   bermuda grass
CN   62.00   *dimensionless*   Maximum calculated application rate =   0.72   *ac-in/ac/month* **OR** *ac-ft/ac/year*
Ce   5.10   *mmhos/cm*   Applicant's proposed application rate =   *ac-in/ac/month* **OR** *ac-ft/ac/year*
Cl   1.18   *mmhos/cm*   Maximum rate from agronomic analysis =   N/A   *ac-in/ac/month* **OR** *ac-ft/ac/year*
Pond area   56.40   *acres*
Irrigation
area   105.60   *acres*   **WARNING: The wastewater salt content of the effluent is too high for the crop.**

Irrigation
Efficiency, K   0.85   *dimensionless*   **Recommended rate for permit = 0.72**   *ac-in/ac/month* **OR** *ac-ft/ac/year*
Design Flow   0.220   *MGD*
                                            Limiting factor = Click this cell to choose from list.
                                  Gross rate check (from flow, acres) = 2.33   **Reduce flow or increase area.**

(2) Average rainfall – Data source: Texas Water Development Board (see Quadrangle above)
(3) Average runoff = ($average\ rainfall$ – $(0.2*((1000/CN) – 10)))$ ^2/($average\ rainfall$ + $(0.8*((1000/CN) – 10))))$
(4) Average infiltrated rainfall = ($average\ rainfall$ – $average\ runoff$)
(5) Evapotranspiration – Data Source: Borelli, Bulletin 6019
(6) Required leaching =   ← Edit
     If: $evapotranspiration$ – $average\ infiltrated\ rainfall$ ≤ 0, then 0;
     If: $evapotranspiration$ – $average\ infiltrated\ rainfall$ > 0, $Ce/(Cl – Ce)*(evapotranspiration – avg\ infiltrated\ rainfall)$
(7) Total water needs = $evapotranspiration$ + $required\ leaching$
(8) Effluent needed in root zone = $total\ water\ needs$ – $average\ infiltrated\ rainfall$
(9a) Net evaporation – Data source: Texas Water Development Board (see Quadrangle above)
(9b) Raw net evaporation from reservoir surface = ($net\ evaporation\ from\ reservoir$)*(($pond\ area$)/($irrigation\ area$))

(10) Effluent needed based on irrigation efficiency = (*effluent needed in root zone*)/(*irrigation efficiency*)

(11) Consumption from reservoir = *net evaporation from reservoir surface* + e*ffluent needed based on irrigation efficiency*

STORAGE CALCULATIONS, all units in inches (unless otherwise specified)

Permittee: City of Poth

Permit No.: 0

The storage calculations are designed to evaluate the storage capacity and surface area of the applicant's storage pond (or multiple ponds). The pond must have enough surface area to evaporate all the flow to the pond under low-net evaporation and corresponding annual rainfall conditions. The pond is considered adequately sized when the adidtional storage required is equal to zero (or "none"). If the additional storage required is greater than zero, then: (1) the pond's storage capacity must be increase, (2) the pond's surface area must be increased, (3) the effluent flow must be reduced, or (4) other approved measures must be taken to ensure that no accumulation occurs during low-net evaporation and corresponding annual rainfall conditions.

Month (12)	a Effluent Received for Application or Storage (13)	b Rainfall Worst Year in Past 25 Year (14)	c Runoff Worst Year in Past 25 Year (15)	Infiltrated Rainfall (14)-(15)	Available Water (13)+(16) (17)	d Net 25 Year Low Evaporation from Regur. Surface (18)	e Storage (19)	f Accumulated Storage (20)
Units →	inches	inches	inches	inches	inches	inches	inches	inches
January	2.33	3.82	0.77	3.05	5.38	-0.09	2.42	#DIV/0!
February	2.33	2.44	0.20	2.24	4.58	0.16	2.17	#DIV/0!
March	2.33	3.85	0.78	3.06	5.39	0.26	2.07	#DIV/0!
April	2.33	4.21	0.98	3.23	5.57	0.37	1.96	#DIV/0!
May	2.33	6.25	2.27	3.99	6.32	0.14	2.20	#DIV/0!
June	2.33	4.57	1.18	3.39	5.72	0.73	1.61	#DIV/0!
July	2.33	4.02	0.87	3.14	5.48	0.98	1.36	#DIV/0!
August	2.33	3.81	0.77	3.05	5.38	1.01	1.32	#DIV/0!
September	2.33	4.90	1.38	3.52	5.86	0.46	1.87	#DIV/0!
October	2.33	5.26	1.60	3.66	5.99	0.15	2.18	#DIV/0!
November	2.33	4.00	0.86	3.13	5.47	0.04	2.29	#DIV/0!
December	2.33	3.10	0.44	2.66	5.00	0.00	2.33	#DIV/0!
Totals	28.01	50.24	12.11	38.13	66.14	4.21	—	WARNING

← You must manually enter a starting value for accumulated storage. **Click the link for instructions.**

WARNING: A discharge will likely occur under these conditions. Re-evaluate pond size, flow, and land area.

Instructions for setting the accumulated storage start value'

Worst (low) net evap. =	-7.89 inches	Storage required =	#DIV/0! ac-ft	
Corresponding rain =	50.24 inches	Actual storage =	ac-ft	TRUE ← Special case (all positive storage values)
Worst-case net year =	2004	Additional storage required =	#DIV/0! ac-ft	
		Storage days =	#DIV/0! days	

(13) Effluent available for irrigation (assumes design flow is applied to entire acerage unless different flow values are justified).

(14a) Average rainfall distribution - Data source: Texas Water Development Board (see Quadrangle in Water Balance Calculations above)

(14b) Rainfall worst year = (*rainfall distribution* as fraction or %/100*)*maximum annual rainfall*

(15) Field runoff worst year = (*rainfall worst year* – (0.2*((1000/*CN*) – 10))) ^2/((*rainfall worst year* + (0.8*((1000/*CN*) – 10))))

(16) Infiltrated rainfall = (rainfall worst year- field runoff worst year)

(17) Available water = (effluent available for land application + infiltrated rainfall check)

(18a) Average net evaporation distribution - Data source: Texas Water Development Board (see Quadrangle in Water Balance Calculations above)

(18b) Net low evaporation from reservoir surface = $[(|$*low net evaporation*$|$ $)*($*net low evaporation avg. dist* $)]*[($*pond area* $)/($*irrigation area* $)]$

(19) Storage =

      If: (*total water needs – infiltrated rainfall*) < 0, (*effluent available for land application* – *net low evaporation from reservoir surface*);

   If: (*total water needs – infiltrated rainfall*) ≥ 0,

  (effluent available for land application – net low evaporation from reservoir surface) * [(total water needs – infiltrated rainfall)/(irrigation efficiency)]

(20) Accumulated storage =

     If: *net low evaporation from reservoir surface* + *storage* ≤ 0, 0

     If: *net low evaporation from reservoir surface* + *storage* > 0, enter value

Insert TWDB data from your .csv file into cell A4

Qaudrangle = 810

NOTE: The first four column headings should always be

Rearrange the columns if the order doesn't match (A) p

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They convert the TWD

period	precipitation	gross_evaporation	net_eva	Year	Month
1954-01	1.03	2.45	1.42	1954	1
1954-02	0.17	3.73	3.56	1954	2
1954-03	0.16	4.1	3.94	1954	3
1954-04	3.97	4.8	0.83	1954	4
1954-05	3.14	5.11	1.97	1954	5
1954-06	0.94	7.2	6.26	1954	6
1954-07	1	8.62	7.62	1954	7
1954-08	1	8.3	7.3	1954	8
1954-09	1.65	7.47	5.82	1954	9
1954-10	1.74	5.05	3.31	1954	10
1954-11	0.83	3.7	2.87	1954	11
1954-12	0.54	3.1	2.56	1954	12
1955-01	1.6	2.25	0.65	1955	1
1955-02	4.23	2.45	-1.78	1955	2
1955-03	0.91	3.62	2.71	1955	3
1955-04	1.03	5.22	4.19	1955	4
1955-05	4.89	5.61	0.72	1955	5
1955-06	3.85	6.18	2.33	1955	6
1955-07	1.3	6.93	5.63	1955	7
1955-08	2.89	6.7	3.81	1955	8
1955-09	1.12	5.52	4.4	1955	9
1955-10	0.72	6.29	5.57	1955	10
1955-11	0.84	4.25	3.41	1955	11
1955-12	1.52	2.77	1.25	1955	12
1956-01	1.12	2.56	1.44	1956	1
1956-02	1.37	2.87	1.5	1956	2
1956-03	0.55	4.54	3.99	1956	3
1956-04	1.16	5.04	3.88	1956	4
1956-05	2.61	5.51	2.9	1956	5
1956-06	0.84	7.43	6.59	1956	6
1956-07	0.86	8.39	7.53	1956	7
1956-08	1.05	8.62	7.57	1956	8
1956-09	1.08	7.07	5.99	1956	9
1956-10	1.25	5.52	4.27	1956	10
1956-11	0.82	4.21	3.39	1956	11
1956-12	3.04	2.93	-0.11	1956	12
1957-01	0.53	3.22	2.69	1957	1
1957-02	2.94	2.24	-0.7	1957	2
1957-03	4.64	3.39	-1.25	1957	3
1957-04	7.34	3.1	-4.24	1957	4
1957-05	5.11	3.34	-1.77	1957	5
1957-06	2.66	4.94	2.28	1957	6
1957-07	0.72	7.9	7.18	1957	7

1957-08	1.4	7.62	6.22	**1957**	**8**
1957-09	10.72	5.42	-5.3	**1957**	**9**
1957-10	5.6	4.15	-1.45	**1957**	**10**
1957-11	4.98	2.24	-2.74	**1957**	**11**
1957-12	0.99	2.46	1.47	**1957**	**12**
1958-01	4.35	2.19	-2.16	**1958**	**1**
1958-02	5.38	2.46	-2.92	**1958**	**2**
1958-03	1.04	2.77	1.73	**1958**	**3**
1958-04	1.58	3.97	2.39	**1958**	**4**
1958-05	3.48	4.47	0.99	**1958**	**5**
1958-06	1.9	6.51	4.61	**1958**	**6**
1958-07	2.54	6.91	4.37	**1958**	**7**
1958-08	0.73	6.33	5.6	**1958**	**8**
1958-09	7.48	4.21	-3.27	**1958**	**9**
1958-10	5.16	3.47	-1.69	**1958**	**10**
1958-11	1.45	2.51	1.06	**1958**	**11**
1958-12	1.59	2.1	0.51	**1958**	**12**
1959-01	0.47	1.45	0.98	**1959**	**1**
1959-02	4.26	1.91	-2.35	**1959**	**2**
1959-03	0.28	3.78	3.5	**1959**	**3**
1959-04	5.53	3.78	-1.75	**1959**	**4**
1959-05	3.77	4.58	0.81	**1959**	**5**
1959-06	3.23	6.8	3.57	**1959**	**6**
1959-07	1.66	6.63	4.97	**1959**	**7**
1959-08	3.26	5.61	2.35	**1959**	**8**
1959-09	2.42	4.85	2.43	**1959**	**9**
1959-10	4.96	4.4	-0.56	**1959**	**10**
1959-11	2.21	2.24	0.03	**1959**	**11**
1959-12	2.53	2.02	-0.51	**1959**	**12**
1960-01	1.53	1.6	0.07	**1960**	**1**
1960-02	2.19	2.52	0.33	**1960**	**2**
1960-03	1.19	2.73	1.54	**1960**	**3**
1960-04	3.57	4.44	0.87	**1960**	**4**
1960-05	1.58	4.88	3.3	**1960**	**5**
1960-06	7.67	7.29	-0.38	**1960**	**6**
1960-07	2.43	6.42	3.99	**1960**	**7**
1960-08	5.11	5.54	0.43	**1960**	**8**
1960-09	1.4	5.2	3.8	**1960**	**9**
1960-10	12.94	3.88	-9.06	**1960**	**10**
1960-11	3.12	2.72	-0.4	**1960**	**11**
1960-12	3.82	1.82	-2	**1960**	**12**
1961-01	1.58	1.87	0.29	**1961**	**1**
1961-02	2.56	2.62	0.06	**1961**	**2**
1961-03	0.59	3.73	3.14	**1961**	**3**
1961-04	1.45	4.55	3.1	**1961**	**4**
1961-05	0.96	5.14	4.18	**1961**	**5**
1961-06	9.25	5.91	-3.34	**1961**	**6**

