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: 3T Martins Farm Hico, LLC and TMC Dairies, LLC
2) Enter Customer Number: CN not yet issued; CN605985894
3) Name of facility: TMC Dairies Hico
4) Enter Regulated Entity Number: RN101523090
5) Provide your permit Number: WQ0003190000
6) Facility Business: The facility confines 9,150 head of cattle in which 5,500 are milking. The facility has nineteen (19) land management units (LMUs) with the following acreages: LMU #TD1 - 144, LMU #TD2 - 56, LMU #TD3 - 40, LMU #TD4 - 86, LMU #TD6 -131, LMU #TD7 - 14, LMU #TH1 - 39, LMU #TH2 - 45, LMU #TH3 - 45, LMU #TH4E - 22, LMU #TH4W - 14, LMU #TH5 - 80, LMU #TH6 - 81, LMU#TH7 - 13, LMU #TH8 - 58, LMU #TS1 - 28, LMU #TS2 - 92, LMU #TS4 - 62 and LMU #TS5 - 44 acres. Six (6) retention control structures (RCSs), four concrete settling basins, one earthen slurry pit, one slurry pit with concrete bottom and earthen side and four settling basins. The required capacities are: RCS #TS1 - 24.78 ac-ft, RCS #TS2 - 22.07 ac-ft, RCS #TH2 - 40.27 ac-ft, RCS #TD1 - 58.10 ac-ft, RCS #TH1 - 0.00 ac-ft and RCS #TD Treatment Pond - 10.96 ac-ft. There are thirty-five (35) onsite wells of which seven (7) are plugged. The facility is located in the North Bosque River in Segment No. 1226 of the Brazos River Basin.
7) Facility Location: The facility is located on the East side of CR 209 at the intersection of CR 540 and CR 209, approximately 4 miles South of the intersection of CR 209 and US Hwy 67 approximately 7 miles Southeast of Stephenville in Erath County, Texas.
8) Application Type: Individual Permit Major Amendment
9) Description of your request: 3T Martins Farm Hico, LLC is submitting a major amendment application in two phases in order to maintain compliance throughout the transition. Phase 1 will see the headcount rise to 10,000 total with 8,000 milking, addition of the Jersey breed of dairy cattle along with the Holstein breed, addition of an anerobic digester and associated equipment, change in property boundary, reconfigure LMUs (see attached LMU cross-reference table), remove LMU #TH8 & #TD7, remove wells # TD9, #TF1 & TF2, well #TS5 is to be plugged and reconfigure drainage area on Figure 1.4A (addition of manure compost area, addition of cross-vent barn, plug well #TS5, expansion of RCS #TS1). Phase 2 will see the headcount rise to 13,500 total with 10,000 milking, reconfigure drainage area on Figure 1.4D (addition of cross-vent barn, addition of a parlor, remove pens, freestall barns, settling basins and plug well #TD11) and reconfigure parlor #2.Click or tap here to enter text.

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, parlor chemicals, 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 the RCS properly designed ((25-year frequency 10-day duration (25 year/10 day), 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. 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 or compost on-site. 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: 3T Martins Farm Hico, LLC y TMC Dairies, LLC

2) Ingrese el número de cliente: CN aún no emitido; CN605985894

3) Nombre de la instalación: TMC Dairies Hico

4) Ingresar Número de Entidad Regulada: RN101523090

5) Proporcione su número de permiso: WQ0003190000

6) Instalación Comercial: La instalación encierra 9,150 cabezas de ganado vacuno de las cuales 5,500 son lecheras. La instalación cuenta con diecinueve (19) unidades de administración de tierras (LMU) con las siguientes superficies: LMU #TD1 - 144, LMU #TD2 - 56, LMU #TD3 - 40, LMU #TD4 - 86, LMU #TD6 -131, LMU # TD7 - 14, LMU #TH1 - 39, LMU #TH2 - 45, LMU #TH3 - 45, LMU #TH4E - 22, LMU #TH4W - 14, LMU #TH5 - 80, LMU #TH6 - 81, LMU#TH7 - 13, LMU #TH8 - 58, LMU #TS1 - 28, LMU #TS2 - 92, LMU #TS4 - 62 y LMU #TS5 - 44 acres. Seis (6) estructuras de control de retención (RCS), cuatro estanques de decantación de concreto, un pozo de lodos de tierra, un pozo de lodos con fondo de concreto y costado de tierra y cuatro estanques de sedimentación. Las capacidades requeridas son: RCS #TS1 - 24.78 ac-ft, RCS #TS2 - 22.07 ac-ft, RCS #TH2 - 40.27 ac-ft, RCS #TD1 - 58.10 ac-ft, RCS #TH1 - 0.00 ac-ft y Estanque de tratamiento RCS #TD - 10.96 ac-ft. Hay treinta y cinco (35) pozos en el sitio, de los cuales siete (7) están taponados. La instalación está ubicada en el Río Bosque Norte en el Segmento No. 1226 de la Cuenca del Río Brazos.

7) Ubicación de la instalación: La instalación está ubicada en el lado este de CR 209 en la intersección de CR 540 y CR 209, aproximadamente a 4 millas al sur de la intersección de CR 209 y US Hwy 67, aproximadamente a 7 millas al sureste de Stephenville en el condado de Erath, Texas.

8) Tipo de Solicitud: Enmienda Importante al Permiso Individual

9) Descripción de su solicitud: 3T Martins Farm Hico, LLC presenta una solicitud de enmienda importante en dos fases para mantener el cumplimiento durante la transición. En la fase 1, la plantilla aumentará a 10,000 en total con 8,000 lecheras, se agregará la raza Jersey de ganado lechero junto con la raza Holstein, se agregará un digestor anaeróbico y el equipo asociado, se cambiarán los límites de la propiedad y se reconfigurarán las LMU (consulte la tabla de referencias cruzadas de LMU adjunta), remover LMU #TH8 y #TD7, remover los pozos # TD9, #TF1 y TF2, el pozo #TS5 se

tapará y reconfigurará el área de drenaje en la Figura 1.4A (adición de área de abono de estiércol, adición de granero con ventilación cruzada, tapar pozo #TS5, ampliación del RCS #TS1). En la Fase 2, el número de empleados aumentará a 13,500 en total con 10,000 lecheras, se reconfigurará el área de drenaje en la Figura 1.4D (agregación de un granero con ventilación cruzada, adición de una sala de estar, eliminación de corrales, graneros de establos libres, estanques de sedimentación y tapar del pozo #TD11) y se reconfigurará de la sala de estar #2.

10) Las posibles fuentes de contaminantes en la instalación incluyen (enumere las fuentes de contaminantes): Estiércol, reservas de estiércol, aguas residuales, lodos, estiércol líquido, 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 el RCS debidamente diseñado (frecuencia de 25 años, duración de 10 días (25 años/10 días), construido, operado y mantenido de acuerdo con la disposición del permiso. Mantener una zona de amortiguamiento de 100 pies para todos los pozos de riego o 150 pies para todos los pozos de suministro. 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 AMENDMENT

PERMIT NO. WQ0003190000

APPLICATION. 3T Martins Farm Hico, LLC and TMC Dairies LLC, P.O. Box 599, Hico, Texas 76457, which own and operate a dairy cattle facility, have applied to the Texas Commission on Environmental Quality (TCEQ) to amend Wastewater Permit No. WQ0003190000 (EPA I.D. No. TX0123030) for a Concentrated Animal Feeding Operation (CAFO) to authorize proposed changes in two phases. Phase one will include an increase to the headcount of dairy cattle to 10,000 total with 8,000 milking, addition of the Jersey breed of dairy cattle along with the Holstein breed, addition of an anerobic digester and associated equipment, change in property boundary, reconfiguration of the LMUs, removal of LMUs #TH8 & #TD7, removal of wells #TD9, #TF1 & TF2, and reconfiguration of the drainage area on Figure 1.4A (addition of manure compost area, addition of cross-vent barn, addition of a parlor, plug well #TSS, expansion of RCS #TS1). Phase two will include an increase to the headcount of dairy cattle to 13,500 total with 10,000 milking, reconfiguration of drainage area on Figure 1.4D (addition of cross-vent barn, remove pens, freestall barns, settling basins and plug well #TD11) and reconfigure parlor. The facility is located at 3618 County Road 540, near the city of Hico, in Erath County, Texas 76457. TCEQ received this application on August 28, 2024. The permit application will be available for viewing and copying at Erath County Extension Office, Erath County Courthouse, Room 206, 100 West Washington Street, 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=-98.047777,32.116944&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.**

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 3T Martins Farm Hico, LLC and TMC Dairies LLC at the address stated above or by calling Mr. Tony Martins, Managing Member, 3T Martins Farm Hico, LLC, at 208-320-2134.

Issuance Date: September 25, 2024

Comisión de Calidad Ambiental del Estado de Texas

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

PERMISO NO. WQ0003190000

SOLICITUD. 3T Martins Farm Hico, LLC and TMC Dairies LLC, P.O. Box 599, Hico, Texas 76457, que posee y opera una instalación de ganado lechero, ha solicitado a la Comisión de Calidad Ambiental de Texas (TCEQ) modificar el Permiso de Aguas Residuales No. WQ0003190000 (EPA I.D. No. TX0123030) para una Operación de Alimentación Concentrada para Animales (CAFO) para autorizar los cambios propuestos en dos fases. La primera fase incluirá un aumento del conteo de cabezas a 10,000 en total con 8,000 lecheras, la adición de la raza Jersey de ganado lechero junto con la raza Holstein, la adición de un digestor anaeróbico y equipo asociado, cambio en los límites de la propiedad, reconfiguración de las LMU, eliminación de LMU #TH8 y #TD7, remoción de los pozos #TD9, #TF1 y TF2 y reconfiguración del área de drenaje en la Figura 1.4A (adición de área de abono de estiércol, adición de granero con ventilación cruzada, adición de sala de estar, pozo de tapón #TSS, ampliación de RCS #TS1). La segunda fase incluirá un aumento del conteo de cabezas a 13,500 en total con 10,000 lecheras, la reconfiguración del área de drenaje en la Figura 1.4D (adición de un granero con ventilación cruzada, corrales de eliminación, graneros de establos libres, estanques de sedimentación y tapón del pozo #TD11) y reconfiguración de la sala. La instalación está ubicada en 3618 County Road 540, cerca de la ciudad de Hico, en el Condado de Erath, Texas 76457. La TCEQ recibió esta solicitud el 28 de agosto de 2024. La solicitud de permiso estará disponible para ver y copiar 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=-98.047777,32.116944&level=18

AVISO DE IDIOMA ALTERNATIVO. El aviso de idioma alternativo en español está disponible en https://www.tceq.texas.gov/permitting/wastewater/pending-permits/cafo-applications.

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. Además, puede pedir que la TCEQ ponga su nombre en una o 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 envía por correo su pedido a la Oficina del Secretario Principal de la TCEQ.

INFORMACIÓN DISPONIBLE EN LÍNEA. Para detalles sobre el estado de la solicitud, favor de visitar la Base de Datos Integrada de los Comisionados en www.tceq.texas.gov/goto/cid. Para buscar en la base de datos, utilizar el número de permiso para esta solicitud que aparece en la parte superior de este aviso.

CONTACTOS E INFORMACIÓN A LA AGENCIA. 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 de 3T Martins Farm Hico, LLC and TMC Dairies LLC a la dirección indicada arriba o llamando al Sr. Tony Martins, Miembro Gerente, 3T Martins Farm Hico, LLC, al 208-320-2134.

Fecha de emisión 25 de septiembre de 2024

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 27, 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: TMC Dairies Hico – Permit No. WQ#0003190000
Erath County, Texas.

Dear Administrative Review Section,

Enclosed please find the Major Amendment application for the above referenced facility. The $350 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

Enviro-Ag Engineering, Inc.

Cc: TCEQ Region 4, Stephenville
TMC Dairies Hico
EAE file

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

TMC Dairies Hico

Major Amendment

Prepared For:

3T Martins Farm Hico

PO Box 599

Hico, TX 76457

August 14, 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: 718995 & 718996	
	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: 3T Martins Farm Hico, LLC is submitting a major amendment application in two phases in order to maintain compliance throughout the transition. Phase 1 will see the headcount rise to 10,000 total with 8,000 milking, addition of the Jersey breed of dairy cattle along with the Holstein breed, addition of an anerobic digester and associated equipment, change in property boundary, reconfigure LMUs (see attached LMU cross-reference table), remove LMU #TH8 & #TD7, remove wells # TD9, #TF1 & TF2, well #TS5 is to be plugged and reconfigure drainage area on Figure 1.4A (addition of manure compost area, addition of cross-vent barn, addition of a parlor, plug well #TS5, expansion of RCS #TS1). Phase 2 will see the headcount rise to 13,500 total with 10,000 milking, reconfigure drainage area on Figure 1.4D (addition of cross-vent barn, remove pens, freestall barns, settling basins and plug well #TD11) and reconfigure parlor

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:	718995
Trace Number:	582EA000623216
Date:	08/27/2024 11:11 AM
Payment Method:	CC - Authorization 000004414G
Voucher Amount:	$300.00
Fee Type:	CAFO PERMIT - NEW OR MAJOR AMENDMENT
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:	TMC DAIRIES HICO
Site Location:	3618 COUNTY ROAD 540

Customer Information

Customer Name:	3T MARTINS FARM HICO
Customer Address:	PO BOX 599, HICO, TX 76457

Other Information

Program Area ID:	0003190000

Close

© 2002-2024 Texas Commission on Environmental Quality

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:	718996
Trace Number:	582EA000623216
Date:	08/27/2024 11:11 AM
Payment Method:	CC - Authorization 000004414G
Voucher Amount:	$50.00
Fee Type:	30 TAC 305.53B WQ 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

© 2002-2024 Texas Commission on Environmental Quality

Dancing Crane Dairy LMU Cross-reference List (2024 Major)

Existing LMU Name	New LMU Name
TD1-144 Acres	LMU 1- 144 Ac.
TD2-56 Acres	Split into – LMU 7 (Pivot)-16 Ac. LMU 7A (Outside Pivot)- 33 Ac.
TD3-40	LMU 13 – 44 Ac.
TD4-86	Split into – LMU 12 (Pivot)-24 Ac. LMU 12A (Outside Pivot)-63 Ac.
TD6-131	LMU 1A (outside pivot)-93 Ac.
	LMU 2 (pivot)-39 Ac.
TD7-14	No longer a LMU.
TH1-39	LMU 5-39 Ac.
TH2-45	LMU 5A-35 Ac.
TH3-45	LMU 6-51 Ac.
TH4E-22	Combined into:
TH4W-14	LMU 3 – 39 Ac.
TH5-80	Combined - LMU 4 (Pivot)-97 Ac.
TH6-81	LMU 4A (Outside Pivot)-76 Ac.
TH7-13	LMU 14 – 12 Ac.
TH8-58	No longer a LMU.
TS1-28	LMU 10 – 29 Ac.
TS2-92	Split into LMU 11 (Pivot)-42 Ac. LMU 10A (Outside Pivots)-46 Ac.
TS4-62	Split into LMU 9 (Pivot)-34 Ac. LMU 9A (Outside Pivot)-28 Ac.
TS5-44	Split into LMU 8 (Pivot)-26 Ac. LMU 8A (Outside Pivot)-18 Ac.

E. For existing permits:

What is the permit number? WQ0003190000

What is the EPA I.D. Number? TX 0123030

SECTION 3. FACILITY OWNER (APPLICANT) INFORMATION

A. What is the legal name of the facility owner?

3T Martins Farm Hico, LLC

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 owner?

Mailing Address: PO Box 599

City, State and Zip Code: Hico, TX 76457

Phone Number: 208/320-2134 Fax Number: n/a

E-mail Address: tonymartinscattle@hotmail.com

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: 32095399070

What is the Charter Filing Number issued by the Texas Secretary of State: 0805579160

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?

TMC Dairies, LLC

B. If the applicant is an existing TCEQ customer, provide the Customer Number (CN) issued to this entity? CN 605985894

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

Mailing Address: PO Box 599

City, State and Zip Code: Hico, TX 76457

Phone Number: Fax Number: 208/320-2134

E-mail Address: tonymartinscattle@hotmail.com

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: 32079649995

What is the Charter Filing Number issued by the Texas Secretary of State: 0804106827

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: Tony Martins

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

Company Name: 3T Martins Farm Hico, LLC

Mailing Address: PO Box 599

City, State and Zip Code: Hico, TX 76457

Phone Number: 208/320-2134 Fax Number: n/a E-mail Address: tonymartinscattle@hotmail.com

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 3T Martins Farm Hico, LLC

☐ 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: 3T Martins Farm Hico, LLC

B. Landowner of the land management units (LMUs)

Landowner Name: 3T Martins Farm Hico, LLC

SECTION 9. PUBLIC NOTICE INFORMATION

A. Individual responsible for publishing the notices in the newspaper

Prefix (Mr., Ms., Miss): Mrs. First and Last Name: Jourdan 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: jmullin@enviroag.com

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

☒ E-mail: jmullin@enviroag.com

☐ Fax Number: Click here to enter text.

☒ 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: Tony Martins

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

Company Name: 3T Martins Farm Hico, LLC

Phone Number: 208/320-2134

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: TMC Dairies Hico

B. If this is an existing permitted site, provide the Regulated Entity Number (RN) issued to this site? RN 101523090

C. Site Address/Location:

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: 3T Martins Farm Hico, LLC and TMC Dairies, LLC
2) Enter Customer Number: CN not yet issued; CN605985894
3) Name of facility: TMC Dairies Hico
4) Enter Regulated Entity Number: RN101523090
5) Provide your permit Number: WQ0003190000
6) Facility Business: The facility confines 9,150 head of cattle in which 5,500 are milking. The facility has nineteen (19) land management units (LMUs) with the following acreages: LMU #TD1 - 144, LMU #TD2 - 56, LMU #TD3 - 40, LMU #TD4 - 86, LMU #TD6 -131, LMU #TD7 - 14, LMU #TH1 - 39, LMU #TH2 - 45, LMU #TH3 - 45, LMU #TH4E - 22, LMU #TH4W - 14, LMU #TH5 - 80, LMU #TH6 - 81, LMU#TH7 - 13, LMU #TH8 - 58, LMU #TS1 - 28, LMU #TS2 - 92, LMU #TS4 - 62 and LMU #TS5 - 44 acres. Six (6) retention control structures (RCSs), four concrete settling basins, one earthen slurry pit, one slurry pit with concrete bottom and earthen side and four settling basins. The required capacities are: RCS #TS1 - 24.78 ac-ft, RCS #TS2 - 22.07 ac-ft, RCS #TH2 - 40.27 ac-ft, RCS #TD1 - 58.10 ac-ft, RCS #TH1 - 0.00 ac-ft and RCS #TD Treatment Pond - 10.96 ac-ft. There are thirty-five (35) onsite wells of which seven (7) are plugged. The facility is located in the North Bosque River in Segment No. 1226 of the Brazos River Basin.
7) Facility Location: The facility is located on the East side of CR 209 at the intersection of CR 540 and CR 209, approximately 4 miles South of the intersection of CR 209 and US Hwy 67 approximately 7 miles Southeast of Stephenville in Erath County, Texas.
8) Application Type: Individual Permit Major Amendment
9) Description of your request: 3T Martins Farm Hico, LLC is submitting a major amendment application in two phases in order to maintain compliance throughout the transition. Phase 1 will see the headcount rise to 10,000 total with 8,000 milking, addition of the Jersey breed of dairy cattle along with the Holstein breed, addition of an anerobic digester and associated equipment, change in property boundary, reconfigure LMUs (see attached LMU cross-reference table), remove LMU #TH8 & #TD7, remove wells # TD9, #TF1 & TF2, well #TS5 is to be plugged and reconfigure drainage area on Figure 1.4A (addition of manure compost area, addition of cross-vent barn, plug well #TS5, expansion of RCS #TS1). Phase 2 will see the headcount rise to 13,500 total with 10,000 milking, reconfigure drainage area on Figure 1.4D (addition of cross-vent barn, addition of a parlor, remove pens, freestall barns, settling basins and plug well #TD11) and reconfigure parlor #2.Click or tap here to enter text.

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, parlor chemicals, 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 the RCS properly designed ((25-year frequency 10-day duration (25 year/10 day), 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. 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 or compost on-site. 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: 3T Martins Farm Hico, LLC y TMC Dairies, LLC

2) Ingrese el número de cliente: CN aún no emitido; CN605985894

3) Nombre de la instalación: TMC Dairies Hico

4) Ingresar Número de Entidad Regulada: RN101523090

5) Proporcione su número de permiso: WQ0003190000

6) Instalación Comercial: La instalación encierra 9,150 cabezas de ganado vacuno de las cuales 5,500 son lecheras. La instalación cuenta con diecinueve (19) unidades de administración de tierras (LMU) con las siguientes superficies: LMU #TD1 - 144, LMU #TD2 - 56, LMU #TD3 - 40, LMU #TD4 - 86, LMU #TD6 -131, LMU # TD7 - 14, LMU #TH1 - 39, LMU #TH2 - 45, LMU #TH3 - 45, LMU #TH4E - 22, LMU #TH4W - 14, LMU #TH5 - 80, LMU #TH6 - 81, LMU#TH7 - 13, LMU #TH8 - 58, LMU #TS1 - 28, LMU #TS2 - 92, LMU #TS4 - 62 y LMU #TS5 - 44 acres. Seis (6) estructuras de control de retención (RCS), cuatro estanques de decantación de concreto, un pozo de lodos de tierra, un pozo de lodos con fondo de concreto y costado de tierra y cuatro estanques de sedimentación. Las capacidades requeridas son: RCS #TS1 - 24.78 ac-ft, RCS #TS2 - 22.07 ac-ft, RCS #TH2 - 40.27 ac-ft, RCS #TD1 - 58.10 ac-ft, RCS #TH1 - 0.00 ac-ft y Estanque de tratamiento RCS #TD - 10.96 ac-ft. Hay treinta y cinco (35) pozos en el sitio, de los cuales siete (7) están taponados. La instalación está ubicada en el Río Bosque Norte en el Segmento No. 1226 de la Cuenca del Río Brazos.

7) Ubicación de la instalación: La instalación está ubicada en el lado este de CR 209 en la intersección de CR 540 y CR 209, aproximadamente a 4 millas al sur de la intersección de CR 209 y US Hwy 67, aproximadamente a 7 millas al sureste de Stephenville en el condado de Erath, Texas.

8) Tipo de Solicitud: Enmienda Importante al Permiso Individual

9) Descripción de su solicitud: 3T Martins Farm Hico, LLC presenta una solicitud de enmienda importante en dos fases para mantener el cumplimiento durante la transición. En la fase 1, la plantilla aumentará a 10,000 en total con 8,000 lecheras, se agregará la raza Jersey de ganado lechero junto con la raza Holstein, se agregará un digestor anaeróbico y el equipo asociado, se cambiarán los límites de la propiedad y se reconfigurarán las LMU (consulte la tabla de referencias cruzadas de LMU adjunta), remover LMU #TH8 y #TD7, remover los pozos # TD9, #TF1 y TF2, el pozo #TS5 se

tapará y reconfigurará el área de drenaje en la Figura 1.4A (adición de área de abono de estiércol, adición de granero con ventilación cruzada, tapar pozo #TS5, ampliación del RCS #TS1). En la Fase 2, el número de empleados aumentará a 13,500 en total con 10,000 lecheras, se reconfigurará el área de drenaje en la Figura 1.4D (agregación de un granero con ventilación cruzada, adición de una sala de estar, eliminación de corrales, graneros de establos libres, estanques de sedimentación y tapar del pozo #TD11) y se reconfigurará de la sala de estar #2.

10) Las posibles fuentes de contaminantes en la instalación incluyen (enumere las fuentes de contaminantes): Estiércol, reservas de estiércol, aguas residuales, lodos, estiércol líquido, 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 el RCS debidamente diseñado (frecuencia de 25 años, duración de 10 días (25 años/10 días), construido, operado y mantenido de acuerdo con la disposición del permiso. Mantener una zona de amortiguamiento de 100 pies para todos los pozos de riego o 150 pies para todos los pozos de suministro. 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

Public Involvement Plan Form for Permit and Registration Applications

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

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

Section 1. Preliminary Screening

☐ New Permit or Registration Application

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

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

Section 2. Secondary Screening

☒ Requires public notice,

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

☐ Located within any of the following geographical locations:

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

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

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

Section 3. Application Information

Type of Application (check all that apply):

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

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

Water Quality

☒ Texas Pollutant Discharge Elimination System (TPDES)

- ☐ Texas Land Application Permit (TLAP)
- ☒ State Only Concentrated Animal Feeding Operation (CAFO)
- ☐ Water Treatment Plant Residuals Disposal Permit

☐ Class B Biosolids Land Application Permit

☐ Domestic Septage Land Application Registration

Water Rights New Permit

☐ New Appropriation of Water

☐ New or existing reservoir

Amendment to an Existing Water Right

☐ Add a New Appropriation of Water

☐ Add a New or Existing Reservoir

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

Section 4. Plain Language Summary

Provide a brief description of planned activities.

TMC Dairies Hico is a dairy milking facility

Section 5. Community and Demographic Information

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

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

Stephenville

(City)

Erath

(County)

(Census Tract)

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

☐ City ☐ County ☒ Census Tract

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

88.9%

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

$24,810

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

White - 75.6%. Black or African American - 3.29%. Hispanic - 12.7%. Two or More Races - 2.11%. Other 2.68%. Asian - 1.3%. Indian - 1.6%. Multiracial - 0.72%

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

0%

(e) Languages commonly spoken in area by percentage

English - 89.4%
Spanish - 10.6%

(f) Community and/or Stakeholder Groups

N/A

(g) Historic public interest or involvement

N/A

Section 6. Planned Public Outreach Activities

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

☒ Yes ☐ No

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

☐ Yes ☒ No

If Yes, please describe.

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

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

☐ Yes ☐ No

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

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

☐ Publish in alternative language newspaper
☐ Posted on Commissioner's Integrated Database Website
☐ Mailed by TCEQ's Office of the Chief Clerk
☐ Other (specify)

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

☐ TCEQ Regional Office ☐ TCEQ Central Office
☐ Public Place (specify)

Section 7. Voluntary Submittal

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

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

☒ Yes ☐ No

What types of notice will be provided?

☒ Publish in alternative language newspaper
☐ Posted on Commissioner's Integrated Database Website
☐ Mailed by TCEQ's Office of the Chief Clerk
☐ Other (specify)

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 and Highway 1.

Item 1: Physical Address of Project or Site:

Street Number and Name: 3618 County Road 540

City, State and Zip Code: Hico, TX 76457

Item 2: Site Location Description:

Location description: Click here to enter text.

City where the site is located or, if not in a city, what is the nearest city: Click here to enter text.

Zip Code where the site is located: 76457

D. County or counties if more than 1: Erath

E. Latitude: 32.119444 Longitude: 98.049444

F. Animal Type:

- ☒ Dairy-0241
- ☐ Beef Cattle- 0211
- ☐ Swine-0213
- ☐ Broiler-0251
- ☐ Laying Hens-0252
- ☐ Sheep/Goats-0214
- ☐ Auction-5154
- ☐ Other, specify: Click here to enter text.

G. Existing Maximum Number of Animals: 5,500 (Milking) 9,150 (Total)

Proposed Maximum Number of Animals: Phase 1 - 8,000 (Milking) 10,000 (Total). Phase 2 - 10,000 (Milking) 13,500 (Total)

H. What is the total LMU acreage? 1,028

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.
Click here to enter text.

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.

Erath County Appraisal District - August 2024

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: WQ0003190000

Applicant: TMC Dairies Hico, LLC

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: Tony Martins

Title: Managing Member

Signature: _____ Date: 8-16-24

SUBSCRIBED AND SWORN to before me by the said Tony Martins on

this 16th day of August, 20 24

My commission expires on the 25th day of Febru, 20 28

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

(Seal)

_____

Notary Public

RG

Erath

County, Texas

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: WQ0003190000

Applicant: 3T Martins Farm Hico, LLC

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: Tony Martins

Title: Managing Member

Signature: _____ Date: 8-16-24

SUBSCRIBED AND SWORN to before me by the said Tony Martins on this 16th day of August, 20 24

My commission expires on the 25th day of Febry, 20 28

(Seal)

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

_____

Notary Public

Erath

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: 3T Martins Farm Hico, LLC and TMC Dairies, LLC
2. Permit Number: WQ0003190000 EPA ID Number: TX0123030
3. Address of the project (location description that includes street/highway, city/vicinity, and county). The facility is located on the East side CR 209 at the intersection of CR 540 and CR 290, approximately 4 miles South of the intersection of CR 209 and US Hwy 67 approximately 7 miles Southeast of Stephenville.
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. Segment No. 1226 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): Less than 5 acres distrubed

12. Describe existing disturbances, vegetation & land use (plowing, other ground disturbances): The Land Management Units (LMUs) at the facility are planted in Coastal Bermuda grass and crops and practical agricultural practices will be utilized to maintain an appropriate crop rotation.

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

13. List construction dates of any buildings or structures on the property: Commodity and hay barn built in 1990.

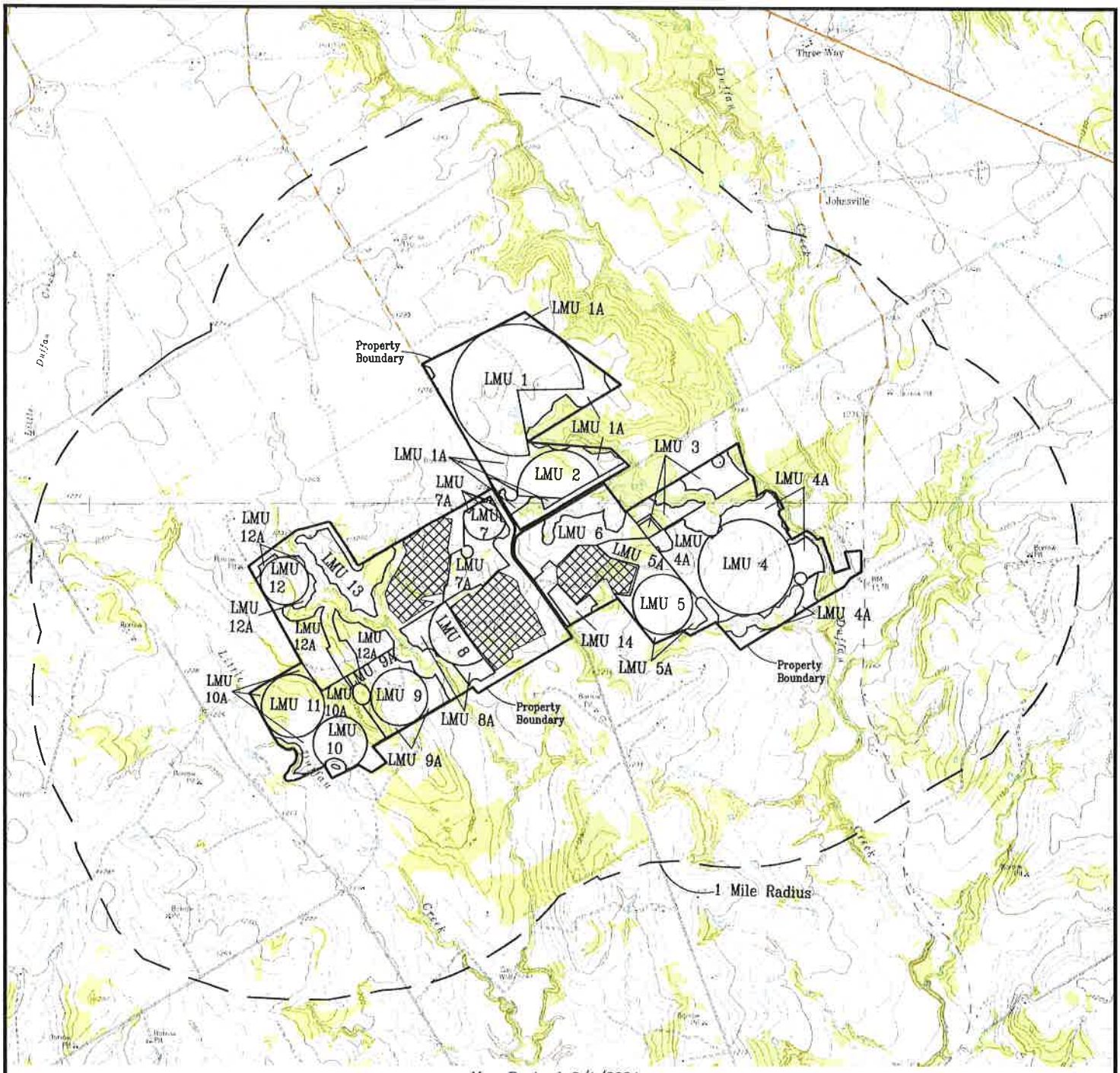
14. Provide a brief history of the property, and name of the architect/builder, if known: Oosteen, G&P Family Trust sold 10/3/2003, Oosteen, Gerald & Pamela S sold 7/5/2005.

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

15. List each Retention Control Structure and its required capacity (Acre Feet). Phase 1 Digester - TS #1 - 103.30ac-ft, Phase 2 Digester - TS1 #2 - 148.14 ac-ft, Phase 1&2 Bypass - TS #1 - 39.71ac-ft, Phase 1 TD Treatment - 2.50 ac-ft, TD #1 - 66.71ac-ft, Phase 2 Treatment TD - 7.51 ac-ft, TD #1 - 63.30 ac-ft, TH#2 - 40.27 ac-ft, TS #2 - 16.55 ac-ft

16. Provide the location and number of acres where wastewater and manure are land applied: The facility has 1,028 acres of Land Management Units (LMUs) available for waste and wastewater application. See attached Figures 1.3A-B.

17. List the maximum number of head to be permitted. Phase 1 - 8,000 (Milking) 10,000 (Total). Phase 2 - 10,000 (Milking) 13,500 (Total)



Map Revised 8/1/2024

LEGEND:

Denotes Production Area

N

W E

S

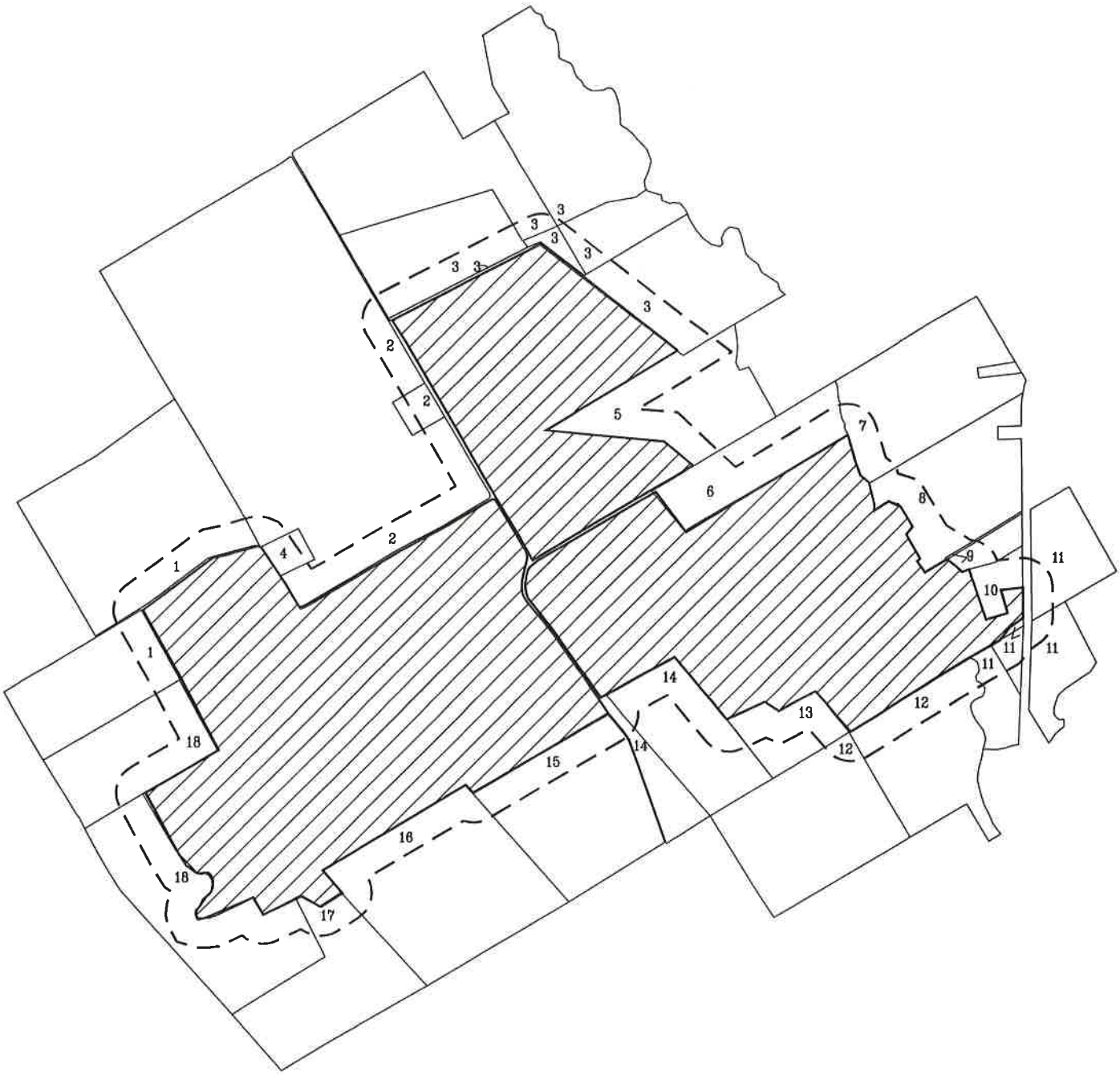
1700' 0 1700' 3400'

SCALED AS SHOWN

Source: USDS-NRCS. Geospatial Data Gateway. Available at: http://datagateway.nrcs.usda.gov/. Digital Raster Graphic County Mosaic by NRCS – Accessed May 2013.

- Refer to Figures 1.3 & 1.4 A-D for overall facility maps.

TMC Dairies Hico Hico, TX Erath County	SPIF Map	Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132



LEGEND:

Denotes Applicant Owned Property

Denotes 500 Ft. Radius From Facility Boundary

Denotes Adjacent Landowner Boundary

Map Revised 8/2/2024

N

W E

S

1250' 0 1250' 2500'

SCALED AS SHOWN

Source: Erath County Appraisal District

TMC Dairies Hico Hico, TX Erath County	Adjacent Landowner 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

ADJACENT LANDOWNERS LIST

Name Stanley J Haedge Number on Map 1 Address 1265 CR 450 Address Hico, TX 76457	Name David E. & Linda S Jones Number on Map 10 Address 34088 FM 2481 Address Hico, TX 76457
Name Kuiper Dairy, LLC Number on Map 2 Address 1865 PR 1233 Address Hico, TX 76457	Name Randy (Tod) Scott Number on Map 11 Address 6433 Dorchester Trail Address North Richland Hills, TX 76182
Name Kenneth W & Donna Kay Mills Number on Map 3 Address 1572 CR 211 Address Hico, TX 76457	Name Paula Jolene Thomas & Randy Wayne Roberson Number on Map 12 Address 12509 Belle Amore Address Ft. Worth, TX 76126
Name Clemens J & Karin Kuiper Number on Map 4 Address 1865 PR 1233 Address Hico, TX 76457	Name LBL Farms, LLC Number on Map 13 Address 4005 Monticello Dr Address Fort Worth, TX 76107
Name Klaas Talsma Number on Map 5 Address 7469 CR 209 Address Hico, TX 76457	Name Barbara Little McMahan Number on Map 14 Address 912 CR 484 Address Stephenville, TX 76401
Name Michael Wayne Brannon Number on Map 6 Address 1909 CR 211 Address Hico, TX 76457	Name Willemina Jacoba Deboer Number on Map 15 Address 9710 CR 209 Address Hico, TX 76457
Name Larry Dale Little Number on Map 7 Address 32798 FM 2481 Address Hico, TX 76457	Name Fred Bruce Parker & Justin Parker Number on Map 16 Address P.O. Box 1016 Address Stephenville, TX 76401
Name Melvin Lee DeCross Number on Map 8 Address 33044 FM 2481 Address Hico, TX 76457	Name American Pioneer Ranch, LLC Number on Map 17 Address PO Box 2508 Address Stephenville, TX 76401
Name Lance M & Shawna L Rook Number on Map 9 Address 33808 FM 2481 Address Hico, TX 76457	Name Planners Equity LP Number on Map 18 Address 181 S Graham Address Stephenville, TX 76401

Please identify where you obtained the landowner information.

Erath County Appraisal District, August, 2024

Facility Name TMC Dairies Hico

Franchise Tax Account Status

As of : 08/14/2024 13:09:04

This page is valid for most business transactions but is not sufficient for filings with the Secretary of State

TMC DAIRIES LLC

Texas Taxpayer Number	32079649995
Mailing Address	PO BOX 599 HICO, TX 76457-0599
Right to Transact Business in Texas	ACTIVE
State of Formation	ID
Effective SOS Registration Date	06/11/2021
Texas SOS File Number	0804106827
Registered Agent Name	TONY MARTINS
Registered Office Street Address	3105 MESQUITE DR DALHART, TX 79022

Public Information Report

Public Information Report
TMC DAIRIES LLC
Report Year :2023

Information on this site is obtained from the most recent Public Information Report (PIR) processed by the Secretary of State (SOS). PIRs filed with annual franchise tax reports are forwarded to the SOS. After processing, the SOS sends the Comptroller an electronic copy of the information, which is displayed on this web site. The information will be updated as changes are received from the SOS.

You may order a copy of a Public Information Report from open.records@cpa.texas.gov or Comptroller of Public Accounts, Open Records Section, PO Box 13528, Austin, Texas 78711.

Title	Name and Address
MANAGING M	**TONY MARTINS** 3105 MESQUITE DR DALHART, TX 79022

Franchise Tax Account Status

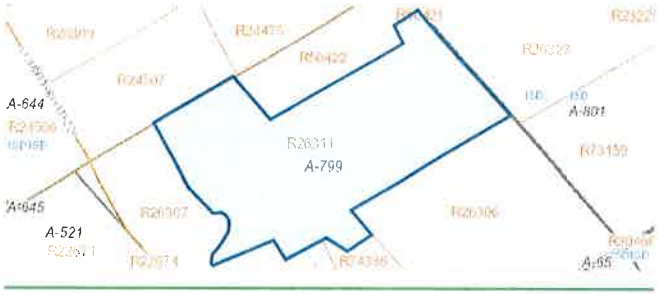
As of : 08/14/2024 13:09:31

This page is valid for most business transactions but is not sufficient for filings with the Secretary of State

3T MARTINS FARM HICO, LLC

Texas Taxpayer Number	32095399070
Mailing Address	PO BOX 599 HICO, TX 76457-0599
Right to Transact Business in Texas	ACTIVE
State of Formation	TX
Effective SOS Registration Date	06/08/2024
Texas SOS File Number	0805579160
Registered Agent Name	ANNABEL MOORE
Registered Office Street Address	3 PARKSIDE DRIVE, SUITE 115 FRIENDSWOOD, TX 77546

Map



Property Details

Account

Property ID:	R000026311	**Geographic ID:**	R.0799.00060.00.0
Type:	Real	**Zoning:**	
Property Use:		**Condo:**	
Location			
Situs Address:	CR540 (OFF)		
Map ID:	17-16-2	**Mapsco:**	
Legal Description:	Acres 225.090, A0799 VILLINEUF GILBERT;		
Abstract/Subdivision:			
Owner			
Name:	TWO SISTERS DAIRY LLC		
Agent:			
Mailing Address:	7469 CR209 HICO, TX 76457		
% Ownership:	100.00%		
Exemptions:	For privacy reasons not all exemptions are shown online.		

Property Values

Improvement Homesite Value:	$0 (+)
Improvement Non-Homesite Value:	$0 (+)
Land Homesite Value:	$0 (+)
Land Non-Homesite Value:	$0 (+)
Agricultural Market Valuation:	$1,125,450 (+)
Market Value:	$1,125,450 (=)
Agricultural Value Loss:	$1,090,880 (-)
Appraised Value:	$1,125,450 (=)
HS Cap Loss/Circuit Breaker:	$0 (-)
Assessed Value:	$34,570
Ag Use Value:	$34,570

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: TWO SISTERS DAIRY LLC **%Ownership:** 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	$1,125,450	$34,570
903	STEPHENVILLE ISD	$1,125,450	$34,570
MTD	MIDDLE TRINITY WATER	$1,125,450	$34,570
RER	ERATH ROAD & BRIDGE	$1,125,450	$34,570

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAE		225.09	9,804,920.00	0.00	0.00	$1,125,450	$34,569

Property Roll Value History

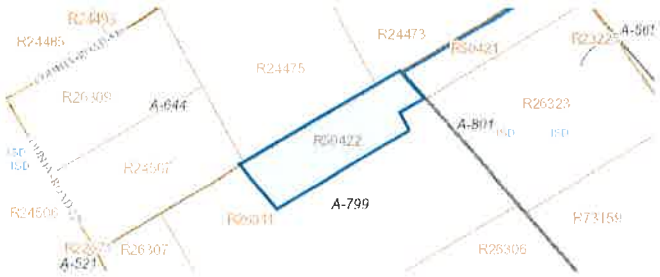
Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap Loss	Assessed
2025	N/A	N/A	N/A	N/A	N/A	N/A
2024	$0	$1,125,450	$34,570	$1,125,450	$0	$34,570
2023	$0	$1,125,450	$33,230	$1,125,450	$0	$33,230
2022	$0	$1,125,450	$39,590	$1,125,450	$0	$39,590
2021	$0	$900,360	$43,130	$900,360	$0	$43,130
2020	$0	$877,850	$40,680	$877,850	$0	$40,680
2019	$0	$877,850	$41,330	$877,850	$0	$41,330
2018	$0	$790,320	$40,990	$790,320	$0	$40,990
2017	$0	$633,750	$40,430	$633,750	$0	$40,430
2016	$0	$543,220	$38,510	$543,220	$0	$38,510
2015	$1,000	$543,220	$32,840	$544,220	$0	$33,840
2014	$1,000	$499,200	$29,090	$500,200	$0	$30,090

Property Deed History

Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Number
7/26/2024			TWO SISTERS DAIRY LLC	3T MARTINS FARM HICO LLC			2024-04192
12/30/2005			TALSMA KLAAS & WILMA	TWO SISTERS DAIRY LLC	1267	1147	2/28/06
7/5/2005			OOSTEN GERALD & PAMELA S	TALSMA KLAAS & WILMA	1231	762-782	
10/3/2003			OOSTEN G & P FAMILY TRUST	OOSTEN GERALD & PAMELA S	1143	787	
5/4/1995	MULTI		KALSBEEK ARTHUR & JOANN	OOSTEN G & P FAMILY TRUST	887	317	

1/1/1968	MERCER H C TR #4012	KALSBEEK ARTHUR & JOANN	723	449

Map



Property Details

Account

Property ID:	R000050422	**Geographic ID:**	R.0799.00065.00.0
Type:	Real	**Zoning:**	
Property Use:		**Condo:**	

Location

Situs Address:	CR209
Map ID:	17-16-2 **Mapsco:**
Legal Description:	Acres 51.680, A0799 VILLINEUF GILBERT;
Abstract/Subdivision:	/

Owner

Name:	TALSMA KLAAS
Agent:	
Mailing Address:	7469 CR209 HICO, TX 76457
% Ownership:	100.00%
Exemptions:	For privacy reasons not all exemptions are shown online.

Property Values

Improvement Homesite Value:	$0 (+)
Improvement Non-Homesite Value:	$0 (+)
Land Homesite Value:	$0 (+)
Land Non-Homesite Value:	$0 (+)
Agricultural Market Valuation:	$206,720 (+)
Market Value:	$206,720 (=)
Agricultural Value Loss:	$198,660 (-)
Appraised Value:	$206,720 (=)
HS Cap Loss/Circuit Breaker:	$0 (-)
Assessed Value:	$8,060
Ag Use Value:	$8,060

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: TALSMA KLAAS **%Ownership:** 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	$206,720	$8,060
903	STEPHENVILLE ISD	$206,720	$8,060
MTD	MIDDLE TRINITY WATER	$206,720	$8,060
RER	ERATH ROAD & BRIDGE	$206,720	$8,060

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAE		51.68	2,251,181.00	0.00	0.00	$206,720	$8,062

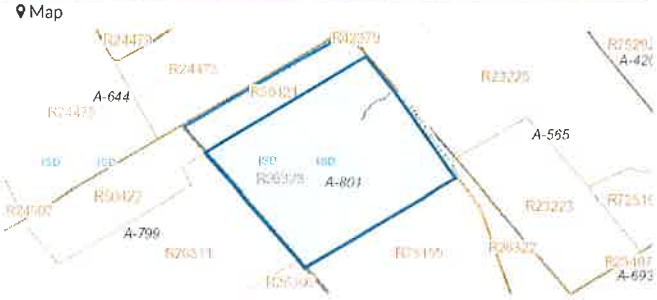
Property Roll Value History

Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap Loss	Assessed
2025	N/A	N/A	N/A	N/A	N/A	N/A
2024	$0	$206,720	$8,060	$206,720	$0	$8,060
2023	$0	$206,720	$8,060	$206,720	$0	$8,060
2022	$0	$206,720	$8,790	$206,720	$0	$8,790
2021	$0	$139,540	$9,610	$139,540	$0	$9,610
2020	$0	$139,540	$9,100	$139,540	$0	$9,100
2019	$0	$139,540	$9,040	$139,540	$0	$9,040
2018	$0	$180,880	$9,040	$180,880	$0	$9,040
2017	$0	$144,700	$9,040	$144,700	$0	$9,040
2016	$0	$124,030	$8,530	$124,030	$0	$8,530
2015	$0	$124,030	$8,530	$124,030	$0	$8,530
2014	$0	$113,700	$7,650	$113,700	$0	$7,650

Property Deed History

Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Number
7/26/2024			TALSMA KLAAS	3T MARTINS FARM HICO LLC			2024-04192
10/12/2006			TALSMA KLASS & WILMA	TALSMA KLASS	0	0	CV28329
1/1/1968			KALSBEEK ARTHUR & JOANN	TALSMA KLASS & WILMA	744	269	

Map



Property Details

Account

Property ID:	R000026323	**Geographic ID:**	R.0801.00020.00.0
Type:	Real	**Zoning:**	
Property Use:		**Condo:**	

Location

Situs Address:	8560 CR209
Map ID:	17-16-2
Mapsco:	
Legal Description:	Acres 145.860, A0801 VANCE WM L B, DAIRY, HOUSE & MH SITES (ARTHUR KALSBEEK)(GERALD, OOSTEN)
Abstract/Subdivision:	

Owner

Name:	TWO SISTERS DAIRY LLC
Agent:	
Mailing Address:	7469 CR209 HICO, TX 76457
% Ownership:	100.00%
Exemptions:	For privacy reasons not all exemptions are shown online.

Property Values

Improvement Homesite Value:	$55,000 (+)
Improvement Non-Homesite Value:	$867,690 (+)
Land Homesite Value:	$0 (+)
Land Non-Homesite Value:	$10,000 (+)
Agricultural Market Valuation:	$719,300 (+)
Market Value:	$1,651,990 (=)
Agricultural Value Loss:	$689,690 (-)
Appraised Value:	$1,651,990 (=)
HS Cap Loss/Circuit Breaker:	$0 (-)
Assessed Value:	$962,300
Ag Use Value:	$29,610

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: TWO SISTERS DAIRY LLC **%Ownership:** 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	$1,651,990	$962,300
901	THREE WAY ISD	$1,651,990	$962,300
MTD	MIDDLE TRINITY WATER	$1,651,990	$962,300
RER	ERATH ROAD & BRIDGE	$1,651,990	$962,300

Property Improvement - Building

Type: SL **State Code:** D2 **Living Area:** 14,770.00 sqft **Value:** $100,501

Type	Description	Year Built
SL	SLAB	1990
HAY	HAYBARN	2011
UTIL1	UTILITIES 1	2023

Type: DB **State Code:** D2 **Living Area:** 5,600.00 sqft **Value:** $162,407

Type	Description	Year Built
DB	DAIRY BARN	1990
CHP	HOLD PEN COVERED	1990
SL	SLAB	1990
FSL	LOCKED FEED STANCHION	1990
SL	SLAB	1996
SL	SLAB	1996
HAY	HAYBARN	2008
UTIL2	UTILITIES 2	2023

Type: STG **State Code:** D2 **Living Area:** 144.00 sqft **Value:** $20,295

Type	Description	Year Built
STG	STRG BUILDING	1990
MT	MILK TANK	1990
MT	MILK TANK	1990

WTN	WATRTANKNO	1995
WTN	WATRTANKNO	1995
GBN	GRAINBN NO	1990
GBN	GRAINBN NO	1990
GBN	GRAINBN NO	1990

Type: FSB **State Code:** D2 **Living Area:** 102,000.00 sqft **Value:** $414,550

Type	Description	Year Built
FSB	FREE STALL BARN	2005
FSL	LOCKED FEED STANCHION	2005
FSB	FREE STALL BARN	2018
FSB	FREE STALL BARN	2018

Type: CB **State Code:** D2 **Living Area:** 11,236.00 sqft **Value:** $16,286

Type	Description	Year Built
CB	COMMODITY BARN	2018
SHOP	SHOP	2018
SL	SLAB	2018

Type: DB **State Code:** D2 **Living Area:** 14,860.00 sqft **Value:** $208,646

Type	Description	Year Built
DB	DAIRY BARN	2018
DB	DAIRY BARN	2018
SHED	SHED	2018
CHP	HOLD PEN COVERED	2018

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAE		143.86	6,266,542.00	0.00	0.00	$719,300	$29,612
SAE		1.00	43,560.00	0.00	0.00	$5,000	$0
SAE		1.00	43,560.00	0.00	0.00	$5,000	$0

Property Roll Value History

Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap Loss	Assessed
2025	N/A	N/A	N/A	N/A	N/A	N/A
2024	$922,690	$729,300	$29,610	$1,651,990	$0	$962,300
2023	$832,190	$794,300	$28,840	$1,626,490	$0	$936,030
2022	$896,980	$764,300	$31,350	$1,661,280	$0	$973,330
2021	$870,530	$603,940	$33,440	$1,474,470	$0	$932,470
2020	$870,530	$589,550	$32,460	$1,460,080	$0	$931,490
2019	$753,580	$589,550	$32,580	$1,343,130	$0	$814,660
2018	$414,040	$536,120	$32,530	$950,160	$0	$475,070
2017	$381,290	$437,060	$32,460	$818,350	$0	$442,250
2016	$383,990	$372,700	$31,400	$756,690	$0	$437,890
2015	$389,260	$372,700	$31,400	$761,960	$0	$443,160
2014	$389,260	$345,570	$29,340	$734,830	$0	$441,100

Property Deed History

Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Number
7/26/2024			TWO SISTERS DAIRY LLC	3T MARTINS FARM HICO LLC			2024-04192
12/30/2005			TALSMA KLAAS & WILMA	TWO SISTERS DAIRY LLC	1267	1147	2/28/06
7/5/2005			OOSTEN GERALD & PAMELA S	TALSMA KLAAS & WILMA	1231	762-782	
10/3/2003			OOSTEN G & P FAMILY TRUST	OOSTEN GERALD & PAMELA S	1143	787	
1/1/1968			MERCER H C TR #4012	KALSBEEK ARTHUR & JOANN	723	449	

Map



Property Details

Account

Property ID:	R000023225	**Geographic ID:**	R 0565 00020 00 0
Type:	Real	**Zoning:**	
Property Use:		**Condo:**	

Location

Situs Address:	8655 CR209
Map ID:	17-16-2 **Mapsco:**
Legal Description:	Acres 219.150, A0565 MURPHEE WILLIAM & A0801 WM VANCE(.78 ACS): DAIRY
Abstract/Subdivision:	

Owner

Name:	O AND B FARMS, INC
Agent:	
Mailing Address:	PO BOX 227 HAMILTON, TX 76531
% Ownership:	100.00%
Exemptions:	For privacy reasons not all exemptions are shown online.

Property Values

Improvement Homesite Value:	$0 (+)
Improvement Non-Homesite Value:	$87,280 (+)
Land Homesite Value:	$0 (+)
Land Non-Homesite Value:	$0 (+)
Agricultural Market Valuation:	$1,095,750 (+)
Market Value:	$1,183,030 (=)
Agricultural Value Loss:	$1,052,740 (-)
Appraised Value:	$1,183,030 (=)
HS Cap Loss/Circuit Breaker:	$0 (-)
Assessed Value:	$130,290
Ag Use Value:	$43,010

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: O AND B FARMS, INC. **%Ownership:** 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	$1,183,030	$130,290
901	THREE WAY ISD	$1,183,030	$130,290
MTD	MIDDLE TRINITY WATER	$1,183,030	$130,290
RER	ERATH ROAD & BRIDGE	$1,183,030	$130,290

Property Improvement - Building

Type: HAY **State Code:** D2 **Living Area:** 5,000.00 sqft **Value:** $19,350

Type	Description	Year Built
HAY	HAYBARN	2003
SHED	SHED	2003

Type: CB **State Code:** D2 **Living Area:** 4,800.00 sqft **Value:** $13,275

Type	Description	Year Built
CB	COMMODITY BARN	1988
SL	SLAB	1988

Type: AS **State Code:** D2 **Living Area:** 3,700.00 sqft **Value:** $43,276

Type	Description	Year Built
AS	ANIMALSHADE	1995
AS	ANIMALSHADE	1995
AS	ANIMALSHADE	1995
WTN	WATRTANKNO	1990
FSL	LOCKED FEED STANCHION	1997
FSL	LOCKED FEED STANCHION	1995
AS	ANIMALSHADE	2008
AS	ANIMALSHADE	2008
AS	ANIMALSHADE	2008
AS	ANIMALSHADE	2008

AS	ANIMALSHADE	2022
AS	ANIMALSHADE	2022

Type: SHE3 **State Code:** D2 **Living Area:** 1,152.00 sqft **Value:** $11,379

Type	Description	Year Built
SHE3	3SIDE SHED	1988
SL	SLAB	1988
DBO	DAIRY BARN OUT	1988
WH	WELLHOUSE	1988
CHP	HOLD PEN COVERED	1988
SHED	SHED	2022
SHED	SHED	2022
STG	STRG BUILDING	2022

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAE		219.15	9,546,174.00	0.00	0.00	$1,095,750	$43,007

Property Roll Value History

Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap Loss	Assessed
2025	N/A	N/A	N/A	N/A	N/A	N/A
2024	$87,280	$1,095,750	$43,010	$1,183,030	$0	$130,290
2023	$78,790	$1,095,750	$42,610	$1,174,540	$0	$121,400
2022	$76,850	$1,095,750	$46,080	$1,172,600	$0	$122,930
2021	$37,170	$876,600	$49,380	$913,770	$0	$86,550
2020	$37,170	$854,690	$47,590	$891,860	$0	$84,760
2019	$34,170	$854,690	$47,330	$888,860	$0	$81,500
2018	$33,840	$803,530	$47,100	$837,370	$0	$109,440
2017	$32,620	$657,520	$47,300	$690,140	$0	$108,420
2016	$32,620	$561,660	$45,190	$594,280	$0	$100,310
2015	$33,680	$561,660	$0	$595,340	$0	$595,340
2014	$33,680	$524,230	$21,470	$557,910	$0	$77,650

Property Deed History

Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Number
7/26/2024			O AND B FARMS, INC.	3T MARTINS FARM HICO LLC			2024-04194
2/21/2023			TALSMA ANASTASIA	O AND B FARMS, INC.			2023-00941
6/6/2014			WYLY RANDY	TALSMA ANASTASIA			2014-03122
2/4/2005			MEMBERS TRUST SOUTHWEST FED CREDIT	WYLY RANDY	1207	1026	
4/6/2004			VANDERMEER STEVE	MEMBERS TRUST SOUTHWEST FED CREDIT	1165	1050	
1/1/1968			KALSBEEK ARTHUR & JOANN	VANDERMEER STEVE	727	108	

1/1/1968	MERCER H C TR #4012	KALSBEEK ARTHUR & JOANN	723	449

Map



Property Details

Account

Property ID:	R000060714	**Geographic ID:**	R.0053.00015.00.0
Type:	Real	**Zoning:**	
Property Use:		**Condo:**	

Location

Situs Address:	CR211
Map ID:	18-16-4
Mapsco:	
Legal Description:	Acres 216.936, A0053 BROWNING N P;
Abstract/Subdivision:	

Owner

Name:	TALSMA ANASTASIA
Agent:	
Mailing Address:	717 SOUTH PALMWAY LAKE WORTH, FL 33460
% Ownership:	100.00%
Exemptions:	For privacy reasons not all exemptions are shown online.

Property Values

Improvement Homesite Value:	$0 (+)
Improvement Non-Homesite Value:	$0 (+)
Land Homesite Value:	$0 (+)
Land Non-Homesite Value:	$0 (+)
Agricultural Market Valuation:	$867,740 (+)
Market Value:	$867,740 (=)
Agricultural Value Loss:	$805,700 (-)
Appraised Value:	$867,740 (=)
HS Cap Loss/Circuit Breaker:	$0 (-)
Assessed Value:	$62,040
Ag Use Value:	$62,040

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: TALSMA ANASTASIA **%Ownership:** 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	$867,740	$62,040
903	STEPHENVILLE ISD	$867,740	$62,040
MTD	MIDDLE TRINITY WATER	$867,740	$62,040
RER	ERATH ROAD & BRIDGE	$867,740	$62,040

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAE		216.94	9,449,732.00	0.00	0.00	$867,744	$62,044

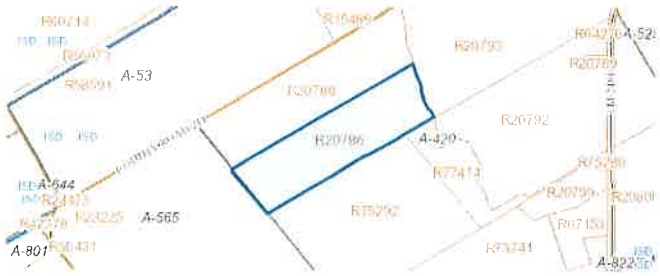
Property Roll Value History

Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap Loss	Assessed
2025	N/A	N/A	N/A	N/A	N/A	N/A
2024	$0	$867,740	$62,040	$867,740	$0	$62,040
2023	$0	$867,740	$57,710	$867,740	$0	$57,710
2022	$0	$867,740	$82,870	$867,740	$0	$82,870
2021	$0	$585,730	$85,910	$585,730	$0	$85,910
2020	$0	$585,730	$81,790	$585,730	$0	$81,790
2019	$0	$585,730	$83,090	$585,730	$0	$83,090
2018	$4,160	$794,900	$79,780	$799,060	$0	$83,940
2017	$4,110	$631,090	$80,000	$635,200	$0	$84,110
2016	$4,110	$540,940	$75,520	$545,050	$0	$79,630
2015	$4,110	$540,940	$75,520	$545,050	$0	$79,630
2014	$4,110	$507,930	$72,100	$512,040	$0	$76,210

Property Deed History

Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Number
7/26/2024			TALSMA ANASTASIA	3T MARTINS FARM HICO LLC			2024-04192
11/21/2018			TALSMA KLAAS	TALSMA ANASTASIA			2018-06704
10/12/2006			TALSMA KLASS & WILMA	TALSMA KLASS	0	0	CV28329

Map



Property Details

Account

Property ID:	R000020786	**Geographic ID:**	R.0420.00010.00.0
Type:	Real	**Zoning:**	
Property Use:		**Condo:**	

Location

Situs Address:	CR209 (OFF)
Map ID:	17-16-2
Mapsco:	
Legal Description:	Acres 59.625, A0420 INNES GEORGE B;
Abstract/Subdivision:	

Owner

Name:	O AND B FARMS, INC.
Agent:	
Mailing Address:	PO BOX 227 HAMILTON, TX 76531
% Ownership:	100.00%
Exemptions:	For privacy reasons not all exemptions are shown online.

Property Values

Improvement Homesite Value:	$0 (+)
Improvement Non-Homesite Value:	$0 (+)
Land Homesite Value:	$0 (+)
Land Non-Homesite Value:	$0 (+)
Agricultural Market Valuation:	$298,130 (+)
Market Value:	$298,130 (=)
Agricultural Value Loss:	$288,830 (-)
Appraised Value:	$298,130 (=)
HS Cap Loss/Circuit Breaker:	$0 (-)
Assessed Value:	$9,300
Ag Use Value:	$9,300

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: O AND B FARMS, INC. **%Ownership:** 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	$298,130	$9,300
901	THREE WAY ISD	$298,130	$9,300
MTD	MIDDLE TRINITY WATER	$298,130	$9,300
RER	ERATH ROAD & BRIDGE	$298,130	$9,300

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAE		59.63	2,597,265.00	0.00	0.00	$298,125	$9,302

Property Roll Value History

Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap Loss	Assessed
2025	N/A	N/A	N/A	N/A	N/A	N/A
2024	$0	$298,130	$9,300	$298,130	$0	$9,300
2023	$0	$298,130	$9,300	$298,130	$0	$9,300
2022	$0	$298,130	$10,140	$298,130	$0	$10,140
2021	$0	$238,500	$11,090	$238,500	$0	$11,090
2020	$0	$232,540	$10,490	$232,540	$0	$10,490
2019	$0	$232,540	$10,430	$232,540	$0	$10,430
2018	$0	$208,690	$10,430	$208,690	$0	$10,430
2017	$0	$166,950	$10,430	$166,950	$0	$10,430
2016	$0	$143,100	$9,840	$143,100	$0	$9,840
2015	$0	$143,100	$0	$143,100	$0	$143,100
2014	$0	$131,180	$10,320	$131,180	$0	$10,320

Property Deed History

Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Number
7/26/2024			O AND B FARMS, INC.	3T MARTINS FARM HICO LLC			2024-04194
2/21/2023			TALSMA ANASTASIA	O AND B FARMS, INC.			2023-00941
6/6/2014			WYLY RANDY	TALSMA ANASTASIA			2014-03122
2/4/2005			MEMBERS TRUST SOUTHWEST FED CREDIT	WYLY RANDY	1207	1026	
6/1/2004			VANDERMEER STEVE & MARSHA	MEMBERS TRUST SOUTHWEST FED CREDIT	1174	591	FORECLOS DEED

7/23/1996	MULTI	BARTON ALVIN L	VANDERMEER STEVE	846	958

Map



Property Details

Account

Property ID:	R000075292	**Geographic ID:**	R.0420.00088.00.0
Type:	Real	**Zoning:**	
Property Use:		**Condo:**	

Location

Situs Address:	FM2481 (OFF)
Map ID:	17-16-2 **Mapsco:**
Legal Description:	Acres 100.000, A0420 INNES GEORGE B
Abstract/Subdivision:	

Owner

Name:	O AND B FARMS, INC.
Agent:	
Mailing Address:	PO BOX 227 HAMILTON, TX 76531
% Ownership:	100.00%
Exemptions:	For privacy reasons not all exemptions are shown online.

Property Values

Improvement Homesite Value:	$0 (+)
Improvement Non-Homesite Value:	$0 (+)
Land Homesite Value:	$0 (+)
Land Non-Homesite Value:	$0 (+)
Agricultural Market Valuation:	$500,000 (+)
Market Value:	$500,000 (=)
Agricultural Value Loss:	$484,400 (-)
Appraised Value:	$500,000 (=)
HS Cap Loss/Circuit Breaker:	$0 (-)
Assessed Value:	$15,600
Ag Use Value:	$15,600

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: O AND B FARMS, INC. **%Ownership:** 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	$500,000	$15,600
901	THREE WAY ISD	$500,000	$15,600
MTD	MIDDLE TRINITY WATER	$500,000	$15,600
RER	ERATH ROAD & BRIDGE	$500,000	$15,600

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAE		100.00	4,356,000.00	0.00	0.00	$500,000	$15,600

Property Roll Value History

Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap Loss	Assessed
2025	N/A	N/A	N/A	N/A	N/A	N/A
2024	$0	$500,000	$15,600	$500,000	$0	$15,600
2023	$0	$500,000	$15,600	$500,000	$0	$15,600
2022	$0	$500,000	$17,000	$500,000	$0	$17,000
2021	$0	$400,000	$18,600	$400,000	$0	$18,600
2020	$0	$390,000	$17,600	$390,000	$0	$17,600
2019	$0	$390,000	$17,500	$390,000	$0	$17,500
2018	$0	$350,000	$17,500	$350,000	$0	$17,500
2017	$0	$280,000	$17,500	$280,000	$0	$17,500
2016	$0	$240,000	$16,500	$240,000	$0	$16,500
2015	$0	$240,000	$0	$240,000	$0	$240,000
2014	$0	$220,000	$9,100	$220,000	$0	$9,100

Property Deed History

Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Number
7/26/2024			O AND B FARMS, INC.	3T MARTINS FARM HICO LLC			2024-04194
2/21/2023			TALSMA ANASTASIA	O AND B FARMS, INC.			2023-00941
7/16/2014			DECROSS MELVIN LEE	TALSMA ANASTASIA			2014-04013

Map

Property Details

Account

Property ID:	R000073741	**Geographic ID:**	R.0420.00087.00.0
Type:	Real	**Zoning:**	
Property Use:		**Condo:**	

Location

Situs Address:	FM2481
Map ID:	17-16-2
Mapsco:	
Legal Description:	Acres 123.260, A0420 INNES GEORGE B;
Abstract/Subdivision:	

Owner

Name:	O AND B FARMS, INC.
Agent:	
Mailing Address:	PO BOX 227 HAMILTON, TX 76531
% Ownership:	100.00%
Exemptions:	For privacy reasons not all exemptions are shown online.

