Administrative Package Cover Page

This file contains the following documents:

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

Portada de Paquete Administrativo

Este archivo contiene los siguientes documentos:

1. Resumen en lenguaje sencillo (PLS, por sus siglas en inglés) de la actividad propuesta
    - Inglés
    - Idioma alternativo (español)
2. Primer aviso (NORI, por sus siglas en inglés)
    - Inglés
    - Idioma alternativo (español)
3. Solicitud original

ENGLISH LANGUAGE TEMPLATE FOR CAFO PERMIT APPLICATIONS

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by the TCEQ Public Participation Plan and Language Access Plan. 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.

1) Applicant's Name: Tarleton State University
2) Enter Customer Number: CN600346456
3) Name of facility: Southwest Regional Dairy Center
4) Enter Regulated Entity Number: RN105915730
5) Provide your permit Number: WQ0004920000
6) Facility Business: The facility confines 500 head of cattle of which all are milking, 100 beef cattle, 200 swine, 200 sheep/goats and 150 horses. The facility has twenty-one (21) land management units (LMUs) with the following acreages: LMU #1 - 21, LMU #2 - 18, LMU #3 - 15, LMU #4 - 22, LMU #5 - 22, LMU #6 - 16, LMU #7 - 17, LMU #8 - 51, LMU #9 - 8, LMU #10 - 13, LMU #11 - 24, LMU #12 - 15, LMU #13 - 7.5, LMU #14 - 17, LMU #15 - 8, LMU #16 - 15, LMU #17 - 14, LMU #18 - 22, LMU #19 - 24, LMU #20 - 27, LMU #21 - 21 acres. Three (3) retention control structures (RCS), the required capacities are: RCS #1 - 13.51, RCS #2 - 2.49 and RCS #3 - 3.06 ac-ft. There are thirteen (13) onsite wells of which five (5) are plugged. The facility is located in the Upper North Bosque River in Segment No. 1255 of the Brazos River Basin.
7) Facility Location: The facility is located on the West side of US Highway 281, approximately one mile North of the intersection of US Highway 281 and FM 8 Erath County, Texas
8) Application Type: Individual Permit Renewal with a Minor Amendment
9) Description of your request: Reconfigure the drainage area for RCS #1, decrease the required volume and remove cross-vent barn and associated travel lanes.
10) Potential pollutant sources at the facility include (list the pollutant sources): Manure, manure stockpiles, wastewater, sludge, slurry, compost, feed & bedding, silage stockpiles, dead animals, dust, lubricants, pesticides and fuel storage tanks.
11) The following best management practices will be implemented at the site to manage pollutants from the listed pollutant sources (describe the best management practices that are used): stormwater is stored in the lagoon (RCS) until land applied through irrigation and manure and sludge are stockpiled in the drainage area of the RCS until land applied or hauled offsite for beneficial use. Manure and sludge generated by the CAFO will be retained and used in an appropriate and beneficial manner in accordance with a certified site-specific nutrient management plan. Wastewater will be contained in RCS #1 properly designed ((25-year frequency 10-day duration (25 year/10 day), RCS #2 and RCS #3 properly designed ((25-year frequency 24-hour duration (25 year/24hr), constructed, operated and maintained according to the provision of the permit. Maintain 100-foot buffer for all irrigation wells or 150-foot for all supply wells and 500-foot for all public wells. Dust –

control speed and regular pen maintenance. Fertilizers - store under roof and handle according to specified label directions. Fuel Tanks - provide secondary containment and prevent overfills/spills. Dead animals - dispose by a third-party rendering service. Collected within 24 hours of death and disposed within three days.

12) Unless otherwise limited, manure, sludge, or wastewater will not be discharged from a land management unit (LMU) or a retention control structure (RCS) into or adjacent to water in the state from a CAFO except resulting from any of the following conditions:

1) a discharge of manure, sludge, or wastewater that the permittee cannot reasonably prevent or control resulting from a catastrophic condition other than a rainfall event;

2) overflow of manure, sludge, or wastewater from a RCS resulting from a chronic/catastrophic rainfall event; or

3) a chronic/catastrophic rainfall discharge from a LMU that occurs because the permittee takes measures to de-water the RCS if the RCS is in danger of imminent overflow.

SPANISH

El siguiente resumen se proporciona para esta solicitud pendiente de permiso de calidad del agua que está siendo revisada por la Comisión de Calidad Ambiental de Texas según lo exige el Plan de Participación Pública y el Plan de Acceso Lingüístico de la TCEQ. La información provista en este resumen puede cambiar durante la revisión técnica de la solicitud y no es una representación federal exigible de la solicitud del permiso.

1) Nombre del solicitante: Tarleton State University

2) Ingrese el número de cliente: CN600346456

3) Nombre de la instalación: Southwest Regional Dairy Center

4) Ingresar Número de Entidad Regulada: RN105915730

5) Proporcione su número de permiso: WQ0004920000

6) Instalación Comercial: La instalación alberga 500 cabezas de ganado vacuno, todas ellas lecheras, 100 bovinos de carne, 200 cerdos, 200 ovejas/cabras y 150 caballos. La instalación tiene veintiún (21) unidades de administración de tierras (LMU) con las siguientes superficies: LMU #1 – 21, LMU #2 – 18, LMU #3 – 15, LMU #4 – 22, LMU #5 – 22, LMU #6 – 16, LMU #7 – 17, LMU #8 – 51, LMU #9 – 8, LMU #10 – 13, LMU #11 – 24, LMU #12 – 15, LMU #13 – 7.5, LMU # 14 – 17, LMU #15 – 8, LMU #16 – 15, LMU #17 – 14, LMU #18 – 22, LMU #19 – 24, LMU #20 – 27, LMU #21 - 21 acres. Tres (3) estructuras de control de retención (RCS), las capacidades requeridas son: RCS #1 – 13.51, RCS #2 – 2.49 y RCS #3 – 3.06 ac-ft. Hay trece (13) pozos en el sitio de los cuales cinco (5) están taponados. La instalación está ubicada en el Upper North Bosque River en el segmento No. 1255 de la Cuenca del Río Brazos.

7) Ubicación de la instalación: La instalación está ubicada en el lado oeste de la US Highway 281, aproximadamente a una milla al norte de la intersección de la US Highway 281 y la FM 8 Condado de Erath, Texas.

8) Tipo de Solicitud: Renovación de Permiso Individual con una Enmienda Menor

9) Descripción de su solicitud: Reconfigurar el área de drenaje para RCS #1, reducir el volumen requerido y eliminar el granero de ventilación cruzada y los carriles de circulación asociados.

10) Las posibles fuentes de contaminantes en la instalación incluyen (enumere las fuentes de contaminantes): Estiércol, reservas de estiércol, aguas residuales, lodos, purines, compost, piensos y camas, reservas de ensilaje, animales muertos, polvo, lubricantes, pesticidas y tanques de almacenamiento de combustible.

11) Las siguientes mejores prácticas de manejo se implementarán en el sitio para manejar los contaminantes de las fuentes de contaminantes enumeradas (describa las

mejores prácticas de manejo que se utilizan): las aguas pluviales se almacenan en la laguna (RCS) hasta que se aplican a la tierra mediante riego y estiércol y lodo se almacenan en el área de drenaje del RCS hasta que se aplican a la tierra o se transportan fuera del sitio para un uso beneficioso. El estiércol y los lodos generados por CAFO se conservarán y utilizarán de manera apropiada y beneficiosa de acuerdo con un plan certificado de manejo de nutrientes específico del sitio. Las aguas residuales estarán contenidas en RCS #1 adecuadamente diseñado ((frecuencia de 25 años, duración de 10 días (25 años/10 días), RCS #2 y RCS #3 adecuadamente diseñados ((frecuencia de 25 años, duración de 24 horas (25 años /24 h), construido, operado y mantenido de acuerdo con lo dispuesto en el permiso. Mantener una zona de amortiguamiento de 100 pies para todos los pozos de riego o 150 pies para todos los pozos de suministro o 500 pies para todos los pozos públicos. Polvo: velocidad de control y mantenimiento regular del corral. Fertilizantes: almacénelos bajo techo y manipúlelos de acuerdo con las instrucciones especificadas en la etiqueta. Tanques de combustible: proporcionan contención secundaria y evitan sobrellenados/derrames. Animales muertos: elimínelos a través de un servicio de procesamiento de terceros o entierre en el sitio. Recolectado dentro de las 24 horas posteriores a la muerte y eliminado dentro de los tres días.

12) A menos que se limite de otro modo, el estiércol, los lodos o las aguas residuales no se descargarán desde una unidad de administración de tierra (LMU) o una estructura de control de retención (RCS) hacia el agua en el estado o junto a ella desde una CAFO, excepto que resulte de cualquiera de las siguientes condiciones:

1) una descarga de estiércol, lodo o aguas residuales que el tenedor del permiso no puede prevenir o controlar razonablemente como resultado de una condición catastrófica que no sea un evento de lluvia;

2) desbordamiento de estiércol, lodo o aguas residuales de un RCS como resultado de un evento de lluvia crónica/catastrófica; o

3) una descarga de lluvia crónica/catastrófica de una LMU que ocurre porque el tenedor del permiso toma medidas para vaciar el RCS si el RCS está en peligro de desbordamiento inminente.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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

PERMIT NO. WQ0004920000

APPLICATION. Tarleton State University, P.O. Box T-0180, Stephenville, Texas 76402, has applied to the Texas Commission on Environmental Quality (TCEQ) to renew Wastewater Permit No. (WQ0004920000) for a Concentrated Animal Feeding Operation (CAFO) to authorize the operation of a livestock farm with a maximum capacity of: 500 head dairy cattle, of which all are milking cows; 100 beef cattle; 200 swine, each weighing 55 pounds or more; 200 sheep and or goats; and 150 horses. The facility is located approximately one mile north of the intersection of Farm-to-Market Road 8 and U.S. Highway 281, near the city of Stephenville, in Erath County, Texas 76401. TCEQ received this application on August 9, 2024. The permit application will be available for viewing and copying at Erath County Extension Office-Erath County Courthouse, 100 Washington Street, Room 206, Stephenville, in Erath 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/cafo-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=-98.196111,32.256111&level=18

ALTERNATIVE LANGUAGE NOTICE. Alternative language notice in Spanish is available at: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/cafo-applications.
El aviso de idioma alternativo en español está disponible en https://www.tceq.texas.gov/permitting/wastewater/pending-permits/cafo-applications.

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

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

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

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

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

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

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

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

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

AGENCY CONTACTS AND INFORMATION. All public comments and requests must be submitted either electronically at **https://www14.tceq.texas.gov/epic/eComment/**, or in writing to the Texas Commission on Environmental Quality, Office of the Chief Clerk, MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Please be aware that any contact information you provide, including your name, phone number, email address and physical address will become part of the agency's public record. For more information about this permit application or the permitting process, please call the TCEQ Public Education Program, Toll Free, at 1-800-687-4040 or visit their website at www.tceq.texas.gov/goto/pep. Si desea información en Español, puede llamar al 1-800-687-4040.

Further information may also be obtained from Tarleton State University at the address stated above or by calling Dr. Barry Lambert, Professor and Dean, College of Agriculture and Natural Resources, at 254-968-9227.

Issuance Date: September 12, 2024

Comisión de Calidad Ambiental del Estado de Texas

AVISO DE RECEPCIÓN DE LA SOLICITUD Y LA INTENCIÓN DE OBTENER PERMISO DE CALIDAD DEL AGUA RENOVACIÓN

PERMISO NO. WQ0004920000

SOLICITUD. Tarleton State University, P.O. Box T-0180, Stephenville, Texas 76402, ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para renovar el Permiso de Aguas Residuales No. WQ0004920000 para una Operación de Alimentación Concentrada para Animales (CAFO) para autorizar el funcionamiento de 500 cabezas de ganado vacuno, todos ellos vacas lecheras, 100 bovinos de carne; 200 cerdos; cada uno pesa 55 libras o más; 200 ovejas/cabras; y 150 caballos. La instalación está ubicada a 1 milla al norte de la intersección de Farm-to-Market Road 8 y U.S. Highway 281, cerca de la ciudad de Stephenville, en el condado de Erath, Texas 76401. La TCEQ recibió esta solicitud el 9 de agosto de 2024. La solicitud del permiso está disponible para leerla y copiarla en la Oficina de Extensión del Condado de Erath, Palacio de Justicia del Condado de Erath, 100 Washington Street, Cuarto 206, Stephenville, en el Condado de Erath, Texas, antes de la fecha de publicación de este aviso en el periódico. La solicitud, incluidas las actualizaciones y los avisos asociados están disponibles electrónicamente en la siguiente página web: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/cafo-applications. Este enlace a un mapa electrónico de la ubicación general del sitio o de la instalación es proporcionado como una cortesía y no es parte de la solicitud o del aviso. Para la ubicación exacta, consulte la solicitud. https://gisweb.tceq.texas.gov/LocationMapper/?marker=-98.196111,32.256111&level=18

AVISO ADICIONAL. El Director Ejecutivo de la TCEQ ha determinado que la solicitud es administrativamente completa y conducirá una revisión técnica de la solicitud. Después de completar la revisión técnica, el Director Ejecutivo puede preparar un borrador del permiso y emitirá una Decisión Preliminar sobre la solicitud. **El aviso de la solicitud y la decisión preliminar serán publicados y enviado a los que están en la lista de correo de las personas a lo largo del condado que desean recibir los avisos y los que están en la lista de correo que desean recibir avisos de esta solicitud. El aviso dará la fecha límite para someter comentarios públicos.**

COMENTARIO PUBLICO / REUNION PUBLICA. Usted puede presentar comentarios públicos o pedir una reunión pública sobre esta solicitud. El propósito de una reunión pública es dar la oportunidad de presentar comentarios o hacer preguntas acerca de la solicitud. La TCEQ realiza una reunión pública si el Director Ejecutivo determina que hay un grado de interés público suficiente en la solicitud o si un legislador local lo pide. Una reunión pública no es una audiencia administrativa de lo contencioso.

OPORTUNIDAD DE UNA AUDIENCIA ADMINISTRATIVA DE LO CONTENCIOSO. Después del plazo para presentar comentarios públicos, el Director Ejecutivo considerará todos los comentarios apropiados y preparará una respuesta a todo los comentarios públicos esenciales, pertinentes, o significativos. **A menos que la solicitud haya sido referida directamente a una audiencia administrativa de lo contencioso, la respuesta a los comentarios y la decisión del Director Ejecutivo sobre la solicitud serán enviados por correo a todos los que presentaron un comentario público y a las personas que están en la lista para recibir avisos sobre esta solicitud. Si se reciben comentarios, el aviso también proveerá instrucciones para pedir una reconsideración de la decisión del Director Ejecutivo y para pedir una audiencia administrativa de lo contencioso.** Una audiencia administrativa de lo contencioso es un procedimiento legal similar a un procedimiento legal civil en un tribunal de distrito del estado.

PARA SOLICITAR UNA AUDIENCIA DE CASO IMPUGNADO, USTED DEBE INCLUIR EN SU SOLICITUD LOS SIGUIENTES DATOS: su nombre, dirección, y número de teléfono; el nombre del solicitante y número del permiso; la ubicación y distancia de su propiedad/actividad con respecto a la instalación; una descripción específica de la forma cómo usted sería afectado adversamente por el sitio de una manera no común al público en general; una lista de todas las cuestiones de hecho en disputa que usted presente durante el período de comentarios; y la declaración "[Yo/nosotros] solicito/solicitamos una audiencia de caso impugnado". Si presenta la petición para una audiencia de caso impugnado de parte de un grupo o asociación, debe identificar una persona que representa al grupo para recibir correspondencia en el futuro; identificar el nombre y la dirección de un miembro del grupo que sería afectado adversamente por la planta o la actividad propuesta; proveer la información indicada anteriormente con respecto a la ubicación del miembro afectado y su distancia de la planta o actividad propuesta; explicar cómo y porqué el miembro sería afectado; y explicar cómo los intereses que el grupo desea proteger son pertinentes al propósito del grupo.

Después del cierre de todos los períodos de comentarios y de petición que aplican, el Director Ejecutivo enviará la solicitud y cualquier petición para reconsideración o para una audiencia de caso impugnado a los Comisionados de la TCEQ para su consideración durante una reunión programada de la Comisión. La Comisión sólo puede conceder una solicitud de una audiencia de caso impugnado sobre los temas que el solicitante haya presentado en sus comentarios oportunos que no fueron retirados posteriormente. Si se concede una audiencia, el tema de la audiencia estará limitado a cuestiones de hecho en disputa o cuestiones mixtas de hecho y de derecho relacionadas a intereses pertinentes y materiales de calidad del agua que se hayan presentado durante el período de comentarios.

LISTA DE CORREO. Si somete comentarios públicos, un pedido para una audiencia administrativa de lo contencioso o una reconsideración de la decisión del Director Ejecutivo, la Oficina del Secretario Principal enviará por correo los avisos públicos en relación con la solicitud. Ademas, puede pedir que la TCEQ ponga su nombre en una or mas de las listas correos siguientes (1) la lista de correo permanente para recibir los avisos de el solicitante indicado por nombre y número del permiso específico y/o (2) la lista de correo de todas las solicitudes en un condado especifico. Si desea que se agrega su nombre en una de las listas designe cual lista(s) y envia por correo su pedido a la Oficina del Secretario Principal de la TCEQ.

CONTACTOS E INFORMACIÓN DE LA TCEQ. Todos los comentarios públicos y solicitudes deben ser presentadas electrónicamente vía http://www14.tceq.texas.gov/epic/eComment/o por escrito dirigidos a la Comisión de Texas de Calidad Ambiental, Oficial de la Secretaría (Office of Chief Clerk), MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Tenga en cuenta que cualquier información personal que usted proporcione, incluyendo su nombre, número de teléfono, dirección de correo electrónico y dirección física pasarán a formar parte del registro público de la Agencia. Para obtener más información acerca de esta solicitud de permiso o el proceso de permisos, llame al programa de educación pública de la TCEQ, gratis, al 1-800-687-4040. Si desea información en Español, puede llamar al 1-800-687-4040.

También se puede obtener información adicional del Tarleton State University a la dirección indicada arriba o llamando al Dr. Barry Lambert, Profesor y Decano, Facultad de Agricultura y Recursos Naturales al 254-968-9227.

Fecha de emisión: 12 de septiembre de 2024

Abesha Michael

From:	Jourdan Mullin <jmullin@enviroag.com>
Sent:	Thursday, August 29, 2024 12:55 PM
To:	Abesha Michael
Subject:	RE: Application to Renew Permit No. WQ0004920000 - Notice of Deficiency Letter
Attachments:	Tarleton State University Spanish NORI wq cafo renew.docx; Tarleton State University PLF ENGLISH SPANISH.docx
Follow Up Flag:	Follow up
Flag Status:	Flagged

Good Afternoon Abesha,

Attached is the Spanish NORI and Spanish PLS. Please let me know if you have any questions.

Thank you,
Jourdan Mullin

From: Abesha Michael <Abesha.Michael@tceq.texas.gov>
Sent: Friday, August 23, 2024 4:36 PM
To: Jourdan Mullin <jmullin@enviroag.com>
Subject: RE: Application to Renew Permit No. WQ0004920000 - Notice of Deficiency Letter

Good Afternoon Ms. Jourdan,
Please email the Spanish nori and Plain Language Summary (PLS) ASAP.
Thank you,

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Abesha H. Michael
Applications Review & Processing Team
Water Quality Division Support Section
Water Quality Division, MC 148
PO Box 13087
Austin, Texas 78711
Phone: o: 512-239-4912; c: 346-802-8446
Email: abesha.michael@tceq.texas.gov

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

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From: Jourdan Mullin <jmullin@enviroag.com>
Sent: Tuesday, August 20, 2024 9:47 AM
To: Abesha Michael <Abesha.Michael@tceq.texas.gov>
Cc: Corey Mullin <cmullin@enviroag.com>
Subject: RE: Application to Renew Permit No. WQ0004920000 - Notice of Deficiency Letter

Good morning Abesha,

After review of the NORI, I found 2 mistakes that need to be corrected. The last sentence of the notice should be Dr. Barry Lambert, not Mr. Barry Lambert. The word profession at the end of Dr. Barry Lambert's title needs to be deleted. Please let me know if you have any questions.

Thank you,

Respectfully,
Jourdan Mullin

Enviro-Ag Engineering, Inc.
9855 FM 847
Dublin, TX 76446

254/965-3500 – Work
806/679-5570 - Mobile

From: Corey Mullin <cmullin@enviroag.com>
Sent: Monday, August 19, 2024 4:19 PM
To: Jourdan Mullin <jmullin@enviroag.com>
Subject: FW: Application to Renew Permit No. WQ0004920000 - Notice of Deficiency Letter

Respectfully,
Corey Mullin
Enviro-Ag Engineering
9855 FM 847
Dublin, TX 76446

254/965-3500 Work
254/233-9945 Direct
254/485-3892 Mobile
cmullin@enviroag.com

From: Abesha Michael <Abesha.Michael@tceq.texas.gov>
Sent: Monday, August 19, 2024 3:40 PM
To: Corey Mullin <cmullin@enviroag.com>
Subject: Application to Renew Permit No. WQ0004920000 - Notice of Deficiency Letter

Good Afternoon Mr. Mullin,

The attached Notice of Deficiency letter sent on August 19, 2024, requests additional information needed to declare the application administratively complete. Please send the complete response to my attention by September 2, 2024.

Thank you,

Abesha H. Michael
Applications Review & Processing Team
Water Quality Division Support Section
Water Quality Division, MC 148
PO Box 13087
Austin, Texas 78711
Phone: o: 512-239-4912; c: 346-802-8446
Email: abesha.michael@tceq.texas.gov

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

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SPANISH

El siguiente resumen se proporciona para esta solicitud pendiente de permiso de calidad del agua que está siendo revisada por la Comisión de Calidad Ambiental de Texas según lo exige el Plan de Participación Pública y el Plan de Acceso Lingüístico de la TCEQ. La información provista en este resumen puede cambiar durante la revisión técnica de la solicitud y no es una representación federal exigible de la solicitud del permiso.

1) Nombre del solicitante: Tarleton State University

2) Ingrese el número de cliente: CN600346456

3) Nombre de la instalación: Southwest Regional Dairy Center

4) Ingresar Número de Entidad Regulada: RN105915730

5) Proporcione su número de permiso: WQ0004920000

6) Instalación Comercial: La instalación alberga 500 cabezas de ganado vacuno, todas ellas lecheras, 100 bovinos de carne, 200 cerdos, 200 ovejas/cabras y 150 caballos. La instalación tiene veintiún (21) unidades de administración de tierras (LMU) con las siguientes superficies: LMU #1 – 21, LMU #2 – 18, LMU #3 – 15, LMU #4 – 22, LMU #5 – 22, LMU #6 – 16, LMU #7 – 17, LMU #8 – 51, LMU #9 – 8, LMU #10 – 13, LMU #11 – 24, LMU #12 – 15, LMU #13 – 7.5, LMU # 14 – 17, LMU #15 – 8, LMU #16 – 15, LMU #17 – 14, LMU #18 – 22, LMU #19 – 24, LMU #20 – 27, LMU #21 - 21 acres. Tres (3) estructuras de control de retención (RCS), las capacidades requeridas son: RCS #1 – 13.51, RCS #2 – 2.49 y RCS #3 – 3.06 ac-ft. Hay trece (13) pozos en el sitio de los cuales cinco (5) están taponados. La instalación está ubicada en el Upper North Bosque River en el segmento No. 1255 de la Cuenca del Río Brazos.

7) Ubicación de la instalación: La instalación está ubicada en el lado oeste de la US Highway 281, aproximadamente a una milla al norte de la intersección de la US Highway 281 y la FM 8 Condado de Erath, Texas.

8) Tipo de Solicitud: Renovación de Permiso Individual con una Enmienda Menor

9) Descripción de su solicitud: Reconfigurar el área de drenaje para RCS #1, reducir el volumen requerido y eliminar el granero de ventilación cruzada y los carriles de circulación asociados.

10) Las posibles fuentes de contaminantes en la instalación incluyen (enumere las fuentes de contaminantes): Estiércol, reservas de estiércol, aguas residuales, lodos, purines, compost, piensos y camas, reservas de ensilaje, animales muertos, polvo, lubricantes, pesticidas y tanques de almacenamiento de combustible.

11) Las siguientes mejores prácticas de manejo se implementarán en el sitio para manejar los contaminantes de las fuentes de contaminantes enumeradas (describa las

mejores prácticas de manejo que se utilizan): las aguas pluviales se almacenan en la laguna (RCS) hasta que se aplican a la tierra mediante riego y estiércol y lodo se almacenan en el área de drenaje del RCS hasta que se aplican a la tierra o se transportan fuera del sitio para un uso beneficioso. El estiércol y los lodos generados por CAFO se conservarán y utilizarán de manera apropiada y beneficiosa de acuerdo con un plan certificado de manejo de nutrientes específico del sitio. Las aguas residuales estarán contenidas en RCS #1 adecuadamente diseñado ((frecuencia de 25 años, duración de 10 días (25 años/10 días), RCS #2 y RCS #3 adecuadamente diseñados ((frecuencia de 25 años, duración de 24 horas (25 años /24 h), construido, operado y mantenido de acuerdo con lo dispuesto en el permiso. Mantener una zona de amortiguamiento de 100 pies para todos los pozos de riego o 150 pies para todos los pozos de suministro o 500 pies para todos los pozos públicos. Polvo: velocidad de control y mantenimiento regular del corral. Fertilizantes: almacénelos bajo techo y manipúlelos de acuerdo con las instrucciones especificadas en la etiqueta. Tanques de combustible: proporcionan contención secundaria y evitan sobrellenados/derrames. Animales muertos: elimínelos a través de un servicio de procesamiento de terceros o entierre en el sitio. Recolectado dentro de las 24 horas posteriores a la muerte y eliminado dentro de los tres días.

12) A menos que se limite de otro modo, el estiércol, los lodos o las aguas residuales no se descargarán desde una unidad de administración de tierra (LMU) o una estructura de control de retención (RCS) hacia el agua en el estado o junto a ella desde una CAFO, excepto que resulte de cualquiera de las siguientes condiciones:

1) una descarga de estiércol, lodo o aguas residuales que el tenedor del permiso no puede prevenir o controlar razonablemente como resultado de una condición catastrófica que no sea un evento de lluvia;

2) desbordamiento de estiércol, lodo o aguas residuales de un RCS como resultado de un evento de lluvia crónica/catastrófica; o

3) una descarga de lluvia crónica/catastrófica de una LMU que ocurre porque el tenedor del permiso toma medidas para vaciar el RCS si el RCS está en peligro de desbordamiento inminente.

Comisión de Calidad Ambiental del Estado de Texas

AVISO DE RECEPCIÓN DE LA SOLICITUD Y LA INTENCIÓN DE OBTENER PERMISO DE CALIDAD DEL AGUA RENOVACIÓN

PERMISO NO. WQ0004920000

SOLICITUD. Tarleton State University, P.O. Box T-0180, Stephenville, ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para renovar el Permiso de Aguas Residuales No. WQ0004920000 para una Operación de Alimentación Concentrada para Animales (CAFO) para autorizar el funcionamiento de 500 cabezas de ganado vacuno, todos ellos vacas lecheras, 100 bovinos de carne; 200 cerdos; cada uno pesa 55 libras o más; 200 ovejas/cabras; y 150 caballos. La instalación está ubicada a 1 milla al norte de la intersección de Farm-to-Market Road 8 y U.S. Highway 281, cerca de la ciudad de Stephenville, en el condado de Erath, Texas 76401. La TCEQ recibió esta solicitud el 9 de agosto de 2024. La solicitud del permiso está disponible para leerla y copiarla en la Oficina de Extensión del Condado de Erath, Palacio de Justicia del Condado de Erath, 100 Washington Street, Cuarto 206, Stephenville, en el Condado de Erath, Texas, antes de la fecha de publicación de este aviso en el periódico. La solicitud, incluidas las actualizaciones y los avisos asociados están disponibles electrónicamente en la siguiente página web: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/cafo-applications. Este enlace a un mapa electrónico de la ubicación general del sitio o de la instalación es proporcionado como una cortesía y no es parte de la solicitud o del aviso. Para la ubicación exacta, consulte la solicitud.
https://gisweb.tceq.texas.gov/LocationMapper/?marker=-98.196111,32.256111&level=18

AVISO ADICIONAL. El Director Ejecutivo de la TCEQ ha determinado que la solicitud es administrativamente completa y conducirá una revisión técnica de la solicitud. Después de completar la revisión técnica, el Director Ejecutivo puede preparar un borrador del permiso y emitirá una Decisión Preliminar sobre la solicitud. **El aviso de la solicitud y la decisión preliminar serán publicados y enviado a los que están en la lista de correo de las personas a lo largo del condado que desean recibir los avisos y los que están en la lista de correo que desean recibir avisos de esta solicitud. El aviso dará la fecha límite para someter comentarios públicos.**

COMENTARIO PUBLICO / REUNION PUBLICA. Usted puede presentar comentarios públicos o pedir una reunión pública sobre esta solicitud. El propósito de una reunión pública es dar la oportunidad de presentar comentarios o hacer preguntas acerca de la solicitud. La TCEQ realiza una reunión pública si el Director Ejecutivo determina que hay un grado de interés público suficiente en la solicitud o si un legislador local lo pide. Una reunión pública no es una audiencia administrativa de lo contencioso.

OPORTUNIDAD DE UNA AUDIENCIA ADMINISTRATIVA DE LO CONTENCIOSO. Después del plazo para presentar comentarios públicos, el Director Ejecutivo considerará todos los comentarios apropiados y preparará una respuesta a todo los comentarios públicos esenciales, pertinentes, o significativos. **A menos que la solicitud haya sido referida directamente a una audiencia administrativa de lo contencioso, la respuesta a los comentarios y la decisión del Director Ejecutivo sobre la solicitud serán enviados por correo a todos los que presentaron un comentario público y a las personas que están en la lista para recibir avisos sobre esta solicitud. Si se reciben comentarios, el aviso también proveerá instrucciones para pedir una reconsideración de la decisión del Director Ejecutivo y para pedir una audiencia administrativa de lo contencioso.** Una audiencia administrativa de lo contencioso es un procedimiento legal similar a un procedimiento legal civil en un tribunal de distrito del estado.

PARA SOLICITAR UNA AUDIENCIA DE CASO IMPUGNADO, USTED DEBE INCLUIR EN SU SOLICITUD LOS SIGUIENTES DATOS: su nombre, dirección, y número de teléfono; el nombre del solicitante y número del permiso; la ubicación y distancia de su propiedad/actividad con respecto a la instalación; una descripción específica de la forma cómo usted sería afectado adversamente por el sitio de una manera no común al público en general; una lista de todas las cuestiones de hecho en disputa que usted presente durante el período de comentarios; y la declaración "[Yo/nosotros] solicito/solicitamos una audiencia de caso impugnado". Si presenta la petición para una audiencia de caso impugnado de parte de un grupo o asociación, debe identificar una persona que representa al grupo para recibir correspondencia en el futuro; identificar el nombre y la dirección de un miembro del grupo que sería afectado adversamente por la planta o la actividad propuesta; proveer la información indicada anteriormente con respecto a la ubicación del miembro afectado y su distancia de la planta o actividad propuesta; explicar cómo y porqué el miembro sería afectado; y explicar cómo los intereses que el grupo desea proteger son pertinentes al propósito del grupo.

Después del cierre de todos los períodos de comentarios y de petición que aplican, el Director Ejecutivo enviará la solicitud y cualquier petición para reconsideración o para una audiencia de caso impugnado a los Comisionados de la TCEQ para su consideración durante una reunión programada de la Comisión. La Comisión sólo puede conceder una solicitud de una audiencia de caso impugnado sobre los temas que el solicitante haya presentado en sus comentarios oportunos que no fueron retirados posteriormente. Si se concede una audiencia, el tema de la audiencia estará limitado a cuestiones de hecho en disputa o cuestiones mixtas de hecho y de derecho relacionadas a intereses pertinentes y materiales de calidad del agua que se hayan presentado durante el período de comentarios.

LISTA DE CORREO. Si somete comentarios públicos, un pedido para una audiencia administrativa de lo contencioso o una reconsideración de la decisión del Director Ejecutivo, la Oficina del Secretario Principal enviará por correo los avisos públicos en relación con la solicitud. Ademas, puede pedir que la TCEQ ponga su nombre en una or mas de las listas correos siguientes (1) la lista de correo permanente para recibir los avisos de el solicitante indicado por nombre y número del permiso específico y/o (2) la lista de correo de todas las solicitudes en un condado especifico. Si desea que se agrega su nombre en una de las listas designe cual lista(s) y envia por correo su pedido a la Oficina del Secretario Principal de la TCEQ.

CONTACTOS E INFORMACIÓN DE LA TCEQ. Todos los comentarios públicos y solicitudes deben ser presentadas electrónicamente vía http://www14.tceq.texas.gov/epic/eComment/o por escrito dirigidos a la Comisión de Texas de Calidad Ambiental, Oficial de la Secretaría (Office of Chief Clerk), MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Tenga en cuenta que cualquier información personal que usted proporcione, incluyendo su nombre, número de teléfono, dirección de correo electrónico y dirección física pasarán a formar parte del registro público de la Agencia. Para obtener más información acerca de esta solicitud de permiso o el proceso de permisos, llame al programa de educación pública de la TCEQ, gratis, al 1-800-687-4040. Si desea información en Español, puede llamar al 1-800-687-4040.

También se puede obtener información adicional del Tarleton State University a la dirección indicada arriba o llamando al Dr. Barry Lambert, Profesor y Decano, Facultad de Agricultura y Recursos Naturales al 254-968-9227.

Fecha de emisión:

ENVIRO-AG ENGINEERING, INC.
EAE
AMARILLO · STEPHENVILLE · ARTESIA

Corporate Office:
3404 Airway Blvd.
Amarillo TX 79118

Central Texas:
9855 FM 847
Dublin TX 76446

New Mexico:
203 East Main Street
Artesia NM 88210

August 8, 2024

TCEQ
Registration, Review and Reporting Division
Permits Administration Review Section
Water Quality Applications Team, MC-148
12100 Park 35 Circle
Austin, TX 78753

Re: Tarleton State University – Permit No. WQ0004920000
Erath County, Texas.

Dear Administrative Review Section,

Enclosed please find the Renewal application for the above referenced facility. The $315 application fee was paid electronically, and the voucher is attached. Should you have any questions please do not hesitate to contact me.

Respectfully Submitted,

Jourdan Mullin

Jourdan Mullin
Enviro-Ag Engineering, Inc.

Cc: TCEQ Region 4, Stephenville
Tarleton State University
EAE file

30 TAC 321, SUBCHAPTER B APPLICATION, POLLUTION PREVENTION PLAN & CNMP

Tarleton State University

Renewal

Prepared For:

Southwest Regional Dairy Center

P.O. Box T-0180

Stephenville, TX 76402

July 19, 2024

Prepared By:

ENVIRO-AG ENGINEERING, INC.

EAE

AMARILLO · STEPHENVILLE · ARTESIA

9855 FM 847 ♦ Dublin, TX 76446 ♦ Tel 254/965-3500 ♦ Fax 254/965-8000

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

ELECTRONIC WAIVER REQUEST FOR A CONCENTRATED ANIMAL FEEDING OPERATION (CAFO)

A Large CAFO, as defined in the CAFO rules at 30 TAC 321.32(14)(A), must request a waiver from e-reporting requirements codified in 40 Code of Federal Regulations §127.15 OR be required to submit CAFO annual reports electronically.

Are you requesting a waiver from e-reporting requirements?

☒ Yes, Indicate the type of waiver below.

☒ Temporary Waiver

☐ Permanent Waiver (available to facilities and entities owned or operated by members of religious communities that choose not to use certain modern technologies (e.g., computers, electricity))

☐ No, you must submit your application electronically through TCEQ ePermits system (STEERS) at https://www3.tceq.texas.gov/steers/index.cfm. Check How to Apply through STEERS.

If an electronic waiver request is granted, the Applicant(s) seeking authorization, or an authorized permittee(s) may continue to submit CAFO annual reports to TCEQ in a paper format.

Note:

- An approved waiver is not transferrable.
- Each Owner or Operator must request his own waiver.
- Temporary waiver will not extend beyond five years. However, permittees may re-apply for a new temporary waiver, if needed.

State Only CAFOs are exempt from this requirement.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDIVIDUAL PERMIT APPLICATION FOR A CONCENTRATED ANIMAL FEEDING OPERATION (CAFO)

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

SECTION 1. APPLICATION FEE

Minor Amendment - $150.00
Renewal - $315.00
New or Major Amendment - $350.00

Mailed Check/Money Order Number:
Check/Money Order Amount:
Name Printed on Check:

EPAY Voucher Number: 716387 & 716388
Copy of Payment Voucher enclosed? Yes ☒

SECTION 2. TYPE OF APPLICATION

A. Coverage: State Only ☒ TPDES ☐

B. Media Type: Water Quality ☒ Air and Water Quality ☐

C. Application Type: New ☐ Major Amendment ☐
Renewal ☒ Minor Amendment ☒

D. For amendments, describe the proposed changes: Reconfigure drainage area for RCS #1 - decrease total required volume and remove cross-vent barn and associated travel lanes.

E. For existing permits:
What is the permit number? WQ0004920000
What is the EPA I.D. Number? TX n/a

SECTION 3. FACILITY OWNER (APPLICANT) INFORMATION

A. What is the legal name of the facility owner?
Tarleton State University

B. If the applicant is an existing TCEQ customer, provide the Customer Number (CN) issued to this entity? CN 600346456

Questions or Comments >>

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

Transaction Information

Voucher Number: 716387
Trace Number: 582EA000620759
Date: 08/08/2024 10:41 AM
Payment Method: CC - Authorization 000003033G
Voucher Amount: $300.00
Fee Type: CAFO PERMIT - RENEWAL
ePay Actor: JOURDAN MULLIN
Actor Email: jmullin@enviroag.com
IP: 156.146.244.233

Payment Contact Information

Name: JOURDAN MULLIN
Company: ENVIRO-AG ENGINEERING INC
Address: 3404 AIRWAY BLVD, AMARILLO, TX 79118
Phone: 806-679-5570

Site Information

Site Name: SOUTHWEST REGIONAL DAIRY CENTER
Site Location: W SIDE OF US HWY 281 APPROX 1 MILE N OF THE INTERSECTION OF US HWY 218 & FM 8

Customer Information

Customer Name: TARLETON STATE UNIVERSITY
Customer Address: PO BOX T-0180, STEPHENVILLE, TX 76402

Other Information

Program Area ID: 0004920000

Close

Questions or Comments >>

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

Transaction Information

Voucher Number:	716388
Trace Number:	582EA000620759
Date:	08/08/2024 10:41 AM
Payment Method:	CC - Authorization 000003033G
Voucher Amount:	$15.00
Fee Type:	30 TAC 305.53B WQ RENEWAL NOTIFICATION FEE
ePay Actor:	JOURDAN MULLIN
Actor Email:	jmullin@enviroag.com
IP:	156.146.244.233

Payment Contact Information

Name:	JOURDAN MULLIN
Company:	ENVIRO-AG ENGINEERING INC
Address:	3404 AIRWAY BLVD, AMARILLO, TX 79118
Phone:	806-679-5570

Close

Site Help | Disclaimer | Web Policies | Accessibility | Our Compact with Texans | TCEQ Homeland Security | Contact Us
Statewide Links: Texas.gov | Texas Homeland Security | TRAIL Statewide Archive | Texas Veterans Portal

C. What is the contact information for the owner?

Mailing Address: P.O. Box T-0180

City, State and Zip Code: Stephenville, TX 76402

Phone Number: 254/968-9227 Fax Number: n/a

E-mail Address: blambert@tarleton.edu

D. Indicate the type of customer:

☐ Individual
☐ Limited Partnership
☐ General Partnership
☐ Trust
☐ Sole Proprietorship (D.B.A.)
☐ Corporation
☐ Estate
☐ Federal Government
☐ County Government
☒ State Government
☐ City Government
☐ Other Government
☐ Other, specify: Click here to enter text.

E. If the customer type is individual, complete Attachment 1.

F. Is this customer an independent entity?

☐ Yes ☒ No government, subsidiary, or part of a larger corporation

G. Number of employees:

☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 or higher

H. For Corporations and Limited Partnerships:

What is the Tax Identification Number issued by the State Comptroller: Click here to enter text.

What is the Charter Filing Number issued by the Texas Secretary of State: Click here to enter text.

SECTION 4. CO-APPLICANT INFORMATION

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

A. What is the legal name of the co-applicant?

Click here to enter text.

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

C. What is the contact information for the co-applicant?

Mailing Address: Click here to enter text.

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

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

E-mail Address: Click here to enter text.

D. Indicate the type of customer:

- ☐ Individual
- ☐ Limited Partnership
- ☐ General Partnership
- ☐ Trust
- ☐ Sole Proprietorship (D.B.A.)
- ☐ Corporation
- ☐ Estate
- ☐ Federal Government
- ☐ County Government
- ☐ State Government
- ☐ City Government
- ☐ Other Government
- ☐ Other, specify: Click here to enter text.

E. If the customer type is individual, complete Attachment 1.

F. Is this customer an independent entity?

☐ Yes ☐ No government, subsidiary, or part of a larger corporation

G. Number of employees:

☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 or higher

H. For Corporations and Limited Partnerships:

What is the Tax Identification Number issued by the State Comptroller: Click here to enter text.

What is the Charter Filing Number issued by the Texas Secretary of State: Click here to enter text.

SECTION 5. APPLICATION CONTACT INFORMATION

This is the person TCEQ will contact if additional information is needed about this application.

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

Application Contact First and Last Name: Corey Mullin

Title: Consultant Credentials: Click here to enter text.

Company Name: Enviro-Ag Engineering, Inc.

Mailing Address: 9855 FM 847

City, State and Zip Code: Dublin, TX 76446

Phone Number: 254/965-3500 Fax Number: 254/965-8000

E-mail Address: cmullin@enviroag.com

SECTION 6. PERMIT CONTACT INFORMATION

Provide two names of individuals that TCEQ can contact during the term of the permit.

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

Permit Contact First and Last Name: Corey Mullin

Title: Consultant Credentials: Click here to enter text.

Company Name: Enviro-Ag Engineering, Inc.

Mailing Address: 9855 FM 847

City, State and Zip Code: Dublin, TX 76446

Phone Number: 254/965-3500 Fax Number: 254/965-8000 E-mail Address: cmullin@enviroag.com

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

Permit Contact First and Last Name: Barry Lambert

Title: Professor and Dean College of Agriculture and Natural Resources Credentials: Ph.D.

Company Name: Tarleton State University

Mailing Address: P.O. Box T-0180

City, State and Zip Code: Stephenville, TX 76402

Phone Number: 254/968-9227 Fax Number: n/a E-mail Address: blambert@tarleton.edu

SECTION 7. ANNUAL BILLING CONTACT INFORMATION

Please identify the individual for receiving the annual fee invoices.

Is the billing contact and contact information the same as the Owner or the Co-Applicant identified in Section 3) or Section 4) above?

☒ Yes, specify which applicant on the line below and go to Section 8)

Owner, Tarleton State University

☐ No, complete this section

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

First and Last Name: Click here to enter text.

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

Company Name: Click here to enter text.

Mailing Address: Click here to enter text.

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

Phone Number: Click here to enter text. Fax Number: Click here to enter text. E-mail Address: Click here to enter text.

SECTION 8. LANDOWNER INFORMATION

A. Landowner where the production area is or will be located

Landowner Name: Tarleton State University

B. Landowner of the land management units (LMUs)

Landowner Name: Tarleton State University

SECTION 9. PUBLIC NOTICE INFORMATION

A. Individual responsible for publishing the notices in the newspaper

Prefix (Mr., Ms., Miss): Ms. First and Last Name: Jourdan Mullin

Title: Consultant Credentials:

Company Name: Enviro-Ag Engineering, Inc.

Mailing Address: 9855 FM 847

City, State and Zip Code: Dublin, TX 76446

Phone Number: 254/965-3500 Fax Number: 254/965-8000 E-mail Address: jmullin@enviroag.com

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

☒ E-mail: jmullin@enviroag.com

☐ Fax Number:

☒ Regular Mail:

Mailing Address: 9855 FM 847

City, State and Zip Code: Dublin, TX 76446

C. Contact person to be listed in the notice

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

First and Last Name: Barry Lambert

Title: Professor and Dean, College of Agriculture and Natural Resources Credentials: Ph.D.

Company Name: Tarleton State University

Phone Number: 254/968-9227

D. Public viewing location

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

Public Building Name: Erath County Extension Office-Erath County Courthouse

Physical Address of Building: 100 Washington St. Room 206

City: Stephenville County: Erath

Phone Number: 254/965-1460

E. Bilingual Notice Requirement

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

1. Is a bilingual education program required by the Texas Education Code at the nearest elementary or middle school to the facility or proposed facility?
Yes ☒ No ☐

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

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

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

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

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

6. Complete the CAFO Plain Language Summary Template (English) for CAFO Permit Applications for a new, renewal, major or minor amendment and submit with this application.

If a bilingual education program is required by the Texas Education Code at the nearest elementary or middle school to the facility or proposed facility, also complete the CAFO Plain Language Summary Template (Spanish) or provide a translated copy of the completed English plain language summary in the appropriate alternative language if different from Spanish.

F. Public Involvement Plan Form

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

SECTION 10. REGULATED ENTITY (SITE) INFORMATION

A. Site Name as known by the local community: Southwest Regional Dairy Center

B. If this is an existing permitted site, provide the Regulated Entity Number (RN) issued to this site? RN 105915730

C. Site Address/Location:

If the site has a physical address such as 12100 Park 35 Circle, Austin, TX 78753, complete Item 1.

If the site does not have a physical address, provide a location description in Item 2. Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123

ENGLISH LANGUAGE TEMPLATE FOR CAFO PERMIT APPLICATIONS

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by the TCEQ Public Participation Plan and Language Access Plan. 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.

1) Applicant's Name: Tarleton State University
2) Enter Customer Number: CN600346456
3) Name of facility: Southwest Regional Dairy Center
4) Enter Regulated Entity Number: RN105915730
5) Provide your permit Number: WQ0004920000
6) Facility Business: The facility confines 500 head of cattle of which all are milking, 100 beef cattle, 200 swine, 200 sheep/goats and 150 horses. The facility has twenty-one (21) land management units (LMUs) with the following acreages: LMU #1 - 21, LMU #2 - 18, LMU #3 - 15, LMU #4 - 22, LMU #5 - 22, LMU #6 - 16, LMU #7 - 17, LMU #8 - 51, LMU #9 - 8, LMU #10 - 13, LMU #11 - 24, LMU #12 - 15, LMU #13 - 7.5, LMU #14 - 17, LMU #15 - 8, LMU #16 - 15, LMU #17 - 14, LMU #18 - 22, LMU #19 - 24, LMU #20 - 27, LMU #21 - 21 acres. Three (3) retention control structures (RCS), the required capacities are: RCS #1 - 13.51, RCS #2 - 2.49 and RCS #3 - 3.06 ac-ft. There are thirteen (13) onsite wells of which five (5) are plugged. The facility is located in the Upper North Bosque River in Segment No. 1255 of the Brazos River Basin.
7) Facility Location: The facility is located on the West side of US Highway 281, approximately one mile North of the intersection of US Highway 281 and FM 8 Erath County, Texas
8) Application Type: Individual Permit Renewal with a Minor Amendment
9) Description of your request: Reconfigure the drainage area for RCS #1, decrease the required volume and remove cross-vent barn and associated travel lanes.
10) Potential pollutant sources at the facility include (list the pollutant sources): Manure, manure stockpiles, wastewater, sludge, slurry, compost, feed & bedding, silage stockpiles, dead animals, dust, lubricants, pesticides and fuel storage tanks.
11) The following best management practices will be implemented at the site to manage pollutants from the listed pollutant sources (describe the best management practices that are used): stormwater is stored in the lagoon (RCS) until land applied through irrigation and manure and sludge are stockpiled in the drainage area of the RCS until land applied or hauled offsite for beneficial use. Manure and sludge generated by the CAFO will be retained and used in an appropriate and beneficial manner in accordance with a certified site-specific nutrient management plan. Wastewater will be contained in RCS #1 properly designed ((25-year frequency 10-day duration (25 year/10 day), RCS #2 and RCS #3 properly designed ((25-year frequency 24-hour duration (25 year/24hr), constructed, operated and maintained according to the provision of the permit. Maintain 100-foot buffer for all irrigation wells or 150-foot for all supply wells and 500-foot for all public wells. Dust –

control speed and regular pen maintenance. Fertilizers - store under roof and handle according to specified label directions. Fuel Tanks - provide secondary containment and prevent overfills/spills. Dead animals - dispose by a third-party rendering service. Collected within 24 hours of death and disposed within three days.

12) Unless otherwise limited, manure, sludge, or wastewater will not be discharged from a land management unit (LMU) or a retention control structure (RCS) into or adjacent to water in the state from a CAFO except resulting from any of the following conditions:

1) a discharge of manure, sludge, or wastewater that the permittee cannot reasonably prevent or control resulting from a catastrophic condition other than a rainfall event;

2) overflow of manure, sludge, or wastewater from a RCS resulting from a chronic/catastrophic rainfall event; or

3) a chronic/catastrophic rainfall discharge from a LMU that occurs because the permittee takes measures to de-water the RCS if the RCS is in danger of imminent overflow.

and Highway 1.

Item 1: Physical Address of Project or Site:

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

Item 2: Site Location Description:

Location description: The facility is located on the West side of US Highway 281, approximately one mile North of the intersection of US Highway 281 and FM 8.
City where the site is located or, if not in a city, what is the nearest city: Stephenville
Zip Code where the site is located: 76402

D. County or counties if more than 1: Erath

E. Latitude: 32 15' 22.35" Longitude: 98 11' 45.99"W

F. Animal Type:

☒ Dairy-0241
☒ Beef Cattle- 0211
☒ Swine-0213
☐ Broiler-0251
☐ Laying Hens-0252
☒ Sheep/Goats-0214
☐ Auction-5154
☒ Other, specify: Horses

G. Existing Maximum Number of Animals: Dairy - 500 (of which all are milking), Beef Cattle - 100, Swine - 200, Sheep/Goat - 200 and Horses - 150
Proposed Maximum Number of Animals: Dairy - 500 (of which all are milking), Beef Cattle - 100, Swine - 200, Sheep/Goat - 200 and Horses - 150

H. What is the total LMU acreage? 397.5

SECTION 11. MISCELLANEOUS INFORMATION

A. Did any person who was formerly employed by the TCEQ represent your company and get paid for service regarding this application? Yes ☐ No ☒
If yes, provide the name(s) of the former TCEQ employee(s): Click here to enter text.

B. Is the facility located on Indian Country Lands? Yes ☐ No ☒
If yes, do not submit this application. You must obtain authorization through EPA Region 6.

C. Is the production area located within the protection zone of a sole source drinking water supply? Yes ☐ No ☒

D. 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 here to enter text.

E. Delinquent Fees and Penalties:

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

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

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

SECTION 12. AFFECTED LANDOWNER INFORMATION

This section must be completed if the application type is new or major amendment. If the application type is renewal or minor amendment, skip to Section 13.

A. Landowner map. Attach a landowner map or drawing, with scale, that includes the following. Each landowner should be designated by a letter or number on both the list and the map.
   - The applicant's property boundaries, including onsite and offsite LMUs; and
   - The property boundaries of all landowners within 500 feet of the applicant's property.

B. Landowner list. Attach a separate list of the landowners' names and mailing addresses. The list must be cross-referenced to the landowners map.

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

   ☐ Read/Writeable CD

   ☐ 4 sets of mailing labels

D. Landowner data source. Provide the source of the landowners' names and mailing addresses.

SECTION 13. ATTACHMENTS

A. **All applications**
   - Supplemental Permit Information Form, if required by instructions on that form
   - Current copy of tax records or deed showing ownership of the land
   - Lease agreement, if LMUs are not owned by the applicant or co-applicant

B. **New, Major amendment, or Renewal**
   - Completed Technical Information Packet (TCEQ-00760).

C. **New and Major amendment**
   - Public Involvement Plan Form (TCEQ-20960)

D. **Minor Amendment**

   Attach the following items if applicable:
   - Current vicinity map, site map, runoff control map, and LMU map

- RCS design calculations
- Nutrient Management Plan or Land application rate calculations
- Other technical documents affected by the proposed amendment

SIGNATURE PAGE

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

Permit Number: WQ0004920000

Applicant: Tarleton State University

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: Barry Lambert

Title: Dean of the College of Ag. & Nat. Resources

Signature: ______________________ Date: August 7, 2024

SUBSCRIBED AND SWORN to before me by the said Barry Lambert on

this 7th day of August, 2024

My commission expires on the 25th day of February, 2028

(Seal)
RICHARD LYN GEORGE
NOTARY PUBLIC
STATE OF TEXAS
ID 132374303
EXP. 02-25-2028

____
Notary Public

Erath
____
County, Texas

TCEQ USE ONLY

Application type: ☐ Renewal ☐ Major Amendment ☐ Minor Amendment ☐ New
County: ______________________ Admin Complete Date: ____________________
Agency Receiving SPIF: ☐ Texas Historical Commission ☐ U.S. Fish and Wildlife
☐ Texas Parks and Wildlife ☐ Army Corps of Engineers

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

This form is required for all TPDES applications

1. Applicant: Tarleton State University
2. Permit Number: WQ0004290000 EPA ID Number: n/a
3. Address of the project (location description that includes street/highway, city/vicinity, and county). The facility is located on the West side of US Highway 281, approximately one mile North of the intersection of US Highway 281 and FM 8 in Erath County, Texas.
4. Provide the name, address, telephone and fax number of an individual that can be contacted to answer specific questions about the property.

   First and Last Name: Corey Mullin

   Company Name: Enviro-Ag Engineering, Inc.

   Mailing Address: 9855 FM 847

   City, State, and Zip Code: Dublin, TX 76446

   Phone Number: 254/965-3500 Fax Number: 254/965-8000
5. County where the facility is located: Erath
6. If the property is publicly owned and the owner is different than the permittee/applicant, please identify the owner. n/a
7. Identify the name of the water body (receiving waters) and TCEQ segment number that will receive the discharge. Upper North Bosque River in Segment No. 1255 of the Brazos River Basin
8. Provide a 7.5-minute USGS quadrangle map with the project boundaries plotted and a general location map showing the project area. (This map is required in addition to the map in the administrative report.)
9. Provide photographs of any structures 50 years or older on the property.
10. Does your project involve any of the following? Select all that apply.
    - ☐ Proposed access roads, utility lines, and construction easements
    - ☐ Visual effects that could damage or detract from a historic property's integrity
    - ☐ Vibration effects during construction or as a result of project design
    - ☐ Additional phases of development that are planned for the future
    - ☐ Sealing of caves, fractures, sinkholes, or other karst features
    - ☐ Disturbance of vegetation or wetlands
11. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves or other karst features): No construction is proposed

12. Describe existing disturbances, vegetation & land use (plowing, other ground disturbances): The land management units (LMUs) at the facility are planted in Costal Bermuda and normal farming practices to maintain these crops will be utilized.

The following applies to New TPDES and Major Amendment to TPDES Permits:

13. List construction dates of any buildings or structures on the property: Click here to enter text.

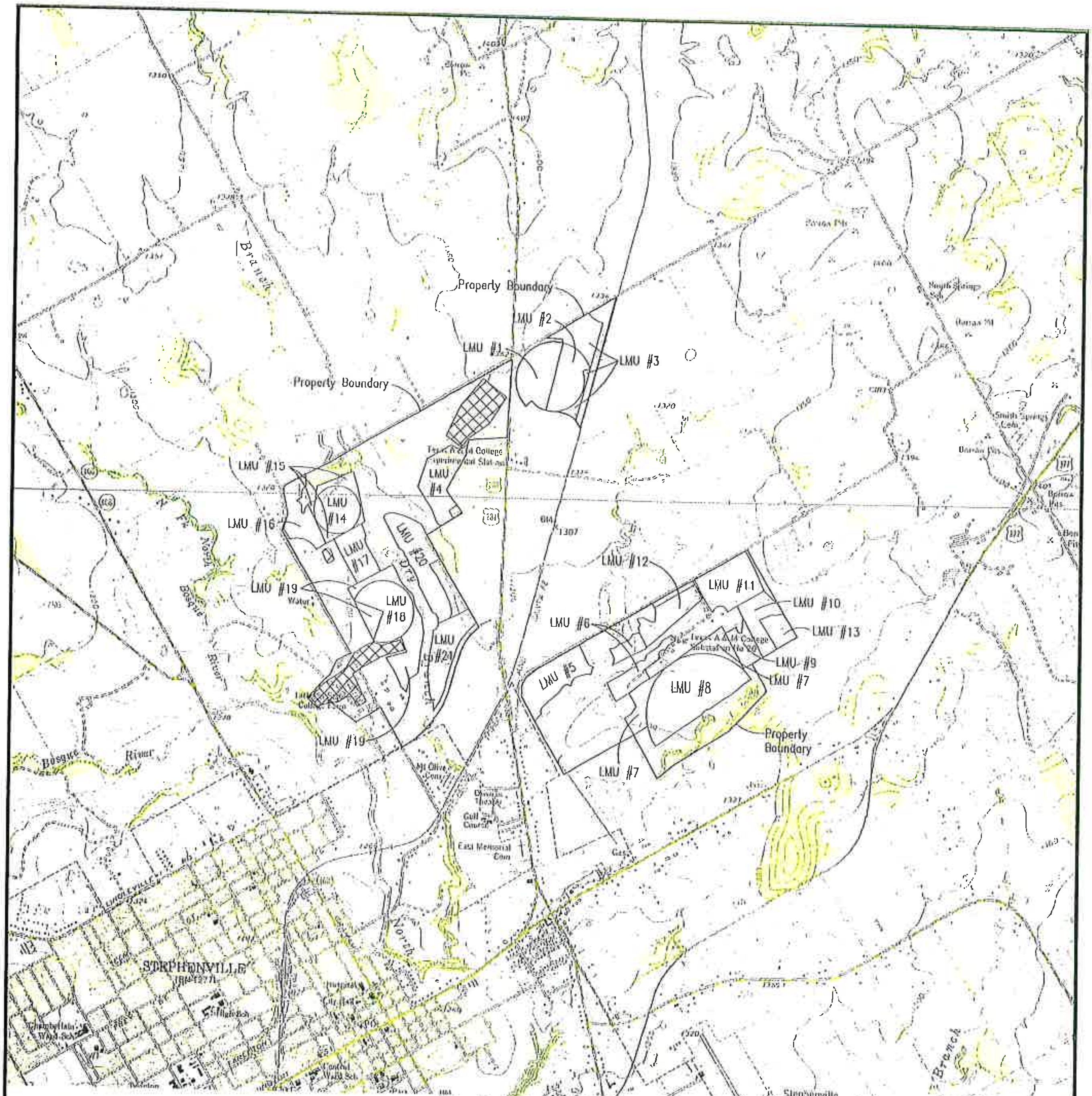
14. Provide a brief history of the property, and name of the architect/builder, if known: Click here to enter text.

The following applies to New, Amended and Renewal TPDES applications:

15. List each Retention Control Structure and its required capacity (Acre Feet). RCS #1 - 13.22, RCS #2 - 2.49 and RCS #3 - 3.06

16. Provide the location and number of acres where wastewater and manure are land applied: The applicant has 397.5 on-site acres for waste and wastewater application. See attached Figure 1.3 for exact locations of LMUs.

17. List the maximum number of head to be permitted. Dairy Cattle - 500, Beef Cattle - 100, Swine - 200, Sheep/Goats - 200 and Horses - 150



LEGEND:
Denotes Production Area

Map Revised: 3/2/21

N
W
E
S

Source: USDA–NRCS Geospatial Data Gateway, Erath County.
http://datagateway.nrce.usda.gov/ Digital Raster Graphic County Mosaic by NRCS – Accessed November, 2017.

1500' 0 1500' 3000'

SCALED AS SHOWN

Southwest Regional Dairy Center Stephenville, Texas Erath County	SPIF Map	ENVIRO–AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

Map

Property Details

Account

Property ID:	R000042774	Geographic ID: R.0804.00281.00.0
Type:	Real	Zoning:
Property Use:		Condo:

Location

Situs Address:	1000 CR518	
Map ID:	19-15-3	Mapsco:
Legal Description:	Acres 624.087, A0804 WILLIAMS M R;, UNIVERSITY FARM	
Abstract/Subdivision:		

Owner

Name:	BOARD OF REGENTS OF THE TX A&M UNIVERSITY SYSTEM
Agent:	
Mailing Address:	301 TARROW STREET 6TH FLOOR COLLEGE STATION, TX 77840-7896
% Ownership:	100.00%
Exemptions:	For privacy reasons not all exemptions are shown online.

Property Values

Improvement Homesite Value:	$0 (+)
Improvement Non-Homesite Value:	$10,406,150 (+)
Land Homesite Value:	$0 (+)
Land Non-Homesite Value:	$2,496,350 (+)
Agricultural Market Valuation:	$0 (+)
Market Value:	$12,902,500 (=)
Agricultural Value Loss:	$0 (-)
Appraised Value:	$12,902,500 (=)
Homestead Cap Loss:	$0 (-)
Assessed Value:	$12,902,500
Ag Use Value:	$0

VALUES DISPLAYED ARE 2024 PRELIMINARY VALUES AND ARE SUBJECT TO CHANGE PRIOR TO CERTIFICATION.

Information provided for research purposes only. Legal descriptions and acreage amounts are for appraisal district use only and should be verified prior to using for legal purpose and or documents. Please contact the Appraisal District to verify all information for accuracy.

Property Taxing Jurisdiction

Owner: BOARD OF REGENTS OF THE TX A&M UNIVERSITY SYSTEM **%Ownership:** 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	$12,902,500	$0
903	STEPHENVILLE ISD	$12,902,500	$0
MTD	MIDDLE TRINITY WATER	$12,902,500	$0
RER	ERATH ROAD & BRIDGE	$12,902,500	$0

Property Improvement - Building

Type: MA State Code: X Living Area: 3,600.00 sqft Value: $188,040

Type	Description	Year Built
MA	MAIN AREA	1925
MA2	MAIN AREA2 STORY	1925
SHED	SHED	1925
SHED	SHED	1925
DG	DETACHED GARAGE	1925
AS	ANIMALSHADE	2012
STG	STRG BUILDING	2015

Type: LAB State Code: X Living Area: 8,637.00 sqft Value: $326,317

Type	Description	Year Built
LAB	LABORATORY	1974
GH	GREENHOUSE	1974
OFF	OFFICE	1974
DCP	DET CARPRT	1974
PMP	PRCHMETAL+	1974
SHED	SHED	1974
P	COVERPORCH	1974
CAN	CANOPY	1974

Type: SCH State Code: X Living Area: 14,600.00 sqft Value: $2,281,734

Type	Description	Year Built
SCH	SCHOOL	1974
MA	MAIN AREA	1974
MA	MAIN AREA	2019
ARE	ARENA ENCLOSED	1987
MA	MAIN AREA	1987
MA	MAIN AREA	1987
SHE3	3SIDE SHED	1974
SHE1	1SIDE SHED	1974
PM	PRCH METAL	1987
MA	MAIN AREA	1974
MA	MAIN AREA	1974
MA	MAIN AREA	2019
MA	MAIN AREA	1974
AS	ANIMALSHADE	2019

Type: MA State Code: X Living Area: 7,700.00 sqft Value: $154,000

Type	Description	Year Built
MA	MAIN AREA	1952

Type: SHOP State Code: X Living Area: 2,730.00 sqft Value: $225,990

Type	Description	Year Built
SHOP	SHOP	2008
SHED	SHED	2008
BAY	AUTO BAY	2008
SHOP	SHOP	2023

Type: LAB State Code: X Living Area: 18,423.00 sqft Value: $3,760,662

Type	Description	Year Built
LAB	LABORATORY	2019
LAB	LABORATORY	2019
LAB	LABORATORY	2019

P	COVERPORCH	2019
P	COVERPORCH	2019
P	COVERPORCH	2019
P	COVERPORCH	2019
CCP	PAVING CONCRETE	2021

Type: BARN State Code: X Living Area: 4,588.00 sqft Value: $149,891

Type	Description	Year Built
BARN	BARN	2019
GH	GREENHOUSE	2019

Type: LAB State Code: X Living Area: 20,800.00 sqft Value: $3,319,514

Type	Description	Year Built
LAB	LABORATORY	2019
ARE	ARENA ENCLOSED	2019
BARN	BARN	2019
SCH	SCHOOL	2019
CCP	PAVING CONCRETE	2021

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAE		624.0870	27,185,230.00	0.00	0.00	$2,496,348	$0

Property Roll Value History

Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap Loss	Assessed
2024	$10,406,150	$2,496,350	$0	$12,902,500	$0	$12,902,500
2023	$10,076,270	$2,496,350	$0	$12,572,620	$0	$12,572,620
2022	$9,547,800	$2,496,350	$0	$12,044,150	$0	$12,044,150
2021	$8,261,220	$1,685,040	$0	$9,946,260	$0	$9,946,260
2020	$8,261,220	$1,685,040	$0	$9,946,260	$0	$9,946,260
2019	$1,957,340	$1,685,040	$0	$3,642,380	$0	$3,642,380
2018	$1,897,100	$3,170,440	$0	$5,067,540	$0	$5,067,540
2017	$1,868,180	$2,883,390	$0	$4,751,570	$0	$4,751,570
2016	$1,880,100	$2,571,350	$0	$4,451,450	$0	$4,451,450
2015	$1,872,890	$2,571,350	$0	$4,444,240	$0	$4,444,240
2014	$1,872,890	$2,571,350	$0	$4,444,240	$0	$4,444,240

Property Deed History

Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Number
1/1/1968			NO GRANTOR	TARLETON STATE UNIVERSITY	5	339	

Map

Property Details

Account

Property ID:	R000074568	Geographic ID:	R.0804.00279.00.0
Type:	Real	Zoning:	
Property Use:		Condo:	

Location

Situs Address:	2929 N US281		
Map ID:	19-15-3	Mapsco:	
Legal Description:	Acres 81.120, A0804 WILLIAMS M R; TSU DAIRY FACILITY		
Abstract/Subdivision:			

Owner

Name:	BOARD OF REGENTS OF THE TX A&M UNIVERSITY SYSTEM
Agent:	
Mailing Address:	301 TARROW STREET 6TH FLOOR COLLEGE STATION, TX 77840-7896
% Ownership:	100.00%
Exemptions:	For privacy reasons not all exemptions are shown online.

Property Values

Improvement Homesite Value:	$0 (+)
Improvement Non-Homesite Value:	$1,397,060 (+)
Land Homesite Value:	$0 (+)
Land Non-Homesite Value:	$405,600 (+)
Agricultural Market Valuation:	$0 (+)
Market Value:	$1,802,660 (=)
Agricultural Value Loss:	$0 (-)
Appraised Value:	$1,802,660 (=)
Homestead Cap Loss:	$0 (-)
Assessed Value:	$1,802,660
Ag Use Value:	$0

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Property Taxing Jurisdiction

Owner: BOARD OF REGENTS OF THE TX A&M UNIVERSITY SYSTEM %Ownership: 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	$1,802,660	$0
903	STEPHENVILLE ISD	$1,802,660	$0
MTD	MIDDLE TRINITY WATER	$1,802,660	$0
RER	ERATH ROAD & BRIDGE	$1,802,660	$0

Property Improvement - Building

Type: OFF State Code: X Living Area: 7,260.00 sqft Value: $1,009,848

Type	Description	Year Built
OFF	OFFICE	2010
P	COVERPORCH	2010
P	COVERPORCH	2010
P	COVERPORCH	2010
DB	DAIRY BARN	2011
FSL	LOCKED FEED STANCHION	2011
CHP	HOLD PEN COVERED	2011
CCP	PAVING CONCRETE	2015

Type: BARN State Code: X Living Area: 48,300.00 sqft Value: $387,216

Type	Description	Year Built
BARN	BARN	2010
BARN	BARN	2010
CB	COMMODITY BARN	2010
BARN	BARN	2011
BARN	BARN	2011
BARN	BARN	2011
SHOP	SHOP	2015
DCP	DET CARPRT	2023

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAE		81.1200	3,533,587.00	0.00	0.00	$405,600	$0

Property Roll Value History

Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap Loss	Assessed
2024	$1,397,060	$405,600	$0	$1,802,660	$0	$1,802,660
2023	$1,260,540	$405,600	$0	$1,666,140	$0	$1,666,140
2022	$1,208,040	$405,600	$0	$1,613,640	$0	$1,613,640
2021	$1,036,760	$324,480	$0	$1,361,240	$0	$1,361,240
2020	$1,036,760	$316,370	$0	$1,353,130	$0	$1,353,130
2019	$996,400	$316,370	$0	$1,312,770	$0	$1,312,770
2018	$1,032,600	$426,600	$0	$1,459,200	$0	$1,459,200
2017	$1,014,350	$391,540	$0	$1,405,890	$0	$1,405,890
2016	$1,014,350	$350,980	$0	$1,365,330	$0	$1,365,330
2015	$944,500	$350,980	$0	$1,295,480	$0	$1,295,480
2014	$944,500	$350,980	$0	$1,295,480	$0	$1,295,480

Map

Property Details

Account

Property ID:	R000026399	Geographic ID:	R.0804.00280.00.0
Type:	Real	Zoning:	
Property Use:		Condo:	

Location

Situs Address:	2274 N US281		
Map ID:	19-15-3	Mapsco:	
Legal Description:	Acres 176.730, A0804 WILLIAMS M R;, TEXAS A&M EXPERIMENT STATION		
Abstract/Subdivision:			

Owner

Name:	BOARD OF REGENTS OF THE TX A&M UNIVERSITY SYSTEM
Agent:	
Mailing Address:	301 TARROW STREET 6TH FLOOR COLLEGE STATION, TX 77840-7896
% Ownership:	100.00%
Exemptions:	For privacy reasons not all exemptions are shown online.

Property Values

Improvement Homesite Value:	$0 (+)
Improvement Non-Homesite Value:	$231,860 (+)
Land Homesite Value:	$0 (+)
Land Non-Homesite Value:	$883,650 (+)
Agricultural Market Valuation:	$0 (+)
Market Value:	$1,115,510 (=)
Agricultural Value Loss:	$0 (-)
Appraised Value:	$1,115,510 (=)
Homestead Cap Loss:	$0 (-)
Assessed Value:	$1,115,510
Ag Use Value:	$0

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Property Taxing Jurisdiction

Owner: BOARD OF REGENTS OF THE TX A&M UNIVERSITY SYSTEM %Ownership: 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	$1,115,510	$0
903	STEPHENVILLE ISD	$1,115,510	$0
MTD	MIDDLE TRINITY WATER	$1,115,510	$0
RER	ERATH ROAD & BRIDGE	$1,115,510	$0

Property Improvement - Building

Type: SHOP State Code: X Living Area: 3,400.00 sqft Value: $231,856

Type	Description	Year Built
SHOP	SHOP	1960
GH	GREENHOUSE	1932
GH	GREENHOUSE	1932
BARN	BARN	1970
SHED	SHED	1960
BAY	AUTO BAY	1960
SHOP	SHOP	1960
SHOP	SHOP	1960
SHED	SHED	2018
STG	STRG BUILDING	2018
STG	STRG BUILDING	2015

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAE		176.7300	7,698,359.00	0.00	0.00	$883,650	$0

Property Roll Value History

Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap Loss	Assessed
2024	$231,860	$883,650	$0	$1,115,510	$0	$1,115,510
2023	$174,980	$883,650	$0	$1,058,630	$0	$1,058,630
2022	$174,980	$883,650	$0	$1,058,630	$0	$1,058,630
2021	$126,140	$706,920	$0	$833,060	$0	$833,060
2020	$126,140	$689,250	$0	$815,390	$0	$815,390
2019	$75,360	$689,250	$0	$764,610	$0	$764,610
2018	$71,910	$913,650	$0	$985,560	$0	$985,560
2017	$61,820	$836,790	$0	$898,610	$0	$898,610
2016	$61,820	$748,420	$0	$810,240	$0	$810,240
2015	$62,690	$748,420	$0	$811,110	$0	$811,110
2014	$62,690	$748,420	$0	$811,110	$0	$811,110

Property Deed History

Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Number
1/1/1968			TEXAS AG; EXP STATION	TEXAS A & M UNIVERSITY SYSTEM			

Map

Property Details

Account

Property ID:	R000025147	Geographic ID:	R.0683.01020.00.0
Type:	Real	Zoning:	
Property Use:		Condo:	

Location

Situs Address:	1712 CR177		
Map ID:	18-15-2	Mapsco:	
Legal Description:	Acres 359.420, A0683 SIMS WILLIAM;, TEXAS A&M AGRI LIFE		
Abstract/Subdivision:			

Owner

Name:	BOARD OF REGENTS OF THE TX A&M UNIVERSITY SYSTEM
Agent:	
Mailing Address:	301 TARROW STREET 6TH FLOOR COLLEGE STATION, TX 77840-7896
% Ownership:	100.00%
Exemptions:	For privacy reasons not all exemptions are shown online.

Property Values

Improvement Homesite Value:	$0 (+)
Improvement Non-Homesite Value:	$81,830 (+)
Land Homesite Value:	$0 (+)
Land Non-Homesite Value:	$1,797,100 (+)
Agricultural Market Valuation:	$0 (+)
Market Value:	$1,878,930 (=)
Agricultural Value Loss:	$0 (-)
Appraised Value:	$1,878,930 (=)
Homestead Cap Loss:	$0 (-)
Assessed Value:	$1,878,930
Ag Use Value:	$0

VALUES DISPLAYED ARE 2024 PRELIMINARY VALUES AND ARE SUBJECT TO CHANGE PRIOR TO CERTIFICATION.

Information provided for research purposes only. Legal descriptions and acreage amounts are for appraisal district use only and should be verified prior to using for legal purpose and or documents. Please contact the Appraisal District to verify all information for accuracy.