1961-07	4.63	5.65	1.02	**1961**	**7**
1961-08	1.11	6.63	5.52	**1961**	**8**
1961-09	5.53	4.75	-0.78	**1961**	**9**
1961-10	2.74	3.6	0.86	**1961**	**10**
1961-11	4.75	2.31	-2.44	**1961**	**11**
1961-12	0.74	1.95	1.21	**1961**	**12**
1962-01	1.48	1.72	0.24	**1962**	**1**
1962-02	0.89	3.26	2.37	**1962**	**2**
1962-03	0.87	3.94	3.07	**1962**	**3**
1962-04	4.74	4.25	-0.49	**1962**	**4**
1962-05	1.16	6.03	4.87	**1962**	**5**
1962-06	4.48	5.64	1.16	**1962**	**6**
1962-07	0.3	8.32	8.02	**1962**	**7**
1962-08	0.83	8.34	7.51	**1962**	**8**
1962-09	5.52	5.04	-0.48	**1962**	**9**
1962-10	2.13	4.92	2.79	**1962**	**10**
1962-11	1.6	3.35	1.75	**1962**	**11**
1962-12	3.16	2.21	-0.95	**1962**	**12**
1963-01	0.81	1.92	1.11	**1963**	**1**
1963-02	2.81	3.01	0.2	**1963**	**2**
1963-03	0.21	4.46	4.25	**1963**	**3**
1963-04	1.25	5.09	3.84	**1963**	**4**
1963-05	0.81	5.52	4.71	**1963**	**5**
1963-06	2.99	7.08	4.09	**1963**	**6**
1963-07	1.19	8.21	7.02	**1963**	**7**
1963-08	1.07	7.7	6.63	**1963**	**8**
1963-09	2.05	6.54	4.49	**1963**	**9**
1963-10	0.87	5.65	4.78	**1963**	**10**
1963-11	4.11	3.48	-0.63	**1963**	**11**
1963-12	2.05	2.08	0.03	**1963**	**12**
1964-01	2.59	2.66	0.07	**1964**	**1**
1964-02	2.34	2.8	0.46	**1964**	**2**
1964-03	2.74	4.04	1.3	**1964**	**3**
1964-04	2.06	4.38	2.32	**1964**	**4**
1964-05	1.86	5.01	3.15	**1964**	**5**
1964-06	3.15	7.1	3.95	**1964**	**6**
1964-07	1.06	8.03	6.97	**1964**	**7**
1964-08	3.11	7.44	4.33	**1964**	**8**
1964-09	5.34	5.35	0.01	**1964**	**9**
1964-10	1.36	5.17	3.81	**1964**	**10**
1964-11	1.42	3.28	1.86	**1964**	**11**
1964-12	1.5	2.3	0.8	**1964**	**12**
1965-01	4.44	2.82	-1.62	**1965**	**1**
1965-02	6.82	2.38	-4.44	**1965**	**2**
1965-03	1.1	3.35	2.25	**1965**	**3**
1965-04	1.82	4.13	2.31	**1965**	**4**
1965-05	7.18	3.86	-3.32	**1965**	**5**

1965-06	3.64	6.24	2.6	**1965**	**6**
1965-07	0.39	8.12	7.73	**1965**	**7**
1965-08	1.76	7.64	5.88	**1965**	**8**
1965-09	2.83	6.52	3.69	**1965**	**9**
1965-10	4.64	4.05	-0.59	**1965**	**10**
1965-11	3.83	2.64	-1.19	**1965**	**11**
1965-12	5.18	1.91	-3.27	**1965**	**12**
1966-01	1.95	1.58	-0.37	**1966**	**1**
1966-02	3.44	1.9	-1.54	**1966**	**2**
1966-03	1.21	3.34	2.13	**1966**	**3**
1966-04	4.46	4.11	-0.35	**1966**	**4**
1966-05	4.38	3.73	-0.65	**1966**	**5**
1966-06	2.68	5.69	3.01	**1966**	**6**
1966-07	1.37	8.65	7.28	**1966**	**7**
1966-08	3.12	5.83	2.71	**1966**	**8**
1966-09	2.73	5.03	2.3	**1966**	**9**
1966-10	1.87	4.44	2.57	**1966**	**10**
1966-11	0.09	3.87	3.78	**1966**	**11**
1966-12	1.05	2.32	1.27	**1966**	**12**
1967-01	0.71	2.41	1.7	**1967**	**1**
1967-02	0.84	2.83	1.99	**1967**	**2**
1967-03	1.24	4.94	3.7	**1967**	**3**
1967-04	2.03	5.17	3.14	**1967**	**4**
1967-05	3.63	5.89	2.26	**1967**	**5**
1967-06	0.09	7.8	7.71	**1967**	**6**
1967-07	2.16	8.53	6.37	**1967**	**7**
1967-08	3.69	7.38	3.69	**1967**	**8**
1967-09	14.18	4.42	-9.76	**1967**	**9**
1967-10	4.04	4.85	0.81	**1967**	**10**
1967-11	2.7	2.51	-0.19	**1967**	**11**
1967-12	1.52	2.21	0.69	**1967**	**12**
1968-01	6.27	1.2	-5.07	**1968**	**1**
1968-02	1.75	2.28	0.53	**1968**	**2**
1968-03	1.38	3.43	2.05	**1968**	**3**
1968-04	3.92	3.67	-0.25	**1968**	**4**
1968-05	4.97	4.4	-0.57	**1968**	**5**
1968-06	8.43	5.26	-3.17	**1968**	**6**
1968-07	1.27	6.77	5.5	**1968**	**7**
1968-08	1.48	7.76	6.28	**1968**	**8**
1968-09	7.09	4.79	-2.3	**1968**	**9**
1968-10	1.53	4.42	2.89	**1968**	**10**
1968-11	4.88	3.82	-1.06	**1968**	**11**
1968-12	2.16	2.48	0.32	**1968**	**12**
1969-01	1.35	2.33	0.98	**1969**	**1**
1969-02	4.41	2.28	-2.13	**1969**	**2**
1969-03	3.49	3.78	0.29	**1969**	**3**
1969-04	5.09	4.14	-0.95	**1969**	**4**

1969-05	4.27	4.22	-0.05	1969	5
1969-06	1.91	6.85	4.94	1969	6
1969-07	0.44	8.11	7.67	1969	7
1969-08	2.79	6.27	3.48	1969	8
1969-09	3.59	5.04	1.45	1969	9
1969-10	3.62	4.32	0.7	1969	10
1969-11	2.59	3	0.41	1969	11
1969-12	2.78	2.39	-0.39	1969	12
1970-01	2.19	1.63	-0.56	1970	1
1970-02	3.15	2.61	-0.54	1970	2
1970-03	2.88	3.23	0.35	1970	3
1970-04	1.52	4.06	2.54	1970	4
1970-05	6.79	4.3	-2.49	1970	5
1970-06	1.55	5.79	4.24	1970	6
1970-07	1.57	6.75	5.18	1970	7
1970-08	1.57	7.2	5.63	1970	8
1970-09	4.43	4.75	0.32	1970	9
1970-10	3.27	3.92	0.65	1970	10
1970-11	0.05	3.98	3.93	1970	11
1970-12	0.71	3.14	2.43	1970	12
1971-01	0.06	2.83	2.77	1971	1
1971-02	1.34	3.76	2.42	1971	2
1971-03	0.37	5.51	5.14	1971	3
1971-04	1.56	5.18	3.62	1971	4
1971-05	1.56	5.46	3.9	1971	5
1971-06	3.55	6.72	3.17	1971	6
1971-07	0.62	8.12	7.5	1971	7
1971-08	6.6	4.97	-1.63	1971	8
1971-09	7.56	4.69	-2.87	1971	9
1971-10	2.91	3.79	0.88	1971	10
1971-11	1.62	3.5	1.88	1971	11
1971-12	3.62	2.17	-1.45	1971	12
1972-01	2.29	2.07	-0.22	1972	1
1972-02	0.85	2.91	2.06	1972	2
1972-03	1.39	4.9	3.51	1972	3
1972-04	1	5.57	4.57	1972	4
1972-05	12.13	4.71	-7.42	1972	5
1972-06	2.86	5.86	3	1972	6
1972-07	2.36	6.51	4.15	1972	7
1972-08	3.27	5.89	2.62	1972	8
1972-09	2.4	5.31	2.91	1972	9
1972-10	2.6	4.25	1.65	1972	10
1972-11	2.79	2.52	-0.27	1972	11
1972-12	0.88	1.89	1.01	1972	12
1973-01	3.83	2.17	-1.66	1973	1
1973-02	3.22	2	-1.22	1973	2
1973-03	3.73	3.77	0.04	1973	3

1973-04	5.92	3.36	-2.56	**1973**	**4**
1973-05	2.04	5.32	3.28	**1973**	**5**
1973-06	9.78	5.11	-4.67	**1973**	**6**
1973-07	2.27	6.67	4.4	**1973**	**7**
1973-08	2.94	5.37	2.43	**1973**	**8**
1973-09	4.77	4.31	-0.46	**1973**	**9**
1973-10	9.98	3.53	-6.45	**1973**	**10**
1973-11	1.29	3.23	1.94	**1973**	**11**
1973-12	0.67	3.05	2.38	**1973**	**12**
1974-01	3.8	1.8	-2	**1974**	**1**
1974-02	0.39	3.43	3.04	**1974**	**2**
1974-03	1.17	3.88	2.71	**1974**	**3**
1974-04	1.33	5.47	4.14	**1974**	**4**
1974-05	6.32	5.12	-1.2	**1974**	**5**
1974-06	2.08	6.42	4.34	**1974**	**6**
1974-07	0.96	7.46	6.5	**1974**	**7**
1974-08	7.75	5.51	-2.24	**1974**	**8**
1974-09	5.93	4.12	-1.81	**1974**	**9**
1974-10	2.97	3.75	0.78	**1974**	**10**
1974-11	4.79	2.45	-2.34	**1974**	**11**
1974-12	1.8	1.89	0.09	**1974**	**12**
1975-01	0.89	2.53	1.64	**1975**	**1**
1975-02	2.08	2.81	0.73	**1975**	**2**
1975-03	0.88	3.63	2.75	**1975**	**3**
1975-04	5.35	3.94	-1.41	**1975**	**4**
1975-05	10.07	3.86	-6.21	**1975**	**5**
1975-06	4.91	5.63	0.72	**1975**	**6**
1975-07	3.02	6.01	2.99	**1975**	**7**
1975-08	2.8	5.75	2.95	**1975**	**8**
1975-09	1.68	4.91	3.23	**1975**	**9**
1975-10	2.61	5.03	2.42	**1975**	**10**
1975-11	1.14	3.67	2.53	**1975**	**11**
1975-12	1.71	2	0.29	**1975**	**12**
1976-01	0.78	2.72	1.94	**1976**	**1**
1976-02	0.45	3.63	3.18	**1976**	**2**
1976-03	2	3.75	1.75	**1976**	**3**
1976-04	8.73	3.79	-4.94	**1976**	**4**
1976-05	6.24	4.38	-1.86	**1976**	**5**
1976-06	1.64	6.06	4.42	**1976**	**6**
1976-07	4.6	5.09	0.49	**1976**	**7**
1976-08	1.5	6.39	4.89	**1976**	**8**
1976-09	5.79	5.01	-0.78	**1976**	**9**
1976-10	9.16	4.05	-5.11	**1976**	**10**
1976-11	3.29	2.18	-1.11	**1976**	**11**
1976-12	5.07	1.98	-3.09	**1976**	**12**
1977-01	2.6	1.7	-0.9	**1977**	**1**
1977-02	2.14	3.21	1.07	**1977**	**2**