Property Values

Improvement Homesite Value:	$0 (+)
Improvement Non-Homesite Value:	$0 (+)
Land Homesite Value:	$0 (+)
Land Non-Homesite Value:	$0 (+)
Agricultural Market Valuation:	$616,300 (+)
Market Value:	$616,300 (=)
Agricultural Value Loss:	$597,070 (-)
Appraised Value:	$616,300 (=)
HS Cap Loss/Circuit Breaker:	$0 (-)
Assessed Value:	$19,230
Ag Use Value:	$19,230

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: O AND B FARMS, INC. **%Ownership:** 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	$616,300	$19,230
901	THREE WAY ISD	$616,300	$19,230
MTD	MIDDLE TRINITY WATER	$616,300	$19,230
RER	ERATH ROAD & BRIDGE	$616,300	$19,230

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAE		123.26	5,369,206.00	0.00	0.00	$616,300	$19,229

Property Roll Value History

Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap Loss	Assessed
2025	N/A	N/A	N/A	N/A	N/A	N/A
2024	$0	$616,300	$19,230	$616,300	$0	$19,230
2023	$0	$616,300	$19,000	$616,300	$0	$19,000
2022	$0	$616,300	$20,730	$616,300	$0	$20,730
2021	$0	$493,040	$22,710	$493,040	$0	$22,710
2020	$0	$480,710	$21,480	$480,710	$0	$21,480
2019	$0	$480,710	$21,360	$480,710	$0	$21,360
2018	$0	$435,090	$21,350	$435,090	$0	$21,350
2017	$0	$347,700	$21,320	$347,700	$0	$21,320
2016	$0	$298,030	$20,130	$298,030	$0	$20,130
2015	$0	$298,030	$0	$298,030	$0	$298,030
2014	$0	$274,120	$16,060	$274,120	$0	$16,060

Property Deed History

Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Number
7/26/2024			O AND B FARMS, INC.	3T MARTINS FARM HICO LLC			2024-04194
2/21/2023			TALSMA ANASTASIA	O AND B FARMS, INC.			2023-00941
1/7/2014			JONES DAVID E	TALSMA ANASTASIA			2014-00096
5/16/2011			JONES MICHAEL	JONES DAVID E			2011-02676
12/17/2007	L		JONES DAVID E & LINDA S	JONES MICHAEL	1364	318	

TECHNICAL INFORMATION PACKET FOR CONCENTRATED ANIMAL FEEDING OPERATIONS (CAFOS)

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

Name of Site: TMC Dairies Hico

TCEQ Permit Number, if assigned: WQ000 3190000

Date Prepared: August 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	See Attached BMPs
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	See Attached BMPs
Inorganic fertilizers	N/A
Fuel storage tanks	N/A
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 & Compost	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, Slurry and/or Compost -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 or composted on-site. Collected within 24 hours of death and disposed within three days of death

2) Total Number of Animals:
In Open Lots: 22 In Buildings: 2

3) Animal Housing Location, hours/day:
Open Lots: 2,000 Buildings: 8,000

4) Average Liveweight, pounds per head: Holstein – 1,400 lbs; Jersey – 1,000lbs

5) Volatile Solids Removed by Separator System: 90% (TS1) 65% (TD trt & TD1)

6) Volatile Solids Loading Rate, lbs/day/1000 ft^3: 5.3

7) Spilled Drinking Water, gallons/day: Included in clean up water

8) Water for Cleanup, gallons/day: 105,000

9) Water for Manure Removal, gallons/day: Included in clean up water

10) Recycled Wastewater, gallons/day: 0

B. Wastewater Runoff

1) Design Rainfall Amount, inches: 12.2

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
TS1	11.99	18.18	39.41	14.39	19.33	103.30*+	TBD
TS2	14.29	0.00	0.00	0.10	2.16	16.55^	24.69
TD Treatment	0.00	0.00	2.15	0.36	0.00	2.50+^	12.22
TD1	52.62	1.38	0.00	0.65	12.07	66.71+^	74.95
TH2	33.43	0.00	0.00	0.58	6.27	40.27^	65.13

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity	Actual Capacity
TH1	0.00	0.00	0.00	0.00	0.00	0.00	15.83
						*Anerobic Digester +Phase 1 ^Rounded Figure	

Indicate which RCSs are in-series: TD1& Treatment Pond; TH1 & TH2

2) Total Number of Animals:

In Open Lots: 22 In Buildings: 2

3) Animal Housing Location, hours/day:

Open Lots: 3,500 Buildings: 10,000

4) Average Liveweight, pounds per head: Holstein – 1,400 lbs; Jersey – 1,000lbs

5) Volatile Solids Removed by Separator System: 90% (TS1) 65% (TD trt & TD1)

6) Volatile Solids Loading Rate, lbs/day/1000 ft^3: 5.3

7) Spilled Drinking Water, gallons/day: Included in clean up water

8) Water for Cleanup, gallons/day: 105,000

9) Water for Manure Removal, gallons/day: Included in clean up water

10) Recycled Wastewater, gallons/day: 0

B. Wastewater Runoff

1) Design Rainfall Amount, inches: 12.2

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
TS1	11.99	23.50	64.36	23.46	24.83	148.14*~	TBD
TS2	14.29	0.00	0.00	0.10	2.16	16.55^	24.69
TD Treatment	0.00	0.00	6.44	1.07	0.00	7.51~	12.22
TD1	44.56	4.14	0.00	0.14	14.47	63.31~	74.95
TH2	33.43	0.00	0.00	0.58	6.27	40.27^	65.13

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity	Actual Capacity
TH1	0.00	0.00	0.00	0.00	0.00	0.00	15.83
						*Anerobic Digester ~Phase 2 ^Rounded Figure	

Indicate which RCSs are in-series: TD1& Treatment Pond; TH1 & TH2

2) Total Number of Animals:
In Open Lots: 22 In Buildings: 2

3) Animal Housing Location, hours/day:
Open Lots: 2,000 Buildings: 8,000

4) Average Liveweight, pounds per head: Holstein – 1,400 lbs; Jersey – 1,000lbs

5) Volatile Solids Removed by Separator System: 90% (TS1) 65% (TD trt & TD1)

6) Volatile Solids Loading Rate, lbs/day/1000 ft^3: 5.3

7) Spilled Drinking Water, gallons/day: Included in clean up water

8) Water for Cleanup, gallons/day: 105,000

9) Water for Manure Removal, gallons/day: Included in clean up water

10) Recycled Wastewater, gallons/day: 0

B. Wastewater Runoff

1) Design Rainfall Amount, inches: 12.2

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
TS1	11.99	9.67	5.66	1.85	10.54	39.71<	49.97
						< Bypass Phase 1&2	

Indicate which RCSs are in-series: TD1& Treatment Pond; TH1 & TH2

D. RCS Liner or Lack of Hydrologic Connection Certification

Table 3: RCS Hydrologic Connection

RCS Name	Construction Date	Type of Hydrologic Connection Certification
TD Treatment Pond	Unknown	Liner Cert., Norman Mullin, P.E. 2008
TD1	Unknown	Liner Cert., Norman Mullin, P.E. 2010
TD Settling Pond #1	Unknown	Liner Cert., Norman Mullin, P.E. 2008
TD Settling Pond #2	Unknown	Liner Cert., Norman Mullin, P.E. 2008
TS1	Unknown	Liner Cert., Norman Mullin, P.E. 2010
TS2	Unknown	Liner Cert., Norman Mullin, P.E. 2016
TS Settling Pond	Unknown	Liner Cert., Jerry Holligan, P.E. 1997
TH1	Unknown	Liner tests certified by Southwest Laboratories, 1990
TH2	2010	Liner Cert., Norman Mullin, P.E. 2010
TH Settling Pond	Unknown	Liner tests certified by Southwest Laboratories, 1990
Slurry Pit	Unknown	Liner Cert., Norman Mullin, P.E. 2008

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: Click here to enter text.
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: Click here to enter text.

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	144	Coastal graze 1AU/1ac; SG Mod Graze M	0.3 ac-ft/ac/yr
1A	93	Coastal graze 1AU/1ac; SG Mod Graze M	61.7 tons/ac/yr
2	39	Coastal graze 1AU/1ac; SG Mod Graze M	0.242 ac-ft/ac/yr
3	39	Coastal graze 1AU/1ac; SG Mod Graze M	61.7 tons/ac/yr
4	97	Coastal graze 1AU/1ac; SG Mod Graze M	1.25 ac-ft/ac/yr
4A	76	Coastal graze 1AU/1ac; SG Mod Graze M	165.6 tons/ac/yr
5	39	Coastal graze 1AU/1ac; SG Mod Graze M	1.25 ac-ft/ac/yr
5A	35	Coastal graze 1AU/1ac; SG Mod Graze M	61.7 tons/ac/yr
6	51	Coastal graze 1AU/1ac; SG Mod Graze M	61.7 tons/ac/yr

LMU Name	Acre	Crop(s) and Yield Goal(s)	Application Rate (Ac-ft/Ac/Year OR Tons/Ac/Year)
7	16	Coastal graze 1AU/1ac; SG Mod Graze M	0.242 ac-ft/ac/yr
7A	33	Coastal graze 1AU/1ac; SG Mod Graze M	61.7 tons/ac/yr
8	26	Coastal graze 1AU/1ac; SG Mod Graze M	0.242 ac-ft/ac/yr
8A	18	Coastal graze 1AU/1ac; SG Mod Graze M	61.7 tons/ac/yr
9	34	Coastal graze 1AU/1ac; SG Mod Graze M	0.242 ac-ft/ac/yr
9A	28	Coastal graze 1AU/1ac; SG Mod Graze M	61.7 tons/ac/yr
10	29	Coastal graze 1AU/1ac; SG Mod Graze M	0.242 ac-ft/ac/yr
10A	46	Coastal graze 1AU/1ac; SG Mod Graze M	165.6 tons/ac/yr
11	42	Coastal graze 1AU/1ac; SG Mod Graze M	1.25 ac-ft/ac/yr
12	24	Coastal graze 1AU/1ac; SG Mod Graze M	0.242 ac-ft/ac/yr
12A	63	Coastal graze 1AU/1ac; SG Mod Graze M	62.1 tons/ac/yr
13	44	Coastal graze 1AU/1ac; SG Mod Graze M	62.1 tons/ac/yr
14	12	Coastal graze 1AU/1ac; SG Mod Graze M	62.1 tons/ac/yr

1) Wastewater production, ac-in/year: 5,084.04 ac-in/ac/yr (Tables 2.3A, D, F, G, Col. 4)
2) Estimated Wastewater application, ac-in/year: 3,675 ac-in/ac/yr (Tables 2.3A, D, F, G Col. 10)
3) Manure production, tons/year: 26,800 tons/yr (Table 2.1A)
4) Estimated manure application, tons/year: 2,386.93 tons/yr (NMP)

5) Estimated manure transferred to other persons, tons/year: 24,413.06 tons/yr (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. Click here to enter text.

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
BdC	Depth to Hard Bedrock 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.
Bu, FriA	Flooding	-Land application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). -No land application to inundated soils.
CtB, WaB, 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.
FhC2, HfD2	Slow Water Movement Seepage	-Land application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). -No land application to inundated soils.
HoB	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.
HwD3	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.

C. Wastewater:

1) Use or Disposal Method:

☒ Land Application to LMUs

☐ Total Evaporation

☒ Third Party Fields

☐ Other; specify: Click here to enter text.

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	144	Coastal graze 1AU/1ac; SG Mod Graze M	0.4 ac-ft/ac/yr
1A	93	Coastal graze 1AU/1ac; SG Mod Graze M	61.7 tons/ac/yr
2	39	Coastal graze 1AU/1ac; SG Mod Graze M	0.383 ac-ft/ac/yr
3	39	Coastal graze 1AU/1ac; SG Mod Graze M	61.7 tons/ac/yr
4	97	Coastal graze 1AU/1ac; SG Mod Graze M	1.125 ac-ft/ac/yr
4A	76	Coastal graze 1AU/1ac; SG Mod Graze M	1.125 ac-ft/ac/yr
5	39	Coastal graze 1AU/1ac; SG Mod Graze M	1.125 ac-ft/ac/yr
5A	35	Coastal graze 1AU/1ac; SG Mod Graze M	61.7 tons/ac/yr
6	51	Coastal graze 1AU/1ac; SG Mod Graze M	61.7 tons/ac/yr

LMU Name	Acre	Crop(s) and Yield Goal(s)	Application Rate (Ac-ft/Ac/Year OR Tons/Ac/Year)
7	16	Coastal graze 1AU/1ac; SG Mod Graze M	0.383 ac-ft/ac/yr
7A	33	Coastal graze 1AU/1ac; SG Mod Graze M	61.7 tons/ac/yr
8	26	Coastal graze 1AU/1ac; SG Mod Graze M	0.383 ac-ft/ac/yr
8A	18	Coastal graze 1AU/1ac; SG Mod Graze M	61.7 tons/ac/yr
9	34	Coastal graze 1AU/1ac; SG Mod Graze M	0.383 ac-ft/ac/yr
9A	28	Coastal graze 1AU/1ac; SG Mod Graze M	61.7 tons/ac/yr
10	29	Coastal graze 1AU/1ac; SG Mod Graze M	0.383 ac-ft/ac/yr
10A	46	Coastal graze 1AU/1ac; SG Mod Graze M	165.6 tons/ac/yr
11	42	Coastal graze 1AU/1ac; SG Mod Graze M	1.125 ac-ft/ac/yr
12	24	Coastal graze 1AU/1ac; SG Mod Graze M	0.383 ac-ft/ac/yr
12A	63	Coastal graze 1AU/1ac; SG Mod Graze M	62.1 tons/ac/yr
13	44	Coastal graze 1AU/1ac; SG Mod Graze M	62.1 tons/ac/yr
14	12	Coastal graze 1AU/1ac; SG Mod Graze M	62.1 tons/ac/yr

1) Wastewater production, ac-in/year: 6,306.6 ac-in/ac/yr (Tables 2.3B, E, F, G, Col. 4)
2) Estimated Wastewater application, ac-in/year: 4,897.68 ac-in/ac/yr (Tables 2.3B, E, F, G, Col. 10)
3) Manure production, tons/year: 36,591 tons/yr (Table 2.1B)
4) Estimated manure application, tons/year: 1,732.66tons/yr (NMP)

5) Estimated manure transferred to other persons, tons/year: 34,585.36tons/yr (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. Click here to enter text.

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
BdC	Depth to Hard Bedrock 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.
Bu, FriA	Flooding	-Land application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). -No land application to inundated soils.
CtB, WaB, 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.
FhC2, HfD2	Slow Water Movement Seepage	-Land application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). -No land application to inundated soils.
HoB	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.
HwD3	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.

Soil Types	Limiting Characteristics	Best Management Practices
Ma	Depth to Bedrock Droughty	-Land application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). -Irrigation events will be managed to assist in maintaining soil moisture levels within the range of the available water holding capacity of that LMU. -No land application to inundated soils.
NdC	Filtering Capacity Seepage	-Land application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). -No land application to inundated soils.
WnC	Filtering Capacity	-Land application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). -No land application to inundated soils.
PcC	Droughty Depth to Bedrock Slow Water Movement	Land application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). -Irrigation events will be managed to assist in maintaining soil moisture levels within the range of the available water holding capacity of that LMU. -No land application to inundated soils.
Pd	Droughty Depth to Bedrock Slow Water Movement Large Surface Stones	Land application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). -Irrigation events will be managed to assist in maintaining soil moisture levels within the range of the available water holding capacity of that LMU. -No land application to inundated soils.
SdC	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
TD1	Domestic	Producing	Cased	See Attached Approved Buffer Exception
TD2	Domestic	Producing	Cased	See Attached Approved Buffer Exception
TD3	Domestic	Producing	Cased	See Attached Approved Buffer Exception
TD4	Domestic	Producing	Cased	See Attached Approved Buffer Exception
TD5	Domestic	Producing	Cased	Maintain 150-ft Buffer
TD6	Domestic	Non-Producing	Cased	See Attached Plugging Report
TD7	Domestic	Producing	Cased	Maintain 150-ft Buffer
TD8	Domestic	Producing	Cased	Maintain 150-ft Buffer
TD10	Domestic	Producing	Cased	Maintain 150-ft Buffer
TD11	Domestic	Non-Producing	Cased	See Attached Approved Well Buffer Exception (Phase 1) To Be Plugged (Phase 2)
TD12	Domestic	Producing	Cased	Maintain 150-ft Buffer
TD13	Domestic	Producing	Cased	Maintain 150-ft Buffer

Well ID Number	Well Type	Producing or Non-Producing	Open, Cased, or Capped	Protective Measures
TH1	Domestic	Producing	Cased	See Attached Approved Well Buffer Exception
TH2	Domestic	Producing	Cased	Maintain 150-ft Buffer
TH3	Domestic	Producing	Cased	See Attached Approved Well Buffer Exception
TH4	Domestic	Producing	Cased	See Attached Approved Well Buffer Exception
TH5	Domestic	Producing	Cased	Maintain 150-ft Buffer
TH6	Domestic	Non-Producing	Cased	See Attached Plugging Report
TH7	Domestic	Producing	Cased	Maintain 150-ft Buffer
TH8	Domestic	Non-Producing	Cased	No Evidence of well; see attached due diligence
TH9	Domestic	Producing	Cased	Maintain 150-ft Buffer
TS1	Domestic	Producing	Cased	See Attached Approved Well Buffer Exception
TS2	Domestic	Producing	Cased	See Attached Approved Well Buffer Exception
TS3	Domestic	Non-Producing	Cased	See Attached Plugging Report
TS4	Domestic	Producing	Cased	Maintain 150-ft Buffer

Well ID Number	Well Type	Producing or Non-Producing	Open, Cased, or Capped	Protective Measures
TS5	Domestic	Non-Producing	Cased	To Be Plugged
TS6	Domestic	Producing	Cased	Maintain 150-ft Buffer
TS7	Domestic	Non-Producing	Cased	See Attached Plugging Report
TS8	Domestic	Non-Producing	Cased	See Attached Plugging Report
TS9	Domestic	Producing	Cased	See Attached Approved Well Buffer Exception
TS10	Domestic	Producing	Cased	See Attached Approved Well Buffer Exception
TH10	Domestic	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: 11 (9 applicant

¼ - ½ mile: 6 (2 applicant)

½ - 1 mile: 12

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

TABLE OF CONTENTS i
LIST OF FIGURES ii
LIST OF TABLES ii
1.0 FACILITY MAPS 1
2.0 CALCULATIONS & SPECIFICATIONS 10
3.0 FACILITY INFORMATION 30
4.0 WASTE UTILIZATION & NUTRIENT MANAGEMENT PLAN 32
5.0 RECHARGE FEATURE CERTIFICATION 34
6.0 SURFACE WATER & TMDL ASSESSMENT 53
7.0 AIR STANDARD PERMIT REQUIREMENTS 56

LIST OF FIGURES

Figure 1.1: Vicinity Map 2
Figure 1.2A: USGS Quadrangle Map 3
Figure 1.3A: Site Map Phase 1 4
Figure 1.3B: Site Map Phase 2 5
Figure 1.4A: Runoff Control Map 6
Figure 1.4B: Runoff Control Map 7
Figure 1.4C: Runoff Control Map Phase 1 8
Figure 1.4D: Runoff Control Map Phase 2 9
Figure 2.1: Manure & Wastewater Flow Chart 11
Figure 2.2: DVO Renewables Data 12
Figure 3.1: FEMA Map 31
Figure 5.1: Geologic Atlas Map 38
Figure 5.2: NRCS Soils Map 45
Figure 5.3A: Recharge Feature Map Phase 1 49
Figure 5.3B: Recharge Feature Map Phase 2 50
Figure 6.1: Aerial Photograph 55
Figure 7.1: Area Land Use Map 57

LIST OF TABLES

Table 2.1A & B: As-Excreted Manure Characteristics Phase 1 & Phase 2 13
Table 2.2A: Required Storage Volumes – RCS #TS1 Phase 1 16
Table 2.2B: Required Storage Volumes – RCS #TS1 Phase 2 17
Table 2.2C: Required Storage Volumes – RCS #TS1 Phase 1& 2 Bypass 18
Table 2.2D: Required Storage Volumes – RCS #TD1 Phase 1 19
Table 2.2E: Required Storage Volumes – RCS #TD1 Phase 2 20
Table 2.2F: Required Storage Volumes – RCS #TH2 21
Table 2.2G: Required Storage Volumes – RCS #TS2 22
Table 2.3A: Water Balance Model – RCS #TD1 Phase 1 23
Table 2.3B: Water Balance Model – RCS #TS1 Phase 2 24
Table 2.3C: Water Balance Model – RCS #TS1 Phase 1&2 Bypass 25
Table 2.3D: Water Balance Model – RCS #TD1 Phase 1 26
Table 2.3E: Water Balance Model – RCS #TD1 Phase 2 27

Table 2.3F: Water Balance Model – RCS #TH2 28
Table 2.3G: Water Balance Model – RCS #TS2 29
Table 5.1: Estimated Soil Properties 41
Table 5.2: Major Soil Types 42
Table 5.3: Potential Soil Limitations for Land Application 42
Table 5.4: Well Information 47

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 2016). The location of the facility is depicted on the map.

1.2 USGS Quadrangle Map

Figures 1.2A-B, entitled 7.5-Minute USGS Map is a seamless, high-quality copy of the 7.5-minute USGS quadrangle map (Clairette and Johnsville, TX, quadrangles) that shows the boundaries of land owned, operated, or controlled by Dancing Crane Dairy 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.

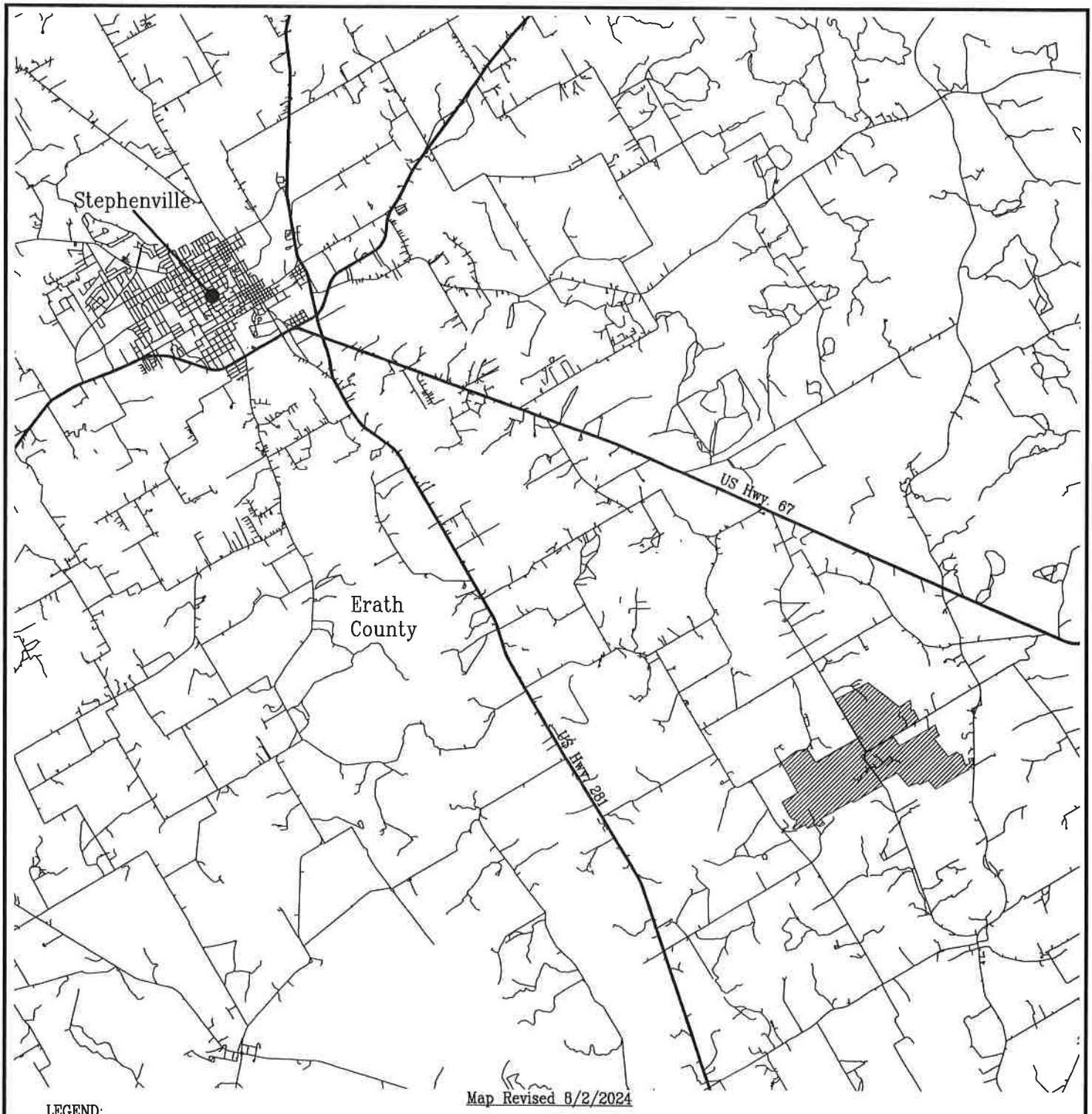
1.3 Site Map

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

- Pens/Open Lots
- Barns
- Retention Control Structures
- Land Management Units
- Buffer zones
- Wells
- Freshwater Ponds
- Berms/Diversions
- Milking Parlor
- Manure/Compost Storage Areas
- Commodity/Feed Center Areas
- Pit
- Grassed Waterway
- Anerobic Digester

1.4 Runoff Control Map

Figures 1.4A-D is a scaled drawing of the production area showing the pens, barns, wells, RCSs, permanent manure storage and compost areas, drainage area boundaries and flow directions.



Map Revised 8/2/2024

LEGEND:

- Denotes Facility
- Denotes County Roads
- Denotes Major Highways

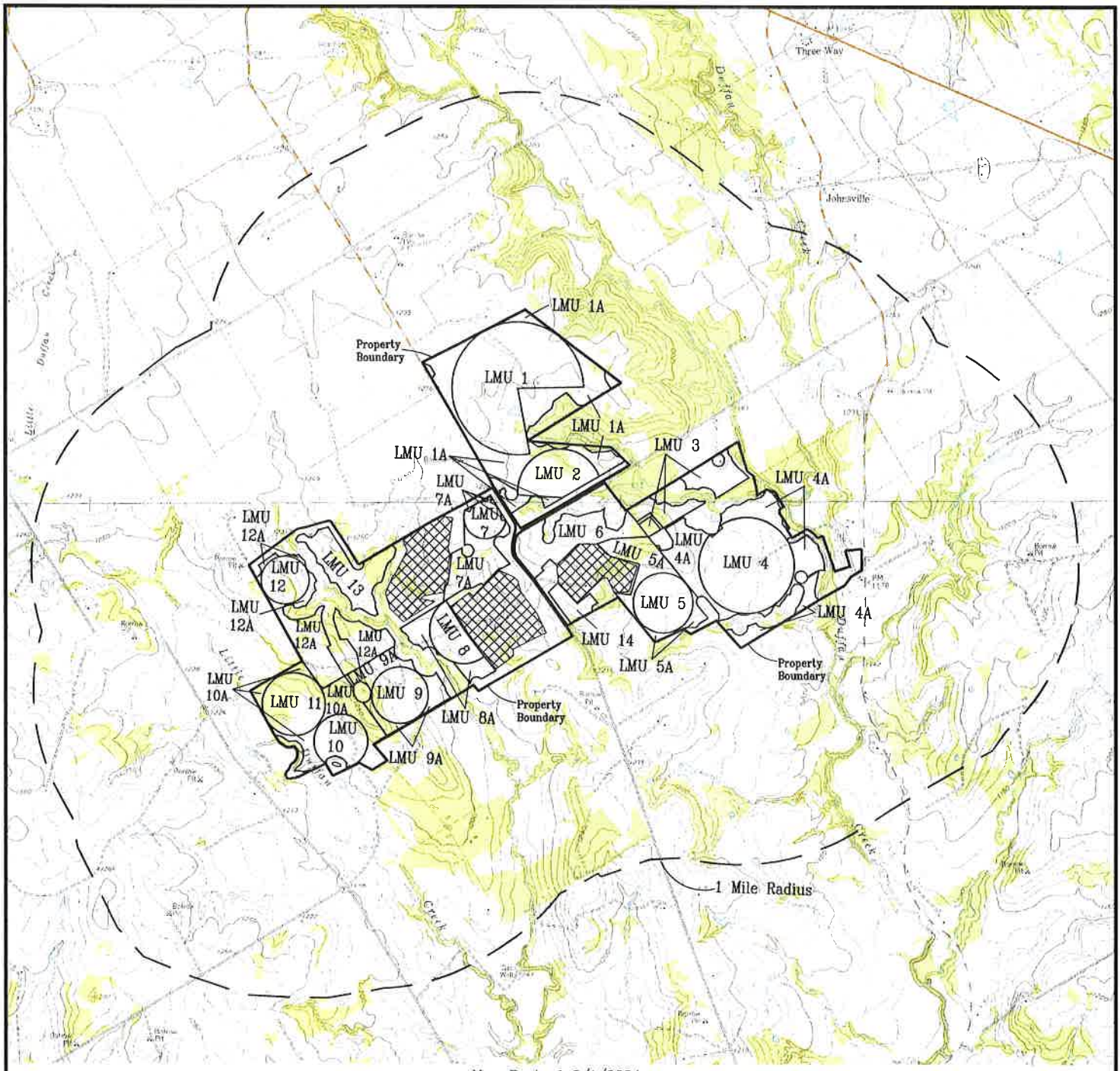
N
W E
S

1 mile 0 1 mile 2 miles

SCALED AS SHOWN

Source: USDA-NRCS. Geospatial Data Gateway. Available at: Tiger 2010 Primary and Secondary Roads-Accessed January, 2016.

TMC Dairies Hico Hico, TX Erath County	Vicinity Map Figure 1.1 Page 2	ENVIRO-AG ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132



Map Revised 8/1/2024

LEGEND:

Denotes Production Area

N

W E

S

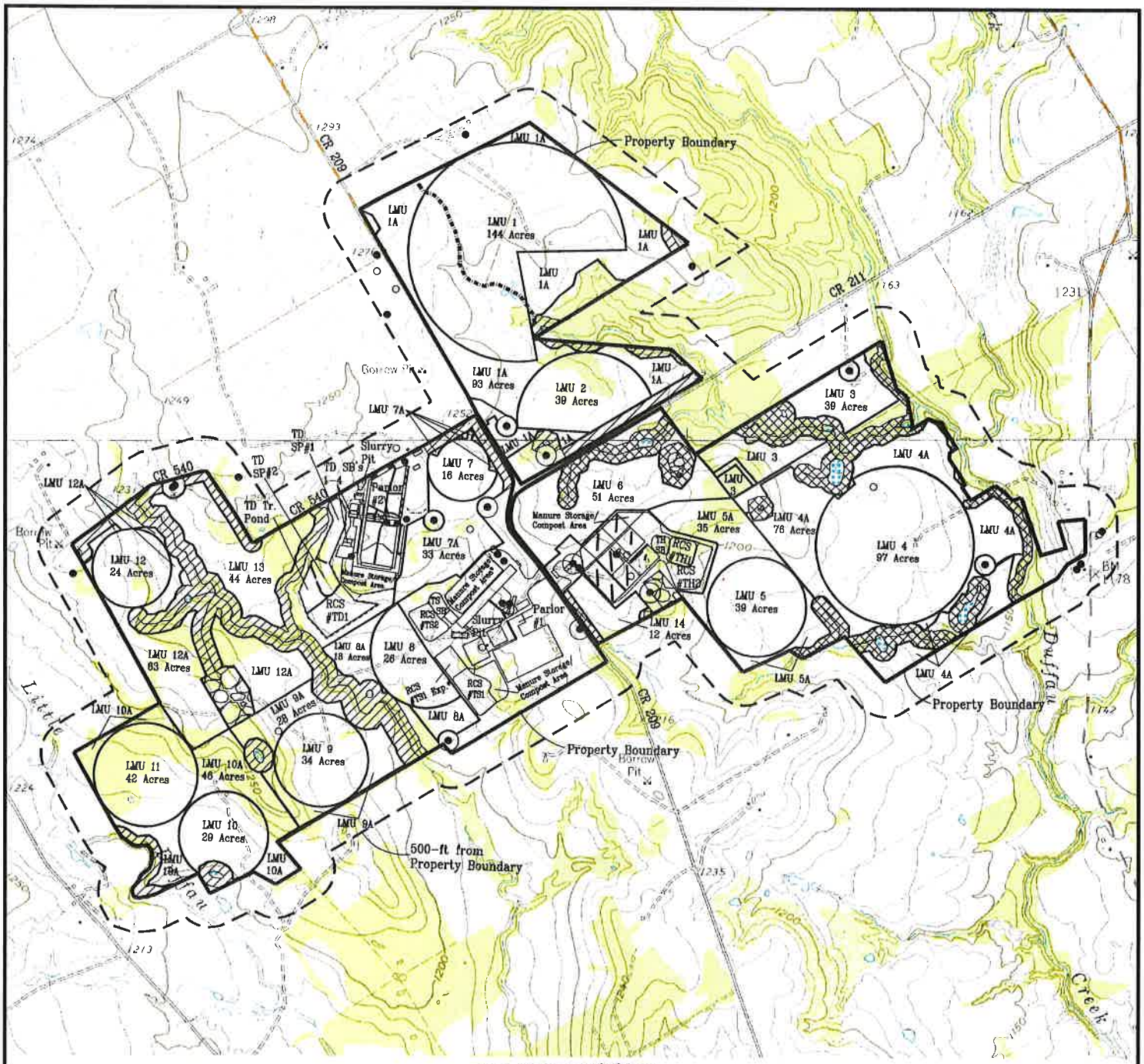
1700' 0 1700' 3400'

SCALED AS SHOWN

Source: USDS-NRCS. Geospatial Data Gateway. Available at: http://datagateway.nrcs.usda.gov/. Digital Raster Graphic County Mosaic by NRCS – Accessed May 2013.

• Refer to Figures 1.3 & 1.4 A-D for overall facility maps.

TMC Dairies Hico Hico, TX 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 8/1/2024

LEGEND:

- ○ Denotes Plugged Water Well
- ● Denotes Water Well
- ◉ Denotes Well w/150-ft Buffer
- Denotes Grassed Waterway
- Denotes 142-ft Buffered Zone
- Denoted 133-ft Buffered Zone
- Denotes Fresh Water Pond
- Denotes Pit
- * Denotes Proposed Structure

Source: USDS-NRCS. Geospatial Data Gateway. Available at: http://datagateway.nrcs.usda.gov/. Digital Raster Graphic County Mosaic by NRCS - Accessed May 2013.

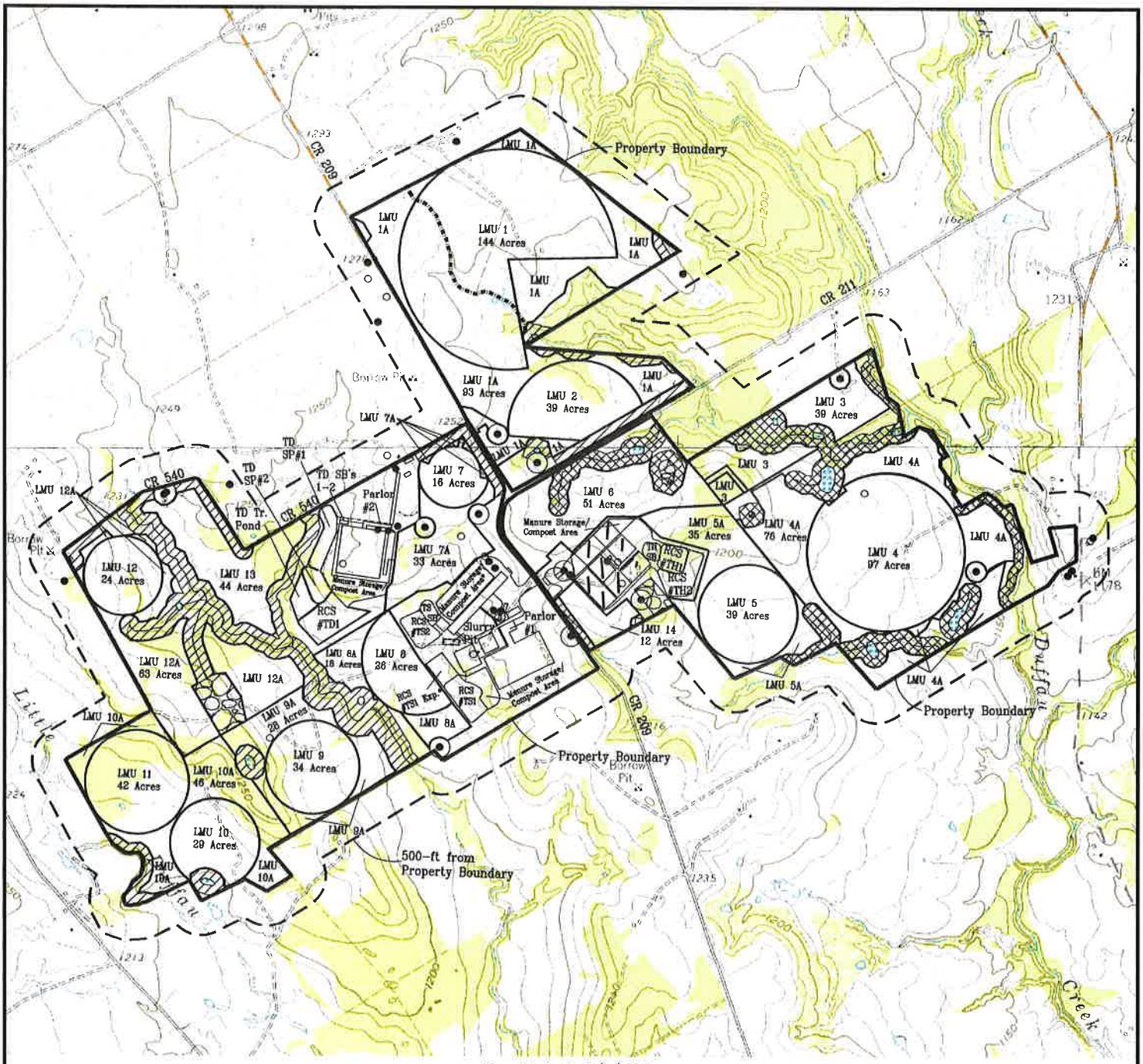
N W E S

1050' 0 1050' 2100'

SCALED AS SHOWN

Refer to Figures 1.4 A-C for detailed production area maps.

TMC Dairies Hico Hico, TX Erath County	Site Map Phase I Figure 1.3A Page 4	ENVIRO-AG ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132



Map Revised 8/1/2024

LEGEND:

- ○ Denotes Plugged Water Well
- ● Denotes Water Well
- ◉ Denotes Well w/150-ft Buffer
- Denotes Grassed Waterway
- Denotes 142-ft Buffered Zone
- Denoted 133-ft Buffered Zone
- Denotes Fresh Water Pond
- Denotes Pit
- * Denotes Proposed Structure

Source: USDS-NRCS. Geospatial Data Gateway. Available at: http://datagateway.nrcs.usda.gov/. Digital Raster Graphic County Mosaic by NRCS - Accessed May 2013.

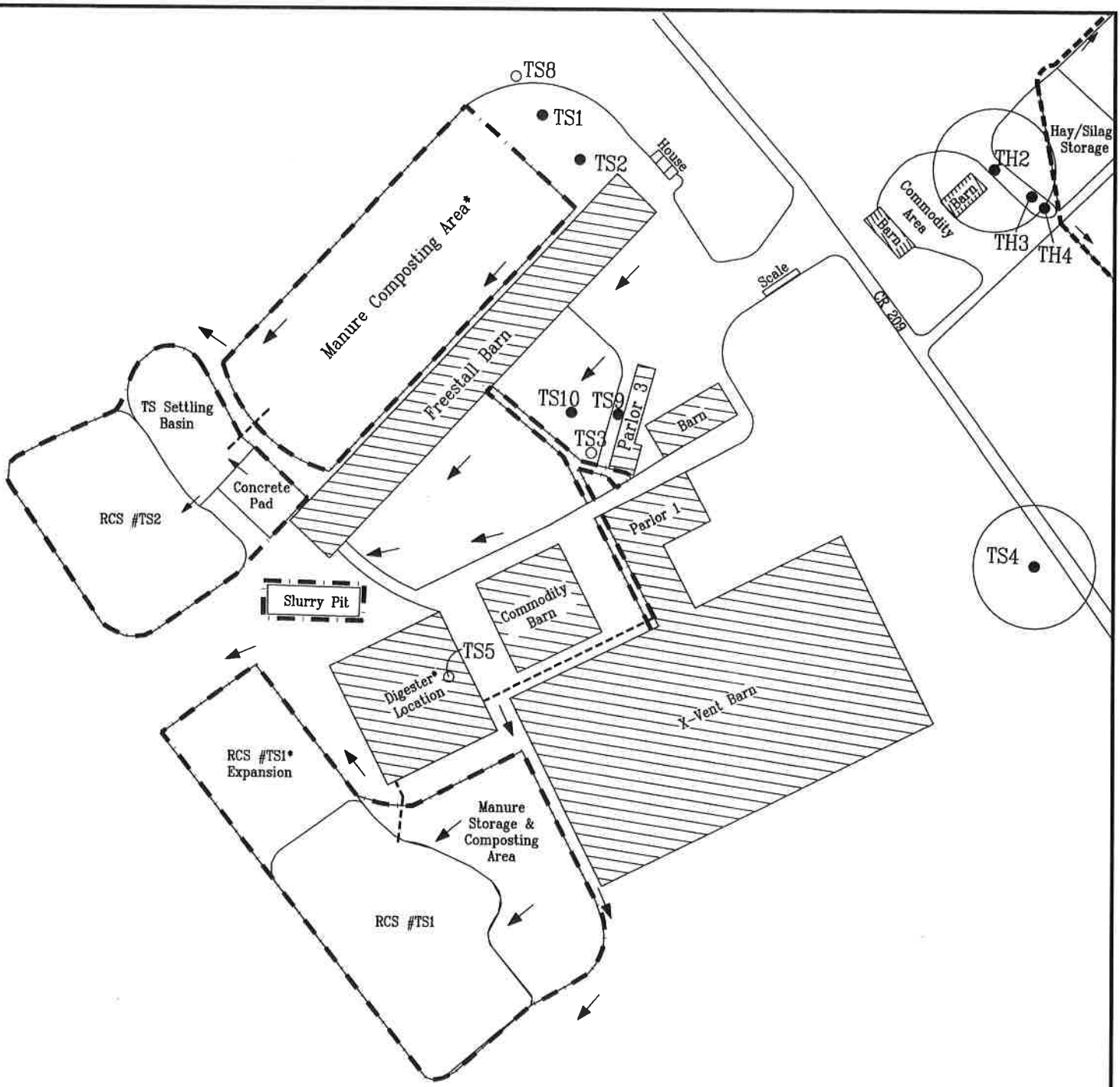
N W E S

1050' 0 1050' 2100'

SCALED AS SHOWN

Refer to Figures 1.4 A, B & D for detailed production area maps.

TMC Dairies Hico Hico, TX Erath County	Site Map Phase II Figure 1.3B Page 5	ENVIRO-AG 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
- ○ Denotes Plugged Water Well
- ◉ Denotes Well W/150-ft. Buffer
- Denotes Ditches and/or Berms
- Denotes Process Water Flow
- Denotes Barns/Roofed Areas
- * Denotes Proposed Structures

Note: Parlor #3 to be shut down after the construction of Parlor #1.

Runoff Control:
Drainage is depicted by arrows shown on maps. The drainage will be directed to the RCS via ditches, berms or underground pipe.

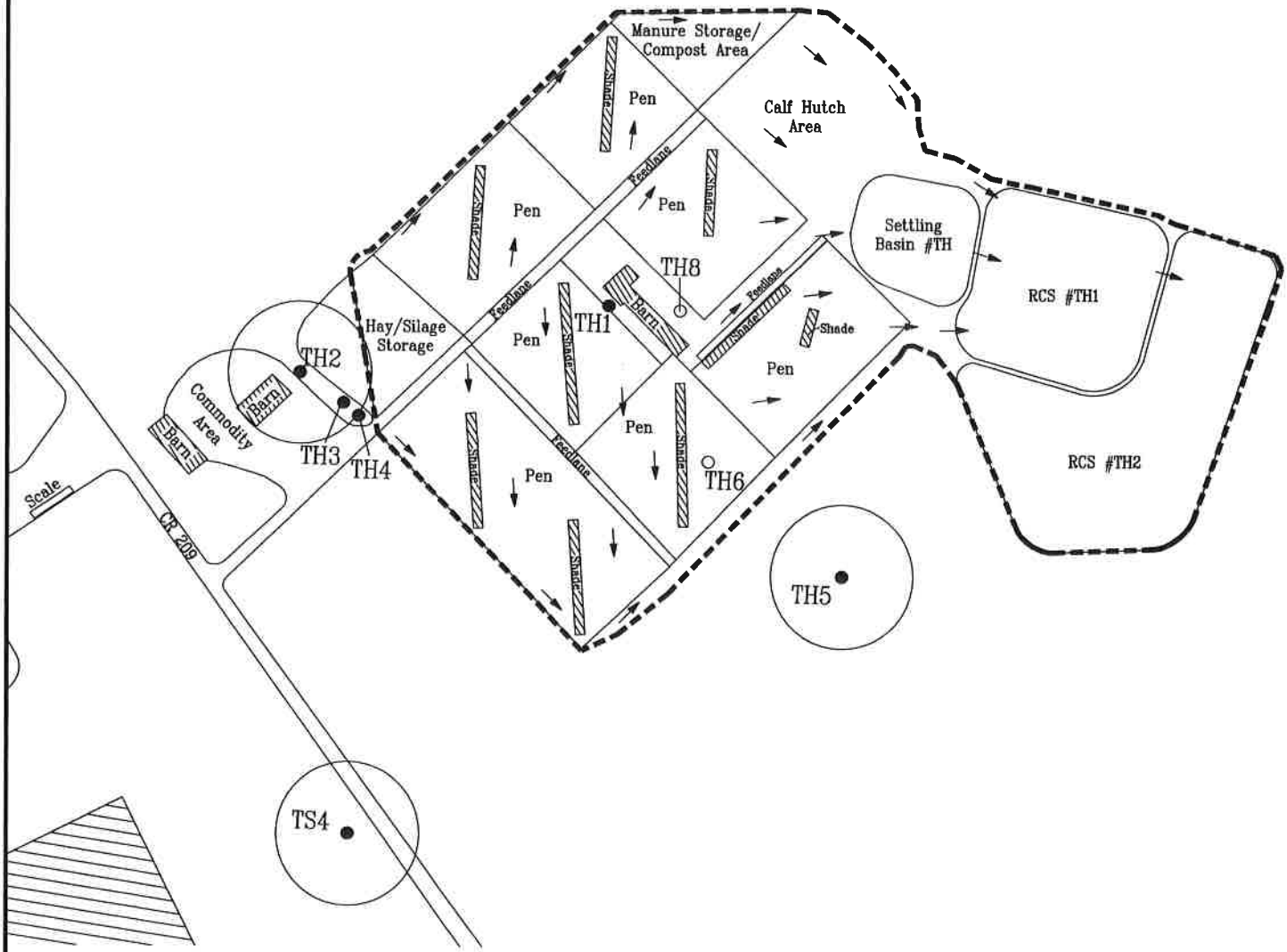
Map Generated 7/10/2024

N
W E
S

175' 0 175' 350'

SCALED AS SHOWN

TMC Dairies Hico Hico, TX Erath County	Runoff Control Map Figure 1.4A Page 6	ENVIRO-AG 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
- ○ Denotes Plugged Water Well
- ◉ Denotes Well W/150-ft. Buffer
- ▬▬ Denotes Ditches and/or Berms
- ▨ Denotes Barns/Roofed Areas

Map Generated 7/10/2024

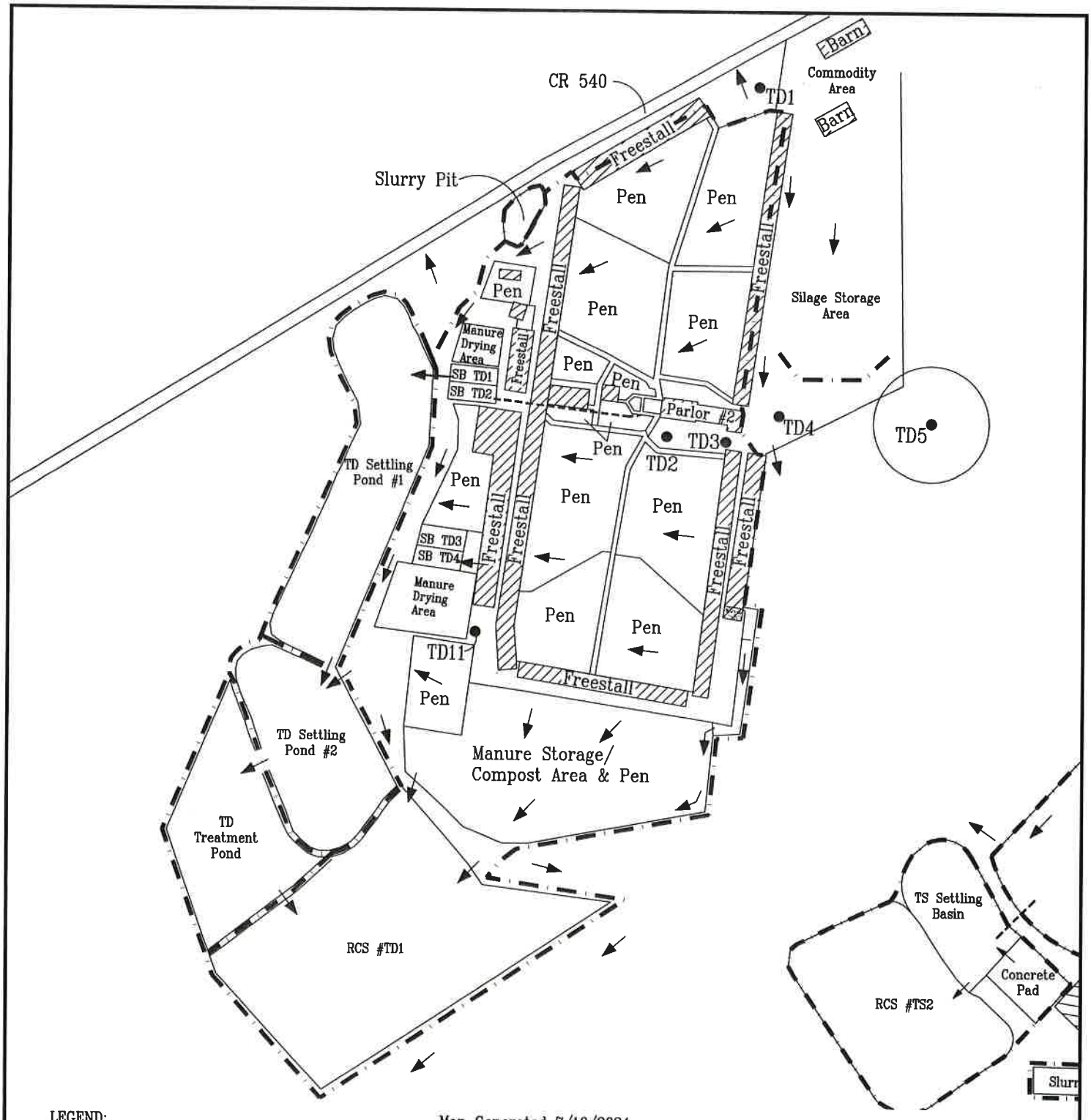
N
W E
S

175' 0 175' 350'

SCALED AS SHOWN

Runoff Control:
Drainage is depicted by arrows shown on maps. The drainage will be directed to the RCS via ditches, berms or underground pipe.

TMC Dairies Hico Hico, TX Erath County	Runoff Control Map Figure 1.4B Page 7	ENVIRO-AG 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
- Denotes Well W/150-ft. Buffer
- Denotes Ditches and/or Berms
- Denotes Process Water Flow
- Denotes Barns/Roofed Areas

Map Generated 7/10/2024

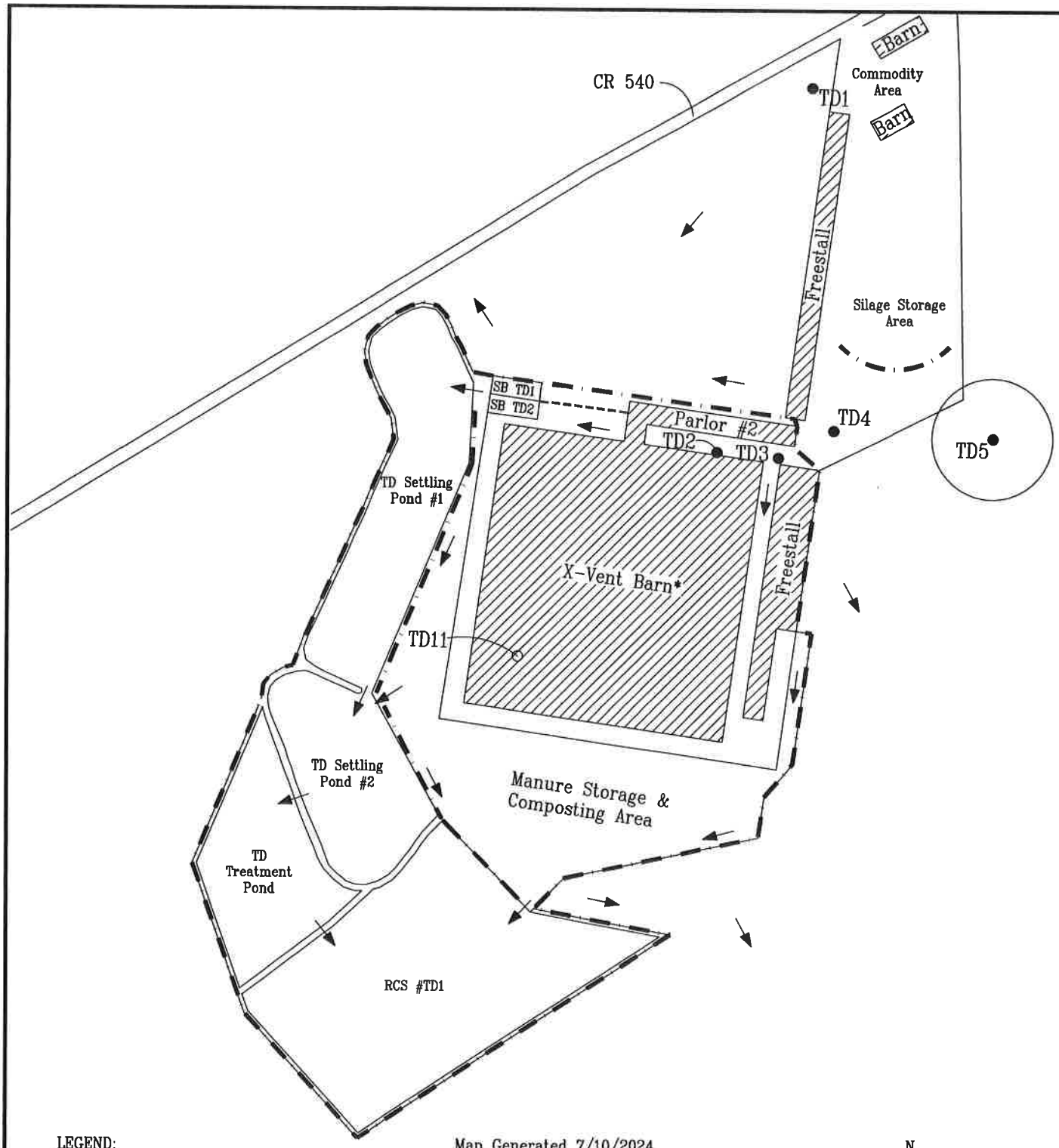
N
W E
S

175' 0 175' 350'

SCALED AS SHOWN

Runoff Control:
Drainage is depicted by arrows shown on maps. The drainage will be directed to the RCS via ditches, berms or underground pipe.

TMC Dairies Hico Hico, TX Erath County	Runoff Control Map Figure 1.4C Page 8	ENVIRO-AG 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
- Denotes Well W/150-ft. Buffer
- Denotes Ditches and/or Berms
- Denotes Process Water Flow
- Denotes Barns/Roofed Areas
- * Denotes Proposed Structures

Map Generated 7/10/2024

N
W E
S

175' 0 175' 350'

SCALED AS SHOWN

Runoff Control:
Drainage is depicted by arrows shown on maps. The drainage will be directed to the RCS via ditches, berms or underground pipe.

TMC Dairies Hico Hico, TX Erath County	Runoff Control Map Figure 1.4D Page 9	ENVIRO-AG 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 facility consists of pens, freestall barns, cross-vent barn, three milking parlors, four concrete settling basins, one earthen slurry pit, one slurry pit with concrete bottom and earthen sides, four earthen settling basins, treatment pond and five retention control structures to confine 9,150 head, of which 5,500 head are milking.

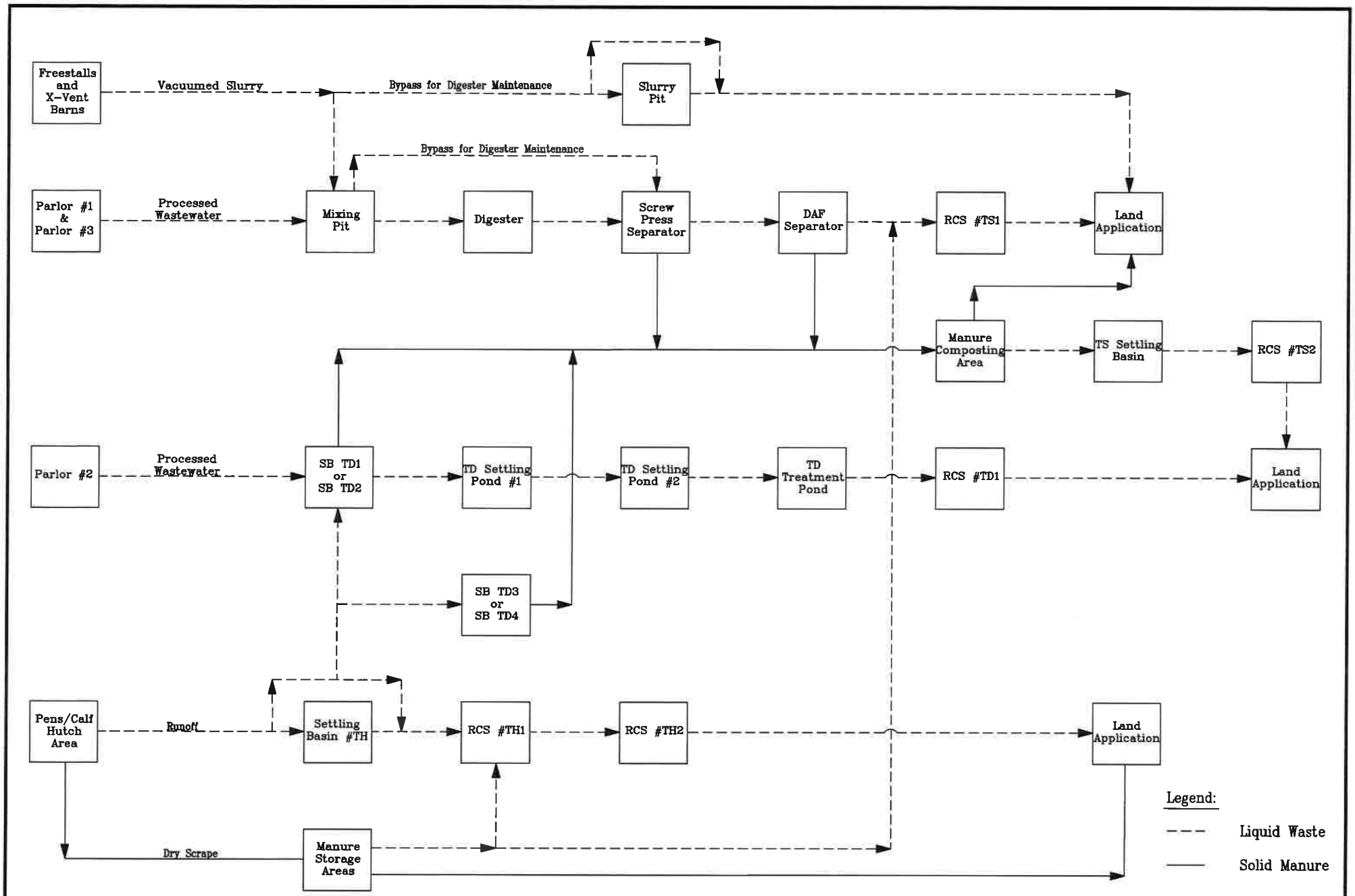
3T Martins Farm Hico, LLC has submitted a major amendment application. The application process is structured in two phases to maintain compliance throughout the transition. Phase 1 will see the headcount rise to 10,000 total with 8,000 milking, addition of the Jersey breed of dairy cattle along with the Holstein breed, addition of an anerobic digester and associated equipment, change in property boundary, reconfigure LMUs (see attached LMU cross-reference table), remove LMU #TH8 & #TD7, remove wells # TD9, #TF1 & TF2, and well #TS5 is to be plugged and reconfigure drainage area on Figure 1.4A (addition of manure compost area, addition of cross-vent barn, plug well #TS5, expansion of RCS #TS1). Phase 2 will see the headcount rise to 13,500 total with 10,000 milking, reconfigure drainage area on Figure 1.4D (addition of cross-vent barn, addition of a parlor, remove pens, freestall barns, settling basins and plug well #TD11) and reconfigure parlor #2.

The proposed changes reflect 3T Martins Farm Hico, LLC commitment to growth and efficiency, while also adhering to environmental regulations. The expansion will allow for increased milk production and the ability to manage additional waste effectively through enhanced treatment facilities. The phased approach demonstrates a careful consideration of operational compliance, ensuring that the dairy's expansion does not compromise its environmental responsibilities.

2.2 Manure Production

Tables 2.1A-B, 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.



TMC Dairies Hico Hico, TX Erath County	Proposed Manure & Wastewater Flow Chart Figure 2.1 Page 11	ENVIRO-AG EAF ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

Stephen Dvorak, P.E.
820 West Main St.
P.O. Box 69
Chilton, WI 53014
DIRECT: 920.418.4581
OFFICE: 920.849.9797
FAX: 920.849.9160
steved@dvoinc.com

August 13, 2024

To whom it may concern:

The DVO anaerobic digester (AD) with the addition of a mechanical solids separator and a DVO dissolved air flotation system, designed for operation at the TMC Dairy are expected to achieve a total solids (TS) reduction of 78% and a volatile solids (VS) reduction of 90%. Listed below is a breakdown of the separation systems and associated TS and VS reductions.

AD:
TS reduction of 34%
VS reduction of 42%

Screw Press:
TS reduction of 22%
VS reduction of 29%

Dissolved Air Flotation:
TS reduction of 58%
VS reduction of 76%

The information above is based on TMC Dairy using fiber solids as bedding and are the results from a compilation of sampling data from a similar system in operation for the past ten years in Indiana.

Steve Dvorak, P.E.
President

ESTIMATED MANURE PRODUCTION
for a DAIRY FACILITY PHASE 1
Table 2.1A
ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO: TMC Dairies Hico
LOCATION: Erath County
DATE: July-24

FACILITY TOTAL	MANURE PRODUCTION CRITERIA								
	Parlor #1 Jersey Milkers in Parlor	Parlor #1 Jersey Milkers in Barn	Parlor #1 Holstein Milkers in Parlor	Parlor #1 Holstein Milkers in Barn	Parlor #2 Holstein Milkers in Parlor	Parlor #2 Holstein Milkers in Barn	Others* in Barns/Open Lots	Dairy Total	Total to Digester
1. Number of Animals (head):	5,500	5,500	1,500	1,500	1,000	1,000	2,000	10,000	7,000
2. Average Liveweight per head, lbs.	1,000	1,000	1,400	1,400	1,400	1,400	1,400	n/a	n/a
3. Total Liveweight, lbs.	5,500,000	5,500,000	2,100,000	2,100,000	1,400,000	1,400,000	2,800,000	11,800,000	n/a
4. Confinement period, hrs./hd/day	2	22	2	22	2	22	24	24	24
5. Percent of time in Confinement Area	8%	92%	8%	92%	8%	92%	100%	100%	100%
6. Adjusted Total Liveweight, lbs.	458,333	5,041,667	175,000	1,925,000	116,667	1,283,333	2,800,000	11,800,000	7,600,000
7. Total Manure Production, lbs./day (a)	50,875.00	559,625.00	19,375.00	213,125.00	12,916.67	142,083.33	142,000.00	1,140,000	843,000
8. Total Solids Production, lbs./day (a)	6,554.17	72,095.83	2,500.00	27,500.00	1,666.67	18,333.33	18,200.00	146,850	108,650
9. Total Solids Production, tons/year	1,196.14	13,157.49	456.25	5,018.75	304.17	3,345.83	3,321.50	26,800	19,829
10. Volatile Solids Production, lbs./day (a)	5,545.83	61,004.17	2,125.00	23,375.00	1,416.67	15,583.33	15,400.00	124,450	92,050
11. Total Nitrogen Production, lbs./day (a)	330.00	3,630.00	126.25	1,388.75	84.17	925.83	840.00	7,325	5,475
12. Total Phosphorus, P2O5 lbs./day (a)	169.58	1,865.42	65.00	715.00	43.33	476.67	300.00	3,635	2,815
13. Total Potassium, K2O lbs./day (a)	183.33	2,016.67	71.25	783.75	47.50	522.50	660.00	4,285	3,055

NOTES:
* - Includes dry cows, growing heifers and young stock.
(a) - 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

ESTIMATED MANURE PRODUCTION
for a DAIRY FACILITY PHASE 2
Table 2.1B
ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO: TMC Dairies Hico
LOCATION: Erath County
DATE: July-24

FACILITY TOTAL	MANURE PRODUCTION CRITERIA									
	Parlor #1 Jersey Milkers in Parlor	Parlor #1 Jersey Milkers in Barn	Parlor #1 Holstein Milkers in Parlor	Parlor #1 Holstein Milkers in Barn	Parlor #2 Holstein Milkers in Parlor	Parlor #2 Holstein Milkers in Barn	Others* in Barn	Others* in Open Lots	Dairy Total	Total to Digester
1. Number of Animals (head):	5,500	5,500	1,500	1,500	3,000	3,000	1,500	2,000	13,500	11,500
2. Average Liveweight per head, lbs.	1,000	1,000	1,400	1,400	1,400	1,400	1,400	1,400	n/a	n/a
3. Total Liveweight, lbs.	5,500,000	5,500,000	2,100,000	2,100,000	4,200,000	4,200,000	2,100,000	2,800,000	n/a	n/a
4. Confinement period, hrs./hd/day	2	22	2	22	2	22	24	24	24	24
5. Percent of time in Confinement Area	8%	92%	8%	92%	8%	92%	100%	100%	100%	100%
6. Adjusted Total Liveweight, lbs.	458,333	5,041,667	175,000	1,925,000	350,000	3,850,000	2,100,000	2,800,000	16,700,000	13,550,000
7. Total Manure Production, lbs./day (a)	50,875.00	559,625.00	19,375.00	213,125.00	38,750.00	426,250.00	106,500.00	142,000.00	1,556,500	1,375,750
8. Total Solids Production, lbs./day (a)	6,554.17	72,095.83	2,500.00	27,500.00	5,000.00	55,000.00	13,650.00	18,200.00	200,500	177,300
9. Total Solids Production, tons/year	1,196.14	13,157.49	456.25	5,018.75	912.50	10,037.50	2,491.13	3,321.50	36,591	32,357
10. Volatile Solids Production, lbs./day (a)	5,545.83	61,004.17	2,125.00	23,375.00	4,250.00	46,750.00	11,550.00	15,400.00	170,000	150,350
11. Total Nitrogen Production, lbs./day (a)	330.00	3,630.00	126.25	1,388.75	252.50	2,777.50	630.00	840.00	9,975	8,883
12. Total Phosphorus, P2O5 lbs./day (a)	169.58	1,865.42	65.00	715.00	130.00	1,430.00	225.00	300.00	4,900	4,470
13. Total Potassium, K2O lbs./day (a)	183.33	2,016.67	71.25	783.75	142.50	1,567.50	495.00	660.00	5,920	5,118

NOTES:
* - Includes dry cows, growing heifers and young stock
(a) - 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.

2.3 Process-Generated Wastewater Volume

The sources of process-generated wastewater are wash water from the milking parlors operations (15 gal/head/day) and the water generated from the production of biogas (1,000 gal/day). The flow of the process-generated wastewater can be found on Figures 2.1 A-E. The freestall barns are vacuumed for manure removal. All open lot pens are dry scraped for manure removal. The design storage volume in RCSs #TS1 and #TD1 for process-generated wastewater is 30 days and is calculated in Tables 2.2A-E.

2.4 25-Year, 10-Day Rainfall Storage Volume

In accordance with 30 TAC §321.42(c)(1), RCSs #TD1, #TS2, #TS1 and #TH2 are 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 12.2 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 pen area runoff and compost area were calculated using a CN of 90, the pond area was calculated using a CN of 100, and the adjacent areas were calculated a CN of 90. Roofed/concrete areas were calculated using a CN of 100. Run-on from areas outside the control facility is directed away from the RCSs. Tables 2.2A-G show the calculated storage volume required for the rainfall runoff from a 25-year, 10-day storm.

