



Technical Package Cover Page

This file contains the following documents:

1. Summary of application (in plain language)
 - English
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 2. First notice (NORI-Notice of Receipt of Application and Intent to Obtain a Permit)
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 3. Second notice (NAPD-Notice of Preliminary Decision)
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 4. Application materials
 5. Draft permit
 6. Technical summary or fact sheet
-



Portada de Paquete Técnico

Este archivo contiene los siguientes documentos:

1. Resumen de la solicitud (en lenguaje sencillo)
 - Inglés
 - Idioma alternativo (español)
2. Primer aviso (NORI, Aviso de Recepción de Solicitud e Intención de Obtener un Permiso)
 - Inglés
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3. Segundo aviso (NAPD, Aviso de Decisión Preliminar)
 - Inglés
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4. Materiales de la solicitud
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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.

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 - 91 ac; propuesta - 66 ac) y LMU #14 (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 sobrellenos/derrames. Animales muertos - elimínelos a través de un servicio de procesamiento de terceros o entierro 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 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 anaerobic 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>

ALTERNATIVE LANGUAGE NOTICE. Alternative language notice in Spanish is available at:

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

El aviso de idioma alternativo en español está disponible en

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

ADDITIONAL NOTICE. TCEQ's Executive Director has determined the application is administratively complete and will conduct a technical review of the application. After technical review of the application is complete, the Executive Director may prepare a draft

permit and will issue a preliminary decision on the application. **Notice of the Application and Preliminary Decision will be published and mailed to those who are on the county-wide mailing list and to those who are on the mailing list for this application. That notice will contain the deadline for submitting public comments.**

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

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

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

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

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

MAILING LIST. If you submit public comments, a request for a contested case hearing or a reconsideration of the Executive Director's decision, you will be added to the mailing list for this specific application to receive future public notices mailed by the Office of the Chief

Clerk. In addition, you may request to be placed on: (1) the permanent mailing list for a specific applicant name and permit number; and/or (2) the mailing list for a specific county. If you wish to be placed on the permanent and/or the county mailing list, clearly specify which list(s) and send your request to TCEQ Office of the Chief Clerk at the address below.

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

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

Further information may also be obtained from 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, incluyendo 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 <https://www.tceq.texas.gov/permitting/wastewater/pending-permits/cafo-applications>.

AVISO ADICIONAL. El Director Ejecutivo de la TCEQ ha determinado que la solicitud es administrativamente completa y conducirá una revisión técnica de la solicitud. Después de

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

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

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

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

Después del cierre de todos los períodos de comentarios y de petición que aplican, el Director Ejecutivo enviará la solicitud y cualquier petición para reconsideración o para una audiencia de caso impugnado a los Comisionados de la TCEQ para su consideración durante una reunión programada de la Comisión. La Comisión sólo puede conceder una solicitud de una audiencia de caso impugnado sobre los temas que el solicitante haya presentado en sus comentarios oportunos que no fueron retirados posteriormente. Si se

concede una audiencia, el tema de la audiencia estará limitado a cuestiones de hecho en disputa o cuestiones mixtas de hecho y de derecho relacionadas a intereses pertinentes y materiales de calidad del agua que se hayan presentado durante el período de comentarios.

LISTA DE CORREO. Si somete comentarios públicos, un pedido para una audiencia administrativa de lo contencioso o una reconsideración de la decisión del Director Ejecutivo, la Oficina del Secretario Principal enviará por correo los avisos públicos en relación con la solicitud. Además, puede pedir que la TCEQ ponga su nombre en una o 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 específico. Si desea que se agregue 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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



NOTICE OF APPLICATION AND PRELIMINARY DECISION FOR CAFO WATER QUALITY PERMIT MAJOR AMENDMENT

PERMIT NO. WQ0002950000

APPLICATION AND PRELIMINARY DECISION. 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) for a major amendment of Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0002950000, for a Concentrated Animal Feeding Operation (CAFO) to authorize the applicant to construct the proposed changes to the site that were approved in the permit that was issued on August 17, 2023 in two phases: Phase 1- confine a total of 2,500 head, all of which will be milking cows, reconfigure existing land management units, which will decrease the total land application area from 1,038 to 1,034 acres, and update the facility maps to reflect current conditions; and Phase 2: increase the maximum capacity to the currently authorized 4,000 head, all of which are milking cows, and add the authorized digester and associated equipment and the freestall barns. TCEQ received this application on May 12, 2025.

The facility is located at 2179 County Road 308, Dublin in Erath County, Texas 76446. The facility is located in the drainage area of the North Bosque River in Segment No. 1226 of the Brazos River Basin. This link to an electronic map of the site or facility's general location is provided as a public courtesy and is not part of the application or notice.

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

For the exact location, refer to the application.

The TCEQ Executive Director has completed the technical review of the application and prepared a draft permit. The draft permit, if approved, would establish the conditions under which the facility must operate. This permit is consistent with the requirements of the antidegradation implementation procedures in 30 Texas Administrative Code §307.5 (c)(2)(G) of the Texas Surface Water Quality Standards and no lowering of water quality is anticipated. The TCEQ Executive Director has made a preliminary decision that this permit, if issued, meets all statutory and regulatory requirements. The permit application, Executive Director's Preliminary Decision, and draft permit are available for viewing and copying at the **Erath County Extension Office-Erath County Courthouse, 100 Washington St., Room 206, Stephenville, Texas 76401.**

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>.

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

CHANGE IN LAW. The Texas Legislature enacted Senate Bill 709, effective September 1, 2015, amending the requirements for comments and contested case hearings. This application is subject to those changes in law.

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

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

TO REQUEST A CONTESTED CASE HEARING, YOU MUST INCLUDE THE FOLLOWING ITEMS IN YOUR REQUEST: your name, address, phone number, applicant's name and permit number, the location and distance of your property/activities relative to the 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 germane 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 will only grant a contested case hearing on disputed issues of fact that are relevant and material to the Commission's decision on the application. Further, the Commission will only grant a hearing on issues that were raised in timely filed 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.**

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

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

All written public comments and public meeting requests must be submitted to the Office of the Chief Clerk, MC 105, TCEQ, P.O. Box 13087, Austin, TX 78711-3087 or electronically at <https://www14.tceq.texas.gov/epic/eComment/> within 30 days from the date of newspaper publication of this notice.

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

AGENCY CONTACTS AND INFORMATION. Public comments and requests must be submitted either electronically at <https://www14.tceq.texas.gov/epic/eComment/>, or in writing to the Texas Commission on Environmental Quality, Office of the Chief Clerk, MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Any personal information you submit to the TCEQ will become part of the agency's record; this includes email addresses. For more information about this permit application or the permitting process, please call the TCEQ Public Education Program, Toll Free, at 1-800-687-4040 or visit their website at www.tceq.texas.gov/goto/pep. Si desea información en Español, puede llamar al 1-800-687-4040.

Further information may also be obtained from Mr. Tim Miranda at the address stated above or by calling Mr. Corey Mullin, Enviro-Ag Engineering, Inc. at (254) 965-3500.

Issuance Date: September 11, 2025

COMISIÓN DE CALIDAD AMBIENTAL DE TEXAS



ANUNCIO DE SOLICITUD Y DECISIÓN PRELIMINAR PARA CAFO PERMISO DE CALIDAD DEL AGUA ENMIENDA IMPORTANTE

PERMISO N° WQ0002950000

SOLICITUD Y DECISIÓN PRELIMINAR. 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) una enmienda importante del Permiso No. WQ0002950000, para que una Operación Concentrada de Alimentación Animal (CAFO) autorice al solicitante a construir los cambios propuestos al sitio que fueron aprobados en el permiso que se emitió el 17 de agosto de 2023 en dos fases: Fase 1- confinar un total de 2,500 cabezas, todas las cuales serán vacas en ordeño, reconfigurar las unidades de manejo de tierras existentes, lo que disminuirá el área total de aplicación de tierra de 1,038 a 1,034 acres, y actualizará los mapas de las instalaciones para reflejar las condiciones actuales; y Fase 2: aumentar la capacidad máxima a las 4.000 cabezas actualmente autorizadas, todas ellas de vacas en ordeño, y añadir el digestor autorizado y el equipo asociado y los establos de estabulación libre. TCEQ recibió esta solicitud el 12 de mayo de 2025.

La instalación está ubicada en 2179 County Road 308, Dublin en el condado de Erath, Tejas 76446. La instalación está ubicada en el área de drenaje del río North Bosque en el segmento n.º 1226 de la cuenca del río Brazos. Este enlace a un mapa electrónico de la ubicación general del sitio o instalación se proporciona como cortesía pública y no es parte de la solicitud o aviso. <https://gisweb.tceq.texas.gov/LocationMapper/?marker=-98.270833,32.023055&level=18>. Para conocer la ubicación exacta, consulte la solicitud.

El Director Ejecutivo de la TCEQ ha concluido el examen técnico de la solicitud y ha preparado un bosquejo de permiso. El bosquejo de permiso, de ser aprobado, establecería las condiciones bajo las cuales la instalación debe operar. Este permiso es consistente con los requisitos de los procedimientos de implementación antidegradación en 30 Código Administrativo de Texas §307.5 (c) (2) (G) de los Estándares de Calidad de Aguas Superficiales de Texas y no se anticipa una disminución de la calidad del agua. El Director Ejecutivo de la TCEQ ha tomado una decisión preliminar de que este permiso, si se emite, cumple con todos los requisitos legales y reglamentarios. La solicitud de permiso, la Decisión Preliminar del Director Ejecutivo y el bosquejo del permiso están disponibles para su visualización y copia en la **Oficina de Extensión del Condado de Erath - Palacio de Justicia del Condado de Erath, 100 Washington St., Sala 206, Stephenville, Texas 76401.**

La solicitud, incluidas las actualizaciones, y los avisos asociados están disponibles electrónicamente en la siguiente página web:

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

CAMBIO EN LA LEY. La Legislatura de Texas promulgó el Proyecto de Ley del Senado 709, efectivo el 1 de septiembre de 2015, que modifica los requisitos para comentarios y audiencias de casos impugnados. Esta solicitud está sujeta a esos cambios en la ley.

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

COMENTARIO PÚBLICO / REUNIÓN PÚBLICA. Puede enviar comentarios públicos o solicitar una reunión pública sobre esta solicitud. El propósito de una reunión pública es para brindar la oportunidad de enviar comentarios o hacer preguntas sobre la solicitud. La TCEQ celebra una reunión pública si el Director Ejecutivo determina que existe un grado significativo de interés público en la solicitud o si lo solicita un legislador local. Una reunión pública no es una audiencia de caso impugnado.

OPORTUNIDAD PARA UNA AUDIENCIA DE CASO IMPUGNADO. Después de la fecha límite para presentar comentarios públicos, el Director Ejecutivo considerará todos los comentarios oportunos y preparará una respuesta a todos los comentarios públicos relevantes y materiales o significativos. **A menos que la solicitud sea remitida directamente para una audiencia de caso impugnado, la respuesta a los comentarios se enviará por correo a todos los que enviaron comentarios públicos y a aquellas personas que estén en la lista de correo para esta solicitud. Si se reciben comentarios, el correo también proporcionará instrucciones para solicitar una audiencia de caso impugnado o reconsiderar la decisión del Director Ejecutivo.** Una audiencia de caso impugnado es un procedimiento legal similar a un juicio civil en un tribunal de distrito estatal. **PARA SOLICITAR UNA AUDIENCIA DE CASO IMPUGNADO, DEBE INCLUIR LOS SIGUIENTES ELEMENTOS EN SU SOLICITUD: su nombre; dirección, teléfono; nombre y número de permiso del solicitante; la ubicación y distancia de su propiedad / actividades en relación con la instalación; una descripción específica de cómo se vería afectado negativamente por la instalación de una manera que no es común para el público en general; una lista de todas las cuestiones de hecho controvertidas que usted planteó durante el periodo de comentarios y la declaración "[Yo/nosotros] solicito/amos una audiencia de caso impugnado".** Si la solicitud de audiencia de caso impugnado se presenta en nombre de un grupo o asociación, la solicitud debe designar al representante del grupo para recibir correspondencia futura; identificar por nombre y dirección física a un miembro individual del grupo que se vería afectado negativamente por la instalación o actividad; proporcionar la información discutida anteriormente con respecto a la ubicación y distancia del miembro afectado de la instalación o actividad; explicar cómo y por qué se vería afectado el miembro; y explicar cómo los intereses que el grupo busca proteger son relevantes para el propósito del grupo.

Tras el cierre de todos los periodos de comentarios y solicitudes aplicables, el Director Ejecutivo remitirá la solicitud y cualquier solicitud de reconsideración o de una audiencia de caso impugnado a los Comisionados de la TCEQ para su consideración en una reunión programada de la Comisión.

La Comisión sólo concederá una audiencia de caso impugnando sobre cuestiones de hecho controvertidas que sean relevantes y materiales para la decisión de la Comisión sobre la solicitud. Además, la Comisión sólo concederá una audiencia sobre cuestiones que se plantearon en comentarios presentados oportunamente que no fueron retirados posteriormente. **Si se concede una audiencia, el tema de una audiencia se limitará a cuestiones de hecho en disputa o cuestiones mixtas de hecho y de derecho relacionadas con preocupaciones relevantes y materiales sobre la calidad del agua presentadas durante el periodo de comentarios.**

ACCIÓN DEL DIRECTOR EJECUTIVO. El Director Ejecutivo puede emitir la aprobación final de la solicitud a menos que se presente una solicitud de audiencia de caso impugnado oportunamente o una solicitud de reconsideración. Si se presenta una solicitud de audiencia oportuna o una solicitud de reconsideración, el Director Ejecutivo no emitirá la aprobación final del permiso y enviará la solicitud y la petición a los Comisionados de la TCEQ para su consideración en una reunión programada de la Comisión.

LISTA DE CORREO. Si envía comentarios públicos, una solicitud de una audiencia de caso impugnado o una reconsideración de la decisión del Director Ejecutivo, se le agregará a la lista de correo para que esta solicitud reciba avisos públicos futuros enviadas por correo por la Oficina del Secretario Oficial. Además, puede solicitar ser colocado en: (1) la lista de correo permanente para un nombre de solicitante específico y número de permiso; y/o (2) la lista de correo para un condado específico. Para ser colocado en la lista de correo permanente y / o del condado, especifique claramente qué lista(s) y envíe su solicitud a la Oficina del Secretario Oficial de la TCEQ a la dirección a continuación.

Todos los comentarios públicos escritos y las solicitudes de reunión pública deben enviarse a la Office of the Chief Clerk, MC 105, TCEQ, P.O. Box 13087, Austin, TX 787113087 -o electrónicamente a <https://www14.tceq.texas.gov/epic/eComment/> dentro de los 30 días a partir de la fecha de publicación de este aviso en el periódico.

INFORMACIÓN DISPONIBLE EN LÍNEA. Para obtener detalles sobre el estado de la solicitud, visite la Base de Datos Integrada de los Comisionados en www.tceq.texas.gov/goto/cid. Busque en la base de datos utilizando el número de permiso para esta solicitud, que se proporciona en la parte superior de este aviso.

CONTACTOS E INFORMACIÓN DE LA AGENCIA. Los comentarios y solicitudes públicas deben enviarse electrónicamente a <https://www14.tceq.texas.gov/epic/eComment/>, o por escrito a Texas Commission on Environmental Quality, Office of the Chief Clerk, MC-105, P.O. Box 13087, Austin, Texas 78711-3087. Cualquier información personal que envíe a al TCEQ pasará a formar parte del registro de la agencia; esto incluye las direcciones de correo electrónico. Para obtener más información sobre esta solicitud de permiso o el proceso de permisos, llame al Programa de Educación Pública de la TCEQ, sin cargo, al 1-800-687-4040 o visite su sitio web en www.tceq.texas.gov/goto/pep. Si desea información en español, puede llamar al 1-800-687-4040.

También se puede obtener más información de Sr. Tim Miranda en la dirección indicada anteriormente o llamando a Sr. Corey Mullin, Enviro-Ag Engineering, Inc. a (254) 965-3500.

Fecha de Emisión: el 11 de septiembre 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?

☒ Yes, Indicate the type of waiver below.

☒ Temporary Waiver

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

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

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

Note:

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

State Only CAFOs are exempt from this requirement.



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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

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

SECTION 1. APPLICATION FEE

Minor Amendment - \$150.00

Renewal - \$315.00

New or Major Amendment - \$350.00

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

EPAY Voucher Number: 765911 & 765912
Copy of Payment Voucher enclosed? Yes ☐

SECTION 2. TYPE OF APPLICATION

- A. Coverage: State Only ☐ TPDES ☒
- B. Media Type: Water Quality ☐ Air and Water Quality ☒
- C. Application Type: New ☐ Major Amendment ☒
Renewal ☐ Minor Amendment ☐
- D. For amendments, describe the proposed changes: 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 #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

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

Close

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: 765912
Trace Number: 582EA000667344
Date: 05/08/2025 02:39 PM
Payment Method: CC - Authorization 000007583G
Voucher Amount: \$50.00
Fee Type: 30 TAC 305.53B WQ NOTIFICATION FEE
ePay Actor: JOURDAN MULLIN
Actor Email: jmullin@enviroag.com
IP: 156.146.244.233

Payment Contact Information

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

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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:

- | | |
|---|---|
| <input type="checkbox"/> Individual | <input type="checkbox"/> Federal Government |
| <input type="checkbox"/> Limited Partnership | <input type="checkbox"/> County Government |
| <input type="checkbox"/> General Partnership | <input type="checkbox"/> State Government |
| <input type="checkbox"/> Trust | <input type="checkbox"/> City Government |
| <input type="checkbox"/> Sole Proprietorship (D.B.A.) | <input type="checkbox"/> Other Government |
| <input checked="" type="checkbox"/> Corporation | <input type="checkbox"/> Other, specify: <u>Click here to enter text.</u> |
| <input type="checkbox"/> 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 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 or higher

H. For Corporations and Limited Partnerships:

What is the Tax Identification Number issued by the State Comptroller: 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 603973462

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:

- | | |
|---|---|
| <input type="checkbox"/> Individual | <input type="checkbox"/> Federal Government |
| <input type="checkbox"/> Limited Partnership | <input type="checkbox"/> County Government |
| <input type="checkbox"/> General Partnership | <input type="checkbox"/> State Government |
| <input type="checkbox"/> Trust | <input type="checkbox"/> City Government |
| <input type="checkbox"/> Sole Proprietorship (D.B.A.) | <input type="checkbox"/> Other Government |
| <input checked="" type="checkbox"/> Corporation | <input type="checkbox"/> Other, specify: <u>Click here to enter text.</u> |
| <input type="checkbox"/> 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 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 or higher

H. For Corporations and Limited Partnerships:

What is the Tax Identification Number issued by the State Comptroller: 12733069541

What is the Charter Filing Number issued by the Texas Secretary of State: 0801312718

SECTION 5. APPLICATION CONTACT INFORMATION

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

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

Application Contact First and Last Name: Corey Mullin

Title: Consultant Credentials: Click here to enter text

Company Name: Enviro-Ag Engineering, Inc.

Mailing Address: 9855 FM 847

City, State and Zip Code: Dublin, TX 76446

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

E-mail Address: cmullin@enviroag.com

SECTION 6. PERMIT CONTACT INFORMATION

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

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

Permit Contact First and Last Name: Corey Mullin

Title: Consultant Credentials: Click here to enter text.

Company Name: Enviro-Ag Engineering, Inc.

Mailing Address: 9855 FM 847

City, State and Zip Code: Dublin, TX 76446

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

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

Permit Contact First and Last Name: Tim Miranda

Title: Member Credentials: Click here to enter text.

Company Name: Circle 7 Dairy, LLC

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

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

☐ No, complete this section

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

First and Last Name: Click here to enter text.

Title: Click here to enter text. Credentials: Click here to enter text.
Company Name: Click here to enter text.
Mailing Address: Click here to enter text.
City, State and Zip Code: Click here to enter text.
Phone Number: Click here to enter text. Fax Number: Click here to enter text. E-mail
Address: Click here to enter text.

SECTION 8. LANDOWNER INFORMATION

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

Landowner Name: Circle 7 Dairy, LLC

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: Consultant Credentials: Click here to enter text.

Company Name: Enviro-Ag Engineering, Inc.

Mailing Address: 9855 FM 847

City, State and Zip Code: Dublin, TX 76446

Phone Number: 254/965-3500 Fax Number: 254/965-8000 E-mail Address:

jmullin@enviroag.com

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

☒ E-mail: jmullin@enviroag.com

☐ Fax Number: Click here to enter text.

☒ Regular Mail:

Mailing Address: 9855 FM 847

City, State and Zip Code: Dublin, TX 76446

C. Contact person to be listed in the notice

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

First and Last Name: Tim Miranda

Title: Member Credentials: Click here to enter text.

Company Name: Circle 7 Dairy, LLC

Phone Number: 254/445-0404

D. Public viewing location

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

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

Physical Address of Building: 100 Washington St. Room 206

City: Stephenville County: Erath

Phone Number: 254/965-1460

E. Bilingual Notice Requirement

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

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

Yes ☒ No ☐

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

2. Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?

Yes ☒ No ☐

3. Do the students at these schools attend a bilingual education program at another location?

Yes ☒ No ☐

4. Would the school be required to provide a bilingual education program but the school has waived out of this requirement under 19 TAC §89.1205(g)?

Yes ☒ No ☐

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

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

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

F. Public Involvement Plan Form

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

SECTION 10. REGULATED ENTITY (SITE) INFORMATION

A. Site Name as known by the local community: Grand Canyon Dairy

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.



Texas Commission on Environmental Quality

Public Involvement Plan Form for Permit and Registration Applications

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

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

Section 1. Preliminary Screening

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

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

Section 2. Secondary Screening

- ☒ Requires public notice,
☐ Considered to have significant public interest, and
☐ Located within any of the following geographical locations:

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

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

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

Section 3. Application Information

Type of Application (check all that apply):

Air ☐ Initial ☐ Federal ☐ Amendment ☐ Standard Permit ☐ Title V
Waste ☐ Municipal Solid Waste ☐ Industrial and Hazardous Waste ☐ Scrap Tire
☐ Radioactive Material Licensing ☐ Underground Injection Control

Water Quality

☒ Texas Pollutant Discharge Elimination System (TPDES)
☐ Texas Land Application Permit (TLAP)
☒ State Only Concentrated Animal Feeding Operation (CAFO)
☐ Water Treatment Plant Residuals Disposal Permit
☐ Class B Biosolids Land Application Permit
☐ Domestic Septage Land Application Registration

Water Rights New Permit

☐ New Appropriation of Water
☐ New or existing reservoir

Amendment to an Existing Water Right

☐ Add a New Appropriation of Water
☐ Add a New or Existing Reservoir
☐ Major Amendment that could affect other water rights or the environment

Section 4. Plain Language Summary

Grand Canyon Dairy is a dairy milking facility.

Section 5. Community and Demographic Information

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

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

Stephenville
(City)

Erath
(County)

(Census Tract)

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

☐

City

☐

County

☒

Census Tract

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

88.9%

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

\$24,810

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

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

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

0%

(e) Languages commonly spoken in area by percentage

English - 89.4%

Spanish -

10.6%

(f) Community and/or Stakeholder Groups

N/A

(g) Historic public interest or involvement

N/A

Section 6. Planned Public Outreach Activities

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

☒ Yes ☐ No

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

☐ Yes ☐ No

If Yes, please describe.

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

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

☐ Yes ☐ No

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

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

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

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

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

Section 7. Voluntary Submittal

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

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

☐ Yes ☐ No

What types of notice will be provided?

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

- B. If this is an existing permitted site, provide the Regulated Entity Number (RN) issued to this site? RN 100794155
- 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 enter text.

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

- D. County or counties if more than 1: Erath
- E. Latitude: 32 01' 23.6"N Longitude: 98 16' 15.5"W
- F. Animal Type:

- | | |
|--|---|
| <input checked="" type="checkbox"/> Dairy-0241 | <input type="checkbox"/> Sheep/Goats-0214 |
| <input type="checkbox"/> Beef Cattle- 0211 | <input type="checkbox"/> Auction-5154 |
| <input type="checkbox"/> Swine-0213 | <input type="checkbox"/> Other, specify: <u>Click here to enter text.</u> |
| <input type="checkbox"/> Broiler-0251 | |
| <input type="checkbox"/> Laying Hens-0252 | |

- G. Existing Maximum Number of Animals: 4,000 (Total) 4,000 (Milking)

Proposed Maximum Number of Animals: Phase 1 - 2,500 (Total) 2,500 (Milking). Phase 2 - 4,000 (Milking) 4,000 (Total)

- H. What is the total LMU acreage? 1,034

SECTION 11. MISCELLANEOUS INFORMATION

- A. Did any person who was formerly employed by the TCEQ represent your company and get paid for service regarding this application? Yes ☐ No ☒
If yes, provide the name(s) of the former TCEQ employee(s): Click here to enter text.
- B. Is the facility located on Indian Country Lands? Yes ☐ No ☒
If yes, do not submit this application. You must obtain authorization through EPA Region 6.
- C. Is the production area located within the protection zone of a sole source drinking water

supply? Yes ☐ No ☒

D. Is any permanent school fund land affected by this application? Yes ☐ No ☒

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

E. Delinquent Fees and Penalties:

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

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

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

[Click here to enter text.](#)

SECTION 12. AFFECTED LANDOWNER INFORMATION

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

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

Erath County Appraisal District – 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: Circle 7 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

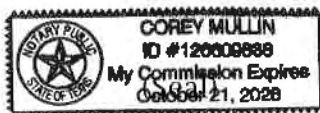
Title: Member

Signature:  Date: 4-23-25

SUBSCRIBED AND SWORN to before me by the said Tim Miranda on

this 23rd day of April, 2025

My commission expires on the 21st day of October, 2028





Notary Public



County, Texas

- 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

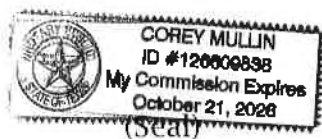
Title: Member

Signature:  Date: 4-23-25


SUBSCRIBED AND SWORN to before me by the said Tim Miranda on

this 23rd day of April, 2025

My commission expires on the 21st day of October, 2028




Notary Public


County, Texas



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 Number 32045368498

Mailing Address 1743 COUNTY ROAD 308 DUBLIN, TX 76446-6855

Right to Transact Business in Texas ACTIVE

State of Formation TX

Effective SOS Registration Date 10/19/2011

Texas SOS File Number 0801495972

Registered Agent Name DORICE M MIRANDA

Registered Office Street Address 2179 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 open.records@cpa.texas.gov 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 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 Number 12733069541

Mailing Address 965 WADDINGTON RD FERNDALE, CA 95536-9724

Right to Transact Business in Texas ACTIVE

State of Formation CA

Effective SOS Registration Date 08/31/2010

Texas SOS File Number 0801312718

Registered Agent Name DORICE MIRANDA

Registered Office Street Address 2179 COUNTY ROAD 308 DUBLIN, TX 76446

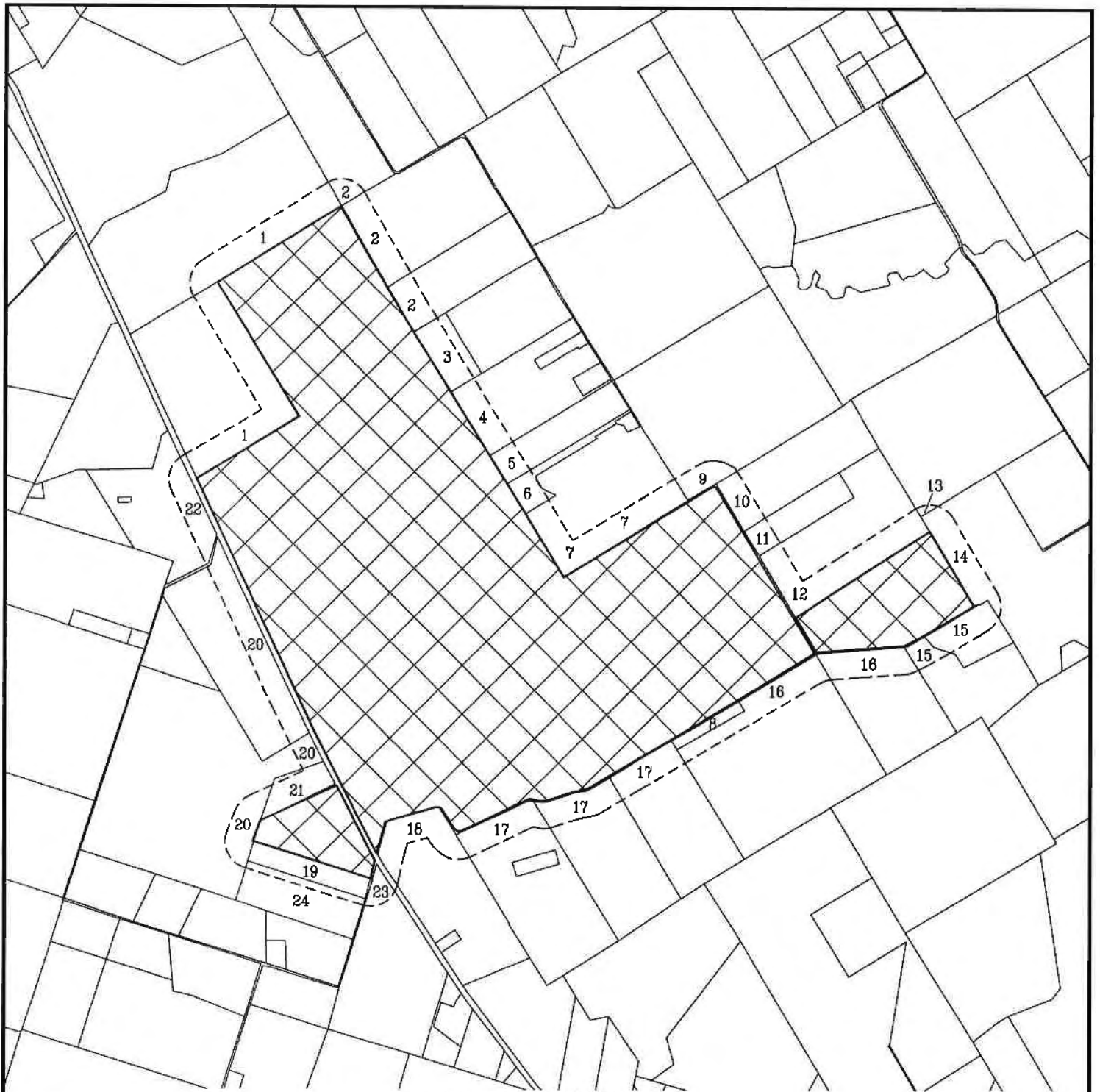
Public Information Report

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 open.records@cpa.texas.gov 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	ROBERT MIRANDA 1808 CENTERVILLE RD FERNDALE, CA 95536
MEMBER	TIM MIRANDA 1743 CR 308 DUBLIN, TX 76446



LEGEND:

- Denotes Adjacent Landowner Tract
- - - Denotes 500 ft. Radius from Circle 7 Dairy LLC Property
- ▨ Denotes Circle 7 Dairy LLC Property

Map Generated 5/23/2022



1250' 0 1250' 2500'



SCALED AS SHOWN

Grand Canyon Dairy
Dublin, TX
Erath County

ALO Map



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

ADJACENT LANDOWNERS LIST

Name: <u>Blue Sky Farms, LLC.</u> Number on Map: <u>1</u> Address: <u>4611 S FM 219</u> Address: <u>Dublin, TX 76446</u>	Name: <u>Johnny Feagan</u> Number: on Map <u>2</u> Address: <u>2775 CR 307</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Gustavo Frias</u> Number: on Map <u>3</u> Address: <u>3626 CR 307</u> Address: <u>Dublin, TX 76446</u>	Name: <u>Salavador & Leondies Solano</u> Number on Map <u>4</u> Address: <u>4042 CR 307</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Gabriel E Dagley</u> Number on Map: <u>5</u> Address: <u>3313 CR 132</u> Address: <u>Stephenville, TX 76401</u>	Name: <u>Michael Brent & Lisa Dianne Chambers</u> Number on Map: <u>6</u> Address: <u>4600 CR 307</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Tony & Sally Gray</u> Number on Map: <u>7</u> Address: <u>5170 CR 307</u> Address: <u>Dublin, TX 76446</u>	Name: <u>James & Tracy Holleman</u> Number on Map: <u>8</u> Address: <u>3048 CR 308</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Wallace Family Trust</u> Number on Map: <u>9</u> Address: <u>4879 CR 307</u> Address: <u>Dublin, TX 76446</u>	Name: <u>Haros Ranch LLC.</u> Number on Map: <u>10</u> Address: <u>830 Kingston Dr</u> Address: <u>Mansfield, TX 76063</u>
Name: <u>Luciano Haros</u> Number on Map: <u>11</u> Address: <u>830 Kingston Dr</u> Address: <u>Mansfield, TX 76063</u>	Name: <u>Rygh & Lyn Fullagar</u> Number on Map: <u>12</u> Address: <u>6291 CR 307</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Dickie D & Nancy R Palmore</u> Number on Map: <u>13</u> Address: <u>927 Preston Lane</u> Address: <u>Dublin, TX 76446</u>	Name: <u>Frederick Wayne & Gregory Alan Gibson</u> Number on Map: <u>14</u> Address: <u>2801 FM 1496</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Paulo A & Cathy S Valle</u> Number on Map: <u>15</u> Address: <u>PO Box 207</u> Address: <u>Dublin, TX 76446</u>	Name: <u>Seven R Corporation</u> Number on Map: <u>16</u> Address: <u>PO Box 83701</u> Address: <u>Baton Rouge, LA 70884</u>
Name: <u>Jesse Lee Tackett Credit Shelter Trust</u> Number on Map: <u>17</u> Address: <u>1256 CR 308</u> Address: <u>Dublin, TX 76446</u>	Name: <u>Deboer Reo, LLC</u> Number on Map: <u>18</u> Address: <u>451 Eagle Station Lane</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> Number on Map: <u>19</u> Address: <u>260 CR 317</u> Address: <u>Dublin, TX 76446</u>	Name: <u>Sonrisa Land & Cattle Co Inc</u> Number: on Map <u>20</u> Address: <u>PO Box 250</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Eddie & Effie Leatherwood</u> Number: on Map <u>21</u> Address: <u>414 CR 336</u> Address: <u>Dublin, TX 76446</u>	Name: <u>La Perla Land & Livestock, LLC</u> Number on Map <u>22</u> Address: <u>PO Box 367</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Joseph Hines</u> Number: on Map <u>23</u> Address: <u>1418 W Torrey St.</u> Address: <u>Granbury, TX 76048</u>	Name: <u>Janice Hess</u> Number: on Map <u>24</u> Address: <u>570 Alexander Rd.</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

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

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
 - ☐ 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.

