

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: Circle 7 Dairy, LLC and Grand Canyon Dairy, LLC
- 2) Enter Customer Number: CN604036954; CN603973462
- 3) Name of facility: Grand Canyon Dairy
- 4) Enter Regulated Entity Number: RN100794155
- 5) Provide your permit Number: WQ0002950000
- 6) Facility Business: The facility confines 4,000 head of cattle in which 4,000 are milking. The facility has fourteen (14) land management units (LMUs) with the following acreages: LMU #1 103, LMU #2 83, LMU#3 78, LMU #4 60, LMU #5 210, LMU #6 65, LMU #7 30, LMU #8 87, LMU #9 20, LMU #10 50, LMU #11 56, LMU #12 91, LMU #13 53 and LMU #14 52 acres. Three (3) retention control structures (RCSs) and three earthen settling basins. The required capacities are: RCS #1 0.00 ac-ft, RCS #2 58.81(digester) & 54.96 (bypass) ac-ft and RCS #3 22.79 ac-ft. There are twenty (20) onsite wells of which three 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 FM 219 approximately 5 miles south of the intersection of FM 219 and Highway 1702, approximately 7 miles southwest of Dublin in Erath County, Texas.
- 8) Application Type: Individual Permit Major Amendment
- 9) Description of your request: Submitting a major amendment application in two phases in order to maintain compliance throughout the transition. Phase 1 will include the following changes: decrease the headcount to 2,500 total and 2,500 milking, update the runoff control map, site map and recharge feature map to the current conditions (remove digester and proposed freestall barns), reconfigure the following LMUs: LMU #1A (41 ac) is new and is a portion of LMU #1 (current 103ac; proposed 62ac), LMU #2A (21 ac) is new and is a portion of LMU #2 (current 83ac; proposed 21ac), LMU #3A (21 ac) is new and is in a portion of LMU #3 (current 78ac; proposed 56ac), LMU #6 (current 65ac; proposed 62ac), LMU #12A (30 ac) is new and is in a portion of LMU #12 (current 52ac; proposed 47ac). Phase 2 will include the increase of headcount to 4,000 total and 4,000 milking, the addition of an anerobic digester and associated equipment and the addition of freestall barns.
- 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 10day 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 150foot 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, buried on-site or compost onsite. 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: Circle 7 Dairy, LLC y Grand Canyon Dairy, LLC

2) Ingrese el número de cliente: CN604036954; CN603973462

3) Nombre de la instalación: Grand Canyon Dairy

4) Ingresar Número de Entidad Regulada: RN100794155

5) Proporcione su número de permiso: WQ0002950000

6) Instalación Comercial: La instalación encierra 4,000 cabezas de ganado, de las cuales 4,000 se encuentran en ordeño. La instalación cuenta con catorce (14) unidades de administración de tierras (LMU) con las siguientes superficies: LMU #1 – 103, LMU #2 – 83, LMU#3 – 78, LMU #4 – 60, LMU #5 – 210, LMU #6 – 65, LMU #7 – 30, LMU #8 – 87, LMU #9 – 20, LMU #10 – 50, LMU #11 – 56, LMU #12 – 91, LMU #13 – 53 y LMU #14 – 52 acres. Cuenta con tres (3) estructuras de control de retención (RCS) y tres cuencas de sedimentación de tierra. Las capacidades requeridas son: RCS #1 – 0.00 ac-pie, RCS #2 – 58.81 (digestor) y 54.96 acres-pie (derivación), y RCS #3 – 22.79 ac-pie. Hay veinte (20) pozos en el sitio, de los cuales tres están taponados. La instalación está ubicada en el Río North Bosque, 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 FM 219 aproximadamente a 5 millas al sur de la intersección de FM 219 y Highway 1702, aproximadamente a 7 millas al suroeste de Dublin en el Condado de Erath, Texas.

8) Tipo de Solicitud: Enmienda Importante al Permiso Individual

9) Descripción de su solicitud: Presentar una solicitud de modificación importante en dos fases para mantener el cumplimiento durante la transición. La fase 1 incluirá los siguientes cambios: reducir el número de cabezas a 2,500 en total y 2,500 en ordeño, actualizar el mapa de control de escorrentía, el mapa del sitio y el mapa de características de recarga a las condiciones actuales (eliminar el digestor y los establos de estabulación libre propuestos), y reconfigurar las siguientes LMUs: LMU #1A (41 ac) es nueva y es una parte de LMU #1 (actual 103 ac; propuesta 62 ac), LMU #2A (21 ac) es nueva y es una parte de LMU #2 (actual 83 ac; propuesta 21 ac), LMU #3A (21 ac) es nueva y está en una parte de LMU #3 (actual – 78 ac; propuesta – 56 ac), LMU #6 (actual – 65 ac; propuesta – 62 ac), LMU #12A (30 ac) es nueva y está en una parte de LMU #12 (actual – 52 ac; propuesta – 47 ac). La Fase 2 incluirá el aumento de cabezas a 4,000 en total y 4,000 en ordeño, la adición de

un digestor anaeróbico y equipo asociado y la adición de establos con estabulación libre.

10) Las posibles fuentes de contaminantes en la instalación incluyen (enumere las fuentes de contaminantes): Estiércol, reservas de estiércol, aguas residuales, lodos, purines, compost, piensos y camas, reservas de ensilaje, animales muertos, polvo, lubricantes, químicos de salón, 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 adecuadamente diseñado ((frecuencia de 25 años y duración de 10 días (25 años/10 días), construido, operado y mantenido de acuerdo con lo dispuesto en el permiso. Mantener una zona de amortiguamiento de 100 pies para todos los pozos de riego o 150 pies para todos los pozos de suministro. 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. WQ0002950000

APPLICATION. Circle 7 Dairy LLC and Grand Canvon Dairy LLC, 2179 County Road 308, Dublin, Texas 76446, have applied to the Texas Commission on Environmental Quality (TCEQ) to amend Wastewater Permit No. WO0002950000 (EPA I.D. No. TX0130923) for a Concentrated Animal Feeding Operation (CAFO) to authorize the following changes in two phases. Phase 1 will authorize: to decrease the headcount to 2,500 total dairy cattle and 2,500 milking; update the runoff control map, site map, and recharge feature map to the current conditions (remove digester and proposed - free stall barns); reconfigure the following LMUs: LMU #1A (41 acres) is new and is a portion of LMU #1 (current - 103 acres/ proposed - 62 acres), LMU #2A (21 acres) is new and is a portion of LMU #2 (current - 83 acres/ proposed -21 acres), LMU #3A (21 acres) is new and is in a portion of LMU #3 (current - 78 acres/ proposed - 56 acres), LMU #6 (current - 65 acres/ proposed - 62 acres), LMU #12A (30 acres) is new and is in a portion of LMU #12 (current - 91 acres/ proposed - 66 acres) and LMU #14 (current - 52 acres/ proposed - 47 acres). Phase 2 will authorize: to increase the headcount to 4,000 total dairy cattle and 4,000 milking; the addition of an anerobic digester and associated equipment; and the addition of free stall barns. The facility is located at 2179 County Road 308, near the city of Dublin, in Erath County, Texas 76446. TCEQ received this application on May 12, 2025. 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:

<u>https://www.tceq.texas.gov/permitting/wastewater/pending-permits/cafo-applications</u>. 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=-98.270833,32.023055&level=18

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

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 countywide 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 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 <u>www.tceq.texas.gov/goto/cid</u>. 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 <u>https://www14.tceq.texas.gov/epic/eComment/</u>, 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 <u>www.tceq.texas.gov/goto/pep</u>. Si desea información en Español, puede llamar al 1-800-687-4040.

Further information may also be obtained from Circle 7 Dairy LLC and Grand Canyon Dairy LLC at the address stated above or by calling Mr. Tim Miranda, Member, Circle 7 Dairy LLC, at 254-445-0404.

Issuance Date: June 2, 2025

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. WQ0002950000

SOLICITUD. Circle 7 Dairy LLC y Grand Canyon Dairy LLC, 2179 County Road 308, Dublin, Texas 76446, han solicitado a la Comisión de Calidad Ambiental de Texas (TCEQ) la modificación del Permiso de Aguas Residuales n.º WQ0002950000 (N.º de identificación de la EPA: TX0130923) para una Operación Concentrada de Alimentación Animal (CAFO) y la autorización de los siguientes cambios en dos fases. La fase 1 autorizará: la reducción de la población a 2500 cabezas de ganado lechero y 2500 vacas en ordeño; la actualización del mapa de control de escorrentía, el mapa del sitio y el mapa de características de recarga a las condiciones actuales (eliminación del digestor y la propuesta de establos con establos libres); reconfigurar las siguientes LMU: LMU #1A (41 acres) es nueva y es una parte de LMU #1 (actual - 103 acres / propuesto - 62 acres), LMU #2A (21 acres) es nueva y es una parte de LMU #2 (actual - 83 acres / propuesto - 21 acres), LMU #3A (21 acres) es nueva y está en una parte de LMU #3 (actual - 78 acres / propuesto - 56 acres), LMU #6 (actual - 65 acres / propuesto -62 acres). LMU #12A (30 acres) es nueva y está en una parte de LMU #12 (actual - 91 acres / propuesto - 66 acres) y LMU #14 (actual - 52 acres / propuesto - 47 acres). La Fase 2 autorizará: aumentar el recuento de cabezas a 4,000 cabezas de ganado lechero en total y 4,000 en ordeño; la adición de un digestor anaeróbico y equipo asociado; y la adición de establos con establos libres. La instalación está ubicada en 2179 County Road 308, cerca de la ciudad de Dublin, en el condado de Erath, Texas 76446. La TCEQ recibió esta solicitud el 12 de mayo de 2025. La solicitud de permiso estará disponible para su consulta y copia en la Oficina de Extensión del Condado de Erath - Tribunal del Condado de Erath, Sala 206, 100 West Washington Street, Stephenville, en el condado de Erath, Texas, antes de la fecha de publicación de este aviso en el periódico. La solicitud, incluvendo cualquier actualización, 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 instalación se proporciona como cortesía pública y no forma parte de la solicitud ni del aviso. Para conocer la ubicación exacta, consulte la solicitud.

https://gisweb.tceq.texas.gov/LocationMapper/?marker=-98.270833,32.023055&level=18

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

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 del Director Ejecutivo 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 más de las listas correos siguientes (1) la lista de correo permanente para recibir los avisos del 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.

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 del Circle 7 Dairy LLC y Grand Canyon Dairy LLC a la dirección indicada arriba o llamando a Sr. Tim Miranda, miembro de Circle 7 Dairy LLC, al 254-445-0404.

Fecha de emisión el 2 de junio de 2025



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

May 1, 2025

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

Re: Grand Canyon Dairy – Permit No. WQ0002950000 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 Grand Canyon Dairy EAE file

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

Grand Canyon Dairy Major Amendment

Prepared For: Circle 7 Dairy, LLC and Grand Canyon Dairy, LLC 2179 County Road 308 Dublin, TX 76446

April 10, 2025

Prepared By:





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?

 \boxtimes 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 <u>https://www3.tceq.texas.gov/steers/index.cfm</u>. Check <u>How to Apply through STEERS</u>.

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: <u>765911 & 765912</u>	
	Copy of Payment Voucher enclosed?	Yes 🗆

SECTION 2. TYPE OF APPLICATION

A.	Coverage:	State Only 🛛	TPDES 🖂		
B.	Media Type:	Water Quality 🛛	Air and Water Quali	ty 🛛	3
C.	Application 1	ype: New 🗆	Major Amendment		
		Renewal 🗆	Minor Amendment		

D. For amendments, describe the proposed changes: <u>Circle 7 Dairy LLC & Grand Canyon Dairy, LLC is submitting a major amendment application in two phases in order to maintain compliance throughout the transition. Phase 1 will include the following changes: decrease the headcount to 2,500 total and 2,500 milking, update the runoff control map, site map and recharge feature map to the current conditions (remove digester and proposed freestall barns), reconfigure the following LMUs: LMU #1A (41 ac) is new and is a portion of LMU #1 (current 103ac; proposed 62ac), LMU #2A (21 ac) is new and is a portion of LMU #2 (current 83ac; proposed 21ac), LMU #3A (21 ac) is new and is in a portion of LMU #3 (current - 78ac; proposed - 56ac), LMU #6 (current - 65ac; proposed - 62 ac), LMU #1A (30 ac) is new and is in a portion of LMU #12 (current - 91ac; proposed - 66ac) and LMU #14 (current - 52ac; proposed - 47ac). Phase 2 will include the increase of headcount to 4,000 total and 4,000</u>

TCEQ ePay

Questions or Comments >>

Shooping Cart Select Les Search Transactions Sign Out

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:	765911
Trace Number:	582EA000667344
Date:	05/08/2025 02:39 PM
Payment Method:	CC - Authorization 000007583G
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:	GRAND CANYON DAIRY
Site Location:	2179 CR 308 DUBLIN TX 76446
-Customer Information	
Customer Name:	CIRCLE 7 DAIRY LLC
Customer Address:	2179 CR 308, DUBLIN, TX 76446
1	

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TCEQ ePay

Questions or Comments >>

Shopping Cart Select Fee Search Transactions Sign Out

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

765912
582EA000667344
05/08/2025 02:39 PM
CC - Authorization 000007583G
\$50.00
30 TAC 305.53B WQ NOTIFICATION FEE
JOURDAN MULLIN
jmullin@enviroag.com
156.146.244.233
JOURDAN MULLIN
ENVIRO-AG ENGINEERING INC
3404 AIRWAY BLVD, AMARILLO, TX 79118
806-679-5570

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milking, the addition of an anerobic digester and associated equipment and the addition of freestall barns.

E. For existing permits: What is the permit number? WQ0002950000 What is the EPA I.D. Number? TX 0130923

SECTION 3. FACILITY OWNER (APPLICANT) INFORMATION

- A. What is the legal name of the facility owner? Circle 7 Dairy, LLC
- B. If the applicant is an existing TCEQ customer, provide the Customer Number (CN) issued to this entity? CN 604036954

- C. What is the contact information for the owner? Mailing Address: 2179 CR 308 City, State and Zip Code: Dublin, TX 76446 Phone Number: 254/445-0404 Fax Number: n/a E-mail Address: grandcanyondairy@gmail.com
- **D.** Indicate the type of customer:

- Limited Partnership
- **General** Partnership
- Trust
- Sole Proprietorship (D.B.A.)
- X Corporation

- Federal Government **County Government**
- State Government
- **City Government**
- Other Government
- Other, specify: Click here to enjoy text.

- Estate
- 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 \Box 21-100 \Box 101-250

	□ 251-500	🗆 501 or higher
--	-----------	-----------------

H. For Corporations and Limited Partnerships:

What is the Tax Identification Number issued by the State Comptroller: 32045368498 What is the Charter Filing Number issued by the Texas Secretary of State: 0801495972

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?

Grand Canyon Dairy, LLC

- **B.** If the applicant is an existing TCEQ customer, provide the Customer Number (CN) issued to this entity? CN <u>603973462</u>
- C. What is the contact information for the co-applicant?

Mailing Address: 2179 CR 308

City, State and Zip Code: Dublin, TX 76446

Phone Number: Fax Number: 254/445-0404

E-mail Address: grandcanyondairy@gmail.com

- **D.** Indicate the type of customer:
 - Individual Federal Government Limited Partnership **County Government** □ General Partnership State Government Trust City Government Sole Proprietorship (D.B.A.) Other Government
 - \boxtimes Corporation

□ Other, specify: Click here to enter text.

- □ Estate
- 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: $\square 0.20 \square 21-100$
 - 0 0 101-250

□ 251-500

□ 501 or higher

H. For Corporations and Limited Partnerships:

What is the Tax Identification Number issued by the State Comptroller: <u>12733069541</u> What is the Charter Filing Number issued by the Texas Secretary of State: <u>0801312718</u>

SECTION 5. APPLICATION CONTACT INFORMATION

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

Prefix (Mr., Ms., Miss): <u>Mr.</u>

Application Contact First and Last Name: Corey Mullin

Title: <u>Consultant</u> Credentials: Click here to enter text

Company Name: Enviro-Ag Engineering, Inc.

Mailing Address: <u>9855 FM 847</u> City, State and Zip Code: <u>Dublin, TX 76446</u> Phone Number: <u>254/965-3500</u> Fax Number: <u>254/965-8000</u> E-mail Address: <u>cmullin@enviroag.com</u>

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): <u>Mr.</u> Permit Contact First and Last Name: <u>Corey Mullin</u> Title: <u>Consultant</u> Credentials: <u>Click here to enterned</u> Company Name: <u>Enviro-Ag Engineering, Inc.</u> Mailing Address: <u>9855 FM 847</u> City, State and Zip Code: <u>Dublin, TX 76446</u> Phone Number: <u>254/965-3500</u> Fax Number: <u>254/965-8000</u> E-mail Address: <u>cmullin@enviroag.com</u>

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

Permit Contact First and Last Name: Tim MirandaTitle: MemberCredentials: Click here to enter textCompany Name: Circle 7 Dairy, LLCMailing Address: 2179 CR 308City, State and Zip Code: Dublin, TX 76446Phone Number: 254/445-0404 Fax Number: n/a E-mail Address:grandcanyondairy@gmail.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, Circle 7 Dairy, LLC

 \Box No, complete this section

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

First and Last Name: Click bece to enter text.

Title: 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: <u>Circle 7 Dairy, LLC</u>
- **B. Landowner of the land management units (LMUs)** Landowner Name: Circle 7 Dairy, 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: <u>Consultant</u> Credentials: Click frem to enforce ext.

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: <u>9855 FM 847</u>

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: Tim Miranda

Title: <u>Member</u> Credentials: Click here to enter text.

Company Name: Circle 7 Dairy, LLC

Phone Number: <u>254/445-0404</u>

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: <u>Stephenville</u> County: <u>Erath</u>

Phone Number: <u>254/965-1460</u>

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 \boxtimes No \square

(**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 \boxtimes No \square

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 \boxtimes No \square

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? <u>Spanish</u>
 Complete the <u>CAFO Plain Language Summary Template</u> (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 <u>CAFO Plain Language Summary Template</u> (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: <u>Grand Canyon Dairy</u>

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: Circle 7 Dairy, LLC and Grand Canyon Dairy, LLC
- 2) Enter Customer Number: CN604036954; CN603973462
- 3) Name of facility: Grand Canyon Dairy
- 4) Enter Regulated Entity Number: RN100794155
- 5) Provide your permit Number: WQ0002950000
- 6) Facility Business: The facility confines 4,000 head of cattle in which 4,000 are milking. The facility has fourteen (14) land management units (LMUs) with the following acreages: LMU #1 103, LMU #2 83, LMU#3 78, LMU #4 60, LMU #5 210, LMU #6 65, LMU #7 30, LMU #8 87, LMU #9 20, LMU #10 50, LMU #11 56, LMU #12 91, LMU #13 53 and LMU #14 52 acres. Three (3) retention control structures (RCSs) and three earthen settling basins. The required capacities are: RCS #1 0.00 ac-ft, RCS #2 58.81(digester) & 54.96 (bypass) ac-ft and RCS #3 22.79 ac-ft. There are twenty (20) onsite wells of which three 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 FM 219 approximately 5 miles south of the intersection of FM 219 and Highway 1702, approximately 7 miles southwest of Dublin in Erath County, Texas.
- 8) Application Type: Individual Permit Major Amendment
- 9) Description of your request: Submitting a major amendment application in two phases in order to maintain compliance throughout the transition. Phase 1 will include the following changes: decrease the headcount to 2,500 total and 2,500 milking, update the runoff control map, site map and recharge feature map to the current conditions (remove digester and proposed freestall barns), reconfigure the following LMUs: LMU #1A (41 ac) is new and is a portion of LMU #1 (current 103ac; proposed 62ac), LMU #2A (21 ac) is new and is a portion of LMU #2 (current 83ac; proposed 21ac), LMU #3A (21 ac) is new and is in a portion of LMU #3 (current 78ac; proposed 56ac), LMU #6 (current 65ac; proposed 62ac), LMU #12A (30 ac) is new and is in a portion of LMU #12 (current 91ac; proposed 66ac) and LMU #14 (current 52ac; proposed 47ac). Phase 2 will include the increase of headcount to 4,000 total and 4,000 milking, the addition of an anerobic digester and associated equipment and the addition of freestall barns.
- 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, buried on-site 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.



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

X 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

X 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		
X Texas Pollutant Discharge Elimination System (TPDES)		
Texas Land Application Permit (TLAP)		
X 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		
Grand Canyon Dairy is a dairy milking facility.		

Section 5. Community and Demographic Information
Community information can be found using EPA's FJ 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 X 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 (% Plub + 6.1 +
White - 75.6%. Black of African American - 3.29%. Hispanic - 12.7%. Two of 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%
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?		
(b) If yes, do you intend at this time to provide public outreach other than what is required by rule?		
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?		
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		
If yes, how will you provide notice in alternative languages?		
Publish in alternative language newspaper		
Publish in alternative language newspaper		
Mailed by TCEO's Office of the Chief Clerk		
Other (specify)		
(d) Is there an opportunity for some type of public meeting including after notice?		
Ves No		
(e) If a nublic 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)		
TCEO Regional 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?		
X Publish in alternative language newspaper		
Posted on Commissioner's Integrated Database Website		
Malled by TCEQ's Office of the Chief Clerk		
Utner (specify)		

- **B.** If this is an existing permitted site, provide the Regulated Entity Number (RN) issued to this site? RN <u>100794155</u>
- C. Site Address/Location:

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

If the site does not have a physical address, provide a location description in Item 2. Example: located on the north side of FM 123, 2 miles west of the intersection of FM 123 and Highway 1.

Item 1: Physical Address of Project or Site:

Street Number and Name: 2179 CR 308

City, State and Zip Code: Dublin, TX 76446

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

Zip Code where the site is located: Click here to enter text.

D. County or counties if more than 1: <u>Erath</u>

E. Latitude: <u>32 01' 23.6"N</u> Longitude: <u>98 16' 15.5"W</u>

- 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: <u>4,000 (Total) 4,000 (Milking)</u> Proposed Maximum Number of Animals: <u>Phase 1 – 2,500 (Total) 2,500 (Milking)</u>. <u>Phase 2 – 4,000 (Milking) 4,000 (Total)</u>
- H. What is the total LMU acreage? <u>1,034</u>

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): □ lick 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

TCEQ -00728 Individual Permit Application for a Concentrated Animal Feeding Operation (10/24/2022) Page 8

supply? Yes □ No ⊠

D. Is any permanent school fund land affected by this application? Yes \Box No \boxtimes

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

E. Delinquent Fees and Penalties:

Do you owe fees to the TCEQ?	Yes 🗆	No 🖂
Do you owe any penalties to the TCEQ?	Yes 🗆	No 🖂

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

SECTION 12. AFFECTED LANDOWNER INFORMATION

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

- **A.** Landowner map. Attach a landowner map or drawing, with scale, that includes the following. Each landowner should be designated by a letter or number on both the list and the map.
 - The applicant's property boundaries, including onsite and offsite LMUs; and
 - The property boundaries of all landowners within 500 feet of the applicant's property.
- **B.** Landowner list. Attach a separate list of the landowners' names and mailing addresses. The list must be cross-referenced to the landowners map.
- C. Landowner list media. Indicate the format of the landowners list.
 - 🛛 Read/Writeable CD
 - \Box 4 sets of mailing labels
- **D.** Landowner data source. Provide the source of the landowners' names and mailing addresses.

Erath County Appraisal District - April 2025

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

- 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: WQ0002950000

Applicant: <u>Circle 7 Dairy, LLC</u>

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: Tim Miranda Title: Member Date: 4-23-25 Signature: Im Man SUBSCRIBED AND SWORN to before me by the said ______ Mira on this 73 day of ,20 25 day of Oct My commission expires on the .20 28 COREY MULLIN n #120000888 Notary Public County, Texas

TCEQ -00728 Individual Permit Application for a Concentrated Animal Feeding Operation (10/24/2022) Page 10

- 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: WQ0002950000

Applicant: Grand Canyon Dairy, 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: Tim Miranda

Title: <u>Member</u>

Signature: Time Man	Date: 4-23-25
SUBSCRIBED AND SWORN to before me by	the said <u>Tim Miranda</u> on
this Z3 day of April	, 20 25
My commission expires on the Zist	day of October, 20 25



Notary Public

County, Texas

Franchise Search Results





Franchise Tax Account Status

As of : 06/26/2018 10:47:24

This Page is Not Sufficient for Filings with the Secretary of State

CIRCLE 7 DAIRY LLC

Texas Taxpayer Number32045368498Mailing Address1743 COUNTY ROAD 308 DUBLIN, TX 76446-6855Right to Transact Business in
TexasACTIVEState of FormationTXEffective SOS Registration Date10/19/2011Texas SOS File Number0801495972Registered Agent NameDORICE M MIRANDARegistered Office Street Address2179 CR 308 DUBLIN, TX 76446

Public Information Report

Public Information Report CIRCLE 7 DAIRY LLC Report Year :2017

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 <u>open.records@cpa.texas.gov</u> or Comptroller of Public Accounts, Open Records Section, PO Box 13528, Austin, Texas 78711.

Title Name and Address

MEMBER DORICE MIRANDA 1743 CR 308 DUBLIN, TX 76446 MEMBER TIM MIRANDA 1743 CR 308 DUBLIN, TX 76446 Franchise Search Results





Franchise Tax Account Status

As of : 06/26/2018 10:48:35

This Page is Not Sufficient for Filings with the Secretary of State

GRAND CANYON DAIRY LLC

Texas Taxpayer Number12733069541Mailing Address965 WADDINGTON RD FERNDALE, CA 95536-9724Right to Transact Business in
TexasACTIVEState of FormationCAEffective SOS Registration Date08/31/2010Texas SOS File Number0801312718Registered Agent NameDORICE MIRANDARegistered Office Street Address2179 COUNTY ROAD 308 DUBLIN, TX 76446

Public Information Report

Public Information Report

Public Information Report GRAND CANYON DAIRY LLC Report Year :2017

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 <u>open.records@cpa.texas.gov</u> or Comptroller of Public Accounts, Open Records Section, PO Box 13528, Austin, Texas 78711.

TitleName and AddressMEMBERDORICE MIRANDA
1743 CR 308 DUBLIN, TX 76446MEMBERROBERT MIRANDA
1808 CENTERVILLE RD FERNDALE, CA 95536MEMBERTIM MIRANDA
1743 CR 308 DUBLIN, TX 76446


ADJACENT LANDOWNERS LIST

Name: <u>Blue Sky Farms, LLC.</u>	Name: <u>Johnny Feagan</u>
Number on Map: 1	Number: on Map 2
Address: <u>4611 S FM 219</u>	Address: <u>2775 CR 307</u>
Address: <u>Dublin, TX 76446</u>	Address: <u>Dublin, TX 76446</u>
Name: <u>Gustavo Frias</u>	Name: Salavador & <u>Leondies Solano</u>
Number: on Map 3	Number on Map 4
Address: <u>3626 CR 307</u>	Address: <u>4042 CR 307</u>
Address: Dublin, TX 76 446	Address: <u>Dublin</u> TY 76446
Name: <u>Gabriel E Dagley</u>	Name: Michael Brent & Lisa Dianne Chambers
Address: <u>3313 CR 132</u>	Address: <u>4600 CR 307</u>
Address: <u>Stephenville, TX 76401</u>	Address: <u>Dublin, TX 76446</u>
Name: <u>Tony & Sally Gray</u>	Name: <u>James & Tracy Holleman</u>
Number on Map: <u>7</u>	Number on Map: <u>8</u>
Address: <u>5170 CR 307</u>	Address: <u>3048 CR 308</u>
Address: <u>Dublin, TX 76446</u>	Address: <u>Dublin, TX 76446</u>
Name: <u>Wallace Family Trust</u>	Name: <u>Haros Ranch LLC.</u>
Number on Map: <u>9</u>	Number on Map: <u>10</u>
Address: <u>4879 CR 307</u>	Address: <u>830 Kingston Dr</u>
Address: <u>Dublin, TX 76446</u>	Address: <u>Mansfield, TX 76063</u>
Name: <u>Luciano Haros</u>	Name: <u>Rygh & Lyn Fullagar</u>
Number on Map: <u>11</u>	Number on Map: <u>12</u>
Address: <u>830 Kingston Dr</u>	Address: <u>6291 CR 307</u>
Address: <u>Mansfield, TX 76063</u>	Address: <u>Dublin, TX 76446</u>
Name: <u>Dickie D & Nancy R Palmore</u>	Name: <u>Frederick Wayne & Gregory Alan Gibson</u>
Number on Map: <u>13</u>	Number on Map: <u>14</u>
Address: <u>927 Preston Lane</u>	Address: <u>2801 FM 1496</u>
Address: <u>Dublin, TX 76446</u>	Address: <u>Dublin, TX 76446</u>
Name: <u>Paulo A & Cathy S Valle</u>	Name: <u>Seven R Corporation</u>
Number on Map: 15	Number on Map: <u>16</u>
Address: <u>PO Box 207</u>	Address: <u>PO Box 83701</u>
Address: <u>Dublin, TX 76446</u>	Address: <u>Baton Rouge, LA 70884</u>
Name: <u>Jesse Lee Tackett Credit Shelter Trust</u>	Name: <u>Deboer Reo, LLC</u>
Number on Map: <u>17</u>	Number on Map: <u>18</u>
Address: <u>1256 CR 308</u>	Address: <u>451 Eagle Station Lane</u>
Address: <u>Dublin, TX 76446</u>	Address: <u>Carson City, NV 89701</u>

Please identify where you obtained the landowner information.

Erath County Appraisal District; April 2025

Facility Name: Grand Canyon Dairy

ADJACENT LANDOWNERS LIST

Name: <u>Ventura & Rafaela Botello</u>	Name: <u>Sonrisa Land & Cattle Co Inc</u>
Number on Map: <u>19</u>	Number: on Map <u>20</u>
Address: <u>260 CR 317</u>	Address: <u>PO Box 250</u>
Address: <u>Dublin, TX 76446</u>	Address: <u>Dublin, TX 76446</u>
Name: <u>Eddie & Effie Leatherwood</u>	Name: <u>La Perla Land & Livestock, LLC</u>
Number: on Map <u>21</u>	Number on Map <u>22</u>
Address: <u>414 CR 336</u>	Address: <u>PO Box 367</u>
Address: <u>Dublin, TX 76446</u>	Address: <u>Dublin, TX 76446</u>
Name: <u>Joseph Hines</u>	Name: <u>Janice Hess</u>
Number: on Map <u>23</u>	Number: on Map <u>24</u>
Address: <u>1418 W Torrey St.</u>	Address: <u>570 Alexander Rd.</u>
Address: <u>Granbury, TX 76048</u>	Address: <u>Stephenville, TX 76401</u>

Please identify where you obtained the landowner information.

Erath County Appraisal District; April 2025

Facility Name: Grand Canyon Dairy

ICEQ USE ONLY				
Application type:	🗆 Renewal	⊔ Major Amendment	🗆 Minor Amendment	□ New
County:		Admin Complete Date:		
Agency Receiving SPIF: □ Texas Historical Commission			🗆 U.S. Fish and Wild	llife
	⊓ 'I'e:	kas Parks and Wildlife	□ Army Corps of Er	ngineers

TOTO LICE ONLY

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

This form is required for all TPDES applications

- 1. Applicant: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 2. Permit Number: WQ0002950000 EPA ID Number: TX0130923
- 3. Address of the project (location description that includes street/highway, city/vicinity, and county). The facility is located on the East side of FM 219, approximately 5 miles South of the intersection of FM 219 and Highway 1702, approximately 7 miles Southwest of Dublin in Erath County, Texas
- 4. Provide the name, address, telephone and fax number of an individual that can be contacted to answer specific questions about the property.

First and Last Name: Corey Mullin

Company Name: Enviro-Ag Engineering, Inc.

Mailing Address: 9355 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. North Bosque River in 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 \boxtimes
 - 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): Construction of anerobic digester and freestall

barns. Approximately 1 surface acre and 20 feet deep.

12. Describe existing disturbances, vegetation & land use (plowing, other ground disturbances): <u>The LMUs at the facility are planted in coastal grass and crops and normal expected</u> <u>farming practices to maintain these crops will be utilized.</u>

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

- 13. List construction dates of any buildings or structures on the property: <u>The dairy parlor and</u> <u>commodity barn were built in 1986.</u>
- 14. Provide a brief history of the property, and name of the architect/builder, if known: n/a

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

- 15. List each Retention Control Structure and its required capacity (Acre Feet). <u>Phase 1 RCS #1</u> <u>– 0.00, RCS #2 – 51.84 & RCS #3 – 16.74. Phase 2 – RCS #1 – 0.00, RCS #2 – 58.81 & RCS #3</u> <u>– 22.73. Phase 2 Digester Bypass – RCS #1 – 0.00, RCS #2 – 54.96 & RCS #3 – 18.10.</u>
- 16. Provide the location and number of acres where wastewater and manure are land applied: <u>The facility has 1,034 acres of Land Management Units (LMUs) available for waste and</u> <u>wastewater application. See attached Figures 1.3A-B.</u>
- 17. List the maximum number of head to be permitted. <u>Phase 1 2,500 (Total) 2,500 (Milking).</u> <u>Phase 2 – 4,000 (Total) 4,000 (Milking)</u>



4/2/25, 10 53 AM		Atroat Monk
Property Detai	is	
Account		
Property ID:	R000017177	Geographic ID: R.0159.00081.00.0
Туре:	Real	Zoning:
Property Use:		Gando:
Location		
Situs Address:	S FM219 (OFF)	
Map ID:	17-14-4	Mapsco:
Legal Description:	Acres 468,660, A0159 CAR	RRIGAN A L;
Abstract/Subdivision	1:	
Owner		
Name:	CIRCLE 7 DAIRY LLC	
Agent:		
Mailing Address:	1743 CR308 DUBLIN, TX 76446	
% Ownership:	100.00%	
Exemptions:	For privacy reasons not all	exemptions are shown online,

R Property Values

Improvement Homesile Value:	N/A (+)
Improvement Non-Homeslie Value;	N/A (+)
Land Homesite Value:	N/A (+)
Land Non-Homesite Value:	N/A (+)
Agricultural Market Valuation:	N/A (+)
Market Value:	N/A (=)
Agricultural Value Loss:@	N/A (-)

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4923, 10 53 AM absorbers Property Land Type Description Acreage Sqft Eff Front Eff Depth Market Value Prod. Value

				•		
SAW	468.66	20.414,830.00	Ð.00	0,00	N/A	N/A

49:25 10 53 AAI	about blank	
Appraised Value:		N/A (=)
HS Cap Loss: 🛛		N/A (-)
CB Cap Loss: 🖗		N/A (-)
Assessed Value:		N/A

Ag Use Value;

N/A

24

Information pravided for research purposes only Legal descriptions and acreage amounts are for Appraisal Oistrict use only and should be verified prior to using for legal propose and or documents. Please contact the Appraisal District to venty all information for accuracy.

Property Taxing Jurisdiction

Owner: CIRCLE 7 DAIRY LLC %Ownership: 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	N/A	N/A
902	DUBLIN ISO	N/A	N/A
MTD	MIDDLE TRINITY WATER	N/A	N/A
RER	ERATH ROAD & BRIDGE	N/A	N/A

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NBK25. 10 53 AM about blank			(blank	_			
	Pro	operty 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	\$1,640,310	\$90,310	\$1,640,310	\$0	\$90,310
	2023	\$0	\$1,640,310	\$64,510	\$1,640,310	\$0	\$84,510
	2022	50	\$1,640,310	\$112,620	\$1,640,310	\$0	\$112,620
	2021	\$0	\$1,265,380	\$119,700	\$1,265,380	\$0	\$119,700
	202D	\$0	\$1,265,380	\$113,300	\$1,265,360	\$0	\$113,300
	2019	\$0	\$1,265,380	\$115,770	\$1,265,380	\$0	\$115,770
	201B	S D	\$1,640,310	\$113,730	\$1,640,310	\$0	\$113,730
	2017	50	\$1,312,250	\$112,630	\$1,312,250	\$0	\$112,630
	2016	\$D	\$1,124,780	\$107,130	\$1,124,780	\$0	\$107,130
	2015	\$D	\$1.124,780	\$107,130	\$1,124,780	\$0	\$107,130
	2014	SD	\$1.031,050	\$99.530	\$1,031,050	5D	\$99,530

Property Deed History

Deed Date	Туре	Description	Grantor	Grantee	Volume	Page	Number
1/4/2012			JB GRAND CANYON DAIRY LP	CIRCLE 7 DAIRY			2012- 00202
12/21/2006			GRAND CANYON DAIRY	JB GRAND CANYON DAIRY LP	1314	451	
9/10/1992	MULTI		HENDERSON T G	GRAND CANYON DAIRY	830	802	
3/31/1998			GRAND CANYON DAIRY	GRAND CANYON DAIRY	954	528	

9/25. 10 53 AM		aboutblank	
RProperty Detai	ls		
Account			
Property ID:	R000026213	Geographic ID: R.0779.00020.00.0	
Тура:	Rcal	Zening:	
Property Use:		Condo:	
Location			
Situs Address:	S FM219		
Map ID:	17-14-4	Mapsco:	
Legal Description:	Acres 290,660, A0779 TOBY THOMAS;, HOUSE & BARNS		
Abstract/Subdivision	1:		
Owner			
Name:	CIRCLE 7 DAIRY LLC		
Agent:			
Mailing Address;	1743 CR308 DUBLIN, TX 75446		
% Ownership:	100.00%		
Exemptions:	For privacy reasons not a	Il exemptions are shown online.	

Property Values

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4/8-25, 10.53 AM

Туре

STG

AS

Турс

MA.

Р

OP

DCPP

DG1F

STG

UTIL1

R Property Improvement - Building Type: STG State Code: E Value: N/A

Description

Type: MA State Code: E Value: N/A

Description

MAIN AREA

COVERPORCH

OPEN PATIO

DTCARPORT+

STRG BUILDING

UTILITIES 1

1 CAR FRAME GARAGE DET

STRG BUILDING

ANIMALSHADE

Improvement Homesite Value:	N/A (+)
Improvement Non-Homesite Value:	N/A (+)
Land Homesite Value:	N/A (+)
Land Non-Homesite Value:	N/A (+)
Agricultural Market Valuation:	N/A (+)
Market Value:	N/A (=)
Agricultural Value Loss:	N/A (-)

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4/a/25_10_53 AM about blank Appraised Value:0 N/A (=) H8 Cap Loss: 🕖 N/A (-) C8 Cap Loss: 🖗 N/A (-) Assessed Value: N/A Ag Use Value: N/A

Information provided for research purposes only, Legal descriptions and advence involvits are for Appraised District use only and should be verified prior to using for legal purpose and or documents. Please contact the Appraised District to verify all information for accuracy.

Property Taxing Jurisdiction

Owner: CIRCLE 7 DAIRY LLC %Ownership: 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	N/A	N/4
902	DUBLIN ISD	N/A	N/4
MTD	MIDDLE TRINITY WATER	N/A	N/2
RER	ERATH ROAD & BRIDGE	N/A	N/4

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		4/8/25, 10 53	NM		Abou	t Elami		
		R Pro	perty Roll Value	e History				
		Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap Loss	Assessed
Year Built	SQFT	2025	N/A	N/A	N/A	N/A	N/A	N/A
	48.0D	2024	\$112,820	\$1,017,310	\$35,340	\$1,130,130	\$D	\$151,660
1997	960.00	2023	\$79,340	\$1,053,810	\$27,520	\$1,133,150	\$0	\$146,860
		2022	\$67,840	\$1,038,810	\$31,860	\$1,106,650	\$0	\$124,700
Year Built	SQFT	2021	\$52,410	\$798,080	\$36,500	\$850,490	\$0	\$104,910
1937	1,465.00	2020	\$52,410	\$798,080	\$36,810	\$850,490	50	\$107,220
1937	112.00	2019	\$45,640	\$798,080	\$38,530	\$843,720	\$0	\$100,170
1937	243.00	2018	\$45,000	\$1,064,810	\$38.530	\$1,109,810	\$0	\$99,530
1937	600.00	2017	\$44,11D	\$851,550	\$43,450	\$895,660	\$D	\$103,560
1937	403.00	2016	\$44,110	\$731,180	\$45,190	\$775,290	3D	\$104,300
1937	264,00	2015	\$44,110	\$731,180	\$50,110	\$775,290	\$0	\$109,220
2023	1.00	2014	\$44,110	\$560,250	\$50,110	\$724,360	\$0	\$109,220

Property Land

Type Description	Acroage	Sqft	Eff Front	Eff Depth	Market Value	Prod, Value
SAW	289,66	12,617,590,00	0,00	0,00	N/A	N/A
SAW	1.00	43,560.00	0.00	0.00	N/A	N/A

Proper	ty De	ed History					
Dood Date	Туре	Description	Grantor	Grantee	Volume	Page	Number
1/4/2012			JB GRAND CANYON DAIRY LP	CIRCLE 7 DAIRY LLC			2012- 00202
12/21/2006			GRAND CANYON DAIRY	JE GRAND CANYON DAIRY LP	1314	451	
3/31/ 199 8			GRAND CANYON DAIRY	GRAND CANYON DAIRY	954	528	

214

N/A

4/3/25_10_34 AM		about blank		
R Property Detai	ils			
Account				
Property ID:	R000028154	Geographic ID: R,1223,00010,00,0		
Туре:	Real	Zoning:		
Property Use:		Condo:		
Location				
Situs Address:	S FM219 (OFF)			
Map ID:	17-14-4	Mapsco;		
Legal Description:	Acres 18.230 A1223 PE	RCIFUL T W:		
Abstract/Subdivision	n:			
Owner				
Name:	CIRCLE 7 DAIRY LLC			
Agent:				
Mailing Address:	1743 CR308 DUBLIN, TX 76446			
% Ownership:	100.00%			
Exemptions:	For privacy reasons not all exemptions are shown online.			

R Property Values

Improvement Homesite Value:	N/A (+)
Improvement Non-Homesite Value:	N/A (+)
Land Homesite Value:	N/A (+)
Land Non-Homesite Value;	N/A (+)
Agricultural Market Valuation:	N/A (+)
Market Value:	N/A (=)
Agricultural Value Loss; 😡	N/A (-)

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40325, 10 54 AM				abpu	t Hann		
R Pi	roperty Land						
Type	Description	Actesgé	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAW		18 23	794,099.00	0.00	0.00	N/A	N/A

19/25 10 54 AM	alsout blank	
Appraised Value:		N/A (=)
H8 Cap Loss: 🕑		N/A (-)
CB Cap Loss: 🖗		N/A (-)
Assessed Value:		N/A

Ag Use Value: N/A Information provided for research purposes only. Logal descriptions and acreage amounts are for Appraisal District tase only and should be verified prior to using for logal purpose and or documonts. Please contact the Appraisal District to verify all information for accuracy.

Property Taxing Jurisdiction

Owner: CIRCLE 7 DAIRY LLC %Ownership: 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	N/A	N/A
902	DUBLIN ISD	N/A	N/A
MTD	MIDDLE TRINITY WATER	N/A	N/A
RER	ERATH ROAD & BRIDGE	N/A	N/A

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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	50	\$63,810	\$4,610	\$63,810	-\$0	\$4,610	
2023	\$0	\$63,810	\$3,760	\$63,810	\$0	\$3,760	
2022	\$0	\$63,810	\$5,870	563,610	\$0	\$5,870	
2021	50	\$49,220	\$6,140	\$49,220	\$0	\$6,140	
2020	\$0	\$49,220	\$6,110	\$49,220	\$0	\$6,110	
2019	\$0	\$49,220	\$6,220	\$49,220	\$0	\$6,220	
2016	\$0	\$63,010	\$6,050	\$63,810	\$0	\$6,050	
2017	\$0	\$51,040	\$6,380	\$51,040	\$0	\$6,380	
2016	\$0	\$43,750	\$6,310	\$43,750	\$0	\$6,310	
2015	\$0	\$43,750	\$6,600	\$43,750	\$0	\$6,600	
2014	\$0	\$40,110	\$6,620	\$40,110	\$0	\$6,620	

Property Deed History

Deed Date	Тура	Description	Grantor	Grantee	Volume	Page	Number
1/4/2012			JB GRAND CANYON DAIRY LP	CIRCLE 7 DAIRY LLC			2012- 00202
12/21/2006			GRAND CANYON DAIRY	JB GRAND CANYON DAIRY LP	1314	451	
1/1/1900			VISS NEIL & GERTRUDE	GRAND CANYON DAIRY	929	1022	
1/1/1968	ŴĎ		TACKETT WYNDEL	VISS NEIL & GERTRUDE	687	436	
3/31/1998			GRAND CANYON DAIRY	GRAND CANYON DAIRY	954	528	

9(25, 10,54,AM		aneut niges				
RProperty Detai	s					
Account						
Property (D:	R000018998	Geographic ID: R.0296.00100.00.0				
Туре:	Real	Zoning:				
Property Use:		Condo:				
Location						
Situs Address:	S FM219					
Map ID:	17-14-4	Mapsco;				
Legal Description:	Acres 40.580, A0296 GAM	BLE GEORGE W;				
Abstract/Subdivision	e.					
Owner						
Name:	CIRCLE 7 DAIRY LLC					
Agent:						
Mailing Address:	1743 CR308 DUBLIN, TX 76446					
% Ownership:	100.00%	100.00%				
Exemptions:	For privacy reasons not all exemptions are shown online.					

R Property Values

Improvement Homesite Value:	N/A (+)
Improvement Non-Homesite Value:	N/A (+)
Land Homesite Value:	N/A (+)
Land Non-Homesite Value:	N/A (+)
Agricultural Market Valuation:	N/A (+)
Market Value:	N/A (=)
Agricultural Value Loss: 🖗	N/A (-)
about blank	1/4

419-25, 10-5	4 403	Alamat bland					
P P	roperty Land						
Туре	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAW		40.58	1.767,685.00	0.00	0,00	N/A	N/A

05/25, 10;54 AM	. nbcut blank
Appraised Value:	N/A (=)
HS Cap Loss: 🕑	N/A (-)
CB Cap Loss: 😧	N/A (-)
Assessed Value:	N/A
Ag Use Value:	N/A

Information provided for research purposes only. Legal desceptions and soreage amounts are for Appraisal District use unity and should be ventiled prior to using for legal purpose and or doctiments. Please contact the Appraisal District to venity all information for accuracy.