2.5 Sludge Accumulation Volume

Sludge accumulation from the milking parlor wash water was calculated using a rate of 0.0729 cubic feet of sludge per pound total solids (from USDA-NRCS Agricultural Waste Management Handbook) and a sludge storage period of 1 year. The required sludge accumulation volume calculations are shown in Tables 2.2A-G.

2.6 Water Balance Model

Tables 2.3A-G, Water Balance Model, estimates the inflows and withdrawals from RCSs #TD1, #TS2, #TS1 and #TH2 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 RCSs to provide flexibility in managing RCS levels.

2.7 RCS Management Plan

A RCS Management Plan was developed 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.

2.8 Minimum Treatment Volume Requirement

A minimum treatment volume for odor control is required to obtain air standard authorization from the TCEQ. The minimum treatment volume is determined by estimating the volatile solids production rate less the removal efficiency of the settling basins and using a loading rate specified by ASABE Standards (ASAE EP 403.4 FEB2011) of 5.30 lbs of volatile solids per 1,000 cubic feet of storage. Tables 2.2A-E shows the minimum treatment volume calculation.

2.10 Digester Discussion

Wastewater from the milking parlor is directed to the anerobic digester system. The manure from the barns is vacuumed and delivered to the mixing pit to adjust the total solids content required by the digester. The data supporting the calculations used in the volatile solids/total solids reduction in the digester, screw press, and dissolved air flotation systems are from actual sample results from testing by DVO (the digester/equipment company) and are attached.

PHASE 1 PARLOR 1 DIGESTER
REQUIRED STORAGE VOLUMES FOR ANEROBIC DIGESTER/
RUNOFF RETENTION CONTROL STRUCTURES
Table 2.2A
ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO: TMC Dairies Hico
LOCATION: Erath County
DATE: July-24

TREATMENT REQUIREMENT

SLUDGE VOLUME

Dry Manure Produced:	(lb/day)	108,650
Anaerobic Digester Efficiency (%) (a):		34%
	(lb/day)	71,709
Screw Press Efficiency (%) (a):		22%
	(lb/day)	55,933
Dissolved Air Flotation Efficiency (%) (a):		58%
	(lb/day)	23,492
Sludge Accumulation Rate (b):	(cuft/lb)	0.0729
Sludge Accumulation Period:	(years)	1
1-Year Sludge Volume:	(ac-ft)	14.35

TREATMENT VOLUME

Volatile Solids Produced:	(lb/day)	92,050
Anaerobic Digester Efficiency (%) (a):		42%
	(lb/day)	53,389
Screw Press Efficiency (%) (a):		29%
	(lb/day)	37,906
Dissolved Air Flotation Efficiency (%) (a):		76%
Adjusted Volatile Solids Production:	(lb/day)	9,097
Design Loading Rate (lbVS/1000cuft-day) (g):		5.3
Treatment Volume:	(ac-ft)	39.41

TOTAL TREATMENT VOLUME

Treatment Volume:		39.41
1-Year Sludge Volume:		14.35
Total Required Treatment Volume:	**(ac-ft)**	**53.76**

NOTES:
(a) Based on data provided by DVO.
(b) Sludge Accumulation Rate taken from Table 1, ASABE Standards (ASABE EP403.4 FEB 2011).
(c) Site Specific Data.
(d) Based on data provided by Nacelle Solutions.
(e) 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
(f) USDA Agricultural Field Waste Handbook, Kansas, Part 651.1082. Suggested procedures for sediment volume estimation (Inputs-pen/adj contribution, 1.5% solids and 1 year)
(g) Loading Rate taken from Figure 2, ASABE Standards (ASABE EP403.4 FEB2011).

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.

RUNOFF REQUIREMENT

PROCESS GENERATED WASTE/WASTEWATER

Parlor Wash Water (c)	(gal/head/day)	15
No. of Head in Parlor:		7,000
Volume of Process Water:	(gal/day)	105,000
Biogas Production Generated Water (d):	(gal/day)	1,000
Wet Manure Production:	(lb/day)	843,000
Total Solids Produced:	(lb/day)	108,650
Total Solids Removed by Seperation System:	(lb/day)	85,158
Wet Manure Production Less Separated Solids:	(lb/day)	757,842
	(gal/day)	91,430
Design Storage Period	(days)	30
Process Water Volume:	(ac-ft)	18.18

RAINFALL VOLUME

Drainage Area Characteristics:	(acres)	CN
Pen Area:	0.00	90
Adjacent Areas:	3.50	90
Paved/Roof Areas:	0.15	100
RCS #TS1 Surface Area:	8.50	100
Total Drainage Area	12.15	

25-Year, 10-Day Rainfall:	(inches)	12.2
Runoff Volume Determination (e):	(inches)	(ac-ft)
Pen Area:	11.0	0.00
Adjacent Areas:	11.0	3.20
Paved/Roof Areas:	12.2	0.15
RCS #TS1 Surface Area:	12.2	8.64
Rainfall Volume:	(ac-ft)	11.99

TOTAL RCS VOLUME REQUIRED

Runoff Sludge Volume (f):	(ac-ft)	0.04
Process Water Volume:	(ac-ft)	18.18
Rainfall Volume:	(ac-ft)	11.99
Additional from Water Balance:	(ac-ft)	19.33
Treatment Volume:	(ac-ft)	39.41
1-Year Sludge Volume:	(ac-ft)	14.35
Total Required RCS #TS1 Volume:	**(ac-ft)**	**103.30**

8/26/24

STATE OF TEXAS
NORMAN H. MULLIN
66107
LICENSED
PROFESSIONAL ENGINEER

Firm No. F-2507

PHASE 2 PARLOR 1 DIGESTER
REQUIRED STORAGE VOLUMES FOR ANEROBIC DIGESTER/
RUNOFF RETENTION CONTROL STRUCTURES
Table 2.2B
ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO: TMC Dairies Hico
LOCATION: Erath County
DATE: July-24

TREATMENT POND REQUIREMENT

SLUDGE VOLUME

Dry Manure Produced:	(lb/day)	177,300
Anaerobic Digester Efficiency (%) (a):		34%
	(lb/day)	117,018
Screw Press Efficiency (%) (a):		22%
	(lb/day)	91,274
Dissolved Air Flotation Efficiency (%) (a):		58%
	(lb/day)	38,335
Sludge Accumulation Rate (b):	(cuft/lb)	0.0729
Sludge Accumulation Period:	(years)	1
1-Year Sludge Volume:	(ac-ft)	23.42

TREATMENT VOLUME

Volatile Solids Produced:	(lb/day)	150,350
Anaerobic Digester Efficiency (%) (a):		42%
	(lb/day)	87,203
Screw Press Efficiency (%) (a):		29%
	(lb/day)	61,914
Dissolved Air Flotation Efficiency (%) (a):		76%
Adjusted Volatile Solids Production:	(lb/day)	14,859
Design Loading Rate (lbVS/1000cuft-day) (g):		5.3
Treatment Volume:	(ac-ft)	64.36

TOTAL TREATMENT VOLUME

Treatment Volume:		64.36
1-Year Sludge Volume:		23.42
Total Required Treatment Volume:	**(ac-ft)**	**87.78**

NOTES:
(a) Based on data provided by DVO.
(b) Sludge Accumulation Rate taken from Table 1, ASABE Standards (ASABE EP403.4 FEB 2011).
(c) Site Specific Data.
(d) Based on data provided by Nacelle Solutions.
(e) 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
(f) USDA Agricultural Field Waste Handbook, Kansas, Part 651.1082, Suggested procedures for sediment volume estimation (Inputs-pen/adj contribution, 1.5% solids and 1 year).
(g) Loading Rate taken from Figure 2, ASABE Standards (ASABE EP403.4 FEB2011).

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.

RUNOFF POND REQUIREMENT

PROCESS GENERATED WASTE/WASTEWATER

Parlor Wash Water (c):	(gal/head/day)	15
No. of Head in Parlor:		7,000
Volume of Process Water:	(gal/day)	105,000
Biogas Production Generated Water (d):	(gal/day)	1,000
Wet Manure Production:	(lb/day)	1,375,750
Total Solids Produced	(lb/day)	177,300
Total Solids Removed by Seperation System:	(lb/day)	138,965
Wet Manure Production Less Separated Solids:	(lb/day)	1,236,785
	(gal/day)	149,212
Design Storage Period:	(days)	30
Process Water Volume:	(ac-ft)	23.50

RAINFALL VOLUME

Drainage Area Characteristics:	(acres)	CN
Pen Area:	0.00	90
Adjacent Areas:	3.50	90
Paved/Roof Areas:	0.15	100
RCS #TS1 Surface Area:	8.50	100
Total Drainage Area	12.15	

25-Year, 10-Day Rainfall:	(inches)	12.2
Runoff Volume Determination (e):	(inches)	(ac-ft)
Pen Area:	11.0	0.00
Adjacent Areas:	11.0	3.20
Paved/Roof Areas:	12.2	0.15
RCS #1 Surface Area:	12.2	8.64
Rainfall Volume:	(ac-ft)	11.99

TOTAL RCS VOLUME REQUIRED

Runoff Sludge Volume (f):	(ac-ft)	0.04
Process Water Volume:	(ac-ft)	23.50
Rainfall Volume:	(ac-ft)	11.99
Additional from Water Balance	(ac-ft)	24.83
Treatment Volume:	(ac-ft)	64.36
1-Year Sludge Volume:	(ac-ft)	23.42
Total Required RCS #TS1 Volume:	**(ac-ft)**	**148.14**

Norman Mullin
8/26/24



Firm No. F-2507

PHASE 1 & 2 PARLOR 1 BYPASS
REQUIRED STORAGE VOLUMES FOR TREATMENT/
RUNOFF RETENTION CONTROL STRUCTURES
Table 2.2C
ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO: TMC Dairies Hico
LOCATION: Erath County
DATE: July-24

TREATMENT POND REQUIREMENT

TREATMENT VOLUME

Volatile Solids Produced:	(lb/day)	7,671
Screw Press Efficiency (%) (a):		29%
	(lb/day)	5,446
Dissolved Air Flotation Efficiency (%) (a):		76%
	(lb/day)	1,307
Design Loading Rate (lbVS/1000cuft-day) (b):		5.30
Treatment Volume:	(ac-ft)	5.66

SLUDGE VOLUME

Dry Manure Produced:	(lb/day)	9,054
Screw Press Efficiency (%) (a):		22%
	(lb/day)	7,062
Dissolved Air Flotation Efficiency (%) (a):		58%
	(lb/day)	2,966
Sludge Accumulation Rate (c):	(cuft/lb)	0.0729
Sludge Accumulation Period:	(years)	1
Sludge Volume:	(ac-ft)	1.81

TOTAL TREATMENT VOLUME

Treatment Volume:	(ac-ft)	5.66
1-Year Sludge Volume:	(ac-ft)	1.81
Total Required Treatment Volume:	**(ac-ft)**	**7.47**

NOTES:
(a) Based on data provided by DVO.
(b) Loading Rate taken from Figure 2, ASABE Standards (ASABE EP403.4 FEB2011).
(c) Sludge Accumulation Rate taken from Table 1, ASABE Standards (ASABE EP403.4 FEB 2011).
(d) Value includes wet manure production from the milking parlor.
(e) 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

(f) USDA Agricultural Field Waste Handbook, Kansas, Part 651.1082. Suggested procedures for sediment volume estimation (Inputs-pen/adj contribution, 1.5% solids and 1 year).

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.

RUNOFF POND REQUIREMENT

PROCESS GENERATED WASTE/WASTEWATER

Parlor Wash Water (d):	(gal/head/day)	15
No. of Head in Parlor:		7,000
Volume of Process Water:	(gal/day)	105,000
Design Storage Period:	(days)	30
Process Water Volume:	(ac-ft)	9.67

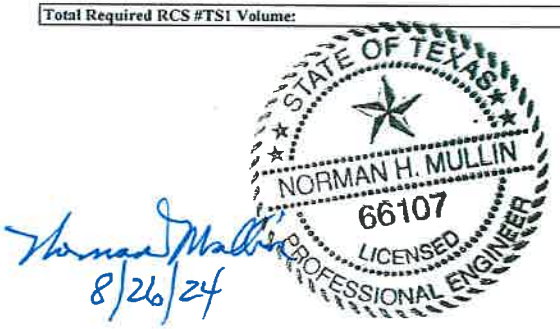
RAINFALL VOLUME

Drainage Area Characteristics:	(acres)	CN
Pen Area:	0.00	90
Adjacent Areas:	3.50	90
Paved/Roof Areas:	0.15	100
RCS #TS1 Surface Area:	8.50	100
Total Drainage Area	12.15	

25-Year, 10-Day Rainfall:	(inches)	12.2
Runoff Volume Determination (e):	(inches)	(ac-ft)
Pen Area:	11.0	0.00
Adjacent Areas:	11.0	3.20
Paved/Roof Areas:	12.2	0.15
RCS #TS1 Surface Area:	12.2	8.64
Rainfall Volume:	(ac-ft)	11.99

TOTAL RCS VOLUME REQUIRED

Runoff Sludge Volume (f):	(ac-ft)	0.04
Process Water Volume:	(ac-ft)	9.67
Rainfall Volume:	(ac-ft)	11.99
Additional from Water Balance:	(ac-ft)	10.54
Treatment Volume:	(ac-ft)	5.66
1-Year Sludge Volume:	(ac-ft)	1.81
Total Required RCS #TS1 Volume:	**(ac-ft)**	**39.71**



8/26/24

Firm No. F-2507

PHASE 1 PARLOR 2
REQUIRED STORAGE VOLUMES FOR TREATMENT/ RUNOFF RETENTION CONTROL STRUCTURES
Table 2.2D
ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO: TMC Dairies Hico
LOCATION: Erath County
DATE: July-24

TD - TREATMENT POND REQUIREMENT

TREATMENT VOLUME

Volatile Solids Produced:	(lb/day)	1,417
Settling Basin/Pond Efficiency (%) (a):		65%
Adjusted Volatile Solids Production:	(lb/day)	496
Design Loading Rate (lbVS/1000cuft-day) (b):		5.30
Treatment Volume:	(ac-ft)	2.15

SLUDGE VOLUME

Dry Manure Produced:	(lb/day)	1,667
Settling Basin Efficiency (%):		65%
Adjusted Dry Manure Production:	(lb/day)	583
Sludge Accumulation Rate (c):	(cuft/lb)	0.0729
Sludge Accumulation Period:	(years)	1
Sludge Volume:	(ac-ft)	0.36

TOTAL TREATMENT VOLUME

Treatment Volume:	(ac-ft)	2.15
1-Year Sludge Volume:	(ac-ft)	0.36
Total Required Treatment Volume:	**(ac-ft)**	**2.50**

NOTES:
(a) Midwest Plan Service, 1983, Revised 1987 (Waste Management, pg. 702.11).
(b) Loading Rate taken from Figure 2, ASABE Standards (ASABE EP403.4 FEB2011).
(c) Sludge Accumulation Rate taken from Table 10-7, USDA, NRCS Agricultural Waste Management Field Handbook.
(d) Value includes wet manure production from the milking parlor.
(e) 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

(f) USDA Agricultural Field Waste Handbook, Kansas, Part 651.1082, Suggested procedures for sediment volume estimation (SC = 1.5% for 1 year).

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.

RUNOFF REQUIREMENT
PROCESS GENERATED WASTE/WASTEWATER

Parlor Wash Water (d):	(gal/head/day)	15
No. of Head in Parlor:		1,000
Volume of Process Water:	(gal/day)	15,000
Design Storage Period:	(days)	30
Process Water Volume:	(ac-ft)	1.38

RAINFALL VOLUME

Drainage Area Characteristics:	(acres)	CN
Pen Area:	15.08	90
Adjacent/Manure Composting Areas:	12.15	90
Paved/Roof Areas:	5.84	100
Settling Basin/Pond Areas:	8.37	100
Treatment Pond Area:	2.74	100
RCS #TD1 Surface Area:	10.34	100
Total Drainage Area	54.52	

25-Year, 10-Day Rainfall Event:	(inches)	12.2

Runoff Volume Determination (e):	(inches)	(ac-ft)
Pen Area:	11.0	13.77
Adjacent/Manure Composting Areas:	11.0	11.10
Paved/Roof Areas:	12.2	5.94
Settling Basin/Pond Areas:	12.2	8.51
Treatment Pond Area:	12.2	2.79
RCS #TD1 Surface Area:	12.2	10.51
Rainfall Volume:	(ac-ft)	52.62

TOTAL RCS VOLUME REQUIRED

Process Water Volume:	(ac-ft)	1.38
Rainfall Volume:	(ac-ft)	52.62
Additional from Water Balance:	(ac-ft)	12.07
Sludge Accumulation Volume (f):	(ac-ft)	0.65
Total Required RCS #TD1 Volume:	**(ac-ft)**	**66.71**

Norman H. Mullin 8/26/24

STATE OF TEXAS
NORMAN H. MULLIN
66107
LICENSED
PROFESSIONAL ENGINEER

Firm No. F-2507

PHASE 2 PARLOR 2
REQUIRED STORAGE VOLUMES FOR TREATMENT/ RUNOFF RETENTION CONTROL STRUCTURES
Table 2.2E
ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO: TMC Dairies Hico
LOCATION: Erath County
DATE: July-24

TD - TREATMENT POND REQUIREMENT

TREATMENT VOLUME

Volatile Solids Produced:	(lb/day)	4,250
Settling Basin/Pond Efficiency (%) (a):		65%
Adjusted Volatile Solids Production:	(lb/day)	1,488
Design Loading Rate (lbVS/1000cuft-day) (b):		5.30
Treatment Volume:	(ac-ft)	6.44

SLUDGE VOLUME

Dry Manure Produced:	(lb/day)	5,000
Settling Basin Efficiency (%):		65%
Adjusted Dry Manure Production:	(lb/day)	1,750
Sludge Accumulation Rate (c):	(cuft/lb)	0.0729
Sludge Accumulation Period:	(years)	1
Sludge Volume:	(ac-ft)	1.07

TOTAL TREATMENT VOLUME

Treatment Volume:	(ac-ft)	6.44
1-Year Sludge Volume:	(ac-ft)	1.07
Total Required Treatment Volume:	**(ac-ft)**	**7.51**

NOTES:
(a) Midwest Plan Service, 1983, Revised 1987 (Waste Management, pg. 702.11).
(b) Loading Rate taken from Figure 2, ASABE Standards (ASABE EP403.4 FEB2011).
(c) Sludge Accumulation Rate taken from Table 10-7, USDA, NRCS Agricultural Waste Management Field Handbook.
(d) Value includes wet manure production from the milking parlor.
(e) 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

(f) USDA Agricultural Field Waste Handbook, Kansas, Part 651.1082, Suggested procedures for sediment volume estimation (SC = 1.5% for 1 year).

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.

RCS #TD1 - RUNOFF REQUIREMENT

PROCESS GENERATED WASTE/WASTEWATER

Parlor Wash Water (d):	(gal/head/day)	15
No. of Head in Parlor:		3,000
Volume of Process Water:	(gal/day)	45,000
Design Storage Period:	(days)	30
Process Water Volume:	(ac-ft)	4.14

RAINFALL VOLUME

Drainage Area Characteristics:	(acres)	CN
Pen Area:	0.00	90
Adjacent/Manure Composting Areas:	11.36	90
Paved/Roof Areas:	12.17	100
Settling Basin/Pond Areas:	8.37	100
Treatment Pond Area:	2.74	100
RCS #TD1 Surface Area:	10.34	100
Total Drainage Area	44.98	

25-Year, 10-Day Rainfall Event:	(inches)	12.2

Runoff Volume Determination (e):	(inches)	(ac-ft)
Pen Area:	11.0	0.00
Adjacent/Manure Composting Areas:	11.0	10.38
Paved/Roof Areas:	12.2	12.37
Settling Basin/Pond Areas:	12.2	8.51
Treatment Pond Area:	12.2	2.79
RCS #TD1 Surface Area:	12.2	10.51
Rainfall Volume:	(ac-ft)	44.56

TOTAL RCS VOLUME REQUIRED

Process Water Volume:	(ac-ft)	4.14
Rainfall Volume:	(ac-ft)	44.56
Additional from Water Balance:	(ac-ft)	14.47
Sludge Accumulation Volume (f):	(ac-ft)	0.14
Total Required RCS #TD1 Volume:	**(ac-ft)**	**63.30**

STATE OF TEXAS
NORMAN H. MULLIN
66107
LICENSED
PROFESSIONAL ENGINEER

8/26/24

Firm No. F-2507

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

NAME OF CAFO: TMC Dairies Hico
LOCATION: Erath County
DATE: July-24

RCS #TH2 - RUNOFF POND REQUIREMENT

RAINFALL VOLUME

Drainage Areas:	CN	Area (ac)
Pen/Open Lot Areas:	90	15.98
Adjacent/Manure Composting Areas:	90	8.37
Paved/Roofed Areas:	100	2.00
RCS Surface Areas (a):	100	9.00
Total Area (acres):		35.35

25-Year, 10-Day Rainfall Event:	(inches)	12.2

Runoff Volume Determination (b):	(inches)	(ac-ft)
Pen/Open Lot Areas:	11.0	14.60
Adjacent/Manure Composting Areas:	11.0	7.65
Paved/Roofed Areas:	12.2	2.03
RCS Surface Areas (a):	12.2	9.15
Total Runoff (ac-ft):		33.43

TOTAL RCS VOLUME REQUIRED

	(ac-ft)
Required Volume for Rainfall Runoff:	33.43
Sludge Accumulation Volume (c):	0.58
Additional Required Volume from Water Balance:	6.27

Total Volume Required for RCS #TH2	**40.27**

NOTES:

(a) Includes surface area of TH Settling Basin, RCS #TH1, & RCS #TH2.
(b) 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, 10-Day Rainfall (in)
CN = Curve Number from SCS 210-VI-TR-55,
2nd Edition, June 1986

(c) USDA Agricultural Field Waste Handbook, Kansas, Part 651.1082, Suggested proccdures for sediment volume estimation (SC = 1.5% for 1 year).



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 2.2G
ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO: TMC Dairies Hico
LOCATION: Erath County
DATE: July-24

RCS #TS2 - RUNOFF POND REQUIREMENT

RAINFALL VOLUME

Drainage Areas:	CN	Area (ac)
Pen/Open Lot Areas:	90	0.00
Adjacent/Manure Composting Areas:	90	8.00
Paved/Roofed Areas:	100	0.75
RCS Surface Areas (a):	100	6.12
Total Area (acres):		14.87

25-Year, 10-Day Rainfall Event:	(inches)	12.2

Runoff Volume Determination (b):	(inches)	(ac-ft)
Pen/Open Lot Areas:	11.0	0.00
Adjacent/Manure Composting Areas:	11.0	7.31
Paved/Roofed Areas:	12.2	0.76
RCS Surface Areas (a):	12.2	6.22
Total Runoff (ac-ft):		14.29

TOTAL RCS VOLUME REQUIRED

	(ac-ft)
Required Volume for Rainfall Runoff:	14.29
Sludge Accumulation Volume (c):	0.10
Additional Required Volume from Water Balance:	2.16

Total Volume Required for RCS #TS2	**16.55**

NOTES:

(a) Includes surface area of TS Settling Basin & RCS #TS2.
(b) 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, 10-Day Rainfall (in)
CN = Curve Number from SCS 210-VI-TR-55, 2nd Edition, June 1986



(c) USDA Agricultural Field Waste Handbook, Kansas, Part 651.1082, Suggested procedures for sediment volume estimation (SC = 1.5% for 1 year).

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.

PHASE 1 PARLOR 1 DIGESTER
WATER BALANCE MODEL FOR ANEROBIC DIGESTER/RUNOFF RETENTION CONTROL STRUCTURES
IRRIGATION AND EVAPORATION for RCS #TS1

Table 2.3A
ENVIRO-AG ENGINEERING, INC.

NAME: TMC Dairies Hico
LOCATION: Erath County
DATE: July-24

HYDROLOGIC CHARACTERISTICS

Pen Area (acres):	0.00	
Adjacent Areas (acres):	3.50	
Paved/Roof Area (acres):	0.15	
Total RCS Surface Area (acres):	8.50	
Minimum Irrigated Acres Needed (acres)(12):	490	490
Cropping scheme:	Coastal	Winter Wheat
Effective Evaporation Surface Area (acres):	7.23	

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 10-Day Rainfall Volume (ac-ft):	11.99
Process Generated Wastewater Volume (ac-ft):	18.18
Sludge Accumulation Volume (ac-ft):	14.39
Treatment Volume (ac-ft):	39.41
Additional Volume (ac-ft):	19.33
Total Required Capacity (ac-ft):	103.30

	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 --->	14.39
JAN	1.54	0.00	0.23	18.78	19.96	1.54	2.10	2.74	22.87	49.00	2.37	1.43	18.53	14.39
FEB	1.89	0.00	0.39	17.57	19.05	1.89	2.46	3.11	23.28	49.82	2.69	1.62	17.43	14.39
MAR	2.14	0.00	0.53	18.78	20.48	2.14	4.06	4.97	78.48	115.63	4.28	2.58	17.90	14.39
APR	2.88	0.00	0.99	18.18	20.54	2.81	4.98	5.74	88.63	119.66	5.20	3.13	17.41	14.39
MAY	4.31	0.00	2.06	18.78	22.49	3.88	5.73	5.33	75.61	59.28	5.25	3.16	19.33	14.39
JUN	3.24	0.00	1.25	18.18	20.88	3.10	6.82	3.22	151.73	4.73	7.01	4.22	16.66	14.39
JUL	2.11	0.00	0.51	18.78	20.45	2.11	7.66	0.00	226.67	0.00	8.23	4.96	15.50	14.39
AUG	2.25	0.00	0.59	18.78	20.58	2.24	7.56	0.00	217.07	0.00	7.71	4.64	15.94	14.39
SEP	3.01	0.00	1.08	18.18	20.66	2.92	5.78	0.00	116.86	0.00	5.91	3.56	17.11	14.39
OCT	3.23	0.00	1.24	18.78	21.47	3.10	4.29	2.15	48.75	0.00	4.89	2.94	18.53	14.39
NOV	1.88	0.00	0.39	18.18	19.65	1.88	2.81	1.70	37.98	0.00	3.33	2.00	17.64	14.39
DEC	1.62	0.00	0.26	18.78	20.03	1.62	2.24	2.33	25.32	28.99	2.45	1.48	18.55	14.39
TOTALS	30.10	0.00	9.53	221.77	246.25	29.23	56.49	31.29	1113.24	427.12	59.32	35.72	210.53	

NOTES:

(1) AVERAGE PRECIPITATION - Average precipitation taken from the Texas Water Development Board, Erath County, Quad #509, Retrieved May 15, 2024.

(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-77). (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff).

(3) INFLOW - Inflow is calculated from process generated wastewater, 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 calculated using SCS Curve Number Method adjusted from 1 to 30-day Curve Number (Irr. CN-50). (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, Texas. 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 May 15, 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) IRRIGATED ACRES included LMUs 1, 2, 4, 5, 7, 8, 9, 10, 11, 12

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
8/24/24

PHASE 2 PARLOR 1 DIGESTER
WATER BALANCE MODEL FOR ANEROBIC DIGESTER/RUNOFF RETENTION CONTROL STRUCTURES
IRRIGATION AND EVAPORATION for RCS #TS1

Table 2.3B
ENVIRO-AG ENGINEERING, INC.

NAME: TMC Dairies Hico
LOCATION: Erath County
DATE: July-24

HYDROLOGIC CHARACTERISTICS

Pen Area (acres):	0.00	
Adjacent Areas (acres):	3.50	
Paved/Roof Area (acres):	0.15	
Total RCS Surface Area (acres)(12):	8.50	
Minimum Irrigated Acres Needed (acres):	490	490
Cropping scheme:	Coastal	Winter Wheat
Effective Evaporation Surface Area (acres):	7.23	

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 10-Day Rainfall Volume (ac-ft):	11.99
Process Generated Wastewater Volume (ac-ft):	23.50
Sludge Accumulation Volume (ac-ft):	23.46
Treatment Volume (ac-ft):	64.36
Additional Volume (ac-ft):	24.83
Total Required Capacity (ac-ft):	148.14

	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 --->	23.46
JAN	1.54	0.00	0.23	24.28	25.46	1.54	2.10	2.74	22.87	49.00	2.37	1.43	24.03	23.46
FEB	1.89	0.00	0.39	22.71	24.19	1.89	2.46	3.11	23.28	49.82	2.69	1.62	22.57	23.46
MAR	2.14	0.00	0.53	24.28	25.98	2.14	4.06	4.97	78.48	115.63	4.28	2.58	23.40	23.46
APR	2.88	0.00	0.99	23.50	25.86	2.81	4.98	5.74	88.63	119.66	5.20	3.13	22.73	23.46
MAY	4.31	0.00	2.06	24.28	27.99	3.88	5.73	5.33	75.61	59.28	5.25	3.16	24.83	23.46
JUN	3.24	0.00	1.25	23.50	26.20	3.10	6.82	3.22	151.73	4.73	7.01	4.22	21.98	23.46
JUL	2.11	0.00	0.51	24.28	25.95	2.11	7.66	0.00	226.67	0.00	8.23	4.96	21.00	23.46
AUG	2.25	0.00	0.59	24.28	26.08	2.24	7.56	0.00	217.07	0.00	7.71	4.64	21.43	23.46
SEP	3.01	0.00	1.08	23.50	25.98	2.92	5.78	0.00	116.86	0.00	5.91	3.56	22.43	23.46
OCT	3.23	0.00	1.24	24.28	26.97	3.10	4.29	2.15	48.75	0.00	4.89	2.94	24.03	23.46
NOV	1.88	0.00	0.39	23.50	24.97	1.88	2.81	1.70	37.98	0.00	3.33	2.00	22.96	23.46
DEC	1.62	0.00	0.26	24.28	25.53	1.62	2.24	2.33	25.32	28.99	2.45	1.48	24.05	23.46
TOTALS	30.10	0.00	9.53	286.68	311.15	29.23	56.49	31.29	1113.24	427.12	59.32	35.72	275.44	

NOTES:

(1) AVERAGE PRECIPITATION - Average precipitation taken from the Texas Water Development Board, Erath County, Quad #509, Retrieved May 15, 2024.

(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-77). (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff).

(3) INFLOW - Inflow is calculated from process generated wastewater, Table 2.2B.

(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 calculated using SCS Curve Number Method adjusted from 1 to 30-day Curve Number (Irr. CN-50). (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, Texas. 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 May 15, 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) IRRIGATED ACRES included LMUs 1, 2, 4, 5, 7, 8, 9, 10, 11, 12

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.



PHASE 1 & 2 PARLOR 1 BYPASS
WATER BALANCE MODEL FOR TREATMENT/RUNOFF RETENTION CONTROL STRUCTURES
IRRIGATION AND EVAPORATION for RCS #TS1

Table 2.3C
ENVIRO-AG ENGINEERING, INC.

NAME: TMC Dairies Hico
LOCATION: Erath County
DATE: July-24

HYDROLOGIC CHARACTERISTICS

Pen Area (acres):	0.00	
Adjacent Areas (acres):	3.50	
Paved/Roof Area (acres):	0.15	
Total RCS/TRT/SB Surface Areas (acres):	8.50	
Minimum Irrigated Acres Needed (acres)(12):	490	490
Cropping scheme:	Coastal	Winter Wheat
Effective Evaporation Surface Area (acres):	7.23	

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 10-Day Rainfall Volume (ac-ft):	11.99
Process Generated Wastewater Volume (ac-ft):	9.67
Sludge Accumulation Volume (ac-ft):	1.85
Treatment Volume (ac-ft):	5.66
Additional Volume (ac-ft):	10.54
Total Required Capacity (ac-ft):	39.71

	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 —>	1.85
JAN	1.54	0.00	0.23	9.99	11.17	1.54	2.10	2.74	22.87	49.00	2.37	1.43	9.74	1.85
FEB	1.89	0.00	0.39	9.02	10.50	1.89	2.46	3.11	23.28	49.82	2.69	1.62	8.88	1.85
MAR	2.14	0.00	0.53	9.99	11.69	2.14	4.06	4.97	78.48	115.63	4.28	2.58	9.11	1.85
APR	2.88	0.00	0.99	9.67	12.03	2.81	4.98	5.74	88.63	119.66	5.20	3.13	8.90	1.85
MAY	4.31	0.00	2.06	9.99	13.70	3.88	5.73	5.33	75.61	59.28	5.25	3.16	10.54	1.85
JUN	3.24	0.00	1.25	9.67	12.37	3.10	6.82	3.22	151.73	4.73	7.01	4.22	8.15	1.85
JUL	2.11	0.00	0.51	9.99	11.66	2.11	7.66	0.00	226.67	0.00	8.23	4.96	6.70	1.85
AUG	2.25	0.00	0.59	9.99	11.78	2.24	7.56	0.00	217.07	0.00	7.71	4.64	7.14	1.85
SEP	3.01	0.00	1.08	9.67	12.15	2.92	5.78	0.00	116.86	0.00	5.91	3.56	8.59	1.85
OCT	3.23	0.00	1.24	9.99	12.68	3.10	4.29	2.15	48.75	0.00	4.89	2.94	9.74	1.85
NOV	1.88	0.00	0.39	9.67	11.14	1.88	2.81	1.70	37.98	0.00	3.33	2.00	9.13	1.85
DEC	1.62	0.00	0.26	9.99	11.23	1.62	2.24	2.33	25.32	28.99	2.45	1.48	9.76	1.85
TOTALS	30.10	0.00	9.53	117.62	142.10	29.23	56.49	31.29	1113.24	427.12	59.32	35.72	106.38	

NOTES:

(1) AVERAGE PRECIPITATION - Average precipitation taken from the Texas Water Development Board, Erath County, Quad #509. Retrieved May 15, 2024.

(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-77). (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff).

(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 calculated using SCS Curve Number Method adjusted from 1 to 30-day Curve Number (Irr. CN-50). (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, Texas. 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 May 15, 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) IRRIGATED ACRES included LMUs 1, 2, 4, 5, 7, 8, 9, 10, 11, 12

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.



Firm No. F-2507

PHASE 1 PARLOR 2
WATER BALANCE MODEL
IRRIGATION AND EVAPORATION for RCS #TD1
Table 2.3D
ENVIRO-AG ENGINEERING, INC.

NAME: TMC Dairies Hico
LOCATION: Erath County
DATE: Juiy-24

HYDROLOGIC CHARACTERISTICS

Pen Area (acres):	15.08	
Adjacent/Manure Composting Areas (acres):	12.15	
Paved/Roof Areas (acres):	5.84	
Total SB/SP/TRT & RCS #TD1 Surface Areas (acres):	21.45	
Total Irrigated Area (acres)(12):	490	490
Cropping scheme:	Bermudagrass	Winter Wheat
Effective Evaporation Surface Area (acres):	8.8	

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 10-Day Rainfall Volume (ac-ft):	52.62
Process Generated Wastewater Volume (ac-ft):	1.38
Sludge Accumulation Volume (ac-ft):	0.65
Additional Volume (ac-ft):	12.07
Total Required Capacity (ac-ft):	66.71

	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)	(inches)	(6) (inches)	(7) (ac-ft)	(7) (ac-ft)	(8) (inches)	(9) (ac-ft)	(10) (ac-ft)	(11) (ac-ft)
													start value ---->	0.65
JAN	1.54	0.23	0.23	1.43	5.45	1.54	2.10	2.74	22.87	49.00	2.37	1.74	3.71	0.65
FEB	1.89	0.39	0.39	1.34	6.53	1.88	2.46	3.11	23.54	50.08	2.69	1.97	4.55	0.65
MAR	2.14	0.53	0.53	1.43	7.49	2.11	4.06	4.97	79.49	116.65	4.28	3.13	4.36	0.65
APR	2.88	0.99	0.99	1.38	10.18	2.72	4.98	5.74	92.19	123.22	5.20	3.81	6.38	0.65
MAY	4.31	2.06	2.06	1.43	15.91	3.67	5.73	5.33	84.29	67.96	5.25	3.85	12.07	0.65
JUN	3.24	1.25	1.25	1.38	11.58	2.99	6.82	3.22	156.57	9.57	7.01	5.13	6.44	0.65
JUL	2.11	0.51	0.51	1.43	7.39	2.09	7.66	0.00	227.59	0.00	8.23	6.03	1.36	0.65
AUG	2.25	0.59	0.59	1.43	7.89	2.21	7.56	0.00	218.45	0.00	7.71	5.65	2.24	0.65
SEP	3.01	1.08	1.08	1.38	10.68	2.82	5.78	0.00	120.88	0.00	5.91	4.33	6.35	0.65
OCT	3.23	1.24	1.24	1.43	11.58	2.98	4.29	2.15	53.55	0.00	4.89	3.58	8.00	0.65
NOV	1.88	0.39	0.39	1.38	6.54	1.87	2.81	1.70	38.22	0.00	3.33	2.44	4.10	0.65
DEC	1.62	0.26	0.26	1.43	5.71	1.62	2.24	2.33	25.32	28.99	2.45	1.79	3.91	0.65
TOTALS	30.10	9.53	9.53	16.85	106.92	28.50	56.49	31.29	1142.96	445.48	59.32	43.45	63.47	

NOTES:
(1) AVERAGE PRECIPITATION - Average precipitation taken from the Texas Water Development Board, Erath County, Quad #509, Retrieved May 15, 2024.
(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-77) (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff).
(3) PROCESS INFLOW - Process Inflow is calculated from process generated wastewater, Table 2.2D.
(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 (Irrigated CN-55) (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, Texas (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 May 15, 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) IRRIGATED ACRES included LMUs 1, 2, 4, 5, 7, 8, 9, 10, 11, 12

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.



PHASE 2 PARLOR 2
WATER BALANCE MODEL
IRRIGATION AND EVAPORATION for RCS #TD1
Table 2.3E
ENVIRO-AG ENGINEERING, INC.

NAME: TMC Dairies Hico
LOCATION: Erath County
DATE: July-24

HYDROLOGIC CHARACTERISTICS

Pen Area (acres):	0.00	
Adjacent/Manure Composting Areas (acres):	11.36	
Paved/Roof Areas (acres):	12.17	
Total SB/SP/TRT & RCS #TD1 Surface Areas (acres):	21.45	
Total Irrigated Area (acres)(12):	490	490
Cropping scheme:	Bermudagrass	Winter Wheat
Effective Evaporation Surface Area (acres):	8.8	

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 10-Day Rainfall Volume (ac-ft):	44.56
Process Generated Wastewater Volume (ac-ft):	4.14
Sludge Accumulation Volume (ac-ft):	0.14
Additional Volume (ac-ft):	14.47
Total Required Capacity (ac-ft):	63.30

	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 —>	0.14
JAN	1.54	0.00	0.23	4.28	8.81	1.54	2.10	2.74	22.87	49.00	2.37	1.74	7.08	0.14
FEB	1.89	0.00	0.39	4.01	9.67	1.88	2.46	3.11	23.54	50.08	2.69	1.97	7.70	0.14
MAR	2.14	0.00	0.53	4.28	10.78	2.11	4.06	4.97	79.49	116.65	4.28	3.13	7.64	0.14
APR	2.88	0.00	0.99	4.14	13.15	2.72	4.98	5.74	92.19	123.22	5.20	3.81	9.34	0.14
MAY	4.31	0.00	2.06	4.28	18.31	3.67	5.73	5.33	84.29	67.96	5.25	3.85	14.47	0.14
JUN	3.24	0.00	1.25	4.14	14.40	2.99	6.82	3.22	156.57	9.57	7.01	5.13	9.27	0.14
JUL	2.11	0.00	0.51	4.28	10.68	2.09	7.66	0.00	227.59	0.00	8.23	6.03	4.65	0.14
AUG	2.25	0.00	0.59	4.28	11.15	2.21	7.56	0.00	218.45	0.00	7.71	5.65	5.50	0.14
SEP	3.01	0.00	1.08	4.14	13.60	2.82	5.78	0.00	120.88	0.00	5.91	4.33	9.27	0.14
OCT	3.23	0.00	1.24	4.28	14.50	2.98	4.29	2.15	53.55	0.00	4.89	3.58	10.92	0.14
NOV	1.88	0.00	0.39	4.14	9.78	1.87	2.81	1.70	38.22	0.00	3.33	2.44	7.34	0.14
DEC	1.62	0.00	0.26	4.28	9.07	1.62	2.24	2.33	25.32	28.99	2.45	1.79	7.27	0.14
TOTALS	30.10	0.00	9.53	50.55	143.90	28.50	56.49	31.29	1142.96	445.48	59.32	43.45	100.45	

NOTES:
(1) AVERAGE PRECIPITATION - Average precipitation taken from the Texas Water Development Board, Erath County, Quad #509, Retrieved May 15, 2024.
(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-77). (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff).
(3) PROCESS INFLOW - Process Inflow is calculated from process generated wastewater, Table 2.2E
(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 (Irrigated CN-55). (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, Texas (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 May 15, 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) IRRIGATED ACRES included LMUs 1, 2, 4, 5, 7, 8, 9, 10, 11, 12

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 #TH2

Table 2.3F
ENVIRO-AG ENGINEERING, INC.

NAME: TMC Dairies Hico
LOCATION: Erath County
DATE: July-24

HYDROLOGIC CHARACTERISTICS

Pen Area (acres):	15.98	
Adjacent/ManureComposting Areas (acres):	8.37	
Paved/Roof Area (acres):	2.00	
Total RCS Surface Area (acres):	9.00	
Total Irrigated Area (acres)(12):	490	490
Cropping scheme:	Bermudagrass	Winter Wheat
Effective Evaporation Surface Area (acres):	4.28	

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 10-Day Rainfall Volume (ac-ft):	33.43
Process Generated Wastewater Volume (ac-ft):	0.00
Sludge Accumulation Volume (ac-ft):	0.58
Additional Volume (ac-ft):	6.27
Total Required Capacity (ac-ft):	40.27

	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 ---->	0.58
JAN	1.54	0.23	0.23	0.00	1.87	1.54	2.10	2.74	22.87	49.00	2.37	0.84	1.03	0.58
FEB	1.89	0.39	0.39	0.00	2.53	1.88	2.46	3.11	23.54	50.08	2.69	0.96	1.57	0.58
MAR	2.14	0.53	0.53	0.00	3.03	2.11	4.06	4.97	79.49	116.65	4.28	1.52	1.51	0.58
APR	2.88	0.99	0.99	0.00	4.66	2.72	4.98	5.74	92.19	123.22	5.20	1.85	2.80	0.58
MAY	4.31	2.06	2.06	0.00	8.14	3.67	5.73	5.33	84.29	67.96	5.25	1.87	6.27	0.58
JUN	3.24	1.25	1.25	0.00	5.50	2.99	6.82	3.22	156.57	9.57	7.01	2.50	3.00	0.58
JUL	2.11	0.51	0.51	0.00	2.97	2.09	7.66	0.00	227.59	0.00	8.23	2.93	0.04	0.58
AUG	2.25	0.59	0.59	0.00	3.26	2.21	7.56	0.00	218.45	0.00	7.71	2.75	0.52	0.58
SEP	3.01	1.08	1.08	0.00	4.96	2.82	5.78	0.00	120.88	0.00	5.91	2.11	2.85	0.58
OCT	3.23	1.24	1.24	0.00	5.47	2.98	4.29	2.15	53.55	0.00	4.89	1.74	3.73	0.58
NOV	1.88	0.39	0.39	0.00	2.51	1.87	2.81	1.70	38.22	0.00	3.33	1.19	1.32	0.58
DEC	1.62	0.26	0.26	0.00	2.02	1.62	2.24	2.33	25.32	28.99	2.45	0.87	1.15	0.58
TOTALS	30.10	9.53	9.53	0.00	46.92	28.50	56.49	31.29	1142.96	445.48	59.32	21.14	25.79	

NOTES:

(1) AVERAGE PRECIPITATION - Average precipitation taken from the Texas Water Development Board, Erath County. Quad #509. Retrieved May 15, 2024.

(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-77). (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff).

(3) PROCESS INFLOW - No Process Inflow.

(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 (Irrigated CN-55). (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, Texas (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 May 15, 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) IRRIGATED ACRES included LMUs 1, 2, 4, 5, 7, 8, 9, 10, 11, 12

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
8/26/24
Firm No. F-2507

WATER BALANCE MODEL
IRRIGATION AND EVAPORATION for RCS #TH2
Table 2.3G
ENVIRO-AG ENGINEERING, INC.

NAME: TMC Dairies Hico
LOCATION: Erath County
DATE: July-24

HYDROLOGIC CHARACTERISTICS

Pen Area (acres):	0.00	
Adjacent/ManureComposting Areas (acres):	8.00	
Paved/Roof Area (acres):	0.75	
Total RCS Surface Area (acres):	6.12	
Total Irrigated Area (acres)(12):	490	490
Cropping scheme:	Bermudagrass	Winter Wheat
Effective Evaporation Surface Area (acres):	3.84	

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 10-Day Rainfall Volume (ac-ft):	14.29
Process Generated Wastewater Volume (ac-ft):	0.00
Sludge Accumulation Volume (ac-ft):	0.10
Additional Volume (ac-ft):	2.16
Total Required Capacity (ac-ft):	16.55

	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 --->	0.10
JAN	1.54	0.00	0.23	0.00	1.03	1.54	2.10	2.74	22.87	49.00	2.37	0.76	0.27	0.10
FEB	1.89	0.00	0.39	0.00	1.34	1.88	2.46	3.11	23.54	50.08	2.69	0.86	0.48	0.10
MAR	2.14	0.00	0.53	0.00	1.58	2.11	4.06	4.97	79.49	116.65	4.28	1.37	0.21	0.10
APR	2.88	0.00	0.99	0.00	2.31	2.72	4.98	5.74	92.19	123.22	5.20	1.66	0.65	0.10
MAY	4.31	0.00	2.06	0.00	3.84	3.67	5.73	5.33	84.29	67.96	5.25	1.68	2.16	0.10
JUN	3.24	0.00	1.25	0.00	2.69	2.99	6.82	3.22	156.57	9.57	7.01	2.24	0.44	0.10
JUL	2.11	0.00	0.51	0.00	1.55	2.09	7.66	0.00	227.59	0.00	8.23	1.55	0.00	0.10
AUG	2.25	0.00	0.59	0.00	1.68	2.21	7.56	0.00	218.45	0.00	7.71	1.68	0.00	0.10
SEP	3.01	0.00	1.08	0.00	2.44	2.82	5.78	0.00	120.88	0.00	5.91	1.89	0.55	0.10
OCT	3.23	0.00	1.24	0.00	2.67	2.98	4.29	2.15	53.55	0.00	4.89	1.57	1.11	0.10
NOV	1.88	0.00	0.39	0.00	1.33	1.87	2.81	1.70	38.22	0.00	3.33	1.07	0.27	0.10
DEC	1.62	0.00	0.26	0.00	1.10	1.62	2.24	2.33	25.32	28.99	2.45	0.78	0.32	0.10
TOTALS	30.10	0.00	9.53	0.00	23.58	28.50	56.49	31.29	1142.96	445.48	59.32	17.12	6.46	

NOTES:

(1) AVERAGE PRECIPITATION - Average precipitation taken from the Texas Water Development Board, Erath County, Quad #509, Retrieved May 15, 2024.

(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-77). (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff).

(3) PROCESS INFLOW - No Process Inflow.

(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 (Irrigated CN-55). (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, Texas (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 May 15, 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) IRRIGATED ACRES included LMUs 1, 2, 4, 5, 7, 8, 9, 10, 11, 12

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
9/26/24

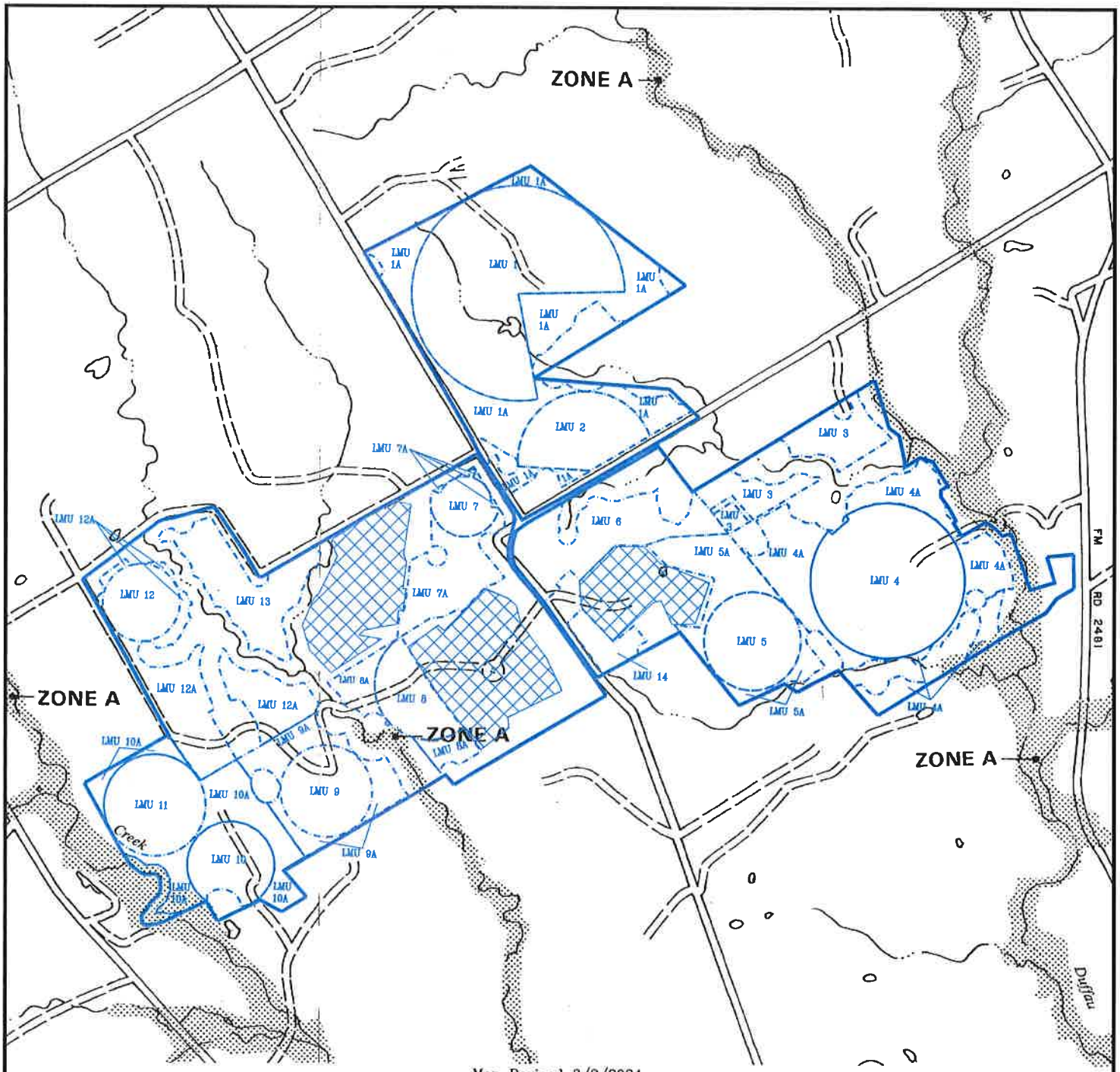
3.0 FACILITY INFORMATION

3.1 Required Certifications

TD Treatment Pond, TD1, TD Settling Pond #1, TD Settling Pond #2, TS1, TS2, TS Settling Pond, TH1, TH2, TH Settling Basin and the Slurry Pit 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.



Map Revised 8/2/2024

LEGEND:

- Denotes Property Boundary
- Denotes LMU Boundary
- Denotes Production Area

N
W E
S

NO SCALE

Source: FEMA, Flood Plain Maps

TMC Dairies Hico Hico, TX Erath County	FEMA Flood Map Figure 3.1 Page 31	ENVIRO-AG ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

TDI

ENVIRO-AG ENGINEERING, INC.

Talsma Dairy
Erath County, Texas
RCS #1 Capacity Certification

The survey capacity performed on March 4, 2010 by Enviro-Ag Engineering, Inc. for retention control structure (RCS) #1 with two vertical feet of dry freeboard is calculated as:

RCS #1 Capacity:	74.95 ac-ft
RCS #1 Surface Area:	10.34 surface acres @ High Water Level

Prepared by:



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

TDI

ENVIRO-AG
EAE
ENGINEERING, INC.

Talsma Dairy
Erath County, Texas
RCS #1 Liner Certification

Two 3-inch Shelby tube core samples were collected from RCS #1 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 West End (Lab #1849) 8.6×10^{-8} cm/sec
- RCS #1 East End (Lab #1850) 6.8×10^{-8} cm/sec

Based on the above documentation the liner in RSC #1 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.



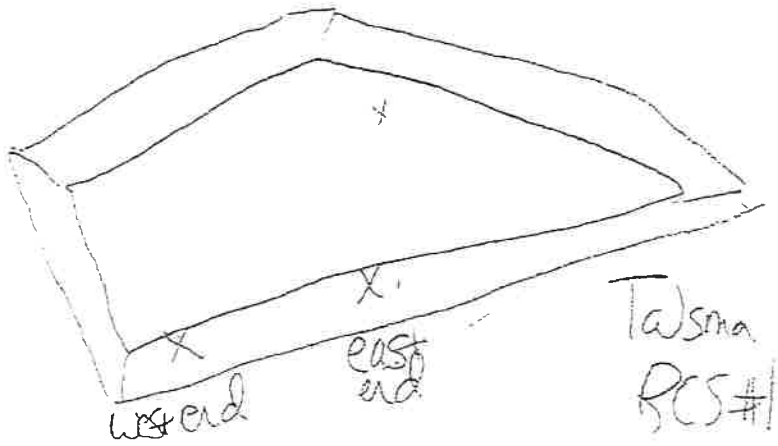
12/21/2010

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

TRIAXIAL PERMEABILITY CHAIN of CUSTODY



STRUCTURE	PERM REPORT I.D.	LAB LOG
RCS#1 WEST END		184
RCS#1 EAST END		185

Facility Name: Tawsma Dairy

Project Engineer: Norman Mullin ()

Sampled by: Rafael Tejos

Date Sampled: 10/11/10

Date to Lab: 10/15/10 Received: Keith Baker

EAE
302 Morgan Mill Road
Bldg C
Stephenville, TX 76401
(254) 965-3500
Fax: (254) 965-8000

Enviro-Ag Engineering, Inc.

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

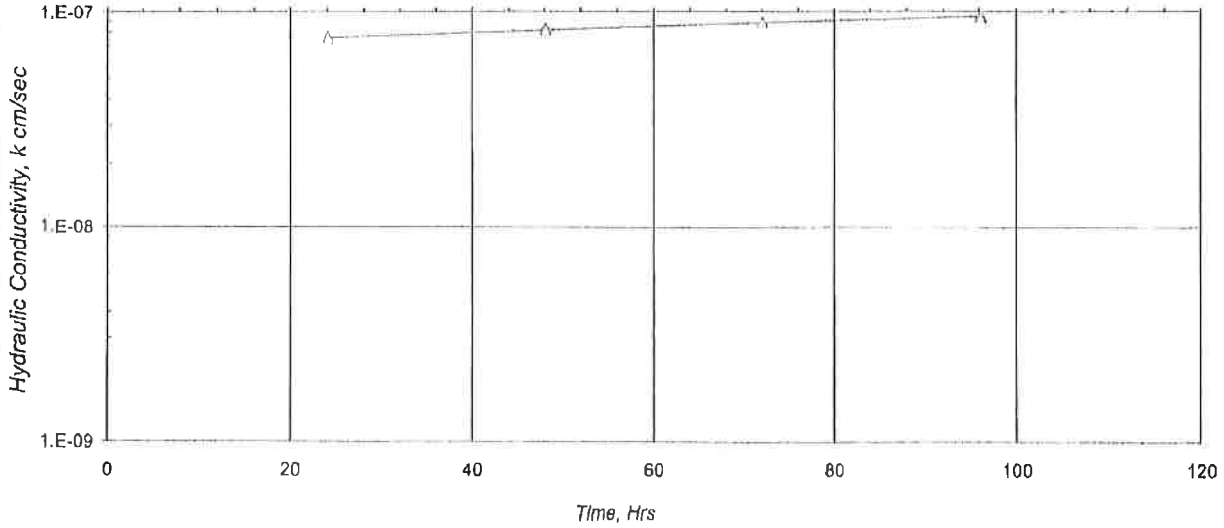
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Tasma Dairy	10-10-11	1849
Sample ID:	**Sample Location:**	**Report Date:**
1	RCS #1 -West End	November 1, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	1	
DESCRIPTION:	RCS #1 -West End	
	INITIAL	FINAL
HEIGHT, in.	3.8	3.9
DIAMETER, in.	2.8	2.9
WATER CONTENT, %	10.8	22.4
DRY DENSITY, pcf	107	105
SATURATION, %	51	100
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Dark Brown	
SAMPLE CONSISTENCY	Clay	

COMMENTS:
Tap water used as permeant.

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	2 - 3
IN / OUT RATIO:	1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.2	7.7E-08
2	48.2	8.2E-08
3	72.1	8.9E-08
4	96.3	9.5E-08

AVERAGE LAST 4 : **8.6E-08**

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit

Enviro-Ag Engineering, Inc.

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

EAE

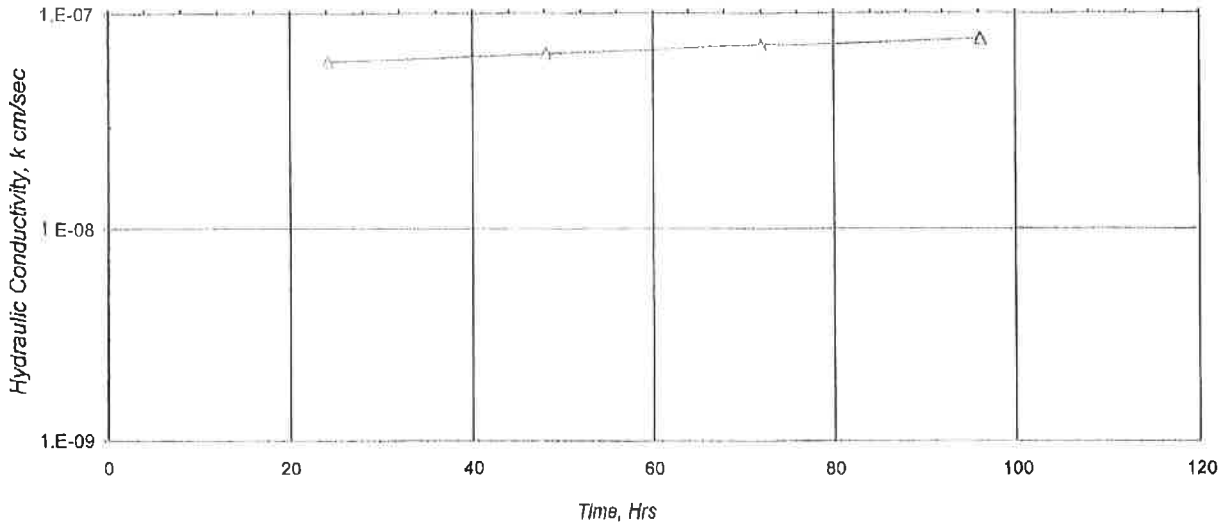
HYDRAULIC CONDUCTIVITY

REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number
Tasma Dairy	10-10-11	1850
Sample ID	**Sample Location**	**Report Date**
2	RCS #1 -East End	November 1, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	2	
DESCRIPTION:	RCS #1 -East End	
	INITIAL	FINAL
HEIGHT, In.	2.7	2.7
DIAMETER, in.	2.8	2.9
WATER CONTENT, %	13.1	33.1
DRY DENSITY, pcf	92	68
SATURATION, %	42	98
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Dark 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	24.2	6.0E-08
2	48.2	6.5E-08
3	72.1	7.1E-08
4	96.3	7.6E-08

AVERAGE LAST 4 : **6.8E-08**

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

TDI

ENVIRO-AG
EAE
ENGINEERING, INC.

Talsma Dairy
Erath County, Texas
RCS #1 Liner Certification

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

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

- RCS #1-1 (#850) 4.5 x 10-8 cm/sec
- RCS #1-2 (#851) 5.9 x 10-8 cm/sec
- RCS #1-3 (#852) 7.1 x 10-8 cm/sec

Based on the above documentation the liner in RCS #1 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 resources.

Norman Mullin
9/12/08

Norman Mullin, P.E.
Enviro-Ag Engineering, Inc.

(Supporting Documentation Attached)

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

Enviro-Ag Engineering, Inc.

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

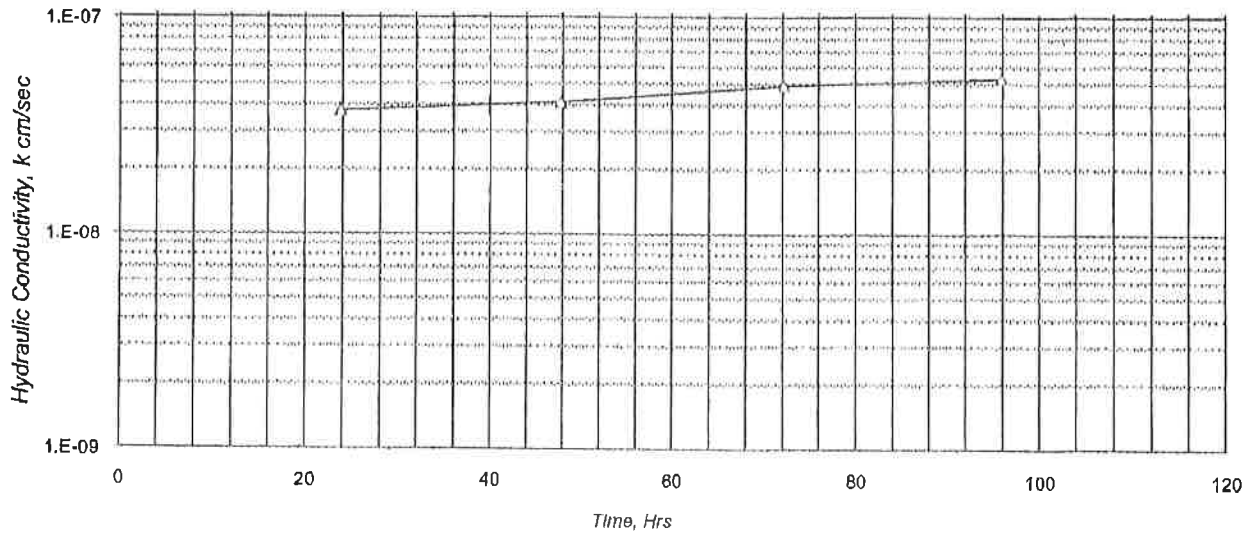
EAE

HYDRAULIC CONDUCTIVITY

REPORT
ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Talsma Dairy	08-07-09	850
Sample ID:	**Sample Location:**	**Report Date:**
1	RCS #1 - 1	August 25, 2008

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	1	
DESCRIPTION:	RCS #1 - 1	
	INITIAL	FINAL
HEIGHT, In.	3.0	3.0
DIAMETER, In.	2.8	2.8
WATER CONTENT, %	22.9	30.5
DRY DENSITY, pcf	91	93
SATURATION, %	73	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:	1.03

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	23.8	3.8E-08
2	47.8	4.1E-08
3	72.2	4.9E-08
4	96.0	5.3E-08

AVERAGE LAST 4 : **4.5E-08**

These results apply only to the above listed samples. This data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

Enviro-Ag Engineering, Inc.

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

LABORATORY SERVICES

EAE

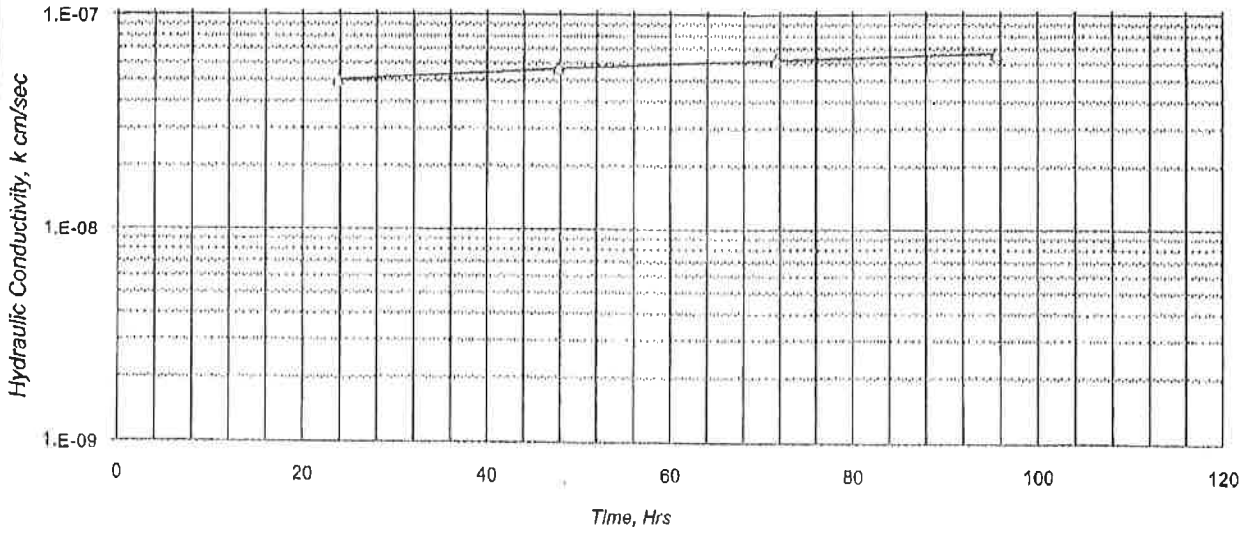
HYDRAULIC CONDUCTIVITY

REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Talsma Dairy	08-07-09	851
Sample ID:	**Sample Location:**	**Report Date:**
2	RCS #1 - 2	August 25, 2008

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	2	
DESCRIPTION:	RCS #1 - 2	
	INITIAL	FINAL
HEIGHT, In.	2.3	2.3
DIAMETER, In.	2.8	2.8
WATER CONTENT, %	14.8	19.2
DRY DENSITY, pcf	114	111
SATURATION, %	83	100
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Light Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	3 - 4
IN / OUT RATIO:	0.97

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	23.8	5.0E-08
2	47.9	5.7E-08
3	71.6	6.2E-08
4	95.7	6.7E-08

AVERAGE LAST 4 : **5.9E-08**

COMMENTS:

Tap water used as permeant.

These results apply only to the above listed samples. This data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

Enviro-Ag Engineering, Inc.

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

EAE

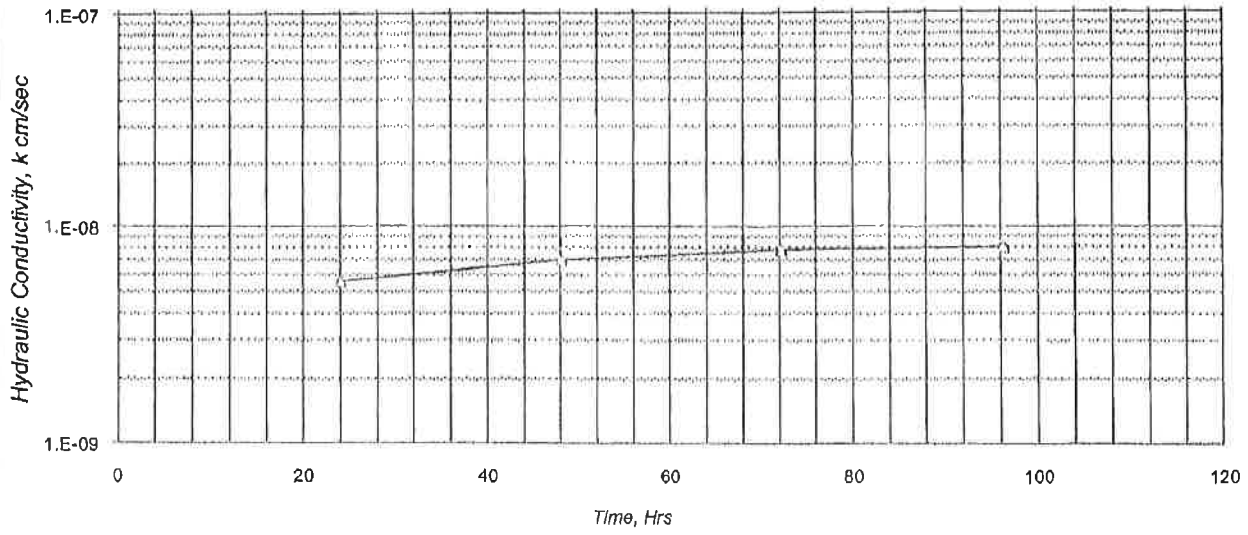
HYDRAULIC CONDUCTIVITY

REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number
Talsma Dairy	08-07-09	852
Sample ID:	**Sample Location:**	**Report Date:**
3	RCS #1 - 3	August 25, 2008

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	3	
DESCRIPTION:	RCS #1 - 3	
	INITIAL	FINAL
HEIGHT, in.	2.3	2.3
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	29.2	34.5
DRY DENSITY, pcf	87	87
SATURATION, %	84	100
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Dark Brown	
SAMPLE CONSISTENCY	Clay	

COMMENTS:
Tap water used as permeant.