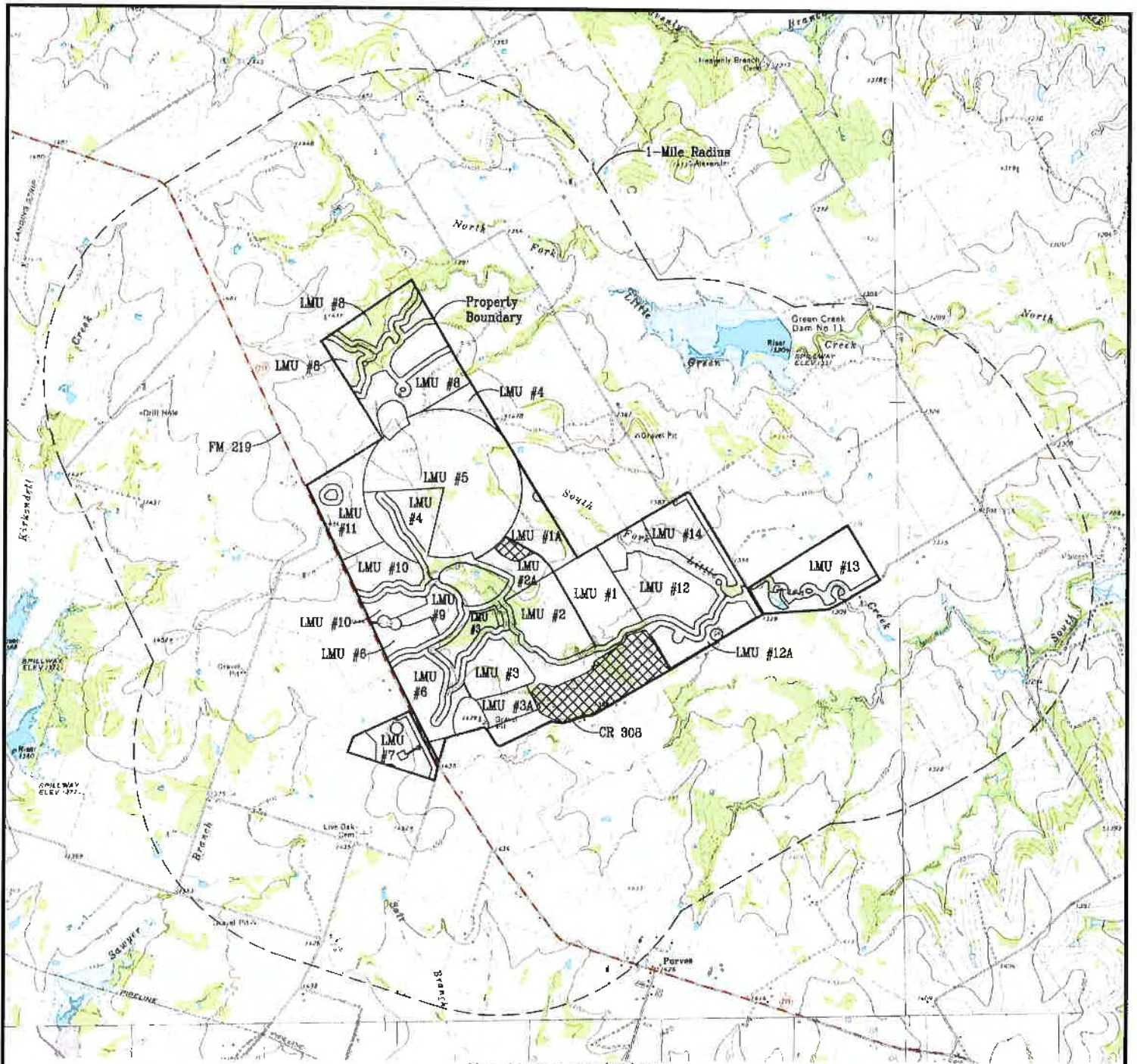
12. Describe existing disturbances, vegetation & land use (plowing, other ground disturbances):
The LMUs at the facility are planted in coastal grass and crops and normal expected farming practices to maintain these crops will be utilized.

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

13. List construction dates of any buildings or structures on the property: The dairy parlor and commodity barn were built in 1986.
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). Phase 1 - RCS #1 - 0.00, RCS #2 - 51.84 & RCS #3 - 16.74. Phase 2 - RCS #1 - 0.00, RCS #2 - 58.81 & RCS #3 - 22.73. Phase 2 Digester Bypass - RCS #1 - 0.00, RCS #2 - 54.96 & RCS #3 - 18.10.
16. Provide the location and number of acres where wastewater and manure are land applied:
The facility has 1,034 acres of Land Management Units (LMUs) available for waste and wastewater application. See attached Figures 1.3A-B.
17. List the maximum number of head to be permitted. Phase 1 - 2,500 (Total) 2,500 (Milking). Phase 2 - 4,000 (Total) 4,000 (Milking)



Map Generated 2/13/2025

LEGEND:

 Denotes Production Area



SCALED AS SHOWN

Source: USDS-NRCS. Geospatial Data Gateway. Available at:
<http://datagateway.nrcs.usda.gov/>. Digital Raster Graphic
 County Mosaic by NRCS - Accessed December, 2017.

Grand Canyon Dairy
 Dublin, TX
 Erath County

SPIF Map



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

Property Details

Account			
Property ID:	R000017177	Geographic ID:	R.0159.00081.00.0
Type:	Real	Zoning:	
Property Use:		Gondo:	
Location			
Situs Address:	S FM219 (OFF)		
Map ID:	17-14-4	Mapsc:	
Legal Description:	Acres 468.660, A0159 CARRIGANA L;		
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 (=)
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%

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

Property Land

Type	Description	Acreage	Sq/ft	Eff Front	Eff Depth	Market Value	Prod. Value
SAW		468.66	20,414,830.00	0.00	0.00	N/A	N/A

Property Roll Value History

Year	Improvements	Land Market	Ag Valuation	Appraised	HS Cap Loss	Assessed
2025	N/A	N/A	N/A	N/A	N/A	N/A
2024	\$0	\$1,640,310	\$90,310	\$1,640,310	\$0	\$90,310
2023	\$0	\$1,640,310	\$84,510	\$1,640,310	\$0	\$84,510
2022	\$0	\$1,640,310	\$112,620	\$1,640,310	\$0	\$112,620
2021	\$0	\$1,265,380	\$119,700	\$1,265,380	\$0	\$119,700
2020	\$0	\$1,265,380	\$113,300	\$1,265,380	\$0	\$113,300
2019	\$0	\$1,265,380	\$115,770	\$1,265,380	\$0	\$115,770
2018	\$0	\$1,640,310	\$113,730	\$1,640,310	\$0	\$113,730
2017	\$0	\$1,312,250	\$112,630	\$1,312,250	\$0	\$112,630
2016	\$0	\$1,124,780	\$107,130	\$1,124,780	\$0	\$107,130
2015	\$0	\$1,124,780	\$107,130	\$1,124,780	\$0	\$107,130
2014	\$0	\$1,031,050	\$99,530	\$1,031,050	\$0	\$99,530

Property Deed History

Deed Date	Type	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	
9/10/1992	MULTI		HENDERSON T G	GRAND CANYON DAIRY	830	802	
3/31/1998			GRAND CANYON DAIRY	GRAND CANYON DAIRY	954	528	

Property Details

Account

Property ID: R000026213 Geographic ID: R-0779.00020.00.0

Type: Real Zoning:

Property Use: Condo:

Location

Situation Address: S FM219

Map ID: 17-14-4 Mapsco:

Legal Description: Acres 290.660, A0779 TOBY THOMAS, HOUSE & BARN

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 (=)

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

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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

Property Improvement - Building

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

Type	Description	Year Built	SQFT
STG	STRG BUILDING		48.00
AS	ANIMALSHADE	1997	960.00

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

Type	Description	Year Built	SQFT
MA	MAIN AREA	1937	1,465.00
P	COVERPORCH	1937	112.00
OP	OPEN PATIO	1937	243.00
DCPP	DTCARPORT+	1937	600.00
DG1F	1 CAR FRAME GARAGE DET	1937	403.00
STG	STRG BUILDING	1937	264.00
UTIL1	UTILITIES 1	2023	1.00

Property Land

Type	Description	Acreage	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

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	\$112,820	\$1,017,310	\$35,340	\$1,130,130	\$0	\$151,660
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
2021	\$52,410	\$798,080	\$36,500	\$850,490	\$0	\$104,910
2020	\$52,410	\$798,080	\$36,810	\$850,490	\$0	\$107,220
2019	\$45,640	\$798,080	\$38,530	\$843,720	\$0	\$100,170
2018	\$45,000	\$1,064,810	\$38,530	\$1,109,810	\$0	\$99,530
2017	\$44,110	\$851,550	\$43,450	\$895,660	\$0	\$103,560
2016	\$44,110	\$731,180	\$45,190	\$775,290	\$0	\$104,300
2015	\$44,110	\$731,180	\$50,110	\$775,290	\$0	\$109,220
2014	\$44,110	\$680,250	\$50,110	\$724,360	\$0	\$109,220

Property Deed History

Deed Date	Type	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	
3/31/1998			GRAND CANYON DAIRY	GRAND CANYON DAIRY	954	528	

Property Details

Account

Property ID: R000028154 Geographic ID: R.1223.00010.00.0

Type: Real Zoning:

Property Use: Condo:

Location

Site Address: S FM219 (OFF)

Map ID: 17-14-4 Mapsco:

Legal Description: Acres 18.230 A1223 PERC/FUL T W:

Abstract/Subdivision:

Owner

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 (-)

Appraised Value: N/A (=)

HS Cap Loss: N/A (-)

CB Cap Loss: N/A (-)

Assessed Value: N/A

Ag Use Value: N/A

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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

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAW		18.23	794,099.00	0.00	0.00	N/A	N/A

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	\$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	\$63,810	\$0	\$5,870
2021	\$0	\$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
2018	\$0	\$63,810	\$6,050	\$63,810	\$0	\$6,050
2017	\$0	\$51,040	\$6,360	\$51,040	\$0	\$6,360
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	Type	Description	Grantor	Grantee	Volume	Page	Number
1/4/2012			JB GRAND CANYON DAIRY LP	CIRCLE 7 DAIRY LLC			2012-00202
12/21/2008			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	
3/31/1988			GRAND CANYON DAIRY	GRAND CANYON DAIRY	554	528	

Property Details

Account

Property ID: R000018998 Geographic ID: R.0296.00100.00.0

Type: Real Zoning:

Property Use: Condo:

Location

Site Address: S FM219

Map ID: 17-14-4 Mapsc:

Legal Description: Acres 40.580, A0296 GAMBLE GEORGE W,

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 (=)

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

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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

Property Land

Type	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

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	\$142,030	\$10,270	\$142,030	\$0	\$10,270
2023	\$0	\$142,030	\$8,360	\$142,030	\$0	\$8,360
2022	\$0	\$142,030	\$13,070	\$142,030	\$0	\$13,070
2021	\$0	\$109,570	\$13,680	\$109,570	\$0	\$13,680
2020	\$0	\$108,570	\$13,590	\$109,570	\$0	\$13,590
2019	\$0	\$109,570	\$13,840	\$109,570	\$0	\$13,840
2018	\$0	\$160,030	\$13,470	\$160,030	\$0	\$13,470
2017	\$0	\$126,220	\$14,200	\$126,220	\$0	\$14,200
2016	\$0	\$108,190	\$14,040	\$108,190	\$0	\$14,040
2015	\$0	\$108,190	\$14,690	\$108,190	\$0	\$14,690
2014	\$0	\$103,680	\$14,730	\$103,680	\$0	\$14,730

Property Deed History

Deed Date	Type	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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Property Details			
Account			
Property ID:	R000018984	Geographic ID:	R:0296.00030.00.0
Type:	Real	Zoning:	
Property Use:		Condo:	
Location			
Situs Address:	715 PR1384 OFF S FM219		
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.		

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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 Value:	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
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Property Taxing Jurisdiction			
Owner: CIRCLE 7 DAIRY LLC %Ownership: 100.00%			
Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	N/A	N/A
002	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 Improvement - Building			
Type: MA State Code: E Value: N/A			
Type	Description	Year Built	SQFT
MA	MAIN AREA	2004	800.00
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
Type: MHC Value: N/A			
Type	Description	Year Built	SQFT
MHC	MH COVER	1994	1,600.00
MHC	MH COVER	1996	1,600.00

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Property Land							
Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAW		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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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	\$97,730	\$211,050	\$2,990	\$308,780	\$0	\$111,210
2023	\$61,260	\$231,000	\$2,980	\$292,260	\$0	\$104,240
2022	\$35,250	\$177,800	\$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	\$6,460	\$81,850	\$3,150	\$90,310	\$0	\$26,510
2015	\$6,040	\$81,850	\$3,150	\$87,890	\$0	\$24,190
2014	\$6,040	\$81,850	\$2,830	\$87,890	\$0	\$23,870

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Property Deed History						
Deed Date	Type	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	
1/1/1968			GARRETT E W SR	HANSEN NORMAN D	638 289	
3/31/1998			GRAND CANYON DAIRY	GRAND CANYON DAIRY	954 524	

Property Details

Account

Property ID:	R000018980	Geographic ID:	R.0296.00015.00.0
Type:	Real	Zoning:	
Property Use:		Condo:	
Location			
Site Address:	8958 S FM210		
Map ID:	17-14-4	Mapsc0:	
Legal Description:	Acres: 25.890. A0296 GAMBLE GEORGE W., SHED & MH SITE, (RANDY VISS)		
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 (=)
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

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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

Property Improvement - Building

Type: SHED State Code: 02 Value: N/A

Type	Description	Year Built	SQFT
SHED	SHED	2000	480.00
UTIL1	UTILITIES 1	2023	1.00

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAW		24.89	1,064,208.00	0.00	0.00	N/A	N/A
SAW		1.00	43,560.00	0.00	0.00	N/A	N/A

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	\$37,200	\$271,850	\$3,880	\$309,050	\$0	\$61,580
2023	\$4,800	\$288,900	\$3,880	\$293,700	\$0	\$48,680
2022	\$4,800	\$224,120	\$4,230	\$228,920	\$0	\$34,030
2021	\$3,840	\$147,020	\$4,630	\$151,760	\$0	\$24,470
2020	\$3,840	\$142,940	\$4,380	\$146,780	\$0	\$24,220
2019	\$2,560	\$140,450	\$4,360	\$143,010	\$0	\$22,920
2018	\$2,560	\$140,450	\$4,360	\$143,010	\$0	\$22,920
2017	\$2,080	\$140,450	\$4,360	\$142,530	\$0	\$22,440
2016	\$2,080	\$102,120	\$4,110	\$104,200	\$0	\$21,190
2015	\$2,080	\$102,120	\$4,110	\$104,200	\$0	\$21,190
2014	\$2,080	\$102,120	\$3,680	\$104,200	\$0	\$20,760

Property Deed History

Deed Date	Type	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	
1/1/1988			HANSEN NORMAN D	GRAND CANYON DAIRY	821	866	
3/31/1998			GRAND CANYON DAIRY	GRAND CANYON DAIRY	954	524	

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Property Details			
Account			
Property ID:	R000015074	Geographic ID:	R.0036.00020.00.0
Type:	Real	Zoning:	
Property Use:		Condo:	
Location			
Situs Address:	CR308		
Map ID:	17-14-4	Mapsc0:	
Legal Description:	Acres 114.450, A0036 BRADLEY ELIZABETH: & SHED		
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 (=)
Agricultural Value Loss:	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 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%			
Entity	Description	Market Value	Taxable Value
072	ERATH COUNTY	N/A	N/A
902	DUBLIN ISD	N/A	N/A
MTO	MIDDLE TRINITY WATER	N/A	N/A
RER	ERATH ROAD & BRIDGE	N/A	N/A

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Property Improvement - Building			
Type: AS State Code: D2 Value: N/A			
Type	Description	Year Built	SQFT
AS	ANIMALSHADE	2004	800.00

Property Land							
Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAW		114.45	4,986,442.00	0.00	0.00	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	\$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	\$39,890
2020	\$1,120	\$308,020	\$38,340	\$310,140	\$0	\$39,460
2019	\$1,120	\$309,020	\$38,030	\$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	\$0	\$41,180
2016	\$1,120	\$282,480	\$38,600	\$283,600	\$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	Type	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
4/30/1986	WD		TACKETT WYNDEL J & WILLETTA C	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

Property Details

Account

Property ID: R000026128 Geographic ID: R.0768.00050.00.0
Type: Real Zoning:
Property Use: Condo:

Location

Site Address: 2179 CR308

Map ID: 17-14-4

Mapscot:

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:

Owner

Name: CIRCLE 7 DAIRY LLC

Agent:

Mailing Address: 1743 CR308
DUBLIN, TX 75448

% 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 (-)

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%

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

Property Improvement - Building

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

Type	Description	Year Built	SQFT
DB	DAIRY BARN	1986	8,296.00
SL	SLAB	1986	14,442.00
CHP	HOLD PEN COVERED	1986	5,760.00
MA	MAIN AREA	1996	400.00
FSL	LOCKED FEED STANCHION	2015	85.00

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

Type	Description	Year Built	SQFT
AS	ANIMALSHADE	1997	8,200.00
MT	MILK TANK	1987	1.00
SC	SCALES	1987	1.00
AS	ANIMALSHADE	2009	8,400.00

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

Type	Description	Year Built	SQFT
CB	COMMODITY BARN	1986	6,840.00
SL	SLAB	1986	7,560.00
WH	WELLHOUSE	1992	180.00
STG	STRG BUILDING	2004	144.00

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

Type	Description	Year Built	SQFT
BARN	BARN	1996	800.00
BARN	BARN	1994	2,400.00
BARN	BARN	2004	1,600.00

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

Type	Description	Year Built	SQFT
MT	MILK TANK	1992	1.00
MT	MILK TANK	1992	1.00

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	1988	3,200.00
AS	ANIMALSHADE	1994	3,200.00

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

Type	Description	Year Built	SQFT
SHED	SHED	1988	364.00
SHED	SHED	1988	6,836.00

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

Type	Description	Year Built	SQFT
MA	MAIN AREA	1987	1,176.00
P	COVERPORCH	1990	128.00
P	COVERPORCH	1987	224.00
ACP	CAR PORT ATTACHED	1990	560.00
OP	OPEN PATIO	1987	55.00
OP	OPEN PATIO	1987	75.00
ASTG	STORAGE ATTACHED	1987	112.00
STG	STRG BUILDING	2004	120.00
UTIL1	UTILITIES 1	2023	1.00

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

Type	Description	Year Built	SQFT
MA	MAIN AREA	1990	2,881.00
P	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

Type	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

Type	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

Type	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 Code: E Value: N/A

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

Type	Description	Year Built	SQFT
SHED	SHED	2015	12,040.00

Type: SHED Value: N/A

Type	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	2018	240.00
SHED	SHED	2018	240.00
SHED	SHED	2018	240.00
SHED	SHED	2018	240.00
SHED	SHED	2018	240.00
SHED	SHED	2018	240.00

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SHED	SHED	2018	240.00
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Property Land

Type	Description	Acres	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAW		246.51	10,737,976.00	0.00	0.00	N/A	N/A
SAW		1.00	43,560.00	0.00	0.00	N/A	N/A
SAW		1.00	43,560.00	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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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	\$1,066,340	\$873,280	\$63,170	\$1,939,630	\$0	\$1,140,010
2023	\$890,220	\$972,790	\$52,420	\$1,863,010	\$0	\$1,052,640
2022	\$794,370	\$927,790	\$78,320	\$1,722,160	\$0	\$937,690
2021	\$674,650	\$706,580	\$81,900	\$1,381,230	\$0	\$797,550
2020	\$640,160	\$706,580	\$81,780	\$1,346,740	\$0	\$762,940
2019	\$602,470	\$706,580	\$83,040	\$1,309,050	\$0	\$726,510
2018	\$577,190	\$915,290	\$81,070	\$1,492,480	\$0	\$699,260
2017	\$566,470	\$747,330	\$85,260	\$1,313,800	\$0	\$692,730
2016	\$563,920	\$635,420	\$84,270	\$1,199,340	\$0	\$678,190
2015	\$537,720	\$635,420	\$87,720	\$1,173,140	\$0	\$655,440
2014	\$537,720	\$590,720	\$87,930	\$1,128,440	\$0	\$655,660

Property Deed History

Deed Date	Type	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	887	436	
3/31/1998			GRAND CANYON DAIRY	GRAND CANYON DAIRY	954	528	

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Property Details

Account

Property ID: R000026131 Geographic ID: R.0768.00060.00.0

Type: Real Zoning:

Property Use: Condo:

Location

Situation Address: 3227 CR308

Map ID: 17-14-4 Mapsco:

Legal Description: Acres 134.780, A0768 THOMAS C W. 2 HOUSES, BARN & SHED

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 (=)

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

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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

Property Improvement - Building

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

Type	Description	Year Built	SQFT
MA	MAIN AREA	1940	648.00
P	COVERPORCH	1940	72.00
BARN	BARN	1940	1,435.00

Type: MA Value: N/A

Type	Description	Year Built	SQFT
MA	MAIN AREA	1880	1,135.00
P	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

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAW		133.78	5,827,457.00	0.00	0.00	N/A	N/A
SAW		1.00	43,560.00	0.00	0.00	N/A	N/A

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	\$109,790	\$471,730	\$16,320	\$581,520	\$0	\$129,610
2023	\$74,190	\$508,230	\$12,710	\$582,420	\$0	\$126,900
2022	\$59,920	\$493,230	\$14,720	\$553,150	\$0	\$89,640
2021	\$46,330	\$377,210	\$16,860	\$423,540	\$0	\$79,190
2020	\$46,330	\$377,210	\$17,930	\$423,540	\$0	\$80,260
2019	\$43,100	\$377,210	\$17,790	\$420,310	\$0	\$76,890
2018	\$42,340	\$502,230	\$17,790	\$544,570	\$0	\$76,130
2017	\$41,860	\$415,780	\$0	\$457,660	\$0	\$457,660
2016	\$43,740	\$357,670	\$19,490	\$401,410	\$0	\$78,230
2015	\$43,740	\$357,670	\$20,450	\$401,410	\$0	\$79,190
2014	\$43,740	\$338,120	\$19,150	\$381,860	\$0	\$77,800

Property Deed History

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

Property Details

Account

Property ID: R000021397 Geographic ID: R.0459.00020.00.0

Type: Real Zoning:

Property Use: Condo:

Location

Situation Address: CR308

Map ID: 17-14-4 Mapscot:

Legal Description: Acres 67.930, AD459 KILLOUGH SAM B

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 (=)

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

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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

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAW		87.93	3,830,231.00	0.00	0.00	N/A	N/A

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	\$307,760	\$9,480	\$307,760	\$0	\$9,480
2023	\$0	\$307,760	\$7,920	\$307,760	\$0	\$7,920
2022	\$0	\$307,760	\$9,290	\$307,760	\$0	\$9,290
2021	\$0	\$237,410	\$10,700	\$237,410	\$0	\$10,700
2020	\$0	\$237,410	\$10,580	\$237,410	\$0	\$10,580
2019	\$0	\$237,410	\$10,930	\$237,410	\$0	\$10,930
2018	\$0	\$281,380	\$10,880	\$281,380	\$0	\$10,880
2017	\$0	\$281,380	\$11,180	\$281,380	\$0	\$11,180
2016	\$0	\$272,580	\$11,370	\$272,580	\$0	\$11,370
2015	\$0	\$272,580	\$12,050	\$272,580	\$0	\$12,050
2014	\$0	\$272,580	\$11,280	\$272,580	\$0	\$11,280

Property Deed History

Deed Date	Type	Description	Grantor	Grantee	Volume	Page	Number
2/1/2016			MIRANDA TIM & DORICE	CIRCLE 7 DAIRY LLC			2016-00614
7/25/2013	L		STEWART MACK	MIRANDA TIM & DORICE			2013-04749
1/30/2006	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	

Property Details

Account		
Property ID:	R000026116	Geographic ID: R.0768.00010.00.0
Type:	Real	Zoning:
Property Use:		Condo:
Location		
Situs Address:	5564 CR307	
Map ID:	17-14-4	Mapsc0:
Legal Description:	Acres B4.364, A0768 THOMAS 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.	

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 (-)

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

Assessed Value:	N/A
Ag Use Value:	N/A

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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

Property Improvement - Building

Type: MA Value: N/A			
Type	Description	Year Built	SQFT
MA	MAIN AREA		900.00
P	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

Property Land

Type	Description	Acreage	Sqft	Eff Front	Eff Depth	Market Value	Prod. Value
SAW		83.36	3,631,336.00	0.00	0.00	N/A	N/A
SAW		1.00	43,560.00	0.00	0.00	N/A	N/A

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	\$208,610	\$285,270	\$9,320	\$503,890	\$0	\$221,430
2023	\$158,210	\$331,770	\$8,710	\$489,980	\$0	\$206,920
2022	\$136,670	\$316,770	\$10,000	\$453,440	\$0	\$171,670
2021	\$103,390	\$241,080	\$11,330	\$344,470	\$0	\$130,720
2020	\$103,390	\$241,080	\$10,560	\$344,470	\$0	\$129,950
2019	\$77,780	\$241,080	\$11,030	\$318,860	\$0	\$104,810
2018	\$48,820	\$282,770	\$10,970	\$331,590	\$0	\$75,790
2017	\$21,470	\$266,770	\$10,480	\$288,240	\$0	\$31,950
2016	\$21,470	\$258,430	\$10,200	\$279,900	\$0	\$31,670
2015	\$21,470	\$258,430	\$10,200	\$279,900	\$0	\$31,670
2014	\$21,470	\$258,430	\$8,840	\$279,900	\$0	\$30,310

Property Deed History

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

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TECHNICAL INFORMATION PACKET FOR CONCENTRATED ANIMAL FEEDING OPERATIONS (CAFOs)

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

Name of Site: Grand Canyon Dairy

TCEQ Permit Number, if assigned: WQ000 2950000

Date Prepared: April 2025

SECTION 1. POLLUTANT SOURCES MANAGEMENT

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

Table 1: Potential Pollutant Sources and Best Management Practices

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

SECTION 2. RETENTION CONTROL STRUCTURE DESIGN

A. Design Summary

- 1) Design Standards, Characteristic, and Values Sources Used
 - ☐ Natural Resource Conservation Service
 - ☒ American Society of Agricultural and Biological Engineers
 - ☒ Other; specify: Midwest Plan Services

I. POLLUTANT SOURCES AND MANAGEMENT

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

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

Potential Pollutant Sources:

Potential Best Management Practices (BMPs)

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

- 2) Total Number of Animals:
In Open Lots: 0 In Buildings: 2,500
- 3) Animal Housing Location, hours/day:
Open Lots: 21 Buildings: 3
- 4) Average Liveweight, pounds per head: 1,400 lbs
- 5) Volatile Solids Removed by Separator System: 50%
- 6) Volatile Solids Loading Rate, lbs/day/1000 ft³: 5.30
- 7) Spilled Drinking Water, gallons/day: Included in cleanup
- 8) Water for Cleanup, gallons/day: 37,500 gal/day
- 9) Water for Manure Removal, gallons/day: Included in cleanup
- 10) Recycled Wastewater, gallons/day: n/a

B. Wastewater Runoff

- 1) Design Rainfall Amount, inches: 12
- 2) Design Rainfall Event:
 - ☐ 25-year, 24 hour
 - ☐ Soil Plant Air and Water (SPA) Field and Pond Hydrology Model
 - ☒ 25-year, 10 day
 - ☐ Other; specify: Click here to enter text.