Property Taxing Jurisdiction

Owner: BOARD OF REGENTS OF THE TX A&M UNIVERSITY SYSTEM %Ownership: 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	$1,878,930	$0
903	STEPHENVILLE ISD	$1,878,930	$0
MTD	MIDDLE TRINITY WATER	$1,878,930	$0
RER	ERATH ROAD & BRIDGE	$1,878,930	$0

Property Improvement - Building

State Code: X Living Area: 117.00 sqft Value: $66,658

Type	Description	Year Built
STG	STRG BUILDING	
STG	STRG BUILDING	
STG	STRG BUILDING	
STG	STRG BUILDING	

Type: SHE3 State Code: X Living Area: 840.00 sqft Value: $4,748

Type	Description	Year Built
SHE3	3SIDE SHED	
SHE3	3SIDE SHED	
GBN	GRAINBN NO	1991
STG	STRG BUILDING	2003

Type: STG State Code: X Living Area: 660.00 sqft Value: $10,421

Type	Description	Year Built
STG	STRG BUILDING	
ASHE	SHED ATTACHED	
ASTG	STORAGE ATTACHED	
STG	STRG BUILDING	
STG	STRG BUILDING	2003
STG	STRG BUILDING	2003

STG	STRG BUILDING	2003
SHED	SHED	2003

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAE		359.4200	15,656,335.00	0.00	0.00	$1,797,100	$0

Property Roll Value History

Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap Loss	Assessed
2024	$81,830	$1,797,100	$0	$1,878,930	$0	$1,878,930
2023	$64,860	$1,797,100	$0	$1,861,960	$0	$1,861,960
2022	$64,860	$1,797,100	$0	$1,861,960	$0	$1,861,960
2021	$47,510	$1,437,680	$0	$1,485,190	$0	$1,485,190
2020	$47,510	$1,401,740	$0	$1,449,250	$0	$1,449,250
2019	$30,560	$1,401,740	$0	$1,432,300	$0	$1,432,300
2018	$34,050	$1,808,100	$0	$1,842,150	$0	$1,842,150
2017	$26,960	$1,628,890	$0	$1,655,850	$0	$1,655,850
2016	$26,960	$1,448,680	$0	$1,475,640	$0	$1,475,640
2015	$26,960	$1,448,680	$0	$1,475,640	$0	$1,475,640
2014	$26,960	$1,448,680	$0	$1,475,640	$0	$1,475,640

Property Deed History

Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Number
1/1/1968			TEXAS AG; EXP STATION	TEXAS A & M UNIVERSITY SYSTEM			

Technical Information Packet for Concentrated Animal Feeding Operations (CAFOs)

Submit this Form with your Individual Permit Application (TCEQ – 000728)

Name of Site: Southwest Regional Dairy Center

TCEQ Permit Number, if assigned: WQ000 4920000

Date Prepared: July 2024

SECTION 1. POLLUTANT SOURCES MANAGEMENT

For each potential pollutant source listed in the table below, provide the management practices utilized or enter "Not Applicable". Management practices should address the collection, storage and final disposition of each potential pollutant source. You may attach your list.

Table 1: Potential Pollutant Sources and Best Management Practices

Potential Pollutant Source	Best Management Practices
Manure and Manure Stockpiles	See Attached BMPs
Wastewater	See Attached BMPs
Sludge	See Attached BMPs
Compost	N/A
Feed and Bedding	See Attached BMPs
Silage stockpiles	See Attached BMPs
Dead animals	See Attached BMPs
Dust	See Attached BMPs
Lubricants	See Attached BMPs
Pesticides	See Attached BMPs
Bulk cleaning chemicals	N/A
Inorganic fertilizers	N/A
Fuel storage tanks	See Attached BMPs
Other, specify: Parlor Chemicals	See Attached BMPs

SECTION 2. RETENTION CONTROL STRUCTURE DESIGN

A. Design Summary

1) Design Standards, Characteristic, and Values Sources Used

   ☐ Natural Resource Conservation Service

   ☐ American Society of Agricultural and Biological Engineers

   ☒ Other; specify: Midwest Plan Services

I. POLLUTANT SOURCES AND MANAGEMENT

B. For each potential pollutant source, provide the management practices utilized.

Note: A Best Management Practice, as defined in 30 TAC §321.32(7), is the schedule of activities, prohibitions of practices, maintenance procedures, and other management and conservation practices to prevent or reduce the pollution of water in the state. BMPs also include treatment requirements, operating procedures, and practices to control site runoff, spillage or leaks, sludge, land application, or drainage from raw material storage. The following practices should be updated in the on-site PPP as changes to facility operating procedures occur. Employee training should be provided upon development & implementation of any BMP.

Potential Pollutant Sources:	Potential Best Management Practices (BMPs)
Manure, Sludge, Stockpiles, Slurry, Bedding, Feed Waste	Temporary (< 30 days) & Permanent Storage (>30 days) Store in drainage area of the RCS - OR - If not located within drainage area, berm area to contain runoff. Annually sample manure/manure stockpiles/compost/slurry for nutrient concentrations. Manure, Sludge and Slurry -Land application on-site or to third-party fields. Regular pen maintenance (scraping & drainage)
Dust - Vehicle Traffic	Control speeds around the facility. Reduce travel on unpaved facility roads, or manage dust by sprinkling road with water and/or a suppressant on an as needed basis. Utilize paving products and/or gravel to manage dust on facility roads.
Dust - Feed Handling/Processing	Utilize dust abatement measures for feed handling equipment, Utilize choke feeding when handling feed ingredients & Utilize feed ingredients, such as moisture or other additives, to manage dust.
Feedstuff/Silage Stockpiles	Contain leachate in an earthen berm or in the RCS Minimize feed spoilage & utilize plastic covers or roofed areas for storage when applicable.
Lubricants/Pesticides/Herbicides/Parlor Chemicals	Store under roof Handle and dispose according to label directions
Fuel Tanks	Provide secondary containment Prevent overfills/spills
Wastewater	Store in RCS Land application according to NUP/NMP Land application will not occur during periods of saturation or frozen conditions (except in the event of imminent overflow) Annually sample for nutrient concentrations Maintain liner and capacity certifications Maintain adequate capacity as determined by the pond marker schematic
Dead Animals	Disposed by a third-party rendering service Collected within 24 hours of death and disposed within three days of death

2) Total Number of Animals:

In Open Lots: 0 In Buildings: 500

3) Animal Housing Location, hours/day:

Open Lots: 0 Buildings: 24

4) Average Liveweight, pounds per head: 1,400 lbs

5) Volatile Solids Removed by Separator System: 60% (settling efficiency)

6) Volatile Solids Loading Rate, lbs/day/1000 ft^3: n/a

7) Spilled Drinking Water, gallons/day: Included in Cleanup

8) Water for Cleanup, gallons/day: 24,000 gal/day

9) Water for Manure Removal, gallons/day: Included in Cleanup

10) Recycled Wastewater, gallons/day: 62,000 gal/day

B. Wastewater Runoff

1) Design Rainfall Amount, inches: 12.0

2) Design Rainfall Event:

- ☐ 25-year, 24 hour
- ☐ Soil Plant Air and Water (SPAW) Field and Pond Hydrology Model
- ☒ 25-year, 10 day
- ☐ Other; specify: Click here to enter text.

C. Retention Control Structure(s) (RCS) Volume Allocations

Table 2. RCS Volume Allocations (Acre-Feet)

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity	Actual Capacity
1	4.92	3.31	0.00	2.44	2.54	13.22*	20.70
						*Rounded Figure	

Indicate which RCSs are in-series: n/a

2) Total Number of Animals:

In Open Lots: 0 In Buildings: 150

3) Animal Housing Location, hours/day:

Open Lots: 0 Buildings: 24

4) Average Liveweight, pounds per head: 1,100 lbs

5) Volatile Solids Removed by Separator System: n/a

6) Volatile Solids Loading Rate, lbs/day/1000 ft^3: n/a

7) Spilled Drinking Water, gallons/day: 0

8) Water for Cleanup, gallons/day: 0

9) Water for Manure Removal, gallons/day: 0

10) Recycled Wastewater, gallons/day: 0

B. Wastewater Runoff

1) Design Rainfall Amount, inches: 7.20

2) Design Rainfall Event:

☒ 25-year, 24 hour

☐ Soil Plant Air and Water (SPAW) Field and Pond Hydrology Model

☐ 25-year, 10 day

☐ Other; specify: Click here to enter text.

C. Retention Control Structure(s) (RCS) Volume Allocations

Table 2. RCS Volume Allocations (Acre-Feet)

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity	Actual Capacity
2	1.96	0.00	0.00	0.20	0.33	2.49	7.69

Indicate which RCSs are in-series: n/a

2) Total Number of Animals:

In Open Lots: 0 In Buildings: 200

3) Animal Housing Location, hours/day:

Open Lots: 0 Buildings: 24

4) Average Liveweight, pounds per head: Swine gestating sows – 440lbs; Swine lactation sows – 423lbs; Swine finishers – 154lbs

5) Volatile Solids Removed by Separator System: n/a

6) Volatile Solids Loading Rate, lbs/day/1000 ft^3: n/a

7) Spilled Drinking Water, gallons/day: Included in Cleanup

8) Water for Cleanup, gallons/day: Sows – 800 gal/day; Finishers – 650 gal/day

9) Water for Manure Removal, gallons/day: Included in Cleanup

10) Recycled Wastewater, gallons/day: 0

B. Wastewater Runoff

1) Design Rainfall Amount, inches: 7.20

2) Design Rainfall Event:

- ☒ 25-year, 24 hour
- ☐ Soil Plant Air and Water (SPAW) Field and Pond Hydrology Model
- ☐ 25-year, 10 day
- ☐ Other; specify: Click here to enter text.

C. Retention Control Structure(s) (RCS) Volume Allocations

Table 2. RCS Volume Allocations (Acre-Feet)

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity	Actual Capacity
3	0.90	0.99	0.00	1.03	0.15	3.06*	4.05
						*Rounded Figure	

Indicate which RCSs are in-series: n/a

D. RCS Liner or Lack of Hydrologic Connection Certification

Table 3: RCS Hydrologic Connection

RCS Name	Construction Date	Type of Hydrologic Connection Certification
RCS #1	2011	Liner Certification, Brian Powell, P.E., 2011
RCS #1 Expansion	2015	Liner Certification, Norman Mullin, P.E., 2015
RCS #2	2011	Liner Certification, Charles Gillespie, P.E., 2011
RCS #3	2008	Liner Certification, A.C. Lowther, P.E., 2008
Transfer Pond	1997	Liner Certification, Jerry Holligan, P.E., 1997

E. Playa Lakes

Are any playa lakes used for RCSs? Yes ☐ No ☒

SECTION 3. MANURE, SLUDGE, AND WASTEWATER HANDLING

A. Manure:

1) Use or Disposal Method:

☒ Land Application to LMUs

☒ Transfer to other persons

☒ Third Party Fields

☐ Other; specify:

2) Land Application Location:

☒ Onsite ☒ Offsite ☐ Not Applicable

3) Composting Location:

☐ Onsite ☒ Offsite ☐ Not Applicable

B. Sludge:

1) Use or Disposal Method:

☒ Land Application to LMUs

☒ Transfer to other persons

☒ Third Party Fields

☐ Other; specify: Click here to enter text.

2) Land Application Location:

☒ Onsite ☒ Offsite ☐ Not Applicable

C. Wastewater:

1) Use or Disposal Method:

☒ Land Application to LMUs

☐ Total Evaporation

☒ Third Party Fields

☐ Other; specify:

2) Land Application Location:

☒ Onsite ☐ Offsite ☐ Not Applicable

D. Land Application Summary from the Nutrient Management Plan

For each Land Management Unit (LMU), provide the name, acre, crops/yield goals and application rates on Table 4 below. Add rows if needed or attach additional pages.

Table 4: Land Management Unit Summary from the Current NMP

LMU Name	Acre	Crop(s) and Yield Goal(s)	Application Rate (Ac-ft/Ac/Year OR Tons/Ac/Year)
1	21	Vetch Hay2 Tons M; Peanut Hay Irrigated 3 Tons M	39 tons/ac/yr
2	18	Coastal 4 Cut Hay M; Triticale Graze or Hay 7000# M	0.292 ac-ft/ac/yr
3	15	Common 3 Cut Hay 7400# M; Triticale Graze of Hay 7000# M	0.258 ac-ft/ac/yr
4	22	Sorg.-Sudan Hay/Graze 7500# M; Ryegrass Moderate Grazing M	0.175 ac-ft/ac/yr
5	22	Coastal 3 Cut Hay M	40.4 tons/ac/yr
6	16	Coastal 3 Cut Hay M	40.4 tons/ac/yr
7	17	Common 3 Cut Hay 7400# M; Triticale Graze of Hay 7000# M	49.8 tons/ac/yr
8	51	Coastal 4 Cut Hay M; Triticale Graze or Hay 7000# M	75.3 tons/ac/yr
9	8	Common 3 Cut Hay 7400# M; Triticale Graze of Hay 7000# M	49.8 tons/ac/yr
10	13	Coastal 3 Cut Hay M	40.4 tons/ac/yr

LMU Name	Acre	Crop(s) and Yield Goal(s)	Application Rate (Ac-ft/Ac/Year OR Tons/Ac/Year)
11	24	Sorg.-Sudan Hay/Graze 7500# M; Triticale Graze or Hay 7000# M	43 tons/ac/yr
12	15	Sorg.-Sudan Hay/Graze 7500# M; Triticale Graze or Hay 7000# M	43 tons/ac/yr
13	7.5	Sorg.-Sudan Hay/Graze 7500# M; Triticale Graze or Hay 7000# M	43 tons/ac/yr
14	17	Coastal graze 1 AU/1ac, RG mod Graze M	0.217 ac-ft/ac/yr
15	8	Coastal graze 1 AU/1ac, RG mod Graze M	51.1 tons/ac/yr
16	15	Coastal graze 1 AU/1ac, RG mod Graze M	51.1 tons/ac/yr
17	14	Coastal graze 1 AU/1ac, RG mod Graze M	51.1 tons/ac/yr
18	22	Coastal 4 Cut Hay M; Ryegrass Moderate Grazing M	0.308 ac-ft/ac/yr
19	24	Coastal 2 Cut Hay M; Ryegrass Moderate Grazing M	60.5 tons/ac/yr
20	27	Sorg.-Sudan Hay/Graze 7500# M; Triticale Graze or Hay 7000# M	47.8 tons/ac/yr
21	21	Coastal graze 1 AU/1ac, RG mod Graze M	56.8 tons/ac/yr

1) Wastewater production, ac-in/year: 604.20 ac-in/yr (Tables 2.3a-c, Col. 4)
2) Estimated Wastewater application, ac-in/year: 278.52 ac-in/yr (Tables 2.3a-c, Col. 10)
3) Manure production, tons/year: 2,242.89 tons/yr (Table 2.1)
4) Estimated manure application, tons/year: 2,242.89 tons/yr (NMP)
5) Estimated manure transferred to other persons, tons/year: 0 (NMP)

E. Floodplain Information

1) Is any part of the production area within a 100-year floodplain? Yes ☐ No ☒

If YES, describe management practices to protect the sites.

2) Is land application or temporary storage of manure in a 100-year floodplain or near a water course? Yes ☒ No ☐

If YES, describe management practices. Vegetative buffers shall be maintained between all waters of the state and any waste/wastewater application.

F. Soil Limitations

Table 5: Soil Limiting Characteristics and Best Management Practices

Soil Types	Limiting Characteristics	Best Management Practices
Bo, Bu	Flooding	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils.
FhC2	Slow Water Movement	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils.
PcC	Depth to Bedrock Droughty Slow Water Movement	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils. -Irrigation events will be managed to assist in maintaining soil moisture levels within the range of the available water holding capacity of that Land Management Unit.
Pd	Depth to Bedrock Droughty Slow Water Movement Large Surface Stones	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils. -Irrigation events will be managed to assist in maintaining soil moisture levels within the range of the available water holding capacity of that Land Management Unit.
WnD3, HwD3, LaC	Depth to Soft Bedrock	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils.
GrB	Depth to Hard Bedrock	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils.

Soil Types	Limiting Characteristics	Best Management Practices
BsB, FhC2, MfA, BsA, MfB	Seepage	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils.
CtB, WaA, WaB, WaB2, WkA	Slow Water Movement Depth to Saturated Zone	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils.

G. Well Protection

Table 6: Water Well Status and Protective Measures

Well ID Number	Well Type	Producing or Non-Producing	Open, Cased, or Capped	Protective Measures
1	Irrigation	Non-Producing	Cased	See attached plugging report
2	Public Supply	Producing	Cased	Maintain 500-ft buffer for Public Supply Wells
3	Irrigation	Producing	Cased	Maintain 100-ft buffer for irrigation wells
4	Facility	Producing	Cased	Maintain 150-ft buffer for facility well
5	Irrigation	Non-Producing	Cased	See attached plugging report
6	Irrigation	Producing	Cased	Maintain 100-ft buffer for irrigation wells
7	Irrigation	Producing	Cased	Maintain 100-ft buffer for irrigation wells
8	Facility	Producing	Cased	Maintain 150-ft buffer for facility wells

Well ID Number	Well Type	Producing or Non-Producing	Open, Cased, or Capped	Protective Measures
9	Irrigation	Producing	Cased	Maintain 100-ft buffer for irrigation wells
10	Facility	Producing	Cased	Maintain 150-ft buffer for facility wells
11	Irrigation	Non-Producing	Cased	See attached plugging report
12	Irrigation	Non-Producing	Cased	See attached plugging report
13	Irrigation	Non-Producing	Cased	See attached plugging report

SECTION 4. AIR AUTHORIZATION SUMMARY

A. Type of Air Authorization

- ☐ Air Standard Permit in 30 TAC § 321.43
- ☒ Permit By Rule in 30 TAC Chapter 106 Subchapter F
- ☐ Individual Air Quality Permit

If Air Standard Permit is selected, then complete Sections B and C below.

B. Indicate the AFO Status and Buffer Option.

- ☐ Operation started after August 19, 1998:
  - ☐ ½ mile buffer*
  - ☐ ¼ mile buffer* and an odor control plan
- ☐ Operation started on or before August 19, 1998:
  - ☐ ¼ mile buffer*
  - ☐ odor control plan

*A written letter of consent from an affected landowner may be used in lieu of meeting the buffer distances specified.

C. Odor Receptors

Identify the number of occupied residences or business structures, schools (including associated recreational areas), places of worship, or public parks located within the following distances from permanent odor sources as defined in 30 TAC §321.32(43):

0 - ¼ mile:

¼ - ½ mile:

½ - 1 mile:

SECTION 5. ATTACHMENTS

A. Maps

1) Site Map
2) Land Management Unit Map
3) Vicinity Map
4) Original United States Geological Survey 7.5 Minute Quadrangle Map
5) 100 Year Floodplain Map (if applicable)
6) Runoff Control Map
7) Natural Resource Conservation Service (NRCS) Soil Survey Map

B. Professional Certifications

1) Recharge Feature Certification Statement and Supporting Documents
2) RCS Design Calculations (Water Nutr, Animal Waste Management (AWM), or equivalent)
3) RCS As-Built Capacity Certifications (if constructed)
4) RCS Hydrologic Connection Certifications (if constructed)

C. Land Application

1) Nutrient Management Plan
2) Nutrient Utilization Plan. If the NUP is already approved, include the approval letter.
3) Copy of Annual Soil Sampling Analyses (used for the NMP that was submitted with the application)

4) Copy of Annual Manure and Wastewater Analyses (used for the NMP that was submitted with the application

D. Air Standard Permit Documentation (if required)

1) Area Land Use Map,
2) Odor Control Plan, if applicable
3) Written Consent Letters, if applicable

E. Groundwater Monitoring (if required)

1) Groundwater Monitoring Plan
2) Groundwater Monitoring Analyses

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

1.0 FACILITY MAPS

1.1 Vicinity Map

Figure 1.1, Vicinity Map, is a general highway map generated in AutoCAD using Tiger Primary and Secondary roads data from geospatial Data Gateway at http://datagateway.nrcs.usda.gov/ (retrieved 2017). The location of the facility is depicted on the map.

1.2 USGS Quadrangle Map

Figure 1.2, entitled 7.5-Minute USGS Map is a seamless, high-quality copy of the 7.5-minute USGS quadrangle map (Stephenville and Knob Hill, TX, quadrangles) that shows the boundaries of land owned, operated, or controlled by Tarleton State University and used as part of the concentrated animal feeding operation; and all springs, lakes, or ponds located on-site and within 1 mile of the property boundary.

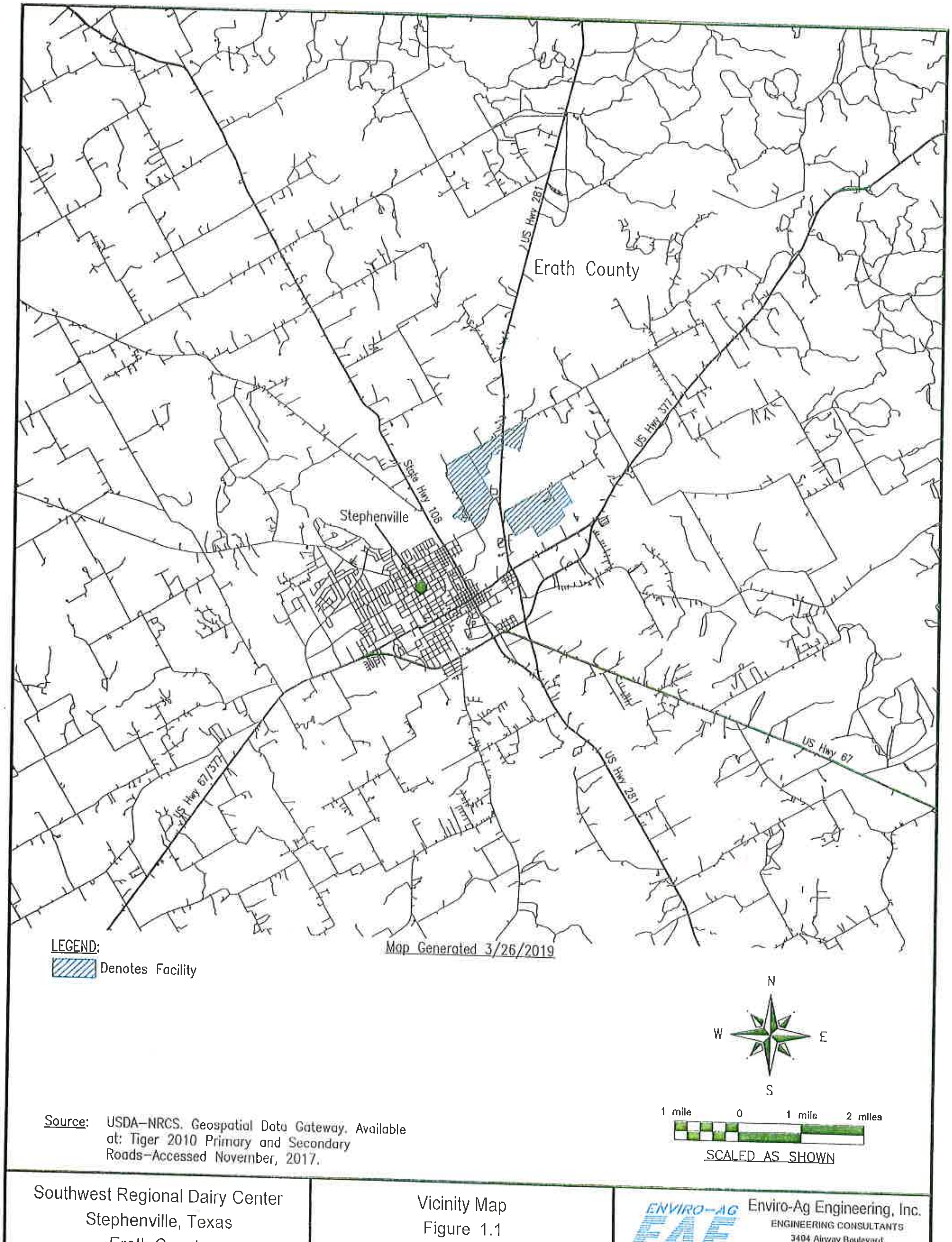
1.3 Site Map

Figure 1.3, Site Map, is a scaled drawing of the entire property to be permitted showing the locations of the following information:

- Pens/Open Lots
- Barns/Roofed Areas
- Retention Control Structures
- Land Management Units
- Buffer zones
- Wells
- Freshwater Ponds
- Berms/Diversions
- Manure Storage Areas
- Commodity/Feed Center Areas

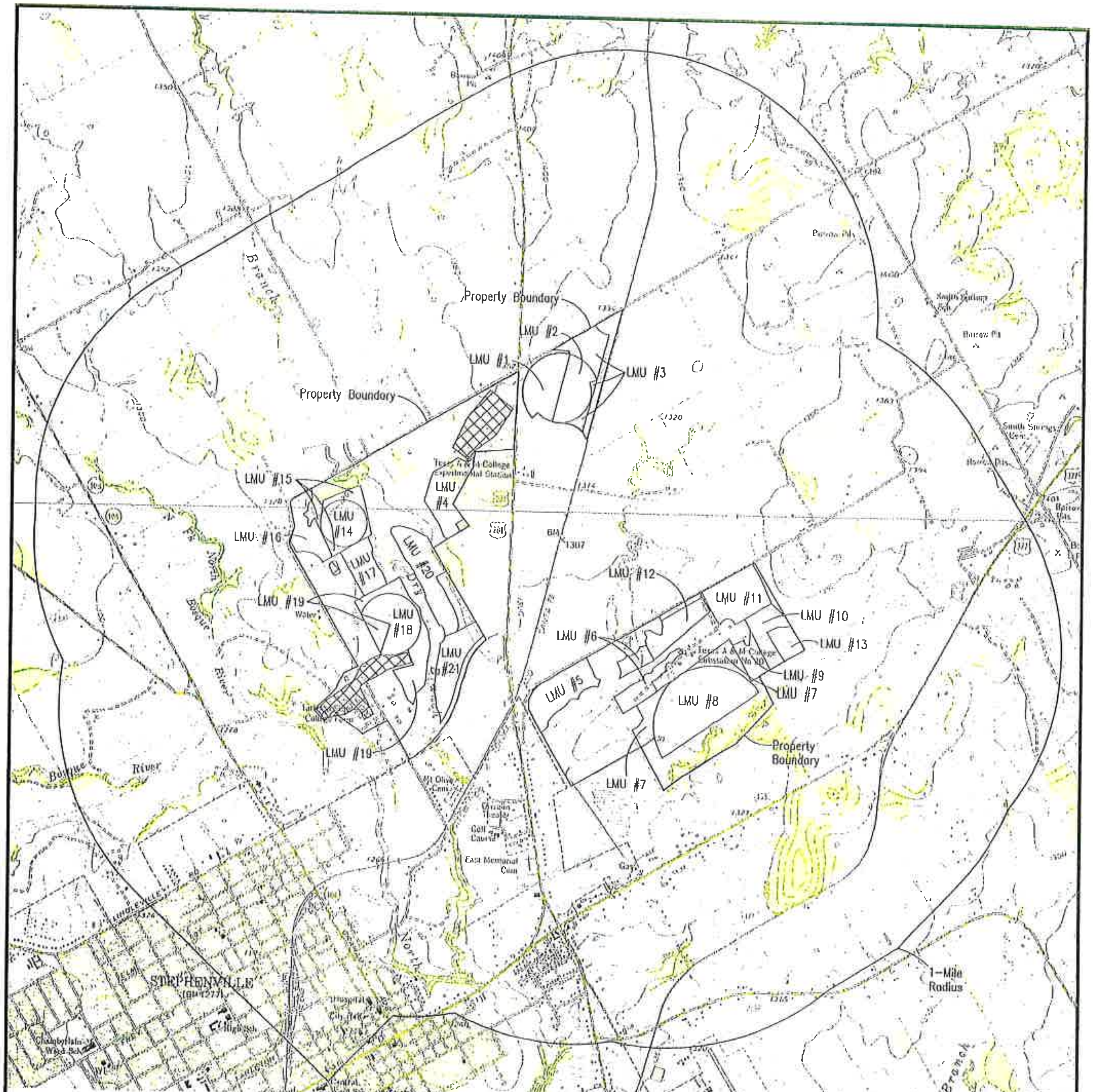
1.4 Runoff Control Map

Figures 1.4 a-b are a scaled drawing of the production area showing the pens, barns, arenas, classrooms, shops, labs, wells, RCSs, permanent manure storage areas, drainage area boundaries and flow directions.



Source: USDA–NRCS. Geospatial Data Gateway. Available at: Tiger 2010 Primary and Secondary Roads–Accessed November, 2017.

Southwest Regional Dairy Center Stephenville, Texas Erath County	Vicinity Map Figure 1.1 Page 2	ENVIRO-AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132



LEGEND:
Denotes Production Areas

Map Generated: 3/2/21

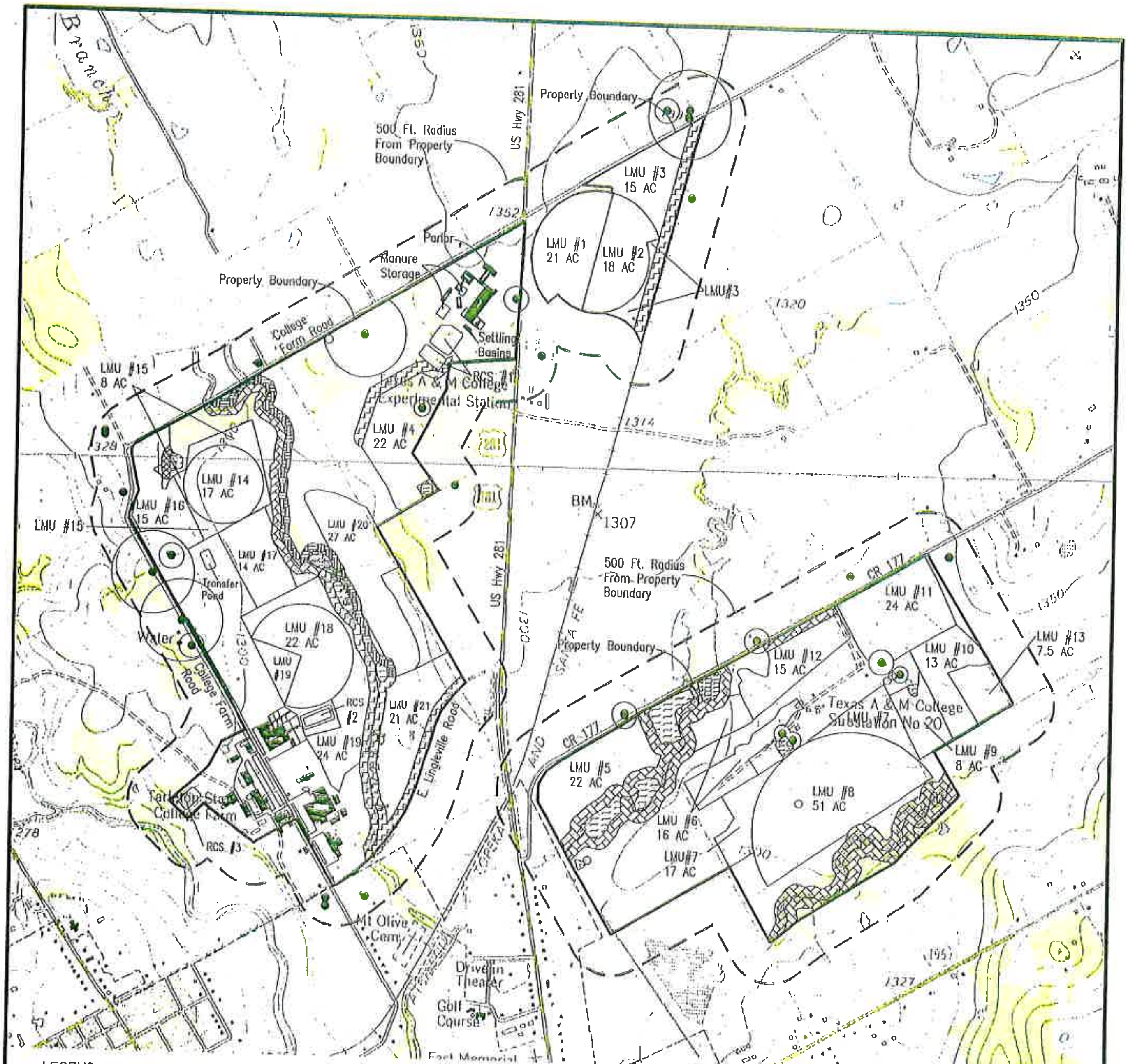
N
W E
S

Source: USDA–NRCS Geospatial Data Gateway, Erath County. http://datagateway.nrce.usda.gov/ Digital Raster Graphic County Mosaic by NRCS – Accessed November, 2017.

1500' 0 1500' 3000'

SCALED AS SHOWN

Southwest Regional Dairy Center Stephenville, Texas Erath County	USGS 7.5 Minute Quadrangle Map Figure 1.2 Page 3	ENVIRO–AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132



Map Revised 6/13/2024

LEGEND:

- Denotes Plugged Water Well
- Denotes Water Well
- Denotes Water Well With 100/150/500-Ft Buffer
- Denotes Fresh Water Pond
- Denotes 125-ft. Buffer
- Denotes 128-ft. Buffer
- Denotes 130-ft. Buffer
- Denotes 133-ft. Buffer
- Denotes Barns/Roofed Areas

Source: USDA-NRCS Geospatial Data Gateway, Erath County. http://datagateway.nrcs.usda.gov/ National Ag. Imagery Mosaic – Accessed November 2017.

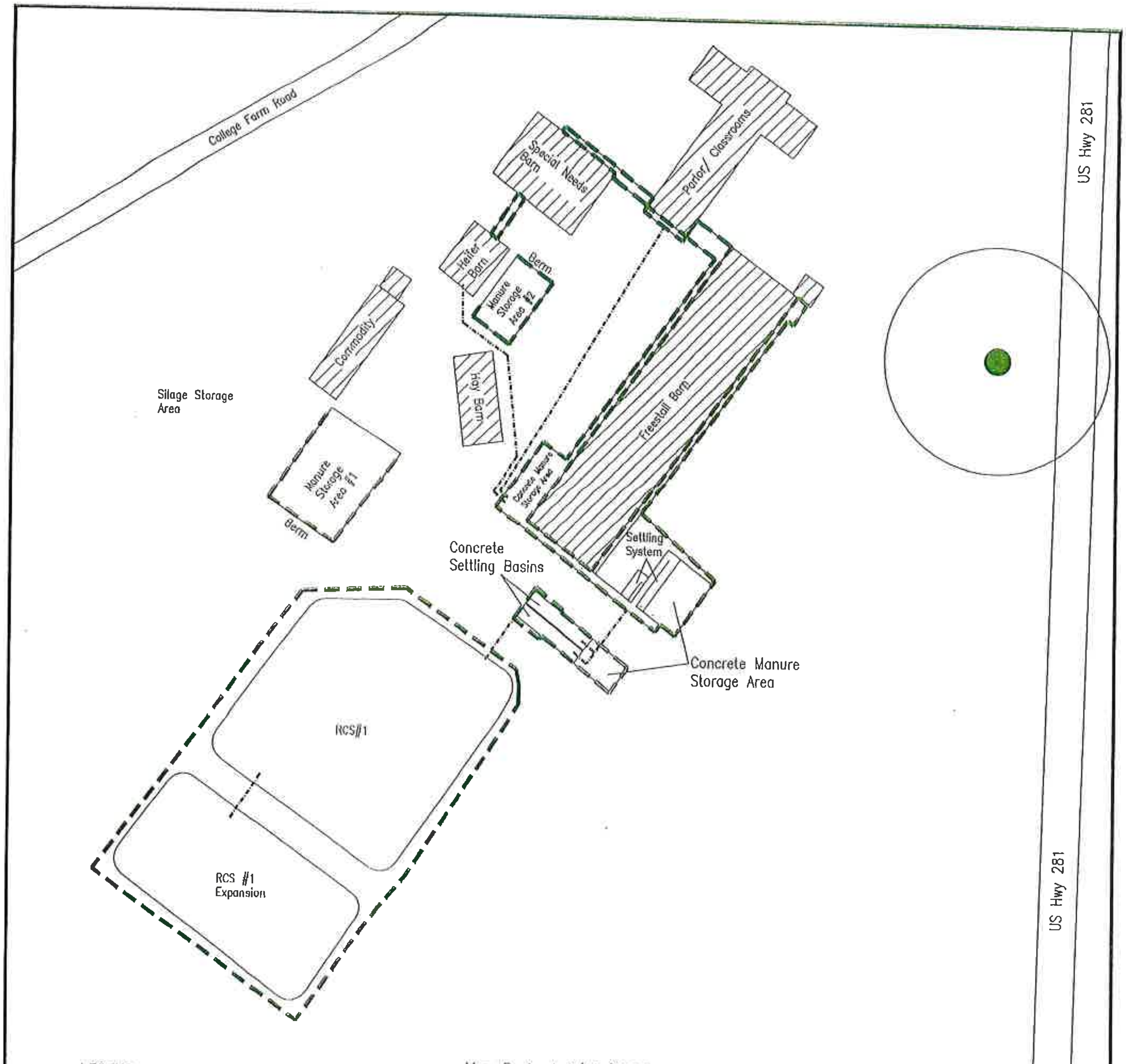
N W E S

900' 0 900' 1800'

SCALED AS SHOWN

Refer to Figure 1.4 for a production area map.

Southwest Regional Dairy Center Stephenville, Texas Erath County	Site Map Figure 1.3 Page 4	ENVIRO-AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132



LEGEND:

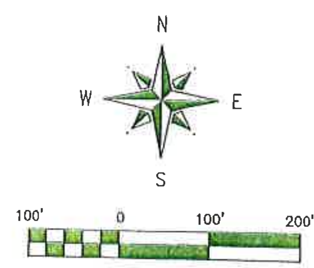
Denotes Water Well With 150-Ft. Buffer

Denotes Drainage Area Boundary/Berm

Denotes Underground Pipeline

Denotes Barns/Roofed Areas

Map Revised 6/13/2024

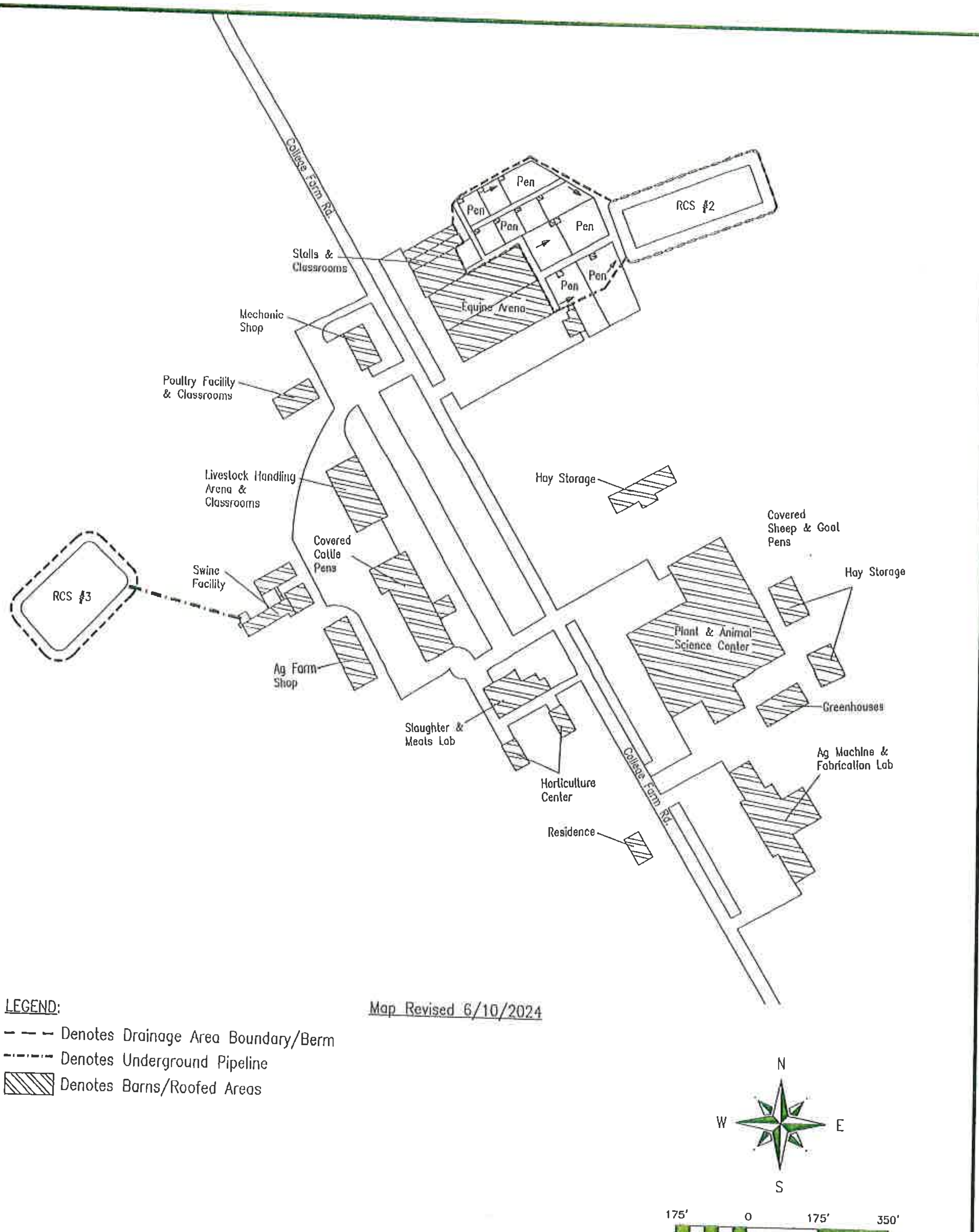


SCALED AS SHOWN

Runoff Control: Freshwater runoff is diverted out of drainage area. Wastewater is directed to the Basins/RCS via ditches, berms, or underground pipe as shown above.

Refer to Figure 1.3 for an overall facility map. Manure storage area drain pipes will be plugged

Southwest Regional Dairy Center Stephenville, Texas Erath County	Runoff Control Map Figure 1.4a Page 5	ENVIRO-AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132



Map Revised 6/10/2024

LEGEND:

- – – – Denotes Drainage Area Boundary/Berm
- –·–·– Denotes Underground Pipeline
- ▧ Denotes Barns/Roofed Areas

Runoff Control: Freshwater runoff is diverted out of drainage area. Wastewater is directed to the Basins/RCS via ditches, berms, or underground pipe as shown above.

Refer to Figure 1.3 for an overall facility map.

Southwest Regional Dairy Center Stephenville, Texas Erath County	Runoff Control Map Figure 1.4b Page 6	ENVIRO–AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

2.0 CALCULATIONS & SPECIFICATIONS

2.1 Facility Overview

The existing dairy facility consists of multiple barns, a freestall barn, milking parlor, manure storage areas, two concrete settling basins, a settling system and one retention control structure to confine 500 head, of which all are milking.

The existing equine facility consists of pens, confinement barns and one retention control structure to confine 150 horses for intense exercise.

The existing swine facility consists of confinement barns and one retention control structure to confine 50 gestating sow, 50 lactation sows and 100 finishers all weighing over 55 lbs.

The existing beef facility consists of a confinement barn to confine 100 head of finishing cattle.

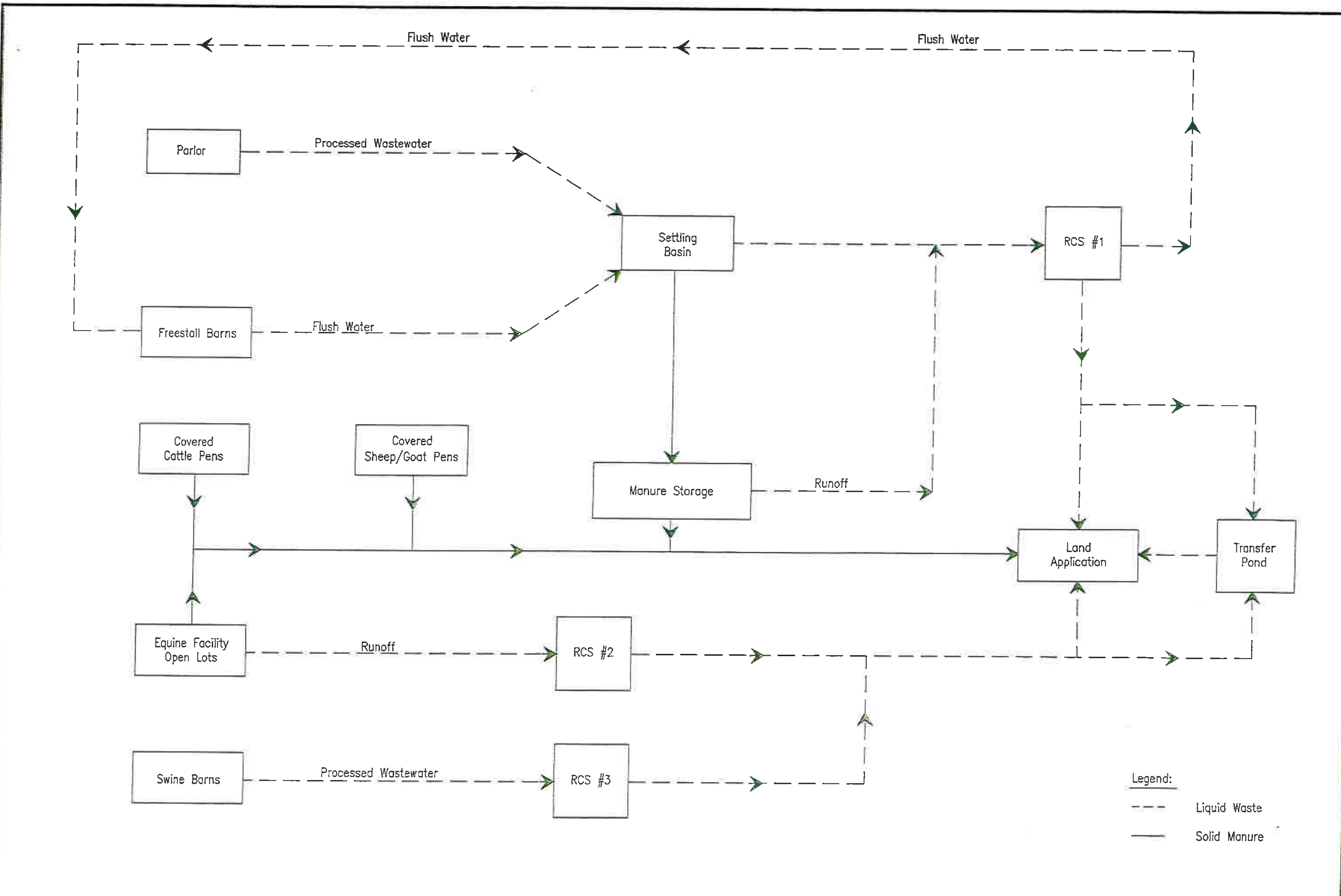
The existing sheep/goat facility consists of a confinement barn to confine 200 head of sheep/goats.

The existing manure and/or wastewater storage structures have been certified as meeting TCEQ requirements for soil liner. Figure 2.1, Manure & Wastewater Flow Chart, shows the waste handling procedures and storage practices at the facility.

2.2 Manure Production

Table 2.1, As-Excreted Manure Characteristics Existing Dairy Facility, is included as a summary of the annual manure and nutrient production for the facility. The totals in Table 2.1 represent as-excreted manure and nutrient values for the maximum head count shown in the application.

Note: This data is intended for planning and design purposes and is not to be used for whole-farm nutrient mass balance calculations.



Southwest Regional Dairy Center
Stephenville, Texas
Erath County

Waste Flow Chart
Figure 2.1
Page 8

ENVIRO-AG EAE ENGINEERING, INC.
Enviro-Ag Engineering, Inc.
ENGINEERING CONSULTANTS
3404 Airway Boulevard
AMARILLO, TEXAS 79118
TEL (806) 353-6123 FAX (806) 353-4132

ESTIMATED MANURE PRODUCTION
Table 2.1
ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO: Southwest Regional Dairy Center
LOCATION: Stephenville, Texas
DATE: July-24

FACILITY TOTAL	Dairy (a) Milkers in Parlor/Freestall	Swine (a) Gestating Sows	Swine (a) Lactation Sows	Swine (a)* Finishers	Beef (a)* Finishing Cattle	Sheep/Goats (b)*	Horse (a)* Intense Exercise	Total
			MANURE PRODUCTION CRITERIA					
1. Maximum Number of Animals Confined (head):	500	50	50	100	100	200	150	1,150
2. Confinement period, hrs/hd/day	24	24	24	24	24	24	24	24
3. Percent of time in Confinement	100%	100%	100%	100%	100%	100%	100%	100%
4. Total Manure Production, lbs/day	75,000.00	550.00	1,250.00	1,000.00	6,405.23	820.00	8,550.00	93,575.23
5. Total Solids Production, lbs/day	10,000.00	55.00	125.00	100.00	509.80	210.00	1,290.00	12,289.80
6. Manure Production, tons/year	1,825.00	10.04	22.81	18.25	93.04	38.33	235.43	2,242.89
7. Volatile Solids Production, lbs/day	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a
8. Total Nitrogen Production, lbs/day	495.00	3.55	9.50	8.33	35.95	8.00	51.00	611.33
9. Total Phosphorus, P2O5 lbs/day (c)	194.65	2.29	6.30	3.25	10.92	9.16	25.08	251.65
10. Total Potassium, K2O lbs/day (c)	138.00	2.88	7.20	4.40	29.81	9.60	37.80	229.69

NOTES:

(a) - Manure and nutrient production values are taken from American Society of Agricultural and Biological Engineers Data: (ASABE D384.2 MAR05_R2010) Manure Production and Characteristics, Tables 1.a (Colums 4 & 5) & 1.b (Colums 1,2,3 & 7) - Section 3. Production values given in terms of lb/day-animal (wet-basis).

(b) - Manure and nutrient production values are taken from Midwest Plan Service (MWPS) Manure Characteristics MWPS-18 Section 1-Second Edition "Daily Manure Production and Characteristics, As-Excreted": Table 6, 2004.

(c) - The ASAE Manure Production and Characteristics Tables give P and K in the elemental forms. Convert to P_2O_5 by multiplying by 2.29 and to K_2O by multiplying by 1.2.

* Assumed weights and finishing times are based on manure standards referenced above.

2.3 Process-Generated Wastewater Volume

At the Dairy the primary source of process-generated wastewater is wash water from the milking parlor operations, which is piped underground to a concrete manure storage area, then to the settling system, then piped underground to the concrete settling basins and then piped underground into RCS #1. The volume of process wastewater generated daily is estimated to be 48 gallons per head (based on data from Southwest Regional Dairy Center). The design storage volume in RCS #1 for process generated wastewater is 45 days and is calculated in Table 2.2a.

At the swine facility the process-generated wastewater consists of wet manure production, cleaning water and spilled drinking water. The total volume of process waste/wastewater generated daily was calculated at 8.00 gals/head/day for the sows and 6.50 gals/head/day for the finishers. Calculations were obtained from onsite data. The design storage volume for process generated wastewater is 180 days and is calculated in Table 2.2c.

2.4 Rainfall Storage Volume

At the dairy facility RCS #1 is designed to maintain a margin of safety to contain the runoff and direct precipitation from the 25-year, 10-day storm event for this location, which is 12.0 inches of rainfall. Drainage area runoff volumes are calculated using the SCS method with curve numbers (CN) selected based on soil type and land use. The pond and concrete areas were calculated using a CN of 100. Run-on from areas outside the control facility is directed away from the RCS. Table 2.2a shows the calculated storage volume required for the rainfall runoff from a 25-year, 10-day storm.

The rainfall runoff volume from the equine (RCS #2) and swine (RCS #3) facilities are calculated using curve numbers (CN) applied with a 25-year, 24-hour storm. The 25-year, 24-hour storm event for this location is 7.2 inches of rainfall. The pen area runoff was calculated using a CN of 90, the pond areas are calculated using a CN of 100 and the adjacent areas were calculated using a CN of 85. Only the rainfall that falls on RCS #3 inside top of berm is considered in the runoff calculations; all other storm water will be diverted away from the RCSs.

2.5 Sludge Accumulation Volume

At the dairy facility the sludge volume is calculated using USDA Agricultural Field Waste Handbook Table. The sludge storage period in RCS #1 is one year. The required sludge volume calculations are shown in Table 2.2a. Concrete settling basins with an efficiency of 60% (Midwest Plan Service) are used to reduce the amount of solids entering the RCS.

At the equine facility the sludge volume for RCS #2 is estimated using the USDA/Agricultural Field Handbook (Kansas Part 651.1083 or subsequent updates Part 651.1082, Suggested Procedures for Sediment Volume Estimation). The required sludge volume calculations are shown in Table 2.2b.

At the swine facility a 20-year sludge accumulation volume is included in RCS #3. The sludge volume calculated for RCS #3 includes the sludge accumulation from the manure produced using an accumulation rate of 0.022 cubic feet of sludge per pound total solids (taken from ASABE EP403.4 Feb. 2011). The required sludge volume calculations are shown in Table 2.2c.

2.6 Water Balance Model

Tables 2.3a-c, Water Balance Model, estimates the inflows and withdrawals from the RCS including runoff, direct rainfall, process-generated wastewater, evaporation, and irrigation withdrawal based on crop demand in accordance with 30 TAC §321.38 (e)(7)(C). Actual pond withdrawal amounts will vary with changing weather conditions. An additional volume is included in the RCS to provide flexibility in managing the levels.

2.7 RCS Management Plan

At the dairy facility an RCS Management Plan was developed for RCS #1 by a licensed Texas professional engineer and has been implemented to incorporate the margin of safety, as specified in 30 TAC §321.42(g). The plan includes the elements specified in §321.42(g)(1)-(6), and a copy is maintained in the onsite PPP.

REQUIRED STORAGE VOLUMES FOR RUNOFF RETENTION CONTROL STRUCTURES

Table 2.2a

ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO:	Southwest Regional Dairy Center
LOCATION:	Stephenville, Texas
DATE:	July-24

RCS #1 - RUNOFF POND REQUIREMENT

PROCESS GENERATED WASTE/WASTEWATER

Parlor Wash Water (a):		(gal/head/day)	48
No. of Head in Parlor:			500
Volume of Process Water:		(gal/day)	24,000
Design Storage Period:		(days)	45
Process Water Volume:		(ac-ft)	3.31

RAINFALL VOLUME

Drainage Area Characteristics:	(acres)		CN
Pen Area:	0.00		90
Adjacent Areas:	0.00		85
Concrete Areas:	0.87		100
RCS #1 Surface Area:	4.05		100
Total Drainage Area	4.92		
25-Year, 10-Day Rainfall:		(inches)	12.00
Runoff Volume Determination (b):	(inches)		(ac-ft)
Pen Area:	10.8		0.00
Adjacent Areas:	10.1		0.00
Concrete Areas:	12.0		0.87
RCS #1 Surface Area:	12.0		4.05
Rainfall Volume:		(ac-ft)	4.92

SLUDGE VOLUME

Total Solids Produced (Parlor & Freestall):	(lb/day)	10,000
Settling Basin Efficiency (%):		60%
Adjusted Dry Manure Production:	(lb/day)	4,000
Sludge Accumulation Rate (c):	(cuft/lb)	0.0729
Sludge Accumulation Period:	(years)	1
Sludge Volume:	(ac-ft)	2.44

TOTAL RCS VOLUME REQUIRED

Sludge Volume from Parlor & Freestall:	(ac-ft)	2.44
Process Water Volume:	(ac-ft)	3.31
Rainfall Volume:	(ac-ft)	4.92
Additional from Water Balance:	(ac-ft)	2.54
Total Required RCS #1 Volume:	(ac-ft)	13.22

NOTES:

(a) Value includes wet manure production from the milking parlor.

(b) Using SCS method:

Where:

S = (1000/CN) - 10

Q = ((I - 0.2S)^2)/(I + 0.8S)

S = Potential maximum retention after runoff begins (in)

Q = Runoff (in)

I = 25-Year, 10-Day Rainfall (in)

CN = Curve Number from SCS 210-VI-TR-55, 2nd Edition, June 1986

(c) Sludge Accumulation Rate taken from Table 1. ASABE Standards (ASABE EP 403.4 FEB 2011).

NOTE: Calculations were performed in Microsoft Excel using floating point arithmetic in order to maintain the accuracy of the data. Any inconsistencies in rounding of the displayed values are not to be construed as errors in the calculation. For more information, please refer to http://support.microsoft.com/kb/42980

REQUIRED STORAGE VOLUMES
for RETENTION CONTROL STRUCTURES
Table 2.2b
ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO: Southwest Regional Dairy Center
LOCATION: Stephenville, Texas
DATE: Revised 4/14/2021

RCS #2 - RUNOFF POND REQUIREMENT

RAINFALL VOLUME		
Drainage Areas:	CN	Area (ac)
Pen/Open Lot areas:	90	1.72
Adjacent area between pens and RCS:	85	0.44
Paved/Roofed area:	100	0.00
RCS #2 surface area:	100	1.50
Total Area (acres):		3.66
25-Year, 24-Hour Rainfall Event:	(inches)	7.20
Runoff Volume Determination (a):	(inches)	(ac-ft)
Pen/Open Lot areas:	6.02	0.86
Adjacent area between pens and RCS:	5.44	0.20
Paved/Roofed area:	7.20	0.00
RCS #2 surface area:	7.20	0.90
Total Runoff (ac-ft):		1.96
TOTAL RCS VOLUME REQUIRED		(ac-ft)
Other Inflow Water Storage:		0.00
Required Volume for Rainfall Runoff:		1.96
Sludge Accumulation Volume (b):		0.20
Additional Required Volume from Water Balance:		0.33
Total Required RCS #2 Volume:		**2.49**

NOTES:
(a) Using SCS method:
Where:
S = (1000/CN) - 10
Q = ((P - 0.2S)^2)/(P + 0.8S)
S = Potential maximum retention after runoff begins (in)
Q = Runoff (in)
P = 25-year, 24-hour rainfall (in)
CN = Curve Number from SCS 210-VI-TR-55, 2nd Edition, June 1986

STATE OF TEXAS
NORMAN H. MULLIN
66107
LICENSED
PROFESSIONAL ENGINEER
Norman H. Mullin
5/6/2021

(b) USDA Agricultural Field Waste Handbook, Kansas, Part 651.1082, Suggested procedures for sediment volume estimation (1.5% solids content of runoff for 5 years storage).

NOTE: Calculations were performed in Microsoft Excel using floating point arithmetic in order to maintain the accuracy of the data. Any inconsistencies in rounding of the displayed values are not to be construed as errors in the calculation. For more information, please refer to http://support.microsoft.com/kb/42980

VOLUME ALLOCATIONS
for a SWINE LAGOON
Table 2.2c
ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO: Southwest Regional Dairy Center
LOCATION: Stephenville, Texas
DATE: Revised 4/14/2021

PROCESS GENERATED WASTE/WASTEWATER

		Sows	*Finishers*	
Total Process Generated Wastewater (d):	(gals/hd/day)	8.00	6.50	
Total Wet Manure Production (a):	(gals/day)	215.77	119.87	
Total Volume of Waste/Wastewater Added to System:	(gals/day)	1015.77	769.87	1,785.6
Design Storage Period (b):	(days)	180	180	
Process Wastewater Volume:	(ac-ft)	0.56	0.43	

RAINFALL VOLUME on LAGOON SURFACE

Lagoon Surface Area (e):	(acres)	1.5
25-year, 24-hour rainfall:	(inches)	7.2
Curve Number:		100
Rainfall Depth:	(inches)	7.2
Primary Rainfall Volume:	(ac-ft)	0.90

SLUDGE VOLUME

Total Solids Produced (a):	(lb/day)	280
Sludge Accumulation Rate (c):	(cuft/lb TS)	0.022
Sludge Accumulation Period:	(years)	20
Sludge Volume:	(ac-ft)	1.03

TOTAL REQUIRED LAGOON VOLUME

Sludge Volume:	(ac-ft)	1.03
Process Wastewater Volume:	(ac-ft)	0.99
Rainfall Volume:	(ac-ft)	0.90
Additional from the Water Balance:	(ac-ft)	0.15
Total Required RCS #3 Volume:	(ac-ft)	3.06

NOTES:

(a)TS and Wet Manure production based on Table 2.1.
(b) Loading Rate for Anaerobic Lagoons taken from ASABE EP403.4, Feb. 2011.
(c) Sludge accumulation rate taken from ASABE EP403.4, Feb. 2011.
(d) Site specific data from Tarleton Farm on barn cleaning and estimated wasted drinking water.

(e) Using SCS method:

$S = (1000/CN) - 10$

$Q = ((I - 0.2S)^2)/(I + 0.8S)$

Where: S = *Potential maximum retention after runoff begins(in)*
Q = *Runoff (in)*
I = *25-year, 24-Hour rainfall (in)*
CN = Curve Number from SCS 210-VI-TR-55, 2nd Edition, June 1986.

STATE OF TEXAS
NORMAN H. MULLIN
66107
LICENSED
PROFESSIONAL ENGINEER

Norman Mullin
5/6/2021

NOTE: Calculations were performed in Microsoft Excel using floating point arithmetic in order to maintain the accuracy of the data. Any inconsistencies in rounding of the displayed values are not to be construed as errors in the calculation. For more information, please refer to http://support.microsoft.com/kb/42980

WATER BALANCE MODEL
IRRIGATION AND EVAPORATION for RCS #1
Table 2.3a
ENVIRO-AG ENGINEERING, INC.

NAME: Southwest Regional Dairy Center
LOCATION: Stephenville, Texas
DATE: July-24

HYDROLOGIC CHARACTERISTICS

Pen Area (acres):	0.00	
Adjacent Areas (acres):	0.00	
Paved/Roof Area (acres):	0.87	
RCS #1 Surface Area (acres):	4.05	
Total Irrigated Area (acres) (12):	94.0	94.0
Cropping scheme:	Coastal	Winter Wheat
Effective Evaporation Surface Area (acres):	3.44	

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 10-Day Rainfall Volume (ac-ft):	4.92
Process Generated Wastewater Volume (ac-ft):	3.31
Sludge Accumulation Volume (ac-ft):	2.44
Additional Volume (ac-ft):	2.54
Total Required Capacity (ac-ft):	13.22

	RCS INFLOW CALCULATIONS					HYDRAULIC CROP DEMAND CALCULATIONS					RCS STORAGE SUMMARY			
MONTH	(1) (inches)	(2) (inches)	(2) (inches)	(3) (ac-ft)	(4) (ac-ft)	(5) (inches)	(6) (inches)	(6) (inches)	(7) (ac-ft)	(7) (ac-ft)	(8) (inches)	(9) (ac-ft)	(10) (ac-ft)	(11) (ac-ft)
													start value --->	2.44
JAN	1.54	0.00	0.00	2.28	2.91	1.54	2.10	2.74	4.39	9.40	2.37	0.68	2.23	2.44
FEB	1.89	0.00	0.00	2.06	2.84	1.89	2.46	3.11	4.47	9.56	2.69	0.77	2.07	2.44
MAR	2.14	0.00	0.00	2.28	3.16	2.14	4.06	4.97	15.04	22.17	4.28	1.23	1.93	2.44
APR	2.88	0.00	0.00	2.21	3.39	2.83	4.98	5.74	16.84	22.79	5.20	1.49	1.90	2.44
MAY	4.31	0.00	0.00	2.28	4.05	3.94	5.73	5.33	14.03	10.90	5.25	1.51	2.54	2.44
JUN	3.24	0.00	0.00	2.21	3.54	3.13	6.82	3.22	28.87	0.67	7.01	2.01	1.53	2.44
JUL	2.11	0.00	0.00	2.28	3.15	2.11	7.66	0.00	43.48	0.00	8.23	2.36	0.79	2.44
AUG	2.25	0.00	0.00	2.28	3.21	2.25	7.56	0.00	41.61	0.00	7.71	2.21	0.99	2.44
SEP	3.01	0.00	0.00	2.21	3.44	2.94	5.78	0.00	22.23	0.00	5.91	1.70	1.75	2.44
OCT	3.23	0.00	0.00	2.28	3.61	3.13	4.29	2.15	9.11	0.00	4.89	1.40	2.20	2.44
NOV	1.88	0.00	0.00	2.21	2.98	1.88	2.81	1.70	7.29	0.00	3.33	0.96	2.03	2.44
DEC	1.62	0.00	0.00	2.28	2.95	1.62	2.24	2.33	4.86	5.56	2.45	0.70	2.24	2.44
TOTALS	30.10	0.00	0.00	26.89	39.23	29.40	56.49	31.29	212.19	81.05	59.32	17.02	22.21	

NOTES:

(1) AVERAGE PRECIPITATION - Average precipitation taken from the Texas Water Development Board, Erath County, Quad #509, Retrieved July 9, 2024.
(2) RUNOFF PENS AND ADJACENT AREA - There is no runoff from pens or adjacent areas.
(3) INFLOW - Inflow is calculated from process generated wastewater and trough overflow, Table 2.2a.
(4) TOTAL INFLOW - Total Inflow is calculated as that volume of rainfall that falls on the RCS and process water that enters the RCS.
(5) RAINFALL ON IRRIGATED AREA - Effective monthly rainfall on the irrigated area is calculated using SCS Curve Number Method adjusted from 1 to 30-day Curve Number (Irr. CN-48). (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff).
(6) CONSUMPTIVE USE values from Borrelli, et al., 1998, Mean Crop Consumptive Use and Free-Water Evaporation for Texas, Dept. of Civil Engineering, Texas Tech University, Lubbock (Stephenville Station Tables 16 & 25).
(7) NET CROP DEMAND - Net Crop Demand = ((Consumptive Use(6) - Effective Rainfall(5))/12) x Irrigated Area.
(8) MONTHLY LAKE SURFACE EVAPORATION - Average monthly lake surface evaporation taken from the Texas Water Development Board, Erath County, Quad #509, Retrieved July 9, 2024.
(9) NET POND EVAPORATION - Net Evaporation from the water surface is taken as (Monthly Lake Surface Evap/12) x (RCS Surface Area).
(10) ACTUAL WITHDRAWAL - Actual Withdrawal from the irrigation cell not to exceed Net Crop Demand (No consideration given for nutrient demand of crop).
(11) STORAGE AT END OF MONTH - Storage volume in the irrigation cell at the end of the month. The storage calculated in this column should not encroach in the volume reserved for the 25-year, 10-day rainfall event.
(12) Application acres consist of LMU's 2, 3, 4, 14 & 18.

NOTE: Calculations were performed in Microsoft Excel using floating point arithmetic in order to maintain the accuracy of the data. Any inconsistencies in rounding of the displayed values are not to be construed as errors in the calculation. For more information, please refer to http://support.microsoft.com/kb/42980

WATER BALANCE MODEL
IRRIGATION AND EVAPORATION for RCS #2

Table 2.3b

ENVIRO-AG ENGINEERING, INC.

NAME: Southwest Regional Dairy Center
LOCATION: Stephenville, Texas
DATE: Revised 4/14/2021

HYDROLOGIC CHARACTERISTICS

Pen Area (acres):	1.72	
Adjacent Areas (acres):	0.44	
Paved/Roof Area (acres):	0.00	
Total RCS Surface Area (acres):	1.50	
Total Irrigated Area (acres):	94.0	94.0
Cropping scheme:	Coastal	Winter Wheat
Effective Evaporation Surface Area (acres):	1.28	

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 24-Hour Rainfall Volume (ac-ft):	1.96
Process Generated Wastewater Volume (ac-ft):	0.00
Sludge Accumulation Volume (ac-ft):	0.20
Additional Volume (ac-ft):	0.33
Total Required Capacity (ac-ft):	2.49

MONTH	RCS INFLOW CALCULATIONS					HYDRAULIC CROP DEMAND CALCULATIONS					RCS STORAGE SUMMARY			
	(1) (inches)	(2) (inches)	(2) (inches)	(3) (ac-ft)	(4) (ac-ft)	(5) (inches)	(6) (inches)	(6) (inches)	(7) (ac-ft)	(7) (ac-ft)	(8) (inches)	(9) (ac-ft)	(10) (ac-ft)	(11) (ac-ft)
													start value --->	0.20
JAN	1.56	0.24	0.06	0.00	0.23	1.56	2.10	2.74	4.25	9.24	2.36	0.23	0.00	0.20
FEB	1.90	0.40	0.15	0.00	0.30	1.90	2.46	3.11	4.39	9.48	2.70	0.29	0.01	0.20
MAR	2.16	0.54	0.23	0.00	0.36	2.16	4.06	4.97	14.88	22.01	4.28	0.36	0.00	0.20
APR	2.89	1.00	0.53	0.00	0.52	2.84	4.98	5.74	16.77	22.72	5.21	0.52	0.00	0.20
MAY	4.31	2.06	1.35	0.00	0.88	3.94	5.73	5.33	14.05	10.90	5.26	0.56	0.33	0.20
JUN	3.27	1.27	0.73	0.00	0.62	3.16	6.82	3.22	28.68	0.48	7.02	0.62	0.00	0.20
JUL	2.14	0.53	0.22	0.00	0.35	2.14	7.66	0.00	43.24	0.00	8.23	0.35	0.00	0.20
AUG	2.26	0.60	0.26	0.00	0.38	2.26	7.56	0.00	41.53	0.00	7.71	0.38	0.00	0.20
SEP	3.05	1.11	0.61	0.00	0.56	2.98	5.78	0.00	21.96	0.00	5.88	0.56	0.00	0.20
OCT	3.18	1.20	0.68	0.00	0.59	3.09	4.29	2.15	9.44	0.00	4.86	0.52	0.08	0.20
NOV	1.90	0.40	0.15	0.00	0.30	1.90	2.81	1.70	7.13	0.00	3.34	0.30	0.00	0.20
DEC	1.63	0.27	0.08	0.00	0.24	1.63	2.24	2.33	4.78	5.48	2.45	0.24	0.00	0.20
TOTALS	30.25	9.61	5.05	0.00	5.34	29.55	56.49	31.29	211.05	80.32	59.39	5.93	0.42	

NOTES:

(1) AVERAGE PRECIPITATION - Average precipitation taken from the Texas Water Development Board, Erath County, Quad #509, Retrieved April 14, 2021.

(2) RUNOFF PENS AND ADJACENT AREA - Runoff from pens, adjacent areas calculated using SCS Curve Number Method adjusted from 1 to 30-day Curve Number (Pen CN-77, Adj CN-67) (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff).

(3) INFLOW - No process generated wastewater and trough overflow is produced

(4) TOTAL INFLOW - Total Inflow is calculated as that volume of rainfall that falls on the RCS and process water that enters the RCS

(5) RAINFALL ON IRRIGATED AREA - Effective monthly rainfall on the irrigated area is calculated using SCS Curve Number Method adjusted from 1 to 30-day Curve Number (Irr. CN-48). (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff)

(6) CONSUMPTIVE USE values from Borrelli, et al., 1998. Mean Crop Consumptive Use and Free-Water Evaporation for Texas, Dept. of Civil Engineering, Texas Tech University, Lubbock (Tables 16 & 25)

(7) NET CROP DEMAND - Net Crop Demand = ((Consumptive Use(6) - Effective Rainfall(5))/12) x Irrigated Area

(8) MONTHLY LAKE SURFACE EVAPORATION - Average monthly lake surface evaporation taken from the Texas Water Development Board, Erath County, Quad #509, Retrieved April 14, 2021

(9) NET POND EVAPORATION - Net Evaporation from the water surface is taken as (Monthly Lake Surface Evap/12) x (RCS Surface Area).

(10) ACTUAL WITHDRAWAL - Actual Withdrawal from the irrigation cell not to exceed Net Crop Demand (No consideration given for nutrient demand of crop)

(11) STORAGE AT END OF MONTH - Storage volume in the irrigation cell at the end of the month. The storage calculated in this column should not encroach in the volume reserved for the 25-year, 24-hour rainfall event.

(12) Application acres consist of LMU's 2, 3, 4, 14 & 18.

NOTE: Calculations were performed in Microsoft Excel using floating point arithmetic in order to maintain the accuracy of the data. Any inconsistencies in rounding of the displayed values are not to be construed as errors in the calculation. For more information, please refer to http://support.microsoft.com/kb/42980

STATE OF TEXAS
NORMAN H. MULLIN
66107
LICENSED
PROFESSIONAL ENGINEER

Norman Mullin
5/6/2021
FIRM NO. F-2507

WATER BALANCE MODEL
IRRIGATION AND EVAPORATION for RCS #3
Table 2.3c
ENVIRO-AG ENGINEERING, INC.