Property Taxing Jurisdiction

Owner: CIRCLE 7 DAIRY LLC %Ownership: 100,00%

Description	Market Value	Taxable Value
ERATH COUNTY	N/A	N/A
DUBLIN ISD	N/A	N/A
MIDDLE TRINITY WATER	N/A	N/A
ERATH ROAD & BRIDGE	M/A	N/A
	Description ERATH COUNTY DUBLIN ISD MIDDLE TRINITY WATER ERATH ROAD & BRIDGE	Description Market Value ERATH COUNTY N/A DUBLIN ISD N/A MIDDLE TRINITY WATER N/A ERATH ROAD & BRIDGE N/A

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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	5142,030	510,270	\$142,030	S0	\$10,270			
2023	\$0	\$142,030	\$8,360	\$142,030	SD	\$8,360			
2022	\$0	5142,030	\$13,070	\$142,030	S0	\$13,070			
2021	\$0	\$109,570	\$13,680	\$109,570	\$0	\$13,680			
2020	\$0	5109,570	\$13,590	\$109,570	SŌ	\$13,590			
2019	\$D	\$109,570	\$13,840	\$109,570	S0	\$13,840			
2018	\$0	\$160,030	\$13,470	\$150,030	SD	\$13,470			
2017	\$0	\$126,22D	\$14,200	\$126,220	\$0	\$14,200			
2016	\$0	\$108,190	\$14,040	\$108,190	\$0	\$14,040			
2015	5 D	\$108,190	\$14,690	\$106,190	SD	\$14,690			
2014	\$0	\$103,680	\$14,73D	\$103,680	\$D	\$14,730			

R Property Deed History

Deed Date	Туре	Description	Grantor	Grantee	Volume	Page	Number
1/4/2012			JB GRAND Canyon Dairy LP	CIRCLE 7 DAIRY LLC			2012- 00202
12/21/2006			GRAND CANYON DAIRY	JB GRAND CANYON DAIRY LP	1314	4 51	
1/1/1900			VISS NEIL & GERTRUDE	GRAND CANYON DAIRY	929	1022	
1/1/1968	WD		TACKETT WYNDEL	VISS NEIL & GERTRUDE	687	436	
3/31/1998			GRAND CANYON DAIRY	GRAND CANYON DAIRY	954	528	

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Property Detail	5				
Account					
Property ID:	R000018984	Geographic ID: R.0296.00030.00.0			
Туре;	Real	Zoning:			
Property Use:		Condo:			
Location					
Sítus Address:	715 PR1384 OFF S FM	219			
Map ID;	17-14-4	Mapseo:			
Legal Description:	Acres 20.100, A0296 GAMBLE GEORGE W; A-FRAME HOUSE, MH, WH & MH SITES (CIRCLE 7 DAIRY)(RANDY VISS), LABEL TEX0040157, MAKE TITAN HOMES, SERIAL 1380662065, MODEL TITAN, MODEL 14X52, YR 1978				
Abstract/Subdivision	:				
Owner					
Name:	CIRCLE 7 DAIRY LLC				
Agent:					
Mailing Address:	1743 CR308 DUBLIN, TX 76446				
% Ownership:	100.00%				
Exemptions	For privacy reasons not all exemptions are shown online,				

Property Values

Improvement Homesite Value:	N/A (+)
Improvement Non-Homesite Value:	N/A (+)
Land Homesite Value:	N/A (+)
Land Non-Homesite Value:	N/A (+)
Agricultural Market Valuation:	N/A (+)
Market Value:	N/A (=)
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Property Improvement - Building

Type: MA State Code: E Value: N/A

Type; MA	State Code; E Value: N/A		
Туре	Description	Year Built	SQFT
MA	MAIN AREA	2004	B00.00
MA2	MAIN AREA2 STORY	2004	480,00
WH	WELLHOUSE	2004	144 00
MA	MAIN AREA	1978	728.00
SHED	SHED	2021	165.00
UTIL1	UTILITIES 1	2023	1.00
Туре: МН	C Value: N/A		
Туре	Description	Year Built	SQFT
MHC	MH COVER	1994	1,600.00
MHC	MH COVER	1996	1,600.00

Property Land

Type Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod, Value
SAVV	19.10	831,996,00	0.00	0.00	N/A	N/A
SAW	1.00	43,560,00	0.00	0.00	N/A	N/A

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Agricultural Value Loss:®	N/A (-)
Appraised Value:	N/A (=)
HS Cap Loss; 🛛	N/A (-)
CB Cap Loss: 🖗	N/A (-)
Assessed Value:	N/A
Ag Use Value;	N/A

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: CIRCLE 7 DAIRY LLC %Ownership: 100,00%

Enfity	Description	Market Value	Taxable Value
072	ERATH COUNTY	N/A	N/A
902	DUBLIN ISD	N/A	N/A
MTD	MIDDLE TRINITY WATER	N/A	N/A
RER	ERATH ROAD & BRIDGE	N/A	N/A

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Pro	operty 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	\$97,730	\$211,050	\$2,980	\$308,780	\$0	\$111.210
2023	\$61,250	\$231,000	\$2,980	\$292,260	\$0	\$104.240
2022	\$35,250	5177,800	\$3,250	\$213,050	\$0	\$63,500
2021	\$9,770	\$117,230	\$3,550	\$127,000	\$0	\$29,320
2020	\$9,770	\$113,410	\$3,360	\$123,180	\$0	\$29 130
2019	\$7,030	\$111,500	\$3,340	\$118,530	\$0	\$26,370
2018	\$7,030	\$111,500	\$3,340	\$118,530	\$0	\$26,370
2017	\$6,040	\$111.500	\$3,340	\$117,540	\$0	\$25,380
2016	\$8,460	\$61,650	\$3,150	\$90,310	\$0	\$26,510
2015	\$6,040	\$81,850	\$3.150	\$87,890	\$0	\$24,190
2014	\$6,040	\$61,650	\$2,830	\$87,890	\$0	\$23,870

Property Deed History

Deed Date	Туре	Description	Grantor	Grantee	Volume	Page	Number
1/4/2012			JB GRAND CANYON DAIRY LP	CIRCLE 7 DAIRY			2012- 00202
12/21/2006			GRAND CANYON DAIRY	JB GRAND CANYON DAIRY LP	1314	451	
1/1/1968			GARRETT E W SR	HANSEN NORMAN D	638	289	
3/31/1998			GRAND CANYON DAIRY	GRAND CANYON DAIRY	854	524	

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Property Details

First open of Bucalis		
Account		
Property ID:	R000016980	Geographic ID: R 0296,00015.00,0
Туре:	Real	Zahing:
Property Use:		Condo:
Location		
Situs Address:	8956 S FM219	
Map ID:	17-14-4	Mapsco;
Legal Description:	Acres 25,890, A0296 GAMBLE GI VISS)	EORGE W:, SHED & MH SITE, (RANDY
Abstract/Subdivision;		
Owner		
Name:	CIRCLE 7 DAIRY LLG	
Agent:		
Mailing Address:	1743 CR306 DUBLIN, TX 76446	
% Ownership:	100.00%	
Exemptions:	For privacy reasons not all exemp	tions are shown online

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Property Values

Improvement Homesite Value:	N/A (+)
Improvement Non-Homesite Value:	N/A (+)
Land Homesite Value:	N/A (+)
Land Non-Homesite Value:	N/A (+)
Agricultural Market Valuation:	N/A (+)
Market V≢lue:	N/A (=)
Agricultural Value Loss: O	N/A (-)
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Propert	y Improvement - Building		
Type: SHED	State Code: D2 Value: N/A		
Туре	Description	Year Built	SQFT
SHED	SHED	2000	480.00
UT/L1	UTILITIES 1	2023	1.00

Туре	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAW		24,89	1,084.208.00	0.00	0.00	N/A	N/A
SAW		1.00	43,560.00	0.00	0.00	N/A	N/A

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Appraised Value:	N/A (=)
HS Cap Loss: Ø	N/A (-).
GB Cap Loss: 🚱	N/A (-)
Assessed Value:	N/A

Ag Use Value:

Information provided for research purposes oxly. Legal descriptions and Acreage atmounts 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: CIRCLE 7 DAIRY LLC %Ownership: 100.00%

Enlity	Description	Market Value	Taxable Value
072	ERATH COUNTY	N/A	N/A
902	DUBLIN ISD	N/A	N/A
MTD	MIDDLE TRINITY WATER	N/A	N/A
RER	ERATH ROAD & BRIDGE	N/A	N/A

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Pro	operty Roll Value	History				
Yoar	Improvements	Land Market	Ag Valuation	Appraised	HS Gap Loss	Assessed
2025	N/A	N/A	N/A	N/A	N/A	N/A
2024	\$37,200	\$271,850	\$3,880	\$309,050	\$0	\$51,580
2023	\$4,800	\$288,900	\$3,880	\$293,700	50	\$48,680
2022	\$4,800	\$224,120	\$4,230	\$228,920	\$0	\$34,030
2021	\$3,840	\$147,920	\$4,630	\$151,760	\$0	\$24,470
2020	\$3,840	\$142,940	\$4,380	\$146,780	SD	\$24,220
2019	\$2,560	\$140,450	\$4,360	\$143,010	\$0	\$22,920
2018	\$2,560	\$140,450	\$4,360	\$143,010	SD	\$22,920
2017	\$2,080	\$140,450	\$4,360	\$142,530	SO	\$22,440
2016	\$2,080	\$102,120	\$4,11D	\$104,200	S 0	\$21,190
2015	\$2,080	\$102,120	\$4,110	\$104,200	\$0	\$21,190
2014	\$2,080	\$102,120	\$3,660	\$104,200	50	\$20,760

R Property Deed History

Deed Date	Туре	Description	Grantor	Grantée	Volume	Page	Number
1/4/2012			JB GRAND CANYON DAIRY LP	CIRCLE 7 DAIRY LLC			2012- 00202
12/21/2006			GRAND CANYON DAIRY	JB GRAND CANYON DAIRY LP	1314	451	
1/1/1968			HANSEN NORMAN D	GRAND CANYON DAIRY	821	856	
3/31/1998			GRAND CANYON DAIRY	GRAND CANYON DAIRY	954	524	

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RProperty Detai	s			
Account				
Property ID:	R000015074	Geographic ID: R.0036.00020.00,0		
Туре;	Real	Zoning:		
Property Use:		Condo:		
Location				
Situs Address:	CR308			
Map ID:	17-14-4	Mapsco;		
Legal Description:	Acres 114.450, A0036 B	RADLEY ELIZABETH: & SHED		
Abstract/Subdivision	1:			
Owner				
Name:	CIRCLE 7 DAIRY LLC			
Agent:				
Mailing Address:	1743 CR306 DUBLIN, TX 76446			
% Ownership:	100,00%			
Exemptions:	For privacy reasons not	all exemptions are shown online,		

Property Values

Improvement Homesite Value:	N/A (*)
Improvement Non-Homesite Value:	N/A (+)
Land Homesite Value:	N/A (+)
Land Non-Homesite Value;	N/A (+)
Agricultural Market Valuation:	N/A (+)
Market Value:	N/A (=)
Agricultural Value Loss:@	N/A (-)

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Prop	erty Improvement - Building		
Type: AS	State Code: D2 Value: N/A		
Туре	Description	Year Bullt	SQFT
As	ANIMALSHADE	2004	800.00

Property Land

Туре	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod, Value
SAW		114.45	4.965,442.00	0.00	0.00	N/A	N/A

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Appraised Value:		N/A (=)
HS Cap Loss: 😧		N/A (-)
CB Cap Loss: 🖗		N/A (-)
Assessed Value:		N/A
Ag Use Velue;		N/A

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

Property Taxing Jurisdiction

Owner: CIRCLE 7 DAIRY LLC %Ownership: 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	N/A	N/A
902	DUBLIN ISD	N/A	N/A
MTD	MIDDLE TRINITY WATER	N/A	N/A
RER	ERATH ROAD & BRIDGE	N/A	N/A

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Pro	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	\$1,120	\$400,580	\$28,960	\$401,700	\$0	\$30,080			
2023	\$1,120	\$400,580	\$23,580	\$401,700	\$0	\$24,700			
2022	\$1,120	\$400,580	\$36,850	\$401,700	\$0	\$37,970			
2021	\$1,120	\$309,020	\$38,570	\$310,140	\$0	\$39,690			
2020	\$1,120	\$309,020	\$38,340	\$310,140	\$0	\$39,460			
2019	\$1,120	\$309,020	\$39,030	\$310,140	\$0	\$40,150			
2018	\$1,120	\$407,080	\$38,000	\$408,200	\$0	\$39,120			
2017	\$1,120	\$329,560	\$40,060	\$330,680	02	\$41,180			
2016	\$1,120	\$282,480	\$39,600	\$263,600	\$0	\$40,720			
2015	\$1,120	\$282,480	\$41,430	\$283,600	\$ 0	\$42,550			
2014	\$1,120	\$262,190	\$41,550	\$263,310	\$0	\$42,670			

Property Deed History

Deed Date	Туре	Description	Grantor	Grantee	Volume	Page	Number
1/4/2012			JE GRAND CANYON DAIRY LP	CIRCLE 7 DAIRY			2012- 00202
12/21/2DD5			GRAND CANYON DAIRY	JB GRAND CANYON DAIRY LP	1314	451	
4/30/1986	ΜÐ		TACKETT WYNDEL J & WILLETTA G	VISS NEIL & GERTRUDE	687	436	
1/1/1900			VISS NEIL & GERTRUDE	GRAND CANYON DAIRY	929	1022	
3/31/1998			GRAND CANYON DAIRY	GRAND CANYON DAIRY	954	528	

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Property Details				
Account				
Property ID:	R000026128	Geographic ID: R 0768.00050.00.0		
Type:	Real	Zoning:		
Property Use:		Condo:		
Location				
Situs Address;	2179 CR308			
Map ID:	17-14-4	Mapsco:		
Legal Description:	Acres 249.510, A0/68 THOMAS C W; DAIRY, LABEL TEX0405371/2, MAKE OAK CREEK, SERIAL OC04871151A/B, MODEL 28X42, YR 1986, OWNER AS OF 1987 NEIL & GERTRUDE VISS			
Abstract/Subdivision:				
Owher				
Name:	CIRCLE 7 DAIRY LLC			
Agent:				
Mailing Address:	1743 CR308 DUBLIN, TX 75446			
% Ownership:	100 00%			
Exemptions:	For privacy reasons not	all exemptions are shown online.		

Property Values

Improvement Homesite Value:	N/A (+)
Improvement Non-Homesite Value:	N/A (+)
Land Homesite Value:	N/A (+)
Land Non-Homesite Value:	N/A (+)
Agricultural Market Valuation:	N/A (+)
Market Value:	N/A (=)
Agricultural Value Loss: 🚱	N/A (-)
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Prop	perty Improvement - Building		
Type: Di	B State Code: E Value: N/A		
Туре	Description	Year Built	SOFT
DB	DAIRY BARN	1986	8,296.00
SL	SLAB	1986	14,442.00
CHP	HOLD PEN COVERED	1986	5,76D,DD
MA	MAIN AREA	1996	400.00
FSL	LOCKED FEED STANCHION	2015	86,00
Type: A	S State Code: E Value: N/A		
Туре	Description	Year Built	SOFT
AS	ANIMALSHADE	1997	8,200,00
MT	MILK TANK	1987	1.00
SC	SCALES	1987	1.00
AS	ANIMALSHADE	2009	8,400.00
Type: Cl	B State Code: E Value: N/A		
Туре	Description	Year Built	SQFT
СВ	COMMODITY BARN	1986	6,840.00
sL	SLAÐ	1986	7,560,00
WH	WELLHOUSE	1992	180.00
STG	STRG BUILDING	2004	144.00
Type: B	ARN State Code; E Value: N/A		
Туре	Description	Year Built	SQFT
BARN	BARN	1986	800.00
BARN	BARN	1994	2,400.00
BARN	BARN	2004	1,600.00
Type: M	T State Code: E Value: N/A		
Туре	Description	Year Bullt	SQFT
MT	MILK TANK	1992	1.00
MT	MILK TANK	1992	1.00
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Appraised Value:	N/A (=)
HS Cap Loss: 🚯	N/A (-)
CB Cap Loss: Ø	N(A (-)
Assessed Value:	N/A

Ag Use Value: N/A

Information provided for research purposes only. Logal descriptions and acreage amounts are for Appraisal Distruct use only and should be verified one to using for legal purpose and of doctments. Please contact the Appraisal District to verify all Information for accuracy.

Property Taxing Jurisdiction

Owner: CIRCLE 7 DAIRY LLC %Ownership: 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	N/A	N/A
902	DUBLIN ISD	N/A	N/A
MTD	MIDDLE TRINITY WATER	N/A	N/A
RER	ERATH ROAD & BRIDGE	N/A	N/A

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WTN	WATRTANKNO	1992	402.00
WTN	WATRTANKNO	1992	226.00
WTN	WATRTANKNO	1992	352,00
HAY	HAYBARN	1987	5,000.00
AS	ANIMALSHADE	1987	3,200.00
AS	ANIMALSHADE	1966	3,200.00
AS	ANIMALSHADE	1994	3,200,00
Type: SH	ED State Code: E Value: N/A		
Туре	Description	Year Built	SOFT
SHED	SHED	1988	364,00
SHED	SHED	1988	6,836.00
Туре: МА	State Code: E Value: N/A		
Туре	Description	Year Built	SQFT
MA	MAIN AREA	1987	1,176,00
Р	COVERPORCH	1990	128.00
Р	COVERPORCH	1987	224.00
ACP	CAR PORT ATTACHED	1990	56D.QO
OP	OPEN PATIO	1987	55.00
OP	OPEN PATIO	1987	75.00
ASTG	STORAGE ATTACHED	1987	112.00
STG	STRG BUILDING	2004	120.00
UT/L1	UTILITIES 1	2023	1.00
Туре: МА	State Code: E Value: N/A		
Туре	Description	Year Built	SOFT
MA.	MAIN AREA	199D	2,881,00
Р	COVERPORCH	1990	45.00
P	COVERPORCH	1990	566.00
AG	GARAGE ATTACHED	1990	667.00
ASTG	STORAGE ATTACHED	1990	55.00

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SWP	SWIM POOL	1994	1.00
WP	WHIRLPOOL	2004	1.00
UTIL2	UTILITIES 2	2023	1,00
Type: MA	State Code: E Value: N/A		
Туре	Description	Year Built	SQFT
MA	MAIN AREA	1948	832,00
P	COVERPORCH	1948	72.00
GP	GLASSPORCH	1948	208.00
DG2F	2CAR FRAME GARAGE DET	1948	500,00
SL	SLAB	1987	300.00
WH	WELLHOUSE	1948	64,00
UTIL2	UTILITIES 2	2023	1.00
Type: AS	State Code: E Value: N/A		
Туре	Description	Year Built	SQFT
As	ANIMALSHADE	1994	3,200,00
AS	ANIMALSHADE	1994	3,200,00
AS	ANIMALSHADE	1994	3,200,00
As	ANIMALSHADE	1994	3,200,00
AS	ANIMALSHADE	1994	3.200.00
AS	ANIMALSHADE	1994	3.200.00
AS	ANIMALSHADE	1994	3.200,00
AS	ANIMALSHADE	1994	3.200.00
AS	ANIMALSHADE	1994	3.200.00
Type: AS	State Code: E Value: N/A		
Туре	Description	Year Built	SQFT
AS	ANIMALSHADE	1988	2,000,00
AS	ANIMALSHADE	1988	2,000,00
AS	ANIMALSHADE	1988	2,000,00
AS	ANIMALSHADE	1988	2,000,00
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AS	ANIMALSHADE	1988	2,000.00
AS	ANIMALSHADE	1988	2,000.00
AS	ANIMALSHADE	1988	2,000.00
AS	ANIMALSHADE	1988	2,000,00
Type: AS	State Gode: E Value: N/A		
Туре	Description	Year Built	SQFT
AS	ANIMALSHADE	2009	6,300.00
AS	ANIMALSHADE	2009	8,000.00
As	ANIMALSHADE	2009	10,800.00
AS	ANIMALSHADE	2009	6,300.00
As	ANIMALSHADE	2009	8,000.00
AS	ANIMALSHADE	2009	10,800.00
GBN	GRAINBN NO	1988	1,207.00
FSL	LOCKED FEED STANCHION	1994	1,930.00
Type: SH	ED State Code: E Value: N/A		
Туре	Description	Year Built	SQFT
SHED	SHED	2015	12,040.00
Type: SH	ED Value: N/A		
Туре	Description	Year Built	SQFT
SHED	SHED	2018	240.00
SHED	SHED	2018	240.00
SHED	SHED	2018	240.00
SHED	SHED	2018	240.00
SHED	SHED	2016	240.00
SHED	SHED	2018	240.00
SHED	SHED	201B	240.00
SHED	SHED	2018	240,00
SHED	SHED	2018	240.00
SHED	SHED	2016	240,00
			54

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Report 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	\$1,066,340	\$873,290	\$63,170	\$1,939,630	SD	\$1,140,010
2023	\$890,220	\$972,790	\$52,420	\$1,863,010	SD	\$1,052,540
2022	\$794,37D	\$927,790	\$78,320	\$1,722,160	50	5937,690
2021	\$674,65D	\$706,58D	\$81,900	\$1,381,230	\$0	\$797,550
2020	\$640,160	\$706,580	\$81,780	51,346,740	\$0	\$762,940
2019	\$602,470	\$706,580	\$83,040	\$1,309 050	\$D	\$726,510
2018	\$577,19D	\$915,290	\$81,070	\$1,492,480	SD	\$699,260
2017	\$566,470	\$747,330	\$85,260	\$1,313,600	SD	\$692,730
2016	\$563,920	\$635,420	\$84,270	\$1,199.340	\$D	\$678,190
2015	\$537,720	\$635,420	\$87,720	\$1,173. 1 40	\$0	\$655,440
2014	\$537,720	\$590,720	\$87,930	\$1,12B,440	\$0	\$655,650

Property Deed History

Deed Date	Туре	Description	Grantor	Grantee	Volume	Page	Number
1/4/2012			JB GRAND CANYON DAIRY LP	CIRCLE 7 DAIRY LLC			2012- 00202
12/21/2006			GRAND CANYON DAIRY	JB GRAND CANYON DAIRY LP	1314	451	
1/1/1900			VISS NEIL & GERTRUDE	GRAND CANYON DAIRY	929	1022	
1/1/1968	WD		TACKETT WYNDEL	VISS NEIL & GERTRUDE	687	436	
3/31/1998			GRAND CANYON DAIRY	GRAND CANYON DAIRY	954	528	

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R Property Details					
Account					
Property ID:	R000026131	Geographic ID: R.0768.00060.00,0			
Туре:	Real	Zoning:			
Property Use:		Condo:			
Location					
Situs Address:	3227 CR308				
Map ID:	17-14-4	Mapsco:			
Legal Description:	Acres 134.780, A0768 T	THOMAS C W: 2 HOUSES, BARN & SHED			
Abstract/Subdivision	17				
Owner					
Name:	CIRCLE 7 DAIRY LLC				
Agent:					
Mailing Address:	1743 CR308 DUBLIN, TX 76446				
% Ownership:	100 00%				
Exemptions:	For privacy reasons not	ali exemptions are shown online.			

R Property Values

Improvement Homosite Value:	N/A (+)
Improvement Non-Homesile Value:	N/A (+)
Land Homesite Value:	N/A (+)
Land Non-Homesite Value:	N/A (+)
Agricultural Market Valuation:	N/A (+)
Market Value:	N/A (=)
Agricultura) Va∣⊔e Loss:@	N/A (-)

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Prope	erty Improvement - Building						
Type: MA	State Code: E Value: N/A						
Туре	Description	Year Built	SQFT				
MA	MAINAREA	1940	648.00				
Р	COVERPORCH	1940	72.00				
BARN	BARN	1940	1,435.00				
Туре: МА	Value: N/A						
Туре	Description	Year Built	SQFT				
MA	MAIN AREA	1880	1,135,00				
Р	COVERPORCH	1880	280.00				
ASTG	STORAGE ATTACHED	1880	24.00				
WH	WELLHOUSE	2004	36.00				
SHED	SHED	2012	360.00				
UTIL1	UTILITIES 1	2023	1,00				

Property Land

Туре	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SA₩		133,7B	5 827,457.00	0.00	0.00	N/A	N/A
SAW		1.00	43,560.00	0,00	0.00	N/A	Ñ/A

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Appraised Value:	N/A (=)
HS Cap Loss; 🛛	N/A (-)
CB Cap Loss: 🛛	N/A (-)
Assessed Value:	N/A

Ag Use Value: N/A
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

R Property Taxing Jurisdiction

Owner: CIRCLE 7 DAIRY LLC %Ownership: 100.00%

Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	N/A	N/A
902	DUBLIN ISO	N/A	N/A
MTD	MIDDLE TRINITY WATER	N/A	N/A
RER	ERATH ROAD & BRIDGE	N/A	N/A

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Pro	operty 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	\$109,790	\$471,730	\$16,320	\$581,520	SD	\$129,610	
2023	\$74.190	\$508,230	\$12,710	\$582,420	\$0	\$126,900	
2022	\$59,920	5493,230	\$14,720	\$553,150	\$D	\$99,64D	
2021	\$46.330	\$377,210	\$16,860	\$423,540	\$0	\$79,190	
2020	\$46,330	\$377,210	\$17,930	\$423,540	SD	\$80,260	
2019	\$43,100	\$377,210	\$17,790	\$420,310	\$0	\$75,890	
2018	\$42,340	\$502,230	\$17,790	5544,570	\$0	\$76,130	
2017	\$41,880	\$415,7BD	\$0	\$457,660	\$0	\$457,660	
2016	\$43,740	\$357,670	\$19,490	\$401,410	50	\$78,230	
2015	\$43,740	\$357,670	\$20,450	\$401,410	50	\$79,190	
2014	\$43,740	\$338,120	\$19,16D	\$381,860	SD	\$77,900	

Property Deed History Deed Type Description Grantor Grantee Volume Page Number Date 2/1/2016 LI CLARK JEFFERY CIRCLE 7 DAIRY 2016-00611 LLC 2/9/2012 LI WEST MARVIN **CLARK JEFFERY** 2012-00814 DALE & DIANE COOPER & CAROLYN TAYLOR WEST MARY 6/20/2007 WEST MARVIN 189 362 PROBATE DALE & DIANE COOPER & CAROLYN ROSS # P08401 TAYLOR 1/11/2007 WESTHR WEST MARY 0 P#08345 0 ESTATE ROSS

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R Property Details				
Account				
Property ID:	R000021397	Geographic ID: R-0459-00020-00-0		
Туре:	Real	Zoning:		
Property Use:		Condo:		
Location				
Situs Address:	CR308			
Map ID:	17-14-4	Mapsco:		
Legal Description:	Acres 67.930, A0459 KILLO	UGH SAM B		
Abstract/Subdivision:	1			
Qwner				
Name:	CIRCLE 7 DAIRY LLC			
Agent:				
Mailing Address:	1743 CR308 DUBLIN, TX 76446			
% Ownership:	100.00%			
Exemptions:	For privacy reasons not all exemptions are shown online.			

Property Values

Improvement Homesite Value:	N/A (+)
Improvement Non-Homesite Value:	N/A (+)
Land Homesite Value:	N/A (+)
Land Non-Homesite Value:	N/A (+)
Agricultural Market Valuation:	N/A (+)
Market Value:	N/A (=)
Agricultural Value Losa:0	N/A (-)
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R P	roperty Land						
Туре	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAW		87,93	3,830,231,00	0,DD	0.00	N/A	N/A

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Appraised Value;	N/A (=)
HS Cap Loss: 🛛	N/A (-)
CE Cap Loss: Ø	N/A (-)
Assessed Value:	N/A
Ag Use Value:	N/A

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: CIRCLE 7 DAIRY LLC %Ownership: 100.00%

Description	Market Value	Taxable Value
ERATH COUNTY	N/A	N/A
DUBLIN ISD	N/A	N/A
MIDDLE TRINITY WATER	N/A	N/A
ERATH ROAD & BRIDGE	N/A	N/A
	Description ERATH COUNTY DUBLIN ISD MIDDLE TRINITY WATER ERATH ROAD & BRIDGE	Description Market Value ERATH COUNTY N/A DUBLIN ISD N/A MIDDLE TRINITY WATER N/A ERATH ROAD & BRIDGE N/A

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Property Deed History

Deed Date	Туре	Description	Grantor	Graniee	Volume	Page	Number
2/1/2016			MIRANDA TIM 8 DORICE	CIRCLE 7 DAIRY LLC			2016- 00614
7/25/2013	L		STEWART MACK	MIRANDA TIM & DORIGE			2013- 04749
1/30/2005	L		BAYS SHALER & TREVA	STEWART MACK	1264	304	
9/8/2004	L		COOK DALE EST & CLEO ELLENA TSTMRY TRST	BAYS SHALER & TREVA	1189	421	
11/1/1998			COOK DALE	COOK TESTAMENTARY TRUST	977	1033	
12/21/1999			COOK DALE & CLEO ELLENA TESTAM	COOK DALE EST & CLEO ELLENA TS	33	159	

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Property Detail	s	
Account		
Property ID:	R000026116	Geographic ID: R 0768.00010.00.0
Туре:	Real	Zoning:
Property Use:		Condo:
Location		
Situs Address:	5564 CR307	
Mep IO:	17-14-4	Mapsco:
Legal Description:	Acres 84,364, A0768 TH	IOMAS C W. HOUSE & SHOP
Abstract/Subdivision		
Owner		
Name:	CIRCLE 7 DAIRY LLC	
Agent:		
Mailing Address:	1743 CR308 DUBLIN, TX 76446	
% Ownership:	100.00%	
Exemptions:	For privacy reasons not	all exemptions are shown online

RProperty Values

Improvement Homesite Value:	N/A (+)
Improvement Non-Homesite Value:	N/A (+)
Land Homesite Value:	N/A (+)
Land Non-Homestie Value:	N/A (+)
Agricultural Market Valuation:	N/A (+)
Market Value:	N/A (=)
Agricultural Value Loss:@	N/A (-)

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Prope	rty Improvement - Building		
Тура: МА	Value: N/A		
Туре	Description	Year Built	SQFT
MA	MAIN AREA		900.000
Р	COVERPORCH		60,00
P	COVERPORCH		36.00
STG	STRG BUILDING		49.00
SHED	SHED		480.00
SHOP	SHOP	2007	2,400.00
SHED	SHED	2018	1,200.00
UTIL1	UTILITIES 1	2023	1,00

Туре	Description	Acreage	Sqft	Eff Frant	Eff Depth	Market Value	Prod. Value
SAW		83.36	3,631,335,00	0.00	0.00	N/A	N/A
SAW		1.00	43,550.00	0,DD	0.00	N/A	N/A

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Appraised Value;0		N/A (=)
HS Cap Loss: Ø		N/A (+)
CB Cap Loss: 🛛		N/A (-)
Assessed Value;		N/A
Ag Use Value:		N/A

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 control the Appraisal District to verify all information for accuracy.

Property Taxing Jurisdiction

Owner: CIRCLE 7 DAIRY LLC %Ownership: 100,00%

Description	Market Value	Taxable Value
ERATH COUNTY	N/A	N/A
DUBLIN ISD	N/A	N/A
MIDDLE TRINITY WATER	N/A	N/A
ERATH ROAD & BRIDGE	N/A	N/A
	Description ERATH COUNTY DUBLIN ISD MIDDLE TRINITY WATER ERATH ROAD & BRIDGE	Description Market Value ERATH COUNTY N/A DUBLIN ISD N/A MIDDLE TRINITY WATER N/A ERATH ROAD & BRIDGE N/A

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Pre Pre	operty 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	\$208,610	\$295,270	\$9,320	\$503,580	\$0	\$221,430
2023	\$158,210	\$331,770	\$8,710	\$469,980	50	\$206,920
2022	\$136,670	\$316,770	\$10,000	\$453,440	SD	\$171,670
2021	\$103,390	\$241,080	\$11,330	\$344,470	SD	\$130,720
2020	\$103,390	\$241,080	\$10,560	\$344,470	50	\$129,950
2019	\$77,780	\$241,080	\$11,030	\$318,860	SD	\$104,810
2018	\$46,620	\$282,770	\$10,97D	\$331,590	\$D	\$75,790
2017	\$21,470	\$266,77D	\$10,480	\$288,240	SD	\$31,950
2016	S21.470	5258,430	\$10,200	\$279,900	SD	\$31,670
2015	\$21.470	\$258,430	\$10,200	\$279,900	SD	\$31,670
2014	\$21,470	\$258,430	\$8,840	\$279,900	\$D	\$30,31D

R Property Deed History Deed Type Description Grantor Grantee Volume Page Number Date 5/1/2018 LI COLEMAN JOSH D CIRCLE 7 DAIRY 2018-& CHRISTINA M LLC 02216 10/1/2004 FELL DAVID COLEMAN JOSH D 1192 530 CLAUDE & ALANNA & CHRISTINA M R 1/1/1900 VLB%COZART COZART OTHO C 913 162 OTHO C 1/1/1900 VLB VLB%COZART 370 274 OTHO C 1/1/1900 UNKNOWN VLB 370 273 7/10/1998 COZART OTHO C BILLS ELTON & 959 189 NATELL

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CONCENTRATED ANIMAL FEEDING OPERATIONS (CAFOS)

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

Name of Site: <u>Grand Canyon Dairy</u> TCEQ Permit Number, if assigned: WQ000 <u>2950000</u> Date Prepared: <u>April 2025</u>

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.

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	N/A
Inorganic fertilizers	N/A
Fuel storage tanks	See Attached BMPs
Other, specify: <u>Parlor chemicals</u>	See Attached BMPs

Table 1: Potentia	l Pollutant Sources a	ind Best Manag	ement Practices
-------------------	-----------------------	----------------	-----------------

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: <u>Midwest Plan Services</u>

I. POLLUTANT SOURCES AND MANAGEMENT

Potential Pollutant Sources:

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

<u>Note</u>: 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 Best Management Practices (BMPs)

Manure, Sludge, Stockpiles, Slurry,	Temporary (< 30 days) & Permanent Storage (>30 days)			
Bedding, Feed Waste & Compost	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.			
	Utilize dust abatement measures for feed handling equipment, Utilize choke			
	feeding when handling feed ingredients & Utilize feed ingredients, such as			
Dust - Feed Handling/Processing	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			
	Disposed by a third-party rendering service, composted on-site or buried in			
Dead Animals	burial pit			
	Collected within 24 hours of death and disposed within three days of death			

- 2) Total Number of Animals:In Open Lots: <u>0</u> In Buildings: <u>2,500</u>
- Animal Housing Location, hours/day:
 Open Lots: <u>21</u> Buildings: <u>3</u>
- 4) Average Liveweight, pounds per head: <u>1,400 lbs</u>
- 5) Volatile Solids Removed by Separator System: <u>50%</u>
- 6) Volatile Solids Loading Rate, lbs/day/1000 ft³: <u>5.30</u>
- 7) Spilled Drinking Water, gallons/day:
- 8) Water for Cleanup, gallons/day:

Included in cleanup 37.500 gal/day Included in cleanup

n/a

9) Water for Manure Removal, gallons/day:10) Recycled Wastewater, gallons/day:

B. Wastewater Runoff

- 1) Design Rainfall Amount, inches: <u>12</u>
- 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

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity	Actual Capacity
1	0.00	0.00	0.00	0.00	0.00	0.00^	4.04
2	34.59	3.45	11.51	2.30	0.00	51.84*^	64.87
3	5.89	0.00	0.00	0.02	10.84	16.74*^	25.95
						*Rounded Figurc ^Phase 1	

 Table 2. RCS Volume Allocations (Acre-Feet)

Indicate which RCSs are in-series: <u>RCS #1 & RCS #2</u>

- 2) Total Number of Animals:In Open Lots: <u>Q</u> In Buildings: <u>4,000</u>
- Animal Housing Location, hours/day: Open Lots: <u>21</u> Buildings: <u>3</u>
- 4) Average Liveweight, pounds per head: <u>1,400 lbs</u>
- 5) Volatile Solids Removed by Separator System: <u>95%</u>
- 6) Volatile Solids Loading Rate, lbs/day/1000 ft³: <u>5.30</u>
- 7) Spilled Drinking Water, gallons/day: <u>Included in cleanup</u>
 8) Water for Cleanup, gallons/day: <u>60,000 gal/day</u>
- 9) Water for Manure Removal, gallons/day:
- 10) Recycled Wastewater, gallons/day: <u>n/a</u>

B. Wastewater Runoff

- 1) Design Rainfall Amount, inches: <u>12</u>
- 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

RCS	Design	Process	Minimum	Sludge	Water	Required	Actual
Name	Rainfall	Generated	Treatment	Accumulation	Balance	Capacity	Capacity
	Event	Wastewater	Volume				
	Runoff						
1	0.00	0.00	0.00	0.00	0.00	0.00^	4.04
2	27.80	10.00	15.28	5.72	0.00	58.81*~	64.87
3	5.89	0.00	0.00	0.02	16.83	22.73*~	25.95
						*Rounded	
						Figure	
_						~Phase 2	

 Table 2. RCS Volume Allocations (Acre-Feet)

Indicate which RCSs are in-series: RCS #1 & RCS #2

Included in cleanup

- 2) Total Number of Animals:In Open Lots: <u>0</u> In Buildings: <u>4,000</u>
- Animal Housing Location, hours/day: Open Lots: <u>21</u> Buildings: <u>3</u>
- 4) Average Liveweight, pounds per head: <u>1,400 lbs</u>
- 5) Volatile Solids Removed by Separator System: <u>50%</u>
- 6) Volatile Solids Loading Rate, lbs/day/1000 ft³: <u>5.30</u>
- 7) Spilled Drinking Water, gallons/day:

Water for Cleanup, gallons/day:

<u>Included in cleanup</u> <u>60,000 gal/day</u>

<u>n/a</u>

Included in cleanup

- 9) Water for Manure Removal, gallons/day:
- 10) Recycled Wastewater, gallons/day:

B. Wastewater Runoff

8)

- 1) Design Rainfall Amount, inches: <u>12</u>
- 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

RCS	Design	Process	Minimum	Sludge	Water	Required	Actual
Name	Rainfall	Generated	Treatment	Accumulation	Balance	Capacity	Capacity
	Event	Wastewater	Volume				
- 2 :	Runoff						
1	0.00	0.00	0.00	0.00	0.00	0.00^	4.04
2	27.80	5.52	18.41	3.22	0.00	54.96*^	64.87
3	5.89	0.00	0.00	0.02	12.20	18.10*^	25.95
						*Rounded	
						Figure	
						^Bypass	

 Table 2. RCS Volume Allocations (Acre-Feet)

Indicate which RCSs are in-series: <u>RCS #1 & RCS #2</u>

D. RCS Liner or Lack of Hydrologic Connection Certification

RCS Name	Construction Date	Type of Hydrologic Connection Certification
1	1989	Liner Cert, Kemp Akeman, P.E. 1989
2	2010	Liner Cert, Norman Mullin, P.E., 2010
3	1990	Liner Cert, Kemp Akeman, P.E. 1989
Settling Basin 1	N/A	Liner Cert, Kemp Akeman, P.E. 1989
Settling Basin 2	N/A	Liner Cert, Kemp Akeman, P.E. 1989
Settling Basin 3	N/A	Liner Cert, Kemp Akeman, P.E. 1989

Table 3: RCS Hydrologic Connection

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
 - \boxtimes Transfer to other persons
 - ⊠ Third Party Fields
 - □ Other; specify: Click here to enter text.
- 2) Land Application Location:
 - \boxtimes Onsite \boxtimes Offsite \square Not Applicable
- 3) Composting Location:
 - \boxtimes Onsite \square Offsite \square Not Applicable

B. Sludge:

- 1) Use or Disposal Method:
 - \boxtimes Land Application to LMUs
 - ☑ Transfer to other persons
 - ☑ Third Party Fields
 - □ **Other; specify:** Click here to enter text.

- 2) Land Application Location:
 - \boxtimes Onsite \boxtimes Offsite \square Not Applicable

C. Wastewater:

- 1) Use or Disposal Method:
 - \boxtimes Land Application to LMUs
 - □ Total Evaporation
 - ☑ Third Party Fields
 - D Other; specify: Click here to enter text.
- 2) Land Application Location:
 - \boxtimes Onsite \boxtimes Offsite \square 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.

			Application Rate (Ac-
LMU Name	Acre	Crop(s) and Yield Goal(s)	ft/Ac/Year OR
			Tons/Ac/Year)
1	62	Silage-Corn 21-25T; SG Green Chop	0.267 ac-ft/ac/yr
		6-7T H	
1A	41	Coastal SG 9-11T; SG GC 6-7T	20.4 tons/ac/yr
2	62	Coastal GC 9-11T; SG GC 6-7T M	0.391 ac-ft/ac/yr
2A	21	Coastal SG 9-11T; SG GC 6-7T	20.4 tons/ac/yr
3	56	Silage-Corn 16-20T; SG Green Chop	0.125 ac-ft/ac/yr
		6-7T M	
3A	21	Coastal GC 9-11T; SG GC 6-7T M	0.1 ac-ft/ac/yr
4	60	Coastal GC 9-11T; SG GC 6-7T H	20.4 tons/ac/yr
5	210	Coastal GC 9-11T; SG GC 6-7T H	0.367 ac-ft/ac/yr
6	62	Silage-Corn 16-20T; SG Green Chop	17.9 tons/ac/yr
		6-7T H	
7	30	Silage-Corn 16-20T; SG Green Chop	17.9 tons/ac/yr
		6-7T M	
8	87	Coastal GC 9-11T; SG GC 6-7T M	21.1 tons/ac/yr
9	20	Coastal GC 9-11T; SG GC 6-7T M	21.1 tons/ac/yr
10	50	Silage-Corn 16-20T; SG Green Chop	17.9 tons/ac/yr
		6-7T H	

Table 4: Land Management Unit Summary from the Current NMP

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:
 - \boxtimes Onsite \boxtimes Offsite \square 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.

			Application Rate (Ac-
LMU Name	Acre	Crop(s) and Yield Goal(s)	ft/Ac/Year OR
			Tons/Ac/Year)
1	62	Silage-Corn 21-25T; SG Green Chop	0.667 ac-ft/ac/yr
		6-7T H	
1A	41	Coastal GC 9-11T; SG GC 6-7T	20.4 tons/ac/yr
2	62	Coastal GC 9-11T; SG GC 6-7T M	0.992 ac-ft/ac/yr
2A	21	Coastal GC 9-11T; SG GC 6-7T	20.4 tons/ac/yr
3	56	Silage-Corn 16-20T; SG Green Chop	0.317 ac-ft/ac/yr
		6-7T M	
3A	21	Coastal GC 9-11T; SG GC 6-7T M	0.25 ac-ft/ac/yr
4	60	Coastal GC 9-11T; SG GC 6-7T H	20.4 tons/ac/yr
5	210	Coastal GC 9-11T; SG GC 6-7T H	0.742 tons/ac/yr
6	62	Silage-Corn 16-20T; SG Green Chop	17.9 tons/ac/yr
		6-7T H	
7	30	Silage-Corn 16-20T; SG Green Chop	17.9 tons/ac/yr
		6-7T M	
8	87	Coastal GC 9-11T; SG GC 6-7T M	21.1 tons/ac/yr
9	20	Coastal GC 9-11T; SG GC 6-7T M	21.1 tons/ac/yr
10	50	Silage-Corn 16-20T; SG Green Chop	17.9 tons/ac/yr
		6-7T H	

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)
11	56	Silage-Corn 16-20T; SG Green Chop 6-7T H	17.9 tons/ac/yr
12	66	Coastal GC 9-11T; SG GC 6-7T M	6.9 tons/ac/yr
12A	30	Coastal SG 9-11T; SG GC 6-7T	10.3 tons/ac/yr
13	53	Silage-Corn 16-20T; SG Green Chop 6-7T H	17.9 tons/ac/yr
14	47	Silage-Corn 16-20T; SG Green Chop 6-7T H	17.9 tons/ac/yr

1) Wastewater production, ac-in/year: 2,169.24 ac-in/yr (Tables 2.3A-B, Col. 4)

2) Estimated Wastewater application, ac-in/year: 1,692.72 ac-in/yr (Tables 2.3A-B, Col. 10)

3) Manure production, tons/year: <u>9,125 tons/yr (Table 2.1A)</u>

- 4) Estimated manure application, tons/year: <u>5,408.83 tons/yr (NMP I)</u>
- 5) Estimated manure transferred to other persons, tons/year: <u>3,716.08 tons/yr (NMP I)</u>

E. Floodplain Information

1) Is any part of the production area within a 100-year floodplain? Yes \boxtimes No \square

If YES, describe management practices to protect the sites. <u>RCS embankments within</u> <u>100-year floodplain areas are built above the 100-year floodplain elevation to protect</u> <u>the RCSs from inundation.</u>

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. <u>Vegetative buffers shall be maintained between</u> <u>all waters of the state and any waste/wastewater application.</u>

F. Soil Limitations

Soil Types	Limiting Characteristics	Best Management Practices
BdC	Depth to Hard Bedrock	- Land Application not to exceed agronomic
	Slow Water Movement	rates for nutrients and soil hydraulic rates (refer to NMP)

LMU Name	Acre	Crop(s) and Yield Goal(s)	Application Rate (Ac- ft/Ac/Year OR Tons/Ac/Year)
11	56	Silage-Corn 16-20T; SG Green Chop 6-7T H	17.9 tons/ac/yr
12	66	Coastal GC 9-11T; SG GC 6-7T M	6.9 tons/ac/yr
12A	30	Coastal GC 9-11T; SG GC 6-7T	10.3 tons/ac/yr
13	53	Silage-Corn 16-20T; SG Green Chop 6-7T H	17.9 tons/ac/yr
14	47	Silage-Corn 16-20T; SG Green Chop 6-7T H	17.9 tons/ac/yr

- 1) Wastewater production, ac-in/year: <u>4,066.92 ac-in/yr (Tables 2.3C-D, Col. 4)</u>
- 2) Estimated Wastewater application, ac-in/year: <u>3,590.40 ac-in/yr (Tables 2.3C-D, Col.</u>
 <u>10)</u>
- 3) Manure production, tons/year: <u>14,600 tons/yr (Table 2.1B)</u>
- 4) Estimated manure application, tons/year: <u>5.408.83 tons/yr (NMP II)</u>
- 5) Estimated manure transferred to other persons, tons/year: <u>9,191.09 tons/yr (NMP II)</u>

E. Floodplain Information

1) Is any part of the production area within a 100-year floodplain? Yes \boxtimes No \square

If YES, describe management practices to protect the sites. <u>RCS embankments within</u> <u>100-year floodplain areas are built above the 100-year floodplain elevation to protect</u> <u>the RCSs from inundation.</u>

2) Is land application or temporary storage of manure in a 100-year floodplain or near a water course? Yes ⊠ No □
 If VEC describe ways the storage of manure in a 100-year floodplain or near a water course?

If YES, describe management practices. <u>Vegetative buffers shall be maintained between</u> 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	- Land Application not to exceed agronomic
	Slow Water Movement	rates for nutrients and soil hydraulic rates (refer to NMP)

Soil Types	Limiting Characteristics	Best Management Practices
		-Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP) -Maintain Clay Liners in RCS.
DeB, Hob, FhC2	Slow Water Movement	 Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP) No land application to inundated soils
CtB	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
LaB, HwD3	Depth to Soft Bedrock	 Land Application will be based upon the AWC (refer to NMP) of the soil and will not exceed agronomic rates for nutrients. No land application to inundated soils
Ма	Depth to Bedrock Droughty	 Land Application will be based upon the AWC (refer to NMP) of the soil and will not exceed agronomic rates for nutrients. No land application to inundated soils
BsB, BsC, BtB, MfB, FhC2	Seepage	-No land application to inundated soils -Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP) -Maintain Clay Liners in RCS.
WnC	Filtering Capacity	-No land application to inundated soils -Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP)
PcB, PcC	Droughty Depth to Bedrock Slow Water Movement	 Land Application will be based upon the AWC (refer to NMP) of the soil and will not exceed agronomic rates for nutrients. 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 Stone on the Surface	 Land Application will be based upon the AWC (refer to NMP) of the soil and will not exceed agronomic rates for nutrients. 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

G. Well Protection

Table 6: Water Well Status and Protective Measures

Well ID	Wall Type	Producing or Non-	Open, Cased,	Protective
Number	wen Type	Producing	or Capped	Measures
1	Domestic	Producing	Cased	Maintain 150-ft
				Buffer
2	Domestic	Producing	Cased	Maintain 150-ft
				Buffer
3	Domestic	Producing	Cased	See Approved Well
				Buffer Exception
4	Domestic	Producing	Cased	See Approved Well
				Buffer Exception
5	Domestic	Producing	Cased	See Approved Well
				Buffer Exception
6	Domestic	Non-Producing	Cased	Sec Approved Well
				Buffer Exception
7	Domestic	Producing	Cased	See Approved Well
				Buffer Exception
8	Domestic	Non-Producing	Cased	See Approved Well
				Buffer Exception
9	Irrigation	Producing	Cased	See Approved Well
				Buffer Exception
10	Domestic	Producing	Cased	Maintain 150-ft
				Buffer
11	Domestic	Producing	Cased	Maintain 150-ft
				Buffer
12	Irrigation	Producing	Cased	Maintain 100-ft
	-			Buffer
13	Irrigation	Producing	Cased	Maintain 100-ft
				Buffer
14	Irrigation	Producing	Cased	Maintain 100-ft
				Buffer
15	Domestic	Non-Producing	Cased	No Evidence of Well
16	Irrigation	Producing	Cased	Maintain 100-ft
				Buffer

Well ID Number	Well Type	Producing or Non- Producing	Open, Cased, or Capped	Protective Measures
17	lrrigation	Producing	Cased	Maintain 100-ft Buffer
18	Irrigation	Producing	Cased	Maintain 100-ft Buffer
19	Irrigation	Producing	Cased	Maintain 100-ft Buffer
20	Irrigation	Producing	Cased	Maintain 100-ft Buffer

SECTION 4. AIR AUTHORIZATION SUMMARY

A. Type of Air Authorization

- Air Standard Permit in 30 TAC § 321.43
- D 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:
 - \square ½ mile buffer*
 - \square ¼ mile buffer* and an odor control plan
- \boxtimes 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: 5 (2 applicant owned)
- ¼ ½ mile: <u>1</u>
- ½ 1 mile: <u>29 (8 applicant owned)</u>

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

D. Air Standard Permit Documentation (if required)

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

Groundwater Monitoring (if required) E.

- 1) Groundwater Monitoring Plan
- Groundwater Monitoring Analyses 2)

TABLE OF CONTENTS

TABL	e of contents	İ
LIST C	DF FIGURES	ii
LIST C	OF TABLES	ii
1.0	FACILITY MAPS	1
2.0	CALCULATIONS & SPECIFICATIONS	8
3.0	FACILITY INFORMATION	27
4.0	WASTE UTILIZATION & NUTRIENT MANAGEMENT PLAN	29
5.0	RECHARGE FEATURE CERTIFICATION	.31
6.0	SURFACE WATER & TMDL ASSESSMENT	50
7.0	AIR STANDARD PERMIT REQUIREMENTS	54

.

LIST OF FIGURES

Figure 1.1: Vicinity Map	2
Figure 1.2: USGS Quadrangle Map	3
Figure 1.3A: Site Map	4
Figure 1.3B: Site Map	5
Figure 1.4A: Runoff Control Map	6
Figure 1.4B: Runoff Control Map	7
Figure 2.1 A: Manure & Wastewater Flow Chart	9
Figure 2.1B: Manure & Wastewater Flow Chart	10
Figure 3.1: FEMA Map	28
Figure 5.1: Geologic Atlas Map	35
Figure 5.2: NRCS Soils Map	42
Figure 5.3A: Recharge Feature Map	46
Figure 5.3B: Recharge Feature Map	47
Figure 6.1A: Aerial Photograph	52
Figure 6.1B: Aerial Photograph	53
Figure 7.1: Area Land Use Map	56

LIST OF TABLES

Table 2.1A: As-Excreted Manure Characteristics Phase 1	1
Table 2.1B: As-Excreted Manure Characteristics Phase 21	2
Table 2.2A: Required Storage Volumes Phase 1 – DA #11.	5
Table 2.2B: Required Storage Volumes Phase 1 – DA #2	6
Table 2.2C: Required Storage Volumes Anerobic Digester Phase 2 – DA #1	7
Table 2.2D: Required Storage Volumes Anerobic Digester Phase 2 – DA #218	8
Table 2.2E: Required Storage Volumes Bypass Phase 2 – DA #1	9
Table 2.2F: Required Storage Volumes Bypass Phase 2 – DA #2	0
Table 2.3A: Water Balance Model Phase 1 – DA #12	1
Table 2.3B: Water Balance Model Phase 1 – DA #222	2
Table 2.3C: Water Balance Model Anerobic Digester Phase 2 – DA #1	3
Table 2.3D: Water Balance Model Anerobic Digester Phase 2 – DA #224	4
Table 2.3E: Water Balance Model Bypass Phase 2 – DA #1	5
Table 2.3F: Water Balance Model Bypass Phase 2 – DA #2	6
Table 5.1: Estimated Soil Properties	8
Table 5.2: Major Soil Types	9
Table 5.3: Potential Soil Limitations for Land Application40	0
Table 5.4: Well Information	4

Grand Canyon Dairy

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 May 2022). The location of the facility is depicted on the map.