1977-03	1.28	4.07	2.79	**1977**	**3**
1977-04	8.09	4.43	-3.66	**1977**	**4**
1977-05	2.18	3.91	1.73	**1977**	**5**
1977-06	2.93	6.11	3.18	**1977**	**6**
1977-07	0.74	7.5	6.76	**1977**	**7**
1977-08	0.71	7.06	6.35	**1977**	**8**
1977-09	3.8	5.95	2.15	**1977**	**9**
1977-10	1.81	5.11	3.3	**1977**	**10**
1977-11	4.05	3.21	-0.84	**1977**	**11**
1977-12	0.54	2.78	2.24	**1977**	**12**
1978-01	2.09	1.77	-0.32	**1978**	**1**
1978-02	2.23	1.91	-0.32	**1978**	**2**
1978-03	1.45	4.32	2.87	**1978**	**3**
1978-04	2.16	4.37	2.21	**1978**	**4**
1978-05	2.35	5.54	3.19	**1978**	**5**
1978-06	4.71	6.48	1.77	**1978**	**6**
1978-07	1.86	7.78	5.92	**1978**	**7**
1978-08	2.36	6.72	4.36	**1978**	**8**
1978-09	8.08	3.88	-4.2	**1978**	**9**
1978-10	0.93	4.45	3.52	**1978**	**10**
1978-11	5.24	2.46	-2.78	**1978**	**11**
1978-12	2.28	2.04	-0.24	**1978**	**12**
1979-01	4.65	2.03	-2.62	**1979**	**1**
1979-02	2.36	1.91	-0.45	**1979**	**2**
1979-03	2.87	3.75	0.88	**1979**	**3**
1979-04	6.05	3.67	-2.38	**1979**	**4**
1979-05	6.07	4.31	-1.76	**1979**	**5**
1979-06	3.63	6.06	2.43	**1979**	**6**
1979-07	4.55	6.24	1.69	**1979**	**7**
1979-08	2.09	5.97	3.88	**1979**	**8**
1979-09	3.3	5.09	1.79	**1979**	**9**
1979-10	0.77	5.27	4.5	**1979**	**10**
1979-11	1.25	2.98	1.73	**1979**	**11**
1979-12	2.85	2.03	-0.82	**1979**	**12**
1980-01	2.24	2.01	-0.23	**1980**	**1**
1980-02	1.33	2.31	0.98	**1980**	**2**
1980-03	1.54	3.99	2.45	**1980**	**3**
1980-04	1.21	5.31	4.1	**1980**	**4**
1980-05	7.32	4.47	-2.85	**1980**	**5**
1980-06	0.52	7.41	6.89	**1980**	**6**
1980-07	0.94	8.77	7.83	**1980**	**7**
1980-08	2.02	7.01	4.99	**1980**	**8**
1980-09	5.65	4.66	-0.99	**1980**	**9**
1980-10	1.25	4.34	3.09	**1980**	**10**
1980-11	3.4	3.06	-0.34	**1980**	**11**
1980-12	0.92	2.03	1.11	**1980**	**12**
1981-01	1.94	2.43	0.49	**1981**	**1**

1981-02	1.35	2.35	1	**1981**	**2**
1981-03	2.11	3.59	1.48	**1981**	**3**
1981-04	2.84	4.08	1.24	**1981**	**4**
1981-05	4.53	4.92	0.39	**1981**	**5**
1981-06	8.5	4.84	-3.66	**1981**	**6**
1981-07	2.34	5.95	3.61	**1981**	**7**
1981-08	8.49	6.42	-2.07	**1981**	**8**
1981-09	1.67	5.17	3.5	**1981**	**9**
1981-10	6.77	3.97	-2.8	**1981**	**10**
1981-11	2.18	2.96	0.78	**1981**	**11**
1981-12	0.97	2.56	1.59	**1981**	**12**
1982-01	1	1.99	0.99	**1982**	**1**
1982-02	2.39	2.32	-0.07	**1982**	**2**
1982-03	0.82	2.94	2.12	**1982**	**3**
1982-04	1.67	3.94	2.27	**1982**	**4**
1982-05	6.85	4.25	-2.6	**1982**	**5**
1982-06	1.51	6.03	4.52	**1982**	**6**
1982-07	0.31	7.82	7.51	**1982**	**7**
1982-08	0.85	7.26	6.41	**1982**	**8**
1982-09	2.17	6.2	4.03	**1982**	**9**
1982-10	4.31	4.24	-0.07	**1982**	**10**
1982-11	3.75	3.09	-0.66	**1982**	**11**
1982-12	1.66	2.31	0.65	**1982**	**12**
1983-01	1.6	1.8	0.2	**1983**	**1**
1983-02	3.09	2.5	-0.59	**1983**	**2**
1983-03	4.85	3.76	-1.09	**1983**	**3**
1983-04	0.19	4.95	4.76	**1983**	**4**
1983-05	4.39	4.95	0.56	**1983**	**5**
1983-06	3.21	5.43	2.22	**1983**	**6**
1983-07	4.16	6.18	2.02	**1983**	**7**
1983-08	2.51	6.08	3.57	**1983**	**8**
1983-09	5.31	5.29	-0.02	**1983**	**9**
1983-10	2.56	4.14	1.58	**1983**	**10**
1983-11	3.31	3.4	0.09	**1983**	**11**
1983-12	0.63	1.99	1.36	**1983**	**12**
1984-01	2.93	2.11	-0.82	**1984**	**1**
1984-02	1.5	3.34	1.84	**1984**	**2**
1984-03	1.99	4.59	2.6	**1984**	**3**
1984-04	0.48	6.24	5.76	**1984**	**4**
1984-05	1.79	6	4.21	**1984**	**5**
1984-06	1.58	6.8	5.22	**1984**	**6**
1984-07	2.18	7.86	5.68	**1984**	**7**
1984-08	1.23	7.05	5.82	**1984**	**8**
1984-09	1.89	6.08	4.19	**1984**	**9**
1984-10	6.91	4.46	-2.45	**1984**	**10**
1984-11	1.98	3.39	1.41	**1984**	**11**
1984-12	3.34	2.4	-0.94	**1984**	**12**

1985-01	2.95	2.61	-0.34	**1985**	**1**
1985-02	2.3	2.24	-0.06	**1985**	**2**
1985-03	3.08	3.32	0.24	**1985**	**3**
1985-04	4.75	3.99	-0.76	**1985**	**4**
1985-05	2.41	4.8	2.39	**1985**	**5**
1985-06	5.1	5.79	0.69	**1985**	**6**
1985-07	1.79	6.72	4.93	**1985**	**7**
1985-08	0.48	8.03	7.55	**1985**	**8**
1985-09	4.79	5.87	1.08	**1985**	**9**
1985-10	4.61	4.21	-0.4	**1985**	**10**
1985-11	6.33	2.3	-4.03	**1985**	**11**
1985-12	1.02	1.71	0.69	**1985**	**12**
1986-01	1.48	2.68	1.2	**1986**	**1**
1986-02	1.51	2.82	1.31	**1986**	**2**
1986-03	1.03	4.53	3.5	**1986**	**3**
1986-04	1.03	4.52	3.49	**1986**	**4**
1986-05	5.96	4.27	-1.69	**1986**	**5**
1986-06	3.9	5.04	1.14	**1986**	**6**
1986-07	0.54	7.94	7.4	**1986**	**7**
1986-08	2.17	6.41	4.24	**1986**	**8**
1986-09	4.21	4.52	0.31	**1986**	**9**
1986-10	5.77	3.41	-2.36	**1986**	**10**
1986-11	3.03	2.39	-0.64	**1986**	**11**
1986-12	6.22	1.7	-4.52	**1986**	**12**
1987-01	1.67	2.33	0.66	**1987**	**1**
1987-02	5.52	2.31	-3.21	**1987**	**2**
1987-03	1.09	3.75	2.66	**1987**	**3**
1987-04	0.31	5.61	5.3	**1987**	**4**
1987-05	7.05	4.19	-2.86	**1987**	**5**
1987-06	13.36	5.09	-8.27	**1987**	**6**
1987-07	2	6	4	**1987**	**7**
1987-08	1.64	7.32	5.68	**1987**	**8**
1987-09	2.85	5.41	2.56	**1987**	**9**
1987-10	0.6	5.09	4.49	**1987**	**10**
1987-11	3.92	2.91	-1.01	**1987**	**11**
1987-12	2.93	2.05	-0.88	**1987**	**12**
1988-01	0.46	2.18	1.72	**1988**	**1**
1988-02	0.84	2.44	1.6	**1988**	**2**
1988-03	2.36	4.33	1.97	**1988**	**3**
1988-04	2.27	5.03	2.76	**1988**	**4**
1988-05	2.75	5.27	2.52	**1988**	**5**
1988-06	1.96	6.3	4.34	**1988**	**6**
1988-07	2.89	6.85	3.96	**1988**	**7**
1988-08	0.9	6.62	5.72	**1988**	**8**
1988-09	1.98	5.97	3.99	**1988**	**9**
1988-10	1.39	5.25	3.86	**1988**	**10**
1988-11	0.62	4.14	3.52	**1988**	**11**

1988-12	1.39	2.54	1.15	**1988**	**12**
1989-01	5.11	1.86	-3.25	**1989**	**1**
1989-02	0.92	1.95	1.03	**1989**	**2**
1989-03	2.8	3.49	0.69	**1989**	**3**
1989-04	2.17	4.69	2.52	**1989**	**4**
1989-05	4.75	4.87	0.12	**1989**	**5**
1989-06	4.62	5.89	1.27	**1989**	**6**
1989-07	1.49	7.1	5.61	**1989**	**7**
1989-08	0.87	7.13	6.26	**1989**	**8**
1989-09	1.02	6.52	5.5	**1989**	**9**
1989-10	2.57	5.08	2.51	**1989**	**10**
1989-11	2.01	3.06	1.05	**1989**	**11**
1989-12	0.89	2.57	1.68	**1989**	**12**
1990-01	1.83	2.53	0.7	**1990**	**1**
1990-02	2.78	2.92	0.14	**1990**	**2**
1990-03	3.16	3.1	-0.06	**1990**	**3**
1990-04	3.55	3.55	0	**1990**	**4**
1990-05	2.61	5.17	2.56	**1990**	**5**
1990-06	0.97	7.65	6.68	**1990**	**6**
1990-07	4.73	6.69	1.96	**1990**	**7**
1990-08	1.17	6.86	5.69	**1990**	**8**
1990-09	4.49	5.03	0.54	**1990**	**9**
1990-10	2.11	4.74	2.63	**1990**	**10**
1990-11	1.87	2.81	0.94	**1990**	**11**
1990-12	0.98	2.06	1.08	**1990**	**12**
1991-01	6.71	2.16	-4.55	**1991**	**1**
1991-02	3.19	2.37	-0.82	**1991**	**2**
1991-03	1.57	4.07	2.5	**1991**	**3**
1991-04	5.59	3.63	-1.96	**1991**	**4**
1991-05	3.39	4.65	1.26	**1991**	**5**
1991-06	4.5	6.06	1.56	**1991**	**6**
1991-07	3.25	6.55	3.3	**1991**	**7**
1991-08	1.55	7.48	5.93	**1991**	**8**
1991-09	5.09	5.14	0.05	**1991**	**9**
1991-10	2.13	5.97	3.84	**1991**	**10**
1991-11	1.35	3.62	2.27	**1991**	**11**
1991-12	10.98	4.3	-6.68	**1991**	**12**
1992-01	5.51	2.17	-3.34	**1992**	**1**
1992-02	8.03	2.87	-5.16	**1992**	**2**
1992-03	3.11	3.58	0.47	**1992**	**3**
1992-04	5.2	4.35	-0.85	**1992**	**4**
1992-05	8.54	4.73	-3.81	**1992**	**5**
1992-06	4.38	5.81	1.43	**1992**	**6**
1992-07	2.01	6.88	4.87	**1992**	**7**
1992-08	2.06	6	3.94	**1992**	**8**
1992-09	1.62	5.87	4.25	**1992**	**9**
1992-10	1.35	5.4	4.05	**1992**	**10**