NAME: Southwest Regional Dairy Center
LOCATION: Stephenville, Texas
DATE: Revised 4/14/2021

HYDROLOGIC CHARACTERISTICS

Pen Area (acres):	0.00	
Adjacent Areas (acres):	0.00	
Paved/Roof Area (acres):	0.00	
Total RCS Surface Area (acres):	1.50	
Total Irrigated Area (acres):	94.0	94.0
Cropping scheme:	Coastal	Winter Wheat
Effective Evaporation Surface Area (acres):	1.28	

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 24-Hour Rainfall Volume (ac-ft):	0.90
Process Generated Wastewater Volume (ac-ft):	0.99
Sludge Accumulation Volume (ac-ft):	1.03
Additional Volume (ac-ft):	0.15
Total Required Capacity (ac-ft):	3.06

	RCS INFLOW CALCULATIONS					HYDRAULIC CROP DEMAND CALCULATIONS					RCS STORAGE SUMMARY			
MONTH	(1) (inches)	(2) (inches)	(2) (inches)	(3) (ac-ft)	(4) (ac-ft)	(5) (inches)	(6) (inches)	(6) (inches)	(7) (ac-ft)	(7) (ac-ft)	(8) (inches)	(9) (ac-ft)	(10) (ac-ft)	(11) (ac-ft)
													start value —>	1.03
JAN	1.56	0.00	0.00	0.17	0.36	1.56	2.10	2.74	4.23	9.24	2.36	0.25	0.11	1.03
FEB	1.90	0.00	0.00	0.15	0.39	1.90	2.46	3.11	4.39	9.48	2.70	0.29	0.10	1.03
MAR	2.16	0.00	0.00	0.17	0.44	2.16	4.06	4.97	14.88	22.01	4.28	0.44	0.00	1.03
APR	2.89	0.00	0.00	0.16	0.53	2.84	4.98	5.74	16.77	22.72	5.21	0.53	0.00	1.03
MAY	4.31	0.00	0.00	0.17	0.71	3.94	5.73	5.33	14.03	10.90	5.26	0.56	0.15	1.03
JUN	3.27	0.00	0.00	0.16	0.57	3.16	6.82	3.22	28.68	0.48	7.02	0.57	0.00	1.03
JUL	2.14	0.00	0.00	0.17	0.44	2.14	7.66	0.00	43.24	0.00	8.23	0.44	0.00	1.03
AUG	2.26	0.00	0.00	0.17	0.45	2.26	7.56	0.00	41.53	0.00	7.71	0.45	0.00	1.03
SEP	3.05	0.00	0.00	0.16	0.55	2.98	5.78	0.00	21.96	0.00	5.88	0.55	0.00	1.03
OCT	3.18	0.00	0.00	0.17	0.57	3.09	4.29	2.15	9.44	0.00	4.86	0.52	0.05	1.03
NOV	1.90	0.00	0.00	0.16	0.40	1.90	2.81	1.70	7.15	0.00	3.34	0.35	0.05	1.03
DEC	1.65	0.00	0.00	0.17	0.57	1.63	2.24	2.35	4.78	5.48	2.45	0.26	0.11	1.03
TOTALS	30.25	0.00	0.00	2.00	5.78	29.55	56.49	31.29	211.05	80.32	59.30	5.20	0.58	

NOTES:

(1) AVERAGE PRECIPITATION - Average precipitation taken from the Texas Water Development Board, Erath County, Quad #509. Retrieved April 14, 2021.
(2) RUNOFF PENS AND ADJACENT AREA - There is no runoff from pens or adjacent areas.
(3) INFLOW - Inflow is calculated from process generated wastewater, Table 2.2c.
(4) TOTAL INFLOW - Total Inflow is calculated as that volume of rainfall that falls on the RCS and process water that enters the RCS
(5) RAINFALL ON IRRIGATED AREA - Effective monthly rainfall on the irrigated area is calculated using SCS Curve Number Method adjusted from 1 to 30-day Curve Number (Irr CN-48). (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff).
(6) CONSUMPTIVE USE values from Borrelli, et al., 1998. Mean Crop Consumptive Use and Free-Water Evaporation for Texas, Dept. of Civil Engineering, Texas Tech University, Lubbock (Tables 16 & 25).
(7) NET CROP DEMAND - Net Crop Demand = ((Consumptive Use(6) - Effective Rainfall(5))/12) x Irrigated Area.
(8) MONTHLY LAKE SURFACE EVAPORATION - Average monthly lake surface evaporation taken from the Texas Water Development Board, Erath County, Quad #509. Retrieved April 14, 2021.
(9) NET POND EVAPORATION - Net Evaporation from the water surface is taken as (Monthly Lake Surface Evap/12) x (RCS Surface Area).
(10) ACTUAL WITHDRAWAL - Actual Withdrawal from the irrigation cell not to exceed Net Crop Demand (No consideration given for nutrient demand of crop)
(11) STORAGE AT END OF MONTH - Storage volume in the irrigation cell at the end of the month. The storage calculated in this column should not encroach in the volume reserved for the 25-year, 24-hour rainfall event
(12) Application acres consist of LMU's 2, 3, 4, 14 & 18

NOTE: Calculations were performed in Microsoft Excel using floating point arithmetic in order to maintain the accuracy of the data. Any inconsistencies in rounding of the displayed values are not to be construed as errors in the calculation. For more information, please refer to http://support.microsoft.com/kb/42980

STATE OF TEXAS
NORMAN H. MULLIN
66107
LICENSED
PROFESSIONAL ENGINEER

Norman Mullin
5/6/2021

FIRM NO F-2507

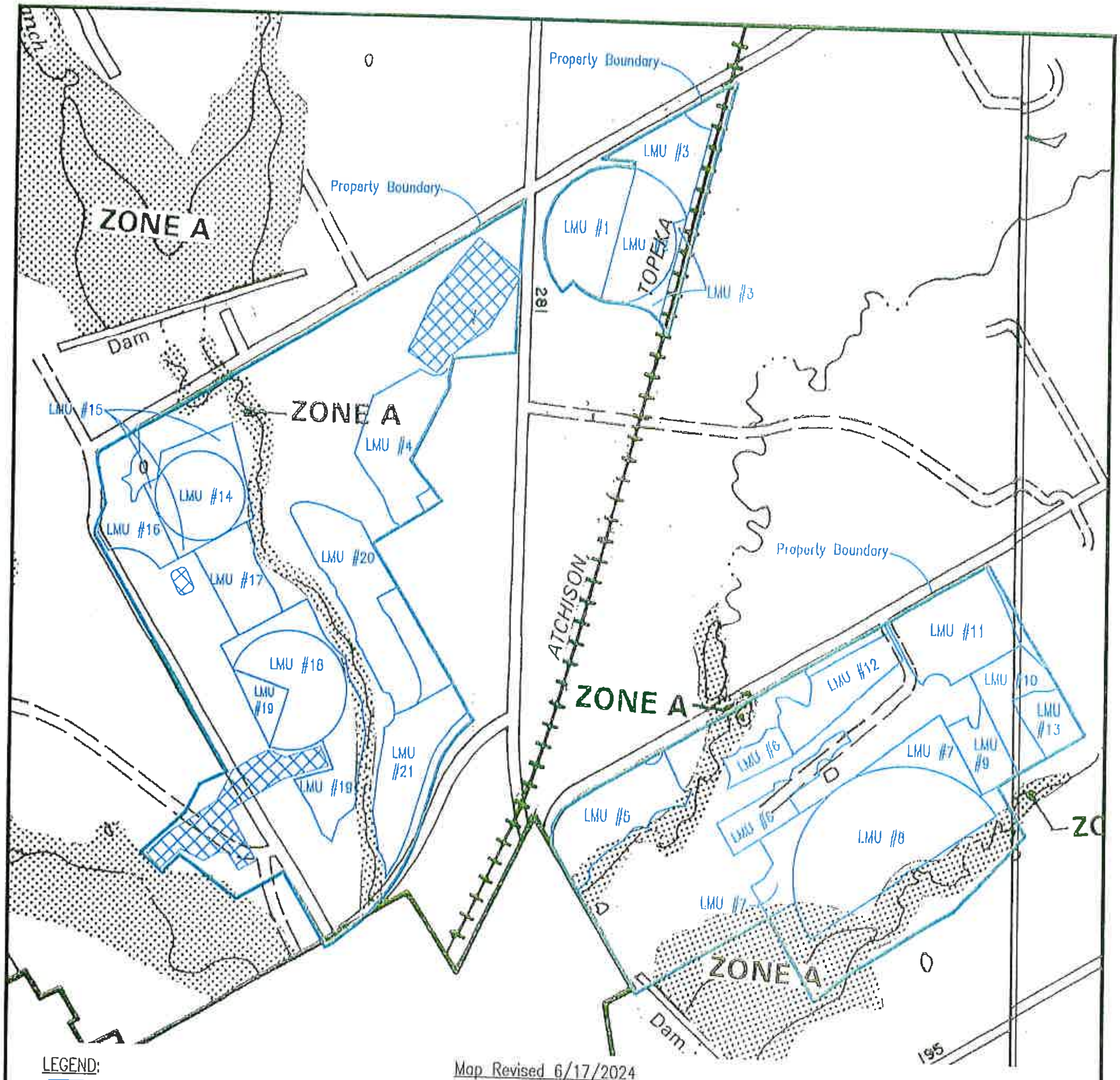
3.0 FACILITY INFORMATION

3.1 Required Certifications

The transfer pond and RCSs #1, #2 and #3 have been certified by a licensed Texas professional engineer as meeting the liner requirements of the TCEQ. Existing liner and capacity certifications are attached.

3.2 100-Year Flood Plain Evaluation

The location of this facility is overlain on a FEMA 100-year flood plain map (Figure 3.1). The production area is not located within a 100-year flood plain.



LEGEND:
Denotes Production Areas

Source: FEMA, Flood Plain Maps

N
W E
S

800' 0 800' 1600'

SCALED AS SHOWN

Southwest Regional Dairy Center Stephenville, Texas Erath County	FEMA Flood Map Figure 3.1 Page 19	ENVIRO-AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

ENVIRO-AG ENGINEERING, INC.

Tarleton State Dairy
Erath County, Texas
RCS #1 Combined Capacity Certification

The survey capacity performed on November 10, 2015 by Enviro-Ag Engineering, Inc. for retention control structure (RCS) #1 Combined with two vertical feet of dry freeboard is calculated as:

RCS #1 Combined Capacity:	20.70 ac-ft
RCS #1 Combined Surface Area:	3.41 surface acres @ High Water Level

Prepared by:

NORMAN H. MULLIN
66107
REGISTERED PROFESSIONAL ENGINEER

Norman Mullin 11/24/15

Norman Mullin, P.E. # 66107
Enviro-Ag Engineering, Inc.
TBPE Firm # 2507

(Supporting Documentation Attached)

3404 Airway Blvd. • AMARILLO, TEXAS 79118 • TEL (806) 353-6123 • FAX (806) 353-4132
www.enviroag.com

RCS #2

CONSULTING ENVIRONMENTAL ENGINEERS, INC.

150 N. Harbin Drive - Suite 408
Stephenville, Texas 76401
Registered Firm: #F-2323

Phone: 254-968-8130
Fax: 254-968-8134
email: ceeinc@ceeinc.org

June 25, 2012

Tarleton State University
Box T-0830
Stephenville, Texas 76402

Attention: Mr. Kent Styron

RE: Details of Equine Lagoon Design

After construction in compliance with the plans and specifications, the above named RCS project has the following features:

1. The total drainage area encompassed is 10.12 acres.

2. The pond actual capacity is 7.69 acre-feet

3. The pond liner does meet current TCEQ requirements.

Sincerely,

Charles P Gillespie Jr P.E.

Charles P. Gillespie, Jr., P.E.
President

CPG/pc

STATE OF TEXAS
CHARLES P. GILLESPIE, JR.
PE 20996
REGISTERED PROFESSIONAL ENGINEER

Charles P Gillespie Jr P.E.
6/25/12

CONSULTING ENVIRONMENTAL ENGINEERS, INC.

150 N. Harbin Drive - Suite 408
Stephenville, Texas 76401
Registered Firm: #F-2323

Phone: 254-968-8130
Fax: 254-968-8134
email: ceeinc@ceeinc.org

December 12, 2011

Alpha Building Corporation
TSU Project Office
P.O. Box T-1010
Stephenville, Texas 76402

Attention: Mr. Robin Edwards

RE: Tarleton State Equine Lagoon Liner Certification

Dear Mr. Edwards:

I certify that the liner on the above referenced project was constructed and tested in conformance with the requirements of Section III (A)(6)(f)(2) of the General Permit Number TXG920000 and meets the stated requirements.

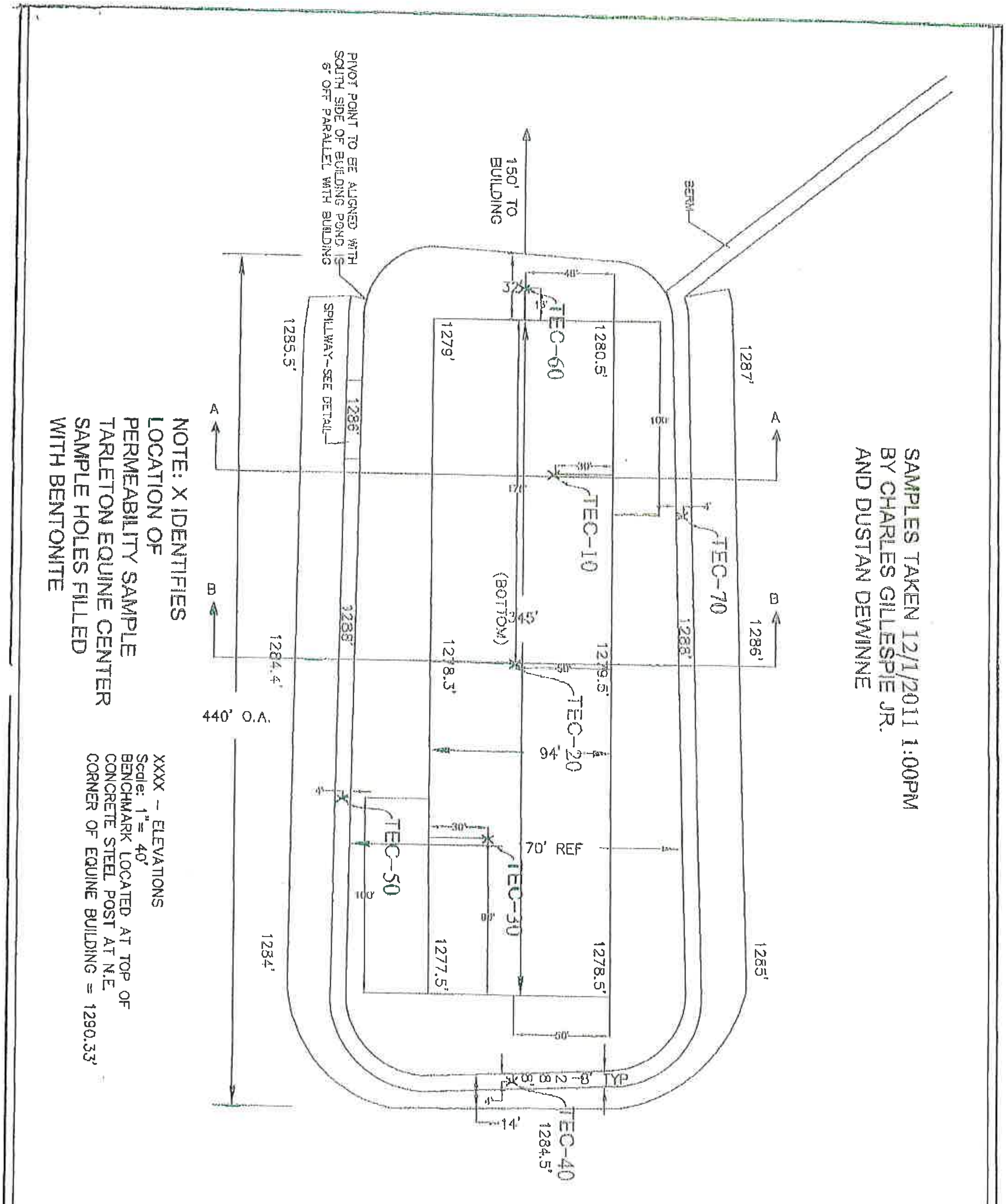
Copies of the sampling plan map and laboratory results are attached.

STATE OF TEXAS
CHARLES P. GILLESPIE, JR.
PE 20996
REGISTERED
PROFESSIONAL ENGINEER

Charles P. Gillespie Jr. P.E.
12/12/11

Attachments: sampling plan map
lab results

COPY



Date December 13, 2011 Drawn By DD Scale 1" = 40'	CONSULTING ENVIRONMENTAL ENGINEERS	150 N. Harbin Dr. Suite 400 Stephenville, Texas 76401 Phone (254) 968-8130 Fax (254) 968-8134 Email: ceeinc@ceeinc.org Registered Firm: F-2323	Tarleton State University Ag Farm Lagoon Stephenville, Texas Location of Permeability Samples

SUMMARY OF LABORATORY TEST RESULTS

CEE, Tarleton Equine Center
Assigned By: Charles Gillespie
TEAM Project Number: 092122

Sample Number	Moisture Content (%)	Dry Density (pcf)	Hydraulic Conductivity K(cm/sec)	Remarks
TEC-10	13.9	115.4	2.89E-09	
TEC-20	17.7	112.4	2.47E-08	
TEC-30	13.9	116.6	1.80E-09	
TEC-40	9.9	114.3	3.77E-08	
TEC-50	13.1	117.2	1.13E-09	
TEC-60	7.2	123.8	1.74E-08	
TEC-70	10.7	108.9	2.21E-08	

VERTICAL PERMEABILITY TEST

(EM 1110-2-1906 30 NOV 70)

Project: Tarleton Equine Center Project No.: 092122 Date: 12/3/2011

Sample No: TEC- 10 Date Sampled: N/A

Material Description: Brown silty clay

SAMPLE MEASUREMENTS			MOISTURE CONTENT		
Wet weight sample+ring:	340.1	g	Tare No.:	37	
Ring weight:	212.7	g	Wet weight+tare:	289.5	g
Wet weight of sample:	127.4	g	Dry weight+tare:	263.7	g
Diameter:	6.35	cm	Tare weight:	78.6	g
Area:	31.67	cm^2	Dry weight of sample:	185.1	g
Thickness:	1.910	cm	Weight of moisture:	25.8	g
Unit dry weight:	115.4	pcf	Percent moisture:	13.9	%

PERMEABILITY DATA

Date & Time		Elapsed Time	Burrette Readings		Permeability (k)	
		(t) sec	(H_0) cm	(H_1) cm	Single	Cumulative
12/5/11	12:00 PM		68.7			
12/5/11	04:00 PM	14,400		68.2	2.54E-09	
12/6/11	07:30 AM	55,800		65.7	3.36E-09	
12/6/11	01:40 PM	22,200		65.0	2.41E-09	
12/7/11	08:45 AM	68,700		62.6	2.74E-09	
		161,100				2.89E-09

Tube No.: 18

Area of Tube: 0.0829 cm^2

Confining Load: 0.625 tsf

$$K = \left[\frac{a \times L}{A \times t}\right] \times \ln\left[\frac{H_0}{H_1}\right] \times R_T$$

K = 2.89E-09 cm/sec

Remarks: A temperature correction factor (R_T) of 1.00 is used as this test was performed within a laboratory environment maintained at or slightly above 68°F.

Tested by: M. Hannah

Computed by: M. Hannah

Checked by: J. Hutt

VERTICAL PERMEABILITY TEST

(EM 1110-2-1906 30 NOV 70)

Project: Tarleton Equine Center Project No.: 092122 Date: 12/3/2011

Sample No: TEC- 20 Date Sampled: N/A

Material Description: Brown silty clay

SAMPLE MEASUREMENTS		
Wet weight sample+ring:	340.7	g
Ring weight:	212.7	g
Wet weight of sample:	128.0	g
Diameter:	6.35	cm
Area:	31.67	cm^2
Thickness:	1.908	cm
Unit dry weight:	112.4	pcf

MOISTURE CONTENT		
Tare No.:	52	
Wet weight+tare:	391.2	g
Dry weight+tare:	343.1	g
Tare weight:	70.8	g
Dry weight of sample:	272.3	g
Weight of moisture:	48.1	g
Percent moisture:	17.7	%

PERMEABILITY DATA

Date & Time		Elapsed Time	Burrette Readings		Permeability (k)	
		(t) sec	(H_0) cm	(H_1) cm	Single	Cumulative
12/5/11	12:00 PM		70.0			
12/5/11	04:00 PM	14,400		64.5	2.84E-08	
12/6/11	07:50 AM	57,000		49.8	2.27E-08	
12/6/11	01:40 PM	21,000		46.2	2.30E-08	
12/7/11	08:45 AM	68,700		31.5	2.62E-08	
		161,100				2.47E-08

Tube No.: 17

Area of Tube: 0.0829 cm^2

Confining Load: 0.625 tsf

$$K = \left[\frac{a \times L}{A \times t}\right] \times \ln\left[\frac{H_0}{H_1}\right] \times R_T$$

K = 2.47E-08 cm/sec

Remarks: A temperature correction factor (R_T) of 1.00 is used as this test was performed within a laboratory environment maintained at or slightly above 68°F.

Tested by: M. Hannah

Computed by: M. Hannah

Checked by: J. Hult

TEAM Consultants, Inc.

VERTICAL PERMEABILITY TEST

(EM 1110-2-1906 30 NOV 70)

Project: Tarleton Equine Center　Project No.: 092122　Date: 12/8/2011

Sample No: TEC-30　Date Sampled: N/A

Material Description: Brown silty clay

SAMPLE MEASUREMENTS

Wet weight sample+ring:	340.7	g
Ring weight:	212.2	g
Wet weight of sample:	128.5	g
Diameter:	6.35	cm
Area:	31.67	cm^2
Thickness:	1.910	cm
Unit dry weight:	116.5	pcf

MOISTURE CONTENT

Tare No.:	53	
Wet weight+tare:	391.7	g
Dry weight+tare:	352.9	g
Tare weight:	72.8	g
Dry weight of sample:	280.1	g
Weight of moisture:	38.8	g
Percent moisture:	13.9	%

PERMEABILITY DATA

Date & Time	Elapsed Time (t) sec	Burrette Readings (H_0) cm	(H_1) cm	Permeability (k) Single	Cumulative
12/5/11 12:00 PM		71.0			
12/5/11 04:00 PM	14,400		70.4	2.95E-09	
12/6/11 07:30 AM	55,800		69.1	1.67E-09	
12/6/11 01:40 PM	22,200		68.4	2.29E-09	
12/7/11 08:45 AM	68,700		67	1.51E-09	
	161,100				1.80E-09

Tube No.: 15

Area of Tube: 0.0829 cm^2

Confining Load: 0.625 tsf

$$K = \left[\frac{a x L}{A x t}\right] x \ln\left[\frac{H_0}{H_1}\right] x R_T$$

K = 1.80E-09 cm/sec

Remarks: A temperature correction factor (R_T) of 1.00 is used as this test was performed within a laboratory environment maintained at or slightly above 68°F.

Tested by: M. Hannah

Computed by: M. Hannah

Checked by: J. Hutt

TEAM Consultants, Inc.

VERTICAL PERMEABILITY TEST

(EM 1110-2-1906 30 NOV 70)

Project: Tarleton Equine Center   Project No.: 092122   Date: 12/3/2011

Sample No: TEC- 40   Date Sampled: N/A

Material Description: Brown silty clay

SAMPLE MEASUREMENTS

Wet weight sample+ring:	334.2	g
Ring weight:	212.7	g
Wet weight of sample:	121.5	g
Diameter:	6.35	cm
Area:	31.67	cm^2
Thickness:	1.908	cm
Unit dry weight:	114.3	pcf

MOISTURE CONTENT

Tare No.:	32	
Wet weight+tare:	374.1	g
Dry weight+tare:	347.7	g
Tare weight:	79.7	g
Dry weight of sample:	268.0	g
Weight of moisture:	26.4	g
Percent moisture:	9.9	%

PERMEABILITY DATA

Date & Time	Elapsed Time (t) sec	Burrette Readings (H_0) cm	(H_1) cm	Permeability (k) Single	Cumulative
12/6/11 07:30 AM		36.0			
12/6/11 10:15 AM	9,900		33.4	3.78E-08	
12/6/11 12:45 PM	9,000		31.2	3.78E-08	
12/6/2011 13:40	3,300		30.4	3.93E-08	
12/6/11 04:45 PM	11,100		28	3.70E-08	
	33,300				3.77E-08

Tube No.: 14

Area of Tube: 0.0829 cm^2

Confining Load: 0.625 tsf

$$K = \left[\frac{a \times L}{A \times t}\right] \times \ln\left[\frac{H_0}{H_1}\right] \times R_T$$

K = 3.77E-08 cm/sec

Remarks: A temperature correction factor (R_T) of 1.00 is used as this test was performed within a laboratory environment maintained at or slightly above 68°F.

Tested by: M. Hannah

Computed by: M. Hannah

Checked by: J. Hutt

TEAM Consultants, Inc.

VERTICAL PERMEABILITY TEST

(EM 1110-2-1906 30 NOV 70)

Project: Tarleton Equine Center | Project No.: 092118 | Date: 12/3/2011

Sample No: TEC- 50 | Date Sampled: N/A

Material Description: Brown silty clay

SAMPLE MEASUREMENTS

Wet weight sample+ring:	340.7	g
Ring weight:	212.2	g
Wet weight of sample:	128.5	g
Diameter:	6.35	cm
Area:	31.67	cm^2
Thickness:	1.910	cm
Unit dry weight:	117.2	pcf

MOISTURE CONTENT

Tare No.:	33	
Wet weight+tare:	416.5	g
Dry weight+tare:	377.3	g
Tare weight:	78.3	g
Dry weight of sample:	299.0	g
Weight of moisture:	39.2	g
Percent moisture:	13.1	%

PERMEABILITY DATA

Date & Time	Elapsed Time (t) sec	Burrette Readings (H_0) cm	Burrette Readings (H_1) cm	Permeability (K) Single	Permeability (K) Cumulative
12/6/11 07:30 AM		69.3			
12/6/11 01:40 PM	22,200		68.8	1.63E-09	
12/7/11 08:45 AM	68,700		67.6	1.28E-09	
12/7/11 04:45 PM	28,800		67.5	2.67E-10	
12/8/11 08:30 AM	56,700		66.6	1.18E-09	
	176,400				1.13E-09

Tube No.: 16

Area of Tube: 0.0829 cm^2

Confining Load: 0.625 tsf

$$K = \left[\frac{a \times L}{A \times t}\right] \times \ln\left[\frac{H_0}{H_1}\right] \times R_T$$

K = 1.13E-09 cm/sec

Remarks: A temperature correction factor (R_T) of 1.00 is used as this test was performed within a laboratory environment maintained at or slightly above 68°F.

Tested by: M. Hannah

Computed by: M. Hannah

Checked by: J. Hutt

TEAM Consultants, Inc.

VERTICAL PERMEABILITY TEST

(EM 1110-2-1906 30 NOV 70)

Project: Tarleton Equine Center   Project No.: 092118   Date: 12/3/2011

Sample No: TEC-60   Date Sampled: N/A

Material Description: Brown silty clay

SAMPLE MEASUREMENTS

Wet weight sample+ring:	341.0	g
Ring weight:	212.2	g
Wet weight of sample:	128.8	g
Diameter:	6.35	cm
Area:	31.67	cm^2
Thickness:	1.913	cm
Unit dry weight:	123.8	pcf

MOISTURE CONTENT

Tare No.:	56	
Wet weight+tare:	567.1	g
Dry weight+tare:	533.9	g
Tare weight:	73.6	g
Dry weight of sample:	460.3	g
Weight of moisture:	33.2	g
Percent moisture:	7.2	%

PERMEABILITY DATA

Date & Time		Elapsed Time	Burrette Readings		Permeability (k)	
		(t) sec	(H_0) cm	(H_1) cm	Single	Cumulative
12/6/11	07:60 AM		52.0			
12/6/11	10:15 AM	8,700		50.4	1.80E-08	
12/6/11	01:40 PM	12,300		48.3	1.73E-08	
12/6/11	04:45 PM	11,100		46.4	1.81E-08	
12/7/11	08:45 AM	57,600		38.1	1.71E-08	
		89,700				1.74E-08

Tube No.: 18

Area of Tube: 0.0829 cm^2

Confining Load: 0.625 tsf

$$K = \left[\frac{a \times L}{A \times t}\right] \times \ln\left[\frac{H_0}{H_1}\right] \times R_T$$

K = 1.74E-08 cm/sec

Remarks: A temperature correction factor (R_T) of 1.00 is used as this test was performed within a laboratory environment maintained at or slightly above 68°F.

Tested by: M. Hannah

Computed by: M. Hannah

Checked by: J. Hutt

TEAM Consultants, Inc.

VERTICAL PERMEABILITY TEST

(EM 1110-2-1906 30 NOV 70)

Project: Tarleton Equine Center Project No.: 092122 Date: 12/3/2011

Sample No: TEC-70 Date Sampled: N/A

Material Description: Brown silty clay

SAMPLE MEASUREMENTS

Wet weight sample+ring:	329.1	g
Ring weight:	212.2	g
Wet weight of sample:	116.9	g
Diameter:	6.35	cm
Area:	31.67	cm^2
Thickness:	1.913	cm
Unit dry weight:	106.9	pcf

MOISTURE CONTENT

Tare No.:	57	
Wet weight+tare:	334.6	g
Dry weight+tare:	309.3	g
Tare weight:	72.9	g
Dry weight of sample:	236.4	g
Weight of moisture:	25.2	g
Percent moisture:	10.7	%

PERMEABILITY DATA

Date & Time		Elapsed Time (t) . sec	Burrette Readings (H_0) cm	(H_1) cm	Permeability (k) Single	Cumulative
12/6/11	07:50 AM		35.8			
12/6/11	10:15 AM	8,700		34.5	2.13E-08	
12/6/11	01:40 PM	12,300		32.4	2.56E-08	
12/6/11	04:45 PM	11,100		31.1	1.85E-08	
12/7/11	08:45 AM	57,600		24.1	2.22E-08	
		89,700				2.21E-08

Tube No.: 19

Area of Tube: 0.0829 cm^2

Confining Load: 0.625 tsf

$$K = \left[\frac{axL}{Axt}\right] x \ln\left[\frac{H_0}{H_t}\right] x R_T$$

K = 2.21E-08 cm/sec

Remarks: A temperature correction factor (R_T) of 1.00 is used as this test was performed within a laboratory environment maintained at or slightly above 68°F.

Tested by: M. Hannah

Computed by: M. Hannah

Checked by: J. Hutt

TEAM Consultants, Inc.

ALPHA TESTING
WHERE IT ALL BEGINS

Geotechnical
Construction Materials
Environmental
TBPE Firm No. 813

2209 Wisconsin St.
Suite 100
Dallas, TX 75229

Tel: 972.620.8911
Fax: 972.620.1302
www.alphatesting.com

October 27, 2011

Hahnfeld Hoffer Stanford
200 Bailey Avenue, Suite 200
Fort Worth, Texas 76107
Attention: Mr. Michael Hoffer, AIA

Re: **Summary of Construction Test Results**
Tarleton State University Dairy Center
CAFO – Clay Liner at Waste Pond
Stephenville, Texas
ALPHA Report No. G110463A

ALPHA Testing, Inc. (ALPHA) has been asked to review and comment on tests results performed by Terracon during construction of the referenced pond. Based on test results performed by Terracon and forwarded to us for review (Terracon Report No. 95091100.0346), the final permeability tests results for the installed clay liner were less than the required 1.0×10^{-7} cm/sec; therefore, the permeability test results meet the requirements of the TCEQ permit.

We also reviewed Field Density Test Reports provided by Terracon for the clay liner placed for the pond between September 23 and October 21, 2011. Based on our review of these reports the percent compaction at each test location was at least 95% of the material's maximum dry unit weight, and the corresponding moisture contests were within -1 to +3 percentage points of the material's optimum moisture.

After review of the referenced Terracon test reports: the compaction, moisture and permeability of the clay liner at the test locations is in accordance with the TCEQ permit. Therefore, it is our opinion the liner be accepted for its intended use.

We appreciate the opportunity to be of service to you on this project. If we can be of further assistance, please contact our office.

Sincerely,

ALPHA TESTING, INC.

Brian A. Powell, P.E.
Vice President

STATE OF TEXAS
BRIAN A. POWELL
83992
LICENSED
10/27/11

Copies: (1) Client

FLEXIBLE WALL PERMEABILITY REPORT

Report Number: 95091100.0346
Service Date: 10/21/11
Report Date: 10/25/11
Task: Pond Clay Liner

Terracon
2501 East Loop 820 North
Fort Worth, TX 76118
817-268-8600 Reg No: F-3272

Client

Texas A&M University System
Attn: Randy Zaddach
200 Technology Way, Ste 1162
College Station, TX 77845-3424

Project

Dairy Center
Tarleton State University
Stephenville, TX

Project Number: 95091100

On October 21, 2011, six (6) thin wall samples were obtained for fixed wall permeability tests (ASTM D5084). Sample locations and results are as follows:

Sample No.	Location	Permeability cm/sec	Soil Description
S-1	B.2/5	$1.9x10^{-8}$	Dark Gray Lean Clay with Sand
S-2	C.9/6.9	$3.8x10^{-8}$	Dark Gray Lean Clay with Sand and Trace Gravel
S-3	E/5	$2.9x10^{-8}$	Dark Gray Lean Clay with Sand
S-4	G.6/4	$3.8x10^{-8}$	Dark Gray Lean Clay with Sand
S-5	E.5/1.3	$2.4x10^{-8}$	Dark Gray Lean Clay with Sand
S-6	C.8/2.8	$6.8x10^{-8}$	Dark Gray Lean Clay with Sand

Complies with TCEQ Permit criteria of less than $1.0x1.0^{-7}$ cm/sec.

Services:

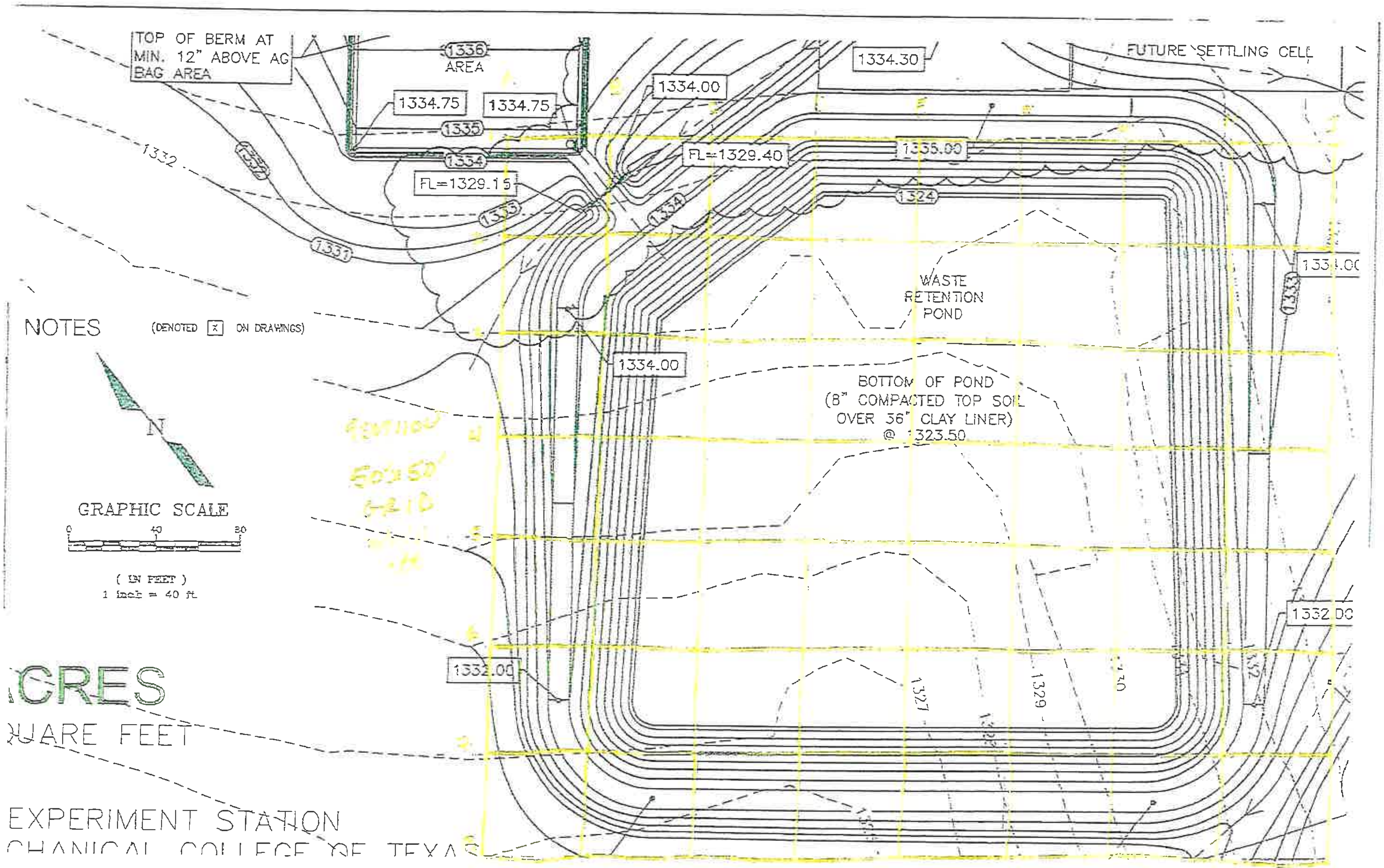
Terracon Rep.: Hal A. Patterson
Reported To:
Contractor: Cottonwood Creek Construction
Report Distribution:

(1) Texas A&M University System, Website
(1) Alpha Testing Inc, Website
(1) Cottonwood Creek Construction, Website
(1) Halmfeld Hoffer Stanford, Website
(1) 5G Consultants, Website
(1) Broaddus & Associates, Website
(1) Cottonwood Creek Construction, Website
(1) Halmfeld Hoffer Stanford, Website

Kevin Allen, PE

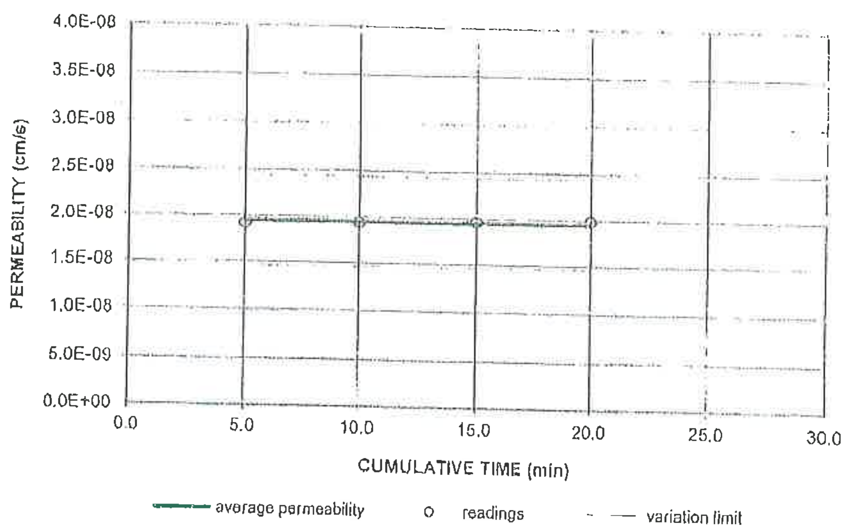
Reviewed By: Donald R. Waddill

Donald R. Waddill
Project Manager



CRES
QUARE FEET
EXPERIMENT STATION
CHANICAL COLLEGE OF TEXAS

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	13.90	1.91E-08	
21.00	5.00	10.00	13.71	1.93E-08	
21.00	5.00	15.00	13.52	1.96E-08	**1.9E-08**
21.00	5.00	20.00	13.33	1.99E-08	

Compaction Data		Sample Data	Initial	Final
Proctor (pcf)		Specimen Height, (inches)	2.96	2.87
Opti. M.C., (%)		Specimen Diameter, (inches)	2.86	2.86
Comp. Method		Moisture Content, (%)	21.45	21.45
% Recompct.		Percent Saturation (%)	90.37	98.28
Test Pressures (psi)		Wet Mass Density (pcf)	124.70	128.75
Backpressure	90.00	Dry Mass Density (pcf)	102.68	106.01
Cell pressure	93.00	Void Ratio	0.64	0.59
Eff. Stress	3.00	Calculated Porosity, %	39.06	37.08

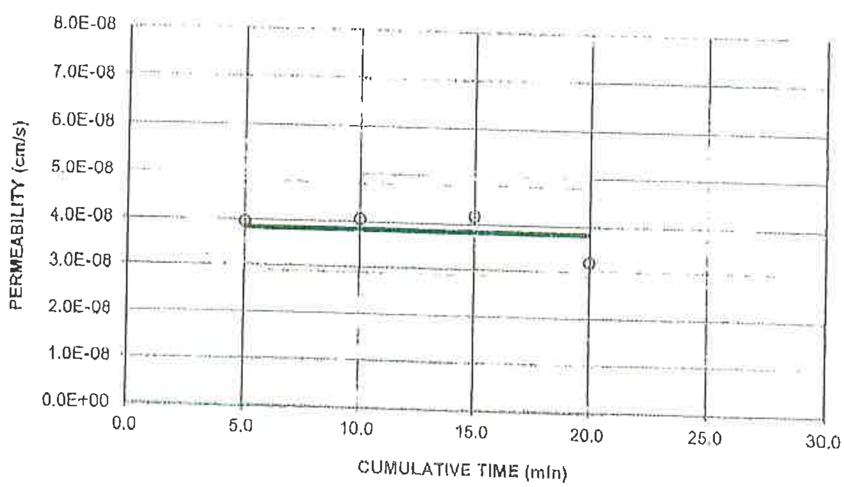
USCS LL PI

Permeant Used: WATER Remarks Dark Gray Lean Clay With Sand

Project Name	DAIRY CENTER		Tested by FCE Reviewed by TGG
Client	TX A&M	W.O.# 95091100	
Sample Number	S-1		FLEXIBLE WALL PERMEABILITY TEST
Sample Location	.0346		Terracon
Date	10/25/2011	Lab No. 8502	

10/25/2011

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	13.76	3.94E-08	
21.00	5.00	10.00	13.39	4.05E-08	
21.00	5.00	15.00	13.02	4.16E-08	**3.8E-08**
21.00	5.00	20.00	12.75	3.20E-08	

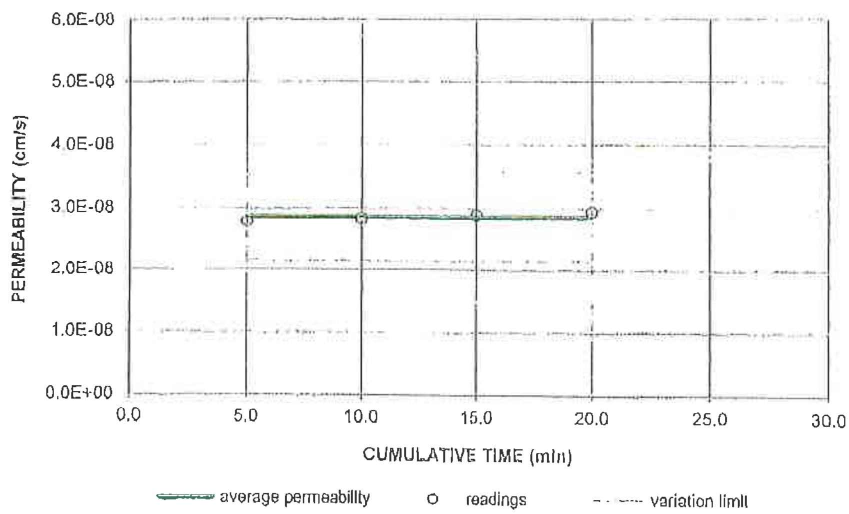
Compaction Data		Sample Data	Initial	Final
Proctor (pcf)		Specimen Height, (inches)	3.03	3.03
Opti. M.C., (%)		Specimen Diameter, (inches)	2.82	2.82
Comp. Method		Moisture Content, (%)	19.98	21.56
% Recompct.		Percent Saturation (%)	91.60	98.84
Test Pressures (psi)		Wet Mass Density (pcf)	127.22	128.90
Backpressure	90.00	Dry Mass Density (pcf)	106.04	106.04
Cell pressure	93.00	Void Ratio	0.59	0.59
Eff. Stress	3.00	Calculated Porosity, %	37.06	37.06

USCS		LL	PI
Permeant Used:	WATER	Remarks	Dark Gray Clay With Sand and Trace Gravel

Project Name	DAIRY CENTER			Tested by FCE	Reviewed by TGG
Client	TX A&M	W.O.#	95091100		
Sample Number	S-2			FLEXIBLE WALL PERMEABILITY TEST	
Sample Location	.0346				
Date	10/25/2011	Lab No.	8603	Terracon	

10/25/2011

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	14.50	2.78E-08	
21.00	5.00	10.00	14.22	2.83E-08	
21.00	5.00	15.00	13.94	2.89E-08	**2.9E-08**
21.00	5.00	20.00	13.66	2.95E-08	

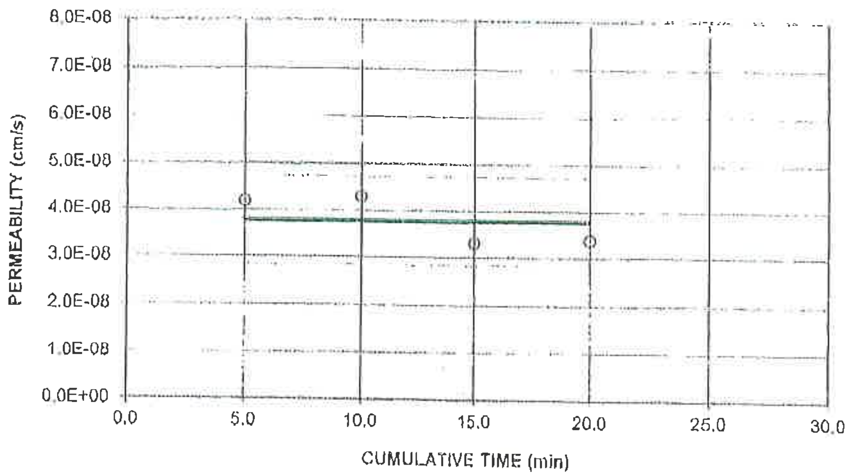
Compaction Data		Sample Data	Initial	Final
Proctor (pcf)		Specimen Height, (inches)	2.97	2.97
Opti. M.C., (%)		Specimen Diameter, (inches)	2.84	2.84
Comp. Method		Moisture Content, (%)	16.91	18.33
% Recompct.		Percent Saturation (%)	92.99	100.00
Test Pressures (psi)		Wet Mass Density (pcf)	132.11	133.71
Backpressure	90.00	Dry Mass Density (pcf)	113.00	113.00
Cell pressure	93.00	Void Ratio	0.49	0.49
Eff. Stress	3.00	Calculated Porosity, %	32.93	33.10

USCS		LL	PI
Permeant Used:	WATER	Remarks	Dark Gray Lean Clay With Sand

Project Name	DAIRY CENTER	Tested by FCE	Reviewed by TGG
Client	TX A&M W.O.# 95091100		
Sample Number	S-3	FLEXIBLE WALL PERMEABILITY TEST	
Sample Location	.0346	Terracon	
Date	10/25/2011 Lab No. 8504		

10/25/2011

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeablity (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	13.08	4.18E-08	
21.00	5.00	10.00	12.73	4.29E-08	
21.00	5.00	15.00	12.47	3.29E-08	**3.8E-08**
21.00	5.00	20.00	12.22	3.36E-08	

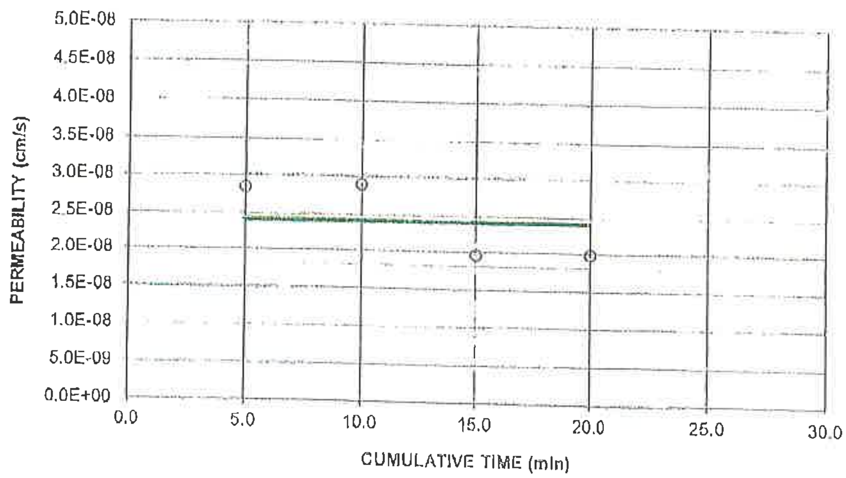
Compaction Data		Sample Data	Initial	Final
Proctor (pcf)		Specimen Height, (inches)	3.23	3.23
Opti. M.C., (%)		Specimen Diameter, (inches)	2.81	2.81
Comp. Method		Moisture Content, (%)	18.61	19.08
% Recompct.		Percent Saturation (%)	94.36	96.73
Test Pressures (psi)		Wet Mass Density (pcf)	130.40	130.91
Backpressure	90.00	Dry Mass Density (pcf)	109.94	109.94
Cell pressure	93.00	Void Ratio	0.53	0.53
Eff. Stress	3.00	Calculated Porosity, %	34.75	34.75

USCS		LL	PI
Permeant Used:	WATER	Remarks	Dark Gray Lean Clay With Sand

Project Name	DAIRY CENTER			Tested by FCE	Reviewed by TGG
Client	TX A&M	W.O.#	95091100		
Sample Number	S-4			FLEXIBLE WALL PERMEABILITY TEST	
Sample Location	.0346				
Date	10/25/2011	Lab No.	8505	Terracon	

10/25/2011

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	13.98	2.84E-08	
21.00	5.00	10.00	13.71	2.89E-08	
21.00	5.00	15.00	13.53	1.96E-08	**2.4E-08**
21.00	5.00	20.00	13.34	1.99E-08	

Compaction Data		Sample Data	Initial	Final
Proctor (pcf)		Specimen Height, (inches)	3.04	3.04
Optl. M.C., (%)		Specimen Diameter, (inches)	2.86	2.86
Comp. Method		Moisture Content, (%)	15.64	17.21
% Recompct.		Percent Saturation (%)	94.32	100.00
Test Pressures (psi)		Wet Mass Density (pcf)	134.58	136.42
Backpressure	90.00	Dry Mass Density (pcf)	116.38	116.38
Cell pressure	93.00	Void Ratio	0.45	0.46
Eff. Stress	3.00	Calculated Porosity, %	30.92	31.73

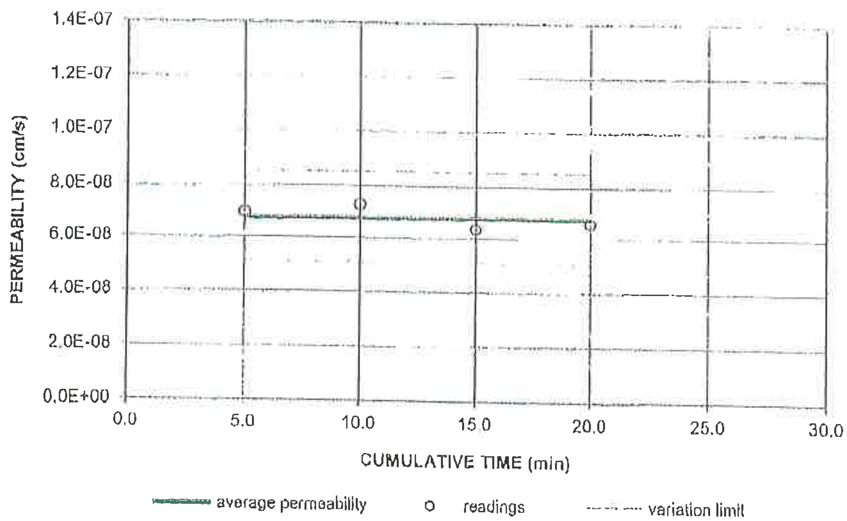
USCS LL PI

Permeant Used: WATER Remarks Dark Gray Lean Clay With Sand

Project Name	DAIRY CENTER		Tested by FCE	Reviewed by TGG
Client	TX A&M	W.O.# 95091100		
Sample Number	S-5		FLEXIBLE WALL PERMEABILITY TEST	
Sample Location	.0346		Terracon	
Date	10/25/2011	Lab No. 8506		

10/25/2011

FLEXIBLE WALL PERMEABILITY TEST



Test Specification: ASTM D 5084

Fluid Temp. (°C)	Elapsed Time (min.)	Cumulative Time (min.)	Gradient (cm-Hg)	Calculated Permeability (cm/sec)	Average Permeability (cm/sec)
21.00	5.00	5.00	11.39	6.98E-08	
21.00	5.00	10.00	10.88	7.30E-08	
21.00	5.00	15.00	10.45	6.35E-08	**6.8E-08**
21.00	5.00	20.00	10.03	6.62E-08	

Compaction Data		Sample Data	Initial	Final
Proctor (pcf)		Specimen Height, (inches)	3.27	3.27
Optl. M.C., (%)		Specimen Diameter, (inches)	2.84	2.84
Comp. Method		Moisture Content, (%)	15.68	20.43
% Recompct.		Percent Saturation (%)	74.16	96.63
Test Pressures (psi)		Wet Mass Density (pcf)	124.07	129.17
Backpressure	90.00	Dry Mass Density (pcf)	107.25	107.25
Cell pressure	93.00	Void Ratio	0.57	0.57
Eff. Stress	3.00	Calculated Porosity, %	36.34	36.34

USCS LL PI

Permeant Used: WATER Remarks Dark Gray Lean Clay With Sand

Project Name	DAIRY CENTER		Tested by FCE	Reviewed by TGG
Client	TX A&M	W.O.# 95091100	FLEXIBLE WALL PERMEABILITY TEST	
Sample Number	S-6			
Sample Location	.0346			
Date	10/25/2011	Lab No. 8507	Terracon	

10/25/2011

FIELD DENSITY TEST REPORT

Report Number: 95091100.0308
Service Date: 09/28/11
Report Date: 10/03/11
Task: Pond Clay Liner

Terracon
2501 East Loop 820 North
Fort Worth, TX 76118
817-268-8600 Reg No: F-3272

Client

Texas A&M University System
Attn: Randy Zaddach
200 Technology Way, Ste 1162
College Station, TX 77845-3424

Project

Dairy Center
Tarleton State University
Stephenville, TX

Project Number: 95091100

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Dry Unit Weight (pcf)	Project Requirements: Water Content (%)	Project Requirements: Minimum Compaction (%)
1	95091100.0304	50/50 Field Mix of In Situ and Imported GTI Dark Gray Shale (Dk Gr Le Cl W/Sa)	ASTM D698	16.0	105.5	-1/+3	95%

Field Test Data

Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Unit Weight (pcf)	Percent Compaction (%)
	Pond Liner 50/50 Mix								
843	G.2/1.8	1st	1	6	124.3	19.2	18.3	105.1	100
844	G.3/2.7	1st	1	6	120.6	18.2	17.8	102.4	97
845	G.1/3.1	1st	1	6	121.5	19.2	18.8	102.3	97
846	G.4/4.9	1st	1	6	123.0	17.8	16.9	105.2	100
847	G.2/5.8	1st	1	6	122.0	17.6	16.9	104.4	99
848	F.8/6.5	1st	1	6	123.7	19.4	18.6	104.3	99

Datum:

Gauge ID:

Comments: Test and/or retest results on this report meet project requirements as noted above.

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition (ASTM D-6938).

Terracon Rep.: Hal A. Patterson

Reported To:

Contractor: Cottonwood Creek Construction

Report Distribution:

(1) Texas A&M University System, Website
(1) Alpha Testing Inc, Website
(1) Cottonwood Creek Construction, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Texas A&M University System, Website
(1) 5G Consultants, Website
(1) Broaddus & Associates, Website
(1) Cottonwood Creek Construction, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Jaster-Quintanilla & Associates LLP, Website
(1) Texas A&M University System, Website

Reviewed By: Donald R. Waddill

Donald R. Waddill
Project Manager

Test Methods: *, ASTM D6938

FIELD DENSITY TEST REPORT

Report Number: 95091100.0318
Service Date: 09/30/11
Report Date: 10/13/11
Task:

Terracon
2501 East Loop 820 North
Fort Worth, TX 76118
817-268-8600 Reg No: F-3272

Client

Texas A&M University System
Attn: Randy Zaddach
200 Technology Way, Ste 1162
College Station, TX 77845-3424

Project

Dairy Center
Tarleton State University
Stephenville, TX

Project Number: 95091100

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Dry Unit Weight (pcf)	Project Requirements: Water Content (%)	Project Requirements: Minimum Compaction (%)
1	95091100.0304	50/50 Field Mix of In Situ and Imported GTI Dark Gray Shale (Dk Gr Le Cl W/Sa)	ASTM D698	16.0	105.5	-1/+3	95%

Field Test Data

Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Unit Weight (pcf)	Percent Compaction (%)
	Pond Liner								
849	E.2/2.2	1st	1	6	124.0	17.9	16.9	106.1	101
850	E.1/3.3	1st	1	6	125.4	19.0	17.9	106.4	101
851	E.5/4	1st	1	6	123.0	19.3	18.6	103.7	98
852	D.8/6.4	1st	1	6	125.8	18.9	17.7	106.9	101
853	D.9/4.6	1st	1	6	127.5	18.5	17.0	109.0	103
854	E/6.3	1st	1	6	129.8	17.9	16.0	111.9	106

Datum: **Gauge ID:**

Comments: **Test and/or retest results on this report meet project requirements as noted above.**

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition (ASTM D-6938).

Terracon Rep.: Hal A. Patterson

Reported To:

Contractor: Cottonwood Creek Construction

Report Distribution:

(1) Texas A&M University System, Website
(1) Alpha Testing Inc, Website
(1) Cottonwood Creek Construction, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Texas A&M University System, Website
(1) 5G Consultants, Website
(1) Broaddus & Associates, Website
(1) Cottonwood Creek Construction, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Juster-Quintanilla & Associates LLP, Website
(1) Texas A&M University System, Website

Reviewed By: Donald R. Waddill

Donald R. Waddill
Project Manager

Test Methods: *, ASTM D6938

FIELD DENSITY TEST REPORT

Report Number: 95091100.0325
Service Date: 10/05/11
Report Date: 10/06/11
Task:

Terracon
2501 East Loop 820 North
Fort Worth, TX 76118
817-268-8600 Reg No: F-3272

Client

Texas A&M University System
Attn: Randy Zaddach
200 Technology Way, Ste 1162
College Station, TX 77845-3424

Project

Dairy Center
Tarleton State University
Stephenville, TX

Project Number: 95091100

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Dry Unit Weight (pcf)	Project Requirements: Water Content (%)	Project Requirements: Minimum Compaction (%)
1	95091100.0304	50/50 Field Mix of In Situ and Imported CTI Dark Gray Shale (Dk Gr Le Cl W/Sa)	ASTM D698	16.0	105.5	-1/+3	95%

Field Test Data

Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Unit Weight (pcf)	Percent Compaction (%)
	Pond Liner Backfill								
855	B.8/2.9	1st	1	6	121.4	19.3	18.9	102.1	97
856	B.8/4.1	1st	1	6	125.8	19.6	18.5	106.2	101
857	B.8/5.3	1st	1	6	118.7	17.4	17.2	101.3	96

Datum:
Gauge ID:
Comments: Test and/or retest results on this report meet project requirements as noted above.

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition (ASTM D-6938).

Terracon Rep.: Hal A. Patterson
Reported To:
Contractor: Cottonwood Creek Construction
Report Distribution:

(1) Texas A&M University System, Website
(1) Alpha Testing Inc, Website
(1) Cottonwood Creek Construction, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Texas A&M University System, Website
(1) 5G Consultants, Website
(1) Broaddus & Associates, Website
(1) Cottonwood Creek Construction, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Jaster-Quintanilla & Associates LLP, Website
(1) Texas A&M University System, Website

Reviewed By: Donald R Waddill
Donald R. Waddill
Project Manager

Test Methods: *, ASTM D6938

FIELD DENSITY TEST REPORT

Report Number: 95091100.0328
Service Date: 10/06/11
Report Date: 10/10/11
Task: Pond Clay Liner

Terracon
2501 East Loop 820 North
Fort Worth, TX 76118
817-268-8600 Reg No: F-3272

Client

Texas A&M University System
Attn: Randy Zaddach
200 Technology Way, Ste 1162
College Station, TX 77845-3424

Project

Dairy Center
Tarleton State University
Stephenville, TX

Project Number: 95091100

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Dry Unit Weight (pcf)	Project Requirements: Water Content (%)	Project Requirements: Minimum Compaction (%)
1	95091100.0304	50/50 Field Mix of In Situ and Imported GTI Dark Gray Shale (Dk Gr Le Cl W/Sa)	ASTM D698	16.0	105.5	-1/+3	95%

Field Test Data

Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Unit Weight (pcf)	Percent Compaction (%)
	Pond Liner								
858	G.5/1.5	2nd	1	6	129.5	19.1	17.3	110.4	105
859	G.3/2.1	2nd	1	6	120.5	19.1	18.8	101.4	96
860	G.4/3.3	2nd	1	6	126.4	19.7	18.5	106.7	101
861	G.1/4.5	2nd	1	6	126.3	19.7	18.5	106.6	101
862	G.5/5.4	2nd	1	6	123.8	19.0	18.1	104.8	99
863	G.5/6.1	2nd	1	6	123.3	18.9	18.1	104.4	99
864	F.5/6.9	2nd	1	6	124.2	19.0	18.1	105.2	100
865	E/2.2	2nd	1	6	121.7	19.3	18.8	102.4	97
866	D.9/3.5	2nd	1	6	123.6	19.4	18.6	104.2	99
867	D.9/4.8	2nd	1	6	125.0	19.5	18.5	105.5	100
868	D.9/6.1	2nd	1	6	123.4	18.7	17.9	104.7	99

Datum: **Gauge ID:**
Comments: Test and/or retest results on this report meet project requirements as noted above.

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition (ASTM D-6938).
Terracon Rep.: Hal A. Patterson
Reported To:
Contractor: Cottonwood Creek Construction
Report Distribution:

(1) Texas A&M University System, Website
(1) Alpha Testing Inc, Website
(1) Cottonwood Creek Construction, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Texas A&M University System, Website
(1) 5G Consultants, Website
(1) Broaddus & Associates, Website
(1) Cottonwood Creek Construction, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Jaster-Quintanilla & Associates LLP, Website
(1) Texas A&M University System, Website

Reviewed By: Donald R. Waddill
Donald R. Waddill
Project Manager

Test Methods: *, ASTM D6938

FIELD DENSITY TEST REPORT

Report Number: 95091100.0333
Service Date: 10/07/11
Report Date: 10/10/11
Task: Pond Clay Liner

Terracon
2501 East Loop 820 North
Fort Worth, TX 76118
817-268-8600 Reg No: F-3272

Client

Texas A&M University System
Attn: Randy Zaddach
200 Technology Way, Ste 1162
College Station, TX 77845-3424

Project

Dairy Center
Tarleton State University
Stephenville, TX

Project Number: 95091100

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Dry Unit Weight (pcf)	Project Requirements: Water Content (%)	Project Requirements: Minimum Compaction (%)
1	95091100.0304	50/50 Field Mix of In Situ and Imported GTI Dark Gray Shale (Dk Gr Le Cl W/Sa)	ASTM D698	16.0	105.5	-1/+3	95%

Field Test Data

Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Unit Weight (pcf)	Percent Compaction (%)
	Pond Liner								
869	B.7/3.7	2nd	1	6	119.3	18.5	18.4	100.8	96
870	B.9/4.9	2nd	1	6	118.0	17.8	17.8	100.2	95
871	B.6/5.9	2nd	1	6	119.9	18.1	17.8	101.8	96

Datum: **Gauge ID:**

Comments: Test and/or retest results on this report meet project requirements as noted above.

Services: Perform in-place density and moisture content tests to determine degree of compaction and material moisture condition (ASTM D-6938).

Terracon Rep.: Hal A. Patterson
Reported To:
Contractor: Cottonwood Creek Construction
Report Distribution:

(1) Texas A&M University System, Website
(1) Alpha Testing Inc, Website
(1) Cottonwood Creek Construction, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Texas A&M University System, Website
(1) 5G Consultants, Website
(1) Broaddus & Associates, Website
(1) Cottonwood Creek Construction, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Juster-Quintanilla & Associates LLP, Website
(1) Texas A&M University System, Website

Reviewed By: Donald R. Waddill

Donald R. Waddill
Project Manager

Test Methods: *, ASTM D6938

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

FIELD DENSITY TEST REPORT

Report Number: 95091100.0345
Service Date: 10/21/11
Report Date: 10/24/11
Task: Pond Clay Liner

Terracon
2501 East Loop 820 North
Fort Worth, TX 76118
817-268-8600 Reg No: F-3272

Client

Texas A&M University System
Attn: Randy Zaddach
200 Technology Way, Ste 1162
College Station, TX 77845-3424

Project

Dairy Center
Tarleton State University
Stephenville, TX

Project Number: 95091100

Material Information

Mat. No.	Proctor Ref. No.	Classification and Description	Laboratory Test Method	Lab Test Data: Optimum Water Content (%)	Lab Test Data: Max. Lab Dry Unit Weight (pcf)	Project Requirements: Water Content (%)	Project Requirements: Minimum Compaction (%)
1	95091100.0304	50/50 Field Mix of In Situ and Imported GTI Dark Gray Shale (Dk Gr Le Cl W/Sa)	ASTM D698	16.0	105.5	-1/+3	95%

Field Test Data

Test No.	Test Location	Lift / Elev.	Mat. No.	Probe Depth (in)	Wet Density (pcf)	Water Content (pcf)	Water Content (%)	Dry Unit Weight (pcf)	Percent Compaction (%)
	Pond Liner Backfill								
872	B.5/4.9	3rd	1	6	125.7	19.5	18.4	106.2	101
873	C.5/4.1	3rd	1	6	122.8	18.3	17.5	104.5	99
874	D.7/4.5	3rd	1	6	127.0	20.1	18.8	106.9	101
875	G.2/1.8	3rd	1	6	125.8	18.3	17.0	107.5	102
876	G.3/2.7	3rd	1	6	123.5	18.8	18.0	104.7	99
877	G.3/3.5	3rd	1	6	119.9	17.2	16.7	102.7	97
878	G.3/4.6	3rd	1	6	124.9	18.7	17.6	106.2	101
879	G.3/5.5	3rd	1	6	121.4	18.1	17.5	103.3	98
880	G.4/6.4	3rd	1	6	122.6	18.5	17.8	104.1	99
881	D.8/1.8	3rd	1	6	119.1	17.2	16.9	101.9	97
882	C.9/3.1	3rd	1	6	123.7	19.5	18.7	104.2	99
883	C.9/5.1	3rd	1	6	121.3	19.0	18.6	102.3	97
884	D/6.2	3rd	1	6	124.8	19.2	18.2	105.6	100
885	E.3/5.4	3rd	1	6	124.1	17.5	16.4	106.6	101
886	E.2/2.9	3rd	1	6	125.8	18.9	17.7	106.9	101

Datum:
Gauge ID:
Comments: Test and/or retest results on this report meet project requirements as noted above.

Services: Conduct Relative Density determinations on HMAC using nuclear density gauge.
Terracon Rep.: Hal A. Patterson
Reported To:
Contractor: Cottonwood Creek Construction
Report Distribution:

(1) Texas A&M University System, Website
(1) Alpha Testing Inc, Website
(1) Cottonwood Creek Construction, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Texas A&M University System, Website
(1) 5G Consultants, Website
(1) Broaddus & Associates, Website
(1) Cottonwood Creek Construction, Website
(1) Hahnfeld Hoffer Stanford, Website
(1) Jaster-Quintanilla & Associates LLP, Website
(1) Texas A&M University System, Website

Reviewed By: Donald R. Waddill
Donald R. Waddill
Project Manager

Test Methods: *, ASTM D6938

The tests were performed in general accordance with applicable ASTM, AASHTO, or DOT test methods. This report is exclusively for the use of the client indicated above and shall not be reproduced except in full without the written consent of our company. Test results transmitted herein are only applicable to the actual samples tested at the location(s) referenced and are not necessarily indicative of the properties of other apparently similar or identical materials.

CR0007, 8-27-11, Rev 4

ENVIRO-AG ENGINEERING, INC.

Tarleton State Dairy
Erath County, Texas
RCS #1 Expansion Liner Certification

Six 3-inch Shelby tube core samples were collected from RCS #1 Expansion to document that the liner meets the requirements of the TCEQ for soil liner. The liner thickness was documented to be at least 18 inches.

The hydraulic conductivity of the clay liner is documented as follows:

- RCS #1 Expansion -1 (Lab #3769) — 3.8×10^{-8} cm/sec
- RCS #1 Expansion -2 (Lab #3770) — 3.2×10^{-8} cm/sec
- RCS #1 Expansion -3 (Lab #3771) — 4.2×10^{-8} cm/sec
- RCS #1 Expansion -4 (Lab #3772) — 3.3×10^{-8} cm/sec
- RCS #1 Expansion -5 (Lab #3773) — 5.2×10^{-8} cm/sec
- RCS #1 Expansion -6 (Lab #3774) — 3.9×10^{-8} cm/sec

Based on the above documentation, the liner in RCS #1 Expansion is determined to be in accordance with TCEQ requirements for soil liners. The test locations were backfilled with bentonite chips. The test results meet the requirements of the TCEQ for hydraulic conductivity considered protective of ground and surface water sources.

STATE OF TEXAS
NORMAN H. MULLIN
66107
REGISTERED PROFESSIONAL ENGINEER

Norman Mullin 11/9/15

Norman Mullin, P.E. # 66107
Enviro-Ag Engineering, Inc.
TBPE Firm # 2507

(Supporting Documentation Attached)

CALCULATION OF SPECIFIC DISCHARGE

SITE: **Tarleton State Dairy**
LOCATION: **Erath County, TX**
STRUCTURE: **RCS #1 Expansion**

ENGINEER: **NHM**
DATE: **Dec. '15**

This worksheet calculates the specific discharge through a soil liner based on the measured thickness of the installed clay liner and the results of the permeability testing. The maximum allowable specific discharge of the installed liner is 1.1 x E-06 cm/sec or 0.0374 in/day.

	Hydraulic Conductivity Results of Core Samples								
Laboratory Sample I.D.	3769	3770	3771	3772	3773	3774			
1. Water Depth, feet	11.5	11.5	11.5	11.5	11.5	11.5			
2. Liner Thickness, inches	18.0	18.0	18.0	18.0	18.0	18.0			
3. Hydraulic Conductivity, cm/sec	3.80E-08	3.20E-08	4.20E-08	3.30E-08	5.20E-08	3.90E-08			
4. Calculated specific discharge, v'									
Seepage Rate, inches/day	0.0112	0.0094	0.0124	0.0097	0.0153	0.0115			
Maximum Seepage Rate, inches/day	0.0374	0.0374	0.0374	0.0374	0.0374	0.0374			

NOTES:

(1) Water depth of the pond in feet.

(2) Soil liner thickness in inches.

(3) Hydaulic conductivity of the core sample(s) as determined by flexible wall permeameter in cm/sec (Ref: ASTM D 5084).

The following equation is used:

$$v' = k\,(H + d) / d$$

where: v' = Specific Discharge of area representative of core sample, inches/day

d = Measure Liner Thickness at core sample location, feet

k = Hydaulic Conductivity of liner based on core sample testing, inches/day

H = Maximum Water Depth, feet

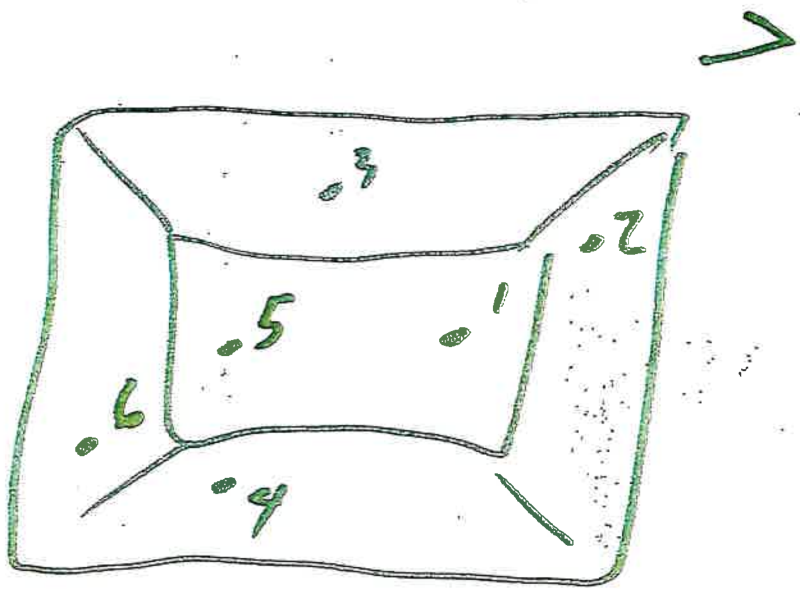
(4) Maximum Allowable Seepage Rate of 1.1 E-06 cm/sec (0.0374 in/day).

NORMAN H. MULLIN
66107
REGISTERED PROFESSIONAL ENGINEER

11/3/15

Norman Mullin, P.E. # 66107
Enviro-Ag Engineering, Inc.
TBPE Firm # 2507

TRIAXIAL PERMEABILITY CHAIN OF CUSTODY



STRUCTURE	PERM I.D.	LAB LOG
#1		3769
#2		3770
#3		3771
#4		3772
#5		3773
#6		3774

Facility Name: TSU
Project Engineer: NW
Sampled By:
Date Sampled: ~~[illegible]~~ 9/11/15
Date to Lab: 11/9/15 Received: Rich Bahn

ENVIRO-AG ENGINEERING, INC.
3404 Airway Blvd., Amarillo, TX 79118
TEL: (806) 353-6123 FAX: (806) 353-4132

Enviro-Ag Engineering, Inc.