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

Table 2. RCS Volume Allocations (Acre-Feet)

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity	Actual Capacity
1	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 Figure ^Phase 1	

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

- 2) Total Number of Animals:
In Open Lots: 0 In Buildings: 4,000
- 3) Animal Housing Location, hours/day:
Open Lots: 21 Buildings: 3
- 4) Average Liveweight, pounds per head: 1,400 lbs
- 5) Volatile Solids Removed by Separator System: 95%
- 6) Volatile Solids Loading Rate, lbs/day/1000 ft³: 5.30
- 7) Spilled Drinking Water, gallons/day: Included in cleanup
- 8) Water for Cleanup, gallons/day: 60,000 gal/day
- 9) Water for Manure Removal, gallons/day: Included in cleanup
- 10) Recycled Wastewater, gallons/day: n/a

B. Wastewater Runoff

- 1) Design Rainfall Amount, inches: 12
- 2) Design Rainfall Event:
 - ☐ 25-year, 24 hour
 - ☐ Soil Plant Air and Water (SPA-W) Field and Pond Hydrology Model
 - ☒ 25-year, 10 day
 - ☐ Other; specify: Click here to enter text.

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

Table 2. RCS Volume Allocations (Acre-Feet)

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity	Actual Capacity
1	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	

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

- 2) Total Number of Animals:
In Open Lots: 0 In Buildings: 4,000
- 3) Animal Housing Location, hours/day:
Open Lots: 21 Buildings: 3
- 4) Average Liveweight, pounds per head: 1,400 lbs
- 5) Volatile Solids Removed by Separator System: 50%
- 6) Volatile Solids Loading Rate, lbs/day/1000 ft³: 5.30
- 7) Spilled Drinking Water, gallons/day: Included in cleanup
- 8) Water for Cleanup, gallons/day: 60,000 gal/day
- 9) Water for Manure Removal, gallons/day: Included in cleanup
- 10) Recycled Wastewater, gallons/day: n/a

B. Wastewater Runoff

- 1) Design Rainfall Amount, inches: 12
- 2) Design Rainfall Event:
 - ☐ 25-year, 24 hour
 - ☐ Soil Plant Air and Water (SPA-W) Field and Pond Hydrology Model
 - ☒ 25-year, 10 day
 - ☐ Other; specify: Click here to enter text.

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

Table 2. RCS Volume Allocations (Acre-Feet)

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity	Actual Capacity
1	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	

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

D. RCS Liner or Lack of Hydrologic Connection Certification

Table 3: RCS Hydrologic Connection

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

E. Playa Lakes

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

SECTION 3. MANURE, SLUDGE, AND WASTEWATER HANDLING

A. Manure:

- 1) Use or Disposal Method:
 - ☒ Land Application to LMUs
 - ☒ Transfer to other persons
 - ☒ Third Party Fields
 - ☐ Other; specify: [Click here to enter text.](#)
- 2) Land Application Location:
 - ☒ Onsite ☒ Offsite ☐ Not Applicable
- 3) Composting Location:
 - ☒ Onsite ☐ Offsite ☐ Not Applicable

B. Sludge:

- 1) Use or Disposal Method:
 - ☒ Land Application to LMUs
 - ☒ Transfer to other persons
 - ☒ Third Party Fields
 - ☐ Other; specify: [Click here to enter text.](#)

2) Land Application Location:

☒ Onsite ☒ Offsite ☐ Not Applicable

C. Wastewater:

- 1) Use or Disposal Method:
 - ☒ Land Application to LMUs
 - ☐ Total Evaporation
 - ☒ Third Party Fields
 - ☐ Other; specify: [Click here to enter text.](#)
- 2) Land Application Location:
 - ☒ Onsite ☒ Offsite ☐ Not Applicable

D. Land Application Summary from the Nutrient Management Plan

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

Table 4: Land Management Unit Summary from the Current NMP

LMU Name	Acre	Crop(s) and Yield Goal(s)	Application Rate (Ac-ft/Ac/Year OR Tons/Ac/Year)
1	62	Silage-Corn 21-25T; SG Green Chop 6-7T H	0.267 ac-ft/ac/yr
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 6-7T M	0.125 ac-ft/ac/yr
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 6-7T H	17.9 tons/ac/yr
7	30	Silage-Corn 16-20T; SG Green Chop 6-7T M	17.9 tons/ac/yr
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 6-7T H	17.9 tons/ac/yr

C. Wastewater:

1) Use or Disposal Method:

- ☒ Land Application to LMUs
- ☐ Total Evaporation
- ☒ Third Party Fields
- ☐ Other; specify: [Click here to enter text.](#)

2) Land Application Location:

- ☒ Onsite ☒ Offsite ☐ Not Applicable

D. Land Application Summary from the Nutrient Management Plan

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

Table 4: Land Management Unit Summary from the Current NMP

LMU Name	Acre	Crop(s) and Yield Goal(s)	Application Rate (Ac-ft/Ac/Year OR Tons/Ac/Year)
1	62	Silage-Corn 21-25T; SG Green Chop 6-7T H	0.667 ac-ft/ac/yr
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 6-7T M	0.317 ac-ft/ac/yr
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 6-7T H	17.9 tons/ac/yr
7	30	Silage-Corn 16-20T; SG Green Chop 6-7T M	17.9 tons/ac/yr
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 6-7T H	17.9 tons/ac/yr

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: 9,125 tons/yr (Table 2.1A)
- 4) Estimated manure application, tons/year: 5,408.83 tons/yr (NMP I)
- 5) Estimated manure transferred to other persons, tons/year: 3,716.08 tons/yr (NMP I)

E. Floodplain Information

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

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

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

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

F. Soil Limitations

Table 5: Soil Limiting Characteristics and Best Management Practices

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

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: 4,066.92 ac-in/yr (Tables 2.3C-D, Col. 4)
- 2) Estimated Wastewater application, ac-in/year: 3,590.40 ac-in/yr (Tables 2.3C-D, Col. 10)
- 3) Manure production, tons/year: 14,600 tons/yr (Table 2.1B)
- 4) Estimated manure application, tons/year: 5,408.83 tons/yr (NMP II)
- 5) Estimated manure transferred to other persons, tons/year: 9,191.09 tons/yr (NMP II)

E. Floodplain Information

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

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

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

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

F. Soil Limitations

Table 5: Soil Limiting Characteristics and Best Management Practices

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

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
Ma	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 Number	Well Type	Producing or Non-Producing	Open, Cased, or Capped	Protective 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	See 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	Irrigation	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
- ☐ Permit By Rule in 30 TAC Chapter 106 Subchapter F
- ☐ Individual Air Quality Permit

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

B. Indicate the AFO Status and Buffer Option.

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

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

C. Odor Receptors

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

- 0 - ¼ mile: 5 (2 applicant owned)
- ¼ - ½ mile: 1
- ½ - 1 mile: 29 (8 applicant owned)

SECTION 5. ATTACHMENTS

A. Maps

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

B. Professional Certifications

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

C. Land Application

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

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

D. Air Standard Permit Documentation (if required)

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

E. Groundwater Monitoring (if required)

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

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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.

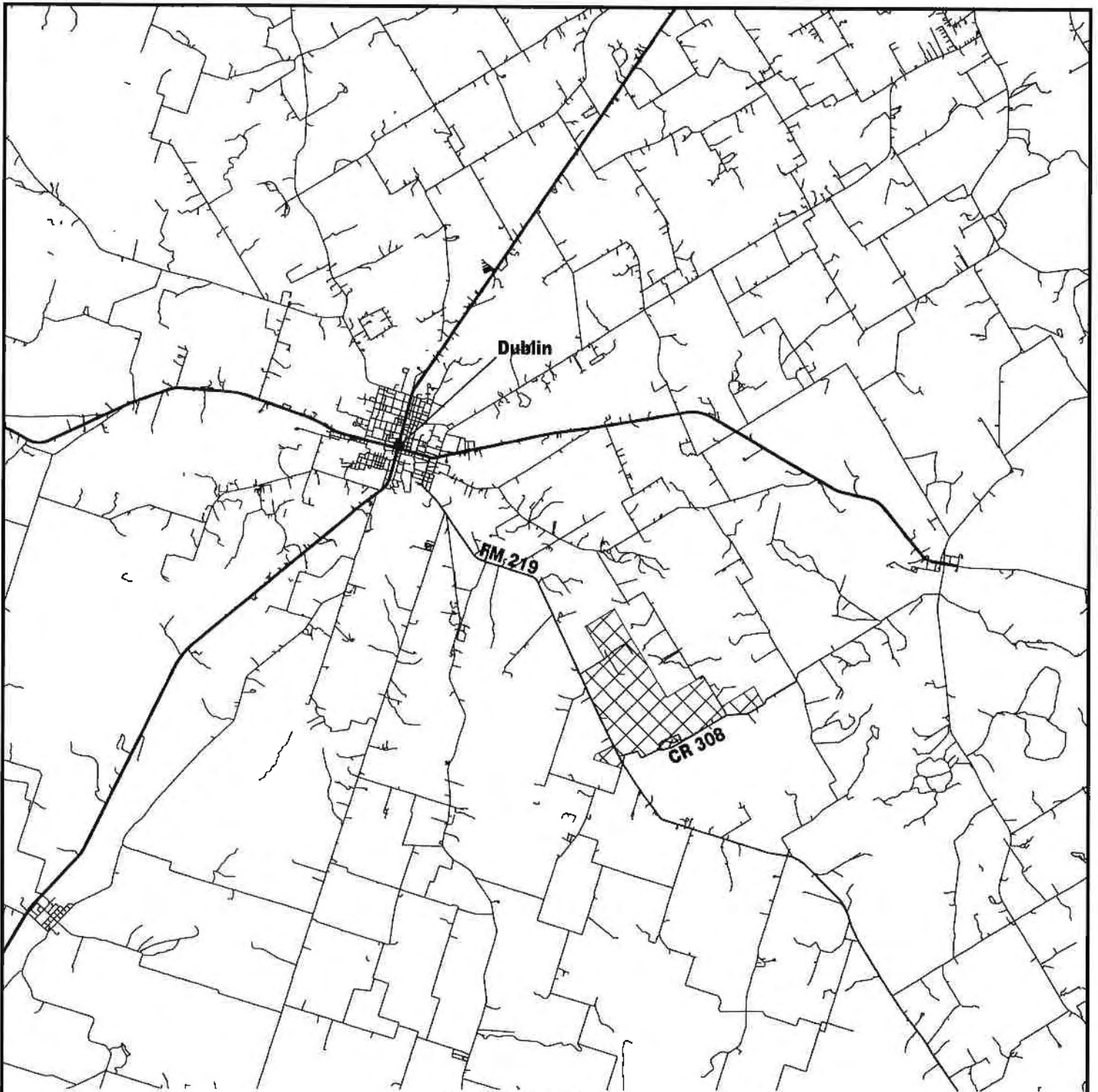
1.3 Site Map

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.



LEGEND:

- Denotes City/County Roads
- Denotes Major Roads
- ▤ Denotes Facility

Map Generated 2/13/2025



1 mile 0 1 mile 2 miles



SCALED AS SHOWN

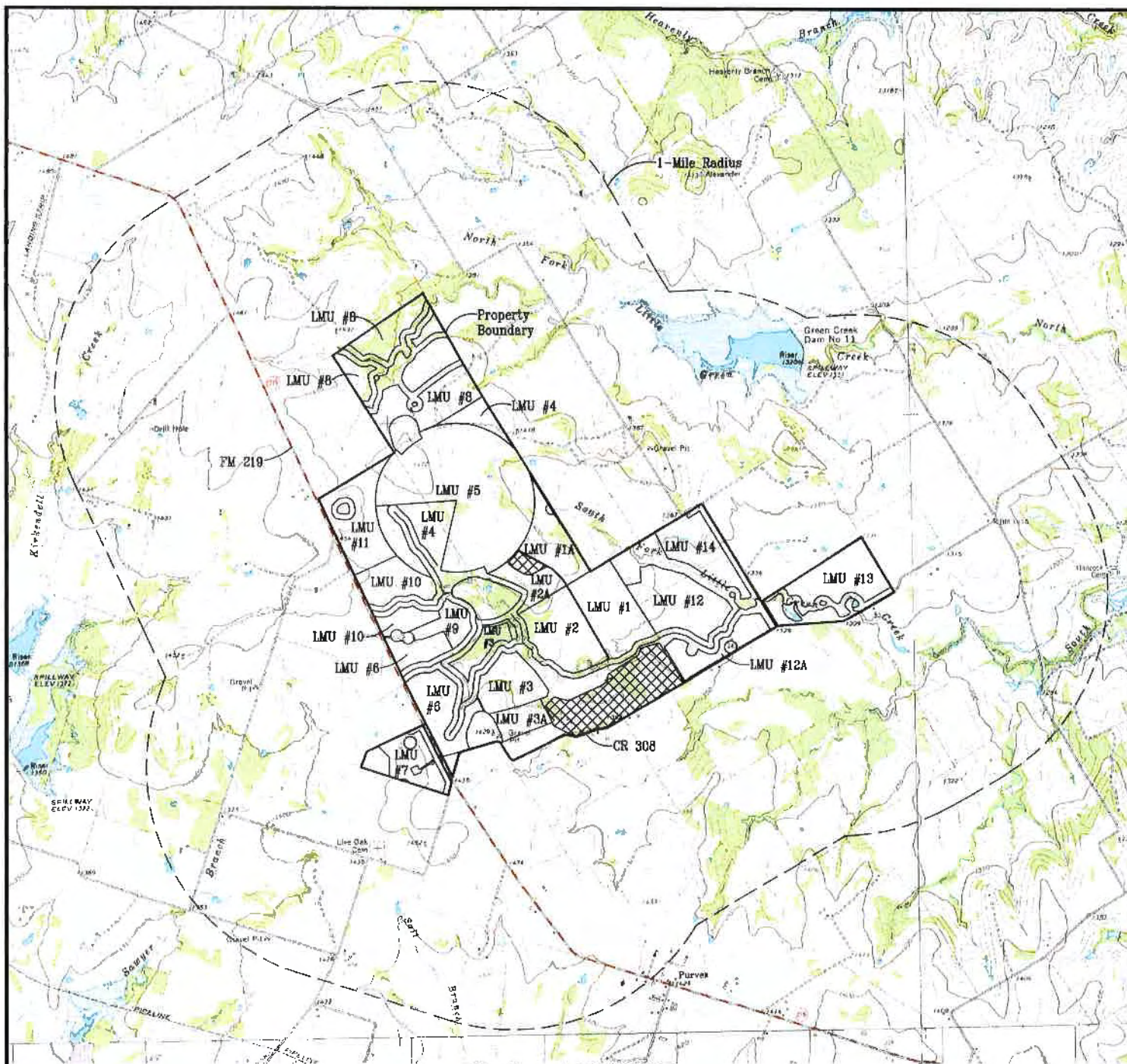
Source: USDA-NRCS. Geospatial Data Gateway. Available at:
<http://datagateway.nrcs.usda.gov/>. Tiger 2010
 Primary and Secondary Roads - Accessed May, 2014.

Grand Canyon Dairy
 Dublin, TX
 Erath County

Vicinity Map
 Figure 1.1
 Page 2



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Map Generated 2/13/2025

LEGEND:



Denotes Production Areas

Source: USDS-NRCS. Geospatial Data Gateway. Available at:
<http://datagateway.nrcs.usda.gov/> Digital Raster Graphic
 County Mosaic by NRCS - Accessed December, 2017.

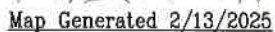
• Refer to Figures 1.3A-B & 1.4A-B for overall facility maps.

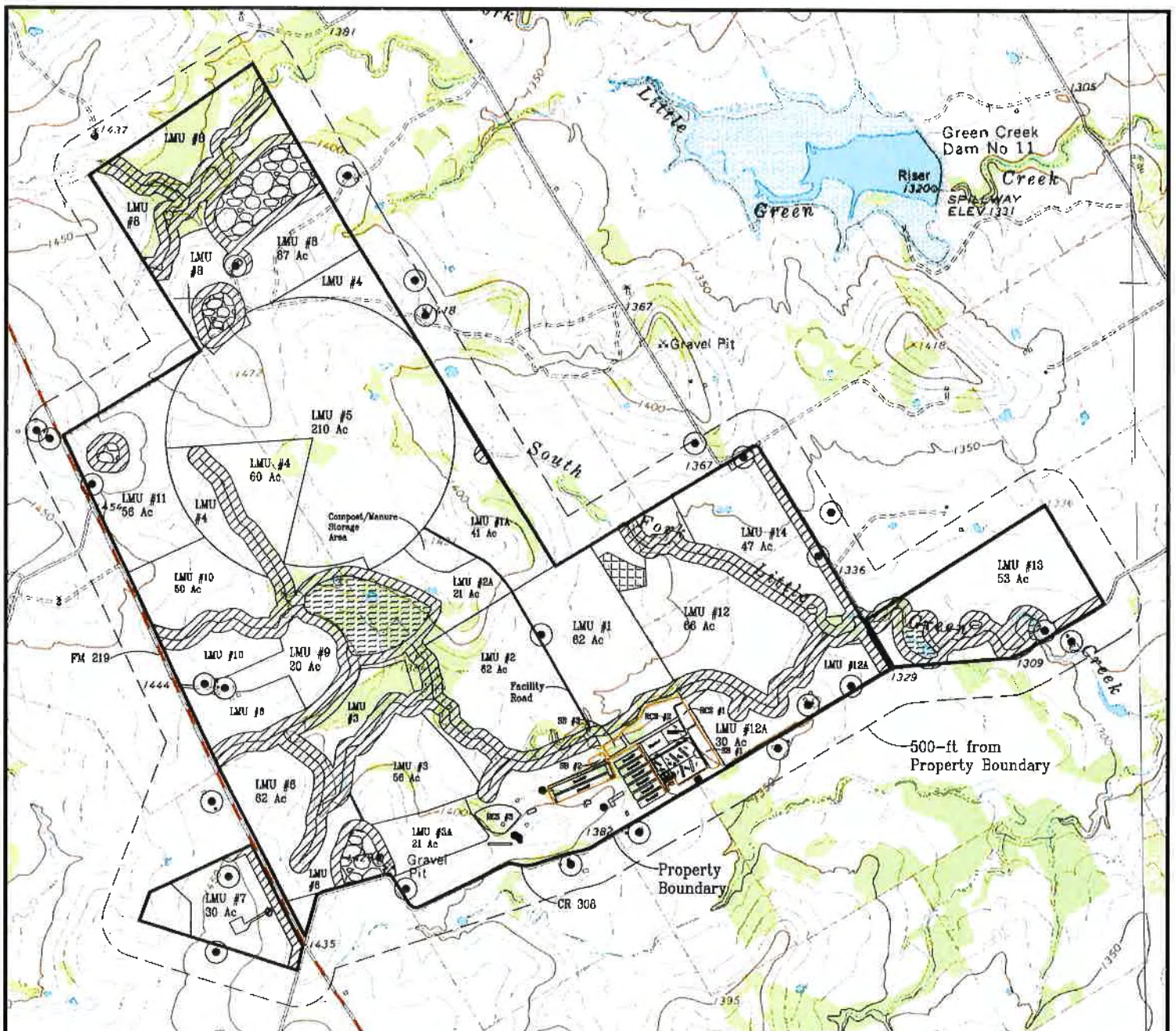
Grand Canyon Dairy
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 Erath County

USGS 7.5 Min. Quadrangle Map
 Figure 1.2
 Page 3

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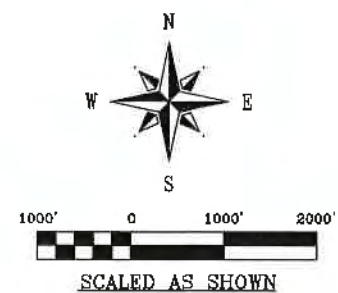




Map Generated 2/13/2025

LEGEND:

- ⊕ Denotes Plugged/No Evidence Well
- Denotes Water Well
- ⊙ Denotes Water Well with 100' or 150' Buffer
- ▨ Denotes Caliche Pit
- ▧ Denotes Surface Water
- ▩ Denotes Burial Site
- ▨ Denotes 136' Buffer Zone



Source: USDA-NRCS. Geospatial Data Gateway. Available at: <http://datagateway.nrcs.usda.gov/>. Digital Raster Graphic County Mosaic by NRCS - Accessed December 2017.

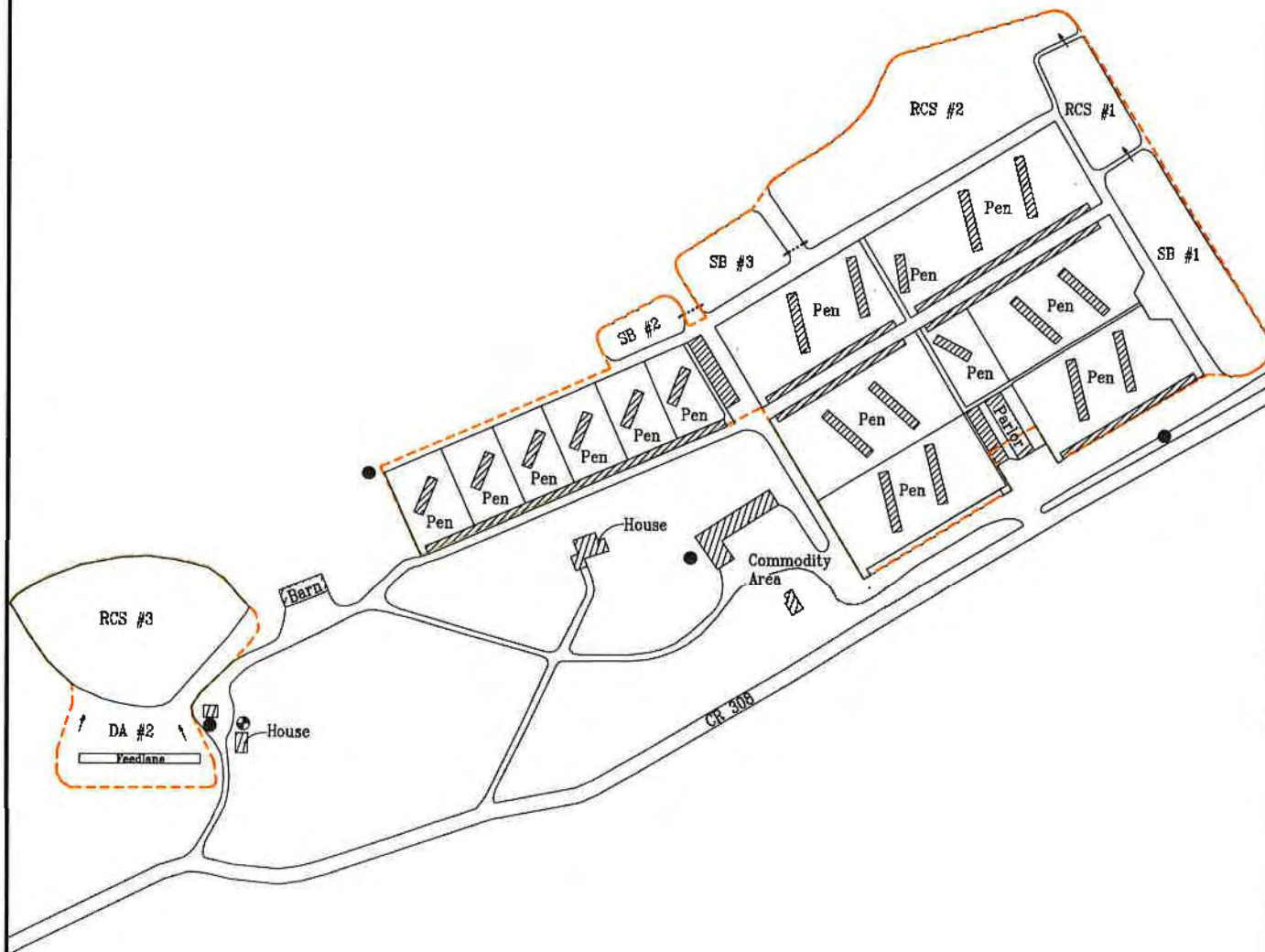
* Refer to Figures 1.4A-B for a detailed production area map.

Grand Canyon Dairy
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Site Map
Figure 1.3B
Page 5

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Map Revised 3/30/2023

LEGEND:

- - - Denotes Ditches and/or Berms
- - - Denotes Underground Pipe
- ▨ Denotes Roofed Areas
- Denotes Water Well
- ⊕ Denotes Plugged Water Well

Runoff Control:

Drainage is depicted by arrows shown on maps. The drainage will be directed to the RCS via ditches, berms or underground pipe. The proposed Freestalls will be guttered out of the drainage area.



SCALED AS SHOWN

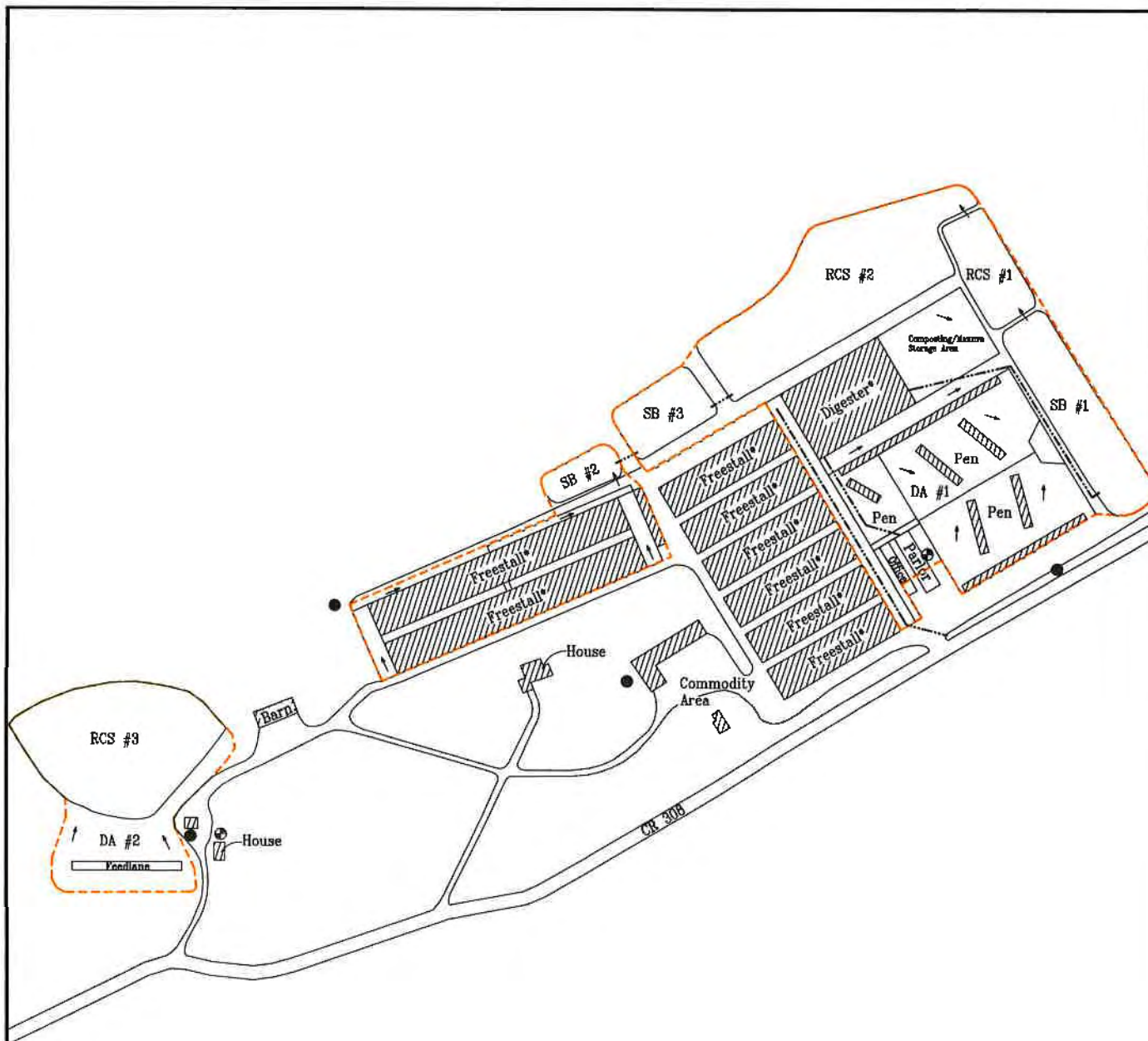
• Refer to Figure 1.3 for an overall facility map.

Grand Canyon Dairy
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Runoff Control Map
Figure 1.4A
Page 6



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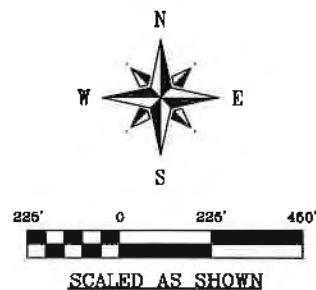
LEGEND:

- Denotes Ditches and/or Berms
- Denotes Underground Pipe
- ▨ Denotes Roofed Areas
- * Denotes Proposed Structure
- Denotes Water Well
- ⊕ Denotes Plugged Water Well

Runoff Control:

Drainage is depicted by arrows shown on maps. The drainage will be directed to the RCS via ditches, berms or underground pipe. The proposed Freestalls will be guttered out of the drainage area.

Map Generated 2/13/2025



• Refer to Figure 1.3 for an overall facility map.

Grand Canyon Dairy
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Erath County

Runoff Control Map
Figure 1.4B
Page 7

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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 #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 anaerobic 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.