TEST DATA

ASTM D-5084, Method C

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

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.1	5.6E-09
2	48.2	7.0E-09
3	72.3	7.8E-09
4	96.4	8.0E-09

AVERAGE LAST 4 : **7.1E-09**

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

TD Treatment Pond

ENVIRO-AG ENGINEERING, INC.

Talsma Dairy
Erath County, Texas
Treatment Lagoon Capacity Certification

The survey capacity performed on March 4, 2010 by Enviro-Ag Engineering, Inc. for the Treatment Lagoon is calculated as:

Treatment Lagoon Capacity:	12.22 ac-ft
Treatment Lagoon Surface Area:	2.74 surface acres @ High Water Level

Prepared by:



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

(Supporting Documentation Attached)

TD Treatment Pond

ENVIRO-AG
ENGINEERING, INC.

Talsma Dairy
Erath County, Texas
Treatment Pond Liner Certification

A three-inch Shelby tube core sample was collected from the Treatment Pond to document that the liner meets the requirements of the TCEQ requirements for soil liner. The liner thickness was documented to be at least 18 inches.

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

- Treatment Pond #2 (#853) 1.1 x 10-8 cm/sec

Based on the above documentation the liner in the Treatment Pond is determined to be in accordance with TCEQ requirements for soil liners. The test location was backfilled with bentonite chips. The test results meet the requirements of the TCEQ for hydraulic conductivity considered protective of ground and surface water resources.



Norman Mullin, P.E.
Enviro-Ag Engineering, Inc.

(Supporting Documentation Attached)

3404 AIRWAY BLVD • AMARILLO, TEXAS 79118 • TEL (806) 353-6123 • FAX (806) 353-4132
www.envlroag.com

Enviro-Ag Engineering, Inc.

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

EAE

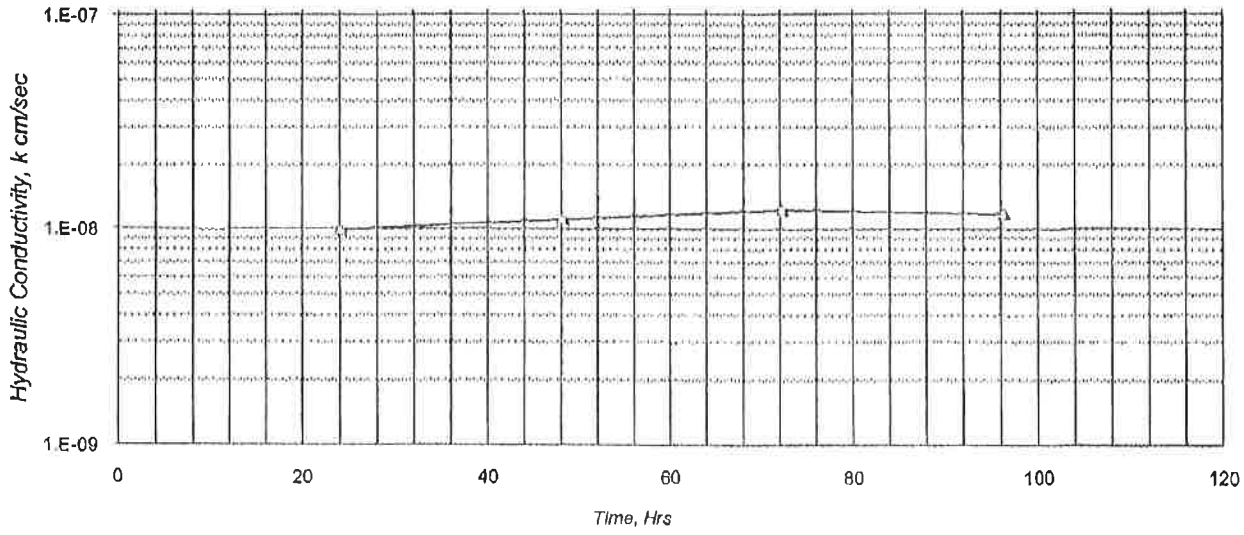
HYDRAULIC CONDUCTIVITY

REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Talsma Dairy	08-07-09	853
Sample ID:	**Sample Location:**	**Report Date:**
4	Treatment Pond	August 25, 2008

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	4	
DESCRIPTION:	Treatment Pond	
	INITIAL	FINAL
HEIGHT, in.	3.4	3.4
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	13.2	18.7
DRY DENSITY, pcf	113	112
SATURATION, %	74	100
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Light Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	3 - 3
IN / OUT RATIO:	1.01

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.1	9.9E-09
2	48.2	1.1E-08
3	72.3	1.2E-08
4	96.4	1.2E-08

AVERAGE LAST 4 : **1.1E-08**

COMMENTS:

Tap water used as permeant.

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

TO Settling Pond #1

ENVIRO-AG
EAE
ENGINEERING, INC.

Talsma Dairy
Erath County, Texas
Settling Pond #1 Liner Certification

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

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

- Settling Pond #1-1 (#855) 1.9 x 10-8 cm/sec
- Settling Pond #1-2 (#856) 8.7 x 10-9 cm/sec

Based on the above documentation the liner in Settling Pond #1 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 resources.

Norman Mullin
9/12/08

Norman Mullin, P.E.
Enviro-Ag Engineering, Inc.

(Supporting Documentation Attached)

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

Enviro-Ag Engineering, Inc.

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

LABORATORY SERVICES

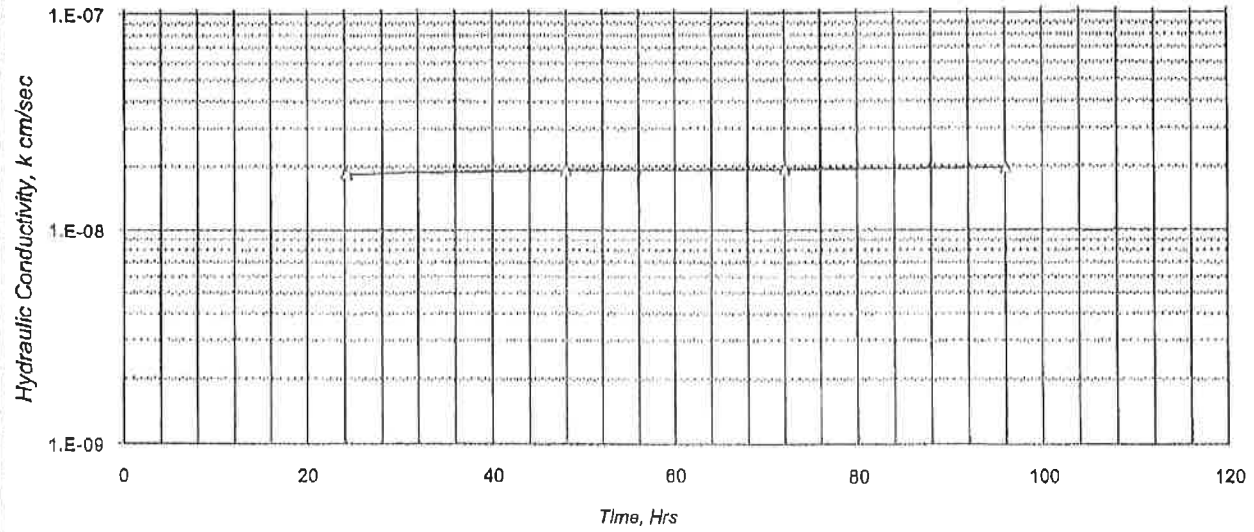
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Talsma Dairy	08-07-09	855
Sample ID:	**Sample Location:**	**Report Date:**
6	Settling Pond #1 - 1	August 25, 2008

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	6	
DESCRIPTION:	Settling Pond #1 - 1	
	INITIAL	FINAL
HEIGHT, in.	3.4	3.3
DIAMETER, in.	2.9	2.9
WATER CONTENT, %	30.5	30.8
DRY DENSITY, pcf	86	92
SATURATION, %	85	99
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Light Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C

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

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.2	1.9E-08
2	48.0	1.9E-08
3	72.0	1.9E-08
4	96.0	2.0E-08

AVERAGE LAST 4 : **1.9E-08**

COMMENTS:

Tap water used as permeant.

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.

By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

Enviro-Ag Engineering, Inc.

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

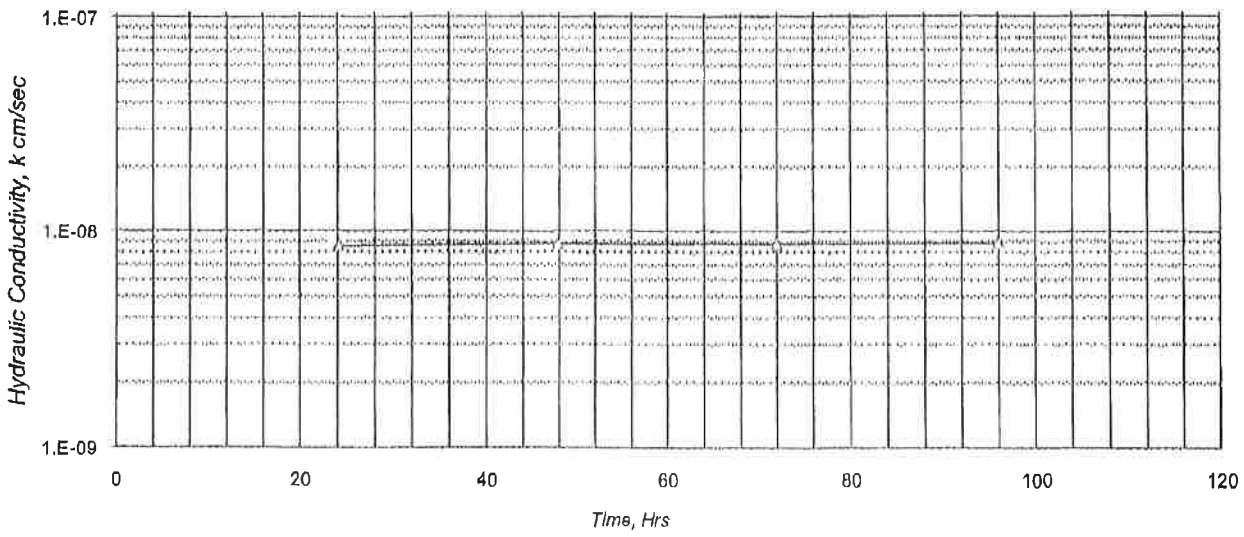
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Talsma Dairy	08-07-09	856
Sample ID:	**Sample Location:**	**Report Date:**
7	Settling Pond #1 - 2	August 25, 2008

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	7	
DESCRIPTION:	Settling Pond #1 - 2	
	INITIAL	FINAL
HEIGHT, in.	3.2	3.1
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	33.1	32.9
DRY DENSITY, pcf	84	90
SATURATION, %	89	101
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Light Brown	
SAMPLE CONSISTENCY	Clay	

COMMENTS:
Tap water used as permeant.

TEST DATA

ASTM D-5084, Method C

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

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.2	8.5E-09
2	48.0	8.7E-09
3	72.0	8.7E-09
4	96.0	8.8E-09

AVERAGE LAST 4 : **8.7E-09**

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

TD Settling Pond #2

ENVIRO-AG
EAE
ENGINEERING, INC.

Talsma Dairy
Erath County, Texas
Settling Pond #2 Liner Certification

A three-inch Shelby tube core sample was collected from Settling Pond #2 to document that the liner meets the requirements of the TCEQ requirements for soil liner. The liner thickness was documented to be at least 18 inches.

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

- Settling Pond #2 (#854) 1.4 x 10-8 cm/sec

Based on the above documentation the liner in Settling Pond #2 is determined to be in accordance with TCEQ requirements for soil liners. The test location was backfilled with bentonite chips. The test results meet the requirements of the TCEQ for hydraulic conductivity considered protective of ground and surface water resources.

Norman Mullin
9/12/08

Norman Mullin, P.E.
Enviro-Ag Engineering, Inc.

(Supporting Documentation Attached)

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

Enviro-Ag Engineering, Inc.

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

EAE

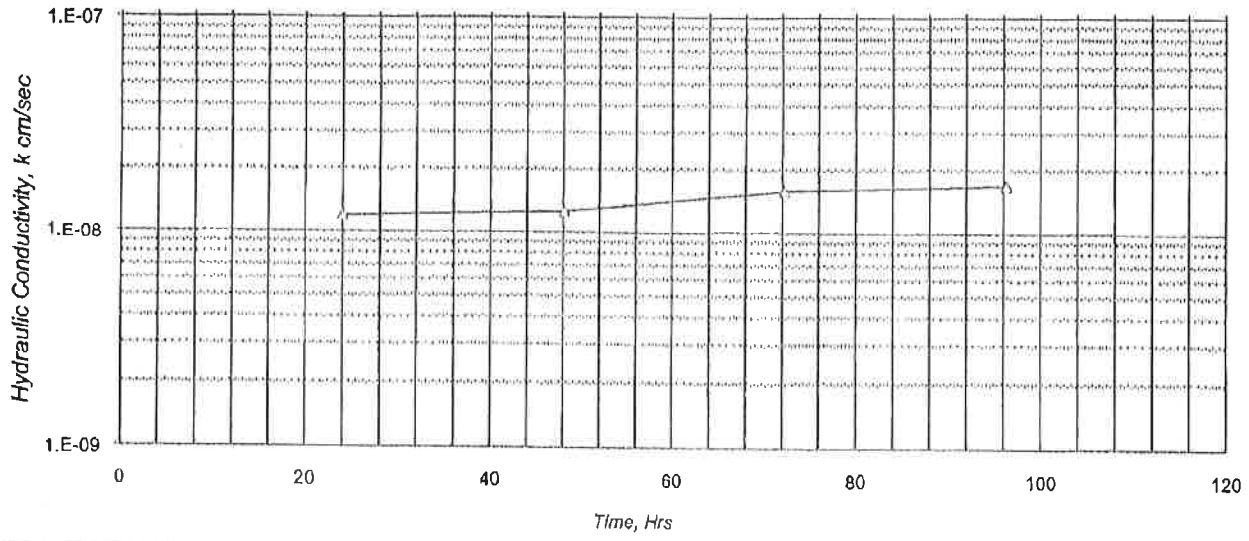
HYDRAULIC CONDUCTIVITY

REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Talsma Dairy	08-07-09	854
Sample ID:	**Sample Location:**	**Report Date:**
5	Settling Pond #2 - 1	August 25, 2008

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	5	
DESCRIPTION:	Settling Pond #2 - 1	
	INITIAL	FINAL
HEIGHT, in.	2.2	2.2
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	16.8	23.8
DRY DENSITY, pcf	101	102
SATURATION, %	67	99
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Light 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	24.1	1.2E-08
2	48.2	1.3E-08
3	72.3	1.6E-08
4	96.4	1.7E-08

AVERAGE LAST 4 : **1.4E-08**

COMMENTS:

Tap water used as permeant.

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

Slurry Pit

ENVIRO-AG
EAE
ENGINEERING, INC.

Talsma Dairy
Erath County, Texas
Slurry Pond Liner Certification

A three-inch Shelby tube core sample was collected from the Slurry Pond to document that the liner meets the requirements of the TCEQ requirements for soil liner. The liner thickness was documented to be at least 18 inches.

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

- Slurry Pond (#842) 4.5 x 10-8 cm/sec

Based on the above documentation the liner in the Slurry Pond is determined to be in accordance with TCEQ requirements for soil liners. The test location was backfilled with bentonite chips. The test results meet the requirements of the TCEQ for hydraulic conductivity considered protective of ground and surface water resources.



Norman Mullin, P.E.
Enviro-Ag Engineering, Inc.

(Supporting Documentation Attached)

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

Enviro-Ag Engineering, Inc.

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

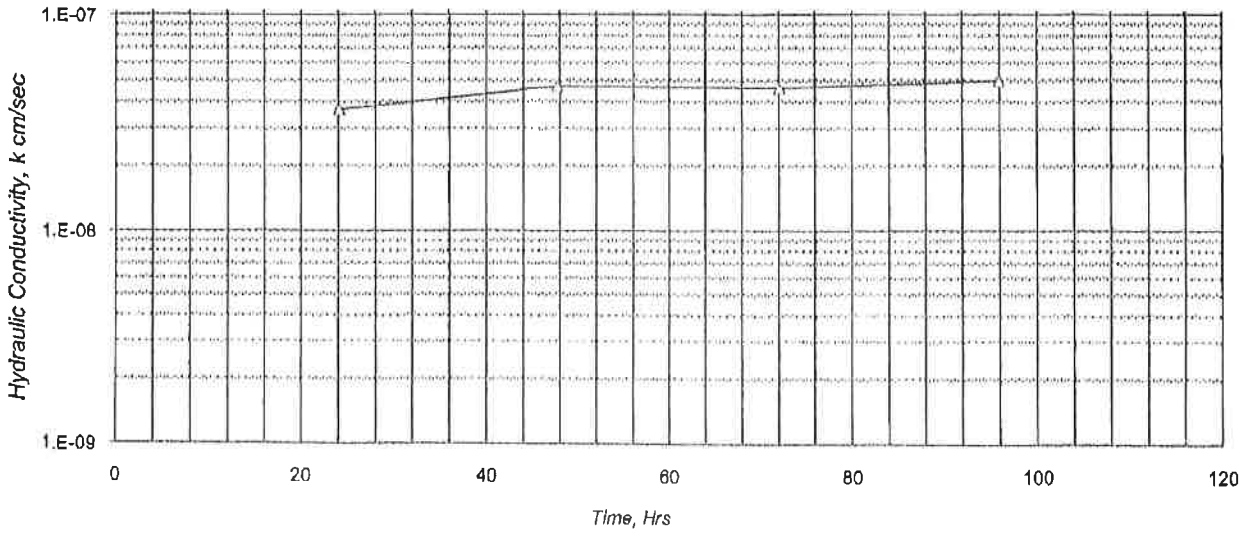
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Talsma Dairy	08-07-01	842
Sample ID:	**Sample Location:**	**Report Date:**
1	Slurry Pond	August 25, 2008

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	1	
DESCRIPTION:	Slurry Pond	
	INITIAL	FINAL
HEIGHT, in.	2.4	2.4
DIAMETER, in.	2.7	2.8
WATER CONTENT, %	11.0	14.4
DRY DENSITY, pcf	123	121
SATURATION, %	79	99
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Yellow	
SAMPLE CONSISTENCY	Clay	

COMMENTS:
Tap water used as permeant.

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	4 - 4
IN / OUT RATIO:	0.96

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.1	3.7E-08
2	47.8	4.7E-08
3	72.1	4.6E-08
4	96.0	5.0E-08

AVERAGE LAST 4 : **4.5E-08**

These results apply only to the above listed samples. This data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

Z : Soils Lab\Forms \2008 \ 08-07-01 \ 842 | Print Date: 08/25/08 | Reviewed By: Micah Mullin | LSN: 842

DCN: EAE-QC-GRAPH (rev. 11/10/04)

TS1

ENVIRO-AG ENGINEERING, INC.

Two Sisters Dairy
Erath County, Texas
RCS #1 Capacity Certification

The survey capacity performed on July 26, 2010 by Enviro-Ag Engineering, Inc. for retention control structure (RCS) #1 with two vertical feet of dry freeboard is calculated as:

RCS #1 Capacity:	49.97 ac-ft
RCS #1 Surface Area:	5.28 surface acres @ High Water Level

Prepared by:



08/16/2010

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

TS1

ENVIRO-AG
EAE
ENGINEERING, INC.

Two Sisters Dairy
Erath County, Texas
RCS #1 Liner Certification

Nine 3-inch Shelby tube core samples were collected from RCS #1 to document the clay liner meets the requirements of the TCEQ for soil liner. The sample locations were backfilled with bentonite clay chips for sealing. The liner thickness was documented to be a minimum of 18 inches.

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

- RCS #1-1 (Lab #1734) 9.3×10^{-9} cm/sec
- RCS #1-2 (Lab #1735) 8.1×10^{-9} cm/sec
- RCS #1-3 (Lab #1736) 4.8×10^{-8} cm/sec
- RCS #1-4 (Lab #1737) 3.9×10^{-8} cm/sec
- RCS #1-5 (Lab #1738) 3.9×10^{-8} cm/sec
- RCS #1-N.S. (Lab #1744) 3.9×10^{-8} cm/sec
- RCS #1-W.S. (Lab #1745) 3.9×10^{-8} cm/sec
- RCS #1-E.S. (Lab #1746) 3.9×10^{-8} cm/sec
- RCS #1-S.S. (Lab #1747) 3.9×10^{-8} cm/sec

The clay liner present in RCS #1 is determined to be in accordance with TCEQ specific discharge requirements of 1.1×10^{-6} cm/sec. The observed hydraulic conductivity from RCS #1 is considered protective of ground and surface water resources.

Supporting moisture and density laboratory results indicate the embankment and liners were installed at 95% maximum dry density and within the moisture range of minus 1% to plus 3% of optimum moisture content (see attached moisture/density test results). The liner present in RCS #1 is determined to be constructed in accordance with TCEQ requirements for soil liners

I certify that RCS #1 at Two Sistes Dairy meets the construction requirements of NRCS Practice Codes 313 (Waste Storage Ponds), 378 (Pond Embankment) and 521D (Pond Sealing or Lining, Compacted Clay Treatment). Erosion protection and emergency spillway are in place and the staff gauge is installed and calibrated.

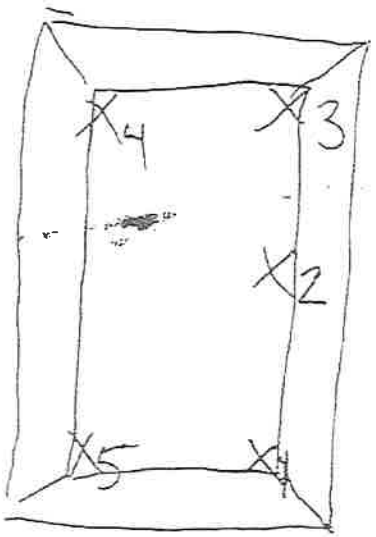
Prepared by:

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

TRIAXIAL PERMEABILITY CHAIN of CUSTODY



Bottom Samples

STRUCTURE	PERM REPORT I.D.	LAB LOG
	#1	1734
	#2	1735
	#3	1736
	#4	1737
	#5	1738

Facility Name: Two Sisters Dairy

Project Engineer: Norman Mullins

Sampled by: Casey Mullin & Roeland Sisters

Date Sampled: 7/26/10

Date to Lab: 7/27/10 via Fed Ex | Received: Rick Baker

EAE
302 Morgan Mill Road
Bldg C
Stephenville, TX 76401
(254) 965-3500
Fax: (254) 965-8000

Enviro-Ag Engineering, Inc.

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

LABORATORY SERVICES

EAE

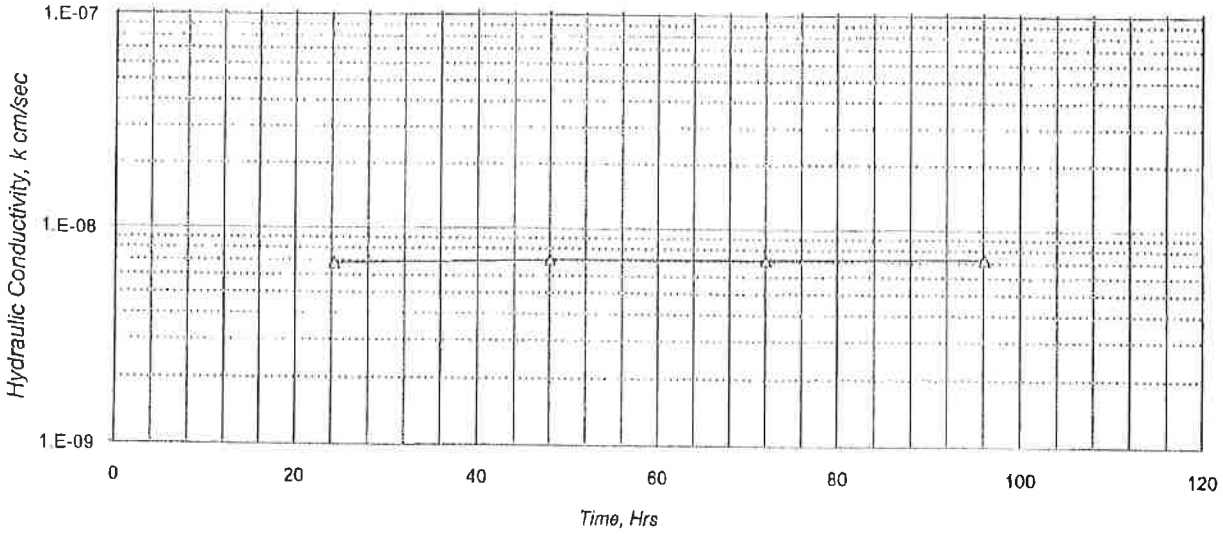
HYDRAULIC CONDUCTIVITY

REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Two Sisters Dairy	10-07-26	1734
Sample ID:	**Sample Location:**	**Report Date:**
1	#1	August 10, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	1	
DESCRIPTION:	#1	
	INITIAL	FINAL
HEIGHT, in.	3.3	3.3
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	15.6	23.1
DRY DENSITY, pcf	105	103
SATURATION, %	70	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:	3 - 3
IN / OUT RATIO:	1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.3	6.8E-09
2	48.1	7.1E-09
3	72.1	7.2E-09
4	96.1	7.3E-09

AVERAGE LAST 4 : **7.1E-09**

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.

By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

Enviro-Ag Engineering, Inc.

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

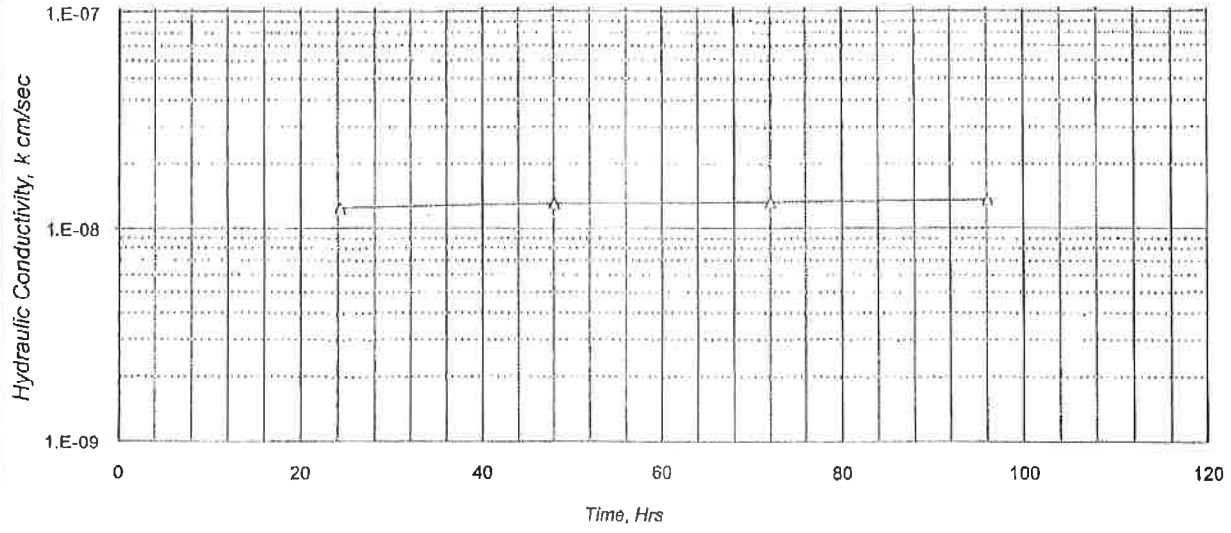
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Two Sisters Dairy	10-07-26	1735
Sample ID:	**Sample Location:**	**Report Date:**
2	#2	August 10, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	2
DESCRIPTION:	#2

	INITIAL	FINAL
HEIGHT, in.	4.2	4.2
DIAMETER, in.	2.9	2.9
WATER CONTENT, %	18.1	23.4
DRY DENSITY, pcf	105	103
SATURATION, %	80	100
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Gray	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	2 - 2
IN / OUT RATIO:	1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.3	1.2E-08
2	48.1	1.3E-08
3	72.1	1.3E-08
4	96.1	1.4E-08

AVERAGE LAST 4 : **1.3E-08**

COMMENTS:
Tap water used as permeant.

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit

Z : Soils Lab\Perms \1910 \ 10-07-26 \ 1735 | Print Date: 08/10/10 | Reviewed By: Micah Mullin | LSN: 1735

DCN: EAE-QC-GRAPH (rev. 11/10/04)

Enviro-Ag Engineering, Inc.

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

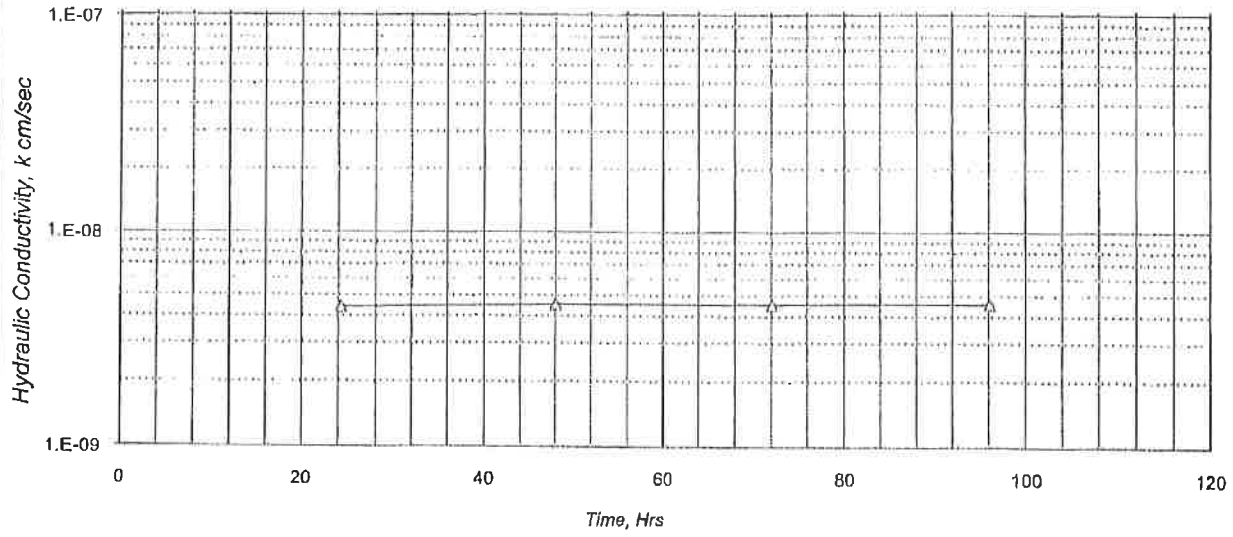
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number
Two Sisters Dairy	10-07-26	1736
Sample ID	**Sample Location:**	**Report Date:**
3	#3	August 10, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	3	
DESCRIPTION:	#3	
	INITIAL	FINAL
HEIGHT, in.	4.2	4.2
DIAMETER, in.	2.9	2.9
WATER CONTENT, %	16.9	21.7
DRY DENSITY, pcf	107	106
SATURATION, %	80	99
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Dark Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	2 - 2
IN / OUT RATIO:	1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.3	4.4E-09
2	48.1	4.5E-09
3	72.1	4.5E-09
4	96.1	4.6E-09

AVERAGE LAST 4 : **4.5E-09**

COMMENTS:
Tap water used as permeant.

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

Enviro-Ag Engineering, Inc.

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

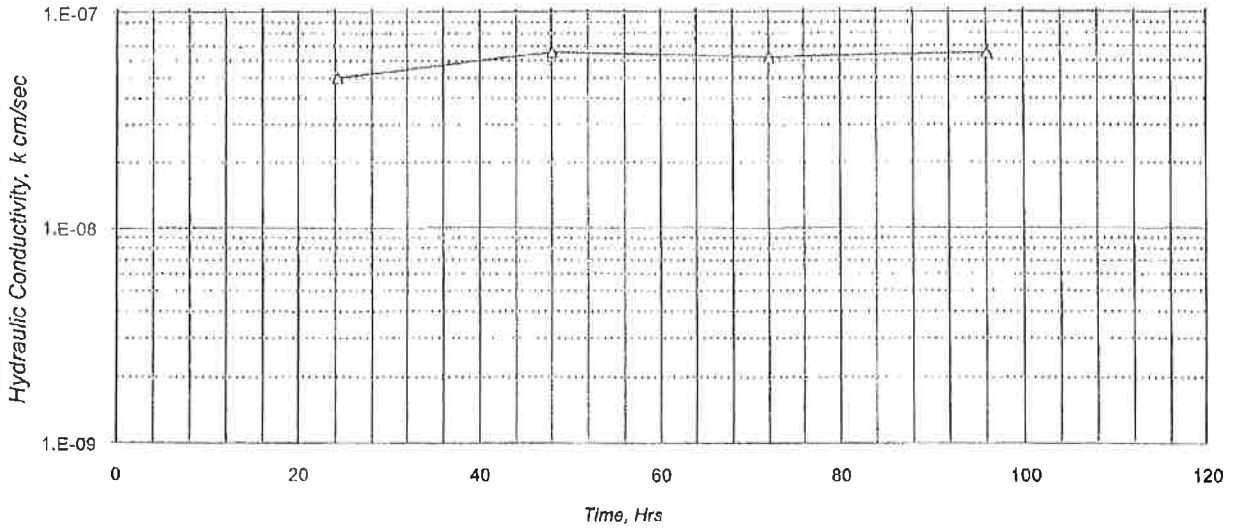
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Two Sisters Dairy	10-07-26	1737
Sample ID:	**Sample Location**	**Report Date:**
4	#4	August 10, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	4	
DESCRIPTION:	#4	
	INITIAL	FINAL
HEIGHT, in.	4.0	4.0
DIAMETER, in.	2.8	2.9
WATER CONTENT, %	18.9	23.5
DRY DENSITY, pcf	104	102
SATURATION, %	82	98
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Dark Brown	
SAMPLE CONSISTENCY	Clay	

COMMENTS:
Tap water used as permeant.

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	2 - 3
IN / OUT RATIO:	1.02

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.3	5.0E-08
2	48.1	6.6E-08
3	72.1	6.2E-08
4	96.1	6.5E-08

AVERAGE LAST 4 : **6.1E-08**

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

Enviro-Ag Engineering, Inc.

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

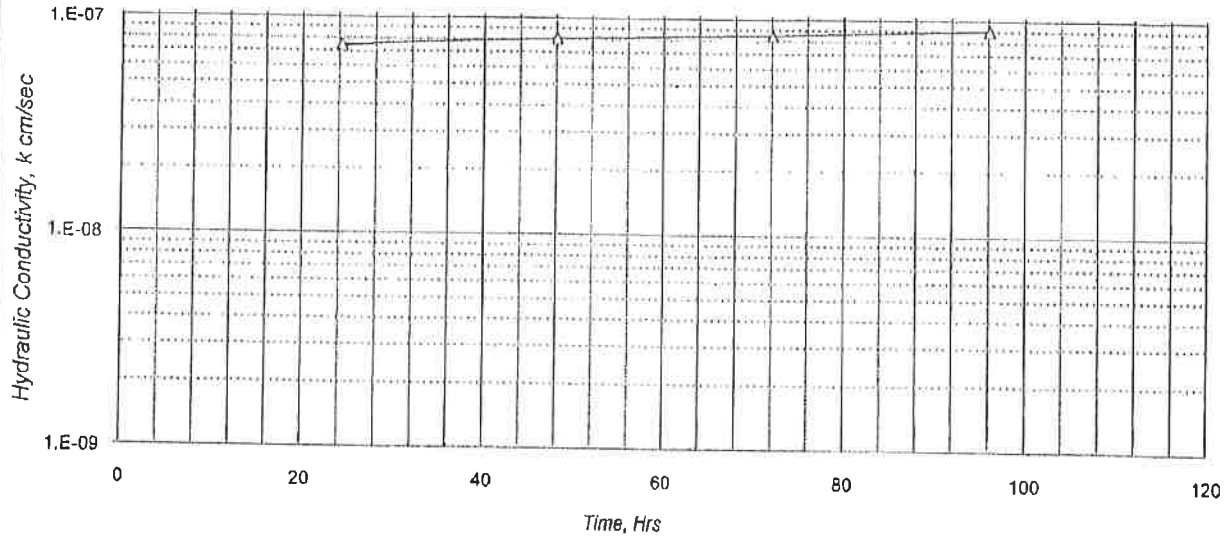
EAE

HYDRAULIC CONDUCTIVITY

REPORT
ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Two Sisters Dairy	10-07-26	1738
Sample ID:	**Sample Location:**	**Report Date:**
5	#5	August 10, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	5	
DESCRIPTION:	#5	
	INITIAL	FINAL
HEIGHT, in.	4.3	4.3
DIAMETER, in.	2.7	2.8
WATER CONTENT, %	17.1	26.3
DRY DENSITY, pcf	105	98
SATURATION, %	76	98
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Dark Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	2 - 2
IN / OUT RATIO:	1.00

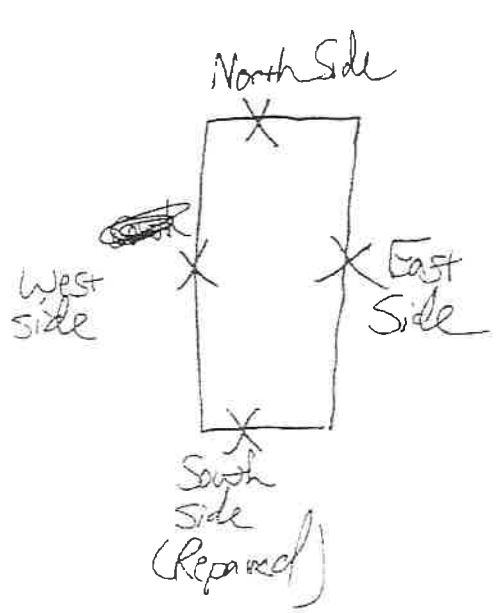
TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.3	7.5E-08
2	48.1	8.1E-08
3	72.1	8.5E-08
4	96.1	9.0E-08

AVERAGE LAST 4 : **8.3E-08**

COMMENTS:
Tap water used as permeant.

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

TRIAXIAL PERMEABILITY CHAIN of CUSTODY



STRUCTURE	PERM REPORT I.D.	LAB LOG
NORTH SIDE		1744
WEST SIDE		1745
EAST SIDE		1746
SOUTH SIDE - (REPAIRED)		1747

Facility Name: Two Sisters Dairy

Project Engineer: Norman Mullin

Sampled by: Rodard Stokes

Date Sampled: 7-23-10

Date to Lab: 7/27/10 Received: Rick Hudson

VIA FedEX

EAE
302 Morgan Mill Road
Bldg C
Stephenville, TX 76401
(254) 965-3500
Fax: (254) 965-8000

Enviro-Ag Engineering, Inc.

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

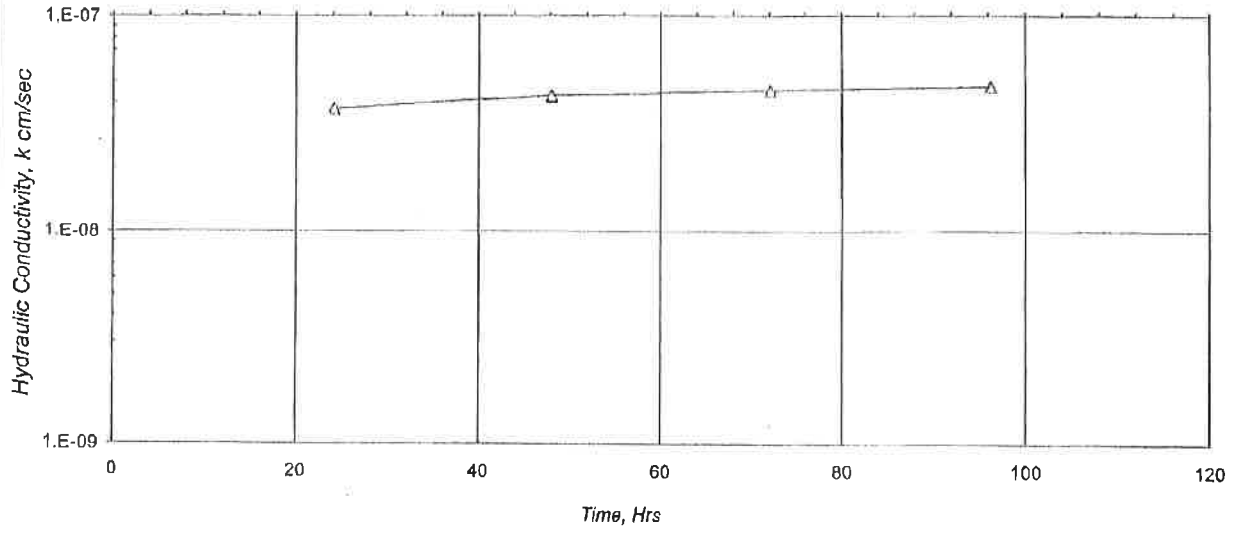
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Two Sisters Dairy	10-07-23	1744
Sample ID	**Sample Location:**	**Report Date:**
1	North Side	August 11, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	1	
DESCRIPTION:	North Side	
	INITIAL	FINAL
HEIGHT, in.	2.8	2.8
DIAMETER, In.	2.8	2.8
WATER CONTENT, %	23.5	29.0
DRY DENSITY, pcf	97	94
SATURATION, %	86	99
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Dark Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	3 - 4
IN / OUT RATIO:	0.95

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.1	3.7E-08
2	48.1	4.4E-08
3	72.1	4.6E-08
4	96.3	4.8E-08

AVERAGE LAST 4 : **4.4E-08**

COMMENTS:
Tap water used as permeant

These results apply only to the above listed samples. This data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit

Enviro-Ag Engineering, Inc.

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

EAE

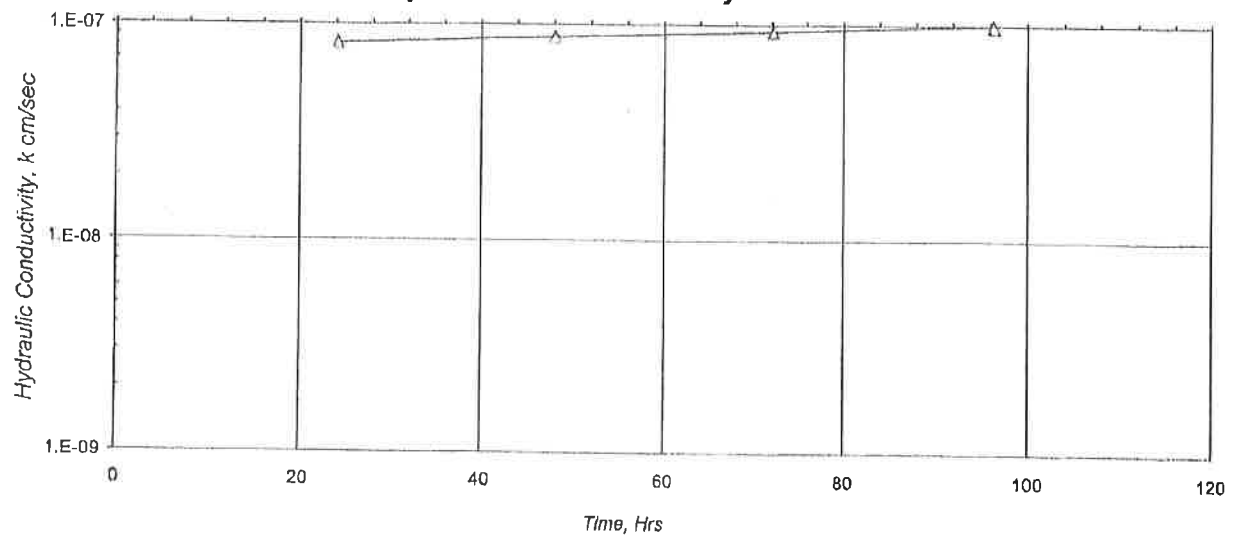
HYDRAULIC CONDUCTIVITY

REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Two Sisters Dairy	10-07-23	1745
Sample ID:	**Sample Location:**	**Report Date:**
2	West Side	August 11, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	2	
DESCRIPTION:	West Side	
	INITIAL	FINAL
HEIGHT, in.	4.0	4.1
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	20.5	25.7
DRY DENSITY, pcf	102	99
SATURATION, %	85	98
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Dark Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	2 - 3
IN / OUT RATIO:	1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.1	8.2E-08
2	48.1	8.7E-08
3	72.1	9.3E-08
4	96.3	1.0E-07

AVERAGE LAST 4 : **9.1E-08**

COMMENTS:
Tap water used as permeant.

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit

Enviro-Ag Engineering, Inc.

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

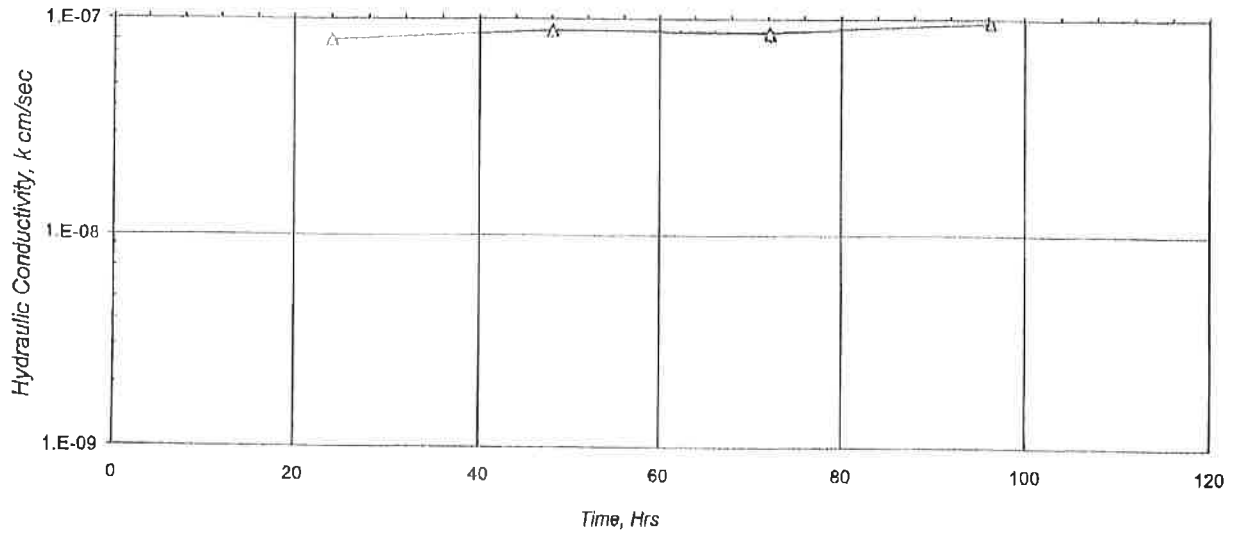
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Two Sisters Dairy	10-07-23	1746
Sample ID:	**Sample Location:**	**Report Date:**
3	East Side	August 11, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	3	
DESCRIPTION:	East Side	
	INITIAL	FINAL
HEIGHT, in.	2.7	2.8
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	15.2	22.9
DRY DENSITY, pcf	105	104
SATURATION, %	68	98
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Light 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	24.1	8.1E-08
2	48.1	8.8E-08
3	72.1	8.7E-08
4	96.3	9.6E-08

AVERAGE LAST 4 : **8.8E-08**

COMMENTS:
Tap water used as permeant.

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

Enviro-Ag Engineering, Inc.

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

LABORATORY SERVICES

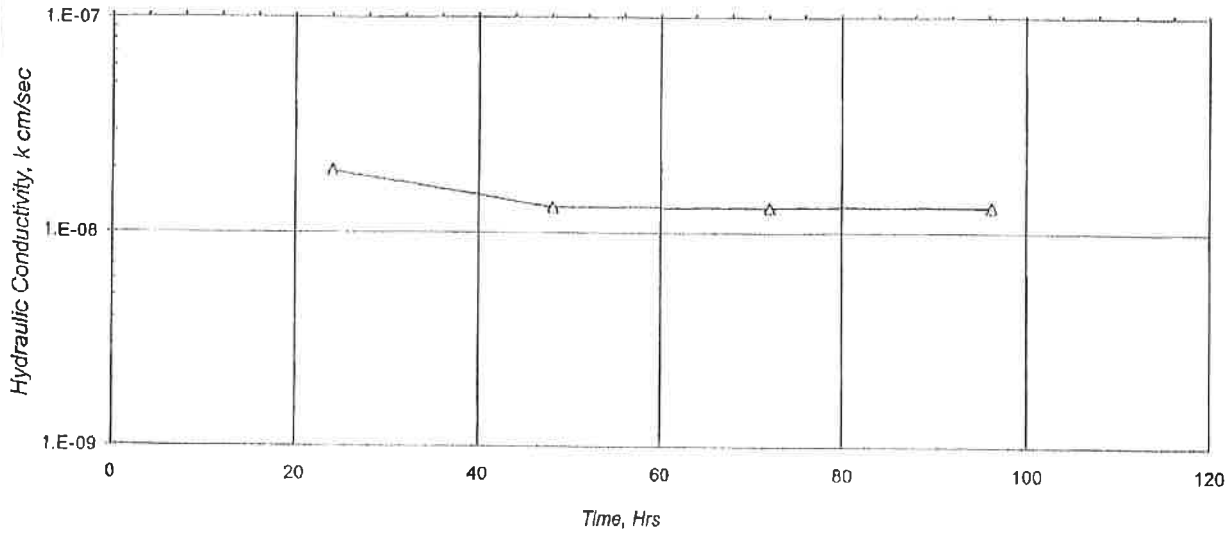
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Two Sisters Dairy	10-07-23	1747
Sample ID:	**Sample Location:**	**Report Date:**
4	South Side - Repaired	August 11, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	4	
DESCRIPTION:	South Side - Repaired	
	INITIAL	FINAL
HEIGHT, in.	4.4	4.5
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	12.2	18.2
DRY DENSITY, pcf	116	113
SATURATION, %	72	100
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Reddish Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	2 - 2
IN / OUT RATIO:	0.87

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.1	2.0E-08
2	48.1	1.3E-08
3	72.1	1.3E-08
4	96.3	1.3E-08

AVERAGE LAST 4 : **1.5E-08**

COMMENTS:

Tap water used as permeant.

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.

By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

TS2

ENVIRO-AG
EAE
ENGINEERING, INC.

Two Sisters Dairy
Erath County, Texas
RCS #2 Capacity Certification

The survey capacity performed on July 26, 2010 by Enviro-Ag Engineering, Inc. for retention control structure (RCS) #2 with two vertical feet of dry freeboard is calculated as:

RCS #2 Capacity:	24.69 ac-ft
RCS #2 Surface Area:	4.52 surface acres @ High Water Level

Prepared by:

STATE OF TEXAS
Norman Mullin
NORMAN H. MULLIN
66107
LICENSED
PROFESSIONAL ENGINEER

08/16/2010

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

752

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

AMARILLO OFFICE
3404 AIRWAY BLVD
AMARILLO, TEXAS 79118
800.753.6525

STEPHENVILLE OFFICE
9855 FM 847
DUBLIN, TEXAS 76446
800.753.6525

ARTESIA OFFICE
203 EAST MAIN STREET
ARTESIA, NEW MEXICO 88210
800.753.6525

www.enviroag.com

Two Sisters Dairy
Erath County, Texas

Soil Liner Certification for RCS #2

Two Shelby tube core samples of the soil liner in RCS #2 at Two Sisters Dairy were collected and analyzed for permeability to document that the soil liner meets the requirements of TCEQ. Results of the permeability analysis are shown below:

2.2×10^{-8} cm/sec (West Wall)
1.2×10^{-8} cm/sec (South Wall)

Based on the above documentation, the liner in RCS #2 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.

Respectfully Submitted,

STATE OF TEXAS
NORMAN H. MULLIN
66107
REGISTERED
PROFESSIONAL ENGINEER

Norman Mullin 6/7/16

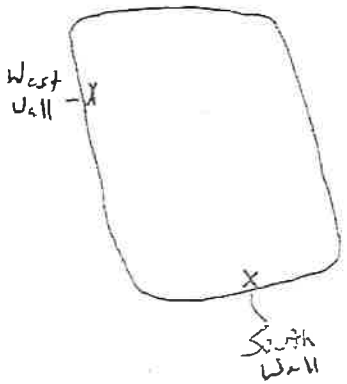
Norman Mullin, P.E.
Enviro-Ag Engineering, Inc.

Attachments: Enviro-Ag Engineering, Inc. Reports

CAFO Compliance by Design PRO®

www.cafopro.com

TRIAXIAL PERMEABILITY CHAIN of CUSTODY



RCS #2

N

STRUCTURE	PERM REPORT I.D.	LAB LOG
RCS#1 WEST WALL		3964
RCS#2 SOUTH WALL		3965

Facility Name: Two-Sisters Dairy

Project Engineer:

Sampled by: Richard George

Date Sampled: 5-11-16

Date to Lab: 5/19/16 Received:

ENVIRO-AG ENGINEERING, INC.
9855 FM 847
Dublin, TX 76446
(254) 965-3500
Fax: (254) 965-8000

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

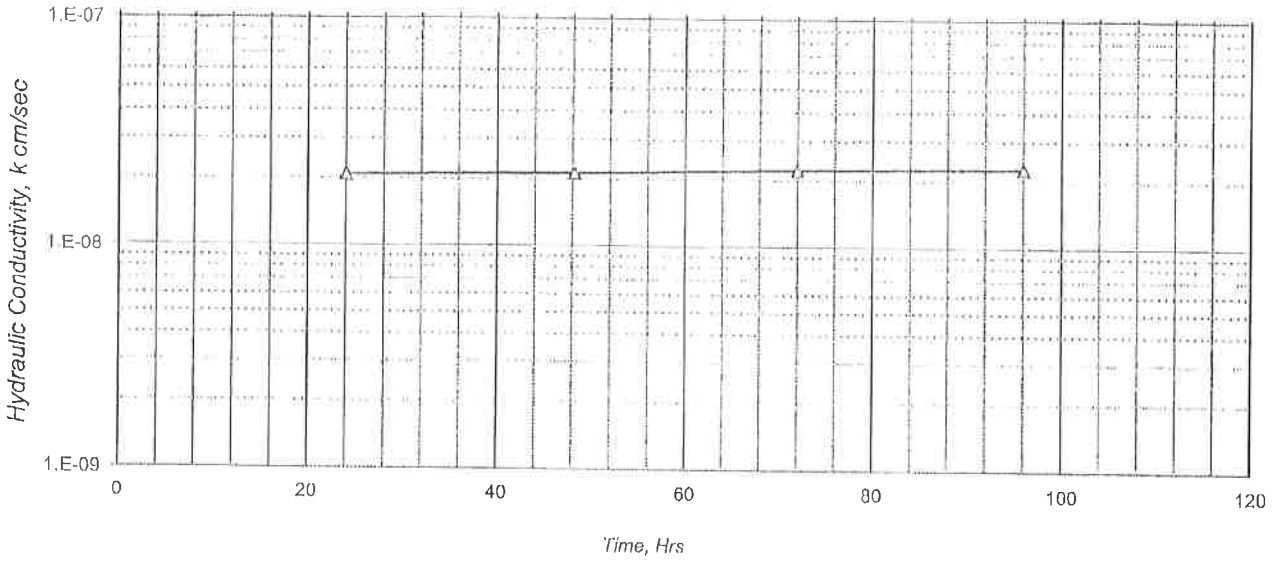
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Two Sisters Dairy	16-05-11	3964
Sample ID:	**Sample Location:**	**Report Date:**
1	RCS #2 - West Wall	June 1, 2016

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	1	
DESCRIPTION:	RCS #2 - West Wall	
	INITIAL	FINAL
HEIGHT, in.	2.5	2.5
DIAMETER, in.	2.8	2.9
WATER CONTENT, %	27.6	33.7
DRY DENSITY, pcf	91	87
SATURATION, %	87	98
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Dark Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C

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

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.0	2.1E-08
2	48.2	2.1E-08
3	72.0	2.2E-08
4	96.0	2.3E-08

AVERAGE LAST 4 : **2.2E-08**

COMMENTS:
Tap water used as permeant.

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

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

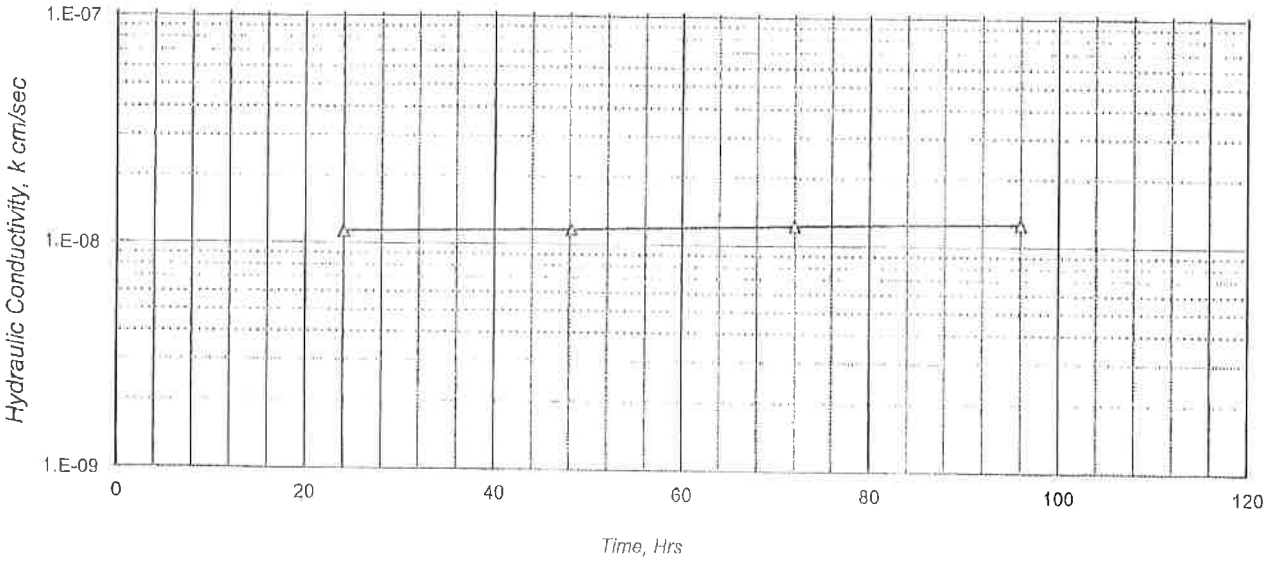
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No.	Lab Sample Number:
Two Sisters Dairy	16-05-11	3965
Sample ID:	**Sample Location:**	**Report Date**
2	RCS #2 - South Wall	June 1, 2016

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	2	
DESCRIPTION:	RCS #2 - South Wall	
	INITIAL	FINAL
HEIGHT, in.	2.6	2.6
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	17.1	23.2
DRY DENSITY, pcf	108	104
SATURATION, %	82	100
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Dark 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	1.1E-08
2	48.2	1.2E-08
3	72.0	1.2E-08
4	96.0	1.3E-08

AVERAGE LAST 4 : **1.2E-08**

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

Z:\Soils Lab\Perms \1916 \ 16-05-11 \3965 | Print Date: 06/07/16 | Reviewed By: Micah Mullin | LSN: 3965

DCN: EAE-QC-GRAPH (rev. 11/10/04)

Oosten
WCS #3
Liner

TS
Settling Pond

LINER CERTIFICATION

A.C. Lowther
Cert. Professional Soil Scientist
3310 Santa Monica
Abilene, Texas 79605

January 2, 1997

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

Re:Gerald Oosten Dairy

A.C. Lowther has completed sampling and testing of the soil liner for the Waste Storage Pond number 3 on the Gerald Oosten 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: Gerald Oosten

Signed By:

Date:

STATE OF TEXAS
JERRY E. HOLLIGAN
29146
REGISTERED
PROFESSIONAL ENGINEER

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

C & R DAIRY

P.C.S #3

LINER CERTIFICATION

A.C. Lowther
Cert. Professional Soil Scientist
3310 Santa Monica
Abilene, Texas 79605

Name: Gerald Oosten Dairy
G & P Holsteins
Stephenville, Texas 76401

Pond No. 3 Date Sampled 12-28-96 Sampled By: A.C. Lowther

Test Location	No. 1	No.2	No.3	No.4	Minimum Req.
Soil Description					
Color (Munsell)	Reddish Brown	Reddish Brown	Grayish Brown	Grayish Brown	
Texture (ASTM D-422)	Clay	Clay Loam	Clay	Clay Loam	
Unified	CL	CL	CL	CL	
Sample Depth	18	18	18	18	18
Atterberg Limits (ASTM D-423					
Liquid Limit %	42.3	38.6	44.1	35.9	30
Plastic Limit %	18.2	17.8	22.4	19.4	
Plasticity Index %	24.1	20.8	21.7	16.9	15
Passing No. 200 Seive %	53	55	69	65	30
Permeability (ASTM-D-2434)	3.4 X 10 - 8				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	15.7	18.2	101.9	102.9	99.0
2	12.9	17.9	104.8	107.4	97.5
3	12.1	22.6	94.5	98.6	95.8
4	14.1	22.0	103.4	106.0	97.5

G & P DAIRY

RCS #3

LINER CERTIFICATION

A.C. Lowther
Cert. Professional Soil Scientist
3310 Santa Monica
Abilene, Texas 79605

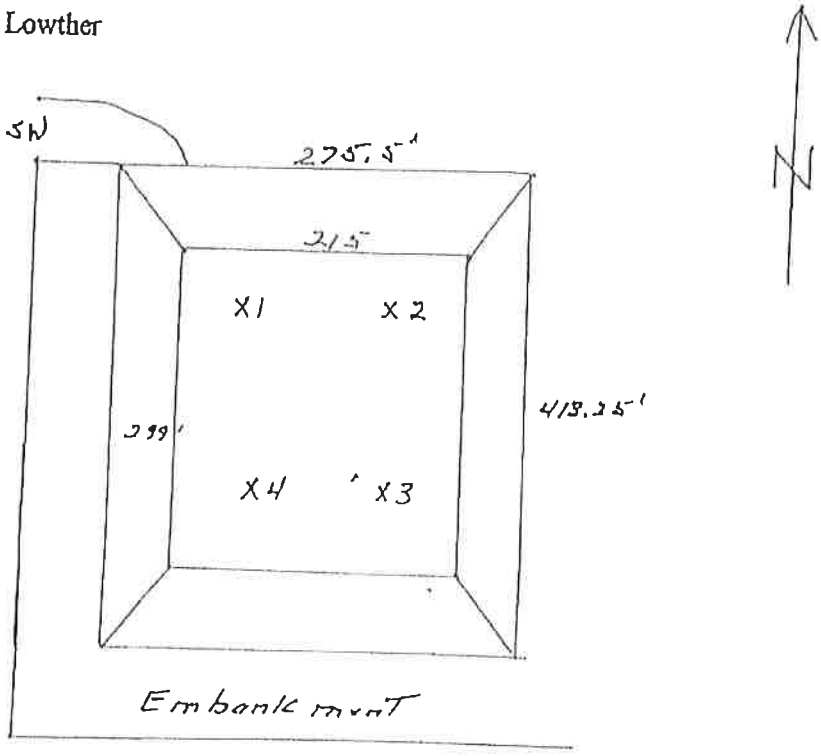
January 2, 1997

Name: Gerald Oosten Dairy

SOIL SAMPLE LOCATIONS

Depth of Samples (BGL): 10 Feet

Sampled By: A.C. Lowther



RCS # TH 1

ENVIRO-AG ENGINEERING, INC.

Wyly #2 Dairy
Erath County, Texas
RCS #1 Capacity Certification

The survey capacity performed on November 5, 2010 by Enviro-Ag Engineering, Inc. for retention control structure (RCS) #1 at the spillway is calculated as:

RCS #1 Capacity:	15.83 ac-ft
RCS #1 Surface Area:	2.66 surface acres @ Spillway

Prepared by:



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

TH2

PPP

ENVIRO-AG
EAE
ENGINEERING, INC.

Wyly #2 Dairy
Erath County, Texas
RCS #1 Capacity Certification

The survey capacity performed on November 5, 2010 by Enviro-Ag Engineering, Inc. for retention control structure (RCS) #1 at the spillway is calculated as:

RCS #1 Capacity:	65.13 ac-ft
RCS #1 Surface Area:	5.03 surface acres @ Spillway

Prepared by:

STATE OF TEXAS
NORMAN H. MULLIN
66107
LICENSED
PROFESSIONAL ENGINEER

12/01/2010

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

RECEIVED
DEC 22 2010
TCEQ
REGION 4 - STE

(Supporting Documentation Attached)

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

TH2

ENVIRO-AG
EAE
ENGINEERING, INC.

Wyly #2 Dairy
Erath County, Texas
RCS #1 Liner Certification

Eight 3-inch Shelby tube core samples were collected from RCS #1 to document the clay liner meets the requirements of the TCEQ for soil liner. The sample locations were backfilled with bentonite clay chips for sealing. The liner thickness was documented to be a minimum of 18 inches.

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

- RCS #1-1 (Lab #1910) 9.9×10^{-8} cm/sec
- RCS #1-2 (Lab #1911) 1.9×10^{-8} cm/sec
- RCS #1-3 (Lab #1912) 6.1×10^{-8} cm/sec
- RCS #1-4 (Lab #1913) 8.6×10^{-8} cm/sec
- RCS #1-5 (Lab #1914) 1.1×10^{-8} cm/sec
- RCS #1-6 (Lab #1915) 7.2×10^{-9} cm/sec
- RCS #1-7 (Lab #1916) 8.4×10^{-9} cm/sec
- RCS #1-8 (Lab #1917) 3.9×10^{-8} cm/sec

The clay liner present in RCS #1 is determined to be in accordance with TCEQ specific discharge requirements of 1.1×10^{-6} cm/sec. The observed hydraulic conductivity from RCS #1 is considered protective of ground and surface water resources.

Supporting moisture and density laboratory results indicate the embankment and liners were installed at 95% maximum dry density and within the moisture range of minus 1% to plus 3% of optimum moisture content (see attached moisture/density test results). The liner present in RCS #1 is determined to be constructed in accordance with TCEQ requirements for soil liners

I certify that RCS #1 at Wyly #2 Dairy meets the construction requirements of NRCS Practice Codes 313 (Waste Storage Ponds), 378 (Pond Embankment) and 521D (Pond Sealing or Lining, Compacted Clay Treatment). Erosion protection and emergency spillway are in place and the staff gauge is installed and calibrated.

Prepared by:

STATE OF TEXAS
NORMAN E. MULLIN
66107
LICENSED

12/01/2010

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

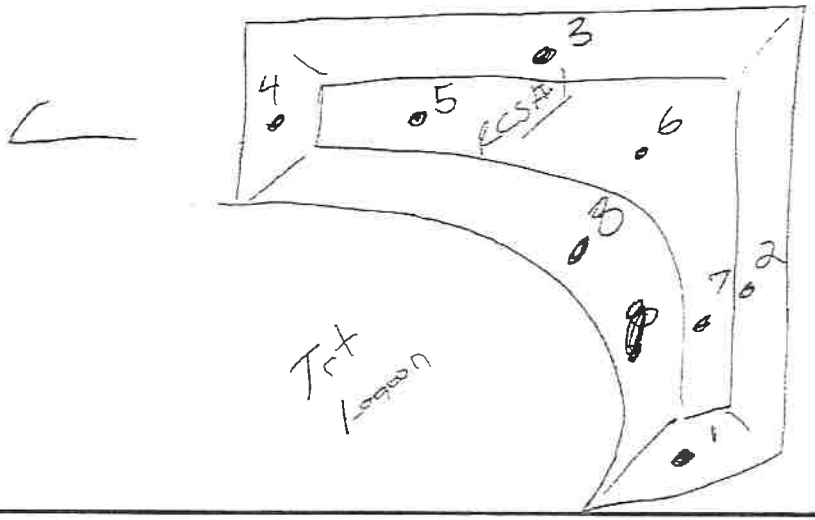
RECEIVED
DEC 22 2010
TCEQ
REGION 4 - STE

(Supporting Documentation Attached)

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

TRIAXIAL PERMEABILITY CHAIN of CUSTODY

Wyly #2



STRUCTURE	PERM REPORT I.D.	LAB LOG
RCS# 1 - 1		1910
" -2		1911
" -3		1912
" -4		1913
" -5		1914
" -6		1915
" -7		1916
" -8		1917

Facility Name: Wyly #2

Project Engineer: Nolan

Sampled by: Corey

Date Sampled: 11/1/10

Date to Lab: ~~11/3/10~~ 11/5/10 VIA USPS

Received: Ruth Baker

RECEIVED
DEC 22 2010
TCEQ
REGION 4 - STE

EAE
302 Morgan Mill Road
Bldg C
Stephenville, TX 76401
(254) 965-3500
Fax: (254) 965-8000

Enviro-Ag Engineering, Inc.