3404 Airway Blvd., Amarillo, TX 79118 (806) 353-6123

LABORATORY SERVICES

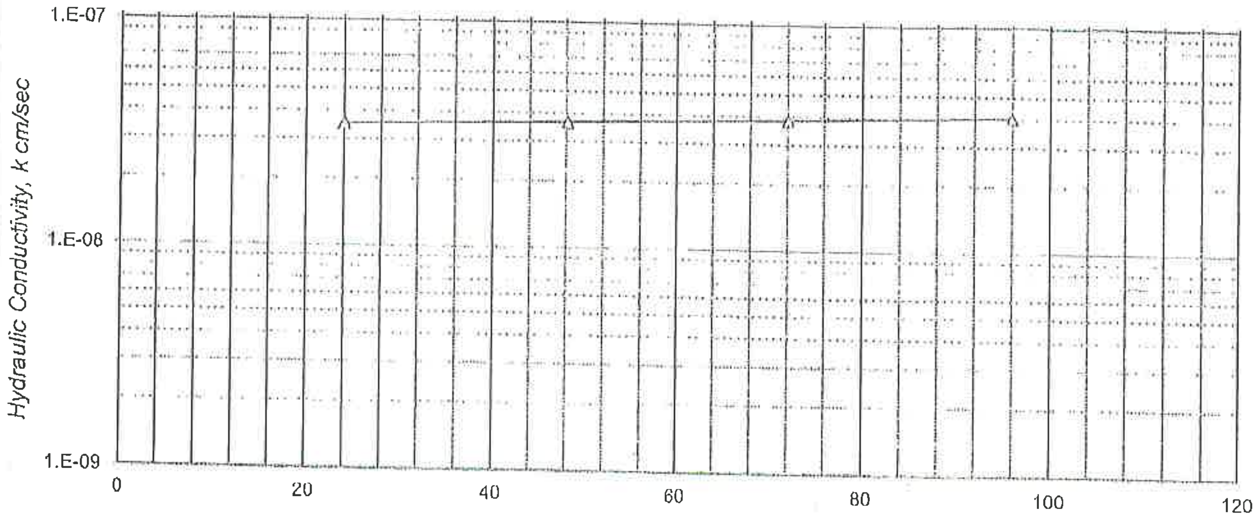
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number
TSU	15-11-09	3769
Sample ID:	**Sample Location:**	**Report Date:**
1	#1	November 30, 2015

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	1	
DESCRIPTION:	#1	
	INITIAL	FINAL
HEIGHT, in.	2.5	2.5
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	21.8	27.4
DRY DENSITY, pcf	101	97
SATURATION, %	88	100
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Brown	
SAMPLE CONSISTENCY	Clay	

COMMENTS:

Tap water used as permeant.

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	3 - 4
IN / OUT RATIO:	1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.0	3.5E-08
2	48.2	3.6E-08
3	72.1	3.9E-08
4	96.0	4.0E-08

AVERAGE LAST 4 : **3.8E-08**

Print Date: 11/30/15

Reviewed By: Micah Mullin

LSN: 3769

Enviro-Ag Engineering, Inc.

3404 Airway Blvd., Amarillo, TX 79118 (806) 353-6123

LABORATORY SERVICES

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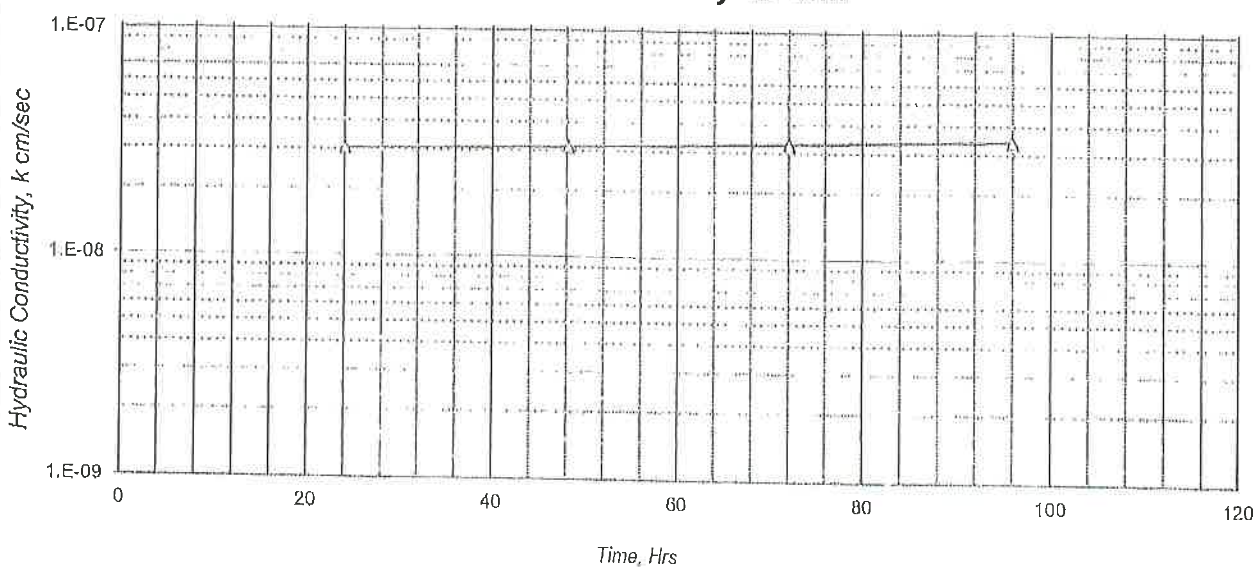
HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
TSU	15-11-09	3770
Sample ID:	**Sample Location:**	**Report Date:**
2	#2	November 30, 2015

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	2	
DESCRIPTION:	#2	
	INITIAL	FINAL
HEIGHT, In.	2.6	2.7
DIAMETER, in.	2.8	2.9
WATER CONTENT, %	15.1	21.9
DRY DENSITY, pcf	109	105
SATURATION, %	75	98
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	3 - 4
IN / OUT RATIO:	1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.0	3.0E-08
2	48.2	3.1E-08
3	72.1	3.3E-08
4	96.0	3.4E-08

AVERAGE LAST 4 : **3.2E-08**

COMMENTS:

Tap water used as permeant.

Enviro-Ag Engineering, Inc.

3404 Airway Blvd., Amarillo, TX 79118 (806) 353-6123

LABORATORY SERVICES

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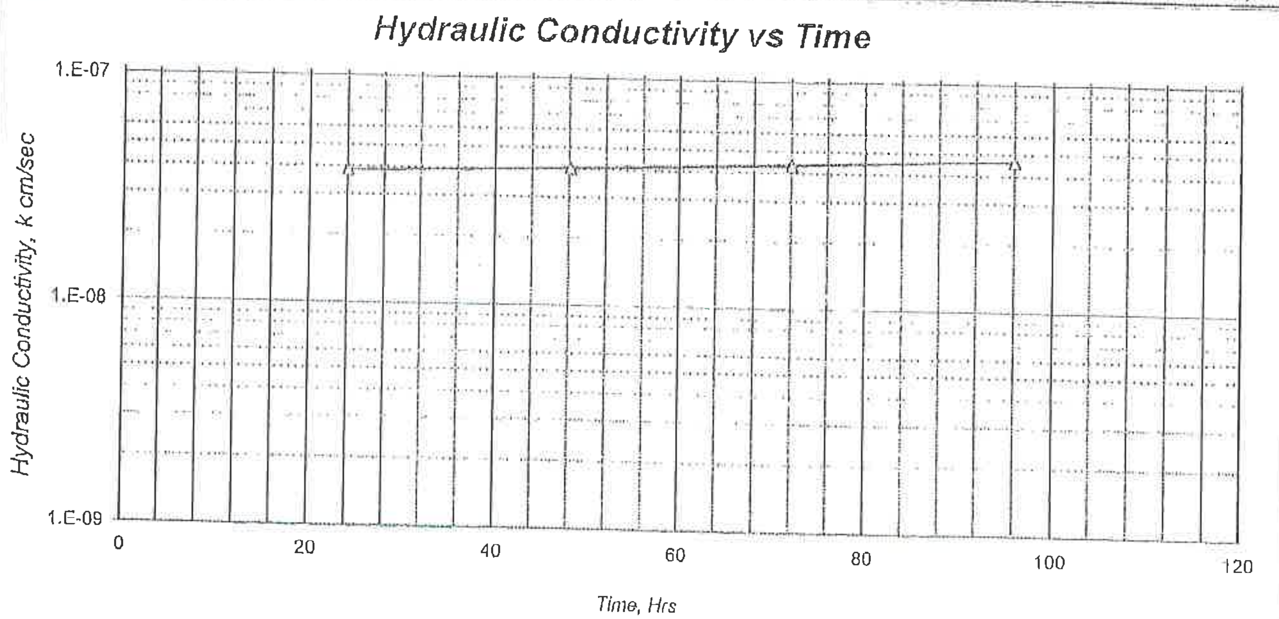
HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
TSU	15-11-09	3771
Sample ID:	**Sample Location**	**Report Date:**
3	#3	November 30, 2015



SPECIMEN DATA

SAMPLE ID:	3	
DESCRIPTION:	#3	
	INITIAL	FINAL
HEIGHT, in.	2.2	2.2
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	17.0	23.1
DRY DENSITY, pcf	108	103
SATURATION, %	81	98
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	4 - 5
IN / OUT RATIO:	1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.0	3.8E-08
2	48.2	4.0E-08
3	72.1	4.3E-08
4	96.0	4.6E-08

AVERAGE LAST 4 : **4.2E-08**

COMMENTS:

Tap water used as permeant.

DCN: EAE-QC-GRAPH (rev. 11/10/04)	Print Date: 11/30/15	Reviewed By: Micah Mullin	LSN: 3771

Enviro-Ag Engineering, Inc.
3404 Airway Blvd., Amarillo, TX 79118 (806) 353-6123
LABORATORY SERVICES

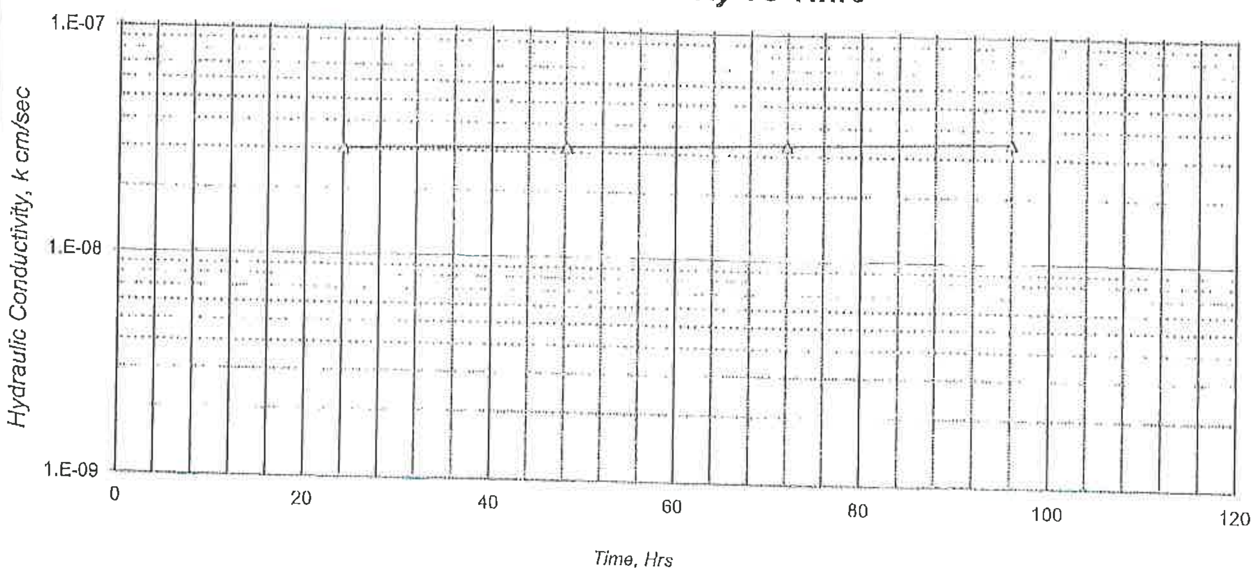
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number
TSU	15-11-09	3772
Sample ID:	**Sample Location:**	**Report Date:**
4	#4	November 30, 2015

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	4	
DESCRIPTION:	#4	
	INITIAL	FINAL
HEIGHT, In.	2.2	2.2
DIAMETER, in.	2.8	2.9
WATER CONTENT, %	16.2	21.9
DRY DENSITY, pcf	110	105
SATURATION, %	83	98
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Brown	
SAMPLE CONSISTENCY	Clay	

COMMENTS:

Tap water used as permeant.

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	4 - 5
IN / OUT RATIO:	1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.0	3.0E-08
2	48.2	3.2E-08
3	72.1	3.3E-08
4	96.0	3.5E-08

AVERAGE LAST 4 : **3.3E-08**

Print Date:	Reviewed By:	LSN:
11/30/15	Micah Mullin	3772

Enviro-Ag Engineering, Inc.

3404 Airway Blvd., Amarillo, TX 79118 (806) 353-6123

LABORATORY SERVICES

EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name: TSU

Project No: 15-11-09

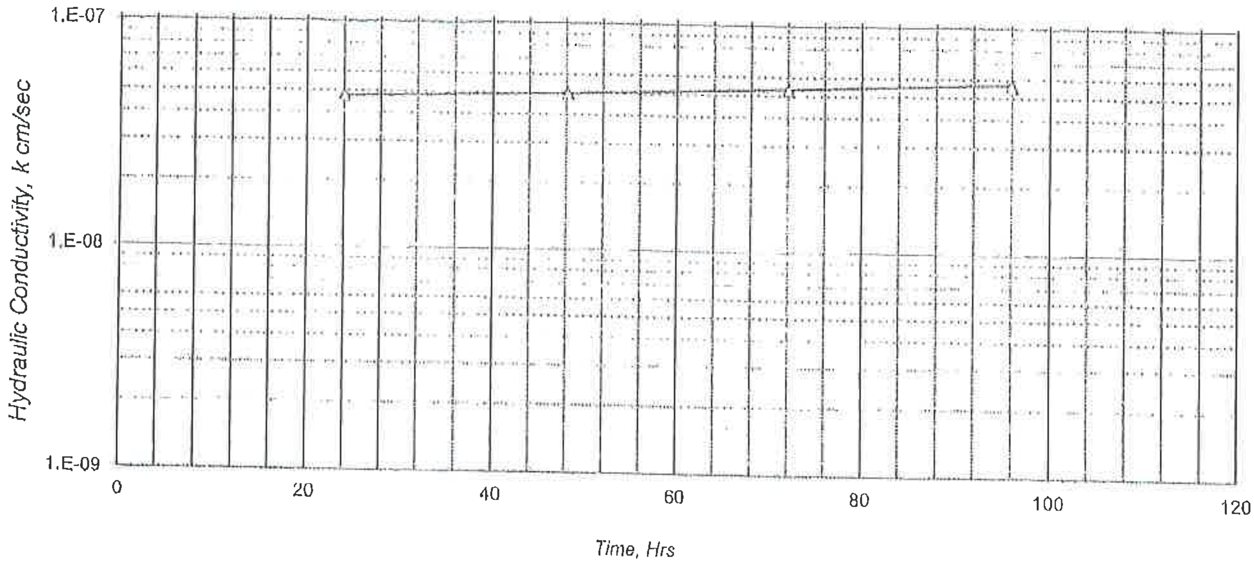
Lab Sample Number: 3773

Sample ID: 5

Sample Location: #5

Report Date: November 30, 2015

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	5	
DESCRIPTION:	#5	
	INITIAL	FINAL
HEIGHT, in.	2.8	2.8
DIAMETER, in.	2.8	2.9
WATER CONTENT, %	14.5	19.7
DRY DENSITY, pcf	116	110
SATURATION, %	87	99
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Brown	
SAMPLE CONSISTENCY	Clay	

COMMENTS:

Tap water used as permeant.

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS: 5 psi

GRADIENT RANGE: 3 - 4

IN / OUT RATIO: 1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.0	4.8E-08
2	48.2	5.0E-08
3	72.1	5.4E-08
4	96.0	5.7E-08

AVERAGE LAST 4 : **5.2E-08**

Enviro-Ag Engineering, Inc.

3404 Airway Blvd., Amarillo, TX 79118 (806) 353-6123
LABORATORY SERVICES

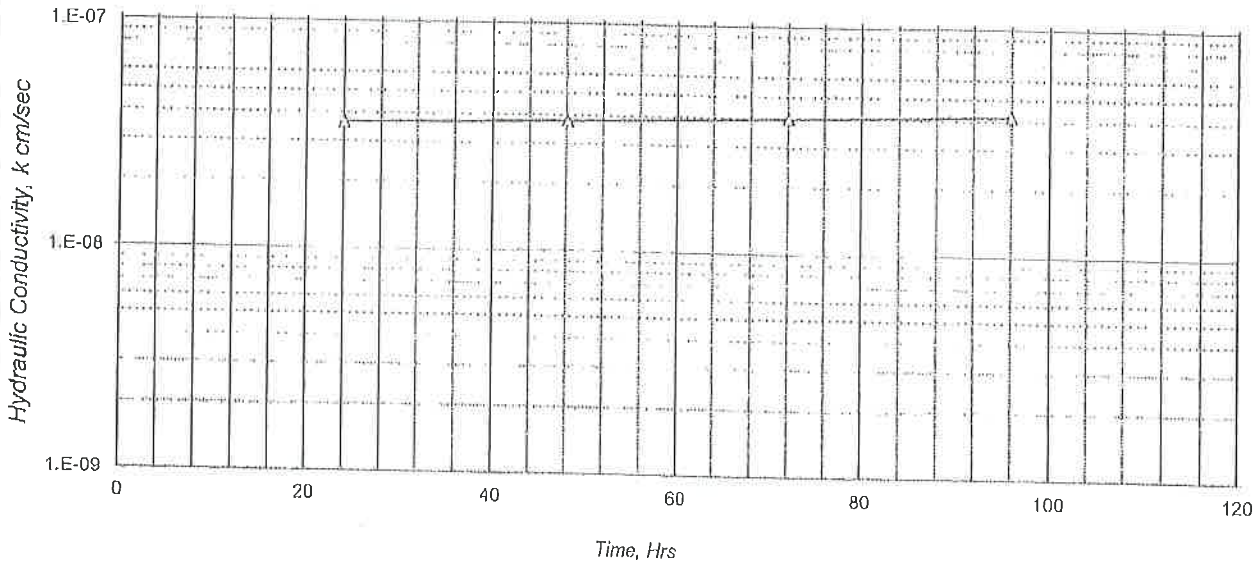
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name: TSU	Project No. 15-11-09	Lab Sample Number: 3774
Sample ID: 6	Sample Location: #6	Report Date: November 30, 2015

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	6	
DESCRIPTION:	#6	
	INITIAL	FINAL
HEIGHT, in.	2.7	2.8
DIAMETER, in.	2.9	2.9
WATER CONTENT, %	13.7	18.5
DRY DENSITY, pcf	117	112
SATURATION, %	83	99
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Brown	
SAMPLE CONSISTENCY	Clay	

COMMENTS:
Tap water used as permeant.

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	3 - 4
IN / OUT RATIO:	1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.0	3.6E-08
2	48.2	3.8E-08
3	72.1	4.0E-08
4	96.0	4.2E-08

AVERAGE LAST 4 : **3.9E-08**

Print Date: 11/30/15

Reviewed By: Micah Mullin

LSN: 3774

ENVIRO-AG ENGINEERING, INC.
EAE
AMARILLO · STEPHENVILLE · ARTESIA

Corporate Office:
3404 Airway Blvd.
Amarillo TX 79118

Central Texas:
9855 FM 847
Dublin TX 76446

New Mexico:
203 East Main Street
Artesia NM 88210

CERTIFICATION

Tarleton State University
Southwest Regional Dairy Center
Erath County, Texas

Capacity Certification – RCS #3

An as-built survey was conducted by Enviro-Ag Engineering, Inc., to determine the total capacity of RCS #3. The capacity was calculated to be:

Structure	Capacity
RCS #3	*4.05 acre-feet*

Respectfully submitted,

STATE OF TEXAS
NORMAN H. MULLIN
66107
LICENSED
PROFESSIONAL ENGINEER

Norman Mullin 6/20/19
Norman Mullin, P.E. – License No. 66107
Enviro-Ag Engineering, Inc. – Firm No. 2507

Attachments: Pond Marker Schematic

RCS #3

HYDROLOGIC CONNECTION INQUISITION
RETENTION CONTROL STRUCTURE (SWINE)

Tarleton State University
P.O. Box T-0750
Stephenville, Texas 76402
254-968-9898

Erath County, Texas

Report for:
Tarleton State University

Prepared By:

9-3-08
A.C. Lowther, Professional GeoScientist

Assisted By:

9-3-08
Noel Courts, Geologist

STATE OF TEXAS
A. C. Lowther
Soil Science
1132
LICENSED
PROFESSIONAL GEOSCIENTIST

LOWTHER CONSULTING, INC.
ENVIRONMENTAL MANAGEMENT CONSULTANTS

P.O. Box 7332
Abilene, Texas 79608-7332
Office: (325)692-5878
Fax: (325)692-1293
Email: manureisgood@yahoo.com

TABLE OF CONTENTS

A. C. Lowther
9-3-08

STATE OF TEXAS
A. C. Lowther
Soil Science
1132
LICENSED
PROFESSIONAL GEOSCIENTIST

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SECTION 1

INTRODUCTION

This inquisition was performed at the request and permission of Kent Styron of Tarleton State University in Erath County, Texas. Field operations were conducted on July 21, 2008. The purpose of this study was to evaluate the integrity of the in-situ material in Retention Control Structure for the swine facility.

The purpose of this investigation was to define and evaluate the in-situ soil material in the RCS to determine if it meets the minimum criteria for hydraulic conductivity tested at optimal moisture content and thickness:

1. Hydraulic Conductivity equivalent to or less than 1 x 10^{-7}.
2. Depth of in-situ material soil material is at least 1.5 feet in thickness of appropriate in-situ soil material.

SITE DESCRIPTION

This is an existing Retention Control Structure and had approximately three feet of wastewater in the pond at the time of sampling. The site visit was conducted to verify the integrity of the in-situ soils material, and that the in-situ soil meets the required criteria in accordance with TCEQ and NRCS standards. Attached to this report is a detailed illustration of the shape of the RCS and the locations of soil sampling.

PROCEDURES

This is an existing Retention Control Structure that was evaluated to meet or exceed the minimum criteria of the in-situ soils material. Depth of in-situ material was verified by using a two-inch soil bucket auger, six feet long with a five foot extension. Determining in-place hydraulic conductivity was done by driving a thin-walled tube into the soil mass to obtain a relativity undisturbed sample according to ASTM D1587. The sample was taken in the eastern bottom location of the RCS. Apex Geoscience Inc, Amarillo, Texas determined the hydraulic conductivity using approved method ASTM D 5084.

The borings were drilled approximately 11.5 feet below the top of the berm level in four locations. Hydraulic conductivity was tested in one location in the south eastern bottom of the RCS. Upon completion, all sample holes were backfilled with native soil cuttings.

1/ Part 651, Agricultural Waste Management Field Handbook, Agricultural Waste Management System Component Design Chapter 10, 651.1080 Appendix 10D—Geotechnical, Design, and Construction Guidelines

A C Lowther
9-3-08

STATE OF TEXAS
A. C. Lowther
Soil Scien...
1152
LICENSED
PROFESSIONAL SOIL SCIENTIST

LOWTHER CONSULTING, INC.
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SECTION 2

LAB RESULTS AND SITE OBSERVATIONS

The in-situ soils recognized during this analysis should be of adequate thickness and with a hydraulic conductivity slow enough to insure that there will be no significant leakage from the Retention Control Structure. A 100-foot walkout inspection around the RCS did not disclose any evidence of water wells, springs, seeps, or water bodies.

Figure – A. lab results of in-situ material

Sample ID	Location	Boring Depth (Ft Below Top of Embankment)	Color (Munsell)	Texture (USDA)	Unified	Depth Below Bottom (Feet)	Min. Req. (Feet)
1	North East	11.5	Light Brown	Clay	CH	1.5	1.5
2	South East	11.5	Light Brown	Clay	CH	1.5	1.5
3	North West	11.5	Light Brown	Clay	CH	1.5	1.5
4	South West	11.5	Light Brown	Clay	CH	1.5	1.5

Figure – B. Hydraulic conductivity of in-situ material

Sample ID	Location	Permeability	Minimum Requirement
2	South East Bottom	** 8.723×10^{-9}	1×10^{-7}

** See Attached Results

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1132
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SECTION 3

ESTIMATION OF SPECIFIC DISCHARGE

This worksheet estimates the specific discharge of WSP based on the measured thickness and permeability of the in-situ clay liner. The estimated specific discharge of the clay liner is then compared to calculated specific discharge of a benchmark pond of the same water depth, a liner depth of 1.5 feet deep and of hydraulic conductivity of 1x10-7.

Hydraulic conductivity measurement – center bottom of RCS#1:

	Hydraulic conductivity Sample site #1	TCEQ Benchmark
1/ Water Depth	10 ft	10 ft.
2/ Liner Thickness	1.5 ft.	1.5 ft.
3/ Hydraulic conductivity, cm/sec	8.723x10-9	1x10-7
4/ Calculated specific discharge, v'		
feet per day	0.00019	0.00217
feet per year	0.0692	0.7932

NOTES:
1/ Maximum water depth of WSP in feet.
2/ In-situ clay liner thickness in feet.
3/ Hydraulic conductivity as determined by infiltrometer in cm/sec.
4/ Specific discharge for each sample location and TCEQ benchmark

The following equation is used:

$$v' = k (H + d) / d$$

where: v' = Specific Discharge of area representative of core sample, feet/day
d = Measure Liner Thickness at sample location, feet
k = Hydraulic Conductivity of liner based on sample testing, feet/day
H = Maximum Water Depth, feet

Ref: Chapter 10 - Agricultural Waste Management System Component Design, Part 651
Agricultural Waste Management Field Handbook

A C Lowther
9-3-08

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Soil Science
1132
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SECTION 4

FIELD OPERATIONS

Noel Courts, Geologist, made the soil borings, collected the hydraulic conductivity sample, and visually identified the characteristics of the in-situ soils material.

CONCLUSION

The in-situ clay material in the RCS, at 11.5 feet of depth, meets the minimum standard for hydraulic conductivity no greater then 1 x 10^{-7} cm/sec tested at optimum moisture content and thickness. The conducted field visit found no significant hydrologic connection exists, so there will be no significant leakage from the RCS on Tarleton State University Swine Farm. Therefore, it has been concluded that a liner is not needed to prevent a significant hydrologic connection between the wastewater and the waters of the state.

DISCLAIMER

Geotechnical analyses are characterized by the existence of a calculated risk that soil and groundwater conditions may not have been fully exposed by this probing boring analysis. This risk derives from the practical necessity of basing interpretations and design conclusions on a limited sampling of the subsoil stratigraphy at the project site. The recommendation that was given in this report is based on the conditions that existed at the drilling locations at the time they were drilled. It is conceivable that soil conditions, conclusions, opinions, or recommendations, may be made by others based on the contents of this report. My professional services have been performed, results obtained, and recommendations arranged in accordance with generally accepted geotechnical values and practices. These warranties are in lieu of other warranties either expressed or implied.

A.C. Lowther 9-3-08
Professional Geoscientist

STATE OF TEXAS
A. C. Lowther
Soil Science
1132
LICENSED
PROFESSIONAL GEOSCIENTIST

Assisted By: 9-3-08
Noel Courts
Geologist

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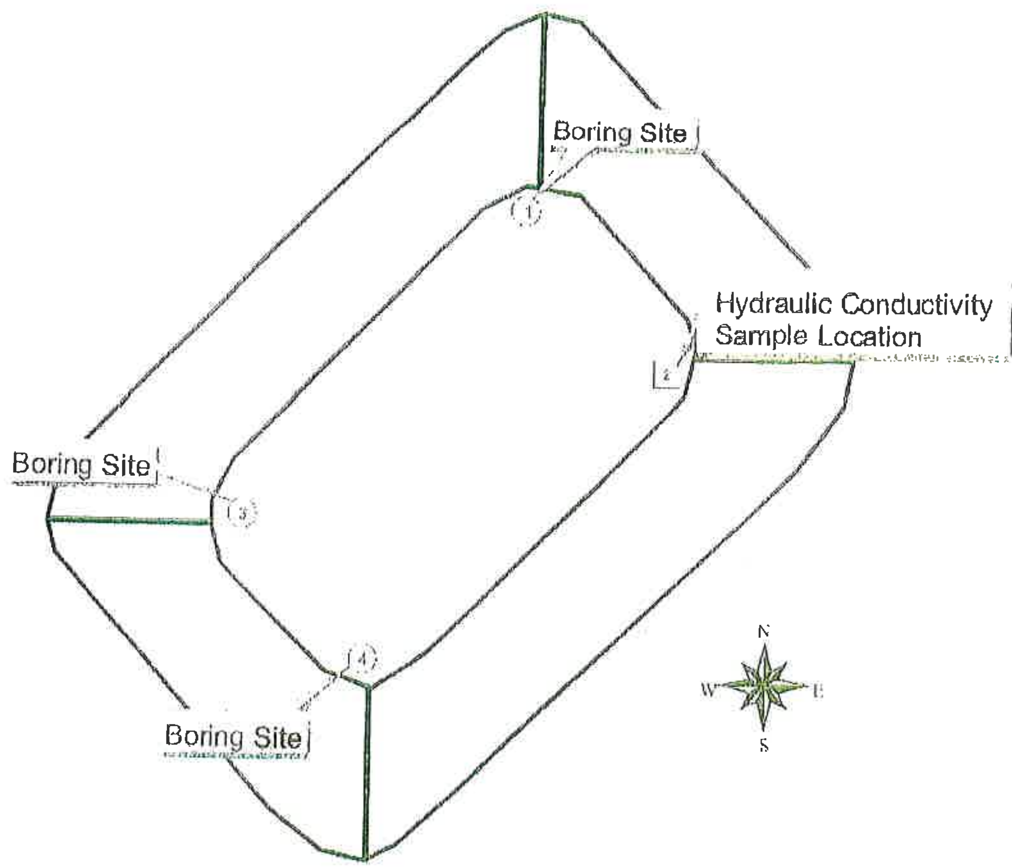
SECTION 5

BORING SITE MAP – TARLETON STATE UNIVERSITY (RCS - SWINE)



A. C. Lowther
9-3-08

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A. C. Lowther
Soil Science
1132
LICENSED
PROFESSIONAL GEOSCIENTIST

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Apex geoscience inc.

ASTM D 5084

Measurement of Hydraulic Conductivity of Saturated Porous Materials Using a Flexible Wall Permeameter

Report Number: 1008-036-0003 Project Name: Permeability Testing

Project Location: Stephenville, Tx Boring No.: -- Depth: -- Max. Dry Density: N/P pcf

Test By: J. Shubert Sample Date: July 21, 2008 Sample: Tarleton State RCS (Swine) Optimum Moisture: N/P %

Material: Light Brown Lean Clay % Compaction: N/P %

Remarks: Sample extracted from Shelby Tube and remolded to approximate in-situ conditions. Saturation Began 7-25-08 Saturation completed 8-02-08 Optimum +/-: N/P %

Remolded: x In Place:

8-25-08

STATE OF TEXAS
DAVID A. WRIGHT
38091
REGISTERED PROFESSIONAL ENGINEER

Sample:

Initial Length = 2.60 in. = 6.604 cm
Diameter = 3.96 in. = 10.058 cm
Area (A) = 12.316 in^2 = 79.460 cm^2
Volume (V) = 32.022 in^3 = 524.75 cm^3
Wet Weight = 991.0 grams
Unit Wet Weight = 117.9 pcf
Unit Dry Weight = 99.4 pcf

Test Conditions:

Lateral Pressure = 70.1 psi
Back Pressure = 67.1 psi
Confining Pressure = 3.0 psi
Temp. @ Start = 73.6 °F 23.1 °C
Temp. @ End = 73.3 °F 22.9 °C
Avg. Temp. = T = 73.5 °F 23.0 °C
β Parameter = 0.95

Moisture Content:

	Before Test	After Test
Pan No. =	Z3	Z1
Wet Wt. + Tare Wt. =	374.50	971.70
Dry Wt. + Tare Wt. =	345.50	845.00
Tare Wt. =	189.50	239.00
Wt. of Dry Soil =	156.00	606.00
Wt. of Water =	29.00	126.70
% Moisture =	18.6	20.9

Burette:

Burette Area (a) = 0.1404 in^2 = 0.9060 cm^2

Pressures during test:

Upper Burette = 64.1 psi = 4508.70 cm
Lower Burette = 67.1 psi = 4719.71 cm
Pressure Bias = P_B = 3.0 psi = 211.01 cm

Calculations:

$$k = \frac{R_T a L}{2 A \Delta t} \ln \frac{h_1}{h_2}$$

$$k = \frac{R_T a L}{2 A \Delta t} \ln \frac{P_B + h(t_1)}{P_B + h(t_2)}$$

R_T = 2.2902 $(0.9842^T)/T^{0.1702}$
= 0.9306

k = hydraulic conductivity, cm/sec
h_1 = Total head loss across length L at t_1
h_2 = Total head loss across length L at t_2
Δt = Time interval (t_2 - t_1)
a = Area of headwater & tailwater burettes, cm^2
L = length/height of the test specimen, cm
A = Area of the test specimen, in cm^2

ρ_W = density of water at the test temperature, Mg/cm^3
$h(t_1) = [V_U(t_1) - V_L(t_1)] / a$
$h(t_2) = [V_U(t_2) - V_L(t_2)] / a$
V_U = Volume reading of upper burette, cc
V_L = Volume reading of lower burette, cc
ln = natural logarithm base e
R_T = Ratio of viscosity of water at T°C to water at 20°C

Date	Reading Time t hr	min	sec	Time Interval Δt sec	Lower Burette V_L cc	Upper Burette V_U cc	$h(t) = [V_U(t) - V_L(t)] / a$ cm	Head Loss $h = P_B + h(t)$ cm	$\ln(h_1/h_2)$	Temp. Corr. Permeability k cm/sec
8/9/08	0	0	0	0	2.9	21.6	20.64	231.65	---	---
8/9/08	2	40	0	9,600	3.2	21.4	20.09	231.10	0.00239	8.710E-09
8/9/08	5	10	0	9,000	3.5	21.2	19.54	230.55	0.00239	9.310E-09
8/9/08	8	40	0	12,600	3.8	20.9	18.87	229.88	0.00288	8.000E-09
8/9/08	11	50	0	11,400	4.1	20.6	18.21	229.22	0.00288	8.870E-09

Mean for four consecutive tests, k (cm/sec) = 8.723E-09

TSU

transfer pond

A.C. Lowther
Cert. Professional Soil Scientist
P.O. Box 78
Dublin, Texas 76446

September 22, 1997

Texas Natural Resource Conservation Commission
Applications and Enforcement Section
Agriculture and Rural Assistance Division
P.O. Box 13067
Austin, Texas 78711-3087

Re: Tarleton State University Dairy

A.C. Lowther has completed sampling and testing of the soil liner for the Waste Storage Pond on the Tarleton State University Dairy, Erath County, Texas. The test results including sample thickness, Atterberg limits, permeability and percent passing the number 200 sieve are tabulated on the attached report. Our findings indicate the soils meet the criteria established by the TNRCC.

Sincerely,

A.C. Lowther, CPSS

Submitted By:

Signed By:

Date:

STATE OF TEXAS
JERRY E. HOLLIGAN
29146
REGISTERED
PROFESSIONAL ENGINEER

Jerry E. Holligan, P.E.
2304 Hancock Drive
Suite 1A
Austin, Texas 78756

A.C. Lowther
Cert. Professional Soil Scientist
P.O. Box 78
Dublin, Texas 76446

Name: Tarleton State University Dairy

Stephenville, Texas 76401

Pond No. 1 **Date Sampled 9-12-97** **Sampled By:** A.C. Lowther

Test Location	No. 1	No.2	No.3	No.4	Minimum Req.
Soil Description					
Color (Munsell)	Yellowish Brown/Gray	Yellowish Brown/Gray	Yellowish Brown/gray	Yellowish Brown/gray	
Texture (ASTM D-422)	Clay	Clay	Clay	Clay	
Unified	CL	CL	CL	CL	
Sample Depth	18	18	18	18	18
Atterberg Limits (ASTM D-423					
Liquid Limit %	46.6	49.9	44.6	46.9	30
Plastic Limit %	29.4	32.7	29.3	31.6	
Plasticity Index %	17.2	17.2	17.3	15.3	15
Passing No. 200 Seive %	82	91	87	80	30
Permeability (ASTM-D-2434)	3.16 X 10 - 9				1 X 10 - 7

In-Place Density
(ASTM D-1556)

Sample No.	**Field Moilsture %**	**Optimum Moisture %**	**Field Density (#/Cu.Ft.)**	**Maximum Density (#/Cu.Ft.)**	**Density (% Maximum)**
1	13.3	28.9	93.9	86.7	108.3
2	14.6	31.7	91.0	89.4	101.7
3	15.5	29.1	94.3	90.9	103.7
4	14.9	31.8	94.7	91.3	103.7

A.C. Lowther
Cert. Professional Soil Scientist
P.O. Box 78
Dublin, Texas 76446

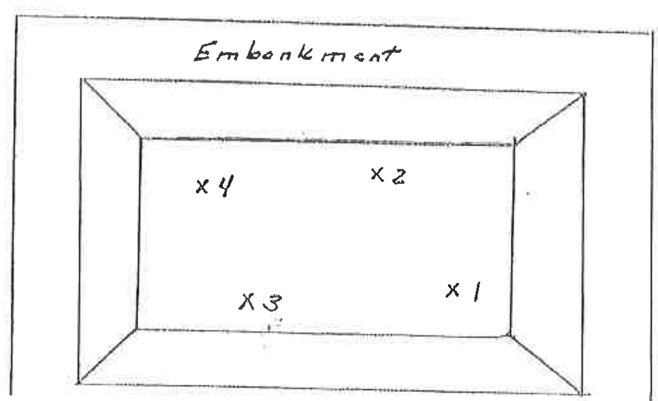
September 22, 1997

Name: TSU Dairy

SOIL SAMPLE LOCATIONS

Depth of Samples (BGL): 10 Feet

Sampled By: A.C. Lowther



4.0 WASTE UTILIZATION & NUTRIENT MANAGEMENT PLAN

4.1 Nutrient Utilization

Agronomic application of wastewater enhances soil productivity and provides the crop and forage growth with needed nutrients for optimum growth and vigor. Land application of wastewater will take place according to a Nutrient Utilization/Nutrient Management Plan (NUP/NMP) in accordance with NRCS Codes 590 and 633. The NUP/NMP for crop year 2024 is attached.

Per 30 TAC §321.42(j), existing dairy facilities located in a major sole-source impairment zone may request the TCEQ to allow the operator to provide manure, litter and wastewater to owners of third-party fields (areas not owned, operated, controlled, rented, or leased by the permittee) that have been identified in the PPP. Tarleton State University requests access to third-party fields to be operated in accordance with 30 TAC §321.42(j)(1)-(4). Third-party written contracts between the permittee and the third-party recipient will be maintained in the PPP. These contracts will confirm that the third party will allow manure, wastewater and slurry from the facility to be beneficially applied at agronomic rates based on the soil test phosphorus in accordance with applicable requirements of 30 TAC §321.36 and §321.40.

A Texas State Soil and Water Conservation Board (TSSWCB) certified Comprehensive Nutrient Management Plan (CNMP) has been developed.

4.2 Waste Handling Procedures

The dairy shall operate under the provisions of 30 TAC §321.42, which describes certain waste management and disposal requirements for individual water quality permits for dairy concentrated animal feeding operations (CAFOs) when an operation is located in a major sole-source impairment zone. Waste disposal options include:

- Beneficial use outside the watershed
- Disposed in permitted landfills outside the watershed
- Delivered to a composting facility approved by the Executive Director
- Other beneficial use approved by the Executive Director
- Applied on-site in accordance with a certified NRCS Code 590/633 NMP or NUP, as dictated by annual soil test results
- Provided to third parties as discussed above in Section 4.1

2024
Executive Summary
Southwest Regional Dairy Center
WQ0004920000

LMU Summary:

Vetch and Peanut Hay are grown on LMU 1. LMUs 2, 3, 7, and 8 are established in coastal bermudagrass overseeded with small grains for perennial coverage. LMUs 5, 6, and 10 are established in coastal and not utilized in the winter. LMUs 14, 15, 16, 17, 18, 19, and 21 are established in coastal and used for hay cutting/grazing and rye during winter. LMU's 4, 11, 12, 13, and 20 are planted in sorghum in the summer and small grains or ryegrass in the winter. Common grasses are grown in LMU 9.

Nutrient Summary:

LMU#	Max N Lb/ac Application Rates	Max P205 Lb/ac Application Rates	Planned N Lb/ac Application Rates	Planned P Lb/ac Application Rates
1	290	83	131	37
2	562	224	181	72
3	463	184	161	64
4	301	120	105	42
5	300	86	135	39
6	300	86	135	39
7	370	106	167	48
8	560	160	252	72
9	370	106	167	48
10	300	86	135	39
11	320	92	144	42
12	320	92	144	42
13	320	92	144	42
14	380	152	133	53
15	380	109	171	49
16	380	109	171	49
17	380	109	171	49
18	541	216	189	76
19	440	126	202	58
20	320	92	160	46
21	380	109	190	54

Although LMUs are designated as, "solids," or, "effluent," it is not the intent of this plan to limit any particular LMU to a single designated waste source. Any waste source may be land applied to any LMU as long as the maximum rate is not exceeded for that particular LMU for the plan year. Monthly updates of the application calculations based on current wastewater and manure analysis will monitor the rate to which the applicant can apply within the limitations given in the plan.

Supplemental nutrients will be necessary to achieve the desired yields. Commercial fertilizer applications should be split such that individual application events do not exceed 100 lb/Ac.

The Maximum Rates for Nitrogen and Phosphorus will be updated annually based on that current year's crop rotation, soil and waste analysis and Crop "S" Tables.

Manure can be hauled off by a contract hauler for beneficial use. Offsite manure transfer activities will be in accordance with NRCS and TCEQ requirements for sampling, recordkeeping, and land application.

2022 soil analysis was used on fields the TCEQ did not sample in 2023. All soil analysis used in this plan reflect the most recent soil analysis for that field received by TCEQ.

Waste Utilization and Nutrient Management Plan

Southwest Regional Dairy Center

TCEQ Permit Number:
WQ0004920000

Owner
Tarleton State University
PO Box T-0180
Stephenville, TX 76401
(254) 965-9222

Type of Organic Nutrient Management Plan:
Other AFO-CAFO Waste Plan
located in Erath County

Prepared By:

(Signature)
Richard George
Certified Nutrient Management Specialist
Certificate Number = TX201504
Expiration Date = December 31, 2024
Enviro-Ag Engineering, Inc.
9855 FM 847
Dublin, TX 76446
(254) 965-3500

This plan is based on:
590 Organic Nutrient Management Plan V 5.0

7/19/24 9:04 AM

PI Index by Field

Printed on: 7/19/24 9:05 AM
Client Name: Southwest Regional Dairy Center
Planner: Richard George

This plan is based on: lutrient Management Plan V 5.0

Permit #: WQ0004920000
Date: 7/19/2024
Location: Erath
Rainfall: >25.0 inches

LMU or Fields	Crop	Slope	Runoff Curve	Soil Test P Level	Inorganic P_2O_5 Appl Rate	Organic P_2O_5 Appl Rate	Inorganic Method & Timing	Organic Method & Timing	Proximity of Appl to Named Stream	Runoff Class	Soil Erosion	Total Index Points	P Runoff Potential	Soil Test Date:
1	Vetch Hay 2 Tons	2.0%	85	4	0	6	0	4	0	2	1.5	17.5	Medium	5/4/23
1	Peanut Hay Irrigated 3 Tons	2.0%	85	4	0	6	0	4	0	2	1.5	17.5	Medium	5/4/23
2	Coastal 4 Cut Hay	2.0%	71	4	0	6	0	4	0	1	0	15	Medium	10/10/23
2	Triticale Graze or Hay 7000 #	2.0%	71	4	0	6	0	4	0	1	0	15	Medium	10/10/23
3	Coastal 3 Cut Hay	1.0%	78	2	0	6	0	4	0	1	0	13	Medium	10/10/23
3	Triticale Graze or Hay 7000 #	1.0%	78	2	0	6	0	4	0	1	0	13	Medium	10/10/23
4	Sorg. - Sudan Hay/Graze 7500 #	2.0%	85	1	0	6	0	4	0	2	1.5	14.5	Medium	10/9/23
4	Ryegrass Moderate Grazing	2.0%	85	1	0	6	0	4	0	2	1.5	14.5	Medium	10/9/23
5	Coastal 3 Cut Hay	1.0%	58	1	0	6	0	4	0	0	0	11	Medium	10/10/23
6	Coastal 3 Cut Hay	2.0%	58	2	0	6	0	4	0	1	0	13	Medium	10/10/23
7	Common 3 Cut Hay 7400 #	2.0%	71	2	0	6	0	4	0	1	0	13	Medium	10/10/23
7	Triticale Graze or Hay 7000 #	2.0%	71	2	0	6	0	4	0	1	0	13	Medium	10/10/23
8	Coastal 4 Cut Hay	2.0%	71	2	0	6	0	4	0	1	0	13	Medium	10/10/23
8	Triticale Graze or Hay 7000 #	2.0%	71	2	0	6	0	4	0	1	0	13	Medium	10/10/23
9	Common 3 Cut Hay 7400 #	2.0%	58	2	0	6	0	4	0	0	0	12	Medium	11/2/22
9	Triticale Graze or Hay 7000 #	2.0%	58	2	0	6	0	4	0	0	0	12	Medium	11/2/22
10	Coastal 3 Cut Hay	2.0%	71	2	0	6	0	4	0	1	0	13	Medium	10/10/23
11	Sorg. - Sudan Hay/Graze 7500 #	2.0%	85	4	0	6	0	4	0	2	1.5	17.5	Medium	5/4/23
11	Triticale Graze or Hay 7000 #	2.0%	85	4	0	6	0	4	0	2	1.5	17.5	Medium	5/4/23
12	Sorg. - Sudan Hay/Graze 7500 #	2.7%	85	1	0	6	0	4	0	4	1.5	16.5	Medium	10/11/23
12	Triticale Graze or Hay 7000 #	2.7%	85	1	0	6	0	4	0	4	1.5	16.5	Medium	10/11/23
13	Sorg. - Sudan Hay/Graze 7500 #	2.9%	89	8	0	6	0	4	0	4	1.5	23.5	High	11/2/22
13	Triticale Graze or Hay 7000 #	2.9%	89	8	0	6	0	4	0	4	1.5	23.5	High	11/2/22
14	Coastal graze 1 AU/1 ac, RG mod Graze	2.7%	74	4	0	6	0	4	5	2	0	21	Medium	10/9/23
15	Coastal graze 1 AU/1 ac, RG mod Graze	2.7%	74	2	0	6	0	4	5	2	0	19	Medium	10/10/23
16	Coastal graze 1 AU/1 ac, RG mod Graze	4.3%	74	4	0	6	0	4	1.25	4	0	19.25	Medium	10/9/23
17	Coastal graze 1 AU/1 ac, RG mod Graze	2.4%	74	2	0	6	0	4	5	2	0	19	Medium	10/9/23

PI Index by Field

Client Name: Southwest Regional Dairy Center
Planner: Richard George

Date: 7/19/2024
Location: Erath
Rainfall: >25.0 inches

LMU or Fields	Crop	Slope	Runoff Curve	Soil Test P Level	Inorganic P_2O_5 Appl Rate	Organic P_2O_5 Appl Rate	Inorganic Method & Timing	Organic Method & Timing	Proximity of Appl to Named Stream	Runoff Class	Soil Erosion	Total Index Points	P Runoff Potential	Soil Test Date:
18	Coastal 4 Cut Hay	2.5%	71	2	0	6	0	4	5	2	0	19	Medium	10/9/23
18	Ryegrass Moderate Grazing	2.5%	71	2	0	6	0	4	5	2	0	19	Medium	10/9/23
19	Coastal 3 Cut Hay	2.5%	78	4	0	6	0	4	5	2	0	21	Medium	10/9/23
19	Ryegrass Moderate Grazing	2.5%	78	4	0	6	0	4	5	2	0	21	Medium	10/9/23
20	Sorg. - Sudan Hay/Graze 7500 #	2.0%	78	4	0	6	0	4	5	1	1.5	21.5	Medium	5/4/23
20	Triticale Graze or Hay 7000 #	2.0%	78	4	0	6	0	4	5	1	1.5	21.5	Medium	5/4/23
21	Coastal graze 1 AU/1 ac, RG mod Graze	2.6%	61	4	0	6	0	4	5	1	0	20	Medium	10/9/23

Alternative Crop List
Southwest Regional Dairy Center
WQ0004920000

Crop and Yield Goal	Nitrogen		P2O5	
	Requirement	Removal	Requirement	Removal
Alfalfa Hay 10 Tons	530	532	180	101
Alfalfa Hay 12 Tons	640	638	180	121
Alfalfa Hay 2 Tons	120	106	35	20
Alfalfa Hay 4 Tons	210	213	80	40
Alfalfa Hay 6 Tons	300	319	130	60
Alfalfa Hay 8 Tons	420	426	180	81
Bahia 2 Cut Hay 7000 #	140	89	70	21
Bahia 3 Cut Hay 8000 #	210	102	80	24
Bahia 4 Cut Hay 9000 #	280	114	115	27
Bahia Grazing + 1 Hay	110	83	70	19
Bahia Grazing 1 AU/1 ac	260	114	70	27
Bahia Grazing 1 AU/2 ac	220	108	45	25
Bahia Grazing 1 AU/3 ac	180	102	45	24
Bahia Grazing 1 AU/4 ac	140	95	45	22
Bahia Grazing 1 AU/5 ac	100	79	45	18
Bahia Grazing 1 AU/6 ac	60	65	45	15
Cantaloupes 15-20 tons	120	88	105	82
Coastal 2 Cut + Graze	260	198	125	62
Coastal 2 Cut Hay	200	169	125	39
Coastal 3 Cut + Graze	360	257	125	80
Coastal 3 Cut Hay	300	238	125	74
Coastal 4 Cut Hay	400	257	170	80
Coastal 5-6 Cut Hay	500	297	170	93
Coastal Grazing + 1 Hay	160	145	70	34
Coastal Grazing 1 AU/0.5 ac	300	218	70	68
Coastal Grazing 1 AU/1 ac	240	198	70	62
Coastal Grazing 1 AU/2 ac	200	169	70	39
Coastal Grazing 1 AU/3 ac	160	145	70	34
Coastal Grazing 1 AU/4 ac	120	120	70	28
Coastal Grazing 1 AU/5 ac	90	103	70	24
Coastal Grazing 1 AU/6 ac	60	86	70	20
Coastal GC (30%DM) 21-23 Ton	400	345	170	95
Coastal GC (30%DM) 18-20 Ton	350	300	170	82
Coastal GC (30%DM) 15-17 Ton	300	255	125	70
Coastal GC (30%DM) 9-11 Ton	200	170	125	47
Common 2 Cut Hay 6000 #	140	113	80	26
Common 3 Cut Hay 7400 #	210	141	80	46
Common 4 Cut Hay 8000 #	280	152	80	49
Common 5-6 Cut Hay 9000 #	350	171	80	56
Common Grazing + 1 Hay	110	100	70	23
Common Grazing + 2 Hay	180	132	80	30
Common Grazing + 3 Hay	250	148	80	48
Common Grazing 1 AU/1ac	260	152	70	49
Common Grazing 1 AU/2 ac	220	143	45	46
Common Grazing 1 AU/3 ac	180	132	45	30
Common Grazing 1 AU/4 ac	140	113	45	26
Common Grazing 1 AU/5 ac	100	94	45	22
Common Grazing 1 AU/6 ac	60	79	45	18

Crop and Yield Goal	Nitrogen		P2O5	
	Requirement	Removal	Requirement	Removal
Corn 111 - 130 bu	144	117	105	47
Corn 131 - 150 bu	164	135	105	54
Corn 151 - 170 bu	180	153	130	61
Corn 171 - 190 bu	210	171	130	68
Corn 191 - 210 bu	250	189	130	75
Corn 211 - 230 bu	280	207	130	83
Corn 231 - 250 bu	300	225	130	90
Corn 250 - 275 bu	325	243	130	97
Corn 276 - 300 bu	350	261	130	104
Corn 301 - 350 bu	375	279	130	111
Corn 50 - 70 bu	70	63	80	25
Corn 71 - 90 bu	90	81	80	32
Corn 91 - 110 bu	120	99	105	39
Cotton 0.5 Bale	25	18	30	9
Cotton 1.0 Bale	50	36	55	18
Cotton 2.0 Bale	100	71	105	35
Cotton 3.0 Bale	150	107	105	53
Cotton 3.5 Bale	175	125	105	62
Cotton 4.0 Bale	200	142	105	71
Cotton 4.5 Bale	225	160	105	80
Cotton 5.0 Bale	250	178	105	89
Eastern gamagrass- 3000 #	80	57	40	21
Eastern gamagrass- 6000 #	120	114	60	41
Fescue, Tall Hay/Graze 7000#	150	140	80	42
Grain Sorg. 1000 #	20	17	30	8
Grain Sorg. 10000 #	200	167	130	82
Grain Sorg. 1500 #	30	25	30	12
Grain Sorg. 2000 #	40	33	30	16
Grain Sorg. 3000 #	60	50	55	25
Grain Sorg. 4000 #	80	67	55	33
Grain Sorg. 5000 #	100	84	80	41
Grain Sorg. 6000 #	120	100	80	49
Grain Sorg. 7000 #	140	117	130	58
Grain Sorg. 8000 #	160	134	130	66
Grain Sorg. 9000 #	180	150	130	74
Guar 3500 lbs	25	22	80	76
Johnsongrass Hay 6000 #	140	101	80	32
Klein 3 Cut Hay 7200 #	150	83	55	16
Klein 4 Cut Hay 7800 #	150	90	55	18
Klein Grazing + 1 Hay	80	69	55	14
Klein Grazing 1 AU/1.5 ac	150	90	80	18
Klein Grazing 1 AU/2.5 ac	80	69	55	14
Klein Grazing 1 AU/6 ac	40	58	55	11
Legume Overseeded	80	60	105	15
Legume w/ryegrass	160	94	160	38
Midland Bermuda 4000 #	120	75	80	17
Midland Bermuda 6000 #	150	113	105	26
Midland Bermuda 8000 #	200	150	105	35

ENVIRO-AG ENGINEERING, INC.

Alternative Crop List
Southwest Regional Dairy Center
WQ0004920000

Crop and Yield Goal	Nitrogen		P2O5	
	Requirement	Removal	Requirement	Removal
Native Grazing or Hay 4000#	80	44	70	34
Native Grazing or Hay 3000#	40	33	55	25
Native Grazing or Hay 1500#	20	17	27	13
Native Grazing or Hay 750#	10	8	13	6
Oat Light Grazing	120	107	55	40
Oat Moderate Grazing	160	110	80	41
Oats Hay 2-3 tons	120	100	55	37
Oats Heavy Grazing plus Hay	200	117	80	43
Old World Bluestem- 3000 #	40	33	55	25
Old World Bluestem- 6000 #	80	66	55	51
Peanut Hay Dryland 1 Ton	50	47	70	11
Peanut Hay Dryland 2 Tons	100	93	70	22
Peanut Hay Irrigated 3 Tons	150	140	95	33
Peanuts Irrigated 4500 #	180	162	95	18
Rice Early 7500 #	195	104	45	41
Rice Late 7500 #	180	104	45	41
Rice plus Ratoon Early 10000 #	295	139	60	55
Rice plus Ratoon Late 10000 #	280	139	60	55
Rye Forage 5000 #	140	84	55	31
Rye Forage 7000 #	240	117	80	43
Ryegrass Hay 6000	140	100	55	37
Ryegrass Heavy Grazing	200	117	80	43
Ryegrass Moderate Grazing	140	84	55	31
SG Green Chop(25% DM) 8 to 9 tons	260	203	90	73
SG Green Chop(25% DM) 6 to 7 tons	200	158	80	57
SG Green Chop(25% DM) 4 to 5 tons	135	113	60	41
SG Green Chop(25% DM) 2 to 3 tons	75	68	40	24
SG Silage(35% DM) 12 to 14 tons	160	128	90	67
SG Silage(35% DM) 10 to 11 tons	120	101	70	53
SG Silage(35% DM) 8 to 9 tons	95	83	40	43
SG Silage(35% DM) 5 to 7 tons	70	64	30	34
Silage - Corn(35% DM) 11 - 15 Ton	140	119	80	58
Silage - Corn(35% DM) 16 - 20 Ton	240	183	100	77
Silage - Corn(35% DM) 21 - 25 Ton	350	263	105	96
Silage - Corn(35% DM) 26 - 30 Ton	420	315	135	115
Silage - Corn(35% DM) 7 - 10 Ton	85	79	60	38
Silage - Sorg(35% DM) 11 - 15 Ton	200	179	75	55
Silage - Sorg(35% DM) 16 - 20 Ton	280	238	95	74
Silage - Sorg(35% DM) 21 - 25 Ton	360	298	115	92
Silage - Sorg(35% DM) 26 - 30 Ton	380	315	130	111
Silage - Sorg(35% DM) 31 - 40 Ton	450	364	155	135
Silage - Sorg(35% DM) 41 - 50 Ton	580	455	190	168
Silage - Sorg(35% DM) 51 - 60 Ton	700	550	220	202
Silage - Sorg(35% DM) 7 - 10 Ton	125	119	60	37
Small Grain Heavy Grazing	240	112	105	41
Small Grain Light Grazing	60	75	80	28
Small Grain Moderate Grazing	160	97	105	36
Sorg. - Sudan Hay/Graze 11000 #	240	219	105	83

Crop and Yield Goal	Nitrogen		P2O5	
	Requirement	Removal	Requirement	Removal
Sorg. - Sudan Hay/Graze 7500 #	160	149	55	57
Sorg Forage Hay/Graze 11000 #	240	219	105	83
Sorg Forage Hay/Graze 7500 #	160	151	55	57
Soybean 30 bu	110	119	60	24
Soybean 50 bu	180	180	80	40
Sunflower 2000#	100	71	56	30
Sunflower 3000#	175	107	65	45
Triticale Graze or Hay 7000 #	160	117	105	43
Triticale Graze or Hay 9000 #	240	150	105	56
Watermelons 12 tons	80	53	55	49
Weeping Lovegrass 3500 #	70	39	55	30
Wheat Forage 2000 #	60	33	80	12
Wheat Forage 4000 #	160	67	105	25
Wheat Forage 6000 #	240	100	105	37
Wheat Grain 20 - 30 bu + Grazing	60	58	55	40
Wheat Grain 20 - 30 bu	45	37	55	26
Wheat Grain 31 - 40 bu + Grazing	80	71	75	48
Wheat Grain 31 - 40 bu	60	50	75	34
Wheat Grain 41 - 50 bu + Grazing	100	83	75	57
Wheat Grain 41 - 50 bu	75	62	75	43
Wheat Grain 51 - 60 bu + Grazing	120	96	90	65
Wheat Grain 51 - 60 bu	90	75	90	51
Wheat Grain 61 - 70 bu + Grazing	140	108	90	74
Wheat Grain 61 - 70 bu	105	87	90	60
Wheat Grain 71 - 80 bu + Grazing	160	121	95	82
Wheat Grain 71 - 80 bu	120	100	95	68
Wheat Grain 81 - 90 bu + Grazing	180	133	95	91
Wheat Grain 81 - 90 bu	135	112	95	77
Wheat Grain 91 - 100 bu + Grazing	200	146	95	99
Wheat Grain 91 - 100 bu	150	125	95	85
Wheat Heavy Grazing	240	114	105	42
Wheat Light Grazing	60	75	80	28
Wheat Moderate Grazing	160	97	105	36
Millet GC (25% DM) 18 - 24 Ton	180	140	60	46
Millet Hay/Graze 11000 #	150	95	45	40
Silage - Millet(35% DM) 15 - 18 Ton	190	139	60	46
Popcorn Shelled 3000 - 4000 #	80	74	80	27
Popcorn Shelled 4000 - 5000 #	100	92	80	33
Popcorn Shelled 5000 - 6000 #	120	110	80	40
Vetch Hay 1 Ton	70	60	105	14
Vetch Hay 2 Tons	140	120	105	28
Vetch Green chop(25%DM) 4 Tons	70	56	105	7
Vetch Green chop(25%DM) 8 Tons	140	112	105	14
Winter Pea Hay 5000#	140	137	105	35
Winter Pea Green chop(25%DM)8-9 Tons	140	123	105	32
Cowpea Hay 2 Tons	140	120	105	26
Cowpea GreenChop 8Tons(25%DM) Tons	140	120	105	26

Waste Utilization and Nutrient Management Plan

EXECUTIVE SUMMARY:

Permit #: WQ0004920000

This Nutrient Management Plan has fields that meet NMP and/or NUP requirements.

This plan was revised on 7/12/2021.

LOCATION AND PURPOSE OF THE PLAN

This animal operation is located in Erath County (see attached topo map and plan map for location.) The purpose of this plan is to outline the details of the land application of the effluent and solids produced by this operation. When the plan is fully implemented, it should minimize the effects of the land application of animal wastes on the soil, water, air, plant, and animal resources in and around the application area. This plan, when applied, will meet the requirements of the Natural Resources Conservation Service Waste Utilization Standard and Nutrient Management Standard.

The plan is for the year of 2024 and will remain in effect until revision based on new soil or manure analysis or crop change (yield or crop) result in a new P-Index rating or plan classification (NMP-NUP). The waste has been stored in a Dairy Lagoon . Approximately 1150 head will be confined with the average weight of Varies pounds. The animals will be confined 24 hours per day for 365 days per year.

TABLES 1, 2 and 2a

Permit #: WQ0004920000

Values in Table 1 may be based on actual analysis or "book" values during the initial planning to determine land application rates for the initial plan. When "book" values are used, they will be from NRCS, Texas Cooperative Extension or averages from other TX testing lab sources. Site specific data will be used as soon as feasible after production begins. Manure and/or effluent will be tested at least annually or in the year of application if it is stored for more than one year. If the actual values are more than 10% higher or lower than the estimated values, this plan will need to be revised accordingly.

Application of waste products may be made up to the Maximum Rate given in Table 2 or 2a as applicable. Table 2 applies to those that are subject to Nutrient Management Plan (NMP) requirements while Table 2a applies when subject to Nutrient Utilization Plan (NUP) requirements. Current requirements for both the NMP and NUP are given in the headers of the tables. Table 2a has a criteria involving the distance to a named stream when the Soil Test P Level is above 200 ppm in arid areas as well as special requirements when the site is in a TMDL watershed designated by TCEQ. For various P Index Ratings, the maximum rates in Table 2 are based on crop requirements, whereas the maximum rates in Table 2a are based on crop removal rates. County avg. rainfall information can be found in the TX Agronomy Technical Note 15, Phosphorus Assessment Tool for Texas, located in the eFOTG at the address given in the section entitled **"Collecting Soil Samples for Analyses"**.

CROP REMOVAL RATES:

Crop Removal Rates of nitrogen (N), phosphorus (P), and potassium (K) in pounds per acre are given in Table 3 for the crop and yield planned for each field. This Table is included for information only, and should be used during the planning process to compare planned or maximum application rates to crop removal. Crop removal rates may be based on actual analysis of harvested material or default values in the database. P build-up will occur at higher rates when crop removal rates are exceeded..

SOLIDS APPLICATION:

The maximum solids application rates are given in Table 4 along with the current soil test P level, maximum P_2O_5 application rate, maximum tons per acre of solids and the total tons of solids per field that can be applied to each field. The maximum tons of solids that can be utilized on the fields planned is indicated in the box near the lower left corner of Table 4. When the total application acres of the fields are adequate to allow all of the solids to be applied, "Adequate" will be indicated below the tonnage in this box. If "Not Adequate" is indicated, then the lower box will indicate the tons of solids that must be utilized off-site unless more fields/acres are added. This plan is valid only if the application of waste to the crops listed does not exceed the per acre rates by more than 10%. If the yield of a crop does not meet the expected goal, the application rate should be adjusted the following year.

The estimated amounts of N, P_2O_5, and K_2O contained in the solids are provided in Table 5 for the maximum application rate. Supplemental N and K_2O will be applied to achieve the yield goals in Table 4 when recommended by the soil test and the maximum rate of the solids does not meet the crop needs. When the maximum application rate is applied and Table 5 indicates additional commercial nutrients, they **must** be applied to fields as indicated. **NOTE:** If additional nitrogen is recommended, the producer should consider collecting soil samples from the 6 - 36 inch layer to see if there is any additional deep nitrogen available. Additional deep nitrogen within the root zone of the crop can be substituted for supplemental commercial nitrogen, and should be included in the soil test N ppm entry.

SOLIDS APPLICATION: (cont)

Permit #: WQ0004920000

In situations where more land is available than is needed to utilize the maximum application rate on each field, the application rates in Table 6 have been reduced to the level that does not exceed the amount of solids produced. Table 7 indicates the amount of nutrients provided and, if needed, the supplemental nutrients which **must** be applied when the application is based on these rates. The amounts of supplemental nutrients in Table 7 are based on the actual amount of waste available rather than the **maximum** rate that **"could"** be applied.

The second line from the bottom of Table 6 on the right has a box that will be **"YES"** or **"NO"**. When the reduced rates use all solids to be produced in a year, this box will be **"Yes"**. If the percentages are too low, it will be **"No"**. If **"No"**, either more acreage is needed on which to apply the solids or the solids will need to be transported off-site. The amount is located on the bottom line on the extreme right of the page.

Actual application will be based on the quantities produced, as well as, current manure analyses. **Application at the MAXIMUM rates shown in Table 4 will result in a more rapid build-up of phosphorus than if applied at lower rates. A different percentage may be used as long as the rate does not exceed the maximum shown in Table 4 for the field and the proper amount of supplemental nutrients are applied. Applying a lower rate to the fields with higher soil test P levels will slow down the P buildup and extend their land application life. Phosphorus will also build up more rapidly on pastureland than on hayland or cropland, since very few nutrients are actually removed by grazing animals.**

The solids may be applied to the same acreage every year according to Table 2 or 2a. The annual rates in both Table 4 and 6 may be doubled not to exceed the 2X the annual nitrogen requirement or nitrogen removal rate, as applicable. When the full biennial rate has been used, no additional phosphorus fertilizer or animal wastes may be applied in the alternate year. A column in both tables indicates whether the rates given are Annual Rates (A) or Biennial Rates (B). Rates given are based on Table 2 or 2a as applicable. Annual application rate for fields in a TMDL area with a Soil Test P level equal to or greater than 500 ppm or any field in a TMDL area with P Index Rating of Very High is 0.5 annual crop removal rate.

EFFLUENT APPLICATION:

The maximum effluent application rates are given in Table 8 for each field. This table provides the current soil test P level, maximum P_2O_5 application rate, effluent either in gallons per acre or acre inches per acre and the amount of effluent that can be applied per field. The maximum amount of effluent that can be utilized on the fields planned is indicated in a box near the lower left corner of Table 8. When the total application acres are adequate to allow all of the effluent to be applied, "Adequate" will be indicated below this box. If "Not Adequate" is indicated, then the lower box will indicate the amount of effluent that must be utilized off-site unless more field acres are added.

The estimated amounts of N, P, and K contained in the effluent are provided in Table 9 for the maximum application rate indicated in Table 8. Supplemental N and K_2O will be applied to achieve the yield goals when recommended by the soil test and the maximum rates of the effluent do not meet the crop requirements. **NOTE:** If additional nitrogen is recommended, the producer should consider collecting soil samples from the 6 - 36 inch layer to see if there is any additional deep nitrogen available. Additional deep nitrogen within the root zone of the crop can be substituted for supplemental commercial nitrogen.

In situations where more land is available than is needed to utilize the maximum application rate on each field, the application rates in Table 10 have been reduced to the level that does not exceed the amount of effluent produced. Table 11 indicates the amount of nutrients provided and, if needed, the supplemental nutrients which **must** be applied when application is made based on the rates in Table 10. These amounts of supplemental nutrients in Table 11 are based on the planned amount of effluent available rather than the **maximum** rate that **"could"** be applied.

The bottom line on the right of Table 10 has a box that will be **"YES"** or **"NO"**. When the reduced rates uses all effluent to be produced in a year, this box will be **"Yes"**. If the percentages are too low, it will be **"No"**. If **"No"** is indicated, either more acreage is needed on which to apply the effluent or the effluent will need to be transported off-site.

Actual application will be based on the quantities produced, as well as, current manure analyses. **Application at the MAXIMUM rates shown in Table 8 will result in a more rapid build-up of phosphorus than if applied at lower rates. A different percentage may be used as long as the rate does not exceed the maximum shown in Table 8 for the field and the proper amount of supplemental nutrients are applied. Applying a lower rate to fields with higher soil test P levels will slow down the P buildup and extend their land application life. Phosphorus will also build up more rapidly on pastureland than on hayland or cropland, since very few nutrients are actually removed by grazing animals.**

The effluent may be applied to the same acreage every year according to Table 2 or 2a. The annual rates in both Table 8 and 10 may be doubled not to exceed the 2X the annual nitrogen requirement or nitrogen removal rate, as applicable, when the full biennial rate has been used, no additional phosphorus fertilizer or animal wastes may be applied in the alternate year. A column in both tables indicates whether the rates given are Annual Rates (A) or Biennial Rates (B). Rates given are based on Table 2 or 2a as applicable. Annual application rate for fields in a TMDL area with a Soil Test P level equal to or greater than 500 ppm or any field in a TMDL area with P Index Rating of Very High is 0.5 annual crop removal rate.

Maximum Hourly Application Rate - The maximum hourly application rate is determined by the texture of the soil layer with the lowest permeability within the upper 24 inches of the of the predominant soil in each field. The hourly application rate must be low enough to avoid runoff and/or ponding. For effluent with 0.5% solids or less, **DO NOT** exceed the rates shown in Table 1 of the attached Job Sheet titled, *"Waste Utilization, Determining Effluent Application Rates"*. If the effluent contains more than 0.5% solids, those values must be reduced by the appropriate amount shown in Table 2 of the attached *"Waste Utilization, Determining Effluent Application Rates"* Job Sheet.

Maximum One-Time Application Rate - The maximum amount of effluent that can be applied to a given field at any one-time is the amount that will bring the top 24 inches of the soil to 100% field capacity. This amount is determined by subtracting the amount of water stored in the soil (estimated by feel and appearance method) from the available water holding capacity (AWC) of the soil. The available water holding capacity of the top 24 inches of the predominant soil of each field receiving effluent and the texture of the most restrictive layer in the upper 24 inches are given in Table 12.

To determine any one-time application amount, the current percent of field capacity (FC) of the upper 24 inches of the predominant soil in the field should be estimated using the guidance in Table 3 of the attached Job Sheet, *"Waste Utilization, Determining Effluent Application Rates, rev 4/06"*. Additional information on estimating soil moisture can be found in the NRCS Program Aid 1619, *"Estimating Soil Moisture by Feel and Appearance"*, or from the University of Nebraska Extension publication No. G84-690-A by the same name. Both of these publications have pictures of various soils at different percentages of field capacity to be used as a guide to estimating soil moisture. Once the current percent of FC is estimated, it is subtracted from the AWC amount in Table 12 for the given field and the difference is the maximum application for those soil conditions on that day. Remember, the maximum hourly application and the maximum one time application rates are only estimates to be used as a guide.

Solids/Effluent Land Application: - Land application of solids and/or effluent should be made at appropriate times to meet crop needs, but can be made at any time as long as the total annual (or biennial) rate, maximum hourly rate, and the maximum one time application rates are not exceeded. Effluent should be surface applied uniformly. No runoff or ponding should occur during application thus frequent observations should be made. Neither effluent or solids will be applied to slopes >8% with a runoff curve >80, or steeper than 16% slope with a runoff curve of 70 or greater, unless the application is part of an erosion control plan. Waste will not be spread at night, during rainfall events, or on frozen or saturated soils if a potential risk for runoff exists. Waste will not be applied to frequently flooded soils during months when the soils typically flood. If frequently flooded soil occur on any potential application field see attached, "Water Features Table", for months when flooding is expected. Solids should be applied with a manure spreader as uniformly as feasible. Surface applications with trucks should only be made when soil conditions are favorable in order to minimize soil compaction.

Managing Runoff -
A minimum 100 ft. setback or vegetated buffer (Filter Strip, Field Border, Riparian Forested Buffer, etc.) will be established and maintained between the application area and all surface water bodies, sink holes, and watercourses as designated on Soil Survey sheets or USGS topographic maps. A minimum application distance from private and public will be 150 ft. and 500 ft. respectively. A minimum application distance from water wells used exclusively for agricultural irrigation will be 100 ft. Table 9 provides a summary of the setbacks and out areas of each field.

Managing Leaching -
When soils with sandy, loamy sand, or gravelly surface textures have a Nitrogen Leaching Index score of >2 appropriate measures will be used to minimize the potential of leaching. These measures will include, split applications of waste, and may include double cropping, or cover crops, and irrigation water management (on fields that receive supplemental or full irrigation).

MORTALITY MANAGEMENT:
All mortality will be disposed of properly within 3 days according to the Texas Commission on Environmental Quality (TCEQ) rules. The preferred method for disposal of routine mortality is by a rendering plant. Before planning this method, contact the facility or its representative to be informed of special handling procedures, equipment needs, scheduling requirements, etc. Maintain a list of contact phone numbers so information will be readily available following a catastrophic die-off. Verify that local companies which have previously picked up and/or rendered dead animals are still doing so. A number of rendering companies across the state have stopped dead animal pick up service, and others have raised their fees significantly. Periodically review the availability and cost of rendering so that the plan can be modified if necessary. This can be an excellent option if mortality can be loaded and transported while still fresh or the mortality can be refrigerated until loaded and transported.

Disposal in a landfill may be an option in some locations. Before planning this option, the closest commercial, regional, county, or municipal landfill should be contacted to determine if the landfill has a permit which would allow acceptance of dead animals (swine, sheep, cattle, etc.). Also ask if there are any restrictions on type and volume of animal mortality that will be accepted at the facility. Landfill fees and transport, offloading, and handling procedures should be discussed with landfill managers and documented for reference when needed. The landfill is not a viable option if the producer does not own or have access to a vehicle capable of transporting mortality quickly in an emergency situation. After a catastrophic die-off is not a good time to find out that a driver and truck to transport mortality will not be available for several weeks **(MAKE ARRANGEMENTS NOW, NOT AFTER THE ANIMALS ARE DEAD).**

On-farm disposal of catastrophic mortality may be considered if site conditions permit. On-farm methods include burial, composting, and incineration. Incinerators and composters are excellent options for routine mortality but usually do not have the capacity to handle mortality volumes associated with catastrophic events. Composting and incineration should not be relied on for catastrophic mortality handling without a documented evaluation of worst anticipated mortality condition (number, type, and weight of animals), and the anticipated capacity of the system (i.e., lb./hr. incineration rate, hrs/day of operation). NRCS Mortality Facility Standard 316 will be used for all mortality management.