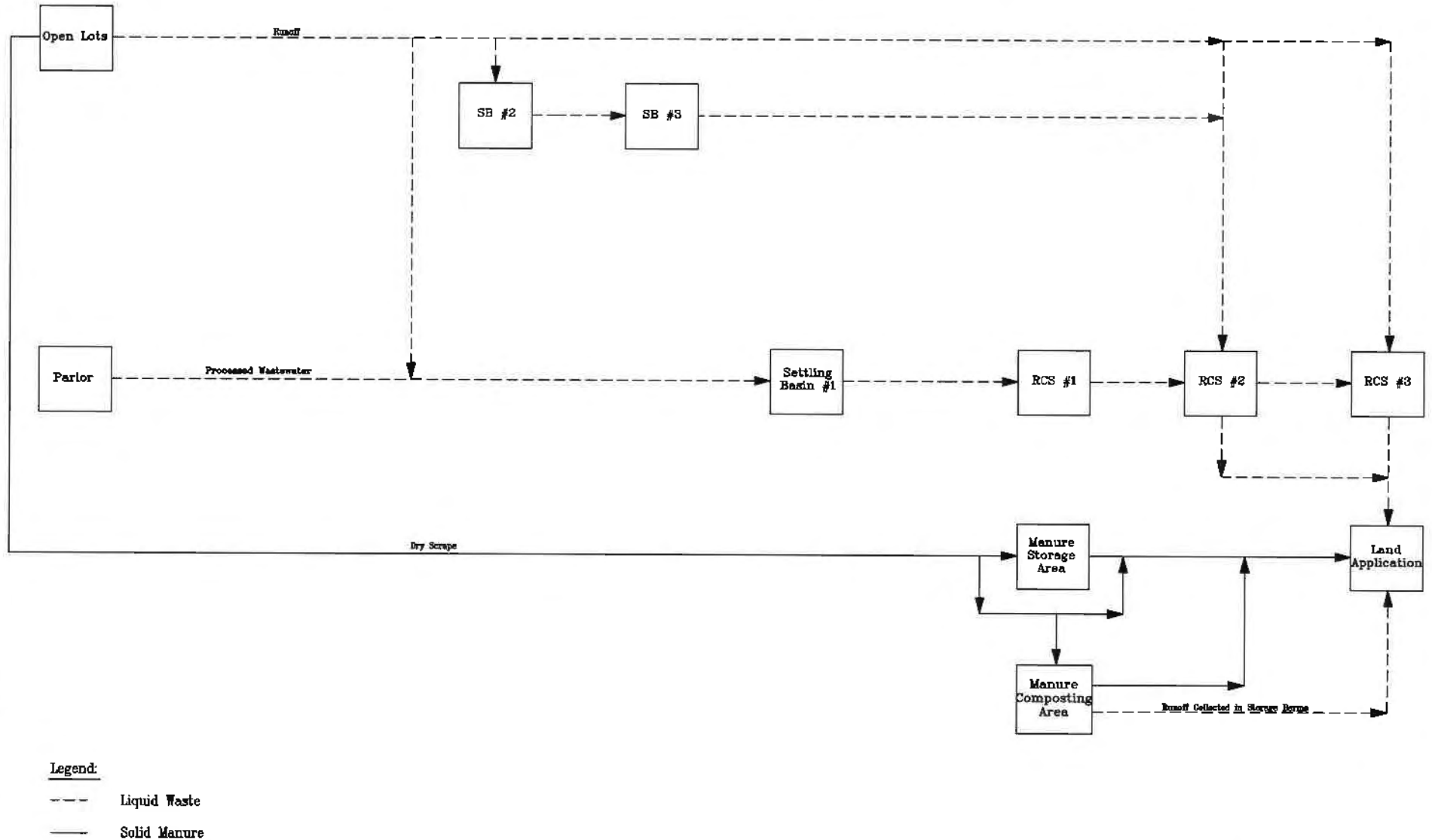
The proposed changes reflect Grand Canyon Dairy's commitment to growth and efficiency, while also adhering to environmental regulations. The expansion will allow for increased milk production and the ability to manage additional waste effectively through enhanced treatment facilities. The phased approach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

2.2 Manure Production

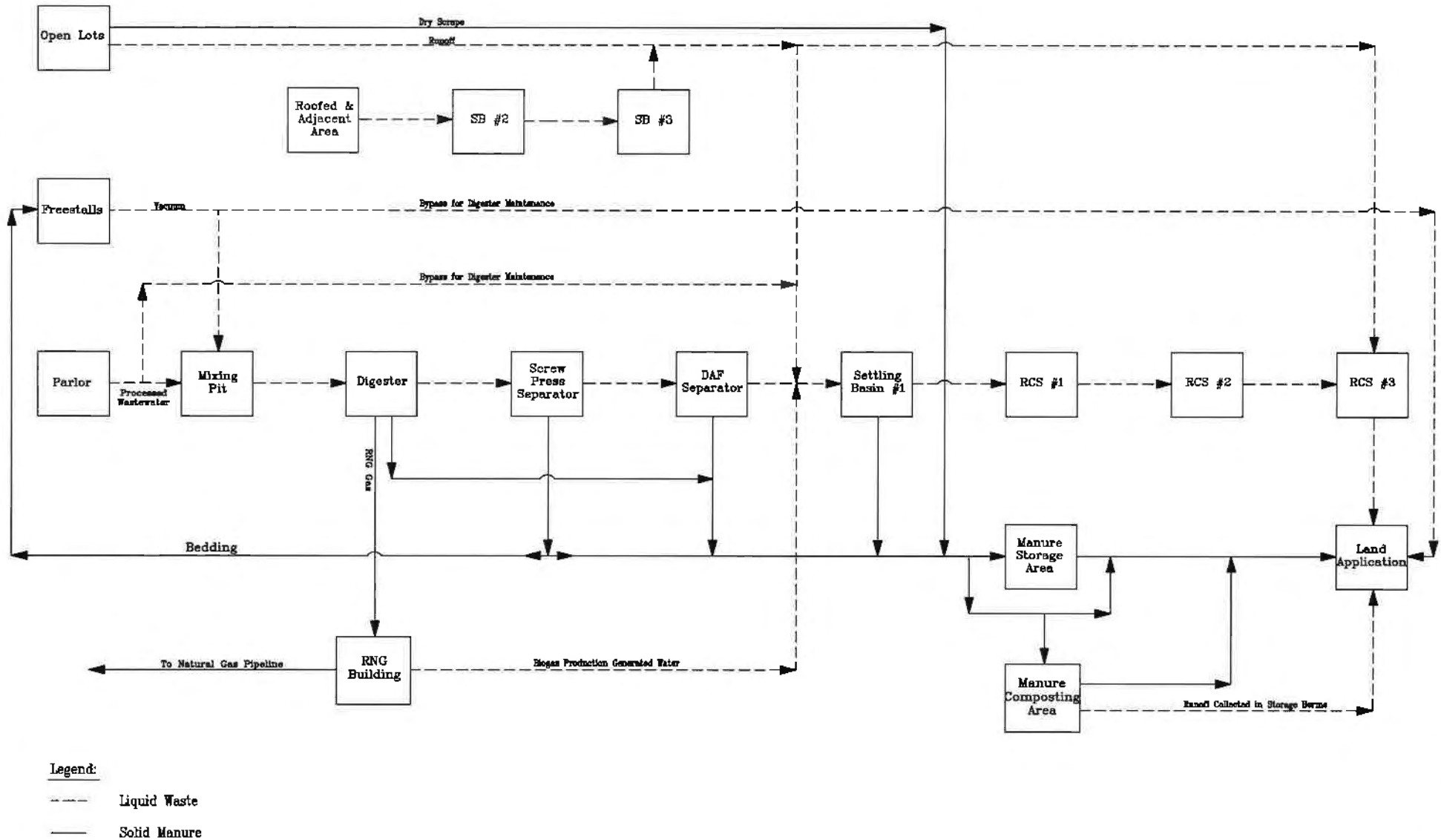
Table 2.1, As-Excreted Manure Characteristics Existing Dairy Facility, is included as a summary of the annual manure and nutrient production for the facility. The totals in Table 2.1 represent as-excreted manure and nutrient values for the maximum head count shown in the application.

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

Phase 1



Phase 2



Grand Canyon Dairy
Dublin, TX
Erath County

Proposed Manure & Wastewater Flow Chart
Figure 2.1B
Page 10



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**ESTIMATED MANURE PRODUCTION
for a DAIRY FACILITY PHASE 1**

Table 2.1A
ENVIRO-AG ENGINEERING, INC.

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

FACILITY TOTAL	MANURE PRODUCTION CRITERIA (a)			
	Milkers in Parlor	Milkers in Pens	Milkers in Pastures	Total
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, lbs/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, P ₂ O ₅ lbs/day (b)	122	608	243	973
10. Total Potassium, K ₂ O 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

FACILITY TOTAL	MANURE PRODUCTION CRITERIA (a)			
	Milkers in Parlor	Milkers in Freestalls/Pens	Milkers in Pastures	Total
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, P ₂ O ₅ lbs/day (b)	195	973	389	1,557
10. Total Potassium, K ₂ O 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 anaerobic 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.



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

DA #1 TREATMENT REQUIREMENT
TREATMENT VOLUME

Volatle Solids Produced:	(lb /day)	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:	(lb /day)	6,250
Settling Basin Efficiency (%) (a):		50%
Adjusted Dry Manure Production:	(lb /day)	3,125
Sludge Accumulation Rate (c):	(cuft/lb)	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 2011)
(d) Site Specific Data
(e) Using SCS method:

Where:
 $S = (1000/CN) - 10$
 $Q = ((1 - 0.2S)^2) / (1 + 0.8S)$
 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 2.2B.

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 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:		2,500
Volume of Process Water:	(gal/day)	37,500
Design Storage Period:	(days)	30
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:	4.25	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:	10.8	16.88
Adjacent Areas:	10.1	2.00
Paved/Roof Areas:	12.0	4.21
Settling Basins Surface Areas:	12.0	4.25
RCS #1 Surface Area:	12.0	1.40
RCS #2 Surface Area:	12.0	5.85

Rainfall Volume:	(ac-ft)	34.59
------------------	---------	-------

TOTAL RCS VOLUME REQUIRED

Runoff Sludge Volume (f):	(ac-ft)	0.39
Process Water Volume:	(ac-ft)	3.45
Rainfall Volume:	(ac-ft)	34.59
Treatment Volume:	(ac-ft)	11.51
Sludge Volume:	(ac-ft)	1.91
Additional Volume (g):		

Total Required DA #1 Volume Requirement:	(ac-ft)	51.84
---	----------------	--------------

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

NAME OF CAFO: Grand Canyon Dairy
 LOCATION: Erath County
 DATE: 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)	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>



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

Table 2.2C
ENVIRO-AG ENGINEERING, INC.



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

**DA #1 TREATMENT REQUIREMENT
TREATMENT VOLUME**

Volatile Solids Produced:	(lb /day)	51,000
Anaerobic Digester Efficiency (%) (a):		42%
	(lb /day)	29,580
Screw Press Efficiency (%) (a):		29%
	(lb /day)	21,002
Dissolved Air Flotation Efficiency (%) (a):		76%
	(lb /day)	5,040
Settling Pond Efficiency (%) (b):		30%
Adjusted Volatile Solids Production:	(lb /day)	3,528
Design Loading Rate (lbVS/1000cuft-day) (c):		5.30
Treatment Volume:	(ac-ft)	15.28
SLUDGE VOLUME		
Dry Manure Produced:	(lb /day)	60,000
Anaerobic Digester Efficiency (%) (a):		34%
	(lb /day)	39,600
Screw Press Efficiency (%) (a):		22%
	(lb /day)	30,888
Dissolved Air Flotation Efficiency (%) (a):		53%
	(lb /day)	12,973
Settling Pond Efficiency (%) (b):		30%
Adjusted Dry Manure Production:	(lb /day)	9,081
Sludge Accumulation Rate (d):	(cuft/lb)	0.0729
Sludge Accumulation Period:	(years)	1
Sludge Volume:	(ac-ft)	5.55

NOTES:

- (a) Based on data provided by DVO
(b) Midwest Plan Service, 1983, Revised 1987 (Waste Management, pg. 702.11)
(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 Data
(f) Based on data provided by Candor Midstream Solutions, LLC
(g) Using SCS method:
Where:
 $S = (1000/CN) - 10$
 $Q = ((1 - 0.2S)^2) / (1 + 0.8S)$
 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
(h) 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)
(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/2930>

**DA #1 - RUNOFF POND REQUIREMENT
PROCESS GENERATED WASTE/PAWTEWATER**

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:	(lb /day)	60,000
Total Solids Removed by Separation System:	(lb /day)	30,919
Wet Manure Production Less Separated Solids:	(lb /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:		90
Adjacent Areas:		85
Paved/Roof Areas:		100
Settling Basins Surface Areas:		100
RCS #1 Surface Area:		100
RCS #2 Surface Area:		100
Total Drainage Area:		29.03
25-year, 10-Day rainfall:	(inches)	12
Runoff Volume Determination (g):	(inches)	(ac-ft)
Pen Area:	10.8	4.59
Adjacent Areas:	10.1	3.76
Paved/Roof Areas:	12.0	7.95
Settling Basins Surface Areas:	12.0	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 (h):	(ac-ft)	0.17
Process Water Volume:	(ac-ft)	10.00
Rainfall Volume:	(ac-ft)	27.80
Treatment Volume:	(ac-ft)	15.28
Sludge Volume:	(ac-ft)	5.55
Additional Volume (i):		

Total Required DA #1 Volume Requirements:	(ac-ft)	58.81
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**PHASE 2 DA #2 DIGESTER
REQUIRED STORAGE VOLUMES
for RETENTION CONTROL STRUCTURES
Table 2.2D
ENVIRO-AG ENGINEERING, INC.**

NAME OF CAFO: Grand Canyon Dairy
LOCATION: Erath County
DATE: 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>



**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: Grand Canyon Dairy
LOCATION: Erath County
DATE: February-25

DA #1 TREATMENT REQUIREMENT
TREATMENT VOLUME

Volatile Solids Produced:	(lb /day)	8,500
Settling Basin Efficiency (%) (a):		50%
Adjusted Volatile Solids Production:	(lb /day)	4,250
Design Loading Rate (lbVS/1000cuft-day) (b):		5.30

Treatment Volume:	(ac-ft)	18.41
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SLUDGE VOLUME

Dry Manure Produced:	(lb /day)	10,000
Settling Basin Efficiency (%) (a):		50%
Adjusted Dry Manure Production:	(lb /day)	5,000

Sludge Accumulation Rate (c):	(cuft/lb)	0.0729
Sludge Accumulation Period:	(years)	1

Sludge Volume:	(ac-ft)	3.05
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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:
 $S = (1000/CN) - 10$
 $Q = ((I - 0.3S)^2) / (1 + 0.8S)$
 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
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Runoff Volume Determination (e):	(inches)	(ac-ft)
Pen Area:	10.8	4.59
Adjacent Areas:	10.1	3.76
Paved/Roof Areas:	12.0	7.95
Settling Basins Surface Areas:	12.0	4.25
RCS #1 Surface Area:	12.0	1.40
RCS #2 Surface Area:	12.0	5.85

Rainfall Volume:	(ac-ft)	27.80
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TOTAL RCS VOLUME REQUIRED

Runoff Sludge Volume (f):	(ac-ft)	0.17
Process Water Volume:	(ac-ft)	5.52
Rainfall Volume:	(ac-ft)	27.80
Treatment Volume:	(ac-ft)	18.41
Sludge Volume:	(ac-ft)	3.05
Additional Volume (g):		

Total Required DA #1 Volume Requirement:	(ac-ft)	54.96
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**PHASE 2 DA #2 DIGESTER BYPASS
REQUIRED STORAGE VOLUMES
for RETENTION CONTROL STRUCTURES
Table 2.2F
ENVIRO-AG ENGINEERING, INC.**

NAME OF NAME OF CAFO:
LOCATION 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 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)	12.20

Total Required DA #2 Volume Requirement: (ac-ft) **18.10**

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

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



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 I DA #1
WATER BALANCE MODEL
IRRIGATION AND EVAPORATION
Table 2.3A
ENVIRO-AG ENGINEERING, INC.**

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

HYDROLOGIC CHARACTERISTICS

Pen Area (acres): 18.82
Adjacent Area (acres): 2.37
Paved/Roof Area (acres): 4.21
Total RCS/SB Surface Area (acres): 11.30
Total Irrigated Area (acres) (12): 210
Cropping scheme: Coastal Winter Wheat
Effective Evaporation Surface Area (acres): 1.97

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 10-Day Rainfall Volume (ac-ft): 34.59
Process Generated Wastewater Volume (ac-ft): 3.45
Sludge Accumulation Volume (ac-ft): 2.29
Minimum Treatment Volume (ac-ft): 11.31
Total Required Capacity (ac-ft): 51.84

MONTH	RCS INFLOW CALCULATIONS					HYDRAULIC CROP DEMAND CALCULATIONS					RCS STORAGE SUMMARY			
	(1) (inches)	(2) (inches)	(2) (inches)	(3) (ac-ft)	(4) (ac-ft)	(5) (inches)	(6) (inches)	(6) (inches)	(7) (ac-ft)	(7) (ac-ft)	(8) (inches)	(9) (ac-ft)	(10) (ac-ft)	(11) (ac-ft)
JAN	1.55	0.23	0.06	3.57	5.97	1.55	2.10	2.74	9.65	20.85	2.37	0.98	4.99	13.80
FEB	1.89	0.39	0.14	3.22	6.34	1.86	2.46	3.11	10.43	21.80	2.70	1.12	5.22	13.80
MAR	2.16	0.54	0.23	3.57	7.29	2.10	4.06	4.97	34.38	50.30	4.27	1.77	5.52	13.80
APR	2.88	0.99	0.53	3.45	8.89	2.64	4.98	5.74	40.91	54.21	5.20	2.15	6.73	13.80
MAY	4.31	2.06	1.35	3.57	12.71	3.50	5.73	5.33	39.09	32.09	5.25	2.18	10.54	13.80
JUN	3.24	1.25	0.71	3.45	9.79	2.88	6.82	3.22	68.90	5.90	7.01	2.90	6.88	13.80
JUL	2.11	0.51	0.21	3.57	7.17	2.05	7.66	0.00	98.11	0.00	8.23	3.41	3.76	13.80
AUG	2.25	0.59	0.26	3.57	7.49	2.17	7.56	0.00	94.34	0.00	7.71	3.19	4.30	13.80
SEP	3.01	1.08	0.59	3.45	9.21	2.73	5.78	0.00	53.35	0.00	5.91	2.45	6.76	13.80
OCT	3.23	1.24	0.71	3.57	9.88	2.88	4.29	2.15	24.74	0.00	4.89	2.03	7.85	13.80
NOV	1.88	0.39	0.14	3.45	6.55	1.86	2.81	1.70	16.71	0.00	3.33	1.38	5.17	13.80
DEC	1.62	0.26	0.07	3.57	6.12	1.62	2.24	2.33	10.92	12.50	2.45	1.02	5.10	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	

NOTES:

- (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 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 Bortelli, 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 1 DA #2
WATER BALANCE MODEL
IRRIGATION AND EVAPORATION
Table 2.3B
ENVIRO-AG ENGINEERING, INC.

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

HYDROLOGIC CHARACTERISTICS

Pen Area (acres): 0.00
 Adjacent Area (acres): 2.50
 Paved/Roof Area (acres): 0.18
 RCS Surface Area (acres): 2.60
 Total Irrigated Area (acres)(12): 210
 Cropping scheme: Coastal Winter Wheat
 Effective Evaporation Surface Area (acres): 2.06

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 10-Day Rainfall Volume (ac-ft): 5.89
 Process Generated Wastewater Volume (ac-ft): 0.00
 Sludge Accumulation Volume (ac-ft): 0.02
 Minimum Treatment Volume (ac-ft): 0.00
 Additional Volume (ac-ft): 10.54
 Total Required Capacity (ac-ft): 16.74

MONTH	RCS INFLOW CALCULATIONS					HYDRAULIC CROP DEMAND CALCULATIONS					RCS STORAGE SUMMARY			
	(1) (inches)	(2) (inches)	(3) (inches)	(4) (ac-ft)	(5) (ac-ft)	(6) (inches)	(7) (inches)	(8) (inches)	(9) (ac-ft)	(10) (ac-ft)	(11) (inches)	(12) (ac-ft)	(13) (ac-ft)	(14) (ac-ft)
JAN	1.55	0.00	0.06	4.99	5.49	1.55	2.10	2.74	9.65	20.85	2.37	0.60	start value →	0.02
FEB	1.89	0.00	0.14	5.22	5.83	1.86	2.46	3.11	10.43	21.80	2.70	0.69	4.89	0.02
MAR	2.16	0.00	0.23	5.52	6.25	2.10	4.06	4.97	34.38	50.30	4.27	1.09	5.16	0.02
APR	2.88	0.00	0.53	6.73	7.75	2.64	4.98	5.74	40.91	54.21	5.20	1.33	6.42	0.02
MAY	4.31	0.00	1.35	10.54	12.18	3.50	5.73	5.33	39.09	32.09	5.25	1.34	10.84	0.02
JUN	3.24	0.00	0.71	6.88	8.05	2.83	6.82	3.22	68.90	5.90	7.01	1.79	6.27	0.02
JUL	2.11	0.00	0.21	3.76	4.47	2.05	7.66	0.00	98.11	0.00	8.23	2.10	2.37	0.02
AUG	2.25	0.00	0.26	4.30	5.06	2.17	7.56	0.00	94.34	0.00	7.71	1.97	3.10	0.02
SEP	3.01	0.00	0.59	6.76	7.83	2.73	5.78	0.00	53.35	0.00	5.91	1.51	6.32	0.02
OCT	3.23	0.00	0.71	7.85	9.02	2.88	4.29	2.15	24.74	0.00	4.89	1.25	7.77	0.02
NOV	1.88	0.00	0.14	5.17	5.79	1.86	2.81	1.70	16.71	0.00	3.33	0.85	4.94	0.02
DEC	1.62	0.00	0.07	5.10	5.63	1.62	2.24	2.23	10.92	12.50	2.45	0.62	5.00	0.02
TOTALS	30.13	0.00	5.00	72.83	83.36	27.83	56.49	31.29	501.53	197.66	59.32	15.13	68.23	

NOTES:

- (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 2.3A 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 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 LMC #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 #1 DIGESTER
WATER BALANCE MODEL
IRRIGATION AND EVAPORATION
Table 2.3C
ENVIRO-AG ENGINEERING, INC.**

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

HYDROLOGIC CHARACTERISTICS

Pen Area (acres): 5.12
Adjacent Area (acres): 4.46
Paved/Roof Area (acres): 7.95
Total RCS/SB Surface Area (acres): 11.50
Total Irrigated Area (acres)(12): 210
Cropping scheme: Coastal Winter Wheat
Effective Evaporation Surface Area (acres): 4.97

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 10-Day Rainfall Volume (ac-ft): 27.80
Process Generated Wastewater Volume (ac-ft): 10.00
Sludge Accumulation Volume (ac-ft): 5.72
Minimum Treatment Volume (ac-ft): 15.28
Total Required Capacity (ac-ft): 58.81

MONTH	RCS INFLOW CALCULATIONS					HYDRAULIC CROP DEMAND CALCULATIONS					RCS STORAGE SUMMARY			
	(1) (inches)	(2) (inches)	(3) (inches)	(4) (ac-ft)	(5) (ac-ft)	(6) (inches)	(7) (inches)	(8) (inches)	(9) (ac-ft)	(10) (ac-ft)	(11) (ac-ft)	(12) (ac-ft)	(13) (ac-ft)	(14) (ac-ft)
JAN	1.55	0.23	0.06	10.34	12.97	1.55	2.10	2.74	9.65	20.85	2.37	0.98	11.99	21.00
FEB	1.89	0.39	0.14	9.34	12.62	1.86	2.46	3.11	10.43	21.80	2.70	1.12	11.50	21.00
MAR	2.16	0.54	0.23	10.34	14.15	2.10	4.06	4.97	34.38	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	13.14	21.00
MAY	4.31	2.06	1.35	10.34	18.70	3.50	5.73	3.33	39.09	32.09	5.25	2.18	16.33	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
JUL	2.11	0.51	0.21	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	11.14	21.00
SEP	3.01	1.08	0.59	10.00	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	0.71	10.34	16.36	2.88	4.29	2.15	24.74	0.00	4.89	2.03	14.34	21.00
NOV	1.88	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	0.07	10.34	13.10	1.62	2.24	2.33	10.92	12.50	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	

NOTES:

- (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 2.2C
- (4) TOTAL INFLOW - Total Inflow is calculated as that volume of rainfall that falls on the RCS and process water that enters the RCS
- (5) RAINFALL ON IRRIGATED AREA - Effective monthly rainfall on the irrigated area calculated using SCS Curve Number Method adjusted from 1 to 30-day Curve Number (Irr CN-58) (Ref. NRCS Animal Waste Management Software Help File- Program Documentation for Runoff)
- (6) CONSUMPTIVE USE values from Borrelli, et al., 1998 Mean Crop Consumptive Use and Free-Water Evaporation for Texas, Dept. of Civil Engineering, Texas Tech University, Lubbock, Texas, Stephenville Station (Tables 16 & 25)
- (7) NET CROP DEMAND - Net Crop Demand = ((Consumptive Use(6) - Effective Rainfall(5))/12) x Irrigated Area
- (8) MONTHLY LAKE SURFACE EVAPORATION - Average monthly lake surface evaporation taken from the Texas Water Development Board, Erath County, Quad #509, Retrieved 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 #2 DIGESTER
WATER BALANCE MODEL
IRRIGATION AND EVAPORATION
Table 2.3D
ENVIRO-AG ENGINEERING, INC.**

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

HYDROLOGIC CHARACTERISTICS

Pen Area (acres): 0.00
Adjacent Area (acres): 2.50
Paved/Roof Area (acres): 0.18
RCS Surface Area (acres): 3.60
Total Irrigated Area (acres)(12): 210
Cropping scheme: Coastal Winter Wheat
Effective Evaporation Surface Area (acres): 3.06

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 10-Day Rainfall Volume (ac-ft): 5.89
Process Generated Wastewater Volume (ac-ft): 0.00
Sludge Accumulation Volume (ac-ft): 0.03
Minimum Treatment Volume (ac-ft): 0.00
Additional Volume (ac-ft): 16.53
Total Required Capacity (ac-ft): 22.73

MONTH	RCS INFLOW CALCULATIONS					HYDRAULIC CROP DEMAND CALCULATIONS					RCS STORAGE SUMMARY			
	(1) (inches)	(2) (inches)	(3) (inches)	(4) (ac-ft)	(5) (ac-ft)	(6) (inches)	(7) (inches)	(8) (inches)	(9) (ac-ft)	(10) (ac-ft)	(11) (inches)	(12) (ac-ft)	(13) (ac-ft)	(14) (ac-ft)
JAN	1.55	0.00	0.06	11.99	12.49	1.55	2.10	2.74	9.65	20.85	2.37	0.60	11.88	0.02
FEB	1.89	0.00	0.14	11.50	12.13	1.86	2.46	3.11	10.43	21.80	2.70	0.69	11.44	0.02
MAR	2.16	0.00	0.23	12.38	13.11	2.10	4.06	4.97	34.38	50.30	4.27	1.09	12.02	0.02
APR	2.88	0.00	0.53	13.14	14.16	2.64	4.98	5.74	40.91	54.21	5.20	1.33	12.83	0.02
MAY	4.31	0.00	1.35	16.53	18.17	3.50	5.73	5.33	39.09	32.09	5.25	1.34	16.83	0.02
JUN	3.24	0.00	0.71	13.15	14.32	2.88	6.82	3.22	68.90	5.90	7.01	1.79	12.53	0.02
JUL	2.11	0.00	0.21	10.64	11.55	2.05	7.66	0.00	98.11	0.00	8.23	2.10	9.25	0.02
AUG	2.25	0.00	0.26	11.14	11.90	2.17	7.56	0.00	94.34	0.00	7.71	1.97	9.94	0.02
SEP	3.01	0.00	0.59	13.12	14.19	2.73	5.78	0.00	53.35	0.00	5.91	1.51	12.68	0.02
OCT	3.23	0.00	0.71	14.34	15.50	2.88	4.29	2.15	24.74	0.00	4.89	1.25	14.25	0.02
NOV	1.88	0.00	0.14	11.89	12.51	1.86	2.81	1.70	16.71	0.00	3.33	0.85	11.66	0.02
DEC	1.62	0.00	0.07	12.09	12.61	1.62	2.24	2.35	10.92	12.30	2.45	0.62	11.99	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	

NOTES:

- (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 2.3C 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 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 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/42950>



**PHASE 2 DA #1 DIGESTER BYPASS
WATER BALANCE MODEL
IRRIGATION AND EVAPORATION
Table 2.3E
ENVIRO-AG ENGINEERING, INC.**

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

HYDROLOGIC CHARACTERISTICS

Pen Area (acres): 5.12
Adjacent Area (acres): 4.46
Paved/Roof Area (acres): 7.95
Total RCS/SB Surface Area (acres): 11.50
Total Irrigated Area (acres)(12): 210
Cropping scheme: Coastal Winter Wheat
Effective Evaporation Surface Area (acres): 4.97

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 10-Day Rainfall Volume (ac-ft): 27.80
Process Generated Wastewater Volume (ac-ft): 5.52
Sediment Accumulation Volume (ac-ft): 3.23
Minimum Treatment Volume (ac-ft): 18.41
Total Required Capacity (ac-ft): 54.96

MONTH	RCS INFLOW CALCULATIONS					HYDRAULIC CROP DEMAND CALCULATIONS					RCS STORAGE SUMMARY			
	(1) (inches)	(2) (inches)	(3) (inches)	(4) (ac-ft)	(5) (ac-ft)	(6) (inches)	(7) (inches)	(8) (inches)	(9) (ac-ft)	(10) (ac-ft)	(11) (inches)	(12) (ac-ft)	(13) (ac-ft)	(14) (ac-ft)
JAN	1.55	0.23	0.06	5.71	8.34	1.55	2.10	2.74	9.65	20.85	2.37	0.98	start value →	21.64
FEB	1.89	0.39	0.14	5.16	8.44	1.86	2.46	3.11	10.43	21.80	2.76	1.12	7.52	21.64
MAR	2.16	0.54	0.23	5.71	9.52	2.10	4.06	4.97	34.38	50.30	4.27	1.77	7.76	21.64
APR	2.88	0.99	0.53	5.52	10.81	2.64	4.98	5.74	40.91	54.21	5.20	2.15	8.66	21.64
MAY	4.31	2.06	1.35	5.71	14.08	3.50	5.73	5.33	39.09	32.09	5.25	2.15	11.90	21.64
JUN	3.24	1.25	0.71	5.52	11.57	2.88	6.82	3.22	68.90	5.90	7.01	2.90	8.67	21.64
JUL	2.11	0.51	0.21	5.71	9.43	2.05	7.66	0.00	98.11	0.00	8.23	3.41	6.01	21.64
AUG	2.25	0.59	0.26	5.71	9.70	2.17	7.56	0.00	94.34	0.00	7.71	3.19	6.51	21.64
SEP	3.01	1.08	0.59	5.52	11.09	2.73	5.78	0.00	53.35	0.00	5.91	2.45	8.64	21.64
OCT	3.23	1.24	0.71	5.71	11.73	2.88	4.29	2.15	24.74	0.00	4.89	2.03	9.71	21.64
NOV	1.88	0.39	0.14	5.52	8.79	1.86	2.81	1.70	16.71	0.00	3.33	1.38	7.41	21.64
DEC	1.62	0.26	0.07	5.71	8.47	1.62	2.34	2.33	10.92	12.50	2.45	1.02	7.46	21.64
TOTALS	30.13	9.54	5.00	67.21	121.98	27.83	56.49	31.29	501.53	197.66	59.32	24.58	97.40	