1.2 USGS Quadrangle Map

Figure 1.2, entitled 7.5-Minute USGS Map is a seamless, high-quality copy of the 7.5-minute USGS quadrangle map (Dublin, TX, quadrangle) that shows the boundaries of land owned, operated, or controlled by Grand Canyon Dairy, LLC 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
- Burial Site
- Caliche Pits
- Milking Parlor
- Manure/Compost Storage Areas
- Anerobic Digester

1.4 Runoff Control Map

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













2.0 CALCULATIONS & SPECIFICATIONS

2.1 Facility Overview

The existing facility consists of open lots, barns, a milking parlor, three earthen settling basins, and three retention control structures to confine 4,000 head, of which 4,000 head are milking.

Circle 7 Dairy, LLC and Grand Canyon Dairy, LLC is submitting a major amendment application in two phases in order to maintain compliance throughout the transition. Phase 1 will include the following changes: decrease the headcount to 2,500 total and 2,500 milking, update the runoff control, site map and recharge feature map to the current conditions (remove digester and proposed freestall barns), reconfigure the following LMUs: LMU #1A (41 ac) is new and is in a portion of LMU #1 (current – 103ac; proposed – 62ac), LMU #2A (21 ac) is new and is in a portion of LMU #2 (current 83ac; proposed – 56ac), LMU #3A (21ac) is new and is in portion of LMU #3 (current - 91ac; proposed – 96ac), LMU #6 (current - 65ac; proposed - 62ac), LMU #14 (current – 52ac; proposed – 47ac). Phase 2 will include the increase of headcount to 4,000 total and 4,000 milking, the addition of an anerobic digester and associated equipment and the addition of freestall barns. This strategic phasing ensures that the dairy operates within regulatory standards while scaling up operations.

The proposed changes reflect Grand Canyon Dairy's 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 careful consideration of operational compliance, ensuring that the dairy's expansion does not compromise its environmental responsibilities.

2.2 Manure Production

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

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





ESTIMATED MANURE PRODUCTION for a DAIRY FACILITY PHASE 1

Table 2.1AENVIRO-AG ENGINEERING, INC.

NAME OF CAFO:	Grand Canyon Dairy
LOCATION:	Erath County
DATE:	February-25

MANURE PRODUCTION CRITERIA (a)				
FACILITY TOTAL	Milkers	Milkers in	Milkers in	Total
	in Parlor	Pens	Pastures	
1. Maximum Number of Animals Confined (head):	2,500	2,500	2,500	2,500
2. Confinement period, hrs/hd/day	3.0	15.0	6.0	24
3. Percent of time in Confinement	13%	63%	25%	100%
4. Total Manure Production, lbs/day	46,875	234,375	93,750	375,000
5. Total Solids Production, ibs/day	6,250	31,250	12,500	50,000
6. Manure Production, tons/year	1,141	5,703	2,281	9,125
7. Volatile Solids Production, lbs/day	5,313	26,563	n/a	31,875
8. Total Nitrogen Production, lbs/day	309	1,547	619	2,475
9. Total Phosphorus, P2O5 lbs/day (b)	122	608	243	973
10. Total Potassium, K2O lbs/day (b)	86	431	173	690

NOTES:

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

(b) - The ASAE Manure Production and Characteristics Tables give P and K in the elemental forms. Convert to P2O5 by multiplying by 2.29 and to K2O by multiplying by 1.2.

ESTIMATED MANURE PRODUCTION for a DAIRY FACILITY PHASE 2

Table 2.1B ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO:	Grand Canyon Dairy
LOCATION:	Erath County
DATE:	February-25

MANURE PRODUCTION CRITERIA (a)					
FACILITY TOTAL	Milkers	Milkers in	Milkers in	Total	
	in Parlor	Freestalls/Pens	Pastures		
1. Maximum Number of Animals Confined (head):	4,000	4,000	4,000	4,000	
2. Confinement period, hrs/hd/day	3.0	15.0	6.0	24	
3. Percent of time in Confinement	13%	63%	25%	100%	
4. Total Manure Production, lbs/day	75,000	375,000	150,000	600,000	
5. Total Solids Production, lbs/day	10,000	50,000	20,000	80,000	
6. Manure Production, tons/year	1,825	9,125	3,650	14,600	
7. Volatile Solids Production, lbs/day	8,500	42,500	n/a	51,000	
8. Total Nitrogen Production, lbs/day	495	2,475	990	3,960	
9. Total Phosphorus, P2O5 lbs/day (b)	195	973	389	1,557	
10. Total Potassium, K2O lbs/day (b)	138	690	276	1,104	

NOTES:

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

(b) - The ASAE Manure Production and Characteristics Tables give P and K in the elemental forms. Convert to P2O5 by multiplying by 2.29 and to K2O by multiplying by 1.2.

2.3 Process-Generated Wastewater Volume

The primary source of process-generated wastewater is wash water from the milking parlor operations (15 gal/head/day) and the water generated from the production of biogas (500 gal/day). The flow of the process-generated wastewater can be found on Figures 2.1A-B. The freestall barns are vacuumed for manure removal. All open lot pens are dry scraped for manure removal. The design storage volume in RCS #2 and RCS #3 for process-generated wastewater is 30 days and is calculated in Tables 2.2A-D.

2.4 25-Year, 10-Day Rainfall Storage Volume

In accordance with 30 TAC §321.42(c)(1), RCS #2 and RCS #3 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 12.0 inches of rainfall. Drainage area runoff volumes are calculated using the SCS method with curve numbers (CN) selected based on soil type and land use. The pen area runoff was 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 85. 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-D shows the calculated storage volume required for the rainfall runoff from a 25-year, 10-day storm.

2.5 Sludge Accumulation Volume

Sludge accumulation was calculated using a rate of 0.0729 cubic feet of sludge per pound total solids (from Table 1 of the ASABE Standards, ASABE EP403.4 FEB 2011) and a sludge storage period of 1 year. The required sludge accumulation volume calculations are shown in Tables 2.2A-D.

2.6 Water Balance Model

Tables 2.3A-D, Water Balance Model, estimates the inflows and withdrawals from RCS #2 and RCS #3 including runoff, direct rainfall, process-generated wastewater, evaporation, and irrigation withdrawal based on crop demand in accordance with 30 TAC §321.38(e)(7)(C). Actual pond withdrawal amounts will vary with changing weather conditions. An additional volume is included in the RCS to provide flexibility in managing RCS levels.

2.7 RCS Management Plan

A RCS Management Plan will be 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 will be 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 screen separator and using a loading rate specified by ASABE Standards (ASABE EP 403.4 FEB2011) of 5.30 lbs of volatile solids per 1,000 cubic feet of storage. Tables 2.2A &C 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 DA #1 REQUIRED STORAGE VOLUMES FOR TREATMENT/ RUNOFF RETENTION CONTROL STRUCTURES Table 2.2A

ENVIRO-AG ENGINEERING, INC.



DA #J TREATMENT REQUIREMENT		
TREATMENT VOLUME		
Volatile Solids Produced:	(lb/dav)	5 313
Settling Basin Efficiency (%) (a):	····/	50%
Adjusted Volatile Solids Production:	(lb/day)	2,656
Design Loading Rate (lbVS/1000cuft-day) (b):		5.30
Treatment Volume:	(ac-ft)	11 51
SLUDGE VOLUME		
Dry Manure Produced:	(ib /day)	6 250
Settling Basin Efficiency (%) (a):	(//////////////////////////////////////	50%
Adjusted Dry Manure Production;	(lb/day)	3,125
Sludge Accumulation Rate (c):	(cuft/ib)	0.0729
Sludge Accumulation Period:	(years)	1
Sludge Volume:	(ac-ft)	1.91
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 1, ASABE Standards (ASABE EP403 4 .	FEB 20(1)	
(d) Site Specific Data		

S = (1000/CN) - 10

Q = Runoff (in)

calculation For more information, please refer to http://support microsoft com/kb/42980

estimation (Inputs-pen/adj contribution, 1.5% solids and 1 year).

 $Q = ((1 - 0.2S)^2)/(1 + 0.8S)$

I=25-year, 10-Day rainfall (in)

S = Potential maximum retention after runoff begins 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

(g) The additional volume requirement for DA #1 will be included in the required volume for DA #2 Table 2 2B.

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

Grand Canyon Dairy

Erath County

February-25

HIS HIS DA #1 - RUNOFF POND REQUIREMENT PROCESS GENERATED WASTE/WASTEWATER

14:2000 -

Parlor Wash Water (d): (gal/head/day) 15 No of Head in Parlor: 2,500 Volume of Process Water. (gal/day) 37,500 Design Storage Period: 30 (days) Process Water Volume: (ac-ft) 3 45 RAINFALL VOLUME Drainage Area Characteristics: (acres) CN Pen Areas; 18.82 90 Adjacent Areas; 2.37 85 Paved/Roof Areas: 4.21 100 Settling Basins Surface Areas 425 100 RCS #1 Surface Area: 1.40 100 RCS #2 Surface Area: 5 85 100 Total Drainage Area 36 90 25-year, 10-Day rainfall: (inches) 12 Runoff Volume Determination (e); (inches) (ac-ft) Pen Area: 108 16.88 Adjacent Areas: 101 2.00 Paved/Roof Areas: 12.0 421 Settling Basins Surface Areas: 12.0 425 RCS #1 Surface Area: 12.0 1 40 RCS #2 Surface Area: 120 5 85 Rainfall Volume: (ac-ft) 34.59 TOTAL RCS VOLUME REOUIRED Runoff Sludge Volume (f): (ac-ft) 0.39 Process Water Volume: (ac-ft) 3 4 5 Rainfall Volume: (ac-ft) 34 59 Treatment Volume: (ac-ft) 1151 Sludge Volume: (ac-ft) 191 Additional Volume (g); Total Required DA #1 Volume Requirement: (ac-ft) 51.84

Page 15

(e) Using SCS method:

Where:

NAME OF CAFO:

LOCATION:

DATE:

PHASE 1 DA #2 REQUIRED STORAGE VOLUMES for RETENTION CONTROL STRUCTURES Table 2.2B ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO:Grand Canyon DairyLOCATION:Erath CountyDATE:February-25

DA #2 - RUNOFF POND REQUIREMENT

RAINFALL VOLUME		
Drainage Area Characteristics:	CN	Arca (ac)
Pen Areas:	90	0.00
Adjacent Areas:	85	2.50
Paved/Roof Areas;	100	0.18
RCS #3 Surface Area;	100	3.60
Total Drainage Area (acres):		6.28
25-year, 10-Day rainfall:	(inches)	12
Runoff Volume Determination (a):	(inches)	(ac-ft)
Pen Area;	10,76	0.00
Adjacent Areas:	10.11	2.11
Paved/Roof Areas:	12.00	0.18
RCS #3 Surface Area:	12.00	3.60
Total Runoff (ac-ft):		5.89
TOTAL RCS VOLUME REQUIRED		
Rainfall Volume:	(ac-ft)	5.89
Runoff Sludge Volume (b):	(ac-ft)	0.02
Additional Volume (c):	(ac-ft)	10.84
Total Required DA #2 Volume Requirement:	(ac-ft)	16.74

NOTES: (a) Using SCS method; Where:

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

(b) 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).

(c) The additional volume requirement includes the additional volume from DA #1 Table 2.2A.

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



Page 16

Firm No. F-2507

PHASE 2 DA #1 DIGESTER REQUIRED STORAGE VOLUMES FOR TREATMENT/ RUNOFF RETENTION CONTROL STRUCTURES Table 2,2C

ENVIRO-AG ENGINEERING, INC.



DA #I TREATMENT REQUIREMENT		
TREATMENT VOLUME		
Volatile Solids Produced:	(lb /day)	51,000
Anaerobic Digester Efficiency (%) (a):		42%
the set of	(lb (day)	29,580
Screw Press Efficiency (%) (a):		29%
	(lb/day)	21,002
Dissolved Air Plotation Efficiency (%) (a):		76%
Setting Band Efficiency (9/1/b):	(Jb /day)	5,040
Adjusted Volatile Solide Readuction:	Alle March	30%
A gawed volatile strikes Production	(101029)	3.328
Design Loading Rate (IbVS/1000cuft-day) (c):		530
Treatment Volume	(ac-ft)	15 28
SLUDGE VOLUME		
Dry Manure Produced:	(lb /day)	60,000
Anaerobic Digester Efficiency (%) (2):		34%
	(lb/day)	39,600
Screw Press Efficiency (%) (a):		22%
	(lb/day)	30,886
Dissolved Air Flotation Ernolency (%) (a):		53%
P-Hlin - B CEF-inn with the	(lb/day)	12,973
Adjusted Dru Manura Readuction:	(h. (d)	30%
Adjuster by Marine Production.	(ib/day)	9,061
Sludge Accumulation Rate (d):	(cufl/lb)	0 0729
Sludge Accumulation Period:	(years)	1
Sludge Voluma:	(ac-ft)	5 5 5

Grand Canyon Dairy

Erath County

February-25

NOTES: (a) Based on data provided by DVO

NAME OF CAFO:

LOCATION:

DATE:

(b) Midwest Plan Service, 1983, Revised 1987 (Waste Management, pg. 70211)

(c) Loading Rate taken from Figure 2, ASABE Standards (ASABE EP403 4 FEB2011)

(d) Sludge Accumulation Rate taken from Table 1, ASABE Standards (ASABE EP403 4 FEB 2011)

(e) Site Specific Deta

(f) Based on data provided by Candor Midstream Solutions, LLC

 (3) Using SCS method: Where:

$$\begin{split} S &= (1000/CN) - t0\\ Q &= ((1-0.2S)^{-2})/(1+0.8S)\\ S &= Potential maximum retention after runoff begins in)\\ Q &= Runoff (in)\\ t &= 25-year, 10-Day rainfall (in)\\ CN &= Curve Number from SCS 210-VI-TR-55, 2nd Edition, June 1986 \end{split}$$

(h) USDA Agricultural Field Waste Handbook, Kansas, Part 651 1083, Suggested procedures for sediment volume estimation (Inputs-per/adj contribution, 1.5% solids and 1 year)

(i) The additional volume requirement for DA \$1 will be included in the required volume for DA \$2 Table 2 2D

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/42930

DA #1 - RUNOFF POND REQUIREMENT PROCESS GENERATED WASTERNISTEWATER		
PROCESS GENERATED PRATER ATEN		
Parlor Wash Water (c):	(gal/head/day)	15
No of Head in Parlor:		4,000
Volume of Process Water:	(gal/day)	60,000
Biogas Production Generated Water (f):	(gal/day)	500
Wet Manure Production:	(lb /day)	450,000
Total Solids Produced:	(Jb /day)	60,000
Total Solids Removed by Separation System	(16 /day)	\$0,919
Wet Manure Production Less Separated Solids:	(16 /day)	399,081
	(gal/day)	48,147
Design Storage Period:	(days)	30
Process Water Volume:	(ac-ft)	10.00
RAINFALL VOLUME		
Drainage Area Characteristics:	(acres)	CN
Pen Areas:	5,12	90
Adjacent Arcas;	4,46	85
Paved/Roof Areas:	7,95	100
Settling Basins Surface Areas:	4.25	100
RCS #1 Surface Area:	1_40	100
RCS #2 Surface Area:	5,85	190
Total Drainage Area	29.03	
Z5-year, 10-Day rainfall:	(inches)	12
Runoff Volume Determination (g):	(inches)	(ac-ft)
Pen Area:	10,8	4 5 9
Adjacent Areas:	101	3 76
Paved/Roof Areas:	12.0	7 95
Seating Basins Surface Areas:	12.0	425
RCS #1 Surface Area	12.0	i 40
RCS #2 Surface Area:	12.0	5.85
Rainfall Volume;	(ac-ft)	27 80
TOTAL RCS VOLUME REQUIRED		
Runoff Sludge Volume (h):	(ac-R)	017
Process Water Volume	(ac-ft)	10.00
Rainfall Volume:	(ac-ft)	27 80
Treatment Volume;	(ac-ft)	15 28
Sludge Volume:	(ac-ft)	5 5 5

Additional Volume (1):

Total Required DA #1 Volume Requirement:

(ac-ft)

58.81

PHASE 2 DA #2 DIGESTER REQUIRED STORAGE VOLUMES for RETENTION CONTROL STRUCTURES Table 2.2D ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO:GrandLOCATION:Erath CDATE:Februa

Grand Canyon Dairy Erath County February-25

DA #2 - RUNOFF POND REQUIREMENT

RAINFALL VOLUME		
Drainage Area Characteristics:	CN	Area (ac)
Pen Areas:	90	0.00
Adjacent Areas:	85	2.50
Paved/Roof Areas:	100	0.18
RCS #3 Surface Area:	100	3.60
Total Drainage Area (acres):		6.28
25-year, 10-Day rainfall:	(inches)	12
Runoff Volume Determination (a):	(inches)	(ac-ft)
Pen Area:	10.76	0.00
Adjacent Areas:	10.11	2.11
Paved/Roof Areas:	12.00	0.18
RCS #3 Surface Area:	12.00	3,60
Total Runoff (ac-ft):		5,89
TOTAL RCS VOLUME REQUIRED		
Rainfall Volume:	(ac-ft)	5.89
Runoff Sludge Volume (b);	(ac-ft)	0.02
Additional Volume (c):	(ac-ft)	16.83
Total Required DA #2 Volume Requirement:	(ac-ft)	22.73

NOTES:

a) Using SCS method:	
Where:	S = (1000/CN) - 10
	$Q = ((P - 0.2S)^2)/(P + 0.8S)$
	S = Potential maximum retention after runoff begins in)

Q = Runoff(in)

P = 25-year, 10-Day rainfall (in) CN = Curve Number from SCS 210-VI-TR-55, 2nd Edition, June 1986

(b) 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).

(c) The additional volume requirement includes the additional volume from DA #1 Table 2.2C.

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



Page 18

Firm No. F-2507

PHASE 2 DA #1 DIGESTER BYPASS REQUIRED STORAGE VOLUMES FOR TREATMENT/ RUNOFF RETENTION CONTROL STRUCTURES Table 2.2E ENVIRO-AG ENGINEERING, INC.

NAME OF CAFO: Gr LOCATION: Err DATE: Fet

Grand Canyon Dairy Erath County February-25

DA #1 TREATMENT REQUIREMENT TREATMENT VOLUME

Volatile Solids Produced: Settling Basin Efficiency (%) (a):	(lb/day)	8,500 50%
Adjusted Volatile Solids Production:	(lb/day)	4,250
Design Loading Rate (IbVS/1000cuft-day) (b):		5 30
Treatment Volume:	(ac-ft)	1841
SLUDGE VOLUME		
Dry Manure Produced:	(lb /dav)	10.000
Settling Basia Efficiency (%) (a):		50%
Adjusted Dry Manure Production:	(lb/day)	5,000
Sludge Accumulation Rate (c):	(cuft/lb)	0 0729
Sludge Accumulation Period:	(years)	i.
Sludge Volume:	(ac-ft)	3.05

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 1, ASABE Standards (ASABE EP403 4 FEB 2011).

(d) Site Specific Data,

(e) Using SCS method; Where;

re;	S = (1000/CN) - 10
	$Q = ((I - 0.2S)^2)/(1 + 0.8S)$
	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) The additional volume requirement for DA #1 will be included in the required volume for DA #2 Table 2.2F

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

DA #1 - RUNOFF POND REQUIREMENT		
PROCESS GENERATED WASTE/WASTEWATER		
Parlor Wash Water (d):	(gal/head/day)	15
No of Head in Parlor;		4,000
Volume of Process Water.	(gal/day)	60,000
Design Storage Period:	(days)	30
Process Water Volume:	(ac-ft)	5 52
RAINFALL VOLUME		
Drainage Area Characteristics:	(acres)	CN
Pen Areas:	5.12	90
Adjacent Areas:	4 46	85
Paved/Roof Areas:	7 95	100
Settling Basins Surface Areas:	4 25	100
RCS #1 Surface Area;	1 40	100
RCS #2 Surface Area:	5 85	100
Total Drainage Area	29 03	
25-year, 10-Day rainfall:	(inches)	12
Runoff Volume Determination (e):	(inches)	(ac-ft)
Pen Area:	10.8	4 59
Adjacent Areas:	10.1	3 76
Paved/Roof Areas:	120	7 95
Settling Basins Surface Areas:	120	4 25
RCS #1 Surface Area:	12.0	1 40
RCS #2 Surface Area:	12.0	5 85
Rainfall Volume:	(ac-ft)	27 80
TOTAL RCS VOLUME REQUIRED		
Runoff Sludge Volume (f):	(ac-ft)	017
Process Water Volume:	(ac-ft)	5 52
Rainfall Volume:	(ac-ft)	27 80
Freatment Volume;	(ac-ft)	18.41
Sludge Volume:	(ac-ft)	3.05
Additional Volume (g):		

-1

Total Required DA #1 Volume Requirement:

MU

6610

NORMAN

PHASE 2 DA #2 DIGESTER BYPASS **REQUIRED STORAGE VOLUMES** for RETENTION CONTROL STRUCTURES Table 2.2F **ENVIRO-AG ENGINEERING, INC.**

NAME O NAME OF CAFO: LOCATIC LOCATION: DATE: DATE:

DA #2 - RUNOFF POND	REQUIREMENT
---------------------	-------------

RAINFALL VOLUME		
Drainage Area Characteristics:	CN	Area (ac)
Pen Areas:	90	0.00
Adjacent Areas:	85	2.50
Paved/Roof Areas:	100	0.18
RCS #3 Surface Area:	100	3,60
Total Drainage Area (acres):		6.28
25-year, 10-Day rainfall:	(inches)	12
Runoff Volume Determination (a):	(inches)	(ac-ft)
Pen Area:	10.76	0.00
Adjacent Arcas:	10.11	2,11
Paved/Roof Areas;	12.00	0.18
RCS #3 Surface Area:	12.00	3.60
Total Runoff (ac-ft):		5.89
TOTAL RCS VOLUME REQUIRED		
Rainfall Volume:	(ac-ft)	5.89
Runoff Sludge Volume (b):	(ac-ft)	0.02
Additional Volume (c):	(ac-ft)	12.20

Total R	equired DA #2 Volume Requirement:	(ac-ft)	18.10
NOTES: (a) Usin	: og SCS method:	10,00	ATE OF TELAS
Where:	S = (1000/CN) - 10	1	*
	$Q = ((P - 0.2S)^2)/(P + 0.8S)$	A NO	MAN H MULTIN
	S = Potential maximum retention after runoff begins in)	P. NO	NUMAN II. WOLLIN
	Q = Runoff(in)	1.0	66107
	P = 25-year, 10-Day rainfall (in)	120	A LICENSED
	CN = Curve Number from SCS 210-VI-TR-55,		SSIONAL ENG
	2nd Edition, June 1986	These	an Millen
(b) USE	DA Agricultural Field Waste Handbook, Kansas, Part 651,1082, Suggested		dicher
(c) The	additional volume requirement includes the additional volume from DA #1 Table 2.2E		9110140

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

						P WATER IRRIGATIO ENVIRO-A	HASE 1 DA #1 BALANCE M N AND EVAP Table 2.3A G ENGINEER	IODEL ORATION ING, INC.						
NAME: LOCATION: DATE:	Grand Canyon D Frath County February-25	airy		HYDROLOGIC Pen Area (acres) Adjacent Area (a Paved/Roof Area Total RCS/SB Sc Tota! Irrigated A Cropping scheme Effective Evapor	CHARACTERIS : (cres); ((acres): urface Area (acres); rea (acres)({2); e: attout Surface Area	TICS); 8 (nonest:	18,82 2 37 4 21 11,50 210 Coastal 4 97	210 Winter Wheat		IRRIGATION C 25-Year, 10-Day Process Generate Sludge Accumul Minutaten Treate Total Required C	EUL VOLUME ST Rainfall Volume (ed Wastewater Vol ation Volume (ac- nent Volume (ac-fi): Capacity (ac-fi):	JMMARY DAT (sc-ft): unte (sc-ft); ft): ft;	A	34.59 3.45 2.29 11.51 51.84
		RCS IN	FLOW CALCUL	ATIONS			HYDRAULIC	CROP DEMAND CA	LCULATION	5	RCS STORAGE SUMMARY			
MONTH	(i) (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-fi)	(10) (ac-ft)	(11) (ac-ft)
JAN FEB MAR APR MAY JUL JUL AUG SEP OCT NOV DEC	1 55 1 89 2.16 2 88 4 31 3 24 2.11 2 25 3 01 3 23 1 88 1.62	0 23 0 39 0 54 0 99 2 06 I 25 0.51 0 59 1.08 I 24 0.39 0.26	0 06 0 14 0 23 0 53 1 35 0 71 0 23 0 23 0 23 0 24 0 59 0 71 0 14 0 07	3.57 3.22 3.57 3.45 3.57 3.45 3.57 3.57 3.45 3.57 3.45 3.57 3.45 3.57	5.97 6 34 7 29 8 89 12 71 9 79 7 17 7 49 9 21 9 88 6 55 6 12	1 55 1 86 2 10 2,64 3,50 2,88 2,05 2 17 2 73 2 88 1 86 1 62	2 10 2 46 4 D6 4 98 5 73 6 82 7 66 5 78 4 29 2 81 2 24	2.74 3.11 4.97 5.74 5.33 3.22 0.00 0.00 0.00 0.00 2.15 1.70 2.33	9,65 10,43 34,38 40,91 39,09 68,90 98,11 94,34 53,35 24,74 16,71 10,92	20 85 21,80 50,30 54 21 32,09 5.90 0.00 0.00 0.00 0.00 0.00 0.00 0.	2.37 2.70 4 27 5 20 5 25 7 01 8.23 7 71 5.91 4.89 3 33 2 45	0.98 1 12 1 77 2 15 2 18 2 90 3.41 3 19 2 45 2 03 1 38 1 02	start value> 4.99 5.22 5.52 6.73 10.54 6.88 3.76 4.30 6.76 7.85 5.17 5.10	13 80 13 80
TOTALS	30.13	9 54	5 00	42.01	97 41	27,83	56 49	31 29	501 53	197.66	59 32	24 58	72 83	

(1) AVERAGE PRECIPITATION - Average precipitation taken from the Texas Water Development Board, Erath County, Quad #509, Retrieved December 4, 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-67) (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 fails 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 (1rr CN-58) (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff)

(6) CONSUMPTIVE USE values from Borcelli, 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 December 4, 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 intigation 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 events (12) Intigated acres include LMU 45.

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.unicrosoft.com/kb/42980



	PHASE 1 DA #2 WATER BALANCE MODEL IRRIGATION AND EVAPORATION Table 2.3B ENVIRO-AG ENGINEERING, INC.														
NAME: LOCATION: DATE:	Grand Canyon Dai Erash County February-25	iry		HYDROLOGIC Pen Area (acres) Adjacent Area (a Paved/Roof Area RCS Surface Are Total Inigated A Cropping scheme Effective Evapor	CHARACTERIS' : cres): ((acres): :a (acres): rea (acres): rea (acres)(12): :: aroon Surface Are	TICS	0 00 2 50 0 18 2 60 210 Coastal 3,06	210 Winter Wheat		IRRIGATION C 25-Year, 10-Day Process Generat Sludge Account Minimum Treat Additional Volue Total Required C	ELL VOLUME SU Rainfall Volume (ed Wastewater Vol ation Volume (ac-fi nent Volume (ac-fi); fapacity (ac-ft);	INIMARY DAT (ac-ft): vunc (ac-ft): 3):);	A	5.89 0.02 0.02 10.84 16.74	
		RCS IN	FLOW CALCUL	ATIONS		1200.000	HYDRAULIC I	HYDRAULIC CROP DEMAND CALCULATIONS			1	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)	
JAN FEB MAR APR MAY JUN JUN JUN JUN JUN JUN JUN JUN CUL AUG SEP OCT NOV DEC	1 55 1 89 2 16 2.83 4 31 3 24 2.11 2 25 3 01 3 23 1 88 1.62	0 00 0 00 0 10 0 10 0 00 0 00 0 00 0 00	0 06 0 14 0 23 0 53 1 35 0 71 0 26 0 39 0 71 0 14 0 14 0 07	4 99 5 22 5 52 6 73 10 54 6 88 3 76 4 30 6 76 7 85 5 17 5.10	5 49 5 85 6 25 7 75 12,18 8 05 4 47 5 06 7 83 9 02 5 79 5 63	1 55 1 86 2 10 2 64 3 50 2 83 2 05 2 17 2 73 2 .88 1 .86 1 .62	2 10 2,46 4 06 4 98 5 73 6,82 7 66 7 56 5 78 4 29 2,81 2,24	2 74 3,11 4 97 5 74 5 33 3 22 0 00 0 00 0 00 2 15 1,70 2 33	9,65 10,43 34 38 40 91 39 09 68 90 98,11 94 34 53,35 24 74 L6,71 10 52	20 85 21,80 50 30 54 21 32 09 5,90 0,00 0,00 0,00 0,00 0,00 0,00 0,	2 37 2,70 4,27 5,20 5,25 7,91 8,23 7,71 5,91 4,89 3,33 2,45	0.60 0.69 1 09 1 33 1 34 1.79 2.10 1 97 1 51 1 25 0.85 0.62	4 89 3,16 5,16 6 42 10 84 6,27 2,37 3 10 6 32 7 77 4,94 5,00	0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02	
TOTALS	30 13	0 00	5 00	72 83	83 36	27 83	56 49	31.29	501 53	197 66	\$9.32	15.13	68.23	_	

(1) AVERAGE PRECIPITATION - Average precipitation taken from the Taxas Water Development Board, Erath County, Quad #509, Retrieved December 4, 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-67), (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff)

(3) INFLOW - RCS #3 receives inflows (actual withdrawal) from RCS #2 found in Table 2 3A column 10.

(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-58) (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff)

(6) CONSUMPTIVE USE values from Bornelli, 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 December 4, 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 Coop 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 include LMU #5

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 WATEF IRRIGATIO ENVIRO-A	2 DA #1 DIGE 8 BALANCE M ON AND EVAP Table 2,3C .G ENGINEER	ESTER IODEL ORATION HING, INC.							
NAME: LOCATION: DATE:	Grand Canyon Da Erath County February-25	يتب		HYDROLOGIC (Pen Area (acres): Adjacent Area (ac Paved Roof Area Total RCS/SB Sur Total Irrigated Ar	(HARACTERIS) (acres): (face Ares (acres) ea (acres)(12):	rtes):	5 12 4 46 7 95 11 50 210	210		(RRIGATION C 25-Year, 10-Day Process Generate Sludge Accurrul: Mini.num Treatm	ELL VOLUME SU Rainfall Volume (ed Wastewater Vol ation Volume (ac-f nent Volume (ac-ft	IMMARY DAT ac-ft): ume (ac-ft): t):):	A	27 80 10 00 5 72 15 28	
				Cropping scheme: Effective Evaporation Surface Area (acres)			Coastal 4 97	Winter Wheat		53 81					
-		RCS IN	FLOW CALCUL	ATIONS		1	HYDRAULIC	HYDRAULIC CROP DEMAND CALCULATIONS RCS ST					RAGE SUMMARY		
	(1)	(2)	(2)	(3)	(4)	(5)	(6)	(6)	(7)	(7)	(8)	(9)	(10)	(11)	
MONTH	(inches)	(inches)	(inches)	(ac-ft)	(ac-ft)	(inches)	(inches)	(inches)	(sc-ft)	(ac-fi)	(inches)	(ac-ft)	(av-ft)	(ac-ft)	
													start value>	21 00	
JAN	1 55	0.23	0.06	10 34	12.97	1.55	2.10	2 74	9,65	20.85	2 3 7	0.98	11.99	21.00	
FEB	1,89	0.39	0.14	934	12 62	186	2 46	311	10.43	21,80	2 70	1 12	1150	21 00	
MAR	2 16	0 54	0.23	10 34	14 15	2 10	4 06	4 97	54 38	50 30	4 27	1 77	12 38	21.00	
APR.	2 88	0.99	0.53	10 00	15 29	2 64	4 98	5 74	40.91	54 21	5.20	2 15	1314	21 00	
MAY	4.31	2.05	1 35	10 34	18 70	3,50	5 73	5 33	39 09	32,09	5 25	2 18	16 53	21 00	
JUN	3.24	1.25	0.71	10 00	16 05	2 88	6 82	3 22	68.90	5,90	7.01	2,90	13 15	21 00	
JUC	2 11	0,51	021	10.34	14 05	2.05	7 66	0,00	98 11	0.00	8 23	3 41	10 64	21 00	
AUG	2,25	0 59	0.26	10 34	14 33	2.17	7 56	0.00	94 34	0.00	7.71	3,19	1114	21 00	
SEP	3.01	1,08	0.59	30.00	15 56	2 73	5 78	0.00	53 35	0.00	5.91	2 45	13 12	21 00	
OCT	3 23	1,24	071	10 34	1636	2.88	4.29	2,15	24 74	0.00	4 89	2 03	14 34	21.00	
NOV	1 \$8	0 39	0.14	10 00	13 27	1,86	2.81	1.70	16,71	0.00	3,33	1,38	11 89	21 00	
DEC	1.62	0.26	0 D7	10 34	13 10	1 62	2 24	2 33	10 92	[2 50	2.45	1 02	12 09	21.00	
TOTALS	30.13	9 54	5.00	121 71	176 48	27 83	56 49	31 29	501 53	197 66	59 32	24 58	151 90		

(1) AVERAGE PRECIPITATION - Average precipitation taken from the Texas Water Development Board, Erath County, Quad #509, Ratrieved December 4, 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-67) (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) TOFAL 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-58) (Ref. NRCS Animal Wester 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 December 4, 2024

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

(10) ACTUAL WITHDRAWAL - Actual Withdrawal from the imigation 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 excrease in the volume reserved for the 25-year, 10-day raisfall event (12) (trigated acres include LMU #5

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 WATER IRRIGATIO ENVIRO-A	2 DA #2 DIGH BALANCE M N AND EVAP Table 2.3D G ENGINEER	ESTER IODEL ORATION HING, INC.						
NAME: LOCATION DATE:	Grand Canyon D: Erath County February-25	airy		HYDROLOGIC Pen Area (acres) Adjacent Area (a Paved/Ronl/Area RCS Sorface Are Total Irrigated A Cropping scheme Effective Evator	CHARACTERIS : : (acres): a (acres): a (acres): rea (acres)(12): :: atom Surface Are	CICS	0 00 2 50 0 18 3 60 210 Coastal 3 06	210 Winter Wheat		IRRIGATION C 25-Year, 10-Day Process Generati Sludge Accumul Minimum Treatr Additional Volue Toral Required C	ELL VOLUME SI Rainfall Volume (od Wastewater Volume (ac- nent Volume (ac- fine (ac-fi); Papacity (ac-fi);	LMMARY DAT (ac-ft): lume (ac-ft): R): D)	A	5 89 0.00 0 02 0 00 16 83 22 73
		RCS IN	FLOW CALCUL	ATIONS		100-037	HYDRAULIC	CROP DEMAND CA	ALCULATION	TIONS RCS STORAGE SUMMARY				
MONTH	(I) (inches)	(2) (inches)	(2) (inches)	(3) (ac-ft)	(4) (ac-ft)	(5) (inches)	(6) (inches)	(6) (inches)	(7) (8c-πੈ)	(7) (ac-ft)	(8) (inches)	(9) (ac-fr)	(10) (ac-fi)	(11) (ac-ft)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC	1 55 1 89 2 16 2 88 4 31 3 24 2.11 2 25 3 01 3 23 4 88 1 62	0.00 0.00 0.00 0.00 0.00 0.00 0.00 0.0	0 06 0 14 0 23 0 53 1.35 0 71 0 21 0 26 0 59 0 71 0 14 0.07	11 99 11 50 12 38 13 14 16 53 15 16 16 64 14 14 13 12 14 34 11 89 12 09	12,49 12 13 13,11 14 16 18,17 14 32 11 35 11,90 14 19 15 50 12,51 12,61	1 55 1 86 2 10 2 64 3 50 2 88 2 05 2 17 2 73 2 88 1 86 1 62	2.10 246 406 498 573 682 766 756 578 429 2.81 224	2 74 3 11 4 97 5 74 5 33 3 22 6 00 0 00 0 00 0 00 2 .15 1 70 2 33	9.65 10.43 34.38 40.91 39.09 68.90 98.11 94.34 53.35 24.74 16.71 10.92	20.85 21.80 50.30 54.21 32.09 5.90 0.00 0.00 0.00 0.00 0.00 0.00 0	2 37 2 70 4 27 5 20 5 25 7 01 8 23 7 71 5 91 4.89 3 33 2 45	0.60 0.69 1.09 1.33 1.34 1.79 2.10 1.97 1.51 1.25 0.85 0.62	11.88 11.44 12.02 12.83 16.83 12.53 9.25 9.94 12.68 14.25 11.66 11.99	0.02 0.02 0.02 0.02 0.02 0.02 0.02 0.02
TOTALS	50 15	0.00	5 00	151 90	162 43	27 83	56.49	31 29	501 53	197 66	59 32	15 13	147.30	

(1) AVERAGE PRECIPITATION - Average procipitation taken from the Texas Water Development Board, Erath County, Quad #309, Retrieved December 4, 2024

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

(3) INFLOW - RCS #3 receives inflows (actual withdrawal) from RCS #2 found in Table 2.3C column 10

(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 (RRIGATED AREA - Effective monthly rainfall on the irrigated area calculated using SCS Curve Number Method adjusted from 1 to 30-day Curve Number (Irr CN-58) (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Renoff)

(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 December 4, 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 include LMU #5

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 DA WATER IRRIGATION ENVIRO-AC	#1 DIGESTE BAUANCE M NAND EVAP Table 2.3E G ENGINEER	R BYPASS IODEL ORATION ING, INC.						
NAME: LOCATION: DATE ⁽	Grand Canyon Da Erath County February-25	HYDROLOGIC Pen Area (acres) Adjecent Area (a Paved/Roof Area Tetal RCS/SB St	CHARACTERIS (; icres); 1 (acres); utface Avea (acres	HARACTERISTICS 5.12 res): 446 acres): 795				IRRIGATION C 25-Year, 10-Day Process Generat Studge Accumul Minimum Treat	ELL VOLUME SU Rainfall Volume (ed Wastewater Vol ation Volume (20-f nsor Volume (20-f	JMMARY DAT (ac-fi): uone (ac-fi): ft):).	A	27 80 5 52 3 23		
			2 1305051	210 210 Coastal Winter Wheat 4 97			Total Required Capacity (zc-fr):				54 96			
1	-	1	HYDRAULIC	CROP DEMAND C.	ALCULATION	ONS RCS STORAGE SUMMAR'								
MONTH	(1) (inches)	(2) (inches)	(2) (inches)	(3) (ac-ft)	(4) (ac-ft)	(5) (inches)	(6) (inches)	(6) (înches)	(7) (ac-ft)	(7) (ac-ft)	(\$) (inches)	(9) (ac-ft)	(10) (ac-fr)	(11) (ac-ft)
JAN FEB MAR APR MAY	1 55 1 89 2 16 2.88 4 3 1	0 23 0 39 0 54 0 99 2 06	0 05 0 [4 0.23 0 53 1 35	5 71 5 16 5.71 5.52 5 71	8 34 8 44 9.52 10 81 14 08	1 55 1 86 2,10 2 64 3 50	2,10 2,46 4,06 4,98 5,73	2 74 3 [] 4 97 5 74 5 33	9 65 10 43 34.38 40 91 39 09	20 85 21 80 50 30 54 21 37 09	2.37 2.76 4.27 5.20 5.75	0 98 1 12 1 77 2 15 7 15	start value> 7 36 7 32 7 76 8 66 1 90	21 64 21 64 21 64 21 64 21 64 21 64
JUL AUG SEP OCT NOV	3 24 2 11 2 25 3 01 3 23 1 83	1 25 0 51 0 59 1 08 1 24 0 39	0 71 0 21 0 25 0 59 0 71 0 14	5,52 5,71 5,71 5,52 5,71 5,52	11.57 9.43 9.70 11.09 11.73 8.79	2 88 2.05 2 17 2.73 2 88 1 86	6 82 7.66 7 56 5 78 4 29 2.81	3 22 0 00 0 00 0 00 2 15 1 70	58 90 98 11 94 34 53 35 24 74 16 71	5 90 0.00 0.00 0.00 0.00 0.00 0.00	7 DI 8_23 7 7I 5.91 4 89 3 33	2,90 3,41 3,19 2,43 2,03 1,38	3.67 601 651 864 971 741	21.64 21.64 21.64 21.64 21.64 21.64 21.64
TOTALS	30,13	0 26 9 54	0 07 5.00	5,71 67.21	8,47	27 83	2.24 56.49	2 33	10.92	12,50 197,66	2 45	24 58	7 46 97 40	21 64

(1) AVERAGE PRECIPITATION - Average protipitation taken from the Texas Water Development Board, Erath County, Quad #509, Retrieved December 4, 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-67) (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff)

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

(4) TOTAL INFLOW - Total Inflow is celculated 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 39-day Curve Number (Irr. CN-58) (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Rumoff)

(6) CONSUMPTIVE USE values from Borrolli, et al. 1998 Mean Crop Cunsumptive 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 avaporation taken from the Texas Water Development Board. Erath County, Quad #599, Retrieved December 4, 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 imigation 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) Imigated acres melude UMU #5

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						PHASE 2 DA WATER IRRIGATIO ENVIRO-A	#2 DIGESTE BALANCE M N AND EVAP Table 2.3F G ENGINEER	R BYPASS IODEL ORATION ING, INC.						
NAME: LOCATION [®] DATE:	Grand Canyon Daity Erath County February-25			HYDROLOGIC Pen Area (acres) Adjacent Aroa (a Paved/Roof Area RCS Surface Are Total Imigated A Cropping scheme Etfective Evapor	DICS	0 GQ 2 50 6 IS 3 66 210 Coastal 3.05	210 Winter Wheat	IRRIGATION CELL VOLUME SUMMARY DATA 25-Year, 13-Day Rainfall Volume (ac-fi): Process Generated Wastewater Volume (ac-fi): Sludge Accumulation Volume (ac-fi): Minimum Treatment Volume (ac-fi): Additional Volume (ac-fi): Total Required Capacity (ac-fi):				A	5 89 0 00 0 02 0 00 12 20 18 10	
	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-tr)	(7) (ac-fr)	(8) (inches)	(9) (ac-fi)	(10) (ac-fr)	(11) (ac-ft)
JAN FEB MAR APR MAY JUN JUL AUG SEP OCT NOV DEC	1 55 1.89 2 16 2 88 4 31 3.24 2 11 2 25 3.01 3 23 1.88 1.62	0 00 0 00 0 00 0 00 0 00 0 00 0 00 0 0	0 06 0.14 G 23 0 33 1 35 0 71 0 21 0 26 0 59 0 71 0 59 0 71 0 14 0 14 0 07	7 36 7 32 7 76 8 66 11 90 8 67 6 01 6 51 8 54 9 71 7 41 7 46	7,86 7 95 8 48 9 68 13 54 9,84 6,72 7 27 9 71 10,87 8,03 7 98	1.55 186 2.10 2.64 3.50 2.88 2.05 2.17 2.73 2.88 1.86 1.62	2 10 2 45 4 06 4 98 5 73 6 82 7 66 7 56 5 78 4 29 2 .81 2 24	2.74 3 11 4 97 5 74 3 33 3 22 0 00 6 00 6 00 6 00 2 15 2 15 2 70 2 33	9,63 10 43 34,38 40 91 39,09 68 90 98 11 94 34 53 35 24,74 16 71 10 92	20,85 21 80 50 30 54 21 32 09 5 90 0 00 0 00 0 00 0 00 0 00 0 00 12 50	2.37 2 70 4 27 5 20 5 25 7 01 8 23 7 71 5 91 4 89 3.33 2 45	0.60 0.69 1.09 1.33 1.34 1.79 2.10 1.97 1.51 1.25 0.85 0.62	726 726 739 835 1220 805 462 531 820 963 718 736	0 02 0 02 0 02 0 02 0 02 0 02 0 02 0 02
TOTALS	30.13	0.00	5.00	97 40	107 93	27 83	56.49	31 29	501 53	197 66	59 32	15 13	92 81	

(1) AVERAGE PRECIPITATION - Average precipitation taken from the Texas Water Development Board, Erath County, Quad #509, Retrieved December 4, 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-67) (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Runoff)

(3) INFLOW - RCS #3 receives inflows (actual withdrawal) from RCS #2 found in Table 2.3E column 10

(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-58) (Ref. NRCS Animal Waste Management Software Help File-Program Documentation for Rumoff)

(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, Lubbook, Texas, Stephenville Station (Tables 16 & 25)

(7) NET CROP DEMAND - Net Crop Demand = I(Consumptive Use(6) - Effective RainEuI(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 December 4, 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 autrient demand of erop)

(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 include LMU #5

NOTE: Calculations were performed in Microsoft Excel using theating 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



May 31, 2022

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 Grand Canyon Dairy, will 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 Grand Canyon Dairy using fiber solids as bedding and results from a compilation of sampling data from a similar system in operation for the past eight years in Indiana (see attached).

Steve Dvorak, P.E. President

3.0 FACILITY INFORMATION

3.1 Required Certifications

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

3.2 100-Year Flood Plain Evaluation

Based on the location of this facility and Figure 1.3, the production area and land application area are located within a 100-year flood plain. RCS embankments within 100-year flood plain areas are built above the 100-year flood plain elevation to protect the RCS from inundation.





Grand Canyon 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 at the cross-over pipe is calculated as:

RCS #1 Capacity: RCS #1 Surface Area: 4.04 ac-ft 0.91 surface acres @ Cross-over pipe to RCS #2



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

(Supporting Documentation Attached)



J.B. Grand Canyon Dairy, L.P. RCS 7 - Capacity Certification Erath County

An as-built capacity survey was performed in November 2006 on the RCSs at J.B. Grand Canyon Dairy, L.P. The resulting available capacity of RCS 7 is <u>25.95 acre-feet</u>. Sludge volume was negligible at the time of the survey.

Respectfully Submitted,



Anissa Purswell, P.E. Enviro-Ag Engineering, Inc.

Attachments: RCS Capacity Survey and Cross-Section Stage-storage Curve

3404 Airway Blvd. + Amarillo, Texas + 79118 + 806/353-6123 + FAX: 806/353-4132 + www.enviroag.com



Grand Canyon Dairy Erath County, Texas RCS #2 Capacity Certification

The survey capacity performed on March 4, 2010 by Enviro-Ag Engineering, Inc. for retention control structure (RCS) #2 at the spillway is calculated as:

RCS #2 Capacity: RCS #2 Surface Area: 64.87 ac-ft 9.85 surface acres @ Spillway



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

(Supporting Documentation Attached)



Grand Canyon Dairy Erath County, Texas RCS #2 Liner Certification

Seven 3-inch Shelby tube core samples were collected from the disturbed areas of RCS #2 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 #2 East Bottom (Lab #1560)	$3.2 \times 10^{-8} \text{ cm/sec}$
٠	RCS #2 West Bottom (Lab #1561)	$1.2 \ge 10^{-8} \text{ cm/sec}$
•	RCS #2 (#1) (Lab #1581)	3.8 x 10 ⁻⁹ cm/sec
	RCS #2 (#2) (Lab #1582)	3.5×10^{-9} cm/sec
٠	RCS #2 (#3) (Lab #1583)	2.7×10^{-8} cm/sec
٠	RCS #2 (#4) (Lah #1584)	$1.1 \ge 10^{-8}$ cm/sec
	RCS #2 (#5) (Lab #1585)	$1.9 \ge 10^{-8} \text{ cm/sec}$

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 #2 is determined to be constructed in accordance with TCEQ requirements for soil liners

I certify that RCS #2 at Grand Canyon 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:

08/27/10

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

(Supporting Documentation Attached)
CALCULATION OF SPECIFIC DISCHARGE

SITE: LOCATION: STRUCTURE: Grand Canyon Dairy Erath County, TX RCS #2

ENGINEER: NHM DATE: Mar 2010

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

	Hydraulic Conductivity Results of Core Samples							
Laboratory Sample I.D.	1560	1561	1581	1582	1583	1584	1585	
1. Water Depth, feet	12	12	12	12	12	12	12	
2. Liner Thickness, inches	18.0	18.0	18.0	18.0	18.0	18.0	18.0	
3. Hydraulic Conductivity, cm/sec	3.20E-08	1.20E-08	3.80E-09	3.50E-09	2.70E-08	1.10E-08	1.90E-08	
4. Calculated specific discharge, v'								
Seepage Rate, inches/day	0.0098	0.0037	0.0012	0.0011	0.0083	0.0034	0.0058	
Maximum Seepage Rate, inches/day	0.0374	0.0374	0.0374	0.0374	0.0374	0.0374	0.0374	

NOTES:

- (1) Water depth of the pond in feet.
- (2) Soil liner thickness in inches.
- (3) Hydaulic conductivity of the core sample(s) as determined by flexible wall permeameter in cm/sec (Ref: ASTM D 5084).

The following equation is used:

 $v' \cong k \; (H \rightharpoonup d) \; / \; d$

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

d = Measure Liner Thickness at core sample location, feet

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

H = Maximum Water Depth, feet

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



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

TRIAXIAL PERMEABILITY CHAIN of CUSTODY	STRUCTURE	PERM REPORT I.D.	LAB LOG	
	2154 3 RCS-4 3	ETIST WITTON UEST BETTIM	1560 1561	
I obrit N obrit		· ·		
			•	
Facility Name: Grand Corryon Dairy Project Engineer: Norm Sampled by: Core	302 Morgan Mill Road Bldg C Stephenville, TX 76401			
Date to Lab: 1/29/10 Received: 7200 Bally		254) 965-8000		





TRIAXIAL PERMEABILITY CHAIN of CUSTODY	STRUCTURE	PERM REPORT I.D.	LAB
L 7	RUSHZ-1		1581
	1215=3-2	1	1582
and the second	RC5-43-3		1583
Tout These	RC5=3-9		1584
	RCS=3-5		1585
2-00 3 17/11	rkcs#2		1586
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(E)			
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cility Name: Arand, Caroo			
oject Engineer: NOTN			
la 1	302 M	organ Mill Road	
mpled by: // //			
7/19/10	Stephei	TVIIIE, 1X 76401	
are sampled: CITITO		4/ 303-3300	
Persinder Mill Bollin	rax. (
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As per the minor amendment the following table shows the new designations for the RCS's.