See the attached soil interpretation, ENG - Animal Mortality Disposal (Catastrophic) Trench, to make a preliminary assessment of the limitations of the soils on this farm for burial of catastrophic mortality. The attached TX NRCS Technical Guidance, Catastrophic Animal Mortality Management (Burial Method) should be used as a guide to overcome minor limitations and as design criteria for the construction of burial pits for catastrophic mortality. Mortality burial sites shall be located outside the 100 -year floodplain. Mortality burial will not be less than 200 feet from a well, spring, or water course. A FIELD INVESTIGATION BY A QUALIFIED PROFESSIONAL SHOULD BE MADE BEFORE AN AREA IS USED FOR A BURIAL SITE FOR CATASTROPHIC MORTALITY EVENTS. **The TCEQ Industrial and Hazardous Waste Permits Section, MC-130, must be contacted before burial of catastrophic mortality.**

TCEQ
Industrial and Hazardous Waste Permits Section, MC-130
PO Box 13087
Austin, TX 78711-3087
Phone: 512-239-2334 Fax: 512-239-6383

Air Quality:

The following steps should be taken when spreading effluent or solids to reduce problems associated with odor.
1. Avoid spreading effluent or solids when wind will blow odors toward populated areas.
2. Avoid spreading effluent or solids immediately before weekends or holidays, if people are likely to be engaged in nearby outdoor activities.
3. Avoid spreading effluent or solids near heavily traveled highways.
4. Make applications in the morning when the air is warming, rather than in the late afternoon.
5. All materials will be handled in a manner to minimize the generation of particulate matter, odors, and greenhouse gas emissions.

EFFLUENT AND SOLIDS STORAGE & TESTING:

Permit #: WQ0004920000

Effluent and solids will be stored in facilities designed, constructed, and maintained according to USDA NRCS Standards and specifications.

Effluent and solids sampling is needed to get a better idea of the nutrients actually being applied. Effluent and/or solids samples will be collected at least annually, or in the year of its use if waste is typically stored for more than 1 year. The samples will be submitted immediately to a lab for testing. If sent to Texas A&M soil lab or SFASU Soil Testing Lab for analysis, use the "plant and forage analysis" form and note the type of operation. Request that the manure be analyzed for percent dry matter, solids, total nitrogen, total phosphorus, and total potassium. Further information on collecting effluent and manure samples for analysis can be found in the TCE publication No. L-5175, *"Managing Crop Nutrients Through Soil, Manure and Effluent Testing"*. **TCEQ sampling rules and testing requirements will be followed on permitted sites.**

COLLECTING SOIL SAMPLES FOR ANALYSIS:

Collect a composite sample for each field (or area of similar soils and management not more than 40 acres in size) comprised of 10 - 15 randomly selected cores. Each core should represent 0 - 6 inches below the surface except for when injection has been done over 6" in depth, then the core should represent the 3-9" layer. Thoroughly mix each set of core samples, and select about a pint of the mixture as the sample for analysis. Label each sample for the field that it represents. Request that the samples be analyzed for nitrate nitrogen, plant-available phosphorus, potassium, sodium, magnesium, calcium, sulfur, boron, conductivity; and pH. Also note on the samples that they are from an effluent or solids application area. **TCEQ sampling rules and testing requirements will be followed on permitted sites.** A weighted average of 0-2 and 2-6 inch layers will be used for calculations on permitted sites.

Further information on collecting soil samples can be found on the TCE Form D-494, p 2, TCE Publication No. L-1793, and TCEQ RG-408. Additional NRCS guidance and requirements can be found in the Nutrient Management (590) standard located in the Texas electronic Field Office Technical Guide (eFOTG) at:

http://efotg.nrcs.usda.gov/efotg_locator.aspx?map=TX

Click the county desired.
Click Section IV in the left column under eFOTG
Type: 590 in the Search Menu above eFOTG and click: **GO**
Click on the desired item under Nutrient Management in the left column

SOIL ANALYSIS:

A soil analysis will be completed for all areas to be used for all effluent or solids application areas. The soil test analysis method will be **Mehlich III with inductively coupled plasma (ICP)**. The area will be tested and analyzed at least annually to monitor P build up.

Waste Utilization and Nutrient Management Plan

RECORD KEEPING:

Permit #: WQ0004920000

Detailed records should be maintained by the producer for all application of animal waste to land owned and operated by the producer. Records should include date, time, location, amount of application, weather conditions, estimated wind speed and direction, etc. A rain gauge should be in place at the application site and accurate records of rainfall should be maintained at the site. All records must be kept for at least 5 years. **TCEQ requirements will be followed on permitted sites.**

Records should also be kept showing amounts of litter given or sold to others. **A copy of the effluent analysis and/or solids analysis and a Waste Utilization Guidelines Sheet should be given to anyone who will use either the effluent or solids off-site. If they routinely use animal wastes for fertilizer, they should be directed to the local Soil and Water Conservation District or NRCS office to develop a Waste Utilization and Nutrient Management Plan for their land.**

This portion may be completed by producer, if desired or recorded elsewhere.

Record of waste leaving the farm or used as feed.

Estimated Annual Excess

Date	Amount	Hauler or Recipient

Excess Remaining

May be continued on additional sheets

OPERATION AND MAINTENANCE:

Permit #: WQ0004920000

Application equipment should be maintained in good working order and it should be calibrated annually so that the desired rate and amount of effluent and solids will be applied.

Information on calibrating manure spreaders can be found in the TCE publication No. L-5175, *"Managing Crop Nutrients Through Soil, Manure and Effluent Testing"*. Information on calibrating big gun sprinklers can be found in the Arkansas Extension publication, *"Calibrating Stationary Big Gun Sprinklers for Manure Application"*. For information on calibrating tank spreaders, traveling guns, and additional information on other manure spreading equipment, see Nebraska Extension publication No. G95-1267-A, *"Manure Applicator Calibration"*. Observe and follow manufacturer's recommended maintenance schedules for all equipment and facilities involved in the waste management system. For information on lagoon functions, refer to TCE publication E9, *"Proper Lagoon Management"*.

Any changes in this system should be discussed with the local Soil and Water Conservation District, USDA Natural Resources Conservation Service, or other qualified professional prior to their implementation.

Plan Prepared by:	Richard George	Date:	7/19/2024
Plan Approved by:		Date:	7-19-24
Producer Signature:	Discussed Plan w/ Producer	Date:	7-19-24

The producer's signature indicates that this plan has been discussed with him/her.
If this plan is not signed by the producer, indicate how the plan was provided to the producer.

Waste Utilization and Nutrient Management Plan

Table 1 - Estimated Effluent and Solids Quantities Produced

Permit #: WQ0004920000

Avg. Number of Animals
1,150

Type of Waste
Dairy Lagoon
Dairy Solids

Contact the local Soil and Water Conservation District or USDA Natural Resources Conservation Service office if the total number of animals change by more than 10% so your plan can be revised.

Estimated Acre Inches of Effluent to be Available Annually* 279

Estimated Tons Solids to be Land Applied Annually (on or off site)* 15,795.0

*From engineering design.

Estimated Nutrient Availabilty Effluent

	pounds/yr	Pounds / 1000 gal	Pounds / Acre Inch	
N	14,493	1.92	52.0	**
P2O5	5,782	0.76	20.8	
K2O	24,239	3.20	87.0	

** Effluent Values Based on Analysis dated: June 14, 2024

Estimated Nutrient Availabilty Solids

	pounds / yr	pounds / ton	
N	52,825	3.3	**
P2O5	15,100	1.0	
K2O	23,200	1.5	

** Solids Values Based on Analysis dated: June 14, 2024

Default values were used on all fields for plant removal of nutrients and yield levels.

TABLE 2. A Nutrient Management Plan (NMP) is required where Soil Test P Level [1/] is:

- **less than 200 ppm statewide or**
- **or < 350 ppm in arid areas 2/ with a named stream > one mile.**

P – Index Rating	Maximum TMDL Annual P Application Rate [5/]	Maximum Annual P Application	Maximum Biennial Application Rate
Very Low, Low	Annual Nitrogen (N) Requirement	Annual Nitrogen (N) Requirement	2.0 Times Annual N Requirement
Medium	2.0 Times Annual Crop P Requirement [3/]	2.0 Times Annual Crop P Requirement [3/]	2.0 Times Annual N Requirement
High [5]	1.5 Times Annual Crop P Requirement [3/]	1.5 Times Annual Crop P Requirement [3/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Requirement
Very High [5]	1.0 Times Annual Crop P Requirement [3/]	1.0 Times Annual Crop P Requirement [3/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Requirement

TABLE 2a. A Nutrient Utilization Plan (NUP) is required by TCEQ where Soil Test P Level [1/] is:

- **equal to or greater than 200 ppm in non-arid areas [2/] or**
- **equal to or greater than 350 ppm in arid areas [2/] with a named stream greater than one mile or**
- **equal to or greater than 200 ppm in arid areas [2/] with a named stream less than one mile.**

P – Index Rating	Maximum TMDL Annual P Application Rate [5/]	Maximum Annual P Application	Maximum Biennial Application Rate
Very Low, Low	1.0 Times Annual Crop P Removal [4/]	Annual N Crop Removal	2.0 Times Annual N Removal
Medium	1.0 Times Annual Crop P Removal [4/]	1.5 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal
High [5]	1.0 Times Annual Crop P Removal [4/]	1.0 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal
Very High [5]	0.5 Times Annual Crop P Removal [4/]	0.5 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal

Footnotes Applicable to both Tables

1/ Soil test P will be Mehlich III by inductively coupled plasma (ICP).

2/ Non-arid areas, counties receiving => 25 inches annual rainfall, will use the 200 ppm P level while arid areas, counties receiving < 25 inches of annual rainfall, will use the 350 ppm P level. See map in TX Agronomy Technical Note 15, Phosphorus Assessment Tool for Texas, for county designations.

3/ Not to exceed the annual nitrogen requirement rate.

4/ Not to exceed the annual nitrogen removal rate.

5/ When soil test phosphorus levels are ≥ 500 ppm, with a P-Index rating of "High" or "Very High", there will be no additional application of phosphorus to a CMU or field.

Waste Utilization and Nutrient Management Plan

Table 3 - Crop Removal Rates (For Information Only)

Permit #: WQ0004920000

LMU or Field No.	Acres	Crop and P Index Level	TCEQ Plan Type	Actual Crop Analysis or Default	Total Est. N Removal lbs/Ac/Yr	Total Est. P_2O_5 Removal lbs/Ac/Yr	Total Est. K_2O Removal lbs/Ac/Yr
1	21.0	Vetch Hay 2 Tons M	NMP	Default	120	28	96
1	21.0	Peanut Hay Irrigated 3 Tons M	NMP	Default	140	33	126
2	18.0	Coastal 4 Cut Hay M	NMP	Default	257	80	218
2	18.0	Triticale Graze or Hay 7000 # M	NMP	Default	117	43	119
3	15.0	Coastal 3 Cut Hay M	NMP	Default	238	74	202
3	15.0	Triticale Graze or Hay 7000 # M	NMP	Default	117	43	119
4	22.0	Sorg. - Sudan Hay/Graze 7500 # M	NMP	Default	149	57	219
4	22.0	Ryegrass Moderate Grazing M	NMP	Default	84	31	85
5	22.0	Coastal 3 Cut Hay M	NMP	Default	238	74	202
6	16.0	Coastal 3 Cut Hay M	NMP	Default	238	74	202
7	17.0	Common 3 Cut Hay 7400 # M	NMP	Default	141	46	124
7	17.0	Triticale Graze or Hay 7000 # M	NMP	Default	117	43	119
8	51.0	Coastal 4 Cut Hay M	NMP	Default	257	80	218
8	51.0	Triticale Graze or Hay 7000 # M	NMP	Default	117	43	119
9	8.0	Common 3 Cut Hay 7400 # M	NMP	Default	141	46	124
9	8.0	Triticale Graze or Hay 7000 # M	NMP	Default	117	43	119
10	13.0	Coastal 3 Cut Hay M	NMP	Default	238	74	202
11	24.0	Sorg. - Sudan Hay/Graze 7500 # M	NMP	Default	149	57	219
11	24.0	Triticale Graze or Hay 7000 # M	NMP	Default	117	43	119
12	15.0	Sorg. - Sudan Hay/Graze 7500 # M	NMP	Default	149	57	219
12	15.0	Triticale Graze or Hay 7000 # M	NMP	Default	117	43	119
13	7.5	Sorg. - Sudan Hay/Graze 7500 # H	NMP	Default	149	57	219
13	7.5	Triticale Graze or Hay 7000 # H	NMP	Default	117	43	119
14	17.0	Coastal graze 1 AU/1 ac, RG mod Graze M	NMP	Default	298	90	266
15	8.0	Coastal graze 1 AU/1 ac, RG mod Graze M	NMP	Default	298	90	266
16	15.0	Coastal graze 1 AU/1 ac, RG mod Graze M	NMP	Default	298	90	266
17	14.0	Coastal graze 1 AU/1 ac, RG mod Graze M	NMP	Default	298	90	266
18	22.0	Coastal 4 Cut Hay M	NMP	Default	257	80	218
18	22.0	Ryegrass Moderate Grazing M	NMP	Default	84	31	85
19	24.0	Coastal 3 Cut Hay M	NMP	Default	238	74	202
19	24.0	Ryegrass Moderate Grazing M	NMP	Default	84	31	85
20	27.0	Sorg. - Sudan Hay/Graze 7500 # M	NMP	Default	149	57	219
20	27.0	Triticale Graze or Hay 7000 # M	NMP	Default	117	43	119
21	21.0	Coastal graze 1 AU/1 ac, RG mod Graze M	NMP	Default	298	90	266

NOTE: When crops are used for grazing, only a portion of the nutrients used by the crop are removed from the field in the live weight gain of the livestock, the remainder is returned to the land in manure and urine. The book "Southern Forages" estimates the N, P, & K removed in 100 pounds live weight gain as follows: **2.5 lbs N, 0.68 lbs P, 0.15 lbs K**

Waste Utilization and Nutrient Management Plan

Table 4 - Maximum Solids Application per Field

Permit #: WQ0004920000

Est. Solids Produced Annually (wet tons)	LMU or Field No.	Acres	Crop Management and PI runoff potential	Current Soil Test P Level (ppm)	Max Annual P2O5 lbs/acre	Annual/Biennial	Maximum Solids Allowable Tons/Acre	Maximum Allowable Application Per field (Tons)
15,795	1	21.0	Vetch Hay 2 Tons M	45	40	A	41.9	879
	1		Peanut Hay Irrigated 3 Tons M	45	43	A	44.9	942
	2							
	2							
	3							
	3							
	4							
	4							
	5	22.0	Coastal 3 Cut Hay M	15	86	A	89.7	1973
	6	16.0	Coastal 3 Cut Hay M	34	86	A	89.7	1435
	7	17.0	Common 3 Cut Hay 7400 # M	30	60	A	62.8	1067
	7		Triticale Graze or Hay 7000 # M	30	46	A	47.8	813
	8	51.0	Coastal 4 Cut Hay M	9	114	A	119.6	6100
	8		Triticale Graze or Hay 7000 # M	9	46	A	47.8	2440
	9	8.0	Common 3 Cut Hay 7400 # M	26	60	A	62.8	502
	9		Triticale Graze or Hay 7000 # M	26	46	A	47.8	383
	10	13.0	Coastal 3 Cut Hay M	15	86	A	89.7	1166
	11	24.0	Sorg. - Sudan Hay/Graze 7500 # M	25	46	A	47.8	1148
	11		Triticale Graze or Hay 7000 # M	25	46	A	47.8	1148
	12	15.0	Sorg. - Sudan Hay/Graze 7500 # M	24	46	A	47.8	718
	12		Triticale Graze or Hay 7000 # M	24	46	A	47.8	718
	13	7.5	Sorg. - Sudan Hay/Graze 7500 # H	13	46	A	47.8	359
Total Solids Application Acres	13		Triticale Graze or Hay 7000 # H	13	46	A	47.8	359
	14							
	15	8.0	Coastal graze 1 AU/1 ac, RG mod Graze M	97	109	A	113.6	909
303.5	16	15.0	Coastal graze 1 AU/1 ac, RG mod Graze M	101	109	A	113.6	1704
	17	14.0	Coastal graze 1 AU/1 ac, RG mod Graze M	82	109	A	113.6	1591
	18							
Application Allowable on-site (tons)	18							
	19	24.0	Coastal 3 Cut Hay M	146	86	A	89.7	2153
	19		Ryegrass Moderate Grazing M	146	40	A	41.9	1005
	20	27.0	Sorg. - Sudan Hay/Graze 7500 # M	41	46	A	47.8	1292
34481.7	20		Triticale Graze or Hay 7000 # M	41	46	A	47.8	1292
Adequate	21	21.0	Coastal graze 1 AU/1 ac, RG mod Graze M	94	109	A	113.6	2386
Solids to be used off-site (tons)								
0.0								

End of Table 4

Waste Utilization and Nutrient Management Plan

Table 5 - Nutrients Applied/Needs at Maximum Solids Rates Permit #: WQ0004920000

	Nutrients Applied When Application is at Maximum Rates			Supplemental Nutrients Needed When Application is at Maximum Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
1	140	40	61	0	65	0	0
1	150	43	66	0	0	0	0
2							
2							
3							
3							
4							
4							
5	300	86	132	0	5	0	0
6	300	86	132	0	0	0	0
7	210	60	92	0	0	0	0
7	160	46	70	0	0	0	0
8	400	114	176	0	25	60	0
8	160	46	70	0	40	0	0
9	210	60	92	0	0	0	0
9	160	46	70	0	5	0	0
10	300	86	132	0	0	10	0
11	160	46	70	0	0	50	0
11	160	46	70	0	5	0	0
12	160	46	70	0	0	0	0
12	160	46	70	0	10	0	0
13	160	46	70	0	0	10	0
13	160	46	70	0	35	0	0
14							
15	380	109	167	0	0	0	0
16	380	109	167	0	0	0	0
17	380	109	167	0	0	0	0
18							
18							
19	300	86	132	0	0	0	0
19	140	40	61	0	0	0	0
20	160	46	70	0	0	0	0
20	160	46	70	0	0	0	0
21	380	109	167	0	0	0	0

Waste Utilization and Nutrient Management Plan

Table 6 - Planned Solids Application Rates

Permit #: WQ0004920000

LMU or Field No.	Double crop	Acres	Crop Management and PI runoff potential	Current Soil Test P ppm	Annual / Biennial	Max Rate tons/ac	% of Maximum to apply	Planned Solids tons/ac	Planned Solids per field (tons)
1	Y	21.0	Vetch Hay 2 Tons M	45	A	41.9	45	18.8	395.6
1			Peanut Hay Irrigated 3 Tons M	45	A	44.9	45	20.2	423.8
2									
2									
3									
3									
4									
4									
5		22.0	Coastal 3 Cut Hay M	15	A	89.7	45	40.4	888.1
6		16.0	Coastal 3 Cut Hay M	34	A	89.7	45	40.4	645.9
7	Y	17.0	Common 3 Cut Hay 7400 # M	30	A	62.8	45	28.3	480.4
7			Triticale Graze or Hay 7000 # M	30	A	47.8	45	21.5	366.0
8	Y	51.0	Coastal 4 Cut Hay M	9	A	119.6	45	53.8	2744.9
8			Triticale Graze or Hay 7000 # M	9	A	47.8	45	21.5	1098.0
9	Y	8.0	Common 3 Cut Hay 7400 # M	26	A	62.8	45	28.3	226.1
9			Triticale Graze or Hay 7000 # M	26	A	47.8	45	21.5	172.2
10		13.0	Coastal 3 Cut Hay M	15	A	89.7	45	40.4	524.8
11	Y	24.0	Sorg. - Sudan Hay/Graze 7500 # M	25	A	47.8	45	21.5	516.7
11			Triticale Graze or Hay 7000 # M	25	A	47.8	45	21.5	516.7
12	Y	15.0	Sorg. - Sudan Hay/Graze 7500 # M	24	A	47.8	45	21.5	322.9
12			Triticale Graze or Hay 7000 # M	24	A	47.8	45	21.5	322.9
13	Y	7.5	Sorg. - Sudan Hay/Graze 7500 # H	13	A	47.8	45	21.5	161.5
13			Triticale Graze or Hay 7000 # H	13	A	47.8	45	21.5	161.5
14									
15		8.0	Coastal graze 1 AU/1 ac, RG mod Graze M	97	A	113.6	45	51.1	409.0
16		15.0	Coastal graze 1 AU/1 ac, RG mod Graze M	101	A	113.6	45	51.1	767.0
17		14.0	Coastal graze 1 AU/1 ac, RG mod Graze M	82	A	113.6	45	51.1	715.8
18									
18									
19	Y	24.0	Coastal 3 Cut Hay M	146	A	89.7	45	40.4	968.8
19			Ryegrass Moderate Grazing M	146	A	41.9	48	20.1	481.8
20	Y	27.0	Sorg. - Sudan Hay/Graze 7500 # M	41	A	47.8	50	23.9	645.9
20			Triticale Graze or Hay 7000 # M	41	A	47.8	50	23.9	645.9
21		21.0	Coastal graze 1 AU/1 ac, RG mod Graze M	94	A	113.6	50	56.8	1193.0

Acres	303.5		
15795	Tons of wet solids produced Annually	Will the planned per acre application rates use all of the Solids?	15795.0
			YES
0	Tons to be used off-site at Max. rates	Tons to be used off-site at planned rates	0

Plan is based on: 590 Organic Nutrient Management Pl:

Waste Utilization and Nutrient Management Plan

Table 7 - Nutrients Applied/Needed at Planned Solids Rates

Permit #: WQ0004920000

Red cells? Proceed to adjustment page and fix.

LMU / Field #	Nutrients Applied at Planned Rates			Supplemental Nutrients Needed at Planned Rates			
	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
1	63	18	28	60	85	0	0
1	68	19	30	0	0	0	0
2							
2							
3							
3							
4							
4							
5	135	39	59	135	50	40	0
6	135	39	59	140	0	55	0
7	95	27	42	95	5	0	0
7	72	21	32	65	20	0	0
8	180	51	79	190	85	155	0
8	72	21	32	60	65	30	0
9	95	27	42	60	10	0	0
9	72	21	32	35	30	0	0
10	135	39	59	150	50	85	0
11	72	21	32	80	0	90	0
11	72	21	32	80	30	25	0
12	72	21	32	70	0	0	0
12	72	21	32	70	35	0	0
13	72	21	32	45	10	50	0
13	72	21	32	45	60	0	0
14							
15	171	49	75	155	0	0	0
16	171	49	75	155	0	0	0
17	171	49	75	125	0	0	0
18							
18							
19	135	39	59	90	0	0	0
19	67	19	29	0	0	0	0
20	80	23	35	65	0	0	0
20	80	23	35	65	0	0	0
21	190	54	83	90	0	0	0

Waste Utilization and Nutrient Management Plan

Table 8 - Maximum Effluent Application Per Field

Permit #: WQ0004920000

Est. Available Effluent (ac inches)	LMU or Field No.	Acres	Double crop	Crop Management and PI runoff potential	Current Soil Test P Level (ppm)	Max Annual P_2O_5 (lbs/acre)	Annual/Biennial	Maximum Effluent Allowable (ac in/ac)	Maximum Effluent Allowable / Field (ac in)
279	1								
Source:	1								
	2	18.0	Y	Coastal 4 Cut Hay M	148	160	A	7.7	139
	2			Triticale Graze or Hay 7000 # M	148	64	A	3.1	56
Dairy Lagoon	3	15.0	Y	Coastal 3 Cut Hay M	34	120	A	5.8	87
	3			Triticale Graze or Hay 7000 # M	34	64	A	3.1	47
	4	22.0	Y	Sorg. - Sudan Hay/Graze 7500 # M	79	64	A	3.1	68
	4			Ryegrass Moderate Grazing M	79	56	A	2.7	59
	5								
	6								
	7								
	7								
	8								
	8								
	9								
	9								
	10								
	11								
	11								
	12								
	12								
Total	13								
Effluent	13								
Application	14	17.0		Coastal graze 1 AU/1 ac, RG mod Graze M	166	152	A	7.3	124
Acres	15								
94	16								
	17								
Maximum Effluent	18	22.0	Y	Coastal 4 Cut Hay M	119	160	A	7.7	169
Application	18			Ryegrass Moderate Grazing M	119	56	A	2.7	59
Allowable	19								
On-Site	19								
(ac in)	20								
808	20								
Adequate	21								
Effluent to be used Off-Site (ac in)									
0									

End of Table 8

Table 9 - Nutrients Applied/Needed at Maximum Effluent Rates

Permit #: WQ0004920000

	Nutrients Applied When Application is at Maximum Rates			Supplemental Nutrients Needed When Application is at Maximum Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
1							
1							
2	401	160	670	0	0	0	0
2	161	64	270	0	0	0	0
3	302	120	505	0	0	0	0
3	161	64	270	0	0	0	0
4	161	64	270	0	0	0	0
4	140	56	235	0	0	0	0
5							
6							
7							
7							
8							
8							
9							
9							
10							
11							
11							
12							
12							
13							
13							
14	380	152	635	0	0	0	0
15							
16							
17							
18	401	160	670	0	0	0	0
18	140	56	235	0	0	0	0
19							
19							
20							
20							
21							

Waste Utilization and Nutrient Management Plan

Table 10 - Planned Effluent Application Rates

Permit #: WQ0004920000

LMU or Field No.	Acres	Double crop	Crop Management and PI runoff potential	Current Soil Test P ppm	Annual / Biennial	Maximum Effluent (ac in/ac)	% of Maximum to apply	Planned Effluent (ac in/ac)	Planned Effluent / field (Ac. In)
1									
1									
2	18.0	Y	Coastal 4 Cut Hay M	148	A	7.7	31.4	2.4	44
2			Triticale Graze or Hay 7000 # M	148	A	3.1	35.0	1.1	20
3	15.0	Y	Coastal 3 Cut Hay M	34	A	5.8	35.0	2.0	30
3			Triticale Graze or Hay 7000 # M	34	A	3.1	35.0	1.1	16
4	22.0	Y	Sorg. - Sudan Hay/Graze 7500 # M	79	A	3.1	35.0	1.1	24
4			Ryegrass Moderate Grazing M	79	A	2.7	35.0	1.0	21
5									
6									
7									
7									
8									
8									
9									
9									
10									
11									
11									
12									
12									
13									
13									
14	17.0		Coastal graze 1 AU/1 ac, RG mod Graze M	166	A	7.3	35.0	2.6	44
15									
16									
17									
18	22.0	Y	Coastal 4 Cut Hay M	119	A	7.7	35.0	2.7	59
18			Ryegrass Moderate Grazing M	119	A	2.7	35.0	1.0	21
19									
19									
20									
20									
21									
Acres	94.0								

	279
Will the planned application rates use all of the Effluent?	YES

 Printed: 7/19/24 9:04 AM

Plan is based on: 590 Organic Nutrient Management Plan

Waste Utilization and Nutrient Management Plan

Table 11 - Nutrients Applied/Needed at the Planned Effluent Rates Permit #: WQ0004920000

Red cells? Proceed to adjustment page and fix.

LMU / Field #	Nutrients Applied at Planned Rates N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Supplemental Nutrients Needed at Planned Rates N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
1							
1							
2	125	50	210	175	0	0	0
2	56	22	94	5	0	0	0
3	105	42	176	175	0	0	0
3	56	22	94	85	10	0	0
4	56	22	94	0	0	0	0
4	49	20	82	0	0	0	0
5							
6							
7							
7							
8							
8							
9							
9							
10							
11							
11							
12							
12							
13							
13							
14	133	53	222	190	0	0	0
15							
16							
17							
18	140	56	234	195	0	0	0
18	49	20	82	25	0	0	0
19							
19							
20							
20							
21							

Table 12 - Available Water Capacity to 24 inches(or less) of predominant soil in fields receiving effluent and Texture of the most restrictive soil layer in the upper 24 inches

Permit #: WQ0004920000

LMU / Field #	AWC (inches)	Restrictive Texture
1		
1		
2	3.555	WoB2
2	3.555	WoB2
3	3.42	WkA
3	3.42	WkA
4	3.555	WoB2
4	3.555	WoB2
5		
6		
7		
7		
8		
8		
9		
9		
10		
11		
11		
12		
12		
13		
13		
14	3.45	WoB
15		
16		
17		
18	3.45	WoB
18	3.45	WoB
19		
19		
20		
20		
21		

LMU / Field #	AWC (inches)	Restrictive Texture

Table 13 - Non Application Areas by Field

Permit #: WQ0004920000

FS = 393-Filter Strip; FB = 386-Field Border, RFB = 391-Riparian Forest Buffer; OLEA = Other Land Excluded Ar

LMU / Field #	FS Acres	FB Acres	RFB Acres	OLEA Acres	Total Excluded
1	0.0	0.0			
1					
2	0.0	0.0			
2					
3	0.0	0.0			
3					
4	0.0	0.0			
4					
5	0.0	0.0			
6	0.0	0.0			
7	0.0	0.0			
7					
8	0.0	0.0			
8					
9	0.0	0.0			
9					
10	0.0	0.0			
11	0.0	0.0			
11					
12	0.0	0.0			
12					
13	0.0	0.0			
13					
14	0.0	0.0			
15	0.0	0.0			
16	0.0	0.0			
17	0.0	0.0			
18	0.0	0.0			
18					
19	0.0	0.0			
19					
20	0.0	0.0			
20					
21	0.0	0.0			

LMU / Field #	FS Acres	FB Acres	RFB Acres	OLEA Acres	Total Excluded
Totals	0.0	0.0	0.0	0.0	0.0

See Application Map for location of buffers

Total 590-633 application acres: 517.0

Total 590-633 Field Acres: 517.0

Waste Utilization and Nutrient Management Data Entries

General Data

Date :	7/19/2024
Farmer Name :	Southwest Regional Dairy Center
County in which the Land is located :	Erath
Type of Waste Plan :	Other AFO-CAFO Waste Plan
Is this plan in a TMDL watershed for nutrients? Yes or No :	Yes
Is any field PERMITTED by TCEQ? Yes or No :	Yes
Permit # :	WQ0004920000

All other entries on General Page appear on the Cover Page

Animal Information

Plan Year :	2024
Are you receiving waste from another producer?	No
Number of animals :	1150
Approximate Weight :	Varies
Days per year in confinement :	365
Hours per day confined :	24
ACRE FEET of effluent to be Irrigated* :	23.21
Estimated annual gallons of effluent to be irrigated/applied annually :	7562932.08
For effluent, do you want application rates shown in gallons or acre inches? :	acre inches
Estimated Tons Solids to be Land Applied Annually (on or off site)* :	2242.89
Is this the first Year of the AFO-CAFO Operation? :	No

Analysis Information

Effluent Information

Date of Analysis:	6/14/2024
Manure Source:	Dairy Lagoon
Nitrogen % From Analysis:	0.0287
Phosphorus % From Analysis:	0.004
Potassium % From Analysis:	0.032
Moisture % From Analysis:	99.7

Manure / Solids Information

Date of Analysis:	6/14/2024
Manure Source:	Dairy Solids
Nitrogen % From Analysis:	1.472
Phosphorus % From Analysis:	0.147
Potassium % From Analysis:	0.431
Moisture % From Analysis:	85.8
What will be Applied to Fields on this Farm?	Both Effluent and Solids
Is this Farm part of an AFO-CAFO?	No

This plan is based on: rganic Nutrient Management Plan

Printed on: 7/19/24 9:04 AM

Field and Buffer Entries

Printed on: 7/19/24 9:04 AM

Permit #: WQ0004920000

Plan is based on: 590 Organic Nutrient Management Plar

FS = 393-Filter Strip, FB = 386-Field Border, RFB = 391-Riparian Forest Buffer, OLEA = Other Land Exclusion Areas or non-application areas (i.e. headquarters, freq. flooded areas, wooded areas, water bodies, etc)

NOTE: Field Border (FB) is expressed in ACRES on this spreadsheet, but as LINEAR FEET on the CPO.

Field No.	Total LMU or Field Acres	FS	FB	RFB	OLEA	Total Buffer Acres	Actual Application Acres	This Column Intentionally Left Blank
1	21					0.0	21.0	
1	21					0.0	21.0	
2	18					0.0	18.0	
2	18					0.0	18.0	
3	15					0.0	15.0	
3	15					0.0	15.0	
4	22					0.0	22.0	
4	22					0.0	22.0	
5	22					0.0	22.0	
6	16					0.0	16.0	
7	17					0.0	17.0	
7	17					0.0	17.0	
8	51					0.0	51.0	
8	51					0.0	51.0	
9	8					0.0	8.0	
9	8					0.0	8.0	
10	13					0.0	13.0	
11	24					0.0	24.0	
11	24					0.0	24.0	
12	15					0.0	15.0	
12	15					0.0	15.0	
13	7.5					0.0	7.5	
13	7.5					0.0	7.5	
14	17					0.0	17.0	
15	8					0.0	8.0	
16	15					0.0	15.0	
17	14					0.0	14.0	
18	22					0.0	22.0	
18	22					0.0	22.0	
19	24					0.0	24.0	
19	24					0.0	24.0	
20	27					0.0	27.0	
20	27					0.0	27.0	
21	21					0.0	21.0	

Soil Test, Crop Information and Plant Analysis Data Entries

Printed on: 7/19/24 9:04 AM   Plan is based on: 590 Organic Nutrient Management Plan V 5.0   Permit #: WQ0004920000

Soil Test Analysis				This column only for Dry Poultry	LMU or Field #	Appl. Area Acres	Crop/Land Use and P Index Runoff Potential VL - L - M - H - or VH	E = Effluent S = Solids	Plant Analysis (Y / N)	Plant Analysis & Yield (optional) Use Only When Crop Removal is Required			
N (ppm)	P (ppm)	K (ppm)	Lime (enter amt or leave blank)							% N	% P	% K	Yield Air Dry Production (lbs/ac/yr)
8.15	45	313			1	21.0	Vetch Hay 2 Tons M	S	N				
8.15	45	313			1	21.0	Peanut Hay Irrigated 3 Tons M	S	N				
49.266	148	754			2	18.0	Coastal 4 Cut Hay M	E	N				
49.266	148	754			2	18.0	Triticale Graze or Hay 7000 # M	E	N				
10.156	34	87.2			3	15.0	Coastal 3 Cut Hay M	E	N				
10.156	34	87.2			3	15.0	Triticale Graze or Hay 7000 # M	E	N				
63.33	79.4	466			4	22.0	Sorg. - Sudan Hay/Graze 7500 # M	E	N				
63.33	79.4	466			4	22.0	Ryegrass Moderate Grazing M	E	N				
15.476	14.6	132			5	22.0	Coastal 3 Cut Hay M	S	N				
13.301	33.8	120			6	16.0	Coastal 3 Cut Hay M	S	N				
10.605	30.1	156			7	17.0	Common 3 Cut Hay 7400 # M	S	N				
10.605	30.1	156			7	17.0	Triticale Graze or Hay 7000 # M	S	N				
14.981	9.12	60.9			8	51.0	Coastal 4 Cut Hay M	S	N				
14.981	9.12	60.9			8	51.0	Triticale Graze or Hay 7000 # M	S	N				
27.13	26	228			9	8.0	Common 3 Cut Hay 7400 # M	S	N				
27.13	26	228			9	8.0	Triticale Graze or Hay 7000 # M	S	N				
6.916	14.8	91.5			10	13.0	Coastal 3 Cut Hay M	S	N				
4.72	25	67.6			11	24.0	Sorg. - Sudan Hay/Graze 7500 # M	S	N				
4.72	25	67.6			11	24.0	Triticale Graze or Hay 7000 # M	S	N				
7.997	23.9	219			12	15.0	Sorg. - Sudan Hay/Graze 7500 # M	S	N				
7.997	23.9	219			12	15.0	Triticale Graze or Hay 7000 # M	S	N				
21.2	13	111			13	7.5	Sorg. - Sudan Hay/Graze 7500 # H	S	N				
21.2	13	111			13	7.5	Triticale Graze or Hay 7000 # H	S	N				
29.503	166	581			14	17.0	Coastal graze 1 AU/1 ac, RG mod Graze M	E	N				
28.141	96.7	286			15	8.0	Coastal graze 1 AU/1 ac, RG mod Graze M	S	N				
27.06	101	619			16	15.0	Coastal graze 1 AU/1 ac, RG mod Graze M	S	N				
40.901	81.8	215			17	14.0	Coastal graze 1 AU/1 ac, RG mod Graze M	S	N				

Soil Test, Crop Information and Plant Analysis Data Entries

Printed on: 7/19/24 9:04 AM   Plan is based on: 590 Organic Nutrient Management Plan V 5.0   Permit #: WQ000492

Soil Test Analysis				This column only for Dry Poultry	LMU or Field #	Appl. Area Acres	Crop/Land Use and P Index Runoff Potential VL, L, M, H, or VH	E = Effluent S = Solids	Plant Analysis (Y / N)	Plant Analysis & Yield (opti Only When Crop Removal i		
N (ppm)	P (ppm)	K (ppm)	Lime (enter amt or leave blank)							% N	% P	% K
32.956	119	573			18	22.0	Coastal 4 Cut Hay M	E	N			
32.956	119	573			18	22.0	Ryegrass Moderate Grazing M	E	N			
37.195	146	344			19	24.0	Coastal 3 Cut Hay M	S	N			
37.195	146	344			19	24.0	Ryegrass Moderate Grazing M	S	N			
6.83	41	171			20	27.0	Sorg. - Sudan Hay/Graze 7500 # M	S	N			
6.83	41	171			20	27.0	Triticale Graze or Hay 7000 # M	S	N			
50.775	93.7	306			21	21.0	Coastal graze 1 AU/1 ac, RG mod Graze M	S	N			

Solids Application Rate Entries

Solids - Set the Planned Application Rates

15795 "Wet tons" of solids produced Annually

Permit #: WQ

Will the planned rates use all of the

Tons to be used off-site at plann

LMU or Field No.	Acres	Crop Management and PI runoff potential	Current Soil Test P ppm	Crop P_2O_5 Req.	Annual or Biennial Application Cycle	Maximum Solids Allowable Tons/Ac	Enter % of Maximum Planned to Apply
1	21.0	Vetch Hay 2 Tons M	45	105	Annual	41.9	45.0
1	21.0	Peanut Hay Irrigated 3 Tons M	45	95	Annual	44.9	45.0
2							
2							
3							
3							
4							
4							
5	22.0	Coastal 3 Cut Hay M	15	125	Annual	89.7	45.0
6	16.0	Coastal 3 Cut Hay M	34	125	Annual	89.7	45.0
7	17.0	Common 3 Cut Hay 7400 # M	30	80	Annual	62.8	45.0
7	17.0	Triticale Graze or Hay 7000 # M	30	105	Annual	47.8	45.0
8	51.0	Coastal 4 Cut Hay M	9	170	Annual	119.6	45.0
8	51.0	Triticale Graze or Hay 7000 # M	9	105	Annual	47.8	45.0
9	8.0	Common 3 Cut Hay 7400 # M	26	80	Annual	62.8	45.0
9	8.0	Triticale Graze or Hay 7000 # M	26	105	Annual	47.8	45.0
10	13.0	Coastal 3 Cut Hay M	15	125	Annual	89.7	45.0
11	24.0	Sorg. - Sudan Hay/Graze 7500 # M	25	55	Annual	47.8	45.0
11	24.0	Triticale Graze or Hay 7000 # M	25	105	Annual	47.8	45.0
12	15.0	Sorg. - Sudan Hay/Graze 7500 # M	24	55	Annual	47.8	45.0
12	15.0	Triticale Graze or Hay 7000 # M	24	105	Annual	47.8	45.0
13	7.5	Sorg. - Sudan Hay/Graze 7500 # H	13	55	Annual	47.8	45.0
13	7.5	Triticale Graze or Hay 7000 # H	13	105	Annual	47.8	45.0
14							
15	8.0	Coastal graze 1 AU/1 ac, RG mod Graze M	97	125	Annual	113.6	45.0
16	15.0	Coastal graze 1 AU/1 ac, RG mod Graze M	101	125	Annual	113.6	45.0
17	14.0	Coastal graze 1 AU/1 ac, RG mod Graze M	82	125	Annual	113.6	45.0
18							
18							
19	24.0	Coastal 3 Cut Hay M	146	125	Annual	89.7	45.0
19	24.0	Ryegrass Moderate Grazing M	146	55	Annual	41.9	48.0
20	27.0	Sorg. - Sudan Hay/Graze 7500 # M	41	55	Annual	47.8	50.0
20	27.0	Triticale Graze or Hay 7000 # M	41	105	Annual	47.8	50.0
21	21.0	Coastal graze 1 AU/1 ac, RG mod Graze M	94	125	Annual	113.6	50.0

Effluent Application Rate Entries

Effluent - Set the Planned Application Rates

Permit #: WQ0004920000

7562932	Gallons of Effluent to be used annually
279	Acre Inches of Effluent to be used annually

Will the planned rates use all of the effluent?	Yes

LMU or Field No.	Acres	Crop Management and PI runoff potential	Current Soil Test P (ppm)	Crop P2O5 Req.	Annual or Biennial Application Cycle	Max Effluent Allowable (ac in/ac)	Enter % of Maximum Planned to Apply	Planned Effluent (ac in/ac)	Planned Effluent per field (acre inches)
1									
1									
2	18.0	Coastal 4 Cut Hay M	148	170	Annual	7.7	31.4	2.42	44
2	18.0	Triticale Graze or Hay 7000 # M	148	105	Annual	3.1	35.0	1.09	20
3	15.0	Coastal 3 Cut Hay M	34	125	Annual	5.8	35.0	2.03	30
3	15.0	Triticale Graze or Hay 7000 # M	34	105	Annual	3.1	35.0	1.09	16
4	22.0	Sorg. - Sudan Hay/Graze 7500 # M	79	55	Annual	3.1	35.0	1.09	24
4	22.0	Ryegrass Moderate Grazing M	79	55	Annual	2.7	35.0	0.95	21
5									
6									
7									
7									
8									
8									
9									
9									
10									
11									
11									
12									
12									
13									
13									
14	17.0	Coastal graze 1 AU/1 ac, RG mod Graze M	166	125	Annual	7.3	35.0	2.56	44
15									
16									
17									
18	22.0	Coastal 4 Cut Hay M	119	170	Annual	7.7	35.0	2.7	59
18	22.0	Ryegrass Moderate Grazing M	119	55	Annual	2.7	35.0	0.95	21
19									
19									
20									
20									
21									

Total Effluent This Page: 279

Printed on: 7/19/24 9:05 AM

Plan is based on: 590 Organic Nutrient Management Plan

Available Water Capacity Entries

Printed on: 7/19/24 9:05 AM Plan is based on: 590 Organic Nutrient Management Pla Permit #: WQ0004920000

LMU or Fields receiving Effluent	Texture of the soil layer within the upper 24 inches of the soil profile that has the lowest permeability (Don't Abbreviate)	Depth of First Layer (inches)		AWC of First Layer (in/in)		Depth of Second Layer (inches)		AWC of Second Layer (in/in)		Depth of Third Layer (inches)		AWC of Third Layer (in/in)		Depth of Fourth Layer (inches)		AWC of Fourth Layer (in/in)		Available Water Holding Capacity (AWC) of the upper 24 inches of the soil profile (inches)
EXAMPLE ENTRIES		0	3	0.12	0.2	3	14	0.16	0.21	14	18	0.08	0.12	18	24	0	0	
Enter Data for the top 24" only																		
2	WoB2	0	3	0.1	0.17	3	28	0.1	0.2	28				0				3.56
2	WoB2	0	3	0.1	0.17	3	28	0.1	0.2	28				0				3.56
3	WkA	0	18	0.11	0.17	18	55	0.12	0.18	55				0				3.42
3	WkA	0	18	0.11	0.17	18	55	0.12	0.18	55				0				3.42
4	WoB2	0	3	0.1	0.17	3	28	0.1	0.2	28				0				3.56
4	WoB2	0	3	0.1	0.17	3	28	0.1	0.2	28				0				3.56
14	WoB	0	10	0.1	0.17	10	38	0.1	0.2	38				0				3.45

Available Water Capacity Entries

Printed on: 7/19/24 9:05 AM Plan is based on: 590 Organic Nutrient Management Pla Permit #: WQ0004920000

LMU or Fields receiving Effluent	Texture of the soil layer within the upper 24 inches of the soil profile that has the lowest permeability (Don't Abbreviate)	Depth of First Layer (inches)		AWC of First Layer (in/in)		Depth of Second Layer (inches)		AWC of Second Layer (in/in)		Depth of Third Layer (inches)		AWC of Third Layer (in/in)		Depth of Fourth Layer (inches)		AWC of Fourth Layer (in/in)		Available Water Holding Capacity (AWC) of the upper 24 inches of the soil profile (Inches)
	EXAMPLE ENTRIES	0	3	0.12	0.2	3	14	0.16	0.21	14	18	0.08	0.12	18	24	0	0	
	Enter Data for the top 24" only																	
18	WoB	0	10	0.1	0.17	10	38	0.1	0.2	38				0				3.45
18	WoB	0	10	0.1	0.17	10	38	0.1	0.2	38				0				3.45

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www.servitech.com

Phone: 806.677.0093
800.557.7509
Fax: 806.677.0329

Lab No: 3729

LABORATORY ANALYSIS REPORT

Report Date: 07/02/2024 01:14 pm

Send To: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118

Amy Meier
Amy Meier
Data Review Coordinator

Client Name:	TARLETON DAIRY	**Received:**	06/18/2024
Sample ID:	RCS #1	**Sampled:**	06/14/2024
Location	ERATH COUNTY	**Invoice No:**	425818
		P.O. #:	COREY MULLIN

	Analysis results		lbs/acre-in	meq/L
NUTRIENTS				
Nitrogen				
Total Nitrogen	287	ppm	65	20.5
Organic Nitrogen	115	ppm	26	8.2
Ammonium Nitrogen	171.8	ppm	39	12.3
Nitrate+Nitrite Nitrogen	<0.20	ppm	0	0
Major and Secondary Nutrients				
Phosphorus	40	ppm		
Phosphorus as P2O5	90	ppm	20	
Potassium	320	ppm		8.2
Potassium as K2O	380	ppm	86	
OTHER PROPERTIES				
Moisture	99.7	%		
Total Solids	0.3	%		
Organic Matter	0.2	%	680	
Ash	0.1	%	453	
C:N Ratio	4.0	ratio		

ENVIRO-AG ENGINEERING, INC.
EAE
AMARILLO STEPHENVILLE ARTESIA
Enviro-Ag Engineering, Inc.
3404 Airway Blvd,. Amarillo, TX 79118
Tel. 806-353-6123 Fax 806-353-4132

WASTEWATER CHAIN OF CUSTODY RECORD

Producer/Facility: Tarleton Dairy

County: Erath

Date Sampled: 6/14/2024

Date Shipped: 6/17/2024

Project Manager: Corey Mullin

Sample Type	Sample ID	Number of Containers		Test Package	Proper Preservation	Matrix
Wastewater	RCS #1	2	3729	EAE TX CO KS LAGOON	Y	OT
Wastewater	RCS #2	2	3730	EAE TX CO KS LAGOON	Y	OT
Wastewater	RCS #3	2	3731	EAE TX CO KS LAGOON	Y	OT
Wastewater	Transfer Pond	2	3732	EAE TX CO KS LAGOON	Y	OT

Relinquished By: Ref. Internal COC
Company: EAE

Relinquished By: Lisa Postmus
Company: EAE
Date/Time: 6/18 1040
Received By: [signature]

Relinquished By:
Company: ServiTech Lab

servi tech
6921 S. Bell • Amarillo, TX 79109
www.servitech.com

Phone: 806.677.0093
800.557.7509
Fax: 806.677.0329

Lab No.: 3781

LABORATORY ANALYSIS REPORT

Report Date: 07/05/2024 07:52 am

Send To: 6224

ENVIRO-AG ENGINEERING INC
3404 AIRWAY BLVD
AMARILLO, TX 79118

Amy Meier
Amy Meier
Data Review Coordinator

Results For: TARLETON DAIRY
Sample ID: SEPERATOR MANURE
Location: ERATH COUNTY

Received: 06/18/2024
Sampled: 06/14/2024
Invoice No: 425820
P.O. #: COREY MULLIN

		Analysis (dry basis)	Analysis (as rec'd)	Total content lbs per ton (as rec'd)	Estimated available first year* lbs per ton (as rec'd)
NUTRIENTS					
Nitrogen					
Total Nitrogen	%	1.472	0.209	4.2	0.5
Organic Nitrogen	%	1.408	0.200	4.0	0.3
Ammonium Nitrogen	%	0.063	0.009	0.2	0.2
Nitrate+Nitrite Nitrogen	%	<0.0010	<0.0001	<0.1	<0.1
Major and Secondary Nutrients					
Phosphorus	%	0.147	0.015		
Phosphorus as P2O5	%	0.337	0.035	0.7	0.6
Potassium	%	0.431	0.045		
Potassium as K2O	%	0.517	0.054	1.1	1.1
OTHER PROPERTIES					
Moisture	%		85.8		
Total Solids	%		14.2	284	
Organic Matter	%	88.7	12.6	252	
Ash	%		1.6	32	
C:N Ratio	ratio		34.9		

* Assumes 8% of organic nitrogen available during first crop year after application. Assumes 100% of ammonium and nitrate nitrogen available, but should be adjusted for potential field losses at application site.

ENVIRO-AG ENGINEERING, INC.
EAE
AMARILLO STEPHENVILLE ARTESIA

Enviro-Ag Engineering, Inc.
3404 Airway Blvd,. Amarillo, TX 79118
Tel. 806-353-6123 Fax 806-353-4132

MANURE CHAIN OF CUSTODY RECORD

Producer/Facility: Tarleton Dairy

County: Erath

Date Sampled: 6/14/2024

Date Shipped: 6/17/2024

Project Manager: Corey Mullin

Sample Type	Sample ID	Number of Containers		Test Package	Proper Preservation	Matrix
Manure	Equine Pen Manure	1	3778	EAE TX CO KS MANURE	Y	OT
Manure	SB Manure	1	3779	EAE TX CO KS MANURE	Y	OT
Manure	Dairy Dry Manure	1	3780	EAE TX CO KS MANURE	Y	OT
Manure	Seperator Manure	1	3781	EAE TX CO KS MANURE	Y	OT
Manure	Old Rodeo Arena	1	3782	EAE TX CO KS MANURE	Y	OT

Relinquished By: Ref. Internal COC
Company: EAE

Relinquished By: Lisa Postmus
Company: EAE

Relinquished By:
Company: ServiTech Lab

Date/Time: 6/18 1040

Received By: [signature]

B

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55725

Location: SWRDC
(Do not fill in this shaded area if the facility information must be confidential)

Permit #: 4920

Region:	Organization #:	PCA Code:	Program:	Sampler telephone number: (254) 552-1900

E-Mail ID:

Sampler: (signature) Chris Whitefield

Sampler: (please print clearly) Chris Whitefield

Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/ Comp.	Matrix L,S,M,O,T	CL2	pH	Cond	Analyses Requested	REMARKS
	~~-01~~									See RFA	~~LMU#1 0-6~~
	~~-02~~										~~LMU#1 6-24~~
13391	-03	10/19/23	10:00								LMU#2 0-6
13392	-04	10/20/23	10:00								LMU#2 6-24
13393	-05	10/19/23	9:40								LMU#3 0-6
13394	-06	10/10/23	9:40								LMU#3 6-24
13395	-07	10/9/23	1420								LMU#4 0-6
13396	-08	10/9/23	1420								LMU#4 6-24
13397	-09	10/11/23	0840								LMU#5 0-6
13398	-10	10/11/23	0840								LMU#5 6-24

Relinquished by:	Date	Time	Received by:
Delaine Nielsen	10/24/23	9:35	[signature] 10-25-23
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Shipper name: Fed Ex	Shipper Number: 7738 4463 1835		

For Laboratory Use:			
Received on ice:	Y	N	deg. C
Preservatives:	Y	N	
COC Seal:	Y	N	
Seals Intact:	Y	N	

TCEQ-10065 (11/02) White (Original) -Lab Yellow-Lab Pink-Contract Lab Manager Goldenrod-Collector Copy

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055725a-45281
Print Date: 12-Dec-23

Texas A&M AgriLife Extension Service Soil, Water and Forage Testing Laboratory
108 Soil Testing Laboratory, 2478 TAMU
College Station, TX 77843-2478
979-862-4955

Client Name: SWRDC
Client address: not provided

Standard Sample Report TCEQ COC# 055725

Laboratory ID:	TCEQ/client Sample ID:	Sample Depth (inches)	Sample Coll. Date:	Collector Name:	TCEQ Region #	Date Received	Sample Type:	Sample opened Date	Sample Ground Date	Process Tech.
13391	55725-03	0-6	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13392	55725-04	6-24	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13393	55725-05	0-6	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13394	55725-06	6-24	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13395	55725-07	0-6	10/9/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13396	55725-08	6-24	10/9/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13397	55725-09	0-6	10/11/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13398	55725-10	6-24	10/11/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP

Methods and Sample Preparation:

Receiving of samples Processing - SWFTL0097R0.SOP

Upon opening of sample chests, all samples are identified and organized as listed on COC to insure completeness and condition of shipment. Individually each sample is spread across a non-reactive tray where foreign materials is physically removed and discarded. The sample(s) are then placed inside a 65C drying oven and allow to remain until dry. Individual samples were then removed from drying oven and pulverized with an Agvise soil pulzerized fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Rhoades, J.D. 1982. Soluble salts. p. 167-178. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses NO3-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOP

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - Inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na -- Mehlich III by ICP M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055725a-45281 Print Date: 21-Dec-23

Standard Sample Report TCEQ COC# 055725

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
13391	55725-03	148	ppm	754	ppm	1586	ppm	575	ppm	36.9	ppm	154	ppm
13392	55725-04	9.15	ppm	369	ppm	2233	ppm	642	ppm	57.2	ppm	329	ppm
13393	55725-05	34.2	ppm	87.2	ppm	1677	ppm	177	ppm	23.7	ppm	15.8	ppm
13394	55725-06	2.76	ppm	77.0	ppm	1619	ppm	165	ppm	21.2	ppm	40.4	ppm
13395	55725-07	79.4	ppm	466	ppm	1523	ppm	350	ppm	30.3	ppm	39.6	ppm
13396	55725-08	5.36	ppm	279	ppm	5495	ppm	465	ppm	61.2	ppm	146	ppm
13397	55725-09	14.6	ppm	132	ppm	2214	ppm	189	ppm	23.3	ppm	47.1	ppm
13398	55725-10	0.504	ppm	91.6	ppm	4668	ppm	229	ppm	44.6	ppm	162	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0147	ppm	0.0696	ppm	0.0059	ppm	0.0482	ppm	0.0062	ppm	0.0323	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
13391	55725-03	12/7/2023	FMR	12/8/2023	JLP
13392	55725-04	12/7/2023	FMR	12/8/2023	JLP
13393	55725-05	12/7/2023	FMR	12/8/2023	JLP
13394	55725-06	12/7/2023	FMR	12/8/2023	JLP
13395	55725-07	12/7/2023	FMR	12/8/2023	JLP
13396	55725-08	12/7/2023	FMR	12/8/2023	JLP
13397	55725-09	12/7/2023	FMR	12/8/2023	JLP
13398	55725-10	12/7/2023	FMR	12/8/2023	JLP

Report ID: 055725a-45281 Print Date: 21-Dec-23

Standard Sample Report TCEQ COC# 055725

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
13391	55725-03	7.88	NA	0.37	dS/M	49.266	ppm
13392	55725-04	7.75	NA	0.509	dS/M	39.162	ppm
13393	55725-05	6.62	NA	0.053	dS/M	10.156	ppm
13394	55725-06	7.2	NA	0.032	dS/M	1.646	ppm
13395	55725-07	6.27	NA	0.095	dS/M	63.33	ppm
13396	55725-08	7.3	NA	0.226	dS/M	18.329	ppm
13397	55725-09	6.64	NA	0.09	dS/M	15.476	ppm
13398	55725-10	7.74	NA	0.139	dS/M	4.026	ppm

Laboratory ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	pH/Conductivity prep Date	Tech	pH Analysis Date	Tech	Conductivity Date	Tech	Nitate-N Extract Date	Tech	Nitrate-N Analysis Date	Tech
13391	55725-03	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13392	55725-04	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13393	55725-05	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13394	55725-06	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13395	55725-07	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13396	55725-08	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13397	55725-09	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13398	55725-10	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW

Report ID: 055725a-45281 Print Date: 21-Dec-23

Quality Control Report TCEQ COC# 055725

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
13399	IC983	52.8	ppm	310	ppm	2152	ppm	345	ppm	35.8	ppm	46.9	ppm
13400	IC984	45.8	ppm	253	ppm	1748	ppm	280	ppm	30.0	ppm	38.2	ppm
	Mean IC	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm
	IC Lower	45.1	ppm	283.0	ppm	1929.0	ppm	303.0	ppm	27.5	ppm	32.0	ppm
	IC Upper	55.8	ppm	330.0	ppm	2439.0	ppm	390.0	ppm	47.2	ppm	55.0	ppm
	blk211	<0.0147	ppm	<0.0696	ppm	<0.005855	ppm	<0.0482	ppm	<0.006231	ppm	<0.0323	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0147	ppm	0.0696	ppm	0.0059	ppm	0.0482	ppm	0.0062	ppm	0.0323	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
IC983	12/7/2023	FMR	12/8/2023	JLP
IC984	12/7/2023	FMR	12/8/2023	JLP
blk211	12/7/2023	FMR	12/8/2023	JLP

Report ID: 055725a-45281 Print Date: 21-Dec-23

Quality Control Report TCEQ COC# 055725

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
13399	IC983	5.9	na	0.256	dS/M	5.809	ppm	
13400	IC984	5.9	na	0.255	dS/M	6.032	ppm	
	Mean IC	5.855	na	0.2555	dS/M	5.9205	ppm	
13400spike	Spiked sample	-	-	-	-	4.7	ppm	84.4
	IC lower	5.760	na	0.237	dS/M	5.0	ppm	
	IC Upper	5.990	na	0.301	dS/M	7.3	ppm	
	blk211	-	na	0	dS/M	-3.365	ppm	

Laboratory ID:	pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC983	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
IC984	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
blk211	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW

B

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55726

Location: SW RDC (Do not fill in this shaded area if the facility information must be confidential)

Permit #: 4920

Region:	Organization #:	PCA Code:	Program:	Sampler telephone number: 254-552-1900

E-Mail ID:

Sampler (signature) Chris Whitfield

Sampler: (please print clearly) Chris Whitefield

Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/ Comp.	Matrix L,S,M,O,T	CL2	pH	Cond.	Analyses Requested	REMARKS
13383	-01	10-10-23	12:05							SPE RFA	LMU#6 0-6
13384	-02		12:05								LMU#6 6-24
13385	-03		11:35								LMU#7 0-6
13386	-04		11:35								LMU#7 6-24
13387	-05		11:05								LMU#8 0-6
13388	-06		11:05								LMU#9 6-24
	-07										~~LMU#9 0-6~~
	-08										~~LMU#9 6-24~~
13389	-09	10-10-23	10:33								LMU#10 0-6
13390	-10		10:33								LMU#10 6-24

Relinquished by:	Date	Time	Received by:
Deborah Willess	10/24/23	9:35	[signature] 10-25-23
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:

Shipper name: Fed Ex

Shipper Number: 7738 4463 1825

For Laboratory Use:

Received on ice:	Y	N	deg. C
Preservatives:	Y	N	
COC Seal:	Y	N	
Seals Intact:	Y	N	

TCEQ-10065 (11/02) White (Original) -Lab Yellow-Lab Pink-Contract Lab Manager Goldenrod-Collector Copy

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055726a-45281
Print Date: 12-Dec-23

Texas A&M AgriLife Extension Service Soil, Water and Forage Testing Laboratory
108 Soil Testing Laboratory, 2478 TAMU
College Station, TX 77843-2478
979-862-4955

Client Name: SWRDC
Client address: not provided

Standard Sample Report TCEQ COC# 055726

Laboratory ID:	TCEQ/client Sample ID:	Sample Depth (inches)	Sample Coll. Date:	Collector Name:	TCEQ Region #	Date Received	Sample Type:	Sample opened Date	Sample Ground Date	Process Tech.
13383	55726-01	0-6	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13384	55726-02	6-24	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13385	55726-03	0-6	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13386	55726-04	6-24	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13387	55726-05	0-6	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13388	55726-06	6-24	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13389	55726-09	0-6	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13390	55726-10	6-24	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP

Methods and Sample Preparation:

Receiving of samples — Processing - SWFTL0097R0.SOP

Upon opening of sample chests, all samples are identified and organized as listed on COC to insure completeness and condition of shipment. Individually each sample is spread across a non-reactive tray where foreign materials is physically removed and discarded. The sample(s) are then placed inside a 65C drying oven and allow to remain until dry. Individual samples were then removed from drying oven and pulverized with an Agvise soil pulzerized fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil — SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil — SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Rhoades, J.D. 1982. Soluble salts. p. 167-178. in: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses — NO3-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOP

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na -- Mehlich III by ICP — M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055726a-45281 Print Date: 21-Dec-23

Standard Sample Report TCEQ COC# 055726

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
13383	55726-01	33.8	ppm	120	ppm	1234	ppm	134	ppm	19.1	ppm	14.7	ppm
13384	55726-02	1.23	ppm	221	ppm	1907	ppm	396	ppm	21.2	ppm	35.8	ppm
13385	55726-03	30.1	ppm	156	ppm	836	ppm	148	ppm	17.2	ppm	11.8	ppm
13386	55726-04	1.32	ppm	215	ppm	1619	ppm	440	ppm	24.9	ppm	45.0	ppm
13387	55726-05	9.12	ppm	60.9	ppm	1104	ppm	289	ppm	17.9	ppm	35.0	ppm
13388	55726-06	0	ppm	159	ppm	4965	ppm	639	ppm	46.2	ppm	172	ppm
13389	55726-09	14.8	ppm	91.5	ppm	976	ppm	140	ppm	19.0	ppm	13.9	ppm
13390	55726-10	1.18	ppm	144	ppm	2359	ppm	329	ppm	25.2	ppm	158	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0147	ppm	0.0696	ppm	0.0059	ppm	0.0482	ppm	0.0062	ppm	0.0323	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
13383	55726-01	12/7/2023	FMR	12/8/2023	JLP
13384	55726-02	12/7/2023	FMR	12/8/2023	JLP
13385	55726-03	12/7/2023	FMR	12/8/2023	JLP
13386	55726-04	12/7/2023	FMR	12/8/2023	JLP
13387	55726-05	12/7/2023	FMR	12/8/2023	JLP
13388	55726-06	12/7/2023	FMR	12/8/2023	JLP
13389	55726-09	12/7/2023	FMR	12/8/2023	JLP
13390	55726-10	12/7/2023	FMR	12/8/2023	JLP

Report ID: 055726a-45281 Print Date: 21-Dec-23

Standard Sample Report TCEQ COC# 055726

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
13383	55726-01	5.55	NA	0.041	dS/M	13.301	ppm
13384	55726-02	6.04	NA	0.04	dS/M	2.761	ppm
13385	55726-03	5.12	NA	0.034	dS/M	10.605	ppm
13386	55726-04	5.94	NA	0.088	dS/M	2.671	ppm
13387	55726-05	5.86	NA	0.06	dS/M	14.981	ppm
13388	55726-06	7.56	NA	0.278	dS/M	4.483	ppm
13389	55726-09	4.8	NA	0.062	dS/M	6.916	ppm
13390	55726-10	6.35	NA	0.083	dS/M	1.562	ppm

Laboratory ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Sample ID:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
13383	55726-01	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13384	55726-02	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13385	55726-03	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13386	55726-04	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13387	55726-05	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13388	55726-06	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13389	55726-09	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13390	55726-10	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW

Report ID: 055726a-45281 Print Date: 21-Dec-23

Quality Control Report TCEQ COC# 055726

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
13399	IC983	52.8	ppm	310	ppm	2152	ppm	345	ppm	35.8	ppm	46.9	ppm
13400	IC984	45.8	ppm	253	ppm	1748	ppm	280	ppm	30.0	ppm	38.2	ppm
	Mean IC	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm
	IC Lower	45.1	ppm	283.0	ppm	1929.0	ppm	303.0	ppm	27.5	ppm	32.0	ppm
	IC Upper	55.8	ppm	330.0	ppm	2439.0	ppm	390.0	ppm	47.2	ppm	55.0	ppm
	blk211	<0.0147	ppm	<0.0696	ppm	<0.005855	ppm	<0.0482	ppm	<0.006231	ppm	<0.0323	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0147	ppm	0.0696	ppm	0.0059	ppm	0.0482	ppm	0.0062	ppm	0.0323	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
IC983	12/7/2023	FMR	12/8/2023	JLP
IC984	12/7/2023	FMR	12/8/2023	JLP
blk211	12/7/2023	FMR	12/8/2023	JLP

Report ID: 055726a-45281 Print Date: 21-Dec-23

Quality Control Report TCEQ COC# 055726

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
13399	IC983	5.9	na	0.256	dS/M	5.809	ppm	
13400	IC984	5.9	na	0.255	dS/M	6.032	ppm	
	Mean IC	5.855	na	0.2555	dS/M	5.9205	ppm	
13400spike	Spiked sample	-	-	-	-	4.7	ppm	84.4
	IC lower	5.760	na	0.237	dS/M	5.0	ppm	
	IC Upper	5.990	na	0.301	dS/M	7.3	ppm	
	blk211	-	na	0	dS/M	-3.365	ppm	

Laboratory ID:	pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC983	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
IC984	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
blk211	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55727

Location: SWRDC (Do not fill in this shaded area if the facility information must be confidential)

Permit #: 4920

Region: | Organization #: | PCA Code: | Program: | Sampler telephone number: 254-552-1900

E-Mail ID: | Sampler: (signature) Chris Whitfield | Sampler: (please print clearly) Chris Whitefield

Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/ Comp.	Matrix L,S,M,O,T	CL2	pH	Cond.	Analyses Requested	REMARKS
	-01									See RFA	~~LMU#11 0-6~~
	-02										~~LMU#11 6-24~~
13247	-03	10/11/23	0920								LMU#12 0-6
13248	-04	10/11/23	0950								LMU#12 6-24
	-05										~~LMU#13 0-6~~
	-06										~~LMU#13 6-24~~
13249	-07	10/9/23	1120								LMU#14 0-6
13250	-08	10/9/23	1120								LMU#14 6-24
13251	-09	10-10-23	9:00								LMU#15 0-6
13252	-10	10-10-23	9:00								LMU#15 6-24

Relinquished by:	Date	Time	Received by:
[illegible signature]	10/24/23	9:35	[signature] 10-25-23
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:

Shipper name: Fed Ex

Shipper Number: 7738 4463 1803

For Laboratory Use:			
Received on ice:	Y	N	deg. C
Preservatives:	Y	N	
COC Seal:	Y	N	
Seals Intact:	Y	N	

TCEQ-10065 (11/02) White (Original) -Lab Yellow-Lab Pink-Contract Lab Manager Goldenrod-Collector Copy

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055727a-45281
Print Date: 12-Dec-23

Texas A&M AgriLife Extension Service Soil, Water and Forage Testing Laboratory
108 Soil Testing Laboratory, 2478 TAMU
College Station, TX 77843-2478
979-862-4955

Client Name: SWRDC
Client address: not provided

Standard Sample Report TCEQ COC# 055727

Laboratory ID:	TCEQ/client Sample ID:	Sample Depth (inches)	Sample Coll. Date:	Collector Name:	TCEQ Region #	Date Received	Sample Type:	Sample opened Date	Sample Ground Date	Process Tech.
13247	55727-03	0-6	10/11/2023	Chris Whitefield	4	10/25/2023	soil	10/26/2023	11/6/2023	TLP
13248	55727-04	6-24	10/11/2023	Chris Whitefield	4	10/25/2023	soil	10/26/2023	11/6/2023	TLP
13249	55727-07	0-6	10/9/2023	Chris Whitefield	4	10/25/2023	soil	10/26/2023	11/6/2023	TLP
13250	55727-08	6-24	10/9/2023	Chris Whitefield	4	10/25/2023	soil	10/26/2023	11/6/2023	TLP
13251	55727-09	0-6	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/26/2023	11/6/2023	TLP
13252	55727-10	6-24	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/26/2023	11/6/2023	TLP

Methods and Sample Preparation:

Receiving of samples Processing - SWFTL0097R0.SOP

Upon opening of sample chests, all samples are identified and organized as listed on COC to insure completeness and condition of shipment. Individually each sample is spread across a non-reactive tray where foreign materials is physically removed and discarded. The sample(s) are then placed inside a 65C drying oven and allow to remain until dry. Individual samples were then removed from drying oven and pulverized with an Agvise soil pulzerized fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Rhoades, J.D. 1982. Soluble salts. p. 167-178. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses NO3-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOP

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na -- Mehlich III by ICP M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055727a-45281 Print Date: 21-Dec-23

Standard Sample Report TCEQ COC# 055727

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
13247	55727-03	23.9	ppm	219	ppm	795	ppm	143	ppm	13.8	ppm	8.93	ppm
13248	55727-04	0.867	ppm	212	ppm	1796	ppm	467	ppm	19.1	ppm	24.6	ppm
13249	55727-07	166	ppm	581	ppm	1319	ppm	423	ppm	29.8	ppm	141	ppm
13250	55727-08	12.3	ppm	232	ppm	2099	ppm	544	ppm	29.7	ppm	191	ppm
13251	55727-09	96.7	ppm	286	ppm	1095	ppm	157	ppm	22.0	ppm	29.7	ppm
13252	55727-10	11.9	ppm	225	ppm	2418	ppm	527	ppm	29.4	ppm	57.5	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0147	ppm	0.0696	ppm	0.0059	ppm	0.0482	ppm	0.0062	ppm	0.0323	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
13247	55727-03	12/7/2023	FMR	12/8/2023	JLP
13248	55727-04	12/7/2023	FMR	12/8/2023	JLP
13249	55727-07	12/7/2023	FMR	12/8/2023	JLP
13250	55727-08	12/7/2023	FMR	12/8/2023	JLP
13251	55727-09	12/7/2023	FMR	12/8/2023	JLP
13252	55727-10	12/7/2023	FMR	12/8/2023	JLP

Report ID: 055727a-45281 Print Date: 21-Dec-23

Standard Sample Report TCEQ COC# 055727

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
13247	55727-03	5.35	NA	0.041	dS/M	7.997	ppm
13248	55727-04	5.29	NA	0.037	dS/M	1.922	ppm
13249	55727-07	7.53	NA	0.119	dS/M	29.503	ppm
13250	55727-08	7.16	NA	0.169	dS/M	28.167	ppm
13251	55727-09	5.6	NA	0.06	dS/M	28.141	ppm
13252	55727-10	6.48	NA	0.134	dS/M	20.346	ppm

Laboratory ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Sample ID:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
13247	55727-03	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13248	55727-04	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13249	55727-07	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13250	55727-08	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13251	55727-09	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13252	55727-10	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW

Report ID: 055727a-45281 Print Date: 21-Dec-23

Quality Control Report TCEQ COC# 055727

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
13259	IC969	53.4	ppm	306	ppm	2153	ppm	344	ppm	36.3	ppm	45.6	ppm
13260	IC970	55.7	ppm	323	ppm	2239	ppm	362	ppm	38.1	ppm	48.6	ppm
	Mean IC	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm
	IC Lower	45.1	ppm	283.0	ppm	1929.0	ppm	303.0	ppm	27.5	ppm	32.0	ppm
	IC Upper	55.8	ppm	330.0	ppm	2439.0	ppm	390.0	ppm	47.2	ppm	55.0	ppm
	blk209	<0.0147	ppm	<0.0696	ppm	<005855	ppm	<0.0482	ppm	<0.006231	ppm	<0.0323	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0147	ppm	0.0696	ppm	0.0059	ppm	0.0482	ppm	0.0062	ppm	0.0323	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
IC969	12/7/2023	FMR	12/8/2023	JLP
IC970	12/7/2023	FMR	12/8/2023	JLP
blk209	12/7/2023	FMR	12/8/2023	JLP

Report ID: 055727a-45281 Print Date: 21-Dec-23

Quality Control Report TCEQ COC# 055727

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
13259	IC969	5.8	na	0.256	dS/M	6.285	ppm	
13260	IC970	5.9	na	0.254	dS/M	5.922	ppm	
	Mean IC	5.85	na	0.255	dS/M	6.1035	ppm	
13260spike	Spiked sample	-	-	-	-	4.7	ppm	80.6
	IC lower	5.760	na	0.237	dS/M	5.0	ppm	
	IC Upper	5.990	na	0.301	dS/M	7.3	ppm	
	blk209	-	na	0	dS/M	-3.238	ppm	

Laboratory ID:	pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC969	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
IC970	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
blk209	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55728 21

Location: SWRDC (Do not fill in this shaded area if the facility information must be confidential)

Permit #: 4920

Region: | Organization #: | PCA Code: | Program: | Sampler telephone number: 254-552-1900

E-Mail ID: | Sampler: (signature) Chris Whitefield | Sampler: (please print clearly) Chris Whitefield

Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/ Comp.	Matrix L,S,M,O,T	CL2	pH	Cond.	Analyses Requested	REMARKS
13253	-01	10/9/23	1100							See RFA	LMU#16 0-2
13254	-02	10/9/23	1100								LMU#16 2-6
13255	-03	10/9/23	1100								LMU #16 6-24
13256	-04	10/9/23	1145								LMU#17 0-6
13257	-05	10/9/23	1145								LMU#17 6-24
13258	-06	10/9/23	1205								LMU#18 0-2
13261	-07	10/9/23	1205								LMU #18 2-6
13262	-08	10/9/23	1205								LMU#18 6-24
13263	-09	10/9/23	1220								LMU#19 0-2
12364	-10	10/9/23	1220								LMU#19 2-6