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

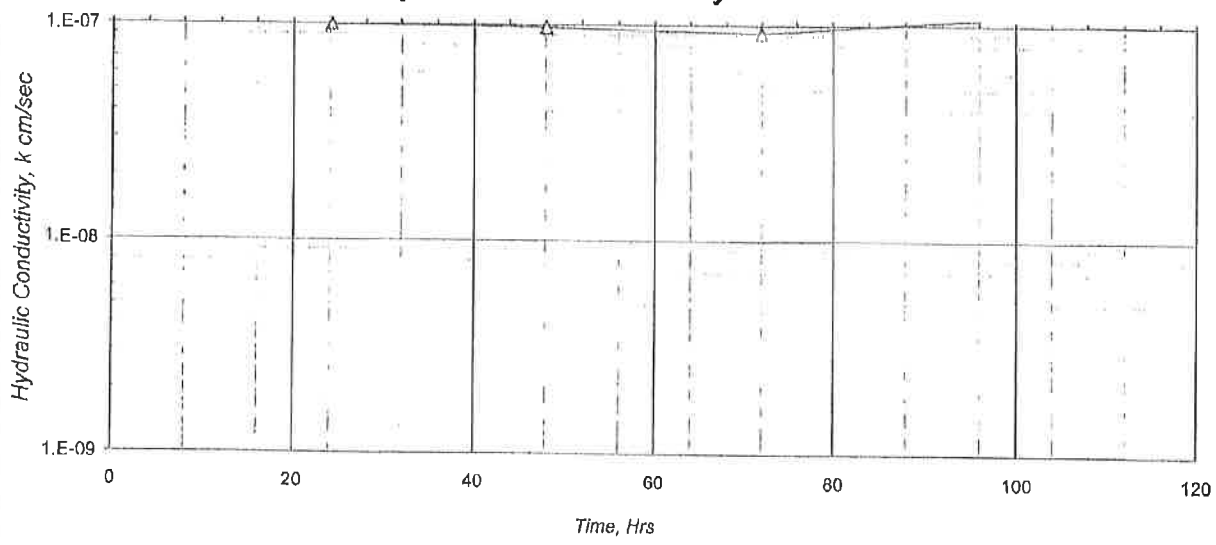
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Wyly #2	10-11-01	1910
Sample ID:	**Sample Location:**	**Report Date:**
1	RCS #1 - 1	November 29, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	1	
DESCRIPTION:	RCS #1 - 1	
	INITIAL	FINAL
HEIGHT, in.	3.4	3.4
DIAMETER, in.	2.7	2.8
WATER CONTENT, %	15.7	18.5
DRY DENSITY, pcf	114	112
SATURATION, %	89	99
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Reddish Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	2 - 3
IN / OUT RATIO:	1.04

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.2	9.9E-08
2	48.1	9.7E-08
3	72.0	9.2E-08
4	96.1	1.1E-07

AVERAGE LAST 4 : **9.9E-08**

COMMENTS:
Tap water used as permeant.

RECEIVED
DEC 22 2010
TCEQ
REGION

These results apply only to the above listed samples. The data and information and proprietary plant can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Envire-Ag from and against all liability in excess of the aforementioned limit.

Z : Soils Lab\Perms \1910 \ 10-11-01 \ 1910

Print Date: 11/29/10

Reviewed By: Micah Mullin

LSN: 1910

DCN: EAE-QC-GRAPH (rev. 11/10/04)

Enviro-Ag Engineering, Inc.

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

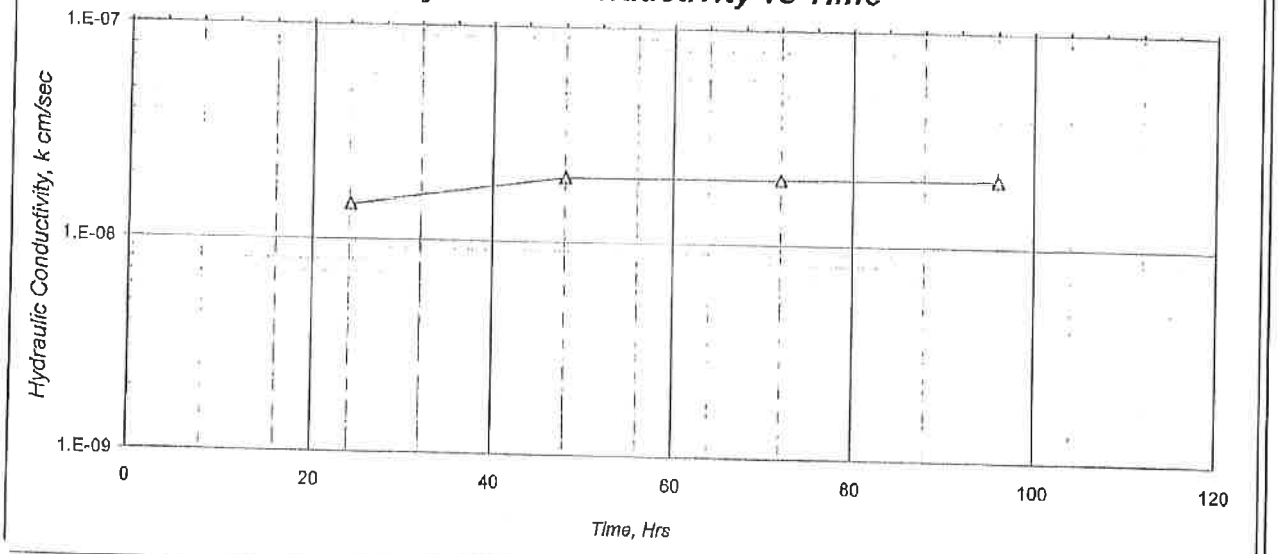
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name: Wyly #2
Project No: 10-11-01
Lab Sample Number: 1911
Sample ID: 2
Sample Location: RCS #1 - 2
Report Date: November 29, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	2	
DESCRIPTION:	RCS #1 - 2	
	INITIAL	FINAL
HEIGHT, in.	3.5	3.5
DIAMETER, in.	2.8	2.9
WATER CONTENT, %	18.7	23.1
DRY DENSITY, pcf	106	104
SATURATION, %	85	100
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Dark Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	3 - 3
IN / OUT RATIO:	1.25

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.2	1.5E-08
2	48.1	2.0E-08
3	72.0	2.0E-08
4	96.1	2.1E-08

AVERAGE LAST 4 : **1.9E-08**

COMMENTS:
Tap water used as permeant.

RECEIVED
DEC 22 2010
TCEQ
REGION 4 - SAT

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit

Z : Soils Lab\Forms \1910 \ 10-11-01 \ 1911
DCN: EAE-QC-GRAPH (rev. 11/10/04)

Print Date: 11/29/10
Reviewed By: Micah Mullin
LSN: 1911

Enviro-Ag Engineering, Inc.

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

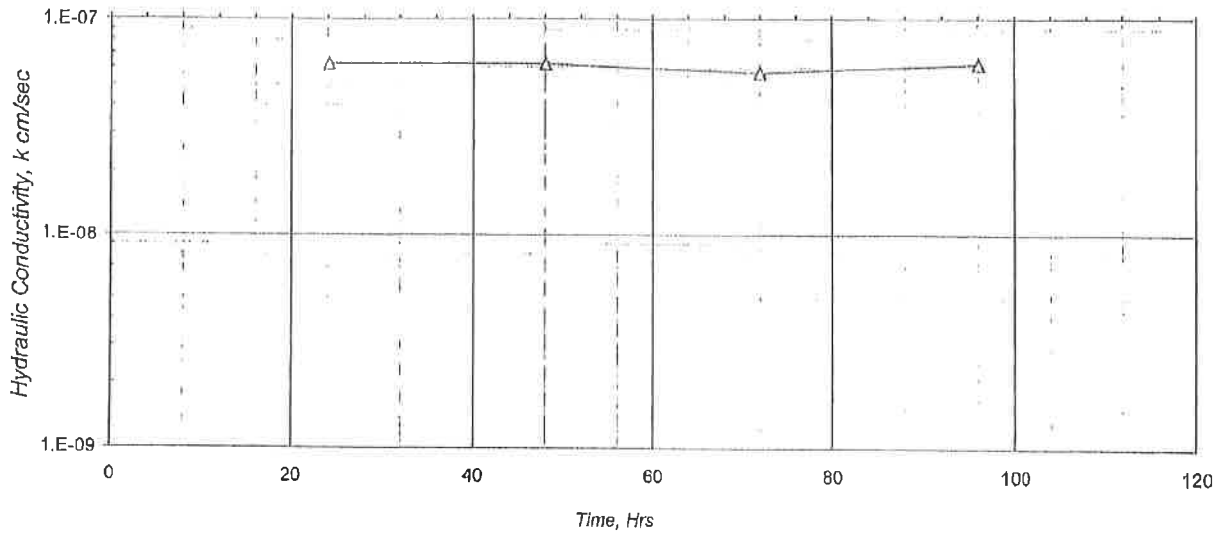
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Wyly #2	10-11-01	1912
Sample ID:	**Sample Location**	**Report Date:**
3	RCS #1 - 3	November 29, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	3	
DESCRIPTION:	RCS #1 - 3	
	INITIAL	FINAL
HEIGHT, in.	2.1	2.2
DIAMETER, in.	2.9	2.9
WATER CONTENT, %	8.8	25.1
DRY DENSITY, pcf	102	99
SATURATION, %	36	97
(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 - 5
IN / OUT RATIO:	1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.2	6.2E-08
2	48.1	6.2E-08
3	72.0	5.7E-08
4	96.1	6.2E-08

AVERAGE LAST 4 : **6.1E-08**

RECEIVED
DEC 22 2010
TCEQ
REGION 4 - STE

COMMENTS:
Tap water used as permeant.

These results apply only to the above listed samples. This data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

Z : Soils Lab\Perms \1910 \ 10-11-01 \ 1912 | Print Date: 11/29/10 | Reviewed By: Micah Mullin | LSN: 1912

DCN: EAE-QC-GRAPH (rev. 11/10/04)

Enviro-Ag Engineering, Inc.

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

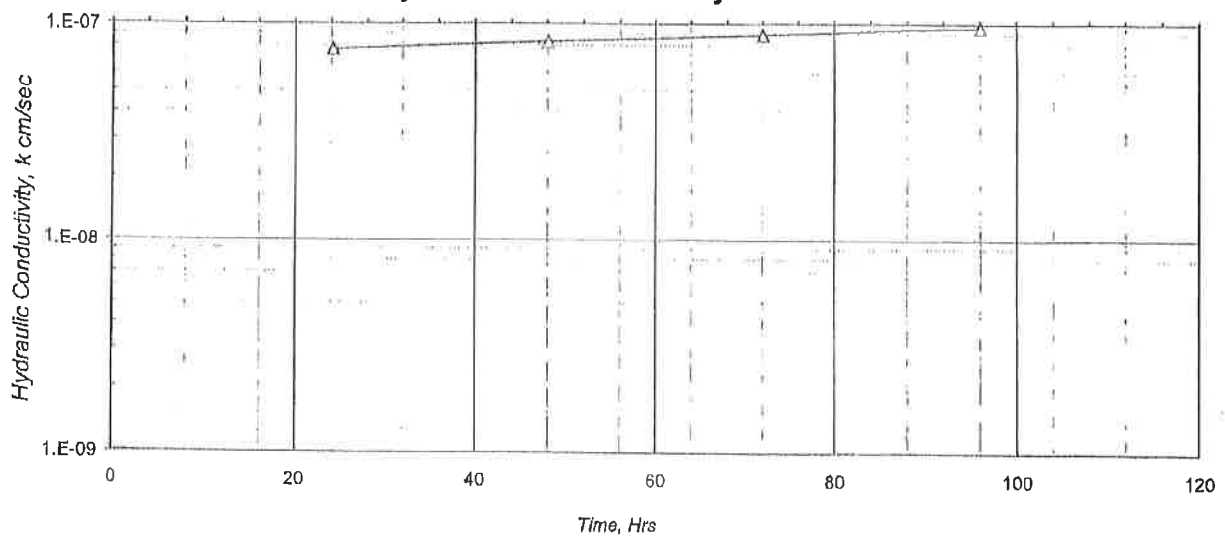
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Wyly #2	10-11-01	1913
Sample ID:	**Sample Location:**	**Report Date:**
4	RCS #1 - 4	November 29, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	4	
DESCRIPTION:	RCS #1 - 4	
	INITIAL	FINAL
HEIGHT, in.	3.6	3.7
DIAMETER, in.	2.8	2.9
WATER CONTENT, %	8.4	23.5
DRY DENSITY, pcf	105	102
SATURATION, %	37	98
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Reddish Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C

EFFECTIVE STRESS:	5 psi
GRADIENT RANGE:	2 - 3
IN / OUT RATIO:	1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.2	7.7E-08
2	48.1	8.3E-08
3	72.0	8.9E-08
4	96.1	9.6E-08

AVERAGE LAST 4 : **8.6E-08**

COMMENTS:
Tap water used as permeant.

RECEIVED
DEC 22 2010
TCEQ
REGION 4 - STE

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

Z : Soils Lab\Perms \1910 \ 10-11-01 \ 1913 | Print Date: 11/29/10 | Reviewed By: Micah Mullin | LSN: 1913

DCN: EAE-QC-GRAPH (rev. 11/10/04)

Enviro-Ag Engineering, Inc.

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

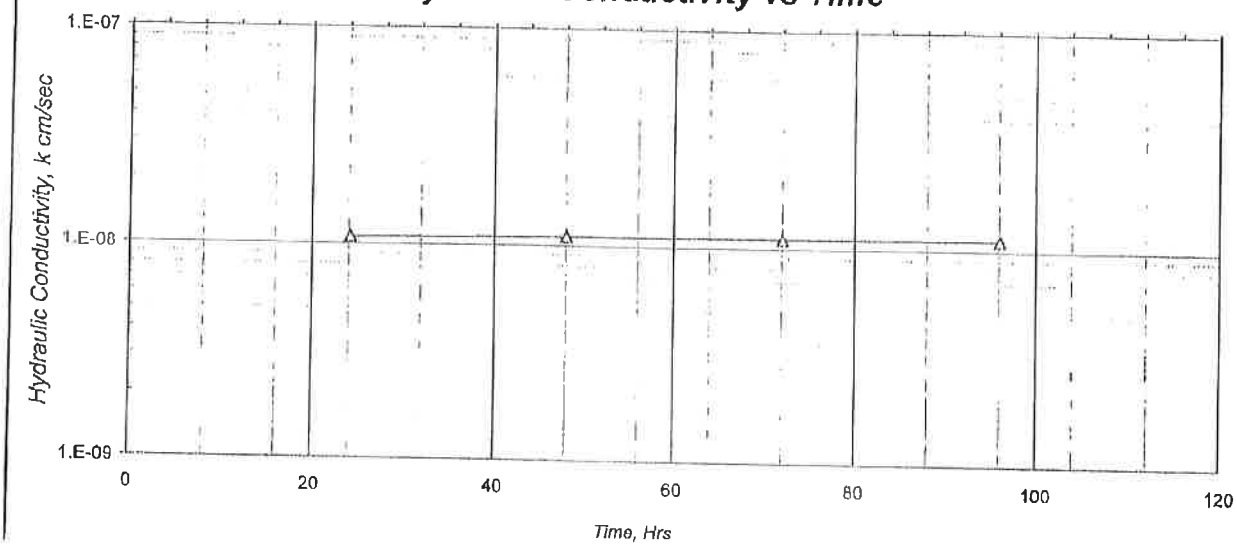
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Wyly #2	10-11-01	1914
Sample ID:	**Sample Location:**	**Report Date:**
5	RCS #1 - 5	November 29, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	5	
DESCRIPTION:	RCS #1 - 5	
	INITIAL	FINAL
HEIGHT, in.	3.9	3.9
DIAMETER, in.	2.8	2.9
WATER CONTENT, %	24.7	30.1
DRY DENSITY, pcf	93	91
SATURATION, %	83	96
(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 - 3
IN / OUT RATIO:	1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.2	1.1E-08
2	48.1	1.1E-08
3	72.0	1.1E-08
4	96.1	1.1E-08

AVERAGE LAST 4 : **1.1E-08**

COMMENTS:
Tap water used as permeant

RECEIVED
DEC 22 2010
TCEQ
REGION 1 - STE

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc. By accepting data results Client agrees to indemnify and hold Enviro-Ag from against all liability in excess of the aforementioned limit.

Z : Soils Lab\Perms \1910 \ 10-11-01 \ 1914 | Print Date: 11/29/10 | Reviewed By: Micah Mullin | LSN: 1914

DCN: EAE-QC-GRAPH (rev. 11/10/04)

Enviro-Ag Engineering, Inc.

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

LABORATORY SERVICES

EAE

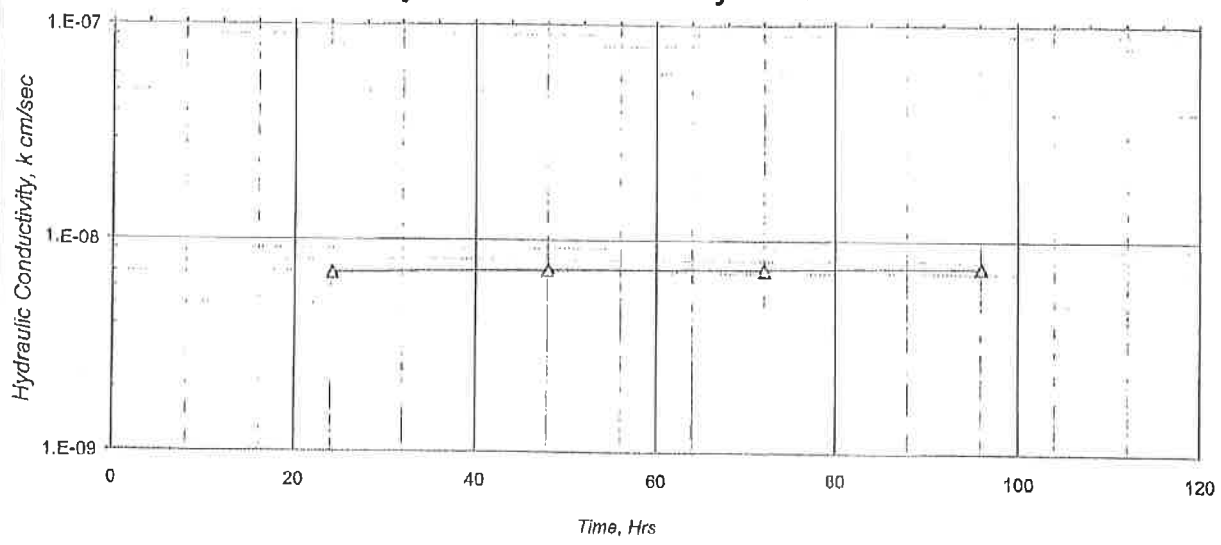
HYDRAULIC CONDUCTIVITY

REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Wyly #2	10-11-01	1915
Sample ID:	**Sample Location:**	**Report Date:**
6	RCS #1 - 6	November 29, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	6	
DESCRIPTION:	RCS #1 - 6	
	INITIAL	FINAL
HEIGHT, in.	3.1	3.2
DIAMETER, in.	2.8	2.9
WATER CONTENT, %	19.5	25.6
DRY DENSITY, pcf	104	100
SATURATION, %	84	100
(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 - 3
IN / OUT RATIO:	1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.2	6.9E-09
2	48.1	7.2E-09
3	72.0	7.3E-09
4	96.1	7.4E-09

AVERAGE LAST 4 : **7.2E-09**

COMMENTS:

Tap water used as permeant.

RECEIVED
DEC 22 2010
TCEQ
REGION 4 - ETR

These results apply only to the above listed samples. The data and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

Enviro-Ag Engineering, Inc.

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

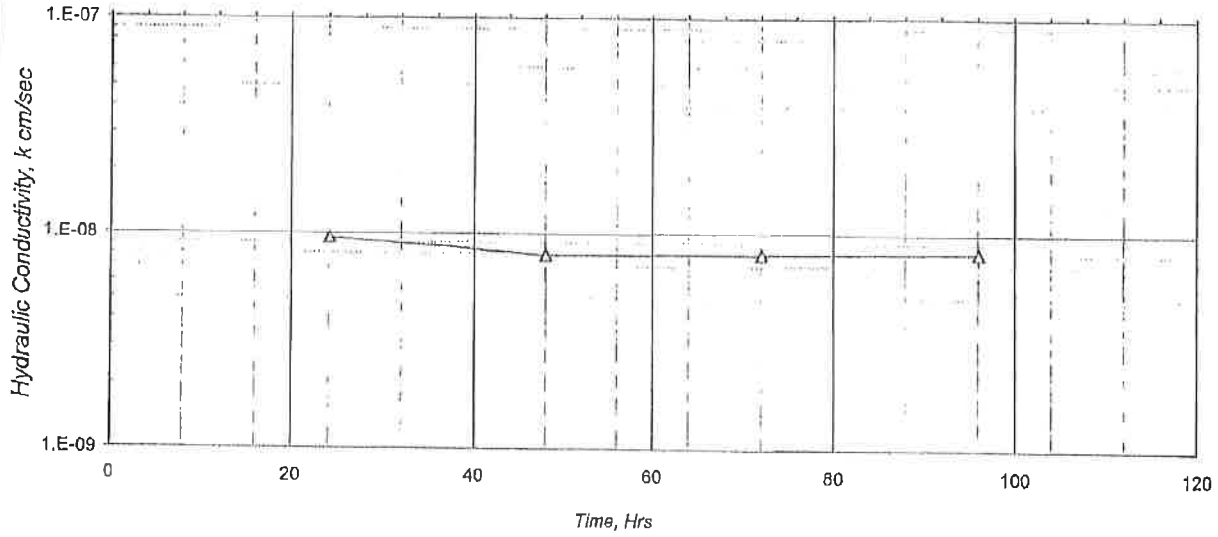
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Wyly #2	10-11-01	1916
Sample ID:	**Sample Location:**	**Report Date:**
7	RCS #1 - 7	November 29, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	7	
DESCRIPTION:	RCS #1 - 7	
	INITIAL	FINAL
HEIGHT, in.	3.7	3.7
DIAMETER, in.	2.8	2.9
WATER CONTENT, %	20.1	25.5
DRY DENSITY, pcf	102	100
SATURATION, %	83	99
(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 - 3
IN / OUT RATIO:	0.92

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.2	9.5E-09
2	48.1	7.9E-09
3	72.0	8.0E-09
4	96.1	8.1E-09

AVERAGE LAST 4 : **8.4E-09**

COMMENTS:
Tap water used as permeant.

RECEIVED
DEC 22 2010
TCEQ

These results apply only to the above listed samples. This report and information are proprietary and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

Z : Soils Lab\Perms \1010 \ 10-11-01 \ 1916 | Print Date: 11/29/10 | Reviewed By: Micah Mullin | LSN: 1916

DCN: EAE-QC-GRAPH (rev. 11/10/04)

Enviro-Ag Engineering, Inc.

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

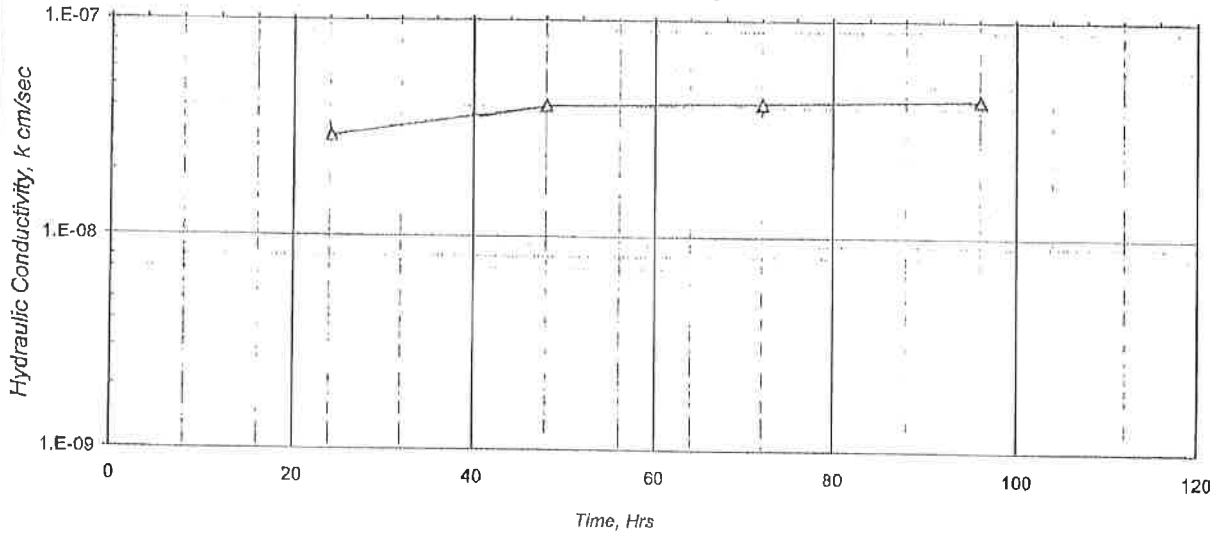
EAE

HYDRAULIC CONDUCTIVITY REPORT

ASTM D-5084, Method C

Client / Project Name:	Project No:	Lab Sample Number:
Wyly #2	10-11-01	1917
Sample ID:	**Sample Location:**	**Report Date:**
8	RCS #1 - 8	November 29, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	8	
DESCRIPTION:	RCS #1 - 8	
	INITIAL	FINAL
HEIGHT, in.	3.4	3.4
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	14.6	21.3
DRY DENSITY, pcf	108	105
SATURATION, %	70	96
(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 - 3
IN / OUT RATIO:	1.00

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY cm / sec
1	24.2	2.9E-08
2	48.1	4.1E-08
3	72.0	4.2E-08
4	96.1	4.4E-08

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

COMMENTS:
Tap water used as permeant.

RECEIVED
DEC 22 2010
TCEQ

These results apply only to the above listed samples. This document including its appendix and can not be released without authorization of Enviro-Ag Engineering Inc.
By accepting the data and results represented on this page, client agrees to limit the liability of Enviro-Ag Engineering, Inc. from Client and all other parties claims arising out of the use of this data to the cost for the respective test(s) represented here, and Client agrees to indemnify and hold harmless Enviro-Ag from and against all liability in excess of the aforementioned limit.

THI

SOUTHWESTERN LA ORATORIES

SWL

SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

2200 Gravel Dr. • P.O. Box 1379 • Fort Worth, Texas 76101-1379 • 817/284-7755

May 09, 1990

Texas Water Commission
P.O. Box 13087 Capitol Station
Austin, Texas 78711-3087

Attn: Tom Haberle
Water Quality Division

Re: Steve Vandermeer Dairy
Erath County, Texas

Gentlemen:

Southwestern Laboratories has completed sampling and testing of the soils exposed in the wastewater retention pond number 2 at the Steve Vandermeer Dairy Farm in Erath County. The test results including sample thickness, Atterberg limits, and percent passing the number 200 sieve are tabulated on the attached report. Our findings indicate the soils meet the criteria established by the Texas Water Commission.

Very truly yours,

SOUTHWESTERN LABORATORIES

Kemp E. Akeman

Kemp E. Akeman, P.E.
Materials Engineer

STATE OF TEXAS
Kemp E. Akeman
64975
REGISTERED
PROFESSIONAL ENGINEER

for Roland S. Jary, P.E.
Vice President

tj

Submitted by: Steve Vandermeer Dairy

Signed by:

Date: 4-11-91

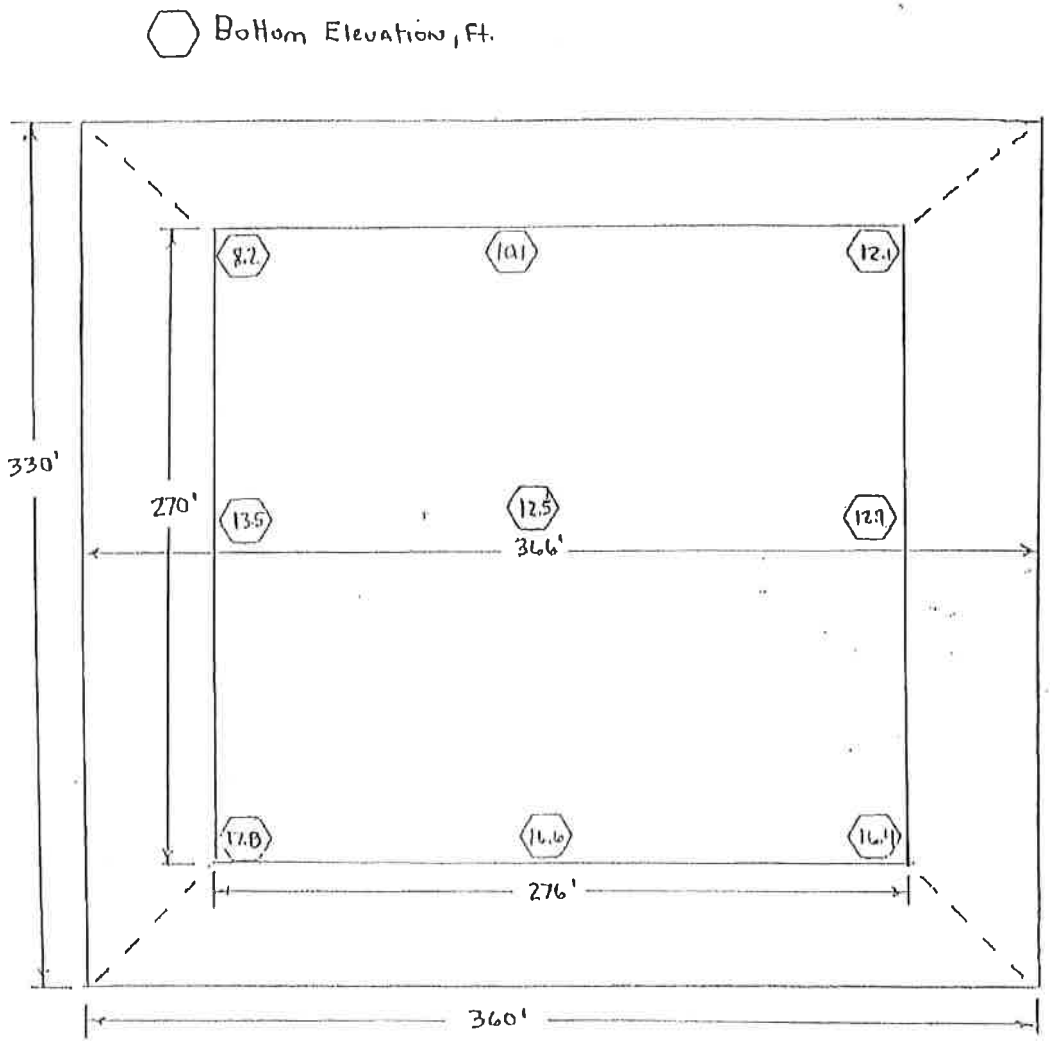
HOUSTON • DALLAS • AUSTIN • BEAUMONT • CORPUS CHRISTI • GALVESTON COUNTY • RIO GRANDE VALLEY • ALEXANDRIA

Pond Number 2 - Sampled March 20, 1990

Test Location	No. 1	No. 2	Minimum Requirement
Soil Description			
Color	Dark Brown	Gray	
Texture	Clay	Clay	
Unified Classification	CH	CH	
Sample Depth, Inches	12"+	12"+	12
Atterberg Limits			
Liquid Limit, (%)	51	52	30
Plastic Limit, (%)	23	24	
Plasticity Index	28	28	15
Passing No. 200 Sieve, (%)	56.9	78.9	30

SwL Report No. 001606

SOUTHWESTERN LABORATORIES



Steve Vandemear Dairy

Drawing Not To Scale

TH
Setting Basin

SwL

SOUTHWESTERN LABORATORIES

Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services

2200 Gravel Dr. • P.O. Box 1379 • Fort Worth, Texas 76101-1379 • 817/284-7755

February 2, 1990

Texas Water Commission
P.O. Box 13087 Capitol Station
Austin, Texas 78711-3087

Attn: Tom Haberle
Water Quality Division

Re: Steve Vandermeer Dairy
Erath County, Texas

Gentlemen:

Southwestern Laboratories has completed sampling and testing of the soils exposed in the wastewater retention pond at the Steve Vandermeer Dairy Farm in Erath County. The test results including sample thickness, Atterberg limits, and percent passing the number 200 sieve are tabulated on the attached report. Our findings indicate the soils meet the criteria established by the Texas Water Commission.

Very truly yours,

SOUTHWESTERN LABORATORIES

Kemp E. Akeman

Kemp E. Akeman, P.E.
Materials Engineer

Roland S. Jary

Roland S. Jary, P.E.
Vice President

tj

STATE OF TEXAS
ROLAND S. JARY
35405
REGISTERED
PROFESSIONAL ENGINEER

Submitted by: Steve Vandermeer Dairy

Signed by: Sdall

Date: 4-11-91

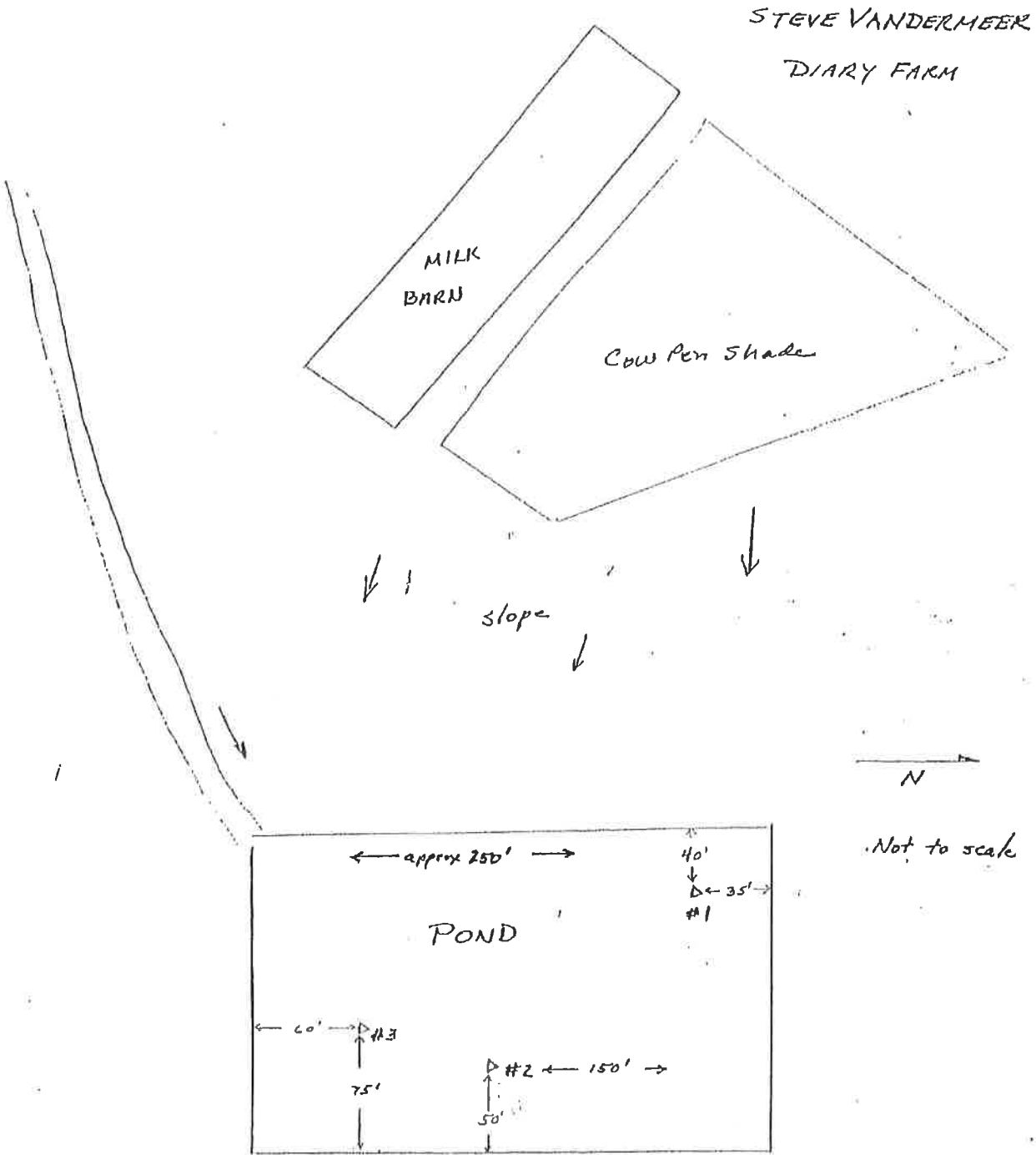
Pond Number 1 - Sampled January 26, 1990

Test Location	No. 1	No. 2	No. 3	Minimum Requirement
Soil Description				
Color	Gray & Yellow	Yellow	Red & Gray	
Texture	Clay	Clay	Clay	
Unified Classification	CH	CH	CL	
Sample Depth, Inches	12+	12+	12+	12
Atterberg Limits				
Liquid Limit, (%)	56	54	49	30
Plastic Limit, (%)	18	15	15	
Plasticity Index	38	39	34	15
Passing No. 200 Sieve, (%)	95.5	90.7	64.5	30

Report No. 000676

SOUTHWESTERN LABORATORIES

SOUTHWESTERN LABORATORIES



SwL Report No. 000676
Vandermeer Dairy
Amendment Application
TNRCC No. 03190

4.0 WASTE UTILIZATION & NUTRIENT MANAGEMENT PLAN

4.1 Nutrient Utilization

Agronomic application of dairy 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. Dancing Crane Dairy 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

Waste Utilization and Nutrient Management Plan

TMC Dairies Hico
7469 CR 209
Hico, TX 76457

TCEQ Permit Number:
WQ0003190000

Owner
3T Martins Farm Hico, LLC
PO Box 599
Hico, TX 76457

Operator
TMC Dairies LLC
3105 Mesquite Rd
Dalhart, TX 79022-7635

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
9855 FM 847
Dublin, TX 76446
(254) 233-9948

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

8/12/24 3:41 PM

Executive Summary
Dancing Crane Dairy
WQ0003190000
Phase I NUP

LMU Summary:

All fields are established in coastal and small grains for perennial coverage.

Nutrient Summary:

The following is a summary of maximum allowed application rates.

LMU #	Max N Lb/ac Application Rates	Max P205 Lb/ac Application Rates	Planned N Lb/ac Application Rates	Planned P205 Lb/ac Application Rates
LMU 1	155	90	96	56
LMU 1A	298	90	149	45
LMU 2	155	90	77	45
LMU 3	298	90	149	45
LMU 4	400	234	400	234
LMU 4A	400	121	400	121
LMU 5	400	234	400	234
LMU 5A	298	90	149	45
LMU 6	298	90	149	45
LMU 7	155	90	77	45
LMU 7A	298	90	149	45
LMU 8	155	90	77	45
LMU 8A	298	90	149	45
LMU 9	155	90	77	45
LMU 9A	298	90	149	45
LMU 10	155	90	77	45
LMU 10A	400	121	400	121
LMU 11	400	234	400	234
LMU 12	155	90	77	45
LMU 12A	300	91	150	46
LMU 13	300	91	150	46
LMU 14	300	91	150	46

EAE recommends applying at the planned application rates shown above and in the tables of the NMP. Application at the maximum rates will result in a more rapid buildup of phosphorus than if applied at the lower rates.

This plan utilizes the Phase I Engineering Calcs. for 10,000 head and average live weight between the proposed headcounts of Jersey/Holstein cattle.

The most recent soil and waste analysis were used in this plan. 2022 soil sampling was conducted in March of 2023 by the TCEQ. The LMUs are reconfigured in this application and all LMU names have changed. A LMU & Soil Cross-Reference sheet is attached to this Executive Summary with the old/new LMU name as well as the soil analysis utilized for each LMU in this plan.

Although this plan illustrates that certain LMUs are designated for wastewater application, and others for manure application, it is not the intent of this document to limit application of wastewater and manure to specified LMUs. Any waste source may be applied to any permitted LMU as long as the maximum rates shown above are not exceeded during the plan year.

Any remaining manure is to 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.

Supplemental nutrients will be necessary to achieve the desired yields. Commercial N application shall be split such that individual application events do not exceed 100 lbs/ac N.

Executive Summary Attachment

TMC Dairies Hico - LMU & Soil Cross-Reference

Existing LMU Name	Proposed LMU Name	Soil Sample Utilized in NMPs
TD1-144 Acres	LMU 1- 144 Ac.	TD1
TD2-56 Acres	Split into – LMU 7 (Pivot)-16 Ac. LMU 7A (Outside Pivot)- 33 Ac.	TD2 for both 7 & 7A
TD3-40	LMU 13 – 44 Ac.	TD3
TD4-86	Split into – LMU 12 (Pivot)-24 Ac. LMU 12A (Outside Pivot)-63 Ac.	TD4 for both 12 & 12A
TD6-131	Split into – LMU 2 (pivot)-39 Ac. LMU 1A (outside pivot)-93 Ac.	TD6 for both 2 & 1A
TD7-14	No longer a LMU.	----------
TH1-39	LMU 5-39 Ac.	TH1
TH2-45	LMU 5A-35 Ac.	TH2
TH3-45	LMU 6-51 Ac.	TH3
TH4E-22 TH4W-14	Combined into: LMU 3 – 39 Ac.	*TH4W (utilized as a worst case due to higher P level)
TH5-80 TH6-81	Combined – LMU 4 (Pivot)-97 Ac. LMU 4A (Outside Pivot)-76 Ac.	*TH6 (utilized as a worst case due to higher P level)
TH7-13	LMU 14 – 12 Ac.	TH7
TH8-58	No longer a LMU.	----------
TS1-28	LMU 10 – 29 Ac.	TS1
TS2-92	Split into LMU 11 (Pivot)-42 Ac. LMU 10A (Outside Pivots)-46 Ac.	TS2 for both 11 & 10A
TS4-62	Split into LMU 9 (Pivot)-34 Ac. LMU 9A (Outside Pivot)-28 Ac.	TS4 for both 9 & 9A
TS5-44	Split into LMU 8 (Pivot)-26 Ac. LMU 8A (Outside Pivot)-18 Ac.	TS5 for both 8 & 8A

* Where permitted fields were combined into new LMUs, the soil analysis with the highest P level was used in the NMP for the new fields. The soil analysis for the old fields with lower P levels were not utilized (TH4E & TH5.)

Alternative Crop List
Dancing Crane Dairy
WQ0003190000

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

Alternative Crop List
Dancing Crane Dairy
WQ0003190000

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 #: WQ0003190000

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

See Attached Executive Summary

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 **10000** head will be confined with the average weight of **1180** pounds. The animals will be confined **24** hours per day for **365** days per year.

Plan is based on: 590 Organic Nutrient Manageme

PI Index by Field

Printed on: 8/12/24 3:48 PM
This plan is based on: Nutrient Management Plan V 5.0
Permit #: WQ0003190000
Client Name: TMC Dairies Hico
Date: 8/12/2024
Planner: Richard George
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	Coastal graze 1 AU/1 ac, SG mod graze	4.2%	80	8	0	6	0	0.5	0	4	0	18.5	Medium	3/27/23
1A	Coastal graze 1 AU/1 ac, SG mod graze	4.7%	80	8	0	6	0	4	0	4	0	22	Medium	3/7/23
2	Coastal graze 1 AU/1 ac, SG mod graze	4.7%	61	8	0	6	0	0.5	0	2	0	16.5	Medium	3/7/23
3	Coastal graze 1 AU/1 ac, SG mod graze	3.3%	61	8	0	6	0	4	1.25	1	0	20.25	Medium	3/7/23
4	Coastal graze 1 AU/1 ac, SG mod graze	3.1%	74	8	0	6	0	0.5	5	2	0	21.5	Medium	3/7/23
4A	Coastal graze 1 AU/1 ac, SG mod graze	3.1%	39	8	0	6	0	4	5	0	0	23	High	3/7/23
5	Coastal graze 1 AU/1 ac, SG mod graze	1.5%	74	8	0	6	0	0.5	0	1	0	15.5	Medium	3/7/23
5A	Coastal graze 1 AU/1 ac, SG mod graze	1.5%	61	8	0	6	0	4	0	1	0	19	Medium	3/7/23
6	Coastal graze 1 AU/1 ac, SG mod graze	2.9%	80	8	0	6	0	4	0	2	0	20	Medium	3/7/23
7	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	0.5	0	2	0	16.5	Medium	3/27/23
7A	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	4	0	2	0	20	Medium	3/27/23
8	Coastal graze 1 AU/1 ac, SG mod graze	3.4%	74	8	0	6	0	0.5	0	2	0	16.5	Medium	3/8/23
8A	Coastal graze 1 AU/1 ac, SG mod graze	3.4%	74	8	0	6	0	4	0	2	0	20	Medium	3/8/23
9	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	0.5	0	2	0	16.5	Medium	3/8/23
9A	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	4	1.25	2	0	21.25	Medium	3/8/23
10	Coastal graze 1 AU/1 ac, SG mod graze	2.5%	80	8	0	6	0	0.5	5	2	0	21.5	Medium	3/8/23
10A	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	61	8	0	6	0	4	5	1	0	24	High	3/8/23
11	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	0.5	5	2	0	21.5	Medium	3/8/23
12	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	0.5	1.25	2	0	17.75	Medium	3/8/23
12A	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	4	1.25	2	0	21.25	Medium	3/8/23
13	Coastal graze 1 AU/1 ac, SG mod graze	4.4%	61	8	0	6	0	4	0	2	0	20	Medium	3/8/23
14	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	4	0	2	0	20	Medium	3/7/23

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.

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 #: WQ0003190000

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 #: WQ0003190000

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

OPERATION AND MAINTENANCE: Permit #: WQ0003190000

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:	**8/12/2024**
Plan Approved by:		Date:	8-12-24
Producer Signature:	Discussed w/ Producer	Date:	8-12-24

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 #: WQ0003190000

Avg. Number of Animals	Type of Waste
10,000	Dairy Lagoon
	Other 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* 3,675

Estimated Tons Solids to be Land Applied Annually (on or off site)* 515,384.6

*From engineering design.

Estimated Nutrient Availabilty Effluent

	pounds/yr	Pounds / 1000 gal	Pounds / Acre Inch	
N	97,947	0.98	26.7	**
P2O5	57,219	0.57	15.6	
K2O	239,870	2.40	65.3	

** Effluent Values Based on Analysis dated: June 4, 2024

Estimated Nutrient Availabilty Solids

	pounds / yr	pounds / ton	
N	1,245,235	2.4	**
P2O5	378,052	0.7	
K2O	2,412,000	4.7	

** Solids Values Based on Analysis dated: June 4, 2024

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

Waste Utilization and Nutrient Management Plan

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

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

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

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

- **equal to or greater than 200 ppm in non-arid areas [2/] or**
- **equal to or greater than 350 ppm in arid areas [2/] with a named stream greater than one mile or**
- **equal to or greater than 200 ppm in arid areas [2/] with a named stream less than one mile.**

P – Index Rating	Maximum TMDL Annual P Application Rate [5/]	Maximum Annual P Application	Maximum Biennial Application Rate
Very Low, Low	1.0 Times Annual Crop P Removal [4/]	Annual N Crop Removal	2.0 Times Annual N Removal
Medium	1.0 Times Annual Crop P Removal [4/]	1.5 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal
High [5]	1.0 Times Annual Crop P Removal [4/]	1.0 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal
Very High [5]	0.5 Times Annual Crop P Removal [4/]	0.5 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal

Footnotes Applicable to both Tables

1/ Soil test P will be Mehlich III by inductively coupled plasma (ICP).

2/ Non-arid areas, counties receiving => 25 inches annual rainfall, will use the 200 ppm P level while arid areas, counties receiving < 25 inches of annual rainfall, will use the 350 ppm P level. See map in TX Agronomy Technical Note 15, Phosphorus Assessment Tool for Texas, for county designations.

3/ Not to exceed the annual nitrogen requirement rate.

4/ Not to exceed the annual nitrogen removal rate.

5/ When soil test phosphorus levels are ≥ 500 ppm, with a P-Index rating of "High" or "Very High", there will be no additional application of phosphorus to a CMU or field.

Waste Utilization and Nutrient Management Plan

Table 3 - Crop Removal Rates (For Information Only) Permit #: WQ0003190000

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
LMU 1	144.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 1A	93.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 2	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 3	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 4	97.0	Coastal graze 1 AU/1 ac, SG mod graze M	NMP	Default	300	90	267
LMU 4A	76.0	Coastal graze 1 AU/1 ac, SG mod graze H	NMP	Default	300	90	267
LMU 5	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	NMP	Default	300	90	267
LMU 5A	35.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 6	51.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 7	16.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 7A	33.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 8	26.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 8A	18.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 9	34.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 9A	28.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 10	29.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 10A	46.0	Coastal graze 1 AU/1 ac, SG mod graze H	NMP	Default	300	90	267
LMU 11	42.0	Coastal graze 1 AU/1 ac, SG mod graze M	NMP	Default	300	90	267
LMU 12	24.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 12A	63.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 13	44.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 14	12.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267

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 #: WQ0003190000

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)
515,385	LMU 1							
	LMU 1A	93.0	Coastal graze 1 AU/1 ac, SG mod graze M	206	90	A	123.3	11468
	LMU 2							
	LMU 3	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	219	90	A	123.3	4809
	LMU 4							
	LMU 4A	76.0	Coastal graze 1 AU/1 ac, SG mod graze H	162	121	A	165.6	12582
	LMU 5							
	LMU 5A	35.0	Coastal graze 1 AU/1 ac, SG mod graze M	268	90	A	123.3	4316
	LMU 6	51.0	Coastal graze 1 AU/1 ac, SG mod graze M	362	90	A	123.3	6289
	LMU 7							
	LMU 7A	33.0	Coastal graze 1 AU/1 ac, SG mod graze M	346	90	A	123.3	4069
	LMU 8							
	LMU 8A	18.0	Coastal graze 1 AU/1 ac, SG mod graze M	461	90	A	123.3	2220
	LMU 9							
	LMU 9A	28.0	Coastal graze 1 AU/1 ac, SG mod graze M	356	90	A	123.3	3453
	LMU 10							
	LMU 10A	46.0	Coastal graze 1 AU/1 ac, SG mod graze H	144	121	A	165.6	7615
	LMU 11							
	LMU 12							
	LMU 12A	63.0	Coastal graze 1 AU/1 ac, SG mod graze M	277	91	A	124.2	7828
	LMU 13	44.0	Coastal graze 1 AU/1 ac, SG mod graze M	217	91	A	124.2	5467
	LMU 14	12.0	Coastal graze 1 AU/1 ac, SG mod graze M	201	91	A	124.2	1491
Total Solids Application Acres								
538								
Application Allowable on-site (tons)								
71607.5								
Not Adequate								
Solids to be used off-site (tons)								
443,777.1								

End of Table 4

Waste Utilization and Nutrient Management Plan

Table 5 - Nutrients Applied/Needs at Maximum Solids Rates Permit #: WQ0003190000

	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
LMU 1							
LMU 1A	298	90	577	0	0	0	0
LMU 2							
LMU 3	298	90	577	25	0	0	0
LMU 4							
LMU 4A	400	121	775	0	0	0	0
LMU 5							
LMU 5A	298	90	577	0	0	0	0
LMU 6	298	90	577	0	0	0	0
LMU 7							
LMU 7A	298	90	577	0	0	0	0
LMU 8							
LMU 8A	298	90	577	30	0	0	0
LMU 9							
LMU 9A	298	90	577	55	0	0	0
LMU 10							
LMU 10A	400	121	775	0	0	0	0
LMU 11							
LMU 12							
LMU 12A	300	91	581	15	0	0	0
LMU 13	300	91	581	80	0	0	0
LMU 14	300	91	581	30	0	0	0

Waste Utilization and Nutrient Management Plan

Table 6 - Planned Solids Application Rates

Permit #: WQ0003190000

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)
LMU 1									
LMU 1A		93.0	Coastal graze 1 AU/1 ac, SG mod graze M	206	A	123.3	50	61.7	5734.1
LMU 2									
LMU 3		39.0	Coastal graze 1 AU/1 ac, SG mod graze M	219	A	123.3	50	61.7	2404.6
LMU 4									
LMU 4A		76.0	Coastal graze 1 AU/1 ac, SG mod graze H	162	A	165.6	100	165.6	12582.1
LMU 5									
LMU 5A		35.0	Coastal graze 1 AU/1 ac, SG mod graze M	268	A	123.3	50	61.7	2158.0
LMU 6		51.0	Coastal graze 1 AU/1 ac, SG mod graze M	362	A	123.3	50	61.7	3144.5
LMU 7									
LMU 7A		33.0	Coastal graze 1 AU/1 ac, SG mod graze M	346	A	123.3	50	61.7	2034.7
LMU 8									
LMU 8A		18.0	Coastal graze 1 AU/1 ac, SG mod graze M	461	A	123.3	50	61.7	1109.8
LMU 9									
LMU 9A		28.0	Coastal graze 1 AU/1 ac, SG mod graze M	356	A	123.3	50	61.7	1726.4
LMU 10									
LMU 10A		46.0	Coastal graze 1 AU/1 ac, SG mod graze H	144	A	165.6	100	165.6	7615.5
LMU 11									
LMU 12									
LMU 12A		63.0	Coastal graze 1 AU/1 ac, SG mod graze M	277	A	124.2	50	62.1	3913.8
LMU 13		44.0	Coastal graze 1 AU/1 ac, SG mod graze M	217	A	124.2	50	62.1	2733.5
LMU 14		12.0	Coastal graze 1 AU/1 ac, SG mod graze M	201	A	124.2	50	62.1	745.5
Acres		538.0							45902.5
515385			Tons of wet solids produced Annually				Will the planned per acre application rates use all of the Solids?		NO
0			Tons to be used off-site at Max. rates				Tons to be used off-site at planned rates		469482

Waste Utilization and Nutrient Management Plan

Table 7 - Nutrients Applied/Needed at Planned Solids Rates Permit #: WQ0003190000

Red cells? Proceed to adjustment page and fix.

	Nutrients Applied at Planned Rates			Supplemental Nutrients Needed at Planned Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
LMU 1							
LMU 1A	149	45	289	115	0	0	0
LMU 2							
LMU 3	149	45	289	175	0	0	0
LMU 4							
LMU 4A	400	121	775	0	0	0	0
LMU 5							
LMU 5A	149	45	289	140	0	0	0
LMU 6	149	45	289	105	0	0	0
LMU 7							
LMU 7A	149	45	289	90	0	0	0
LMU 8							
LMU 8A	149	45	289	180	0	0	0
LMU 9							
LMU 9A	149	45	289	205	0	0	0
LMU 10							
LMU 10A	400	121	775	0	0	0	0
LMU 11							
LMU 12							
LMU 12A	150	46	291	165	0	0	0
LMU 13	150	46	291	230	0	0	0
LMU 14	150	46	291	180	0	0	0

Waste Utilization and Nutrient Management Plan

Table 8 - Maximum Effluent Application Per Field

Permit #: WQ0003190000

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)
3675	LMU 1	144.0		Coastal graze 1 AU/1 ac, SG mod graze M	368	90	A	5.8	837
Source:	LMU 1A								
	LMU 2	39.0		Coastal graze 1 AU/1 ac, SG mod graze M	206	90	A	5.8	226
	LMU 3								
Dairy Lagoon	LMU 4	97.0		Coastal graze 1 AU/1 ac, SG mod graze M	162	234	A	15.0	1455
	LMU 4A								
	LMU 5	39.0		Coastal graze 1 AU/1 ac, SG mod graze M	174	234	A	15.0	585
	LMU 5A								
	LMU 6								
	LMU 7	16.0		Coastal graze 1 AU/1 ac, SG mod graze M	346	90	A	5.8	93
	LMU 7A								
	LMU 8	26.0		Coastal graze 1 AU/1 ac, SG mod graze M	461	90	A	5.8	151
	LMU 8A								
	LMU 9	34.0		Coastal graze 1 AU/1 ac, SG mod graze M	356	90	A	5.8	197
	LMU 9A								
	LMU 10	29.0		Coastal graze 1 AU/1 ac, SG mod graze M	290	90	A	5.8	168
	LMU 10A								
	LMU 11	42.0		Coastal graze 1 AU/1 ac, SG mod graze M	144	234	A	15.0	630
	LMU 12	24.0		Coastal graze 1 AU/1 ac, SG mod graze M	277	90	A	5.8	139
	LMU 12A								
	LMU 13								
	LMU 14								
Total Effluent Application Acres									
490									
Maximum Effluent Application Allowable On-Site (ac in)									
4481									
Adequate									
Effluent to be used Off-Site (ac in)									
0									

End of Table 8

Waste Utilization and Nutrient Management Plan

Table 9 - Nutrients Applied/Needed at Maximum Effluent Rates Permit #: WQ0003190000

	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
LMU 1	155	90	379	75	0	0	0
LMU 1A							
LMU 2	155	90	379	110	0	0	0
LMU 3							
LMU 4	400	234	979	0	0	0	0
LMU 4A							
LMU 5	400	234	979	0	0	0	0
LMU 5A							
LMU 6							
LMU 7	155	90	379	85	0	0	0
LMU 7A							
LMU 8	155	90	379	175	0	0	0
LMU 8A							
LMU 9	155	90	379	200	0	0	0
LMU 9A							
LMU 10	155	90	379	205	0	0	0
LMU 10A							
LMU 11	400	234	979	0	0	0	0
LMU 12	155	90	379	160	0	0	0
LMU 12A							
LMU 13							
LMU 14							

Waste Utilization and Nutrient Management Plan

Table 10 - Planned Effluent Application Rates Permit #: WQ0003190000

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)
LMU 1	144.0		Coastal graze 1 AU/1 ac, SG mod graze M	368	A	5.8	61.9	3.6	518
LMU 1A									
LMU 2	39.0		Coastal graze 1 AU/1 ac, SG mod graze M	206	A	5.8	50.0	2.9	113
LMU 3									
LMU 4	97.0		Coastal graze 1 AU/1 ac, SG mod graze M	162	A	15	100.0	15.0	1455
LMU 4A									
LMU 5	39.0		Coastal graze 1 AU/1 ac, SG mod graze M	174	A	15	100.0	15.0	585
LMU 5A									
LMU 6									
LMU 7	16.0		Coastal graze 1 AU/1 ac, SG mod graze M	346	A	5.8	50.0	2.9	46
LMU 7A									
LMU 8	26.0		Coastal graze 1 AU/1 ac, SG mod graze M	461	A	5.8	50.0	2.9	75
LMU 8A									
LMU 9	34.0		Coastal graze 1 AU/1 ac, SG mod graze M	356	A	5.8	50.0	2.9	99
LMU 9A									
LMU 10	29.0		Coastal graze 1 AU/1 ac, SG mod graze M	290	A	5.8	50.0	2.9	84
LMU 10A									
LMU 11	42.0		Coastal graze 1 AU/1 ac, SG mod graze M	144	A	15	100.0	15.0	630
LMU 12	24.0		Coastal graze 1 AU/1 ac, SG mod graze M	277	A	5.8	50.0	2.9	70
LMU 12A									
LMU 13									
LMU 14									
Acres	490.0								

Will the planned application rates use all of the Effluent?	3676
	YES

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 #: WQ0003190000

Red cells? Proceed to adjustment page and fix.

	Nutrients Applied at Planned Rates			Supplemental Nutrients Needed at Planned Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
LMU 1	96	56	235	135	0	0	0
LMU 1A							
LMU 2	77	45	190	185	0	0	0
LMU 3							
LMU 4	400	234	980	0	0	0	0
LMU 4A							
LMU 5	400	234	980	0	0	0	0
LMU 5A							
LMU 6							
LMU 7	77	45	190	165	0	0	0
LMU 7A							
LMU 8	77	45	190	255	0	0	0
LMU 8A							
LMU 9	77	45	190	275	0	0	0
LMU 9A							
LMU 10	77	45	190	285	0	0	0
LMU 10A							
LMU 11	400	234	980	0	0	0	0
LMU 12	77	45	190	240	0	0	0
LMU 12A							
LMU 13							
LMU 14							

Waste Utilization and Nutrient Management Plan

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 #: WQ0003190000

LMU / Field #	AWC (inches)	Restrictive Texture
LMU 1	0.75	Gravelly clay loam
LMU 1A		
LMU 2	2.82	Find Sandy Loam
LMU 3		
LMU 4	2.73	Fine Sand
LMU 4A		
LMU 5	4.05	Clay Loam
LMU 5A		
LMU 6		
LMU 7	1.87	Stony Clay
LMU 7A		
LMU 8	4.05	Clay Loam
LMU 8A		
LMU 9	3.48	Fine Sandy Loam
LMU 9A		
LMU 10	3.48	Fine Sandy Loam
LMU 10A		
LMU 11	3.48	Fine Sandy Loam
LMU 12	1.87	Stony Clay
LMU 12A		
LMU 13		
LMU 14		

LMU / Field #	AWC (inches)	Restrictive Texture

Waste Utilization and Nutrient Management Plan

Table 13 - Non Application Areas by Field

Permit #: WQ0003190000

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
LMU 1	0.0	0.0			
LMU 1A	0.0	0.0			
LMU 2	0.0	0.0			
LMU 3	0.0	0.0			
LMU 4	0.0	0.0			
LMU 4A	0.0	0.0			
LMU 5	0.0	0.0			
LMU 5A	0.0	0.0			
LMU 6	0.0	0.0			
LMU 7	0.0	0.0			
LMU 7A	0.0	0.0			
LMU 8	0.0	0.0			
LMU 8A	0.0	0.0			
LMU 9	0.0	0.0			
LMU 9A	0.0	0.0			
LMU 10	0.0	0.0			
LMU 10A	0.0	0.0			
LMU 11	0.0	0.0			
LMU 12	0.0	0.0			
LMU 12A	0.0	0.0			
LMU 13	0.0	0.0			
LMU 14	0.0	0.0			

LMU / Field #	FS Acres	FB Acres	RFB Acres	OLEA Acres	Total Excluded

See Application Map for location of buffers

Total 590-633 application acres: 1028.0

Totals	0.0	0.0	0.0	0.0	0.0

Total 590-633 Field Acres: 1028.0

Waste Utilization and Nutrient Management Data Entries

General Data

Date :	8/12/2024
Farmer Name :	TMC Dairies Hico
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 # :	WQ0003190000

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 :	10000
Approximate Weight :	1180
Days per year in confinement :	365
Hours per day confined :	24
ACRE FEET of effluent to be irrigated* :	306.25
Estimated annual gallons of effluent to be irrigated/applied annually :	99790950
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)* :	26800
Is this the first Year of the AFO-CAFO Operation? :	No

Analysis Information

Effluent Information

Date of Analysis:	6/4/2024
Manure Source:	Dairy Lagoon
Nitrogen % From Analysis:	0.0147
Phosphorus % From Analysis:	0.003
Potassium % From Analysis:	0.024
Moisture % From Analysis:	99.8

Manure / Solids Information

Date of Analysis:	6/4/2024	
Manure Source:	Other Solids	Explain Other: Slurry
Nitrogen % From Analysis:	2.904	
Phosphorus % From Analysis:	0.308	
Potassium % From Analysis:	3.75	
Moisture % From Analysis:	94.8	
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: 8/12/24 2:48 PM

Field and Buffer Entries

Permit #: WQ0003190000

Printed on: 8/12/24 2:48 PM

Plan is based on: 590 Organic Nutrient Management Plan

FS = 393-Filter Strip, FB = 386-Field Border, RFB = 391-Riparian Forest Buffer, OLEA = Other Land Exclusion Areas or non-application areas (i.e. headquarters, freq. flooded areas, wooded areas, water bodies, etc)

NOTE: Field Border (FB) is expressed in ACRES on this spreadsheet, but as LINEAR FEET on the CPO.

Field No.	Total LMU or Field Acres	FS	FB	RFB	OLEA	Total Buffer Acres	Actual Application Acres	This Column Intentionally Left Blank
LMU 1	144					0.0	144.0	
LMU 1A	93					0.0	93.0	
LMU 2	39					0.0	39.0	
LMU 3	39					0.0	39.0	
LMU 4	97					0.0	97.0	
LMU 4A	76					0.0	76.0	
LMU 5	39					0.0	39.0	
LMU 5A	35					0.0	35.0	
LMU 6	51					0.0	51.0	
LMU 7	16					0.0	16.0	
LMU 7A	33					0.0	33.0	
LMU 8	26					0.0	26.0	
LMU 8A	18					0.0	18.0	
LMU 9	34					0.0	34.0	
LMU 9A	28					0.0	28.0	
LMU 10	29					0.0	29.0	
LMU 10A	46					0.0	46.0	
LMU 11	42					0.0	42.0	
LMU 12	24					0.0	24.0	
LMU 12A	63					0.0	63.0	
LMU 13	44					0.0	44.0	
LMU 14	12					0.0	12.0	

Soil Test, Crop Information and Plant Analysis Data Entries

Printed on: 8/12/24 2:48 PM Plan is based on: 590 Organic Nutrient Management Plan V 5.0 Permit #: WQ0003190000

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)
84	368	1636			LMU 1	144.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
68	206	425			LMU 1A	93.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
68	206	425			LMU 2	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
38	219	305			LMU 3	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
41	162	286			LMU 4	97.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
41	162	286			LMU 4A	76.0	Coastal graze 1 AU/1 ac, SG mod graze H	S	N				
34	174	675			LMU 5	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
55	268	394			LMU 5A	35.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
72	362	681			LMU 6	51.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
80	346	471			LMU 7	16.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
80	346	471			LMU 7A	33.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
35	461	763			LMU 8	26.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
35	461	763			LMU 8A	18.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
23	356	336			LMU 9	34.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
23	356	336			LMU 9A	28.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
19	290	677			LMU 10	29.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
37	144	495			LMU 10A	46.0	Coastal graze 1 AU/1 ac, SG mod graze H	S	N				
37	144	495			LMU 11	42.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
42	277	402			LMU 12	24.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
42	277	402			LMU 12A	63.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
11	217	389			LMU 13	44.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
34	201	515			LMU 14	12.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				

Solids Application Rate Entries

Solids - Set the Planned Application Rates

Permit #: WQ

515385 "Wet tons" of solids produced Annually

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
LMU 1							
LMU 1A	93.0	Coastal graze 1 AU/1 ac, SG mod graze M	206	175	Annual	123.3	50.0
LMU 2							
LMU 3	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	219	175	Annual	123.3	50.0
LMU 4							
LMU 4A	76.0	Coastal graze 1 AU/1 ac, SG mod graze H	162	175	Annual	165.6	100.0
LMU 5							
LMU 5A	35.0	Coastal graze 1 AU/1 ac, SG mod graze M	268	175	Annual	123.3	50.0
LMU 6	51.0	Coastal graze 1 AU/1 ac, SG mod graze M	362	175	Annual	123.3	50.0
LMU 7							
LMU 7A	33.0	Coastal graze 1 AU/1 ac, SG mod graze M	346	175	Annual	123.3	50.0
LMU 8							
LMU 8A	18.0	Coastal graze 1 AU/1 ac, SG mod graze M	461	175	Annual	123.3	50.0
LMU 9							
LMU 9A	28.0	Coastal graze 1 AU/1 ac, SG mod graze M	356	175	Annual	123.3	50.0
LMU 10							
LMU 10	46.0	Coastal graze 1 AU/1 ac, SG mod graze H	144	175	Annual	165.6	100.0
LMU 11							
LMU 12							
LMU 12	63.0	Coastal graze 1 AU/1 ac, SG mod graze M	277	175	Annual	124.2	50.0
LMU 13	44.0	Coastal graze 1 AU/1 ac, SG mod graze M	217	175	Annual	124.2	50.0
LMU 14	12.0	Coastal graze 1 AU/1 ac, SG mod graze M	201	175	Annual	124.2	50.0

Effluent Application Rate Entries

Effluent - Set the Planned Application Rates

Permit #: WQ0003190000

99790950	Gallons of Effluent to be used annually				Will the planned rates use all of the effluent?				Yes
3675	Acre inches of Effluent to be used annually								
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)
LMU 1	144.0	Coastal graze 1 AU/1 ac, SG mod graze M	368	175	Annual	5.8	61.9	3.6	518
LMU 1A									
LMU 2	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	206	175	Annual	5.8	50.0	2.9	113
LMU 3									
LMU 4	97.0	Coastal graze 1 AU/1 ac, SG mod graze M	162	175	Annual	15.0	100.0	15	1455
LMU 4A									
LMU 5	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	174	175	Annual	15.0	100.0	15	585
LMU 5A									
LMU 6									
LMU 7	16.0	Coastal graze 1 AU/1 ac, SG mod graze M	346	175	Annual	5.8	50.0	2.9	46
LMU 7A									
LMU 8	26.0	Coastal graze 1 AU/1 ac, SG mod graze M	461	175	Annual	5.8	50.0	2.9	75
LMU 8A									
LMU 9	34.0	Coastal graze 1 AU/1 ac, SG mod graze M	356	175	Annual	5.8	50.0	2.9	99
LMU 9A									
LMU 10	29.0	Coastal graze 1 AU/1 ac, SG mod graze M	290	175	Annual	5.8	50.0	2.9	84
LMU 10A									
LMU 11	42.0	Coastal graze 1 AU/1 ac, SG mod graze M	144	175	Annual	15.0	100.0	15	630
LMU 12	24.0	Coastal graze 1 AU/1 ac, SG mod graze M	277	175	Annual	5.8	50.0	2.9	70
LMU 12A									
LMU 13									
LMU 14									
								Total Effluent This Page	3676

Printed on: 8/12/24 2:48 PM

Plan is based on: 590 Organic Nutrient Management Plan

Available Water Capacity Entries

Printed on: 8/12/24 2:48 PM Plan is based on: 590 Organic Nutrient Management Pla Permit #: WQ0003190000

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																
LMU 1	Gravelly clay loam	0	5	0.14	0.16	5	20	0	0	20	24	0	0	24				0.75
LMU 2	Find Sandy Loam	0	12	0.1	0.15	12	51	0.05	0.17	51				0				2.82
LMU 4	Fine Sand	0	10	0.05	0.09	10	24	0.12	0.17	24				0				2.73
LMU 5	Clay Loam	0	14	0.15	0.2	14	40	0.12	0.2	40				0				4.05
LMU 7	Stony Clay	0	8	0.11	0.2	8	12	0.08	0.18	12	14	0.04	0.07	14	24	0	0	1.87
LMU 8	Clay Loam	0	14	0.15	0.2	14	40	0.12	0.2	40				0				4.05
LMU 9	Fine Sandy Loam	0	12	0.11	0.17	12	50	0.12	0.18	50				0				3.48
LMU 10	Fine Sandy Loam	0	12	0.11	0.17	12	50	0.12	0.18	50				0				3.48
LMU 11	Fine Sandy Loam	0	12	0.11	0.17	12	50	0.12	0.18	50				0				3.48
LMU 12	Stony Clay	0	8	0.11	0.2	8	12	0.08	0.18	12	14	0.04	0.07	14	24	0	0	1.87

servi tech
6921 S. Bell • Amarillo, TX 79109
www.servitech.com

Phone: 806.677.0093
800.557.7509
Fax: 806.677.0329

Lab No: **3501**

LABORATORY ANALYSIS REPORT

Report Date: 07/08/2024 01:08 pm

Send To: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118		Casey Johnson Technical Director
Client Name:	DANCING CRANE DAIRY	**Received:**	06/11/2024
Sample ID:	RCS TD1	**Sampled:**	06/04/2024
		Invoice No:	425753
		P.O. #:	RICHARD GEORGE

	Analysis results		lbs/acre-in	meq/L
NUTRIENTS				
Nitrogen				
Total Nitrogen	147	ppm	33	10.5
Organic Nitrogen	41	ppm	9	2.9
Ammonium Nitrogen	106.3	ppm	24	7.6
Nitrate+Nitrite Nitrogen	<0.20	ppm	0	0
Major and Secondary Nutrients				
Phosphorus	30	ppm		
Phosphorus as P2O5	70	ppm	16	
Potassium	240	ppm		6.1
Potassium as K2O	290	ppm	66	
OTHER PROPERTIES				
Moisture	99.8	%		
Total Solids	0.2	%	453	
Organic Matter	0.1	%	227	
Ash	<0.10	%		
C:N Ratio	3.9	ratio		

Amended Report - Any information on this report supersedes the previous report on 06/26/2024

The reported analytical results apply only to the sample as it was supplied.
The report may not be reproduced, except in full, without permission of ServiTech.