Old RCS	New RCS
RCS#1	SB#1
RCS#2	RCS#1
RCS#3	DCC#2
RCS#4	RC3#2
RCS#5	SB#2
RCS#6	SB#3
RCS#7	RCS#3

Grand Canyon Dairy

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



July 3, 1989

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

Attn: Tom Haberle Water Quality Division

Re: Grand Canyon Dairy Farm Dublin, Texas

Gentlemen:

Southwestern Laboratories has completed sampling and testing of the soils in the wastewater retention ponds No. 1 through 5 at the Grand Canyon Dairy Farm in Dublin, Texas. 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 B. Akeman, P.E. Materials Engineer

Roland S. Jary P.F. Vice President

ns

Attachment C.4.a

RAND CANYON DAIRY

RCS HYDROLOGIC CONNECTION

Submitted by: Grand Canyon Dairy Farm

Signed by:

Date:

HOUSTON & DALLAS & AUSTIN & BEAUMONT & CONROE & GALVESTON COUNTY & RIO GRANDE VALLEY & ALEXANDÁIA SAN ANTONIO & FORT WORTH & LEESVILLE & MIDLAND & MONROE & SHREVEPORT & TEXARKANA & SHERMAN 1

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SOUTHWESTERN LABORATORES

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Grand Canyon Dairy, June 14, 1989

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	Pond #1	Pond #1	Pond #2	Pond #2	Ménémi
Test Location	No. 1	No. 2	No. 1	No. 2	Requir
Soil Description		1			
Color	Dk. Red	Dk. Red	Yellow & Brown	Yellow, Blue & P	
Texture Unified Classification	Clay CL	Clay CL	Clay CL	Clay CL	
Sample Depth, Inches	12+	12+	12+	12+	12
Atterberg Limits	*				
Liquid Limit, (%) Plastic Limit, (%)	46. 17	37 13	38 14	38 14	30
Plasticity Index	29	24	24	24	15
Passing No. 200 Sieve, (%)	55.7	71.7	59.8	55.2	30

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Attachment C.4.c GRAND CANYON DAIRY RCS HYDROLOGIC CONNECTION

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SOUTH WESTERN LABORATORIES

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Grand Canyon Dairy, June 14, 1989

			Pond #3	Pond #3	Pond #4	Pond #4	Minimu
	Test Location		NO. 1	No. 2	No. 1	No. 2	Requir
	Soil Description						
	Color		Dk.& Lt. Brown	Dk. Brn. & Yellow	Brown	Red & Yellow	
	Texture		Clay	Clay	Clay	Clay	
	Unified Classification		SC	CL -	CL ¯	CL	
	Sample Depth, Inches		12+	12+	12+	12+	12
	Atterberg Limits						
•	Liquid Limit. (%)	:	43	44	42	39	30
	Plastic Limit. (%)		15	16	15	13	
	Plasticity Index		28	28	27	26	15
	Passing No. 200 Sieve, (%)		47.9	57.3	59.0	62.7	30

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Attachment C.4.d GRAND CANYON DAIRY RCS HYDROLOGIC CONNECTION

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SOUTHWESTERN LABORATORIES

Grand Canyon Dairy, June 14, 1989

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As per the minor amendment the following table shows the new designations for the RCS's.

Old RCS	New RCS
RCS#1	SB#1
RCS#2	RCS#1
RCS#3	DCC#2
RCS#4	RC3#2
RCS#5	SB#2
RCS#6	SB#3
RCS#7	RCS#3

Grand Canyon Dairy

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July 3, 1989

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

Attn: Tom Haberle Water Quality Division

Re: Grand Canyon Dairy Farm Dublin, Texas

Gentlemen:

Southwestern Laboratories has completed sampling and testing of the soils in the wastewater retention ponds No. 1 through 5 at the Grand Canyon Dairy Farm in Dublin, Texas. 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, P.E. Materials Engineer

Roland S. Jary

Vice President

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/ hment C.4.a

JUAND CANYON DAIRY.

RCS HYDROLOGIC CONNECTION.

Submitted by: Grand Canyon Dairy Farm

Signed by:

Date:

HOUSTON & DALLAS & AUSTIN & DEALMONT & CONROL & GALVESTON COUNTY & RIO GRANGE VALLEY & ALEXANDÁIA SAN ANTONIO & FORT WORTH & LEESVILLE & MIDLAND & MONROL & SHREVEPORT & TEXARKANA & SHERMAN



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Grand Canyon Dairy, June 14, 1989

		Pond #3	Pond #3	Pond #4	Pond #4	v t _ t
Test Location		No. 1	No. 2	No. 1	No. 2	Requir
Soil Description						
Color		Dk.& Lt. Brown	Dk. Brn. & Yellow	Brown	Red & Yellow	
Texture		Clay	Clay	Clay	Clav	
Unified Classification		sc	CL	CL	CL	
Sample Depth, Inches		12+	12+	12+	12+	12
Atterberg Limits						
Liquid Limit, (%)	;	43	44	42	39	30
Plastic Limit, (%)		15	16	15	13	
Plasticity Index		28	28	27	26	15
Passing No. 200 Sieve, (%)		47.9	57.3	59.0	62.7	30

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As per the minor amendment the following table shows the new designations for the RCS's.

Old RCS	New RCS
RCS#1	SB#1
RCS#2	RCS#1
RCS#3	DCC#2
RCS#4	NC3#2
RCS#5	SB#2
RCS#6	SB#3
RCS#7	RCS#3

Grand Canyon Dairy

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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 8, 1989

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

Attn: Tom Haberle Water Quality Division

> Re: Grand Canyon Dairy Farm Dublin, Texas

Gentlemen:

Southwestern Laboratories has completed sampling and testing of the soils exposed in wastewater retention pond No. 6 at the Grand Canyon Dairy Farm in Dublin, Texas. 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

David R. Friels, P.E.

Roland S. Jary, P.E. Vice President

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Submitted by:

Date:

Signed by:

Grand Capyon Dairy Farm ana

HOUSTON • DALLAS • AUSTIN • BEAUMONT • CONROE • GALVESTON COUNTY • DID GRANDE VALLEY • ALEXANDRIA SAN ANTONIO • FORT WORTH • LEESVILLE • MIQLAND • MONROE • SHREVEPORT • TEXARKANA • SHREMAN

Attachment C.4.e GRAND CANYON DAIRY RCS HYDROLOGIC CONNECTION 1

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SOUTHWESTEIN LABORATORIES

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Grand Canvon Dairy, Pond No. 6					
Test Location	No. 1	No. 2	No. 3	Mi No.4 Re	nimus aquire
Soil Description					
Color	Lt. Brn.	Brown	Tan/Lt. Brown	Brown	
Texture Unified Classification	Sandy Clay CL	Sandy Clay CL	Sandy Clay CL	Sandy Clay CL	
Sample Depth, Inches	12+	12+	12+	12+	12
Atterberg Limits					
Liquid Limit, (%) Plastic Limit, (%)	44 15	40 14	41 14	38 14	30
Plasticity Index	29	26	27	24	15
Passing No. 200 Sieve, (%)	. 50.0	54.8	52.9	54-2	30

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Materials, environmental and geotechnical engineering, nondestructive, metallurgical and analytical services 2200 Gravel Dr. • P.O. Box 1378 • Fort Worth, Texas 76101-1379 • 817/284-7755

July 3, 1989

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

Attn: Tom Haberle Water Quality Division

Re: Grand Canyon Dairy Farm Dublin, Texas

Gentlemen:

Southwestern Laboratories has completed sampling and testing of the soils in the wastewater retention ponds No. 1 through 5 at the Grand Canyon Dairy Farm in Dublin, Texas. 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, P.E. Materials Engineer

Roland S. Jary, P.F. Vice President

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`ttachment C.4.a

JRAND CANYON DAIRY

RCS HYDROLOGIC CONNECTION

Submitted by: Grand Canyon Dairy Farm

Signed by:

Date:

HOUSTON * DALLAS * AUSTIN * BEAUMONT * CONROE * GALVESTON COUNTY * RIO GRANDE VALLEY * ALEXANDRIA SAN ANTONIO * FORT WORTH * LEESVILLE * MIDLAND * MONROE * SHREVEPORT * TEXARKANA * SHERMAN Attachment C.4.c GRAND CANYON DAIRY RCS HYDROLOGIC CONNECTION

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Grand Canyon Dairy, June 14, 1989

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	Pond #3	Pond #3	Pond #4	Pond #4	Minimi
Test Location	No. 1	No. 2	No. 1	No. 2	Requir
Soil Description					
Color	DX.& Lt. Brown	Dk. Brn. & Vellow	Brown	Red & Yellow	
Texture Unified Classification	Clay SC	Clay CL	Clay CL	Clay CL	
Sample Depth, Inches	12+	12+	12+	12+	12
Atterberg Limits					
Liquid Limit, (%) Plastic Limit, (%) Plasticity Index	43 15 28	44 16 28	42 15 27	39 13 26	30 15
Passing No. 200 Sieve, (%)	47.9	57.3	59.0	62.7	30

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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. Attached are two NUP/NMP for crop year 2025, one for Phase 1 and one for Phase 2.

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. Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC 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

Executive Summary Grand Canyon Dairy Phase I WQ0002950000

LMU Summary:

LMUs 1, 3, 6, 7, 10, 11, 13, and 14 are cropped in Corn and Wheat. LMU's 1A, 2, 2A, 3A, 4, 5, 8, 9, 12 and 12A are established in coastal Bermudagrass and Winter Wheat.

Nutrient Summary:

L NALLH	Man M	M D205	Discussion	DI LD	
LIVIO#	IVIAX IN	Max P205	Planned N	Planned P	
	Lb/ac	Lb/ac	Lb/ac	Lb/ac	
5	Application	Application	Application	Application	
	Rates	Rates	Rates	Rates	
1	223	277	33	42	
1A	387	308	387	308	
2	329	410	49	61	
2A	387	308	387	308	
3	106	132	16	20	
3A	83	104	13	16	
4	387	308	387	308	
5	247	307	40	49	
6	340	270	340	270	
7	340	270	340	270	
8	400	318	400	318	
9	400	318	400	318	
10	340	270	340	270	
11	340	270	340	270	
12	131	104	131	104	
12A	196	156	196	156	
13	340	270	340	270	
14	340	270	340	270	

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

All 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, recordkceping, and land application.

Grand Canyon Dairy Phase I

TCEQ Permit Number: WQ0002950000

Owner Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC 965 Waddington Road Ferndale, CA 95536 707-725-5005

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

Prepared By:

(Signature)

Stephen Colby Certified Nutrient Management Specialist Certificate Number = TX2025004 Expiration Date = December 31, 2025 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

5/8/25 9:04 AM

EXECUTIVE SUMMARY:

Permit #: WQ0002950000

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
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
be confined with the average weight of
hours per day forDairy Lagoon
1400. Approximately
pounds. The animals will be confined
24

TABLES 1, 2 and 2a

Permit #:

WQ0002950000

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

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

CROP REMOVAL RATES:

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

SOLIDS APPLICATION:

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

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

SOLIDS APPLICATION: (cont)

Permit #:

WQ0002950000

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.

EFFLUENT APPLICATION: (cont)

Permit #:

WQ0002950000

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 erop 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 shown in Table 2 of the attached "Waste Utilization, Determining Effluent Application Rates".

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 most restrictive layer in the upper 24 inches are given in Table 12.

EFFLUENT APPLICATION: (cont)

Permit #:

WQ0002950000

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.

MORTALITY MANAGEMENT: (cont)

Permit #:

WQ0002950000

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, <u>must</u> 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.

- I. 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 #:

WQ0002950000

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 cFOTG 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 **Mchlich III with inductively coupled plasma (ICP)**. The area will be tested and analyzed at least annually to monitor P build up.

RECORD KEEPING:

Permit #:

WQ0002950000

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
-		
· · · · · · · · · · · · · · · · · · ·		
	-	
maining		May be continued as additional -to-to-
4 HOLDINE -		- Inviav de communed on additional speers

Page 8 - Printed on:

Plan is based on: 590 Organic Nutrient Management F

OPERATION AND MAINTENANCE:

Permit #:

WQ0002950000

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:	Stephen Colby	Date:	5/8/2025	
Plan Approved by:	Jan	Date:	5/8/25	
Producer Signature:	Discussed with Producer	Date:	5/8/25	

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.

Page 9 - Printed on:

5/8/25 9:04 AM

Plan is based on: 590 Organic Nutrient Management Pl

Ave Numbe		te una Sondo (Zuantities FT0	aucea	Permit #:	WQ00	002950000	
Avg. Number of Animals				Type of Waste				
2,500				Dairy Lagoon				
					Dairy Solids			
Contact the loc otal number o	cal Soil and W of animals chan	ater Conservati ige by more tha Es	on District or U n 10% so your timated Acre Ii	JSDA Natu plan can be tches of Eff	ral Resources Conse e revised. Juent to be Available	rvation Scrv e Annually*	vice office if 1,693	the
		Estimated	Tons Solids to	be Land A	pplied Annually (on	or off site)*	18,323.3	
						*From er	igincering desig	n.
Estimated Nu Effluent	itrient Availal	bilty			Estimated N Solids	lutrient Av:	ailabilty	
	pounds/vr	Pounds / 1000 gal	Pounds / Acre Inch		South	pounds / vr	pounds /	
N	14,118	0.31	8.3	**	Ν	347,188	18.9	*
P2O5	17,570	0.38	10.4		P2O5	275,831	15.1	
K20	161,124	3.51	95.2		K2O	519,030	28.3	
** Effluent Values Based on Analysis				** Solids Va	** Solids Values Based on Analysis			
		June 14, 2024			dated:	June 1	4, 2024	

Default values were used on all fields for plant removal of nutrients and yield levels.
TABLE 2. A Nutrient Management Plan (NMP) is required where Soil Test P Level ¹/₂ is:

· less than 200 ppm statewide or

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

• or < 350 ppm in arid areas 2/ with a named stream > one mile.

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.</p>
- 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.
- Page 11 Printed on: 5/8/25 9:04 AM

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

Pl Index by Field

Printed on: 5/8/25 9:06 AM

This plan is based on: lutrient Management Plan V 5.0

Permit #:

Location:

Date: 5/8/2025

Erath

WQ0002950000

Client Name: Grand Canyon Dairy Planner: Stephen Colby

			_	r	·						-	Rainfall:	>25.0 inches	
LMU or Fields	Сгор	Slope	Runoff Curve	Soil Test P Level	Inorganic P ₂ O ₅ Appl Rate	Organic P ₂ O ₅ Appl Rate	Inorganic Method & Timing	Organic Method & Timing	Proximity of Appl to Named Stream	Runoff Class	Soil Erosíon	Total Index Points	P Runoff Potential	Soil Test Date:
1	Silage - Corn21-25T;SG GreenChop-6-7T	4.0%	85	8	0	6	0	0.5	5	4	1.5	25	High	10/24/24
1A	Coastal GC (30%DM) 9-11T; SG GC 6-7T	4.0%	85	8	0	6	0	4	5	4	1.5	28.5	High	10/24/24
2	Coastal GC (30%DM) 9-11T; SG GC 6-7T	3.7%	85	8	0	6	0	0.5	1.25	4	0	19.75	Medium	10/24/24
2A	Coastal GC (30%DM) 9-11T; SG GC 6-7T	3.7%	85	8	0	6	0	4	1.25	4	0	23.25	High	10/24/24
3	Silage - Corn16-20T;SG GreenChop-6-7T	3.7%	89	8	0	6	0	0.5	1.25	4	1.5	21.25	Medium	10/24/24
3A	Coastal GC (30%DM) 9-11T; SG GC 6-7T	3.7%	89	8	0	6	0	0.5	0	4	0	18.5	Medium	10/24/24
4	Coastal GC (30%DM) 9-11T; SG GC 6-7⊤	3.3%	89	8	0	6	0	4	5	4	0	27	High	10/24/24
5	Coastal GC (30%DM) 9-11T; SG GC 6-7⊤	3.1%	89	8	0	6	0	0.5	5	4	0	23.5	High	10/24/24
6	Silage - Corn16-20T;SG GreenChop-6-7T	4.1%	89	8	0	6	0	4	0	4	1.5	23.5	High	10/24/24
7	Silage - Corn16-20T;SG GreenChop-6-7T	3.3%	89	8	0	6	0	4	1.25	4	1.5	24.75	High	10/24/24
8	Coastal GC (30%DM) 9-11T; SG GC 6-7T	3.5%	89	8	0	6	0	4	0	4	0	22	Medium	10/24/24
9	Coastal GC (30%DM) 9-11T; SG GC 6-7T	4.0%	89	8	0	6	0	4	0	4	0	22	Medium	10/24/24
10	Silage - Corn16-20T;SG GreenChop-6-7T	4.0%	89	8	0	6	0	4	0	4	1.5	23.5	High	10/24/24
11	Silage - Corn16-20T;SG GreenChop-6-7T	2.9%	89	8	0	6	0	4	0	4	1.5	23.5	High	10/28/24
12	Coastal GC (30%DM) 9-11T; SG GC 6-7T	2.9%	85	8	0	6	0	4	0	4	0	22	Medium	10/28/24
12A	Coastal GC (30%DM) 9-11T; SG GC 6-7T	2.9%	85	8	0	6	0	4	0	4	0	22	Medium	10/28/24
13	Silage - Corn16-20T;SG GreenChop-6-7T	2.5%	85	8	0	6	0	4	0	4	1.5	23.5	High	10/28/24
14	Silage - Corn16-20T;SG GreenChop-6-7T	3.1%	85	8	0	6	0	4	0	4	1.5	23.5	High	10/28/24

Table 3 - Crop Removal Rates (For Information Only)

WQ0002950000

Table 3 -	Crop R	temoval Rates (For Information Only)				Permit #:	WQ	0(
LMU or Field No.	Acres	Crop and P Index Level	TCEQ Plan Type	Actual Crop Analysis or Default	Total Est, N Removal Ibs/Ac/Yr	Total Est. P ₂ O ₅ Removal lbs/Ac/Yr	Total Est, K ₂ O Removal Ibs/Ac/Yr	
1	62.0	Silage - Corn21-25T;SG GreenChop-6-7T H	NMP	Default	420	154	257	ł
1A	41.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	NMP	Default	330	104	190	L
2	62.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	NMP	Default	330	104	190	
2A	21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	NMP	Default	330	104	190	
3	56.0	Silage - Corn16-20T;SG GreenChop-6-7T M	NUP	Default	341	132	214	
ЗA	21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	NUP	Default	330	104	190	
4	60.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	NMP	Default	330	104	190	
5	210.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	NMP	Default	330	104	190	
6	62.0	Silage - Corn16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214	
7	30.0	Silage - Corn16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214	
8	87.0	Coastal GC (30%DM) 9-11T: SG GC 6-7T M	NMP	Default	330	104	190	
9	20.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	NMP	Default	330	104	190	
10	50.0	Silage - Corn16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214	
11	56.0	Silage - Com16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214	0
12	66.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	NUP	Default	330	104	190	
12A	30.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	NUP	Default	330	104	190	
13	53.0	Silage - Corn16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214	
14	47.0	Silage - Corn16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214	

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

Table 4 - Maximum Solids Application per Field

Permit #:

Est. Solids				Current	Max	ennial	Maximum	Maximum Allowable
Annually	LMU or Field			Soil Test	Annual	I/Bie	Solids	Application
(wet tons)	No	Acres	Crop Management and PL supoff potential	PLevel	P2O5	nnua	Allowable	Per field
18.323	1	Ticles	Crop wanagement and i i funori potential		los/acre	<	Tons/Acre	(Tons)
	14	41.0	Coastal GC (30%DM) 9-LIT: SG GC 6-7T H	104	200		20.4	020
	2	11.0		174	508	A	20,4	020
	24	21.0	Coastal GC (30%DM) 9 11T: SC CC 6 7T H	140	200		20.4	400
	3	21.0		140	300	A	20.4	429
	3.4							
	4	60.0	Coastal GC (30%DM) 9, 11T: SG GC 6-7T H	57	200		20.4	1006
	5	00.0		57	500		20.4	1220
	6	62.0	Silage - Com 16-20T-SC Green Chan 6 7T H	146	270		17.0	1112
	7	30.0	Silage - Com16-20T;SG GreenChop-6-7T H	00	270	A	17.9	529
	8	87 0	Coastal GC (30%DM) 9-11T; SG GC 6 7T M	03	219		21.1	1927
	g	20.0	Coastal GC (30%DM) 9-111, SG GC 6-71 M	- 75 - 05	219		21.1	422
	10	50.0	Silage - Corn 16-20T:SC GroupChon 6 7T U	121	270	Å	21.1 17.0	422 907
	11	56.0	Silage - Com 16 20T:SC Green Chop 6 7T H	27	270	A	17.9	897
	12	66 D	Coastal GC (20%DM) 0 11T: SC GC 6 7T M	207	104	A	6.0	1004
	12	30.0	Coastal GC (30%DM) 9-111, SG GC 6-71 M	207	104	A	0.9	455
	127	53.0	Silvera Com 16 207:50 Croon Chan 6 77 1	207	130	A	10.3	310
	13	47.0	Silana Comite 201,80 GreenChop-6-71 H	19	270	A	17.9	951
	14	47.0	Shage - Contro-201, SG GreenChop-6-71 H	20	270	A	17.9	843
0.4								
_								
T-4-1 0-114-								
1 otal Solids						1		
Application					(
623				. I.				
025								
A 11 11								
Application								
Allowable								
on-site								
(1015)								
Not		4						
Adequate								
Aucquate								
Salida ta ha								
used off								
site (tops)								
7,462.2								

Table 5 - Nutrients Applied/Needs at Maximum Solids Rates Permit #: WQ0002950000 Nutrients Applied When Application is at Supplemental Nutrients Needed When Application is at Maximum Rates Maximum Rates LMU / Field # NLb/ac P2O5 Lb/ac K₂O Lb/ac N Lb/ac P2O5 Lb/ac Lime T/Ac K₂O Lb/ac 1A 2A3Λ $\mathbf{0}$ $\mathbf{0}$ 12A

Table 6 - F	Pla	nned	Solids Application Rates				Permit #:	WQ000	2950000
[M] [or Field	ble crop			Current	ual / nial	Max	% of	Planned	Planned Solids per
No.	Dou	Acres	Crop Management and PI runoff potential	P ppm	Ann	tons/ac	to apply	501105 tons/ac	fierd (fons)
1							PP-7		(4,110)
1A 2		41.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	194	۸	20.4	100	20.4	837.5
2A 3		21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	140	٨	20,4	100	20.4	429.0
34	1								
4		60.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	57	A	20.4	100	20.4	1225.6
5		(2.0	Silana Comité 2025CC CreanChan 6 7T H						
7		62.0 20.0	Silage - Com16-201;SG GreenChop-6-71 H	146	A	17.9	100	17.9	1112.0
8		97.0	Coastal GC (30%DM) 9-11T: SG GC 6 71 M	88	A	17.9	100	17.9	538.1
a a		20.0	Coastal GC (30%DM) 9-11T, SG GC 6-7T M	93	A	21,1	100	21,1	1836.6
10		50.0	Silage - Com16-20T:SG GreenChop-6-7T H	121		21.1	100	21.1	422.2
11		56.0	Silage - Corn16-20T;SG GreenChop-6-7T H	27		17,9	100	17.9	896.8
12		66.0	Coastal GC (30%DM) 9-11T: SG GC 6-7T M	207		6.0	100	60	1004,4
12A		30.0	Coastal GC (30%DM) 9-11T: SG GC 6-7T M	207		10.3	100	10.3	455.0
13		53.0	Silage - Corn16-20T;SG GreenChop-6-7T H	79		17.9	100	17.9	950.6
14		47.0	Silage - Corn16-20T;SG GreenChop-6-7T H	26	A	17.9	100	17.9	843.0
Acres	+	623.0		Will the r	lann	ed per a	cre applier	tion rates	10861.1
1832	3		Tons of wet solids produced Annually	ann aire i	use	all of th	ne Solids?	alon rates	NO
0			Tons to be used off-site at Max. rates	Tons to	be us	ed off-s	ite at plan	ned rates	7462

Plan is based on: 590 Organic Nutrient Management Pl:

Table 7 - Nutrients Applied/Needed at Planned Solids Rates

Permit #:

F	Red cells? Procee	d to adjustment page	e and fix.						
	Nutrients	Applied at Plan	ned Rates	Supplemental Nutrients Needed at Planned R					
LMU / Field #	N Lb/ac	P ₂ O ₅ Lb/ac	K ₂ O Lb/ac	N Lb/ac	P2O5 Lb/ac	K ₂ O Lb/ac	Lime T/Ac		
1									
1A	387	308	579	0	0	0	0		
2									
2A	387	308	579	0	0	0	0		
3									
3A									
4	387	308	579	0	0	0	0		
5									
6	340	270	508	135	0	0	0		
7	340	270	508	135	0	0	0		
8	400	318	598	0	0	0	0		
9	400	318	598	0	0	0	0		
10	340	270	508	145	0	0	0		
11	340	270	508	130	0	0	0		
12	131	104	195	220	0	0	0		
12A	196	156	293	155	0	0	0		
13	340	270	508	150	0	0	0		
14	340	270	508	150	0	0	0		
						l,			
				A 18					
4									

Table 8 - Maximum Effluent Application Per Field

Permit #:

	T	1	T						
							ial		Maximum
Est. Available			60	-	Current	Max	ienn	Maximum	Effluent
Effluent	[Millor		lo o		Soil Test	Annual	al/B	Effluent	Allowable
(ac inches)	Kield No	Acres	loub	Crop Management and Pl supoff notontial	P Level	P_2O_5	nu	Allowable	/ Field
1693	1	62 0	19	Silare - Corn21-25T:SC GroonChon 6 7T H	(ppm) 104	(Ibs/acre)	Ž A	(ac in/ac)	(ac in)
Source	1.4	02.0		Shage - Cont21-251,30 Greenenop-6-71 H	194	210	A	26.7	1658
Source.		(2.0							
(* [*]	2	62.0		Coastal GC (30%DM) 9-11T; SG GC 6-7T M	140	410	A	39.5	2449
	2A	[
Dairy Lagoon	3	56.0		Silage - Corn16-20T;SG GreenChop-6-7T M	224	132	Λ	12.7	711
	3A	21.0		Coastal GC (30%DM) 9-11T; SG GC 6-7T M	224	104	A	10.0	210
	4								
	5	210.0		Coastal GC (30%DM) 9-11T; SG GC 6-7T H	141	308	A	29.6	6216
	6								
	7								
	8								
· ·	9								
	10								
	12								
	12								
	13								
	14								
1. S									
Total									
Effluent									
Application									(h)
Acres									
411									
Maximum									
Effluent									
Application		1 6. I						6	
Allowable	A R								
Un-Site						1			
11744									
(1244									
Adequate						1			
Ded.									
Effluent to be									
used Off-Sile									
(ac in)									
0									

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

l'able 9 - Nu	trients Applie	ed/Needed at I	Aaximum Eff	luent Rates	Permit #:	WQ000	2950000
	Nutrients Ap	plied When Ap Maximum Rate	plication is at s	Supplement	al Nutrients Neo Maximu	eded When Ap m Rates	plication is a
LMU / Field #	N Lb/ac	P ₂ O ₅ Lb/ac	K ₂ O Lb/ac	N Lb/ac	P2O5 Lb/ac	K ₂ O Lb/ac	Lime T/Ac
1	223	277	2545	300	0	0	0
1A							
2	329	410	3760	40	0	0	0
2A							
3	106	132	1209	360	0	0	0
3A	83	104	952	285	0	0	0
4							
5	247	307	2818	125	0	0	0
6							
7							
8							
9							
10							
11							
12							
12A							
13							
14							
						(i i i i i i i i i i i i i i i i i i i	
						-	

Table	10 - P	lan	ned Effluent Application Rates		_	Perinit #;		WQ000295	50000
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 EMuent (ac in/ac)	Planned Effluent / field (Ac. In)
1	62.0		Silage - Corn21-25T;SG GreenChop-6-7T H	194	Λ	26.7	15.0	4.0	249
1A 2 2A	62.0		Coastal GC (30%DM) 9-11T; SG GC 6-7T M	140	A	39.5	15.0	5.9	368
3	56.0		Silage - Corn16-20T;SG GreenChop-6-7T M	224	A	12.7	15.0	1.9	107
3٨	21.0		Coastal GC (30%DM) 9-11T; SG GC 6-7T M	224	А	10	15.0	1.5	32
4 5 6 7 8 9 10 11 12 12A 13 14	210.0		Coastal GC (30%DM) 9-11T; SG GC 6-7T H	14]	A	29.6	16.0	4.7	995
Acres	411.0				Will t	he planned	application	on rates	1750
						use all of t	ne Effluer	117	YES

Table 11 - Nutrients Applied/Needed at the Planned Effluent Rates

	Nutrients	Applied at Plan	nned Rates	Supplemen	ntal Nutrients N	eeded at Plan	ed Rates
LMU / Field #	N Lb/ac	P2O5 Lb/ac	K ₂ O Lb/ac	N Lb/ac	P2O5 Lb/ac	K ₂ O Lb/ac	Lime T/Ac
1	33	42	382	490	0	0	0
1A							
2	49	61	564	320	0	0	0
2A							
3	16	20	182	450	0	0	0
3A	13	16	143	355	0	0	0
4						_	
5	40	49	451	330	0	0	0
6							
7							
8							
9							
10							
11							
12							
12A							
13							
14							
1							
1							

Red cells? Proceed to adjustment page and fix.

Permit #:

Table 12 - Available Water Capacity to 24 inches(or less) of predominantPermit #:soil in fields receiving effluent and Texture of the most restrictive soillayer in the upper 24 inches

1 3.455 Sandy Clay	
1A	
2 3.455 Sandy Clay	
2A	
3 3.52 Clairette Hasse	
3A 3.52 Clairette Hasse	
4	
5 1.87 Purves Dugout	
6	
7	
8	
9	
10	
ti l	
12	
12A	
13	
14	
	1

Table 13 - Non Application Areas by Field

Permit #:

	FS - 39 3-	-Filter Stri	$\mathbf{p}; \mathbf{F}\mathbf{B} = 38$	So-Field B	order, RFB	= 391-Ripari	an Forest.	Buffer; O	LEA = OI	ther Land	Exclude
MU7	FS	FB	RFB	OLEA	Total	LMU /	FS	FB	RFB	OLEA	Tot
ld #	Acres	Acres	Acres	Acres	Excluded	Field #	Acres	Acres	Acres	Acres	Exclu
1	0.0	0.0									
A	0.0	0.0									
2	0.0	0.0									
2A	0.0	0.0									
3	0.0	0.0									
BA	0.0	0.0									
4	0.0	0.0									
5	0.0	0.0									
6	0.0	0.0									
7	0.0	0.0									
8	0.0	0.0									
9	0.0	0.0									
0	0.0	0.0									
	0.0	0.0									
	0.0	0.0									
2A	0.0	0.0									
	0.0	0.0									
4	0.0	0.0									
					- 1						
- 1					1.5						
					4	2					
Appl	ication N	Aap for b	ocation of	buffers		Totals	0.0	0.0	0.0	0.0	0.0

Waste Utilization and Nutrient Management Data Entries

	General Data
Date :	5/8/2025
Farmer Name :	Grand Canyon Dairy
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 # :	WQ0002950000

All other entries on General Page appear on the Cover Page

	Animal Information
Plan Year :	2025
Are you receiving waste from another producer?	No
Number of animals :	2500
Approximate Weight :	1400
Days per year in confinement :	365
Hours per day confined :	24
ACRE FEET of effluent to be irrigated* :	141.06
Estimated annual gallons of effluent to be	
irrigated/applied annually :	45964118.88
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)* :	9125
Is this the first Year of the AFO-CAFO Operation?	
:	No

Analysis Information

	Effluent Information
Date of Analysis:	6/14/2024
Manure Source:	Dairy Lagoon
Nitrogen % From Analysis:	0.0046
Phosphorus % From Analysis:	0.002
Potassium % From Analysis:	0.035
Moisture % From Analysis:	99.8

Manure / Solids Information

Date of Analysis:	6/14/2024
Manure Source:	Dairy Solids
Nitrogen % From Analysis:	2.378
Phosphorus % From Analysis:	0.66
Potassium % From Analysis:	2.37
Moisture % From Analysis:	50.2
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 PlanPrinted on:5/8/25 9:04 AM

Field and Buffer Entries

							Permit #;	WQ0002950000
	Printed on:	5/8/25 9:0	04 AM			Pla	n is based on:	590 Organic Nutrient Management Pla
FS = 39	03-Filter Strip,	FB = 386-	Field Bord	er, RFB = .	391-Ripari	an Forest l	Buffer, OLEA	= Other Land Exclusion Areas or
	non-app	lication ar	eas (i.e. h	eadquartei	rs, freq. flo	oded areas	, wooded area	s, water bodies, etc)
	NOTE: Field	Border (F	B) is expre	ssed in AC	RES on thi	s spreadsh	eet, but as LIN	EAR FEET on the CPO.
Field	Total					Total	Actual	
No	LIVIO OF FIEld	FS	FR	DER	OLEA	Buffer	Application	
1101	62	10	CD .	Kr ŋ	ULLA	Acres	Acres 62.0	This Column Intentionally Left Blank
1A	41					0.0	41.0	
2	62					0.0	62.0	
2A	21					0.0	21.0	
3	56					0.0	56.0	
3٨	21					0.0	21.0	
4	60					0.0	60.0	
5	210					0.0	210.0	
6	62					0.0	62.0	
7	30					0.0	30.0	
8	87					0.0	87,0	
9	20		S			0.0	20.0	
10	50					0.0	50.0	
- 11	56					0.0	56.0	
12	66					0.0	66.0	
12A	30					0.0	30.0	
13	53					0.0	53.0	
14	47		_			0.0	47.0	
	1							
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	Printed on:	5/8/25 9:0	04 AM	Plan is	based on:	590 Organi	c Nutrient Management Plan V 5.0			Permit #:	N	Q00029	50000
	Soil Test Analysis		The					<u>.</u>	Plant Analysis & Yield (optional) Use Only When Crop Removal is Required				
N (ppm)	P (ppm)	K (ppm)	Lime (enter amt or leave blank)	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 Analys (Y / N)	% N	% P	%к	Yield Air Dry Production (Ibs/ac/yr)
12.765	194	568			1	62.0	Silage - Com21-25T;SG GreenChop-6-7T H	E	N				
12.765	194	568	-		1A	41.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	S	N				
14.084	140	523			2	62.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	E	Ν				
14.084	140	523			2A	21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	S	N				
16.962	224	458			3	56.0	Silage - Corn16-20T;SG GreenChop-6-7T M	E	N				
16.962	224	458			ЗA	21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	E	N				
12.765	57.2	607			4	60.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	S	N				1
14.244	141	808			5	210.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	E	N			-	
13.206	146	450			6	62.0	Silage - Com16-20T(SG GreenChop-6-7T H	S	N				
12.479	88.1	358			7	30.0	Silage - Com16-20T;SG GreenChop-6-7T H	S	N				
10.588	93.2	404			8	87.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	S	N				
20.101	94.5	369			9	20.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	S	N				
8.556	121	309		· · · · · · · · · · · · · · · · · · ·	10	50.0	Silage - Corn16-20T;SG GreenChop-6-7T H	S	N				
14.139	27.1	189	1		11	56.0	Silage - Corn16-20T;SG GreenChop-6-7T H	S	N				
24.344	207	432			12	66.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	S	N				1
24.344	207	432		1	12A	30.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	S	N				
5.278	78.5	242			13	53.0	Silage - Com16-20T;SG GreenChop-6-7T H	S	Ν			-	
4.676	25.9	251			14	47.0	Silage - Com16-20T;SG GreenChop-6-7T H	S	N				
	1												
										-			
	-												
									-				
											-		
									-			-	
						2			C				

Solids Application Rate Entries

183	323	"Wet tons" of solids produced Annually		W	ill the plan	ned rates us	se all of th
					Tons to be	used off-s	ite at plan
LMU or Field No.	Acres	Crop Management and PI runoff potential	Current Soil Test P ppm	Crop P ₂ O ₅ Req.	Annual or Biennial Application Cycle	Maximum Solids Allowable Tons/Ac	Enter % of Maximum Planned to Apply
1 1A	41.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	194	205	Алпиа	20.4	100.0
2 2A 3	21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	140	205	Annual	20.4	100.0
3A 4 5	60.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	57	205	Annual	20.4	100.0
6 7 8 9 10 11 12 12	62.0 30.0 87.0 20.0 50.0 56.0 66.0 30.0	Silage - Cora16-20T;SG GreenChop-6-7T II Silage - Cora16-20T;SG GreenChop-6-7T H Coastal GC (30%DM) 9-11T; SG GC 6-7T M Coastal GC (30%DM) 9-11T; SG GC 6-7T M Silage - Cora16-20T;SG GreenChop-6-7T H Silage - Cora16-20T;SG GreenChop-6-7T H Coastal GC (30%DM) 9-11T; SG GC 6-7T M Coastal GC (30%DM) 9-11T; SG GC 6-7T M	146 88 93 95 121 27 207 207	180 180 205 205 180 180 205 205	Annual Annual Annual Annual Annual Annual Annual Annual	17.9 17.9 21.1 21.1 17.9 17.9 6.9 10.3	100.0 100.0 100.0 100.0 100.0 100.0 100.0 100.0
14	47,0	Silage - Corn16-201;SG GreenChop-6-7T H	26	180	Annual	17.9	100.0
							l, e o

Effluent Application Rate Entries

Efflu	ent	 Set the Planned Application Rat 	es			Perinit #:		WQ0002950	000
4	9641 1 9	Gallons of Effluent to be used annually			Will the p	lanned rate	s use all of	the effluent?	Yes
	1693	Acre inches of Effluent to be used annually	1						
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 (sc in/ac)	Enter % of Maximum Planned to Apply	Planned Effluent (ac in/ac)	Planned Effluent per field (acre inches)
I	62.0	Silage - Corn21-25T;SG GreenChop-6-7T II	194	185	Annual	26,7	15.0	4.01	249
1A 2 2A	62.0	Constal GC (30%DM) 9-11T; SG GC 6-7T M	140	205	Annual	39.5	15.0	5.93	368
3	56.0	Silage - Corn16-20T;SG GreenChop-6-7T M	224	180	Annual	12.7	15.0	1.91	107
3A	21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	224	205	Annual	10.0	15.0	1.5	32
4 5 6 7 8	210.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	141	205	Annual	29.6	16.0	4,74	995
9 10									
11									
12 12A									
13									
14									
						3			

Total Effluent This Page 1750

Printed on: 5/8/25 9:04 AM

Plan is based on: 590 Organic Nutrient Management Plan

Available Water Capacity Entries

r	Printed on:	5/8/2	5 9:04	AM	-	Plan	is bas	ed on:	590 Or	ganic N	utrient	Manage	ment Pla	Pe	rmit#:	N N	VQ000:	2950000
								EX	AMPLE	ENTE	RIES							Available
	Texture of the soil layer within the upper 24	0	3	0.12	0.2	3	14	0.16	0.21	14	18	0.08	0.12	18	24	0	0	Available Water Holding Capacity
LMU or Fields receiving Effluent 1	inches of the soil profile that has the lowest permeability (Don't Abbreviate) Sandy Clay	Dep Fi La (inc	th of rst yer hes)	AW Fi La (in 0.12	C of rst yer /in) 0.16	Dep Sec La (inc 5	th of ond yer hes)	AW Sec La (in 0.12	C of ond yer /in) 0.17	Dep Th La (inc 40	th of hird yer hes)	AW Th La (in	C of ird yer /in)	Dep Fou La (inc	th of urth yer hes)	AW For La (in	C of urth yer i/in)	 the upper 24 inches of the soil profile (Inches) 3 46
					1													0.40
2	Sandy Clay	0	5	0.12	0.16	5	40	0.12	0.17	40				0				3.46
3	Clairette Hasse	0	4	0.1	0.17	4	10	0.15	0.19	10	26	0.1	0.18	26	1			3.52
за	Clairette Hasse		4	0,1	0.17	4	10	0.15	0.19	10	26	0.1	0.18	26				3.52
5	Purves Dugout	0	8	0.11	0.2	8	12	0.08	0.18	12	14	0.04	0.07	14	24	0	0	1.87
						_												

A. Sample collection

1) Samples were collected for the land management unit (LMU) identified below.

Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.

No, provide the facility information for the LMU below with the exception of the tables.

2) Reporting Year: 2024

Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 1
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	12.765	3.188
Phosphorus (extractable), ppm	194	30.0
Potassium (extractable), ppm	568	373
Sodium (extractable), ppm	31.8	116
Magnesium (extractable), ppm	363	412
Calcium (extractable), ppm	5318	6240
Electrical Conductivity/Soluble Salts, dS/m	0.239	0.294
pH, SU	7.61	7.83

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemns per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

TCEQ-20170-b CAFO Individual Permit Soil Monitoring Report (July 20, 2014; Rev 01/15/22) Page 2

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 information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: John Malli fr-s Date: 2/4/25

Telephone Number: 254/445-0404

D. How to Submit

The soil monitoring report with attached soil analyses should be included in the Annual Report that is required to be submitted by March 31 of each year. For State Only CAFOs, submit this soil monitoring report form to the TCEO, Enforcement Division (MC-224), P.O. Box 13087, Austin, Texas 78711-3087 and provide a copy to the TCEQ Regional Office.

If you have any additional questions about this form or soil sample collection and soil analyses requirements, contact:

A. Sample collection

- 1) Samples were collected for the land management unit (LMU) identified below.
- Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.
- No, provide the facility information for the LMU below with the exception of the tables.
- 2) Reporting Year: 2024 Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 2
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm	14.084	3.026
Phosphorus (extractable), ppm	140	7.94
Potassium (extractable), ppm	523	310
Sodium (extractable), ppm	31.4	228
Magnesium (extractable), ppm	404	545
Calcium (extractable), ppm	6775	11729
Electrical Conductivity/Soluble Salts, dS/m	0.147	0.125
pH, SU	7.76	7.84

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemins per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

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 information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: John Mulhi fr-3 Date: 2/4/25

Telephone Number: 254/445-0404

D. How to Submit

The soil monitoring report with attached soil analyses should be included in the Annual Report that is required to be submitted by March 31 of each year. For State Only CAFOs, submit this soil monitoring report form to the TCEQ, Enforcement Division (MC-224), P.O. Box 13087, Austin, Texas 78711-3087 and provide a copy to the TCEQ Regional Office.

If you have any additional questions about this form or soil sample collection and soil analyses requirements, contact:

A. Sample collection

1) Samples were collected for the land management unit (LMU) identified below.

Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.

— No, provide the facility information for the LMU below with the exception of the tables.

2) Reporting Year: 2024

Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 3
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (cxtractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm	16.962	4.039
Phosphorus (extractable), ppm	224	17.5
Potassium (extractable), ppm	458	158
Sodium (extractable), ppm	24.5	83.2
Magnesium (extractable), ppm	417	294
Calcium (extractable), ppm	10104	11573
Electrical Conductivity/Soluble Salts, dS/m	0.174	0.183
pH, SU	7.56	7.71

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemins per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Joh Mulli Pr-

Telephone Number: 254/445-0404

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A. Sample collection

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Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.

No, provide the facility information for the LMU below with the exception of the tables.

2) Reporting Year: 2024

Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 4
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	12.765	6.869
Phosphorus (extractable), ppm	57.2	12.0
Potassium (extractable), ppm	607	266
Sodium (extractable), ppm	31.9	132
Magnesium (extractable), ppm	462	337
Calcium (extractable), ppm	11037	14070
Electrical Conductivity/Soluble Salts, dS/m	0.239	0.46
pH, SU	7.61	7.85

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemins per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

TCEQ-20170-b CAFO Individual Permit Soil Monitoring Report (July 20, 2014; Rev 01/15/22) Page 2

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 information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member Signature: John Mulli fr-r Date: 2/4/25

Telephone Number: 254/445-0404

D. How to Submit

The soil monitoring report with attached soil analyses should be included in the Annual Report that is required to be submitted by March 31 of each year. For State Only CAFOs, submit this soil monitoring report form to the TCEQ, Enforcement Division (MC-224), P.O. Box 13087, Austin, Texas 78711-3087 and provide a copy to the TCEO Regional Office.

If you have any additional questions about this form or soil sample collection and soil analyses requirements, contact:

A. Sample collection

- 1) Samples were collected for the land management unit (LMU) identified below.
- Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.
- No, provide the facility information for the LMU below with the exception of the tables.
- 2) Reporting Year: 2024

Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 5
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm	10.5		
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	o-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	14.244	6.215
Phosphorus (extractable), ppm	141	16.0
Potassium (extractable), ppm	808	334
Sodium (extractable), ppm	24.1	107
Magnesium (extractable), ppm	543	380
Calcium (extractable), ppm	12799	12949
Electrical Conductivity/Soluble Salts, dS/m	0.23	0.158
pH, SU	7.78	7.89

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemins per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Jh Malli fr-s Date: 2/4/25

Telephone Number: 254/445-0404

D. How to Submit

The soil monitoring report with attached soil analyses should be included in the Annual Report that is required to be submitted by March 31 of each year. For State Only CAFOs, submit this soil monitoring report form to the TCEQ, Enforcement Division (MC-224), P.O. Box 13087, Austin, Texas 78711-3087 and provide a copy to the TCEQ Regional Office.

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A. Sample collection

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Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.

No, provide the facility information for the LMU below with the exception of the tables.

2) Reporting Year: 2024

Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 6
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitratc-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm	13.206	8.293
Phosphorus (extractable), ppm	146	10.8
Potassium (extractable), ppm	450	180
Sodium (extractable), ppm	31.3	97.1
Magnesium (extractable), ppm	432	263
Calcium (extractable), ppm	11873	17447
Electrical Conductivity/Soluble Salts, dS/m	0.08	0.109
pH, SU	7,64	7.77

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemins per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: John Mulhi fors Date: 2/4/25

Telephone Number: 254/445-0404

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No, provide the facility information for the LMU below with the exception of the tables.

2) Reporting Year: 2024

Sample Collection Date: 10/24/2024

B. Facility Information

- t) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 7
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	12.479	5.106
Phosphorus (extractable), ppm	88.1	15.0
Potassium (extractable), ppm	.5858	212
Sodium (extractable), ppm	14.1	13.5
Magnesium (extractable), ppm	288	249
Calcium (extractable), ppm	14241	14561
Electrical Conductivity/Soluble Salts, dS/m	0.084	0.104
pH, SU	7.49	7.64

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemins per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

TCEQ-20170-b CAFO Individual Permit Soil Monitoring Report (July 20, 2014; Rev 01/15/22) Page 2

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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Joh Mulhi fr-3 Date: 2/4/25

Telephone Number: 254/445-0404

D. How to Submit

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- No, provide the facility information for the LMU below with the exception of the tables.
- 2) Reporting Year: 2024 Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 8
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm	10.588	10.636
Phosphorus (extractable), ppm	93.2	95.5
Potassium (extractable), ppm	404	425
Sodium (extractable), ppm	13.2	12.2
Magnesium (extractable), ppm	239	224
Calcium (extractable), ppm	14697	11357
Electrical Conductivity/Soluble Salts, dS/m	0.122	0.09
pH, SU	7.53	7.54

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemins per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: John Malle for Date: 2/4/25

Telephone Number: 254/445-0404

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2) Reporting Year: 2024

Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 9
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			CARL IN
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	20.101	13.247
Phosphorus (extractable), ppm	94.5	5.69
Potassium (extractable), ppm	369	135
Sodium (extractable), ppm	14.4	20.2
Magnesium (extractable), ppm	254	171
Calcium (extractable), ppm	11662	22301
Electrical Conductivity/Soluble Salts, dS/m	0.137	0.277
pH, SU	7.44	7.75

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemins per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

TCEQ-20170-b CAFO Individual Permit Soil Monitoring Report (July 20, 2014; Rev 01/15/22) Page 2
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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Joh Mulli fr-s Date: 2/4/25

Telephone Number: 254/445-0404

D. How to Submit

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If you have any additional questions about this form or soil sample collection and soil analyses requirements, contact:

By e-mail CAFO@tceq.texas.gov or call (512) -239-4671

SOIL MONITORING REPORT FOR CAFO INDIVIDUAL PERMITS IN THE SOLE SOURCE IMPAIRMENT ZONES

A. Sample collection

- 1) Samples were collected for the land management unit (LMU) identified below.
- ✓Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.

No, provide the facility information for the LMU below with the exception of the tables.

2) Reporting Year: 2024

Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 10
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm	8.556	2.45
Phosphorus (extractable), ppm	121	12.2
Potassium (extractable), ppm	309	166
Sodium (extractable), ppm	18.4	40.6
Magnesium (extractable), ppm	369	266
Calcium (extractable), ppm	11767	14769
Electrical Conductivity/Soluble Salts, dS/m	0.296	0.328
pH, SU	7.56	7.66

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemins per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

TCEQ-20170-b CAFO Individual Permit Soil Monitoring Report (July 20, 2014; Rev 01/15/22) Page 2

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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Joh Mulh fr-3 Date: 2/4/25

Telephone Number: 254/445-0404

D. How to Submit

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If you have any additional questions about this form or soil sample collection and soil analyses requirements, contact:

By e-mail: CAFO@tceq.texas.gov or call (512) -239-4671

SOIL MONITORING REPORT FOR CAFO INDIVIDUAL PERMITS IN THE SOLE SOURCE IMPAIRMENT ZONES

A. Sample collection

- 1) Samples were collected for the land management unit (LMU) identified below.
- Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.
- No, provide the facility information for the LMU below with the exception of the tables.
- 2) Reporting Year: 2024 Sample Collection Date: 10/28/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 11
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			1
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm	14.139	7.847
Phosphorus (extractable), ppm	27.1	5.40
Potassium (extractable), ppm	189	183
Sodium (extractable), ppm	14.8	24.5
Magnesium (extractable), ppm	224	164
Calcium (extractable), ppm	12042	19363
Electrical Conductivity/Soluble Salts, dS/m	0.314	0.287
pH, SU	7.58	7.68

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemins per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

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 information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penaltics for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: John Mulli Date: 2/4/25

Telephone Number: 254/445-0404

D. How to Submit

The soil monitoring report with attached soil analyses should be included in the Annual Report that is required to be submitted by March 31 of each year. For State Only CAFOs, submit this soil monitoring report form to the TCEQ, Enforcement Division (MC-224), P.O. Box 13087, Austin, Texas 78711-3087 and provide a copy to the TCEQ Regional Office.