1992-11	5.15	3.88	-1.27	1992	11
1992-12	2.34	1.95	-0.39	1992	12
1993-01	2.35	2.71	0.36	1993	1
1993-02	2.69	2.16	-0.53	1993	2
1993-03	3.75	3.41	-0.34	1993	3
1993-04	2.92	4.32	1.4	1993	4
1993-05	8.79	5.95	-2.84	1993	5
1993-06	7.58	6.94	-0.64	1993	6
1993-07	0.18	8.24	8.06	1993	7
1993-08	0.34	9.32	8.98	1993	8
1993-09	0.97	7.29	6.32	1993	9
1993-10	4.04	5.65	1.61	1993	10
1993-11	1.29	2.9	1.61	1993	11
1993-12	1.43	3.17	1.74	1993	12
1994-01	0.99	2.29	1.3	1994	1
1994-02	1.25	2.09	0.84	1994	2
1994-03	2.9	4.25	1.35	1994	3
1994-04	2.93	4.47	1.54	1994	4
1994-05	7.59	3.95	-3.64	1994	5
1994-06	2.27	5.8	3.53	1994	6
1994-07	0.13	8.32	8.19	1994	7
1994-08	4	6.25	2.25	1994	8
1994-09	3.54	6.06	2.52	1994	9
1994-10	10.01	4.57	-5.44	1994	10
1994-11	0.71	3.06	2.35	1994	11
1994-12	5.11	2.5	-2.61	1994	12
1995-01	2.33	2.33	0	1995	1
1995-02	2.49	2.49	0	1995	2
1995-03	3.04	3.78	0.74	1995	3
1995-04	2.8	3.94	1.14	1995	4
1995-05	6.25	5.07	-1.18	1995	5
1995-06	3.2	6.15	2.95	1995	6
1995-07	1.01	7.23	6.22	1995	7
1995-08	3.43	6.29	2.86	1995	8
1995-09	2.01	5.53	3.52	1995	9
1995-10	1.54	5.26	3.72	1995	10
1995-11	1.58	3.05	1.47	1995	11
1995-12	2.05	2.54	0.49	1995	12
1996-01	0.08	3.04	2.96	1996	1
1996-02	0.31	3.79	3.48	1996	2
1996-03	1.19	3.89	2.7	1996	3
1996-04	1.72	5.61	3.89	1996	4
1996-05	0.18	6.21	6.03	1996	5
1996-06	4.81	6.59	1.78	1996	6
1996-07	1.29	7.77	6.48	1996	7
1996-08	6.19	6.95	0.76	1996	8
1996-09	5.83	4.84	-0.99	1996	9

1996-10	9.82	4.5	-5.32	1996	10
1996-11	2.41	3.32	0.91	1996	11
1996-12	2.49	2.93	0.44	1996	12
1997-01	2.64	2.57	-0.07	1997	1
1997-02	2.44	2.13	-0.31	1997	2
1997-03	3.86	3.26	-0.6	1997	3
1997-04	6.64	3.73	-2.91	1997	4
1997-05	5.36	4.18	-1.18	1997	5
1997-06	7.84	5.43	-2.41	1997	6
1997-07	0.71	7.04	6.33	1997	7
1997-08	1.7	6.76	5.06	1997	8
1997-09	2.5	5.8	3.3	1997	9
1997-10	7.78	3.81	-3.97	1997	10
1997-11	3.24	3.23	-0.01	1997	11
1997-12	2.52	2.44	-0.08	1997	12
1998-01	1.7	2.28	0.58	1998	1
1998-02	4.86	2.69	-2.17	1998	2
1998-03	1.78	3.89	2.11	1998	3
1998-04	0.8	4.84	4.04	1998	4
1998-05	0.4	5.54	5.14	1998	5
1998-06	1.07	7.73	6.66	1998	6
1998-07	1.59	7.3	5.71	1998	7
1998-08	7.71	5.22	-2.49	1998	8
1998-09	6.32	4.38	-1.94	1998	9
1998-10	15.41	3.09	-12.32	1998	10
1998-11	5.43	2.99	-2.44	1998	11
1998-12	1.95	2.55	0.6	1998	12
1999-01	0.63	3.94	3.31	1999	1
1999-02	0.39	2.95	2.56	1999	2
1999-03	3.58	4.38	0.8	1999	3
1999-04	0.64	4.69	4.05	1999	4
1999-05	4.73	6.04	1.31	1999	5
1999-06	4.99	6.64	1.65	1999	6
1999-07	2.13	7.18	5.05	1999	7
1999-08	0.88	7.83	6.95	1999	8
1999-09	0.62	7.26	6.64	1999	9
1999-10	0.81	5.66	4.85	1999	10
1999-11	0.32	4.67	4.35	1999	11
1999-12	0.87	3.59	2.72	1999	12
2000-01	3.89	2.98	-0.91	2000	1
2000-02	1.82	2.63	0.81	2000	2
2000-03	2.77	3.95	1.18	2000	3
2000-04	2.02	3.84	1.82	2000	4
2000-05	5.85	3.93	-1.92	2000	5
2000-06	5.63	5.55	-0.08	2000	6
2000-07	0.4	6.78	6.38	2000	7
2000-08	0.72	5.83	5.11	2000	8

2000-09	1.63	5.85	4.22	2000	9
2000-10	4.75	4.39	-0.36	2000	10
2000-11	8.24	4.04	-4.2	2000	11
2000-12	2.52	2.45	-0.07	2000	12
2001-01	3.2	1.92	-1.28	2001	1
2001-02	0.83	2.01	1.18	2001	2
2001-03	4.06	3.12	-0.94	2001	3
2001-04	0.75	3.81	3.06	2001	4
2001-05	3.15	5.05	1.9	2001	5
2001-06	2.23	6.34	4.11	2001	6
2001-07	0.72	8	7.28	2001	7
2001-08	8.11	8.47	0.36	2001	8
2001-09	5.51	5.22	-0.29	2001	9
2001-10	2.44	3.95	1.51	2001	10
2001-11	2.9	2.85	-0.05	2001	11
2001-12	5.14	2.33	-2.81	2001	12
2002-01	0.95	2.21	1.26	2002	1
2002-02	0.67	2.67	2	2002	2
2002-03	0.84	3.49	2.65	2002	3
2002-04	3.04	4.74	1.7	2002	4
2002-05	1.42	5.61	4.19	2002	5
2002-06	4.61	6.44	1.83	2002	6
2002-07	6.73	6.07	-0.66	2002	7
2002-08	1.47	6.69	5.22	2002	8
2002-09	4.78	5.01	0.23	2002	9
2002-10	8.31	3.06	-5.25	2002	10
2002-11	4.4	3	-1.4	2002	11
2002-12	5.68	2.27	-3.41	2002	12
2003-01	1.6	2.12	0.52	2003	1
2003-02	3.65	1.63	-2.02	2003	2
2003-03	1.06	2.78	1.72	2003	3
2003-04	0.26	4.3	4.04	2003	4
2003-05	0.47	4.84	4.37	2003	5
2003-06	3.27	6.41	3.14	2003	6
2003-07	4.53	4.86	0.33	2003	7
2003-08	1.85	6.05	4.2	2003	8
2003-09	6.96	4.01	-2.95	2003	9
2003-10	2.56	3.74	1.18	2003	10
2003-11	1.42	2.82	1.4	2003	11
2003-12	1.12	2.56	1.44	2003	12
2004-01	3.41	2.01	-1.4	2004	1
2004-02	2.99	1.81	-1.18	2004	2
2004-03	1.93	2.6	0.67	2004	3
2004-04	5.22	3.65	-1.57	2004	4
2004-05	3.2	3.94	0.74	2004	5
2004-06	10.09	5.01	-5.08	2004	6
2004-07	2.09	5.31	3.22	2004	7

2004-08	2.06	5.7	3.64	2004	8
2004-09	2.12	4.45	2.33	2004	9
2004-10	6.92	3.33	-3.59	2004	10
2004-11	9.94	2.58	-7.36	2004	11
2004-12	0.27	1.96	1.69	2004	12
2005-01	3.03	1.86	-1.17	2005	1
2005-02	3.2	1.63	-1.57	2005	2
2005-03	3.45	3.52	0.07	2005	3
2005-04	0.63	4.34	3.71	2005	4
2005-05	3.85	4.19	0.34	2005	5
2005-06	0.93	6.01	5.08	2005	6
2005-07	3.42	5.86	2.44	2005	7
2005-08	1.47	6.01	4.54	2005	8
2005-09	1.64	5.26	3.62	2005	9
2005-10	2.38	4.19	1.81	2005	10
2005-11	0.64	3.41	2.77	2005	11
2005-12	0.84	2.28	1.44	2005	12
2006-01	0.88	2.97	2.09	2006	1
2006-02	0.95	2.36	1.41	2006	2
2006-03	1.37	3.63	2.26	2006	3
2006-04	1.12	5.23	4.11	2006	4
2006-05	2.91	5.66	2.75	2006	5
2006-06	1.92	6.53	4.61	2006	6
2006-07	3.56	5.82	2.26	2006	7
2006-08	0.49	6.34	5.85	2006	8
2006-09	4.59	4.99	0.4	2006	9
2006-10	2.72	3.87	1.15	2006	10
2006-11	0.49	3.15	2.66	2006	11
2006-12	3.44	1.81	-1.63	2006	12
2007-01	5.6	1.68	-3.92	2007	1
2007-02	0.3	1.97	1.67	2007	2
2007-03	8.16	2.9	-5.26	2007	3
2007-04	2.97	3.43	0.46	2007	4
2007-05	4.4	3.65	-0.75	2007	5
2007-06	4.76	4.51	-0.25	2007	6
2007-07	11.18	3.95	-7.23	2007	7
2007-08	2.87	5.03	2.16	2007	8
2007-09	1.49	4.02	2.53	2007	9
2007-10	1.55	4.11	2.56	2007	10
2007-11	2.98	2.4	-0.58	2007	11
2007-12	0.6	2.06	1.46	2007	12
2008-01	1.56	1.96	0.4	2008	1
2008-02	1.14	2.6	1.46	2008	2
2008-03	2.09	3.42	1.33	2008	3
2008-04	2.86	3.92	1.06	2008	4
2008-05	0.42	4.96	4.54	2008	5
2008-06	0.35	6.82	6.47	2008	6

2008-07	2.52	5.83	3.31	**2008**	**7**
2008-08	4.05	5.12	1.07	**2008**	**8**
2008-09	0.63	4.96	4.33	**2008**	**9**
2008-10	1.32	4.55	3.23	**2008**	**10**
2008-11	0.5	3.14	2.64	**2008**	**11**
2008-12	0.66	2.43	1.77	**2008**	**12**
2009-01	0.29	2.6	2.31	**2009**	**1**
2009-02	0.48	3.08	2.6	**2009**	**2**
2009-03	1.85	3.78	1.93	**2009**	**3**
2009-04	6.8	4.93	-1.87	**2009**	**4**
2009-05	1.84	4.79	2.95	**2009**	**5**
2009-06	0.26	6.66	6.4	**2009**	**6**
2009-07	1.05	7.24	6.19	**2009**	**7**
2009-08	1.58	7.05	5.47	**2009**	**8**
2009-09	5.57	4.12	-1.45	**2009**	**9**
2009-10	9.41	3.03	-6.38	**2009**	**10**
2009-11	4.25	2.52	-1.73	**2009**	**11**
2009-12	3.19	1.69	-1.5	**2009**	**12**
2010-01	3.14	1.9	-1.24	**2010**	**1**
2010-02	3.47	2.06	-1.41	**2010**	**2**
2010-03	2.25	3.73	1.48	**2010**	**3**
2010-04	1.92	3.62	1.7	**2010**	**4**
2010-05	4.44	4.98	0.54	**2010**	**5**
2010-06	4.19	5.82	1.63	**2010**	**6**
2010-07	5.06	5.06	0	**2010**	**7**
2010-08	0.39	6.66	6.27	**2010**	**8**
2010-09	7.48	4.74	-2.74	**2010**	**9**
2010-10	0.05	4.63	4.58	**2010**	**10**
2010-11	2.16	3.01	0.85	**2010**	**11**
2010-12	0.67	2.23	1.56	**2010**	**12**
2011-01	3.23	2.37	-0.86	**2011**	**1**
2011-02	0.31	2.26	1.95	**2011**	**2**
2011-03	0.12	4.14	4.02	**2011**	**3**
2011-04	0	5.55	5.55	**2011**	**4**
2011-05	1.28	5.81	4.53	**2011**	**5**
2011-06	2.16	7.56	5.4	**2011**	**6**
2011-07	0.17	7.44	7.27	**2011**	**7**
2011-08	0.1	7.89	7.79	**2011**	**8**
2011-09	0.84	6.88	6.04	**2011**	**9**
2011-10	1.66	4.69	3.03	**2011**	**10**
2011-11	1.18	3.01	1.83	**2011**	**11**
2011-12	3.43	1.65	-1.78	**2011**	**12**
2012-01	4.03	2.7	-1.33	**2012**	**1**
2012-02	3.4	2.07	-1.33	**2012**	**2**
2012-03	4.6	3.88	-0.72	**2012**	**3**
2012-04	0.42	4.44	4.02	**2012**	**4**
2012-05	5.44	5.16	-0.28	**2012**	**5**