Your opinion is valuable to us. Please let us know what you think about our services! Send an email to feedback@servitech.com.

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: Dancing Crane Dairy

County: Erath

Date Sampled: 6/4/2024

Date Shipped: 6/10/2024

Project Manager: Richard George

Sample Type	Sample ID	Number of Containers		Test Package	Proper Preservation	Matrix
Wastewater	RCS #TD1	2	3501	EAE TX CO KS LAGOON	Y	OT
Wastewater	RCS #TS1	2	3502	EAE TX CO KS LAGOON	Y	OT
Wastewater	RCS #TS2	2	3503	EAE TX CO KS LAGOON	Y	OT
Wastewater	RCS #TH2	2	3504	EAE TX CO KS LAGOON	Y	OT

Relinquished By: Ref. Internal COC
Company: EAE

Relinquished By: Lisa Postmus
Company: EAE
Date/Time: 6/11

Relinquished By:
Company: ServiTech Lab
6.11.24

Received By:

servi tech
6921 S. Bell • Amarillo, TX 79109
www.servitech.com

Phone: 806.677.0093
800.557.7509
Fax: 806.677.0329

Lab No.: **3500**

LABORATORY ANALYSIS REPORT

Report Date: 06/26/2024 09:21 pm

Send To: 6224

ENVIRO-AG ENGINEERING INC
3404 AIRWAY BLVD
AMARILLO, TX 79118

Amy Meier
Data Review Coordinator

Results For: DANCING CRANE DAIRY
Sample ID: SLURRY

Received: 06/11/2024
Sampled: 06/04/2024
Invoice No: 425753
P.O. #: RICHARD GEORGE

		Analysis (dry basis)	Analysis (as rec'd)	Total content lbs per Acre-In	Total content lbs per 1000 gal	Estimated available first year* lbs per Acre-In	Estimated available first year* lbs per 1000 gal
NUTRIENTS							
Nitrogen							
Total Nitrogen	%	2.904	0.151	6583.0	13.6	194.5	7.7
Organic Nitrogen	%	2.231	0.116	5057.2	10.4	115.2	4.6
Ammonium Nitrogen	%	0.673	0.035	1525.9	3.1	79.3	3.1
Nitrate+Nitrite Nitrogen	%	<0.0010	<0.0010	0	<0.1	<0.1	<0.1
Major and Secondary Nutrients							
Phosphorus	%	0.308	0.016				
Phosphorus as P2O5	%	0.712	0.037	1613.1	3.3	75.5	3.0
Potassium	%	3.75	0.195				
Potassium as K2O	%	4.50	0.234	10202	21.1	530.5	21.1
OTHER PROPERTIES							
Moisture	%		94.8				
Total Solids	%		5.2	226700	468		
Organic Matter	%	53.8	2.8	122069	252		
Ash	%		2.4		216		
C:N Ratio	ratio		10.8				
Density	lbs/gal	155.8	8.1				

* Assumes 44% 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.

The reported analytical results apply only to the sample as it was supplied.
The report may not be reproduced, except in full, without permission of ServiTech.

Your opinion is valuable to us. Please let us know what you think about our services! Send an email to feedback@servitech.com.

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: Dancing Crane Dairy

County: Erath

Date Sampled: 6/4/2024

Date Shipped: 6/10/2024

Project Manager: Richard George

Sample Type	Sample ID	Number of Containers	Test Package	Proper Preservation	Matrix
Slurry	Slurry	1	EAE TX CO KS SLURRY	Y	SL

Relinquished By: Ref. Internal COC
Company: EAE

Relinquished By: Lisa Postmus
Company: EAE
Date/Time: 6/11
Received By:

Relinquished By:
Company: ServiTech Lab
6.7/6.7

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Erin E. Chancellor, *Interim Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 5, 2023

CERTIFIED MAIL 7022 2410 0000 5131 6677
RETURN RECEIPT REQUESTED

Klaas Talsma, and Anastasia Talsma, Owner
Dancing Crane Dairy
3502 County Road 209
Hico, Texas 76457
Re: Annual Soil Sample Analysis Results at Dancing Crane Dairy
CAFO Permit No.: WQ0003190000

Dear Mr. and Ms. Talsma:

Attached are the analytical results for the soil samples that were collected at your facility on March 7 and 8, 2023. A copy of the sampling map is attached. Please utilize these results to update your nutrient management plan.

In addition, if any of the results are greater than 200 parts per million for phosphorus, please develop a new nutrient utilization plan (NUP) or revise your existing NUP, in accordance with your permit. All new or revised NUPs that are required to be submitted for TCEQ review and approval shall be mailed to the following address:

Water Quality Assessment Section Manager
Water Quality Division, MC 150
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

If you collected a duplicate sample following RG-408 protocol during the TCEQ sampling event that indicates a significant difference in the TCEQ analysis results (greater than 20% difference), you may choose to dispute the TCEQ sample results within 20 calendar days from the date of this letter. You must provide copies of all supporting documentation, including but not limited to your sample results, chain of custody documentation and laboratory quality assurance documentation. Please submit this information in writing to the TCEQ at the following address:

ATTN: Annual CAFO Soil Sample Analysis Disputes
Water Section Manager
Dallas/Fort Worth Regional Office
Texas Commission on Environmental Quality
2309 Gravel Drive
Fort Worth, TX 76118-6951

An analysis dispute received after the time allocated above will not be eligible for re-analysis. If you have any questions, please feel free to contact Mr. Michael Martin in the Stephenville Office at 254-552-1900.

Sincerely,

Michael Martin, Team Leader, Water Section
DFW Region Office
Texas Commission on Environmental Quality

MM/dm

Enclosures: Laboratory Analysis Reports

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55637

Location: Dancing Crane
(Do not fill in this shaded area if the facility information must be confidential)

Permit #: 3190

Region:	Organization #:	PCA Code:	Program:	Sampler telephone number:
E-Mail ID:	Sampler: (signature) Vanessa Hardner			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
	-01									SEE RFA	LMU TD1 (0-2)
	-02										LMU TD1 (2-6)
	-03										LMU TD1 (6-24)
	-04										LMU TD2 (0-2)
	-05										LMU TD2 (2-6)
	-06										LMU TD2 (6-24)
12664	-07	3/8/23	0920								LMU TD3 (0-2)
12665	-08	3/8/23	0920								LMU TD3 (2-6)
12666	-09	3/8/23	0920								LMU TD3 (6-24)
12667	-10	3/8/23	0945								LMU TD4 (0-2)

Relinquished by: Vanessa Hardner	Date: 3/15/23	Time: 1000	Received by: 3-16-23
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Shipper name: Fed Ex	Shipper Number: 7715 6006 2786		

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: 055637a-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055637

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.
12664	55637-07	0-2	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12665	55637-08	2-6	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12666	55637-09	6-24	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12667	55637-10	0-2	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055637a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055637

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
12664	55637-07	217	ppm	389	ppm	3796	ppm	276	ppm	46.1	ppm	12.7	ppm
12665	55637-08	175	ppm	407	ppm	4633	ppm	255	ppm	43.4	ppm	23.8	ppm
12666	55637-09	30.0	ppm	303	ppm	8000	ppm	340	ppm	70.7	ppm	74.9	ppm
12667	55637-10	277	ppm	402	ppm	5139	ppm	323	ppm	51.4	ppm	15.2	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
12664	55637-07	5/3/2023	FMR	5/4/2023	JLP
12665	55637-08	5/3/2023	FMR	5/4/2023	JLP
12666	55637-09	5/3/2023	FMR	5/4/2023	JLP
12667	55637-10	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055637a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055637

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12664	55637-07	7.36	NA	0.103	dS/M	11.213	ppm
12665	55637-08	7.42	NA	0.093	dS/M	8.966	ppm
12666	55637-09	7.69	NA	0.112	dS/M	15.197	ppm
12667	55637-10	7.23	NA	0.285	dS/M	41.59	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
12664	55637-07	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12665	55637-08	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12666	55637-09	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12667	55637-10	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055637a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055637

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
12679	IC929	46.2	ppm	285	ppm	2015	ppm	324	ppm	38.7	ppm	42.1	ppm
12680	IC930	48.9	ppm	296	ppm	2085	ppm	339	ppm	40.2	ppm	44.0	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk200	<0.0151	ppm	<0.0783	ppm	<0.530	ppm	<0.0530	ppm	0.409	ppm	<0.0968	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
IC929	5/3/2023	FMR	5/4/2023	JLP
IC930	5/3/2023	FMR	5/4/2023	JLP
blk200	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055637a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055637

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12679	IC929	5.9	na	0.252	dS/M	5.989	ppm	
12680	IC930	5.9	na	0.251	dS/M	5.741	ppm	
	Mean IC	5.86	na	0.2515	dS/M	5.865	ppm	
12680spike	Spiked sample	-	-	-	-	4.8	ppm	70.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk200	-	na	0	dS/M	-0.27	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
IC929	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC930	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk200	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

REQUEST FOR ANALYSIS
TCEQ-BOSQUE 1255/1226 SOIL SAMPLES

COC Number: 55637	
Sample ID: 07 - 10	
Standard Request for Analysis	
NO3-N	Mg
P Mehlich III by ICP	Conductivity
K	pH
Na	
Additional Tests	
N/A	

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55638

Location: Dancing Crane
(Do not fill in this shaded area if the facility information must be confidential)

Permit #: 3190

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
12668	-01	3/8/23	0945							See RFA	LMU TD4 (2-6)
12669	-02	3/8/23	0945								LMU TD4 (6-24)
12670	-03	3/7/23	11:00								LMU TD 6 (0-2)
12671	-04	3/7/23	11:00								LMU TD6 (2-6)
12672	-05	3/7/23	11:00								LMU TD6 (6-24)
~~12673~~	~~-06~~ TD										LMU TD7 (0-6)
~~12674~~	~~-07~~										LMU TD7 (6-24)
12673	-08	3-7-23	11:15								LMU TH1 (0-2)
12674	-09	3-7-23	11:15								LMU TH1 (2-6)
12675	-10	3-7-23	11:15								LMU TH1 (6-24)

Relinquished by:	Date	Time	Received by:	For Laboratory Use:
Vanessa Gardner	3/10/23	1000	3-16-23	
Relinquished by:	Date	Time	Received by:	Received on ice: Y N deg. C
Relinquished by:	Date	Time	Received by:	Preservatives: Y N
Relinquished by:	Date	Time	Received by:	COC Seal: Y N
Shipper name: Fed Ex	Shipper Number: 7715 6006 2786			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: 055638a-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055638

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.
12668	55638-01	2-6	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12669	55638-02	6-24	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12670	55638-03	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12671	55638-04	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12672	55638-05	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12673	55638-08	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12674	55638-09	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12675	55638-10	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055638a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055638

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
12668	55638-01	197	ppm	461	ppm	5343	ppm	314	ppm	52.3	ppm	37.4	ppm
12669	55638-02	21.9	ppm	323	ppm	9590	ppm	257	ppm	82.5	ppm	59.7	ppm
12670	55638-03	206	ppm	425	ppm	7432	ppm	337	ppm	66.1	ppm	36.3	ppm
12671	55638-04	207	ppm	570	ppm	7875	ppm	384	ppm	69.7	ppm	54.9	ppm
12672	55638-05	33.4	ppm	250	ppm	9694	ppm	286	ppm	80.2	ppm	86.6	ppm
12673	55638-08	174	ppm	675	ppm	4593	ppm	288	ppm	51.2	ppm	18.5	ppm
12674	55638-09	112	ppm	619	ppm	4837	ppm	248	ppm	49.2	ppm	21.9	ppm
12675	55638-10	20.3	ppm	582	ppm	8287	ppm	311	ppm	74.8	ppm	68.4	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
12668	55638-01	5/3/2023	FMR	5/4/2023	JLP
12669	55638-02	5/3/2023	FMR	5/4/2023	JLP
12670	55638-03	5/3/2023	FMR	5/4/2023	JLP
12671	55638-04	5/3/2023	FMR	5/4/2023	JLP
12672	55638-05	5/3/2023	FMR	5/4/2023	JLP
12673	55638-08	5/3/2023	FMR	5/4/2023	JLP
12674	55638-09	5/3/2023	FMR	5/4/2023	JLP
12675	55638-10	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055638a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055638

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12668	55638-01	7.74	NA	0.138	dS/M	9.146	ppm
12669	55638-02	7.82	NA	0.166	dS/M	13.059	ppm
12670	55638-03	7.07	NA	0.427	dS/M	67.826	ppm
12671	55638-04	7.58	NA	0.12	dS/M	13.348	ppm
12672	55638-05	7.85	NA	0.124	dS/M	13.88	ppm
12673	55638-08	7.24	NA	0.198	dS/M	34.496	ppm
12674	55638-09	7.72	NA	0.109	dS/M	10.501	ppm
12675	55638-10	7.76	NA	0.122	dS/M	14.403	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
12668	55638-01	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12669	55638-02	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12670	55638-03	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12671	55638-04	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12672	55638-05	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12673	55638-08	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12674	55638-09	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12675	55638-10	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055638a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055638

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
12679	IC929	46.2	ppm	285	ppm	2015	ppm	324	ppm	38.7	ppm	42.1	ppm
12680	IC930	48.9	ppm	296	ppm	2085	ppm	339	ppm	40.2	ppm	44.0	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk200	<0.0151	ppm	<0.0783	ppm	<0.530	ppm	<0.0530	ppm	0.409	ppm	<0.0968	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
IC929	5/3/2023	FMR	5/4/2023	JLP
IC930	5/3/2023	FMR	5/4/2023	JLP
blk200	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055638a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055638

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12679	IC929	5.9	na	0.252	dS/M	5.989	ppm	
12680	IC930	5.9	na	0.251	dS/M	5.741	ppm	
	Mean IC	5.86	na	0.2515	dS/M	5.865	ppm	
12680spike	Spiked sample	-	-	-	-	4.8	ppm	70.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk200	-	na	0	dS/M	-0.27	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
IC929	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC930	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk200	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

REQUEST FOR ANALYSIS
TCEQ-BOSQUE 1255/1226 SOIL SAMPLES

COC Number: 55638	
Sample ID: 01-05, 08-10	
Standard Request for Analysis	
NO3-N	Mg
P Mehlich III by ICP	Conductivity
K	pH
Na	
Additional Tests	
N/A	

B

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55639

Location: Dancing Crane (Do not fill in this shaded area if the facility information must be confidential)

Permit #: 3190

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
12642	-01	3-7-23	12:15							See RFA	LMU TH2 (0-2)
12643	-02	"	12:15							"	LMU TH2 (2-6)
12644	-03	"	12:15							"	LMU TH2 6-24
12645	-04	"	10:35							"	LMU TH3 (0-2)
12646	-05	"	10:35							"	LMU TH3 (2-6)
12647	-06	"	10:35							"	LMU TH3 (6-24)
12648	-07	"	12:55							"	LMU TH4E (0-2)
12649	-08	"	12:55							"	LMU TH4E (2-6)
12650	-09	"	12:55							"	LMU TH4E (6-24)
12651	-10	"	1:00							"	LMU TH4W (0-2)

Relinquished by: Vanessa Gardner	Date: 3/15/23	Time: 1000	Received by:	3-16-23
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date	Time	Received by:	
Shipper name: Fed Ex	Shipper Number: 7715 6006 3120			

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: 055639a-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055639

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.
12642	55639-01	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12643	55639-02	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12644	55639-03	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12645	55639-04	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12646	55639-05	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12647	55639-06	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12648	55639-07	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12649	55639-08	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12650	55639-09	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12651	55639-10	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055639a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055639

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
12642	55639-01	268	ppm	394	ppm	3956	ppm	332	ppm	39.6	ppm	24.7	ppm
12643	55639-02	299	ppm	526	ppm	4712	ppm	299	ppm	43.9	ppm	39.6	ppm
12644	55639-03	34.3	ppm	312	ppm	8572	ppm	316	ppm	59.5	ppm	41.5	ppm
12645	55639-04	362	ppm	681	ppm	8271	ppm	474	ppm	67.8	ppm	28.3	ppm
12646	55639-05	288	ppm	759	ppm	7237	ppm	438	ppm	59.4	ppm	41.5	ppm
12647	55639-06	30.8	ppm	314	ppm	14292	ppm	288	ppm	91.8	ppm	59.6	ppm
12648	55639-07	151	ppm	274	ppm	1858	ppm	216	ppm	25.3	ppm	8.67	ppm
12649	55639-08	83.7	ppm	201	ppm	1471	ppm	134	ppm	19.0	ppm	12.5	ppm
12650	55639-09	7.44	ppm	189	ppm	2401	ppm	263	ppm	24.0	ppm	33.8	ppm
12651	55639-10	219	ppm	305	ppm	3578	ppm	320	ppm	35.5	ppm	20.2	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
12642	55639-01	5/3/2023	FMR	5/4/2023	JLP
12643	55639-02	5/3/2023	FMR	5/4/2023	JLP
12644	55639-03	5/3/2023	FMR	5/4/2023	JLP
12645	55639-04	5/3/2023	FMR	5/4/2023	JLP
12646	55639-05	5/3/2023	FMR	5/4/2023	JLP
12647	55639-06	5/3/2023	FMR	5/4/2023	JLP
12648	55639-07	5/3/2023	FMR	5/4/2023	JLP
12649	55639-08	5/3/2023	FMR	5/4/2023	JLP
12650	55639-09	5/3/2023	FMR	5/4/2023	JLP
12651	55639-10	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055639a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055639

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12642	55639-01	7.17	NA	0.186	dS/M	54.696	ppm
12643	55639-02	7.6	NA	0.103	dS/M	17.329	ppm
12644	55639-03	7.76	NA	0.087	dS/M	13.21	ppm
12645	55639-04	7.27	NA	0.22	dS/M	71.701	ppm
12646	55639-05	7.6	NA	0.15	dS/M	27.677	ppm
12647	55639-06	7.89	NA	0.212	dS/M	27.896	ppm
12648	55639-07	6.96	NA	0.134	dS/M	26.874	ppm
12649	55639-08	7.42	NA	0.085	dS/M	7.144	ppm
12650	55639-09	7.62	NA	0.087	dS/M	7.312	ppm
12651	55639-10	7.02	NA	0.161	dS/M	37.898	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
12642	55639-01	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12643	55639-02	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12644	55639-03	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12645	55639-04	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12646	55639-05	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12647	55639-06	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12648	55639-07	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12649	55639-08	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12650	55639-09	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12651	55639-10	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055639a-45068 Print Date: 22-May-23
Quality Control Report TCEQ COC# 055639

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
12659	IC927	43.4	ppm	292	ppm	2101	ppm	333	ppm	36.4	ppm	42.3	ppm
12660	IC928	43.3	ppm	284	ppm	2052	ppm	324	ppm	36.1	ppm	41.5	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk199	<0.0151	ppm	<0.0783	ppm	<0.530	ppm	<0.0530	ppm	0.409	ppm	<0.0968	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
IC927	5/3/2023	FMR	5/4/2023	JLP
IC928	5/3/2023	FMR	5/4/2023	JLP
blk199	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055639a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055639

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12659	IC927	5.9	na	0.25	dS/M	5.897	ppm	
12660	IC928	5.8	na	0.25	dS/M	5.759	ppm	
	Mean IC	5.845	na	0.25	dS/M	5.828	ppm	
12660spike	Spiked sample	-	-	-	-	4.3	ppm	67
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk199	-	na	0	dS/M	-0.23	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
IC927	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC928	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk199	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

REQUEST FOR ANALYSIS
TCEQ-BOSQUE 1255/1226 SOIL SAMPLES

COC Number: 55639	
Sample ID: 01-10	
Standard Request for Analysis	
NO3-N	Mg
~~P~~ Mehlich III by ICP	Conductivity
K	pH
Na	
Additional Tests	
N/A	

B

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55640

Location: Dancing Crane
(Do not fill in this shaded area if the facility information must be confidential)

Permit #: 3190

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
12652	-01	3-7-23	1:00							see RFA	LMU TH4W (2-6)
12653	-02	"	1:00							"	LMU TH4W (6-24)
12654	-03	"	11:49							"	LMU TH5 (0-2)
12655	-04	"	11:45							"	LMU TH5 (2-6)
12656	-05	"	11:45							"	LMU TH5 (6-24)
12657	-06	"	12:25							"	LMU TH6 (0-2)
12658	-07	"	12:25							"	LMU TH6 (2-6)
12661	-08	"	12:25							"	LMU TH6 (6-24)
12662	-09	"	11:46							"	LMU TH7 (0-6)
12663	-10	"	11:46							"	LMU TH7 (6-24)

	Date	Time		
Relinquished by: Vanessa Gardner	3/10/23	1000	Received by:	3-16-23
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date	Time	Received by:	
Shipper name: Fed Ex	Shipper Number: 7715 6006 3120			

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: 055640a-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055640

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.
12652	55640-01	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12653	55640-02	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12654	55640-03	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12655	55640-04	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12656	55640-05	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12657	55640-06	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12658	55640-07	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055640a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055640

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
12652	55640-01	169	ppm	339	ppm	3432	ppm	265	ppm	33.9	ppm	33.4	ppm
12653	55640-02	20.2	ppm	241	ppm	6714	ppm	310	ppm	56.1	ppm	112	ppm
12654	55640-03	139	ppm	258	ppm	3456	ppm	235	ppm	36.4	ppm	14.5	ppm
12655	55640-04	93.3	ppm	225	ppm	3251	ppm	171	ppm	33.4	ppm	17.9	ppm
12656	55640-05	6.03	ppm	206	ppm	8106	ppm	318	ppm	70.9	ppm	50.0	ppm
12657	55640-06	162	ppm	286	ppm	2548	ppm	252	ppm	32.4	ppm	13.8	ppm
12658	55640-07	73.6	ppm	241	ppm	2183	ppm	188	ppm	27.3	ppm	23.4	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
12652	55640-01	5/3/2023	FMR	5/4/2023	JLP
12653	55640-02	5/3/2023	FMR	5/4/2023	JLP
12654	55640-03	5/3/2023	FMR	5/4/2023	JLP
12655	55640-04	5/3/2023	FMR	5/4/2023	JLP
12656	55640-05	5/3/2023	FMR	5/4/2023	JLP
12657	55640-06	5/3/2023	FMR	5/4/2023	JLP
12658	55640-07	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055640a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055640

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12652	55640-01	7.29	NA	0.078	dS/M	11.302	ppm
12653	55640-02	7.78	NA	0.101	dS/M	15.649	ppm
12654	55640-03	6.85	NA	0.132	dS/M	35.766	ppm
12655	55640-04	7.05	NA	0.091	dS/M	9.181	ppm
12656	55640-05	7.22	NA	0.122	dS/M	11.718	ppm
12657	55640-06	6.86	NA	0.26	dS/M	41.433	ppm
12658	55640-07	7.13	NA	0.128	dS/M	10.245	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
12652	55640-01	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12653	55640-02	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12654	55640-03	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12655	55640-04	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12656	55640-05	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12657	55640-06	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12658	55640-07	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055640a-45068 Print Date: 22-May-23
Quality Control Report TCEQ COC# 055640

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
12659	IC927	43.4	ppm	292	ppm	2101	ppm	333	ppm	36.4	ppm	42.3	ppm
12660	IC928	43.3	ppm	284	ppm	2052	ppm	324	ppm	36.1	ppm	41.5	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk199	<0.0151	ppm	<0.0783	ppm	<0.530	ppm	<0.0530	ppm	0.409	ppm	<0.0968	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
IC927	5/3/2023	FMR	5/4/2023	JLP
IC928	5/3/2023	FMR	5/4/2023	JLP
blk199	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055640a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055640

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12659	IC927	5.9	na	0.25	dS/M	5.897	ppm	
12660	IC928	5.8	na	0.25	dS/M	5.759	ppm	
	Mean IC	5.845	na	0.25	dS/M	5.828	ppm	
12660spike	Spiked sample	-	-	-	-	4.3	ppm	67
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk199	-	na	0	dS/M	-0.23	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
IC927	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC928	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk199	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055640b-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055640

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.
12661	55640-08	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12662	55640-09	0-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12663	55640-10	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055640b-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055640

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
12661	55640-08	4.58	ppm	249	ppm	6999	ppm	333	ppm	62.1	ppm	135	ppm
12662	55640-09	201	ppm	515	ppm	15074	ppm	325	ppm	116	ppm	33.9	ppm
12663	55640-10	48.9	ppm	335	ppm	9950	ppm	205	ppm	83.0	ppm	26.4	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
12661	55640-08	5/3/2023	FMR	5/4/2023	JLP
12662	55640-09	5/3/2023	FMR	5/4/2023	JLP
12663	55640-10	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055640b-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055640

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12661	55640-08	7.56	NA	0.148	dS/M	6.382	ppm
12662	55640-09	7.5	NA	0.175	dS/M	34.355	ppm
12663	55640-10	7.86	NA	0.117	dS/M	9.108	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
12661	55640-08	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12662	55640-09	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12663	55640-10	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055640b-45068 Print Date: 22-May-23
Quality Control Report TCEQ COC# 055640

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
12679	IC929	46.2	ppm	285	ppm	2015	ppm	324	ppm	38.7	ppm	42.1	ppm
12680	IC930	48.9	ppm	296	ppm	2085	ppm	339	ppm	40.2	ppm	44.0	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk200	<0.0151	ppm	<0.0783	ppm	<0.530	ppm	<0.0530	ppm	0.409	ppm	<0.0968	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
IC929	5/3/2023	FMR	5/4/2023	JLP
IC930	5/3/2023	FMR	5/4/2023	JLP
blk200	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055640b-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055640

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12679	IC929	5.9	na	0.252	dS/M	5.989	ppm	
12680	IC930	5.9	na	0.251	dS/M	5.741	ppm	
	Mean IC	5.86	na	0.2515	dS/M	5.865	ppm	
12680spike	Spiked sample	-	-	-	-	4.8	ppm	70.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk200	-	na	0	dS/M	-0.27	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
IC929	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC930	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk200	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

REQUEST FOR ANALYSIS
TCEQ-BOSQUE 1255/1226 SOIL SAMPLES

COC Number: 55640	
Sample ID: 01-10	
Standard Request for Analysis	
NO3-N	Mg
P Mehlich III by ICP	Conductivity
K	pH
Na	
Additional Tests	
N/A	

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55641 2

Location: Dancing Crane
(Do not fill in this shaded area if the facility information must be confidential)

Permit #: 3190

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
12676	-01	3-7-23	9:46							Sel RFA	LMU TH8 (0-6)
12677	-02	3-7-23	9:46								LMU TH8 (6-24)
12678	-03	3/8/23	1100								LMU TS1 (0-2)
12681	-04	3/8/23	1100								LMU TS1 (2-6)
12682	-05	3/8/23	1100								LMU TS1 (6-24)
12683	-06	3/8/23	1030								LMU TS2 (0-2)
12684	-07	3/8/23	1030								LMU TS2 (2-6)
12685	-08	3/8/23	1030								LMU TS2 (6-24)
12686	-09	3/8/23	1145								LMU TS4 (0-2)
12687	-10	3/8/23	1145								LMU TS4 (2-6)

	Date	Time		
Relinquished by: Vanessa Gardner	3/10/23	1000	Received by:	3-16-23
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date	Time	Received by:	
Shipper name: Fed Ex	Shipper Number: 7715 6006 3109			

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: 055641a-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055641

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.
12676	55641-01	0-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12677	55641-02	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12678	55641-03	0-2	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055641a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055641

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
12676	55641-01	25.9	ppm	160	ppm	2579	ppm	137	ppm	36.1	ppm	16.2	ppm
12677	55641-02	0.421	ppm	174	ppm	6409	ppm	334	ppm	67.1	ppm	208	ppm
12678	55641-03	290	ppm	677	ppm	2684	ppm	482	ppm	48.3	ppm	74.5	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
12676	55641-01	5/3/2023	FMR	5/4/2023	JLP
12677	55641-02	5/3/2023	FMR	5/4/2023	JLP
12678	55641-03	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055641a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055641

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12676	55641-01	6.64	NA	0.095	dS/M	13.399	ppm
12677	55641-02	7.68	NA	0.214	dS/M	2.799	ppm
12678	55641-03	7.56	NA	0.33	dS/M	19.252	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
12676	55641-01	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12677	55641-02	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12678	55641-03	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055641a-45068 Print Date: 22-May-23
Quality Control Report TCEQ COC# 055641

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
12679	IC929	46.2	ppm	285	ppm	2015	ppm	324	ppm	38.7	ppm	42.1	ppm
12680	IC930	48.9	ppm	296	ppm	2085	ppm	339	ppm	40.2	ppm	44.0	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk200	<0.0151	ppm	<0.0783	ppm	<0.530	ppm	<0.0530	ppm	0.409	ppm	<0.0968	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
IC929	5/3/2023	FMR	5/4/2023	JLP
IC930	5/3/2023	FMR	5/4/2023	JLP
blk200	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055641a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055641

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12679	IC929	5.9	na	0.252	dS/M	5.989	ppm	
12680	IC930	5.9	na	0.251	dS/M	5.741	ppm	
	Mean IC	5.86	na	0.2515	dS/M	5.865	ppm	
12680spike	Spiked sample	-	-	-	-	4.8	ppm	70.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk200	-	na	0	dS/M	-0.27	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
IC929	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC930	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk200	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055641b-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055641

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.
12681	55641-04	2-6	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12682	55641-05	6-24	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12683	55641-06	0-2	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12684	55641-07	2-6	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12685	55641-08	6-24	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12686	55641-09	0-2	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12687	55641-10	2-6	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055641b-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055641

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
12681	55641-04	246	ppm	652	ppm	3053	ppm	374	ppm	46.2	ppm	72.1	ppm
12682	55641-05	54.2	ppm	703	ppm	5801	ppm	523	ppm	62.6	ppm	315	ppm
12683	55641-06	144	ppm	495	ppm	2965	ppm	312	ppm	53.7	ppm	91.6	ppm
12684	55641-07	113	ppm	292	ppm	2745	ppm	196	ppm	46.3	ppm	51.6	ppm
12685	55641-08	26.4	ppm	158	ppm	6039	ppm	233	ppm	57.5	ppm	117	ppm
12686	55641-09	356	ppm	336	ppm	3499	ppm	340	ppm	61.2	ppm	23.9	ppm
12687	55641-10	311	ppm	463	ppm	4830	ppm	325	ppm	52.7	ppm	39.4	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	0.0043	ppm	0.1351	ppm	0.0211	ppm	0.0870	ppm	0.0098	ppm	0.9263	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
12681	55641-04	5/9/2023	DEC	5/9/2023	JLP
12682	55641-05	5/9/2023	DEC	5/9/2023	JLP
12683	55641-06	5/9/2023	DEC	5/9/2023	JLP
12684	55641-07	5/9/2023	DEC	5/9/2023	JLP
12685	55641-08	5/9/2023	DEC	5/9/2023	JLP
12686	55641-09	5/9/2023	DEC	5/9/2023	JLP
12687	55641-10	5/9/2023	DEC	5/9/2023	JLP

Report ID: 055641b-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055641

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12681	55641-04	7.72	NA	0.131	dS/M	3.747	ppm
12682	55641-05	8.22	NA	0.136	dS/M	12.495	ppm
12683	55641-06	7.1	NA	0.199	dS/M	36.617	ppm
12684	55641-07	7.1	NA	0.095	dS/M	7.259	ppm
12685	55641-08	7.6	NA	0.094	dS/M	8.904	ppm
12686	55641-09	6.79	NA	0.217	dS/M	22.616	ppm
12687	55641-10	7.35	NA	0.185	dS/M	2.752	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
12681	55641-04	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12682	55641-05	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12683	55641-06	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12684	55641-07	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12685	55641-08	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12686	55641-09	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12687	55641-10	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055641b-45068 Print Date: 22-May-23
Quality Control Report TCEQ COC# 055641

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
12699	IC931	50.5	ppm	292	ppm	2018	ppm	327	ppm	40.1	ppm	46.3	ppm
12700	IC932	50.5	ppm	293	ppm	2017	ppm	331	ppm	39.8	ppm	47.8	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk201	<0.0245	ppm	<0.135	ppm	0.296	ppm	<0.0870	ppm	0.411	ppm	0.461	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	0.0043	ppm	0.1351	ppm	0.0211	ppm	0.0870	ppm	0.0098	ppm	0.9263	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
IC931	5/9/2023	DEC	5/9/2023	JLP
IC932	5/9/2023	DEC	5/9/2023	JLP
blk201	5/9/2023	DEC	5/9/2023	JLP

Report ID: 055641b-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055641

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12699	IC931	5.9	na	0.253	dS/M	6.069	ppm	
12700	IC932	5.9	na	0.25	dS/M	5.313	ppm	
	Mean IC	5.855	na	0.2515	dS/M	5.691	ppm	
12700spike	Spiked sample	-	-	-	-	4.8	ppm	70.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk201	-	na	0	dS/M	-0.27	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
IC931	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC932	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk201	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

REQUEST FOR ANALYSIS
TCEQ-BOSQUE 1255/1226 SOIL SAMPLES

COC Number: 55641	
Sample ID: 01-10	
Standard Request for Analysis	
NO3-N	Mg
P Mehlich III by ICP	Conductivity
K	pH
Na	
Additional Tests	
N/A	

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55642 2

Location: Dancing Crane
(Do not fill in this shaded area if the facility information must be confidential)

Permit #: 3190

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
12688	-01	3/8/23	1145							See RFA	LMUTS4 (6-24)
12689	-02	3/8/23	~~12~~ 1210								LMUTS5 (0-2)
12690	-03	3/8/23	1210								LMUTS5 (2-6)
12691	-04	3/8/23	1210								LMUTS5 (6-24)
	-05										
	-06										
	-07										
	-08										
	-09										
	-10										

Relinquished by:	Date	Time	Received by:
Vanessa Gardner	3/15/23	1000	3-16-23
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Shipper name: Fed Ex	Shipper Number: 7715 6006 3109		

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: 055642a-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055642

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.
12688	55642-01	6-24	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12689	55642-02	0-2	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12690	55642-03	2-6	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12691	55642-04	6-24	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055642a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055642

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
12688	55642-01	71.8	ppm	416	ppm	6396	ppm	452	ppm	66.1	ppm	232	ppm
12689	55642-02	461	ppm	763	ppm	6492	ppm	399	ppm	83.2	ppm	28.4	ppm
12690	55642-03	355	ppm	606	ppm	6664	ppm	408	ppm	86.2	ppm	39.7	ppm
12691	55642-04	54.4	ppm	368	ppm	9894	ppm	397	ppm	96.2	ppm	107	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	0.0043	ppm	0.1351	ppm	0.0211	ppm	0.0870	ppm	0.0098	ppm	0.9263	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
12688	55642-01	5/9/2023	DEC	5/9/2023	JLP
12689	55642-02	5/9/2023	DEC	5/9/2023	JLP
12690	55642-03	5/9/2023	DEC	5/9/2023	JLP
12691	55642-04	5/9/2023	DEC	5/9/2023	JLP

Report ID: 055642a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055642

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12688	55642-01	7.87	NA	0.105	dS/M	15.162	ppm
12689	55642-02	7.32	NA	0.239	dS/M	34.733	ppm
12690	55642-03	7.49	NA	0.285	dS/M	16.827	ppm
12691	55642-04	7.84	NA	0.172	dS/M	32.467	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
12688	55642-01	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12689	55642-02	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12690	55642-03	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12691	55642-04	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055642a-45068 Print Date: 22-May-23
Quality Control Report TCEQ COC# 055642

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
12699	IC931	50.5	ppm	292	ppm	2018	ppm	327	ppm	40.1	ppm	46.3	ppm
12700	IC932	50.5	ppm	293	ppm	2017	ppm	331	ppm	39.8	ppm	47.8	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk201	<0.0245	ppm	<0.135	ppm	0.296	ppm	<0.0870	ppm	0.411	ppm	0.461	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	0.0043	ppm	0.1351	ppm	0.0211	ppm	0.0870	ppm	0.0098	ppm	0.9263	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
IC931	5/9/2023	DEC	5/9/2023	JLP
IC932	5/9/2023	DEC	5/9/2023	JLP
blk201	5/9/2023	DEC	5/9/2023	JLP

Report ID: 055642a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055642

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12699	IC931	5.9	na	0.253	dS/M	6.069	ppm	
12700	IC932	5.9	na	0.25	dS/M	5.313	ppm	
	Mean IC	5.855	na	0.2515	dS/M	5.691	ppm	
12700spike	Spiked sample	-	-	-	-	4.8	ppm	70.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk201	-	na	0	dS/M	-0.27	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
IC931	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC932	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk201	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

REQUEST FOR ANALYSIS
TCEQ-BOSQUE 1255/1226 SOIL SAMPLES

COC Number: 55642	
Sample ID: 01 - 04	
Standard Request for Analysis	
NO3-N	Mg
P Mehlich III by ICP	Conductivity
K	pH
Na	
Additional Tests	
N/A	

Dancing Crane Dairy**3502 CR 209, Hico, TX 76457**Oct. 26, 2018 Permit

This map was generated by the Region 4 Stephenville Office of the Texas Commission on Environmental Quality. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. For more information concerning this map, contact the TCEQ Region 4 Stephenville Office at 254-552-1900.



Dancing Crane Dairy**LMU TH 8**Oct. 26, 2018 Permit

This map was generated by the Region 4 Stephenville Office of the Texas Commission on Environmental Quality. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. For more information concerning this map, contact the TCEQ Region 4 Stephenville Office at 254-552-1900.



Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Kelly Keel, *Interim Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 27, 2023

CERTIFIED MAIL 7022 2410 0000 5131 6745
RETURN RECEIPT REQUESTED
Mr. Klass Talsma, and Ms. Anastasia Talsma,, Owner
Dancing Crane Dairy
7469 County Road 209
Hico, Texas 76457
Re: Annual Soil Sample Analysis Results at Dancing Crane Dairy
CAFO Permit No.: WQ0003190000

Dear Mr. Talsma, and Ms. Talsma:

Attached are the analytical results for the soil samples that were collected at your facility on March 27, 2023. A copy of the sampling map is attached. Please utilize these results to update your nutrient management plan.

In addition, if any of the results are greater than 200 parts per million for phosphorus, please develop a new nutrient utilization plan (NUP) or revise your existing NUP, in accordance with your permit. All new or revised NUPs that are required to be submitted for TCEQ review and approval shall be mailed to the following address:

Water Quality Assessment Section Manager
Water Quality Division, MC 150
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

If you collected a duplicate sample following RG-408 protocol during the TCEQ sampling event that indicates a significant difference in the TCEQ analysis results (greater than 20% difference), you may choose to dispute the TCEQ sample results within 20 calendar days from the date of this letter. You must provide copies of all supporting documentation, including but not limited to your sample results, chain of custody documentation and laboratory quality assurance documentation. Please submit this information in writing to the TCEQ at the following address:

ATTN: Annual CAFO Soil Sample Analysis Disputes
Water Section Manager
Dallas/Fort Worth Regional Office
Texas Commission on Environmental Quality
2309 Gravel Drive
Fort Worth, TX 76118-6951

An analysis dispute received after the time allocated above will not be eligible for re-analysis. If you have any questions, please feel free to contact Mr. Michael Martin in the Stephenville Office at 254-552-1900.

Sincerely,

Michael Martin, Team Leader, Water Section
DFW Region Office
Texas Commission on Environmental Quality

MM/dm

Enclosures: Laboratory Analysis Reports

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55661

Location: Dancing Crane (Do not fill in this shaded area if the facility information must be confidential)

Permit #: WQ 3190

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
12696	-01	3/27/23	1130								TD 1 (0-2)
12697	-02	3/27/23	1130								TD 1 (2-6)
12698	-03	3/27/23	1130								TD 1 (6-24)
12701	-04	3/27/23	1201								TD 2 (0-2)
12702	-05	3/27/23	1201								TD 2 (2-6)
12703	-06	3/27/23	1201								TD 2 (6-24)
12704	-07	3/27/23	1045								TD 7 (0-2)
12705	-08	3/27/23	1045								TD 7 (6-24)
12706	-09	3/27/23	1045								TD 7 (2-6)
	-10										

Relinquished by:	Date	Time	Received by:
Vanessa Gardner	4/24/23	1000	4-25-23
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Shipper name: FED EX	Shipper Number: 7719 3792 3227		

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: 055661a-45091
Print Date: 14-Jun-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055661

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.
12696	55661-01	0-2	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	TLP
12697	55661-02	2-6	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	TLP
12698	55661-03	6-24	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	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: 055661a-45091 Print Date: 14-Jun-23

Standard Sample Report TCEQ COC# 055661

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
12696	55661-01	368	ppm	1636	ppm	5635	ppm	901	ppm	60.0	ppm	167	ppm
12697	55661-02	133	ppm	1757	ppm	7589	ppm	840	ppm	68.9	ppm	303	ppm
12698	55661-03	13.2	ppm	991	ppm	11442	ppm	496	ppm	82.4	ppm	445	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
12696	55661-01	5/30/2023	FMR	5/30/2023	JLP
12697	55661-02	5/30/2023	FMR	5/30/2023	JLP
12698	55661-03	5/30/2023	FMR	5/30/2023	JLP

Report ID: 055661a-45091 Print Date: 14-Jun-23

Standard Sample Report TCEQ COC# 055661

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12696	55661-01	7.65	NA	0.485	dS/M	84.166	ppm
12697	55661-02	7.95	NA	0.202	dS/M	18.255	ppm
12698	55661-03	7.84	NA	0.312	dS/M	29.708	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
12696	55661-01	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12697	55661-02	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12698	55661-03	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW

Report ID: 055661a-45091 Print Date: 14-Jun-23
Quality Control Report TCEQ COC# 055661

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
12699	IC933	41.5	ppm	279	ppm	2039	ppm	315	ppm	32.6	ppm	40.1	ppm
12700	IC934	39.1	ppm	272	ppm	1981	ppm	309	ppm	31.0	ppm	39.4	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
	blk202	-0.338	ppm	-0.979	ppm	-2.22	ppm	-0.503	ppm	0.293	ppm	-0.0438	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
IC933	5/30/2023	FMR	5/30/2023	JLP
IC934	5/30/2023	FMR	5/30/2023	JLP
blk202	5/30/2023	FMR	5/30/2023	JLP

Report ID: 055661a-45091 Print Date: 14-Jun-23

Quality Control Report TCEQ COC# 055661

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12699	IC933	5.8	na	0.251	dS/M	5.742	ppm	
12700	IC934	5.9	na	0.254	dS/M	5.032	ppm	
	Mean IC	5.84	na	0.2525	dS/M	5.387	ppm	
12700spike	Spiked sample	-	-	-	-	4.7	ppm	86.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk202	-	na	0	dS/M	-0.066	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
IC933	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
IC934	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
blk202	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055661b-45091
Print Date: 14-Jun-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055661

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.
12701	55661-04	0-2	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	TLP
12702	55661-05	2-6	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	TLP
12703	55661-06	6-24	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	TLP
12704	55661-07	0-2	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	TLP
12705	55661-08	2-6	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	TLP
12706	55661-09	6-24	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	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: 055661b-45091 Print Date: 14-Jun-23

Standard Sample Report TCEQ COC# 055661

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
12701	55661-04	346	ppm	471	ppm	7539	ppm	370	ppm	55.6	ppm	31.2	ppm
12702	55661-05	303	ppm	932	ppm	7263	ppm	487	ppm	49.7	ppm	39.7	ppm
12703	55661-06	83.7	ppm	903	ppm	10287	ppm	418	ppm	62.0	ppm	52.7	ppm
12704	55661-07	137	ppm	356	ppm	3539	ppm	232	ppm	31.3	ppm	27.6	ppm
12705	55661-08	9.80	ppm	188	ppm	7060	ppm	228	ppm	48.5	ppm	83.2	ppm
12706	55661-09	86.7	ppm	308	ppm	4298	ppm	173	ppm	33.0	ppm	30.3	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	0.0051	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
12701	55661-04	5/30/2023	FMR	5/30/2023	JLP
12702	55661-05	5/30/2023	FMR	5/30/2023	JLP
12703	55661-06	5/30/2023	FMR	5/30/2023	JLP
12704	55661-07	5/30/2023	FMR	5/30/2023	JLP
12705	55661-08	5/30/2023	FMR	5/30/2023	JLP
12706	55661-09	5/30/2023	FMR	5/30/2023	JLP

Report ID: 055661b-45091 Print Date: 14-Jun-23

Standard Sample Report TCEQ COC# 055661

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12701	55661-04	6.94	NA	0.228	dS/M	79.62	ppm
12702	55661-05	7.53	NA	0.097	dS/M	14.917	ppm
12703	55661-06	7.77	NA	0.106	dS/M	18.415	ppm
12704	55661-07	7.06	NA	0.106	dS/M	48.368	ppm
12705	55661-08	7.57	NA	0.095	dS/M	21.035	ppm
12706	55661-09	7.26	NA	0.061	dS/M	14.804	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
12701	55661-04	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12702	55661-05	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12703	55661-06	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12704	55661-07	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12705	55661-08	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12706	55661-09	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW

Report ID: 055661b-45091 Print Date: 14-Jun-23
Quality Control Report TCEQ COC# 055661

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
12719	IC935	43.4	ppm	284	ppm	2054	ppm	323	ppm	34.4	ppm	42.0	ppm
12720	IC936	41.2	ppm	276	ppm	1993	ppm	315	ppm	33.6	ppm	40.3	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
	blk202	-0.338	ppm	-0.979	ppm	-2.22	ppm	-0.503	ppm	0.293	ppm	-0.0438	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
IC935	5/30/2023	FMR	5/30/2023	JLP
IC936	5/30/2023	FMR	5/30/2023	JLP
blk202	5/30/2023	FMR	5/30/2023	JLP

Report ID: 055661b-45091 Print Date: 14-Jun-23

Quality Control Report TCEQ COC# 055661

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12719	IC935	5.8	na	0.253	dS/M	5.134	ppm	
12720	IC936	5.8	na	0.252	dS/M	5.171	ppm	
	Mean IC	5.835	na	0.2525	dS/M	5.1525	ppm	
12720spike	Spiked sample	-	-	-	-	4.7	ppm	86.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk202	-	na	0	dS/M	-0.066	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
IC935	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
IC936	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
blk202	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW

g Crane Dairy3502 CR 209, Hico, TX 76457**Oct. 26, 2018**

This map was generated by the Region 4 Stephenville Office of the Texas Commission on Environmental Quality. This product is for informational purposes and may not have been



This map was generated by the Region 4 Stephenville Office of the Texas Commission on Environmental Quality. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the



Attachment F

TCEQ STAFF CONTACT INFORMATION

TCEQ - BOSQUE 1255-1226 SOIL SAMPLES

Date: 27 MAR 2023 COC#: 556601

Should you need to contact TCEQ regarding this sample, please contact the following staff as appropriate:

Primary Contact	Investigator	Phone #	Email Address
	Vanessa Gardner	254-552-1903	Vanessa.Gardner@tceq.texas.gov
	Michael Martin	254-552-1901	Michael.Martin@tceq.texas.gov
	Cody Christian	254-552-1912	Cody.Christian@tceq.texas.gov
	Chris Pearson	254-552-1905	Chris.Pearson@tceq.texas.gov

If the primary investigator cannot be reached within one business day, the following persons may be contacted:

Michael Martin, Team Leader, Stephenville Off.	254-552-1901	Michael.Martin@tceq.texas.gov
Rebecca Stephens, Administrative Assistant	254-552-1900	Rebecca.Stephens@tceq.texas.gov
Jeff Tate, Water Section Manager, Dallas/Ft. Worth Regional Office	817-588-5875	Jeff.Tate@tceq.texas.gov
Cassandra Derrick, Project Manager, Field Operations Support Div., Austin Central Office	512-239-5304	Cassandra.Derrick@tceq.texas.gov

Mailing Addresses:

Stephenville Special Project Office 580-D W. Lingleville Rd. Stephenville , Texas 76401 Main: 254-552-1900 or 1-800-687-7078 Fax: 254-552-1922	Dallas/Ft. Worth Regional Office 2309 Gravel Drive Fort Worth, Texas 76118 Main: 817-588-5800 Fax: 817-588-5701

Waste Utilization and Nutrient Management Plan

TMC Dairies Hico
7469 CR 209
Hico, TX 76457

TCEQ Permit Number:
WQ0003190000

Owner
3T Martins Farm Hico, LLC
PO Box 599
Hico, TX 76457

Operator
TMC Dairies LLC
3105 Mesquite Rd
Dalhart, TX 79022-7635

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
9855 FM 847
Dublin, TX 76446
(254) 233-9948

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

8/12/24 4:33 PM

Executive Summary
Dancing Crane Dairy
WQ0003190000
Phase II NUP

LMU Summary:

All fields are established in coastal and small grains for perennial coverage.

Nutrient Summary:

The following is a summary of maximum allowed application rates.

LMU #	Max N Lb/ac Application Rates	Max P205 Lb/ac Application Rates	Planned N Lb/ac Application Rates	Planned P205 Lb/ac Application Rates
LMU 1	155	90	128	75
LMU 1A	298	90	149	45
LMU 2	155	90	124	72
LMU 3	298	90	149	45
LMU 4	400	234	360	210
LMU 4A	400	234	360	210
LMU 5	400	234	360	210
LMU 5A	298	90	149	45
LMU 6	298	90	149	45
LMU 7	155	90	124	72
LMU 7A	298	90	149	45
LMU 8	155	90	124	72
LMU 8A	298	90	149	45
LMU 9	155	90	124	72
LMU 9A	298	90	149	45
LMU 10	155	90	124	72
LMU 10A	400	121	400	121
LMU 11	400	234	360	210
LMU 12	155	90	124	72
LMU 12A	300	91	150	46
LMU 13	300	91	150	46
LMU 14	300	91	150	46

EAE recommends applying at the planned application rates shown above and in the tables of the NMP. Application at the maximum rates will result in a more rapid buildup of phosphorus than if applied at the lower rates.

This plan utilizes the Phase II Engineering Calcs. for 13,500 head and average live weight between the proposed headcounts of Jersey/Holstein cattle.

The most recent soil and waste analysis were used in this plan. 2022 soil sampling was conducted in March of 2023 by the TCEQ. The LMUs are reconfigured in this application and all LMU names have changed. A LMU & Soil Cross-Reference sheet is attached to this Executive Summary with the old/new LMU name as well as the soil analysis utilized for each LMU in this plan.

Although this plan illustrates that certain LMUs are designated for wastewater application, and others for manure application, it is not the intent of this document to limit application of wastewater and manure to specified LMUs. Any waste source may be applied to any permitted LMU as long as the maximum rates shown above are not exceeded during the plan year.

Any remaining manure is to 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.

Supplemental nutrients will be necessary to achieve the desired yields. Commercial N application shall be split such that individual application events do not exceed 100 lbs/ac N.

Executive Summary Attachment

TMC Dairies Hico - LMU & Soil Cross-Reference

Existing LMU Name	Proposed LMU Name	Soil Sample Utilized in NMPs
TD1-144 Acres	LMU 1- 144 Ac.	TD1
TD2-56 Acres	Split into – LMU 7 (Pivot)-16 Ac. LMU 7A (Outside Pivot)- 33 Ac.	TD2 for both 7 & 7A
TD3-40	LMU 13 – 44 Ac.	TD3
TD4-86	Split into – LMU 12 (Pivot)-24 Ac. LMU 12A (Outside Pivot)-63 Ac.	TD4 for both 12 & 12A
TD6-131	Split into – LMU 2 (pivot)-39 Ac. LMU 1A (outside pivot)-93 Ac.	TD6 for both 2 & 1A
TD7-14	No longer a LMU.	----------
TH1-39	LMU 5-39 Ac.	TH1
TH2-45	LMU 5A-35 Ac.	TH2
TH3-45	LMU 6-51 Ac.	TH3
TH4E-22 TH4W-14	Combined into: LMU 3 – 39 Ac.	*TH4W (utilized as a worst case due to higher P level)
TH5-80 TH6-81	Combined – LMU 4 (Pivot)-97 Ac. LMU 4A (Outside Pivot)-76 Ac.	*TH6 (utilized as a worst case due to higher P level)
TH7-13	LMU 14 – 12 Ac.	TH7
TH8-58	No longer a LMU.	----------
TS1-28	LMU 10 – 29 Ac.	TS1
TS2-92	Split into LMU 11 (Pivot)-42 Ac. LMU 10A (Outside Pivots)-46 Ac.	TS2 for both 11 & 10A
TS4-62	Split into LMU 9 (Pivot)-34 Ac. LMU 9A (Outside Pivot)-28 Ac.	TS4 for both 9 & 9A
TS5-44	Split into LMU 8 (Pivot)-26 Ac. LMU 8A (Outside Pivot)-18 Ac.	TS5 for both 8 & 8A

* Where permitted fields were combined into new LMUs, the soil analysis with the highest P level was used in the NMP for the new fields. The soil analysis for the old fields with lower P levels were not utilized (TH4E & TH5.)

Alternative Crop List
Dancing Crane Dairy
WQ0003190000

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 EAE ENGINEERING, INC.

Alternative Crop List
Dancing Crane Dairy
WQ0003190000

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 #: WQ0003190000

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

See Attached Executive Summary

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 **13500** head will be confined with the average weight of **1237** pounds. The animals will be confined **24** hours per day for **365** days per year.

PI Index by Field

Printed on: 8/12/24 4:35 PM
This plan is based on: Nutrient Management Plan V 5.0
Permit #: WQ0003190000
Client Name: TMC Dairies Hico
Date: 8/12/2024
Planner: Richard George
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	Coastal graze 1 AU/1 ac, SG mod graze	4.2%	80	8	0	6	0	0.5	0	4	0	18.5	Medium	3/27/23
1A	Coastal graze 1 AU/1 ac, SG mod graze	4.7%	80	8	0	6	0	4	0	4	0	22	Medium	3/7/23
2	Coastal graze 1 AU/1 ac, SG mod graze	4.7%	61	8	0	6	0	0.5	0	2	0	16.5	Medium	3/7/23
3	Coastal graze 1 AU/1 ac, SG mod graze	3.3%	61	8	0	6	0	4	1.25	1	0	20.25	Medium	3/7/23
4	Coastal graze 1 AU/1 ac, SG mod graze	3.1%	74	8	0	6	0	0.5	5	2	0	21.5	Medium	3/7/23
4A	Coastal graze 1 AU/1 ac, SG mod graze	3.1%	39	8	0	6	0	0.5	5	0	0	19.5	Medium	3/7/23
5	Coastal graze 1 AU/1 ac, SG mod graze	1.5%	74	8	0	6	0	0.5	0	1	0	15.5	Medium	3/7/23
5A	Coastal graze 1 AU/1 ac, SG mod graze	1.5%	61	8	0	6	0	4	0	1	0	19	Medium	3/7/23
6	Coastal graze 1 AU/1 ac, SG mod graze	2.9%	80	8	0	6	0	4	0	2	0	20	Medium	3/7/23
7	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	0.5	0	2	0	16.5	Medium	3/27/23
7A	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	4	0	2	0	20	Medium	3/27/23
8	Coastal graze 1 AU/1 ac, SG mod graze	3.4%	74	8	0	6	0	0.5	0	2	0	16.5	Medium	3/8/23
8A	Coastal graze 1 AU/1 ac, SG mod graze	3.4%	74	8	0	6	0	4	0	2	0	20	Medium	3/8/23
9	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	0.5	0	2	0	16.5	Medium	3/8/23
9A	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	4	1.25	2	0	21.25	Medium	3/8/23
10	Coastal graze 1 AU/1 ac, SG mod graze	2.5%	80	8	0	6	0	0.5	5	2	0	21.5	Medium	3/8/23
10A	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	61	8	0	6	0	4	5	1	0	24	High	3/8/23
11	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	0.5	5	2	0	21.5	Medium	3/8/23
12	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	0.5	1.25	2	0	17.75	Medium	3/8/23
12A	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	4	1.25	2	0	21.25	Medium	3/8/23
13	Coastal graze 1 AU/1 ac, SG mod graze	4.4%	61	8	0	6	0	4	0	2	0	20	Medium	3/8/23
14	Coastal graze 1 AU/1 ac, SG mod graze	3.8%	80	8	0	6	0	4	0	2	0	20	Medium	3/7/23

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.

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 #: WQ0003190000

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 #: WQ0003190000

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

OPERATION AND MAINTENANCE: Permit #: WQ0003190000

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:	**8/12/2024**
Plan Approved by:		Date:	8-12-24
Producer Signature:	Discussed w/ Producer	Date:	8-12-24

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 #: WQ0003190000

Avg. Number of Animals	Type of Waste
13,500	Dairy Lagoon
	Other 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* **4,898**

Estimated Tons Solids to be Land Applied Annually (on or off site)* **703,673.1**

*From engineering design.

Estimated Nutrient Availabilty Effluent

	pounds/yr	Pounds / 1000 gal	Pounds / Acre Inch	
N	130,534	0.98	26.7	**
P2O5	76,256	0.57	15.6	
K2O	319,675	2.40	65.3	

** Effluent Values Based on Analysis dated: June 4, 2024

Estimated Nutrient Availabilty Solids

	pounds / yr	pounds / ton	
N	1,700,164	2.4	**
P2O5	516,167	0.7	
K2O	3,293,190	4.7	

** Solids Values Based on Analysis dated: June 4, 2024

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

Waste Utilization and Nutrient Management Plan

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

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

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

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

- **equal to or greater than 200 ppm in non-arid areas [2/] or**
- **equal to or greater than 350 ppm in arid areas [2/] with a named stream greater than one mile or**
- **equal to or greater than 200 ppm in arid areas [2/] with a named stream less than one mile.**

P – Index Rating	Maximum TMDL Annual P Application Rate [5/]	Maximum Annual P Application	Maximum Biennial Application Rate
Very Low, Low	1.0 Times Annual Crop P Removal [4/]	Annual N Crop Removal	2.0 Times Annual N Removal
Medium	1.0 Times Annual Crop P Removal [4/]	1.5 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal
High [5]	1.0 Times Annual Crop P Removal [4/]	1.0 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal
Very High [5]	0.5 Times Annual Crop P Removal [4/]	0.5 Times Annual Crop P Removal [4/]	Double the Maximum Annual P Application Not to Exceed 2 times the Annual N Crop Removal

Footnotes Applicable to both Tables

1/ Soil test P will be Mehlich III by inductively coupled plasma (ICP).

2/ Non-arid areas, counties receiving => 25 inches annual rainfall, will use the 200 ppm P level while arid areas, counties receiving < 25 inches of annual rainfall, will use the 350 ppm P level. See map in TX Agronomy Technical Note 15, Phosphorus Assessment Tool for Texas, for county designations.

3/ Not to exceed the annual nitrogen requirement rate.

4/ Not to exceed the annual nitrogen removal rate.

5/ When soil test phosphorus levels are ≥ 500 ppm, with a P-Index rating of "High" or "Very High", there will be no additional application of phosphorus to a CMU or field.

Waste Utilization and Nutrient Management Plan

Table 3 - Crop Removal Rates (For Information Only) Permit #: WQ0003190000

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
LMU 1	144.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 1A	93.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 2	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 3	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 4	97.0	Coastal graze 1 AU/1 ac, SG mod graze M	NMP	Default	300	90	267
LMU 4A	76.0	Coastal graze 1 AU/1 ac, SG mod graze M	NMP	Default	300	90	267
LMU 5	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	NMP	Default	300	90	267
LMU 5A	35.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 6	51.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 7	16.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 7A	33.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 8	26.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 8A	18.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 9	34.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 9A	28.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 10	29.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 10A	46.0	Coastal graze 1 AU/1 ac, SG mod graze H	NMP	Default	300	90	267
LMU 11	42.0	Coastal graze 1 AU/1 ac, SG mod graze M	NMP	Default	300	90	267
LMU 12	24.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 12A	63.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 13	44.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267
LMU 14	12.0	Coastal graze 1 AU/1 ac, SG mod graze M	NUP	Default	300	90	267

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 #: WQ0003190000

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)
703,673	LMU 1							
	LMU 1A	93.0	Coastal graze 1 AU/1 ac, SG mod graze M	206	90	A	123.3	11468
	LMU 2							
	LMU 3	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	219	90	A	123.3	4809
	LMU 4							
	LMU 4A							
	LMU 5							
	LMU 5A	35.0	Coastal graze 1 AU/1 ac, SG mod graze M	268	90	A	123.3	4316
	LMU 6	51.0	Coastal graze 1 AU/1 ac, SG mod graze M	362	90	A	123.3	6289
	LMU 7							
	LMU 7A	33.0	Coastal graze 1 AU/1 ac, SG mod graze M	346	90	A	123.3	4069
	LMU 8							
	LMU 8A	18.0	Coastal graze 1 AU/1 ac, SG mod graze M	461	90	A	123.3	2220
	LMU 9							
	LMU 9A	28.0	Coastal graze 1 AU/1 ac, SG mod graze M	356	90	A	123.3	3453
	LMU 10							
	LMU 10A	46.0	Coastal graze 1 AU/1 ac, SG mod graze H	144	121	A	165.6	7615
	LMU 11							
	LMU 12							
	LMU 12A	63.0	Coastal graze 1 AU/1 ac, SG mod graze M	277	91	A	124.2	7828
	LMU 13	44.0	Coastal graze 1 AU/1 ac, SG mod graze M	217	91	A	124.2	5467
	LMU 14	12.0	Coastal graze 1 AU/1 ac, SG mod graze M	201	91	A	124.2	1491
Total Solids Application Acres								
462								
Application Allowable on-site (tons)								
59025.4								
Not Adequate								
Solids to be used off-site (tons)								
644,647.7								

End of Table 4

Waste Utilization and Nutrient Management Plan

Table 5 - Nutrients Applied/Needs at Maximum Solids Rates Permit #: WQ0003190000

	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
LMU 1							
LMU 1A	298	90	577	0	0	0	0
LMU 2							
LMU 3	298	90	577	25	0	0	0
LMU 4							
LMU 4A							
LMU 5							
LMU 5A	298	90	577	0	0	0	0
LMU 6	298	90	577	0	0	0	0
LMU 7							
LMU 7A	298	90	577	0	0	0	0
LMU 8							
LMU 8A	298	90	577	30	0	0	0
LMU 9							
LMU 9A	298	90	577	55	0	0	0
LMU 10							
LMU 10A	400	121	775	0	0	0	0
LMU 11							
LMU 12							
LMU 12A	300	91	581	15	0	0	0
LMU 13	300	91	581	80	0	0	0
LMU 14	300	91	581	30	0	0	0

Waste Utilization and Nutrient Management Plan

Table 6 - Planned Solids Application Rates Permit #: WQ0003190000

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)
LMU 1									
LMU 1A		93.0	Coastal graze 1 AU/1 ac, SG mod graze M	206	A	123.3	50	61.7	5734.1
LMU 2									
LMU 3		39.0	Coastal graze 1 AU/1 ac, SG mod graze M	219	A	123.3	50	61.7	2404.6
LMU 4									
LMU 4A									
LMU 5									
LMU 5A		35.0	Coastal graze 1 AU/1 ac, SG mod graze M	268	A	123.3	50	61.7	2158.0
LMU 6		51.0	Coastal graze 1 AU/1 ac, SG mod graze M	362	A	123.3	50	61.7	3144.5
LMU 7									
LMU 7A		33.0	Coastal graze 1 AU/1 ac, SG mod graze M	346	A	123.3	50	61.7	2034.7
LMU 8									
LMU 8A		18.0	Coastal graze 1 AU/1 ac, SG mod graze M	461	A	123.3	50	61.7	1109.8
LMU 9									
LMU 9A		28.0	Coastal graze 1 AU/1 ac, SG mod graze M	356	A	123.3	50	61.7	1726.4
LMU 10									
LMU 10A		46.0	Coastal graze 1 AU/1 ac, SG mod graze H	144	A	165.6	100	165.6	7615.5
LMU 11									
LMU 12									
LMU 12A		63.0	Coastal graze 1 AU/1 ac, SG mod graze M	277	A	124.2	50	62.1	3913.8
LMU 13		44.0	Coastal graze 1 AU/1 ac, SG mod graze M	217	A	124.2	50	62.1	2733.5
LMU 14		12.0	Coastal graze 1 AU/1 ac, SG mod graze M	201	A	124.2	50	62.1	745.5
Acres		462.0							33320.4
703673			Tons of wet solids produced Annually				Will the planned per acre application rates use all of the Solids?		NO
0			Tons to be used off-site at Max. rates				Tons to be used off-site at planned rates		670353

Waste Utilization and Nutrient Management Plan

Table 7 - Nutrients Applied/Needed at Planned Solids Rates Permit #: WQ0003190000

Red cells? Proceed to adjustment page and fix.

	Nutrients Applied at Planned Rates			Supplemental Nutrients Needed at Planned Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
LMU 1							
LMU 1A	149	45	289	115	0	0	0
LMU 2							
LMU 3	149	45	289	175	0	0	0
LMU 4							
LMU 4A							
LMU 5							
LMU 5A	149	45	289	140	0	0	0
LMU 6	149	45	289	105	0	0	0
LMU 7							
LMU 7A	149	45	289	90	0	0	0
LMU 8							
LMU 8A	149	45	289	180	0	0	0
LMU 9							
LMU 9A	149	45	289	205	0	0	0
LMU 10							
LMU 10A	400	121	775	0	0	0	0
LMU 11							
LMU 12							
LMU 12A	150	46	291	165	0	0	0
LMU 13	150	46	291	230	0	0	0
LMU 14	150	46	291	180	0	0	0

Waste Utilization and Nutrient Management Plan

Table 8 - Maximum Effluent Application Per Field Permit #: WQ0003190000

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)
4898	LMU 1	144.0		Coastal graze 1 AU/1 ac, SG mod graze M	368	90	A	5.8	837
Source:	LMU 1A								
	LMU 2	39.0		Coastal graze 1 AU/1 ac, SG mod graze M	206	90	A	5.8	226
	LMU 3								
Dairy Lagoon	LMU 4	97.0		Coastal graze 1 AU/1 ac, SG mod graze M	162	234	A	15.0	1455
	LMU 4A	76.0		Coastal graze 1 AU/1 ac, SG mod graze M	162	234	A	15.0	1140
	LMU 5	39.0		Coastal graze 1 AU/1 ac, SG mod graze M	174	234	A	15.0	585
	LMU 5A								
	LMU 6								
	LMU 7	16.0		Coastal graze 1 AU/1 ac, SG mod graze M	346	90	A	5.8	93
	LMU 7A								
	LMU 8	26.0		Coastal graze 1 AU/1 ac, SG mod graze M	461	90	A	5.8	151
	LMU 8A								
	LMU 9	34.0		Coastal graze 1 AU/1 ac, SG mod graze M	356	90	A	5.8	197
	LMU 9A								
	LMU 10	29.0		Coastal graze 1 AU/1 ac, SG mod graze M	290	90	A	5.8	168
	LMU 10A								
	LMU 11	42.0		Coastal graze 1 AU/1 ac, SG mod graze M	144	234	A	15.0	630
	LMU 12	24.0		Coastal graze 1 AU/1 ac, SG mod graze M	277	90	A	5.8	139
	LMU 12A								
	LMU 13								
Total Effluent Application Acres	LMU 14								
566									
Maximum Effluent Application Allowable On-Site (ac in)									
5621									
Adequate									
Effluent to be used Off-Site (ac in)									
0									

End of Table 8

Waste Utilization and Nutrient Management Plan

Table 9 - Nutrients Applied/Needed at Maximum Effluent Rates Permit #: WQ0003190000

	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
LMU 1	155	90	379	75	0	0	0
LMU 1A							
LMU 2	155	90	379	110	0	0	0
LMU 3							
LMU 4	400	234	979	0	0	0	0
LMU 4A	400	234	979	0	0	0	0
LMU 5	400	234	979	0	0	0	0
LMU 5A							
LMU 6							
LMU 7	155	90	379	85	0	0	0
LMU 7A							
LMU 8	155	90	379	175	0	0	0
LMU 8A							
LMU 9	155	90	379	200	0	0	0
LMU 9A							
LMU 10	155	90	379	205	0	0	0
LMU 10A							
LMU 11	400	234	979	0	0	0	0
LMU 12	155	90	379	160	0	0	0
LMU 12A							
LMU 13							
LMU 14							

Waste Utilization and Nutrient Management Plan

Table 10 - Planned Effluent Application Rates Permit #: WQ0003190000

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)
LMU 1	144.0		Coastal graze 1 AU/1 ac, SG mod graze M	368	A	5.8	**82.4**	4.8	690
LMU 1A									
LMU 2	39.0		Coastal graze 1 AU/1 ac, SG mod graze M	206	A	5.8	**80.0**	4.6	181
LMU 3									
LMU 4	97.0		Coastal graze 1 AU/1 ac, SG mod graze M	162	A	15	**90.0**	13.5	1310
LMU 4A	76.0		Coastal graze 1 AU/1 ac, SG mod graze M	162	A	15	**90.0**	13.5	1026
LMU 5	39.0		Coastal graze 1 AU/1 ac, SG mod graze M	174	A	15	**90.0**	13.5	527
LMU 5A									
LMU 6									
LMU 7	16.0		Coastal graze 1 AU/1 ac, SG mod graze M	346	A	5.8	**80.0**	4.6	74
LMU 7A									
LMU 8	26.0		Coastal graze 1 AU/1 ac, SG mod graze M	461	A	5.8	**80.0**	4.6	121
LMU 8A									
LMU 9	34.0		Coastal graze 1 AU/1 ac, SG mod graze M	356	A	5.8	**80.0**	4.6	158
LMU 9A									
LMU 10	29.0		Coastal graze 1 AU/1 ac, SG mod graze M	290	A	5.8	**80.0**	4.6	135
LMU 10A									
LMU 11	42.0		Coastal graze 1 AU/1 ac, SG mod graze M	144	A	15	**90.0**	13.5	567
LMU 12	24.0		Coastal graze 1 AU/1 ac, SG mod graze M	277	A	5.8	**80.0**	4.6	111
LMU 12A									
LMU 13									
LMU 14									
Acres	**566.0**					**Will the planned application rates use all of the Effluent?**			**4898**
									YES

Waste Utilization and Nutrient Management Plan

Table 11 - Nutrients Applied/Needed at the Planned Effluent Rates Permit #: WQ0003190000

Red cells? Proceed to adjustment page and fix.