NOTES:

- (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 2.2E.
- (4) TOTAL INFLOW - Total Inflow is calculated as that volume of rainfall that falls on the RCS and process water that enters the RCS
- (5) RAINFALL ON IRRIGATED AREA - Effective monthly rainfall on the irrigated area 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 Borroli, 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 #2 DIGESTER BYPASS
WATER BALANCE MODEL
IRRIGATION AND EVAPORATION
Table 2.3F
ENVIRO-AG ENGINEERING, INC.**

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

HYDROLOGIC CHARACTERISTICS

Pen Area (acres): 0.00
Adjacent Area (acres): 2.50
Paved/Roof Area (acres): 0.18
RCS Surface Area (acres): 3.66
Total Irrigated Area (acres)(12): 210
Cropping scheme: Coastal Winter Wheat
Effective Evaporation Surface Area (acres): 3.06

IRRIGATION CELL VOLUME SUMMARY DATA

25-Year, 12-Day Rainfall Volume (ac-ft): 5.89
Process Generated Wastewater Volume (ac-ft): 0.00
Sludge Accumulation Volume (ac-ft): 0.02
Minimum Treatment Volume (ac-ft): 0.00
Additional Volume (ac-ft): 12.20
Total Required Capacity (ac-ft): 18.10

MONTH	RCS INFLOW CALCULATIONS					HYDRAULIC CROP DEMAND CALCULATIONS					RCS STORAGE SUMMARY			
	(1) (inches)	(2) (inches)	(3) (inches)	(4) (ac-ft)	(5) (ac-ft)	(6) (inches)	(7) (inches)	(8) (inches)	(9) (ac-ft)	(10) (ac-ft)	(11) (inches)	(12) (ac-ft)	(13) (ac-ft)	(14) (ac-ft)
JAN	1.55	0.00	0.06	7.56	7.86	1.55	2.10	2.74	9.65	20.85	2.37	0.60	7.26	0.02
FEB	1.89	0.00	0.14	7.32	7.95	1.86	2.46	3.11	10.43	21.80	2.70	0.69	7.26	0.02
MAR	2.16	0.00	0.23	7.76	8.48	2.10	4.06	4.97	34.38	50.30	4.27	1.09	7.26	0.02
APR	2.88	0.00	0.33	8.66	9.68	2.64	4.98	5.74	40.91	54.21	5.20	1.33	8.35	0.02
MAY	4.31	0.00	1.35	11.90	13.54	3.50	5.73	5.33	39.09	32.09	5.25	1.34	12.20	0.02
JUN	3.24	0.00	0.71	8.67	9.84	3.88	6.82	3.22	68.90	5.90	7.01	1.79	8.05	0.02
JUL	2.11	0.00	0.21	6.01	6.72	2.05	7.66	0.00	98.11	0.00	8.23	2.10	4.62	0.02
AUG	2.25	0.00	0.26	6.51	7.27	2.17	7.56	0.00	94.34	0.00	7.71	1.97	5.31	0.02
SEP	3.01	0.00	0.59	8.64	9.71	2.73	5.78	0.00	53.35	0.00	5.91	1.51	8.20	0.02
OCT	3.23	0.00	0.71	9.71	10.87	2.88	4.29	2.15	24.74	0.00	4.89	1.35	9.63	0.02
NOV	1.88	0.00	0.14	7.41	8.03	1.86	2.81	1.70	16.71	0.00	3.33	0.85	7.18	0.02
DEC	1.62	0.00	0.07	7.46	7.98	1.62	2.24	2.33	10.92	12.50	2.45	0.62	7.36	0.02
TOTALS	30.13	0.00	5.09	97.40	107.93	27.83	56.49	31.29	501.53	197.66	59.32	15.13	92.81	

NOTES:

- (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 Runoff)
- (6) CONSUMPTIVE USE values from Bonelli, 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.micronsoft.com/kb/42980>





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

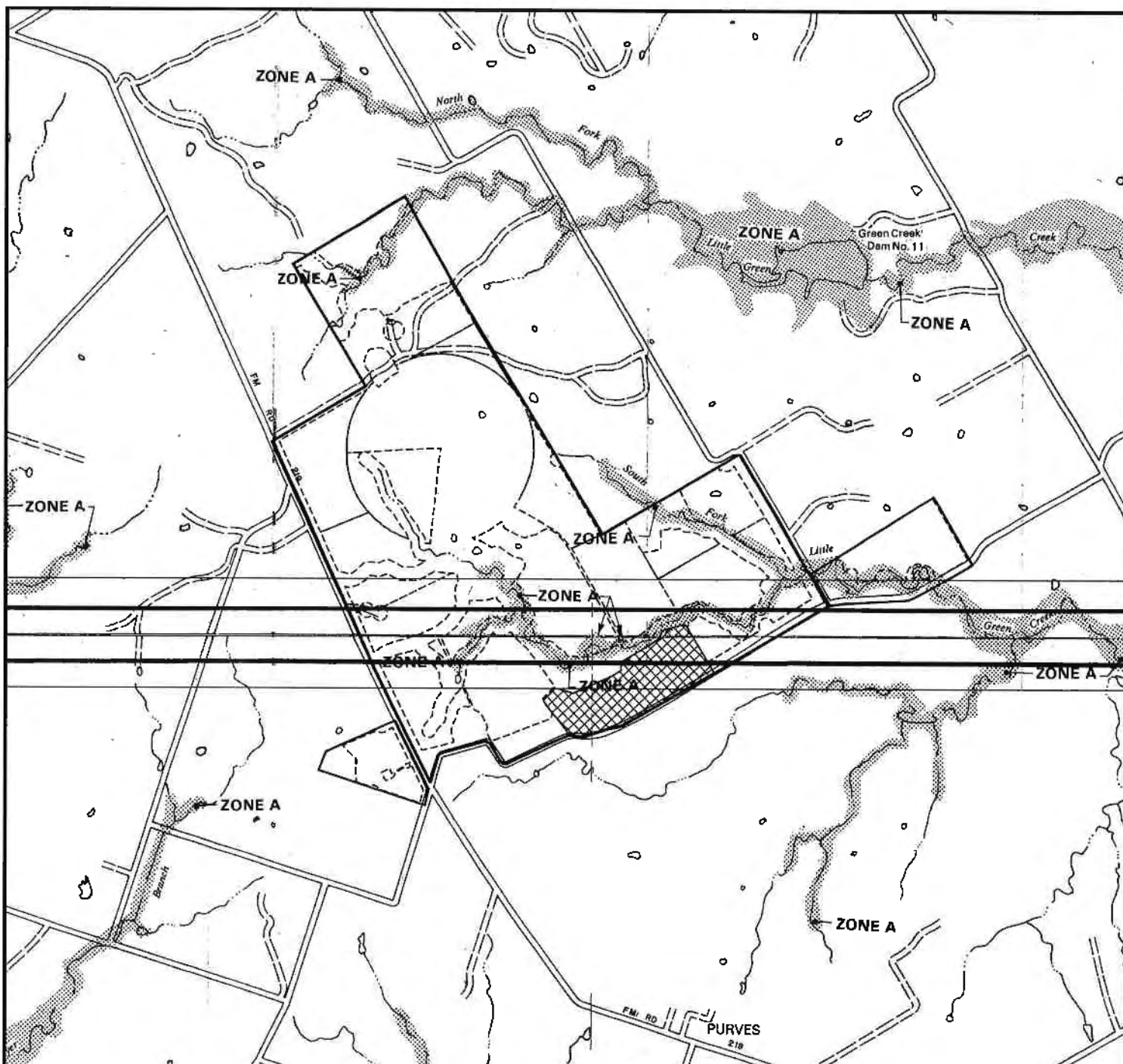
3.0 FACILITY INFORMATION

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 floodplain areas are built above the 100-year flood plain elevation to protect the RCS from inundation.



LEGEND:

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



No Scale

Source: FEMA, Flood Plain Maps

Grand Canyon Dairy
Dublin, TX
Erath County

FEMA Map
Figure 3.1
Page 28

ENVIRO-AG
EAE
ENGINEERING, INC.

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



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

Prepared by:



Norman Mullin 03/10/2010
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 25.95 acre-feet. Sludge volume was negligible at the time of the survey.

Respectfully Submitted,



Anissa Purswell
8/1/07

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

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



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

Prepared by:



Norman Mullin 08/27/10

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)	3.2×10^{-8} cm/sec
• RCS #2 West Bottom (Lab #1561)	1.2×10^{-8} cm/sec
• RCS #2 (#1) (Lab #1581)	3.8×10^{-9} cm/sec
• RCS #2 (#2) (Lab #1582)	3.5×10^{-9} cm/sec
• RCS #2 (#3) (Lab #1583)	2.7×10^{-8} cm/sec
• RCS #2 (#4) (Lab #1584)	1.1×10^{-8} cm/sec
• RCS #2 (#5) (Lab #1585)	1.9×10^{-8} 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:

A handwritten signature in blue ink, reading 'Norman Mullin', is written over a faint circular stamp. To the right of the signature is the date '08/27/10'.

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

(Supporting Documentation Attached)

CALCULATION OF SPECIFIC DISCHARGE

SITE: **Grand Canyon Dairy**
 LOCATION: **Erath County, TX**
 STRUCTURE: **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.

Laboratory Sample I.D.	Hydraulic Conductivity Results of Core Samples							
	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) Hydraulic conductivity of the core sample(s) as determined by flexible wall permeameter in cm/sec (Ref: ASTM D 5084).

The following equation is used:

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

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

d = Measure Liner Thickness at core sample location, feet

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

H = Maximum Water Depth, feet

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



Norman Mullin 08/27/10
 Norman Mullin, P.E. # 66107
 Enviro-Ag Engineering, Inc.
 TBPE Firm # 2507

TRIAxIAL PERMEABILITY CHAIN of CUSTODY		STRUCTURE	PERM REPORT I.D.	LAB LOG
		RCS# 3	EAST BOTTOM	1560
		RCS# 3	WEST BOTTOM	1561
Facility Name: <u>Grand Canyon Dairy</u>		<div>EAE</div> <div>302 Morgan Mill Road</div> <div>Bldg C</div> <div>Stephenville, TX 76401</div> <div>(254) 965-3500</div> <div>Fax: (254) 965-8000</div>		
Project Engineer: <u>Norm</u>				
Sampled by: <u>Carey</u>				
Date Sampled: <u>1/27/10</u>				
Date to Lab: <u>1/29/10</u>	Received: <u>Rich Baker</u>			

Enviro-Ag Engineering, Inc.

3404 Airway Blvd., Amarillo, TX 79110 (806) 353-6123

LABORATORY SERVICES



HYDRAULIC CONDUCTIVITY

REPORT

ASTM D-5084, Method C

Client / Project Name:

Grand Canyon Dalry

Project No:

10-01-22

Lab Sample Number:

1560

Sample ID:

1

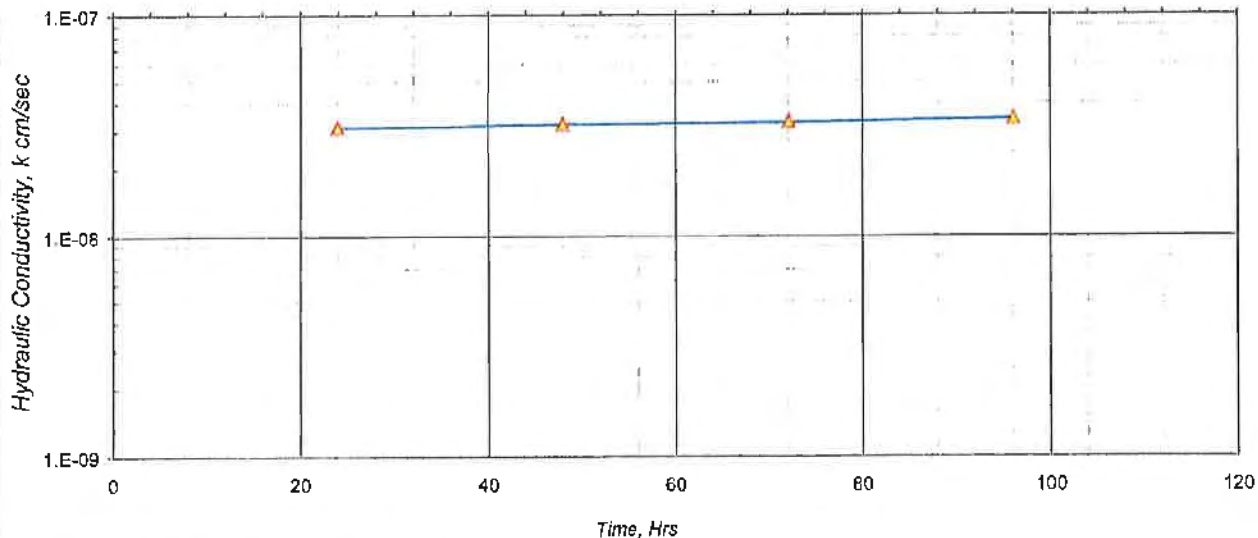
Sample Location:

RCS #3 - East Bottom

Report Date:

February 19, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	1	
DESCRIPTION:	RCS #3 - East Bottom	
	INITIAL	FINAL
HEIGHT, in.	3.6	3.6
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	15.8	22.5
DRY DENSITY, pcf	106	104
SATURATION, %	73	98
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C		
EFFECTIVE STRESS:	5 psi	
GRADIENT RANGE:	3 - 3	
IN / OUT RATIO:	1.00	
	HYDRAULIC	
TRIAL	TIME	CONDUCTIVITY
nos.	hrs.	cm / sec
1	24.1	3.1E-08
2	48.0	3.2E-08
3	72.2	3.3E-08
4	96.1	3.4E-08
AVERAGE LAST 4 :		3.2E-08

COMMENTS:

Tap water used as permeant.

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

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

2 : Soils Lab\Perms \1910\10-01-22\1560

Print Date:

02/19/10

Reviewed By:

Micah Mullin

LSN:

1560

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

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LABORATORY SERVICES



HYDRAULIC CONDUCTIVITY

REPORT

ASTM D-5084, Method C

Client / Project Name:

Grand Canyon Dairy

Project No:

10-01-22

Lab Sample Number:

1561

Sample ID:

2

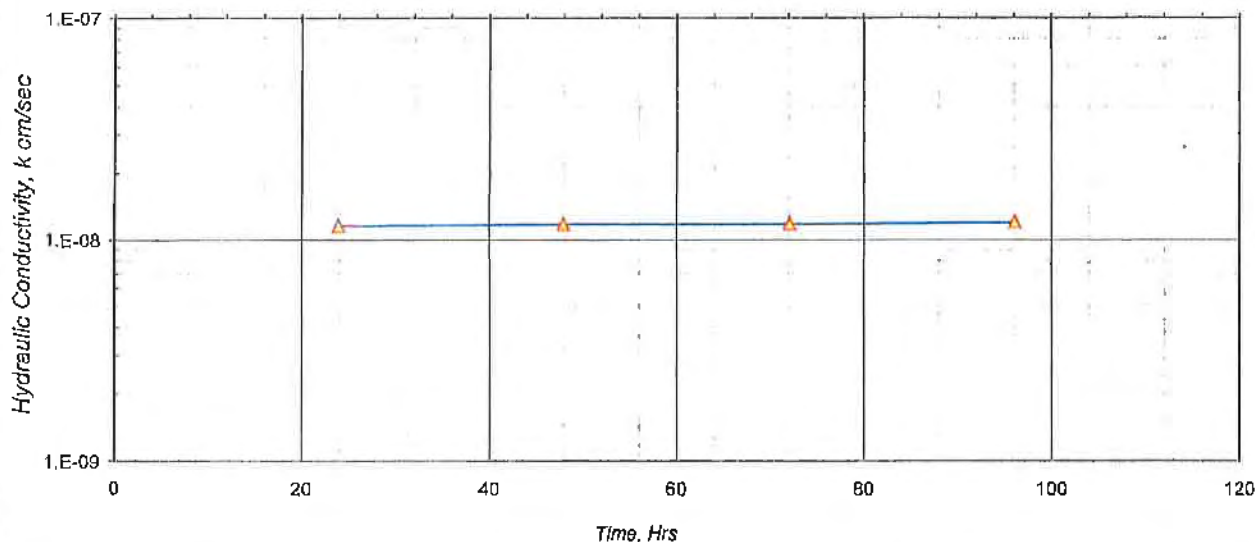
Sample Location:

RCS #3 - West Bottom

Report Date:

February 19, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	2	
DESCRIPTION:	RCS #3 - West Bottom	
	INITIAL	FINAL
HEIGHT, in.	4.0	4.1
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	18.1	24.2
DRY DENSITY, pcf	104	101
SATURATION, %	80	97
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Dark Brown	
SAMPLE CONSISTENCY	Clay	

COMMENTS:

Tap water used as permeant.

TEST DATA

ASTM D-5084, Method C		
EFFECTIVE STRESS:	5 psi	
GRADIENT RANGE:	3 - 3	
IN / OUT RATIO:	1.00	
	HYDRAULIC	
TRIAL	TIME	CONDUCTIVITY
nos.	hrs.	cm / sec
1	24.1	1.1E-08
2	48.0	1.2E-08
3	72.2	1.2E-08
4	96.1	1.2E-08
AVERAGE LAST 4 :		1.2E-08

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

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

Z : Soils Lab\Perms\1910\10-01-22\1561

Print Date:

02/19/10

Reviewed By:

Micah Mullin

LSN:

1561

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

TRIAxIAL PERMEABILITY CHAIN of CUSTODY		STRUCTURE	PERM REPORT I.D.	LAB LOG
		RCS#3-1		1581
		RCS#3-2		1582
		RCS#3-3		1583
		RCS#3-4		1584
		RCS#3-5		1585
		RCS#2		1586
		RCS#1		1587
Facility Name: <u>Grand Canyon</u>		<p style="text-align: center;">EAE</p> <p>302 Morgan Mill Road Bldg C Stephenville, TX 76401 (254) 965-3500 Fax: (254) 965-8000</p>		
Project Engineer: <u>Worm</u>				
Sampled by: <u>[Signature]</u>				
Date Sampled: <u>2/19/10</u>				
Date to Lab: <u>2/19/10</u>	Received: <u>Rich Bohm</u>			

Enviro-Ag Engineering, Inc.

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LABORATORY SERVICES



HYDRAULIC CONDUCTIVITY

REPORT

ASTM D-5084, Method C

Client / Project Name:

Grand Canyon Dairy

Project No:

10-02-19

Lab Sample Number:

1581

Sample ID:

1

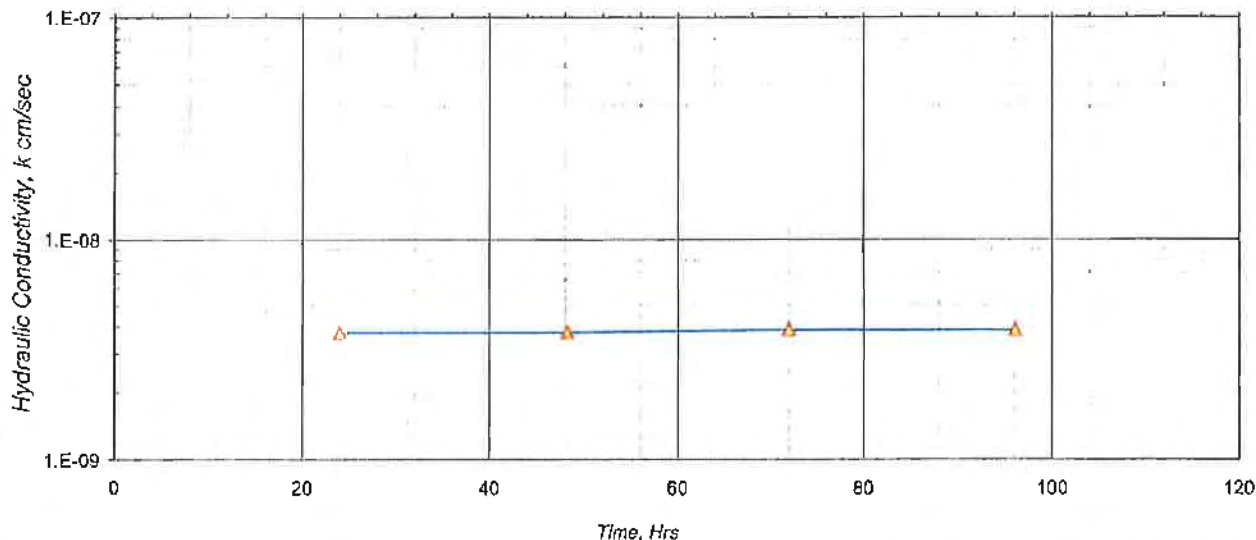
Sample Location:

RCS #3 - 1

Report Date:

March 19, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	1	
DESCRIPTION:	RCS #3 - 1	
	<u>INITIAL</u>	<u>FINAL</u>
HEIGHT, in.	3.8	3.8
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	14.8	18.7
DRY DENSITY, pcf	112	111
SATURATION, %	80	97
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Brown	
SAMPLE CONSISTENCY	Clay	

COMMENTS:

Tap water used as permeant.

TEST DATA

ASTM D-5084, Method C

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

TRIAL nos.	TIME hrs.	HYDRAULIC CONDUCTIVITY
		cm / sec
1	24.1	3.7E-09
2	48.3	3.7E-09
3	72.0	3.8E-09
4	96.1	3.8E-09

AVERAGE LAST 4 : **3.8E-09**

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

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

Z : Soils Lab\Perms\1910\10-02-19\1581

Print Date:

03/19/10

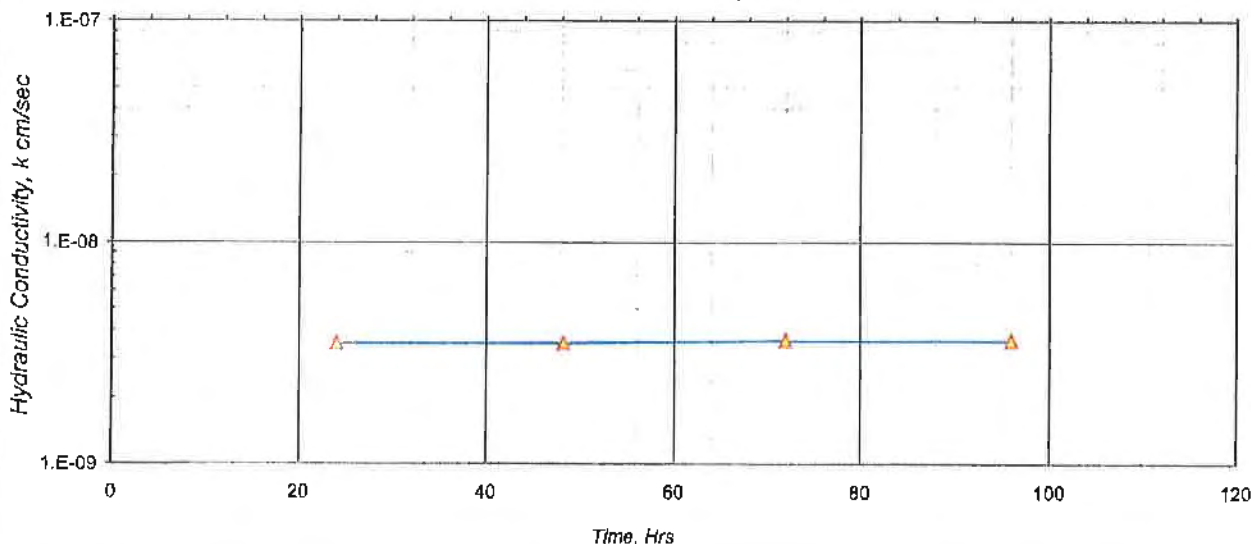
Reviewed By:

Micah Mullin

LSN:

1581

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	2	
DESCRIPTION:	RCS #3 - 2	
	<u>INITIAL</u>	<u>FINAL</u>
HEIGHT, in.	3.2	3.3
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	14.5	18.7
DRY DENSITY, pcf	113	111
SATURATION, %	79	97
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Dark Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

<u>ASTM D-5084, Method C</u>		
EFFECTIVE STRESS:	5 psi	
GRADIENT RANGE:	3 - 3	
IN / OUT RATIO:	1.00	
	HYDRAULIC	
TRIAL	TIME	CONDUCTIVITY
<u>nos.</u>	<u>hrs.</u>	<u>cm/sec</u>
1	24.1	3.5E-09
2	48.3	3.5E-09
3	72.0	3.6E-09
4	96.1	3.6E-09
AVERAGE LAST 4 :		3.5E-09

COMMENTS:

Tap water used as permeant.

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

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LABORATORY SERVICES



HYDRAULIC CONDUCTIVITY

REPORT

ASTM D-5084, Method C

Client / Project Name:

Grand Canyon Dairy

Project No:

10-02-19

Lab Sample Number:

1583

Sample ID:

3

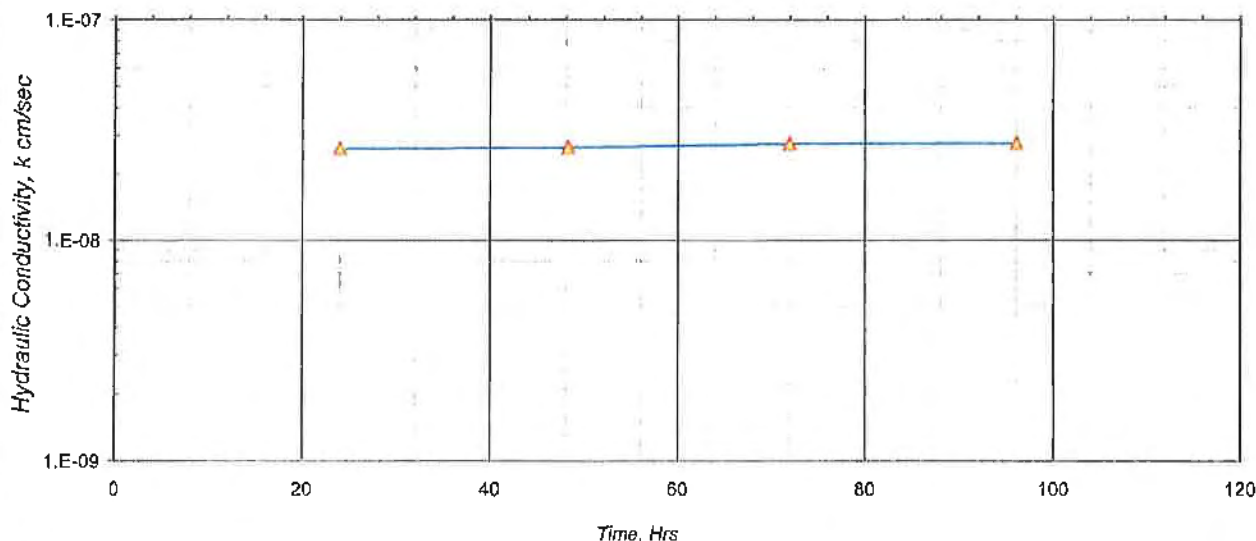
Sample Location:

RCS #3 - 3

Report Date:

March 19, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	3	
DESCRIPTION:	RCS #3 - 3	
	INITIAL	FINAL
HEIGHT, in.	4.8	4.8
DIAMETER, in.	2.8	2.9
WATER CONTENT, %	12.8	17.5
DRY DENSITY, pcf	115	113
SATURATION, %	73	97
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Light Brown	
SAMPLE CONSISTENCY	Clay	

TEST DATA

ASTM D-5084, Method C		
EFFECTIVE STRESS:	5 psi	
GRADIENT RANGE:	2 - 2	
IN / OUT RATIO:	1.00	
	HYDRAULIC	
TRIAL	TIME	CONDUCTIVITY
nos.	hrs.	cm/sec
1	24.1	2.6E-08
2	48.3	2.6E-08
3	72.0	2.7E-08
4	96.1	2.7E-08
AVERAGE LAST 4 :		2.7E-08

COMMENTS:

Tap water used as permeant.

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Z : Soils Lab\Perms 11910 \ 10-02-19 \ 1583

Print Date:

03/19/10

Reviewed By:

Micah Mullin

LSN:

1583

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

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LABORATORY SERVICES



HYDRAULIC CONDUCTIVITY

REPORT

ASTM D-5084, Method C

Client / Project Name:

Grand Canyon Dairy

Project No:

10-02-19

Lab Sample Number:

1584

Sample ID:

4

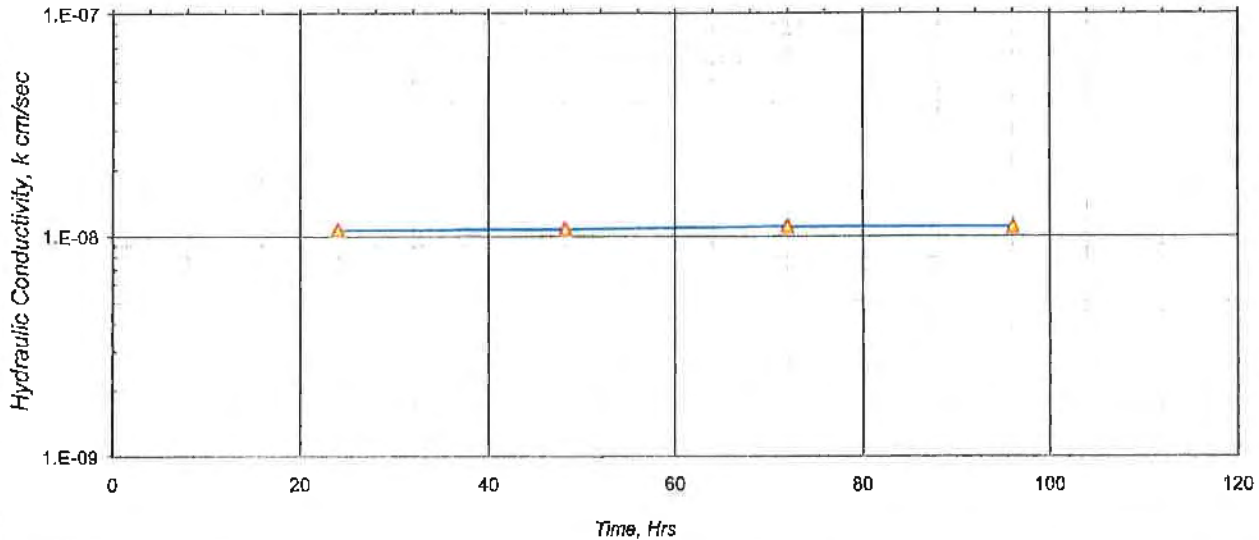
Sample Location:

RCS #3 - 4

Report Date:

March 19, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	4	
DESCRIPTION:	RCS #3 - 4	
	INITIAL	FINAL
HEIGHT, in.	4.0	4.0
DIAMETER, in.	2.8	2.9
WATER CONTENT, %	15.1	20.6
DRY DENSITY, pcf	109	108
SATURATION, %	75	100
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Brown	
SAMPLE CONSISTENCY	Clay	

COMMENTS:

Tap water used as permeant.