2012-06	0.87	5.94	5.07	2012	6
2012-07	4.3	5.47	1.17	2012	7
2012-08	1.07	6.47	5.4	2012	8
2012-09	4.86	5.27	0.41	2012	9
2012-10	1	3.58	2.58	2012	10
2012-11	0.33	2.71	2.38	2012	11
2012-12	0.6	2.29	1.69	2012	12
2013-01	3.11	2.19	-0.92	2013	1
2013-02	1.06	2.6	1.54	2013	2
2013-03	0.38	4.05	3.67	2013	3
2013-04	4.97	3.88	-1.09	2013	4
2013-05	2.47	5.08	2.61	2013	5
2013-06	1.19	6.11	4.92	2013	6
2013-07	2.2	6.58	4.38	2013	7
2013-08	1.78	6.59	4.81	2013	8
2013-09	5.5	4.95	-0.55	2013	9
2013-10	5.75	4.58	-1.17	2013	10
2013-11	1.49	2.54	1.05	2013	11
2013-12	0.65	1.54	0.89	2013	12
2014-01	0.78	2.33	1.55	2014	1
2014-02	0.84	1.83	0.99	2014	2
2014-03	2.67	3.21	0.54	2014	3
2014-04	0.72	4.33	3.61	2014	4
2014-05	7.91	4.88	-3.03	2014	5
2014-06	2.18	5.67	3.49	2014	6
2014-07	0.92	9.16	8.24	2014	7
2014-08	0.65	6.88	6.23	2014	8
2014-09	3.46	5.23	1.77	2014	9
2014-10	1.15	4.55	3.4	2014	10
2014-11	4.13	2.68	-1.45	2014	11
2014-12	2.05	1.85	-0.2	2014	12
2015-01	2.9	1.68	-1.22	2015	1
2015-02	0.76	1.75	0.99	2015	2
2015-03	6.47	2.61	-3.86	2015	3
2015-04	6.64	3.55	-3.09	2015	4
2015-05	10.22	3.83	-6.39	2015	5
2015-06	4.19	4.93	0.74	2015	6
2015-07	0.56	6.62	6.06	2015	7
2015-08	0.95	6.61	5.66	2015	8
2015-09	1.25	5.01	3.76	2015	9
2015-10	6.9	4.29	-2.61	2015	10
2015-11	2.52	2.2	-0.32	2015	11
2015-12	2.14	2.24	0.1	2015	12
2016-01	1.08	2.07	0.99	2016	1
2016-02	1.87	3.42	1.55	2016	2
2016-03	2.98	4	1.02	2016	3
2016-04	4.43	4.24	-0.19	2016	4

2016-05	5.88	4.12	-1.76	2016	5
2016-06	3.18	5.64	2.46	2016	6
2016-07	1.26	7.91	6.65	2016	7
2016-08	7.07	5.82	-1.25	2016	8
2016-09	2.08	4.96	2.88	2016	9
2016-10	0.11	4.83	4.72	2016	10
2016-11	2.01	2.77	0.76	2016	11
2016-12	3.8	2.06	-1.74	2016	12
2017-01	2.75	2.61	-0.14	2017	1
2017-02	2.73	3.38	0.65	2017	2
2017-03	4.43	4.02	-0.41	2017	3
2017-04	2.33	4.84	2.51	2017	4
2017-05	2.06	4.13	2.07	2017	5
2017-06	3.75	5.15	1.4	2017	6
2017-07	0.87	5.79	4.92	2017	7
2017-08	14.95	5.77	-9.18	2017	8
2017-09	2.22	4.44	2.22	2017	9
2017-10	1.21	4.31	3.1	2017	10
2017-11	0.42	3.92	3.5	2017	11
2017-12	3.77	2.27	-1.5	2017	12
2018-01	0.47	1.79	1.32	2018	1
2018-02	1.77	1.87	0.1	2018	2
2018-03	3.72	3.89	0.17	2018	3
2018-04	1.68	4.48	2.8	2018	4
2018-05	1.61	5.73	4.12	2018	5
2018-06	2.67	6.47	3.8	2018	6
2018-07	2	7.62	5.62	2018	7
2018-08	0.81	7.46	6.65	2018	8
2018-09	7.4	4.1	-3.3	2018	9
2018-10	6.18	2.81	-3.37	2018	10
2018-11	3.09	2.48	-0.61	2018	11
2018-12	3.98	2.4	-1.58	2018	12
2019-01	2.47	1.98	-0.49	2019	1
2019-02	0.93	1.67	0.74	2019	2
2019-03	0.4	2.67	2.27	2019	3
2019-04	4.68	4.02	-0.66	2019	4
2019-05	4.91	3.91	-1	2019	5
2019-06	4.64	5.29	0.65	2019	6
2019-07	1.11	6.36	5.25	2019	7
2019-08	0.73	6.61	5.88	2019	8
2019-09	1.6	5.43	3.83	2019	9
2019-10	3.56	4.33	0.77	2019	10
2019-11	1.33	2.17	0.84	2019	11
2019-12	0.59	2.06	1.47	2019	12
2020-01	2.3	2.09	-0.21	2020	1
2020-02	1.26	2.01	0.75	2020	2
2020-03	2.79	3	0.21	2020	3

2020-04	3.77	3.88	0.11	**2020**	**4**
2020-05	6.84	5.08	-1.76	**2020**	**5**
2020-06	2.49	4.57	2.08	**2020**	**6**
2020-07	1.43	6.7	5.27	**2020**	**7**
2020-08	1.47	6.73	5.26	**2020**	**8**
2020-09	4.63	4.43	-0.2	**2020**	**9**
2020-10	0.32	4.06	3.74	**2020**	**10**
2020-11	1.95	3.09	1.14	**2020**	**11**
2020-12	1.46	1.76	0.3	**2020**	**12**
2021-01	1.71	2.17	0.46	**2021**	**1**
2021-02	0.98	1.94	0.96	**2021**	**2**
2021-03	1.08	4.38	3.3	**2021**	**3**
2021-04	1.25	4.31	3.06	**2021**	**4**
2021-05	12.01	3.76	-8.25	**2021**	**5**
2021-06	4.64	5.52	0.88	**2021**	**6**
2021-07	4.54	5.45	0.91	**2021**	**7**
2021-08	2.67	5.35	2.68	**2021**	**8**
2021-09	2.66	5.66	3	**2021**	**9**
2021-10	7.73	4.07	-3.66	**2021**	**10**
2021-11	2.3	2.57	0.27	**2021**	**11**
2021-12	0.89	1.9	1.01	**2021**	**12**
2022-01	0.97	2.53	1.56	**2022**	**1**
2022-02	1.84	2.32	0.48	**2022**	**2**
2022-03	1.2	5.79	4.59	**2022**	**3**
2022-04	1.55	4.64	3.09	**2022**	**4**
2022-05	1.47	6.2	4.73	**2022**	**5**
2022-06	1.49	6.04	4.55	**2022**	**6**
2022-07	0.24	7.97	7.73	**2022**	**7**
2022-08	3.96	5.41	1.45	**2022**	**8**
2022-09	1.07	5.08	4.01	**2022**	**9**
2022-10	1.63	5.18	3.55	**2022**	**10**
2022-11	3.8	2.67	-1.13	**2022**	**11**
2022-12	1.41	1.91	0.5	**2022**	**12**
2023-01	2.53	2.07	-0.46	**2023**	**1**
2023-02	1.32	2.4	1.08	**2023**	**2**
2023-03	1.4	3.46	2.06	**2023**	**3**
2023-04	8	3.84	-4.16	**2023**	**4**
2023-05	7.11	4.03	-3.08	**2023**	**5**
2023-06	1.23	5.75	4.52	**2023**	**6**
2023-07	0.43	7.92	7.49	**2023**	**7**
2023-08	0.4	7.97	7.57	**2023**	**8**
2023-09	1.03	6.67	5.64	**2023**	**9**
2023-10	4.8	4.25	-0.55	**2023**	**10**
2023-11	1.65	2.23	0.58	**2023**	**11**
2023-12	0.87	1.92	1.05	**2023**	**12**
2024-01	8.01	2.76	-5.25	**2024**	**1**
2024-02	2.27	2.69	0.42	**2024**	**2**

2024-03	2.17	3.4	1.23	**2024**	**3**
2024-04	2.29	4.19	1.9	**2024**	**4**
2024-05	3.29	4.41	1.12	**2024**	**5**
2024-06	3.35	5.74	2.39	**2024**	**6**
2024-07	5.8	5.61	-0.19	**2024**	**7**
2024-08	2.05	6.95	4.9	**2024**	**8**
2024-09	0.87	5.47	4.6	**2024**	**9**

Averages by Month

Average precipitation and net evaporation **(blue)** are used to calculate the hydraulic application rate for
The past 25 years (300 rows, 25*12=300) of TWDB data are used.

	Most recent TWDB data year =	**2024**	←	TWDB currently batch-updates by full y
	Start year =	**2000**		The year formulas will need to change i

Month	Month Name	Precipitation (inches)	Evaporation (inches)	Net (inches)
1	January	**2.56**	2.22	**-0.33**
2	February	**1.63**	2.27	**0.63**
3	March	**2.57**	3.58	**1.01**
4	April	**2.81**	4.24	**1.43**
5	May	**4.18**	4.71	**0.53**
6	June	**3.05**	5.86	**2.81**
7	July	**2.68**	6.46	**3.77**
8	August	**2.55**	6.46	**3.91**
9	September	**3.27**	5.05	**1.77**
10	October	**3.52**	4.10	**0.58**
11	November	**2.67**	2.83	**0.16**
12	December	**2.07**	2.08	**0.01**
	ANNUAL AVERAGES	**33.57**	**49.85**	**16.28**

Monthly Distributions

The worst year precipitation and net will be distributed according to the average monthly distributions

	Most recent TWDB data year =	2024
	Start year =	2000

Month	Month Name	Precipitation (inches)	Evaporation (inches)	Net (inches)
1	January	7.61%	4.46%	-2.05%
2	February	4.87%	4.55%	3.89%
3	March	7.65%	7.18%	6.19%
4	April	8.38%	8.51%	8.77%
5	May	12.45%	9.45%	3.26%
6	June	9.09%	11.75%	17.25%
7	July	7.99%	12.95%	23.17%
8	August	7.59%	12.96%	24.02%
9	September	9.76%	10.13%	10.90%
10	October	10.48%	8.22%	3.58%
11	November	7.96%	5.68%	0.98%
12	December	6.18%	4.17%	0.04%
	TOTALS	**100.00%**	**100.00%**	**100.00%**

Annual Totals and Worst Net Year

The worst net year values (blue) are used with the average distibutions (above) to calculate storage req

Most recent TWDB data year = 2024
Start year = 2000

Worst year (based on net) = 2004
Worst year precipitation (inches) = **50.24**
Worst year net (inches) = **-7.89**

Year	Precipitation (inches)	Evaporation (inches)	Net (inches)
2000	40.24	52.22	11.98
2001	39.04	53.07	14.03
2002	42.9	51.26	8.36
2003	28.75	46.12	17.37
2004	50.24	42.35	-7.89
2005	25.48	48.56	23.08
2006	24.44	52.36	27.92
2007	46.86	39.71	-7.15
2008	18.1	49.71	31.61
2009	36.57	51.49	14.92
2010	35.22	48.44	13.22
2011	14.48	59.25	44.77
2012	30.92	49.98	19.06
2013	30.55	50.69	20.14
2014	27.46	52.6	25.14
2015	45.5	45.32	-0.18
2016	35.75	51.84	16.09
2017	41.49	50.63	9.14
2018	35.38	51.1	15.72
2019	26.95	46.5	19.55
2020	30.71	47.4	16.69
2021	42.46	47.08	4.62
2022	20.63	55.74	35.11
2023	30.77	52.51	21.74
2024	30.1	41.22	11.12
AVERAGES	**33.24**	**49.49**	**16.25**

᠂ irrigation.

Net Check
-0.33
0.63
1.01
1.43
0.53
2.81
3.77
3.91
1.77
0.58
0.16
0.01

(blue) in the storage calculations.

uirements.

These should match the annual averages in the first table above.			
You can reliably average a set of averages ONLY IF the underlying dataset for each average value in the			
These values should match because the averages in the monthly table are based on 12 sets of EXACTLY			

Instructions and References Index

Instructions for Getting TWDB Data

Step 1

Use a web browser to navigate to the Texas Water Development Board supported website, Water Data for Texas
The website has precipitation and evaporation data for all of Texas.

https://waterdatafortexas.org/lake-evaporation-rainfall

Step 2

Find which quadrangle your site is located in by using the map.
You can scroll or use the **+** and **-** buttons on the map to zoom.
You can click and drag to pan the map.