	Nutrients Applied at Planned Rates			Supplemental Nutrients Needed at Planned Rates			
LMU / Field #	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	N Lb/ac	P_2O_5 Lb/ac	K_2O Lb/ac	Lime T/Ac
LMU 1	128	75	312	105	0	0	0
LMU 1A							
LMU 2	124	72	303	140	0	0	0
LMU 3							
LMU 4	360	210	882	0	0	0	0
LMU 4A	360	210	882	0	0	0	0
LMU 5	360	210	882	0	0	0	0
LMU 5A							
LMU 6							
LMU 7	124	72	303	115	0	0	0
LMU 7A							
LMU 8	124	72	303	205	0	0	0
LMU 8A							
LMU 9	124	72	303	230	0	0	0
LMU 9A							
LMU 10	124	72	303	240	0	0	0
LMU 10A							
LMU 11	360	210	882	0	0	0	0
LMU 12	124	72	303	190	0	0	0
LMU 12A							
LMU 13							
LMU 14							

Waste Utilization and Nutrient Management Plan

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 #: WQ0003190000

LMU / Field #	AWC (inches)	Restrictive Texture
LMU 1	0.75	Gravelly clay loam
LMU 1A		
LMU 2	2.82	Find Sandy Loam
LMU 3		
LMU 4	2.73	Fine Sand
LMU 4A	2.44	Fine Sand
LMU 5	4.05	Clay Loam
LMU 5A		
LMU 6		
LMU 7	1.87	Stony Clay
LMU 7A		
LMU 8	4.05	Clay Loam
LMU 8A		
LMU 9	3.48	Fine Sandy Loam
LMU 9A		
LMU 10	3.48	Fine Sandy Loam
LMU 10A		
LMU 11	3.48	Fine Sandy Loam
LMU 12	1.87	Stony Clay
LMU 12A		
LMU 13		
LMU 14		

LMU / Field #	AWC (inches)	Restrictive Texture

Waste Utilization and Nutrient Management Plan

Table 13 - Non Application Areas by Field Permit #: WQ0003190000

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
LMU 1	0.0	0.0			
LMU 1A	0.0	0.0			
LMU 2	0.0	0.0			
LMU 3	0.0	0.0			
LMU 4	0.0	0.0			
LMU 4A	0.0	0.0			
LMU 5	0.0	0.0			
LMU 5A	0.0	0.0			
LMU 6	0.0	0.0			
LMU 7	0.0	0.0			
LMU 7A	0.0	0.0			
LMU 8	0.0	0.0			
LMU 8A	0.0	0.0			
LMU 9	0.0	0.0			
LMU 9A	0.0	0.0			
LMU 10	0.0	0.0			
LMU 10A	0.0	0.0			
LMU 11	0.0	0.0			
LMU 12	0.0	0.0			
LMU 12A	0.0	0.0			
LMU 13	0.0	0.0			
LMU 14	0.0	0.0			

LMU / Field #	FS Acres	FB Acres	RFB Acres	OLEA Acres	Total Excluded

See Application Map for location of buffers

Total 590-633 application acres: 1028.0

Totals	0.0	0.0	0.0	0.0	0.0

Total 590-633 Field Acres: 1028.0

Waste Utilization and Nutrient Management Data Entries

General Data

Date :	8/12/2024
Farmer Name :	TMC Dairies Hico
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 # :	WQ0003190000

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 :	13500
Approximate Weight :	1237
Days per year in confinement :	365
Hours per day confined :	24
***ACRE FEET* of effluent to be irrigated* :**	408.14
Estimated annual gallons of effluent to be irrigated/applied annually :	132991602.7
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)* :	36591
Is this the first Year of the AFO-CAFO Operation? :	No

Analysis Information

Effluent Information

Date of Analysis:	6/4/2024
Manure Source:	Dairy Lagoon
Nitrogen % From Analysis:	0.0147
Phosphorus % From Analysis:	0.003
Potassium % From Analysis:	0.024
Moisture % From Analysis:	99.8

Manure / Solids Information

Date of Analysis:	6/4/2024	
Manure Source:	Other Solids	Explain Other: Slurry
Nitrogen % From Analysis:	2.904	
Phosphorus % From Analysis:	0.308	
Potassium % From Analysis:	3.75	
Moisture % From Analysis:	94.8	
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: 8/12/24 4:34 PM

Field and Buffer Entries

Permit #: WQ0003190000

Printed on: 8/12/24 4:34 PM

Plan is based on: 590 Organic Nutrient Management Plan

FS = 393-Filter Strip, FB = 386-Field Border, RFB = 391-Riparian Forest Buffer, OLEA = Other Land Exclusion Areas or non-application areas (i.e. headquarters, freq. flooded areas, wooded areas, water bodies, etc)
NOTE: Field Border (FB) is expressed in ACRES on this spreadsheet, but as LINEAR FEET on the CPO.

Field No.	Total LMU or Field Acres	FS	FB	RFB	OLEA	Total Buffer Acres	Actual Application Acres	This Column Intentionally Left Blank
LMU 1	144					0.0	144.0	
LMU 1A	93					0.0	93.0	
LMU 2	39					0.0	39.0	
LMU 3	39					0.0	39.0	
LMU 4	97					0.0	97.0	
LMU 4A	76					0.0	76.0	
LMU 5	39					0.0	39.0	
LMU 5A	35					0.0	35.0	
LMU 6	51					0.0	51.0	
LMU 7	16					0.0	16.0	
LMU 7A	33					0.0	33.0	
LMU 8	26					0.0	26.0	
LMU 8A	18					0.0	18.0	
LMU 9	34					0.0	34.0	
LMU 9A	28					0.0	28.0	
LMU 10	29					0.0	29.0	
LMU 10A	46					0.0	46.0	
LMU 11	42					0.0	42.0	
LMU 12	24					0.0	24.0	
LMU 12A	63					0.0	63.0	
LMU 13	44					0.0	44.0	
LMU 14	12					0.0	12.0	

Soil Test, Crop Information and Plant Analysis Data Entries

Printed on: 8/12/24 4:34 PM Plan is based on: 590 Organic Nutrient Management Plan V 5.0 Permit #: WQ0003190000

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)
84	368	1636			LMU 1	144.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
68	206	425			LMU 1A	93.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
68	206	425			LMU 2	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
38	219	305			LMU 3	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
41	162	286			LMU 4	97.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
41	162	286			LMU 4A	76.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
34	174	675			LMU 5	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
55	268	394			LMU 5A	35.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
72	362	681			LMU 6	51.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
80	346	471			LMU 7	16.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
80	346	471			LMU 7A	33.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
35	461	763			LMU 8	26.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
35	461	763			LMU 8A	18.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
23	356	336			LMU 9	34.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
23	356	336			LMU 9A	28.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
19	290	677			LMU 10	29.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
37	144	495			LMU 10A	46.0	Coastal graze 1 AU/1 ac, SG mod graze H	S	N				
37	144	495			LMU 11	42.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
42	277	402			LMU 12	24.0	Coastal graze 1 AU/1 ac, SG mod graze M	E	N				
42	277	402			LMU 12A	63.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
11	217	389			LMU 13	44.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				
34	201	515			LMU 14	12.0	Coastal graze 1 AU/1 ac, SG mod graze M	S	N				

Solids Application Rate Entries

Solids - Set the Planned Application Rates

Permit #: WQ

703673 "Wet tons" of solids produced Annually							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
LMU 1							
LMU 1A	93.0	Coastal graze 1 AU/1 ac, SG mod graze M	206	175	Annual	123.3	50.0
LMU 2							
LMU 3	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	219	175	Annual	123.3	50.0
LMU 4							
LMU 4A							
LMU 5							
LMU 5A	35.0	Coastal graze 1 AU/1 ac, SG mod graze M	268	175	Annual	123.3	50.0
LMU 6	51.0	Coastal graze 1 AU/1 ac, SG mod graze M	362	175	Annual	123.3	50.0
LMU 7							
LMU 7A	33.0	Coastal graze 1 AU/1 ac, SG mod graze M	346	175	Annual	123.3	50.0
LMU 8							
LMU 8A	18.0	Coastal graze 1 AU/1 ac, SG mod graze M	461	175	Annual	123.3	50.0
LMU 9							
LMU 9A	28.0	Coastal graze 1 AU/1 ac, SG mod graze M	356	175	Annual	123.3	50.0
LMU 10							
LMU 10	46.0	Coastal graze 1 AU/1 ac, SG mod graze H	144	175	Annual	165.6	100.0
LMU 11							
LMU 12							
LMU 12	63.0	Coastal graze 1 AU/1 ac, SG mod graze M	277	175	Annual	124.2	50.0
LMU 13	44.0	Coastal graze 1 AU/1 ac, SG mod graze M	217	175	Annual	124.2	50.0
LMU 14	12.0	Coastal graze 1 AU/1 ac, SG mod graze M	201	175	Annual	124.2	50.0

Effluent Application Rate Entries

Effluent - Set the Planned Application Rates

Permit #: WQ0003190000

132991603	Gallons of Effluent to be used annually				Will the planned rates use all of the effluent?				Yes
4898	Acre inches of Effluent to be used annually								

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)
LMU 1	144.0	Coastal graze 1 AU/1 ac, SG mod graze M	368	175	Annual	5.8	82.4	4.79	690
LMU 1A									
LMU 2	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	206	175	Annual	5.8	80.0	4.64	181
LMU 3									
LMU 4	97.0	Coastal graze 1 AU/1 ac, SG mod graze M	162	175	Annual	15.0	90.0	13.5	1310
LMU 4A	76.0	Coastal graze 1 AU/1 ac, SG mod graze M	162	175	Annual	15.0	90.0	13.5	1026
LMU 5	39.0	Coastal graze 1 AU/1 ac, SG mod graze M	174	175	Annual	15.0	90.0	13.5	527
LMU 5A									
LMU 6									
LMU 7	16.0	Coastal graze 1 AU/1 ac, SG mod graze M	346	175	Annual	5.8	80.0	4.64	74
LMU 7A									
LMU 8	26.0	Coastal graze 1 AU/1 ac, SG mod graze M	461	175	Annual	5.8	80.0	4.64	121
LMU 8A									
LMU 9	34.0	Coastal graze 1 AU/1 ac, SG mod graze M	356	175	Annual	5.8	80.0	4.64	158
LMU 9A									
LMU 10	29.0	Coastal graze 1 AU/1 ac, SG mod graze M	290	175	Annual	5.8	80.0	4.64	135
LMU 10A									
LMU 11	42.0	Coastal graze 1 AU/1 ac, SG mod graze M	144	175	Annual	15.0	90.0	13.5	567
LMU 12	24.0	Coastal graze 1 AU/1 ac, SG mod graze M	277	175	Annual	5.8	80.0	4.64	111
LMU 12A									
LMU 13									
LMU 14									

Total Effluent This Page: 4898

Printed on: 8/12/24 4:34 PM

Plan is based on: 590 Organic Nutrient Management Plan

Available Water Capacity Entries

Printed on: 8/12/24 4:34 PM Plan is based on: 590 Organic Nutrient Management Pla Permit #: WQ0003190000

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																
LMU 1	Gravelly clay loam	0	5	0.14	0.16	5	20	0	0	20	24	0	0	24				0.75
LMU 2	Find Sandy Loam	0	12	0.1	0.15	12	51	0.05	0.17	51				0				2.82
LMU 4	Fine Sand	0	10	0.05	0.09	10	24	0.12	0.17	24				0				2.73
LMU 4A	Fine Sand	0	4	0.09	0.13	4	24	0.08	0.12	24				0				2.44
LMU 5	Clay Loam	0	14	0.15	0.2	14	40	0.12	0.2	40				0				4.05
LMU 7	Stony Clay	0	8	0.11	0.2	8	12	0.08	0.18	12	14	0.04	0.07	14	24	0	0	1.87
LMU 8	Clay Loam	0	14	0.15	0.2	14	40	0.12	0.2	40				0				4.05
LMU 9	Fine Sandy Loam	0	12	0.11	0.17	12	50	0.12	0.18	50				0				3.48
LMU 10	Fine Sandy Loam	0	12	0.11	0.17	12	50	0.12	0.18	50				0				3.48
LMU 11	Fine Sandy Loam	0	12	0.11	0.17	12	50	0.12	0.18	50				0				3.48
LMU 12	Stony Clay	0	8	0.11	0.2	8	12	0.08	0.18	12	14	0.04	0.07	14	24	0	0	1.87

servi tech
6921 S. Bell • Amarillo, TX 79109
www.servitech.com

Phone: 806.677.0093
800.557.7509
Fax: 806.677.0329

Lab No: **3501**

LABORATORY ANALYSIS REPORT

Report Date: 07/08/2024 01:08 pm

Send To: 6224

ENVIRO-AG ENGINEERING INC
3404 AIRWAY BLVD
AMARILLO, TX 79118

Casey Johnson
Technical Director

Client Name: DANCING CRANE DAIRY
Sample ID: RCS TD1

Received: 06/11/2024
Sampled: 06/04/2024
Invoice No: 425753
P.O. #: RICHARD GEORGE

	Analysis results		lbs/acre-in	meq/L
NUTRIENTS				
Nitrogen				
Total Nitrogen	147	ppm	33	10.5
Organic Nitrogen	41	ppm	9	2.9
Ammonium Nitrogen	106.3	ppm	24	7.6
Nitrate+Nitrite Nitrogen	<0.20	ppm	0	0
Major and Secondary Nutrients				
Phosphorus	30	ppm		
Phosphorus as P2O5	70	ppm	16	
Potassium	240	ppm		6.1
Potassium as K2O	290	ppm	66	
OTHER PROPERTIES				
Moisture	99.8	%		
Total Solids	0.2	%	453	
Organic Matter	0.1	%	227	
Ash	<0.10	%		
C:N Ratio	3.9	ratio		

Amended Report - Any information on this report supersedes the previous report on 06/26/2024

The reported analytical results apply only to the sample as it was supplied.
The report may not be reproduced, except in full, without permission of ServiTech.

Your opinion is valuable to us. Please let us know what you think about our services! Send an email to feedback@servitech.com.

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: Dancing Crane Dairy

County: Erath

Date Sampled: 6/4/2024

Date Shipped: 6/10/2024

Project Manager: Richard George

Sample Type	Sample ID	Number of Containers		Test Package	Proper Preservation	Matrix
Wastewater	RCS #TD1	2	350	EAE TX CO KS LAGOON	Y	OT
Wastewater	RCS #TS1	2	351	EAE TX CO KS LAGOON	Y	OT
Wastewater	RCS #TS2	2	352	EAE TX CO KS LAGOON	Y	OT
Wastewater	RCS #TH2	2	353	EAE TX CO KS LAGOON	Y	OT

Relinquished By: Ref. Internal COC
Company: EAE

Relinquished By: Lisa Postmus
Company: EAE
Date/Time: 6/11

Relinquished By:
Company: ServiTech Lab
6.7.24

Received By:

servi tech
6921 S. Bell • Amarillo, TX 79109
www.servitech.com

Phone: 806.677.0093
800.557.7509
Fax: 806.677.0329

Lab No.: **3500**

LABORATORY ANALYSIS REPORT

Report Date: 06/26/2024 09:21 pm

Send To: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118		Amy Meier Data Review Coordinator
Results For:	DANCING CRANE DAIRY	**Received:**	06/11/2024
Sample ID:	SLURRY	**Sampled:**	06/04/2024
		Invoice No:	425753
		P.O. #:	RICHARD GEORGE

		Analysis (dry basis)	Analysis (as rec'd)	Total content lbs per Acre-In	Total content lbs per 1000 gal	Estimated available first year* lbs per Acre-In	Estimated available first year* lbs per 1000 gal
NUTRIENTS							
Nitrogen							
Total Nitrogen	%	2.904	0.151	6583.0	13.6	194.5	7.7
Organic Nitrogen	%	2.231	0.116	5057.2	10.4	115.2	4.6
Ammonium Nitrogen	%	0.673	0.035	1525.9	3.1	79.3	3.1
Nitrate+Nitrite Nitrogen	%	<0.0010	<0.0010	0	<0.1	<0.1	<0.1
Major and Secondary Nutrients							
Phosphorus	%	0.308	0.016				
Phosphorus as P2O5	%	0.712	0.037	1613.1	3.3	75.5	3.0
Potassium	%	3.75	0.195				
Potassium as K2O	%	4.50	0.234	10202	21.1	530.5	21.1
OTHER PROPERTIES							
Moisture	%		94.8				
Total Solids	%		5.2	226700	468		
Organic Matter	%	53.8	2.8	122069	252		
Ash	%		2.4		216		
C:N Ratio	ratio		10.8				
Density	lbs/gal	155.8	8.1				

* Assumes 44% 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.

The reported analytical results apply only to the sample as it was supplied.
The report may not be reproduced, except in full, without permission of ServiTech.

Your opinion is valuable to us. Please let us know what you think about our services! Send an email to feedback@servitech.com.

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: Dancing Crane Dairy

County: Erath

Date Sampled: 6/4/2024

Date Shipped: 6/10/2024

Project Manager: Richard George

Sample Type	Sample ID	Number of Containers	Test Package	Proper Preservation	Matrix
Slurry	Slurry	1	3500 EAE TX CO KS SLURRY	Y	SL

Relinquished By: Ref. Internal COC
Company: EAE

Relinquished By: Lisa Postmus
Company: EAE
Date/Time: 6/11
Received By: DG

Relinquished By:
Company: ServiTech Lab
6.7.24

Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Erin E. Chancellor, *Interim Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 5, 2023

CERTIFIED MAIL 7022 2410 0000 5131 6677
RETURN RECEIPT REQUESTED

Klaas Talsma, and Anastasia Talsma, Owner
Dancing Crane Dairy
3502 County Road 209
Hico, Texas 76457
Re: Annual Soil Sample Analysis Results at Dancing Crane Dairy
CAFO Permit No.: WQ0003190000

Dear Mr. and Ms. Talsma:

Attached are the analytical results for the soil samples that were collected at your facility on March 7 and 8, 2023. A copy of the sampling map is attached. Please utilize these results to update your nutrient management plan.

In addition, if any of the results are greater than 200 parts per million for phosphorus, please develop a new nutrient utilization plan (NUP) or revise your existing NUP, in accordance with your permit. All new or revised NUPs that are required to be submitted for TCEQ review and approval shall be mailed to the following address:

Water Quality Assessment Section Manager
Water Quality Division, MC 150
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

If you collected a duplicate sample following RG-408 protocol during the TCEQ sampling event that indicates a significant difference in the TCEQ analysis results (greater than 20% difference), you may choose to dispute the TCEQ sample results within 20 calendar days from the date of this letter. You must provide copies of all supporting documentation, including but not limited to your sample results, chain of custody documentation and laboratory quality assurance documentation. Please submit this information in writing to the TCEQ at the following address:

ATTN: Annual CAFO Soil Sample Analysis Disputes
Water Section Manager
Dallas/Fort Worth Regional Office
Texas Commission on Environmental Quality
2309 Gravel Drive
Fort Worth, TX 76118-6951

An analysis dispute received after the time allocated above will not be eligible for re-analysis. If you have any questions, please feel free to contact Mr. Michael Martin in the Stephenville Office at 254-552-1900.

Sincerely,

Michael Martin, Team Leader, Water Section
DFW Region Office
Texas Commission on Environmental Quality

MM/dm

Enclosures: Laboratory Analysis Reports

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55637

Location: Dancing Crane
(Do not fill in this shaded area if the facility information must be confidential)

Permit #: 3190

Region:	Organization #:	PCA Code:	Program:	Sampler telephone number:

E-Mail ID:

Sampler: (signature) Vanessa Hardner

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
	-01									See RFA	LMU TD1 (0-2)
	-02										LMU TD1 (2-6)
	-03										LMU TD1 (6-24)
	-04										LMU TD2 (0-2)
	-05										LMU TD2 (2-6)
	-06										LMU TD2 (6-24)
12664	-07	3/8/23	0920								LMU TD3 (0-2)
12665	-08	3/8/23	0920								LMU TD3 (2-6)
12666	-09	3/8/23	0920								LMU TD3 (6-24)
12667	-10	3/8/23	0945								LMU TD4 (0-2)

Relinquished by:	Date	Time	Received by:
Vanessa Gardner	3/15/23	1000	3-16-23
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Shipper name: Fed Ex	Shipper Number: 7715 6006 2786		

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: 055637a-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055637

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.
12664	55637-07	0-2	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12665	55637-08	2-6	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12666	55637-09	6-24	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12667	55637-10	0-2	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055637a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055637

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
12664	55637-07	217	ppm	389	ppm	3796	ppm	276	ppm	46.1	ppm	12.7	ppm
12665	55637-08	175	ppm	407	ppm	4633	ppm	255	ppm	43.4	ppm	23.8	ppm
12666	55637-09	30.0	ppm	303	ppm	8000	ppm	340	ppm	70.7	ppm	74.9	ppm
12667	55637-10	277	ppm	402	ppm	5139	ppm	323	ppm	51.4	ppm	15.2	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
12664	55637-07	5/3/2023	FMR	5/4/2023	JLP
12665	55637-08	5/3/2023	FMR	5/4/2023	JLP
12666	55637-09	5/3/2023	FMR	5/4/2023	JLP
12667	55637-10	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055637a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055637

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12664	55637-07	7.36	NA	0.103	dS/M	11.213	ppm
12665	55637-08	7.42	NA	0.093	dS/M	8.966	ppm
12666	55637-09	7.69	NA	0.112	dS/M	15.197	ppm
12667	55637-10	7.23	NA	0.285	dS/M	41.59	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
12664	55637-07	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12665	55637-08	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12666	55637-09	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12667	55637-10	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055637a-45068 Print Date: 22-May-23
Quality Control Report TCEQ COC# 055637

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
12679	IC929	46.2	ppm	285	ppm	2015	ppm	324	ppm	38.7	ppm	42.1	ppm
12680	IC930	48.9	ppm	296	ppm	2085	ppm	339	ppm	40.2	ppm	44.0	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk200	<0.0151	ppm	<0.0783	ppm	<0.530	ppm	<0.0530	ppm	0.409	ppm	<0.0968	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
IC929	5/3/2023	FMR	5/4/2023	JLP
IC930	5/3/2023	FMR	5/4/2023	JLP
blk200	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055637a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055637

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12679	IC929	5.9	na	0.252	dS/M	5.989	ppm	
12680	IC930	5.9	na	0.251	dS/M	5.741	ppm	
	Mean IC	5.86	na	0.2515	dS/M	5.865	ppm	
12680spike	Spiked sample	-	-	-	-	4.8	ppm	70.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk200	-	na	0	dS/M	-0.27	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
IC929	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC930	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk200	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

REQUEST FOR ANALYSIS
TCEQ-BOSQUE 1255/1226 SOIL SAMPLES

COC Number: 55637	
Sample ID: 07 - 10	
Standard Request for Analysis	
NO3-N	Mg
P Mehlich III by ICP	Conductivity
K	pH
Na	
Additional Tests	
N/A	

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55638

Location: Dancing Crane
(Do not fill in this shaded area if the facility information must be confidential)

Permit #: 3190

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
12668	-01	3/8/23	0945							See RFA	LMU TD4 (2-6)
12669	-02	3/8/23	0945								LMU TD4 (6-24)
12670	-03	3/7/23	11:00								LMU TD 6 (0-2)
12671	-04	3/7/23	11:00								LMU TD6 (2-6)
12672	-05	3/7/23	11:00								LMU TD6 (6-24)
~~12673~~	-06 TA										LMU TD7 (0-6)
~~12674~~	-07										LMU TD7 (6-24)
12673	-08	3-7-23	11:15								LMU TH1 (0-2)
12674	-09	3-7-23	11:15								LMU TH1 (2-6)
12675	-10	3-7-23	11:15								LMU TH1 (6-24)

Relinquished by: Vanessa Gardner	Date 3/10/23	Time 1000	Received by:	3-16-23
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date	Time	Received by:	
Shipper name: Fed Ex	Shipper Number: 7715 6006 2786			

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: 055638a-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055638

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.
12668	55638-01	2-6	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12669	55638-02	6-24	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12670	55638-03	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12671	55638-04	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12672	55638-05	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12673	55638-08	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12674	55638-09	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12675	55638-10	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055638a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055638

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
12668	55638-01	197	ppm	461	ppm	5343	ppm	314	ppm	52.3	ppm	37.4	ppm
12669	55638-02	21.9	ppm	323	ppm	9590	ppm	257	ppm	82.5	ppm	59.7	ppm
12670	55638-03	206	ppm	425	ppm	7432	ppm	337	ppm	66.1	ppm	36.3	ppm
12671	55638-04	207	ppm	570	ppm	7875	ppm	384	ppm	69.7	ppm	54.9	ppm
12672	55638-05	33.4	ppm	250	ppm	9694	ppm	286	ppm	80.2	ppm	86.6	ppm
12673	55638-08	174	ppm	675	ppm	4593	ppm	288	ppm	51.2	ppm	18.5	ppm
12674	55638-09	112	ppm	619	ppm	4837	ppm	248	ppm	49.2	ppm	21.9	ppm
12675	55638-10	20.3	ppm	582	ppm	8287	ppm	311	ppm	74.8	ppm	68.4	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
12668	55638-01	5/3/2023	FMR	5/4/2023	JLP
12669	55638-02	5/3/2023	FMR	5/4/2023	JLP
12670	55638-03	5/3/2023	FMR	5/4/2023	JLP
12671	55638-04	5/3/2023	FMR	5/4/2023	JLP
12672	55638-05	5/3/2023	FMR	5/4/2023	JLP
12673	55638-08	5/3/2023	FMR	5/4/2023	JLP
12674	55638-09	5/3/2023	FMR	5/4/2023	JLP
12675	55638-10	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055638a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055638

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12668	55638-01	7.74	NA	0.138	dS/M	9.146	ppm
12669	55638-02	7.82	NA	0.166	dS/M	13.059	ppm
12670	55638-03	7.07	NA	0.427	dS/M	67.826	ppm
12671	55638-04	7.58	NA	0.12	dS/M	13.348	ppm
12672	55638-05	7.85	NA	0.124	dS/M	13.88	ppm
12673	55638-08	7.24	NA	0.198	dS/M	34.496	ppm
12674	55638-09	7.72	NA	0.109	dS/M	10.501	ppm
12675	55638-10	7.76	NA	0.122	dS/M	14.403	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
12668	55638-01	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12669	55638-02	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12670	55638-03	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12671	55638-04	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12672	55638-05	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12673	55638-08	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12674	55638-09	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12675	55638-10	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055638a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055638

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
12679	IC929	46.2	ppm	285	ppm	2015	ppm	324	ppm	38.7	ppm	42.1	ppm
12680	IC930	48.9	ppm	296	ppm	2085	ppm	339	ppm	40.2	ppm	44.0	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk200	<0.0151	ppm	<0.0783	ppm	<0.530	ppm	<0.0530	ppm	0.409	ppm	<0.0968	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
IC929	5/3/2023	FMR	5/4/2023	JLP
IC930	5/3/2023	FMR	5/4/2023	JLP
blk200	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055638a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055638

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12679	IC929	5.9	na	0.252	dS/M	5.989	ppm	
12680	IC930	5.9	na	0.251	dS/M	5.741	ppm	
	Mean IC	5.86	na	0.2515	dS/M	5.865	ppm	
12680spike	Spiked sample	-	-	-	-	4.8	ppm	70.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk200	-	na	0	dS/M	-0.27	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
IC929	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC930	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk200	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

REQUEST FOR ANALYSIS
TCEQ-BOSQUE 1255/1226 SOIL SAMPLES

COC Number: 55638	
Sample ID: 01-050, 08-10	
Standard Request for Analysis	
NO3-N	Mg
P Mehlich III by ICP	Conductivity
K	pH
Na	
Additional Tests	
N/A	

B

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55639

Location: Dancing Crane (Do not fill in this shaded area if the facility information must be confidential)

Permit #: 3190

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
12642	-01	3-7-23	12:15							See RFA	LMU TH2 (0-2)
12643	-02	"	12:15							"	LMU TH2 (2-6)
12644	-03	"	12:15							"	LMU TH2 6-24
12645	-04	"	10:35							"	LMU TH3 (0-2)
12646	-05	"	10:35							"	LMU TH3 (2-6)
12647	-06	"	10:35							"	LMU TH3 (6-24)
12648	-07	"	12:55							"	LMU TH4E (0-2)
12649	-08	"	12:55							"	LMU TH4E (2-6)
12650	-09	"	12:55							"	LMU TH4E (6-24)
12651	-10	"	1:00							"	LMU TH4W (0-2)

Relinquished by: Vanessa Gardner	Date 3/15/23	Time 1000	Received by:	3-16-23
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date	Time	Received by:	
Shipper name: Fed Ex	Shipper Number: 7715 6006 3120			

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: 055639a-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055639

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.
12642	55639-01	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12643	55639-02	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12644	55639-03	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12645	55639-04	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12646	55639-05	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12647	55639-06	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12648	55639-07	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12649	55639-08	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12650	55639-09	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12651	55639-10	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055639a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055639

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
12642	55639-01	268	ppm	394	ppm	3956	ppm	332	ppm	39.6	ppm	24.7	ppm
12643	55639-02	299	ppm	526	ppm	4712	ppm	299	ppm	43.9	ppm	39.6	ppm
12644	55639-03	34.3	ppm	312	ppm	8572	ppm	316	ppm	59.5	ppm	41.5	ppm
12645	55639-04	362	ppm	681	ppm	8271	ppm	474	ppm	67.8	ppm	28.3	ppm
12646	55639-05	288	ppm	759	ppm	7237	ppm	438	ppm	59.4	ppm	41.5	ppm
12647	55639-06	30.8	ppm	314	ppm	14292	ppm	288	ppm	91.8	ppm	59.6	ppm
12648	55639-07	151	ppm	274	ppm	1858	ppm	216	ppm	25.3	ppm	8.67	ppm
12649	55639-08	83.7	ppm	201	ppm	1471	ppm	134	ppm	19.0	ppm	12.5	ppm
12650	55639-09	7.44	ppm	189	ppm	2401	ppm	263	ppm	24.0	ppm	33.8	ppm
12651	55639-10	219	ppm	305	ppm	3578	ppm	320	ppm	35.5	ppm	20.2	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
12642	55639-01	5/3/2023	FMR	5/4/2023	JLP
12643	55639-02	5/3/2023	FMR	5/4/2023	JLP
12644	55639-03	5/3/2023	FMR	5/4/2023	JLP
12645	55639-04	5/3/2023	FMR	5/4/2023	JLP
12646	55639-05	5/3/2023	FMR	5/4/2023	JLP
12647	55639-06	5/3/2023	FMR	5/4/2023	JLP
12648	55639-07	5/3/2023	FMR	5/4/2023	JLP
12649	55639-08	5/3/2023	FMR	5/4/2023	JLP
12650	55639-09	5/3/2023	FMR	5/4/2023	JLP
12651	55639-10	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055639a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055639

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12642	55639-01	7.17	NA	0.186	dS/M	54.696	ppm
12643	55639-02	7.6	NA	0.103	dS/M	17.329	ppm
12644	55639-03	7.76	NA	0.087	dS/M	13.21	ppm
12645	55639-04	7.27	NA	0.22	dS/M	71.701	ppm
12646	55639-05	7.6	NA	0.15	dS/M	27.677	ppm
12647	55639-06	7.89	NA	0.212	dS/M	27.896	ppm
12648	55639-07	6.96	NA	0.134	dS/M	26.874	ppm
12649	55639-08	7.42	NA	0.085	dS/M	7.144	ppm
12650	55639-09	7.62	NA	0.087	dS/M	7.312	ppm
12651	55639-10	7.02	NA	0.161	dS/M	37.898	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
12642	55639-01	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12643	55639-02	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12644	55639-03	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12645	55639-04	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12646	55639-05	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12647	55639-06	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12648	55639-07	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12649	55639-08	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12650	55639-09	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12651	55639-10	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055639a-45068 Print Date: 22-May-23
Quality Control Report TCEQ COC# 055639

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
12659	IC927	43.4	ppm	292	ppm	2101	ppm	333	ppm	36.4	ppm	42.3	ppm
12660	IC928	43.3	ppm	284	ppm	2052	ppm	324	ppm	36.1	ppm	41.5	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk199	<0.0151	ppm	<0.0783	ppm	<0.530	ppm	<0.0530	ppm	0.409	ppm	<0.0968	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
IC927	5/3/2023	FMR	5/4/2023	JLP
IC928	5/3/2023	FMR	5/4/2023	JLP
blk199	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055639a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055639

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12659	IC927	5.9	na	0.25	dS/M	5.897	ppm	
12660	IC928	5.8	na	0.25	dS/M	5.759	ppm	
	Mean IC	5.845	na	0.25	dS/M	5.828	ppm	
12660spike	Spiked sample	-	-	-	-	4.3	ppm	67
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk199	-	na	0	dS/M	-0.23	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
IC927	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC928	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk199	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

REQUEST FOR ANALYSIS
TCEQ-BOSQUE 1255/1226 SOIL SAMPLES

COC Number: 55639	
Sample ID: 01-10	
Standard Request for Analysis	
NO3-N	Mg
~~P~~ Mehlich III by ICP	Conductivity
K	pH
Na	
Additional Tests	
N/A	

B

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55640

Location: Dancing Crane
(Do not fill in this shaded area if the facility information must be confidential)

Permit #: 3190

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
12652	-01	3-7-23	1:00							see RFA	LMU TH4W (2-6)
12653	-02		1:00								LMU TH4W (6-24)
12654	-03		11:49								LMU TH5 (0-2)
12655	-04		11:45								LMU TH5 (2-6)
12656	-05		11:45								LMU TH5 (6-24)
12657	-06		12:25								LMU TH6 (0-2)
12658	-07		12:25								LMU TH6 (2-6)
12661	-08		12:25								LMU TH6 (6-24)
12662	-09		11:46								LMU TH7 (0-6)
12663	-10		11:46								LMU TH7 (6-24)

Relinquished by: Vanessa Gardner	Date 3/10/23	Time 1000	Received by:	1.3-16-23
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date	Time	Received by:	
Relinquished by:	Date	Time	Received by:	
Shipper name: Fed Ex	Shipper Number: 7715 6006 3120			

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: 055640a-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055640

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.
12652	55640-01	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12653	55640-02	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12654	55640-03	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12655	55640-04	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12656	55640-05	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12657	55640-06	0-2	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12658	55640-07	2-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055640a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055640

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
12652	55640-01	169	ppm	339	ppm	3432	ppm	265	ppm	33.9	ppm	33.4	ppm
12653	55640-02	20.2	ppm	241	ppm	6714	ppm	310	ppm	56.1	ppm	112	ppm
12654	55640-03	139	ppm	258	ppm	3456	ppm	235	ppm	36.4	ppm	14.5	ppm
12655	55640-04	93.3	ppm	225	ppm	3251	ppm	171	ppm	33.4	ppm	17.9	ppm
12656	55640-05	6.03	ppm	206	ppm	8106	ppm	318	ppm	70.9	ppm	50.0	ppm
12657	55640-06	162	ppm	286	ppm	2548	ppm	252	ppm	32.4	ppm	13.8	ppm
12658	55640-07	73.6	ppm	241	ppm	2183	ppm	188	ppm	27.3	ppm	23.4	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
12652	55640-01	5/3/2023	FMR	5/4/2023	JLP
12653	55640-02	5/3/2023	FMR	5/4/2023	JLP
12654	55640-03	5/3/2023	FMR	5/4/2023	JLP
12655	55640-04	5/3/2023	FMR	5/4/2023	JLP
12656	55640-05	5/3/2023	FMR	5/4/2023	JLP
12657	55640-06	5/3/2023	FMR	5/4/2023	JLP
12658	55640-07	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055640a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055640

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12652	55640-01	7.29	NA	0.078	dS/M	11.302	ppm
12653	55640-02	7.78	NA	0.101	dS/M	15.649	ppm
12654	55640-03	6.85	NA	0.132	dS/M	35.766	ppm
12655	55640-04	7.05	NA	0.091	dS/M	9.181	ppm
12656	55640-05	7.22	NA	0.122	dS/M	11.718	ppm
12657	55640-06	6.86	NA	0.26	dS/M	41.433	ppm
12658	55640-07	7.13	NA	0.128	dS/M	10.245	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
12652	55640-01	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12653	55640-02	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12654	55640-03	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12655	55640-04	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12656	55640-05	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12657	55640-06	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12658	55640-07	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055640a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055640

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
12659	IC927	43.4	ppm	292	ppm	2101	ppm	333	ppm	36.4	ppm	42.3	ppm
12660	IC928	43.3	ppm	284	ppm	2052	ppm	324	ppm	36.1	ppm	41.5	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk199	<0.0151	ppm	<0.0783	ppm	<0.530	ppm	<0.0530	ppm	0.409	ppm	<0.0968	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
IC927	5/3/2023	FMR	5/4/2023	JLP
IC928	5/3/2023	FMR	5/4/2023	JLP
blk199	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055640a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055640

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12659	IC927	5.9	na	0.25	dS/M	5.897	ppm	
12660	IC928	5.8	na	0.25	dS/M	5.759	ppm	
	Mean IC	5.845	na	0.25	dS/M	5.828	ppm	
12660spike	Spiked sample	-	-	-	-	4.3	ppm	67
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk199	-	na	0	dS/M	-0.23	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
IC927	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC928	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk199	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055640b-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055640

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.
12661	55640-08	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12662	55640-09	0-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12663	55640-10	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055640b-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055640

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
12661	55640-08	4.58	ppm	249	ppm	6999	ppm	333	ppm	62.1	ppm	135	ppm
12662	55640-09	201	ppm	515	ppm	15074	ppm	325	ppm	116	ppm	33.9	ppm
12663	55640-10	48.9	ppm	335	ppm	9950	ppm	205	ppm	83.0	ppm	26.4	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
12661	55640-08	5/3/2023	FMR	5/4/2023	JLP
12662	55640-09	5/3/2023	FMR	5/4/2023	JLP
12663	55640-10	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055640b-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055640

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12661	55640-08	7.56	NA	0.148	dS/M	6.382	ppm
12662	55640-09	7.5	NA	0.175	dS/M	34.355	ppm
12663	55640-10	7.86	NA	0.117	dS/M	9.108	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
12661	55640-08	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12662	55640-09	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12663	55640-10	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055640b-45068 Print Date: 22-May-23
Quality Control Report TCEQ COC# 055640

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
12679	IC929	46.2	ppm	285	ppm	2015	ppm	324	ppm	38.7	ppm	42.1	ppm
12680	IC930	48.9	ppm	296	ppm	2085	ppm	339	ppm	40.2	ppm	44.0	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk200	<0.0151	ppm	<0.0783	ppm	<0.530	ppm	<0.0530	ppm	0.409	ppm	<0.0968	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
IC929	5/3/2023	FMR	5/4/2023	JLP
IC930	5/3/2023	FMR	5/4/2023	JLP
blk200	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055640b-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055640

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12679	IC929	5.9	na	0.252	dS/M	5.989	ppm	
12680	IC930	5.9	na	0.251	dS/M	5.741	ppm	
	Mean IC	5.86	na	0.2515	dS/M	5.865	ppm	
12680spike	Spiked sample	-	-	-	-	4.8	ppm	70.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk200	-	na	0	dS/M	-0.27	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
IC929	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC930	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk200	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

REQUEST FOR ANALYSIS
TCEQ-BOSQUE 1255/1226 SOIL SAMPLES

COC Number: 55640	
Sample ID: 01-10	
Standard Request for Analysis	
NO3-N	Mg
P Mehlich III by ICP	Conductivity
K	pH
Na	
Additional Tests	
N/A	

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55641 2

Location: Dancing Crane
(Do not fill in this shaded area if the facility information must be confidential)

Permit #: 3190

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
12676	-01	3-7-23	9:46							SEL RFA	LMU TH8 (0-6)
12677	-02	3-7-23	9:46								LMU TH8 (6-24)
12678	-03	3/8/23	1100								LMU TS1 (0-2)
12681	-04	3/8/23	1100								LMU TS1 (2-6)
12682	-05	3/8/23	1100								LMU TS1 (6-24)
12683	-06	3/8/23	1030								LMU TS2 (0-2)
12684	-07	3/8/23	1030								LMU TS2 (2-6)
12685	-08	3/8/23	1030								LMU TS2 (6-24)
12686	-09	3/8/23	1145								LMU TS4 (0-2)
12687	-10	3/8/23	1145								LMU TS4 (2-6)

Relinquished by:	Date	Time	Received by:
Vanessa Gardner	3/8/23	1000	3-16-23
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Shipper name: Fed Ex	Shipper Number: 7715 6006 3109		

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: 055641a-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055641

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.
12676	55641-01	0-6	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12677	55641-02	6-24	3/7/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12678	55641-03	0-2	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055641a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055641

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
12676	55641-01	25.9	ppm	160	ppm	2579	ppm	137	ppm	36.1	ppm	16.2	ppm
12677	55641-02	0.421	ppm	174	ppm	6409	ppm	334	ppm	67.1	ppm	208	ppm
12678	55641-03	290	ppm	677	ppm	2684	ppm	482	ppm	48.3	ppm	74.5	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
12676	55641-01	5/3/2023	FMR	5/4/2023	JLP
12677	55641-02	5/3/2023	FMR	5/4/2023	JLP
12678	55641-03	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055641a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055641

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12676	55641-01	6.64	NA	0.095	dS/M	13.399	ppm
12677	55641-02	7.68	NA	0.214	dS/M	2.799	ppm
12678	55641-03	7.56	NA	0.33	dS/M	19.252	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
12676	55641-01	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12677	55641-02	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12678	55641-03	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055641a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055641

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
12679	IC929	46.2	ppm	285	ppm	2015	ppm	324	ppm	38.7	ppm	42.1	ppm
12680	IC930	48.9	ppm	296	ppm	2085	ppm	339	ppm	40.2	ppm	44.0	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk200	<0.0151	ppm	<0.0783	ppm	<0.530	ppm	<0.0530	ppm	0.409	ppm	<0.0968	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	0.0111	ppm	0.0783	ppm	0.5303	ppm	0.0530	ppm	0.0072	ppm	0.0968	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
IC929	5/3/2023	FMR	5/4/2023	JLP
IC930	5/3/2023	FMR	5/4/2023	JLP
blk200	5/3/2023	FMR	5/4/2023	JLP

Report ID: 055641a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055641

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12679	IC929	5.9	na	0.252	dS/M	5.989	ppm	
12680	IC930	5.9	na	0.251	dS/M	5.741	ppm	
	Mean IC	5.86	na	0.2515	dS/M	5.865	ppm	
12680spike	Spiked sample	-	-	-	-	4.8	ppm	70.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk200	-	na	0	dS/M	-0.27	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
IC929	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC930	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk200	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055641b-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055641

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.
12681	55641-04	2-6	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12682	55641-05	6-24	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12683	55641-06	0-2	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12684	55641-07	2-6	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12685	55641-08	6-24	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12686	55641-09	0-2	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12687	55641-10	2-6	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055641b-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055641

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
12681	55641-04	246	ppm	652	ppm	3053	ppm	374	ppm	46.2	ppm	72.1	ppm
12682	55641-05	54.2	ppm	703	ppm	5801	ppm	523	ppm	62.6	ppm	315	ppm
12683	55641-06	144	ppm	495	ppm	2965	ppm	312	ppm	53.7	ppm	91.6	ppm
12684	55641-07	113	ppm	292	ppm	2745	ppm	196	ppm	46.3	ppm	51.6	ppm
12685	55641-08	26.4	ppm	158	ppm	6039	ppm	233	ppm	57.5	ppm	117	ppm
12686	55641-09	356	ppm	336	ppm	3499	ppm	340	ppm	61.2	ppm	23.9	ppm
12687	55641-10	311	ppm	463	ppm	4830	ppm	325	ppm	52.7	ppm	39.4	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	0.0043	ppm	0.1351	ppm	0.0211	ppm	0.0870	ppm	0.0098	ppm	0.9263	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
12681	55641-04	5/9/2023	DEC	5/9/2023	JLP
12682	55641-05	5/9/2023	DEC	5/9/2023	JLP
12683	55641-06	5/9/2023	DEC	5/9/2023	JLP
12684	55641-07	5/9/2023	DEC	5/9/2023	JLP
12685	55641-08	5/9/2023	DEC	5/9/2023	JLP
12686	55641-09	5/9/2023	DEC	5/9/2023	JLP
12687	55641-10	5/9/2023	DEC	5/9/2023	JLP

Report ID: 055641b-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055641

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12681	55641-04	7.72	NA	0.131	dS/M	3.747	ppm
12682	55641-05	8.22	NA	0.136	dS/M	12.495	ppm
12683	55641-06	7.1	NA	0.199	dS/M	36.617	ppm
12684	55641-07	7.1	NA	0.095	dS/M	7.259	ppm
12685	55641-08	7.6	NA	0.094	dS/M	8.904	ppm
12686	55641-09	6.79	NA	0.217	dS/M	22.616	ppm
12687	55641-10	7.35	NA	0.185	dS/M	2.752	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
12681	55641-04	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12682	55641-05	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12683	55641-06	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12684	55641-07	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12685	55641-08	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12686	55641-09	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12687	55641-10	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055641b-45068 Print Date: 22-May-23
Quality Control Report TCEQ COC# 055641

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
12699	IC931	50.5	ppm	292	ppm	2018	ppm	327	ppm	40.1	ppm	46.3	ppm
12700	IC932	50.5	ppm	293	ppm	2017	ppm	331	ppm	39.8	ppm	47.8	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk201	<0.0245	ppm	<0.135	ppm	0.296	ppm	<0.0870	ppm	0.411	ppm	0.461	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	0.0043	ppm	0.1351	ppm	0.0211	ppm	0.0870	ppm	0.0098	ppm	0.9263	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
IC931	5/9/2023	DEC	5/9/2023	JLP
IC932	5/9/2023	DEC	5/9/2023	JLP
blk201	5/9/2023	DEC	5/9/2023	JLP

Report ID: 055641b-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055641

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12699	IC931	5.9	na	0.253	dS/M	6.069	ppm	
12700	IC932	5.9	na	0.25	dS/M	5.313	ppm	
	Mean IC	5.855	na	0.2515	dS/M	5.691	ppm	
12700spike	Spiked sample	-	-	-	-	4.8	ppm	70.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk201	-	na	0	dS/M	-0.27	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
IC931	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC932	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk201	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

REQUEST FOR ANALYSIS
TCEQ-BOSQUE 1255/1226 SOIL SAMPLES

COC Number: 55641	
Sample ID: 01-10	
Standard Request for Analysis	
NO3-N	Mg
P Mehlich III by ICP	Conductivity
K	pH
Na	
Additional Tests	
N/A	

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55642 2

Location: Dancing Crane
(Do not fill in this shaded area if the facility information must be confidential)

Permit #: 3190

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
12688	-01	3/8/23	1145							See RFA	LMUTS4 (6-24)
12689	-02	3/8/23	1210								LMUTS5 (0-2)
12690	-03	3/8/23	1210								LMUTS5 (2-6)
12691	-04	3/8/23	1210								LMUTS5 (6-24)
	-05										
	-06										
	-07										
	-08										
	-09										
	-10										

Relinquished by:	Date	Time	Received by:
Vanessa Gardner	3/15/23	1000	3-16-23
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Relinquished by:	Date	Time	Received by:
Shipper name: Fed Ex	Shipper Number: 7715 6006 3109		

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: 055642a-45068
Print Date: 22-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055642

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.
12688	55642-01	6-24	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12689	55642-02	0-2	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12690	55642-03	2-6	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	TLP
12691	55642-04	6-24	3/8/2023	Vanessa Gardner	4	3/16/2023	soil	3/24/2023	4/27/2023	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: 055642a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055642

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
12688	55642-01	71.8	ppm	416	ppm	6396	ppm	452	ppm	66.1	ppm	232	ppm
12689	55642-02	461	ppm	763	ppm	6492	ppm	399	ppm	83.2	ppm	28.4	ppm
12690	55642-03	355	ppm	606	ppm	6664	ppm	408	ppm	86.2	ppm	39.7	ppm
12691	55642-04	54.4	ppm	368	ppm	9894	ppm	397	ppm	96.2	ppm	107	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	0.0043	ppm	0.1351	ppm	0.0211	ppm	0.0870	ppm	0.0098	ppm	0.9263	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
12688	55642-01	5/9/2023	DEC	5/9/2023	JLP
12689	55642-02	5/9/2023	DEC	5/9/2023	JLP
12690	55642-03	5/9/2023	DEC	5/9/2023	JLP
12691	55642-04	5/9/2023	DEC	5/9/2023	JLP

Report ID: 055642a-45068 Print Date: 22-May-23

Standard Sample Report TCEQ COC# 055642

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12688	55642-01	7.87	NA	0.105	dS/M	15.162	ppm
12689	55642-02	7.32	NA	0.239	dS/M	34.733	ppm
12690	55642-03	7.49	NA	0.285	dS/M	16.827	ppm
12691	55642-04	7.84	NA	0.172	dS/M	32.467	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
12688	55642-01	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12689	55642-02	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12690	55642-03	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
12691	55642-04	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

Report ID: 055642a-45068 Print Date: 22-May-23
Quality Control Report TCEQ COC# 055642

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
12699	IC931	50.5	ppm	292	ppm	2018	ppm	327	ppm	40.1	ppm	46.3	ppm
12700	IC932	50.5	ppm	293	ppm	2017	ppm	331	ppm	39.8	ppm	47.8	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	289.0	ppm	26.1	ppm	29.0	ppm
	IC Upper	51.9	ppm	320.0	ppm	2499.0	ppm	369.0	ppm	46.8	ppm	53.0	ppm
	blk201	<0.0245	ppm	<0.135	ppm	0.296	ppm	<0.0870	ppm	0.411	ppm	0.461	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	0.0043	ppm	0.1351	ppm	0.0211	ppm	0.0870	ppm	0.0098	ppm	0.9263	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
IC931	5/9/2023	DEC	5/9/2023	JLP
IC932	5/9/2023	DEC	5/9/2023	JLP
blk201	5/9/2023	DEC	5/9/2023	JLP

Report ID: 055642a-45068 Print Date: 22-May-23

Quality Control Report TCEQ COC# 055642

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12699	IC931	5.9	na	0.253	dS/M	6.069	ppm	
12700	IC932	5.9	na	0.25	dS/M	5.313	ppm	
	Mean IC	5.855	na	0.2515	dS/M	5.691	ppm	
12700spike	Spiked sample	-	-	-	-	4.8	ppm	70.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk201	-	na	0	dS/M	-0.27	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
IC931	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
IC932	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW
blk201	5/4/2023	DEC	5/4/2023	DEC	5/4/2023	DEC	5/3/2023	FMR	05/04/23	JW

REQUEST FOR ANALYSIS
TCEQ-BOSQUE 1255/1226 SOIL SAMPLES

COC Number: 55642	
Sample ID: 01 - 04	
Standard Request for Analysis	
NO3-N	Mg
P Mehlich III by ICP	Conductivity
K	pH
Na	
Additional Tests	
N/A	

Dancing Crane Dairy**3502 CR 209, Hico, TX 76457**Oct. 26, 2018 Permit

This map was generated by the Region 4 Stephenville Office of the Texas Commission on Environmental Quality. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. For more information concerning this map, contact the TCEQ Region 4 Stephenville Office at 254-552-1900.



Dancing Crane Dairy**LMU TH 8**Oct. 26, 2018 Permit

This map was generated by the Region 4 Stephenville Office of the Texas Commission on Environmental Quality. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the approximate relative location of property boundaries. For more information concerning this map, contact the TCEQ Region 4 Stephenville Office at 254-552-1900.



Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Kelly Keel, *Interim Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 27, 2023

CERTIFIED MAIL 7022 2410 0000 5131 6745
RETURN RECEIPT REQUESTED
Mr. Klass Talsma, and Ms. Anastasia Talsma,, Owner
Dancing Crane Dairy
7469 County Road 209
Hico, Texas 76457
Re: Annual Soil Sample Analysis Results at Dancing Crane Dairy
CAFO Permit No.: WQ0003190000

Dear Mr. Talsma, and Ms. Talsma:

Attached are the analytical results for the soil samples that were collected at your facility on March 27, 2023. A copy of the sampling map is attached. Please utilize these results to update your nutrient management plan.

In addition, if any of the results are greater than 200 parts per million for phosphorus, please develop a new nutrient utilization plan (NUP) or revise your existing NUP, in accordance with your permit. All new or revised NUPs that are required to be submitted for TCEQ review and approval shall be mailed to the following address:

Water Quality Assessment Section Manager
Water Quality Division, MC 150
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

If you collected a duplicate sample following RG-408 protocol during the TCEQ sampling event that indicates a significant difference in the TCEQ analysis results (greater than 20% difference), you may choose to dispute the TCEQ sample results within 20 calendar days from the date of this letter. You must provide copies of all supporting documentation, including but not limited to your sample results, chain of custody documentation and laboratory quality assurance documentation. Please submit this information in writing to the TCEQ at the following address:

ATTN: Annual CAFO Soil Sample Analysis Disputes
Water Section Manager
Dallas/Fort Worth Regional Office
Texas Commission on Environmental Quality
2309 Gravel Drive
Fort Worth, TX 76118-6951

An analysis dispute received after the time allocated above will not be eligible for re-analysis. If you have any questions, please feel free to contact Mr. Michael Martin in the Stephenville Office at 254-552-1900.

Sincerely,

Michael Martin, Team Leader, Water Section
DFW Region Office
Texas Commission on Environmental Quality

MM/dm

Enclosures: Laboratory Analysis Reports

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Chain of Custody Record

55661

Location: Dancing Crane (Do not fill in this shaded area if the facility information must be confidential)

Permit #: WQ 3190

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
12696	-01	3/27/23	1130								TD 1 (0-2)
12697	-02	3/27/23	1130								TD 1 (2-6)
12698	-03	3/27/23	1130								TD 1 (6-24)
12701	-04	3/27/23	1201								TD 2 (0-2)
12702	-05	3/27/23	1201								TD 2 (2-6)
12703	-06	3/27/23	1201								TD 2 (6-24)
12704	-07	3/27/23	1045								TD 7 (0-2)
12705	-08	3/27/23	1045								TD 7 (6-24)
12706	-09	3/27/23	1045								TD 7 (2-6)
	-10										

Relinquished by:	Date	Time	Received by:	For Laboratory Use:
Vanessa Gardner	4/24/23	1000	4-25-23	
Relinquished by:	Date	Time	Received by:	Received on ice: Y N deg. C
Relinquished by:	Date	Time	Received by:	Preservatives: Y N
Relinquished by:	Date	Time	Received by:	COC Seal: Y N
Shipper name: FED-EX	Shipper Number: 7719 3792 3227			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: 055661a-45091
Print Date: 14-Jun-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055661

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.
12696	55661-01	0-2	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	TLP
12697	55661-02	2-6	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	TLP
12698	55661-03	6-24	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	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: 055661a-45091 Print Date: 14-Jun-23

Standard Sample Report TCEQ COC# 055661

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
12696	55661-01	368	ppm	1636	ppm	5635	ppm	901	ppm	60.0	ppm	167	ppm
12697	55661-02	133	ppm	1757	ppm	7589	ppm	840	ppm	68.9	ppm	303	ppm
12698	55661-03	13.2	ppm	991	ppm	11442	ppm	496	ppm	82.4	ppm	445	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
12696	55661-01	5/30/2023	FMR	5/30/2023	JLP
12697	55661-02	5/30/2023	FMR	5/30/2023	JLP
12698	55661-03	5/30/2023	FMR	5/30/2023	JLP

Report ID: 055661a-45091 Print Date: 14-Jun-23

Standard Sample Report TCEQ COC# 055661

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12696	55661-01	7.65	NA	0.485	dS/M	84.166	ppm
12697	55661-02	7.95	NA	0.202	dS/M	18.255	ppm
12698	55661-03	7.84	NA	0.312	dS/M	29.708	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
12696	55661-01	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12697	55661-02	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12698	55661-03	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW

Report ID: 055661a-45091 Print Date: 14-Jun-23

Quality Control Report TCEQ COC# 055661

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
12699	IC933	41.5	ppm	279	ppm	2039	ppm	315	ppm	32.6	ppm	40.1	ppm
12700	IC934	39.1	ppm	272	ppm	1981	ppm	309	ppm	31.0	ppm	39.4	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
	blk202	-0.338	ppm	-0.979	ppm	-2.22	ppm	-0.503	ppm	0.293	ppm	-0.0438	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
IC933	5/30/2023	FMR	5/30/2023	JLP
IC934	5/30/2023	FMR	5/30/2023	JLP
blk202	5/30/2023	FMR	5/30/2023	JLP

Report ID: 055661a-45091 Print Date: 14-Jun-23

Quality Control Report TCEQ COC# 055661

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12699	IC933	5.8	na	0.251	dS/M	5.742	ppm	
12700	IC934	5.9	na	0.254	dS/M	5.032	ppm	
	Mean IC	5.84	na	0.2525	dS/M	5.387	ppm	
12700spike	Spiked sample	-	-	-	-	4.7	ppm	86.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk202	-	na	0	dS/M	-0.066	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
IC933	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
IC934	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
blk202	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055661b-45091
Print Date: 14-Jun-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: Dancing Crane
Client address: not provided

Standard Sample Report TCEQ COC# 055661

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.
12701	55661-04	0-2	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	TLP
12702	55661-05	2-6	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	TLP
12703	55661-06	6-24	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	TLP
12704	55661-07	0-2	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	TLP
12705	55661-08	2-6	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	TLP
12706	55661-09	6-24	3/27/2023	Vanessa Gardner	4	4/25/2023	soil	4/27/2023	5/28/2023	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: 055661b-45091 Print Date: 14-Jun-23

Standard Sample Report TCEQ COC# 055661

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
12701	55661-04	346	ppm	471	ppm	7539	ppm	370	ppm	55.6	ppm	31.2	ppm
12702	55661-05	303	ppm	932	ppm	7263	ppm	487	ppm	49.7	ppm	39.7	ppm
12703	55661-06	83.7	ppm	903	ppm	10287	ppm	418	ppm	62.0	ppm	52.7	ppm
12704	55661-07	137	ppm	356	ppm	3539	ppm	232	ppm	31.3	ppm	27.6	ppm
12705	55661-08	9.80	ppm	188	ppm	7060	ppm	228	ppm	48.5	ppm	83.2	ppm
12706	55661-09	86.7	ppm	308	ppm	4298	ppm	173	ppm	33.0	ppm	30.3	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	0.0051	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
12701	55661-04	5/30/2023	FMR	5/30/2023	JLP
12702	55661-05	5/30/2023	FMR	5/30/2023	JLP
12703	55661-06	5/30/2023	FMR	5/30/2023	JLP
12704	55661-07	5/30/2023	FMR	5/30/2023	JLP
12705	55661-08	5/30/2023	FMR	5/30/2023	JLP
12706	55661-09	5/30/2023	FMR	5/30/2023	JLP

Report ID: 055661b-45091 Print Date: 14-Jun-23

Standard Sample Report TCEQ COC# 055661

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
12701	55661-04	6.94	NA	0.228	dS/M	79.62	ppm
12702	55661-05	7.53	NA	0.097	dS/M	14.917	ppm
12703	55661-06	7.77	NA	0.106	dS/M	18.415	ppm
12704	55661-07	7.06	NA	0.106	dS/M	48.368	ppm
12705	55661-08	7.57	NA	0.095	dS/M	21.035	ppm
12706	55661-09	7.26	NA	0.061	dS/M	14.804	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
12701	55661-04	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12702	55661-05	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12703	55661-06	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12704	55661-07	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12705	55661-08	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
12706	55661-09	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW

Report ID: 055661b-45091 Print Date: 14-Jun-23
Quality Control Report TCEQ COC# 055661

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
12719	IC935	43.4	ppm	284	ppm	2054	ppm	323	ppm	34.4	ppm	42.0	ppm
12720	IC936	41.2	ppm	276	ppm	1993	ppm	315	ppm	33.6	ppm	40.3	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
	blk202	-0.338	ppm	-0.979	ppm	-2.22	ppm	-0.503	ppm	0.293	ppm	-0.0438	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
IC935	5/30/2023	FMR	5/30/2023	JLP
IC936	5/30/2023	FMR	5/30/2023	JLP
blk202	5/30/2023	FMR	5/30/2023	JLP

Report ID: 055661b-45091 Print Date: 14-Jun-23

Quality Control Report TCEQ COC# 055661

Laboratory ID:		pH	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
12719	IC935	5.8	na	0.253	dS/M	5.134	ppm	
12720	IC936	5.8	na	0.252	dS/M	5.171	ppm	
	Mean IC	5.835	na	0.2525	dS/M	5.1525	ppm	
12720spike	Spiked sample	-	-	-	-	4.7	ppm	86.3
	IC lower	5.750	na	0.239	dS/M	4.7	ppm	
	IC Upper	5.940	na	0.310	dS/M	7.2	ppm	
	blk202	-	na	0	dS/M	-0.066	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

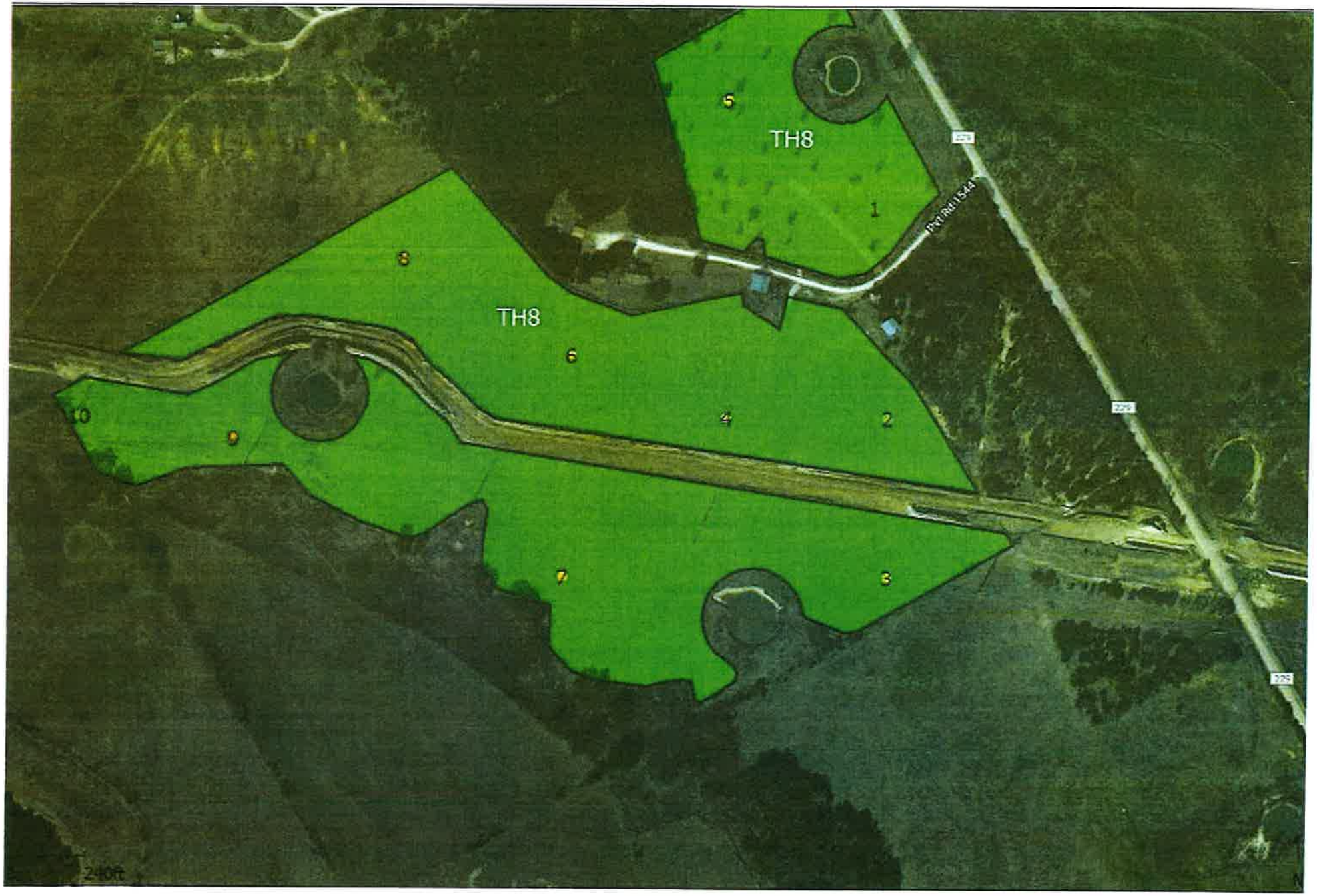
Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitate-N Extract		Nitrate-N Analysis	
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC935	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
IC936	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW
blk202	5/25/2023	DEC	5/25/2023	DEC	5/25/2023	DEC	5/30/2023	FMR	6/1/2023	JW

g Crane Dairy3502 CR 209, Hico, TX 76457**Oct. 26, 2018**

This map was generated by the Region 4 Stephenville Office of the Texas Commission on Environmental Quality. This product is for informational purposes and may not have been



This map was generated by the Region 4 Stephenville Office of the Texas Commission on Environmental Quality. This product is for informational purposes and may not have been prepared for or be suitable for legal, engineering, or surveying purposes. It does not represent an on-the-ground survey and represents only the



Attachment F

TCEQ STAFF CONTACT INFORMATION

TCEQ - BOSQUE 1255-1226 SOIL SAMPLES

Date: 27 MAR 2023 COC#: 556601

Should you need to contact TCEQ regarding this sample, please contact the following staff as appropriate:

Primary Contact	Investigator	Phone #	Email Address
	Vanessa Gardner	254-552-1903	Vanessa.Gardner@tceq.texas.gov
	Michael Martin	254-552-1901	Michael.Martin@tceq.texas.gov
	Cody Christian	254-552-1912	Cody.Christian@tceq.texas.gov
	Chris Pearson	254-552-1905	Chris.Pearson@tceq.texas.gov

If the primary investigator cannot be reached within one business day, the following persons may be contacted:

Michael Martin, Team Leader, Stephenville Off.	254-552-1901	Michael.Martin@tceq.texas.gov
Rebecca Stephens, Administrative Assistant	254-552-1900	Rebecca.Stephens@tceq.texas.gov
Jeff Tate, Water Section Manager, Dallas/Ft. Worth Regional Office	817-588-5875	Jeff.Tate@tceq.texas.gov
Cassandra Derrick, Project Manager, Field Operations Support Div., Austin Central Office	512-239-5304	Cassandra.Derrick@tceq.texas.gov

Mailing Addresses:

Stephenville Special Project Office 580-D W. Lingleville Rd. Stephenville , Texas 76401 Main: 254-552-1900 or 1-800-687-7078 Fax: 254-552-1922	Dallas/Ft. Worth Regional Office 2309 Gravel Drive Fort Worth, Texas 76118 Main: 817-588-5800 Fax: 817-588-5701

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 Mr. Tony Martins representing TMC Dairies Hico. The findings and recommendations contained herein were compiled by Ms. Jourdan Mullin and Mr. Norman Mullin, P.E., of Enviro-Ag Engineering, Inc., Amarillo, Texas.