TEST DATA

ASTM D-5084, Method C		
EFFECTIVE STRESS:	5 psi	
GRADIENT RANGE:	3 - 3	
IN / OUT RATIO:	1.00	
	HYDRAULIC	
TRIAL	TIME	CONDUCTIVITY
nos.	hrs.	cm/sec
1	24.1	1.1E-08
2	48.3	1.1E-08
3	72.0	1.1E-08
4	96.1	1.1E-08
AVERAGE LAST 4 :		1.1E-08

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Z : Soils Lab\Perms 1910 \ 10-02-19 \ 1584

Print Date:

03/19/10

Reviewed By:

Micah Mullin

LSN:

1584

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

Enviro-Ag Engineering, Inc.

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

LABORATORY SERVICES



HYDRAULIC CONDUCTIVITY

REPORT

ASTM D-5084, Method C

Client / Project Name:

Grand Canyon Dalry

Project No:

10-02-19

Lab Sample Number:

1585

Sample ID:

1

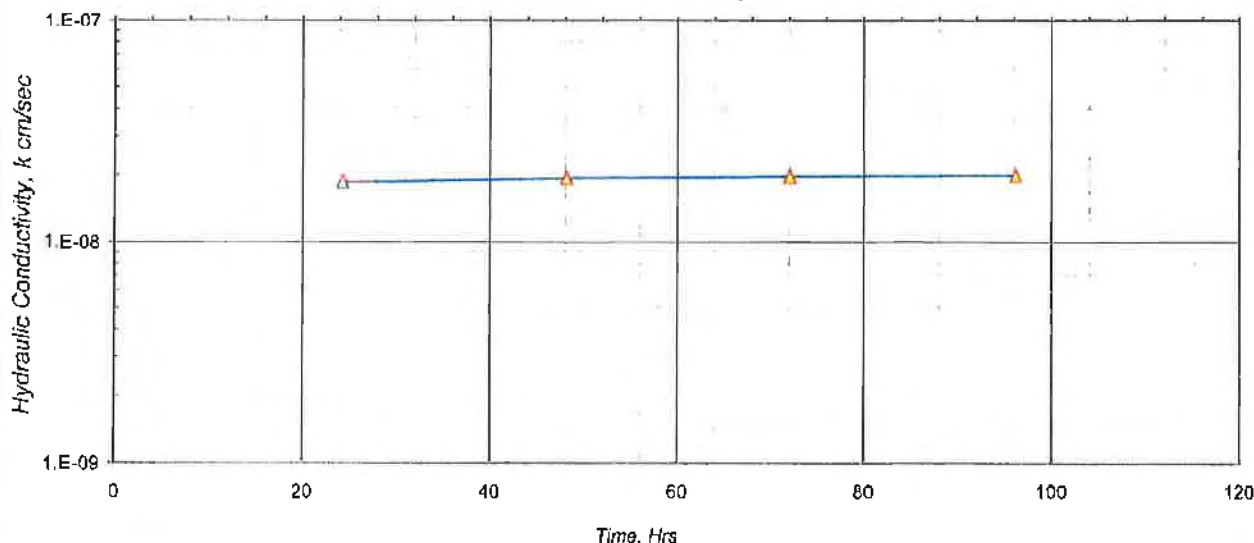
Sample Location:

RCS #3 - 5

Report Date:

March 19, 2010

Hydraulic Conductivity vs Time



SPECIMEN DATA

SAMPLE ID:	1	
DESCRIPTION:	RCS #3 - 5	
	INITIAL	FINAL
HEIGHT, in.	3.3	3.4
DIAMETER, in.	2.8	2.8
WATER CONTENT, %	13.5	21.4
DRY DENSITY, pcf	107	105
SATURATION, %	64	95
(Specific Gravity assumed as 2.7)		
SAMPLE COLOR	Brown	
SAMPLE CONSISTENCY	Clay	

COMMENTS:

Tap water used as permeant.

TEST DATA

ASTM D-5084, Method C

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

TRIAL	TIME	HYDRAULIC
nos.	hrs.	CONDUCTIVITY
		cm / sec
1	24.4	1.9E-08
2	48.3	1.9E-08
3	72.1	2.0E-08
4	96.2	2.0E-08

AVERAGE LAST 4 : 1.9E-08

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

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Z : Soils Lab\Perms\1910\10-02-19\1585

Print Date:

03/19/10

Reviewed By:

Micah Mullin

LSN:

1585

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



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	RCS#2
RCS#4	
RCS#5	SB#2
RCS#6	SB#3
RCS#7	RCS#3

Grand Canyon Dairy

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:

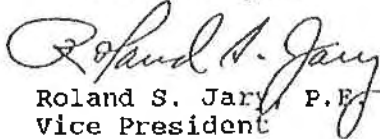
Southwestern Laboratories has completed sampling and testing of the soils in the wastewater retention ponds No. 1 through 5 at the Grand Canyon Dairy Farm in Dublin, Texas. The test results including sample thickness, Atterberg limits, and percent passing the number 200 sieve are tabulated on the attached 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.E.
Vice President

ns

Submitted by: Grand Canyon Dairy Farm

Signed by: _____

Date: _____

HOUSTON • DALLAS • AUSTIN • BEAUMONT • CONROE • GALVESTON COUNTY • RIO GRANDE VALLEY • ALEXANDRIA
SAN ANTONIO • FORT WORTH • LEEVILLE • MIDLAND • MONROE • SHREVEPORT • TEXARKANA • SHERMAN

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

Grand Canyon Dairy, June 14, 1989

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

Grand Canyon Dairy, June 14, 1989

	Pond #3	Pond #3	Pond #4	Pond #4	Minimum
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

Grand Canyon Dairv. June 14, 1989

	Pond #5	Pond #5	Minimu
Test Location	No. 1	No. 2	Requir
Soil Description			
Color	Yellow	Red &	
Texture	& Gray	Yellow	
Unified Classification	Clay	Clay	
	CL	CL	
Sample Depth, Inches	12+	12+	12
Atterberg Limits			
Liquid Limit, (%)	38	39	30
Plastic Limit, (%)	13	14	
Plasticity Index	25	25	15
Passing No. 200 Sieve, (%)	55.8	57.3	30



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	RCS#2
RCS#4	
RCS#5	SB#2
RCS#6	SB#3
RCS#7	RCS#3

Grand Canyon Dairy



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

Kemp E. Akeman, P.E.
Materials Engineer



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

ns

Submitted by: Grand Canyon Dairy Farm

Signed by: _____

Date: _____

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SAN ANTONIO • FORT WORTH • LEEVILLE • MIDLAND • MONROE • SHREVEPORT • TEXARKANA • SHERMAN

Attachment C.4.a

GRAND CANYON DAIRY

RCS HYDROLOGIC CONNECTION

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



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	RCS#2
RCS#4	
RCS#5	SB#2
RCS#6	SB#3
RCS#7	RCS#3

Grand Canyon Dairy



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.
Senior Materials Engineer



Roland S. Jary, P.E.
Vice President

tj

Submitted by: Grand Canyon Dairy Farm

Signed by:

Date:

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SAN ANTONIO • FORT WORTH • LEEVILLE • MIDLAND • MONROE • SHREVEPORT • TEXARKANA • SHERMAN

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

Grand Canyon Dairy, Pond No. 6

Test Location	No. 1	No. 2	No. 3	No. 4	Minimum Require
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, (%)	44	40	41	38	30
Plastic Limit, (%)	15	14	14	14	
Plasticity Index	29	26	27	24	15
Passing No. 200 Sieve, (%)	50.0	54.8	52.9	54.2	30

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
Kemp E. Akeman, P.E.
Materials Engineer



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

ns

Submitted by: Grand Canyon Dairy Farm

Signed by: _____

Date: _____

HOUSTON • DALLAS • AUSTIN • BEAUMONT • CONROE • GALVESTON COUNTY • RIO GRANDE VALLEY • ALEXANDRIA
SAN ANTONIO • FORT WORTH • LEEVILLE • MIDLAND • MONROE • SHREVEPORT • TEXARKANA • SHERMAN

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

Grand Canyon Dairy, June 14, 1989

	Pond #3	Pond #3	Pond #4	Pond #4	Minimum
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

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:

LMU#	Max N Lb/ac Application Rates	Max P205 Lb/ac Application Rates	Planned N Lb/ac Application Rates	Planned P Lb/ac Application Rates
1	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, recordkeeping, and land application.

Waste Utilization and Nutrient Management Plan

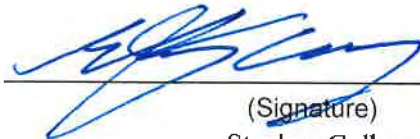
Grand Canyon Dairy
Phase I

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

Waste Utilization and Nutrient Management Plan

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 **2025** and will remain in effect until revision based on new soil or manure analysis or crop change (yield or crop) result in a new P-Index rating or plan classification (NMP-NUP). The waste has been stored in a **Dairy Lagoon**. Approximately **2500** head will be confined with the average weight of **1400** pounds. The animals will be confined **24** hours per day for **365** days per year.

Waste Utilization and Nutrient Management Plan

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.

Waste Utilization and Nutrient Management Plan

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.

Waste Utilization and Nutrient Management Plan

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

Waste Utilization and Nutrient Management Plan

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.

Waste Utilization and Nutrient Management Plan

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, 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.

Waste Utilization and Nutrient Management Plan

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 eFOTG

Type: 590 in the Search Menu above eFOTG and click: **GO**

Click on the desired item under Nutrient Management in the left column

SOIL ANALYSIS:

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

Waste Utilization and Nutrient Management Plan

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. 1-5175, *"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: 

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.

Waste Utilization and Nutrient Management Plan

Table 1 - Estimated Effluent and Solids Quantities Produced

Permit #: **WQ0002950000**

Avg. Number of Animals <div style="border: 1px solid black; padding: 2px; text-align: center; width: 150px; margin: 5px auto;">2,500</div>	Type of Waste <div style="border: 1px solid black; padding: 2px; text-align: center; margin: 5px auto;">Dairy Lagoon</div> <div style="border: 1px solid black; padding: 2px; text-align: center; margin: 5px auto;">Dairy Solids</div>
--	--

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

Estimated Acre Inches of Effluent to be Available Annually* **1,693**

Estimated Tons Solids to be Land Applied Annually (on or off site)* **18,323.3**

*From engineering design.

Estimated Nutrient Availability Effluent	pounds/yr	Pounds / 1000 gal	Pounds / Acre Inch		Estimated Nutrient Availability Solids	pounds / yr	pounds / ton	
N	14,118	0.31	8.3	**	N	347,188	18.9	**
P2O5	17,570	0.38	10.4		P2O5	275,831	15.1	
K2O	161,124	3.51	95.2		K2O	519,030	28.3	

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

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

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

Waste Utilization and Nutrient Management Plan

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

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

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

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

- equal to or greater than 200 ppm in non-arid areas ^{2/} or
- equal to or greater than 350 ppm in arid areas ^{2/} with a named stream greater than one mile or
- equal to or greater than 200 ppm in arid areas ^{2/} with a named stream less than one mile.

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

Footnotes Applicable to both Tables

- 1/ Soil test P will be Mehlich III by inductively coupled plasma (ICP).
- 2/ Non-arid areas, counties receiving → 25 inches annual rainfall, will use the 200 ppm P level while arid areas, counties receiving < 25 inches of annual rainfall, will use the 350 ppm P level. See map in TX Agronomy Technical Note 15, Phosphorus Assessment Tool for Texas, for county designations.
- 3/ Not to exceed the annual nitrogen requirement rate.
- 4/ Not to exceed the annual nitrogen removal rate.
- 5/ When soil test phosphorus levels are ≥ 500 ppm, with a P-Index rating of “High” or “Very High”, there will be no additional application of phosphorus to a CMU or field.

PI Index by Field

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

This plan is based on: Nutrient Management Plan V 5.0

Permit #: WQ0002950000

Client Name: Grand Canyon Dairy

Date: 5/8/2025

Planner: Stephen Colby

Location: Erath

Rainfall: >25.0 inches

LMU or Fields	Crop	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 Erosion	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 6-7T	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 - 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

Waste Utilization and Nutrient Management Plan

Table 3 - Crop Removal Rates (For Information Only)

Permit #: WQ0002950000

LMU or Field No.	Acres	Crop and P Index Level	TCEQ Plan Type	Actual Crop Analysis or Default	Total Est. N Removal lbs/Ac/Yr	Total Est. P ₂ O ₅ Removal lbs/Ac/Yr	Total Est. K ₂ O Removal lbs/Ac/Yr
1	62.0	Silage - Corn21-25T;SG GreenChop-6-7T H	NMP	Default	420	154	257
1A	41.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	NMP	Default	330	104	190
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
3A	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 - Corn16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214
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**

Waste Utilization and Nutrient Management Plan

Table 4 - Maximum Solids Application per Field

Permit #:

WQ0002950000

Est. Solids Produced Annually (wet tons)	LMU or Field No.	Acres	Crop Management and PI runoff potential	Current Soil Test P Level (ppm)	Max Annual P2O5 lbs/acre	Annual/Biennial	Maximum Solids Allowable Tons/Acre	Maximum Allowable Application Per field (Tons)
18,323	1							
	1A	41.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	194	308	A	20.4	838
	2							
	2A	21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	140	308	A	20.4	429
	3							
	3A							
	4	60.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	57	308	A	20.4	1226
	5							
	6	62.0	Silage - Corn16-20T;SG GreenChop-6-7T H	146	270	A	17.9	1112
	7	30.0	Silage - Corn16-20T;SG GreenChop-6-7T H	88	270	A	17.9	538
	8	87.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	93	318	A	21.1	1837
	9	20.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	95	318	A	21.1	422
	10	50.0	Silage - Corn16-20T;SG GreenChop-6-7T H	121	270	A	17.9	897
	11	56.0	Silage - Corn16-20T;SG GreenChop-6-7T H	27	270	A	17.9	1004
	12	66.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	207	104	A	6.9	455
12A	30.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	207	156	A	10.3	310	
13	53.0	Silage - Corn16-20T;SG GreenChop-6-7T H	79	270	A	17.9	951	
14	47.0	Silage - Corn16-20T;SG GreenChop-6-7T H	26	270	A	17.9	843	
Total Solids Application Acres								
623								
Application Allowable on-site (tons)								
10861.1								
Not Adequate								
Solids to be used off-site (tons)								
7,462.2								

End of Table 4

Waste Utilization and Nutrient Management Plan

Table 5 - Nutrients Applied/Needs at Maximum Solids Rates

Permit #:

WQ0002950000

LMU / Field #	Nutrients Applied When Application is at Maximum Rates			Supplemental Nutrients Needed When Application is at Maximum Rates			
	N Lb/ac	P ₂ O ₅ 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							
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

Waste Utilization and Nutrient Management Plan

Table 6 - Planned Solids Application Rates

Permit #: **WQ0002950000**

LMU or Field No.	Double crop	Acres	Crop Management and PI runoff potential	Current Soil Test P ppm	Annual / Biennial	Max Rate tons/ac	% of Maximum to apply	Planned Solids tons/ac	Planned Solids per field (tons)
1									
1A		41.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	194	A	20.4	100	20.4	837.5
2									
2A		21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	140	A	20.4	100	20.4	429.0
3									
3A									
4		60.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	57	A	20.4	100	20.4	1225.6
5									
6		62.0	Silage - Corn16-20T;SG GreenChop-6-7T H	146	A	17.9	100	17.9	1112.0
7		30.0	Silage - Corn16-20T;SG GreenChop-6-7T H	88	A	17.9	100	17.9	538.1
8		87.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	93	A	21.1	100	21.1	1836.6
9		20.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	95	A	21.1	100	21.1	422.2
10		50.0	Silage - Corn16-20T;SG GreenChop-6-7T H	121	A	17.9	100	17.9	896.8
11		56.0	Silage - Corn16-20T;SG GreenChop-6-7T H	27	A	17.9	100	17.9	1004.4
12		66.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	207	A	6.9	100	6.9	455.0
12A		30.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	207	A	10.3	100	10.3	310.2
13		53.0	Silage - Corn16-20T;SG GreenChop-6-7T H	79	A	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 planned per acre application rates use all of the Solids?					10861.1
18323			Tons of wet solids produced Annually	NO					
0			Tons to be used off-site at Max. rates	Tons to be used off-site at planned rates					7462

Waste Utilization and Nutrient Management Plan

Table 7 - Nutrients Applied/Needed at Planned Solids Rates

Permit #:

WQ0002950000

Red cells? Proceed to adjustment page and fix.

LMU / Field #	Nutrients Applied at Planned Rates			Supplemental Nutrients Needed at Planned Rates			
	N Lb/ac	P ₂ O ₅ 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							
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

Waste Utilization and Nutrient Management Plan

Table 8 - Maximum Effluent Application Per Field

Permit #:

WQ0002950000

Est. Available Effluent (ac inches)	LMU or Field No.	Acres	Double crop	Crop Management and PI runoff potential	Current Soil Test P Level (ppm)	Max Annual P ₂ O ₅ (lbs/acre)	Annual/Biennial	Maximum Effluent Allowable (ac in/ac)	Maximum Effluent Allowable / Field (ac in)
1693	1	62.0		Silage - Corn21-25T;SG GreenChop-6-7T H	194	278	A	26.7	1658
Source:	1A								
Dairy Lagoon	2	62.0		Coastal GC (30%DM) 9-11T; SG GC 6-7T M	140	410	A	39.5	2449
	2A								
	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
	6								
	7								
	8								
	9								
	10								
	11								
	12								
	12A								
	13								
	14								
Total Effluent Application Acres									
411									
Maximum Effluent Application Allowable On-Site (ac in)									
11244									
Adequate									
Effluent to be used Off-Site (ac in)									
0									

End of Table 8

Waste Utilization and Nutrient Management Plan

Table 9 - Nutrients Applied/Needed at Maximum Effluent Rates

Permit #:

WQ0002950000

LMU / Field #	Nutrients Applied When Application is at Maximum Rates			Supplemental Nutrients Needed When Application is at Maximum Rates			
	N Lb/ac	P ₂ O ₅ 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	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							

Waste Utilization and Nutrient Management Plan

Table 10 - Planned 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 1A	62.0		Silage - Corn21-25T;SG GreenChop-6-7T H	194	A	26.7	15.0	4.0	249
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 3A	56.0 21.0		Silage - Corn16-20T;SG GreenChop-6-7T M Coastal GC (30%DM) 9-11T; SG GC 6-7T M	224 224	A A	12.7 10	15.0 15.0	1.9 1.5	107 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	141	A	29.6	16.0	4.7	995
Acres	411.0					Will the planned application rates use all of the Effluent?			1750 YES

Waste Utilization and Nutrient Management Plan

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

Permit #:

WQ0002950000

Red cells? Proceed to adjustment page and fix.

T.MU / Field #	Nutrients Applied at Planned Rates			Supplemental Nutrients Needed at Planned Rates			
	N Lb/ac	P ₂ O ₅ 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	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							

Waste Utilization and Nutrient Management Plan

Table 12 - Available Water Capacity to 24 inches(or less) of predominant soil in fields receiving effluent and Texture of the most restrictive soil layer in the upper 24 inches Permit #: WQ0002950000

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			
3A	3.52	Clairette Hasse			
4					
5	1.87	Purves Dugout			
6					
7					
8					
9					
10					
11					
12					
12A					
13					
14					

Waste Utilization and Nutrient Management Plan

Table 13 - Non Application Areas by Field

Permit #:

WQ0002950000

FS = 393-Filter Strip; **FB** = 386-Field Border; **RFB** = 391-Riparian Forest Buffer; **OLEA** = Other Land Excluded Area

LMU / Field #	FS Acres	FB Acres	RFB Acres	OLEA Acres	Total Excluded
1	0.0	0.0			
1A	0.0	0.0			
2	0.0	0.0			
2A	0.0	0.0			
3	0.0	0.0			
3A	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			
10	0.0	0.0			
11	0.0	0.0			
12	0.0	0.0			
12A	0.0	0.0			
13	0.0	0.0			
14	0.0	0.0			

See Application Map for location of buffers

Total 590-633 application acres: 1034.0

LMU / Field #	FS Acres	FB Acres	RFB Acres	OLEA Acres	Total Excluded

Totals	0.0	0.0	0.0	0.0	0.0
---------------	-----	-----	-----	-----	-----

Total 590-633 Field Acres: 1034.0

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 Plan

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

Field and Buffer Entries

Permit #:

WQ0002950000

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

Plan is based on: 590 Organic Nutrient Management Plan

FS = 393-Filter Strip, FB = 386-Field Border, RFB = 391-Riparian Forest Buffer, OLEA = Other Land Exclusion Areas or non-application areas (i.e. headquarters, freq. flooded areas, wooded areas, water bodies, etc)

NOTE: Field Border (FB) is expressed in ACRES on this spreadsheet, but as LINEAR FEET on the CPO.

[illegible]

Soil Test, Crop Information and Plant Analysis Data Entries

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

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

Permit #: WQ0002950000

[illegible]

Solids Application Rate Entries

Solids - Set the Planned Application Rates					Permit #: WQ		
18323		"Wet tons" of solids produced Annually			Will the planned rates use all of the		
					Tons to be used off-site at plann		
LMU or Field No.	Acres	Crop Management and PI runoff potential	Current Soil Test P ppm	Crop P 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	Annual	20.4	100.0
2							
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	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	57	205	Annual	20.4	100.0
5							
6	62.0	Silage - Corn16-20T;SG GreenChop-6-7T H	146	180	Annual	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 6-7T M	93	205	Annual	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
11	56.0	Silage - Corn16-20T;SG GreenChop-6-7T H	27	180	Annual	17.9	100.0
12	66.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	207	205	Annual	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

Effluent Application Rate Entries

Effluent - Set the Planned Application Rates

Pernit #: WQ0002950000

45964119		Gallons of Effluent to be used annually			Will the planned rates use all of the effluent?				Yes
1693		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 - Corn21-25T;SG GreenChop-6-7T H	194	185	Annual	26.7	15.0	4.01	249
1A									
2	62.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	140	205	Annual	39.5	15.0	5.93	368
2A									
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	210.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	141	205	Annual	29.6	16.0	4.74	995
6									
7									
8									
9									
10									
11									
12									
12A									
13									
14									
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

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

Plan is based on: 590 Organic Nutrient Management Pla

Permit #:

WQ0002950000

[illegible]

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): 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 = decisiemens per meter, equivalent to millimhos per centimeter (mmhols/cm); SU = standard units.

C. Certification

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

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: 10/24/2024

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 (NO ₃ -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 = decisiemens per meter, equivalent to millimhos per centimeter (mmhols/cm); SU = standard units.

C. Certification

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

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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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): 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 (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

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

C. Certification

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

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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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): 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 = decisiemens per meter, equivalent to millimhos per centimeter (mmhols/cm); SU = standard units.

C. Certification

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

Signature:  Pr →

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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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): 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			

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

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

C. Certification

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

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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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): 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

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

C. Certification

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

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: 10/24/2024

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	.568	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 = decisiemens per meter, equivalent to millimhos per centimeter (mmhols/cm); SU = standard units.

C. Certification

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

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

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): 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

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

C. Certification

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

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: 10/24/2024

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

Note: ppm = parts per million, considered to be equivalent to milligrams per liter (mg/l); dS/m = decisiemens per meter, equivalent to millimhos 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 Mullin*

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: 10/24/2024

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 (NO ₃ -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 = decisiemens per meter, equivalent to millimhos per centimeter (mmhols/cm); SU = standard units.

C. Certification

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

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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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			
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

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

C. Certification

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

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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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 (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	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 = decisiemens per meter, equivalent to millimhos per centimeter (mmhols/cm); SU = standard units.

C. Certification

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

Signature: *John Muller Jr.*

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): 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	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

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

C. Certification

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

Signature:  *John Mulh*

Date: 2/4/25

Telephone Number: 254/445-0404

D. How to Submit

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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.

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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: 10/28/2024

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 = decisiemens per meter, equivalent to millimhos per centimeter (mmhols/cm); SU = standard units.

C. Certification

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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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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, 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

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



Chain of Custody Record

55810 21

Location:

Grand Canyon

Permit #:

2950

Region:

Organization #:

PCA Code:

Program:

WQ

Sampler telephone number:

(254) 552-1900

E-Mail ID:

Sampler: (signature)

Vanessa Gardner

Sampler: (please print clearly)

Vanessa Gardner

Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/ Comp.	Matrix L,S,M,O,T	CL2	pH	Cond	Analyses Requested	REMARKS
14272	-01	10-24-24	12:00							5pp RFA	Lmu1 0-b
14273	-02		12:00								Lmu1 6-24
14274	-03		12:35								Lmu2 0-b
14275	-04		12:35								Lmu2 6-24
14276	-05		13:15								Lmu3 0-b
14277	-06		13:15								Lmu3 6-24
14278	-07		10:40								Lmu4 0-b
14281	-08		10:40								Lmu4 6-24
14282	-09		11:00								Lmu5 0-b
14283	-10		11:00								Lmu5 6-24

Relinquished by:

Date

Time

Received by:

11-29-24

For Laboratory Use:

Relinquished by:

Date

Time

Received by:

Received on ice:

Y

N

deg. C

Relinquished by:

Date

Time

Received by:

Preservatives:

Y

N

Relinquished by:

Date

Time

Received by:

COC Seal:

Y

N

Shipper name:

Fld Ex

Shipper Number:

7916 4468 1375

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	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	TLP
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	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
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 pulverizer fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

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

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses

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

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na -- Mehlich III by ICP

M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055810a-45667

Print Date: 10-Jan-25

Standard Sample Report

TCEQ COC# 055810

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
14272	55810-01	194	ppm	568	ppm	5318	ppm	363	ppm	56.7	ppm	31.8	ppm
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	ppm	462	ppm	96.5	ppm	31.9	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal. Date	Mehlich III 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: 055810a-45667 Print Date: 10-Jan-25
 Standard Sample Report TCEQ COC# 055810

Laboratory ID:	TCEQ/client Sample ID:	pH	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:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitrate-N Extract		Nitrate-N Analysis	
		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

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III 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	ppm	0	ppm	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 P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
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 Extract Date	Mehlich III Extract Tech	Mehlich III Anal. Date	Mehlich III 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

Report ID: 055810a-45667

Print Date: 10-Jan-25

Quality Control Report

TCEQ COC# 055810

Laboratory ID:		pH	pH units	Conductivity conc.	Conductivity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % 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	na	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	
	IC Upper	5.990	na	0.299	dS/M	5.5	ppm	
	blk221	-	na	0	dS/M	0.614	ppm	

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

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitrate-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	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
blk221	12/18/2024	DEC	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 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	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	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 pulverizer fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

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

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses

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

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms, p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na -- Mehlich III by ICP

M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055810b-45667 Print Date: 10-Jan-25
 Standard Sample Report TCEQ COC# 055810

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
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	ppm	334	ppm	12949	ppm	380	ppm	111	ppm	107	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal. Date	Mehlich III 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

Report ID: 055810b-45667 Print Date: 10-Jan-25
 Standard Sample Report TCEQ COC# 055810

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N 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:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitrate-N Extract		Nitrate-N Analysis	
		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

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
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	ppm	0	ppm	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 P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III 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: 055810b-45667

Print Date: 10-Jan-25

Quality Control Report

TCEQ COC# 055810

Laboratory ID:		pH	pH units	Conductivity conc.	Conductivity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
14299	IC1027	5.9	na	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	na	0.299	dS/M	5.5	ppm	
	blk221	-	na	0	dS/M	0.614	ppm	

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

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitrate-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



Chain of Custody Record

55811

24

Location:

Grand Canyon

Permit #:

2950

Region:

Organization #:

PCA Code:

Program:

WQ

Sampler telephone number:

(254) 552-1900

E-Mail ID:

Sampler: (signature)

Vanessa Gardner

Sampler: (please print clearly)

Vanessa Gardner

Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/ Comp.	Matrix L,S,M,O,T	CL2	pH	Cond.	Analyses Requested	REMARKS
14284	-01	10/24/24	13:55							5PP RFA	Lmu6 0-6
14285	-02	10/24/24	13:55								Lmu6 6-24
14286	-03	10/24/24	13:30								Lmu7 0-6
14287	-04	10/24/24	13:30								Lmu7 6-24
14288	-05	10/24/24	14:10								Lmu8 0-6
14289	-06	10/24/24	14:10								Lmu8 6-24
14290	-07	10/24/24	14:25								Lmu9 0-6
14291	-08	10/24/24	14:25								Lmu9 6-24
14292	-09	10/28/24	14:10								Lmu10 0-6
14293	-10	10/28/24	14:10								Lmu10 6-24

Relinquished by:	Date	Time	Received by:	For Laboratory Use:
			11-19-24	
Relinquished by:	Date	Time	Received by:	Received on ice: Y N deg. C
Relinquished by:	Date	Time	Received by:	Preservatives: Y N
Relinquished by:	Date	Time	Received by:	COC Seal: Y N
Shipper name:	Shipper Number:			Seals Intact: Y N
FLD Ex	7915 4468 1375			

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 ID:	Sample Depth (inches)	Sample Coll. Date:	Collector Name:	TCEQ Region #	Date Received	Sample Type:	Sample opened Date	Sample Ground Date	Process 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	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 6SC drying oven and allow to remain until dry. Individual samples were then removed from drying oven and pulverized with an Agvise soil pulverizer fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

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

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses NO3-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOP

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na - Mehlich III by ICP M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055811a-45667

Print Date: 10-Jan-25

Standard Sample Report

TCEQ COC# 055811

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
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	ppm
14288	55811-05	93.2	ppm	404	ppm	14697	ppm	239	ppm	125	ppm	13.2	ppm
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	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	ppm	40.6	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III 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: 055811a-45667

Print Date: 10-Jan-25

Standard Sample Report

TCEQ COC# 055811

Laboratory ID:	TCEQ/client	pH	pH	Conductivity	Conductivity	Nitrate-N	Nitrate-N
	Sample ID:		units		units		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	55811-04	7.64	NA	0.104	dS/M	5.106	ppm
14288	55811-05	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:	pH	pH	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/Conductivity prep		pH Analysis		Conductivity		Nitrate-N Extract		Nitrate-N Analysis	
	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 P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
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	ppm	0	ppm	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 P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Extract Date	Mehlich III Extract Tech	Mehlich III Anal. Date	Mehlich III 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:		pH	pH units	Conductivity conc.	Conductivity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
14299	IC1027	5.9	na	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	na	0.299	dS/M	5.5	ppm	
	blk221	-	na	0	dS/M	0.614	ppm	

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

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitrate-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



Chain of Custody Record

55812

24

Location:

Graid Canyon

(Do not fill in this shaded area if the facility information must be confidential)

Permit #:

2950

Region:

Organization #:

PCA Code:

Program:

WQ

Sampler telephone number:

(254) 552 1900

E-Mail ID:

Sampler: (signature)

Vanessa Gardner

Sampler: (please print clearly)

Vanessa Gardner

Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/ Comp.	Matrix L,S,M,O,T	CL2	pH	Cond	Analyses Requested	REMARKS
14294	-01	10/28/24	11:30							SEE RFA	LMU 11 0-6
14295	-02	10-28-24	11:40								LMU 11 6-24
14296	-03	10/28/24	11:10								LMU 12 0-6
14297	-04	10/28/24	11:10								LMU 12 6-24
14298	-05	10/28/24	12:30								LMU 13 0-6
14301	-06	10/28/24	12:30								LMU 13 6-24
14302	-07	10/28/24	10:40								LMU 14 0-6
14303	-08	10/28/24	10:40								LMU 14 6-24
	-09										
	-10										

Relinquished by:	Date	Time	Received by:	For Laboratory Use:
			JH 11-19-24	Received on ice: Y N deg. C
Relinquished by:	Date	Time	Received by:	Preservatives: Y N
Relinquished by:	Date	Time	Received by:	COC Seal: Y N
Relinquished by:	Date	Time	Received by:	Seals Intact: Y N
Shipper name:	Shipper Number:			
Fed Ex	795 4468 1375			

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	TLP
14298	55812-05	0-6	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 pulverizer fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

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

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses NO3-N EXTRACTION - SWFTL0014R5.SOP/NO3-N ANALYSIS - SWFTL0089R1.SOP

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na -- Mehlich III by ICP M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055812a-45667

Print Date: 10-Jan-25

Standard Sample Report

TCEQ COC# 055812

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
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	ppm	242	ppm	3127	ppm	204	ppm	34.0	ppm	12.6	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III 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-45667 Print Date: 10-Jan-25
Standard Sample Report TCEQ COC# 055812

Laboratory ID:	TCEQ/client Sample ID:	pH	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	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	ppm

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

Laboratory ID:	TCEQ/client Sample ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitrate-N Extract		Nitrate-N Analysis	
		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

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
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	ppm	0	ppm	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 P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III 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

Print Date: 10-Jan-25

Quality Control Report

TCEQ COC# 055812

Laboratory ID:		pH	pH units	Conductivity conc.	Conductivity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
14299	IC1027	5.9	na	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	na	0.299	dS/M	5.5	ppm	
	blk221	-	na	0	dS/M	0.614	ppm	

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

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitrate-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 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	TLP
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 pulverized fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

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

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses

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

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na -- Mehlich III by ICP

M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055812b-45667

Print Date: 10-Jan-25

Standard Sample Report

TCEQ COC# 055812

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
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 P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III 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-45667 Print Date: 10-Jan-25
 Standard Sample Report TCEQ COC# 055812

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
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:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitrate-N Extract		Nitrate-N Analysis	
		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	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

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
14319	IC1029	46.8	ppm	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	0	ppm	0	ppm	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
	blk222	<0.237	ppm	0.142	ppm	<0.0436	ppm	<0.0250	ppm	<0.0100	ppm	0.493	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
IC1029	1/8/2025	FMR	1/9/2025	JLP
IC1030	1/8/2025	FMR	1/9/2025	JLP
blk222	1/8/2025	FMR	1/9/2025	JLP

Quality Control Report

TCEQ COC# 055812

Laboratory ID:		pH	pH units	Conductivity conc.	Conductivity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
14319	IC1029	5.9	na	0.256	dS/M	4.759	ppm	
14320	IC1030	5.9	na	0.254	dS/M	4.704	ppm	
	Mean IC	5.875	na	0.255	dS/M	4.7315	ppm	
14320spike	Spiked sample	-	-	-	-	3.9	ppm	88.6
	IC lower	5.760	na	0.241	dS/M	3.5	ppm	
	IC Upper	5.990	na	0.299	dS/M	5.5	ppm	
	blk222	-	na	0	dS/M	0.694	ppm	

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

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitrate-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	JW
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 Dairy2179 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.