Relinquished by:	Date	Time	Received by:
Debra Nelson	10/23/24	9 35	10-25-23
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:

Shipper name: Fed Ex | Shipper Number: 7738 4465 1803

For Laboratory Use:

Received on ice:	Y	N	deg. C
Preservatives:	Y	N	
COC Seal:	Y	N	
Seals Intact:	Y	N	

TCEQ-10065 (11/02) White (Original) -Lab Yellow-Lab Pink-Contract Lab Manager Goldenrod-Collector Copy

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055728a-45281
Print Date: 12-Dec-23

Texas A&M AgriLife Extension Service Soil, Water and Forage Testing Laboratory
108 Soil Testing Laboratory, 2478 TAMU
College Station, TX 77843-2478
979-862-4955

Client Name: SWRDC
Client address: not provided

Standard Sample Report TCEQ COC# 055728

Laboratory ID:	TCEQ/client Sample ID:	Sample Depth (inches)	Sample Coll. Date:	Collector Name:	TCEQ Region #	Date Received	Sample Type:	Sample opened Date	Sample Ground Date	Process Tech.
13253	55728-01	0-2	10/9/2023	Chris Whitefield	4	10/25/2023	soil	10/26/2023	11/6/2023	TLP
13254	55728-02	2-6	10/9/2023	Chris Whitefield	4	10/25/2023	soil	10/26/2023	11/6/2023	TLP
13255	55728-03	6-24	10/9/2023	Chris Whitefield	4	10/25/2023	soil	10/26/2023	11/6/2023	TLP
13256	55728-04	0-6	10/9/2023	Chris Whitefield	4	10/25/2023	soil	10/26/2023	11/6/2023	TLP
13257	55728-05	6-24	10/9/2023	Chris Whitefield	4	10/25/2023	soil	10/26/2023	11/6/2023	TLP
13258	55728-06	0-2	10/9/2023	Chris Whitefield	4	10/25/2023	soil	10/26/2023	11/6/2023	TLP

Methods and Sample Preparation:

Receiving of samples Processing - SWFTL0097R0.SOP

Upon opening of sample chests, all samples are identified and organized as listed on COC to insure completeness and condition of shipment. Individually each sample is spread across a non-reactive tray where foreign materials is physically removed and discarded. The sample(s) are then placed inside a 65C drying oven and allow to remain until dry. Individual samples were then removed from drying oven and pulverized with an Agvise soil pulzerized fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Rhoades, J.D. 1982. Soluble salts. p. 167-178. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses NO3-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOP

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na -- Mehlich III by ICP M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055728a-45281 Print Date: 21-Dec-23

Standard Sample Report TCEQ COC# 055728

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
13253	55728-01	101	ppm	619	ppm	3043	ppm	232	ppm	32.6	ppm	19.3	ppm
13254	55728-02	63.4	ppm	321	ppm	1940	ppm	140	ppm	23.7	ppm	20.6	ppm
13255	55728-03	19.3	ppm	387	ppm	6889	ppm	385	ppm	49.8	ppm	32.3	ppm
13256	55728-04	81.8	ppm	215	ppm	1337	ppm	214	ppm	31.8	ppm	17.1	ppm
13257	55728-05	49.1	ppm	157	ppm	3904	ppm	175	ppm	30.3	ppm	15.5	ppm
13258	55728-06	119	ppm	573	ppm	2026	ppm	491	ppm	36.9	ppm	142	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0147	ppm	0.0696	ppm	0.0059	ppm	0.0482	ppm	0.0062	ppm	0.0323	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
13253	55728-01	12/7/2023	FMR	12/8/2023	JLP
13254	55728-02	12/7/2023	FMR	12/8/2023	JLP
13255	55728-03	12/7/2023	FMR	12/8/2023	JLP
13256	55728-04	12/7/2023	FMR	12/8/2023	JLP
13257	55728-05	12/7/2023	FMR	12/8/2023	JLP
13258	55728-06	12/7/2023	FMR	12/8/2023	JLP

Report ID: 055728a-45281 Print Date: 21-Dec-23

Standard Sample Report TCEQ COC# 055728

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
13253	55728-01	6.6	NA	0.262	dS/M	27.06	ppm
13254	55728-02	6.52	NA	0.11	dS/M	20.223	ppm
13255	55728-03	7.17	NA	0.284	dS/M	9.559	ppm
13256	55728-04	5.72	NA	0.137	dS/M	40.901	ppm
13257	55728-05	6.95	NA	0.156	dS/M	9.204	ppm
13258	55728-06	7	NA	0.327	dS/M	32.956	ppm

Laboratory ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
		Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
13253	55728-01	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13254	55728-02	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13255	55728-03	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13256	55728-04	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13257	55728-05	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13258	55728-06	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW

Report ID: 055728a-45281 Print Date: 21-Dec-23

Quality Control Report TCEQ COC# 055728

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
13259	IC969	53.4	ppm	306	ppm	2153	ppm	344	ppm	36.3	ppm	45.6	ppm
13260	IC970	55.7	ppm	323	ppm	2239	ppm	362	ppm	38.1	ppm	48.6	ppm
	Mean IC	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm
	IC Lower	45.1	ppm	283.0	ppm	1929.0	ppm	303.0	ppm	27.5	ppm	32.0	ppm
	IC Upper	55.8	ppm	330.0	ppm	2439.0	ppm	390.0	ppm	47.2	ppm	55.0	ppm
	blk209	<0.0147	ppm	<0.0696	ppm	<005855	ppm	<0.0482	ppm	<0.006231	ppm	<0.0323	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0147	ppm	0.0696	ppm	0.0059	ppm	0.0482	ppm	0.0062	ppm	0.0323	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
IC969	12/7/2023	FMR	12/8/2023	JLP
IC970	12/7/2023	FMR	12/8/2023	JLP
blk209	12/7/2023	FMR	12/8/2023	JLP

Report ID: 055728a-45281 Print Date: 21-Dec-23

Quality Control Report TCEQ COC# 055728

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
13259	IC969	5.8	na	0.256	dS/M	6.285	ppm	
13260	IC970	5.9	na	0.254	dS/M	5.922	ppm	
	Mean IC	5.85	na	0.255	dS/M	6.1035	ppm	
13260spike	Spiked sample	-	-	-	-	4.7	ppm	80.6
	IC lower	5.760	na	0.237	dS/M	5.0	ppm	
	IC Upper	5.990	na	0.301	dS/M	7.3	ppm	
	blk209	-	na	0	dS/M	-3.238	ppm	

Laboratory ID:	pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC969	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
IC970	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
blk209	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055728b-45281
Print Date: 12-Dec-23

Texas A&M AgriLife Extension Service Soil, Water and Forage Testing Laboratory
108 Soil Testing Laboratory, 2478 TAMU
College Station, TX 77843-2478
979-862-4955

Client Name: SWRDC
Client address: not provided

Standard Sample Report TCEQ COC# 055728

Laboratory ID:	TCEQ/client Sample ID:	Sample Depth (inches)	Sample Coll. Date:	Collector Name:	TCEQ Region #	Date Received	Sample Type:	Sample opened Date	Sample Ground Date	Process Tech.
13261	55728-07	2-6	10/9/2023	Chris Whitefield	4	10/25/2023	soil	10/26/2023	11/6/2023	TLP
13262	55728-08	6-24	10/9/2023	Chris Whitefield	4	10/25/2023	soil	10/26/2023	11/6/2023	TLP
13263	55728-09	0-2	10/9/2023	Chris Whitefield	4	10/25/2023	soil	10/26/2023	11/6/2023	TLP
13264	55728-10	2-6	10/9/2023	Chris Whitefield	4	10/26/2023	soil	10/26/2023	11/6/2023	TLP

Methods and Sample Preparation:

Receiving of samples Processing - SWFTL0097R0.SOP

Upon opening of sample chests, all samples are identified and organized as listed on COC to insure completeness and condition of shipment. Individually each sample is spread across a non-reactive tray where foreign materials is physically removed and discarded. The sample(s) are then placed inside a 65C drying oven and allow to remain until dry. Individual samples were then removed from drying oven and pulverized with an Agvise soil pulzerized fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil SOIL pH AND CONDUCTIVITY - SWFTL0015 R1.SOP

Rhoades, J.D. 1982. Soluble salts. p. 167-178. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses NO3-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOP

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na -- Mehlich III by ICP M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055728b-45281 Print Date: 21-Dec-23

Standard Sample Report TCEQ COC# 055728

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
13261	55728-07	58.3	ppm	300	ppm	1430	ppm	306	ppm	25.5	ppm	88.6	ppm
13262	55728-08	4.57	ppm	206	ppm	2829	ppm	670	ppm	34.1	ppm	155	ppm
13263	55728-09	146	ppm	344	ppm	4966	ppm	381	ppm	50.3	ppm	43.4	ppm
13264	55728-10	86.5	ppm	248	ppm	2666	ppm	269	ppm	26.0	ppm	36.3	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0147	ppm	0.0696	ppm	0.0059	ppm	0.0482	ppm	0.0062	ppm	0.0323	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
13261	55728-07	12/7/2023	FMR	12/8/2023	JLP
13262	55728-08	12/7/2023	FMR	12/8/2023	JLP
13263	55728-09	12/7/2023	FMR	12/8/2023	JLP
13264	55728-10	12/7/2023	FMR	12/8/2023	JLP

Report ID: 055728b-45281 Print Date: 21-Dec-23

Standard Sample Report TCEQ COC# 055728

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
13261	55728-07	6.76	NA	0.127	dS/M	14.043	ppm
13262	55728-08	6.94	NA	0.187	dS/M	14.7	ppm
13263	55728-09	6.51	NA	0.277	dS/M	37.195	ppm
13264	55728-10	6.62	NA	0.088	dS/M	7.692	ppm

Laboratory ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Sample ID:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
13261	55728-07	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13262	55728-08	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13263	55728-09	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13264	55728-10	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW

Report ID: 055728b-45281 Print Date: 21-Dec-23

Quality Control Report

TCEQ COC# 055728

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
13279	IC971	53.3	ppm	305	ppm	2121	ppm	340	ppm	37.5	ppm	46.1	ppm
13280	IC972	55.4	ppm	316	ppm	2186	ppm	352	ppm	37.2	ppm	47.7	ppm
	Mean IC	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm
	IC Lower	45.1	ppm	283.0	ppm	1929.0	ppm	303.0	ppm	27.5	ppm	32.0	ppm
	IC Upper	55.8	ppm	330.0	ppm	2439.0	ppm	390.0	ppm	47.2	ppm	55.0	ppm
	blk209	<0.0147	ppm	<0.0696	ppm	<005855	ppm	<0.0482	ppm	<0.006231	ppm	<0.0323	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0147	ppm	0.0696	ppm	0.0059	ppm	0.0482	ppm	0.0062	ppm	0.0323	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
IC971	12/7/2023	FMR	12/8/2023	JLP
IC972	12/7/2023	FMR	12/8/2023	JLP
blk209	12/7/2023	FMR	12/8/2023	JLP

Report ID: 055728b-45281   Print Date: 21-Dec-23

Quality Control Report   TCEQ COC# 055728

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
13279	IC971	5.8	na	0.253	dS/M	6.266	ppm	
13280	IC972	5.9	na	0.256	dS/M	6.274	ppm	
	Mean IC	5.835	na	0.2545	dS/M	6.27	ppm	
13280spike	Spiked sample	-	-	-	-	4.7	ppm	80.6
	IC lower	5.760	na	0.237	dS/M	5.0	ppm	
	IC Upper	5.990	na	0.301	dS/M	7.3	ppm	
	blk209	-	na	0	dS/M	-3.238	ppm	

Laboratory ID:	pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC971	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
IC972	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
blk209	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW

21

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55729

Location: SWRDC (Do not fill in this shaded area if the facility information must be confidential)

Permit #: 4920

Region:	Organization #:	PCA Code:	Program:	Sampler telephone number: 254-552-1900

E-Mail ID:

Sampler (signature) Chris Whitefield

Sampler (please print clearly) Chris Whitefield

Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/Comp.	Matrix L,S,M,O,T	CL2	pH	Cond.	Analyses Requested	REMARKS
13265	-01	10/9/23	1220							see RFA	LMU#19 6-24
	-02										~~LMU#20 0-6~~
	-03										~~LMU#20 6-24~~
13266	-04	10/9/23	1315								LMU #21 0-2
13267	-05	10/9/23	1315								LMU #21 2-6
13268	-06	10/9/23	1315								LMU#21 6-24
	-07										
	08										
	-09										
	-10										

Relinquished by:	Date	Time	Received by:
[illegible signature]	10/23/24	9:35	[signature] 10-25-23
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:

Shipper name: Fed EX

Shipper Number: 7738 4463 1803

For Laboratory Use:

Received on ice:	Y	N	deg. C
Preservatives:	Y	N	
COC Seal:	Y	N	
Seals Intact:	Y	N	

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055729a-45281
Print Date: 12-Dec-23

Texas A&M AgriLife Extension Service Soil, Water and Forage Testing Laboratory
108 Soil Testing Laboratory, 2478 TAMU
College Station, TX 77843-2478
979-862-4955

Client Name: SWRDC
Client address: not provided

Standard Sample Report TCEQ COC# 055729

Laboratory ID:	TCEQ/client Sample ID:	Sample Depth (inches)	Sample Coll. Date:	Collector Name:	TCEQ Region #	Date Received	Sample Type:	Sample opened Date	Sample Ground Date	Process Tech.
13265	55729-01	6-24	10/9/2023	Chris Whitefield	4	10/27/2023	soil	10/26/2023	11/6/2023	TLP
13266	55729-04	0-2	10/9/2023	Chris Whitefield	4	10/28/2023	soil	10/26/2023	11/6/2023	TLP
13267	55729-05	2-6	10/9/2023	Chris Whitefield	4	10/29/2023	soil	10/26/2023	11/6/2023	TLP
13268	55729-06	6-24	10/9/2023	Chris Whitefield	4	10/30/2023	soil	10/26/2023	11/6/2023	TLP

Methods and Sample Preparation:

Receiving of samples Processing - SWFTL0097R0.SOP

Upon opening of sample chests, all samples are identified and organized as listed on COC to insure completeness and condition of shipment. Individually each sample is spread across a non-reactive tray where foreign materials is physically removed and discarded. The sample(s) are then placed inside a 65C drying oven and allow to remain until dry. Individual samples were then removed from drying oven and pulverized with an Agvise soil pulzerized fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Rhoades, J.D. 1982. Soluble salts. p. 167-178. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses NO3-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOP

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na – Mehlich III by ICP M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055729a-45281 Print Date: 21-Dec-23

Standard Sample Report TCEQ COC# 055729

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
13265	55729-01	10.3	ppm	204	ppm	6020	ppm	520	ppm	46.8	ppm	190	ppm
13266	55729-04	93.7	ppm	306	ppm	4592	ppm	214	ppm	49.3	ppm	17.8	ppm
13267	55729-05	6.48	ppm	152	ppm	5911	ppm	416	ppm	41.8	ppm	48.1	ppm
13268	55729-06	6.34	ppm	157	ppm	5938	ppm	289	ppm	37.4	ppm	28.0	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0147	ppm	0.0696	ppm	0.0059	ppm	0.0482	ppm	0.0062	ppm	0.0323	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
13265	55729-01	12/7/2023	FMR	12/8/2023	JLP
13266	55729-04	12/7/2023	FMR	12/8/2023	JLP
13267	55729-05	12/7/2023	FMR	12/8/2023	JLP
13268	55729-06	12/7/2023	FMR	12/8/2023	JLP

Report ID: 055729a-45281 Print Date: 21-Dec-23

Standard Sample Report TCEQ COC# 055729

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
13265	55729-01	7.5	NA	0.125	dS/M	6.08	ppm
13266	55729-04	6.34	NA	0.266	dS/M	50.775	ppm
13267	55729-05	7.09	NA	0.193	dS/M	10.2	ppm
13268	55729-06	7.33	NA	0.145	dS/M	4.207	ppm

Laboratory ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Sample ID:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
13265	55729-01	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13266	55729-04	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13267	55729-05	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13268	55729-06	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW

Report ID: 055729a-45281 Print Date: 21-Dec-23

Quality Control Report TCEQ COC# 055729

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
13279	IC971	53.3	ppm	305	ppm	2121	ppm	340	ppm	37.5	ppm	46.1	ppm
13280	IC972	55.4	ppm	316	ppm	2186	ppm	352	ppm	37.2	ppm	47.7	ppm
	Mean IC	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm
	IC Lower	45.1	ppm	283.0	ppm	1929.0	ppm	303.0	ppm	27.5	ppm	32.0	ppm
	IC Upper	55.8	ppm	330.0	ppm	2439.0	ppm	390.0	ppm	47.2	ppm	55.0	ppm
	blk209	<0.0147	ppm	<0.0696	ppm	<005855	ppm	<0.0482	ppm	<0.006231	ppm	<0.0323	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0147	ppm	0.0696	ppm	0.0059	ppm	0.0482	ppm	0.0062	ppm	0.0323	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
IC971	12/7/2023	FMR	12/8/2023	JLP
IC972	12/7/2023	FMR	12/8/2023	JLP
blk209	12/7/2023	FMR	12/8/2023	JLP

Report ID: 055729a-45281 Print Date: 21-Dec-23

Quality Control Report TCEQ COC# 055729

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
13279	IC971	5.8	na	0.253	dS/M	6.266	ppm	
13280	IC972	5.9	na	0.256	dS/M	6.274	ppm	
	Mean IC	5.835	na	0.2545	dS/M	6.27	ppm	
13280spike	Spiked sample	-	-	-	-	4.7	ppm	80.6
	IC lower	5.760	na	0.237	dS/M	5.0	ppm	
	IC Upper	5.990	na	0.301	dS/M	7.3	ppm	
	blk209	-	na	0	dS/M	-3.238	ppm	

Laboratory ID:	pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC971	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
IC972	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
blk209	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055726a-45281
Print Date: 12-Dec-23

Texas A&M AgriLife Extension Service Soil, Water and Forage Testing Laboratory
108 Soil Testing Laboratory, 2478 TAMU
College Station, TX 77843-2478
979-862-4955

Client Name: SWRDC
Client address: not provided

Standard Sample Report TCEQ COC# 055726

Laboratory ID:	TCEQ/client Sample ID:	Sample Depth (inches)	Sample Coll. Date:	Collector Name:	TCEQ Region #	Date Received	Sample Type:	Sample opened Date	Sample Ground Date	Process Tech.
13383	55726-01	0-6	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13384	55726-02	6-24	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13385	55726-03	0-6	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13386	55726-04	6-24	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13387	55726-05	0-6	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13388	55726-06	6-24	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13389	55726-09	0-6	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP
13390	55726-10	6-24	10/10/2023	Chris Whitefield	4	10/25/2023	soil	10/27/2023	11/7/2023	TLP

Methods and Sample Preparation:

Receiving of samples Processing - SWFTL0097R0.SOP

Upon opening of sample chests, all samples are identified and organized as listed on COC to insure completeness and condition of shipment. Individually each sample is spread across a non-reactive tray where foreign materials is physically removed and discarded. The sample(s) are then placed inside a 65C drying oven and allow to remain until dry. individual samples were then removed from drying oven and pulverized with an Agvise soil pulzerized fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil SOIL pH AND CONDUCTIVTY - SWFTL0015R1.SOP

Rhoades, J.D. 1982. Soluble salts. p. 167-178. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses NO3-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOP

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na – Mehlich III by ICP M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055726a-45281 Print Date: 21-Dec-23

Standard Sample Report TCEQ COC# 055726

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
13383	55726-01	33.8	ppm	120	ppm	1234	ppm	134	ppm	19.1	ppm	14.7	ppm
13384	55726-02	1.23	ppm	221	ppm	1907	ppm	396	ppm	21.2	ppm	35.8	ppm
13385	55726-03	30.1	ppm	156	ppm	836	ppm	148	ppm	17.2	ppm	11.8	ppm
13386	55726-04	1.32	ppm	215	ppm	1619	ppm	440	ppm	24.9	ppm	45.0	ppm
13387	55726-05	9.12	ppm	60.9	ppm	1104	ppm	289	ppm	17.9	ppm	35.0	ppm
13388	55726-06	0	ppm	159	ppm	4965	ppm	639	ppm	46.2	ppm	172	ppm
13389	55726-09	14.8	ppm	91.5	ppm	976	ppm	140	ppm	19.0	ppm	13.9	ppm
13390	55726-10	1.18	ppm	144	ppm	2359	ppm	329	ppm	25.2	ppm	158	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0147	ppm	0.0696	ppm	0.0059	ppm	0.0482	ppm	0.0062	ppm	0.0323	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
13383	55726-01	12/7/2023	FMR	12/8/2023	JLP
13384	55726-02	12/7/2023	FMR	12/8/2023	JLP
13385	55726-03	12/7/2023	FMR	12/8/2023	JLP
13386	55726-04	12/7/2023	FMR	12/8/2023	JLP
13387	55726-05	12/7/2023	FMR	12/8/2023	JLP
13388	55726-06	12/7/2023	FMR	12/8/2023	JLP
13389	55726-09	12/7/2023	FMR	12/8/2023	JLP
13390	55726-10	12/7/2023	FMR	12/8/2023	JLP

Report ID: 055726a-45281 Print Date: 21-Dec-23

Standard Sample Report TCEQ COC# 055726

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
13383	55726-01	5.55	NA	0.041	dS/M	13.301	ppm
13384	55726-02	6.04	NA	0.04	dS/M	2.761	ppm
13385	55726-03	5.12	NA	0.034	dS/M	10.605	ppm
13386	55726-04	5.94	NA	0.088	dS/M	2.671	ppm
13387	55726-05	5.86	NA	0.06	dS/M	14.981	ppm
13388	55726-06	7.56	NA	0.278	dS/M	4.483	ppm
13389	55726-09	4.8	NA	0.062	dS/M	6.916	ppm
13390	55726-10	6.35	NA	0.083	dS/M	1.562	ppm

Laboratory ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Sample ID:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
13383	55726-01	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13384	55726-02	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13385	55726-03	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13386	55726-04	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13387	55726-05	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13388	55726-06	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13389	55726-09	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
13390	55726-10	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW

Report ID: 055726a-45281 Print Date: 21-Dec-23

Quality Control Report TCEQ COC# 055726

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
13399	IC983	52.8	ppm	310	ppm	2152	ppm	345	ppm	35.8	ppm	46.9	ppm
13400	IC984	45.8	ppm	253	ppm	1748	ppm	280	ppm	30.0	ppm	38.2	ppm
	Mean IC	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm
	IC Lower	45.1	ppm	283.0	ppm	1929.0	ppm	303.0	ppm	27.5	ppm	32.0	ppm
	IC Upper	55.8	ppm	330.0	ppm	2439.0	ppm	390.0	ppm	47.2	ppm	55.0	ppm
	blk211	<0.0147	ppm	<0.0696	ppm	<0.005855	ppm	<0.0482	ppm	<0.006231	ppm	<0.0323	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0147	ppm	0.0696	ppm	0.0059	ppm	0.0482	ppm	0.0062	ppm	0.0323	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
IC983	12/7/2023	FMR	12/8/2023	JLP
IC984	12/7/2023	FMR	12/8/2023	JLP
blk211	12/7/2023	FMR	12/8/2023	JLP

Report ID: 055726a-45281 Print Date: 21-Dec-23

Quality Control Report TCEQ COC# 055726

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
13399	IC983	5.9	na	0.256	dS/M	5.809	ppm	
13400	IC984	5.9	na	0.255	dS/M	6.032	ppm	
	Mean IC	5.855	na	0.2555	dS/M	5.9205	ppm	
13400spike	Spiked sample	-	-	-	-	4.7	ppm	84.4
	IC lower	5.760	na	0.237	dS/M	5.0	ppm	
	IC Upper	5.990	na	0.301	dS/M	7.3	ppm	
	blk211	-	na	0	dS/M	-3.365	ppm	

Laboratory ID:	pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC983	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
IC984	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW
blk211	12/6/2023	DEC	12/6/2023	DEC	12/6/2023	DEC	12/7/2023	FMR	12/8/2023	JW

17

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55608

Location: SW ROC

(Do not fill in this shaded area if the facility information must be confidential)

Permit #: 4020

Region:	Organization #:	PCA Code:	Program:	Sampler telephone number: (254) 346-552-1900
E-Mail ID:	Sampler: (signature)			Sampler: (please print clearly) Cody Christian

Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/ Comp.	Matrix L,S,M,O,T	CL2	pH	Cond.	Analyses Requested	REMARKS
~~12458~~	-01	~~11/3/22~~	~~1100~~							~~See EFA~~	~~UMU 6 0-6~~
~~12461~~	-02	11/3/22	1100								UMU 6 6-24
12462	-03	11/2/22	1140								UMU 7 0-6
12463	-04	11/2/22	1140								UMU 7 6-24
12464	-05	11/2/22	1115								UMU 8 0-6
12465	-06	11/2/22	1115								UMU 8 6-24
12466	-07	11/2/22	1050								UMU 9 0-6
12467	-08	11/2/22	1050								UMU 9 6-24
12468	-09	11/2/22	1015								UMU 10 0-6
12469	-10	11/2/22	1015								UMU 10 6-24

improper mimcout

Relinquished by:	Date	Time	Received by:
Relinquished by:	2-21-23	0830	Received by: 2-23-23
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Shipper name:	Shipper Number: 7713 5932 0024		

For Laboratory Use:

Received on ice:	Y	N	deg. C
Preservatives:	Y	N	
COC Seal:	Y	N	
Seals Intact:	Y	N	

Report for Samples analyzed Under Contract Number: 582-10-99518

Texas A&M AgriLife Extension Service Soil, Water and Forage Testing Laboratory
108 Soil Testing Laboratory, 2478 TAMU
College Station, TX 77843-2478
979-862-4955

Report ID: 055608a-45058
Print Date: 12-May-23

Client Name: SWRDC
Client address: not provided

Standard Sample Report TCEQ COC# 055608

Laboratory ID:	TCEQ/client Sample ID:	Sample Depth (inches)	Sample Coll. Date:	Collector Name:	TCEQ Region #	Date Received	Sample Type:	Sample opened Date	Sample Ground Date	Process Tech.
12458	55608-01	0-6	11/3/2022	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12461	55608-02	6-12	11/3/2022	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12462	55608-03	0-6	11/2/2022	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12463	55608-04	6-12	11/2/2022	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12464	55608-05	0-6	11/2/2022	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12465	55608-06	6-12	11/2/2022	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12466	55608-07	0-6	11/2/2022	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12467	55608-08	6-12	11/2/2022	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12468	55608-09	0-6	11/2/2022	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12469	55608-10	6-12	11/2/2022	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP

Methods and Sample Preparation:

Receiving of samples Processing - SWFTL0097R0.SOP

Upon opening of sample chests, all samples are identified and organized as listed on COC to insure completeness and condition of shipment. Individually each sample is spread across a non-reactive tray where foreign materials is physically removed and discarded. The sample(s) are then placed inside a 65C drying oven and allow to remain until dry. Individual samples were then removed from drying oven and pulverized with an Agvise soil pulzerized fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Rhoades, J.D. 1982. Soluble salts. p. 167-178. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil Nitrate KCl Extractable with Cd-Reduction Analyses NO3-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOP

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na – Mehlich III by ICP M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

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MAY 1 5 2023
TCEQ
REGION 4 - DFW

Report ID: 055608a-45058 Print Date: 12-May-23

Standard Sample Report TCEQ COC# 055608

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
12458	55608-01	9.64	ppm	139	ppm	1542	ppm	168	ppm	25.0	ppm	78.5	ppm
12461	55608-02	1	ppm	254	ppm	2084	ppm	447	ppm	29.3	ppm	36.8	ppm
12462	55608-03	30.1	ppm	226	ppm	983	ppm	206	ppm	26.8	ppm	5.24	ppm
12463	55608-04	1	ppm	226	ppm	2123	ppm	518	ppm	33.2	ppm	50.9	ppm
12464	55608-05	11.3	ppm	64.7	ppm	1253	ppm	300	ppm	30.4	ppm	32.3	ppm
12465	55608-06	1	ppm	94.7	ppm	3018	ppm	415	ppm	40.9	ppm	74.5	ppm
12466	55608-07	26.1	ppm	228	ppm	1126	ppm	171	ppm	23.5	ppm	5.02	ppm
12467	55608-08	1	ppm	185	ppm	3010	ppm	297	ppm	29.9	ppm	21.3	ppm
12468	55608-09	22.5	ppm	86.8	ppm	1063	ppm	105	ppm	31.6	ppm	8.89	ppm
12469	55608-10	1	ppm	148	ppm	3470	ppm	440	ppm	45.1	ppm	284	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0259	ppm	0.1284	ppm	1.4429	ppm	0.1280	ppm	0.0095	ppm	0.0629	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
12458	55608-01	4/19/2023	FMR	4/20/2023	JLP
12461	55608-02	4/19/2023	FMR	4/20/2023	JLP
12462	55608-03	4/19/2023	FMR	4/20/2023	JLP
12463	55608-04	4/19/2023	FMR	4/20/2023	JLP
12464	55608-05	4/19/2023	FMR	4/20/2023	JLP
12465	55608-06	4/19/2023	FMR	4/20/2023	JLP
12466	55608-07	4/19/2023	FMR	4/20/2023	JLP
12467	55608-08	4/19/2023	FMR	4/20/2023	JLP
12468	55608-09	4/19/2023	FMR	4/20/2023	JLP
12469	55608-10	4/19/2023	FMR	4/20/2023	JLP

Report ID: 055608a-45047

Standard Sample Report

Print Date: 1-May-23

TCEQ COC# 055608

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12458	55608-01	6.51	NA	0.09	dS/M	20.014	ppm
12461	55608-02	7.02	NA	0.069	dS/M	2.104	ppm
12462	55608-03	5.39	NA	0.104	dS/M	47.986	ppm
12463	55608-04	6.5	NA	0.076	dS/M	11.672	ppm
12464	55608-05	5.8	NA	0.2	dS/M	49.703	ppm
12465	55608-06	7.57	NA	0.148	dS/M	18.467	ppm
12466	55608-07	5.98	NA	0.112	dS/M	27.131	ppm
12467	55608-08	7.16	NA	0.09	dS/M	5.49	ppm
12468	55608-09	6.06	NA	0.098	dS/M	25.186	ppm
12469	55608-10	7.31	NA	0.107	dS/M	2.007	ppm

Laboratory ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	pH/Conductivity prep Date	pH/Conductivity prep Tech	pH Analysis Date	pH Analysis Tech	Conductivity Date	Conductivity Tech	Nitate-N Extract Date	Nitate-N Extract Tech	Nitrate-N Analysis Date	Nitrate-N Analysis Tech
12458	55608-01	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12461	55608-02	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12462	55608-03	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12463	55608-04	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12464	55608-05	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12465	55608-06	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12466	55608-07	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12467	55608-08	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12468	55608-09	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12469	55608-10	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW

Report ID: 055608a-45047 Print Date: 1-May-23

Quality Control Report TCEQ COC# 055608

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
12479	IC907	46.8	ppm	310	ppm	2220	ppm	345	ppm	38.9	ppm	41.1	ppm
12480	IC908	44.9	ppm	285	ppm	2113	ppm	325	ppm	37.4	ppm	38.2	ppm
	Mean IC	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm
	IC Lower	42.1	ppm	264.0	ppm	1911.0	ppm	288.0	ppm	25.2	ppm	27.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	368.0	ppm	46.5	ppm	51.0	ppm
	blk196	<0.0259	ppm	<0.128	ppm	<1.44	ppm	<0.128	ppm	0.3	ppm	<0.0629	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0259	ppm	0.1284	ppm	1.4429	ppm	0.1280	ppm	0.0095	ppm	0.0629	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
IC907	4/19/2023	FMR	4/20/2023	JLP
IC908	4/19/2023	FMR	4/20/2023	JLP
blk196	4/19/2023	FMR	4/20/2023	JLP

Report ID: 055608a-45058 Print Date: 12-May-23

Quality Control Report TCEQ COC# 055608

Laboratory ID:		pH	pH	Conducitity	Conducitity	Nitrate-N	Nitrate-N	Nitrate-N
			units	conc.	units	conc.	units	% recovery
12479	IC907	5.9	na	0.249	dS/M	6.324	ppm	
12480	IC908	5.9	na	0.252	dS/M	5.347	ppm	
	Mean IC	5.88	na	0.2505	dS/M	5.8355	ppm	
12480spike	Spiked sample	-	-	-	-	4.7	ppm	75.99
	IC lower	5.750	na	0.239	dS/M	4.6	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk196	-	na	0	dS/M	-0.183	ppm	

Laboratory ID:	pH	pH	Conducitity	Conducitity	Nitrate-N	Nitrate-N
		units	conc.	units	conc.	units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC907	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
IC908	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
blk196	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55609

Location: SWROC

Permit #: 4920

(Do not fill in this shaded area if the facility information must be confidential)

Region:

Organization #:

PCA Code:

Program:

Sampler telephone number: (254) 552-1000

E-Mail ID:

Sampler: (signature)

Sampler: (please print clearly) Cody Chrisman

Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/ Comp.	Matrix L,S,M,O,T	CL2	pH	Cond.	Analyses Requested	REMARKS
~~12470~~	-01									~~See RFA~~	~~UMU 11 0-6~~
	-02										
12470	-03	11/3/22	1000								UMU 11 6-24
12471	-04	11/3/22	1000								UMU 12 0-6
12472	-05	11/2/22	1040								UMU 12 6-24
12473	-06	11/2/22	1040								UMU 13 0-6
12474	-07	11-1-22	9:22								UMU 13 6-24
12475	-08		9:22								UMU 14 0-6
12476	-09		9:40								UMU 14 6-24
12477	-10		9:40								UMU 15 0-2
											UMU 15 2-6

Relinquished by:	Date	Time	Received by:
Relinquished by:	2-21-23	0830	Received by: 2-23-23
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:

Shipper name:

Shipper Number: 7713 5932 0024

For Laboratory Use:

Received on ice:	Y	N	deg. C
Preservatives:	Y	N	
COC Seal:	Y	N	
Seals Intact:	Y	N	

TCEQ-10065 (11/02) White (Original) -Lab Yellow-Lab Pink-Contract Lab Manager Goldenrod-Collector Copy

Electronic Waiver Request for Concentrated Animal Feeding Operations (CAFO) under General Permit (TXG920000)

A Large CAFO, as defined in the CAFO general permit, must request a waiver from e-reporting requirements codified in 40 Code of Federal Regulations §127.15 OR be required to submit CAFO applications such as Change in Permittee (CIP), Notice of Change (NOC), Notice of Termination (NOT) electronically.

Are you requesting a waiver from e-reporting requirements?

☒ Yes, Indicate the type of waiver below.

- ☒ Temporary Waiver
- ☐ Permanent Waiver (available to facilities and entities owned or operated by members of religious communities that choose not to use certain modern technologies (e.g., computers, electricity))

☐ No, you must submit your application (CIP, NOC, and NOT) electronically through TCEQ ePermits system (STEERS) at https://www3.tceq.texas.gov/steers/index.cfm. Check How to Apply through STEERS.

If an electronic waiver request is granted, the Applicant(s) seeking authorization, or an authorized permittee(s) may continue to submit CAFO applications and annual reports to TCEQ in a paper format.

Note:

- An approved waiver is not transferrable.
- Each Owner or Operator must request his own waiver.
- Temporary waiver will not extend beyond five years. However, permittees may re-apply for a new temporary waiver, if needed.
- Temporary waivers expire when the CAFO General Permit expires, which is July 20, 2029.

State Only CAFOs are exempt from the e-reporting requirement.

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055609a-45047
Print Date: 1-May-23

Texas A&M AgriLife Extension Service Soil, Water and Forage Testing Laboratory
108 Soil Testing Laboratory, 2478 TAMU
College Station, TX 77843-2478
979-862-4955

Client Name: SWRDC
Client address: not provided

Standard Sample Report TCEQ COC# 055609

Laboratory ID:	TCEQ/client Sample ID:	Sample Depth (inches)	Sample Coll. Date:	Collector Name:	TCEQ Region #	Date Received	Sample Type:	Sample opened Date	Sample Ground Date	Process Tech.
12470	55609-03	0-6	11/3/2023	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12471	55609-04	6-12	11/3/2023	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12472	55609-05	0-6	11/2/2023	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12473	55609-06	6-12	11/2/2023	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12474	55609-07	0-6	11/1/2023	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12475	55609-08	6-12	11/1/2023	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12476	55609-09	0-2	11/1/2023	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP
12477	55609-10	2-6	11/1/2023	Cody Christian	4	2/23/2023	soil	2/23/2023	3/5/2023	TLP

Methods and Sample Preparation:

Receiving of samples Processing - SWFTL0097R0.SOP

Upon opening of sample chests, all samples are identified and organized as listed on COC to insure completeness and condition of shipment. Individually each sample is spread across a non-reactive tray where foreign materials is physically removed and discarded. The sample(s) are then placed inside a 65C drying oven and allow to remain until dry. Individual samples were then removed from drying oven and pulverized with an Agvise soil pulzerized fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

<u>Soil pH 2:1 DI water:soil</u> SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

<u>Soil Conductivity 2:1 DI Water:Soil</u> SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Rhoades, J.D. 1982. Soluble salts. p. 167-178. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

<u>Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses</u> NO3-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOP

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

<u>Soil P, K, Ca, Mg, S and Na – Mehlich III by ICP</u> M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055609a-45047 Print Date: 1-May-23

Standard Sample Report TCEQ COC# 055609

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
12470	55609-03	31.9	ppm	226	ppm	884	ppm	141	ppm	20.7	ppm	3.64	ppm
12471	55609-04	1	ppm	236	ppm	1886	ppm	513	ppm	22.6	ppm	22.1	ppm
12472	55609-05	12.6	ppm	111	ppm	909	ppm	220	ppm	13.6	ppm	11.2	ppm
12473	55609-06	1	ppm	162	ppm	2624	ppm	462	ppm	32.4	ppm	262	ppm
12474	55609-07	181	ppm	676	ppm	1553	ppm	465	ppm	35.4	ppm	142	ppm
12475	55609-08	7.37	ppm	218	ppm	2312	ppm	566	ppm	36.5	ppm	201	ppm
12476	55609-09	106	ppm	267	ppm	1185	ppm	179	ppm	24.8	ppm	8.57	ppm
12477	55609-10	88.3	ppm	193	ppm	1110	ppm	138	ppm	23.1	ppm	10.9	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0259	ppm	0.1284	ppm	1.4429	ppm	0.1280	ppm	0.0095	ppm	0.0629	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
12470	55609-03	4/19/2023	FMR	4/20/2023	JLP
12471	55609-04	4/19/2023	FMR	4/20/2023	JLP
12472	55609-05	4/19/2023	FMR	4/20/2023	JLP
12473	55609-06	4/19/2023	FMR	4/20/2023	JLP
12474	55609-07	4/19/2023	FMR	4/20/2023	JLP
12475	55609-08	4/19/2023	FMR	4/20/2023	JLP
12476	55609-09	4/19/2023	FMR	4/20/2023	JLP
12477	55609-10	4/19/2023	FMR	4/20/2023	JLP

Report ID: 055609a-45047 Print Date: 1-May-23

Standard Sample Report TCEQ COC# 055609

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12470	55609-03	5.5	NA	0.091	dS/M	31.044	ppm
12471	55609-04	6.07	NA	0.029	dS/M	2.817	ppm
12472	55609-05	5.99	NA	0.05	dS/M	21.197	ppm
12473	55609-06	7.34	NA	0.066	dS/M	2.468	ppm
12474	55609-07	7.86	NA	0.39	dS/M	82.88	ppm
12475	55609-08	7.47	NA	0.357	dS/M	66.83	ppm
12476	55609-09	6.12	NA	0.246	dS/M	63.763	ppm
12477	55609-10	6.2	NA	0.151	dS/M	38.7	ppm

Laboratory ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Sample ID:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
12470	55609-03	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12471	55609-04	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12472	55609-05	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12473	55609-06	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12474	55609-07	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12475	55609-08	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12476	55609-09	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
12477	55609-10	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW

Report ID: 055609a-45047 Print Date: 1-May-23

Quality Control Report

TCEQ COC# 055609

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
12479	IC907	46.8	ppm	310	ppm	2220	ppm	345	ppm	38.9	ppm	41.1	ppm
12480	IC908	44.9	ppm	285	ppm	2113	ppm	325	ppm	37.4	ppm	38.2	ppm
	Mean IC	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm
	IC Lower	42.1	ppm	264.0	ppm	1911.0	ppm	288.0	ppm	25.2	ppm	27.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	368.0	ppm	46.5	ppm	51.0	ppm
	blk196	<0.0259	ppm	<0.128	ppm	<1.44	ppm	<0.128	ppm	0.3	ppm	<0.0629	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0259	ppm	0.1284	ppm	1.4429	ppm	0.1280	ppm	0.0095	ppm	0.0629	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
IC907	4/19/2023	FMR	4/20/2023	JLP
IC908	4/19/2023	FMR	4/20/2023	JLP
blk196	4/19/2023	FMR	4/20/2023	JLP

Report ID: 055609a-45047 Print Date: 1-May-23

Quality Control Report TCEQ COC# 055609

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12479	IC907	5.9	na	0.249	dS/M	6.324	ppm	
12480	IC908	5.9	na	0.252	dS/M	5.347	ppm	
	Mean IC	5.88	na	0.2505	dS/M	5.8355	ppm	
12480spike	Spiked sample	-	-	-	-	4.7	ppm	75.99
	IC lower	5.750	na	0.239	dS/M	4.6	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk196	-	na	0	dS/M	-0.183	ppm	

Laboratory ID:	pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC907	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
IC908	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW
blk196	4/19/2023	DEC	4/19/2023	DEC	4/19/2023	DEC	4/20/2023	FMR	4/20/2003	JW

3

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55671

Location: SWRD C (Do not fill in this shaded area if the facility information must be confidential)

Permit #: 4920

Region:	Organization #:	PCA Code:	Program:	Sampler telephone number:
E-Mail ID:	Sampler: (signature) Vanessa Gardner			Sampler: (please print clearly) Vanessa Gardner

Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/ Comp.	Matrix L,S,M,O,T	CL2	pH	Cond.	Analyses Requested	REMARKS
12761	-01	5-4-23	2:08							See RFA	Lmu1 (0-6)
12762	-02		2:08								Lmu1 (6-24)
12763	-03		2:40								Lmu11 (0-6)
12764	-04		2:40								Lmu11 (6-24)
12765	-05		3:00								Lmu20 (0-6)
12766	-06	5-4-23	3:00								Lmu20 (6-24)
	-07										
	-08										
	-09										
	-10										

Relinquished by:	Date	Time	Received by:
Relinquished by:	Date 5/3/23	Time 10:00	Received by: DL-Billd Nelson
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by: 5-4-23
Shipper name: Fed Ex	Shipper Number: 7720 7322 3982		

For Laboratory Use:			
Received on ice:	Y	N	deg. C
Preservatives:	Y	N	
COC Seal:	Y	N	
Seals Intact:	Y	N	

TCEQ-10065 (11/02) White (Original) -Lab Yellow-Lab Pink-Contract Lab Manager Goldenrod-Collector Copy

Report for Samples analyzed Under Contract Number: 582-10-99518

Texas A&M AgriLife Extension Service Soil, Water and Forage Testing Laboratory
108 Soil Testing Laboratory, 2478 TAMU
College Station, TX 77843-2478
979-862-4955

Report ID: 055671a-45091
Print Date: 14-Jun-23

Client Name: SWRDC
Client address: not provided

Standard Sample Report TCEQ COC# 055671

Laboratory ID:	TCEQ/client Sample ID:	Sample Depth (inches)	Sample Coll. Date:	Collector Name:	TCEQ Region #	Date Received	Sample Type:	Sample opened Date	Sample Ground Date	Process Tech.
12761	55671-01	0-6	5/4/2023	Vanessa Gardner	4	5/9/2023	soil	5/9/2023	5/19/2023	TLP
12762	55671-02	6-24	5/4/2023	Vanessa Gardner	4	5/9/2023	soil	5/9/2023	5/19/2023	TLP
12763	55671-03	0-6	5/4/2023	Vanessa Gardner	4	5/9/2023	soil	5/9/2023	5/19/2023	TLP
12764	55671-04	6-24	5/4/2023	Vanessa Gardner	4	5/9/2023	soil	5/9/2023	5/19/2023	TLP
12765	55671-05	0-6	5/4/2023	Vanessa Gardner	4	5/9/2023	soil	5/9/2023	5/19/2023	TLP
12766	55671-06	6-24	5/4/2023	Vanessa Gardner	4	5/9/2023	soil	5/9/2023	5/19/2023	TLP

Methods and Sample Preparation:

Receiving of samples

Processing - SWFTL0097R0.SOP

Upon opening of sample chests, all samples are identified and organized as listed on COC to insure completeness and condition of shipment. Individually each sample is spread across a non-reactive tray where foreign materials is physically removed and discarded. The sample(s) are then placed inside a 65C drying oven and allow to remain until dry. Individual samples were then removed from drying oven and pulverized with an Agvise soil pulzerized fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil — SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil — SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Rhoades, J.D. 1982. Soluble salts. p. 167-178. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses — NO3-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOP

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na – Mehlich III by ICP — M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055671a-45091 Print Date: 14-Jun-23

TCEQ COC# 055671

Standard Sample Report

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
12761	55671-01	45.2	ppm	313	ppm	1345	ppm	349	ppm.	17.8	ppm	3	ppm
12762	55671-02	3.49	ppm	210	ppm	2079	ppm	462	ppm	25.5	ppm	71.3	ppm
12763	55671-03	25.4	ppm	67.6	ppm	604	ppm	80.2	ppm	18.2	ppm	3	ppm
12764	55671-04	1	ppm	162	ppm	2976	ppm	255	ppm	25.3	ppm	2	ppm
12765	55671-05	40.7	ppm	171	ppm	1612	ppm	204	ppm	18.8	ppm	49.8	ppm
12766	55671-06	3.45	ppm	111	ppm	3112	ppm	330	ppm	37.2	ppm	171	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0051	ppm	0.0446	ppm	0.1602	ppm	0.0698	ppm	0.0221	ppm	0.0530	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
12761	55671-01	5/30/2023	FMR	5/30/2023	JLP
12762	55671-02	5/30/2023	FMR	5/30/2023	JLP
12763	55671-03	5/30/2023	FMR	5/30/2023	JLP
12764	55671-04	5/30/2023	FMR	5/30/2023	JLP
12765	55671-05	5/30/2023	FMR	5/30/2023	JLP
12766	55671-06	5/30/2023	FMR	5/30/2023	JLP

Report ID: 055671a-45091 Print Date: 14-Jun-23

Standard Sample Report TCEQ COC# 055671

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12761	55671-01	7.42	NA	0.063	dS/M	8.148	ppm
12762	55671-02	7.45	NA	0.064	dS/M	4.239	ppm
12763	55671-03	4.62	NA	0.07	dS/M	4.723	ppm
12764	55671-04	6.74	NA	0.025	dS/M	0.847	ppm
12765	55671-05	6.83	NA	0.042	dS/M	12.606	ppm
12766	55671-06	7.66	NA	0.197	dS/M	6.314	ppm

Laboratory ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Sample ID:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
12761	55671-01	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12762	55671-02	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12763	55671-03	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12764	55671-04	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12765	55671-05	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12766	55671-06	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW

Report ID: 055671a-45091 Print Date: 14-Jun-23

Quality Control Report TCEQ COC# 055671

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
12779	IC941	41.6	ppm	278	ppm	2033	ppm	316	ppm	33.8	ppm	39.2	ppm
12780	IC942	40.7	ppm	274	ppm	2003	ppm	312	ppm	32.7	ppm	38.9	ppm
	Mean IC	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm	0	ppm
	IC Lower	39.0	ppm	265.0	ppm	1857.0	ppm	292.0	ppm	26.0	ppm	30.0	ppm
	IC Upper	47.1	ppm	310.0	ppm	2315.0	ppm	359.0	ppm	45.1	ppm	52.0	ppm
	blk203	0.002	ppm	0.681	ppm	0.0675	ppm	0.399	ppm	0.317	ppm	0.523	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.0051	ppm	0.0446	ppm	0.1602	ppm	0.0698	ppm	0.0221	ppm	0.0530	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
IC941	5/30/2023	FMR	5/30/2023	JLP
IC942	5/30/2023	FMR	5/30/2023	JLP
blk203	5/30/2023	FMR	5/30/2023	JLP

Report ID: 055671a-45091 Print Date: 14-Jun-23

Quality Control Report TCEQ COC# 055671

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12779	IC941	5.9	na	0.252	dS/M	5.982	ppm	
12780	IC942	5.8	na	0.253	dS/M	5.411	ppm	
	Mean IC	5.835	na	0.2525	dS/M	5.6965	ppm	
12780spike	Spiked sample	-	-	-	-	4.6	ppm	91.05
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk203	-	na	0	dS/M	-0.891	ppm	

Laboratory ID:	pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC941	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
IC942	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
blk203	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW

5.0 RECHARGE FEATURE CERTIFICATION

CERTIFICATION

I certify that potential Recharge Features in the form of artificial penetrations and natural features exist on property utilized under this application as defined in 30 TAC §321.32(50). The protective measures in the form of best management practices identified in this report, when implemented, are designed to avoid adverse impacts to these features and associated groundwater formations.

All information presented on this page and in the following supporting documents is true and accurate to the best of my knowledge.

Norman Mullin, P.E.

Enviro-Ag Engineering, Inc.

Firm #F-2507

5.1 General

This recharge feature certification report was authorized by Dr. Barry Lambert representing Tarleton State University. The findings and recommendations contained herein were compiled by Mrs. Jourdan Mullin and Mr. Norman Mullin, P.E., of Enviro-Ag Engineering, Inc., Amarillo, Texas.

5.2 Purpose of Report

Tarleton State University is applying for a renewal of current TPDES #4920 under 30 TAC, Chapter 321, Subchapter B, Concentrated Animal Feeding Operations. The purpose of this report is to determine if the subject property has any natural or artificial features, either on or beneath the ground surface, which would provide a significant pathway for effluent or solids from the facility into the underlying aquifer. At a minimum, the records and/or maps of the following entities/agencies were reviewed to locate any artificial recharge features: A) Texas Railroad Commission, B) local water district, C) Texas Water Development Board, D) TCEQ, E) Natural Resource Conservation Service (NRCS), F) current land owners and G) onsite inspection. The TCEQ Regulatory Guidance RG-433 was followed to identify recharge features and recommend best management practices.

5.3 Property Under Evaluation

The property under evaluation consists of approximately 826.91 acres in Erath County, Texas. The area is within the jurisdiction of Middle Trinity Ground Water Conservation District.

5.4 Definition of Waste Production

The processes by which wastewater is produced at the dairy begins with the use of fresh water to clean manure from the milking parlor and sanitization of milking equipment. Wastewater from the milking parlor is piped underground to a concrete manure storage area, then to the settling system, then piped underground to the concrete settling basins and then piped underground into RCS #1 for storage and disposal through beneficial land application.

The process by which wastewater is produced at the equine facility begins with the manure solids in the open confinement lots. Rain falling on the open lots comes into contact with the manure layer and absorbs some of the excreted nutrients present in manure. The nutrient enriched runoff is considered wastewater, which flows by designed slopes from the open lots toward and into RCS #2.

Manure solids accumulated in the open confinement lots are collected at least annually and hauled off-site to farmland by a waste transporter. While in the open lots, manure becomes compacted and slowly permeable due to hoof action by the cattle. This compacted manure layer results in an increase of the overall runoff volume during rainfall events. Infiltration of nutrients downward through the manure layer into the underlying soils is considered minimal as a result of pen surface compaction (Sweeten, 1990).

The processes by which wastewater is produced at a swine facility begins when fresh water is used to transport waste from the confinement buildings to the waste management system. Wastewater collected below the slatted floors of the confinement buildings drains through underground pipes to RCS #3. Another source of wastewater is spilled drinking water and wash water, which mixes with the wastes in the waste collection area below the slatted floors of the confinement buildings.

5.5 Definition of Recharge Feature

TCEQ rules define a "Recharge Feature" as: "*Those natural or artificial features either on or beneath the ground surface at the site under evaluation that provide or create a significant hydrologic connection between the ground surface and the underlying groundwater within an aquifer. Significant artificial features include, but are not limited to, wells and excavation or material pits. Significant natural hydrologic connections include, but are not limited to: faults, fractures, sinkholes or other macro pores that allow direct surface infiltration; a permeable or shallow soil material that overlies and aquifer; exposed geologic formations that are identified as an aquifer; or a water course bisecting an aquifer.*" (30 TAC §321.32(50))

The TCEQ Regulatory Guidance RG-433 further defines a "recharge feature" as: "*A natural or artificial feature either on or beneath the ground surface that provides or creates a significant hydrologic connection (or pathway) between the ground surface and the underlying groundwater within an aquifer.*"

The guidance document also defines a "significant pathway" as: "*A significant pathway between the land surface and the subsurface has the ability to transmit waste, wastewater, or precipitation mixed with waste to groundwater. The wastewater may impact the groundwater quality within an aquifer or migrate laterally to discharge as seeps that may impact surface water quality. Recharge features with significant pathways include geomorphologic, geologic, soil, and artificial features. Agricultural practices may also enhance existing recharge features.*"

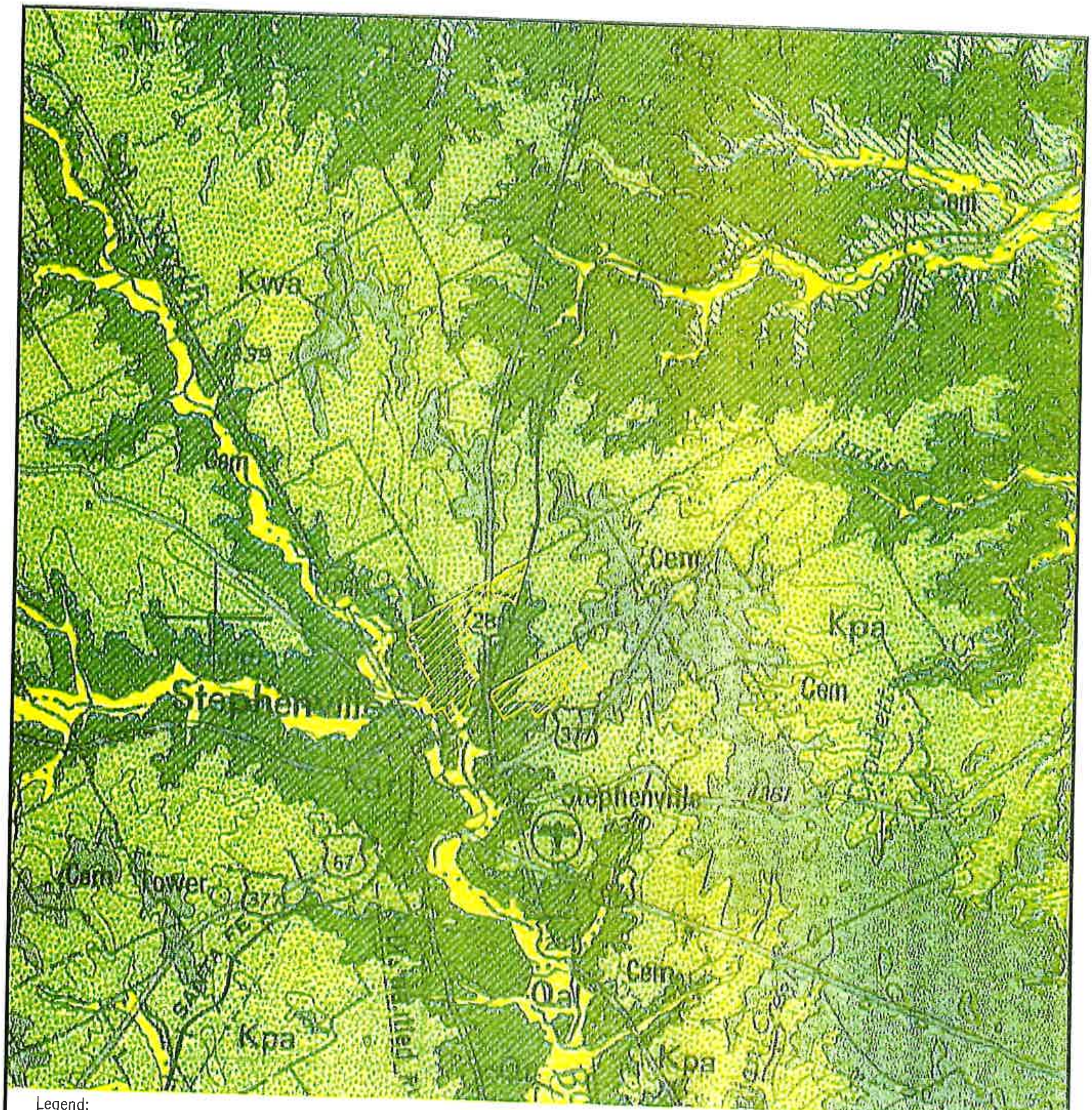
5.6 Geomorphologic/Geologic Features

The Maloterre-Purves-Dugout soils in this area of Erath County are immediately underlain by the Paluxy, Glen Rose and Walnut Formations and by recently deposited Alluvium in the area of the North Bosque River, as shown in Figure 8.1, Geologic Atlas. Alluvium consists of floodplain deposits, including low terrace deposits near floodplain level and bedrock locally in stream channels; gravel, sand, silt, clay and organic matter up to 35 feet thick. The Paluxy Formation consists of sandstone interbedded with claystone and siltstone, up to 100 feet thick, thinning southward. The Glen Rose Formation of Cretaceous-age consists of alternating limestone and claystone with some sandstone, up to 250 feet thick in the southeastern area of the formation. (Geologic Atlas, 1976).

The Walnut Formation comprises the beds of clay and nonchalky limestones at the base of the Fredericksburg division. They consist of alternations of calcareous laminated clays, weathering yellow on oxidation, semicrystalline limestones flags, and shell agglomerate, all of which grade upward without break out into the more chalky beds of the Edwards limestone. In places they weather into rich black soils and make extensive agricultural belts (Hill, 1901).

Forming the upper unit of the Trinity Group, the Paluxy Formation consists of up to 400 feet of predominantly fine to coarse-grained sand interbedded with clay and shale. Underlying the Paluxy, the Glen Rose Formation forms a gulfward-thickening wedge of marine carbonates consisting primarily of limestone. Paluxy bedrock outcrops along the northeast portion of this site. Limiting application rates of wastewater and manure will protect this feature form adverse impacts.

The basal unit of the Trinity Group consists of the Twin Mountains and Travis Peak formations, which are laterally separated by a facies change. To the north, the Twin Mountains Formation consists mainly of medium-to coarse-grained sands, silty clays, and conglomerates (Ashworth, 1995).



Legend:

Kgr – Cretaceous Glen Rose Formation
Kpa – Cretaceous Paluxy Formation
Kwa – Cretaceous Walnut Formation
Qal – Alluvium

N
W E
S

NO SCALE

Source: Geologic Atlas of Texas, Abilene Sheet, 1972.

Southwest Regional Dairy Center Stephenville, Texas Erath County	Geologic Atlas of Texas Figure 5.1 Page 26	Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

5.6.1 Outcrops/Stream Interception

An inspection of the CAFO property and review of the USGS topographic map of the area shows Dry Branch creek and several freshwater ponds located on the property in LMUs #16, #17, #19, #20 and #21. These areas are protected from waste/wastewater application with a 125-ft, 128-ft, 130-ft or 133-ft buffer. The unnamed tributary and freshwater ponds located in LMUs #5, #6, #8, #9 and #15 are protected from waste/wastewater application with a 128-ft buffer. The intermittent creek located by LMU #4 is protected with a 130-ft buffer. All LMUs have a continuous cover of Coastal Bermuda which acts to filter sediment and nutrients and slow stormwater flow.

5.6.2 Excessive Slopes

No slopes of greater than 8 percent are present on the property.

5.6.3 Other Large-Scale Conduits

No faults, fractured sediments, caves, sinkholes, solution cavities, vugs or concentrated or extensive animal burrowing was observed during an on-site visit, nor is identified on the geologic atlas, soil surveys or USGS maps.

5.6.4 Surface Water

The "water in the state" designation is based on Enviro-Ag Engineering, Inc., site inspections, the permittee's knowledge of the property and the USDA-FSA aerial photograph (2017). The buffer zones and LMU boundaries in Figure 6.1 (Refer to Section 6) are submitted with this application for TCEQ approval.

5.6.5 Aquifer

The Trinity aquifer consist of early Cretaceous age formations of the Trinity Group where they occur in a band extending through the central part of the state in all or parts of 55 counties, from the Red River in North Texas to the Hill Country of South-Central Texas.

Formations comprising the Trinity Group are (from youngest to oldest) the Paluxy, Glen Rose, and Twin Mountains-Travis peak. Updip, where the Glen Rose thins or is missing, the Paluxy and Twin Mountains coalesce to form the Antlers Formation. The Antlers consists of up to 900 feet of sand and gravel, with clay beds in the middle section. Water from the Antlers is mainly used for irrigation in the outcrop area of North and Central Texas (Ashworth and Hopkins, 1995).

The aquifer is underlain and confined by low-permeability rocks that range in age from Precambrian to Jurassic. Where the aquifer does not crop out, it is confined above by the Walnut Formation in most of the area.

Recharge to the Trinity aquifer is generally as precipitation that falls on aquifer outcrop areas and as seepage from streams and ponds where the head gradient is downward. In the Hill Country, water might flow laterally into the Trinity aquifer form the adjacent Edwards-Trinity aquifer. The aquifer discharges by evapotranspiration, spring discharges, diffuse lateral or upward leakage into shallower aquifers, and withdrawals from wells

(USGS, 2003). Land application at agronomic rates and maintain permanent cover crops will protect the feature from adverse impacts associated with this operation.

5.7 Soil Features

Soil mapping units included in this section for the production area and land application areas were taken from the electronic NRCS Soil Survey for Erath County. Soils descriptions are included in the supporting documentation and were obtained from the most current version of the NRCS electronic soil information database for Erath County available on the NRCS Web Soil Survey.

5.7.1 Production Area

Soils underlying the pen and pond areas are predominately of the Clairette-Hassee & Clairette (CtB and CtC), Purves-Dugout-Maloterre (Pd), Hassee (WaB and WkA) and Windthorst (WoB and WoB2) series. The RCSs have been certified as meeting TCEQ guidelines for soil liner (30 TAC §321.38(g). Best management practices pertaining to surface drainage, surface compaction and manure management within the open lot confinement area will be followed. Steve Evans, Ph.D., soil physicist with the USDA Agricultural Research Service in Bushland, Texas, stated that his work with lysimeters and potential evapotranspiration indicated limited infiltration and even less deep percolation will occur on areas with sloped surfaces (1996). Work performed by the NRCS calculated the feedlot surface curve number (potential for runoff) as 90 on a scale of 100.

5.7.2 Land Application Areas

Soils underlying the land application areas are primarily of the Bastsil (BsA), Bunyan (Bu), Clairette-Hassee and Clairette (CtB and CtC), May (MfA), Purves (PcC), Hassee (WaB and WkA), Winthorst (WoB, WoB2) series. The application of wastewater and/or manure will be performed at agronomic rates according to an approved NUP/NMP. No pooling or ponding is anticipated due to application through sprinklers.

Figure 5.2 shows the soils underlying the property as delineated from the electronic NRCS Soil Survey map for Erath County. The electronic version of the soil survey is considered the most current soils information available. Table 5.1 is a summary of the estimated physical properties of the soils in the subject area, obtained from the NRCS Web Soil Survey.

Table 5.1: Estimated Soil Properties

Soil Series (Map ID)	Slope (%)	HSG	Depth (in)	USDA Soil Texture	Permeability / Infiltration Rate (in/hr)	Available Water Capacity (in/in of soil)
Bunyan (Bu)	-----	B	0-10 10-46	Fine Sandy Loam	2.0-6.0 0.6-2.0	0.11-0.15 0.15-0.19
Bosque (Bo)	------	B	0-5 5-50	Loam	0.6-2.0 0.6-2.0	0.15-0.20 0.15-0.20
Blanket (BaB)	1-3	C	0-14	Clay Loam	0.6-2.0	0.15-0.20

			14-40		0.06-0.6	0.12-0.20
Bastsil (BsA)	0-1	B	0-8 8-15 15-34	Fine Sandy Loam	2.0-6.0 2.0-6.0 0.6-2.0	0.12-0.16 0.12-0.16 0.12-0.16
Bastsil (BsB)	1-3	B	0-8 8-15 15-34	Fine Sandy Loam	2.0-6.0 2.0-0.6 0.6-2.0	0.12-0.16 0.12-0.16 0.12-0.16
Clairette (CtB) Hassee	1-3	C D	0-4 4-10 10-26 0-5 5-14 14-35	Very Fine Sandy Loam	2.0-6.0 0.6-2.0 0.20-0.6 0.6-2.0 0.6-2.0 0.001-0.06	0.10-0.17 0.15-0.19 0.10-0.18 0.10-0.14 0.07-0.12 0.06-0.10
Clairette (CtC)	3-5	C	0-4 4-10 10-26	Loam	0.6-2.0 0.6-2.0 0.20-0.6	0.15-0.19 0.15-0.19 0.10-0.18
Fairy (FhC2) Hico	1-5	B B	0-13 13-45 0-12 12-51	Sandy Clay Loam	2.0-6.0 0.6-2.0 2.0-6.0 0.6-2.0	0.10-0.17 0.05-0.17 0.10-0.15 0.05-0.17
Granbury (GrB)	1-5	C	0-7 7-23 23-40	Very Fine Sandy Loam	2.0-6.0 0.20-0.6 0.06-2.0	0.10-0.17 0.10-0.20 -----
Hico (HwD3) Windthorst	1-8	B C	0-7 7-44 0-6 6-16 16-25	Sandy Clay Loam	0.6-6.0 0.6-2.0 0.20-2.0 0.20-0.6 0.20-0.6	0.11-0.13 0.11-0.13 0.11-0.14 0.15-0.19 0.16-0.20
May (MfA)	0-1	B	0-16 16-42	Fine Sandy Loam	2.0-6.0 0.6-2.0	0.11-0.15 0.12-0.20
Wise (LaC)	2-5	C	0-7 7-27	Loam	0.6-2.0 0.6-2.0	0.15-0.20 0.15-0.24
May (MfB)	1-3	B	0-16 16-42	Fine Sandy Loam	2.0-6.0 0.6-2.0	0.11-0.15 0.12-0.20
Purves (PcC)	3-5	D	0-7 7-12 12-17 17-40	Clay	0.06-0.20 0.06-0.6 0.06-0.6 0.06-2.0	0.12-0.20 0.08-0.18 0.04-0.07 -----
Purves (Pd) Dugout Maloterre	-----	D D D	0-8 8-12 12-14 14-24 0-8 8-18 18-28 0-8 8-18	Stoney Clay Gravelly Clay Loam Gravelly Clay Loam	0.06-0.20 0.06-2.0 0.06-2.0 0.06-2.0 0.20-0.6 0.20-0.6 0.06-2.0 0.6-2.0 0.001-0.06	0.11-0.20 0.08-0.18 0.04-0.07 ----- 0.06-0.15 0.07-0.06 ----- 0.06-0.11 -----
Hassee (WaA)	0-1	D	0-11 11-50	Fine Sand Loam	0.6-2.0 .001-0.06	0.11-0.17 0.12-0.18

Hassee (WaB)	1-3	D	0-12 12-50	Fine Sandy Loam	0.6-2.0 .001-0.06	0.11-0.17 0.12-0.18
Hassee (WaB2)	1-3	D	0-6 6-50	Fine Sandy Loam	0.6-2.0 .001-0.06	0.11-0.17 0.12-0.18
Hassee (WkA)	0-2	D	0-18 18-55	Fine Sandy Loam	0.6-2.0 .001-0.06	0.11-0.17 0.12-0.18
Windthorst (WoB)	1-5	C	0-8 8-33	Very Fine Sandy Loam	2.0-6.0 0.20-0.6	0.10-0.17 0.10-0.20
Windthorst (WoB2)	1-5	C	0-4 4-33	Fine Sand Loam	2.0-6.0 0.20-0.6	0.10-0.17 0.10-0.20
Windthorst (WnD3) Duffau	1-8	C B	0-6 6-16 16-25 0-7 7-44	Sandy Clay Loam	0.20-2.0 0.20-0.6 0.20-0.6 0.6-6.0 0.6-2.0	0.11-0.14 0.15-0.19 0.16-0.20 0.11-0.13 0.11-0.13

The major soil series within each LMU are identified in Table 5.2. All soils at the site that have been identified by NRCS as being at high risk for various limitations are presented in Table 5.3. Associated best management practices will be implemented, as appropriate, based on physical and economic conditions.

Table 5.2: Major Soil Types

LMU ID	Major Soil Type
1, 2, 4,12	Winthorst (WoB2)
3, 19	Hassee (WkA)
5	May (MfA)
6	Windthorst (WsC2)
7, 8, 14, 17, 18	Clairette-Hassee (CtB)
15, 16	Clairette (CtC)
11	Windthorst (WoB)
9	Fairy-Hico (FhC2)
10, 13	Hassee (WaB)
20	Bunyan (Bu)
21	Bastsil (BsA)

Table 5.3: Potential Soil Limitations for Land Application

Soil Series	Potential Soil Limitations	Best Management Practices
Bo, Bu	Flooding	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils.
FhC2	Slow Water Movement	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils.

Soil Series	Potential Soil Limitations	Best Management Practices
PcC	Depth to Bedrock Droughty Slow Water Movement	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils. -Irrigation events will be managed to assist in maintaining soil moisture levels within the range of the available water holding capacity of that Land Management Unit.
Pd	Depth to Bedrock Droughty Slow Water Movement Large Surface Stones	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils. -Irrigation events will be managed to assist in maintaining soil moisture levels within the range of the available water holding capacity of that Land Management Unit.
WnD3, HwD3, LaC	Depth to Soft Bedrock	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils.
GrB	Depth to Hard Bedrock	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils.
BsB, FhC2, MfA, BsA, MfB	Seepage	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils.
CtB, WaA, WaB, WaB2, WkA	Slow Water Movement Depth to Saturated Zone	- Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). - No land application to inundated soils.

5.7.3 Erosion

Figure 5.2 shows the onsite soils classified by NRCS as Highly Erodible Land (HEL), including Purves (PcC). LMUs will be protected with typical conservation farming practices within the standards of the NRCS. The following methods will be used to control/prevent erosion of exposed soils in the production area:

- Seeding/sprigging exposed areas with forage or cover crops,
- Constructing terraces or berms (shortening the length and steepness of slopes),
- Covering erosive areas with road surfacing materials,
- Implementing reduced tillage practices,
- Maintaining a cover of plants or crop residue.

Map Revised 6/17/2024

LEGEND:
Denotes Production Area

For specifics on soils, refer to Table 5.1.

Source: USDA-NRCS Web Soil Survey, Soil Survey Geographic Database for (Erath County, TX). Available at: http://websoilsurvey.nrcs.usda.gov. Accessed June, 2024.

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Southwest Regional Dairy Center Stephenville, Texas Erath County	NRCS Soils Map Figure 5.2 Page 32	ENVIRO-AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

ARTIFICIAL FEATURES

5.8 Railroad Commission Records

A search of the RRC database files was performed. No proposed locations or existing penetrations for oil and gas were identified on the subject property. Railroad Commission database information is included as an attachment to this document.

5.9 Ground Water Conservation District Records

The Middle Trinity Groundwater Conservation District (GCD) was verbally contacted. Should an abandoned penetration be encountered anywhere on the subject property at any time, the penetration will be marked, inspected and properly sealed to prevent a potential impact to the underlying aquifer. Appropriate well plugging reports shall be submitted as required to the Texas Department of Licensing and Regulation (TDLR) and will be maintained in the onsite PPP.

5.10 GeoSearch

GeoSearch was not utilized in this report.

5.11 Texas Water Development Board Water Data Interactive (WDI)

The TWDB WDI online database was reviewed for artificial penetrations. The database revealed water wells registered with the TWDB as being located on the subject property. The wells that could be correlated with onsite wells are shown on Table 5.4.

5.12 Natural Resource Conservation Service

The historical NRCS Soil Survey of Erath County (1973) was reviewed for locations of potential recharge features. No potential recharge features were identified.

5.13 Other Artificial Features

Numerous features, such as irrigation tail water pits and stock ponds, exist on the subject property and are shown to be buffered on Figure 5.3. These areas shall be buffered during land application events or backfilled prior to the first land application event.

5.14 Previous/Current Landowner

Dr. Barry Lambert was contacted regarding the presence of any potential recharge features on the property. Dr. Lambert is considered the most knowledgeable about the property. The previous landowner could not be located. Dr. Lambert confirmed the locations of all active water wells.

5.15 Onsite Inspection

The property has been inspected both on the ground and by historical mapping. All active water wells were documented on the property during the onsite inspection and are shown on Figure 5.3. The BMPs for all wells are listed in Table 5.4. Should any open well or test hole be encountered, it will be marked, reported to the Engineer, included on

Figure 5.3 and properly plugged (30 TAC §321.34(f)(3)(B)). Well plugging reports shall be submitted as required to the Texas Department of Licensing and Registration (Well Drillers Board) and will be maintained in the onsite PPP.