If you have any additional questions about this form or soil sample collection and soil analyses requirements, contact:

By e-mail: CAFO@tceq.texas.gov or call (512) -239-4671

SOIL MONITORING REPORT FOR CAFO INDIVIDUAL PERMITS IN THE SOLE SOURCE IMPAIRMENT ZONES

A. Sample collection

1) Samples were collected for the land management unit (LMU) identified below.

Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.

......No, provide the facility information for the LMU below with the exception of the tables.

2) Reporting Year: 2024 Sample Collection Date: 10/28/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 12
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm	24.344	14.792
Phosphorus (extractable), ppm	207	2.4
Potassium (extractable), ppm	432	365
Sodium (extractable), ppm	16.5	104
Magnesium (extractable), ppm	362	411
Calcium (extractable), ppm	4950	7102
Electrical Conductivity/Soluble Salts, dS/m	0.227	0.304
pH, SU	7.39	7.6

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemins per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

TCEQ-20170-b CAFO Individual Permit Soil Monitoring Report (July 20, 2014; Rev 01/15/22) Page 2

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 information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Joh Malli fr-3 Date:

Telephone Number: 254/445-0404

D. How to Submit

The soil monitoring report with attached soil analyses should be included in the Annual Report that is required to be submitted by March 31 of each year. For State Only CAFOs, submit this soil monitoring report form to the TCEQ, Enforcement Division (MC-224), P.O. Box 13087, Austin, Texas 78711-3087 and provide a copy to the TCEQ Regional Office.

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By e-mail: CAFO@tceq.texas.gov or call (512) -239-4671

SOIL MONITORING REPORT FOR CAFO INDIVIDUAL PERMITS IN THE SOLE SOURCE IMPAIRMENT ZONES

A. Sample collection

- 1) Samples were collected for the land management unit (LMU) identified below.
- Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.
- No, provide the facility information for the LMU below with the exception of the tables.
- 2) Reporting Year: 2024 Sample Collection Date: 10/28/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 13
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	o-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	5.278	4.692
Phosphorus (extractable), ppm	78.5	10.7
Potassium (extractable), ppm	242	172
Sodium (extractable), ppm	12.6	141
Magnesium (extractable), ppm	204	411
Calcium (extractable), ppm	3127	7137
Electrical Conductivity/Soluble Salts, dS/m	0.086	0.229
pH, SU	7.35	7.48

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisientins per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

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 information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Jh Mulhi Date: 2/4/25

Telephone Number: 254/445-0404

D. How to Submit

The soil monitoring report with attached soil analyses should be included in the Annual Report that is required to be submitted by March 31 of each year. For State Only CAFOs, submit this soil monitoring report form to the TCEQ, Enforcement Division (MC-224), P.O. Box 13087, Austin, Texas 78711-3087 and provide a copy to the TCEQ Regional Office.

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By e-mail: CAFO@tceq.texas.gov or call (512) -239-4671

SOIL MONITORING REPORT FOR CAFO INDIVIDUAL PERMITS IN THE SOLE SOURCE IMPAIRMENT ZONES

A. Sample collection

1) Samples were collected for the land management unit (LMU) identified below.

Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.

No, provide the facility information for the LMU below with the exception of the tables.

2) Reporting Year: 2024 Sample Collection Date: 10/28/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 14
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	4.676	3.463
Phosphorus (extractable), ppm	25.9	3.10
Potassium (extractable), ppm	251	218
Sodium (extractable), ppm	21.2	177
Magnesium (extractable), ppm	199	418
Calcium (extractable), ppm	3090	7690
Electrical Conductivity/Soluble Salts, dS/m	0.083	0.266
pH, SU	7.42	7.58

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemins per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

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 information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Yoh Mulhi for Date: 2/4/25

Telephone Number: 254/445-0404

D. How to Submit

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By e-mail: CAFO@tceq.texas.gov or call (512) -239-4671

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



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 23, 2025

CERTIFIED MAIL 7022 2410 0000 5131 8251 RETURN RECEIPT REQUESTED

Ms. Dorice Miranda Circle 7 Dairy, I.I.C and Grand Canyon Dairy, LLC Grand Canyon Dairy 2179 County Road 308 Dublin, TX 76446 Re: Annual Soil Sample Analysis Results at Grand Canyon Dairy CAFO Permit No.: WQ0002950000

Dear Ms. Miranda:

Attached are the analytical results for the soil samples that were collected at your facility on October 24 and 28, 2024. 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

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • tceq.texas.gov

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 COMMUS: ENVIRON QUALITY	Sion on Mental		Ch	ain d	of Cu	ustoc	ly l	Rec	ord	558	10 7
Location:	Frand	Coply	10 As shade	d area if th	ne facility in	nformation	must	be confid	enüal)	Permit #: 2950	>
Region:	Organizatio	n #:	PCA Code):	Pro	gram: U) Q		Sampler telephone number:	90D	
E-Mail ID:		Sample	anas	a Va	nd.	~	_		Sampler: (please print clearly)	nel	
Lab ID Number	Sample ID	Date	Time	# of G Bottles C	rab/ Matu omp. L,S,I	rix CL2 M,O,T	рH	Cond	Analyses Requested	REMAF	KS
M272	-01	10-24-24	00:51						SPP RFA	LMUI	06
14273	-02		12:00							LMUI	6-24
14274	-03		12:35							LMU2	0-6
14275	-04		12:35							Lmu2	6-24
14276	-05		13:15							Lm43	0-6
14277	-06		13:15							Lmu3	6-24
14278	-07		10:40							LMU 4	0-6
14281	-08		10 40							LMUY	6-24
14282	-09		11:00							Lmus	0-6
14283	-10		11:00		\mathcal{A}					Lmus	6-24
Relinquished	by:	Qate	Тіте	Received	by An	11-1	9.2	4	For Laboratory Use:	A	
Relinguished	by:	Date	Time	Receiver	by.				Received on ice: Y	N	deg. C
Relinguished	by:	Date	Time	Received	l by:				Preservatīves: Y	N	
Relinquished	by:	Date	Time	Received	t by:				COC Seal: Y	N	
Shipper name FRA F	x	Shipper 79	Number: IG 44	68	1376				Seals Intact: Y	- N	

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055810a-45667 Print Date: 10-Jan-25

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: Grand Canyon Client address: not provided

Standard Sample Report TCEQ COC# 055810

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.
14272	55810-01	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14273	55810-02	6-24	10/24/2024	Variessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14274	55810-03	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14275	55810-04	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14276	55810-05	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	ΤLΡ
14277	55810-06	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	πP
14278	55610-07	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	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 - SWFTL0015R1S0P

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, WL.

Soil Nitrate-N_KCI Extractable with Cd-Reduction Analyses N03-N EXTRACTION - SWFTL0014R5 SOP/N03-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 Standard Sam	: 055810a-4566 ple Report	67 Tr	Print Date: CEQ COC#	10-Jan-25 05 5810									
Laboratory ID:	TCEQ/dient	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich 11
	Sample ID:	P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg units	S conc.	S units	Na conc.	Na units
14272	55810-01	194	ppm	568	ppm	5318	ppm	363	ppm	56.7	ppm	31.8	ррт
14273	55810-02	30.0	ppm	373	ppm	6240	ppm	412	ppm	68.8	ppm	116	ppm
14274	55810-03	140	ppm	523	ppm	6775	ppm	404	ppm	65.8	ppm	31.4	ppm
14275	55810-04	7.94	ppm	310	ppm	11729	ppm	545	ppm	115	ppm	228	ppm
14276	55810-05	224	ppm	458	ppm	10104	ppm	417	ppm	94.0	ppm	24.5	ppm
14277	55810-06	17.5	ppm	158	ppm	11573	ppm	294	ppm	97.7	ppm	83.2	ppm
14278	55810-07	57.2	ppm	607	ppm	11037	ррт	462	ppm	96.5	ppm	31.9	ppm

Laboratory ID:	Mehlich III	Mehlich 111	Mehlich III	Mehlich III	Mehlich III							
	P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ppm	0.1308	ppm	0.0436	ррт	0.0250	ppm	0.0010	ppm	0.0269	ppm
Reporting Limit	1	ppm										

Labor	atory ID:	TCEQ/client	Mehlich III	Mehlich III	Mehlich III	Mehlich III
		Sample ID:	Extract Date	Extract Tech	Anal.Date	Anal. Tech
1.	4272	55810-01	1/8/2025	FMR	1/9/2025	JLP
1.	4273	55810-0Z	1/8/2025	EMR	1/9/2025	JLP
14	4274	55810-03	1/8/2025	FMR	1/9/2025	JLP
14	4275	55810-04	1/8/2025	FMR	1/9/2025	JLP
14	4276	55810-05	1/8/2025	FMR	1/9/2025	JLP
14	4277	55810-06	1/8/2025	FMR	1/9/2025	JLP
14	4278	55810-07	1/8/2025	FMR	1/9/2025	JLP

Report ID Standard Sa	: 055810a-45 imple Report	5667	Print Date TCEQ COC	e: 10-Jan-29 # 055810	5		
Laboratory ID:	TCEQ/client Sample ID:	рН	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrat e N units
14272	55810-01	7.61	NA NA	0.239	dS/M	12,765	ppm
14273	55810-02	7.83	3 NA	0.294	dS/M	3.188	ppm
14274	55810-03	7.76	6 NA	0.147	dS/M	14.084	рргп
14275	55810-04	7.84	4 NA	0.125	dS/M	3.026	ppm
14276	55810-05	7.56	6 NA	0.174	dS/M	16.962	ppm
14277	55810-06	7.71	I NA	0.183	dS/M	4.039	ppm
14278	55810-07	7.78	NA NA	0,138	dS/M	14,191	ppm

Laboratory ID:	ρH	pН	Conductivity	Conductivity	Nitrate-N	Nitrate-N
		units		units		units
Detection Limit	0.01	лэ	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	па	0.001	dS/M	1	ppm

aboratory ID:	TCEQ/client	pH/Conduct	ivity prep	pH Ana	ysis	Conduc	tivity	Nitate-N E	Extract	Nitrate-N A	nalysis
	Sample (D:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
14272	55810-01	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14273	55810-02	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14274	55810-03	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14275	55810-04	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14276	55810-05	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14277	55810-06	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14278	55810-07	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW

Report ID: 055810a-45667Print Date: 10-Jan-25Quality Control ReportTCEQ COC# 055810

Laboratory ID:		Mehlich III											
		P conc.	P units	K conc.	K units	Calcond.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
14279	iC1025	48.2	ppm	323	ppm	2503	ppm	360	ppm	40.8	ppm	48.7	ppm
14280	IC1026	46.5	ppm	309	ppm	2328	ppm	345	ppm	39.1	ppm	47.9	ppm
	Mean IC	0	ppm	0	ррт	0	ppm	0	ррт	0	ppm	0	ppm
	IC Lower	45.9	ppm	305.0	ppm	2320.0	ppm	335.0	opm	27.0	ppm	30.0	ppm
	IC Upper	53.4	ppm	365.0	ppm	2645.0	ppm	409.0	ppm	49.0	ppm	55.0	ppm
	blk221	<0.237	opm	<0.131	ppm	<0.0436	ррт	<0.0250	ppm	<0.0100	ppm	<0.513	ppm

Laboratory ID:	Mehlich III											
	P conc.	P units	К солс.	K units	Calconc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ppm	0.1308	ppm	0.0436	ppm	0.0250	ppm	0.0010	ppm	0.0269	ррт
Reporting Limit	1	ppm	1	mqq								

Laboratory ID:	Mehlich III	Mehlich III	Mehlich III	Mehlich (1)
	Extract Date	Extract Tech	Anal.Date	Anal Tech
IC1025	1/8/2025	FMR	1/9/2025	JLP
IC1026	1/8/2025	FMR	1/9/2025	JLP
blk221	1/8/2025	FMR	1/9/2025	JLP

page4 of 5

Report ID: 055810a-45667

Quality Control Report

TCEQ COC# 055810

Laboratory ID:		pН	pН	Conductity	Conducitity	Nitrate-N	Nitrate-N	Nitrate-N
			units	conc.	units	conc.	units	% recovery
14279	IC1025	5.9	na	0.254	dS/M	4.34	ppm	
14280	IC1026	5.9	na	0.255	dS/M	4.446	ppm	
	Mean IC	5,855	กอ	0.2545	dS/M	4.393	ppm	
14280spike	Spiked sample		-	-		3.9	ppm	88.1
	IC lower	5.760	na	0.241	dS/M	3.5	ppm	
	fC Upper	5.990	na	0.299	dS/M	5.5	ppm	
	blk221	-	na	0	dS/M	0.614	00m	

Laboratory ID:	pН	рН	Conducitity	Conducitity	Nitrate-N	Nitrate-N
		units	conc.	units	сопс.	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/Conduct	ivity prep	pH Ana	lysis	Conduc	tivity	Nitate-N	Extract	Nitrate-N /	Analysis
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC1025	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
IC1026	12/18/2024	DEC	12/18/2024	OEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
blk221	12/18/2024	DE¢	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055810b-45667 Print Date: 10-Jan-25

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: Grand Canyon Client address: not provided

Standard Sample Report TCEQ COC# 055810

Laboratory ID:	TCEQ/client	Sample	Sample Colt.	Coflector	TCEQ	Date	Sample	Sample opened	Sample Ground	Process
	Sample ID:	Depth (inches)	Date:	Name:	Region #	Received	Type:	Date	Date	Tech.
14281	55810-08	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14282	55810-09	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14283	55810-10	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	1 2/4/2024	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 2:1D1 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. 2:1D1 Water:Soil
 SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

 Rhoades, J.D. 1982. Soluble salts. p. 167-178. In: AL: Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, Wi.

 Soil Nitrate-N. KCI 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: AL: 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

page 1 of 5

Report ID	: 055810b-4566	7	Print Date:	10-Jan-25									
Standard Sam	ple Report	Т	CEQ COC#	055810									
Laboratory ID:	TCEQ/client	Mehlich III	Mehlich III	Mehlich III	Mehlich II	Mehlich III							
	Sample ID:	P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg units	S conc.	S units	Na conc.	Naunits
14281	55810-08	12.0	ppm	266	ppm	14070	ppm	337	ppm	120	ppm	132	ppm
14282	55810-09	141	ppm	808	ppm	12799	ppm	543	ppm	115	ppm	24.1	ppm
14283	55810-10	16.0	ррт	334	ppm	12949	ppm	380	ppm	111	ppm	107	ppm

Laboratory ID:	Mehlich III											
	P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ppm	0.1308	ppm	0.0436	ppm	0.0250	ppm	0.0010	ppm	0.0269	ppm
Reporting Limit	1	ppm										

Laboratory ID:	TCEQ/client	Mehlich III	Mehlich III	Mehlich III	Mehlich III
	Sample ID:	Extract Date	Extract Tech	Anal Date	Anal. Tech
14281	55810-08	1/8/2025	FMR	1/9/2025	JLP
14282	55810-09	1/8/2025	FMR	1/9/2025	ЧЦ
14283	55810-10	1/8/2025	FMR	1/9/2025	JLP

page 2 of 5

Report ID	: 055810b-4	5667		Print Date	: 10-Jan-2	5		
Standard Sa	mple Report			TCEQ COC#	£ 055810			
Laboratory ID:	TCEQ/client	pН		pН	Conductivity	Conductivity	Nitrate-N	Nitrate-N
	Sample ID:			units		units		units
14281	55810-08		7.85	NA	0,46	dS/M	6.869	ppm
14282	55810-09		7.78	NA	0.23	dS/M	14.244	ppm
14283	55810-10		7.89	NA	0.158	dS/M	6.215	ppm

Laboratory ID:	рН	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	па	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	па	0.001	dS/M	1	ppm

Laboratory iD:	TCEQ/dient	pH/Conduct	ivity prep	pH Analysis		Conductivity		Nitate-N	Extract	Nitrate-N Analysis	
	Sample ID:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
14281	55810-08	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14282	55810-09	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14283	55810-10	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW

Report ID: 055810b-45667	Print Date: 10-Jan-25
Quality Control Report	TCEQ COC# 055810

Laboratory ID:		Mehlich III	Mehüch III	Mehlich III	Mehlich III								
		P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
14299	IC1027	47.5	ppm	328	ррт	2459	ppm	360	ppm	40.5	ppm	107	ppm
14300	IC1028	46.5	ppm	318	ppm	2386	ppm	348	ppm	40.0	ppm	105	ppm
	Mean IC	0	ppm	0	ppm	0	ррт	0	ppm	0	ppm	0	ppm
	IC Lower	45.9	ppm	305.0	ppm	2320.0	ppm	335.0	ppm	27.0	ppm	30.0	ppm
	IC Upper	53.4	ppm	365.0	ppm	2645.0	ppm	409.0	ppm	49.0	ppm	55.0	ppm
	blk221	<0.237	ppm	<0.131	ppm	<0.0436	ppm	<0.0250	ppm	<0.0100	ppm	< 0.513	ppm

Laboratory ID:	Mehlich III	Mehlich III	Meblich III	Mehlich lit								
	P conc.	Punits	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ppm	0.1308	ppm	0.0436	ppm	0.0250	ppm	0.0010	ppm	0.0269	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ррт	1	ppm

Laboratory ID:	Mehlich III	Mehlich III	Mehlich III	Mehlich III
	Extract Date	Extract Tech	Anal.Date	Anal. Tech
IC1027	1/8/2025	FMR	1/9/2025	JLP
IC1028	1/8/2025	FMR	1/9/2025	JLP
blk221	1/8/2025	FMR	1/9/2025	JLP

page4 of 5

Report ID: 055810b-45667

Quality Control Report

TCEQ COC# 055810

Laboratory ID:		pН	ρH	Conducitity	Conducitity	Nitrate-N	Nitrate-N	Nitrate-N
			units	солс.	units	conc.	units	% recovery
14299	IC1027	5.9	па	0.257	dS/M	4.446	ppm	
14300	IC1028	5,9	na	0.256	dS/M	4.468	ppm	
	Mean IC	5.87	na	0.2565	dS/M	4.457	ppm	
14300spike	Spiked sample		-	-	-	3.9	ppm	88.1
	IC lower	5.760	na	0.241	dS/M	3.5	ppm	
	IC Upper	5.990	nə	0.299	dS/M	5.5	ppm	
	blk221	-	na	0	dS/M	0.614	ppm	

Laboratory ID:	ρH	pН	Conducitity	Conducitity	Nitrate-N	Nitrate-N
		Units	cônc.	units	conc.	units
Detection Limit	0.01	ла	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	กล	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conduct	ivity prep	pH Ana	pH Analysis		tivity	Nitate-N	Extract	Nitrate-N Analysis	
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC1027	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
IC1028	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JWL
blk221	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW

TEXAS COMMIS: ENVIRON QUALITY	SION ON IMENTAL		Ch	ain	of	Cust	tod	y F	Rec	ord		558	11 24		
Location:	frand (Carry	DA shade	d area i	f the fac	ility inform	nation	must t	be confid	lential)		Permit #:	0		
Region:	Organization	#:	PCA Code	e:		Program	n: (JQ		Sampler telepho (254)	552- 190	DD			
E-Mail ID:	11	Sampler	(signature)	- Xe	and	n	~			Sampler (pleas	a Gardi	a ar dre			
Lab ID Number	Sample Date Time # of Grab/ Matrix CL2 pH Cond Analyses R ID Comp. L,S,M,O,T						Requested	REMAR	KS						
14284	-01	01 102424 13:55 5PC RFF						RFA	LMUB	0-6					
14285	-02	10-24-24 13:55							LMUB	6-24					
1428L	-03	N 28/2	1330									LMU7	06		
14287	-04	10/28/24	1330									LM47	6-24		
14288	-05	1074 x	THIS						-			LMU8	0-6		
14289	-06	10/24/24	HELD									LMUB	6-24		
14290	-07	10-24-24	14:25									Lm49	0-6		
14291	-08	10 24-24	14:25									LM49	6-24		
14292	-09	10-28-	1410									Lmu10	D-6		
14293	-10	928/24	1410			1				-		LMUID	6-24		
Relinguished b	y:	Date	Time	Receiv	edaby	the ,	1-1	7_2	4	For Laboratory	Use:				
Relinguished b	y;	Date	Time	Receiv	ed by:					Received on ice	e: Y	N	deg. C		
Relinguished b	y:	Date	Time	Receiv	ed by:					Preservatives:	Y	N			
Relinguished b	y:	Date	Time	Receiv	ed by:	-				COC Seal:	Y	N			
Shipper name:	Ex	Shipper N 7915	umber: 44.	68		375			Pin	Seals Intact:	Y	Goldegrod-Collector Cr	iDv		

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055811a-45667 Print Date: 10-Jan-25

NO3-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOP

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: Grand Canyon Client address: not provided

Standard Sample Report TCEQ COC# 055811

Laboratory ID:	TCEQ/client	Sample	Sample Coli.	Collector	TCEQ	Date	Sample	Sample opened	Sample Ground	Process
	Sample ID:	Depth (inches)	Date:	Name:	Region #	Received	Type:	Date	Date	Tech.
14284	55811-01	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14285	55811-02	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14286	55811-03	0-6	12/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14287	55811-04	6-24	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14288	55811-05	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14289	55811-06	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14290	55811-07	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14291	55811-08	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14292	55811-09	0-6	10/28/2024	Vanessa Gardner	4	11/19/2024	sail	t1/25/2024	12/4/2024	TLP
14293	55811-10	6-24	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	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 6SC 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_KCI Extractable with Co-Reduction Analyses

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	: 055811a-456	67	Print Date:	10-Jan-25									
Standard Sam	ple Report	1	CEQ COC#	055811									
Laboratory ID:	TCEQ/dient	Mehlich 11	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III
	Sample ID:	P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg units	S conc.	S units	Na conc.	Na units
14284	55811-01	146	ppm	450	ppm	11873	ppm	432	ppm	116	ppm	31.3	ppm
14285	55811-02	10.8	ppm	180	ppm	17447	ppm	263	ppm	164	ppm	97.1	ppm
14286	55811-03	88.1	ppm	358	ppm	14241	ppm	288	ppm	122	ppm	14.1	ppm
14287	55811-04	15.0	ppm	212	ppm	14561	ppm	249	ppm	118	ppm	13.5	opm
14288	55811-05	93.2	ppm	404	ppm	14697	ppm	239	ppm	125	ppm	13.2	ррл
14289	55811-06	95.5	ppm	425	ppm	11357	ppm	224	ppm	98.0	ppm	12.2	ppm
14290	55811-07	94.5	ppm	36 9	ppm	11662	ppm	254	ppm	105	ppm	14.4	ppm
14291	55811-08	5.69	ppm	135	ppm	22301	ppm	171	ppm	181	ppm	20.2	ppm
14292	55811-09	121	ppm	309	ppm	11767	ppm	369	ppm	103	ppm	18.4	ppm
14293	55811-10	12.2	ppm	166	ppm	14769	ppm	266	ppm	140	pom	40.6	ppm

Laboratory ID:	Mehlich III	Mehlich (II										
	P conc.	P units	К солс.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ррт	0.1308	ppm	0.0436	ppm	0.0250	mqq	0.0010	ppm	0.0269	ppm
Reporting Limit	1	ppm	1	ពាថ្ម	1	ppm	1	ppm	1	ppm	1	ррт

Laboratory ID:	TCEQ/client	Mehlich III	Mehlich III	Mehlich III	Mehlich III
	Sample ID:	Extract Date	Extract Tech	Anal.Date	Anal. Tech
14284	55811-01	1/8/2025	FMR	1/9/2025	JLP
14285	55811-02	1/8/2025	FMR	1/9/2025	JLP
14286	55811-03	1/8/2025	FMR	1/9/2025	JLP
14287	55811-04	1/8/2025	FMR	1/9/2025	JLP
14288	55811-05	1/8/2025	FMR	1/9/2025	JLP
14289	55811-06	1/8/2025	FMR	1/9/2025	JLP
14290	55811-07	1/8/2025	FMR	1/9/2025	JLP
14291	55811-08	1/8/2025	FMR	1/9/2025	JLP
14292	55811-09	1/8/2025	FMR	1/9/2025	JLP
14293	55811-10	1/8/2025	FMR	1/9/2025	JLP

Report ID Standard Sa	: 055811a-45 mole Report	667	Print Date TCEO COC#	: 10-Jan-25 : 055811	5		
Laboratory ID:	TCEQ/client Sample ID:	ρĦ	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
14284	55811-01	7.6	4 NA	0.08	dS/M	13.206	ppm
14285	55811-02	7.7	7 NA	0,109	dS/M	8.293	ppm
14286	55811-03	7.4	9 NA	0.084	dS/M	12.479	ppm
14287	55811-04	7.6	4 NA	0.104	dS/M	5.106	ppm
14288	55811-05	7.5	3 NA	0.122	dS/M	10.588	ppm
14289	55811-06	7.5	4 NA	0.09	dS/M	10.636	ppm
14290	55811-07	7.4	4 NA	0.137	dS/M	20.101	ppm
14291	55811-08	7.7	5 NA	0.277	dS/M	13.247	ppm
14292	55811-09	7.5	6 NA	0.296	dS/M	8.556	ppm
14293	55811-10	7.6	6 NA	0.328	dS/M	2.45	ppm

Laboratory ID:	pН	pН	Conductivity	Conductivity	Nitrate-N	Nitrate-N
		units		units		units
Detection Limit	0.01	ла	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	กล	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client	pH/Conduct	ivity prep	pH Ana	lysis	Conduc	tivity	Nitate-N I	Extract	Nitrate-N A	nalysis
,,	Sample ID:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
14284	55811-01	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14285	55811-02	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14286	55811-03	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14287	55811-04	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14288	55811-05	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14289	55811-06	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14290	55811-07	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14291	55811-08	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14292	55811-09	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14293	55811-10	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	WL

Report ID: 055811a-45667 Quality Control Report

Print Date: 10-Jan-25 TCEQ COC# 055811

Laboratory ID:		Mehlich III											
capatany in		P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
14299	IC1027	47.5	ppm	328	ppm	2459	ppm	360	ppm	40.5	ppm	107	ppm
14300	IC1028	46.5	ppm	318	ppm	2386	ppm	348	ppm	40.0	ppm	105	ppm
11000	Mean IC	0	mqq	D	ppm	0	ppm	0	ppm	D	ppm	0	ppm
	IC Lower	45.9	0001	305.0	ppm	2320.0	ppm	335.0	ppm	27.0	ppm	30.0	ppm
	IC Upper	53.4	Dom	365.0	pom	2645.0	ppm	409.0	ppm	49.0	ppm	55.0	ppm
	blk221	<0.237	nao	<0.131	ppm	<0.0436	p pm	<0.0250	pom	<0.0100	ppm	<0.513	ppm

Laboratory ID:	Mehlich III	Mehlich III Punits	Mehlich III	Mehlich III K units	Mehlich III Ca.conc	Mehlich III Ca units	Mehlich III Ma conc.	Mehlich I(I Malconc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	ppm	0.1308	ppm	0.0436	ppm	0.0250	ppm	0.0010	ppm	0.0269	ррт
Reporting Limit	1	ppm	1	ppm	1	ppm	1	pom	1	ppm	1	ppm

Laboratory ID:	Mehlich III	Mehlich III	Mehlich III	Mehlich III
	Extract Date	Extract Tech	Anal.Date	Anal, Tech
IC1027	1/8/2025	FMR	1/9/2025	JLP
IC1028	1/8/2025	FMR	1/9/2025	JLP
blk221	1/8/2025	FMR	1/9/2025	JLP

Report ID: 055811a-45667

Quality Control Report

TCEQ COC# 055811

Laboratory ID:		pH	pН	Conducitity	Conducitity	Nitrate-N	Nitrate-N	Nitrate-N
			units	сопс.	units	conc.	units	% recover
14299	IC1027	5.9	ла	0.257	dS/M	4.446	ppm	
14300	IC1028	5.9	па	0.256	dS/M	4.468	ppm	
	Mean IC	5.87	na	0.2565	dS/M	4.457	ppm	
14300spike	Spiked sample	14	5 C	· · · ·		3.9	ppm	88.1
	IC lower	5.760	na	0.241	dS/M	3.5	ppm	
	IC Upper	5,990	na	0.299	dS/M	5.5	ppm	
	blk221		па	0	dS/M	0.614	ppm	

1	Laboratory ID:	pН	рН	Conducitity	Conducitity	Nitrate-N	Nitrate-N
			units	CORC.	units	conc.	units
	Detection Limit	0.01	па	0.001	dS/M	0.01	ppm
	Reporting Limit	0.1	па	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conduct	ivity prep	pH Ana	alysis	Conduc	tivity	Nitate-N	Extract	Nitrate-N Analysis		
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech	
IC1027	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW	
IC1028	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	WL.	
blk221	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW	

Location:	Grano	(De noi fil	Hun shade	ed area	f the la	cility inform	nation	must t	e confid	dential)	Permit #: 2950	
Region:	Organizatio	on #:	PCA Code	ə:		Program	m: L	\mathcal{N}	Q	Sampler telephone number:	1900	
E-Mail ID:		Sampler	: (signature	LH	and	luc				Sampler: (please print clearly)	Sher	
Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/ Comp.	Matrix L,S,M.O,	CL2	рН	Cond	Analyses Requested	REMARKS	
M294	-01	1224	的题							SPE REA	LMU II	0
14295	-02	10-TA	241480								LMU11	6
14296	-03	10/20/24	1110								Limu 12	D
14297	-04	1928/24	1110								LMUIZ	ł
14298	-05	120 19	1230								LMy 13	l
14301	-06	19/28/25	1230								LMU/3	6
14302	-07	17282	41040								LMU14	ĺ
14303	-08	1/28/25	1040								LMU 14	6
	-09											1
	-10				ł	N	-					/
Relinquished b	y:	Date	Time	Receiv	red by	Va	11-	19.	24	For Laboratory Use:	P.	
Relinquished b	y:	Date	Time	Receiv	red by	11				Received on ice: Y	N de	eg.
Relinguished b	y:	Date	Time	Receiv	ed by:					Preservatives: Y	N	
Relinquished b	À:	Date	Time	Receiv	ed by:					COC Seal: Y	N	
Shipper name:	EN	Shipper N	lumber: 44h	21	376					Seals intact: Y	N	

Report for Samples analyzed Under Contract Number: 582-10-99518

 Report ID:
 055812a-45667

 Print Date:
 10-Jan-25

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: Grand Canyon Client address: not provided

Standard Sample Report TCEQ COC# 055812

Laboratory ID:	TCEQ/client	Sample	Sample Coll.	Collector	TCEQ	Date	Sample	Sample opened	Sample Ground	Process
	Sample ID:	Depth (inches)	Date:	Name:	Region #	Received	Type:	Date	Date	Tech.
14294	55812-01	0-6	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14295	55812-02	6-24	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14296	55812-03	0-6	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	ΤLΡ
14297	55812-04	6-24	10/28/2024	Vanessa Gardner	4	11/19/2024	sail	11/25/2024	12/4/2024	TLP
14298	55812-05	0-6	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	πP

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:soilSOIL pH AND CONDUCTIVITY - SWFTL001SR1.SOPSchofield, 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:SoilSOIL pH AND CONDUCTIVITY - SWFTL001SR1.SOPRhoades, J.D. 1982. Soluble salts. p. 167-178. In: ALL Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.Soil Nitrate-N KCI Extractable with Cd-Reduction AnalysesNO3-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOPKeeney, 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): 055812a-456	67	Print Date:	10-Jan-25									
Standard Sam	ple Report	Т	CEQ COC#	055812									
Laboratory ID:	TCEQ/client	Mehlich III	Mehlich 11	Mehlich III	Mehlich III								
	Sample ID:	P conc.	P units	К сопс.	K units	Ca conc.	Ca units	Mg conc.	Mg units	S conc.	S units	Na conc.	Na units
14294	55812-01	27.1	ppm	189	ppm	12042	ppm	224	ppm	100	ppm	14.8	ppm
14295	55812-02	5.40	ppm	183	ppm	19363	ppm	164	ppm	153	ppm	24.5	ppm
14296	55812-03	207	ppm	432	ppm	4950	ppm	362	ppm	53.3	ppm	16.5	ppm
14297	55812-04	25.4	ppm	365	ppm	7102	ppm	411	ppm	72.2	ppm	104	ppm
14298	55812-05	78.5	nom	242	DDM	3127	pom	204	DDM	34.0	ppm	12.6	DDM

Laboratory ID:	Mehlich III											
	P conc.	P units	K conc.	K units	Calconc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ppm	0.1308	ppm	0.0436	ppm	0.0250	ppm	0.0010	орт	0.0269	ppm
Reporting Limit	1	ppm										

Laboratory ID:	TCEQ/client	Mehlich III	Mehlich III	Mehlich III	Mehlich III
	Sample ID:	Extract Date	Extract Tech	Anal.Date	Anal. Tech
14294	55812-01	1/8/2025	FMR	1/9/2025	JLP
14295	55812-02	1/8/2025	FMR	1/9/2025	JLP
14296	55812-03	1/8/2025	FMR	1/9/2025	JLP
14297	55812-04	1/8/2025	FMR	1/9/2025	JLP
14298	55812-05	1/8/2025	FMR	1/9/2025	JLP

Report ID	: 055812a-48	5667	Print Date	: 10-Jan-2	:5		
Standard Sa	imple Report		TCEQ COC#	055812	_		
Laboratory ID:	TCEQ/client	рН	рH	Conductivity	Conductivity	Nitrate-N	Nitrate-N
	Sample ID:		units		units		units
14294	55812-01	7.58	NA	0.314	dS/M	14,139	ppm
14295	55812-02	7.68	NA	0.287	dS/M	7.847	ppm
14296	55812-03	7.38	NA	0.227	dS/M	24.344	ppm
14297	55812-04	7.6	NA	0,304	dS/M	14.792	ppm
14298	55812-05	7.35	NA	0.086	dS/M	5.278	рргп

Laboratory ID:	pН	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:	TCEO/client	eH/Conduct	ivity prep	pH Ana	lysis	Conduc	tivity	Nitate-N 1	Extract	Nitrate-N A	nalysis
	Sample ID:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
14294	55812-01	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14295	55812-02	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14296	55812-03	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	WL
14297	55812-04	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14298	55812-05	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	WL

Report ID: 055812a-45667Print Date: 10-Jan-25Quality Control ReportTCEQ COC# 055812

Laboratory ID:		Mehlich III											
		P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
14299	IC1027	47.5	ppm	328	ppm	2459	ppm	360	ppm	40.5	ppm	107	ppm
14300	IC1028	46.5	ppm	318	ppm	2386	ppm	348	ppm	40.0	ppm	105	ppm
	Mean IC	0	ppm	0	ррт								
	IC Lower	45.9	ppm	305.0	ppm	2320.0	ppm	335.0	ppm	27.0	ppm	30.0	ppm
	IC Upper	53,4	ppm	365.0	ppm	2645.0	ppm	409.0	ppm	49.0	ppm	55.0	ppm
	blk221	<0.237	ppm	<0.131	mag	< 0.0436	ppm	<0.0250	ppm	<0.0100	рот	<0.513	ppm

Laboratory ID:	Mehlich III											
	P conc.	Punits	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ppm	0.1308	ppm	0.0436	ppm	0.0250	ppm	0.0010	ррлт	0.0269	ppm
Reporting Limit	1	ppm										

Laboratory ID:	Mehlich III	Mehlich III	Mehlich III	Meblich III
	Extract Date	Extract Tech	Anal.Date	Anal, Tech
IC1027	1/8/2025	FMR	1/9/2025	JLP
IC1028	1/8/2025	FMR	1/9/2025	JLP
blk221	1/8/2025	FMR	1/9/2025	JLP

Report ID: 055812a-45667

Quality Control Report

TCEQ COC# 055812

Laboratory ID:		pН	ρH	Conducitity	Conducitity	Nitrate-N	Nitrate-N	Nitrate-N
			units	conc.	units	CORC.	units	% recover
14299	IC1027	5.9	na	0.257	dS/M	4.446	ppm	
14300	IC1028	5.9	па	0.256	dS/M	4.468	ppm	
	Mean IC	5.87	na	D.2565	dS/M	4.457	ppm	
14300spike	Spiked sample	-	-	(-).	-	3.9	ppm	88.1
	IC lower	5.760	па	0.241	dS/M	3.5	ppm	
	IC Upper	5.990	na	0.299	dS/M	5.5	ppm	
	blk221	-	ла	0	dS/M	0.614	ppm	

Laboratory ID:	рН	рН	Conducitity	Conducitity	Nitrate-N	Nitrate-N
		units	conc.	units	CORC.	units
Detection Limit	0.01	па	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
IC1027	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
IC1028	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
blk221	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055812b-45667 Print Date: 10-Jan-25

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: Grand Canyon Client address: not provided

Standard Sample Report TCEQ COC# 055812

Laboratory ID:	TCEQ/client	Sample	Sample Coll.	Collector	TCEQ	Date	Sample	Sample opened	Sample Ground	Process
	Sample ID:	Depth (inches)	Date:	Name:	Region #	Received	Type:	Date	Date	Tech.
14301	55812-06	6-24	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14302	55812-07	0-6	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	ΤĿΡ
14303	55812-08	6-24	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP

Methods and Sample Preparation:

Processing - SWFTL0097R0.SOP

Soil Nitrate-N_KCI Extractable with Cd-Reduction Analyses

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:

Receiving of samples

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.

NO3-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOP

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-667. 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

page 1 of S

Report ID	: 055812b-4566	7	Print Date:	10-Jan-25									
Standard Sam	ple Report	Т	CEQ COC#	055812									
Laboratory ID;	TCEQ/client	Mehlich III											
	Sample ID:	P conc.	P units	K conc.	K units	Calconc.	Ca units	Mg conc.	Mg units	S conc.	S units	Na conc.	Na units
14301	55812-06	10.7	ppm	172	ppm	7137	ppm	411	ppm	76.1	ppm	141	ppm
14302	55812-07	25.9	ppm	251	ppm	3090	ppm	199	ppm	30.9	ppm	21.2	ppm
14303	55812-08	3.10	ppm	218	ppm	7690	ppm	418	ppm	78.6	ppm	177	ppm

Laboratory ID:	Mehlich III	Mehlich III	Meblich III	Mehlich I(I	Mehlich III	Mehlich III	Mehlich III					
	P conc.	P units	К солс.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ppm	0.1308	ppm	0.0436	ppm	0.0250	ppm	0.0010	ppm	0.0269	ppm
Reporting Limit	1	ppm	1	ppm	1	рргп	1	ppm	1	ppm	1	ppm

Laboratory ID:	TCEQ/client	Mehlich III	Mehlich III	Mehlich III	Mehlich III
	Sample ID:	Extract Date	Extract Tech	Anal Date	Anal. Tech
14301	55812-06	1/8/2025	FMR	1/9/2025	JLP
14302	55812-07	1/8/2025	FMR	1/9/2025	JLP
14303	55812-08	1/8/2025	FMR	1/9/2025	JLP

Report ID	: 055812b-4	5667	Print Date	: 10-Jan-2	5			
Standard Sa	mple Report		TCEQ COC#	# 055812				
Laboratory ID:	TCEQ/client Sample ID:	pН	pH Conductivity (Conductivity Nitrate-N N units u		
14301	55812-06	7.48	NA	0.229	dS/M	4.692	ppm	
14302	55812-07	7.42	NA	0.083	dS/M	4.676	ppm	
14303	55812-08	7.58	NA	0.266	dS/M	3,463	ppm	

Laboratory ID:	pН	рH	Conductivity	Conductivity	Nitrate-N	Nitrate-N
		units		units		units
Detection Limit	0.01	na	0.001	dS/M	0.01	ррпп
Reporting Limit	0.1	па	0.001	dSлм	1	ppm

Laboratory ID:	TCEQ/client	pH/Conduct	ivity prep	pH Ana	lysis	Conduc	tivity	Nitate-N	Extract	Nitrate-N A	Analysis
	Sample ID:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
14301	55812-06	12/13/2024	DEC	12/16/2024	DEC	12/15/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14302	55812-07	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14303	55812-08	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW

Report ID: 055812b-45667Print Date: 10-Jan-25Quality Control ReportTCEQ COC# 055812

Laboratory ID:		Mehlich III											
		P conc.	Punits	K conc.	K units	Calconc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
14319	IC1029	46.8	mqq	316	ppm	2552	ppm	353	ppm	39.7	ppm	47.9	ppm
14320	IC1030	46,2	ppm	308	ppm	2351	ppm	345	ppm	39.1	ppm	46.8	ppm
	Mean IC	0	ppm										
	IC Lower	45.9	ppm	305.0	ppm	2320.0	ppm	335.0	ppm	27.0	ppm	30.0	ppm
	IC Upper	53.4	ppm	365.0	ppm	2645.0	ppm	409.0	ppm	49.0	ppm	55.0	ppm
	blk222	<0.237	0Dm	0.142	000	<0.0436	naa	<0.0250	ppm	<0.0100	ppm	0.493	ppm

Laboratory (D:	Mehlich III	Mehlich IIS	Mehlich III	Mehlich (II	Mehlich III	Mehlich III	Mehlich III	Mehlich III				
1	P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ppm	0.1308	ррлт	0.0436	ррт	0.0250	ppm	0.0010	ppm	0.0269	ppm
Reporting Limit	1	ppm										

Laboratory ID:	Mehlich III	Mehlich III	Meblich III	Mehlich III
	Extract Date	Extract Tech	Anal.Date	Anal, Tech
IC1029	1/8/2025	FMR	1/9/2025	JLP
JC1030	1/8/2025	FMR	1/9/2025	JLP
blk222	1/8/2025	FMR	1/9/2025	JLP

Report ID: 055812b-45667

Quality Control Report

TCEQ COC# 055812

Laboratory ID;		pН	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
14319	IC1029	5.9	ла	0.256	dS/M	4.759	ppm	
14320	IC1030	5.9	na	0.254	dS/M	4.704	ppm	
	Mean (C	5.875	ла	0.255	dS/M	4.7315	ррт	
14320spike	Spiked sample	-		2	-	3.9	ppm	88.6
,	IC lower	5,760	ла	0.241	dS/M	3.5	ppm	
	IC Upper	5,990	ла	0.299	dS/M	5.5	ppm	
	blk222		na	0	dS/M	0.694	ppm	

Laboratory ID:	pН	ρH	Conducitity	Conducitity	Nitrate-N	Nitrate-N
-		units	conc.	units	conc.	units
Detection Limit	0.01	БŰ	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conduct	vity prep	pH Ana	lysis	Conduc	tivity	Nitate-N I	Extract	Nitrate-N	Analysis
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC1029	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	WL
IC1030	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
blk222	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW

Grand Canyon Dairy**2179 CR 308 Dublin, TX 76446**Aug. 17, 2023

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6921 S. Bell • Amarillo, TX 79109 www.servitech.com

ab No.: 3753	LABC	RATORY A	NALYSIS	REPORT	Report Date: 07	/01/2024 02:10 pm
Send To: 6224	ENVIRO-AG 3404 AIRWA AMARILLO,	ENGINEERING Y BLVD TX 79118		Am	Meier	
					Data Revie	ew Coordinator
Results For: Sample ID: Location	GRAND CAN MANURE ERATH COU	IYON DAIRY		Received: Sampled: Invoice No: P.O. #:	06/18/2024 06/14/2024 425820 COREY MULLIN	
					Total content	Estimated available
			Analysis (dry basis)	Analysis (as rec'd)	lbs per ton (as rec'd)	first year* Ibs per ton (as rec'd)
NUTRIENTS						
Nitrogen					- 1112	
Total Nitrog	jen	%	2.378	1.184	23.7	12.3
Organic Nit	rogen	%	1.940	0.966	19.3	7.9
Ammonium	Nitrogen	%	0.438	0.218	4.4	4.4
Nurale+Nu	ite Mitrogen	70	0.004	0.0016	<0.1	<0.1
Major and Sec	ondary Nutrient	S				
Phosphoru	S	%	0.660	0.267		
Phosphoru	s as P2O5	%	1.51	0,611	12.2	11.0
Potassium	1/00	%	2.37	0.958	00.0	
Potassium	as K2U	%	2.84	1.148	23.0	23.0
THER PROPERT	IES					
Moisture		%		50.2		
Total Solids	5	%		49.8	996	
Orgar	nic Matter	%	52.2	26.0	520	
Ash		%		23.8	476	
C:N Ratio		ratio		12.7		

Your opinion is valuable to us. Please let us know what you think about our services! Send an email to feedback@servitech.com.



AMARILIO STEPHENVILLE ARTESIA Enviro-Ag Engineering, Inc. 3404 Airway Blvd,. Amarillo, TX 79118 Tel. 806-353-6123 Fax 806-353-4132

Project Manager: Corey Mullin

MANURE CHAIN OF CUSTODY RECORD

Producer/Facility:	Grand Canyon Dairy
County:	Erath
Date Sampled:	6/14/2024
Date Shipped:	6/17/2024

Sample Type	Sample ID	Number of Containers	Test Package	Proper Preservation	Matrix
Manure	Manure	¹ 3753	EAE TX CO KS MANURE	Y	ОТ

Relinquished By: Ref	. Internal COC	Relinquished By:	Lisa Postmus	Relinquished By:	
Company: <u>E</u>	AE	Company:	EAE	Company:	ServiTech Lab
		Date/Time:	14/8/24	1040	
		Received By:	rafamul	- ROALAA	



Send To: ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118 Amy Meier Data Review Coordinator Client Name: GRAND CANYON DAIRY RCS #3 ERATH COUNTY Received: 06/18/2024 Sample 1D: 06/18/2024 (14/2024) Location RCS #3 ERATH COUNTY Received: 06/18/2024 (14/2024) 06/18/2024 NUTRIENTS COREY MULLIN 425818 P.O. #: COREY MULLIN NUTRIENTS Ibs/acre-in meq/L NUTRIENTS 10 3.3 Organic Nitrogen 26 ppm 6 1.9 Ammonium Nitrogen 20.3 ppm 5 1.5 Nitrate+Nitrite Nitrogen 0.37 ppm 0 <0.1 Major and Secondary Nutrients 20 ppm 9.0 95 Phosphorus as P2O5 50 ppm 9.0 95 OTHER PROPERTIES 350 ppm 9.0 95 OTHER PROPERTIES 10 2.2 % 453	ab No: 3696	LABOR	ATORY	ANALYS	IS REPORT	Report Date: 06/	30/2024 08:17 pm
Client Name: Sample ID: Location GRAND CANYON DAIRY RCS #3 ERATH COUNTY Received: Sample ID: RATH COUNTY 06/18/2024 Sample ID: 425818 P.O. #: COREY MULLIN Nutraters 425818 P.O. #: COREY MULLIN NUTRIENTS Ibs/acre-in meq/L Nitrogen 46 ppm 10 3.3 Organic Nitrogen 26 ppm 6 1.9 Ammonium Nitrogen 20.3 ppm 5 1.5 Nitrate+Nitrite Nitrogen 0.37 ppm 0 <0.1 Major and Secondary Nutrients Phosphorus as P205 50 ppm 9.0 Potassium as K2O 420 ppm 95 9.0 OTHER PROPERTIES 0.2 % 453 0	Send To: 6224	ENVIRO-AG ENG 3404 AIRWAY BL AMARILLO, TX 7	INEERING I VD 9118	NC		Amy	Meier
Analysis resultsIbs/acre-inmeq/LNUTRIENTSNitrogenTotal Nitrogen46ppm103.3Organic Nitrogen26ppm61.9Ammonium Nitrogen20.3ppm51.5Nitrate+Nitrite Nitrogen0.37ppm0<0.1Major and Secondary Nutrients20ppm119.0Phosphorus as P2O550ppm119.0Potassium350ppm9.09.0Potassium as K2O420ppm959.0OTHER PROPERTIES50.2%4530.2Moisture99.8%4530.7Organic Matter<0.10%00	Client Name: Sample ID; Location	GRAND CANYON RCS #3 ERATH COUNTY	DAIRY		Received: Sampled: Invoice No: P.O. #:	06/18/2024 06/14/2024 425818 COREY MULLIN	w Coordinator
NUTRIENTS Nitrogen Total Nitrogen 46 ppm 10 3.3 Organic Nitrogen 26 ppm 6 1.9 Ammonium Nitrogen 20.3 ppm 5 1.5 Nitrate+Nitrite Nitrogen 0.37 ppm 0 <0.1			Analysis	results	Ibs/ac	re-in	meg/L
Nitrogen Total Nitrogen 46 ppm 10 3.3 Organic Nitrogen 26 ppm 6 1.9 Ammonium Nitrogen 20.3 ppm 5 1.5 Nitrate+Nitrite Nitrogen 0.37 ppm 0 <0.1	NUTRIENTS						
Total Nitrogen 46 ppm 10 3.3 Organic Nitrogen 26 ppm 6 1.9 Ammonium Nitrogen 20.3 ppm 5 1.5 Nitrate+Nitrite Nitrogen 0.37 ppm 0 <0.1	Nitrogen						
Major and Secondary Nutrients Phosphorus 20 ppm Phosphorus as P2O5 50 ppm 11 Potassium 350 ppm 9.0 Potassium as K2O 420 ppm 95 OTHER PROPERTIES Moisture 99.8 % Total Solids 0.2 % 453 Organic Matter <0.10	Total Nit Organic Ammon Nitrate+	trogen Nitrogen ium Nitrogen Nitrite Nitrogen	46 26 20.3 0.37	ppm ppm ppm ppm		10 6 5 0	3.3 1.9 1.5 <0.1
Moisture 99.8 % Total Solids 0.2 % 453 Organic Matter <0.10	Phospho Phospho Phospho Potassit Potassit	orus orus as P2O5 Im Im as K2O	20 50 350 420	ppm ppm ppm ppm		11 95	9.0
Moisture99.8%Total Solids0.2%Organic Matter<0.10	OTHER PROPE	RTIES					
Ash <0.10 % C:N Ratio 12.5 ratio	Moisture Total So Org Ash C:N Rat	lids janic Matter n	99.8 0.2 <0.10 <0.10 12.5	% % % ratio		453 0	1

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.