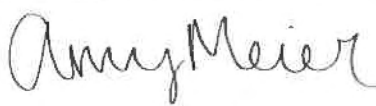


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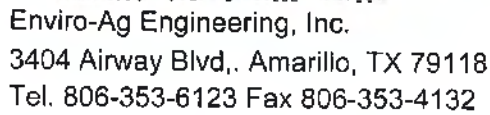
Lab No.: 3753		LABORATORY ANALYSIS REPORT		Report Date: 07/01/2024 02:10 pm	
Send To: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118			 Amy Meier Data Review Coordinator	
Results For: Sample ID: Location	GRAND CANYON DAIRY MANURE ERATH COUNTY		Received: Sampled: Invoice No: P.O. #:	06/18/2024 06/14/2024 425820 COREY MULLIN	
			Analysis (dry basis)	Analysis (as rec'd)	Total content lbs per ton (as rec'd)
					Estimated available first year* lbs per ton (as rec'd)
NUTRIENTS					
Nitrogen					
Total Nitrogen	%	2.378	1.184	23.7	12.3
Organic Nitrogen	%	1.940	0.966	19.3	7.9
Ammonium Nitrogen	%	0.438	0.218	4.4	4.4
Nitrate+Nitrite Nitrogen	%	0.004	0.0016	<0.1	<0.1
Major and Secondary Nutrients					
Phosphorus	%	0.660	0.267		
Phosphorus 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 PROPERTIES					
Moisture	%		50.2		
Total Solids	%		49.8	996	
Organic Matter	%	52.2	26.0	520	
Ash	%		23.8	476	
C:N Ratio	ratio		12.7		

* Assumes 41% of organic nitrogen available during first crop year after application. Assumes 100% of ammonium and nitrate nitrogen available, but should be adjusted for potential field losses at application site.

The reported analytical results apply only to the sample as it was supplied.
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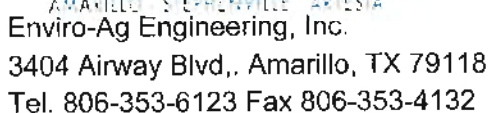
Phone: 806.677.0093
800.557.7509
Fax: 806.677.0329

Lab No: 3696		LABORATORY ANALYSIS REPORT		Report Date: 06/30/2024 08:17 pm																																																																																											
Send To: 6224		ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118		 Amy Meier Data Review Coordinator																																																																																											
Client Name: Sample ID: Location		GRAND CANYON DAIRY RCS #3 ERATH COUNTY		Received: 06/18/2024 Sampled: 06/14/2024 Invoice No: 425818 P.O. #: COREY MULLIN																																																																																											
<table border="1"><thead><tr><th colspan="3">Analysis results</th><th>lbs/acre-in</th><th>meq/L</th></tr></thead><tbody><tr><td colspan="5">NUTRIENTS</td></tr><tr><td colspan="5">Nitrogen</td></tr><tr><td>Total Nitrogen</td><td>46</td><td>ppm</td><td>10</td><td>3.3</td></tr><tr><td>Organic Nitrogen</td><td>26</td><td>ppm</td><td>6</td><td>1.9</td></tr><tr><td>Ammonium Nitrogen</td><td>20.3</td><td>ppm</td><td>5</td><td>1.5</td></tr><tr><td>Nitrate+Nitrite Nitrogen</td><td>0.37</td><td>ppm</td><td>0</td><td><0.1</td></tr><tr><td colspan="5">Major and Secondary Nutrients</td></tr><tr><td>Phosphorus</td><td>20</td><td>ppm</td><td></td><td></td></tr><tr><td>Phosphorus as P2O5</td><td>50</td><td>ppm</td><td>11</td><td></td></tr><tr><td>Potassium</td><td>350</td><td>ppm</td><td></td><td>9.0</td></tr><tr><td>Potassium as K2O</td><td>420</td><td>ppm</td><td>95</td><td></td></tr><tr><td colspan="5">OTHER PROPERTIES</td></tr><tr><td>Moisture</td><td>99.8</td><td>%</td><td></td><td></td></tr><tr><td>Total Solids</td><td>0.2</td><td>%</td><td>453</td><td></td></tr><tr><td>Organic Matter</td><td><0.10</td><td>%</td><td>0</td><td></td></tr><tr><td>Ash</td><td><0.10</td><td>%</td><td></td><td></td></tr><tr><td>C:N Ratio</td><td>12.5</td><td>ratio</td><td></td><td></td></tr></tbody></table>						Analysis results			lbs/acre-in	meq/L	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	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	%	0		Ash	<0.10	%			C:N Ratio	12.5	ratio		
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Received By:

**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 Wheat.

Nutrient Summary:

LMU#	Max N Lb/ac Application Rates	Max P205 Lb/ac Application Rates	Planned N Lb/ac Application Rates	Planned P Lb/ac Application Rates
1	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
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, recordkeeping, and land application.

Waste Utilization and Nutrient Management Plan

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

Waste Utilization and Nutrient Management Plan

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 **2025** and will remain in effect until revision based on new soil or manure analysis or crop change (yield or crop) result in a new P-Index rating or plan classification (NMP-NUP). The waste has been stored in a **Dairy Lagoon**. Approximately **4000** head will be confined with the average weight of **1400** pounds. The animals will be confined **24** hours per day for **365** days per year.

Waste Utilization and Nutrient Management Plan

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.

Waste Utilization and Nutrient Management Plan

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.

Waste Utilization and Nutrient Management Plan

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

Waste Utilization and Nutrient Management Plan

EFFLUENT APPLICATION: (cont)

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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.

Waste Utilization and Nutrient Management Plan

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, 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.

Waste Utilization and Nutrient Management Plan

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 eFOTG

Type: 590 in the Search Menu above eFOTG and click: **GO**

Click on the desired item under Nutrient Management in the left column

SOIL ANALYSIS:

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

Waste Utilization and Nutrient Management Plan

OPERATION AND MAINTENANCE:

Permit #:

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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: 

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.

Waste Utilization and Nutrient Management Plan

Table 1 - Estimated Effluent and Solids Quantities Produced

Permit #: WQ0002950000

Avg. Number of Animals				Type of Waste			
4,000				Dairy Lagoon			
				Dairy Solids			

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

Estimated Acre Inches of Effluent to be Available Annually* 3,590

Estimated Tons Solids to be Land Applied Annually (on or off site)* 29,317.3

*From engineering design.

Estimated Nutrient Availabilty				Estimated Nutrient Availabilty			
Effluent				Solids			
	pounds/yr	Pounds / 1000 gal	Pounds / Acre Inch		pounds / yr	pounds / ton	
N	29,944	0.31	8.3	**	N	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
** Effluent Values Based on Analysis				** Solids Values Based on Analysis			
dated: June 14, 2024				dated: June 14, 2024			

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

Waste Utilization and Nutrient Management Plan

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

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

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

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

- equal to or greater than 200 ppm in non-arid areas ^{2/} or
- equal to or greater than 350 ppm in arid areas ^{2/} with a named stream greater than one mile or
- equal to or greater than 200 ppm in arid areas ^{2/} with a named stream less than one mile.

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

Footnotes Applicable to both Tables

- 1/ Soil test P will be Mehlich III by inductively coupled plasma (ICP).
- 2/ Non-arid areas, counties receiving \Rightarrow 25 inches annual rainfall, will use the 200 ppm P level while arid areas, counties receiving < 25 inches of annual rainfall, will use the 350 ppm P level. See map in TX Agronomy Technical Note 15, Phosphorus Assessment Tool for Texas, for county designations.
- 3/ Not to exceed the annual nitrogen requirement rate.
- 4/ Not to exceed the annual nitrogen removal rate.
- 5/ When soil test phosphorus levels are \geq 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.

PI Index by Field

Printed on: 5/8/25 9:01 AM

This plan is based on: Nutrient Management Plan V 5.0

Permit #: WQ0002950000

Client Name: Grand Canyon Dairy

Date: 5/8/2025

Planner: Stephen Colby

Location: Erath

Rainfall: >25.0 Inches

LMU or Fields	Crop	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 Erosion	Total Index Points	P Runoff Potential	Soil 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
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 6-7T	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 - 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

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Waste Utilization and Nutrient Management Plan

Table 3 - Crop Removal Rates (For Information Only)

Permit #: WQ0002950000

LMU or Field No.	Acres	Crop and P Index Level	TCEQ Plan Type	Actual Crop Analysis or Default	Total Est. N Removal lbs/Ac/Yr	Total Est. P ₂ O ₅ Removal lbs/Ac/Yr	Total Est. K ₂ O Removal lbs/Ac/Yr
1	62.0	Silage - Corn16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214
1A	41.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	NMP	Default	330	104	190
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
3A	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 - Corn16-20T;SG GreenChop-6-7T H	NMP	Default	341	132	214
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**

Waste Utilization and Nutrient Management Plan

Table 4 - Maximum Solids Application per Field

Permit #:

WQ0002950000

Est. Solids Produced Annually (wet tons)	LMU or Field No.	Acres	Crop Management and PI runoff potential	Current Soil Test P Level (ppm)	Max Annual P2O5 lbs/acre	Annual/Biennial	Maximum Solids Allowable Tons/Acre	Maximum Allowable Application Per field (Tons)
29,317	1							
	1A	41.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	194	308	A	20.4	838
	2							
	2A	21.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	140	308	A	20.4	429
	3							
	3A							
	4	60.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	57	308	A	20.4	1226
	5							
	6	62.0	Silage - Corn16-20T;SG GreenChop-6-7T H	146	270	A	17.9	1112
	7	30.0	Silage - Corn16-20T;SG GreenChop-6-7T H	88	270	A	17.9	538
	8	87.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	93	318	A	21.1	1837
	9	20.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	95	318	A	21.1	422
	10	50.0	Silage - Corn16-20T;SG GreenChop-6-7T H	121	270	A	17.9	897
	11	56.0	Silage - Corn16-20T;SG GreenChop-6-7T H	27	270	A	17.9	1004
	12	66.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	207	104	A	6.9	455
12A	30.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	207	156	A	10.3	310	
13	53.0	Silage - Corn16-20T;SG GreenChop-6-7T H	79	270	A	17.9	951	
14	47.0	Silage - Corn16-20T;SG GreenChop-6-7T H	26	270	A	17.9	843	
Total Solids Application Acres								
623								
Application Allowable on-site (tons)								
10861.1								
Not Adequate								
Solids to be used off-site (tons)								
18,456.2								

End of Table 4

Waste Utilization and Nutrient Management Plan

Table 5 - Nutrients Applied/Needs at Maximum Solids Rates

Permit #:

WQ0002950000

LMU / Field #	Nutrients Applied When Application is at Maximum Rates			Supplemental Nutrients Needed When Application is at Maximum Rates			
	N Lb/ac	P ₂ O ₅ 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							
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

Waste Utilization and Nutrient Management Plan

Table 6 - Planned Solids Application Rates

Permit #: **WQ0002950000**

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

Waste Utilization and Nutrient Management Plan

Table 7 - Nutrients Applied/Needed at Planned Solids Rates

Permit #:

WQ0002950000

Red cells? Proceed to adjustment page and fix.

LMU / Field #	Nutrients Applied at Planned Rates			Supplemental Nutrients Needed at Planned Rates			
	N Lb/ac	P ₂ O ₅ 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							
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

Waste Utilization and Nutrient Management Plan

Table 8 - Maximum Effluent Application Per Field

Permit #:

WQ0002950000

Est. Available Effluent (ac inches)	LMU or Field No.	Acres	Double crop	Crop Management and PI runoff potential	Current Soil Test P Level (ppm)	Max Annual P ₂ O ₅ (lbs/acre)	Annual/Biennial	Maximum Effluent Allowable (ac in/ac)	Maximum Effluent Allowable / Field (ac in)
3590	1	62.0		Silage - Corn16-20T;SG GreenChop-6-7T H	194	270	A	26.0	1613
Source:	1A								
Dairy Lagoon	2	62.0		Coastal GC (30%DM) 9-11T; SG GC 6-7T M	140	410	A	39.5	2449
	2A								
	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
	6								
	7								
	8								
	9								
	10								
	11								
	12								
	12A								
	13								
	14								
Total Effluent Application Acres									
411									
Maximum Effluent Application Allowable On-Site (ac in)									
11199									
Adequate									
Effluent to be used Off-Site (ac in)									
0									

End of Table 8

Waste Utilization and Nutrient Management Plan

Table 9 - Nutrients Applied/Needed at Maximum Effluent Rates

Permit #:

WQ0002950000

LMU / Field #	Nutrients Applied When Application is at Maximum Rates			Supplemental Nutrients Needed When Application is at Maximum Rates			
	N Lb/ac	P ₂ O ₅ 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	217	270	2476	260	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							

Waste Utilization and Nutrient Management Plan

Table 10 - Planned 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 1A	62.0		Silage - Corn16-20T;SG GreenChop-6-7T H	194	A	26	30.0	7.8	484
2 2A	62.0		Coastal GC (30%DM) 9-11T; SG GC 6-7T M	140	A	39.5	30.0	11.9	735
3 3A	56.0		Silage - Corn16-20T;SG GreenChop-6-7T M	224	A	12.7	30.0	3.8	213
4 12A	21.0		Coastal GC (30%DM) 9-11T; SG GC 6-7T M	224	A	10	30.0	3.0	63
5 6 7 8 9 10 11 12 13 14	210.0		Coastal GC (30%DM) 9-11T; SG GC 6-7T H	141	A	29.6	34.0	10.1	2113
Acres	411.0								
Will the planned application rates use all of the Effluent?									3607
									YES

Waste Utilization and Nutrient Management Plan

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

Permit #:

WQ0002950000

Red cells? Proceed to adjustment page and fix.

LMU / Field #	Nutrients Applied at Planned Rates			Supplemental Nutrients Needed at Planned Rates			
	N Lb/ac	P ₂ O ₅ 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							
12A							
13							
14							

Waste Utilization and Nutrient Management Plan

Table 12 - Available Water Capacity to 24 inches(or less) of predominant soil in fields receiving effluent and Texture of the most restrictive soil layer in the upper 24 inches Permit #: WQ0002950000

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			
3A	3.52	Clairette Hasse			
4					
5	1.87	Purves Dugout			
6					
7					
8					
9					
10					
11					
12					
12A					
13					
14					

Waste Utilization and Nutrient Management Plan

Table 13 - Non Application Areas by Field

Permit #:

WQ0002950000

FS = 393-Filter Strip; **FB** = 386-Field Border; **RFB** = 391-Riparian Forest Buffer; **OLEA** = Other Land Excluded Area

LMU / Field #	FS Acres	FB Acres	RFB Acres	OLEA Acres	Total Excluded
1	0.0	0.0			
1A	0.0	0.0			
2	0.0	0.0			
2A	0.0	0.0			
3	0.0	0.0			
3A	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			
10	0.0	0.0			
11	0.0	0.0			
12	0.0	0.0			
12A	0.0	0.0			
13	0.0	0.0			
14	0.0	0.0			

See Application Map for location of buffers

Total 590-633 application acres: 1034.0

LMU / Field #	FS Acres	FB Acres	RFB Acres	OLEA Acres	Total Excluded

Totals	0.0	0.0	0.0	0.0	0.0
---------------	-----	-----	-----	-----	-----

Total 590-633 Field Acres: 1034.0

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 : 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 9:26 AM

Plan is based on: 590 Organic Nutrient Management Plan

FS = 393-Filter Strip, FB = 386-Field Border, RFB = 391-Riparian Forest Buffer, OLEA = Other Land Exclusion Areas or non-application areas (i.e. headquarters, freq. flooded areas, wooded areas, water bodies, etc)

NOTE: Field Border (FB) is expressed in ACRES on this spreadsheet, but as LINEAR FEET on the CPO.

[illegible]

Soil Test, Crop Information and Plant Analysis Data Entries

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

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

Permit #: WQ0002950000

[illegible]

Solids Application Rate Entries

Solids - Set the Planned Application Rates

Permit #: WQ

29317 "Wet tons" of solids produced Annually			Will the planned rates use all of the Tons to be used off-site at plann				
LMU or Field No.	Acres	Crop Management and P1 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	Annual	20.4	100.0
2							
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	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	57	205	Annual	20.4	100.0
5							
6	62.0	Silage - Corn16-20T;SG GreenChop-6-7T H	146	180	Annual	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 6-7T M	93	205	Annual	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
11	56.0	Silage - Corn16-20T;SG GreenChop-6-7T H	27	180	Annual	17.9	100.0
12	66.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T M	207	205	Annual	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

Effluent Application Rate Entries

Effluent - Set the Planned Application Rates

Permit #:

WQ0002950000

97493722		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 H	194	180	Annual	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	210.0	Coastal GC (30%DM) 9-11T; SG GC 6-7T H	141	205	Annual	29.6	34.0	10.06	2113
6									
7									
8									
9									
10									
11									
12									
12A									
13									
14									
Total Effluent This Page									3607

[illegible]

Plan is based on: 590 Organic Nutrient Management Pla

Permit #: WQ0002950000

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): 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 = decisiemens per meter, equivalent to millimhos per centimeter (mmhols/cm); SU = standard units.

C. Certification

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

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: 10/24/2024

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 (NO ₃ -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 = decisiemens per meter, equivalent to millimhos per centimeter (mmhols/cm); SU = standard units.

C. Certification

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

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: 10/24/2024

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 (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

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

C. Certification

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

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: 10/24/2024

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 = decisiemens per meter, equivalent to millimhos per centimeter (mmhols/cm); SU = standard units.

C. Certification

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

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: 10/24/2024

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			

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

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

C. Certification

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

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: 10/24/2024

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

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

C. Certification

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

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: 10/24/2024

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

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

C. Certification

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

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: 10/24/2024

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

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

C. Certification

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

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: 10/24/2024

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

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

C. Certification

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

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: 10/24/2024

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 (NO ₃ -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 = decisiemens per meter, equivalent to millimhos per centimeter (mmhols/cm); SU = standard units.

C. Certification

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

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): 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

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

C. Certification

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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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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 (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	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 = decisiemens per meter, equivalent to millimhos per centimeter (mmhols/cm); SU = standard units.

C. Certification

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

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): 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	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

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

C. Certification

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

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): 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 = decisiemens per meter, equivalent to millimhos per centimeter (mmhols/cm); SU = standard units.

C. Certification

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

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

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

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



Chain of Custody Record

55810 24

Location:

Grand Canyon

Permit #:

2950

Region:

Organization #:

PCA Code:

Program:

WQ

Sampler telephone number:

(254) 552-1900

E-Mail ID:

Sampler: (signature)

Vanessa Gardner

Sampler: (please print clearly)

Vanessa Gardner

Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/Comp.	Matrix L,S,M,O,T	CL2	pH	Cond	Analyses Requested	REMARKS
14272	-01	10-24-24	12:00							SPP RFA	Lmu1 0-b
14273	-02		12:00								Lmu1 6-24
14274	-03		12:35								Lmu2 0-b
14275	-04		12:35								Lmu2 6-24
14276	-05		13:15								Lmu3 0-b
14277	-06		13:15								Lmu3 6-24
14278	-07		10:40								Lmu4 0-b
14281	-08		10:40								Lmu4 6-24
14282	-09		11:00								Lmu5 0-b
14283	-10		11:00								Lmu5 6-24

Relinquished by:

Date

Time

Received by:

11-29-24

For Laboratory Use:

Relinquished by:

Date

Time

Received by:

Received on ice:

Y

N

deg. C

Relinquished by:

Date

Time

Received by:

Preservatives:

Y

N

Relinquished by:

Date

Time

Received by:

COC Seal:

Y

N

Shipper name:

Fld Ex

Shipper Number:

7916 4468

1375

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	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	TLP
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	6-24	10/24/2024	Vanessa Gardner	4	11/19/2024	soil	11/25/2024	12/4/2024	TLP
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 pulverizer fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

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

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses

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

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.), Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na -- Mehlich III by ICP

M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055810a-45667

Print Date: 10-Jan-25

Standard Sample Report

TCEQ COC# 055810

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
14272	55810-01	194	ppm	568	ppm	5318	ppm	363	ppm	56.7	ppm	31.8	ppm
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	ppm	462	ppm	96.5	ppm	31.9	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III 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: 055810a-45667 Print Date: 10-Jan-25
 Standard Sample Report TCEQ COC# 055810

Laboratory ID:	TCEQ/client	pH	pH	Conductivity	Conductivity	Nitrate-N	Nitrate-N
	Sample ID:		units		units		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:	pH	pH	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/Conductivity prep		pH Analysis		Conductivity		Nitrate-N Extract		Nitrate-N Analysis	
	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	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

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
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	ppm	0	ppm	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 P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III 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

Report ID: 055810a-45667

Print Date: 10-Jan-25

Quality Control Report

TCEQ COC# 055810

Laboratory ID:		pH	pH units	Conductivity conc.	Conductivity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % 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	na	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	
	IC Upper	5.990	na	0.299	dS/M	5.5	ppm	
	blk221	-	na	0	dS/M	0.614	ppm	

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

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitrate-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	DEC	12/16/2024	DEC	12/16/2024	FMR	12/17/2024	JW
blk221	12/18/2024	DEC	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 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	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	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 pulverizer fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

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

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses

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

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na -- Mehlich III by ICP

M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055810b-45667
Standard Sample Report

Print Date: 10-Jan-25
TCEQ COC# 055810

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
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	ppm	334	ppm	12949	ppm	380	ppm	111	ppm	107	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III 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

Report ID: 055810b-45667 Print Date: 10-Jan-25
 Standard Sample Report TCEQ COC# 055810

Laboratory ID:	TCEQ/client	pH	pH	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:	pH	pH	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/Conductivity prep		pH Analysis		Conductivity		Nitrate-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
Quality Control Report

Print Date: 10-Jan-25
TCEQ COC# 055810

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
14299	IC1027	47.5	ppm	328	ppm	2459	ppm	360	ppm	40.5	ppm	107	ppm
14300	IC1028	48.5	ppm	318	ppm	2386	ppm	348	ppm	40.0	ppm	105	ppm
	Mean IC	0	ppm	0	ppm	0	ppm	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 P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III 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: 055810b-45667

Print Date: 10-Jan-25

Quality Control Report

TCEQ COC# 055810

Laboratory ID:		pH	pH units	Conductivity conc.	Conductivity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
14299	IC1027	5.9	na	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	na	0.299	dS/M	5.5	ppm	
	blk221	-	na	0	dS/M	0.614	ppm	

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

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitrate-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



Chain of Custody Record

55811 ²⁴

Location:

Grand Canyon

(Do not fill in this shaded area if the facility information must be confidential)

Permit #:

2950

Region:

Organization #:

PCA Code:

Program:

WQ

Sampler telephone number:

(254) 552-1900

E-Mail ID:

Sampler: (signature)

Vanessa Gardner

Sampler: (please print clearly)

Vanessa Gardner

Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/ Comp.	Matrix L,S,M,O,T	CL2	pH	Cond	Analyses Requested	REMARKS
14284	-01	10/24/24	13:55							SPP RFA	Lmu6 0-6
14285	-02	10/24/24	13:55								Lmu6 6-24
14286	-03	10/24/24	13:30								Lmu7 0-6
14287	-04	10/24/24	13:30								Lmu7 6-24
14288	-05	10/24/24	10:00								Lmu8 0-6
14289	-06	10/24/24	10:00								Lmu8 6-24
14290	-07	10/24/24	14:25								Lmu9 0-6
14291	-08	10/24/24	14:25								Lmu9 6-24
14292	-09	10/28/24	14:10								Lmu10 0-6
14293	-10	10/28/24	14:10								Lmu10 6-24

Relinquished by:	Date	Time	Received by:	For Laboratory Use:
			11-19-24	
Relinquished by:	Date	Time	Received by:	Received on ice: Y N deg. C
Relinquished by:	Date	Time	Received by:	Preservatives: Y N
Relinquished by:	Date	Time	Received by:	COC Seal: Y N
Shipper name:	Shipper Number:			Seals Intact: Y N
FLD Ex	7915 4468 1375			

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 ID:	Sample Depth (inches)	Sample Coll. Date:	Collector Name:	TCEQ Region #	Date Received	Sample Type:	Sample opened Date	Sample Ground Date	Process 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	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 pulverized fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

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

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses

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

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na - Mehlich III by ICP

M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055811a-45667

Print Date: 10-Jan-25

Standard Sample Report

TCEQ COC# 055811

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
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	ppm
14288	55811-05	93.2	ppm	404	ppm	14697	ppm	239	ppm	125	ppm	13.2	ppm
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	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	ppm	40.6	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal. Date	Mehlich III 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: 055811a-45667

Print Date: 10-Jan-25

Standard Sample Report

TCEQ COC# 055811

Laboratory ID:	TCEQ/client	pH	pH	Conductivity	Conductivity	Nitrate-N	Nitrate-N
	Sample ID:		units		units		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	55811-04	7.64	NA	0.104	dS/M	5.106	ppm
14288	55811-05	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:	pH	pH	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/Conductivity prep		pH Analysis		Conductivity		Nitrate-N Extract		Nitrate-N Analysis	
	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 P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
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	ppm	0	ppm	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 P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III 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:		pH	pH units	Conductivity conc.	Conductivity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
14299	IC1027	5.9	na	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	na	0.299	dS/M	5.5	ppm	
	blk221	-	na	0	dS/M	0.614	ppm	

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

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitrate-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



Chain of Custody Record

55812

24

Location:

Grand Canyon

(Do not fill in this shaded area if the facility information must be confidential)

Permit #:

2950

Region:

Organization #:

PCA Code:

Program:

WQ

Sampler telephone number:

(254) 552 1900

E-Mail ID:

Sampler: (signature)

Vanessa Gardner

Sampler: (please print clearly)

Vanessa Gardner

Lab ID Number	Sample ID	Date	Time	# of Bottles	Grab/ Comp.	Matrix L,S,M,O,T	CL2	pH	Cond	Analyses Requested	REMARKS
14294	-01	10/28/24	10:30							SPE RFA	LMU 11 0-6
14295	-02	10-28-24	1430								LMU 11 6-24
14296	-03	10/28/24	1110								LMU 12 0-6
14297	-04	10/28/24	1110								LMU 12 6-24
14298	-05	10/28/24	1230								LMU 13 0-6
14301	-06	10/28/24	1230								LMU 13 6-24
14302	-07	10/28/24	1040								LMU 14 0-6
14303	-08	10/28/24	1040								LMU 14 6-24
	-09										
	-10										

Relinquished by:

Date

Time

Received by:

11-19-24

For Laboratory Use:

Relinquished by:

Date

Time

Received by:

Received on ice:

Y

N

deg. C

Relinquished by:

Date

Time

Received by:

Preservatives:

Y

N

Relinquished by:

Date

Time

Received by:

COC Seal:

Y

N

Shipper name:

FBI Ex

Shipper Number:

795 4468 1375

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 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	TLP
14298	55812-05	0-6	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 pulverizer fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

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

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses

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

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na - Mehlich III by ICP

M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055812a-45667

Print Date: 10-Jan-25

Standard Sample Report

TCEQ COC# 055812

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
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	ppm	242	ppm	3127	ppm	204	ppm	34.0	ppm	12.6	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III 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-45687

Print Date: 10-Jan-25

Standard Sample Report

TCEQ COC# 055812

Laboratory ID:	TCEQ/client	pH	pH	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	ppm

Laboratory ID:	pH	pH	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/Conductivity prep		pH Analysis		Conductivity		Nitrate-N 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

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
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	ppm	0	ppm	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 P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III 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

Print Date: 10-Jan-25

Quality Control Report

TCEQ COC# 055812

Laboratory ID:		pH	pH units	Conductivity conc.	Conductivity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
14299	IC1027	5.9	na	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	na	0.299	dS/M	5.5	ppm	
	blk221	-	na	0	dS/M	0.614	ppm	

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

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitrate-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 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	TLP
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 pulverizer fitted with a shaking 2mm screen. Every attempt was again made to remove any remaining plant tissue in the pulverized sample(s). Soil was then transferred to the laboratory sample cups and while additional sample was stored.