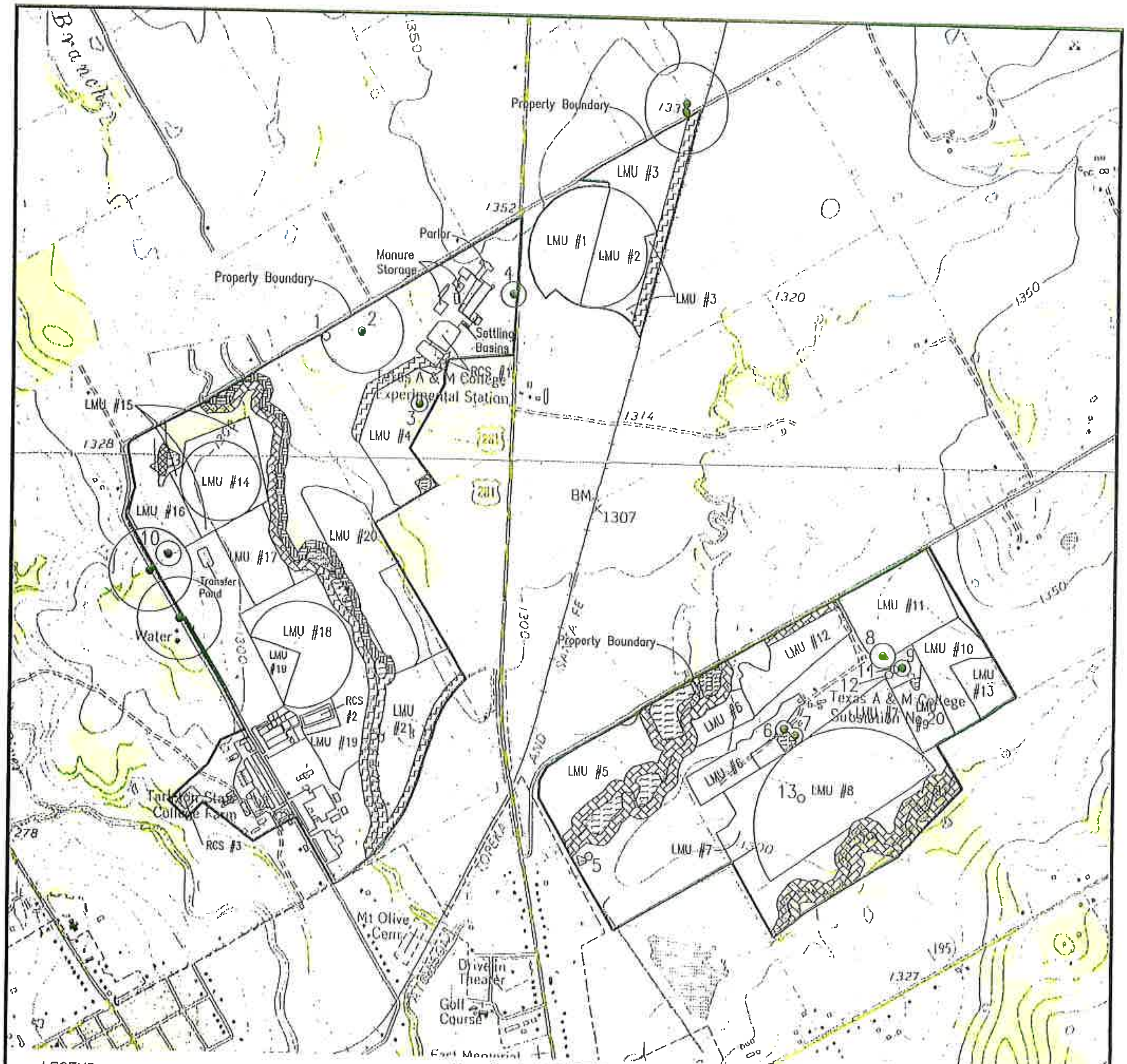
All well data listed in Table 5.4 is based on information received from the water district, TCEQ and TWDB files, onsite inspection, and interviews of persons knowledgeable of the property. The map number corresponds to the location shown in Figure 5.3. The well identification number corresponds to the database number or drilling report number used by the water district, TCEQ or TWDB Commission.

Table 5.4: Well Information

Map No.	Well ID	Best Management Practices
1	54847	• See attached plugging report
2	230895	• Maintain 500-ft buffer for Public Supply Wells
3	20643	• Maintain 100-ft buffer for Irrigation Wells
4	31-47-801	• Maintain 150-ft buffer for Facility Wells
5	61366	• See attached plugging report
6	31-55-210	• Maintain 100-ft buffer for Irrigation Wells
7	31-55-201	• Maintain 100-ft buffer for Irrigation Wells
8	336732	• Maintain 150-ft buffer for Facility Wells
9	N/A	• Maintain 100-ft buffer for Irrigation Wells
10	31-55-209	• Maintain 150-ft buffer for Facility Wells
11	81544	• See attached plugging report
12	41335	• See attached plugging report
13	17333	• See attached plugging report

Note: A copy of the well logs for onsite wells are attached.

All irrigation systems or water distribution systems into which any type of chemical or foreign substance, such as wastewater, is distributed into the water pumped from the well are required by 16 TAC §76 to install an in-line, automatic quick-closing check valve capable of preventing pollution of groundwater.



Map Revised 6/17/2024

LEGEND:

- Denotes Plugged Water Well
- Denotes Water Well
- Denotes Water Well With 100/150/500–Ft Buffer
- Denotes Fresh Water Pond
- Denotes 125–ft. Buffer
- Denotes 128–ft. Buffer
- Denotes 130–ft. Buffer
- Denotes 133–ft. Buffer

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900' 0 900' 1800'

SCALED AS SHOWN

Source: USDA–NRCS Geospatial Data Gateway, Erath County. http://datagateway.nrcs.usda.gov/ National Ag. Imagery Mosaic – Accessed November 2017.

Refer to Figure 1.4 for a production area map.

Southwest Regional Dairy Center Stephenville, Texas Erath County	Recharge Feature Map Figure 5.3 Page 35	Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

REFERENCES

Ashworth and Hopkins, November 1995. Aquifers of Texas. Report 345, Texas Water Development Board.

Bureau of Economic Geology, The University of Texas at Austin, Geologic Atlas of Texas - Abilene Sheet, 1972.

Evans, Steve. USDA-ARS Bushland, Texas - Telephone Interview, 1996.

Knowles, T., Nordstrom, P., Klemt, W. B., Report 288, "Evaluating the Ground Water Resources of the High Plains of Texas". Texas Department of Water Resources, Volume 1, May 1984.

Lambert, Dr. Barry Tarleton State University Representative Personal Interview, July 2024.

Sweeten, J.M. 1990. Cattle Feedlot Waste Management Practices for Water and Air Pollution Control. B-1671, Texas Agricultural Extension Service, Texas A&M University System, 24 pp.

Texas Railroad Commission Files Search, May 2019.

Texas Railroad Commission, GIS Data Viewer, Accessed July 2024.

TCEQ and Texas Water Development Board, Files Search, July 2024.

Texas Water Development Board. Water Data Interactive (WDI). Retrieved July 2024, from https://www3.twdb.texas.gov/apps/waterdatainteractive/groundwaterdataviewer

USDA NRCS, Soil Survey of Erath County, Texas, 1973.

USDA NRCS, National Soil Database, SSURGO digital soil data for Erath County, Texas, Retrieved July 2024. http://www.ftw.nrcs.usda.gov/ssur_data.html

USDA-NRCS Electronic Field Office Technical Guide, Soil Information Database – Erath County, Texas, Retrieved July 2024. http://www.nrcs.usda.gov/technical/efotg.

USGS. Groundwater Atlas of the United States. Oklahoma and Texas. HA_730E. http://capp.water.usgs.gov/gwa/ch_e/E_text8.html, March 2003.

Supporting Documentation

USDA Soil Descriptions & Limitations

Texas Railroad Commission Map

Water District Well Location Map (if available)

Onsite Well Logs (if available)

RUSLE2 Related Attributes

This report summarizes those soil attributes used by the Revised Universal Soil Loss Equation Version 2 (RUSLE2) for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. Soil property data for each map unit component include the hydrologic soil group, erosion factor Kf for the surface horizon, erosion factor T, and the representative percentage of sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic layer.

Report—RUSLE2 Related Attributes

Soil properties and interpretations for erosion runoff calculations. The surface mineral horizon properties are displayed or the first mineral horizon below an organic surface horizon. Organic horizons are not displayed.

RUSLE2 Related Attributes–Erath County, Texas

Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
BsA—Bastsil fine sandy loam, 0 to 1 percent slopes								
Bastsil, fine sandy loam	90	98	B	.28	5	73.0	19.0	8.0
BsB—Bastsil fine sandy loam, 1 to 3 percent slopes								
Bastsil, fine sandy loam	90	200	B	.28	5	73.0	19.0	8.0
Bu—Bunyan fine sandy loam, occasionally flooded								
Bunyan	80	98	B	.28	5	69.6	16.4	14.0
CtB—Clairette-Hassee very fine sandy loams, 1 to 3 percent slopes								
Clairette, very fine sandy loam	50	200	C	.49	5	68.0	21.0	11.0
Hassee, very fine sandy loam	40	200	D	.55	5	68.0	19.0	13.0
CtC—Clairette loam, 3 to 5 percent slopes								
Clairette, loam	90	180	C	.37	5	44.0	36.0	20.0
GrB—Granbury very fine sandy loam, 1 to 5 percent slopes								
Granbury, very fine sandy loam	85	298	C	.55	2	70.0	21.0	9.0

RUSLE2 Related Attributes–Erath County, Texas								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
HwD3—Hico and Windthorst sandy clay loams, 1 to 8 percent slopes, severely eroded								
Hico, severely eroded	50	180	B	.24	4	64.0	11.0	25.0
Windthorst, severely eroded	40	200	C	.43	4	62.0	15.0	23.0
LaC—Wise loam, 2 to 5 percent slopes								
Wise	85	180	C	.37	3	38.0	44.0	18.0
MfB—May fine sandy loam, 1 to 3 percent slopes								
May, fine sandy loam	90	200	B	.17	5	70.0	17.0	13.0
PcC—Purves clay, 3 to 5 percent slopes								
Purves	89	180	D	.15	1	25.0	27.5	47.5
Pd—Purves-Dugout-Maloterre complex, 1 to 20 percent slopes								
Purves, stony clay	37	200	D	.10	1	25.0	27.5	47.5
Dugout, gravelly clay loam	25	161	D	.28	1	30.0	42.0	28.0
Maloterre, gravelly clay loam	22	180	D	.24	1	35.0	36.0	29.0
WaB—Hassee fine sandy loam, 1 to 3 percent slopes								
Hassee	100	200	D	.32	5	68.8	16.2	15.0
WaB2—Hassee fine sandy loam, 1 to 3 percent slopes, eroded								
Hassee	100	200	D	.32	5	68.8	16.2	15.0
WkA—Hassee fine sandy loam, thick surface, 0 to 2 percent slopes								
Hassee	80	200	D	.32	5	68.8	16.2	15.0
WnD3—Windthorst and Duffau sandy clay loams, 1 to 8 percent slopes, severely eroded								
Windthorst, severely eroded	50	200	C	.43	4	62.0	15.0	23.0
Duffau, severely eroded	40	180	B	.24	4	64.0	11.0	25.0
WoB—Windthorst very fine sandy loam, 1 to 5 percent slopes								
Windthorst, very fine sandy loam	85	298	C	.43	5	68.0	21.0	11.0

RUSLE2 Related Attributes–Erath County, Texas								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
WoB2—Windthorst fine sandy loam, 1 to 5 percent slopes, moderately eroded								
Windthorst, moderately eroded	85	298	C	.28	5	67.0	21.0	12.0

Data Source Information

Soil Survey Area: Erath County, Texas
Survey Area Data: Version 20, Sep 5, 2023

RUSLE2 Related Attributes

This report summarizes those soil attributes used by the Revised Universal Soil Loss Equation Version 2 (RUSLE2) for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. Soil property data for each map unit component include the hydrologic soil group, erosion factor Kf for the surface horizon, erosion factor T, and the representative percentage of sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic layer.

Report—RUSLE2 Related Attributes

Soil properties and interpretations for erosion runoff calculations. The surface mineral horizon properties are displayed or the first mineral horizon below an organic surface horizon. Organic horizons are not displayed.

RUSLE2 Related Attributes–Erath County, Texas

Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
BaB—Blanket clay loam, 1 to 3 percent slopes								
Blanket	90	298	C	.32	5	25.0	44.0	31.0
Bo—Bosque loam, occasionally flooded								
Bosque	80	98	B	.24	5	39.2	37.3	23.5
BsB—Bastsil fine sandy loam, 1 to 3 percent slopes								
Bastsil, fine sandy loam	90	200	B	.28	5	73.0	19.0	8.0
Bu—Bunyan fine sandy loam, occasionally flooded								
Bunyan	80	98	B	.28	5	69.6	16.4	14.0
CtB—Clairette-Hassee very fine sandy loams, 1 to 3 percent slopes								
Clairette, very fine sandy loam	50	200	C	.49	5	68.0	21.0	11.0
Hassee, very fine sandy loam	40	200	D	.55	5	68.0	19.0	13.0
CtC—Clairette loam, 3 to 5 percent slopes								
Clairette, loam	90	180	C	.37	5	44.0	36.0	20.0
FhC2—Fairy-Hico complex, 1 to 5 percent slopes, moderately eroded								
Fairy, moderately eroded	45	180	B	.55	5	68.0	26.0	6.0
Hico, moderately eroded	35	200	B	.28	5	65.0	24.0	11.0

RUSLE2 Related Attributes–Erath County, Texas								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
MfA—May fine sandy loam, 0 to 1 percent slopes								
May	90	98	B	.17	5	70.0	17.0	13.0
PcC—Purves clay, 3 to 5 percent slopes								
Purves	89	180	D	.15	1	25.0	27.5	47.5
WaA—Hassee fine sandy loam, 0 to 1 percent slopes								
Hassee	80	98	D	.32	5	68.8	16.2	15.0
WaB—Hassee fine sandy loam, 1 to 3 percent slopes								
Hassee	100	200	D	.32	5	68.8	16.2	15.0
WaB2—Hassee fine sandy loam, 1 to 3 percent slopes, eroded								
Hassee	100	200	D	.32	5	68.8	16.2	15.0
WnD3—Windthorst and Duffau sandy clay loams, 1 to 8 percent slopes, severely eroded								
Windthorst, severely eroded	50	200	C	.43	4	62.0	15.0	23.0
Duffau, severely eroded	40	180	B	.24	4	64.0	11.0	25.0
WoB—Windthorst very fine sandy loam, 1 to 5 percent slopes								
Windthorst, very fine sandy loam	85	298	C	.43	5	68.0	21.0	11.0
WoB2—Windthorst fine sandy loam, 1 to 5 percent slopes, moderately eroded								
Windthorst, moderately eroded	85	298	C	.28	5	67.0	21.0	12.0

Data Source Information

Soil Survey Area: Erath County, Texas
Survey Area Data: Version 20, Sep 5, 2023

RUSLE2 Related Attributes

This report summarizes those soil attributes used by the Revised Universal Soil Loss Equation Version 2 (RUSLE2) for the map units in the selected area. The report includes the map unit symbol, the component name, and the percent of the component in the map unit. Soil property data for each map unit component include the hydrologic soil group, erosion factor Kf for the surface horizon, erosion factor T, and the representative percentage of sand, silt, and clay in the mineral surface horizon. Missing surface data may indicate the presence of an organic layer.

Report—RUSLE2 Related Attributes

Soil properties and interpretations for erosion runoff calculations. The surface mineral horizon properties are displayed or the first mineral horizon below an organic surface horizon. Organic horizons are not displayed.

RUSLE2 Related Attributes–Erath County, Texas								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
BsB—Bastsil fine sandy loam, 1 to 3 percent slopes								
Bastsil, fine sandy loam	90	200	B	.28	5	73.0	19.0	8.0
WkA—Hassee fine sandy loam, thick surface, 0 to 2 percent slopes								
Hassee	80	200	D	.32	5	68.8	16.2	15.0
WoB—Windthorst very fine sandy loam, 1 to 5 percent slopes								
Windthorst, very fine sandy loam	85	298	C	.43	5	68.0	21.0	11.0
WoB2—Windthorst fine sandy loam, 1 to 5 percent slopes, moderately eroded								
Windthorst, moderately eroded	85	298	C	.28	5	67.0	21.0	12.0

Data Source Information

Soil Survey Area: Erath County, Texas
Survey Area Data: Version 20, Sep 5, 2023

Physical Soil Properties

This table shows estimates of some physical characteristics and features that affect soil behavior. These estimates are given for the layers of each soil in the survey area. The estimates are based on field observations and on test data for these and similar soils.

Depth to the upper and lower boundaries of each layer is indicated.

Particle size is the effective diameter of a soil particle as measured by sedimentation, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (ovendry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (http://soils.usda.gov)

Report—Physical Soil Properties

Three values are provided to identify the expected Low (L), Representative Value (R), and High (H).

Physical Soil Properties–Erath County, Texas															
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
BsA—Bastsil fine sandy loam, 0 to 1 percent slopes														
Bastsil, fine sandy loam	0-8	55-73- 80	5-19- 39	5- 8- 20	1.49-1.53 -1.54	14.00-28.00-42.00	0.12-0.15-0.16	0.5- 0.9- 2.9	0.5- 0.8- 1.5	.28	.28	5	3	86
	8-15	55-73- 80	5-19- 39	5- 8- 20	1.55-1.69 -1.71	14.00-28.00-42.00	0.12-0.15-0.16	0.4- 0.8- 2.4	0.4- 0.5- 1.3	.28	.28			
	15-34	40-50- 55	10-22- 37	20-28- 35	1.48-1.52 -1.58	4.00-9.00-14.00	0.12-0.14-0.16	2.1- 3.4- 4.6	0.3- 0.6- 0.8	.28	.28			
	34-50	40-51- 55	10-24- 39	20-25- 35	1.51-1.56 -1.68	4.00-9.00-14.00	0.12-0.14-0.16	2.3- 3.0- 4.5	0.1- 0.3- 0.3	.28	.28			
	50-80	40-55- 65	5-23- 43	15-22- 30	1.60-1.62 -1.66	4.00-9.00-42.00	0.11-0.13-0.16	1.6- 2.6- 3.8	0.0- 0.2- 0.3	.28	.28			

Physical Soil Properties–Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
BsB—Bastsil fine sandy loam, 1 to 3 percent slopes														
Bastsil, fine sandy loam	0-8	55-73- 80	5-19- 39	5- 8- 20	1.49-1.53 -1.54	14.00-28.00-42.00	0.12-0.15-0.16	0.5- 0.9- 2.9	0.5- 0.8- 1.5	.28	.28	5	3	86
	8-15	55-73- 80	5-19- 39	5- 8- 20	1.55-1.69 -1.71	14.00-28.00-42.00	0.12-0.15-0.16	0.4- 0.8- 2.4	0.4- 0.5- 1.3	.28	.28			
	15-34	40-50- 55	10-22- 37	20-28- 35	1.48-1.52 -1.58	4.00-9.00-14.00	0.12-0.14-0.16	2.1- 3.4- 4.6	0.3- 0.6- 0.8	.28	.28			
	34-50	40-51- 55	10-24- 39	20-25- 35	1.51-1.56 -1.68	4.00-9.00-14.00	0.12-0.14-0.16	2.3- 3.0- 4.5	0.1- 0.3- 0.3	.28	.28			
	50-80	40-55- 65	5-23- 43	15-22- 30	1.60-1.62 -1.66	4.00-9.00-42.00	0.11-0.13-0.16	1.6- 2.6- 3.8	0.0- 0.2- 0.3	.28	.28			
Bu—Bunyan fine sandy loam, occasionally flooded														
Bunyan	0-10	-70-	-16-	8-14- 20	1.40-1.50 -1.60	14.00-28.00-42.00	0.11-0.13-0.15	0.0- 1.5- 2.9	0.5- 0.8- 1.0	.28	.28	5	3	86
	10-46	-56-	-18-	18-27- 35	1.30-1.40 -1.50	4.00-9.00-14.00	0.15-0.17-0.19	0.0- 1.5- 2.9	0.1- 0.6- 1.0	.20	.20			
	46-62	-35-	-38-	18-27- 35	1.40-1.50 -1.60	4.00-9.00-14.00	0.18-0.20-0.22	0.0- 1.5- 2.9	0.1- 0.6- 1.0	.32	.32			

Physical Soil Properties–Erath County, Texas															
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
CtB—Clairette-Hassee very fine sandy loams, 1 to 3 percent slopes														
Clairette, very fine sandy loam	0-4	52-68- 80	2-21- 42	5-11- 18	1.42-1.49 -1.60	14.00-28.00-42.00	0.10-0.15-0.17	0.2- 0.8- 1.5	0.5- 1.3- 2.0	.49	.49	5	3	86
	4-10	35-49- 75	5-32- 50	10-19- 24	1.44-1.53 -1.57	4.00-9.00-14.00	0.15-0.17-0.19	0.7- 1.5- 2.3	0.5- 0.8- 1.5	.37	.37			
	10-26	20-31- 60	0-31- 48	32-38- 55	1.42-1.56 -1.66	1.40-2.70-4.00	0.10-0.13-0.18	3.7- 5.2- 8.7	0.3- 0.6- 1.0	.28	.28			
	26-56	25-40- 60	0-27- 53	18-33- 45	1.46-1.50 -1.54	4.00-9.00-14.00	0.16-0.18-0.20	1.1- 3.7- 6.3	0.1- 0.5- 0.8	.24	.24			
	56-74	25-47- 70	0-27- 53	15-26- 45	1.54-1.60 -1.64	4.00-9.00-14.00	0.12-0.12-0.13	0.8- 2.3- 6.2	0.1- 0.3- 0.6	.28	.28			
	74-80	10-56- 75	0-27- 73	10-17- 45	1.50-1.70 -1.70	14.00-28.00-42.00	0.12-0.15-0.17	0.4- 1.3- 6.3	0.1- 0.1- 0.5	.32	.32			
Hassee, very fine sandy loam	0-5	52-68- 80	0-19- 38	10-13- 20	1.54-1.57 -1.58	4.00-9.00-14.00	0.10-0.11-0.14	0.4- 1.0- 2.4	0.5- 0.7- 1.5	.55	.55	5	3	86
	5-14	35-68- 75	5-17- 45	10-15- 20	1.41-1.50 -1.52	4.00-9.00-14.00	0.07-0.10-0.12	0.4- 1.4- 2.4	0.2- 0.4- 1.2	.55	.55			
	14-35	25-30- 50	7-27- 40	35-43- 50	1.40-1.48 -1.53	0.01-0.21-0.42	0.06-0.08-0.10	5.8- 8.4-10.4	0.5- 0.8- 1.2	.32	.32			
	35-45	25-32- 55	0-24- 45	30-44- 50	1.45-1.50 -1.52	0.01-0.21-0.42	0.06-0.07-0.10	3.8- 8.4-10.2	0.2- 0.4- 1.0	.28	.28			
	45-79	25-35- 55	4-26- 45	30-39- 45	1.40-1.50 -1.53	0.01-0.21-0.42	0.05-0.06-0.10	3.7- 6.8- 8.5	0.1- 0.2- 0.5	.32	.32			

Physical Soil Properties–Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
CtC—Clairette loam, 3 to 5 percent slopes														
Clairette, loam	0-4	35-44- 75	9-36- 50	10-20- 24	1.47-1.58 -1.62	4.00-9.00-14.00	0.15-0.17-0.19	0.7- 1.5- 2.3	0.5- 0.8- 1.5	.37	.37	5	6	48
	4-10	35-49- 75	5-32- 50	10-19- 24	1.44-1.53 -1.57	4.00-9.00-14.00	0.15-0.17-0.19	0.7- 1.5- 2.3	0.5- 0.8- 1.5	.37	.37			
	10-26	20-31- 60	0-31- 48	32-38- 55	1.42-1.56 -1.66	1.40-2.70-4.00	0.10-0.13-0.18	3.7- 5.2- 8.7	0.3- 0.6- 1.0	.28	.28			
	26-56	25-40- 60	0-27- 53	18-33- 45	1.46-1.50 -1.54	4.00-9.00-14.00	0.16-0.18-0.20	1.1- 3.7- 6.3	0.1- 0.5- 0.8	.24	.24			
	56-74	25-47- 70	0-27- 53	15-26- 45	1.54-1.60 -1.64	4.00-9.00-14.00	0.12-0.12-0.13	0.8- 2.3- 6.2	0.1- 0.3- 0.6	.28	.28			
	74-80	10-56- 75	0-27- 73	10-17- 45	1.50-1.70 -1.70	14.00-28.00-42.00	0.12-0.15-0.17	0.4- 1.3- 6.3	0.1- 0.1- 0.5	.32	.32			
GrB—Granbury very fine sandy loam, 1 to 5 percent slopes														
Granbury, very fine sandy loam	0-7	52-70- 80	5-21- 40	5- 9- 18	1.42-1.52 -1.60	14.00-28.00-42.00	0.10-0.15-0.17	0.2- 0.6- 1.5	0.5- 1.3- 2.0	.55	.55	2	3	86
	7-23	30-46- 60	5-16- 35	35-38- 50	1.43-1.59 -1.60	1.40-2.70-4.00	0.10-0.14-0.20	4.4- 5.2- 7.6	0.2- 0.5- 1.0	.28	.28			
	23-40	—	—	—	—	0.42-7.20-14.00	—	—	—					

Physical Soil Properties–Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
HwD3—Hico and Windthorst sandy clay loams, 1 to 8 percent slopes, severely eroded														
Hico, severely eroded	0-7	59-64- 70	10-11- 18	20-25- 30	1.46-1.53 -1.60	4.00-14.00-42.0 0	0.11-0.12-0. 13	2.1- 3.0- 3.8	0.4- 1.2- 2.0	.24	.24	4	5	56
	7-44	43-57- 61	11-18- 23	18-25- 39	1.48-1.54 -1.60	4.00-9.00-14.00	0.11-0.12-0. 13	1.9- 2.9- 5.1	0.2- 0.4- 0.6	.32	.32			
	44-60	33-66- 81	12-15- 42	4-19- 32	1.55-1.58 -1.61	4.00-9.00-42.00	0.13-0.14-0. 15	0.1- 2.0- 3.7	0.1- 0.2- 0.3	.37	.37			
	60-79	26-61- 85	8-27- 57	7-12- 25	1.76-1.82 -1.88	0.42-1.40-4.00	0.01-0.02-0. 03	0.5- 1.1- 2.7	0.0- 0.1- 0.2	.64	.64			
Windthorst, severely eroded	0-6	46-62- 66	14-15- 27	20-23- 34	1.47-1.52 -1.56	1.40-4.00-14.00	0.11-0.13-0. 14	0.7- 3.4- 5.3	0.5- 0.7- 1.0	.43	.43	4	5	56
	6-16	32-40- 43	16-24- 33	26-36- 43	1.35-1.42 -1.51	1.40-2.70-4.00	0.15-0.17-0. 19	3.8- 5.1- 5.6	0.5- 0.6- 1.0	.37	.37			
	16-25	31-41- 52	16-26- 39	27-33- 38	1.39-1.48 -1.55	1.40-2.70-4.00	0.16-0.18-0. 20	3.2- 4.3- 5.6	0.3- 0.5- 0.8	.37	.37			
	25-33	36-46- 59	19-32- 41	14-22- 30	1.35-1.50 -1.60	1.40-2.70-4.00	0.15-0.17-0. 19	2.0- 2.6- 5.0	0.1- 0.3- 0.4	.55	.55			
	33-79	26-61- 85	8-27- 57	7-12- 25	1.76-1.82 -1.88	0.42-1.40-4.00	0.01-0.02-0. 03	0.5- 0.9- 2.6	0.0- 0.1- 0.2	.64	.64			

Physical Soil Properties–Erath County, Texas

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
LaC—Wise loam, 2 to 5 percent slopes														
Wise	0-7	30-38- 52	28-44- 50	10-18- 26	1.38-1.44 -1.50	4.00-9.00-14.00	0.15-0.18-0. 20	0.8- 2.0- 2.9	0.5- 1.3- 2.0	.37	.37	3	4L	86
	7-27	15-32- 50	15-40- 68	15-28- 35	1.41-1.44 -1.46	4.00-9.00-14.00	0.15-0.19-0. 24	1.3- 3.0- 3.8	0.5- 0.8- 1.0	.37	.37			
	27-36	5-17- 50	22-55- 73	15-28- 35	1.39-1.42 -1.45	4.00-9.00-14.00	0.15-0.19-0. 24	1.3- 3.0- 3.8	0.5- 0.8- 1.0	.37	.37			
	36-80	15-30- 80	5-50- 83	2-20- 35	1.66-1.70 -1.75	1.40-4.00-14.00	0.01-0.04-0. 14	0.0- 2.1- 4.3	0.1- 0.2- 0.5	.55	.55			
MfB—May fine sandy loam, 1 to 3 percent slopes														
May, fine sandy loam	0-16	55-70- 80	2-17- 34	8-13- 18	1.35-1.50 -1.60	14.00-28.00-42. 00	0.11-0.13-0. 15	0.7- 1.2- 2.2	0.5- 1.0- 2.0	.17	.17	5	3	86
	16-42	35-57- 70	5-18- 35	18-25- 33	1.40-1.55 -1.65	4.00-9.00-14.00	0.12-0.16-0. 20	1.7- 2.6- 3.8	0.1- 0.3- 0.5	.24	.24			
	42-50	35-57- 70	5-21- 40	15-22- 33	1.45-1.55 -1.70	4.00-9.00-14.00	0.11-0.15-0. 20	1.3- 2.3- 3.7	0.1- 0.3- 0.5	.28	.28			
	50-80	40-61- 70	2-19- 40	10-20- 30	1.45-1.58 -1.70	4.00-9.00-42.00	0.10-0.14-0. 18	0.8- 1.9- 3.0	0.1- 0.2- 0.3	.28	.28			

Physical Soil Properties–Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
PcC—Purves clay, 3 to 5 percent slopes														
Purves	0-7	8-25- 40	7-28- 40	40-48- 55	1.15-1.25 -1.45	0.42-0.91-1.40	0.12-0.15-0. 20	5.4- 8.4-10.9	1.0- 3.0- 5.0	.15	.15	1	4	86
	7-12	8-26- 40	20-29- 54	35-45- 55	1.20-1.30 -1.45	0.42-0.91-4.00	0.08-0.13-0. 18	5.0- 6.8-10.3	1.0- 2.5- 4.0	.17	.17			
	12-17	8-26- 40	20-29- 54	35-45- 55	1.20-1.35 -1.45	0.42-0.91-4.00	0.04-0.05-0. 07	1.0- 2.5- 6.9	1.0- 2.0- 3.0	.05	.17			
	17-40	—	—	—	—	0.42-2.70-14.00	—	—	—					

Physical Soil Properties–Erath County, Texas

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
Pd—Purves-Dugout-Maloterre complex, 1 to 20 percent slopes														
Purves, stony clay	0-8	8-25- 40	7-28- 40	40-48- 55	1.16-1.26 -1.35	0.42-0.91-1.40	0.11-0.15-0. 20	4.1- 6.8- 9.3	1.0- 3.0- 5.0	.05	.10	1	5	56
	8-12	8-26- 40	20-29- 54	35-45- 55	1.17-1.32 -1.47	0.42-0.91-4.00	0.08-0.13-0. 18	2.9- 7.0-10.8	1.0- 2.5- 4.0	.15	.15			
	12-14	8-26- 40	20-29- 54	35-45- 55	1.21-1.34 -1.47	0.42-0.91-4.00	0.04-0.05-0. 07	1.0- 2.4- 7.3	1.0- 2.0- 3.0	.05	.17			
	14-24	—	—	—	—	0.42-2.70-14.00	—	—	—					
Dugout, gravelly clay loam	0-8	22-30- 42	28-42- 51	27-28- 35	1.31-1.44 -1.47	1.40-2.70-4.00	0.06-0.11-0. 15	1.9- 3.1- 5.4	1.0- 1.2- 2.0	.15	.28	1	5	56
	8-18	20-23- 40	28-48- 60	15-29- 35	1.40-1.44 -1.53	1.40-2.70-4.00	0.07-0.15-0. 16	0.0- 3.2- 4.9	0.1- 0.9- 1.2	.28	.28			
	18-28	—	—	—	—	0.42-7.20-14.00	—	—	—					
Maloterre, gravelly clay loam	0-8	30-35- 45	24-36- 43	27-29- 35	1.18-1.36 -1.40	4.00-9.00-14.00	0.06-0.10-0. 11	1.8- 3.1- 6.0	1.0- 2.0- 7.0	.15	.24	1	5	56
	8-18	—	—	—	—	0.01-0.21-0.42	—	—	—					

Physical Soil Properties–Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
WaB—Hassee fine sandy loam, 1 to 3 percent slopes														
Hassee	0-12	-69-	-16-	10-15- 20	1.50-1.58 -1.65	4.00-9.00-14.00	0.11-0.14-0. 17	0.0- 1.5- 2.9	0.5- 1.3- 2.0	.32	.32	5	3	86
	12-50	-18-	-29-	45-53- 60	1.30-1.43 -1.55	0.01-0.21-0.42	0.12-0.15-0. 18	6.0- 7.5- 8.9	0.5- 0.8- 1.0	.24	.24			
	50-60	-24-	-29-	35-48- 60	1.30-1.43 -1.55	0.01-0.21-0.42	0.12-0.15-0. 18	6.0- 7.5- 8.9	0.0- 0.3- 0.5	.28	.28			
WaB2—Hassee fine sandy loam, 1 to 3 percent slopes, eroded														
Hassee	0-6	-69-	-16-	10-15- 20	1.50-1.58 -1.65	4.00-9.00-14.00	0.11-0.14-0. 17	0.0- 1.5- 2.9	0.5- 1.3- 2.0	.32	.32	5	3	86
	6-50	-18-	-29-	45-53- 60	1.30-1.43 -1.55	0.01-0.21-0.42	0.12-0.15-0. 18	6.0- 7.5- 8.9	0.5- 0.8- 1.0	.24	.24			
	50-60	-23-	-29-	35-48- 60	1.30-1.43 -1.55	0.01-0.21-0.42	0.12-0.15-0. 18	6.0- 7.5- 8.9	0.0- 0.3- 0.5	.28	.28			

Physical Soil Properties–Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	*Pct*	*Pct*	*Pct*	*g/cc*	*micro m/sec*	*In/In*	*Pct*	*Pct*					
WkA—Hassee fine sandy loam, thick surface, 0 to 2 percent slopes														
Hassee	0-18	-69-	-16-	10-15- 20	1.50-1.58 -1.65	4.00-9.00-14.00	0.11-0.14-0. 17	0.0- 1.5- 2.9	0.5- 1.3- 2.0	.32	.32	5	3	86
	18-55	-18-	-29-	45-53- 60	1.30-1.43 -1.55	0.01-0.21-0.42	0.12-0.15-0. 18	6.0- 7.5- 8.9	0.5- 0.8- 1.0	.24	.24			
	55-65	-24-	-29-	35-48- 60	1.30-1.43 -1.55	0.01-0.21-0.42	0.12-0.15-0. 18	6.0- 7.5- 8.9	0.0- 0.3- 0.5	.28	.28			

Physical Soil Properties–Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
WnD3—Windthorst and Duffau sandy clay loams, 1 to 8 percent slopes, severely eroded														
Windthorst, severely eroded	0-6	46-62- 66	14-15- 27	20-23- 34	1.47-1.52 -1.56	1.40-4.00-14.00	0.11-0.13-0. 14	0.7- 3.4- 5.3	0.5- 0.7- 1.0	.43	.43	4	5	56
	6-16	32-40- 43	16-24- 33	26-36- 43	1.35-1.42 -1.51	1.40-2.70-4.00	0.15-0.17-0. 19	3.8- 5.1- 5.6	0.5- 0.6- 1.0	.37	.37			
	16-25	31-41- 52	16-26- 39	27-33- 38	1.39-1.48 -1.55	1.40-2.70-4.00	0.16-0.18-0. 20	3.2- 4.3- 5.6	0.3- 0.5- 0.8	.37	.37			
	25-33	36-46- 59	19-32- 41	14-22- 30	1.35-1.50 -1.60	1.40-2.70-4.00	0.15-0.17-0. 19	2.0- 2.6- 5.0	0.1- 0.3- 0.4	.55	.55			
	33-79	26-61- 85	8-27- 57	7-12- 25	1.76-1.82 -1.88	0.42-1.40-4.00	0.01-0.02-0. 03	0.5- 0.9- 2.6	0.0- 0.1- 0.2	.64	.64			
Duffau, severely eroded	0-7	59-64- 70	10-11- 18	20-25- 30	1.46-1.53 -1.60	4.00-14.00-42.0 0	0.11-0.12-0. 13	2.1- 3.0- 3.8	0.4- 1.2- 2.0	.24	.24	4	5	56
	7-44	43-57- 61	11-18- 23	18-25- 39	1.48-1.54 -1.60	4.00-9.00-14.00	0.11-0.12-0. 13	1.9- 2.9- 5.1	0.2- 0.4- 0.6	.32	.32			
	44-60	33-66- 81	12-15- 42	4-19- 32	1.55-1.58 -1.61	4.00-9.00-42.00	0.13-0.14-0. 15	0.1- 2.0- 3.7	0.1- 0.2- 0.3	.37	.37			
	60-79	26-61- 85	8-27- 57	7-12- 25	1.76-1.82 -1.88	0.42-1.40-4.00	0.01-0.02-0. 03	0.5- 1.1- 2.7	0.0- 0.1- 0.2	.64	.64			

Physical Soil Properties–Erath County, Texas

Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
WoB—Windthorst very fine sandy loam, 1 to 5 percent slopes														
Windthorst, very fine sandy loam	0-8	52-68- 80	5-21- 40	5-11- 18	1.42-1.49 -1.60	14.00-28.00-42.00	0.10-0.15-0.17	0.2- 0.8- 1.5	0.5- 1.3- 2.0	.43	.43	5	3	86
	8-33	30-46- 60	5-16- 35	35-38- 50	1.43-1.59 -1.60	1.40-2.70-4.00	0.10-0.14-0.20	4.4- 5.2- 7.6	0.2- 0.5- 1.0	.28	.28			
	33-46	30-46- 70	5-18- 35	25-36- 50	1.38-1.49 -1.60	1.40-2.70-14.00	0.10-0.14-0.20	2.4- 4.8- 7.6	0.2- 0.5- 1.0	.32	.32			
	46-80	30-65- 75	0-25- 53	5-10- 45	1.45-1.57 -1.70	1.40-9.00-42.00	0.11-0.15-0.18	0.1- 0.7- 6.5	0.0- 0.3- 0.5	.55	.55			
WoB2—Windthorst fine sandy loam, 1 to 5 percent slopes, moderately eroded														
Windthorst, moderately eroded	0-4	52-67- 80	5-21- 40	5-12- 18	1.42-1.50 -1.60	14.00-28.00-42.00	0.10-0.15-0.17	0.3- 0.9- 1.5	0.5- 1.3- 2.0	.28	.28	5	3	86
	4-33	30-46- 60	5-16- 35	35-38- 50	1.43-1.59 -1.60	1.40-2.70-4.00	0.10-0.14-0.20	4.4- 5.2- 7.6	0.2- 0.5- 1.0	.28	.28			
	33-46	30-46- 70	5-18- 35	25-36- 50	1.38-1.49 -1.60	1.40-2.70-14.00	0.10-0.14-0.20	2.4- 4.8- 7.6	0.2- 0.5- 1.0	.32	.32			
	46-80	30-65- 75	0-25- 53	5-10- 45	1.45-1.57 -1.70	1.40-9.00-42.00	0.11-0.15-0.18	0.1- 0.7- 6.5	0.0- 0.3- 0.5	.55	.55			

Data Source Information

Soil Survey Area: Erath County, Texas
Survey Area Data: Version 20, Sep 5, 2023

Selected Soil Interpretations

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Report—Selected Soil Interpretations

Selected Soil Interpretations–Erath County, Texas

Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BaB—Blanket clay loam, 1 to 3 percent slopes							
Blanket	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.37	Slow water movement	0.37	Seepage	0.50
Bo—Bosque loam, occasionally flooded							
Bosque	80	Somewhat limited		Very limited		Very limited	
		Flooding	0.60	Flooding	1.00	Flooding	1.00
						Seepage	0.50
BsB—Bastsil fine sandy loam, 1 to 3 percent slopes							
Bastsil, fine sandy loam	90	Somewhat limited		Somewhat limited		Very limited	
		Too acid	0.01	Too acid	0.01	Seepage	1.00
Bu—Bunyan fine sandy loam, occasionally flooded							
Bunyan	80	Somewhat limited		Very limited		Very limited	
		Flooding	0.60	Flooding	1.00	Flooding	1.00
						Seepage	0.50

Selected Soil Interpretations–Erath County, Texas								
Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CtB—Clairette-Hassee very fine sandy loams, 1 to 3 percent slopes							
Clairette, very fine sandy loam	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.37	Slow water movement	0.37	Seepage	0.50
		Too acid	0.08	Too acid	0.08		
Hassee, very fine sandy loam	40	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.50
		Droughty	0.01	Droughty	0.01		
CtC—Clairette loam, 3 to 5 percent slopes							
Clairette, loam	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.37	Slow water movement	0.37	Seepage	0.50
		Too steep for surface application	0.08			Slope	0.32
FhC2—Fairy-Hico complex, 1 to 5 percent slopes, moderately eroded							
Fairy, moderately eroded	45	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Seepage	1.00
		Seepage, porous bedrock	0.50			Slope	0.32
		Too steep for surface application	0.08				
Hico, moderately eroded	35	Not limited		Not limited		Very limited	
						Seepage	1.00
						Slope	0.08
MfA—May fine sandy loam, 0 to 1 percent slopes							
May	90	Not limited		Not limited		Very limited	
						Seepage	1.00

Selected Soil Interpretations–Erath County, Texas							
Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PcC—Purves clay, 3 to 5 percent slopes							
Purves	89	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.32
		Slow water movement	1.00	Slow water movement	1.00		
		Seepage, porous bedrock	0.50				
		Too steep for surface application	0.08				
WaA—Hassee fine sandy loam, 0 to 1 percent slopes							
Hassee	80	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
WaB—Hassee fine sandy loam, 1 to 3 percent slopes							
Hassee	100	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
WaB2—Hassee fine sandy loam, 1 to 3 percent slopes, eroded							
Hassee	100	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		

Selected Soil Interpretations–Erath County, Texas							
Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WnD3—Windthorst and Duffau sandy clay loams, 1 to 8 percent slopes, severely eroded							
Windthorst, severely eroded	50	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.96	Slow water movement	0.96	Depth to soft bedrock	1.00
		Depth to bedrock	0.18	Depth to bedrock	0.18	Slope	0.08
		Too acid	0.08	Shallow to densic materials	0.18		
		Droughty	0.03	Too acid	0.08		
				Droughty	0.03		
Duffau, severely eroded	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.96	Slow water movement	0.96	Seepage	0.50
		Too steep for surface application	0.08			Slope	0.32
WoB—Windthorst very fine sandy loam, 1 to 5 percent slopes							
Windthorst, very fine sandy loam	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.37	Slow water movement	0.37	Depth to soft bedrock	0.77
		Too acid	0.08	Too acid	0.08	Seepage	0.50
WoB2—Windthorst fine sandy loam, 1 to 5 percent slopes, moderately eroded							
Windthorst, moderately eroded	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.37	Slow water movement	0.37	Depth to soft bedrock	0.77
		Too acid	0.08	Too acid	0.08	Seepage	0.50

Data Source Information

Soil Survey Area: Erath County, Texas
Survey Area Data: Version 20, Sep 5, 2023

Selected Soil Interpretations

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Report—Selected Soil Interpretations

Selected Soil Interpretations–Erath County, Texas							
Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BsB—Bastsil fine sandy loam, 1 to 3 percent slopes							
Bastsil, fine sandy loam	90	Somewhat limited		Somewhat limited		Very limited	
		Too acid	0.01	Too acid	0.01	Seepage	1.00
WkA—Hassee fine sandy loam, thick surface, 0 to 2 percent slopes							
Hassee	80	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.50
WoB—Windthorst very fine sandy loam, 1 to 5 percent slopes							
Windthorst, very fine sandy loam	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.37	Slow water movement	0.37	Depth to soft bedrock	0.77
		Too acid	0.08	Too acid	0.08	Seepage	0.50

Selected Soil Interpretations–Erath County, Texas								
Map symbol and soil name	**Pct. of map unit**	**AWM - Irrigation Disposal of Wastewater**		**AWM - Land Application of Municipal Sewage Sludge**		**ENG - Sewage Lagoons**		
		Rating class and limiting features	**Value**	**Rating class and limiting features**	**Value**	**Rating class and limiting features**	**Value**
WoB2—Windthorst fine sandy loam, 1 to 5 percent slopes, moderately eroded							
Windthorst, moderately eroded	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.37	Slow water movement	0.37	Depth to soft bedrock	0.77
		Too acid	0.08	Too acid	0.08	Seepage	0.50

Data Source Information

Soil Survey Area: Erath County, Texas
Survey Area Data: Version 20, Sep 5, 2023

Selected Soil Interpretations

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Report—Selected Soil Interpretations

Selected Soil Interpretations–Erath County, Texas

Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BsA—Bastsil fine sandy loam, 0 to 1 percent slopes							
Bastsil, fine sandy loam	90	Somewhat limited		Somewhat limited		Very limited	
		Too acid	0.01	Too acid	0.01	Seepage	1.00
BsB—Bastsil fine sandy loam, 1 to 3 percent slopes							
Bastsil, fine sandy loam	90	Somewhat limited		Somewhat limited		Very limited	
		Too acid	0.01	Too acid	0.01	Seepage	1.00
Bu—Bunyan fine sandy loam, occasionally flooded							
Bunyan	80	Somewhat limited		Very limited		Very limited	
		Flooding	0.60	Flooding	1.00	Flooding	1.00
						Seepage	0.50

Selected Soil Interpretations–Erath County, Texas							
Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
CtB—Clairette-Hassee very fine sandy loams, 1 to 3 percent slopes							
Clairette, very fine sandy loam	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.37	Slow water movement	0.37	Seepage	0.50
		Too acid	0.08	Too acid	0.08		
Hassee, very fine sandy loam	40	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.50
		Droughty	0.01	Droughty	0.01		
CtC—Clairette loam, 3 to 5 percent slopes							
Clairette, loam	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.37	Slow water movement	0.37	Seepage	0.50
		Too steep for surface application	0.08			Slope	0.32
GrB—Granbury very fine sandy loam, 1 to 5 percent slopes							
Granbury, very fine sandy loam	85	Somewhat limited		Somewhat limited		Very limited	
		Droughty	0.97	Droughty	0.97	Depth to hard bedrock	1.00
		Depth to bedrock	0.94	Depth to bedrock	0.94	Seepage	0.21
		Slow water movement	0.37	Slow water movement	0.37		
		Too acid	0.21	Too acid	0.21		

Selected Soil Interpretations–Erath County, Texas

Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HwD3—Hico and Windthorst sandy clay loams, 1 to 8 percent slopes, severely eroded							
Hico, severely eroded	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.96	Slow water movement	0.96	Seepage	0.50
		Too steep for surface application	0.08			Slope	0.32
Windthorst, severely eroded	40	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.96	Slow water movement	0.96	Depth to soft bedrock	1.00
		Depth to bedrock	0.18	Depth to bedrock	0.18	Slope	0.08
		Too acid	0.08	Shallow to densic materials	0.18		
		Droughty	0.03	Too acid	0.08		
				Droughty	0.03		
LaC—Wise loam, 2 to 5 percent slopes							
Wise	85	Somewhat limited		Somewhat limited		Very limited	
		Too steep for surface application	0.08	Depth to bedrock	0.07	Depth to soft bedrock	1.00
		Depth to bedrock	0.07	Shallow to densic materials	0.06	Seepage	0.50
						Slope	0.32
MfB—May fine sandy loam, 1 to 3 percent slopes							
May, fine sandy loam	90	Not limited		Not limited		Very limited	
						Seepage	1.00
PcC—Purves clay, 3 to 5 percent slopes							
Purves	89	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.32
		Slow water movement	1.00	Slow water movement	1.00		
		Seepage, porous bedrock	0.50				
		Too steep for surface application	0.08				

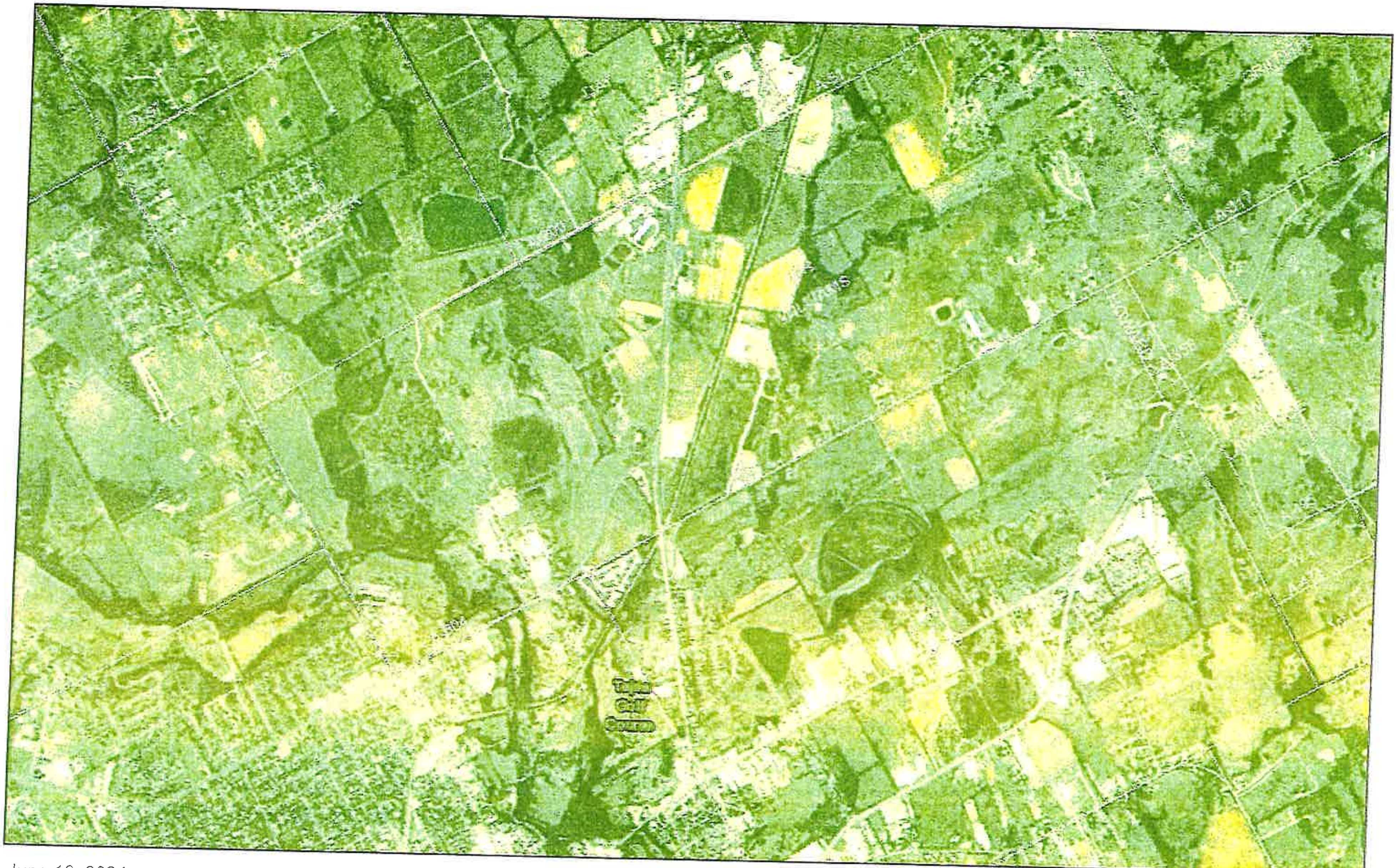
Selected Soil Interpretations–Erath County, Texas							
Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Pd—Purves-Dugout-Maloterre complex, 1 to 20 percent slopes							
Purves, stony clay	37	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.08
		Slow water movement	1.00	Slow water movement	1.00		
		Large stones on the surface	1.00	Large stones on the surface	1.00		
		Seepage, porous bedrock	0.50				
Dugout, gravelly clay loam	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Droughty	1.00	Droughty	1.00	Slope	0.68
		Seepage, porous bedrock	0.50	Slow water movement	0.37	Seepage	0.21
		Slow water movement	0.37				
		Too steep for surface application	0.32				
Maloterre, gravelly clay loam	22	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.32
		Droughty	1.00	Droughty	1.00		
		Seepage, porous bedrock	0.50				
		Too steep for surface application	0.08				
WaB—Hassee fine sandy loam, 1 to 3 percent slopes							
Hassee	100	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		

Selected Soil Interpretations–Erath County, Texas								
Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WaB2—Hassee fine sandy loam, 1 to 3 percent slopes, eroded							
Hassee	100	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00		
WkA—Hassee fine sandy loam, thick surface, 0 to 2 percent slopes							
Hassee	80	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.50
WnD3—Windthorst and Duffau sandy clay loams, 1 to 8 percent slopes, severely eroded							
Windthorst, severely eroded	50	Somewhat limited		Somewhat limited		Very limited	
		Slow water movement	0.96	Slow water movement	0.96	Depth to soft bedrock	1.00
		Depth to bedrock	0.18	Depth to bedrock	0.18	Slope	0.08
		Too acid	0.08	Shallow to densic materials	0.18		
		Droughty	0.03	Too acid	0.08		
				Droughty	0.03		
Duffau, severely eroded	40	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.96	Slow water movement	0.96	Seepage	0.50
		Too steep for surface application	0.08			Slope	0.32
WoB—Windthorst very fine sandy loam, 1 to 5 percent slopes							
Windthorst, very fine sandy loam	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.37	Slow water movement	0.37	Depth to soft bedrock	0.77
		Too acid	0.08	Too acid	0.08	Seepage	0.50

Selected Soil Interpretations–Erath County, Texas								
Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons		
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WoB2—Windthorst fine sandy loam, 1 to 5 percent slopes, moderately eroded							
Windthorst, moderately eroded	85	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.37	Slow water movement	0.37	Depth to soft bedrock	0.77
		Too acid	0.08	Too acid	0.08	Seepage	0.50

Data Source Information

Soil Survey Area: Erath County, Texas
Survey Area Data: Version 20, Sep 5, 2023



June 19, 2024

1:36,112

0 0.25 0.5 1 mi

0 0.4 0.8 1.6 km

Esri, HERE, Garmin, Maxar

Public GIS Viewer Legend

Well Number

Well Locations
- Permitted Location
- Dry Hole
- Oil
- Gas
- Oil / Gas
- Plugged Oil
- Plugged Gas
- Canceled / Abandoned Location
- Plugged Oil / Gas
- Injection / Disposal
- Core Test
- Sulfur Test
- Storage from Oil
- Storage from Gas
- Shut-In Oil
- Shut-In Gas
- Injection / Disposal from Oil
- Injection / Disposal from Gas
- Injection / Disposal from Oil / Gas
- Geothermal
- Brine Mining
- Water Supply
- Water Supply from Oil
- Water Supply from Gas
- Water Supply from Oil / Gas
- Observation
- Observation from Oil
- Observation from Gas
- Observation from Oil / Gas
- Storage
- Service
- Service from Oil
- Service from Gas
- Service from Oil / Gas
- Storage from Oil / Gas
- Injection / Disposal from Storage
- Injection / Disposal from Storage / Oil
- Injection / Disposal from Storage / Gas
- Injection / Disposal from Storage / Oil / Gas
- Observation from Storage
- Observation from Storage / Oil
- Observation from Storage / Gas
- Observation from Storage / Oil / Gas
- Service from Storage
- Service from Storage / Oil
- Service from Storage / Gas
- Service from Storage / Oil / Gas
- Plugged Storage
- Plugged Storage / Oil

Public GIS Viewer Legend

- Plugged Storage / Gas
- Plugged Storage Oil / Gas
- Brine Mining
- Brine Mining / Oil
- Brine Mining / Gas
- Brine Mining / Oil / Gas
- Injection / Disposal from Brine Mining
- Injection / Disposal from Brine Mining / Oil
- Injection / Disposal from Brine Mining / Gas
- Injection / Disposal from Brine Mining / Oil / Gas
- Observation from Brine Mining
- Observation from Brine Mining / Oil
- Observation from Brine Mining / Gas
- Observation from Brine Mining / Oil / Gas
- Service from Brine Mining
- Service from Brine Mining / Oil
- Service from Brine Mining / Gas
- Service from Brine Mining / Oil / Gas
- Plugged Brine Mining
- Plugged Brine Mining / Oil
- Plugged Brine Mining / Gas
- Plugged Brine Mining / Oil / Gas
- Storage / Brine Mining
- Storage / Brine Mining / Oil
- Storage / Brine Mining / Gas
- Storage / Brine Mining / Oil / Gas
- Injection / Disposal from Storage / Brine Mining
- Injection / Disposal from Storage / Brine Mining / Oil
- Injection / Disposal from Storage / Brine Mining / Gas
- Injection / Disposal from Storage / Brine Mining / Oil / Gas
- Observation from Storage / Brine Mining
- Observation from Storage / Brine Mining / Oil
- Observation from Storage / Brine Mining / Gas
- Observation from Storage / Brine Mining / Oil / Gas
- Plugged Storage / Brine Mining
- Plugged Storage / Brine Mining / Oil
- Plugged Storage / Brine Mining / Gas
- Plugged Storage / Brine Mining / Oil / Gas

Orphan Wells

Commercial Disposal

Injection/Disposal

HCTS Deeper than 15,000 ft.

Public GIS Viewer Legend

High Cost Tight Sands

EOR H13 Oil Wells

Well Logs

Horiz/Dir Surface Locations
- Horizontal Well
- Directional Well

Horizontal/Directional Lines

LPGAS Sites

QPipelines

Pipelines

Bay Tracts

Offshore Areas

Offshore Tracts

Water Lines

Subdivisions

Railroads

Surveys

Quads

Alert Areas

Water

City Limits

Counties

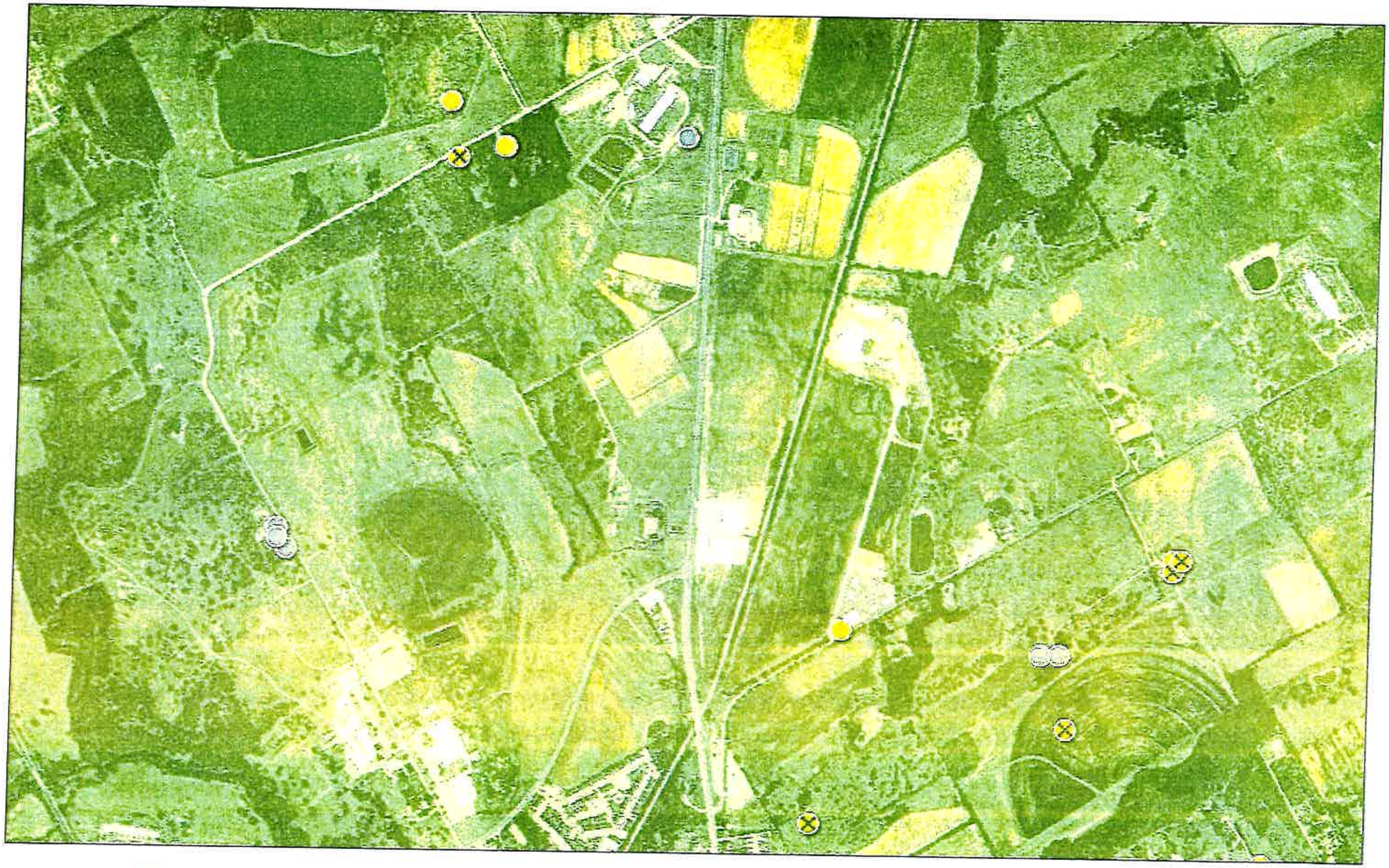
Operator Cleanup Program Sites
- Active
- Closed

Oil and Gas Districts

AED Districts

Pipeline Safety Regions

Tarleton Dairy 2024



Texas Water Development Board

June 19, 2024

Plugging Reports
Well Reports
TWDB Groundwater

0 0.15 0.3 0.6 mi
0 0.25 0.5 1 km
1:18,056

Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

The data in Water Data Interactive represents the best available information provided by the TWDB and third-party cooperators of the TWDB. The TWDB provides information via this web site as a public service. Neither the State of Texas nor the TWDB assumes any legal liability or responsibility or makes any guarantees or warranties as to the accuracy, completeness or suitability of the information for any particular purpose. The TWDB systematically revises or removes data discovered to be incorrect. If you find inaccurate information or have questions, please contact:

TEXAS WATER DEVELOPMENT BOARD

STATE OF TEXAS PLUGGING REPORT for Tracking #54847

Owner:	Texas A & M University Sytem	Owner Well #:	No Data
Address:	CR 518 Stephenville, TX 76401	Grid #:	31-47-8
Well Location:	CR 518 Stephenville, TX 76401	Latitude:	32° 15' 15" N
		Longitude:	098° 12' 08" W
Well County:	Erath	Elevation:	No Data

Well Type: **Withdrawal of Water**

Drilling Information

Company:	No Data	Date Drilled:	No Data
Driller:	No Data	License Number:	No Data

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	5		150

Plugging Information

Date Plugged: **4/2/2009** Plugger: **Gary Aardal**

Plug Method: **Tremmie pipe cement from bottom to top**

Casing Left in Well:			Plug(s) Placed in Well:		
Dia (in.)	*Top (ft.)*	*Bottom (ft.)*	*Top (ft.)*	*Bottom (ft.)*	*Description (number of sacks & material)*
4	2	150	1	150	29 Cement

Certification Data: The driller certified that the driller plugged this well (or the well was plugged under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the reports(s) being returned for completion and resubmittal.

Company Information: **Assoicated Well Services Inc.**
PO Box 16
Stephenville, TX 76401

Driller Name: **Gary Aardal** License Number: **2404**

Comments: **Pumped cement into csing and forced into rotted holes of pipe till more that double the computed volume in well.**
^EO

Well #2

STATE OF TEXAS WELL REPORT for Tracking #230895

Owner:	TSU Dairy Center	Owner Well #:	1
Address:	5026 CR 518 Stephenville, TX 76401	Grid #:	31-47-8
Well Location:	5026 CR 518 Stephenville, TX 76401	Latitude:	32° 15' 16" N
		Longitude:	098° 12' 03" W
Well County:	Erath	Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Public Supply

Drilling Start Date: 6/3/2010 Drilling End Date: 8/27/2010 Plans Approved by TCEQ - YES

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	12	0	439

Drilling Method: Mud (Hydraulic) Rotary

Borehole Completion: Filter Packed

	Top Depth (ft.)	Bottom Depth (ft.)	Filter Material	Size
Filter Pack Intervals:	331	439	Gravel	8/16

	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
Annular Seal Data:	0	331	180 CEMENT

Seal Method: Pressure Tremmie

Sealed By: Tom Gasmann

Distance to Property Line (ft.): No Data

Distance to Septic Field or other concentrated contamination (ft.): No Data

Distance to Septic Tank (ft.): No Data

Method of Verification: No Data

Surface Completion: Surface Slab Installed

Water Level: 277 ft. below land surface on 2010-08-03 Measurement Method: Unknown

Packers: No Data

Type of Pump: Submersible Pump Depth (ft.): 301

Well Tests: Pump Yield: 133 GPM with 72 ft. drawdown after 29 hours

	Strata Depth (ft.)	Water Type
Water Quality:	334	FRESH

Chemical Analysis Made: Yes

Did the driller knowingly penetrate any strata which contained injurious constituents?: No

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: EARTH TECH
145 ROSE LANE
FRISCO, TX 75034

Driller Name: TOM GASMANN - 56064 License Number: 56064

Comments: Amended 10/8/10 Ref.# 8424

Report Amended on by Request #8424

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

From (ft) To (ft) Description
0-5 Orange Sandy Topsoil
5-17 Yellow Sandy Clay
17-22 Light Gray and Tan Clay
22-26 Tan/Yellow Sand
25-26 Cream Limestone Streak
26-31 Yellow Clay
31-34 Yellow Brown Sand
34-242 Alternating Layers of Cream Limestone
and Gray Shale
242-255 Tan Powdery Sandy Shale
255-262 Gray Shale
262-290 Yellow Sand (Not Water Producing)
290-292 Hard Cap
292-295 Coarse Gravelly Sand
295-300 Bright Yellow Sand (Water Producing
5-7 GPM
300-302 Brown Sand

Casing:
BLANK PIPE & WELL SCREEN DATA

Dia. (in.) New/Used Type Setting From/To (ft.)
6 5/8 N Steel 0-334
6 5/8 N SSWR 334-394 .030
6 5/8 N Steel 394-439

302-307 Hard Green Limestone

307-317 Shale

317-319 Hard Cap

319-320 Red Bed

320-334 Cream/Tan Sand

334-344 Sand layered w/ Limestone and Siltstone

344-398 Blue/White/Tan Sand with thin shale layers

398-439 Brown/Red/Yellow Shale

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

Well #4

TEXAS WATER DEVELOPMENT BOARD

WELL SCHEDULE

Aquifer: Paluxy - Travis Peak | Field No.: | State Well No.: 31-47-801
Owner's Well No.: 2 | County: ERATH

1. Location: 3 miles N of Stephenville on HWY 281
2. Owner: Tex A&M - Tarleton Exped Sta. Address: Box 292, Stephenville
Tenant: Address:
Driller: SMITH & WOLF DRILLING Co. Address: 2080 W. Tarleton, Stephenville
3. Elevation of 430 is 1340 ft. above msl, determined by TOPO
4. Drilled: MAY 10, 1968; Dug, Cable Tool, Rotary
5. Depth: Rept. 442 ft. Meas. ft.
6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed
7. Pump: Mfgr. LAYNE Type TURBINE
No. Stages, Bowls Diam. in., Setting 400 ft.
Column Diam. in., Length Tailpipe ft.
8. Motor: Fuel ELECTRIC Make & Model U.S. MOTORS HP 60
9. Yield: Flow gpm, Pump 300 gpm, Meas., Rept., Est.
10. Performance Test: Date 5: 1968 Length of Test 10 hr. Made by
Static Level 271 ft. Pumping Level 364 ft. Drawdown 93 ft.
Production 300 gpm Specific Capacity 3.2 gpm/ft.
11. Water Levels: 271 ft. rept. 5 1968 below G.L. which is ft. above/below surface.
PL 364 ft. rept. 5 1968 below G.L. Pumping 300 gpm. which is ft. above/below surface.
12. Use: Dom., Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used
13. Quality: (Remarks on taste, odor, color, etc.)
Temp. °F, Date sampled for analysis Laboratory
Temp. °F, Date sampled for analysis Laboratory
Temp. °F, Date sampled for analysis Laboratory
14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log, Formation Samples, Pumping Test
15. Record by: R. NORDSTROM Date 11-28-73
Source of Data: SEELEY NEWMAN, OBS.
16. Remarks:
slotted 10 ft. opposite Paluxy

CASING & BLANK PIPE

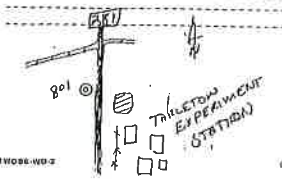
Cemented from 0 ft. to 30 ft.