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WASTEWATER CHAIN OF CUSTODY RECORD

Producer/Facility:	Grand Canyon Dalry
County:	Erath
Date Sampled:	6/14/2024
Date Shipped:	6/17/2024

3404 Airway Blvd,, Amarillo, TX 79118 Tel. 806-353-6123 Fax 806-353-4132

Project Manager: Corey Mullin

Sample Type	Sample ID	Number of Containers Test Package	Proper Preservation	Matrix
Wastewater Wastewater	RCS #2 RCS #3	2 3695 EAE TX CO KS LAGOON 2 3696 EAE TX CO KS LAGOON	Y Y	от от

Relinquished By: Ref. Internal COC

Relinquished By: Lisa Postmus Relinquished By:

Company:	EAE
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Company:	EAE	Company:	ServiTech Lab
Date/Time:	6/18/24	1040	
Received By:	MANUM	_ 13,1 13.1	

Executive Summary Grand Canyon Dairy Phase II WQ0002950000

LMU Summary:

LMUs 1, 3, 6,	7, 10, 11, 13 and 14 are cropped in Corn and Wheat. LMU's 1A, 2, 2A,
3A, 4, 5, 8, 9,	12 and 12A are established in coastal Bermudagrass and Winter Whcat.

Nutrient Summary:

LMU#	Max N	Max P205	Planned N	Planned P
	Lb/ac	Lb/ac	Lb/ac	Lb/ac
	Application	Application	Application	Application
	Rates	Rates	Rates	Rates
1	217	270	65	81
1A	387	308	387	308
2	329	410	99	123
2A	387	308	387	308
3	106	132	32	40
3A	83	104	25	31
4	387	308	387	308
5	247	307	84	105
6	340	270	340	270
7	340	270	340	270
8	400	318	400	318
9	400	318	400	318
10	340	270	340	270
11	340	270	340	270
12	131	104	131	104
12A	196	156	196	156
13	340	270	340	270
[4	340	270	340	270

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

All 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.

Grand Canyon Dairy Phase II

TCEQ Permit Number: WQ0002950000

Owner Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC 965 Waddington Road Ferndale, CA 95536 707-725-5005

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

Prepared By:

(Signature)

Stephen Colby Certified Nutrient Management Specialist Certificate Number = TX2025004 Expiration Date = December 31, 2025 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

5/8/25 9:26 AM

EXECUTIVE SUMMARY: Permit #: WQ0002950000 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
or crop change (yield or crop) result in a new P-Index rating or plan classification (NMP-NUP). The waste has
been stored in aDairy Lagoon. Approximately4000head willbe confined with the average weight of
hours per day for1400pounds. The animals will be confined24

TABLES 1, 2 and 2a

Permit #:

WQ0002950000

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

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

CROP REMOVAL RATES:

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

SOLIDS APPLICATION:

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

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

SOLIDS APPLICATION: (cont)

Permit #:

WQ0002950000

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.

EFFLUENT APPLICATION: (cont)

Permit #:

WQ0002950000

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 Onc-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 most restrictive layer in the upper 24 inches are given in Table 12.

EFFLUENT APPLICATION: (cont)

Permit #:

WQ0002950000

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. sctback 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.

MORTALITY MANAGEMENT: (cont)

Permit #:

WQ0002950000

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./lr. 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 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 cach 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 **Mchlich III with inductively coupled plasma (ICP)**. The area will be tested and analyzed at least annually to monitor P build up.

RECORD KEEPING;

Permit #:

WQ0002950000

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

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

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

Record of waste leaving the farm or used as feed.

Estimated Annual Excess

Date Amount Hauler or Recipient Excess Remaining May be continued on additional sheets

Page 8 - Printed on:

OPERATION AND MAINTENANCE:

Permit #:

WQ0002950000

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:	Stephen Colby	Date:	5/8/2025	
Plan Approved by:	moun	Date:	5/8/25	
Producer Signature:	Discussed with France	Date:	5/8/25	_

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,

Page 9 - Printed on:

5/8/25 9:26 AM

Plan is based on: 590 Organic Nutrient Management Pl

Avo Numbe			Zuantines 110	duvvu	Perinit	F: WQ00)02950000	
Trib. Hannot	er of Animals					Type of Wa	iste	
4,(000	ı				Dairy Lago	on	
						Dairy Soli	ds	
Contact the lo- total number of	cal Soil and Wa of animals chang	tter Conservati ge by more tha Es	on District or 1 in 10% so your timated Acre h	USDA Nati plan can b nches of Ef	ural Resources Cor e revised. fluent to be Availa	servation Serv ble Annually*	ice office if 3,590	the
		Estimated	Tons Solids to	be Land A	pplied Annually (c	n or off site)*	29,317.3	
						*From e r	igineering design	1,
Estimated Nu Effluent	itrient Availab	oilty			Estimated Solids	Nutrient Ava	ulabilty	
		Pounds /	Pounds /			pounds /	pounds /	
	pounds/yr	1000 gal	Acre Inch			yr	ton	
N	29,944	0.31	8.3	**	Ν	555,501	18.9	**
P2O5	37,268	0.38	10.4		P2O5	441,329	15.1	
K2O	341,757	3.51	95.2		K2O	830,448	28.3	
** E	ffluent Values	Based on An:	alysis		** Solids	Values Based	on Analysi	s
dated:		June 14, 2024	Ļ		dated	I: June 1	4. 2024	

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

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

less than 200 ppm statewide or

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

• or < 350 ppm in arid areas 2/ with a named stream > one mile.

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 Mchlich 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.</p>
- 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.

Page 11 Printed on: 5/8/25 9:26 AM

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

Pl Index by Field

Printed on: 5/6/25 9:01 AM Client Name: Grand Canyon Dairy Planner: Stephen Colby		This pl	This plan is based on: Intrient Management Plan V 5.0 - -							Permit #: Date: Location: Rainfall:	WQ0002950 5/8/2025 Erath >25.0 Inches	000 - -		
LMU or Fi	elds (Crop	Slope	Runoff Curve	Soll Test P Level	Inorganic P ₂ O ₅ Appl Rate	Organic P ₂ O ₅ Appl Rate	Inorganic Method & Timing	Organic Method & Timing	Proximity of Appl to Named Stream	Runoff Class	Soil Erosíon	Total Index Points	P Runoff Potential	Soll Test Date:
1	Silage - Corn16-20T;SG GreenChop-6-7T	4.0%	85	8	0	6	0	0.5	5	4	1.5	25	High	10/24/24
1A	Coastal GC (30%DM) 9-11T; SG GC 6-7T	4.0%	85	8	0	6	0	4	5	4	0	27	High	10/24/24
2	Coastal GC (30%DM) 9-11T; SG GC 6-7T	3.7%	85	8	0	6	0	0.5	1 25	4	0	19.75	Medium	10/24/24
2 A	Coastal GC (30%DM) 9-11T; \$G GC 6-7T	3,7%	85	8	0	6	0	4	1,25	4	0	23,25	High	10/24/24
3	Silage - Com16-20T;SG GreenChop-6-7T	3,7%	89	8	0	6	0	0.5	1.25	4	1.5	21,25	Medium	10/24/24
3A	Coastal GC (30%DM) 9-11T; SG GC 6-7T	3.7%	89	8	0	6	0	0.5	0	4	0	18.5	Medium	10/24/24
4	Coastal GC (30%DM) 9-11T; SG GC 6-7T	3.3%	89	8	0	6	0	4	5	4	0	27	High	10/24/24
5	Coastal GC (30%DM) 9-11T; SG GC 6-7T	3,1%	89	8	0	6	0	0.5	5	4	0	23.5	High	10/24/24
6	Silage - Corn16-20T;SG GreenChop-6-7T	4,1%	89	8	0	6	0	4	0	4	1.5	23.5	High	10/24/24
7	Silage - Corn16-20T;SG GreenChop-6-7T	3.3%	89	8	0	6	0	4	1.25	4	1.5	24 75	High	10/24/24
8	Coastal GC (30%DM) 9-11T; SG GC 6-7T	3.5%	89	8	0	6	0	4	0	4	0	22	Medium	10/24/24
9	Coastal GC (30%DM) 9-11T; SG GC 6-7T	4.0%	89	8	0	6	0	4	0	4	0	22	Medium	10/24/24
10	Silage - Com16-20T;SG GreenChop-6-7T	4.0%	89	8	0	6	0	4	0	4	1.5	23.5	High	10/24/24
11	Silage - Corn16-20T;SG GreenChop-6-7T	2.9%	89	8	0	6	0	4	0	4	1.5	23.5	High	10/28/24
12	Coastal GC (30%DM) 9-11T; SG GC 6-7T	2.9%	85	8	0	6	0	4	0	4	0	22	Medium	10/28/24
12A	Coastal GC (30%DM) 9-11T; SG GC 6-7T	2.9%	85	8	0	6	0	4	0	4	0	22	Medium	10/28/24
13	Silage - Corn16-20T;SG GreenChop-6-7T	2,5%	85	8	0	6	0	4	0	4	1.5	23.5	High	10/28/24
14	Silage - Com16-20T;SG GreenChop-6-7T	3.1%	65	8	0	6	0	4	0	4	1.5	23.5	High	10/28/24

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Table 3 - Crop Removal Rates (For Information Only)

WQ0002950000

Crop R	emoval Rates (For Information Only)				Permit #:	WQC
Acres	Crop and P Index Level	TCEQ Plan Type	Actual Crop Analysis or Default	Total Est. N Removal lbs/Ac/Yr	Total Est, P ₂ O ₅ Removal lbs/Ac/Yr	Total Est, K ₂ O Removal lbs/Ac/Yr
62.0	Silage - Corn16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214
41.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	NMP	Default	330	104	190
62.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	NMP	Default	330	104	190
21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	NMP	Default	330	104	190
56.0	Silage - Corn16-20T;SG GreenChop-6-7T M	NUP	Default	341	132	214
21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	NUP	Default	330	104	190
60.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	NMP	Default	330	104	190
210.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	NMP	Default	330	104	190
62.0	Silage - Corn16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214
30.0	Silage - Corn16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214
87.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	NMP	Default	330	104	190
20.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	NMP	Default	330	104	190
50.0	Silage - Corn16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214
56.0	Silage - Corn16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214
66.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	NUP	Default	330	104	190
30.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	NUP	Default	330	104	190
53.0	Silage - Corn16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214
47.0	Silage - Corn16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214
	Acres 62.0 41.0 62.0 21.0 56.0 21.0 60.0 210.0 62.0 30.0 87.0 20.0 50.0 56.0 66.0 30.0 53.0 47.0	Acres Crop and P Index Level 62.0 Silage - Com16-20T;SG GreenChop-6-7T H 41.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H 62.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H 62.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H 62.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H 60.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H 71.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H 71.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H 71.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H 71.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H 71.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H 71.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T M 71.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T M 71.0 Silage - Corn16-20T; SG GreenChop-6-7T H 72.0 Silage - Corn16-20T; SG GreenChop-6-7T H 73.0 Silage - Corn16-20T; SG GreenChop-6-7T H 74.0 Silage - Corn16-20T; SG GreenChop-6-7T H	Crop Removal Rates (For Information Unity) TCEQ Plan Type 62.0 Silage - corn16-201;SG GreenChop-6-7T H NMP 41.0 Coestal GC (30%DM) 9-11T; SG GC 6-7T H NMP 62.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H NMP 21.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H NMP 21.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H NUP 21.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H NUP 21.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H NMP 20.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H NMP 21.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T H NMP 20.0 Silage - Corn16-20T;SG GreenChop-6-7T H NMP 20.0 Silage - Corn16-20T;SG GreenChop-6-7T H NMP 20.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T M NMP 20.0 Silage - Corn16-20T;SG GreenChop-6-7T H NMP 20.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T M NMP 20.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T M NMP 30.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T M NUP 30.0 <t< td=""><td>Crop Removal Rates (For Information Only)AcresCrop and P Index LevelTCEQ Plan Type0 Type62.0Silage - Corn16-20T;SG GreenChop-6-7T HNMP Default61.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNMP Default62.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNMP Default61.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNUP Default61.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNUP Default61.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNUP Default62.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNMP Default61.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNMP Default62.0Silage - Corn16-20T;SG GreenChop-6-7T HNMP Default62.0Silage - Corn16-20T;SG GreenChop-6-7T HNMP Default63.0Silage - Corn16-20T;SG GreenChop-6-7T HNMP Default64.0Coastal GC (30%DM) 9-11T; SG GC 6-7T MNMP Default65.0Silage - Corn16-20T;SG GreenChop-6-7T HNMP NMP66.0Coastal GC (30%DM) 9-11T; SG GC 6-7T MNMP Default67.0Coastal GC (30%DM) 9-11T; SG GC 6-7T MNUP NUP67.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNMP NMP67.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNMP NUP67.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNMP NUP67.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNUP NUP67.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNUP NUP67.0Coastal GC (30%DM</td><td>Crop Removal Rates (For Information Only) TCEQ Plan Type State Formation Total tist. 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No.</td></t<>	Crop Removal Rates (For Information Only)AcresCrop and P Index LevelTCEQ Plan Type0 Type62.0Silage - Corn16-20T;SG GreenChop-6-7T HNMP Default61.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNMP Default62.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNMP Default61.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNUP Default61.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNUP Default61.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNUP Default62.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNMP Default61.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNMP Default62.0Silage - Corn16-20T;SG GreenChop-6-7T HNMP Default62.0Silage - Corn16-20T;SG GreenChop-6-7T HNMP Default63.0Silage - Corn16-20T;SG GreenChop-6-7T HNMP Default64.0Coastal GC (30%DM) 9-11T; SG GC 6-7T MNMP Default65.0Silage - Corn16-20T;SG GreenChop-6-7T HNMP NMP66.0Coastal GC (30%DM) 9-11T; SG GC 6-7T MNMP Default67.0Coastal GC (30%DM) 9-11T; SG GC 6-7T MNUP NUP67.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNMP NMP67.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNMP NUP67.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNMP NUP67.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNUP NUP67.0Coastal GC (30%DM) 9-11T; SG GC 6-7T HNUP NUP67.0Coastal GC (30%DM	Crop Removal Rates (For Information Only) TCEQ Plan Type State Formation Total tist. 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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

Table 4 - Maximum Solids Application per Field

Permit #:

Est. Solids Current Max Produced LMU or Soil Test Annual Annually Field P Level P2O5 (wet tons) No A cress Crop Management and BL supplier potential (max)	nnual/Bienníal	Maximum Solids Allowable	Maximum Allowable Application Per field
29 317 I	Ā	Tons/Acre	(Tons)
		20.4	000
2	A	20.4	838
2^{2} 24 21.0 Constal GC (20% DMA) 0.11T, SC CC 6.7T H 140 208		20.4	420
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	A	20.4	429
		20.4	1226
5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5 5	A	20.4	1226
$\frac{1}{6}$ 62.0 Silage - Com 16.20T:SG Green Cham 6.7T H 146 270		17.0	1112
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$		17.9	529
8 87.0 Costal GC (30%DM) 9-11(); SC GC 6.7T M 92 218		21.1	1927
$\begin{array}{c c c c c c c c c c c c c c c c c c c $	A	21.1	1037
$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Å	21.1	422
11 - 560 - Silage - Com 16 - 20T, SG Green Chop - 6 - 7T H = 121 - 270	A	17.9	097 1004
12 66 0 Coastal GC (20%DM) 0 LIT: SC GC 6 7T M 207 104	A	6.0	1004
12 00.0 Coastal GC (30%DM) 9-11T, SC GC 6-71 M 207 104 12A 30.0 Coastal GC (30%DM) 9-11T; SC GC 6-71 M 207 156	A	0.9	455
$\begin{bmatrix} 12.4 & 50.0 & Coastal OC (5076DW) 9-111, 50 OC 6-71 W & 207 & 156 \\ 13 & 53.0 & Silage - Com 16-20T:SC Groon Chap 6 7T W & 70 & 270 \\ \end{bmatrix}$	Å	10.5	051
13 13 13 13 13 13 13 14 14 15 14 15 14 15 14 14 15 14 14 15 14 15 14 15 14 15 14 15 14 15 14 15 14 15 15 14 15 15 14 15 15 15 14 15 15 15 15 15 15 15 15		17.9	931
14 47.0 Shage - Contro-201, Sti Cheenenop-6-71 H 20 270	A	17.9	843
Total Solida			
Application			
Agree			
623			
Amultantin			
Allowable			
Allowable			
on-sne (taus)			
10861.1			
Not			
Adequate			
	- I		

Table 5 - Nutrients Applied/Needs at Maximum Solids Rates

Permit #: WQ0002950000

	Nutrients Ap	oplied When Ap Maximum Rate	plication is at	Supplement	al Nutrients Ne Maximu	eded When Ap m Rates	plication is at
LMU / Field #	N Lb/ac	P2O5 Lb/ac	K ₂ O Lb/ac	N Lb/ac	P2O5 Lb/ac	K ₂ O Lb/ac	Lime T/Ac
1							
IA	387	308	579	0	0	0	0
2							
2A	387	308	579	0	0	0	0
3							
3A 4	207	200	670				
4	387	308	579	0	0	0	0
5	240	270	500	125			
7	340	270	508	135	0	0	0
8	400	318	508	135	0	0	0
9	400	318	598	0		0	0
10	340	270	508	145	0	0	0
11	340	270	508	130	0	0	0
12	131	104	195	220	0	0	0
12A	196	156	293	155	ő	Ő	0
13	340	270	508	150	0	0 0	0
14	340	270	508	150	0	0	Ő

Table 6 - Planned Solids Application Rates Permit #: WO0002950000 Double crop Planned Annual / Biennial Current Max % of Planned Solids per LMU or Field Soil Test Rate Maximum Solids field Crop Management and PI runoff potential No. Acres P ppm tons/ac to apply tons/ac (tons) l Coastal GC (30%DM) 9-11T; SG GC 6-7T H 1A 41.0 194 A 20.4 100 20.4 837.5 2 Coastal GC (30%DM) 9-11T; SG GC 6-7T H 2Λ 21.0 140 100 Λ 20.420.4 429.0 3 3A 4 60.0Coastal GC (30%DM) 9-11T; SG GC 6-7T H 57 100 20.4 20.4A 1225.6 5 Silage - Corn16-20T;SG GreenChop-6-7T H 6 62.0 146 A 17.9 100 17.9 1112.0 7 Silage - Corn16-20T;SG GreenChop-6-7T H 30.0 88 17.9 100 17.9 A 538.1 8 Coastal GC (30%DM) 9-11T; SG GC 6-7T M 87.0 93 A 21.1 100 21.1 1836.6 9 20.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T M 95 100 A 21.1 21,1 422.2 10 50.0 Silage - Corn16-20T;SG GreenChop-6-7T H 121 17.9 100 17.9 А 896.8 11 Silage - Corn16-20T;SG GreenChop-6-7T H 56.0 27 17.9 100 17.9 А 1004.4 Coastal GC (30%DM) 9-11T; SG GC 6-7T M 12 66.0 207 A 6.9 100 6.9 455.0 Coastal GC (30%DM) 9-11T; SG GC 6-7T M 12A 30.0 207 A 10,3 100 10.3 310.2 13 Silage - Corn16-20T;SG GreenChop-6-7T II 53.0 79 17.9 100 17.9 A 950.6 14 47.0 Silage - Corn16-20T;SG GreenChop-6-7T II 17.9 26 Λ 100 17.9 843.0 Acres 623.0 10861.1 Will the planned per acre application rates 29317 Tons of wet solids produced Annually use all of the Solids? NO 0 Tons to be used off-site at planned rates Tons to be used off-site at Max. rates 18456

Table 7 - Nutrients Applied/Needed at Planned Solids Rates Red cells? Proceed to adjustment page and fix.

Permit #:

	Nutrients	Applied at Plan	ned Rates	Supplemental Nutrients Needed at Planned					
LMU / Field #	N Lb/ac	P ₂ O ₅ Lb/ac	K ₂ O Lb/ac	N Lb/ac	P ₂ O ₅ Lb/ac	K2O Lb/ac	Lime T/Ac		
1 1A 2	387	308	579	0	0	0	0		
2A 3	387	308	579	0	0	0	0		
3A 4 5	387	308	579	0	0	0	0		
6 7	340 340	270 270	508 508	135 135	0 0	0 0	0 0		
8 9 10	400 400 340	318 318 270	598 598 508	0 0 145	0	0	0 0 0		
11 12	340 131	270 104	508 195	130 220	0	0	0		
12A 13 14	340 340	270 270	293 508 508	155 150 150	0 0 0	0 0 0	0 0 0		

Table 8 - Maximum Effluent Application Per Field

Permit #:

			-				_		
							ial		Maximum
Est Available			do 1		Current	Max	ienr	Maximum	Effluent
Effluent	1 MIL on		ele c		Soil Test	Annual	al/B	Effluent	Allowable
(ac inches)	Field No.	Acres	South	Crop Management and PL runoff potential	r Level	P ₂ O ₅	חחנו	Allowable	/ Pield
3590	1	62.0		Silage - Corn16-20T'SG GreenChop-6-7T II	(ppin)	270	A	(ac m/ac)	(ac in)
Source	1.4					2,0	1	20,0	1013
Source.	2	62.0		Constal CC (209/DM) 0.1172 SC CC C 7T M	140	410		20.5	2110
		02.0		Coastal GC (30%DM) 9-111; 30 GC 6-71 M	140	410	A	39.5	2449
		540							
Dairy Lagoon	3	56.0		Silage - Corn16-20T;SG GreenChop-6-7T M	224	132	A	12.7	711
	3A	21.0		Coastal GC (30%DM) 9-11T: SG GC 6-7T M	224	104	A	10.0	210
	4								
	5	210.0		Coastal GC (30%DM) 9-11T; SG GC 6-7T H	141	308	A	29.6	6216
1	6								
	7			1 (c)					- 1
	8								
	9								
	10								
	11								
	12								
	12A								
	13								
	14								
a al al a									
Total									0
Effluent									
Application									
Application									
411									
Fffluent									
Application	0.0								
Allowable									
On-Site									
(ac in)									
11199	0 3								
Adequate									
						l est			
Effluent to be									
used Off-Site									
(ac in)									
0									

Table 9 - Nutrients Applied/Needed at Maximum Effluent Rates

Permit #:

	Nutrients Ap	plied When Ap Maximum Rate	plication is at s	Supplement	al Nutrients Ne Maximu	eded When Ap m Rates	plication is at
LMU / Field #	N Lb/ac	P ₂ O ₅ Lb/ac	K ₂ O Lb/ac	N Lb/ac	P2O5 Lb/ac	K ₂ O Lb/ac	Lime T/Ae
1	217	270	2476	260	0	0	0
IA							
2	329	410	3760	40	0	0	0
2A							
3	106	132	1209	360	0	0	0
3A	83	104	952	285	0	0	0
4	0.47	207	0010	100			
5	247	307	2818	125	0	0	0
0							
/ Q							
0 0				0			
10							
11							
12							
12A							
13							
14							
						6	
						1	L.
				1			

Table	10 - Pl	an	ned Effluent Application Rates		Permit #:			WQ0002950000	
LMU or Field No.	Acres	Double crop	Crop Management and PI runoff potential	Current Soil Test P ppm	Annual / Biennial	Maximum Effluent (ac in/ac)	% of Maximum to apply	Planned Effluent (ac in/ac)	Planned Effluent / field (Ac. In)
1	62.0		Silage - Corn16-20T:SG GreenChop-6-7T 11	194	A	26	30.0	7.8	484
1A 2	62.0		Coastal GC (30%DM) 9-11T; SG GC 6-7T M	140	А	39.5	30.0	11.9	735
3	56.0		Silage - Com16-20T'SG GreenChon-6-7T M	224	Δ	12.7	30.0	7.0	212
3A	21.0		Coastal GC (30%DM) 9-11T; SG GC 6-7T M	224	A	12,7	30.0	3.0	63
4							0000	510	
5 6 7 8 9 10 11 12 12A 13 14	210.0		Coastal GC (30%DM) 9-11T; SG GC 6-71 H	14]	A	29.6	34.0	10.1	2113
Acros	411.0								2/02
Acres	411.0				will t	ne planned use all of f	applicati	on rates	3607

Table 11 - Nutrients Applied/Needed at the Planned Effluent Rates

Permit #:

WQ0002950000

	Nutrients	Applied at Plan	nned Rates	Supplemental Nutrients Needed at Planned Rates			
LMU / Pield #	N Lb/ac	P2O5 Lb/ac	K ₂ O Lb/ac	N Lb/ac	P ₂ O ₅ Lb/ac	K ₂ O Lb/ac	Lime T/Ac
1	65	81	743	410	0	0	0
1A							
2	99	123	1128	275	0	0	0
2A				-			
3	32	40	364	435	0	0	0
3A	25	31	286	340	0	0	0
4							
5	84	105	959	290	0	0	0
6							
7							
8							
9							
10							
11							
12					0.0		
12A				1			
13							
14							
							1
	4						
		. 4					
				0			
							0

Red cells? Proceed to adjustment page and fix.

Table 12 - Available Water Capacity to 24 inches(or less) of predominantPermit #:soil in fields receiving effluent and Texture of the most restrictive soillayer in the upper 24 inches

LMU / Field #	AWC (inches)	Restrictive Texture	LMU / Field #	AWC (inches)	Restrictive Texture
1	3,455	Sandy Clay		· · · · · · · · · · · · · · · · · · ·	
1A					
2	3.455	Sandy Clay			
2A					
3	3.52	Clairette Hasse	4		
3A	3.52	Clairette Hasse			
4					
5	1.87	Purves Dugout			
6					
7		. D.			
8					
9					
10					
11					
12					
12A					
13					
14					



Waste Utilization and Nutrient Management Data Entries

	General Data
Date :	5/8/2025
Farmer Name :	Grand Canyon Dairy
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 # :	WQ0002950000

All other entries on General Page appear on the Cover Page

	Animal Information
Plan Year :	2025
Are you receiving waste from another producer?	No
Number of animals :	4000
Approximate Weight :	1400
Days per year in confinement :	365
Hours per day confined :	24
ACRE FEET of effluent to be irrigated* :	299.2
Estimated annual gallons of effluent to be	
irrigated/applied annually :	97493721.6
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)* :	14600
Is this the first Year of the AFO-CAFO Operation?	
;	No

Analysis Information

	Effluent Information
Date of Analysis:	6/14/2024
Manure Source:	Dairy Lagoon
Nitrogen % From Analysis:	0.0046
Phosphorus % From Analysis:	0.002
Potassium % From Analysis:	0.035
Moisture % From Analysis:	99.8

Manure / Solids Information

Date of Analysis:	6/14/2024
Manure Source;	Dairy Solids
Nitrogen % From Analysis:	2.378
Phosphorus % From Analysis:	0.66
Potassium % From Analysis:	2.37
Moisture % From Analysis:	50.2
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: 5/8/25 9:26 AM
Field and Buffer Entries

							Permit #:	WQ0002950000
	Printed on:	5/8/25 9:2	6 AM			Plar	n is based on:	590 Organic Nutrient Management Pla
FS = 39	3-Filter Strip,	FB = 386-1	Field Bord	er, RFB = :	391-Riparia	an Forest I	Buffer, OLEA	= Other Land Exclusion Areas or
	non-app	lication ar	eas (i.e. h	eadquarter	rs, freq. floo	ded areas	, wooded areas	s, water bodies, etc)
	NOTE: Field	Border (F	B) is expre	ssed in AC	RES on thi	s spreadsh	eet, but as LIN	EAR FEET on the CPO.
	Total					Total	Actual	
Field	LMU or Field	DC	ED	0.00	0	Buffer	Application	
INO.	Acres	FS	FB	KFB	OLEA	Acres	Acres	This Column Intentionally Left Blank
1	02					0.0	62.0	
14	41					0.0	41.0	
24	02					0.0	62.0	
2A	54					0.0	21.0	
3	21					0.0	30.0	
3/4	60					0.0	21.0	
5	210					0.0	210.0	
3	60					0,0	210.0	
7	20					0.0	10.0	
/ •	30					0.0	30.0	
0	20					0,0	87.0	
10	50					0.0	20.0	
10	50					0.0	50.0	
11	36					0.0	56.0	
124	00					0,0	66.0	
12A	50					0.0	50.0	
13	53					0.0	53.0	
14	47					0.0	47.0	
					i			
	v							
			1					
1								
			-					
							-	

F	Printed on: 5/8/25 9:26 AM			Plan is based on: 590 Organic Nutrient Management Plan V 5.0						Permit #:	WQ0002950000		
										Plant A	nalysis &	Yield (opt	tional) <mark>Use</mark>
-	Soil Jest Analysis		This					i.	Only When Crop Removal is Required				
N (ppm)	P (ppm)	K (ppm)	Lime (enter amt or leave blank)	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 Analys (Y / N)	% N	% P	% К	Yield Air Dry Production (Ibs/ac/yr)
12.765	194	568			1	62.0	Silage - Com16-20T;SG GreenChop-6-7T H	E	N				
12.765	194	568			1A	41.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	S	N				
14.084	140	523			2	62.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	E	N	1			
14.084	140	523			2A	21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	S	N				()
16.962	224	458			3	56.0	Silage - Corn16-20T;SG GreenChop-6-7T M	E	N				
16.962	224	458			3A	21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	E	N				
12.765	57.2	607			4	60.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	S	N				
14.244	141	808			5	210.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	E	N				
13.206	146	450			6	62.0	Silage - Com16-20T;SG GreenChop-6-7T H	S	N				
12.479	88.1	358			7	30.0	Silage - Cotn16-20T;SG GreenChop-6-7T H	S	N				
10.588	93.2	404			8	87.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	S	N				
20.101	94.5	369			9	20.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	S	N				
8.556	121	309			10	50.0	Silage - Com16-20T;SG GreenChop-6-7T H	S	N				
14.139	27.1	189			11	56.0	Silage - Com16-20T;SG GreenChop-6-7T H	S	N				
24.344	207	432			12	66.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	S	N	2			
24.344	207	432			12A	30.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	S	N				
5.278	78.5	242			13	53.0	Silage - Com16-20T;SG GreenChop-6-7T H	S	N				
4.676	25.9	251			14	47.0	Silage - Com16-20T;SG GreenChop-6-7T H	S	N				
									1				
					-								

Solids Application Rate Entries

233	17	"Wet tons" of solids produced Annually		V	fill the plant	and rates up	en all of th
					Tons to be	used off.e	ite at nlan
LMD					10110 00 00	abea on-a	
or			Current	Crop	Annual or Discussion	Maximum	Enter % of
Field			Soil Test	P205	Application	Allowable	Planned to
No.	Acres	Crop Management and P1 runoff potential	Р ррт	Req.	Cycle	Tons/Ac	Apply
	41.0	Constal COUCTABY DAMA & MIT: AC OVER THE					-
2	41.0	Coastal GC (30%DM) 9-111; SG GC 6-71 B	194	205	Annual	20.4	100.0
2A	21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	140	205	Annual	20.4	100.0
3							
3A 4	60.0	Cossis I CC (30%DM) 9-117-80 CC & 77 B	57	205		20.4	100.0
5	10.0		57	205	Annuai	20.4	100.0
6	62.0	Silage - Corn16-20T;SG GreenChop-6-7T H	146	180	Аплиа	17.9	100.0
7	30.0	Silage - Corn16-20T;SG GreenChop-6-7T H	88	180	Annual	17.9	100.0
8	87.0	Coastal GC (30%DM) 9-11T; SG GC 6-7F M	93	205	Annua]	21.1	100.0
9	20.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	95	205	Annual	21.1	100.0
10	50.0	Silage - Corn16-20T;SG GreenChop-6-7T H	121	180	Annual	17.9	100.0
н	56.0	Silage - Corn16-20T;SG GreenChop-6-7T II	27	180	Annual	17.9	100.0
12	66.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	207	205	Annuat	6.9	100.0
12A	30.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	207	205	Annual	10.3	100.0
13	53.0	Silage - Corn16-20T:SG GreenChop-6-7T H	79	180	Annual	17.9	100.0
14	47.0	Silage - Corn16-20T;SG GreenChop-6-7T H	26	180	Annual	17.9	100.0

Printed on: 5/8/25 9:26 AM

Effluent Application Rate Entries

Efflu	ient -	 Set the Planned Application Rat 	Permit #: WQ0002950000						
97	7493722	Gallons of Effluent to be used annually			Will the planned rates use all of the effluent?				Yes
	3590	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)
1	62.0	Silage - Corn16-20T;SG GreenChop-6-7T II	194	180	Аплиа	26.0	30.0	7.8	484
1A 2	62.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	140	205	Annual	39.5	30.0	11.85	735
2A									
3	56.0	Silage - Corn16-20T;SG GreenChop-6-7T M	224	180	Annual	12.7	30.0	3.81	213
3A	21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	224	205	Annual	10.0	30.0	3	63
4 5 6	210.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	141	205	Annual	29.6	34.0	10.06	2113
7				. 1					
8				h-0.0					
9	h 13								
10									
12									
12A		C. D.		0.0					
13									
14									
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								1	
					-				
			19-1						

Total Effluent This Page 3607

Printed on: 5/8/25 9:26 AM

Plan is based on: 590 Organic Nutrient Management Plan '

Available Water Capacity Entries

	Printed on:	5/8/25	5 9:26	AM	_	Plan	is bas	ed on:	590 Or	ganic N	utrient	Manager	ment Pla	Pe	rmit #:	V	VQ000:	2950000
							EXAMPLE ENTRIES								Available			
	Texture of the soil layer within	0	3	0.12	0.2	3	14	0.16	0.21	14	18	0.08	0.12	18	24	0	0	- Available Water Holding Capacity
6	the upper 24						En	ter Da	ta for t	the top	o 24" d	only				<i>n</i> -		(AWC) of
LMU or Fields receiving Effluent	inches of the soil profile that has the lowest permeability (Don't Abbreviate)	Dep Fi La (inc	th of rst yer hes)	AW Fi La (in	C of rst yer /in)	Dep Sec La (inc	th of ond yer hes)	AW Sec La: (in.	C of ond yer /in)	Dep Th La (inc	th of ird yer hes)	AW Th La (in	C of ird yer /in)	Dep Fou Lag	th of urth yer hes)	AW For La (in	C of urth yer //in)	 the upper 24 inches of the soil profile (Inches)
	Dunuj Onaj	Ŭ		0.12	0.10	2	40	0.14	0.17	40				U				3.40
2	Sandy Clay	0	5	0.12	0.16	5	40	0.12	0.17	40				0				3.46
3	Clairette Hasse	0	4	0.1	0.17	4	10	0.15	0.19	10	26	0.1	0.18	26		-	r	3.52
3A	Clairette Hasse	0	4	0.1	0.17	4	10	0.15	0.19	10	26	0.1	0.18	26				3.52
		_																
5	Purves Dugout	0	8	0.11	0.2	8	12	0.08	0.18	12	14	0.04	0.07	14	24	0	0	1.87
											1							
										-								
					_													
							-											

A. Sample collection

1) Samples were collected for the land management unit (LMU) identified below.

Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.

No, provide the facility information for the LMU below with the exception of the tables.

2) Reporting Year: 2024

Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 1
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (cxtractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm	12.765	3,188
Phosphorus (extractable), ppm	194	30.0
Potassium (extractable), ppm	568	373
Sodium (extractable), ppm	31.8	116
Magnesium (extractable), ppm	363	412
Calcium (extractable), ppm	5318	6240
Electrical Conductivity/Soluble Salts, dS/m	0.239	0.294
pH, SU	7.61	7.83

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemins per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

TCEQ-20170-b CAFO Individual Permit Soil Monitoring Report (July 20, 2014; Rev 01/15/22) Page 2

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 information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: John Malli fr-s Date: 2/4/25

Telephone Number: 254/445-0404

D. How to Submit

The soil monitoring report with attached soil analyses should be included in the Annual Report that is required to be submitted by March 31 of each year. For State Only CAFOs, submit this soil monitoring report form to the TCEQ, Enforcement Division (MC-224), P.O. Box 13087, Austin, Texas 78711-3087 and provide a copy to the TCEQ Regional Office.

If you have any additional questions about this form or soil sample collection and soil analyses requirements, contact:

A. Sample collection

1) Samples were collected for the land management unit (LMU) identified below.

Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.

 \square No, provide the facility information for the LMU below with the exception of the tables.

2) Reporting Year: 2024 Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 2
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm	14.084	3.026
Phosphorus (extractable), ppm	140	7.94
Potassium (extractable), ppm	523	310
Sodium (extractable), ppm	31.4	228
Magnesium (extractable), ppm	404	545
Calcium (extractable), ppm	6775	11729
Electrical Conductivity/Soluble Salts, dS/m	0.147	0.125
pH, SU	7.76	7.84

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 information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: John Mulli fr-3 Date: 2/4/25

Telephone Number: 254/445-0404

D. How to Submit

The soil monitoring report with attached soil analyses should be included in the Annual Report that is required to be submitted by March 31 of each year. For State Only CAFOs, submit this soil monitoring report form to the TCEQ, Enforcement Division (MC-224), P.O. Box 13087, Austin, Texas 78711-3087 and provide a copy to the TCEQ Regional Office.

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A. Sample collection

1) Samples were collected for the land management unit (LMU) identified below.

Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.

No, provide the facility information for the LMU below with the exception of the tables.

2) Reporting Year: 2024 Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 3
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	16,962	4.039
Phosphorus (extractable), ppm	224	17.5
Potassium (extractable), ppm	458	158
Sodium (extractable), ppm	24.5	83.2
Magnesium (extractable), ppm	417	294
Calcium (extractable), ppm	10104	11573
Electrical Conductivity/Soluble Salts, dS/m	0.174	0.183
pH, SU	7.56	7.71

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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Joh Mulli fr-s Date: 2/4/25

Telephone Number: 254/445-0404

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2) Reporting Ycar: 2024

Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 4
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitratc-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm		-	
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	o-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	12.765	6.869
Phosphorus (extractable), ppm	57.2	12.0
Potassium (extractable), ppm	607	266
Sodium (extractable), ppm	31.9	132
Magnesium (extractable), ppm	462	337
Calcium (extractable), ppm	11037	14070
Electrical Conductivity/Soluble Salts, dS/m	0.239	0.46
pH, SU	7.61	7.85

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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Joh Mulli fr-r Date: 2/4/25

Telephone Number: 254/445-0404

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No, provide the facility information for the LMU below with the exception of the tables.

2) Reporting Year: 2024 Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 5
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU	0		

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	14.244	6.215
Phosphorus (extractable), ppm	141	16.0
Potassium (extractable), ppm	808	334
Sodium (extractable), ppm	24.1	107
Magnesium (extractable), ppm	543	380
Calcium (extractable), ppm	12799	12949
Electrical Conductivity/Soluble Salts, dS/m	0.23	0.158
pH, SU	7.78	7.89

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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Jh Malli fr-s Date: 2/4/25

Telephone Number: 254/445-0404

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No, provide the facility information for the LMU below with the exception of the tables.

2) Reporting Year: 2024

Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 6
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	13.206	8.293
Phosphorus (extractable), ppm	146	10.8
Potassium (extractable), ppm	450	180
Sodium (extractable), ppm	31.3	97.1
Magnesium (extractable), ppm	432	263
Calcium (extractable), ppm	11873	17447
Electrical Conductivity/Soluble Salts, dS/m	0.08	0.109
pH, SU	7.64	7.77

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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member Signature:

Date: 2/4/25

Telephone Number: 254/445-0404

D. How to Submit

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- No, provide the facility information for the LMU below with the exception of the tables.
- 2) Reporting Year: 2024

Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 7
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			· · · ·
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	12.479	5.106
Phosphorus (extractable), ppm	88.1	15.0
Potassium (extractable), ppm	.58	212
Sodium (extractable), ppm	14.1	13.5
Magnesium (extractable), ppm	288	249
Calcium (extractable), ppm	14241	14561
Electrical Conductivity/Soluble Salts, dS/m	0.084	0.104
pH, SU	7.49	7.64

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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Joh Mulhi fr-3 Date: 2/4/25

Telephone Number: 254/445-0404

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2) Reporting Year: 2024 Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 8
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	10.588	10.636
Phosphorus (extractable), ppm	93.2	95.5
Potassium (extractable), ppm	404	425
Sodium (extractable), ppm	13.2	12.2
Magnesium (extractable), ppm	239	224
Calcium (extractable), ppm	14697	11357
Electrical Conductivity/Soluble Salts, dS/m	0.122	0.09
pH, SU	7.53	7.54

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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: John Mulhi from Date: 2/4/25

Telephone Number: 254/445-0404

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2) Reporting Year: 2024

Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 9
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	20.101	13,247
Phosphorus (extractable), ppm	94.5	5.69
Potassium (extractable), ppm	369	135
Sodium (extractable), ppm	14.4	20,2
Magnesium (extractable), ppm	254	171
Calcium (extractable), ppm	11662	22301
Electrical Conductivity/Soluble Salts, dS/m	0.137	0.277
pH, SU	7.44	7.75

ić:

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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Joh Mulli fr-s Date: 2/4/25

Telephone Number: 254/445-0404

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2) Reporting Year: 2024 Sample Collection Date: 10/24/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 10
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	o-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm	8.556	2.45
Phosphorus (extractable), ppm	121	12.2
Potassium (extractable), ppm	309	166
Sodium (extractable), ppm	18.4	40.6
Magnesium (extractable), ppm	369	266
Calcium (extractable), ppm	11767	14769
Electrical Conductivity/Soluble Salts, dS/m	0.296	0.328
pH, SU	7.56	7.66

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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Joh Mulh fr-3 Date: 2/4/25

Telephone Number: 254/445-0404

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2) Reporting Year: 2024 Sample Collection Date: 10/28/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 11
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	14.139	7.847
Phosphorus (extractable), ppm	27.1	5.40
Potassium (extractable), ppm	189	183
Sodium (extractable), ppm	14.8	24.5
Magnesium (extractable), ppm	224	164
Calcium (extractable), ppm	12042	19363
Electrical Conductivity/Soluble Salts, dS/m	0.314	0.287
pH, SU	7.58	7.68

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Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: John Mulli fr-5 Date: 2/4/25

Telephone Number: 254/445-0404

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2) Reporting Year: 2024

Sample Collection Date: 10/28/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 12
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	o-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm	24.344	14.792
Phosphorus (extractable), ppm	207	2.4
Potassium (extractable), ppm	432	365
Sodium (extractable), ppm	16.5	104
Magnesium (extractable), ppm	362	411
Calcium (extractable), ppm	4950	7102
Electrical Conductivity/Soluble Salts, dS/m	0.227	0.304
pH, SU	7.39	7.6

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemins per meter, equivalent to millimhols per centimeter (mmhols/cm); SU = standard units.

TCEQ-20170-b CAFO Individual Permit Soil Monitoring Report (July 20, 2014; Rev 01/15/22) Page 2

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 information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Joh Malli fr-3 Date: 2/4/25

Telephone Number: 254/445-0404

D. How to Submit

The soil monitoring report with attached soil analyses should be included in the Annual Report that is required to be submitted by March 31 of each year. For State Only CAFOs, submit this soil monitoring report form to the TCEQ, Enforcement Division (MC-224), P.O. Box 13087, Austin, Texas 78711-3087 and provide a copy to the TCEQ Regional Office.

If you have any additional questions about this form or soil sample collection and soil analyses requirements, contact:

A. Sample collection

1) Samples were collected for the land management unit (LMU) identified below.

Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.

No, provide the facility information for the LMU below with the exception of the tables.