5.2 Purpose of Report

Dancing Crane Dairy is applying for a major amendment of current TPDES #3190 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 landowners 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 1,536 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 sources of process-generated wastewater is wash water form the milking parlors operations and the water generated from the production of biogas. The flow of the process-generated wastewater can be found on Figure 2.1 A-B.

The second process of wastewater production involves the accumulation of 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 the settling basins and into the RCSs.

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).

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."*

EVALUATION OF NATURAL FEATURES

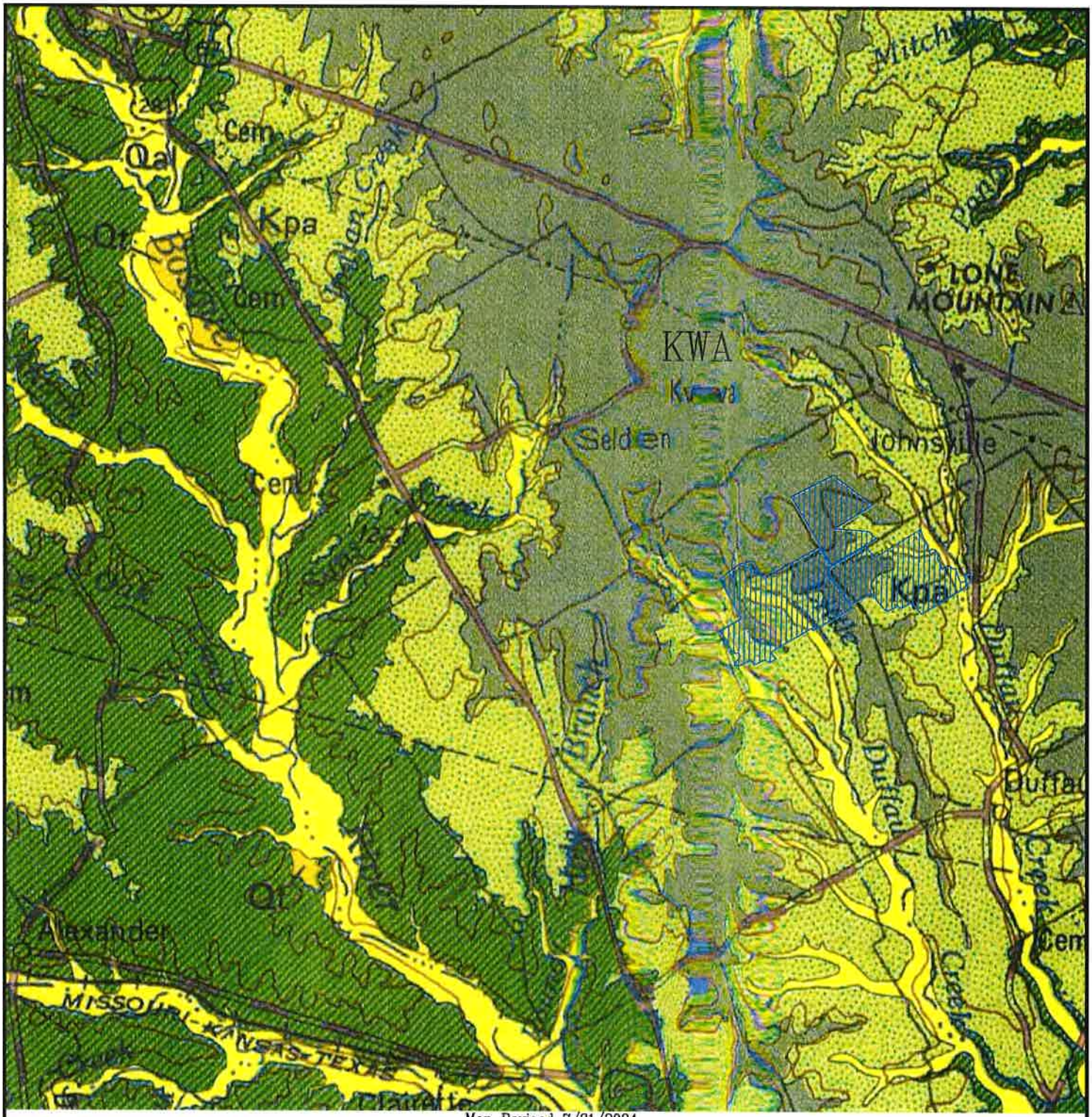
5.6 Geomorphologic/Geologic Features

The Windthorst-Duffau and Maloterre-Dugout soils in this area of Erath County are immediately underlain by the Paluxy and Walnut Formations and by recently deposited Alluvium in the area of the North Bosque River, as shown in Figure 5.1, Geologic Atlas. Allluvium 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.

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 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 limestone flags, and shell agglomerate, all of which grade upward without break into the more chalky beds of the Edwards limestones. In places they weather into rich black soils and make extensive agricultural belts (Hill, 1901.)

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).



Map Revised 7/31/2024

Legend:
Qal – Quaternary Alluvium Formation
Kpa – Cretaceous Paluxy Formation
Kwa – Cretaceous Walnut Formation

Source: Geologic Atlas of Texas, Abilene Sheet, 1972.

N
W E
S

NO SCALE

TMC Dairies Hico Hico, Texas Erath County	Geologic Atlas of Texas Figure 5.1 Page 38	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

5.6.1 Outcrops/Stream Interception

An inspection of the CAFO property and review of the USGS topographic map indicated the presence of two unnamed tributaries to the Duffau Creek, Little Duffau Creek and numerous freshwater ponds located on the property. No land application is proposed in these areas and required buffer zones will be maintained. A grassed waterway is present in LMUs #1 & 1A which is established in permanent vegetative cover. The grassed waterway was designed and is maintained according to NRCS Practice Standard Code 412. Two sand pits are also located on-site. The natural topography around the sand pits diverts rainwater runoff from adjacent LMUs away from the pits, therefore no buffer zone is currently needed. If the conditions change from mining the pits where there is a potential for run-on, diversion berms will be installed to divert water around the pits.

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 (2015). 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 Blanket (BaB), Fairy-Hico (FhC2), Hico-Windthorst (HwD3), Maloterre (Ma) and Purves-Dugout-Maloterre (Pd)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 Blanket (BaB), Clairette-Hassee (CtB), Fairy-Hico (FhC2), Slidell (HoB), Hico-Windthorst (HwD3), Maloterre (Ma), Nimrod (NdC), Purves-Dugout-Maloterre (Pd), Selden (SdC), Hassee (WaB and WkA) and Windthorst (WnC) 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)
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
Bolar – BdC	3-5	C	0-16	Clay Loam	0.6-2.0	0.17-0.21
			16-32		0.6-2.0	0.16-0.20
Denton		D	0-10	Silty Clay	0.06-0.20	0.11-0.15
			10-28		0.06-0.20	0.09-0.14
Bunyan – Bu	-----	B	0-10	Fine Sandy	2.0-6.0	0.11-0.15
			10-46	Loam	0.6-2.0	0.15-0.19
Clairette – CtB	1-3	C	0-4	Fine Sandy	2.0-6.0	0.10-0.17
			4-10	Loam	0.6-2.0	0.15-0.19
			10-26		0.20-0.6	0.10-0.18
Hassee		D	0-5	Fine Sandy	0.6-2.0	0.10-0.14
			5-14	Loam	0.6-2.0	0.07-0.12
			14-35		0.001-0.06	0.06-0.10
Clairette – CtC	3-5	C	0-4	Loam	0.6-2.0	0.15-0.19
			4-10		0.6-2.0	0.15-0.19
			10-26		0.20-0.6	0.10-0.18
Fairy – FhC2	1-5	B	0-13	Very Fine Sandy	2.0-6.0	0.10-0.17
			13-45	Loam	0.6-2.0	0.05-0.17
Hico		B	0-12	Fine Sandy	2.0-6.0	0.10-0.15
			12-51	Loam	0.6-2.0	0.05-0.17
FriA – Frio	0-1	C	0-22	Clay	0.20-0.6	0.12-0.20
			22-40		0.20-0.6	0.08-0.16
Hico – HfD2	3-8	B	0-12	Fine Sandy	2.0-6.0	0.10-0.15
			12-51	Loam	0.6-2.0	0.05-0.17
Fairy		B	0-13	Very Fine Sandy	2.0-6.0	0.10-0.17
			13-45	Loam	0.6-2.0	0.05-0.17
Slidell – HoB	1-3	D	0-19	Clay	0.001-0.06	0.10-0.18
			19-32		0.001-0.06	0.10-0.18
Hico – HwD3	1-8	B	0-7	Sandy Clay	0.6-6.0	0.11-0.13
			7-44	Loams	0.6-2.0	0.11-0.13
Windthorst		C	0-6		0.20-2.0	0.11-0.14
			6-16		0.20-2.0	0.15-0.19
Maloterre – Ma	1-8	D	0-5	Gravelly Clay	0.6-2.0	0.14-0.16
			5-20	Loam	0.06-2.0	-----
Nimrod – NdC	0-5	A	0-4	Fine Sand	6.0-20	0.09-0.13
			4-27		6.0-20	0.08-0.12
Purves – PcC	3-5	D	0-7	Clay	0.06-0.20	0.12-0.20
			7-12		0.06-0.6	0.08-0.18
			12-17		0.06-0.6	0.04-0.07
			17-40		0.06-2.0	-----
Purves – Pd	-----	D	0-8	Stony Clay	0.06-0.20	0.11-0.20
			8-12		0.06-0.6	0.08-0.18
			12-14		0.06-0.6	0.04-0.07

			14-24		0.06-2.0	-----
Dugout		D	0-8	Gravelly Clay	0.20-0.6	0.06-0.15
			8-18	Loam	0.20-0.6	0.07-0.16
			18-28		0.06-2.0	-----
Maloterre		D	0-8	Gravelly Clay	0.6-2.0	0.06-0.11
			8-18	Loam	0.001-0.06	-----
Selden – SdC	1-5	C	0-10	Fine Sand	2.0-6.0	0.05-0.09
			10-24		0.20-0.6	0.12-0.17
Hassee – WaB	1-3	D	0-12	Fine Sandy	0.6-2.0	0.11-0.17
			12-50	Loam	0.001-0.06	0.12-0.18
Hassee – WkA	0-2	D	0-18	Fine Sandy	0.6-2.0	0.11-0.17
			18-55	Loam	0.001-0.06	0.12-0.18
Windthorst – WnC	1-5	C	0-10	Loamy Fine	6.0-20	0.06-0.13
			10-38	Sand	0.20-0.6	0.10-0.20
Windthorst – WoB	1-5	C	0-8	Very Fine Sandy	2.0-6.0	0.10-0.17
			8-33	Loam	0.20-0.6	0.10-0.20
Windthorst – WoB2	1-5	C	0-4	Fine Sandy	2.0-6.0	0.10-0.17
			4-33	Loam	0.20-0.6	0.10-0.20

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, 1A, 2, 14	Maloterre (Ma)
7, 7A, 12, 12A	Purves-Dugout-Maloterre (Pd)
13	Fairy-Hico (FhC2)
5, 5A, 8, 8A	Blanket (BaB)
6	Purves (PcC)
3, 10A	Hico-Windthorst – (HwD3)
4A	Nimrod (NdC)
4	Selden (SdC)
9, 9A, 10, 11	Hassee (WaB)

Table 5.3: Potential Soil Limitations for Land Application

Soil Series	Potential Soil Limitations	Best Management Practices
BdC	Depth to Hard Bedrock 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.
Bu, FriA	Flooding	– 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
CtB, WaB, 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.
FhC2, HfD2	Slow Water Movement Seepage	– Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). -No land application to inundated soils.
HoB	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.
HwD3	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.
Ma	Depth to Bedrock Droughty	– Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). – 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. -No land application to inundated soils.
NdC,	Filtering Capacity Seepage	– Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). -No land application to inundated soils.
WnC	Filtering Capacity	– Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). -No land application to inundated soils.
PcC	Droughty Depth to Bedrock Slow Water Movement	– Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). – 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. -No land application to inundated soils.
Pd	Droughty Depth to Bedrock Slow Water Movement Large Surface Stones	– Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP). – 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. -No land application to inundated soils.
SdC	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

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 8/2/2024

SOIL LEGEND:
For specific soil data, refer to Table 5.1

MAP LEGEND:
Denotes Production Area

N
W E
S
1000' 0 1000' 2000'
SCALED AS SHOWN

Source: USDA-NRCS Soil Survey, Soil Survey Geographic Database for (Erath County, TX). Available at: http://soildatamart.nrcs.usda.gov. Accessed August, 2024

• Refer to Figures 1.3 A-B & 1.4 A-D for overall facility maps.

TMC Dairies Hico Hico, Texas Erath County	NRCS Soils Map Figure 5.2 Page 45	ENVIRO-AG 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, and a search of the online RRC map viewer was conducted. 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

A search of the Middle Trinity Groundwater Conservation District online data viewer was conducted. 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 application.

5.11 Texas Water Development Board Water Data Interactive (WDI)

The TWDB WIID 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 Figures 5.3A-B. These areas shall be buffered during land application events or backfilled prior to the first land application event.

5.14 Previous/Current Landowner

Mr. Klaas Talsma, the previous landowner was contacted regarding the presence of any potential recharge features on the property. Mr. Talsma 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 Figures 5.3A-B. 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

Figures 5.3A-B, 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 Figures 5.3A-B. The well identification number corresponds to the database number or drilling report number used by the water district, TCEQ or TWDB Commission.

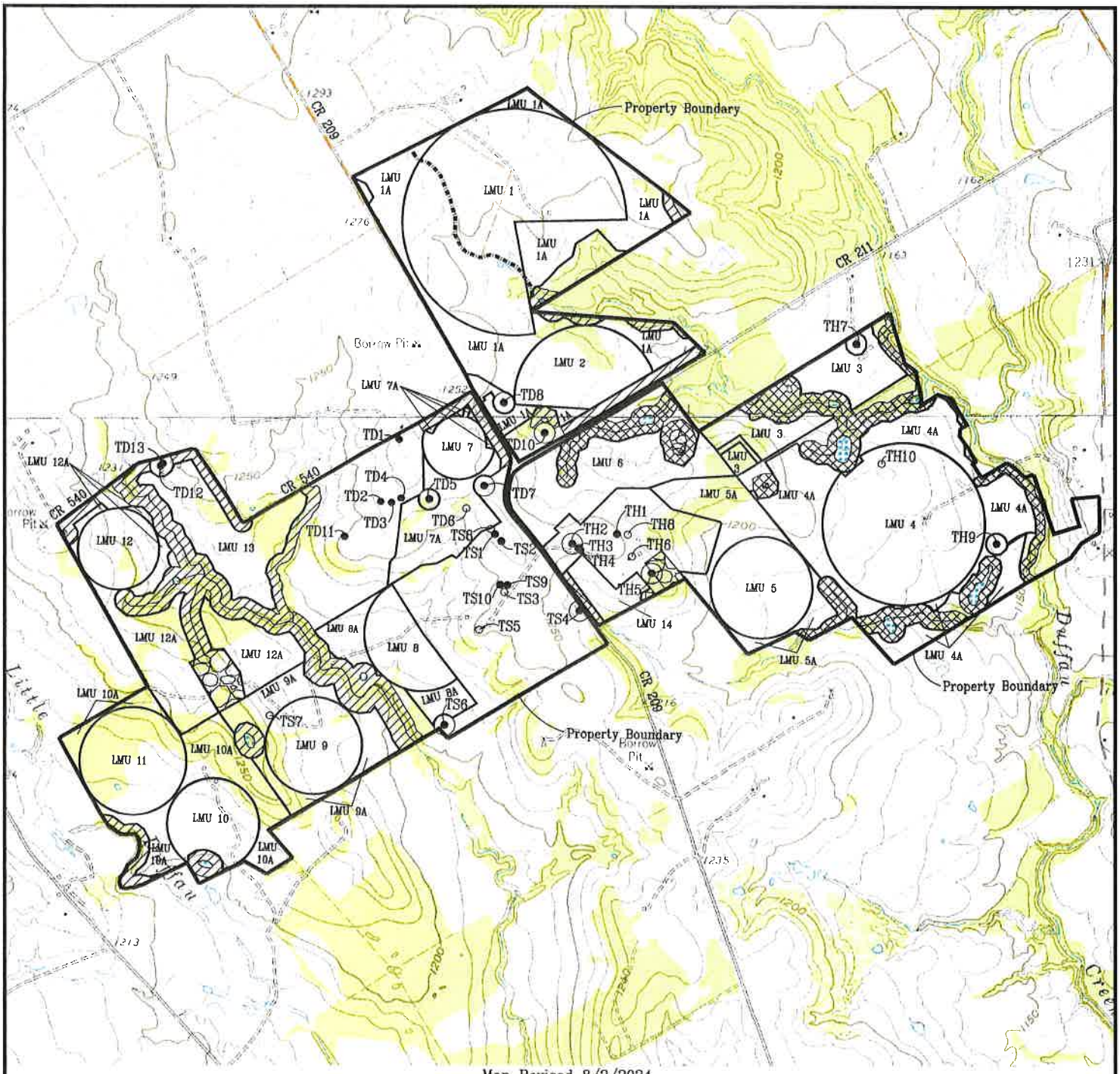
Table 5.4: Well Information

Map No.	Well ID	Best Management Practices
TD1	19425	• See Attached Approved Well Buffer Exception
TD2	19422	• See Attached Approved Well Buffer Exception
TD3	19424	• See Attached Approved Well Buffer Exception
TD4	-----	• See Attached Approved Well Buffer Exception
TD5	19430	• Maintain 150-foot buffer
TD6	98795	• See Attached Plugging Report
TD7	19421	• Maintain 150-foot buffer
TD8	19427	• Maintain 150-foot buffer
TD10	19426	• Maintain 150-foot buffer
TD11	19428	• See Attached Well Buffer Exception (Phase1) • To Be Plugged (Phase 2)
TD12	-----	• Maintain 150-foot buffer
TD13	19431	• Maintain 150-foot buffer
TH1	19410	• See Attached Approved Well Buffer Exception
TH2	19409	• Maintain 150-foot buffer
TH3	19408	• See Attached Approved Well Buffer Exception
TH4	19407	• See Attached Approved Well Buffer Exception
TH5	19411	• Maintain 150-foot buffer
TH6	28001	• See Attached Plugging Report
TH7	16283	• Maintain 150-foot buffer
TH8	-----	• No evidence of well: see attached due diligence
TH9	-----	• Maintain 150-foot buffer
TS1	16278	• See Attached Approved Well Buffer Exception
TS2	98799	• See Attached Approved Well Buffer Exception
TS3	98799	• See Attached Plugging Report
TS4	16280	• Maintain 150-foot buffer
TS5	-----	• To Be Plugged
TS6	16282	• Maintain 150-foot buffer
TS7	98796	• See Attached Plugging Report
TS8	98798	• See Attached Plugging Report
TS9	16281	• See Attached Approved Well Buffer Exception
TS10	-----	• See Attached Approved Well Buffer Exception
TH10	98797	• See Attached Plugging Report

Note: A copy of the well logs for onsite wells are attached.

No public water supply wells are located within 500 feet of the property boundary. All off-site wells within the required buffer distances required by this authorization are shown (on the Site Map) with their appropriate buffers. Wells outside the required buffer distances are shown for reference only.

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 8/2/2024

LEGEND:

- ○ Denotes Plugged Water Well
- ● Denotes Water Well
- ◉ Denotes Well w/150-ft Buffer
- Denotes Grassed Waterway
- Denotes 142-ft Buffer Zone
- Denoted 133-ft Buffer Zone
- Denotes Fresh Water Pond
- Denotes Pit

N
W E
S

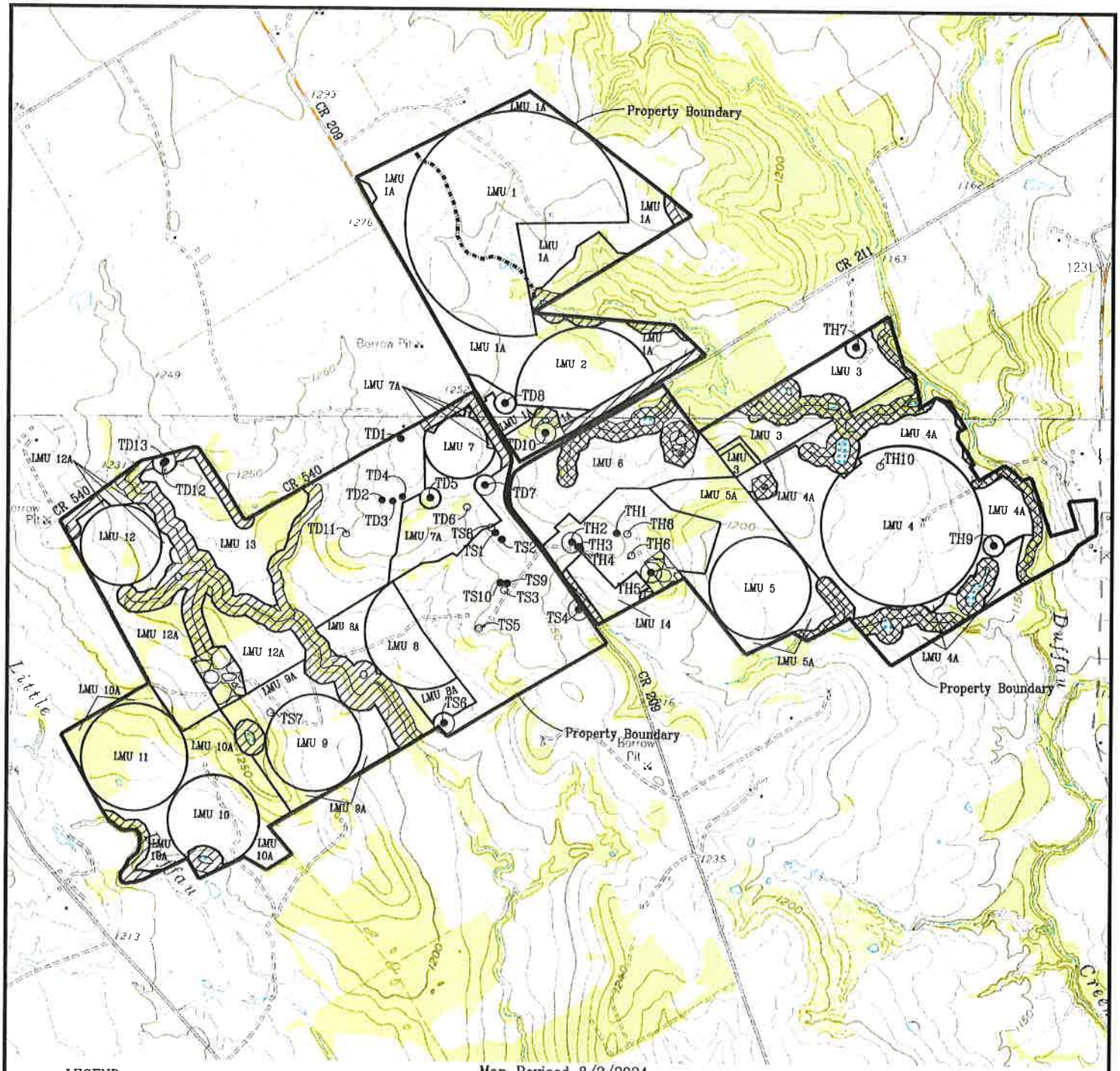
1000' 0 1000' 2000'

SCALED AS SHOWN

Source: USDS-NRCS. Geospatial Data Gateway. Available at: http://datagateway.nrcs.usda.gov/. Digital Raster Graphic County Mosaic by NRCS - Accessed May 2013.

Refer to Figures 1.4A-D for detailed production area maps.

TMC Dairies Hico Hico, TX Erath County	Recharge Feature Map Phase I Figure 5.3A Page 49	ENVIRO-AG ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132



Map Revised 8/2/2024

LEGEND:

- ○ Denotes Plugged Water Well
- ● Denotes Water Well
- ◉ Denotes Well w/150-ft Buffer
- Denotes Grassed Waterway
- Denotes 142-ft Buffer Zone
- Denoted 133-ft Buffer Zone
- Denotes Fresh Water Pond
- Denotes Pit

N
W E
S

1000' 0 1000' 2000'

SCALED AS SHOWN

Source: USDS-NRCS. Geospatial Data Gateway. Available at: http://datagateway.nrcs.usda.gov/. Digital Raster Graphic County Mosaic by NRCS – Accessed May 2013.

Refer to Figures 1.4A-D for detailed production area maps.

TMC Dairies Hico Hico, TX Erath County	Recharge Feature Map Phase II Figure 5.3B Page 50	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

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.

Martins, Tony, Current Landowner Interview, August 2024

Middle Trinity Groundwater Conservation District, Online Data Viewer, Retrieved August 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.

Talsma, Klaas, Previous Landowner Interview, August 2024.

Texas Railroad Commission, GIS Data Viewer, Accessed August 2024.

Texas Water Development Board. Water Data Interactive (WDI). Retrieved August 2024, from http://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 August2024. http://www.ftw.nrcs.usda.gov/ssur_data.html

USDA-NRCS Electronic Field Office Technical Guide, Soil Information Database – Erath County, Texas, Retrieved April 2023. 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)

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

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*					
BaB—Blanket clay loam, 1 to 3 percent slopes														
Blanket	0-14	20-25- 45	28-44- 53	27-31- 35	1.30-1.50	4.00-14.00	0.15-0.20	3.4-5.3	1.0-3.0	.32	.32	5	6	48
	14-40	5-24- 40	13-38- 60	35-38- 50	1.35-1.55	0.42-4.00	0.12-0.20	4.8-8.6	0.5-2.0	.32	.32			
	40-56	5-28- 40	10-39- 68	27-33- 50	1.35-1.55	1.40-14.00	0.12-0.20	2.6-7.9	0.3-1.0	.37	.37			
	56-80	5-35- 40	10-37- 66	27-28- 50	1.35-1.55	1.40-14.00	0.12-0.20	2.6-7.9	0.1-0.8	.43	.43			
BdC—Bolar-Denton complex 3 to 5 percent slopes														
Bolar	0-16	20-34- 45	17-36- 53	27-30- 40	1.21-1.38	4.00-14.00	0.17-0.21	2.4-6.8	1.0-4.0	.20	.20	2	4L	86
	16-32	15-34- 45	15-36- 50	20-30- 40	1.34-1.46	4.00-14.00	0.16-0.20	0.4-5.9	0.5-2.0	.28	.28			
	32-36	15-34- 45	15-36- 50	20-30- 40	1.38-1.56	4.00-14.00	0.12-0.16	0.3-5.5	0.3-1.0	.17	.32			
	36-80	—	—	—	—	0.42-14.00	—	—	—					
Denton	0-10	3- 6- 15	40-48- 57	40-46- 57	1.16-1.34	0.42-1.40	0.11-0.15	5.0-11.1	1.0-4.0	.17	.17	2	4	86
	10-28	5- 7- 25	28-48- 60	35-45- 55	1.28-1.41	0.42-1.40	0.09-0.14	3.7-10.3	1.0-4.0	.20	.20			
	28-32	5- 7- 25	28-48- 60	35-45- 55	1.31-1.41	0.42-1.40	0.09-0.13	2.7-9.4	0.5-2.0	.32	.32			
	32-38	5- 7- 30	40-63- 83	12-30- 40	1.36-1.45	4.00-14.00	0.08-0.12	0.0-5.2	0.1-1.0	.43	.43			
	38-80	—	—	—	—	0.42-14.00	—	—	—					

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*					
[redacted]														
[redacted]	[redacted]									.15	.28	2	5	56
	[redacted]									.20	.37			
	[redacted]	—	—	—	—	[redacted]	—	—	—					
[redacted]	[redacted]	-34-	-32-	27-34- 40	1.30-1.45	[redacted]	[redacted]	[redacted]	[redacted]	.18	.24	4	3	86
	[redacted]					[redacted]	—	—	—					
Bu—Bunyan fine sandy loam, occasionally flooded														
Bunyan	0-10	-70-	-16-	8-14- 20	1.40-1.60	14.00-42.00	0.11-0.15	0.0-2.9	0.5-1.0	.28	.28	5	3	86
	10-46	-56-	-18-	18-27- 35	1.30-1.50	4.00-14.00	0.15-0.19	0.0-2.9	0.1-1.0	.20	.20			
	46-62	-35-	-38-	18-27- 35	1.40-1.60	4.00-14.00	0.18-0.22	0.0-2.9	0.1-1.0	.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	1.42-1.60	14.00-42.00	0.10-0.17	0.2-1.5	0.5-2.0	.49	.49	5	3	86
	4-10	35-49- 75	5-32- 50	10-19- 24	1.44-1.57	4.00-14.00	0.15-0.19	0.7-2.3	0.5-1.5	.37	.37			
	10-26	20-31- 60	0-31- 48	32-38- 55	1.42-1.66	1.40-4.00	0.10-0.18	3.7-8.7	0.3-1.0	.28	.28			
	26-56	25-40- 60	0-27- 53	18-33- 45	1.46-1.54	4.00-14.00	0.16-0.20	1.1-6.3	0.1-0.8	.24	.24			
	56-74	25-47- 70	0-27- 53	15-26- 45	1.54-1.64	4.00-14.00	0.12-0.13	0.8-6.2	0.1-0.6	.28	.28			
	74-80	10-56- 75	0-27- 73	10-17- 45	1.50-1.70	14.00-42.00	0.12-0.17	0.4-6.3	0.1-0.5	.32	.32			
Hassee, very fine sandy loam	0-5	52-68- 80	0-19- 38	10-13- 20	1.54-1.58	4.00-14.00	0.10-0.14	0.4-2.4	0.5-1.5	.55	.55	5	3	86
	5-14	35-68- 75	5-17- 45	10-15- 20	1.41-1.52	4.00-14.00	0.07-0.12	0.4-2.4	0.2-1.2	.55	.55			
	14-35	25-30- 50	7-27- 40	35-43- 50	1.40-1.53	0.01-0.42	0.06-0.10	5.8-10.4	0.5-1.2	.32	.32			
	35-45	25-32- 55	0-24- 45	30-44- 50	1.45-1.52	0.01-0.42	0.06-0.10	3.8-10.2	0.2-1.0	.28	.28			
	45-79	25-35- 55	4-26- 45	30-39- 45	1.40-1.53	0.01-0.42	0.05-0.10	3.7-8.5	0.1-0.5	.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	1.47-1.62	4.00-14.00	0.15-0.19	0.7-2.3	0.5-1.5	.37	.37	5	6	48
	4-10	35-49-75	5-32-50	10-19-24	1.44-1.57	4.00-14.00	0.15-0.19	0.7-2.3	0.5-1.5	.37	.37			
	10-26	20-31-60	0-31-48	32-38-55	1.42-1.66	1.40-4.00	0.10-0.18	3.7-8.7	0.3-1.0	.28	.28			
	26-56	25-40-60	0-27-53	18-33-45	1.46-1.54	4.00-14.00	0.16-0.20	1.1-6.3	0.1-0.8	.24	.24			
	56-74	25-47-70	0-27-53	15-26-45	1.54-1.64	4.00-14.00	0.12-0.13	0.8-6.2	0.1-0.6	.28	.28			
	74-80	10-56-75	0-27-73	10-17-45	1.50-1.70	14.00-42.00	0.12-0.17	0.4-6.3	0.1-0.5	.32	.32			
FhC2—Fairy-Hico complex, 1 to 5 percent slopes, moderately eroded														
Fairy, moderately eroded	0-13	52-68-80	6-26-43	5-6-18	1.47-1.51	14.00-42.00	0.10-0.17	0.3-1.8	0.5-2.0	.55	.55	5	3	86
	13-45	30-55-75	0-21-52	17-24-34	1.40-1.60	4.00-14.00	0.05-0.17	1.3-4.6	0.3-1.3	.24	.24			
	45-68	40-45-90	0-33-56	4-22-31	1.50-1.66	4.00-42.00	0.05-0.17	0.0-2.8	0.1-0.5	.32	.32			
	68-80	5-15-75	0-43-53	5-42-45	1.60-1.76	0.42-42.00	0.12-0.18	0.0-6.1	0.0-0.5	.32	.32			
Hico, moderately eroded	0-12	55-65-80	6-24-39	6-11-18	1.46-1.51	14.00-42.00	0.10-0.15	0.4-2.0	0.5-2.0	.28	.28	5	3	86
	12-51	30-55-75	0-17-48	17-28-34	1.44-1.64	4.00-14.00	0.05-0.17	1.7-4.4	0.3-1.3	.20	.20			
	51-80	40-60-90	0-24-50	4-16-31	1.53-1.64	4.00-42.00	0.05-0.17	0.1-3.5	0.1-0.5	.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*					
FriA—Frio silty clay, 0 to 1 percent slopes, occasionally flooded														
Frio, occasionally flooded	0-22	2-10-20	40-46-58	40-44-50	1.15-1.35	1.40-4.00	0.12-0.20	6.8-10.2	1.0-4.0	.20	.20	5	4	86
	22-40	2-15-40	18-47-68	30-38-50	1.30-1.55	1.40-4.00	0.08-0.16	3.6-10.0	1.0-2.0	.32	.32			
	40-80	2-9-40	18-47-68	30-44-50	1.30-1.55	1.40-4.00	0.08-0.16	3.2-9.7	0.1-1.0	.32	.32			
HfD2—Hico-Fairy complex, 3 to 8 percent slopes, moderately eroded														
Hico, moderately eroded	0-12	55-65-80	6-24-39	6-11-18	1.46-1.51	14.00-42.00	0.10-0.15	0.4-2.0	0.5-2.0	.28	.28	5	3	86
	12-51	30-55-75	0-17-48	17-28-34	1.44-1.64	4.00-14.00	0.05-0.17	1.7-4.4	0.3-1.3	.20	.20			
	51-80	40-60-90	0-24-50	4-16-31	1.53-1.64	4.00-42.00	0.05-0.17	0.1-3.5	0.1-0.5	.28	.28			
Fairy, moderately eroded	0-13	52-68-80	6-26-43	5-6-18	1.47-1.51	14.00-42.00	0.10-0.17	0.3-1.8	0.5-2.0	.55	.55	5	3	86
	13-45	30-55-75	0-21-52	17-24-34	1.40-1.60	4.00-14.00	0.05-0.17	1.3-4.6	0.3-1.3	.24	.24			
	45-68	40-45-90	0-33-56	4-22-31	1.50-1.66	4.00-42.00	0.05-0.17	0.0-2.8	0.1-0.5	.32	.32			
	68-80	5-15-75	0-43-53	5-42-45	1.60-1.76	0.42-42.00	0.12-0.18	0.0-6.1	0.0-0.5	.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*					
HoB—Slidell clay, 1 to 3 percent slopes														
Slidell	0-19	0-22- 35	20-28- 40	40-50- 60	1.10-1.45	0.01-0.42	0.10-0.18	7.0-16.0	1.0-4.0	.17	.17	5	4	86
	19-32	0-22- 35	20-28- 60	40-50- 60	1.10-1.45	0.01-0.42	0.10-0.18	6.6-17.0	1.0-3.0	.24	.24			
	32-49	0-22- 35	20-28- 60	40-50- 60	1.20-1.55	0.01-0.42	0.10-0.18	4.9-13.0	0.1-1.0	.24	.24			
	49-80	0-22- 35	20-28- 60	40-50- 60	1.20-1.55	0.01-0.42	0.10-0.18	4.9-10.8	0.1-1.0	.24	.24			
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	1.46-1.60	4.00-42.00	0.11-0.13	2.1-3.8	0.4-2.0	.24	.24	4	5	56
	7-44	43-57- 61	11-18- 23	18-25- 39	1.48-1.60	4.00-14.00	0.11-0.13	1.9-5.1	0.2-0.6	.32	.32			
	44-60	33-66- 81	12-15- 42	4-19- 32	1.55-1.61	4.00-42.00	0.13-0.15	0.1-3.7	0.1-0.3	.37	.37			
	60-79	26-61- 85	8-27- 57	7-12- 25	1.76-1.88	0.42-4.00	0.01-0.03	0.5-2.7	0.0-0.2	.64	.64			
Windthorst, severely eroded	0-6	46-62- 66	14-15- 27	20-23- 34	1.47-1.56	1.40-14.00	0.11-0.14	0.7-5.3	0.5-1.0	.43	.43	4	5	56
	6-16	32-40- 43	16-24- 33	26-36- 43	1.35-1.51	1.40-4.00	0.15-0.19	3.8-5.6	0.5-1.0	.37	.37			
	16-25	31-41- 52	16-26- 39	27-33- 38	1.39-1.55	1.40-4.00	0.16-0.20	3.2-5.6	0.3-0.8	.37	.37			
	25-33	36-46- 59	19-32- 41	14-22- 30	1.35-1.60	1.40-4.00	0.15-0.19	2.0-5.0	0.1-0.4	.55	.55			
	33-79	26-61- 85	8-27- 57	7-12- 25	1.76-1.88	0.42-4.00	0.01-0.03	0.5-2.6	0.0-0.2	.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*					
Ma—Maloterre gravelly clay loam, 1 to 8 percent slopes														
Maloterre	0-5	20-31- 45	20-35- 45	30-34- 40	1.37-1.39	4.00-14.00	0.14-0.16	2.6-5.6	0.5-1.0	.15	.28	1	5	56
	5-20	—	—	—	—	0.42-14.00	—	—	—					
[redacted]														
[redacted]														
[redacted]														
[redacted]														
[redacted]														
NdC—Nimrod fine sand, 0 to 5 percent slopes														
Nimrod, fine sand	0-4	88-90- 95	2- 8- 12	0- 2- 5	1.55-1.57	42.00-141.00	0.09-0.13	0.0-0.7	0.9-1.2	.10	.10	5	1	250
	4-27	85-95- 97	2- 4- 10	0- 1- 10	1.58-1.61	42.00-141.00	0.08-0.12	0.0-0.9	0.1-0.2	.10	.10			
	27-40	62-65- 72	2- 6- 18	20-29- 35	1.61-1.68	1.40-4.00	0.11-0.20	1.5-3.2	0.2-0.6	.20	.20			
	40-68	62-67- 72	2- 6- 20	17-27- 35	1.62-1.66	1.40-4.00	0.09-0.18	1.3-3.8	0.0-0.2	.15	.15			
	68-80	52-85- 87	2- 4- 20	9-11- 29	1.53-1.63	14.00-42.00	0.08-0.12	0.7-3.5	0.0-0.2	.10	.10			

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	1.15-1.45	0.42-1.40	0.12-0.20	5.4-10.9	1.0-5.0	.15	.15	1	4	86
	7-12	8-26- 40	20-29- 54	35-45- 55	1.20-1.45	0.42-4.00	0.08-0.18	5.0-10.3	1.0-4.0	.17	.17			
	12-17	8-26- 40	20-29- 54	35-45- 55	1.20-1.45	0.42-4.00	0.04-0.07	1.0-6.9	1.0-3.0	.05	.17			
	17-40	—	—	—	—	0.42-14.00	—	—	—					
Pd—Purves-Dugout-Maloterre complex, 1 to 20 percent slopes														
Purves, stony clay	0-8	8-25- 40	7-28- 40	40-48- 55	1.16-1.35	0.42-1.40	0.11-0.20	4.1-9.3	1.0-5.0	.05	.10	1	5	56
	8-12	8-26- 40	20-29- 54	35-45- 55	1.17-1.47	0.42-4.00	0.08-0.18	2.9-10.8	1.0-4.0	.15	.15			
	12-14	8-26- 40	20-29- 54	35-45- 55	1.21-1.47	0.42-4.00	0.04-0.07	1.0-7.3	1.0-3.0	.05	.17			
	14-24	—	—	—	—	0.42-14.00	—	—	—					
Dugout, gravelly clay loam	0-8	22-30- 42	28-42- 51	27-28- 35	1.31-1.47	1.40-4.00	0.06-0.15	1.9-5.4	1.0-2.0	.15	.28	1	5	56
	8-18	20-23- 40	28-48- 60	15-29- 35	1.40-1.53	1.40-4.00	0.07-0.16	0.0-4.9	0.1-1.2	.28	.28			
	18-28	—	—	—	—	0.42-14.00	—	—	—					
Maloterre, gravelly clay loam	0-8	30-35- 45	24-36- 43	27-29- 35	1.18-1.40	4.00-14.00	0.06-0.11	1.8-6.0	1.0-7.0	.15	.24	1	5	56
	8-18	—	—	—	—	0.01-0.42	—	—	—					

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*					
SdC—Selden fine sand, 1 to 5 percent slopes														
Selden, fine sand	0-10	85-92-95	0-2-10	3-6-10	1.54-1.57	14.00-42.00	0.05-0.09	0.1-0.9	0.9-1.2	.10	.10	5	1	250
	10-24	35-56-65	0-17-40	20-27-35	1.47-1.64	1.40-4.00	0.12-0.17	2.1-4.5	0.2-0.6	.24	.24			
	24-62	35-56-65	0-17-40	20-27-35	1.51-1.65	1.40-4.00	0.12-0.17	2.0-4.4	0.0-0.2	.24	.24			
WaB—Hassee fine sandy loam, 1 to 3 percent slopes														
Hassee	0-12	-69-	-16-	10-15-20	1.50-1.65	4.00-14.00	0.11-0.17	0.0-2.9	0.5-2.0	.32	.32	5	3	86
	12-50	-18-	-29-	45-53-60	1.30-1.55	0.01-0.42	0.12-0.18	6.0-8.9	0.5-1.0	.24	.24			
	50-60	-24-	-29-	35-48-60	1.30-1.55	0.01-0.42	0.12-0.18	6.0-8.9	0.0-0.5	.28	.28			
WkA—Hassee fine sandy loam, thick surface, 0 to 2 percent slopes														
Hassee	0-18	-69-	-16-	10-15-20	1.50-1.65	4.00-14.00	0.11-0.17	0.0-2.9	0.5-2.0	.32	.32	5	3	86
	18-55	-18-	-29-	45-53-60	1.30-1.55	0.01-0.42	0.12-0.18	6.0-8.9	0.5-1.0	.24	.24			
	55-65	-24-	-29-	35-48-60	1.30-1.55	0.01-0.42	0.12-0.18	6.0-8.9	0.0-0.5	.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*					
WnC—Windthorst loamy fine sand, 1 to 5 percent slopes														
Windthorst	0-10	73-82-90	0-12-24	3-6-15	1.40-1.65	42.00-141.00	0.06-0.13	0.2-1.2	0.5-2.0	.28	.28	5	2	134
	10-38	30-46-60	5-16-35	35-38-50	1.43-1.60	1.40-4.00	0.10-0.20	3.7-6.5	0.2-1.0	.32	.32			
	38-50	30-46-70	5-18-35	25-36-50	1.38-1.60	1.40-14.00	0.10-0.20	2.3-6.5	0.2-1.0	.37	.37			
	50-80	30-50-75	5-25-40	15-25-45	1.43-1.70	1.40-42.00	0.11-0.18	1.0-5.5	0.0-0.5	.49	.49			
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	1.42-1.60	14.00-42.00	0.10-0.17	0.2-1.5	0.5-2.0	.43	.43	5	3	86
	8-33	30-46-60	5-16-35	35-38-50	1.43-1.60	1.40-4.00	0.10-0.20	4.4-7.6	0.2-1.0	.28	.28			
	33-46	30-46-70	5-18-35	25-36-50	1.38-1.60	1.40-14.00	0.10-0.20	2.4-7.6	0.2-1.0	.32	.32			
	46-80	30-65-75	0-25-53	5-10-45	1.45-1.70	1.40-42.00	0.11-0.18	0.1-6.5	0.0-0.5	.55	.55			

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*					
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	1.42-1.60	14.00-42.00	0.10-0.17	0.3-1.5	0.5-2.0	.28	.28	5	3	86
	4-33	30-46-60	5-16-35	35-38-50	1.43-1.60	1.40-4.00	0.10-0.20	4.4-7.6	0.2-1.0	.28	.28			
	33-46	30-46-70	5-18-35	25-36-50	1.38-1.60	1.40-14.00	0.10-0.20	2.4-7.6	0.2-1.0	.32	.32			
	46-80	30-65-75	0-25-53	5-10-45	1.45-1.70	1.40-42.00	0.11-0.18	0.1-6.5	0.0-0.5	.55	.55			

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
BdC—Bolar-Denton complex 3 to 5 percent slopes								
Bolar	55	180	C	.20	2	34.0	36.0	30.0
Denton	35	200	D	.17	2	6.0	48.0	46.0
[redacted]								
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
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

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
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
FriA—Frio silty clay, 0 to 1 percent slopes, occasionally flooded								
Frio, occasionally flooded	85	98	C	.20	5	10.0	46.0	44.0
HfD2—Hico-Fairy complex, 3 to 8 percent slopes, moderately eroded								
Hico, moderately eroded	55	180	B	.28	5	65.0	24.0	11.0
Fairy, moderately eroded	30	180	B	.55	5	68.0	26.0	6.0
HoB—Slidell clay, 1 to 3 percent slopes								
Slidell	85	298	D	.17	5	22.0	28.0	50.0
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
Ma—Maloterre gravelly clay loam, 1 to 8 percent slopes								
Maloterre	80	161	D	.28	1	31.0	35.0	34.0
[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]	[redacted]
NdC—Nimrod fine sand, 0 to 5 percent slopes								
Nimrod, fine sand	75	298	A	.10	5	90.0	8.0	2.0
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

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
SdC—Selden fine sand, 1 to 5 percent slopes								
Selden, fine sand	85	298	C	.10	5	92.0	2.0	6.0
WaB—Hassee fine sandy loam, 1 to 3 percent slopes								
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
WnC—Windthorst loamy fine sand, 1 to 5 percent slopes								
Windthorst	90	200	C	.28	5	82.0	12.0	6.0
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

Selected Soil Interpretations

This report allows the customer to produce a report showing the results of the soil interpretation(s) of his or her choice. It is useful when a standard report that displays the results of the selected interpretation(s) is not available.

When customers select this report, they are presented with a list of interpretations with results for the selected map units. The customer may select up to three interpretations to be presented in table format.

For a description of the particular interpretations and their criteria, use the "Selected Survey Area Interpretation Descriptions" report.

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
BdC—Bolar-Denton complex 3 to 5 percent slopes							
Bolar	55	Somewhat limited		Somewhat limited		Very limited	
		Seepage, porous bedrock	0.50	Slow water movement	0.37	Depth to hard bedrock	1.00
		Slow water movement	0.37	Depth to bedrock	0.07	Seepage	0.50
		Too steep for surface application	0.08			Slope	0.32
		Depth to bedrock	0.07				
Denton	35	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Depth to hard bedrock	1.00
		Droughty	0.44	Droughty	0.44	Seepage	0.50
		Depth to bedrock	0.01	Depth to bedrock	0.01	Slope	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
[redacted]							
[redacted]	[redacted]	[redacted]		[redacted]		[redacted]	
		[redacted]		[redacted]		[redacted]	
		[redacted]		[redacted]		[redacted]	
		[redacted]		[redacted]		[redacted]	
		[redacted]		[redacted]		[redacted]	
		[redacted]		[redacted]		[redacted]	
[redacted]	[redacted]	[redacted]		[redacted]		[redacted]	
		[redacted]		[redacted]		[redacted]	
		[redacted]		[redacted]		[redacted]	
		[redacted]		[redacted]		[redacted]	
		[redacted]		[redacted]		[redacted]	
		[redacted]		[redacted]		[redacted]	
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
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		

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
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
FriA—Frio silty clay, 0 to 1 percent slopes, occasionally flooded							
Frio, occasionally flooded	85	Somewhat limited		Very limited		Very limited	
		Flooding	0.60	Flooding	1.00	Flooding	1.00
		Slow water movement	0.37	Slow water movement	0.37		
		Seepage, porous bedrock	0.30				

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
HfD2—Hico-Fairy complex, 3 to 8 percent slopes, moderately eroded							
Hico, moderately eroded	55	Somewhat limited		Not limited		Very limited	
		Too steep for surface application	0.08			Seepage	1.00
						Slope	0.32
Fairy, moderately eroded	30	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				
HoB—Slidell clay, 1 to 3 percent slopes							
Slidell	85	Very limited		Very limited		Not limited	
		Slow water movement	1.00	Slow water movement	1.00		
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		

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
Ma—Maloterre gravelly clay loam, 1 to 8 percent slopes							
Maloterre	80	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			Seepage	0.21
		Too steep for surface application	0.32				
[redacted]							
[redacted]	[redacted]	Not limited		Not limited		Very limited	
						[redacted]	
NdC—Nimrod fine sand, 0 to 5 percent slopes							
Nimrod, fine sand	75	Very limited		Very limited		Very limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Seepage	1.00
		Depth to saturated zone	0.95	Depth to saturated zone	0.95	Depth to saturated zone	0.44
		Slow water movement	0.37	Slow water movement	0.37		
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				
SdC—Selden fine sand, 1 to 5 percent slopes							
Selden, fine sand	85	Somewhat limited		Somewhat limited		Very limited	
		Depth to saturated zone	0.99	Depth to saturated zone	0.99	Depth to saturated zone	1.00
		Slow water movement	0.37	Slow water movement	0.37		

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
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		
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
WnC—Windthorst loamy fine sand, 1 to 5 percent slopes							
Windthorst	90	Very limited		Very limited		Somewhat limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Seepage	0.50
		Slow water movement	0.37	Slow water movement	0.37	Slope	0.08
		Too acid	0.08	Too acid	0.08		
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



August 13, 2024

1:36,112

0 0.25 0.5 1 mi

0 0.4 0.8 1.6 km

Maxar

Buddy Garcia, *Chairman*
Larry R. Soward, *Commissioner*
Bryan W. Shaw, Ph.D., *Commissioner*
Mark R. Vickery, P.G., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

November 10, 2008

91 7108 2133 3935 2153 5858

CERTIFIED MAIL

Ms. Anneke Talsma
Two Sisters Dairy
235 Private Road 1266
Hico, Texas 76457

Re: Well Buffer Exception Request, Two Sisters Dairy, Permit Number WQ00004866-000 CN603059130; RN104994611)

Dear Ms. Talsma:

The Water Quality Assessment (WQA) Team has reviewed the well buffer exception request for wells identified as Well #1, Well #2, Well #3, and Well #9 in a document dated August 8, 2008. The well buffer exception document was signed and certified by Mr. Norman Mullin, P.E., and requested an exception to the 150-foot buffer requirement for these existing facility wells. Additional protective measures for the wells identified by Mr. Mullin include: a concrete slab and being up-gradient of the pollution sources for Well #1 and Well #2, and a concrete slab and a concrete retaining wall preventing runoff from flowing near the wellhead for Well #3 and Well #9.

The WQA Team approves the well buffer exception request for wells Well #1, Well #2, Well #3 and Well #9 provided all additional protective measures listed above are maintained and the casings and well heads are non-deteriorated. Regular inspections around the wells shall be made in order to ensure that no runoff or wastes are encroaching upon the well heads.

This letter and all supporting documentation must be kept on-site and made available to Texas Commission on Environmental Quality (TCEQ) personnel upon request. If you have any questions, please contact me by phone at (512) 239-3567.

Sincerely,

April Hoh, P.G.
Water Quality Assessment Team (MC 150)
Water Quality Division

AH/gv

cc: Mr. Norman Mullin, P.E., 3404 Airway Blvd., Amarillo, Texas 79118

Buddy Garcia, *Chairman*
Larry R. Soward *Commissioner*
Bryan W. Shaw, Ph.D., *Commissioner*
Mark R. Vickery, P.G., *Executive Director*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

September 25, 2008

CERTIFIED MAIL 91 7108 2133 3935 2153 9597

Klaas Talsma
Talsma Dairy
7469 County Road 209
Hico, Texas 76457

Re: Well Buffer Exception Request, Talsma Dairy, Permit Number WQ0003145000 (CN 601214265) (RN 102313384)

Dear Mr. Talsma:

The Water Quality Assessment (WQA) Team has reviewed the well buffer exception request for the water wells identified as Well #1, Well #2, Well #3, Well #4, and Well #11. The request was certified by Mr. Norman Mullin, P.E., of Enviro-Ag Engineering on May 30, 2008, and requested an exception to the 150 foot buffer requirement for the existing facility wells. Protective measures for the wells identified by Mr. Mullin include: a concrete surface slab around each well head, and the fact that each well is situated away from the drainage area of the confinement pens. In addition, Well #2 and has a steel sleeve, and Well #11 is identified as having a surface sleeve cemented up to ground level.

Supporting documentation, including a photograph of the well, a location map, and a description of existing protective measures, was supplied in the exception request which supports a decrease from the required 150 foot buffer from the pen areas. Mr. Mullin, P.E. states "The well head protective measures (BMPs) currently in place for these wells are shown on the attached photograph. These protective measures, in lieu of the required buffer distances for existing wells are protected from the activities of the CAFO."

Based on the above statement and other information provided, the well buffer exception request for Well #1, Well #2, Well #3, Well #4, and Well #11 is granted. Regular inspections around the wells shall be made in order to ensure that no runoff or wastes are encroaching upon the well heads. This approval letter and all supporting documentation must be kept on-site and made available to the Texas Commission on Environmental Quality (TCEQ) personnel upon request. If you have any questions, please contact me by phone at (512) 239-3555.

Sincerely,

Stephanie Saldaña

Stephanie Saldaña, P.G.
Water Quality Assessment Team (MC 148)
Water Quality Division

SS/gv

cc: Mr. Norman Mullin, P.E., Enviro-Ag Engineering, 3404 Airway Blvd., Amarillo, TX 79118

09/30/2008 10:45 8063534132 ENVIRO AG PAGE 01

TMC Dairies Hico



Texas Water Development Board

August 12, 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

STATE OF TEXAS PLUGGING REPORT for Tracking #98795

Owner:	**Klaas Talsma**	Owner Well #:	**No Data**
Address:	**7469 CR 209 Hico, TX 76457**	Grid #:	**31-64-2**
Well Location:	**CR 209 Hico, TX 76457**	Latitude:	**32° 07' 19" N**
		Longitude:	**098° 03' 14" 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**

Borehole: **No Data**

Plugging Information

Date Plugged: **12/9/2014** Plugger: **Melton Phillips**

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.)
6		

Plug(s) Placed in Well:

Top (ft.)	Bottom (ft.)	Description (number of sacks & material)
0	2	1 Cement
2	487	120 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: **Dowell Water Well Service**

1491 W South Loop
Stephenville, TX 76401

Driller Name: **Jarrell Dale Dowell** License Number: **4353**

Comments: **No Data**

STATE OF TEXAS PLUGGING REPORT for Tracking #98797

Owner:	**Klaas Talsma**	Owner Well #:	**No Data**
Address:	**7469 CR 209 Hico, TX 76457**	Grid #:	**31-64-3**
Well Location:	**CR 209 Hico, TX 76457**	Latitude:	**32° 07' 24" N**
		Longitude:	**098° 01' 59" 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**

Borehole: **No Data**

Plugging Information

Date Plugged: **12/8/2014** Plugger: **Melton Phillips**

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		

Plug(s) Placed in Well:

Top (ft.)	Bottom (ft.)	Description (number of sacks & material)
0	2	1 Cement
2	525	60 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: **Dowell Water Well Service**

1491 W South Loop
Stephenville, TX 76401

Driller Name: **Jarrell Dale Dowell** License Number: **4353**

Comments: **No Data**

STATE OF TEXAS PLUGGING REPORT for Tracking #28001

Owner:	**Grady Wyly**	Owner Well #:	**No Data**
Address:	**3502 CR 209 Hico, TX 76457**	Grid #:	**31-64-2**
Well Location:	**CR 209 Hico, TX 76457**	Latitude:	**32° 07' 11" N**
		Longitude:	**098° 02' 41" 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**

Borehole: **No Data**

Plugging Information

Date Plugged: **10/6/2005** Plugger: **Dowell Water Well Service**

Plug Method: **Tremmie pipe bentonite from bottom to 2 feet from surface, cement top 2 feet**

Casing Left in Well:

Dia (in.)	Top (ft.)	Bottom (ft.)
4	0	74

Plug(s) Placed in Well:

Top (ft.)	Bottom (ft.)	Description (number of sacks & material)
0	2	1 Sack of Cement
2	74	9 Sacks of 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: **Dowell Water Well Service**

1491 W. South Loop
Stephenville, TX 76401

Driller Name: **Jarrell Dowell II** License Number: **4353**

Comments: **No Data**

ENVIRO-AG
EAE
ENGINEERING, INC.

November 15, 2010

Wyly#2 Dairy
Due Diligence Report

As per Special Provision Item L. of the permit, a best management practice of due diligence must be performed to locate Well#8. A front-end loader tractor was brought to the assumed location of the well and bladed the surface to possibly find the buried well casing of Well#8. No evidence of a buried well casing was found.

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

STATE OF TEXAS PLUGGING REPORT for Tracking #98799

Owner:	**Two Sister's Dairy**	Owner Well #:	**No Data**
Address:	**5040 CR 209 Hico, TX 76457**	Grid #:	**31-64-2**
Well Location:	**CR 209 Hico, TX 76457**	Latitude:	**32° 07' 06" N**
		Longitude:	**098° 03' 01" 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**

Borehole: **No Data**

Plugging Information

Date Plugged: **12/8/2014** Plugger: **Melton Phillips**

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.)
6		

Plug(s) Placed in Well:

Top (ft.)	Bottom (ft.)	Description (number of sacks & material)
0	2	1 Cement
2	525	45 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: **Dowell Water Well Service**

1491 W South Loop
Stephenville, TX 76401

Driller Name: **Jarrell Dale Dowell** License Number: **4353**

Comments: **No Data**

STATE OF TEXAS PLUGGING REPORT for Tracking #98796

Owner:	**Two Sister's Dairy**	Owner Well #:	**No Data**
Address:	**5040 CR 209 Hico, TX 76457**	Grid #:	**31-64-2**
Well Location:	**CR 209 Hico, TX 76457**	Latitude:	**32° 06' 47" N**
		Longitude:	**098° 03' 41" 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**

Borehole: **No Data**

Plugging Information

Date Plugged: **12/8/2014** Plugger: **Melton Phillips**

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		

Plug(s) Placed in Well:

Top (ft.)	Bottom (ft.)	Description (number of sacks & material)
0	2	1 Cement
2	35	4 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: **Dowell Water Well Service**

1491 W South Loop
Stephenville, TX 76401

Driller Name: **Jarrell Dale Dowell** License Number: **4353**

Comments: **No Data**

STATE OF TEXAS PLUGGING REPORT for Tracking #98798

Owner:	**Two Sister's Dairy**	Owner Well #:	**No Data**
Address:	**5040 CR 209 Hico, TX 76457**	Grid #:	**31-64-2**
Well Location:	**CR 209 Hico, TX 76457**	Latitude:	**32° 07' 15" N**
		Longitude:	**098° 03' 04" 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**

Borehole: **No Data**

Plugging Information

Date Plugged: **12/8/2014** Plugger: **Melton Phillips**

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		

Plug(s) Placed in Well:

Top (ft.)	Bottom (ft.)	Description (number of sacks & material)
0	2	1 Cement
2	70	8 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: **Dowell Water Well Service**

1491 W South Loop
Stephenville, TX 76401

Driller Name: **Jarrell Dale Dowell** License Number: **4353**

Comments: **No Data**

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 (2015). The buffer zones and LMU boundaries in Figure 6.1 are submitted with this application for TCEQ approval.

6.2 TMDL Assessment

TMC Dairies Hico is located in Segment 1226, Upper North Bosque River, Brazos River Basin, which is a 303(d)-listed watershed. To demonstrate that TMC Dairies Hico 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.



LEGEND:

Map Revised 7/31/2024

- ○ Denotes Plugged Water Well
- Denotes Water Well
- Denotes Well w/150-ft Buffer
- Denotes Grassed Waterway
- Denotes 142-ft Buffered Zone
- Denoted 133-ft Buffered Zone
- Denotes Fresh Water Pond
- Denotes Pit
- * Denotes Proposed Structure

N W E S

1000' 0 1000' 2000'

SCALED AS SHOWN

Source: USDS-NRCS. Geospatial Data Gateway. Available at: http://datagateway.nrcs.usda.gov/. Digital Raster Graphic County Mosaic by NRCS – Accessed October, 2015.

Refer to Figures 1.4 A, B & D for detailed **production** area maps.

TMC Dairies Hico Hico, TX Erath County	Aerial Photograph Figure 6.1 Page 55	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 STANDARD PERMIT REQUIREMENTS

7.1 Permit Requirements

This facility was constructed prior to August 19, 1998. The facility is designed, and will be operated, in accordance with the provisions and emissions limitations of the air standard permit in 30 TAC §321.43(j) regarding abatement of nuisance conditions, wastewater treatment, dust control and maintenance and housekeeping procedures. The facility uses an anaerobic treatment pond to minimize odors from process generated wastewater in accordance with §321.43(j)(3).

An Area Land Use Map (Figure 7.1) is attached depicting the locations of all occupied residences or business structures, schools (including associated recreational areas), churches, or public parks within 1 mile of the permanent odor sources of the facility. The map includes a north arrow, direction of prevailing wind, and scale. For the purposes of this application, the measurement of buffer distances is from the nearest edge of the permanent odor source to the occupied structure or designated recreational area identified on the Area Land Use Map (30 TAC §321.32(43)).

7.2 Odor control Plan

Per 30 TAC §321.43(j)(2)(F), the following Best Management Practices have been or will be implemented to control and reduce odors, dust and other air contaminants at TMC Dairies Hico.

- Pen surfaces will be maintained to reduce ponding.
- The manure in the confinement pens will be removed on a regular basis (at least once annually) to prevent the manure from building up in the pens.
- Removal of manure and pond solids will be done in favorable wind conditions carrying odors away from nearby receptors. The TCEQ must be notified prior to RCS cleanout.
- Land application shall only occur from one hour after sunrise until one hour before sunset, unless written consent is obtained from current occupants of all residences within ¼-mile of the LMU boundary that receives waste or wastewater.
- Dust will be controlled on facility roads with the use of a portable water truck on an as-needed basis to minimize fugitive dust emissions.
- Dead animals will be collected within 24-hours and composted on-site within 3 days.
- Maintain treatment volume in the treatment pond.



Legend:
- Denotes Occupied Structure
- Denotes Facility Owned Structure

Site Visit – 7/16/2024
Map Generated – 8/2/2024

N
W E
S

1500' 0 1500' 3000'

SCALED AS SHOWN

Note:
Hatched area represents permanent odor sources. These include, but are not limited to, pens, confinement buildings, lagoons, RCSs, manure stockpile areas, separators. Permanent odor sources do not include any feed handling facilities, land application equipment or fields.

Source: USDS-NRCS. Geospatial Data Gateway. Available at: http://datagateway.nrcs.usda.gov/. Digital Raster Graphic County Mosaic by NRCS – Accessed October, 2015.

TMC Dairies Hico Hico, TX Erath County	Area Land Use Map Figure 7.1 Page 57	ENVIRO-AG ENGINEERING, INC. Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Airway Boulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

Leah Whallon

From: Jourdan Mullin <jmullin@enviroag.com>
Sent: Monday, September 9, 2024 2:08 PM
To: WQDecopy
Cc: Corey Mullin; Leah Whallon
Subject: FW: TMC Dairies Hico - Major Amendment Application (WQ0003190000)
Attachments: TMC Dairies Hico Major Amendment 2024.pdf

From: Jourdan Mullin
Sent: Monday, September 09, 2024 2:07 PM
To: mailto:WQDeCopy@tceq.texas.gov
Cc: Corey Mullin <cmullin@enviroag.com>; 'leah.whallon@tceq.texas.gov' <Leah.Whallon@Tceq.Texas.Gov>
Subject: TMC Dairies Hico - Major Amendment Application (WQ0003190000)

To Whom It May Concern,

Attached is the 2024 Major Amendment Application for TMC Dairies Hico.

Respectfully,

Jourdan Mullin

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

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

Disclaimer

The information contained in this communication from the sender is confidential. It is intended solely for use by the recipient and others authorized to receive it. If you are not the recipient, you are hereby notified that any disclosure, copying, distribution or taking action in relation of the contents of this information is strictly prohibited and may be unlawful.

This email has been scanned for viruses and malware, and may have been automatically archived by **Mimecast Ltd**, an innovator in Software as a Service (SaaS) for business. Providing a **safer** and **more useful** place for your human generated data. Specializing in; Security, archiving and compliance. To find out more Click Here.

Leah Whallon

From: Jourdan Mullin <jmullin@enviroag.com>
Sent: Thursday, September 12, 2024 2:07 PM
To: Leah Whallon; Corey Mullin
Subject: RE: Application to Amend Permit No. WQ0003190000; 3T Martins Farm Hico, LLC and TMC Dairies LLC
Attachments: 3T Martins Farm Hico wq cafo amend Spanish.docx

Follow Up Flag: Follow up
Flag Status: Flagged

Good Thursday Afternoon Leah,

Attached is the requested Spanish NORI for TMC Dairies Hico. I have also uploaded the electronic copy of the application using the TCEQ FTP server and I emailed a copy to WQDeCopy@tceq.texas.gov. Please let me know if you have any questions or require any additional information.

Thank you,
Jourdan Mullin

From: Leah Whallon <Leah.Whallon@Tceq.Texas.Gov>
Sent: Monday, September 09, 2024 1:24 PM
To: Corey Mullin <cmullin@enviroag.com>
Cc: Jourdan Mullin <jmullin@enviroag.com>
Subject: Application to Amend Permit No. WQ0003190000; 3T Martins Farm Hico, LLC and TMC Dairies LLC

CAUTION: This email originated from outside of Enviro-Ag Engineering. Do not click links or open attachments unless you have verified the sender and know the content is safe.

Good Afternoon,

Please see the attached Notice of Deficiency letter dated September 9, 2024 requesting additional information needed to declare the application administratively complete. Please send the complete response by September 23, 2024.

Please let me know if you have any questions.

Thank you,

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

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

Disclaimer

The information contained in this communication from the sender is confidential. It is intended solely for use by the recipient and others authorized to receive it. If you are not the recipient, you are hereby notified that any disclosure, copying, distribution or taking action in relation of the contents of this information is strictly prohibited and may be unlawful.

This email has been scanned for viruses and malware, and may have been automatically archived by **Mimecast Ltd**, an innovator in Software as a Service (SaaS) for business. Providing a **safer** and **more useful** place for your human generated data. Specializing in; Security, archiving and compliance. To find out more Click Here.

Comisión de Calidad Ambiental del Estado de Texas

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

PERMISO NO. WQ0004028000

SOLICITUD. 3T Martins Farm Hico, LLC and TMC Dairies LLC, P.O. Box 599, Hico, Texas 76457, que posee y opera una instalación de ganado lechero, ha solicitado a la Comisión de Calidad Ambiental de Texas (TCEQ) modificar el Permiso de Aguas Residuales No. WQ0003190000 para una Operación de Alimentación Concentrada para Animales (CAFO) para autorizar los cambios propuestos en dos fases. La primera fase incluirá un aumento de el conteo de cabezas a 10,000 en total con 8,000 lecheras, la adición de la raza Jersey de ganado lechero junto con la raza Holstein, la adición de un digestor anaeróbico y equipo asociado, cambio en los límites de la propiedad, reconfiguración de las LMU, eliminación de LMU #TH8 y #TD7, remoción de los pozos #TD9, #TF1 y TF2 y reconfiguración del área de drenaje en la Figura 1.4A (adición de área de abono de estiércol, adición de granero con ventilación cruzada, adición de sala de estar, pozo de tapón #TSS, ampliación de RCS #TS1). La segunda fase incluirá un aumento del conteo de cabezas a 13,500 en total con 10,000 lecheras, la reconfiguración del área de drenaje en la Figura 1.4D (adición de un granero con ventilación cruzada, corrales de eliminación, graneros de establos libres, estanques de sedimentación y tapón del pozo #TD11) y reconfiguración de la sala. La instalación está ubicada en 3618 County Road 540, cerca de la ciudad de Hico, en el Condado de Erath, Texas 76457. La TCEQ recibió esta solicitud el 28 de agosto de 2024. La solicitud de permiso estará disponible para ver y copiar 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=-98.047777,32.116944&level=18

Include the following non-italicized sentence if the facility is located in the Coastal Management Program boundary and is an application for a major amendment which will increase the pollutant loads to coastal waters or would result in relocation of an outfall to a critical areas, or a renewal with such a major amendment. The Coastal Management Program boundary is

the area along the Texas Coast of the Gulf of México as depicted on the map in 31 TAC §503.1 and includes part or all of the following counties: Cameron, Willacy, Kenedy, Kleberg, Nueces, San Patricio, Aransas, Refugio, Calhoun, Victoria, Jackson, Matagorda, Brazoria, Galveston, Harris, Chambers, Jefferson y Orange. If the application is for amendment that does not meet the above description, do not include the sentence: El Director Ejecutivo de la TCEQ ha revisado esta medida para ver si está de acuerdo con los objetivos y las regulaciones del Programa de Administración Costero de Texas (CMP) de acuerdo con las regulaciones del Consejo Coordinador de la Costa (CCC) y ha determinado que la acción es conforme con las metas y regulaciones pertinentes del CMP.

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 A LA AGENCIA. 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 de 3T Martins Farm Hico, LLC and TMC Dairies LLC a la dirección indicada arriba o llamando al Sr. Tony Martins, Miembro Gerente, 3T Martins Farm Hico, LLC, al 208-320-2134.

Fecha de emisión _____ *[Date notice issued]*