Step 3

Select the quadrangle for your site by clicking on the map or using the **Quad ID** dropdown menu.
You don't need to make any other menu selections.
In the example below, quadrangle 607 is active for a site near San Angelo.

Lake Evaporation and Precipitation

Step 4

Press the **End** key on your keyboard or scroll to the bottom of the page.
Under the **Download Data** heading, click the **Selected Quad** button.

Step 5

Save the .csv file to your computer or a network folder.
You'll need to import the data as a separate step, so remember or make a note about where you saved the data.

Important note about .csv files

A .csv file looks like and acts like an Excel file, but it is only set up for storing data.

You will be able to use excel functions and formulas in a .csv, but they will not be saved when you close the file.

as.

TexMesonet

Texas Water
evelopment Board

Information about data

Information about data

Apr

May

×

Cancel

ID

Cancel

Instructions for Getting TWDB Data

Automatic data import

Click the **Import My TWDB Data** button below or on the **Calculations** tab.

Select your saved .csv file (see the **Getting TWDB data** tab). The spreadsheet should automatically upload the

Manual data import step 1

Go to the **Raw TWDB Data** tab.

Select cell **A4**. The cell should be formatted with an orange background.

Don't edit any of the columns. They are pre-formatted to work with your imported data.

Manual data import step 2

Click the **Data tab in the ribbon.**

Then click **From Text/CSV** in the **Get & Transform Data** group (you're importing datat from a .csv file).

Manual data import step 3

Select the .csv file you saved from the TWDB's website.
Click **Import**.

Manual data import step 4

Click the **down arrow** on the **Load** button.
Choose **Load To...**

3/1/1940	null	null	0.34
4/1/1940	null	null	2.85
5/1/1940	null	null	3.05
6/1/1940	null	null	5.58
7/1/1940	null	null	0.26
8/1/1940	null	null	2.29
9/1/1940	null	null	1.22
10/1/1940	null	null	0.98
11/1/1940	null	null	2.97
12/1/1940	null	null	0.59
1/1/1941	null	null	2.35
2/1/1941	null	null	1.2
3/1/1941	null	null	3.19
4/1/1941	null	null	4.73
5/1/1941	null	null	3.87
6/1/1941	null	null	5.03
7/1/1941	null	null	2.64
8/1/1941	null	null	3.86

ⓘ The data in the preview has been truncated due to size limits.

Manual data import step 5

Make sure the data will go into the **Existing worksheet** in cell **A4** (A4 is okay).
Click **OK**.

Manual data import step 6

Important : Be sure to double-check the data import!

The imported data (**Raw TWDB data** tab) should have three columns.

The order should **only be** :

Precipitation   Evaporation   Net

Back to Calculations

 Back to Instructions index

e data. Use the manula import instructions below if the automatic import fails.

able years and months.

Sort

th IND

Files (*.prn,*.txt,*.csv)

Import

Cancel

n

rows

Input Values and Sources

Input Description	Symbol	Units
Runoff curve number	**CN**	*dimensionless*
Soil solution conductivity	**CI**	*mmhos/cm*
Effluent conductivity	**Ce**	*mmhos/cm*
Pond area		*acres*
Irrigation area		*acres*
Irrigation efficiency	**K**	*dimensionless, as decimal*
Design flow	**Q**	*MGD*

Evapotranspiration Sources

Source	Local Source Link (all sources are available online or
TBWE Bulletin 6019	I:\WQ\IND\SOPs\Support Documents\TLAP Support\
TWDB Borelli Manual	I:\WQ\IND\SOPs\Support Documents\TLAP Support\
TAMU Texas ET Network	https://texaset.tamu.edu/
Others (case-by-case)	

Source

TR-55, Urban Hydrology for Small Watersheds, USDA/NRCS

30 TAC 309.20, Table 3

Conductivity of effluent sample in permit application

Permit application or existing permit (for renewal)

Permit application or existing permit (for renewal)

Use 0.85, unless the irrigation manufacturer supports a different value

Permit application or existing permit (for renewal)

from the publishing agency

Bulletin 6019.pdf

Borrelli, Mean Crop Consumtive Use.pdf

Local Source Link (all sources are available online)

[I:\WQ\IND\SOPs\Support Documents\TLAP Support\TR-55 June 1986.pdf](I:\WQ\IND\SOPs\Support Documents\TLAP Support\TR-55 June 1986.pdf)

[I:\WQ\IND\SOPs\Support Documents\TLAP Support\309c.pdf](I:\WQ\IND\SOPs\Support Documents\TLAP Support\309c.pdf)

Input Values and Sources

The Soil Conservation Service (now Natural Resources Conservation Service) published runoff curve numbe
NRCS Technical Release No. 55 (commonly called TR-55) is a useful curve number reference.

I:\WQ\IND\SOPs\Support Documents\TLAP Support\TR-55 June 1986.pdf

There are four essential parts to choosing a runoff curve number (CN) value:
1. Determining whether multiple hydrologic soil groups are present in the irrigation area,
2. Choosing a CN value from the appropriate TR-55 table, and
3. Developing a composite (also called area-weighted) CN if more than one hydrologic soil group
4. Determining whether a multi-soil site can be modeled using a single water balance.

Finding hydrologic soil group information for your site

The NRCS Web Soil Survey is a good reference for many kinds of soil information.

Web Soil Survey

Use the Web Soil Survey map tools (on the Area of Interest tab) to locate your site.

After finding your site, you must define a specific area of interest.
You can use a rectangle or polygon.
Double-click to finish the shape.

You can view the soil series names and percentage breakdown in the **Soil Map** tab.

	loam, 1 to 3 percent slopes, rarely flooded		
Wy	Weswood-Yahola complex, frequently flooded	0.1	0.1%
Totals for Area of Interest		**58.0**	**100.0%**

You can view the hydrologic soil groups in the **Soil Data Explorer** tab, **Soil Reports** subtab, **Water Features**

The report page will include a table like this:

Report — Water Features					
Map unit symbol and soil	**Hydrologic**	**Surface**	**Most likely**	**Water table**	

name	group	runoff	months	Upper limit	Lower limit	Kind	Su... d
				Ft	Ft		
DuC—Dutek loamy fine sand, 3 to 8 percent slopes							
Dutek	B		Jan-Dec	—	—	—	
ShA—Ships clay, 0 to 1 percent slopes, rarely flooded							
Ships	D		Jan-Apr	—	—	—	
			May-Oct	—	—	—	
			Nov-Dec	—	—	—	
ShC—Ships clay, 1 to 5 percent slopes, rarely flooded							
Ships	D		Jan-Apr	—	—	—	
			May-Oct	—	—	—	
			Nov-Dec	—	—	—	
WeC—Weswood silt loam, 1 to 5 percent slopes, rarely flooded							
Weswood	B		Jan	—	—	—	
			Feb-May	—	—	—	
			Jun-Dec	—	—	—	
Wy—Weswood-Yahola complex, frequently flooded							
Weswood	B		Jan-Feb	—	—	—	
			Mar-Sep	—	—	—	
			Oct-Dec	—	—	—	
Yahola	A		Jan-Mar	—	—	—	
			Apr-Oct	—	—	—	
			Nov-Dec	—	—	—	

Choosing CN values from TR-55

NRCS's TR-55 is a good reference for curve numbers. It is readily available online

TR-55, June 1986.pdf

Common cureve number values are presented in **Table 2-2a** through **Table 2-2d**.
Use values for **good** condition (> 75% vegetative cover).
Although it will not usually be necessary, you may interpolate between rows (cover types) or columns (soil

Table 2-2a   Runoff curve numbers for urban areas [1]

Cover description		Average percent impervious area [2]	Curve numbers for hydrologic soil group			
Cover type and hydrologic condition			A	B	C	D
Fully developed urban areas (vegetation established)						
Open space (lawns, parks, golf courses, cemeteries, etc.) [3]:						
Poor condition (grass cover < 50%)			68	79	86	89
Fair condition (grass cover 50% to 75%)			49	69	79	84
Good condition (grass cover > 75%)			39	61	74	80
Impervious areas:						
Paved parking lots, roofs, driveways, etc.						

Paved parking lots, roofs, driveways, etc.
(excluding right-of-way) 98 98 98 98
Streets and roads:
Paved; curbs and storm sewers (excluding
right-of-way) 98 98 98 98
Paved; open ditches (including right-of-way)........................ 83 89 92 93
Gravel (including right-of-way) 76 85 89 91
Dirt (including right-of-way).. 72 82 87 89
Western desert urban areas:
Natural desert landscaping (pervious areas only) [4] 63 77 85 88
Artificial desert landscaping (impervious weed barrier,
desert shrub with 1- to 2-inch sand or gravel mulch
and basin borders) 96 96 96 96
Urban districts:
Commercial and business 85 89 92 94 95
Industrial 72 81 88 91 93
Residential districts by average lot size:
1/8 acre or less (town houses) 65 77 85 90 92
1/4 acre 38 61 75 83 87
1/3 acre 30 57 72 81 86
1/2 acre 25 54 70 80 85
1 acre 20 51 68 79 84
2 acres.. 12 46 65 77 82

Developing urban areas

Newly graded areas
(pervious areas only, no vegetation) [5] 77 86 91 94

Idle lands (CN's are determined using cover types
similar to those in table 2-2c).

_____

[1] Average runoff condition, and $I_a = 0.2S$.
[2] The average percent impervious area shown was used to develop the composite CN's. Other assumptions are as follows: impervious areas are
directly connected to the drainage system, impervious areas have a CN of 98, and pervious areas are considered equivalent to open space in
good hydrologic condition. CN's for other combinations of conditions may be computed using figure 2-3 or 2-4.
[3] CN's shown are equivalent to those of pasture. Composite CN's may be computed for other combinations of open space
cover type.
[4] Composite CN's for natural desert landscaping should be computed using figures 2-3 or 2-4 based on the impervious area percentage
(CN = 98) and the pervious area CN. The pervious area CN's are assumed equivalent to desert shrub in poor hydrologic condition.
[5] Composite CN's to use for the design of temporary measures during grading and construction should be computed using figure 2-3 or 2-4
based on the degree of development (impervious area percentage) and the CN's for the newly graded pervious areas.

Developing a composite CN

You may be able to develop a composite CN if you have more than one hydrologic soil group, soil type, or la
Build a table like the following:

Soil	HSG	Crop	Treatment	% of Area	CN	Total CN component
DuC	B	Grass	Pasture	6.6%	61	4.03
ShA	D	Grass	Pasture	51.7%	80	41.36
ShC	D	Grass	Pasture	14.7%	80	11.76
WeC	B	Grass	Pasture	26.9%	61	16.41
Wy	B	Grass	Pasture	0.1%	61	0.061
Yahola	A	Grass	Pasture	< 0.1	N/A	N/A
				Composite CN =		**73.6**

Determining whether multiple water balances are needed to model the system

A single water balance works well for single or adjacent fields with identical cropping systems.
Different hydrologic soil groups and land treatments can be modeled with a single water balance using a co

Consider using a multiple water balances if:

There are multiple fields with different types of crops.