Diam. (in.)	Type	Setting, ft. From	To
12	ID STEEL	5.5	442

WELL SCREEN

Diam. (in.)	Type	Setting, ft. From	To
12	slotted PERF	(94	feet)
"			
"	"		
"	"		
"	"		

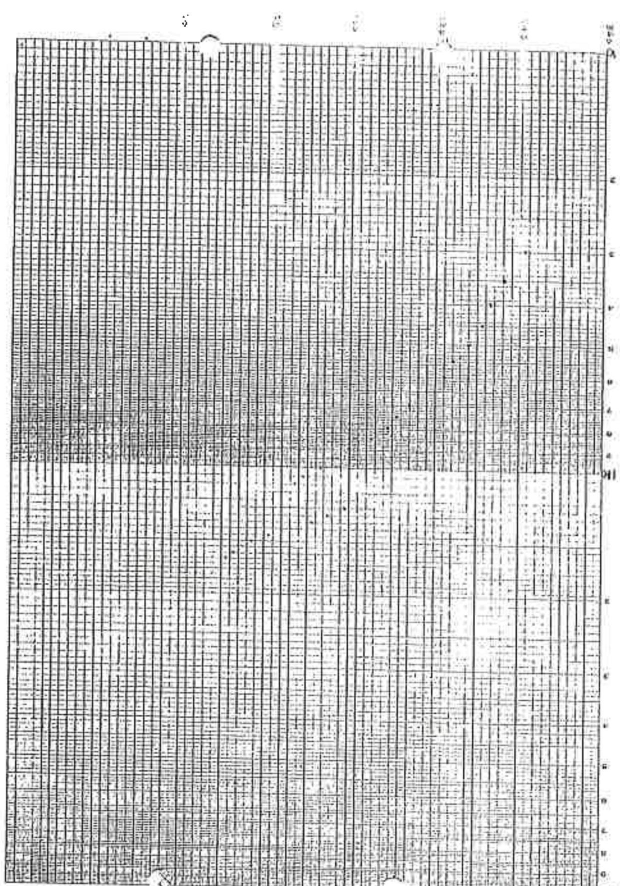
estimated



TWDBE-WD-2 (Sketch)

31-47-801

FROM	TO	DESCRIPTION
0	3	top soil
3	5	yellow clay
5	10	blue clay
10	14	sand
14	15	rock
15	19	sandy blue clay
19	24	yellow clay
24	46	blue clay
46	68	blue shale
68	69	rock
69	70	blue clay
70	78	rock
78	200	clay and small rock layers
200	220	rock
220	241	clay & shale
241	243	white sand
243	250	clay
250	272	sand and gravel, little clay
272	273	rock
273	290	clay
290	330	sand
330	331	rock
331	360	clay and rock layers
360	378	sand
378	380	rock
380	381	clay and rock
381	389	red clay
389	440	sandstone, clay and little sand
440	442	brown clay



31-47-801

31-47-801

341	ft. after	30	min
336	" "	35	"
333	" "	40	"
331	" "	45	"
328	" "	50	"
324	" "	55	"
322	" "	60	"
318	" "	65	"
314	" "	70	"
311	" "	75	"
309	" "	80	"
305	" "	85	"
300	" "	90	"
296	" "	95	"
293	" "	100	"
289	" "	105	"
287	" "	110	"
284	" "	115	"
282	" "	120	"
299	" "	125	"
295	" "	130	"
291	" "	135	"
286	" "	140	"
281	" "	145	"
277	" "	150	"

278 ft. after 155 min
273 " " 160 "
271 " " 165 "

31-47-801

Static level 271 ft
Draw down to 364 ft 1 hr. at 390 gpm
390 " 2 hr. at 390 "
412 " 2 1/2 hr at 390 "
pump shut off 1/2 hr
water level reached 360 ft. pump started at 300 gpm.
Level 360 ft

Draw down to	362 ft.	1 hr at 300 gpm
	360 ft.	2 hr at " "
	364 ft.	3 hr at " "
	361 ft.	4 hr at " "
	363 ft.	5 hr at " "
	360 ft.	6 hr at " "
	358 ft.	7 hr at " "
	362 ft	8 hr at " "
	364 ft	9 hr at " "
	363 ft	10 hr at " "

Readings after pump shut off

358 ft	after 5 min
354 "	" 10 "
351 "	" 15 "
348 "	" 20 "
344 "	" 25 "

STATEMENT

Bill Wolf — Bonnie Smith

SMITH & WOLF DRILLING COMPANY

Irrigation Well Drilling — Turnkey Jobs
Phone 968-2161
2080 W. Tarleton — Stephenville, Texas 76401

_______ 19__

FARM ______
LOCATION ______

	WELL LOG
220-241	Clay & shale
241-243	White sand
243-250	Clay
250-272	Sand & gravel little clay
272-273	Rock
273-290	Clay
290-330	Sand
330-331	Rock
331-360	Clay & rock layers
360-378	Sand
378-380	Rock
380-381	Clay & rock
381-389	Red clay
389-440	Sand stone, clay & little sand
440-442	Brown clay

DRILLED 442'
CASING SET 442' 6"
PERFORATIONS 94'
GRAVEL

31-47-801

STATEMENT

Bill Wolf — Bonnie Smith

SMITH & WOLF DRILLING COMPANY

Irrigation Well Drilling — Turnkey Jobs
Phone 968-2161
2080 W. Tarleton — Stephenville, Texas 76401

May 1 1968

FARM Cross Timbers Experimental Station
LOCATION Texas A & M College

	WELL LOG
0-3	Top soil
3-5	Yellow clay
5-10	Blue clay
10-14	Sand
14-15	Rock
15-19	Clay sandy blue
19-24	Yellow clay
24-46	Blue clay
46-68	Blue shale
68-69	Rock
69-70	Blue clay
70-78	Rock
78-200	Clay & small layers rock
200-220	Rock

DRILLED
CASING SET
PERFORATIONS
GRAVEL

County : ______
Location: ______

Observation well no. 31-47-801
Pumped well no. ______

Average Q ______ gpm r = ______ ft. r^2 = ______

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
5-68			50		328	3				
			55		324	4				
			60		322	2				
			65		318	4				
			70		314	4				
			75		311	3				
			80		309	2				
			85		305	4				
			90		300	5				
			95		296	4				
			100		293	3				
			105		289	4				
			110		287	2				
			115		284	3				
			120		282	2				
			125		299					
			130		295					
			135		291					
			140		286					
			145		281					
			150		277					
			155		275					
			160		273					
			165		271					

TWDBE-GW-4

Reported by driller

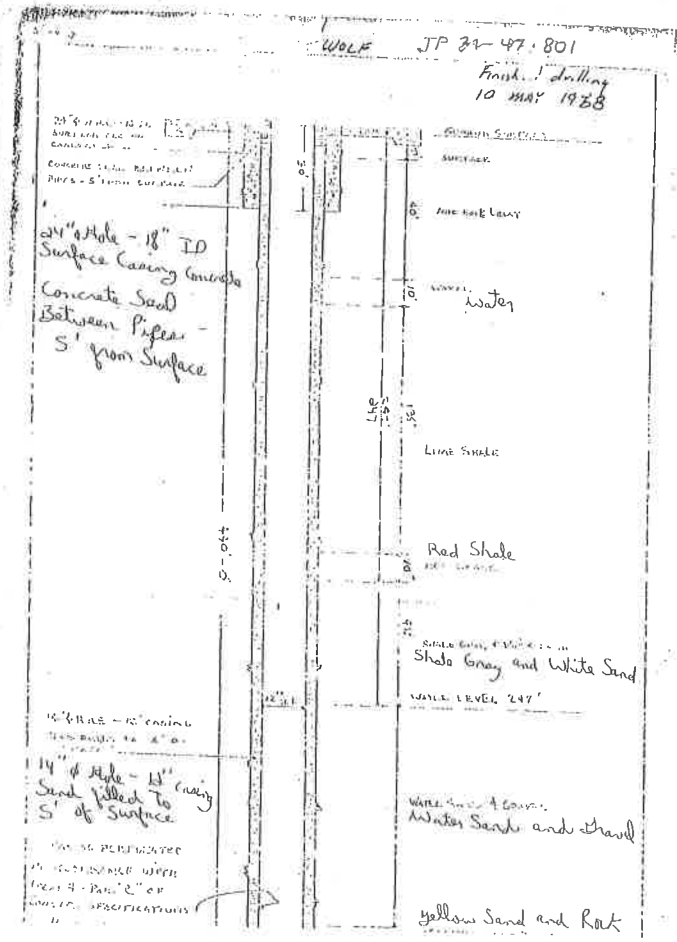
County : ERATH
Location: 2 miles N of Stephenville

Observation well no. 31-47-801
Pumped well no. SAME

Average Q 300 gpm r = ft. r^2 =

Date	Hour	t (min)	t' (min)	t/t'	Depth to water	s (unadjusted)	Adjustment Δs	s' (adjusted)	Q (gpm)	Remarks
5-68		0			271				390	Pump ON
		60			364					
		120			390					
		150			412					
		180			360					Pump off 1/2 hr
		240			362				300	
		300			360					
		360			364					
		420			361					
		480			363				300	
		540			360					
		600			358					
		660			362					
		720			364					
		780			363				300	
										Pump off
			5		358	0				
			10		354	4				
			15		351	3				
			20		348	3				
			25		344	4				
			30		341	3				
			35		336	5				
			40		333	3				
			45		331	2				

TWDBE-GW-4



STATE OF TEXAS PLUGGING REPORT for Tracking #61366

Owner:	Texas Agrilife Research	Owner Well #:	No Data
Address:	1229 Hwy 281 N Stephenville, TX 76401	Grid #:	31-55-2
Well Location:	1712 CR 177 Stephenville, TX 76401	Latitude:	32° 14' 13" N
		Longitude:	098° 11' 28" W
Well County:	Erath	Elevation:	No Data

Well Type: **Withdrawal of Water**

Drilling Information

Company: **No Data** — Date Drilled: **No Data**

Driller: **No Data** — License Number: **No Data**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	4		31

Plugging Information

Date Plugged: **1/12/2010** — Plugger: **Land Owner**

Plug Method: **Pour in 3/8 bentonite chips when standing water in well is less than 100 feet depth, cement top 2 feet**

Casing Left in Well:

Dia (in.)	*Top (ft.)*	*Bottom (ft.)*
4	-2	31

Plug(s) Placed in Well:

Top (ft.)	*Bottom (ft.)*	*Description (number of sacks & material)*
0	2	1 Cement
2	31	3 Bentonite

Certification Data: The driller certified that the driller plugged this well (or the well was plugged under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the reports(s) being returned for completion and resubmittal.

Company Information: **Landowner Plugged**
1229 Hwy 281 N
Stephenville, TX 76401

Driller Name: **Jerry Ward** — License Number: **N/A**

Comments: **Dininfected well with chlorine, old windmill well that had partially clollapsed casing. ^EO**

Well #6

Texas Water Development Board

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 31-55-210

GWDB Reports and Downloads

Well Basic Details

Scanned Documents

State Well Number	3155210
County	Erath
River Basin	Brazos
Groundwater Management Area	8
Regional Water Planning Area	G - Brazos G
Groundwater Conservation District	Middle Trinity GCD
Latitude (decimal degrees)	32.241389
Latitude (degrees minutes seconds)	32° 14' 29" N
Longitude (decimal degrees)	-98.184167
Longitude (degrees minutes seconds)	098° 11' 03" W
Coordinate Source	+/- 5 Seconds
Aquifer Code	217HSTN - Hosston Formation
Aquifer	Trinity
Aquifer Pick Method	
Land Surface Elevation (feet above sea level)	1320
Land Surface Elevation Method	Interpolated From Topo Map
Well Depth (feet below land surface)	420
Well Depth Source	Driller's Log
Drilling Start Date	
Drilling End Date	5/18/1973
Drilling Method	Mud (Hydraulic) Rotary
Borehole Completion	Perforated or Slotted

Well Type	Withdrawal of Water
Well Use	Irrigation
Water Level Observation	None
Water Quality Available	No
Pump	Turbine
Pump Depth (feet below land surface)	
Power Type	Electric Motor
Annular Seal Method	
Surface Completion	
Owner	Tarleton College Exp. Station
Driller	Wolf Drilling Co.
Other Data Available	Drillers Log
Well Report Tracking Number	
Plugging Report Tracking Number	
U.S. Geological Survey Site Number	
Texas Commission on Environmental Quality Source Id	
Groundwater Conservation District Well Number	
Owner Well Number	
Other Well Number	
Previous State Well Number	
Reporting Agency	Texas Water Development Board
Created Date	11/13/1973
Last Update Date	7/8/1998

Remarks

Casing

Diameter (in)	Casing Type	Casing Material	Schedule	Gauge	Top Depth (ft)	Bottom Depth (ft)
10	Blank	Steel			0	360
10	Screen				360	420

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Texas Water Development Board

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 31-55-210

Water Level Measurements

No Data Available

Texas Water Development Board

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number 31-55-210

Water Quality Analysis - No Data Available

Well #7

Texas Water Development Board

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
31-55-201

GWDB Reports and Downloads | **Well Basic Details** | Scanned Documents

State Well Number	3155201	Well Type	Withdrawal of Water
County	Erath	Well Use	Irrigation
River Basin	Brazos	Water Level Observation	Historical Observation Well
Groundwater Management Area	8	Water Quality Available	Yes
Regional Water Planning Area	G - Brazos G	Pump	None
Groundwater Conservation District	Middle Trinity GCD	Pump Depth (feet below land surface)	
Latitude (decimal degrees)	32.241389	Power Type	
Latitude (degrees minutes seconds)	32° 14' 29" N	Annular Seal Method	
Longitude (decimal degrees)	-98.183611	Surface Completion	
Longitude (degrees minutes seconds)	098° 11' 01" W	Owner	Texas A&M University Tarleton Experiment
Coordinate Source	+/- 5 Seconds	Driller	Jones Drilling Co
Aquifer Code	218TWMT - Twin Mountains Formation	Other Data Available	
Aquifer	Trinity	Well Report Tracking Number	
Aquifer Pick Method		Plugging Report Tracking Number	
Land Surface Elevation (feet above sea level)	1322	U.S. Geological Survey Site Number	
Land Surface Elevation Method	Interpolated From Topo Map	Texas Commission on Environmental Quality Source Id	
Well Depth (feet below land surface)	440	Groundwater Conservation District Well Number	
Well Depth Source	Memory of Owner	Owner Well Number	
Drilling Start Date		Other Well Number	
Drilling End Date	0/0/1955	Previous State Well Number	
Drilling Method	Cable Tool	Reporting Agency	Texas Water Development Board
Borehole Completion		Created Date	10/27/1965
		Last Update Date	1/6/2005

Remarks Measured yield 120 GPM in 1967. Historical observation well.

Casing - No Data

Well Tests - No Data

Lithology - No Data

Annular Seal Range - No Data

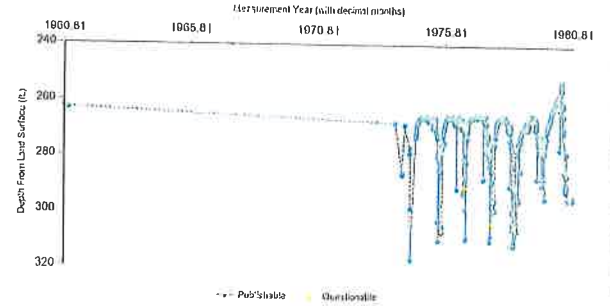
Borehole - No Data

Plugged Back - No Data

Filter Pack - No Data

Packers - No Data

Water Level Measurements



Status Code	Date	Time	Water Level (ft. below land surface)	Change (values in () indicates rise in level)	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	10/27/1960		262		1060	1	Other or Source of Measurement Unknown	Unknown		
P	12/27/1960		262.6	0.60	1059.4	1	Texas Water Development Board	Steel Tape		
P	11/13/1973		267.64	5.04	1054.36	1	Texas Water Development Board	Steel Tape		
P	2/22/1974		286.17	18.53	1035.83	1	Texas Water Development Board	Steel Tape		
P	3/26/1974		268.24	(17.93)	1053.76	1	Texas Water Development Board	Steel Tape		
P	6/11/1974		278.32	10.08	1043.68	1	Texas Water Development Board	Steel Tape		
P	6/15/1974		276.29	(2.03)	1045.71	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/20/1974		298.24	21.95	1023.76	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/25/1974		316.73	18.49	1005.27	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/5/1974		272.44	(44.29)	1049.56	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/10/1974		271.68	(0.76)	1050.32	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/15/1974		270.91	(0.77)	1051.09	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/20/1974		269.42	(1.49)	1052.58	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft. below land surface)	Change (values in () indicates rise in level)	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	9/25/1974		268.25	(1.17)	1053.75	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/30/1974		267.59	(0.66)	1054.41	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/5/1974		267.23	(0.36)	1054.77	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/10/1974		267.16	(0.07)	1054.84	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/15/1974		267	(0.16)	1055	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/16/1974		267	0.00	1055	1	Texas Water Development Board	Steel Tape		
P	10/20/1974		266.61	(0.39)	1055.39	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/25/1974		266.48	(0.13)	1055.52	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/30/1974		266.16	(0.32)	1055.84	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/5/1974		265.78	(0.38)	1056.22	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/10/1974		265.56	(0.22)	1056.44	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/16/1974		265.65	0.09	1056.35	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/20/1974		265.68	0.03	1056.32	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/25/1974		265.81	0.13	1056.19	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/30/1974		265.61	(0.20)	1056.39	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/6/1975		266.05	0.44	1055.95	1	Texas Water Development Board	Steel Tape		
P	2/10/1975		265.61	(0.44)	1056.39	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/15/1975		265.3	(0.31)	1056.7	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/20/1975		265.1	(0.20)	1056.9	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/25/1975		265.08	(0.02)	1056.92	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft. below land surface)	Change (values in () indicates rise in level)	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	3/5/1975		266.93	1.85	1055.07	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/10/1975		266.13	(0.80)	1055.87	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/15/1975		265.68	(0.45)	1056.32	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/20/1975		265.7	0.02	1056.3	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/25/1975		265.55	(0.15)	1056.45	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/30/1975		265.11	(0.44)	1056.89	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/5/1975		265.22	0.11	1056.78	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/10/1975		265.38	0.16	1056.62	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/15/1975		265.13	(0.25)	1056.87	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/20/1975		265.11	(0.02)	1056.89	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/25/1975		265.2	0.09	1056.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/30/1975		266.13	0.93	1055.87	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/5/1975		269.12	2.99	1052.88	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/10/1975		268.6	(0.52)	1053.4	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/15/1975		268.43	(0.17)	1053.57	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/20/1975		267.8	(0.63)	1054.2	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/25/1975		267.2	(0.60)	1054.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/30/1975		266.49	(0.71)	1055.51	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/5/1975		265.61	(0.88)	1056.39	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/9/1975		265.84	0.23	1056.16	1	Texas Water Development Board	Steel Tape		

Status Code	Date	Time	Water Level (ft below land surface)	Change (values in () indicate rise in level)	Water Elevation (ft above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	6/10/1975		265.76	(0.08)	1056.24	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/15/1975		266.38	0.62	1055.62	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/20/1975		268.27	1.89	1053.73	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/25/1975		270.5	2.23	1051.5	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/30/1975		271.75	1.25	1050.25	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/5/1975		272.67	0.92	1049.33	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/10/1975		302.72	30.05	1019.28	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/15/1975		279.84	(22.88)	1042.16	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/20/1975		277.97	(1.87)	1044.03	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/25/1975		309.63	31.66	1012.37	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/30/1975		280.42	(29.21)	1041.58	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/5/1975		296.85	16.43	1025.15	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/10/1975		281.44	(15.41)	1040.56	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/15/1975		305.17	23.73	1016.83	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/20/1975		279.53	(25.64)	1042.47	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/25/1975		281.2	1.67	1040.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/30/1975		276.85	(5.35)	1045.15	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/5/1975		285	8.15	1037	1	Texas Water Development Board	Recorder (Float or Transducer)		
Q	9/8/1975		306.39	21.39	1015.61	1	Texas Water Development Board	Steel Tape	3	
P	9/10/1975		306.84	0.45	1015.16	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft below land surface)	Change (values in () indicate rise in level)	Water Elevation (ft above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	9/15/1975		304.66	(2.18)	1017.34	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/20/1975		276.52	(28.14)	1045.48	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/25/1975		272.36	(4.16)	1049.64	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/30/1975		270	(2.36)	1052	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/5/1975		271.22	1.22	1050.78	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/10/1975		270.1	(1.12)	1051.9	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/15/1975		274.65	4.55	1047.35	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/20/1975		269.48	(5.17)	1052.52	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/25/1975		268.12	(1.36)	1053.88	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/30/1975		267.3	(0.82)	1054.7	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/5/1975		266.65	(0.65)	1055.35	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/10/1975		266.2	(0.45)	1055.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/15/1975		266.08	(0.12)	1055.92	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/20/1975		265.82	(0.26)	1056.18	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/25/1975		265.64	(0.18)	1056.36	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/30/1975		265.39	(0.25)	1056.61	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/1/1975		265.61	0.22	1056.39	1	Texas Water Development Board	Steel Tape		
P	12/5/1975		265.71	0.10	1056.29	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/10/1975		265.68	(0.03)	1056.32	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/15/1975		265.77	0.09	1056.23	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft below land surface)	Change (values in () indicate rise in level)	Water Elevation (ft above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	12/20/1975		265.82	0.05	1056.18	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/25/1975		265.62	(0.20)	1056.38	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/30/1975		265.2	(0.42)	1056.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/5/1976		265.27	0.07	1056.73	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/10/1976		265.41	0.14	1056.59	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/15/1976		265.62	0.21	1056.38	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/20/1976		265.9	0.28	1056.1	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/25/1976		265.71	(0.19)	1056.29	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/30/1976		265.4	(0.31)	1056.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/5/1976		265.32	(0.08)	1056.68	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/10/1976		265.27	(0.05)	1056.73	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/15/1976		265.52	0.25	1056.48	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/20/1976		265.4	(0.12)	1056.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/25/1976		265.6	0.20	1056.4	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/5/1976		267.46	1.86	1054.54	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/10/1976		266.29	(1.17)	1055.71	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/15/1976		265.84	(0.45)	1056.16	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/16/1976		266.17	0.33	1055.83	1	Texas Water Development Board	Steel Tape		
P	3/20/1976		266.02	(0.15)	1055.98	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/25/1976		266.79	0.77	1055.21	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft below land surface)	Change (values in () indicate rise in level)	Water Elevation (ft above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	3/30/1976		267.39	0.60	1054.61	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/5/1976		291.16	23.77	1030.84	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/10/1976		267.8	(23.36)	1054.2	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/15/1976		266.35	(1.45)	1055.65	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/20/1976		265.62	(0.73)	1056.38	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/25/1976		265.4	(0.22)	1056.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/30/1976		265.35	(0.05)	1056.65	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/3/1976		265.35	0.00	1056.65	1	Texas Water Development Board	Steel Tape		
P	5/5/1976		265.02	(0.33)	1056.98	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/10/1976		265.1	0.08	1056.9	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/15/1976		265.2	0.10	1056.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/20/1976		265.99	0.79	1056.01	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/25/1976		267.98	1.99	1054.02	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/30/1976		266.77	(1.21)	1055.23	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/5/1976		267.85	1.08	1054.15	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/10/1976		266.3	(1.55)	1055.7	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/15/1976		265.8	(0.50)	1056.2	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/20/1976		268.08	2.28	1053.92	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/25/1976		269.02	0.94	1052.98	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/30/1976		268.99	(0.03)	1053.01	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft. below land surface)	Change (values in ( ) indicate rise in level)	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	7/5/1976		269.65	0.58	1052.35	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/10/1976		292.84	23.19	1029.16	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/15/1976		269.62	(23.22)	1052.38	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/20/1976		267.07	(2.55)	1054.93	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/25/1976		267.05	(0.02)	1054.95	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/30/1976		270.52	3.47	1051.48	1	Texas Water Development Board	Recorder (Float or Transducer)		
Q	8/2/1976		290.63	20.11	1031.37	1	Texas Water Development Board	Steel Tape	3	
P	8/5/1976		298.21	7.58	1023.79	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/10/1976		278.58	(19.63)	1043.42	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/15/1976		308.75	30.17	1013.25	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/20/1976		287.26	(21.49)	1034.74	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/25/1976		308.5	21.24	1013.5	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/30/1976		281.4	(27.10)	1040.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/5/1976		272.04	(9.36)	1049.96	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/10/1976		270.45	(1.59)	1051.55	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/15/1976		268.7	(1.75)	1053.3	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/20/1976		268.1	(0.60)	1053.9	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/25/1976		267.17	(0.93)	1054.83	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/30/1976		266.78	(0.39)	1055.22	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/5/1976		266.38	(0.40)	1055.62	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft. below land surface)	Change (values in ( ) indicate rise in level)	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	10/10/1976		266.2	(0.18)	1055.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/15/1976		265.88	(0.32)	1056.12	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/20/1976		265.9	0.02	1056.1	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/25/1976		265.48	(0.42)	1056.52	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/30/1976		265.3	(0.18)	1056.7	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/5/1976		265.42	0.12	1056.58	1	Texas Water Development Board	Steel Tape		
P	11/10/1976		265.4	(0.02)	1056.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/15/1976		265.44	0.04	1056.56	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/20/1976		265.28	(0.16)	1056.72	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/25/1976		265.02	(0.26)	1056.98	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/30/1976		265.23	0.21	1056.77	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/5/1976		264.9	(0.33)	1057.1	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/10/1976		264.9	0.00	1057.1	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/15/1976		264.83	(0.07)	1057.17	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/20/1976		264.82	(0.01)	1057.18	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/25/1976		264.96	0.14	1057.04	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/30/1976		264.67	(0.29)	1057.33	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/5/1977		264.72	0.05	1057.28	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/10/1977		264.82	0.10	1057.18	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/15/1977		265.14	0.32	1056.86	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft. below land surface)	Change (values in ( ) indicate rise in level)	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	1/20/1977		265.29	0.15	1056.71	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/25/1977		264.98	(0.31)	1057.02	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/30/1977		264.92	(0.06)	1057.08	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/5/1977		265	0.08	1057	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/10/1977		265.08	0.08	1056.92	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/15/1977		264.86	(0.22)	1057.14	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/20/1977		264.81	(0.05)	1057.19	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/25/1977		264.41	(0.40)	1057.59	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/5/1977		264.9	0.49	1057.1	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/10/1977		264.57	(0.33)	1057.43	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/15/1977		264.75	0.18	1057.25	1	Texas Water Development Board	Steel Tape		
P	3/20/1977		264.59	(0.16)	1057.41	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/25/1977		264.63	0.04	1057.37	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/30/1977		264.82	0.19	1057.18	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/5/1977		264.8	(0.02)	1057.2	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/10/1977		265.12	0.32	1056.88	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/15/1977		264.75	(0.37)	1057.25	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/20/1977		287.4	22.65	1034.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/25/1977		266.4	(21.00)	1055.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/30/1977		265.03	(1.37)	1056.97	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft. below land surface)	Change (values in ( ) indicate rise in level)	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	5/2/1977		264.95	(0.08)	1057.05	1	Texas Water Development Board	Steel Tape		
P	5/5/1977		264.53	(0.42)	1057.47	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/10/1977		264.49	(0.04)	1057.51	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/15/1977		264.46	(0.03)	1057.54	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/20/1977		264.4	(0.06)	1057.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/25/1977		264.62	0.22	1057.38	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/30/1977		264.68	0.06	1057.32	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/5/1977		267.36	2.68	1054.64	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/10/1977		277.81	10.45	1044.19	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/15/1977		276.7	(1.11)	1045.3	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/20/1977		272	(4.70)	1050	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/25/1977		273.5	1.50	1048.5	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/30/1977		271.42	(2.08)	1050.58	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/5/1977		272.29	0.87	1049.71	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/10/1977		276.52	4.23	1045.48	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/15/1977		278.58	2.06	1043.42	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/20/1977		280.28	1.70	1041.72	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/25/1977		282.89	2.61	1039.11	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/30/1977		309.55	26.66	1012.45	1	Texas Water Development Board	Recorder (Float or Transducer)		
Q	8/1/1977		303.25	(6.30)	1018.75	1	Texas Water Development Board	Steel Tape	3	

Status Code	Date	Time	Water Level (ft. below land surface)	Change (values in () indicate rise in level)	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	8/5/1977		282.2	(21.05)	1039.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/10/1977		307.6	25.40	1014.2	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/15/1977		289.15	(18.45)	1032.65	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/20/1977		284.42	(4.73)	1037.38	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/25/1977		278.75	(5.67)	1043.05	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/30/1977		275.1	(3.65)	1046.7	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/5/1977		298.96	23.86	1022.84	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/10/1977		287.7	(11.26)	1034.1	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/15/1977		295.5	7.80	1026.3	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/20/1977		298.4	2.90	1023.4	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/25/1977		295.84	(2.56)	1025.96	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/30/1977		294.76	(1.08)	1027.04	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/5/1977		295	0.24	1026.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/10/1977		298.43	3.43	1023.37	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/15/1977		274.68	(23.75)	1047.12	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/20/1977		271.98	(2.70)	1049.82	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/25/1977		270.02	(1.96)	1051.78	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/30/1977		268.7	(1.32)	1053.1	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/5/1977		267.73	(0.97)	1054.07	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/7/1977		267.3	(0.43)	1054.5	1	Texas Water Development Board	Steel Tape		

Status Code	Date	Time	Water Level (ft. below land surface)	Change (values in () indicate rise in level)	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	11/10/1977		267.29	(0.01)	1054.51	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/15/1977		266.55	(0.74)	1055.25	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/20/1977		266.25	(0.30)	1055.55	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/25/1977		266.15	(0.10)	1055.65	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/30/1977		265.79	(0.36)	1056.01	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/5/1977		265.45	(0.34)	1056.35	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/10/1977		265.89	0.44	1055.91	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/15/1977		265.58	(0.31)	1056.22	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/20/1977		266.08	0.50	1055.72	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/25/1977		265.78	(0.30)	1056.02	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/5/1978		265.53	(0.25)	1056.27	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/10/1978		265.65	0.12	1056.15	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/15/1978		265.2	(0.45)	1056.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/20/1978		265.23	0.03	1056.57	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/25/1978		264.98	(0.25)	1056.82	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/30/1978		265.5	0.52	1056.3	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/5/1978		265.79	0.29	1056.01	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/15/1978		265.1	(0.69)	1056.7	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/20/1978		264.99	(0.11)	1056.81	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft. below land surface)	Change (values in () indicate rise in level)	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	2/25/1978		265.12	0.13	1056.68	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/5/1978		264.92	(0.20)	1056.88	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/10/1978		264.8	(0.12)	1057	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/15/1978		265.03	0.23	1056.77	1	Texas Water Development Board	Steel Tape		
P	3/20/1978		265.02	(0.01)	1056.78	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/25/1978		265.55	0.53	1056.25	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/30/1978		265.75	0.20	1056.05	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/5/1978		265.92	0.17	1055.88	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/10/1978		266.9	0.98	1054.9	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/15/1978		268.83	1.93	1052.97	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/20/1978		268.98	0.15	1052.82	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/25/1978		269	0.02	1052.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/30/1978		269.62	0.62	1052.18	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/5/1978		269.97	0.35	1051.83	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/10/1978		270.03	0.06	1051.77	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/15/1978		269.48	(0.55)	1052.32	1	Texas Water Development Board	Steel Tape		
P	5/20/1978		273.28	3.80	1048.52	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/25/1978		289.9	16.62	1031.9	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/30/1978		270.05	(19.85)	1051.75	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/5/1978		268.42	(1.63)	1053.38	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft. below land surface)	Change (values in () indicate rise in level)	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	6/10/1978		268.68	0.26	1053.12	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/15/1978		274.99	6.31	1046.81	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/20/1978		274.79	(0.20)	1047.01	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/25/1978		298.92	24.13	1022.88	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/30/1978		303.48	4.56	1018.32	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/5/1978		305.28	1.80	1016.52	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/10/1978		291.2	(14.08)	1030.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/15/1978		311.1	19.90	1010.7	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/20/1978		311.11	0.01	1010.69	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/25/1978		309.59	(1.52)	1012.21	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/30/1978		307.58	(2.01)	1014.22	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/5/1978		282.9	(24.68)	1038.9	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/10/1978		276.55	(6.35)	1045.25	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/15/1978		292.09	15.54	1029.71	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/20/1978		302.49	10.40	1019.31	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/21/1978		304.63	2.14	1017.17	1	Texas Water Development Board	Steel Tape		
P	8/25/1978		304.11	(0.52)	1017.69	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/30/1978		306.11	2.00	1015.69	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/5/1978		281.09	(25.02)	1040.71	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/10/1978		277.1	(3.99)	1044.7	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft. below land surface)	Change (value in () indicates rise in level)	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	9/15/1978		275.6	(1.70)	1046.4	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/20/1978		275.33	(0.27)	1046.67	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/25/1978		295.31	19.98	1026.69	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/30/1978		276.51	(18.80)	1045.49	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/5/1978		295.04	18.53	1026.96	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/10/1978		274.4	(20.64)	1047.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/15/1978		272.6	(1.80)	1049.4	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/20/1978		284.7	12.10	1037.3	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/25/1978		274.3	(10.40)	1047.7	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/30/1978		271.8	(2.50)	1050.2	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/5/1978		271	(0.80)	1051	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/8/1978		271.15	0.15	1050.85	1	Texas Water Development Board	Steel Tape		
P	11/10/1978		270.33	(0.82)	1051.67	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/15/1978		270.25	(0.08)	1051.75	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/20/1978		270.19	(0.06)	1051.81	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/25/1978		269.91	(0.28)	1052.09	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/30/1978		269.81	(0.10)	1052.19	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/5/1978		269.84	0.03	1052.16	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/10/1978		269.55	(0.29)	1052.45	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/15/1978		269.52	(0.03)	1052.48	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft. below land surface)	Change (value in () indicates rise in level)	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	12/20/1978		269.82	0.30	1052.18	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/25/1978		269.6	(0.22)	1052.4	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/30/1978		268.48	(1.12)	1053.52	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/5/1979		268.4	(0.08)	1053.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/10/1979		267.79	(0.61)	1054.21	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/15/1979		267.51	(0.28)	1054.49	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/20/1979		267.4	(0.11)	1054.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/25/1979		266.73	(0.67)	1055.27	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/30/1979		269.08	2.35	1052.92	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/5/1979		269.5	0.42	1052.5	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/10/1979		268.2	(1.30)	1053.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/15/1979		268.33	0.13	1053.67	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/20/1979		267.4	(0.93)	1054.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/25/1979		267.19	(0.21)	1054.81	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/5/1979		266.61	(0.58)	1055.39	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/10/1979		266.68	0.07	1055.32	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/14/1979		266.98	0.30	1055.02	1	Texas Water Development Board	Steel Tape		
P	3/15/1979		266.92	(0.06)	1055.08	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/20/1979		266.2	(0.72)	1055.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/25/1979		265.9	(0.30)	1056.1	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft. below land surface)	Change (value in () indicates rise in level)	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	3/30/1979		266.44	0.54	1055.56	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/5/1979		265.72	(0.72)	1056.28	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/10/1979		265.18	(0.54)	1056.82	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/15/1979		265.78	0.60	1056.22	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/20/1979		265.5	(0.28)	1056.5	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/25/1979		265.48	(0.02)	1056.52	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/30/1979		265.81	0.33	1056.19	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/5/1979		265.63	(0.18)	1056.37	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/10/1979		265.7	0.07	1056.3	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/15/1979		265.72	0.02	1056.28	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/20/1979		267.07	1.35	1054.93	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/25/1979		269.3	2.23	1052.7	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/30/1979		268	(1.30)	1054	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/5/1979		266.66	(1.34)	1055.34	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/10/1979		266.43	(0.23)	1055.57	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/15/1979		287.05	20.62	1034.95	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/20/1979		271.82	(15.23)	1050.18	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/25/1979		274.08	2.26	1047.92	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/30/1979		272.39	(1.69)	1049.61	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft. below land surface)	Change (value in () indicates rise in level)	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	7/5/1979		273.98	1.59	1048.02	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/10/1979		277.95	3.97	1044.05	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/15/1979		276.88	(1.07)	1045.12	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/20/1979		275.6	(1.28)	1046.4	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/25/1979		272.2	(3.40)	1049.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/30/1979		274.88	2.68	1047.12	1	Texas Water Development Board	Steel Tape		
P	8/5/1979		274.75	(0.13)	1047.25	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/10/1979		274.12	(0.63)	1047.88	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/15/1979		287	12.88	1035	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/20/1979		272.3	(14.70)	1049.7	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/25/1979		273.5	1.20	1048.5	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/30/1979		289.6	16.10	1032.4	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/5/1979		278.35	(11.25)	1043.65	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/10/1979		275.3	(3.05)	1046.7	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/15/1979		287.19	11.89	1034.81	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/20/1979		278.4	(8.79)	1043.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/25/1979		274.78	(3.62)	1047.22	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	9/30/1979		274.7	(0.08)	1047.3	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/5/1979		294.48	19.78	1027.52	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/10/1979		277.54	(16.94)	1044.46	1	Texas Water Development Board	Recorder (Float or Transducer)		

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	10/15/1979		274.95	(2.59)	1047.05	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/20/1979		273.39	(1.56)	1048.61	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/25/1979		273.12	(0.27)	1048.88	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	10/30/1979		272.3	(0.82)	1049.7	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/5/1979		270.38	(1.92)	1051.62	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/10/1979		268.98	(1.40)	1053.02	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/15/1979		268.48	(0.50)	1053.52	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/16/1979		268.5	0.02	1053.5	1	Texas Water Development Board	Steel Tape		
P	11/20/1979		268.25	(0.25)	1053.75	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/25/1979		267.4	(0.85)	1054.6	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/30/1979		267.43	0.03	1054.57	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/5/1979		266.95	(0.48)	1055.05	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/10/1979		267.6	0.65	1054.4	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/15/1979		266.9	(0.70)	1055.1	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/20/1979		266	(0.90)	1056	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/25/1979		265.24	(0.76)	1056.76	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	12/30/1979		264.33	(0.91)	1057.67	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/5/1980		263.73	(0.60)	1058.27	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/10/1980		263.18	(0.55)	1058.82	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/15/1980		263.01	(0.17)	1058.99	1	Texas Water Development Board	Recorder (Float or Transducer)		

Texas Water Development Board

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
31-55-201

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	1/20/1980		263.09	0.08	1058.91	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/25/1980		262.16	(0.93)	1059.84	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	1/30/1980		261.61	(0.55)	1060.39	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/5/1980		261.38	(0.23)	1060.62	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/10/1980		261.3	(0.08)	1060.7	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/11/1980		261.3	0.00	1060.7	1	Texas Water Development Board	Steel Tape		
P	2/15/1980		261.48	0.18	1060.52	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/20/1980		260.84	(0.64)	1061.16	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	2/25/1980		261.77	0.93	1060.23	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/5/1980		259.76	(2.01)	1062.24	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/10/1980		258.93	(0.83)	1063.07	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/15/1980		258.98	0.05	1063.02	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/17/1980		258.53	(0.45)	1063.47	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/20/1980		258.2	(0.33)	1063.8	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/25/1980		258.37	0.17	1063.63	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	3/30/1980		257.21	(1.16)	1064.79	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/5/1980		257.78	0.57	1064.22	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/10/1980		257.8	0.02	1064.2	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/15/1980		257.88	0.08	1064.12	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/20/1980		257.82	(0.06)	1064.18	1	Texas Water Development Board	Recorder (Float or Transducer)		

Texas Water Development Board

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
31-55-201

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	4/25/1980		262.15	4.33	1059.85	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	4/30/1980		276.47	14.32	1045.53	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/5/1980		258.9	(17.57)	1063.1	1	Texas Water Development Board	Steel Tape		
P	5/10/1980		256.56	(2.34)	1065.44	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/15/1980		254.18	(2.38)	1067.82	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/20/1980		253.18	(1.00)	1068.82	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/25/1980		252.22	(0.96)	1069.78	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	5/30/1980		254.18	1.96	1067.82	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/5/1980		255.32	1.14	1066.68	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/10/1980		274.08	18.76	1047.92	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/15/1980		260.19	(13.89)	1061.81	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/20/1980		263.82	3.63	1058.18	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/25/1980		261.1	(2.72)	1060.9	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	6/30/1980		264.62	3.52	1057.38	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/5/1980		270.26	5.64	1051.74	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/10/1980		269.12	(1.14)	1052.88	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/15/1980		285.26	16.14	1036.74	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/20/1980		290.9	5.64	1031.1	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/25/1980		289.31	(1.59)	1032.69	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	7/30/1980		290.38	1.07	1031.62	1	Texas Water Development Board	Recorder (Float or Transducer)		

Texas Water Development Board

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
31-55-201

Status Code	Date	Time	Water Level (ft. below land surface)	Change value in () indicates rise in level	Water Elevation (ft. above sea level)	Meas #	Measuring Agency	Method	Remark ID	Comments
P	8/5/1980		292.07	1.69	1029.93	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/10/1980		278.07	(14.00)	1043.93	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/12/1980		286.06	7.99	1035.94	1	Texas Water Development Board	Steel Tape		
P	8/16/1980		290.29	4.23	1031.71	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	8/30/1980		294.69	4.40	1027.31	1	Texas Water Development Board	Recorder (Float or Transducer)		
P	11/8/1980		294.7	0.01	1027.3	1	Texas Water Development Board	Steel Tape		

Code Descriptions

Status Code	Status Description
P	Publishable
Q	Questionable

Remark ID	Remark Description
3	Well or wells pumping nearby

Texas Water Development Board (TWDB)
Groundwater Database (GWDB)
Well Information Report for State Well Number
31-55-201

Water Quality Analysis

Sample Date: 10/17/1955 **Sample Time:** 0000 **Sample Number:** 1 **Collection Entity:** Well Owner or Operator

Sampled Aquifer: Twin Mountains Formation

Analyzed Lab: Texas A&M University **Reliability:** Collected from pumped well, but not filtered or preserved

Collection Remarks: No Data

Parameter Code	Parameter Description	Flag	Value*	Units	Plus/Minus
00416	ALKALINITY, PHENOLPHTHALEIN (MG/L)		0	mg/L	
00410	ALKALINITY, TOTAL (MG/L AS CACO3)		195.65	mg/L	
00440	BICARBONATE ION, CALCULATED (MG/L AS HCO3)		239	mg/L	
00910	CALCIUM (MG/L)		93	mg/L	
00445	CARBONATE ION, CALCULATED (MG/L AS CO3)		0	mg/L	
00940	CHLORIDE, TOTAL (MG/L AS CL)		110	mg/L	
00900	HARDNESS, TOTAL, CALCULATED (MG/L AS CACO3)		308	mg/L	
00920	MAGNESIUM (MG/L)		18	mg/L	
71880	RESIDUAL SODIUM CARBONATE, CALCULATED		0		
00931	SODIUM ADSORPTION RATIO, CALCULATED (SAR)		1.69		
00932	SODIUM, CALCULATED, PERCENT		32	PCT	
00929	SODIUM, TOTAL (MG/L AS NA)		68	mg/L	
00945	SULFATE, TOTAL (MG/L AS SO4)		100	mg/L	
70301	TOTAL DISSOLVED SOLIDS , SUM OF CONSTITUENTS (MG/L)		508	mg/L	

* Value may not display all significant digits for parameter in results, check Scanned Documents for laboratory paperwork.

Well #8

STATE OF TEXAS WELL REPORT for Tracking #336732

Owner:	Texas Agrilife Research	Owner Well #:	2800
Address:	1229 Hwy 281 N Stephenville, TX 76401	Grid #:	31-55-2
Well Location:	Off of Smith's Springs Road Stephenville, TX	Latitude:	32° 14' 38" N
		Longitude:	098° 10' 49" W
Well County:	Erath	Elevation:	No Data
Type of Work:	Replacement	Proposed Use:	Domestic

Drilling Start Date: 5/3/2012 Drilling End Date: 5/3/2012

Borehole:

Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
7.875	0	100
6.75	100	450

Drilling Method: Air Rotary; Mud (Hydraulic) Rotary

Borehole Completion: Filter Packed

Filter Pack Intervals:

Top Depth (ft.)	Bottom Depth (ft.)	Filter Material	Size
225	450	Gravel	12/20

Annular Seal Data:

Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
0	15	4 port cement
15	100	5 benseal
220	225	1 quick gel

Seal Method: Pumped

Sealed By: Driller

Distance to Property Line (ft.): 1000

Distance to Septic Field or other concentrated contamination (ft.): 150+

Distance to Septic Tank (ft.): No Data

Method of Verification: Customer Verified

Surface Completion: Surface Sleeve Installed

Water Level: 330 ft. below land surface on 2012-05-03 Measurement Method: Unknown

Packers: No Data

Type of Pump: Submersible Pump Depth (ft.): 420

Well Tests: Jetted No Test Data Specified

Water Quality:

Strata Depth (ft.)	Water Type
270-445	Trinity

Chemical Analysis Made: No

Did the driller knowingly penetrate any strata which contained injurious constituents?: No

Certification Data: The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmittal.

Company Information: Associated Services

Driller Name: Josh Aerdal License Number: 55033

Comments: ^CLH

Lithology: DESCRIPTION & COLOR OF FORMATION MATERIAL

Top (ft.)	Bottom (ft.)	Description
0	1	topsoil
1	55	yellow white clay, sandy clay and streaks of sand
55	210	grey clay, shale and limestone
210	270	grey red blue clay sandy clay, streaks of sand & sandstone
270	280	sand, tiny gravel and streaks of sandy clay
280	298	blue sandy clay
298	325	sand and small gravel
325	345	sand, gravel and sandstone layers
345	347	red blue clay and sandy clay
347	350	sand and sandstone
350	367	red blue clay and sandy clay
367	375	blue sandy clay and streaks of sand
375	390	red blue clay and sandy clay
390	399	sand and tiny gravel
399	430	sand, gravel, sandstone and blue sandy clay layers
430	445	sand and small gravel
445	450	yellow brown clay and shale

Casing: BLANK PIPE & WELL SCREEN DATA

Dia (in.) New/Used Type Setting From/To (ft.)

4 n blank pvc 0-330 sch40

4 n .020 pvc screen 330-450 sch40

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

Well #10

TEXAS WATER COMMISSION

WELL SCHEDULE

Aquifer: Hensel & Hosston Field No.: TS-JP-7 (E-log) State Well No.: 31-55-209
Owner's Well No.: #2 County: Erath Co.

1. Location: Nr. n. of Stephenville
2. Owner: College Farm (Tarleton State) Address: Stephenville
Tenant:
Driller: Texas Water Well Address: Houston
3. Elevation of LSD is 1322 ft. above msl, determined by Stephenville Quad 1961
4. Drilled: 2-19 1953; Dug, Cable Tool, Rotary
5. Depth: Rept. 522 ft. Meas. Plugged back to 400'
6. Completion: Open Hole, Straight Wall, Underreamed, Gravel Packed
7. Pump: Mfr. Peerless Type Turbine
No. Stages, Bowls Diam. in., Setting 1557? 305 ft. 310 (315')
Column Diam. in., Length Tailpipe ft.
8. Motor: Fuel elect. Make & Model U.S. Mtrs. H.P. 15
9. Yield: Flow gpm, Pump gpm, Meas., Rept., Est.
10. Performance Test: Date 3-11-53 Length of Test 47 hrs. Made by Tex. Water Well
Static Level 251 ft. Pumping Level 317 ft. Drawdown 66 ft.
Production 200 gpm Specific Capacity 3.03 gpm/ft.

Casing & Blank Pipe			
Diam. (in.)	Type	Setting, ft. from	to
10¾	OD	0	230
8"	OD	218	230
8"	SS	230	285
8"	OD	285	335
6"	SS	335	395
6"	OD	395	400

PL 11. Water Level: 302 ft. rept. 7-28-64 below LSD which is ft. above/below surface.
SL 285 ft. rept. 7-28-64 below LSD which is ft. above/below surface.
251 ft. rept. 3-11-1953 below LSD which is ft. above/below surface.
ft. rept. meas. above/below Meas. pipe on W. side which is 0.8 ft. above surface.
12. Use: Dom., Stock, Public Supply, Ind., Irr., Waterflooding, Observation, Not Used
13. Quality: (Remarks on taste, odor, color, etc.)
Temp. °F, Date sampled for analysis Laboratory
Temp. °F, Date sampled for analysis Laboratory
Temp. °F, Date sampled for analysis Laboratory
14. Other data available as circled: Driller's Log, Radioactivity Log, Electric Log,* Formation Samples, Pumping Test
15. Record by: D. Thompson Date 10-27-1965
Source of Data: Mr. Autey
16. Remarks: Sketch on back of schedule
See Mr. C.H. Adams about meas. WL
airline to 326 ft. - log on e-log
Info. on Pump - 15 HP, 3 Ph., 220/440 V., 1800 RPM
Info. on Meter Box -

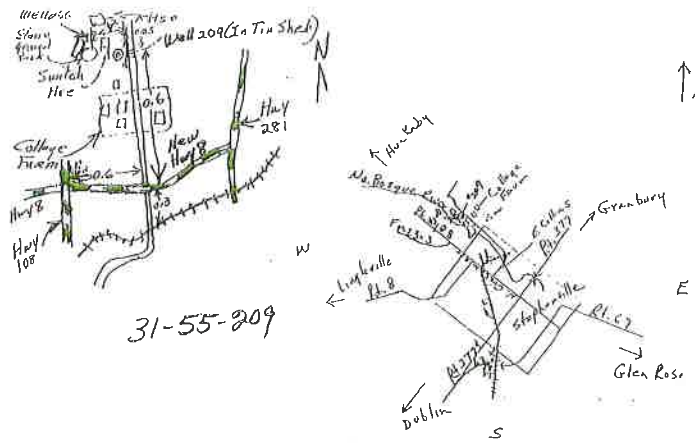
Lead seal @ 218 between liner & surface			
Diam. (in.)	Type	Setting, ft. from	to
8"	SS	230'	285'
6"	SS	335'	395'

98°15' (W) 2.55 mi.
32°15' (N) 0.55 mi.

See Back
(Sketch)

Form B-4 (62-1)

~~SC~~
-31-55-209



test 3-11-53
started 8:00 AM - for 4 hrs.
WL 9pm
251' 145
303' 179
310' 190
322' 225
317' 200
shutdown - WL recovered to 251'
326' of airline; used for test only

JP-31-55-209

PIPE AND SCREEN IN TARLETON STATE COLLEGE WELL # 2 JP-31-55-209

STEPHENVILLE, TEXAS

0' - 230'	10-3/4" O.D. surface casing 100 sacks cement
218' -	Lead seal between liner and surface casing
218' - 230'	8" Blank pipe
230' - 285'	8" Screen
285' - 335'	8" Blank pipe
335' - 395'	6" Screen
395' - 400'	6" Blank pipe

14 March 1953

Mr. [illegible] Corona
College Engineer
Tarleton State College
Stephenville, Texas

Re: Tarleton State College
Water Supply Well
Contract No. 1166

Dear Sir:

Enclosed is a copy of data recorded during the test of your well No. 2 at the College Farm on 11 to 13 March 1953.

As recorded on the data sheets, the well was pumped at various rates until the pumping level stayed [illegible] for at least two (2) hours. After pumping [illegible] twenty [illegible] at various rates, the rate of discharge was held constant at two hundred (200) gallons per minute and the pumping level varied less than four for twenty-three (23) hours. It is noted that after four (4) hours pumping at the two hundred (200) gallon per minute rate the pumping level remained steady.

The well was pumped for two and one half (2.5) hours at a rate of two hundred and twenty-five (225) gallons per minute with the lowest level at three hundred and twenty-three (323) feet below the pump base.

After about twenty-two (22) hours of [illegible], the well started to make considerable sand and continued to produce [illegible] sand during the remainder of the test. On completion of the test, the Contractor surged and backwashed the well causing it to produce very large quantities of sand for a time. After [illegible] hours of this treatment, the well ceased to make more than one (1) ounce of sand per four hundred (400) gallons of water pumped at all rates of discharge up to two hundred and twenty-five (225) gallons per minute.

JP-31-55-209

As a result of the test, we recommend the approval of the well as meeting the Contractor's guarantee to produce two hundred (200) gallons per minute with less than one (1) ounce of sand per four hundred (400) gallons of water pumped.

We are notifying the Irri-Gation-Johnston Company that the well is ready for them to install the pump under their Contract No. 1157.

The test data indicates that the pump setting of three hundred and five (305) feet as specified in Contract No. 1157 is satisfactory. When pumping at seventy-five (75) gallons per minute, the test data indicates a pumping level of two hundred and seventy-three (273) feet. This will give thirty-two (32) feet of water above the pump.

Yours very truly,

George H. Feagan
For Homer A. Hunter

cc: Mr. T. R. Spence, Manager
Office of Physical Plant
A. & M. College
College Station, Texas

Texas Water Wells, Inc.
951 Mc Carty Drive
Houston 15, Texas

TARLETON STATE COLLEGE

STEPHENVILLE, TEXAS

FIELD TEST

WELL NO. 2

NOTE: All measurements recorded from base of test pump. Base of pump 3.5 feet above ground.
326 feet of air line and test pump used
Four inch orifice on six inch pipe used to determine quantity pumped

JP-31-55-209

TIME	AIR PRESS. GAGE IN POUNDS	AIR PRESS. X 2.31 = FT. WATER	326 FT. - FT. WATER = PUMPING LEVEL	ORIFICE HEAD IN INCHES	PUMPING RATE IN G.P.M.	REMARKS
11 March 1953						
8:00 A.M.	34.0	78.5	247.5	0.0	0.0	Idle Static level
8:00 A.M.	STARTED PUMP			10.0	205	
10:00	6.0	14.0	312.0	10.0	205	
1:00 P.M.	6.0	14.0	312.0	10.0	205	Very small amount of sand
1:30 P.M.	6.0	14.0	312.0	9.5	200	
2:00	6.0	14.0	312.0	9.5	200	
2:00 P.M.	Reduced Pump Discharge to 145 G.P.M.					
2:30 P.M.	15.0	34.5	291.5	5.0	145	
3:00	15.0	34.5	291.5	5.0	145	
3:30	15.5	36.0	290.0	5.0	145	
4:00	15.0	34.5	291.5	5.0	145	
4:30	15.0	34.5	291.5	5.0	145	
5:00	15.5	36.0	290.0	5.0	145	
5:30	15.5	36.0	290.0	5.0	145	
6:00	15.5	36.0	290.0	5.0	145	
6:00 P.M.	Increased Discharge Rate to 179 G.P.M.					
6:30	10.0	23.0	303.0	7.5	179	
7:00	9.5	22.0	304.0	7.5	179	
7:30	9.0	21.0	305.0	7.5	179	
8:00	9.0	21.0	305.0	7.5	179	Sand unchanged
8:30	8.5	19.5	306.5	7.5	179	
9:00	8.5	20.5	305.5	7.75	182	
9:30	7.5	17.0	309.0	7.5	179	
10:00	8.0	18.5	307.5	7.5	179	
10:30	7.5	17.0	309.0	7.5	179	
11:00	7.5	17.0	309.0	7.5	179	
11:30	7.5	17.0	309.0	7.5	179	
12:00 Mid. N	7.5	17.0	309.0	7.5	179	
12 March 1953						
~~12:00 Mid-Night Increased Discharge to 195 G.P.M.~~					~~193~~	
	6.0	14.0	312.0	8.5	190	
1:00 A.M.						

TARLETON STATE COLLEGE

STEPHENVILLE, TEXAS

FIELD TEST

WELL NO. 2

NOTE: All measurements recorded from base of test pump. Base of pump 3.5 feet above ground.
326 feet of air line and test pump used
Four inch orifice on six inch pipe used to determine quantity pumped

JP-31-55-209

TIME	AIR PRESS. GAGE IN POUNDS	AIR PRESS. X 2.31 = FT. WATER	326 FT. - FT. WATER = PUMPING LEVEL	ORIFICE HEAD IN INCHES	PUMPING RATE IN G.P.M.	REMARKS
11 March 1953						
8:00 A.M.	34.0	78.5	247.5	0.0	0.0	Idle Static level
8:00 A.M.	STARTED PUMP			10.0	205	
10:00	6.0	14.0	312.0	10.0	205	
1:00 P.M.	6.0	14.0	312.0	10.0	205	Very small amount of sand
1:30 P.M.	6.0	14.0	312.0	9.5	200	
2:00	6.0	14.0	312.0	9.5	200	
2:00 P.M.	Reduced Pump Discharge to 145 G.P.M.					
2:30 P.M.	15.0	34.5	291.5	5.0	145	
3:00	15.0	34.5	291.5	5.0	145	
3:30	15.5	36.0	290.0	5.0	145	
4:00	15.0	34.5	291.5	5.0	145	
4:30	15.0	34.5	291.5	5.0	145	
5:00	15.5	36.0	290.0	5.0	145	
5:30	15.5	36.0	290.0	5.0	145	
6:00	15.5	36.0	290.0	5.0	145	
6:00 P.M.	Increased Discharge Rate to 179 G.P.M.					
6:30	10.0	23.0	303.0	7.5	179	
7:00	9.5	22.0	304.0	7.5	179	
7:30	9.0	21.0	305.0	7.5	179	
8:00	9.0	21.0	305.0	7.5	179	Sand unchanged
8:30	8.5	19.5	306.5	7.5	179	
9:00	8.5	20.5	305.5	7.75	182	
9:30	7.5	17.0	309.0	7.5	179	
10:00	8.0	18.5	307.5	7.5	179	
10:30	7.5	17.0	309.0	7.5	179	
11:00	7.5	17.0	309.0	7.5	179	
11:30	7.5	17.0	309.0	7.5	179	
12:00 Mid. N	7.5	17.0	309.0	7.5	179	
12 March 1953						
~~12:00 Mid-Night Increased Discharge to 195 G.P.M.~~					~~193~~	
	6.0	14.0	312.0	8.5	190	
1:00 A.M.						

WELL TEST CONTINUED

JP-31-55-209

TIME	AIR PRESS. GAGE IN POUNDS	AIR PRESS. X 2.31 = FT. WATER	326 FT. - FT. WATER = PUMPING LEVEL	ORIFICE READING IN INCHES	PUMPING RATE IN G.P.M.	REMARKS
12 March 1953						
12:00 Mid-Night -	Increased Discharge to 195 G.P.M.					
12:30 A.M.	6.0	14.0	312.0	8.75	193	
1:00 A.M.	6.0	14.0	312.0	8.5	190	
1:30	6.0	14.0	312.0	8.5	190	
2:00	6.0	14.0	312.0	8.5	190	
2:30	6.5	15.0	311.0	8.5	190	
3:00	6.5	15.0	311.0	8.5	190	
3:30	6.0	14.0	312.0	8.5	190	
4:00	6.5	15.0	311.0	8.5	190	
4:30	7.0	16.0	310.0	8.25	188	
5:00	7.0	16.0	310.0	8.25	188	
5:30	7.0	16.0	310.0	8.5	190	Heavy sand- 8 Tbl. Spoon/Gt.
5:30 A.M. -	Increased Discharge to 225 G.P.M.					
6:00 A.M.	1.5	3.5	322.5	12.0	225	
6:30 A.M.	1.5	3.5	322.5	12.0	223	Caught 5 Gal. Water, Decanted and evaporated water and had one-half sand
7:00 A.M.	1.5	3.5	322.5	12.0	225	
7:30	1.5	3.5	322.5	12.0	223	
8:00	2.0	4.5	321.5	10.0	205	
8:00 A.M. -	Decreased Discharge to 200 G.P.M.					
8:30	4.5	10.5	315.5	9.5	200	
9:00	5.0	11.5	314.5	9.5	200	
10:00	6.0	14.0	312.0	9.5	200	
11:00	4.0	9.0	317.0	10.0	205	
12:00 Noon	3.5	8.0	318.0	10.0	205	Some less sand-still heavy
1:00 P.M.	3.5	8.0	318.0	10.0	205	
2:00 P.M.	3.5	8.0	318.0	10.0	205	
5:00	3.5	8.0	318.0	10.0	205	
6:00	4.0	9.0	317.0	10.0	205	
7:00	4.0	9.0	317.0	9.5	200	
8:00	4.0	9.0	317.0	9.5	200	
9:00	4.0	9.0	317.0	9.5	200	
10:00	4.0	9.0	317.0	9.5	200	
11:00	4.0	9.0	317.0	9.5	200	
12:00 Mid. N	3.0	7.0	319.0	9.5	200	

JP-31-55-209

TIME	AIR PRESS. GAGE IN POUNDS	AIR PRESS. X 2.31 = FT. WATER	396 FT. - FT. WATER = Pumping LEVEL	GAUGE READING IN INCHES	PUMPING RATE IN G.P.M.	REMARKS
13 March 1953						
1:00 A.M.	3.5	8.0	388.0	9.5	800	
2:00 A.M.	3.5	8.0	388.0	9.5	801	
3:00	3.5	8.0	388.0	9.5	800	
4:00	3.5	8.0	388.0	9.5	800	
5:00	3.5	8.0	388.0	9.5	800	
6:00	3.5	8.0	388.0	9.5	800	
7:00	4.0	9.0	387.0	9.5	800	Pump Off - Sand discharge about 85 % since 11:00 A.M. 12 March 1953
7:05 A.M.	30.0	69.0	[illegible]	0.0	600	
7:20	32.5	75.0	[illegible]	2.0	600	
7:25	32.5	75.0	[illegible]	6.0	600	
7:30	32.5	75.0	[illegible]	0.0	600	
7:45	33.0	76.0	[illegible]	0.0	600	
8:00	32.5	75.0	[illegible]	0.0	600	
8:00	Started backwashing and surging well. Continued for six hours before well quit producing excessive sand. After 3:00 P.M. well would get clear and not make sand at any rate between 150 G.P.M. and 855 G.P.M. after three to five minutes of pumping.					

Well #11

STATE OF TEXAS PLUGGING REPORT for Tracking #81544

Owner: **Texas Agrilife research**

Address: **1229 Hwy. 281 N**
Stephenville, TX 76401

Well Location: **off Smith Springs Rd.**
Stephenville, TX 76401

Well County: **Erath**

Owner Well #: **No Data**

Grid #: **31-55-2**

Latitude: **32° 14' 38" N**

Longitude: **098° 10' 48" W**

Elevation: **No Data**

Well Type: **Withdrawal of Water**

Drilling Information

Company: **No Data**

Driller: **No Data**

Date Drilled: **No Data**

License Number: **No Data**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	**4**		**420**

Plugging Information

Date Plugged: **5/3/2012**

Plugger: **Not Given**

Plug Method: **Tremmie pipe bentonite from bottom to 2 feet from surface, cement top 2 feet**

Casing Left in Well:			Plug(s) Placed in Well:		
Dia (in.)	*Top (ft.)*	*Bottom (ft.)*	*Top (ft.)*	*Bottom (ft.)*	*Description (number of sacks & material)*
4	**0**	**420**	**0**	**5**	**1 Cement**
			5	**420**	**19 Benseal**

Certification Data: The driller certified that the driller plugged this well (or the well was plugged under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the reports(s) being returned for completion and resubmittal.

Company Information: **Associated Well Service**

950 E South Loop
Stephenville, TX 76401

Driller Name: **Josh Aardal**

License Number: **55033**

Comments: **Corroded steel casing, hangs pump up witn serviceing well. Customer wanted it replaced.**
^EAD

STATE OF TEXAS PLUGGING REPORT for Tracking #41335

Owner:	TX Ag Experimental Station	Owner Well #:	No Data
Address:	1229 N US Hwy 281 Stephenville, TX 76401	Grid #:	31-55-2
Well Location:	1712 CR 177 Stephenville, TX 76401	Latitude:	32° 14' 37" N
		Longitude:	098° 10' 49" W
Well County:	Erath	Elevation:	No Data

Well Type: **Withdrawal of Water**

Drilling Information

Company: **No Data**

Date Drilled: **No Data**

Driller: **Unknown**

License Number: **No Data**

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	8		90

Plugging Information

Date Plugged: **1/23/2007**

Plugger: **Owner**

Plug Method: **Pour in 3/8 bentonite chips when standing water in well is less than 100 feet depth, cement top 2 feet**

Casing Left in Well:			Plug(s) Placed in Well:		
Dia (in.)	*Top (ft.)*	*Bottom (ft.)*	*Top (ft.)*	*Bottom (ft.)*	*Description (number of sacks & material)*
8	0	90	0	2	Cement
			2	90	41 Bentonite

Certification Data: The driller certified that the driller plugged this well (or the well was plugged under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the reports(s) being returned for completion and resubmittal.

Company Information: **Landowner Plugged**

1229 N US Hwy 281
Stephenville, TX 76401

Driller Name: **Jerry Ward/Owner**

License Number: **N/A**

Comments: **10' of water in well treated with chlorine bleach prior to plugging.**
^EO

Well #13

STATE OF TEXAS PLUGGING REPORT for Tracking #17333

Owner:	EDWINA FERGUSON	Owner Well #:	No Data
Address:	2158 E. WASHINGTON STEPHENVILLE, TX	Grid #:	31-55-2
Well Location:	2158 E. WASHINGTON STEPHENVILLE, TX	Latitude:	32° 14' 22" N
		Longitude:	098° 11' 00" W
Well County:	Erath	Elevation:	No Data

Well Type: **Withdrawal of Water**

Drilling Information

Company:	No Data	Date Drilled:	No Data
Driller:	No Data	License Number:	No Data

	Diameter (in.)	*Top Depth (ft.)*	*Bottom Depth (ft.)*
Borehole:	5		35.3

Plugging Information

Date Plugged: **6/10/2004** Plugger: **JOE RILEY**

Plug Method: **Tremmie pipe cement from bottom to top**

Casing Left in Well:			Plug(s) Placed in Well:		
Dia (in.)	*Top (ft.)*	*Bottom (ft.)*	*Top (ft.)*	*Bottom (ft.)*	*Description (number of sacks & material)*
5	0	35.3	0	35.3	8

Certification Data: The driller certified that the driller plugged this well (or the well was plugged under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the reports(s) being returned for completion and resubmittal.

Company Information: **RILEY DRILLING**

1330 W. MCNELL
STEPHENVILLE, TX 76401

Driller Name: **JOE RILEY** License Number: **2196**

Comments: **DG**

6.0 SURFACE WATER & TMDL ASSESSMENT

6.1 Surface Water Assessment

Figure 6.1, Aerial Photograph, shows the existing land features, production area, Land Management Unit boundaries, and areas designated as "water in the state," as defined by 30 TAC §321.32(63). Buffer zones between waters in the state and LMUs will be maintained as required in 30 TAC §321.40(h) plus additional filter strips specified by NRCS Code 393, as required in 30 TAC §321.42(w)(2). Based on NRCS Code 393, Appendix 3, Table 1, and LMU slope and soil types, the buffer zones shown in the attached map will be maintained. According to NRCS, Codes 601 (applied to severely eroded areas) and 332 (applied to cropland) are not currently applicable to the LMUs at this facility. Should field conditions or cropping systems change, Codes 601 and 332 will be implemented as necessary.

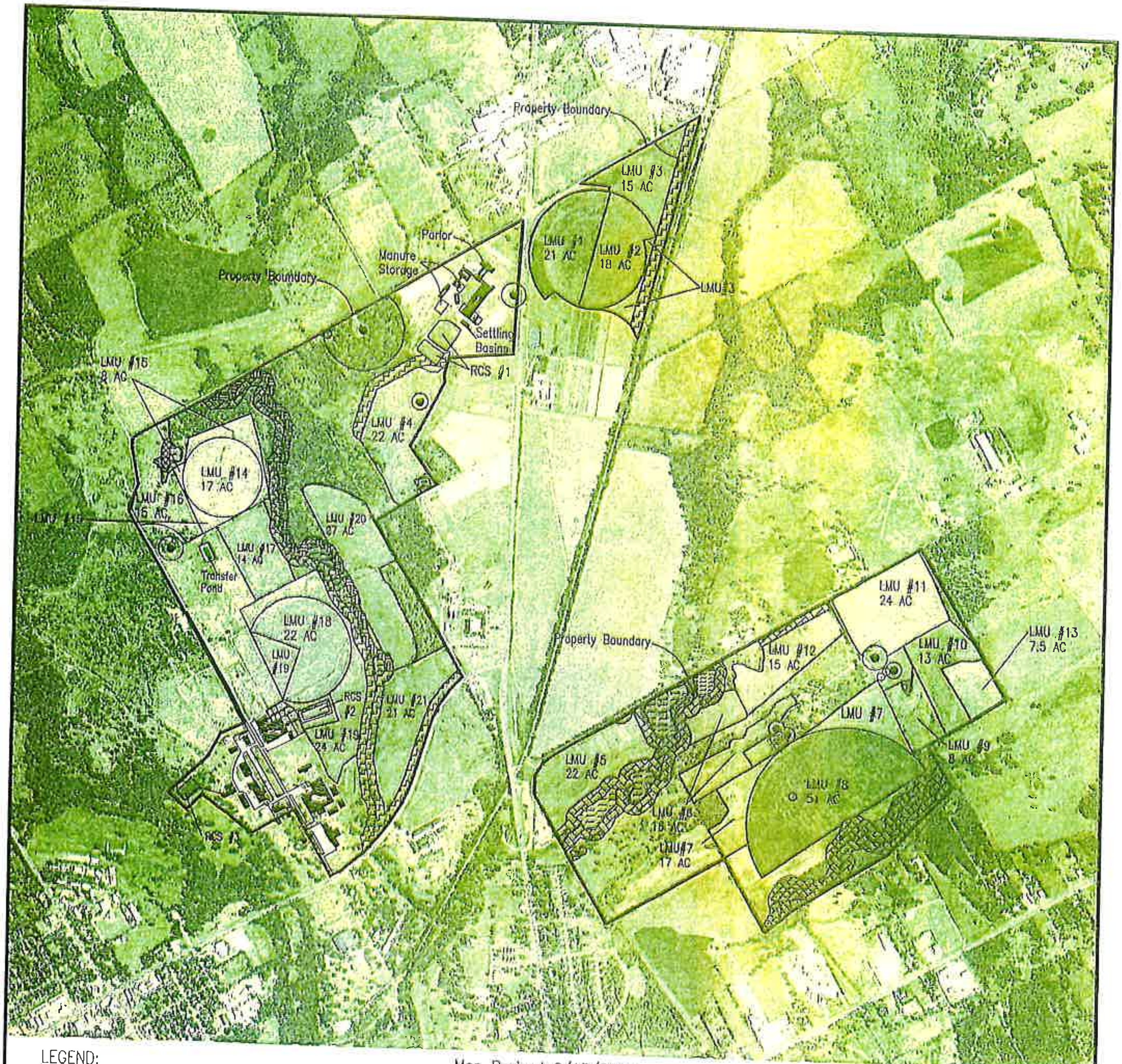
The "water in the state" designation is based on Enviro-Ag Engineering, Inc., site inspections, the permittee's knowledge of the property and the USDA-FSA aerial photograph (2017). The buffer zones and LMU boundaries in Figure 6.1 are submitted with this application for TCEQ approval.

6.2 TMDL Assessment

Southwest Regional Dairy Center is located in Segment 1255, Upper North Bosque River, Brazos River Basin, which is a 303(d)-listed watershed. To demonstrate that Southwest Regional Dairy Center is designed and will be constructed and operated in a manner that is consistent with the Phosphorus Total Maximum Daily Load (TMDL) and Implementation Plan approved in 2001 and to address the other listed impairments for this segment, the following practices have been or will be implemented:

1. Implement a Nutrient Utilization Plan that limits P application to crop requirement and incorporates a P reduction component on fields over 200 ppm P.
2. Limit maximum P level in soils to 200 ppm.
3. Perform annual soil sampling in accordance with the provisions of 30 TAC §321.42(k)-(m) and with Texas Cooperative Extension guidelines for composite sampling.
4. Implement a certified Comprehensive Nutrient Management Plan that meets the NRCS requirements for a whole-farm Resource Management System.
5. Maintain contracts with owners of third-party fields in accordance with 30 TAC §321.42(j)(1)-(4) and with applicable requirements of 30 TAC §321.36 and §321.40.
6. Operate the facility in accordance with 30 TAC §321.42 with additional Best Management Practices as follows:
    a. Scrape freestalls and cattle lanes to reduce or eliminate the need for flushing
    b. Excluding extraneous drainage areas from the RCSs (roof areas, etc.)

c. Reduce the potential for soil erosion and downgradient sediment deposition by maintaining permanent pastures and additional filter strips adjacent to waters in the state, as described above in Section 6.1



Map Revised 6/13/2024

LEGEND:

- Denotes Plugged Water Well
- Denotes Water Well
- Denotes Water Well With 100/150/500-Ft Buffer
- Denotes Fresh Water Pond
- Denotes 125-ft. Buffer
- Denotes 128-ft. Buffer
- Denotes 130-ft. Buffer
- Denotes 133-ft. Buffer
- Denotes Barns/Roofed Areas

N W E S

900' 0 900' 1800'

SCALED AS SHOWN

Source: USDA-NRCS Geospatial Data Gateway, Erath County. http://datagateway.nrcs.usda.gov/ National Ag. Imagery Mosaic - Accessed November 2017.

Refer to Figures 1.3 & 1.4 for overall facility maps.

Southwest Regional Dairy Center Stephenville, Texas Erath County	Aerial Photograph Figure 6.1 Page 40	ENVIRO-AG EAE ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

7.0 AIR QUALITY PERMIT BY RULE

7.1 Permit Requirements

Due to the headcount, the CAFO meets the TCEQ Air Quality Permit–By-Rule (PBR) authorization in 30 TAC §106.161 for facilities that confine less than 1000 head of cattle. See attached PBR Checklist; therefore, an odor control plan is not required.

Texas Commission on Environmental Quality
Title 30 Texas Administrative Code § 106.161
Air Permit by Rule (PBR) Checklist-Animal Feeding Operations

This checklist was developed by the Texas Commission on Environmental Quality (TCEQ) to assist applicants in determining whether an animal feeding operation meets all general and specific requirements of the permit by rule (PBR). If all PBR requirements cannot be met, the facility will not be allowed to operate under the PBR, and an application for a construction permit will be required. This checklist should accompany the Form PI-7, entitled, "Registration for Permits by Rule." Check the most appropriate answer and include any additional information in the spaces provided. If additional space is needed, please include an extra page and reference the question number. **A complete Form PI-7, complete Checklist, and any other supporting documents must be reviewed and approved by the TCEQ prior to beginning construction if the facility is for caged poultry (egg laying or pullet) operations only**. The PBR forms, tables, checklists, and guidance documents are available from the TCEQ Air Permits Division website at, www.tceq.state.tx.us/nav/permits/air_permits.html

For additional assistance with your application, including resources to help calculate your emissions, please visit the Small Business and Local Government Assistance (SBLGA) webpage at the following link: www.TexasEnviroHelp.org

Please Check the Most Appropriate Answer

Livestock:

Are the animal feeding operations designed to feed livestock? ☒ YES ☐ NO ☐ N/A

If "YES," answer the Questions 1 - 3 and 9 and no registration is required, but retain this checklist and keep records.

If "NO," skip to Question 4.

1. If the animal feeding operations designed to feed only one of the following livestock categories, indicate the number below:

Livestock Category	Limits	Number of Actual Livestock	Response
Cattle	1,000		☐ YES ☐ NO ☐ N/A
Horses and Mules	1,000		☐ YES ☐ NO ☐ N/A
Swine weighing more than 55 pounds	2,500		☐ YES ☐ NO ☐ N/A
Sheep and Goats	2,500		☐ YES ☐ NO ☐ N/A

2. If the animal feeding operations are designed to feed more than one type of livestock, indicate the number of actual livestock, and then calculate the equivalent animal sub-totals by multiplying the factor indicated by the number of actual livestock. To calculate the "Total Animal Equivalents," add the equivalent animal sub-totals together.

Livestock Category	Factor	x	Number of Actual Livestock	=	Equivalent Animal Sub-total
Cattle	1.0	x	600	=	600
Horses and Mules	2.0	x	150	=	300
Swine weighing more than 55 pounds	0.4	x	200	=	80
Sheep and Goats	0.1	x	200	=	20
Total Animal Equivalents =					1,000

Are the total of animal equivalents less than or equal to 1000? ☒ YES ☐ NO ☐ N/A

Texas Commission on Environmental Quality
Title 30 Texas Administrative Code § 106.161
Air Permit by Rule (PBR) Checklist-Animal Feeding Operations

Please Check the Most Appropriate Answer		
Birds and Poultry		
3.	When determining the number of animals above, mothers with nursing young were counted as a single animal while the young were nursing. Once removed from the mother, the young animals were counted as individual animals. Swine weighing 55 pounds or less were not counted when determining the number of animals. Were animals on the pasture not considered as part of the animal feeding operations?	☒ YES ☐ NO ☐ N/A
4.	Is the operation designed to feed <u>no more</u> than 55,000 turkeys or other birds (excluding ducks) concentrated in open lots?	☐ YES ☐ NO ☒ N/A
	If "YES," list the total number of birds.	
5.	Is the operation designed to feed no more than 5,000 ducks?	☐ YES ☐ NO ☒ N/A
	If "YES," list the total number of ducks	
6.	Are all caged poultry operations designed to feed <u>no more</u> than 30,000 birds?	☐ YES ☐ NO ☒ N/A
	If "YES," list the total number of birds.	
7.	Do all housed poultry operations use wood shavings (or similar) as litter?	☐ YES ☐ NO ☒ N/A
8.	If the caged poultry operation is designed to feed more than 30,000 birds and uses dry manure storage and handling system, then list the total number of birds, the type of birds, and answer the next Question. Otherwise, skip to Question 9.	
Total Number of Birds:	Bird Type:	
	An egg laying or caged pullet operation must be located at least 1/4 mile (1320 feet) from any recreational area, school, residence, or other structure not occupied or used solely by the owner of the operation.	
	List the distance to the nearest structure or recreational area.	
Feed Handling		
9.	Are products from the animal feeding operation (including on-site feed handling and feed milling operations) covered under this PBR registration shipped to any off-site location?	☐ YES ☒ NO

<u>Registration</u>: If the animal feeding operation consists only of livestock or outdoor birds and poultry, no registration is required. Any caged poultry (egg laying or pullet) operations must register and obtain approval prior to construction. All others should complete the checklist and retain records on site to demonstrate compliance with the PBR.

<u>Records</u>: In order to demonstrate compliance with the general and specific requirements for this PBR, animal feeding operations are required to maintain sufficient records to show that all requirements are met at all times. Records should include (but are not limited to) number and type of animals housed; methods and application of dust and odor controls; feed handling amounts and methods; and housekeeping.

<u>Estimate Air Emissions</u>: In general, air emissions estimates are not required during a PBR registration review for animal feeding operations. However, in order to demonstrate compliance with the general requirements for PBRs, animal feeding operation applicants may be asked to estimate air emissions from their animal feeding operations during a PBR review or during an Investigation. These estimates can be made by compiling the required records. If sufficient records are maintained on site and requirements are being met, the animal feeding operation and the TCEQ will be able to establish these emission rates if needed.

Save Form | Reset Form