2) Reporting Year: 2024 Sample Collection Date: 10/28/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
- 3) Name of LMU (LMU Name should correspond to field designation located on the Map included in the PPP): 13
- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	0-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm	5.278	4.692
Phosphorus (extractable), ppm	78.5	10.7
Potassium (extractable), ppm	242	172
Sodium (extractable), ppm	12.6	141
Magnesium (extractable), ppm	204	411
Calcium (extractable), ppm	3127	7137
Electrical Conductivity/Soluble Salts, dS/m	0.086	0.229
pH, SU	7.35	7.48

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 information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Jh Mulh Date: 2/4/25

Telephone Number: 254/445-0404

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If you have any additional questions about this form or soil sample collection and soil analyses requirements, contact:

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- 1) Samples were collected for the land management unit (LMU) identified below.
- Yes, complete this form and Tables 1 and 2 below. Attach a copy of the laboratory analyses to this soil monitoring report form.
- No, provide the facility information for the LMU below with the exception of the tables.
- 2) Reporting Year: 2024

Sample Collection Date: 10/28/2024

B. Facility Information

- 1) Permit Number: WQ0002950000
- 2) Site Name: Grand Canyon Dairy
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- 4) Name of Owner/Operator: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- 5) Mailing Address for Owner/Operator: 2179 County Road 308, Dublin, TX 76446

Table 1. Soil Analysis Report Where Manure, Sludge and Wastewater are not Incorporated

Soil Sample Parameter	0-2 inches soil depth	2-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO ₃ -N), ppm			
Phosphorus (extractable), ppm			
Potassium (extractable), ppm			
Sodium (extractable), ppm			
Magnesium (extractable), ppm			
Calcium (extractable), ppm			
Electrical Conductivity/Soluble Salts, dS/m			
pH, SU			

Table 2. Soil Analysis Report Where Manure, Sludge and Wastewater are Incorporated

Soil Sample Parameter	o-6 inches soil depth	6-24 inches soil depth
Nitrate-Nitrogen (NO3-N), ppm	4.676	3.463
Phosphorus (extractable), ppm	25.9	3.10
Potassium (extractable), ppm	251	218
Sodium (extractable), ppm	21.2	177
Magnesium (extractable), ppm	199	418
Calcium (extractable), ppm	3090	7690
Electrical Conductivity/Soluble Salts, dS/m	0.083	0.266
pH, SU	7.42	7.58

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 information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

Print Name and Title of Responsible Official or Authorized Agent: Tim Miranda, Member

Signature: Joh Mulli from S Date: 2/4/25

Telephone Number: 254/445-0404

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If you have any additional questions about this form or soil sample collection and soil analyses requirements, contact:

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



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

January 23, 2025

CERTIFIED MAIL 7022 2410 0000 5131 8251 RETURN RECEIPT REQUESTED

Ms. Dorice Miranda Circle 7 Dairy, LLC and Grand Canyon Dairy, LLC Grand Canyon Dairy 2179 County Road 308 Dublin, TX 76446 Re: Annual Soil Sample Analysis Results at Grand Canyon Dairy CAFO Permit No.: WQ0002950000

Dear Ms. Miranda:

Attached are the analytical results for the soil samples that were collected at your facility on October 24 and 28, 2024. 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

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • tceq.texas.gov

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,

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Michael Martin, Team Leader, Water Section DFW Region Office Texas Commission on Environmental Quality

MM/dm

Enclosures: Laboratory Analysis Reports

TEXAS COMMISS ENVIRON QUALITY	SION ON IMENTAL		Ch	ain	of	Cust	od	y F	Rec	ord	558	10 7
Location:	Frand	Cony	DA shade	d area i	f the fac	ility inform	ation	must t	e confid	enzial)	Permit #: 2 950)
Region:	Organizatio	n #:	PCA Code	e:		Program	"U	Q		Sampler telephone number: (254) 552- 1900		
E-Mail ID:		Sample	r: (signature)	a V	ard	In		-		Sampler: (please print clearly)	rel	
Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/ Comp.	Matrix L,S,M,O,1	CL2	рН	Cond	Analyses Requested	REMAR	KS
N272	-01	10 24-24	00:51							SPP RFA	LMUI	06
14273	-02		12:00								LMU1	6-24
14274	-03		12:35								LMU2	0-6
14275	-04		12:35								Lmu2	6-24
14276	-05		13:15								Lm43	0-6
14277	-06		13:15								Lmu3	6-24
14278	-07		10:40								LM4 4	0-6
14281	-08		10.40								LMUY	6-24
14282	-09		11:00								Lmus	0-6
14283	-10		11:00		C	M					Lmus	6-24
Relinquished	by:	Date	Time	Recei	ved by	An	11-1	ž. Z	4	For Laboratory Use:	2	
Relinquished	by:	Date	Time	Recei	Not of	Ĩ.				Received on ice: Y	N	deg. C
Relinquished	by:	Date	Time	Recei	ved by:					Preservatives: Y	N	
Relinquished	by:	Date	Time	Recei	ved by:					COC Seal: Y	N	
Shipper name Fld F	x	Shipper 79	Number:	68	13	76			Di	Seals Intact: Y	A Goldenrod-Collector D	DDV

.
Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055810a-45667 Print Date: 10-Jan-25

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: Grand Canyon Client address: not provided

Standard Sample Report TCEQ COC# 055810

Laboratory ID:	TCEQ/client	Sample	Sample Coll.	Collector	TCEQ	Date	Sample	Sample opened	Sample Ground	Process
	Sample ID:	Depth (inches)	Date:	Name:	Region #	Received	Туре:	Date	Date	Tech.
14272	55810-01	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14273	55810-02	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14274	55810-03	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14275	55810-04	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	ΤLP
14276	55810-05	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14277	55810-06	5-24	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	ПΡ
14278	55810-07	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	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: ALL Page, et al. (ed.). Methods of Soil Analysis: Part 2, Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

 Soil Nitrate-N KCI Extractable with Cd-Reduction Analyses
 N03-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:	: 055810a-456	67	Print Date:	10-Jan-25									
Standard Sam	ple Report	Т	CEQ COC#	055810			and the second second						1.1.18 m
Laboratory (D:	TCEQ/client	Mehlich III	Mehtich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III
	Sample ID:	P conc.	P units	К солс.	K units	Calcone,	Ca units	Mg conc.	Mg units	S conc.	S units	Na conc.	Na units
14272	55810-01	194	ppm	568	ppm	5318	ppm	363	ppm	56.7	ppm	31.8	ppm
14273	55810-02	30.0	ррт	373	ppm	6240	ppm	412	ppm	68 .8	ppm	116	ppm
14274	55810-03	140	ppm	523	ppm	6775	ppm	404	ppm	65.8	ppm	31.4	ppm
14275	55810-04	7.94	ppm	310	ppm	11729	ppm	545	ppm	115	ppm	228	ppm
14276	55810-05	224	ppm	458	ppm	10104	ppm	417	ppm	94.0	ppm	24.5	ppm
14277	55810-06	17.5	ppm	158	ppm	11573	ppm	294	ppm	97.7	ppm	83.2	ppm
14278	55810-07	57.2	ppm	607	ppm	11037	ppm	462	ppm	96.5	ppm	31.9	ppn

Laboratory ID:	Mehlich III B.conc	Mehlich III Prunite	Mehtich III	Mehlich III K units	Mehlich III	Meblich III	Mehlich III Ma conc	Mehlich III Ma.conc	Mehlich III	Mehlich III Sunits	Mehlich III Na conc	Mehlich III No units
Detection Limit	0.2367	ppm	0.1308	ppm	0.0436	ppm	0.0250	ppm	0.0010	ppm	0.0269	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	TCEQ/client	Mehlich III	Mehlich (II	Mehlich III	Mehlich III
	Sample ID:	Extract Date	Extract Tech	Anal_Date	Anal. Tech
14272	55810-01	1/8/2025	FMR	1/9/2025	JLP
14273	55810-02	1/8/2025	FMR	1/9/2025	JLP
14274	55810-03	1/8/2025	FMR	1/9/2025	JLP
14275	55810-04	1/8/2025	FMR	1/9/2025	JLP
14276	55810-05	1/8/2025	FMR	1/9/2025	JLP
14277	55810-06	1/8/2025	FMR	1/9/2025	JLP
14278	55810-07	1/8/2025	FMR	1/9/2025	JLP

Report ID: Standard Sa	055810a-45 mple Report	5667	Print Date: TCEQ COC#	10-Jan-2 055810	5		
Laboratory ID:	TCEQ/client Sample ID:	рH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
14272	55810-01	7,61	NA	0.239	dS/M	12.765	ppm
14273	55810-02	7.83	NA	0.294	dS/M	3.188	ppm
14274	55810-03	7,76	NA	0.147	dS/M	14.084	ppm
14275	55810-04	7.84	NA	0.125	dS/M	3.026	ppm
14276	55810-05	7,56	NA	0.174	dS/M	16.962	ppm
14277	55810-06	7.71	NA	0.183	dS/M	4.039	ppm
14278	55810-07	7.78	NA	0,138	dS/M	14,191	ppm

Laboratory ID:	pН	pН	Conductivity	Conductivity	Nitrate-N	Nitrate-N
		units		units		units
Detection Limit	0.01	na	0.001	d\$/M	0.01	ppm
Reporting Limit	0.1	па	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client	pH/Conduct	ivity prep	pH Ana	lysis	Conduc	tivity	Nitate-N I	Extract	Nitrate-N A	nalysis
	Sample ID:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
14272	55810-01	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14273	55810-02	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14274	55810-03	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14275	55810-04	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	wr.
14276	55810-05	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14277	55810-06	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14278	55810-07	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW

Report ID: 055810a-45667Print Date: 10-Jan-25Quality Control ReportTCEQ COC# 055810

Laboratory ID:		Mehlich III	Mehlich III	Mehlich (II	Mehlich III								
		P conc.	P units	К сопс.	K onits	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
14279	iC1025	48.2	ppm	323	ppm	2503	ppm	360	ppm	40.8	ppm	48.7	ppm
14280	(C1026	46.5	ppm	309	ppm	2328	ppm	345	ppm	39.1	ppm	47.9	ppm
	Mean IC	0	ppm	0	ppm	0	ppm	0	ppm	D	<u>éprn</u>	0	ppm
	IC Lower	45.9	ppm	305.0	ppm	2320.0	p pm	335.0	ppm	27.0	ppm	30.0	ppm
	IC Upper	53.4	ррт	365.0	ppm	2645.0	p pm	409.0	ppm	49.0	ppm	55.0	ppm
	blk221	<0.237	ppm	<0.131	ppm	<0.0436	ppm	<0.0250	naq	<0.0100	ppm	<0.513	ppm

Laboratory ID:	Mehlich III											
	P conc.	P units	К солс.	K units	Са сопс.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ppm	0.1308	ppm	0.0436	ppm	0.0250	ppm	0.0010	ppm	0.0269	ppm
Reporting Limit	_1	ppm	1	ppm								

Laboratory ID:	Mehlich III	Meblich III	Mehlich III	Mehlich III
1	Extract Date	Extract Tech	Anal.Date	Anal. Tech
IC1025	1/8/2025	FMR	1/9/2025	JLP
IC1026	1/8/2025	FMR	1/9/2025	JLP
blk221	1/8/2025	FMR	1/9/2025	JLP

page4 of 5

Report ID: 055810a-45667

Quality Control Report

TCEQ COC# 055810

Laboratory ID:		pH	ρH	Conducitity	Conducitity	Nitrate-N	Nitrate-N	Nitrate-N
			units	CONC.	units	сопс.	units	% recovery
14279	IC1025	5.9	na	0.254	dS/M	4.34	ppm	
14280	IC1026	5.9	na	0.255	dS/M	4.446	ppm	
	Mean IC	5,855	па	0.2545	dS/M	4.393	рргп	
14280spike	Spiked sample	-	-	-		3.9	ppm	88.1
	IC lower	5.760	na	0.241	dS/M	3.5	ppm	
	IC Upper	5,990	па	0.299	dS/M	5.5	ppm	
	blk221	2	na	0	dS/M	0.614	ppm	

Laboratory ID:	pН	 рН	Conducitity	Conducitity	Nitrate-N	Nitrate-N
		units	conc.	units	conc.	units
Detection Limit	0.01	па	0.001	dS/M	0.01	ррт
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conduct	ivity prep	рН Ала	alysis	Conduc	tivity	Nitate-N	Extract	Nitrate N /	Analysis
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC1025	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	WL.
IC1026	12/18/2024	DEC	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
blk221	12/18/2024	DE¢	12/18/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	WL

page 5 of 5

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055810b-45667 Print Date: 10-Jan-25

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: Grand Canyon Client address: not provided

Standard Sample Report TCEQ COC# 055810

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.
14281	55810-08	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	sail	11/25/2024	12/4/2024	TLP
14282	55810-09	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14283	55810-10	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	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. Jn: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. Znd ed. ASA and SSSA, Madison, WI.

 Soil Nitrate-N KCI 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

page 1 of 5

Report ID	: 055810b-4566	7	Print Date:	10-Jan-25									
Standard Sam	ple Report	Т	CEQ COC#	055810									
Laboratory ID:	TCEQ/client	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III	Mehlich III				
	Sample ID:	P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg units	S conc.	S units	Na conc.	Na units
14281	55810-08	12.0	ppm	266	ppm	14070	ppm	337	ppm	120	ppm	132	ppm
14282	55810-09	141	ppm	808	ppm	127 9 9	ppm	543	ppm	115	ppm	24.1	ppm
14283	55810-10	16.0	ppm	334	ppm	12949	ppm	380	ppm	111	рргл	107	ppm

Laboratory ID:	Mehlich III	Mehlich 11	Mehlich III									
	P conc.	P units	K conc.	K units	Calcone.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ppm	0.1308	ppm	0.0436	ppm	0.0250	ppm	0.0010	ррт	0.0269	ppm
Reporting Limit	1	ррлп	1	ppm	1	ррл	1	p pm	1	ppm	1	ppm

Laboratory ID:	TCEQ/client	Mehlich III	Mehlich III	Meblich III	Mehlich III
	Sample ID:	Extract Date	Extract Tech	Anal.Date	Anal. Tech
14281	55810-08	1/8/2025	FMR	1/9/2025	JLP
14282	55810-09	1/8/2025	FMR	1/9/2025	JLP
14283	55810-10	1/8/2025	FMR	1/9/2025	JLP

page 2 of 5

Report ID Standard Sa	: 055810b-45	5667	Print Dat	e: 10-Jan-25 ₩ 055810	5		
Laboratory (D:	TCEQ/client Sample ID:	pН	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
14281	55810-08	7.8	5 NA	0.46	dS/M	6.869	ppm
14282	55810-09	7.7	'8 NA	0.23	dS/M	14.244	ppm
14283	55810-10	7.8	9 NA	0.158	dS/M	6.215	ppm

Laboratory ID:	pН	pН	Conductivity	Conductivity	Nitrate-N	Nitrate-N
		units		units		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/Conduct	pH/Conductivity prep		pH Analysis		Conductivity		Extract	Nitrate-N Analysis	
	Sample ID:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
14281	55610-08	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14282	55810-09	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14283	55810-10	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW

.

Report ID: 055810b-45667Print Date:10-Jan-25Quality Control ReportTCEQ COC# 055810

Laboratory ID:		Mehlich III	Mehlich I/I	Mehlich III									
		P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc	Mg conc.	S conc.	S units	Na conc.	Na units
14299	IC1027	47.5	ppm	328	ррт	2459	ppm	360	ррт	40.5	ppm	107	ppm
14300	IC1028	46.5	ppm	318	ppm	2386	ppm	348	ppm	40.0	ppm	105	ppm
	Mean IC	0	ppm										
	IC Lower	45.9	ррпт	305.0	ppm	2320.0	ppm	335.0	ppm	27.0	ppm	30.0	ppm
	IC Upper	53.4	ppm	365.0	ppm	2645.0	ppm	409.0	ppm	49.0	ppm	55.0	ppm
	blk221	<0.237	ppm	<0.131	ppm	<0.0436	ppm	<0.0250	ppm	<0.0100	ppm	<0.513	ppm

Laboratory ID:	Mehlich III	Mehlich IIf	Mehlich III	Mehlich NI	Mehlich III	Mehlich III	Mehlich III	Mehlich III				
	P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ppm	0.1308	ppm	0.0436	ppm	0.0250	ppm	0.0010	ppm	0.0269	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	Mehlich III	Mehlich III	Mehlich III	Mehlich III
	Extract Date	Extract Tech	Anal.Date	Anal, Tech
IC1027	1/8/2025	FMR	1/9/2025	JLP
IC1028	1/8/2025	FMR	1/9/2025	JLP
blk221	1/8/2025	EMR	1/9/2025	JLP

page4 of 5

Report ID: 055810b-45667

Quality Control Report

TCEQ COC# 055810

Laboratory ID:		pН	pН	Conducitity	Conducitity	Nitrate-N	Nitrate-N	Nitrate-N
			units	conc.	units	conc.	units	% recovery
14299	IC1027	5.9	ла	0.257	dS/M	4.446	ppm	
14300	IC1028	5.9	па	0.256	dS/M	4.468	ppm	
	Mean IC	5.87	па	0.2565	dS/M	4.457	ppm	
1 4300spike	Spiked sample	-	-	-	-	3.9	ppm	88.1
	IC lower	5.760	na	0.241	dS/M	3.5	ppm	
	IC Upper	5.990	na	0.299	dS/M	5.5	ppm	
	blk221	-	na	0	dS/M	0.614	ppm	

Laboratory ID:	pН	pН	Conducitity	Conducitity	Nitrate-N	Nitrate-N
		units	conc.	units	CONC.	units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0,1	na	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conduct	ivity prep	pH Analysis		Conduc	tivity	Nitate-N	Extract	Nitrate-N	Analysis
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC1027	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
IC1028	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
bik221	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW

TEXAS COMMIS: ENVIRON QUALITY	SION ON IMENTAL		Ch	ain	of	Cus	tod	уF	Rec	ord		558	11 24
Location:	frand (Canty	DA shade	d area i	f the fac	ility inform	nation	must t	pe config	tential)		Permit #:	10
Region:	Organization	#:	PCA Code	e:		Program	ח: נ	JG	2	Sampler telepho (254)	552-190	DO	
E-Mail ID:		Sampler	(signature)	- Xe	nd	m	~			Sampler: (pleas	a Gardi	res	
Lab ID Number	Sample Date Time # of Grab/ Matrix CL2 pH Constraints er ID ID<						Cond	Analyses	Requested	REMAR	KS		
14284	-01	10 24-24	13:55							5PP	RFA	LMUB	0-6
14285	-02	10-24-24	13:55									LMUB	6-24
14281	-03	N-20/2	1330								-	LMU7	06
14287	-04	10/28/24	1330									LM47	6-24
14288	-05	1074 x	THIN									LMU8	0-6
14289	-06	10/24/24	HER									LMUB	6-24
14290	-07	10-24-24	14:25	_								Lm49	0-6
14291	-08	10 24-24	14:25									LMK9	6-24
14292	-09	10-28-	1410									Lmu10	0-6
14293	-10	128/24	1410			1				-	L	LMUID	6-24
Relinguished b	y:	Date	Time	Receiv	editor	h,	1-1	9_2	4	For Laboratory	Use:		
Relinquished b	y:	Date	Time	Receiv	ed by:					Received on ice	e: Y	N	deg. C
Relinquished b	y:	Date	Time	Receiv	ed by:					Preservatives:	Y	N	
Relinquished by	y:	Date	Time	Receiv	ed by:					COC Seal:	Y	N	
Shipper name:	Ex	Shipper N 7915	umber: 94	68	1	375				Seals Intact:	Y	N	

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055811a-45667 Print Date: 10-Jan-25

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: Grand Canyon Client address: not provided

Standard Sample Report TCEQ COC# 055811

Laboratory ID:	TCEQ/client	Sample	Sample Coll.	Collector	TCEQ	Date	Sample	Sample opened	Sample Ground	Process
	Sample ID:	Depth (inches)	Date:	Name:	Region #	Received	Type:	Date	Date	Tech.
14284	55811-01	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14285	55811-02	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	şoil	11/25/2024	12/4/2024	TLP
14285	55811-03	0-6	12/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14287	55811-04	6-24	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14288	55811-05	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	sail	11/25/2024	12/4/2024	TLP
14289	55811-06	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14290	55811-07	0-6	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14291	55811-08	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14292	55811-09	0-6	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14293	55811-10	6-24	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	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 safts. 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, WL.

Soil Nitrate-N. KCLExtractable 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	: 055811a-456	67	Print Date:	10-Jan-25									
Standard Sam	ple Report	T	CEQ COC#	055811									
Laboratory ID:	TCEQ/client	Mehlich III	Mehlich 11	Mehlich III	Mehlich III	Mehlich II.	Mehlich III						
	Sample (D:	P conc.	P units	К солс.	K units	Ca conc.	Ca units	Mg conc.	Mg units	S conc.	S units	Na conc.	Na units
14284	55811-01	146	ppm	450	ppm	11873	ppm	432	ppm	116	ppm	31.3	ppm
14285	55811-02	10.8	ppm	180	opm	17447	ppm	263	ppm	164	ppm	97.1	ppm
14286	55811-03	88.1	ppm	358	ррт	14241	ppm	288	ppm	122	ppm	14.1	ppm
14287	55811-04	15.0	ppm	212	ppm	14561	ppm	249	ppm	118	ppm	13.5	ppm
14288	55811-05	93.2	ррт	40 4	ppm	14697	ppm	239	ppm	125	ppm	13.2	ррлт
14289	55811-06	95.5	ppm	425	ppm	11357	ppm	224	ppm	98.0	ppm	12.2	ppm
14290	55811-07	94.5	ppm	369	ppm	11662	ppm	254	ppm	105	ppm	14.4	ppm
14291	55811-08	5.69	pom	135	ppm	22301	החקק	171	ppm	181	ppm	20.2	ppm
14292	55811-09	121	pom	309	DOM	11767	ppm	369	ppm	103	ppm	18.4	inqq
14293	55811-10	12.2	ppm	166	ppm	14769	ррп	266	ppm	140	ppm	40.6	ppm

Laboratory ID:	Mehlich (II	Mehlich III	Mehlich II!	Mehlich III	Mehlich III	Mehlich III						
	P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ррп	0.1308	ppm	0.0436	ррат	0.0250	ppm	0.0010	ppm	0.0269	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ррл	1	ppm	1	ppm

Laboratory ID:	TCEQ/client	Mehlich III	Mehlich III	Mehlich III	Mehlich III
	Sample ID:	Extract Date	Extract Tech	Anal, Date	Anal. Tech
14284	55811-01	1/8/2025	FMR	1/9/2025	JLP
14285	55811-02	1/8/2025	FMR	1/9/2025	JLP
14286	55811-03	1/8/2025	FMR	1/9/2025	JEP
14287	55811-04	1/8/2025	FMR	1/9/2025	JLP
14288	55811-05	1/8/2025	FMR	1/9/2025	JLP
14289	55811-06	1/8/2025	FMR	1/9/2025	JLP
14290	55811-07	1/8/2025	FMR	1/9/2025	JLP
14291	55811-08	1/8/2025	FMR	1/9/2025	JLP
14292	55811-09	1/8/2025	FMR	1/9/2025	JLP
14293	55811-10	1/8/2025	FMR	1/9/2025	JLP

Report ID Standard Sa	: 055811a-45 ample Report	5667	Print Date TCEQ COC#	2: 10-Jan-2 ‡ 055811	5		
Laboratory ID:	TCEQ/client Sample ID:	рH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
14284	55811-01	7.64	NA	0.08	dS/M	13.206	ppm
14285	55811-02	7.77	NA	0.109	dS/M	8.293	ppm
14286	55811-03	7.49	NA	0.084	dS/M	12,479	ppm
14287	5581 1-04	7.64	NA	0.104	dS/M	5.106	ppm
14288	5581 1- 05	7.53	NA	0.122	dS/M	10.588	ppm
14289	55811-06	7.54	NA	0.09	dS/M	10.636	ppm
14290	55811-07	7.44	NA	0.137	dS/M	20.101	ppm
14291	55811-08	7,75	NA	0.277	dS/M	13.247	ppm
14292	55811-09	7.56	NA	0.296	dS/M	8.556	ppm
14293	55811-10	7.66	NA	0.328	dS/M	2.45	ppm

Laboratory ID:	pН	pH units	Conductivity	Conductivity	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 (D:	TCEQ/client	pH/Conduct	ivity prep	pH Ana	lysis	Conduc	tivity	Nitate-N I	Extract	Nitrate-N A	Inalysis
	Sample ID:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
14284	55811-01	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14285	55811-02	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14286	55811-03	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14287	55811-04	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14288	55811-05	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14289	55811-06	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14290	55811-07	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14291	55811-08	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14292	55811-09	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14293	55811-10	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW

Report ID: 055811a-45667 Quality Control Report

Print Date: 10-Jan-25 TCEQ COC# 055811

Laboratory ID:		Mehlich III	Mehlich III	Mehlich (I)	Mehlich 1II	Mehlich III							
		P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
14299	IC1027	47.5	ppm	328	ppm	2459	ppm	360	ppm	40.5	ppm	107	mqq
14300	IC1028	46.5	ppm	318	ppm	2386	ppm	348	ppm	40.0	ppm	105	ppm
	Mean IC	0	ppm	0	ρpm	0	ppm	0	ppm	0	ppm	0	mqq
	IC Lower	45.9	ppm	305.0	ppm	2320.0	pp m	335.0	ppm	27.0	рргя	30.0	ppm
	IC Upper	53.4	ρpm	365.0	ρpm	2645.0	ppm	409.0	ppm	49.0	ppm	55.0	рргп
	blk221	< 0.237	ppm	<0.131	ppm	<0.0436	ppm	<0.0250	ppm	<0.0100	ppm	<0.513	ppm

Laboratory ID:	Mehlich III											
	P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ppm	0.1308	ppm	0.0436	ppm	0.0250	ppm	0.0010	ppm	0.0269	ppm
Reporting Limit	1	ppm	1	pbu/	1	ppm	1	ppm	1	ppm	1	ppm

Laboratory ID:	Mehlich III	Mehlich III	Mehlich III	Mehlich III
	Extract Date	Extract Tech	Anal.Date	Anal, Tech
IC1027	1/8/2025	FMR	1/9/2025	JLP
IC1028	1/8/2025	FMR	1/9/2025	JLP
blk221	1/8/2025	FMR	1/9/2025	JLP

Report ID: 055811a-45667

Print Date: 10-Jan-25

Quality Control Report

TCEQ COC# 055811

Laboratory ID:		рH	ρН	Conducitity	Conducitity	Nitrate-N	Nitrate-N	Nitrate-N
			units	conc.	units	conc.	units	% recovery
14299	IC1027	5.9	ла	0.257	dS/M	4.446	ppm	
14300	IC1028	5.9	ha	0.256	dS/M	4.468	ppm	
	Mean IC	5.87	па	0.2565	dS/M	4.457	ppm	
14300spike	Spiked sample		-	-	150	3.9	ppm	88.1
	IC lower	5.760	па	0.241	dS/M	3.5	ppm	
	IC Upper	5.990	па	0.299	dS/M	5.5	ppm	
	b/k221	-	na	0	dS/M	0.614	ppm	

Laboratory ID:	ρН	pН	Conducitity	Conducitity	Nitrate-N	Nitrate-N
		units	conc.	units	conc.	units
Detection Limit	0.01	08	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	pH/Conduct	ivity prep	pH Ana	lysis	Conduc	tivity	Nitate-N	Extract	Nitrate-N Analy	
	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
IC1027	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
IC1028	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	WL
blk221	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW

	SION ON IMENTAL		Ch	nain	of	Cus	tod	уł	Rec	ord			5 5 8	12
Location:	Grand	(De not fill	With Schade	ed area	if the fa	cility inform	nation	must t	be confic	lential)		Permit #	# 296	īo
Region:	Organizatio	n #:	PCA Code	e:		Progra	m: L	\mathcal{N}	Q	Sampler telepho	ne number:	900		
E-Mail ID:		Sampler	(signature	L	and	luc	_			Sampler: (pleas	e print clearly)	ner		
Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/ Comp.	Matrix L,S,M.O,	T CL2	рН	Cond	Analyses	Requested		REMARK	(S
M294	-01	10 2 2 A	的题							SPE	RFA	LM	411	0-6
14295	-02	in-Fair	14:00									LM	U11	6-2
14296	-03	19/24/24	1110									Lm	112	0-6
14297	-04	1924/24	1110									Ľm.	112	6-2
14298	-05	1928/2	1230									Lm	14 13	0.6
14301	-06	19/28/24	1230									LM	u/3	6-2
1430z	-07	19282	1040									Lm	414	D-E
14303	-08	128/25	1040									LM	U M	6.2
	-09												>	\leq
	-10				1	M	1					\square	\geq	\leq
Relinquished by	<i>f</i> :	Date	Time	Receiv	red by)kn	11-	19.	ZÝ	For Laboratory	Use:	2		
Relinquished by	/: 	Date	Time	Receiv	ed by					Received on ice	e: Y	N		deg. C
Relinguished by	<i>f</i> :	Date	Time	Receiv	red by:					Preservatives:	Y	N		
Relinquished by	/:	Date	Time	Receiv	red by:					COC Seal:	Y	N		
Shipper name:	Ex	Shipper N	umber: 446	B 1	315					Seals Intact:	Y			

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055812a-45667 Print Date: 10-Jan-25

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: Grand Canyon Client address: not provided

Standard Sample Report TCEQ COC# 055812

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.
14294	55812-01	0-6	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14295	55812-02	6-24	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14296	55812-03	0-6	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14297	55812-04	6-24	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	ΠLP
14298	55812-05	0-6	10/28/2024	Vanessa Gardner	4	11/19/2024	soîl	11/25/2024	12/4/2024	ፐኒቦ

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: AL. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

 Soil Nitrate-N. KCI Extractable with Cd-Reduction Analyses
 N03-N EXTRACTION - SWFTL0014R5.SOP/N03-N ANALYSIS - SWFTL0089R1.SOP

 Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: AL. 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	: 055812a-456	67	Print Date:	10-Jan-25									
Standard Sam	ple Report	Т	CEQ COC#	055812								_	
Laboratory ID:	TCEQ/client	Mehlich III											
	Sample ID:	P conc.	P units	К сопс.	K units	Ca conc.	Ca units	Mg conc.	Mg units	S conc.	S units	Na conc.	Na units
14294	55812-01	27.1	ppm	189	ррлі	12042	ppm	224	ppm	100	ppm	14.8	ppm
14295	55812-02	5.40	ppm	183	рргл	19363	ppm	164	ppm	153	ppm	24.5	ppm
14296	55812-03	207	ppm	432	ppm	4950	ppm	362	ppm	53.3	ррпп	16.5	ppm
14297	55812-04	25.4	ppm	365	ppm	7102	ppm	411	ppm	72.2	ppm	104	ppm
14298	55812-05	78.5	ppm	242	ppm	3127	ppm	204	ppm	34.0	ppm	12.6	ррт

Laboratory ID:	Mehlich III											
	P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ppm	0.1308	ppm	0.0436	ppm	0.0250	ррл	0.0010	ррт	0.0269	ppm
Reporting Limit	1	ppm	1	ppm	1	ppm	1	ppm	1	ррт	1	ppm

Laboratory ID:	TCEQ/client	Mehlich III	Mehlich III	Mehlich III	Mehlich III
	Sample ID:	Extract Date	Extract Tech	Anal.Date	Anal, Tech
14294	55812-01	1/8/2025	FMR	1/9/2025	JLP
14295	55812-02	1/8/2025	FMR	1/9/2025	JLP
14296	55812-03	1/8/2025	FMR	1/9/2025	JLP
14297	55812-04	1/8/2025	FMR	1/9/2025	JLP
14298	55812-05	1/8/2025	FMR	1/9/2025	JLP

Report ID	: 055812a-4	5667	Print Date	10-Jan-25			
Standard Sa	mple Report		TCEQ COC#	\$ 055812			
Laboratory ID:	TCEQ/client Sample ID:	Рq	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
14294	55812-01	7.58	NA	0.314	dS/M	14.139	ppm
14295	55812-02	7.68	NA	0.287	dS/M	7.847	ρρm
14296	55812-03	7.38	NA	0.227	dS/M	24.344	ρpm
14297	55812-04	7.6	NA	0.304	dS/M	14.79 2	ppm
14298	55812-05	7.35	NA	0.086	dS/M	5.278	ppm

Laboratory ID:	рH	рН units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	ла	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client	pH/Conduct	ivity prep	рН Апа	lysis	Conduc	tivity	Nitate-N I	Extract	Nitrate-N Analysis	
	Sample ID:	Date	Tech	Date	Tech	Date	Tech	Date	Tech	Date	Tech
14294	55812-01	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14295	55812-02	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14296	55812-03	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14297	55812-04	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
14298	55812-05	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW

Report ID: 055812a-45667Print Date: 10-Jan-25Quality Control ReportTCEQ COC# 055812

Laboratory ID:		Mehlich III											
		P conc.	P units	K conc.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
14299	IC1027	47.5	ppm	328	ppm	2459	ppm	360	ppm	40.5	ρpm	107	ppm
14300	IC1028	46.5	ppm	318	ppm	2386	рргп	348	ppm	40.0	ppm	105	ppm
	Mean IC	0	ppm	0	ppm	0	ppm	0	ppm	o	ppm	0	рол
	IC Lower	45.9	ppm	305.0	ppm	2320.0	ppm	335.0	ppm	27.0	ppm	30.0	ppm
	IC Upper	53.4	ppm	365.0	ppm	2645.0	ppm	409.0	ppm	49.0	ppm	55.0	ppm
	b/k221	<0.237	ppm	<0.131	ppm	< 0.0436	ppm	<0.0250	ppm	<0.0100	ррп	<0.513	ppm

Laboratory ID:	Mehlich III											
	P conc.	P units	K conc.	Kunits	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ppm	0.1308	ppm	0.0436	ppm	0.0250	ppm	0.0010	ppm	0.0269	ppm
Reporting Limit	1	ppm										

Laboratory ID:	Mehlich III	Mehlich III	Mehlich III	Mehlich III
	Extract Date	Extract Tech	Anal.Date	Anal, Tech
IC1027	1/8/2025	FMR	1/9/2025	JLP
IC1028	1/8/2025	FMR	1/9/2025	JLP
blk221	1/8/2025	FMR	1/9/2025	JLP

Report ID: 055812a-45667

Quality Control Report

TCEQ COC# 055812

Laboratory ID:		рH	ρH	Conducitity	Conducitity	Nitrate-N	Nitrate-N	Nitrate-N
			units	CONC.	units	conc.	units	% recovery
14299	IC1027	5.9	па	0.257	dS/M	4.446	ppm	
14300	IC1028	5.9	па	0.256	dS/M	4,468	ppm	
	Mean IC	5.87	រាខ	0.2565	dS/M	4.457	ppm	
14300spike	Spiked sample	-	-		-	3.9	ppm	88.1
	IC lower	5.760	na	0.241	dS/M	3.5	ppm.	
	IC Upper	5.990	па	0.299	dS/M	5.5	ppm	
	blk221	4	ла	0	dS/M	0.614	opm	

Laboratory ID:	pН	pН	Conducitity	Conducitity	Nitrate-N	Nitrate-N
		units	conc.	units	сопс.	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
IC1027	12/13/2024	DEC	12/16/2024	DÉC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	w
IC1028	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
blk221	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW

Report for Samples analyzed Under Contract Number: 582-10-99518

Report ID: 055812b-45667 Print Date: 10-Jan-25

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: Grand Canyon Client address: not provided

Standard Sample Report TCEQ COC# 055812

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.
14301	55812-06	6-24	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
14302	55812-07	0-6	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TUP
14303	55812-08	6-24	10/28/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	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:soilSOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOPSchofield, 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:SoilSOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOPRhoades, 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 KC) Extractable with Cd-Reduction AnalysesN03-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOPKeeney, 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): 055812b-4566	i7	Print Date:	10-Jan-25									
Standard Sam	ple Report	Т	CEQ COC#	055812									
Laboratory ID:	TCEQ/dient	Mehlich III											
	Sample ID:	P conc.	P units	K conc.	K units	Calcone.	Ca units	Mg conc.	Mg units	S conc.	S units	Na conc.	Na units
14301	55812-06	10.7	ppm	172	ppm	7137	ppm	411	ppm	76.1	ppm	141	ppm
14302	55812-07	25.9	ppm	251	ppm	3090	ppm	199	ppm	30.9	ppm	21.2	ppm
14303	55812-08	3.10	ppm	218	ppm	7690	ppm	418	ppm	78.6	<i>p</i> pm	177	рргп

Laboratory ID:	Mehlich III	Mehlich III	Mehlich III	Meblich III	Mehlich III	Mehlich III	Mehlich II1	Mehlich III				
	P conc.	P units	K conc.	K units	Calconc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ppm	0.1308	ррти	0.0436	ppm	0.0250	ppm	0.0010	ppm	0.0269	ppm
Reporting Limit	1	ppm										

Laboratory ID:	TCEQ/client	Mehlich III	Mehlich III	Mehlich III	Mehlich III
	Sample ID:	Extract Date	Extract Tech	Anal.Date	Anal. Tech
14301	55812-06	1/8/2025	FMR	1/9/2025	JLP
14302	55812-07	1/8/2025	FMR	1/9/2025	JLP
14303	55812-08	1/8/2025	FMR	1/9/2025	JLP

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Report ID Standard Sa	: 055812b-45 mple Report	5667	Print Date TCEQ COC:	5			
Laboratory ID:	TCEQ/client Sample ID:	pН	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
14301	55812-06	7.4	48 NA	0.229	dS/M	4.692	ppm
14302	55812-07	7.4	12 NA	0.083	dS/M	4.676	ppm
14303	55812-08	7.5	58 NA	0.266	dS/M	3.463	ppm

Laboratory ID:	pН	pН	Conductivity	Conductivity	Nitrate-N	Nitrate-N
		units		units		units
Detection Limit	0.01	па	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client	FCEQ/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
14301	55812-06	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JWL
14302	55812-07	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	WL
14303	55812-08	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW

Report ID: 055812b-45667Print Date: 10-Jan-25Quality Control ReportTCEQ COC# 055812

Laboratory ID:		Mehlich III											
-		P conc.	P units	K conc.	Kunits	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
14319	IC1029	46.8	ppm	316	ppm	2552	ppm	353	ppm	39.7	ppm	47.9	ppm
14320	IC1030	46.2	ppm	308	opm	2351	ppm	345	ppm	39.1	ppm	46.8	ppm
	Mean IC	0	ppm	0	ppm	0	ppm	o	ppm	0	ppm	0	ppm
	IC Lower	45.9	ppm	305.0	ppm	2320-0	ppm	335.0	ppm	27.0	ppm	30.0	ppm
	IC Upper	53,4	ppm	365.0	ppm	2645.0	ppm	409.0	ppm	49.0	ppm	55.0	ppm
	blk222	<0.237	mag	0.142	ppm	<0.0436	opm	<0.0250	ppm	<0.0100	ppm	0.493	ppm

Laboratory ID:	Mehlich III	Mehlich III	Mehlich III	Mehlich Itl	Mehlich III	Mehlich ill	Mehlich III	Mehfich III				
	P conc.	P units	К сопс.	K units	Ca conc.	Ca units	Mg conc.	Mg conc.	S conc.	S units	Na conc.	Na units
Detection Limit	0.2367	ррл	0.1308	ppm	0.0436	ppm	0.0250	ppm	0.0010	ppm	0.0269	ppm
Reporting Limit	1	ppm										

Laboratory ID:	Mehlich III	Mehlich III	Mehlich III	Mehlich III
	Extract Date	Extract Tech	Anal.Date	Anal. Tech
IC1029	1/8/2025	FMR	1/9/2025	JLP
IC1030	1/8/2025	FMR	1/9/2025	JLP
b/k222	1/8/2025	FMR	1/9/2025	JLP

Report ID: 055812b-45667

Quality Control Report

TCEQ COC# 055812

Laboratory ID:		pН	pH units	Conducitity conc.	Conducitity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
14319	IC1029	5.9	na	0.256	dS/M	4.759	рргп	
14320	IC1030	5.9	па	0.254	dS/M	4.704	ррт	
	Mean IC	5.875	ла	0.255	dS/M	4.7315	ppm	
14320spike	Spiked sample	<u>s</u>	-	4	<u>_</u> 2	3.9	ppm	88.6
	IC lower	5,760	па	0.241	dS/M	3.5	ppm	
	IC Upper	5.990	na	0.299	dSAM	5.5	ppm	
	blk222		na	0	dS/M	0.694	ppm	

Laboratory ID:	pН	ρH	Conducitity	Conducitity	Nitrate-N	Nitrate-N
L		units	conc.	units	conc.	units
Detection Limit	0.01	па	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
IC1029	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	WL
IC1030	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	WL
b/k222	12/13/2024	DEC	12/16/2024	DEC	12/16/2024	DEG	12/16/2024	FMR	12/17/2024	JWL

Grand Canyon Dairy**2179 CR 308 Dublin, TX 76446**Aug. 17, 2023

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.





6921 S. Bell • Amarillo, TX 79109 www.servitech.com

ab No.: 3753	LABO	RATORY A	NALYSIS	REPORT	Report Date: 0	7/01/2024 02:10 pm
Send To: 6224	Send To: ENVIRO-AG ENGINEERING INC 6224 3404 AIRWAY BLVD AMARILLO, TX 79118				Am	y Meier
					Data Rev	iew Coordinator
Results For: Sample ID: Location	GRAND CAN MANURE ERATH COUI	YON DAIRY		Received: Sampled: Invoice No: P.O. #:	06/18/2024 06/14/2024 425820 COREY MULLIN	1
			Analysis (dry basis)	Analysis (as rec'd)	Total content	Estimated available first year* lbs per ton
NUTRIENTS					(431004)	(da lec u)
Nitrogen						
Total Nitrog	len	%	2.378	1.184	23.7	12.3
Organic Nit	rogen	%	1.940	0.966	19.3	7.9
Ammonium	Nitrogen	%	0.438	0.218	4.4	4.4
Nitrate+Nitr	ite Nitrogen	%	0.004	0.0016	<0.1	<0.1
Major and Sec	ondary Nutrients					
Phosphorus	5	%	0.660	0.267		
Phosphorus	s as P2O5	%	1.51	0.611	12.2	11.0
Potassium		%	2.37	0.958		
Potassium	as K2O	%	2.84	1.148	23.0	23.0
OTHER PROPERT	IES					
Moisture		%		50.2		
Total Solids	5	%		49.8	996	
Orgar	ic Matter	%	52.2	26.0	520	
		%		23.8	476	
Ash		ratio		12.7		

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. 3404 Airway Blvd,. Amarillo, TX 79118 Tel. 806-353-6123 Fax 806-353-4132

Project Manager: Corey Mullin

MANURE CHAIN OF CUSTODY RECORD

Producer/Facility:	Grand Canyon Dairy
County:	Erath
Date Sampled:	6/14/2024
Date Shipped:	6/17/2024

Sample Type	Sample ID	Number of Containers	Test Package	Proper Preservation	Matrix
Manure	Manure	1 375	3 EAE TX CO KS MANURE	Y	от
					e. onen
					-
					11-0-01
					- UL
				-	1.1413

Relinquished By: Ref. Internal COC	Relinquished By: Lisa Postmus	Relinquished By:	
Company: EAE	Company: EAE	Company:	ServiTech Lab
	Date/Time: 141824	1040	
	Received By: MATHIN	- BETHER	



Major and Secondary Nutrients

Phosphorus as P2O5

Organic Matter

Potassium as K2O

Phosphorus

Potassium

OTHER PROPERTIES

Moisture **Total Solids**

C:N Ratio

Ash

9.0

Lab No: 3696	LABOR	ATORY	ANALYS	S REPORT	Report Date: 06/3	0/2024 08:17 pm
Send To: 6224	ENVIRO-AG ENG 3404 AIRWAY BL AMARILLO, TX 7	GINEERING INC BLVD 79118		Amy Data Review	Meier Coordinator	
Client Name: Sample ID: Location	GRAND CANYON RCS #3 ERATH COUNTY	I DAIRY		Received: Sampled: Invoice No: P.O. #:	06/18/2024 06/14/2024 425818 COREY MULLIN	
		Analysi	s results	lbs/ac	re-in	meq/L
NUTRIENTS						
Nitrogen						
Total Nit	rogen	46	ppm		10	3.3
Organic	Nitrogen	26	ppm		6	1.9
Ammoni	um Nitrogen	20.3	ppm		5	1.5
Nitrate+N	Nitrite Nitrogen	0.37	ppm		0	<0.1

20

50

350

420

99.8

< 0.10

< 0.10

12.5

0.2

ppm

ppm

ppm

ppm

ppm

%

%

%

%

ratio

11

95

453

0

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.

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WASTEWATER CHAIN OF CUSTODY RECORD

Producer/Facility:	Grand Canyon Dairy
County:	Erath
Date Sampled:	6/14/2024
Date Shipped:	6/17/2024

ServiTech Lab

3404 Airway Blvd,. Amarillo, TX 79118 Tel. 806-353-6123 Fax 806-353-4132

Project Manager: Corey Mullin Proper Number of Preservation Matrix Containers **Test Package** Sample Type Sample ID γ OT EAE TX CO KS LAGOON RCS #2 Wastewater 2 3695 EAE TX CO KS LAGOON Y OT RCS #3 2 Wastewater 3696

Relinquished By: Ref. Internal COC

Relinquished By: Lisa Postmus Relinquished By:

Company: EAE

Company: EAE Company: 1040 74 Date/Time: () 13.1 13.1 Received By: MHUUM

5.0 RECHARGE FEATURE CERTIFICATION

CERTIFICATION

Leartify 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

> Major Amendment Grand Canyon Dairy

5.1 General

This recharge feature certification report was authorized by Mr. Tim Miranda representing Circle 7 Dairy, LLC and Grand Canyon Dairy, LLC. 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

Circle 7 Dairy, LLC and Grand Canyon Dairy, LLC is applying for a major amendment of current TPDES #2950 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 1,541 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 from the milking parlor operations and the water generated from the production of biogas. The flow of the process-generated wastewater can be found on Figures 2.1A-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 <u>significant</u> 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 Maloterre-Purves-Dugout and Windthorst-Duffau soil associations in this area of Erath County are immediately underlain by Quaternary alluvium, the Cretaceous Walnut Formation, Glen Rose Formation and the Cretaceous Paluxy Formation, as shown in Figure 5.1, Geologic Atlas. Bedrock from Glen Rose Formation outcrops east and west of the site. Quaternary alluvium consists of floodplain deposits and locally includes low terrace deposits near flood-plain level and bedrock in streams channels, with thicknesses of up to 25 feet.

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).

Forming the upper unit of the Trinity Group, the Paluxy Formation consists of up to 400 feet of predominantly fine to coarse-grained sand interbedded with clay and shale. Underlying the Paluxy, the Glen Rose Formation forms a gulfward-thickening wedge of marine carbonates consisting primarily of limestone. Paluxy bedrock outcrops along the northeast portion of this site. Limiting application rates of wastewater and manure will protect this feature form adverse impacts.

The basal unit of the Trinity Group consists of the Twin Mountains and Travis Peak formations, which are laterally separated by a facies change. To the north, the Twin Mountains Formation consists mainly of medium-to coarse-grained sands, silty clays, and conglomerates (Ashworth, 1995).


<u>Sources</u>: Geologic Atlas of Texas, Abilene Sheet, 1972.

Grand Canyon Dairy Dublin, TX Erath County

Geologic Atlas of Texas Figure 5.1 Page 35



Enviro-Ag Engineering, Inc. ENGINEERING CONSULTANTS 3404 Anway Roulevard AMARILLO, TEXAS 79118 TEL (806) 353-6123 FAX (806) 353-4132

5.6.1 Outcrops/Stream Interception

An inspection of the CAFO property and review of the USGS topographic map of the area shows the South Fork Little Green Creek and tributaries located in LMUs #1, 2, 3, 4, 5, 6, 8, 9, 10, 12, 13 and 14 are protected with buffers from land application. The numerous freshwater ponds located on the subject property are protected from land application with the appropriated buffers. The water feature located in LMU #5 has been backfilled in with dirt and is no longer present.

5.6.2 Excessive Slopes

No slopes of greater than 8 percent are present on the property.

5.6.3 Other Large-Scale Conduits

No faults, fractured sediments, caves, sinkholes, solution cavities, vugs or concentrated or extensive animal burrowing was observed during an on-site visit, nor is identified on the geologic atlas, soil surveys or USGS maps.

5.6.4 Surface Water

The "water in the state" designation is based on Enviro-Ag Engineering, Inc., site inspections, the permittee's knowledge of the property and the USDA-FSA aerial photograph (2017). The buffer zones and LMU boundaries in Figures 6.1A-B (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 Bunyan (Bu), Clairette (CtC), Purves-Dugout-Maloterre (Pd), Fairy-Hico (FhC2) and Windthorst (WoB) series. The RCSs and settling basins 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), Bolar-Denton (BdC), Bastsil (BsB), Bunyan (Bu), Clairette-Hassee (CtB), Denton (DeB), Slidell (HoB), Frio (FriA), Hico-Windthorst (HwD3), Maloterre (Ma), Purves (PcC and PcB), Purves-Dugout-Maloterre (Pd) and Windthorst (WoB, WoB2 and 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	С	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	С	0-16	Clay Loam	0.6-2.0	0,17-0,21
			16-32		0.6-2.0	0.16-0.20
Denton	3-5	D	0-10	Silty Clay Loam	0.06-0.20	0.11-0.15
			10-28		0.06-0.20	0.09-0.14
Bastsil (BsB)	1-3	В	0-8	Find Sandy	2.0-6.0	0.12-0.16
			8-15	Loam	2.0-6.0	0.12-0.16
			15-34		0.6-2.0	0.12-0.16
Bastsil (BsC)	3-5	В	0-9	Fine Sandy	2.0-6.0	0.12-0.16
			9-15	Loam	2.0-6.0	0.12-0.16
			15-38		0.6-2.0	0.12-0.16
Bastsil (BtB)	1-3	B	0-6	Loamy Fine	2.0-20	0.07-0.11
			6-17	Sand	2.0-2.0	0.07-0.11
			17-27		0.6-2.0	0.12-0.16
Bunyan (Bu)		В	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	С	0-4	Very 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	1-3	D	0-5	Very Fine Sandy	0.6-2.0	0.10-0.14
			5-14	Loam	0.6-2.0	0.07-0.12
		_	14-35		.001-0.06	0.06-0.10
Clairette (CtC)	3-5	С	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
Denton (DeB)	1-3	С	0-13	Silty Clay	0.06-0.20	0.10-0.18
			13-19		0.06-0.6	0.10-0.18
			19-36		0.20-2.0	0.10-0.14
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		В	0-12	Fine Sandy	2.0-6.0	0.10-0.15
			12-51	Loam	0.6-2.0	0,05-0,17
Frio (FriA)	0-1	C	0-22	Silty Clay	0.20-0.6	0.12-0.20
			22-40		0.20-0.6	0.08-0.16
Slidell (HoB)	1-3	D	0-19	Clay	.001-0.06	0.10-0.18
			19-32		.001-0.06	0.10-0.18
Hico (HwD3)	1-8	B	0-7	Sandy Clay	2.0-6.0	0.11-0.13
			7-44	Loam	0,06-2,0	0.11-0.13
Windthorst		С	0-6	Sandy Clay	0.20-2.0	0,11-0,14
			6-16	Loam	0.20-0.6	0.15-0.19
			16-25		0.20-0.6	0.16-0.20

Major Amendment Grand Canyon Dairy

Topsey (LaB)	psey (LaB) 1-3 C 0-7 Loam 7-27		0.6-2.0 0.6-2.0	0.12-0.17 0.12-0.17		
Maloterre (Ma)	1-8	D	0-5 5-20	Gravelly Clay Loam	0.6-2.0 0.06-2.0	0.14-0,16
May (MfB)	1-3	В	0-16 16-42	Fine Sandy Loam	2.0-6.0 0.6-2.0	0.11-0.15 0.12-0.20
Purves (PcB)	1-3	D	0-8 8-12 12-14 14-40	Clay	0.06-0.20 0.06-0.6 0.06-0.6 0.06-2.0	0.12-0.20 0.08-0.18 0.04-0.07
Purves (PcC)	3-5	D	0-7 7-12 12-17 17-40	Clay	0.06-0.20 0.06-0.6 0.06-0.6 0.06-2.0	0.12-0.20 0.08-0.18 0.04-0.07
Purves- (Pd)		D	0-8 8-12 12-24 14-24	Stoney Clay	0.06-0.20 0.06-0.6 0.06-0.6 0.06-0.6	0.11-0.20 0.08-0.18 0.04-0.07
Dugout		D	0-8 8-18 18-28	Gravelly Clay Loam	0.20-0.6 0.20-0.6 0.06-2.0	0.06-0.15 0.07-0.16
Maloterre		D	0-8 8-18	Gravelly Clay Loam	0.6-2.0 .001-0.06	0.06-0.11
Windthorst (Wnc)	1-5	С	0-10 10-38	Loamy Fine Sand	6.0-2.0 0.20-0.6	0.06-0.13 0.10-0.20
Windthorst (WoB)	1-5	С	0-8 8-33	Fine Sandy Loam	2.0-6.0 0.20-0.6	0.10-0.17 0.10-0.20
Windthorst (WoB2)	1-5	С	0-4 4-33	Fine Sandy Loam	2.0-6.0 0.20-0.6	0.10-0.17 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
1,14	Windthorst (WoB2)	
3	Slidell (HoB)	
3A, 7, 9, 10	Maloterre (Ma)	
1A, 2A, 5, 6, 8	Purves-Dugout-Maloterre (Pd)	
4, 1]	Denton (DeB)	
12, 12A, 13	Windthorst (WnC)	
2	Clairette-Hassee (CtB)	

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) Land Application will be based upon the AWC (refer to NMP) of the soil and will not exceed agronomic rates for nutrients. No land application to inundated soils
Bu, FriA	Flooding	-No land application to inundated soils -Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP) -Maintain Clay Liners in RCS.
DeB, HoB, FhC2	Slow Water Movement	 Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP) No land application to inundated soils
CtB	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
LaB, HwD3	Depth to Soft Bedrock	 Land Application will be based upon the AWC (refer to NMP) of the soil and will not exceed agronomic rates for nutrients. No land application to inundated soils
Ма	Depth to Bedrock Droughty	 Land Application will be based upon the AWC (refer to NMP) of the soil and will not exceed agronomic rates for nutrients. No land application to inundated soils
BsB, BsC, BtB, MfB, FhC2	Seepage	-No land application to inundated soils -Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP) -Maintain Clay Liners in RCS.
WnC	Filtering Capacity	-No land application to inundated soils -Land Application not to exceed agronomic rates for nutrients and soil hydraulic rates (refer to NMP)
PcB, PcC	Droughty Depth to Bedrock Slow Water Movement	 Land Application will be based upon the AWC (refer to NMP) of the soil and will not exceed agronomic rates for nutrients. 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	 Land Application will be based upon the AWC (refer to NMP) of the soil and will not exceed agronomic rates for nutrients.