The fields, regardless of crop type, are geographically separated (a composite CN would not be v

A composite CN is difficult to dvelop based on the proposed soil, crop, and treatment combinati

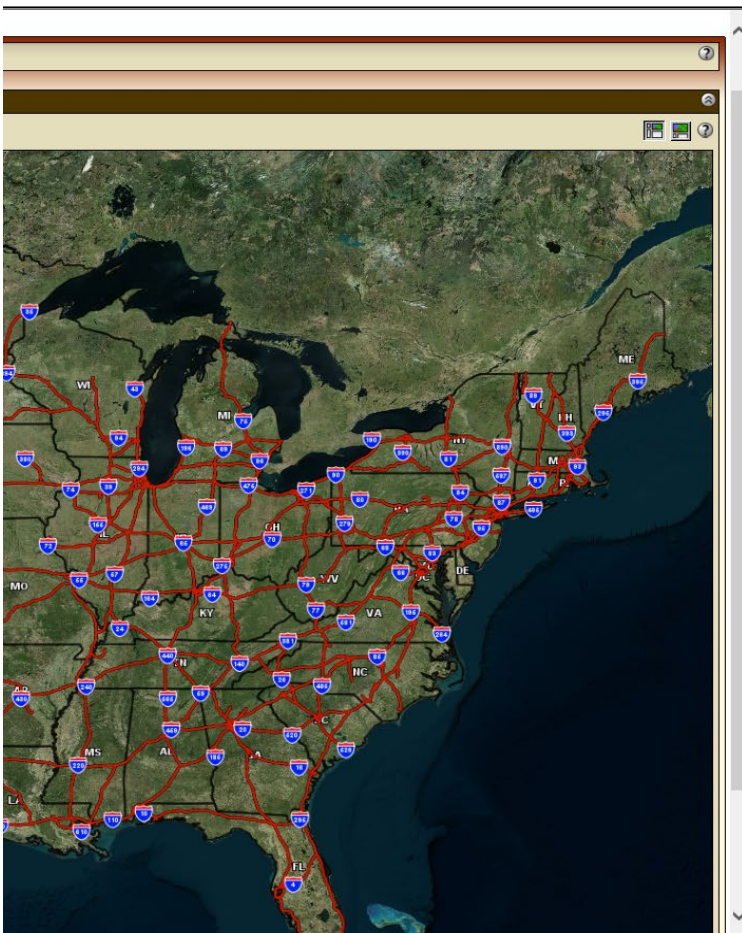Other similar situations where developing a composite CN may not be valid for all or part of the

rs.

o is present, and

Ponding	Flooding

urface epth	Duration	Frequency	Duration	Frequency
Ft				
—	—	None	—	None
—	—	None	—	
—	—	None	—	Rare
—	—	None	—	
—	—	None	—	
—	—	None	—	Rare
—	—	None	—	
—	—	None	—	
—	—	None	—	Rare
—	—	None	—	
—	—	None	—	
—	—	None	Brief (2 to 7 days)	Frequent
—	—	None	—	
—	—	None	—	
—	—	None	Very brief (4 to 48 hours)	Frequent
—	—	None	—	

Table 2-2b   Runoff curve numbers for cultivated agricultural lands [1]

Cover description			Curve number hydrologic soil	
Cover type	Treatment [2]	Hydrologic condition [3]	A	B
Fallow	Bare soil	—	77	86
	Crop residue cover (CR)	Poor	76	85
		Good	74	83
Row crops	Straight row (SR)	Poor	72	81
		Good	67	78
	SR + CR	Poor	71	80
		Good	64	75
	Contoured (C)	Poor	70	79

Cover type	Treatment	Hydrologic condition		
	Contoured (C)	Poor		
		Good	65	75
	C + CR	Poor	69	78
		Good	64	74
	Contoured & terraced (C&T)	Poor	66	74
		Good	62	71
	C&T+ CR	Poor	65	73
		Good	61	70
Small grain	SR	Poor	65	76
		Good	63	75
	SR + CR	Poor	64	75
		Good	60	72
	C	Poor	63	74
		Good	61	73
	C + CR	Poor	62	73
		Good	60	72
	C&T	Poor	61	72
		Good	59	70
	C&T+ CR	Poor	60	71
		Good	58	69
Close-seeded	SR	Poor	66	77
or broadcast		Good	58	72
legumes or	C	Poor	64	75
rotation		Good	55	69
meadow	C&T	Poor	63	73
		Good	51	67

[1] Average runoff condition, and $I_a=0.2S$

[2] Crop residue cover applies only if residue is on at least 5% of the surface throughout the year.

[3] Hydraulic condition is based on combination factors that affect infiltration and runoff, including (a) density and canopy (b) amount of year-round cover, (c) amount of grass or close-seeded legumes, (d) percent of residue cover on the land s and (e) degree of surface roughness.

Poor: Factors impair infiltration and tend to increase runoff.

Good: Factors encourage average and better than average infiltration and tend to decrease runoff.

ers for
l group

C	D
91	94
90	93
88	90
88	91
85	89
87	90
82	85
84	88

Table 2-2c   Runoff curve numbers for other agricultural lands [1]

Cover description		Curve number...	
Cover type	Hydrologic condition	A	B
Pasture, grassland, or range—continuous forage for grazing. [2]	Poor	68	79
	Fair	49	69
	Good	39	61
Meadow—continuous grass, protected from grazing and generally mowed for hay.	—	30	58
Brush—brush-weed-grass mixture with brush	Poor	48	67

82	86
83	87
81	85
80	82
78	81
79	81
77	80
84	88
83	87
83	86
80	84
82	85
81	84
81	84
80	83
79	82
78	81
78	81
77	80
85	89
81	85
83	85
78	83
80	83
76	80

' of vegetative areas,
surface (good ≥ 20%),

the major element. [3]	Fair	35	56
	Good	30 [4]	48
Woods—grass combination (orchard	Poor	57	73
or tree farm). [5]	Fair	43	65
	Good	32	58
Woods. [6]	Poor	45	66
	Fair	36	60
	Good	30 [4]	55
Farmsteads—buildings, lanes, driveways, and surrounding lots.	—	59	74

[1] Average runoff condition, and $I_a = 0.2S$.
[2] *Poor:* <50%) ground cover or heavily grazed with no mulch.
 Fair: 50 to 75% ground cover and not heavily grazed.
 Good: > 75% ground cover and lightly or only occasionally grazed.
[3] *Poor:* <50% ground cover.
 Fair: 50 to 75% ground cover.
 Good: >75% ground cover.
[4] Actual curve number is less than 30; use CN = 30 for runoff computations.
[5] CN's shown were computed for areas with 50% woods and 50% grass (pasture) cover. Other combinations of condition
 from the CN's for woods and pasture.
[6] *Poor:* Forest litter, small trees, and brush are destroyed by heavy grazing or regular burning.
 Fair: Woods are grazed but not burned, and some forest litter covers the soil.
 Good: Woods are protected from grazing, and litter and brush adequately cover the soil.

nbers for soil group	
C	D
86	89
79	84
74	80
71	78
77	83

Table 2-2d Runoff curve numbers for arid and semiarid rangelands [1]

Cover description		Curve num hydrologic	
Cover type	Hydrologic condition [2]	A [3]	B
Herbaceous—mixture of grass, weeds, and low-growing brush, with brush the minor element.	Poor		80
	Fair		71
	Good		62
Oak-aspen—mountain brush mixture of oak brush, aspen, mountain mahogany, bitter brush, maple, and other brush.	Poor		66
	Fair		48
	Good		30

70	77	
65	73	
82	86	
76	82	
72	79	
77	83	
73	79	
70	77	
82	86	

ns may be computed

Cover description	Hydrologic condition	Group A	Group B
Pinyon-juniper—pinyon, juniper, or both; grass understory.	Poor		75
	Fair		58
	Good		41
Sagebrush with grass understory.	Poor		67
	Fair		51
	Good		35
Desert shrub—major plants include saltbush, greasewood, creosotebush, blackbrush, bursage, palo verde, mesquite, and cactus.	Poor	63	77
	Fair	55	72
	Good	49	68

[1] Average runoff condition, and $I_a = 0.2S$. For range in humid regions, use table 2-2c.
[2] Poor: <30% ground cover (litter, grass, and brush overstory).
Fair: 30 to 70% ground cover.
Good: > 70% ground cover.
[3] Curve numbers for group A have been developed only for desert shrub.

85	89
73	80
61	71
80	85
63	70
47	55
85	88
81	86
79	84

Instructions for Setting the Starting Value for Accumulated Storage

The accumulated storage column is one of the most important columns in the storage calculations table.
You need to manually set a starting point for the accumulated storage column.

The starting value is *usually* the first positive storage value that occurs after a negative value, *but there are some*

Normal case

In the normal case, you can clearly spot where storage begins. The storage values switch from negative to positiv

Use a formula (in this case, =J84) to copy the postive value into the **Accumulated storage starting value** cell.
Alternatively , you could copy cell J84 and use **Paste special** -> **Values** in the **Accumulated storage staring value**
Do not manually enter the value (in this case, 0.36) or use normal copy and paste.

Row/Col.	J	K	
69	(20)	(21)	
70	Effluent	Accum	
71	to Storage	Storage	
72	(as inches		
73	on plot		
74	acres)		
75	2.95	9.22	
76	2.95	12.18	
77	1.86	14.03	
78	0.84	14.87	
79	-2.63	—	
80	-4.11	—	
81	-5.24	—	
82	-0.91	—	
83	**-1.58**	—	
84	**0.36**	**0.36**	START
85	2.95	3.32	
86	2.95	6.27	
87	—	14.87	

Accumulated storage starting value =

Special case 1 (positive beats negative)

Sometimes a string of negative values will contain a positive value. This situation comes up most often with dual-
You must determine whether the positive value outweighs the any following negative values. If so, water begins
In this case, *positive 2.12 outweighs negative 1.58* . Storage begins with the positive 2.12.

Use a formula (in this case, =J82) to copy postive value into the **Accumulated storage starting value** cell.

Alternatively , you could copy cell J84 and use **Paste special** -> **Values** in the **Accumulated storage staring value**
Do not **manually enter the value (in this case, 0.36) or use normal copy and paste.**

Row/Col.	J	K
69	(20)	(21)
70	Effluent	Accum
71	to Storage	Storage
72	(as inches	
73	on plot	
74	acres)	
75	2.95	9.76
76	2.95	12.71
77	1.86	14.57
78	0.84	15.41
79	-2.63	—
80	-4.11	—
81	**-5.24**	—
82	**2.12**	**2.12**
83	**-1.58**	0.54
84	**0.36**	0.90
85	2.95	3.85
86	2.95	6.81
87	—	15.41

Accumulated storage starting value =

(row 82: START)

Special case 2 (negative beats positive)

Sometimes a string of negative values will contain a positive value. This situation comes up most often with dual-
You must determine whether the positive value outweighs the any following negative values. If so, water begins
In this case, ***negative 1.58 outweighs positive 0.80*** . Storage does not really begin until the positive 0.36.

Use a formula (in this case, =J82) to copy postive value into the accumulated storage starting value cell.
Alternatively , you could copy cell J84 and use **Paste special** -> **Values** in the accumulated storage staring value c
Do not **manually enter the value (in this case, 0.36) or use normal copy and paste.**

Row/Col.	J	K
69	(20)	(21)
70	Effluent	Accum
71	to Storage	Storage
72	(as inches	
73	on plot	
74	acres)	
75	2.95	9.22

Accumulated storage starting value =

76	2.95	12.18
77	1.86	14.03
78	0.84	14.87
79	-2.63	—
80	-4.11	—
81	**-5.24**	—
82	**0.80**	—
83	**-1.58**	—
84	**0.36**	**0.36** START
85	2.95	3.32
86	2.95	6.27
87	—	14.87

Special case 3 (all negative or zero)

The case of all negative (or zero) storage values rarely occurs. It is most likely to occur in arid regions.

In this special case, *storage is not a limiting factor* based on the proposed conditions.

Row/Col.	J	K
69	(20)	(21)
70	Effluent	Accum
71	to Storage	Storage
72	(as inches	
73	on plot	
74	acres)	
75	-0.95	—
76	-1.95	—
77	-2.86	—
78	-3.84	—
79	-4.63	—
80	-6.11	—
81	-9.24	—
82	-7.25	—
83	-3.58	—
84	-0.36	—
85	-0.25	—
86	-0.12	—
87	—	0.00

Accumulated storage starting value =

Special case 4 (all positive)

The case of all positive storage values rarely occurs. It is most likely to occur in humid regions.

In this special case, **_land application may not be feasible_** . The proposed land area, design flow, and storage shou

Row/Col.	J	K	
69	(20)	(21)	
70	Effluent	Accum	
71	to Storage	Storage	
72	(as inches		
73	on plot		
74	acres)		
75	**9.24**	**9.24**	START
76	4.63	13.87	
77	3.58	17.46	
78	1.95	19.41	
79	0.36	19.78	
80	0.12	19.90	
81	0.25	20.15	
82	0.95	21.10	
83	2.86	23.95	
84	3.84	27.79	
85	6.11	33.91	
86	7.25	41.16	
87	—	41.16	

Accumulated storage starting value =

e special cases to watch out for (see below).

e.

cell.

0.36
*Use the formula =J84 or use **Copy** , **Paste special** , **Values** .*

crop systems.
to accumulate in storage.

cell.

2.12

Use the formula *=J82* *or use* **Copy** *,* **Paste special** *,* **Values** *.*

·crop systems.
to accumulate in storage.

ell.

0.36

Use the formula *=J82* *or use* **Copy** *,* **Paste special** *,* **Values** *.*

N/A

An accumulated storage starting value is not needed for this case.

ıld be re-evaluated to determine wheter a solution exists.

N/A

Accumulated storage begins in January (cell J75).

Irrigation column meanings

(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9a)	(9b)
Month	Avg Rain	Avg Runoff	Avg Infilt Rainfall	Evapo-trans.	Required Leach	Total Water Needs	Effluent Needed in Root Zone	Raw Net Evap. from Reservoir	Reservoir Net Evap. (as inches on plot acres)

Column 8 - Effluent Needed in Root Zone

This column represents the agronomic rate, or what the crop actually needs.

The values consider infiltrated rainfall, crop evapotranspiration, and any required leaching.

The values do not consider any irrigation or evaporation

Column 9 - Effluent Needed E...

This column represents the a... need to be supplied to the cro... the root zone, after irrigation...

This is the application rate, as... and irrigation equipment.

(10)	(11)
Effluent Needed Based on Irrigation Efficiency	Reservoir Consumtion (as inches on plot acres)

Column 10 - Consumption from Reservoir
This column represents the amount of wastewater that wou
need to be supplied to the storage pond (as metered betwee
the wastewater treatment plant and the storage pond) to
provide the effluent needed in the root zone, after irrigation
losses and evaporation from storage.

Based On Irrigation Efficiency
mount of wastewater that would
op to provide the effluent needed in
losses.

s metered between the storage pond

ld
en

Limiting factors (from agronomist)

Click this cell to choose from list.

Nutients

Shallow soil

Soil moisture-holding capacity

Irrigation water balance

Or press Alt+F11

City of Poteet

8

WWTP BOUNDARY

150'

County Rd. 201

Moss Point Street

765

4

3

2

1

EFFLUENT DISPOSAL SITE

10

9

11

12

N

GRAPHIC SCALE

1000   0   500

(IN FEET)

SCALE: 1" = 1000'

SCALE: _____1" = 1000'_____

DRAWN BY: ___JT___ DATE: _05/25_

CHECKED BY: ___MAI___ DATE: _05/25_

FILE: ____0110-019-25____

AFFECTED LANDOWNERS

CITY OF POTH WASTEWATER TREATMENT PLANT

CITY OF POTH

WILSON COUNTY, TEXAS

BODDEN JOHN G III & JANICE
PO BOX 471
POTH TX 78147-0474

BEASLEY JAMES E & TERESA F
TRUSTEES
PO BOX 370
POTH TX 78147-0474

RICHTER RICHARD D
WARD RICHTER
526 FENWICK DR
SAN ANTONIO TX 78239-2531

RICHTER RICHARD D
WARD RICHTER
526 FENWICK DR
SAN ANTONIO TX 78239-2531

PEREZ YOLANDA
PO BOX 1101
POTH TX 78147-0474

SALINAS JUANA H
PO BOX 1306
POTH TX 78147-0474

WEST LESTER J
PO BOX 474
POTH TX 78147-0474

PENA DAVID
882 CR 201
FALLS CITY TX 78113

PENA DEMETRIUS ALEXANDER
PO BOX 439
POTH TX 78147-0439

TRIPLEC J PROPERTIES LLC
2203 10TH ST
FLORESVILLE TX 78114

JONES GERTRUDE
155 CR 249 UNIT B
FALLS CITY TX 78113

Texas Commission on Environmental Quality

Public Involvement Plan Form
for Permit and Registration Applications

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

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

Section 1. Preliminary Screening

New Permit or Registration Application

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

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

Section 2. Secondary Screening

Requires public notice,

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

Located within any of the following geographical locations:

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

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

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

This permit application is for an existing treatment plant in the City of Poth previously permitted under WQ0010052001. The permit renewal was missed, so a new permit application was submitted.

Section 3. Application Information

Type of Application (check all that apply):

Air   Initial   Federal   Amendment   Standard Permit   Title V

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

Water Quality

    Texas Pollutant Discharge Elimination System (TPDES)

        Texas Land Application Permit (TLAP)

        State Only Concentrated Animal Feeding Operation (CAFO)

        Water Treatment Plant Residuals Disposal Permit

    Class B Biosolids Land Application Permit

    Domestic Septage Land Application Registration

Water Rights New Permit

    New Appropriation of Water

    New or existing reservoir

Amendment to an Existing Water Right

    Add a New Appropriation of Water

    Add a New or Existing Reservoir

    Major Amendment that could affect other water rights or the environment

Section 4. Plain Language Summary

Provide a brief description of planned activities.

Section 5. Community and Demographic Information

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

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

(City)

(County)

(Census Tract)
Please indicate which of these three is the level used for gathering the following information.

        City   County   Census Tract

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

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

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

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

(e) Languages commonly spoken in area by percentage

(f) Community and/or Stakeholder Groups

(g) Historic public interest or involvement

Section 6. Planned Public Outreach Activities

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

       Yes   No

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

       Yes   No

If Yes, please describe.

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

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

       Yes   No

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

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

       Publish in alternative language newspaper

       Posted on Commissioner's Integrated Database Website

       Mailed by TCEQ's Office of the Chief Clerk

       Other (specify)

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

       Yes   No

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

       Yes   No

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

       TCEQ Regional Office   TCEQ Central Office

       Public Place (specify)

Section 7. Voluntary Submittal

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

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

       Yes   No

What types of notice will be provided?

       Publish in alternative language newspaper

       Posted on Commissioner's Integrated Database Website

       Mailed by TCEQ's Office of the Chief Clerk

       Other (specify)

BODDEN JOHN G III & JANICE
PO BOX 471
POTH TX 78147-0474

BEASLEY JAMES E & TERESA F
TRUSTEES
PO BOX 370
POTH TX 78147-0474

RICHTER RICHARD D
WARD RICHTER
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PEREZ YOLANDA
PO BOX 1101
POTH TX 78147-0474

SALINAS JUANA H
PO BOX 1306
POTH TX 78147-0474

JAKOBS CATHERINE CONLEY
5893 FERDINAND DR
WEST CHESTER OH 45069

PENA DAVID
882 CR 201
FALLS CITY TX 78113

TRIPLEC J PROPERTIES LLC
2203 10TH ST
FLORESVILLE TX 78114

JONES GERTRUDE
155 CR 249 UNIT B
FALLS CITY TX 78113

WEST LESTER J
PO BOX 474
POTH TX 78147-0474

WWTP BOUNDARY

EFFLUENT DISPOSAL SITE

7
6
5
4
3
2
1
11
8
9
10

GRAPHIC SCALE

1000   0   500

(IN FEET)

SCALE: 1" = 1000'

AFFECTED LANDOWNERS

CITY OF POTH WASTE WATER TREATMENT PLANT

CITY OF POTH

POTH, TEXAS

Francesca Findlay

From:	Morgen Gore <morgen.gore@swengineers.com>
Sent:	Friday, June 6, 2025 1:21 PM
To:	Francesca Findlay
Cc:	cityhall@cityofpoth.org; Jerry Shepherd; Jane Twyford
Subject:	RE: WQ0016796001City of Poth
Attachments:	Poth - Landowner List.docx

Francesca,

Please find attached landowner list in word document format.

Please let us know if you need anything else.

Thanks,

Morgen Gore, E.I.T.
Graduate Engineer
p: (830) 672-7546 ext 437
a: 307 Saint Lawrence Street, Gonzales, Texas 78629
w: swengineers.com
TBPE No. F-1909

From: Francesca Findlay <Francesca.Findlay@tceq.texas.gov>
Sent: Wednesday, June 4, 2025 9:47 AM
To: Morgen Gore <morgen.gore@swengineers.com>
Cc: cityhall@cityofpoth.org; Jerry Shepherd <jerry.shepherd@swengineers.com>; Jane Twyford <jane.twyford@swengineers.com>
Subject: RE: WQ0016796001City of Poth

Good morning,

I am reviewing your attachments, and I need an updated landowners list with the landowners listed with numbers 1-?. The excel sheet will not work we need the information in a word 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

Please consider whether it is necessary to print this e-mail

1

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

Good Morning Francesca,

In relation to the NOD you sent Rose on April 30,2025 please find the below comments and additional information.

1. Please see attached the updated affected landowner's map. As stated on May 1st in an email to you from Jane Twyford, this is a TLAP permit so there is no discharge point or discharge route to show on the map. The city is working on getting a buffer zone easement for Affected Landowner 4 (Richard Richter), to meet the buffer zone requirement around all plant components. The easement will be provided as soon as complete.

2. The landowner list is attached in a Word Document.

3. The Landowner List has been corrected to include numbers that reflect the landowners map, attached.

4. The effluent property boundaries are shown on the affected landowner map.

5. The completed PIP is attached.

6. The NORI looks good.

Please let us know if you need anything else.

Thank you,

Morgen Gore, E.I.T.
Graduate Engineer
p: (830) 672-7546 ext 437
a: 307 Saint Lawrence Street, Gonzales, Texas 78629
w: swengineers.com
TBPE No. F-1909

Dear Ms. Hulzar:

The attached Notice of Deficiency letter sent on April 30, 2025, requesting additional information needed to declare the application administratively complete. Please send the complete response to my attention May15, 2025.

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.

Property No.	Name	Address	City	State	Zip
1	BODDEN JOHN G III & JANICE	PO BOX 471	POTH	TX	78147-0474
2	BEASLEY JAMES E & TERESA F TRUSTEES	PO BOX 370	POTH	TX	78147-0474
3	RICHTER RICHARD D	526 FENWICK DR	SAN ANTONIO	TX	78239-2531
4	RICHTER RICHARD D	526 FENWICK DR	SAN ANTONIO	TX	78239-2531
5	PEREZ YOLANDA	PO BOX 1101	POTH	TX	78147-0474
6	City of Poth Access Easement				
7	SALINAS JUANA H	PO BOX 1306	POTH	TX	78147-0474
8	WEST LESTER J	PO BOX 474	POTH	TX	78147-0474
9	PENA DAVID	882 CR 201	FALLS CITY	TX	78113
10	PENA DEMETRIUS ALEXANDER	PO BOX 439	POTH	TX	78147-0439
11	TRIPLEC J PROPERTIES LLC	2203 10TH ST	FLORESVILLE	TX	78114
12	JONES GERTRUDE	155 CR 249 UNIT B	FALLS CITY	TX	78113

From:	Morgen Gore <morgen.gore@swengineers.com>
Sent:	Thursday, May 15, 2025 9:28 AM
To:	Francesca Findlay
Cc:	cityhall@cityofpoth.org; Jerry Shepherd; Jane Twyford
Subject:	RE: WQ0016796001City of Poth
Attachments:	Affected Landowners.pdf; pip-form-tceq-20960.pdf; Landowner List.docx; Landowner List.xlsx

Good Morning Francesca,

In relation to the NOD you sent Rose on April 30,2025 please find the below comments and additional information.

1. Please see attached the updated affected landowner's map. As stated on May 1st in an email to you from Jane Twyford, this is a TLAP permit so there is no discharge point or discharge route to show on the map. The city is working on getting a buffer zone easement for Affected Landowner 4 (Richard Richter), to meet the buffer zone requirement around all plant components. The easement will be provided as soon as complete.

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Please let us know if you need anything else.

Thank you,

Morgen Gore, E.I.T.
Graduate Engineer
p: (830) 672-7546 ext 437
a: 307 Saint Lawrence Street, Gonzales, Texas 78629
w: swengineers.com
TBPE No. F-1909

From: cityhall@cityofpoth.org <cityhall@cityofpoth.org>
Sent: Thursday, May 1, 2025 1:53 PM
To: Jerry Shepherd <jerry.shepherd@swengineers.com>
Subject: FW: WQ0016796001City of Poth

From: Francesca Findlay <Francesca.Findlay@tceq.texas.gov>
Sent: Wednesday, April 30, 2025 12:23 PM

Dear Ms. Hulzar:

The attached Notice of Deficiency letter sent on April 30, 2025, requesting additional information needed to declare the application administratively complete. Please send the complete response to my attention May15, 2025.

Thank you,

Francesca Findlay
License & Permit Specialist
ARP Team | Water Quality Division
512-239-2441
Texas Commission on Environmental Quality

Please consider whether it is necessary to print this e-mail

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