Table 5.3: Potential Soil Limitations for Land Application

Soil Series	Potential Soil Limitations	Best Management Practices
	Large Stones on the	- Irrigation events will be managed to assist in
	Surface	maintaining soil moisture levels within the range of the
		Management Unit.
		-No land application to inundated soils

5.7.3 Erosion

Figure 5.2 shows the onsite soils classified by NRCS as Highly Erodible Land (HEL), including Purves soils (PcB and PcC). LMUs will be protected with typical conservation farming practices within the standards of the NRCS. The following methods will be used to control/prevent erosion of exposed soils in the production area:

- Seeding/sprigging exposed areas with forage or cover crops,
- Constructing terraces or berms (shortening the length and steepness of slopes),
- Covering erosive areas with road surfacing materials,
- Implementing reduced tillage practices,
- Maintaining a cover of plants or crop residue.



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

The Middle Trinity Groundwater Conservation District (GCD) was verbally contacted. Should an abandoned penetration be encountered anywhere on the subject property at any time, the penetration will be marked, inspected and properly sealed to prevent a potential impact to the underlying aquifer. Appropriate well plugging reports shall be submitted as required to the Texas Department of Licensing and Regulation (TDLR) and will be maintained in the onsite PPP.

5.10 GeoSearch

GeoSearch was not utilized in this report,

5.11 Texas Water Development Board Water Data Interactive (WDI)

The TWDB WDI online database was reviewed for artificial penetrations. The database revealed water wells registered with the TWDB as being located on the subject property. The wells that could be correlated with onsite wells are shown on Table 5.4.

5.12 Natural Resource Conservation Service

The historical NRCS Soil Survey of Erath County (1973) was reviewed for locations of potential recharge features. No potential recharge features were identified.

5.13 Other Artificial Features

Numerous features, such as irrigation tail water pits and stock ponds, exist on the subject property and are shown to be buffered on Figures 5.3A-B. These areas shall be buffered during land application events or backfilled prior to the first land application event. The caliche pits located in LMUs #3A, #5, #6, #8 and #11 are protected with buffers from land application.

5.14 Previous/Current Landowner

Mr. Tim Miranda was contacted regarding then presence of any potential recharge features on the property. Mr. Miranda is considered the most knowledgeable about the property. The previous landowner could not be located. Mr. Miranda 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 Figure 5.3 and properly plugged (30 TAC §321.34(f)(3)(B)). Well plugging reports shall be submitted as required to the Texas Department of Licensing and Registration (Well Drillers Board) and will be maintained in the onsite PPP.

All well data listed in Table 5.4 is based on information received from the water district, TCEQ and TWDB files, onsite inspection, and interviews of persons knowledgeable of the property. The map number corresponds to the location shown in 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.

Map No.	Well ID	Best Management Practices
1	n/a	Maintain 150-ft buffer
2	n/a	Maintain 150-ft buffer
3	n/a	See Approved Well Buffer Exception
4	n/a	See Approved Well Buffer Exception
5	n/a	See Approved Well Buffer Exception
6	4221	See Attached Plugging Report
7	n/a	See Approved Well Buffer Exception
8	59975	See Attached Plugging Report
9	n/a	See Approved Well Buffer Exception
10	n/a	Maintain 150-ft buffer
11	n/a	Maintain 150-ft buffer
12	388094	Maintain 100-ft buffer
13	28295	Maintain 100-ft buffer
14	459112	Maintain 100-ft buffer
15	n/a	No evidence of well
16	n/a	Maintain 100-ft buffer
17	n/a	Maintain 100-ft buffer
18	n/a	Maintain 100-ft buffer
19	3162901	Maintain 100-ft buffe
20	n/a	Maintain 100-ft buffer.

Table 5.4: Well Information

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 offsite 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.





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Supporting Documentation

USDA Soil Descriptions & Limitations Texas Railroad Commission Map Water District Well Location Map (if available) Onsite Well Logs (if available)

> Major Amendment Grand Canyon Dairy

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 Inte	erpretati	ions–Erath County, Tex	as		
Map symbol and soil name	Pct. of	AWM - Irrigation Disp Wastewater	AWM - Land Applicat Municipal Sewage S	AWM - Land Application of Municipal Sewage Sludge		oons	
	unit	Rating class and Ilmiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BaB—Blanket clay Ioam, 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
BsB—Bastsil fine sandy loam, 1 to 3 percent slopes							
Bastsil, fine sandy loam	90	Somewhat limited		Somewhat limited		Very limited	
		Too acid	0.01	Too acid	0.01	Seepage	1.00

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Map symbol and soil name	Pct. AWM - Irrigation Disposal of of Wastewater			AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
	map unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BsC—Bastsil fine sandy loam, 3 to 5 percent slopes							
Bastsil, fine sandy Ioam	85	Somewhat limited		Somewhat limited		Very limited	
		Too steep for surface application	0.08	Too acid	0.01	Seepage	1.00
		Too acid	0.01			Slope	0.32
BtB—Bastsil loamy fine sand, 1 to 3 percent slopes				-			
Bastsil, loamy fine sand	85	Somewhat limited		Somewhat limited		Very limited	
		Too acid	0.03	Too acid	0.03	Seepage	1.00
Bu—Bunyan fine sandy loam, occasionally flooded							
Bunyan	80	Somewhat limited		Very limited		Very limited	
		Flooding	0.60	Flooding	1.00	Flooding	1.00
						Seepage	0.50
CtB—Clairette-Hassee very fine sandy loams, 1 to 3 percent slopes							
Clairette, very fine sandy loam	50	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.37	Slow water movement	0.37	Seepage	0.50
		Too acid	0.08	Too acid	0.08		
Hassee, very fine sandy loam	40	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Depth to saturated zone	1.00
		Depth to saturated zone	1.00	Depth to saturated zone	1.00	Seepage	0.50
		Droughty	0.01	Droughty	0.01		
CtC—Clairette loam, 3 to 5 percent slopes							
Clairette, Ioam	90	Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.37	Slow water movement	0.37	Seepage	0.50
		Too steep for surface	0.08			Slope	0.32

Map symbol and soil name	Pct. of	AWM - Irrigation Disp Wastewater	osal of	AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
	map unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DeB—Denton silty clay, 1 to 3 percent slopes							
Denton	85	Very limited		Very limited		Somewhat limited	
		Slow water movement	1.00	Slow water movement	1.00	Seepage	0.50
		Seepage, porous bedrock	0.50			Depth to hard bedrock	0.26
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				
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		



Map symbol and soil name	Pct. of	AWM - Irrigation Disp Wastewater	osal of	AWM - Land Applica Municipal Sewage S	tion of ludge	ENG - Sewage Lag	ge Lagoons	
	map unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value	
HwD3—Hico and Windthorst sandy clay loams, 1 to 8 percent slopes, severely eroded								
Hico, severely eroded	50	Somewhat limited		Somewhat limited		Somewhat limited		
		Slow water movement	0.96	Slow water movement	0.96	Seepage	0.50	
		Too steep for surface application	0.08			Slope	0.32	
Windthorst, severely eroded	40	Somewhat limited		Somewhat limited		Very limited		
		Slow water movement	0.96	Slow water movement	0.96	Depth to soft bedrock	1.00	
		Depth to bedrock	0.18	Depth to bedrock	0.18	Slope	0.08	
		Too acid	0.08	Shallow to densic materials	0.18			
		Droughty	0.03	Too acid	0.08			
				Droughty	0.03			
LaB—Topsey loam, 1 to 3 percent slopes								
Торѕеу	90	Somewhat limited		Somewhat limited		Very limited		
		Droughty	0.74	Droughty	0.74	Depth to soft bedrock	1.00	
		Depth to bedrock	0.74	Depth to bedrock	0.74	Seepage	0.50	
		Slow water movement	0.37	Shallow to densic materials	0.74			
				Slow water movement	0.37			
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					
<mark>dfB—May fine sand</mark> y Ioam, 1 to 3 percent slop e s								
May, fine sandy loam	90	Not limited		Not limited		Very limited		
						Seepage	1.00	

USDA

		Selected Soll Int	erpretati	ions–Erath County, Tex	as		
Map symbol and soil name	Pct. of	AWM - Irrigation Disp Wastewater	posal of AWM - Land Applicati Municipal Sewage Sir		tion of ludge	ENG - Sewage Lage	oons
	map unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
PcB—Purves clay, 1 to 3 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		
		Slow water movement	1.00	Slow water movement	1.00		
		Seepage, porous bedrock	0.50				
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				



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		Selected Soll Inte	erpretati	ons-Erath County, Tex	as		
Map symbol and soil name	Pct. AWM - Irrigation Dispo of Wastewater		rrigation Disposal of AWM - Land Applicati Wastewater Municipal Sewage Sh		tion of ENG - Sewage L ludge		oons
	unit	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				
WnC—Windthorst Ioamy 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		

		Selected Soil Inte	erpretati	ons-Erath County, Tex	as		
Map symbol and soll name	Pct. of	AWM - Irrigation Disp Wastewater	osal of	AWM - Land Applicat Municipal Sewage S	tion of ludge	ENG - Sewage Lag	oons
	map unit	Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
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 21, Aug 30, 2024



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.

	RUS	LE2 Rela	ted Attributes-Erath	County,	Texas			
Map symbol and soil name	Pct. of	Slope	Hydrologic group	Kf	T factor	Repre	sentative	value
	map unit	(ft)				Repres % Sand 25.0 34.0 6.0 73.0 73.0 80.0	% Silt	% Clay
BaB—Blanket clay loam, 1 to 3 percent slopes								
Blanket	90	298	С	.32	5	25.0	44.0	31.0
BdC—Bolar-Denton complex 3 to 5 percent slopes								
Bolar	55	180	С	.20	2	34,0	36,0	30.0
Denton	35	200	D	.17	2	6.0	48.0	46.0
BsB—Bastsil fine sandy loam, 1 to 3 percent slopes								
Bastsil, fine sandy loam	90	200	В	.28	5	73.0	19.0	8.0
BsC—Bastsil fine sandy loam, 3 to 5 percent slopes								
Bastsil, fine sandy loam	85	180	В	.28	5	73.0	19.0	8.0
BtB—Bastsil loamy fine sand, 1 to 3 percent slopes								
Bastsil, loamy fine sand	85	200	В	.24	5	80.0	12.0	8.0
Bu—Bunyan fine sandy loam, occasionally flooded								
Bunyan	80	98	В	,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	С	.49	5	68.0	21.0	11.0
Hassee, very fine sandy loam	40	200	D	.55	5	68.0	19.0	13.0

Map symbol and soil name	Pct. of	Slope	Hydrologic group	Kf	T factor	Repre	sentative [.]	value
	map unit	length (ft)				% Sand	% Silt	% Clay
CtC—Clairette loam, 3 to 5 percent slopes								
Clairette, Ioam	90	180	С	.37	5	44.0	36.0	20.0
DeB—Denton silty clay, 1 to 3 percent slopes								
Denton	85	298	С	.20	3	6.0	44.0	50.0
FhC2—Fairy-Hico complex, 1 to 5 percent slopes, moderately eroded								
Fairy, moderately eroded	45	180	В	.55	5	68.0	26.0	6.0
Hico, moderately eroded	35	200	В	.28	5	65.0	24.0	11.0
FriA—Frio silty clay, 0 to 1 percent slopes, occasionally flooded								
Frio, occasionally flooded	85	98	С	.20	5	10.0	46.0	44.0
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	В	.24	4	64.0	11.0	25,0
Windthorst, severely eroded	40	200	С	.43	4	62.0	15.0	23.0
LaB—Topsey loam, 1 to 3 percent slopes								
Торѕеу	90	200	С	.17	3	37.0	37.0	26.0
Ma—Maloterre gravelly clay loam, 1 to 8 percent slopes								
Maloterre	80	161	D	.28	1	31.0	35.0	34.0
MfB—May fine sandy loam, 1 to 3 percent slopes								
May, fine sandy loam	90	200	в	.17	5	70.0	17.0	13.0
PcB—Purves clay, 1 to 3 percent slopes								
Purves	89	298	D	.10	1	25.0	27.5	47.5
PcC—Purves clay, 3 to 5 percent slopes								
Purves	89	180	D	.15	1	25.0	27.5	47.5

	RUS	LE2 Rela	ted Attributes-Erath	County,	Texas			
Map symbol and soil name	Pct. of	Slope	Hydrologic group	Kf	T factor	Repre	sentative	value
	тар или	iength (ft)				% Sand	% Silt	% Clay
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
WnC—Windthorst loamy fine sand, 1 to 5 percent slopes								
Windthorst	90	200	С	.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	С	.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	С	.28	5	67.0	21.0	12.0

Data Source Information

Soil Survey Area: Erath County, Texas Survey Area Data: Version 21, Aug 30, 2024



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, sleving, 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)



					Phys	ical Soil Propert	ies-Erath Cou	nty, Tex a s						
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk	Saturated hydraulic	Available water	Linear extensibility	Organic matter		Erosi facto	on rs	Wind erodibility	Wind erodibility
					density	conductivity	capacity			Kw	Kf	т	group	index
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pat	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		1	
	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	-		_			-		

Report—Physical Soil Properties



					Physi	ical Soil Properti	ies-Erath Cou	nty, Texas						
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk	Saturated hydraulic	Available water	Linear extensibility	Organic matter		Erosi facto	on rs	Wind erodibility	Wind erodibility
					density	conductivity	capacity			Kw	Kf	т	group	index
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct		1			
BsB—Bastsil fine sandy loam, 1 to 3 percent slopes														
Bastsil, fine sandy loam	0-8	55-73- 80	5-19- 39	5- 8- 20	1.49-1.54	14.00-42.00	0.12-0.16	0.5-2.9	0.5-1.5	.28	.28	5	3	86
	8-15	55-73- 80	5-19-39	5-8-20	1.55-1.71	14.00-42.00	0.12-0.16	0.4-2.4	0.4-1.3	.28	.28			
	15-34	40-50- 55	10-22-37	20-28- 35	1.48-1.58	4.00-14.00	0,12-0,16	2.1-4.6	0.3-0.8	.28	.28			
	34-50	40-51- 55	10-24- 39	20-25-35	1.51-1.68	4.00-14.00	0.12-0.16	2.3-4.5	0.1-0.3	.28	.28	1		
	50-80	40-55-65	5-23- 43	15-22- 30	1.60-1.66	4.00-42.00	0.11-0.16	1.6-3.8	0.0-0.3	.28	.28			
BsC—Bastsil fine sandy loam, 3 to 5 percent slopes														
Bastsil, fine sandy loam	0-9	55-73- 80	5-19- 39	5- 8- 20	1.49-1.54	14.00-42.00	0.12-0.16	0.5-2.9	0.5-1.5	.28	.28	5	3	86
	9-15	55-73- 80	5-19-39	5-8-20	1.55-1.71	14.00-42.00	0.12-0.16	0,4-2,4	0.4-1.3	.28	.28	I.		
	15-38	40-50- 55	10-22- 37	20-28-35	1.48-1.58	4.00-14.00	0.12-0.16	2.1-4.6	0.3-0.8	.28	.28			
	38-69	40-51- 55	10-24- 39	20-25- 35	1.51-1.68	4.00-14.00	0.12-0.16	2.3-4.5	0.1-0.3	.28	.28			
	69-80	40-55-65	5-23-43	15-22-30	1.60-1.66	4.00-42.00	0.11-0.16	1.6-3.8	0.0-0.3	.28	.28			



Physical Soil Properties--Erath County, Texas

					Phys	ical Soil Properti	ies-Erath Cou	nty, Texas						
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk	Saturated hydraulic	Available water	Linear extensibility	Organic matter	t	Erosi facto	on rs	Wind erodibility	Wind erodibility
					density	conductivity	capacity			Kw	Kf	т	group	Index
	In	Pct	Pct	Pct	g/cc	micro m/sec	in/In	Pct	Pct					
BtB—Bastsil loamy fine sand, 1 to 3 percent slopes														
Bastsil, Ioamy fine sand	0-6	70-80- 90	0-12-20	3-8-12	1.54-1.63	14.00-141.00	0.07-0.11	0.1-1.3	0.3-1.0	.24	.24	5	2	134
	6-17	70-80- 90	0-12-20	3-8-12	1.57-1.67	14.00-141.00	0.07-0.11	0.1-1.3	0.1-1.0	.24	.24			
	17-27	40-50- 55	10-22- 37	20-28- 35	1.48 -1.5 8	4.00-14.00	0.12-0.16	2.1-4.6	0.3-0.8	.28	.28			
	27-60	40-51- 55	10-24- 39	20-25- 35	1.51-1.68	4.00-14.00	0.12-0.16	2.3-4.5	0.1-0.3	.28	.28			
	60-80	40-55- 65	5-23-43	15-22- 30	1.60-1.66	4.00-42.00	0.11-0.16	1.6-3.8	0.0-0.3	.28	.28			
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	1		
	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			



					Phys	ical Soil Propert	es-Erath Cou	nty, Texas						
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk	Saturated hydraulic	Available water	Linear extensibility	Organic matter	9	Erosi facto	on rs	Wind erodibility	Wind erodibility
					density	conductivity	capacity			Kw	Kf	Т	group	index
	in	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
CtBClairette- 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	1.37	ţ.		
	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	i		
	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	-		

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					Phys	ical Soil Propert	ies–Erath Cou	inty, Texas						
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic	Available water	Linear extensibility	Organic matter	I	Erosi facto	on rs	Wind erodibility	Wind erodibility
					density	conductivity	Capacity			Kw	Kf	т	group	index
	In	Pct	Pct	Pct	g/cc	micro m/sec	in/In	Pct	Pct			-		
CtC—Clairette loam, 3 to 5 percent slopes														
Clairette, Ioam	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	1		
DeB—Denton silty clay, 1 to 3 percent slopes														
Denton	0-13	0- 6- 20	40-44-60	40-50- 57	1.18-1.32	0.42-1.40	0.10-0.18	6.0-15.0	1.0-4.0	.20	.20	3	4	86
	13-19	0- 7- 20	40-43- 63	35-50- 55	1.28-1.50	0.42-4.00	0.10-0.18	6.0-12.0	1.0-3.0	.24	.24			
	19-36	5-15-30	40-60-75	20-25-40	1.40-1.65	1.40-14.00	0.10-0.14	0.8-5.4	0.1-1.5	.43	.43			
	36-52	5-15-30	40-60-83	12-25-40	1.40-1.65	1.40-14.00	0.08-0.12	0.1-5.1	0.1-1.0	.49	.49			
	52-80	_		_		0.42-14.00			-					



					Phys	ical Soil Propert	ies–Erath Cou	nty, Texas						
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk	Saturated hydraulic	Available water	Linear extensibility	Organic matter		Erosi facto	on rs	Wind erodibility	Wind erodibility
					density	conductivity	capacity			Kw	Kf	т	group	index
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
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			1
	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			
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			

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					Phys	ical Soil Propert	ie s –Erath Cou	nty, Texas						
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk	Saturated hydraulic	Available water	Linear extensibility	Organic matter	E	Erosi facto	on rs	Wind erodibility	Wind erodibility
					density	conductivity	capacity			Kw	Kf	т	group	index
	In	Pct	Pct	Pct	g/cc	micro m/sec	in/in	Pct	Pct					1
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			
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

					Phys	ical Soil Propert	ies-Erath Cou	nty, Texas						
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk	Saturated hydraulic	Available water	Linear extensibility	Organic matter	I	Erosi facto	on rs	Wind erodibility	Wind erodibility
	1				defisity	conductivity	сарасну			Kw	Kf	Т	group	index
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pat	Pct			1		
LaB—Topsey loam, 1 to 3 percent slopes														
Topsey	0-7	26-37-44	29-37- 50	20-26-27	1.07-1.40	4.00-14.00	0.12-0.17	1.3-4.0	2.0-8.0	.17	.17	3	4L	86
	7-27	15-34- 44	21-37- 59	20-29- 35	1.26-1.48	4.00-14.00	0.12-0.17	0.0-4.8	1.0-2.0	.28	.28			
	27-80	15-17- 44	26-51-55	30-32- 50	1.68-1,71	1.40-4.00	0.08-0.10	0.1-6.4	0.5-1.0	.37	.37			
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	-	_	() <u></u> i					
MfB—May fine sandy loam, 1 to 3 percent slopes														
May, fine sandy loam	0-16	55-70- 80	2-17- 34	8-13- 18	1.35-1.60	14.00-42.00	0.11-0.15	0.7-2.2	0.5-2.0	.17	.17	5	3	86
	16-42	35-57-70	5-18-35	18-25- 33	1.40-1.65	4.00-14.00	0.12-0.20	1.7-3.8	0.1-0.5	.24	.24			
	42-50	35-57-70	5-21-40	15-22- 33	1.45-1.70	4.00-14.00	0.11-0.20	1.3-3.7	0.1-0.5	.28	.28			
	50-80	40-61-70	2-19-40	10-20- 30	1.45-1.70	4.00-42.00	0,10-0,18	0.8-3.0	0.1-0.3	.28	.28			


Physical Soil Properties—Erath County, Texas

					Physi	ical Soil Properti	ies-Erath Cou	nty, Texas						
Map symbol and soil name	ol Depth Sand Silt Clay ne	Moist Saturated Availab bulk hydraulic water density conductivity canaci	Available water	able Linear ter extensibility	Linear Organic tensibility matter	Erosion factors			Wind erodibility	Wind erodibility index				
					uensity	conductivity	capacity			Kw	Kf	т	group	Index
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
PcB—Purves clay, 1 to 3 percent slopes														
Purves	0-8	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	.10	.10	1	4	86
	8-12	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	.15	.15			1
	12-14	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			
	14-40	.—				0.42-14.00	-	-	1					
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	I		
	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	_		<u></u>	<u> </u>	0.42-14.00	_	-						



					Physi	cal Soil Propert	es-Erath Cou	nty, Texas						
Map symbol and soil name	Depth	Sand	and Silt Clay Moist bulk density	Saturated hydraulic	Available water	Linear extensibility	Organic matter	E	rosio	on rs	Wind erodibility	Wind erodibility		
					density	conductivity	ty capacity		Kw	Kf	Т	group	index	
	In	Pct	Pct	Pct	g/cc	micro m/sec	in/in	Pct	Pct					
Pd—Purves- Dugout- Maloterre complex, 1 to 20 percent slopes														
Purves, stony clay	8-0	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	-		-					
Maioterre, gravelly clay loarn	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	_		1		0.01-0.42		-	-					
WnC— Windthorst Ioamy 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			

					Physi	cal Soil Properti	es-Erath Cou	nty, Texas						
Map symbol and soil name	Depth	Sand	and Silt Clay Moist Saturated bulk hydraulic density conductivity	Available water	Linear extensibility	Organic matter	E	Erosio facto:	on rs	Wind erodibility	Wind erodibility			
					density	conductivity	capacity			Kw	Kf	Т	group	Index
	in	Pct	Pct	Pct	g/cc	micro m/sec	in/in	Pct	Pct					
NoB— Windthorst very fine sandy loarn, 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	i -		
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	I		
	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 21, Aug 30, 2024 Kathlean Hartnett White, Chairmon Larry R. Soward, Commissioner H. S. Buddy Carcia, Commissioner Glenn Shankle, Executive Director



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Follution

October 1, 2007

CERTIFIED MAIL

Mr. James Byer JB Grand Canyou Dairy, LP 8892 South U.S. Highway 397 Dublin, Texas 76446

Re: Well Buffer Exception Request, JB Grand Canyon Dairy Permit Number WQ0000295009 (CN 600479836)

Dear Mr. Byer:

The Water Quality Assessment (WQA) Team has reviewed the well buffer exception request for wells identified as Well #3. Well#4, Well #5, Well #6, and Well #7 in a letter dated September 25, 2007. The letter was signed and certified by Mr. Norman Mullin, P.E., and requested an exception to the buffer requirements for these existing facility wells. Additional protective measures for the wells identified by Mr. Mullin include: a concrete surface slab on all wells and gradients sloping away from the wells.

Mr. Mullin also indicates that all wells are located topographically upgradient from the confinement pens and retention control structures (RCS). Well #3 is identified as being located south and upgradient of RCS #6, and within a building. Well #4 is a windmill described as located south and upgradient of the confinement pens. Well #5 is identified as located south and upgradient of the confinement pens, and within a building. Well #6 is located adjacent to the parlor, and will be plugged. Well #7 is located upgradient of the pens and has a concrete surface stab.

The WQA Team approves the well buffer exception request for wells Well #3, Well #4, Well #5, Well #6, and Well #7 provided all additional protective measures listed above are maintained. Well #6 shall be properly plugged within 30 days of permit issuance per 16 TAC §76.1004. A copy of the well plugging report shall be maintained in the facility files, and submitted to the Land Application Team (MC-148), Water Quality Assessment Team (MC-150), and Region 4 Office (R-4). Additionally, regular inspections around the wells shall be made in order to ensure that no runoff or wastes are encroaching upon the well head.

Mr. James Byer Page 2 October 1, 2007

This approval 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) 239-3555.

Sincerely,

Stephoni Seldi

Stephanic Saldaña, P.G. Water Quality Assessment Team Water Quality Division Texas Commission on Environmental Quality

SS/jp

cc: Mr. Norman Mullin, Enviro-Ag Engineering, 3404 Airway Blvd., Amarillo, Texas 79118

Bryan W. Shaw, Ph.D., P.E., Chairman Toby Baker, Commissioner Zak Covar, Commissioner Richard A. Hyde, P.E., Executive Director



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

91 7108 2133 3935 1987 5515

February 11, 2014

CERTIFIED MAIL

Circle 7 Dairy LLC JB Grand Canyon Dairy 2179 County Road 308 Dublin, Texas 76446

Re: Well Buffer Exception Request, Permit No. WQ0002950000, Circle 7 Dairy LLC/ Grand Canyon Dairy, Erath County (CN 604036954; RN 100794155)

Dear Sir or Madam:

The Water Quality Assessment (WQA) Team of the Texas Commission on Environmental Quality (TCEQ) has reviewed a well buffer exception request submitted on your behalf by Enviro-Ag Engineering, Inc. for one onsite water well identified as Well #9. The buffer exception request was signed and sealed by Mr. Norman Mullin, P.E. The buffer exception request indicates that the well does not meet the specified well buffer distance from the facility open lots. Protective measures for the wells identified by Mr. Mullin include a concrete surface slab.

The TCEQ approves the well buffer exception for Well #9 provided it is protected in accordance with the recharge feature evaluation and certification required by 30 Texas Administrative Code (TAC), Chapter 321.34(f)(3). If you choose not to maintain the protective measures, the required buffer distances, in accordance with 30 TAC 321.38(b), for the wells must be implemented. Annual inspections around the well shall be made in order to ensure no runoff or wastes encroach upon the well.

This approval letter and all supporting documentation must be kept on-site and made available to TCEQ personnel upon request. If you have any questions, please contact me by phone at (512) 239-4591 or by e-mail at Lynda.Clayton@tccq.texas.gov.

Sincerely,

marke

Lynda Clayton, Team Leader Water Quality Assessment Team (MC-150) Water Quality Division

cc: Mr. Norman Mullin, P.E. Enviro-Ag Engineering, Inc., 3404 Airway Boulevard, Amarillo, Texas 79118

P.O. Box 13087 • Austin, Texas 78711-3087 • 512-239-1000 • teeq.texas.gov

Owner:	Grand	Canvon Dairv		Owner Well #	8	
Address:	8892 S	US 377		Grid #:	31-62-9	
	Dublin	, TX 76446		Latitude:	32° 01' 15" N	
Well Location:	2179 C Dublin	R 308 , TX 76446		Longitude:	098° 17' 03" W	
Well County:	Erath			Elevation:	No Data	
Well Type:	Wit	hdrawal of Water				
Drilling Information	on					
Company: No	o Data			Date Drilled:	No Data	
Driller: Ur	ıknown			License Num	ber: No Data	
Boreboler		Diameter (in.)	Та	op Depth (fl.)	Bottom Depth (ft.)	
lugging Informa	tion 5/13/20	4	Plugge	r: Jim Beyer/La	ndowner	
Date Plugged: Plug Method:	tion 5/13/20 Tremo	4 009 mie pipe bentonite	Plugge	r: Jim Beyer/Lau to 2 feet from su	ndowner face, cement top 2 feet	
Date Plugged: Plug Method: Casin	tion 5/13/20 Tremo g Left in 1	4 009 mie pipe bentonite Well:	Plugge from bottom	r: Jim Beyer/Lau to 2 feet from sur Plug(s	face, cement top 2 feet) Placed in Well:	
Date Plugged: Plug Method: Casin Dla (in.) Top	tion 5/13/20 Tremu g Left in ¹ • (fl.) 6	4 009 mie pipe bentonite Well: <i>Bottom (ft.)</i> 67	Plugge from bottom f	r: Jim Beyer/Lau to 2 feet from sur Plug(s <i>Bottom (tt.)</i> 6	face, cement top 2 feet) Placed in Well: Description (number of sacks & math 3 Cement	erial)
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Iugging Informa. Date Plugged: Plug Method: Casin Dla (in.) Top 4 f	tion 5/13/20 Tremu g Left in ¹ 6 (ft.) 6 rata: mation:	4 2009 mie pipe bentonite Well: Bottom (ft.) 67 The driller certifier driller's direct sup correct. The drille the reports(s) beir Landowner Plugg 8892 S US 377 Dublin, TX 76446	Plugge from bottom f Top (ft.) 0 6 d that the drille ervision) and the ervision) and the er understood the ng returned for ged	r: Jim Beyer/Lau to 2 feet from sur Plug(s <i>Bottom (ft.)</i> 6 6 67 r plugged this well nat each and all of hat failure to comp completion and re	ndowner face, cement top 2 feet) Placed in Well: Description (number of sacks & mathematic 3 Cement 7 Bentonite Chips (or the well was plugged under the statements herein are true plete the required items will rest isoubmittal.	erial) r the and ult in

Public GIS Viewer Legend

Well Number

Well Locations

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- Oil
- u Gas
- 🛊 🛛 Oil / Gas
- Plugged Oil
- Plugged Gas
- Q Canceled / Abandoned Location
- 🐐 🛛 Plugged Oil / Gas
- 🍳 🛛 Injection / Disposal
- ø Core Test
- 🖉 Sulfur Test
- Storage from Oil
- 🏟 Storage from Gas
- e Shut-In Oil
- 😣 Shut-Tn Gas
- 🍋 Injection / Disposal from Oil
- K Injection / Disposal from Gas
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- ™o Brine Mining
- Vo Water Supply
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- 💠 Water Supply from Gas

- 🔹 Water Supply from Oil / Gas
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- ⁶0. Observation from Gas
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- Plugged Storage
- Plugged Storage / Oil

Page 1 of 3

Public GIS Viewer Legend

Plunged Storage / Gas

Brine Mining / Oil

Brine Mining

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Plugged Storage Oil / Gas

Brine Mining / Oil / Gas

Injection / Disposal from Brine Mining

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Injection/Disposal

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Page 2 of 3

Public GIS Viewer Legend

High Cost Tight Sands	
.	Alert Areas
EOR H13 Oil Wells	
	Water
Well Logs	31
	City Limits
Horiz/Dir Surface Locations	
🗇 Horizontal Well	Counties
Directional Well	
Horizontal/Directional Lines	Operator Clean
	Active
LPGAS Sites	△ Closed
ē	Voluntary Clear
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City Limits
Counties
Operator Cleanup Program Sites
Active
🛆 Closed
Voluntary Cleanup Program Sites
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♦ VCP, Closed
Brownfield Response Program Sites
🔺 Brownfield, Accepted
12 Brownfield, Closed
Commercial Waste Disposal Sites & Discharge Permits
Commercial Waste Disposal
Discharge Permits
Oil and Gas Districts
0
AED Districts
Pipeline Safety Regions



April 9, 2025



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

Grand Canyon Dairy 2025







TWDB Groundwater



0 0.3 0.6 1.2 mi 1.2 mi 0 0.47 0.95 1.9 km 1:36,112

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 warrantities 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, blase contact

Uwner: J	w Grand Canyon Dairy		Owner Well	#: No Data
Address: 2	179 CR 308 Publin. TX 76446		Grid #:	31-62-9
Well Location: 2	179 CR 308 (next to bac	ck)	Latitude:	32° 01' 31" N
D	ublin, TX 76446		Longitude:	098° 16' 05" W
Well County: E	rath		Elevation;	No Data
Well Type:	Withdrawal of Water			
Drilling Information				
Company: No Da	ata		Date Drilled:	No Data
Driller: No Da	ata		License Num	nber: No Data
Borehole:	No Data			
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Water Q	luality:	345	Fresh					
			Cirémical Analysis Made: No					
		Did the driller knowingly i contair	penetrele any sirata which ned injurious constituents?:	No				
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Сопра	ny informatio	n: Dowell Well Service						
		P.O. Box 402 Stephenville, TX 76401						
Oriller N	ame:	Mark Dowell	License	Number: 1891				
Comme	anls:	No Data		Calling:				
SCRIP	TION & COL	OR OF FORMATION MATERIAL	BLANK PIPE 6	WELL SCREEN DATA				
T (8.1	daltan (#1	Description	(In for) thushing Tunt	Sellin Emmilia It 1				
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IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY TEX, DCC, CODE TIB:12, Chapter 1907.251, authorizes the owner (aware or the parsen) for whom the well was drilledly to keep information in Well Reports confidential. The Department shall hold the confiants of the well log confidential and not a watter of public renord if a society to yourflid mail, a written request to do so from the owner.

Please include the reports Tracking Number on your written request. Texas Department of Licensing and Regulation P.O. dex 12157 Austin, TX 78711 (512) 334-5340



MPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY TEX. OCC. CODE Tills 12, Chepter 1901 251, authorizes the owner (which or the person for whom the well was diffield to there information in Well Reputse confidential. The Department shell hold the contants of the well tog confidential num et a matter of public record if it reputses, by cardinal multiple willon request to do to from the owner.

Please include like report's Tracking Number on your written request Texes Department of Licencing and Regulation P.O. Box 12157 Austin, TX 78711 (512) 334-5540

Page 3 of 3

6.0 SURFACE WATER & TMDL ASSESSMENT

6.1 Surface Water Assessment

Figures 6.] A-B, 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 (December 2017). The buffer zones and LMU boundaries in Figures 6.1A-B are submitted with this application for TCEQ approval.

6.2 TMDL Assessment

Grand Canyon Dairy is located in Segment 1226, Upper North Bosque River, Brazos River Basin, which is a 303(d)-listed watershed. To demonstrate that Grand Canyon Dairy 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 §321.36 (f)(2) and if needed with 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:		N
Denotes Plugged/No Evidence Well		1
• Denotes Water Well		W E
Denotes Water Well with 100' or 150' Buffer		PA.
Denotes Caliche Pit		V
Denotes Surface Water		S
Denotes Burial Site		1000' 0 1000' 2000'
Denotes 136' Buffer Zone		
		SCALED AS SHOWN
Source: USDA-NRCS. Geospatial Data Gateway. Available at: <u>http://datagateway.nrcs.usda.gov/</u> . Digital Raster Graphic County Mosaic by NRCS - Accessed December 2017.	• Refer to map.	Figures 1.4A-B for a detailed production area
Grand Canyon Dairy	Aerial Photograph	ENVIRO-AG Enviro-Ag Engineering, Inc.
Dublin TX	Figure 6 1B	ENGINHERING CONSULTANTS
Eroth County	Dage 52	AMARIU O, TEXAS 79118
	Page 53	ENGINEERING, INC. TEL (805) 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 meets the ¼-mile buffer option required in 30 TAC §321.43(j)(2) for facility expansion. 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 Grand Canyon Dairy.

- 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 or disposed by on-site burial within 3 days.
- Maintain treatment volume.
- Manure storage store in drainage of RCS or if not located in drainage area, berm area to contain runoff. Wastewater storage in RCS.

• Manure, slurry, sludge and compost – land application on-site or to third party fields.



Legend:

Denotes Occupied Structure
 Denotes Applicant Owned Structure

Site Visit - 2/4/2025 Map Generated - 2/13/2025

<u>Source</u>: USDS-NRCS. Geospatial Data Gateway. Available at: <u>http://datagateway.nrcs.usda.gov/</u>. Digital Raster Graphic County Mosaic by NRCS - Accessed December 2017.

Grand Canyon Dairy Dublin, TX Erath County Area Land Use Map Figure 7.1 Page 56



<u>Note</u>: Natabad av SCALED AS SHOWN

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.



Leah Whallon

From:	Jourdan Mullin <jmullin@enviroag.com></jmullin@enviroag.com>
Sent:	Wednesday, May 21, 2025 10:01 AM
То:	Leah Whallon
Cc:	Corey Mullin
Subject:	RE: Application to Amend Permit No. WQ0002950000; Circle 7 Dairy LLC and Grand Canyon Dairy LLC
Attachments:	Grand Canyon Dairy PLF ENGLISH SPANISH.docx; NORI - Grand Canyon Dairy.docx; ADJACENT LANDOWNER LABELS.docx; Grand Canyon Dairy ALO Map.pdf; Grand Canyon Dairy ALO List.pdf
Follow Up Flag:	Follow up
Flag Status:	Flagged

Good Morning Leah,

Attached is the Spanish word doc of the Plain Language Summary and NORI. Also attached is the revised ALO map, ALO list and ALO mailing labels. Please let me know if you have any questions or require any additional information.

Respectfully, Jourdan Mullin

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

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

From: Corey Mullin <cmullin@enviroag.com>
Sent: Monday, May 19, 2025 5:11 PM
To: Jourdan Mullin <jmullin@enviroag.com>
Subject: Fwd: Application to Amend Permit No. WQ0002950000; Circle 7 Dairy LLC and Grand Canyon Dairy LLC

------ Forwarded message ------From: Leah Whallon <<u>Leah.Whallon@Tceq.Texas.Gov</u>> Date: May 19, 2025 4:18 PM Subject: Application to Amend Permit No. WQ0002950000; Circle 7 Dairy LLC and Grand Canyon Dairy LLC To: Corey Mullin <<u>cmullin@enviroag.com</u>> Cc: 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 May 19, 2025 requesting additional information needed to declare the application administratively complete. Please send the complete response by June 2, 2025.

Please let me know if you have any questions.

Thank you,



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

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

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ADJACENT LANDOWNERS LIST

Name: Blue Sky Farms, LLC.	Name: Johnny Feagan
Number on Map: 1	Number: on Map 2
Address: 4611 S FM 219	Address: 2775 CR 307
Address: Dublin, TX 76446	Address: Dublin, TX 76446
Name: Gustavo Frias	Name: Salavador & Leondies Solano
Number: on Man 3	Number on Man 4
Address: 3626 CB 307	Address: 4042 CB 207
Address: Dublin, TX 76446	Address: Dublin TX 76446
Hadress. <u>Bubini, IX /0440</u>	Address. <u>Dubini, 1X/0440</u>
Name: Gabriel E Dagley	Name: Michael Brent & Lisa Dianne Chambers
Number on Man ⁻ 5	Number on Man: 6
Address: 2212 CR 122	Address: 1600 CP 207
Address: Staphonvillo TX 76401	Address: 4000 CK 307
Address. <u>Stephenvine, 1X /0401</u>	Address. <u>Dublin, 1X /0440</u>
Name: Tony & Sally Grav	Name: James & Tracy Holleman
Number on Map: 7	Number on Man: 8
Address: 5170 CR 207	Address: 2048 CB 208
Address: Dublin TX 76446	Address: Dublin TV 76446
1001033. <u>17019111, 177 /0440</u>	Address. <u>Dubini, 1X /0440</u>
Name: Wallace Family Trust	Name: Haros Ranch LLC
Number on Map: 9	Number on Man: 10
Address: 4870 CR 207	Address: 820 Kingston Dr
Address: Dublin TX 76446	Address: Mansfield TX 76062
<u>Dubini, 172/0440</u>	Multess. Mansheld, 1A /0003
Name: Luciano Haros	Name: Rygh & Lyn Fullagar
Number on Map: 11	Number on Map: 12
Address: 830 Kingston Dr	Address: 6201 CR 307
Address: Mansfield, TX 76063	Address: Dublin TX 76446
Name: Dickie D & Nancy R Palmore	Name: Frederick Wayne & Gregory Alan Gibson
Number on Map: 13	Number on Map: 14
Address: 927 Preston Lane	Address: 2801 FM 1496
Address: Dublin, TX 76446	Address: Dublin, TX 76446
Name: Paulo A & Cathy S Valle	Name: Seven R Corporation
Number on Map: 15	Number on Map: 16
Address: PO Box 207	Address: PO Box 83701
Address: Dublin, TX 76446	Address: Baton Rouge, LA 70884
Name: Jesse Lee Tackett Credit Shelter Trust	Name: Deboer Reo, LLC
Number on Map: <u>17</u>	Number on Map: 18
Address: 1256 CR 308	Address: 451 Eagle Station Lane
Address: Dublin, TX 76446	Address: Carson City, NV 89701

Please identify where you obtained the landowner information.

Erath County Appraisal District; April 2025

Facility Name: Grand Canyon Dairy

ADJACENT LANDOWNERS LIST

Name: <u>Ventura & Rafaela Botello</u>	Name: <u>Sonrisa Land & Cattle Co Inc</u>
Number on Map: <u>19</u>	Number: on Map <u>20</u>
Address: <u>260 CR 317</u>	Address: <u>PO Box 250</u>
Address: <u>Dublin, TX 76446</u>	Address: <u>Dublin, TX 76446</u>
Name: <u>Eddie & Effie Leatherwood</u>	Name: <u>La Perla Land & Livestock, LLC</u>
Number: on Map <u>21</u>	Number on Map <u>22</u>
Address: <u>414 CR 336</u>	Address: <u>PO Box 367</u>
Address: <u>Dublin, TX 76446</u>	Address: <u>Dublin, TX 76446</u>
Name: <u>Joseph Hines</u>	Name: <u>Janice Hess</u>
Number: on Map <u>23</u>	Number: on Map <u>24</u>
Address: <u>1418 W Torrey St.</u>	Address: <u>570 Alexander Rd.</u>
Address: <u>Granbury, TX 76048</u>	Address: <u>Stephenville, TX 76401</u>
Name: <u>Christopher Proscelle & Danielle Pros</u>	Name: Ross & Tammy Carpenter
Number: on Map <u>25</u>	Number: on Map 26
Address: <u>3532 Seagate Way Unit 110</u>	Address: HC 12 BOC 1209
Address: <u>Oceanside, CA 92056</u>	Address: Roswell, NM 88201

Please identify where you obtained the landowner information.

Erath County Appraisal District; April 2025

Facility Name: Grand Canyon Dairy

BLUE SKY FARMS LLC 4611 S FM 219 DUBLIN TX 76446

JOSEPH HINES 1418 W TORREY ST GRANBURY TX 76048

DICKIE D & NANCY R PALMORE 927 PRESTON LANE DUBLIN TX 76446

GABRIEL E DAGLEY 3313 CR 132 STEPHENVILLE TX 76401

TONY & SALLY GRAY 5170 CR 307 DUBLIN TX 76446

FREDERICK WAYNE & GREGORY ALAN GIBSON 2801 FM 1496 DUBLIN TX 76446

LUCIANO HAROS 830 KINGSTON DR MANSFIELD TX 76063

PAULO A & CATHY S VALLE PO BOX 207 DUBLIN TX 76446

EDDIE & EFFIE LEATHERWORD 414 CR 336 DUBLIN TX 76446

CHRISTOPHER PROSCELLE & DANIELLE PROS 3532 SEAGATE WAY UNIT 110 OCEANSIDE CA 92056 GUSTAVO FRIAS 3626 CR 307 DUBLIN TX 76446

WALLACE FAMILY TRUST 4879 CR 307 DUBLIN TX 76446

PAULO A & CATHY S VALLE 925 S MAIN ST. #3105 GRAPEVINE TX 76051

SALAVADOR & LEONDIES SOLANO 4042 CR 307 DUBLIN TX 76446

HAROS RANCH LLC 830 KINGSTON DR MANSFIELD TX 76063

SEVEN R CORPORATION PO BOX 83701 BATON ROUGE LA 70884

RYGH & LYN FULLAGER 6291 CR 307 DUBLIN TX 76446

VENTURA & RAFEALA BOTELLO 260 CR 317 DUBLIN TX 76446

LA PERLA LAND & LIVESTOCK, LLC PO BOX 367 DUBLIN TX 76446

ROSS & TAMMY CARPENTER HC 12 BOC 1209 ROSWELL NM 88201 JOHNNY FEAGAN 2775 CR 307 DUBLIN TX 76446

LUCIANO HAROS 830 KINGSTON DR MANSFIELD TX 76063

JESSE LEE TACKETT CREDIT SHELTER TRUST 1256 CR 308 DUBLIN TX 76446

MICHAEL BRENT & LISA DIANNE CHAMBERS 4600 CR 307 DUBLIN TX 76446

JAMES & TRACY HOLLEMAN 3048 CR 308 DUBLIN TX 76446

DEBOER REO LLC 451 EAGEL STATION LANE CARSON CITY NV 89701

FREDERICK WAYNE & GRGORY ALAN GIBSON 2801 FM 1496 DUBLIN TX 76446

SONRISA LAND & CATTLE CO INC PO BOX 250 DUBLIN TX 76446

JANICE HESS 570 ALEXANDER RD STEPHENVILLE TX 76401

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: Circle 7 Dairy, LLC y Grand Canyon Dairy, LLC

2) Ingrese el número de cliente: CN604036954; CN603973462

3) Nombre de la instalación: Grand Canyon Dairy

4) Ingresar Número de Entidad Regulada: RN100794155

5) Proporcione su número de permiso: WQ0002950000

6) Instalación Comercial: La instalación encierra 4,000 cabezas de ganado, de las cuales 4,000 se encuentran en ordeño. La instalación cuenta con catorce (14) unidades de administración de tierras (LMU) con las siguientes superficies: LMU #1 – 103, LMU #2 – 83, LMU#3 – 78, LMU #4 – 60, LMU #5 – 210, LMU #6 – 65, LMU #7 – 30, LMU #8 – 87, LMU #9 – 20, LMU #10 – 50, LMU #11 – 56, LMU #12 – 91, LMU #13 – 53 y LMU #14 – 52 acres. Cuenta con tres (3) estructuras de control de retención (RCS) y tres cuencas de sedimentación de tierra. Las capacidades requeridas son: RCS #1 – 0.00 ac-pie, RCS #2 – 58.81 (digestor) y 54.96 acres-pie (derivación), y RCS #3 – 22.79 ac-pie. Hay veinte (20) pozos en el sitio, de los cuales tres están taponados. La instalación está ubicada en el Río North Bosque, 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 FM 219 aproximadamente a 5 millas al sur de la intersección de FM 219 y Highway 1702, aproximadamente a 7 millas al suroeste de Dublin en el Condado de Erath, Texas.

8) Tipo de Solicitud: Enmienda Importante al Permiso Individual

9) Descripción de su solicitud: Presentar una solicitud de modificación importante en dos fases para mantener el cumplimiento durante la transición. La fase 1 incluirá los siguientes cambios: reducir el número de cabezas a 2,500 en total y 2,500 en ordeño, actualizar el mapa de control de escorrentía, el mapa del sitio y el mapa de características de recarga a las condiciones actuales (eliminar el digestor y los establos de estabulación libre propuestos), y reconfigurar las siguientes LMUs: LMU #1A (41 ac) es nueva y es una parte de LMU #1 (actual 103 ac; propuesta 62 ac), LMU #2A (21 ac) es nueva y es una parte de LMU #2 (actual 83 ac; propuesta 21 ac), LMU #3A (21 ac) es nueva y está en una parte de LMU #3 (actual – 78 ac; propuesta – 56 ac), LMU #6 (actual – 65 ac; propuesta – 62 ac), LMU #12A (30 ac) es nueva y está en una parte de LMU #12 (actual – 52 ac; propuesta – 47 ac). La Fase 2 incluirá el aumento de cabezas a 4,000 en total y 4,000 en ordeño, la adición de

un digestor anaeróbico y equipo asociado y la adición de establos con estabulación libre.

10) Las posibles fuentes de contaminantes en la instalación incluyen (enumere las fuentes de contaminantes): Estiércol, reservas de estiércol, aguas residuales, lodos, purines, compost, piensos y camas, reservas de ensilaje, animales muertos, polvo, lubricantes, químicos de salón, 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 adecuadamente diseñado ((frecuencia de 25 años y duración de 10 días (25 años/10 días), construido, operado y mantenido de acuerdo con lo dispuesto en el permiso. Mantener una zona de amortiguamiento de 100 pies para todos los pozos de riego o 150 pies para todos los pozos de suministro. 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.

APPLICATION. Circle 7 Dairy LLC and Grand Canyon Dairy LLC, 2179 County Road 308, Dublin, Texas 76446, have applied to the Texas Commission on Environmental Quality (TCEQ) to amend Wastewater Permit No. WQ0002950000 (EPA I.D. No. TX0130923) for a Concentrated Animal Feeding Operation (CAFO) to authorize the following changes in two phases. Phase 1 will authorize: to decrease the headcount to 2,500 total dairy cattle and 2,500 milking; update the runoff control map, site map, and recharge feature map to the current - conditions (remove digester and proposed - free stall barns); reconfigure the following LMUs: LMU #1A (41 acres) is new and is a portion of LMU #1 (current - 103 acres/ proposed - 62 acres), LMU #2A (21 acres) is new and is a portion of LMU #2 (current – 83 acres/ proposed – 21 acres), LMU #3A (21 acres) is new and is in a portion of LMU #3 (current - 78 acres/ proposed - 56 acres), LMU #6 (current -65 acres/ proposed - 62 acres). LMU #12A (30 acres) is new and is in a portion of LMU #12 (current - 91 acres/ proposed - 66 acres) and LMU #14 (current - 52 acres/ proposed - 47 acres). Phase 2 will authorize: to increase the headcount to 4,000 total dairy cattle and 4,000 milking; the addition of an anerobic digester and associated equipment; and the addition of free stall barns. The facility is located at 2179 County Road 308, near the city of Dublin, in Erath County, Texas 76446. TCEQ received this application on May 12, 2025. 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=-98.270833,32.023055&level=18 Further information may also be obtained from Circle 7 Dairy LLC and Grand Canyon Dairy LLC at the address stated above or by calling Mr. Tim Miranda, Member, Circle 7 Dairy LLC, at 254-445-0404.