Analytical Methods:

Soil pH 2:1 DI water:soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

Schofield, R.K. and A.W. Taylor. 1955. The measurement of soil pH. Soil Sci. Soc. Am. Proc. 19:164-167.

Soil Conductivity 2:1 DI Water:Soil

SOIL pH AND CONDUCTIVITY - SWFTL0015R1.SOP

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

Soil Nitrate-N KCl Extractable with Cd-Reduction Analyses

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

Keeney, D.R. and D.W. Nelson. 1982. Nitrogen - inorganic forms. p. 643-687. In: A.L. Page, et al. (ed.). Methods of Soil Analysis: Part 2. Agronomy Monogr. 9. 2nd ed. ASA and SSSA, Madison, WI.

Soil P, K, Ca, Mg, S and Na - Mehlich III by ICP

M3 EXTRACTION - SWFTL0079R1.SOP/M3 ANALYSIS - SWFTL0081R2.SOP

Mehlich-3 soil test extractant: a modification of Mehlich-2 extractant. Commun. Soil Sci. Plant Anal. 15(12):1409-1416

Report ID: 055812b-45667
Standard Sample Report

Print Date: 10-Jan-25
TCEQ COC# 055812

Laboratory ID:	TCEQ/client Sample ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg units	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
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 P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Sample ID:	Mehlich III Extract Date	Mehlich III Extract Tech	Mehlich III Anal. Date	Mehlich III 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-45667 Print Date: 10-Jan-25
Standard Sample Report TCEQ COC# 055812

Laboratory ID:	TCEQ/client Sample ID:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
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:	pH	pH units	Conductivity	Conductivity units	Nitrate-N	Nitrate-N units
Detection Limit	0.01	na	0.001	dS/M	0.01	ppm
Reporting Limit	0.1	na	0.001	dS/M	1	ppm

Laboratory ID:	TCEQ/client Sample ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitrate-N Extract		Nitrate-N Analysis	
		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	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

Laboratory ID:		Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
14319	IC1029	46.8	ppm	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	0	ppm	0	ppm	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
	bik222	<0.237	ppm	0.142	ppm	<0.0436	ppm	<0.0250	ppm	<0.0100	ppm	0.493	ppm

Laboratory ID:	Mehlich III P conc.	Mehlich III P units	Mehlich III K conc.	Mehlich III K units	Mehlich III Ca conc.	Mehlich III Ca units	Mehlich III Mg conc.	Mehlich III Mg conc.	Mehlich III S conc.	Mehlich III S units	Mehlich III Na conc.	Mehlich III Na units
Detection Limit	0.2367	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 Extract Date	Mehlich III Extract Tech	Mehlich III Anal.Date	Mehlich III Anal. Tech
IC1029	1/8/2025	FMR	1/9/2025	JLP
IC1030	1/8/2025	FMR	1/9/2025	JLP
bik222	1/8/2025	FMR	1/9/2025	JLP

Report ID: 055812b-45667

Print Date: 10-Jan-25

Quality Control Report

TCEQ COC# 055812

Laboratory ID:		pH	pH units	Conductivity conc.	Conductivity units	Nitrate-N conc.	Nitrate-N units	Nitrate-N % recovery
14319	IC1029	5.9	na	0.256	dS/M	4.759	ppm	
14320	IC1030	5.9	na	0.254	dS/M	4.704	ppm	
	Mean IC	5.875	na	0.255	dS/M	4.7315	ppm	
14320spike	Spiked sample	-	-	-	-	3.9	ppm	88.6
	IC lower	5.760	na	0.241	dS/M	3.5	ppm	
	IC Upper	5.990	na	0.299	dS/M	5.5	ppm	
	blk222	-	na	0	dS/M	0.694	ppm	

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

Laboratory ID:	pH/Conductivity prep		pH Analysis		Conductivity		Nitrate-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	JW
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 Dairy2179 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.





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800.557.7509
Fax: 806.677.0329

Lab No.: 3753		LABORATORY ANALYSIS REPORT		Report Date: 07/01/2024 02:10 pm	
Send To: 6224	ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118			 Amy Meier Data Review Coordinator	
Results For: Sample ID: Location	GRAND CANYON DAIRY MANURE ERATH COUNTY	Received: Sampled: Invoice No: P.O. #:	06/18/2024 06/14/2024 425820 COREY MULLIN		
		Analysis (dry basis)	Analysis (as rec'd)	Total content lbs per ton (as rec'd)	Estimated available first year* lbs per ton (as rec'd)
NUTRIENTS					
Nitrogen					
Total Nitrogen	%	2.378	1.184	23.7	12.3
Organic Nitrogen	%	1.940	0.966	19.3	7.9
Ammonium Nitrogen	%	0.438	0.218	4.4	4.4
Nitrate+Nitrite Nitrogen	%	0.004	0.0016	<0.1	<0.1
Major and Secondary Nutrients					
Phosphorus	%	0.660	0.267		
Phosphorus 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 PROPERTIES					
Moisture	%		50.2		
Total Solids	%		49.8	996	
Organic Matter	%	52.2	26.0	520	
Ash	%		23.8	476	
C:N Ratio	ratio		12.7		

* Assumes 41% of organic nitrogen available during first crop year after application. Assumes 100% of ammonium and nitrate nitrogen available, but should be adjusted for potential field losses at application site.

The reported analytical results apply only to the sample as it was supplied.
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Page 1 of 1

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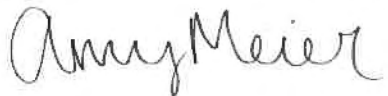


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800.557.7509

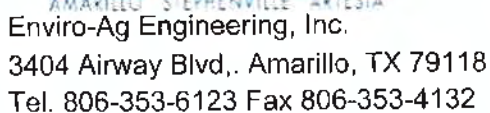
Fax: 806.677.0329

Lab No: 3696		LABORATORY ANALYSIS REPORT		Report Date: 06/30/2024 08:17 pm	
Send To: 6224		ENVIRO-AG ENGINEERING INC 3404 AIRWAY BLVD AMARILLO, TX 79118		 Amy Meier Data Review Coordinator	
Client Name: Sample ID: Location		GRAND CANYON DAIRY RCS #3 ERATH COUNTY		Received: 06/18/2024 Sampled: 06/14/2024 Invoice No: 425818 P.O. #: COREY MULLIN	
Analysis results		lbs/acre-in		meq/L	
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	
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	%	0		
Ash	<0.10	%			
C:N Ratio	12.5	ratio			

The reported analytical results apply only to the sample as it was supplied.
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Page 1 of 1

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Received By: infused 13.1/13.1

5.0 RECHARGE FEATURE CERTIFICATION

CERTIFICATION

I certify that potential Recharge Features in the form of artificial penetrations and natural features exist on property utilized under this application as defined in 30 TAC §321.32(50). The protective measures in the form of best management practices identified in this report, when implemented, are designed to avoid adverse impacts to these features and associated groundwater formations.

All information presented on this page and in the following supporting documents is true and accurate to the best of my knowledge.



Norman Mullin, P.E.

Enviro-Ag Engineering, Inc.

Firm #F-2507

5.1 General

This recharge feature certification report was authorized by Mr. 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 2.1 A-B.

The second process of wastewater production involves the accumulation of manure solids in the open confinement lots. Rain falling on the open lots comes into contact with the manure layer and absorbs some of the excreted nutrients present in manure. The nutrient enriched runoff is considered wastewater, which flows by designed slopes from the open lots toward the settling basins and into the RCSs.

Manure solids accumulated in the open confinement lots are collected at least annually and hauled off-site to farmland by a waste transporter. While in the open lots, manure becomes compacted and slowly permeable due to hoof action by the cattle. This compacted manure layer results in an increase of the overall runoff volume during rainfall events. Infiltration of nutrients downward through the manure layer into the underlying soils is considered minimal as a result of pen surface compaction (Sweeten, 1990).

5.5 Definition of Recharge Feature

TCEQ rules define a "Recharge Feature" as: *"Those natural or artificial features either on or beneath the ground surface at the site under evaluation that provide or create a significant hydrologic connection between the ground surface and the underlying groundwater within an aquifer. Significant artificial features include, but are not limited to, wells and excavation or material pits. Significant natural hydrologic connections include, but are not limited to: faults, fractures, sinkholes or other macro pores that allow direct surface infiltration; a permeable or shallow soil material that overlies and aquifer; exposed geologic formations that are identified as an aquifer; or a water course bisecting an aquifer."* (30 TAC §321.32(50))

The TCEQ Regulatory Guidance RG-433 further defines a "recharge feature" as: *"A natural or artificial feature either on or beneath the ground surface that provides or creates a significant hydrologic connection (or pathway) between the ground surface and the underlying groundwater within an aquifer."*

The guidance document also defines a "significant pathway" as: *"A significant pathway between the land surface and the subsurface has the ability to transmit waste, wastewater, or precipitation mixed with waste to groundwater. The wastewater may impact the groundwater quality within an aquifer or migrate laterally to discharge as seeps that may impact surface water quality. Recharge features with significant pathways include geomorphologic, geologic, soil, and artificial features. Agricultural practices may also enhance existing recharge features."*

EVALUATION OF NATURAL FEATURES

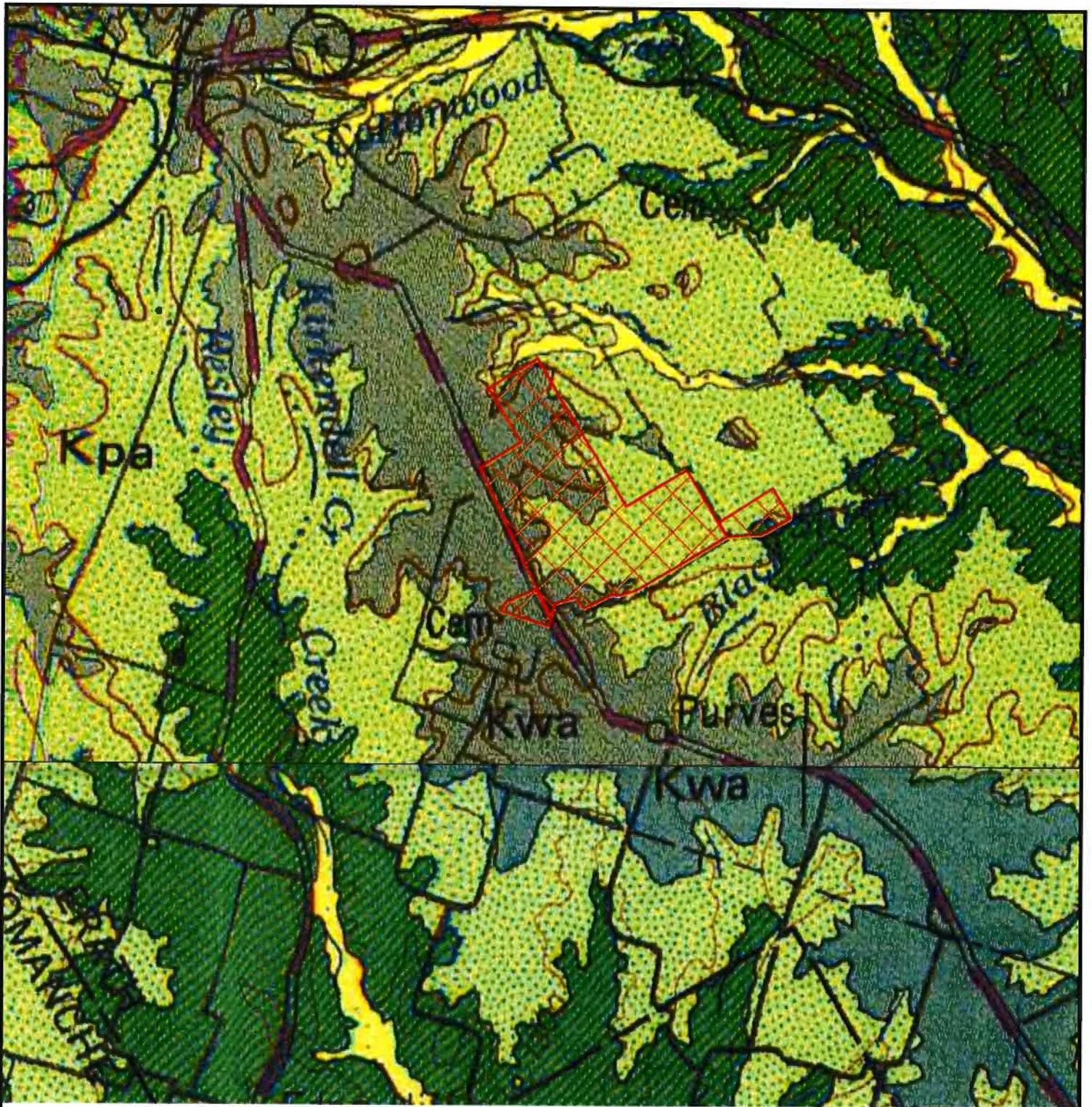
5.6 Geomorphologic/Geologic Features

The Malotterre-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 from 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).



Map Generated 2/13/2025

Legend:

- XXXXXX Denotes Facility
- Kpa - Cretaceous Paluxy Formation
- Kwa - Cretaceous Walnut Formation
- Kgr - Cretaceous Glen Rose Formation

Sources: Geologic Atlas of Texas,
Abilene Sheet, 1972.



No Scale

Grand Canyon Dairy
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Geologic Atlas of Texas
Figure 5.1
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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 from 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), Bastil (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	C	0-14 14-40	Clay Loam	0.6-2.0 0.06-0.6	0.15-0.20 0.12-0.20
Bolar- (BdC)	3-5	C	0-16 16-32	Clay Loam	0.6-2.0 0.6-2.0	0.17-0.21 0.16-0.20
Denton	3-5	D	0-10 10-28	Silty Clay Loam	0.06-0.20 0.06-0.20	0.11-0.15 0.09-0.14
Bastil (BsB)	1-3	B	0-8 8-15 15-34	Fine Sandy Loam	2.0-6.0 2.0-6.0 0.6-2.0	0.12-0.16 0.12-0.16 0.12-0.16
Bastil (BsC)	3-5	B	0-9 9-15 15-38	Fine Sandy Loam	2.0-6.0 2.0-6.0 0.6-2.0	0.12-0.16 0.12-0.16 0.12-0.16
Bastil (BtB)	1-3	B	0-6 6-17 17-27	Loamy Fine Sand	2.0-20 2.0-2.0 0.6-2.0	0.07-0.11 0.07-0.11 0.12-0.16
Bunyan (Bu)	—	B	0-10 10-46	Fine Sandy Loam	2.0-6.0 0.6-2.0	0.11-0.15 0.15-0.19
Clairette (CtB)	1-3	C	0-4 4-10 10-26	Very Fine Sandy Loam	2.0-6.0 0.6-2.0 0.20-0.6	0.10-0.17 0.15-0.19 0.10-0.18
Hassee	1-3	D	0-5 5-14 14-35	Very Fine Sandy Loam	0.6-2.0 0.6-2.0 .001-0.06	0.10-0.14 0.07-0.12 0.06-0.10
Clairette (CtC)	3-5	C	0-4 4-10 10-26	Loam	0.6-2.0 0.6-2.0 0.20-0.6	0.15-0.19 0.15-0.19 0.10-0.18
Denton (DeB)	1-3	C	0-13 13-19 19-36	Silty Clay	0.06-0.20 0.06-0.6 0.20-2.0	0.10-0.18 0.10-0.18 0.10-0.14
Fairy – FhC2	1-5	B	0-13 13-45	Very Fine Sandy Loam	2.0-6.0 0.6-2.0	0.10-0.17 0.05-0.17
Hico		B	0-12 12-51	Fine Sandy Loam	2.0-6.0 0.6-2.0	0.10-0.15 0.05-0.17
Frio (FriA)	0-1	C	0-22 22-40	Silty Clay	0.20-0.6 0.20-0.6	0.12-0.20 0.08-0.16
Slidell (HoB)	1-3	D	0-19 19-32	Clay	.001-0.06 .001-0.06	0.10-0.18 0.10-0.18
Hico (HwD3)	1-8	B	0-7 7-44	Sandy Clay Loam	2.0-6.0 0.06-2.0	0.11-0.13 0.11-0.13
Windthorst		C	0-6 6-16 16-25	Sandy Clay Loam	0.20-2.0 0.20-0.6 0.20-0.6	0.11-0.14 0.15-0.19 0.16-0.20

Topsey (LaB)	1-3	C	0-7 7-27	Loam	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	B	0-16 16-42	Fine Sandy Loam	2.0-6.0 0.6-2.0	0.11-0.15 0.12-0.20
Purves (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	C	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	C	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	C	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, 11	Denton (DeB)
12, 12A, 13	Windthorst (WnC)
2	Clairette-Hassee (CtB)

Table 5.3: Potential Soil Limitations for Land Application

Soil Series	Potential Soil Limitations	Best Management Practices
BdC	Depth to Hard Bedrock Slow Water Movement	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> -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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - 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
Ma	Depth to Bedrock Droughty	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> -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	<ul style="list-style-type: none"> -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	<ul style="list-style-type: none"> - 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	<ul style="list-style-type: none"> - Land Application will be based upon the AWC (refer to NMP) of the soil and will not exceed agronomic rates for nutrients.

Soil Series	Potential Soil Limitations	Best Management Practices
	Large Stones on the Surface	<ul style="list-style-type: none"> - 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

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.



Map Generated 2/13/2025

LEGEND:

 Denotes Production Areas

For specifics on soils, refer to Table 5.1



SCALED AS SHOWN

Source: USDA-NRCS. Soil Survey, Soil Survey Geographic Database for Erath County, Texas. Available at: <http://soildatamart.nrcs.usda.gov>. Accessed December 2017.

• Refer to Figures 1.3A-B & 1.4A-B for overall facility map.

Grand Canyon Dairy
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NRCS Soils Map
Figure 5.2
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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 the 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.

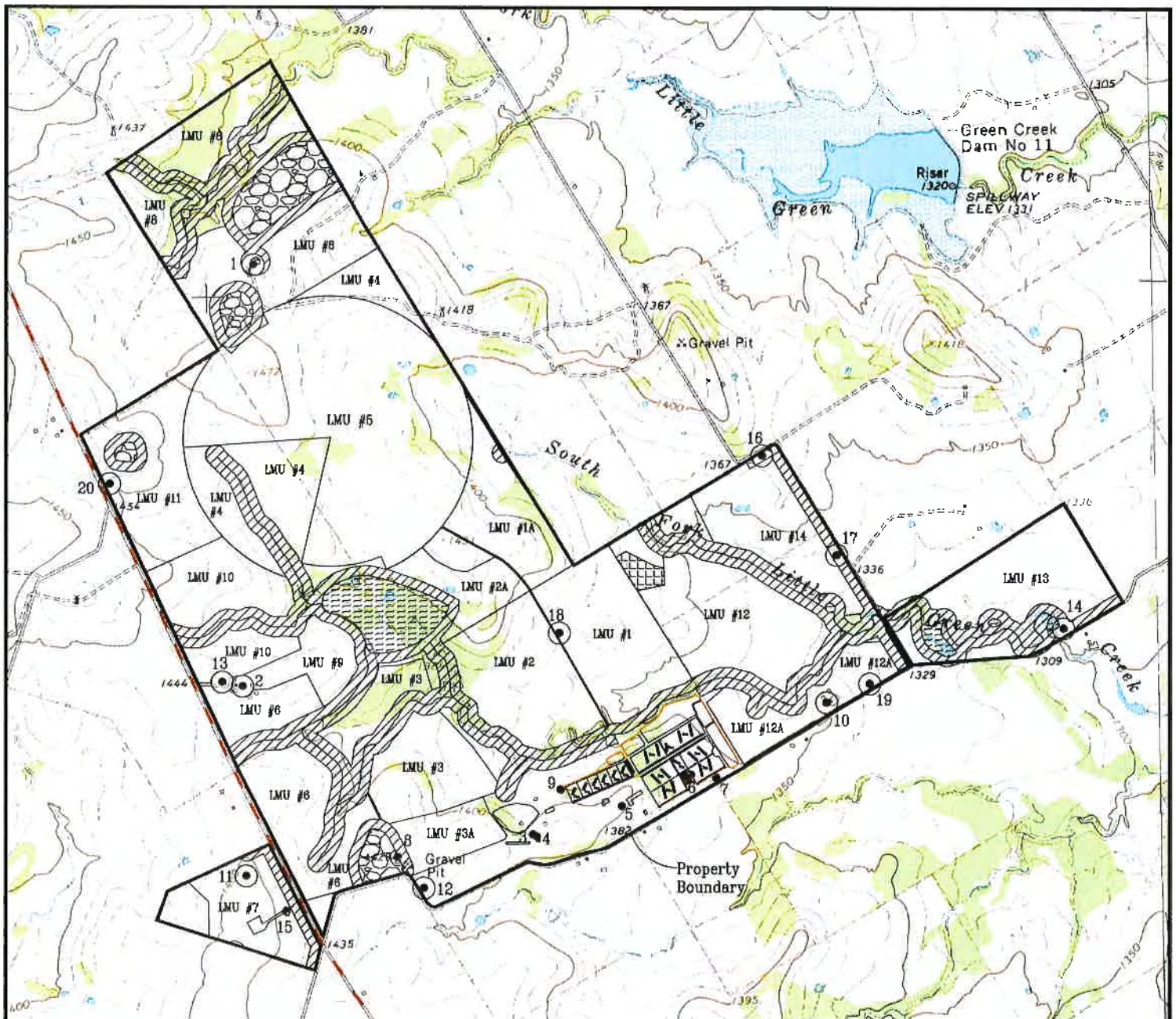
Table 5.4: Well Information

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 buffer
20	n/a	• Maintain 100-ft buffer.

Note: A copy of the well logs for onsite wells are attached.

No public water supply wells are located within 500 feet of the property boundary. All off-site wells within the required buffer distances required by this authorization are shown (on the Site Map) with their appropriate buffers. Wells outside the required buffer distances are shown for reference only.

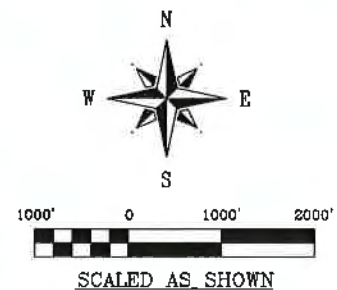
All irrigation systems or water distribution systems into which any type of chemical or foreign substance, such as wastewater, is distributed into the water pumped from the well are required by 16 TAC §76 to install an in-line, automatic quick-closing check valve capable of preventing pollution of groundwater.



Map Generated 2/13/2025

LEGEND:

- ⊕ Denotes Plugged/No Evidence Well
- Denotes Water Well
- ⊙ Denotes Water Well with 100' or 150' Buffer
- ▨ Denotes Caliche Pit
- ▧ Denotes Surface Water
- ▩ Denotes Burial Site
- ▨ Denotes 136' Buffer Zone



Source: USDA-NRCS. Geospatial Data Gateway. Available at: <http://datagateway.nrcs.usda.gov/>. Digital Raster Graphic County Mosaic by NRCS - Accessed December 2017.

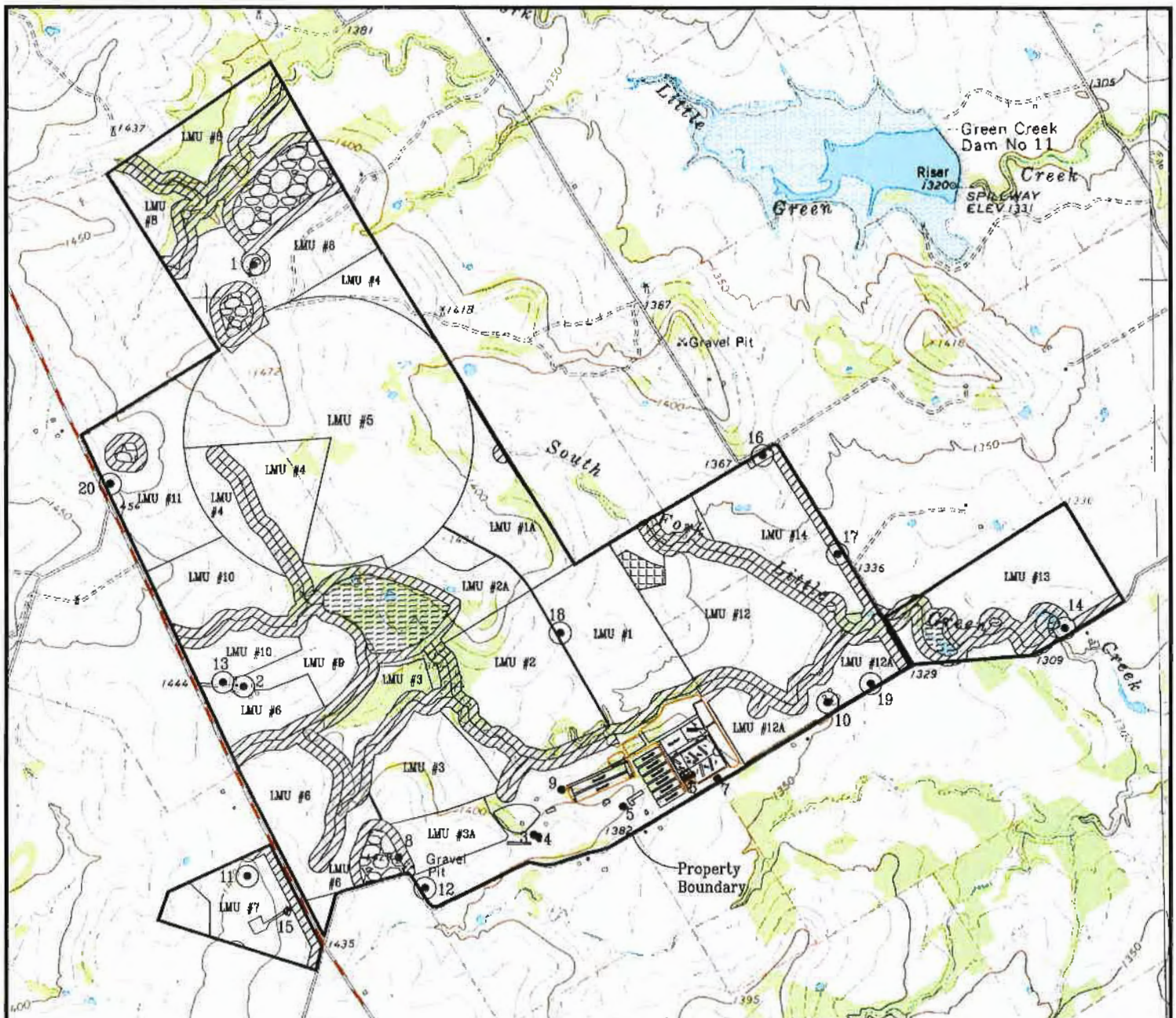
- Refer to Figures 1.4A-B for a detailed production area map.

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Recharge Feature Map
Figure 5.3A
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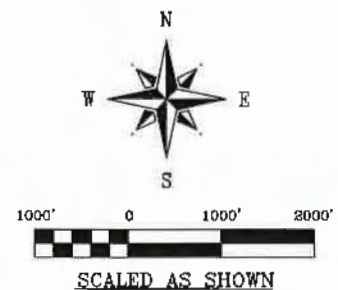
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Map Generated 2/13/2025

LEGEND:

- Denotes Plugged/No Evidence Well
- Denotes Water Well
- Denotes Water Well with 100' or 150' Buffer
- ▨ Denotes Caliche Pit
- ▨ Denotes Surface Water
- ▨ Denotes Burial Site
- ▨ Denotes 136' Buffer Zone



Source: USDA-NRCS. Geospatial Data Gateway. Available at: <http://datagateway.nrcs.usda.gov/>. Digital Raster Graphic County Mosaic by NRCS - Accessed December 2017.

• Refer to Figures 1.4A-B for a detailed production area map.

Grand Canyon Dairy
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Recharge Feature Map
Figure 5.3B
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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)

Selected Soil Interpretations

This report allows the customer to produce a report showing the results of the soil interpretation(s) of his or her choice. It is useful when a standard report that displays the results of the selected interpretation(s) is not available.

When customers select this report, they are presented with a list of interpretations with results for the selected map units. The customer may select up to three interpretations to be presented in table format.

For a description of the particular interpretations and their criteria, use the "Selected Survey Area Interpretation Descriptions" report.

Report—Selected Soil Interpretations

Selected Soil Interpretations—Erath County, Texas							
Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BaB—Blanket clay loam, 1 to 3 percent slopes	90	Somewhat limited		Somewhat limited		Somewhat limited	
Blanket		Slow water movement	0.37	Slow water movement	0.37	Seepage	0.50
BdC—Bolar-Denton complex 3 to 5 percent slopes	55	Somewhat limited		Somewhat limited		Very limited	
Bolar		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—Bastil fine sandy loam, 1 to 3 percent slopes	90	Somewhat limited		Somewhat limited		Very limited	
Bastil, fine sandy loam		Too acid	0.01	Too acid	0.01	Seepage	1.00

Selected Soil Interpretations---Erath County, Texas							
Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
BsC---Bastsil fine sandy loam, 3 to 5 percent slopes	85						
Bastsil, fine sandy loam		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	85						
Bastsil, loamy fine sand		Somewhat limited		Somewhat limited		Very limited	
		Too acid	0.03	Too acid	0.03	Seepage	1.00
Bu---Bunyan fine sandy loam, occasionally flooded	80						
Bunyan		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	50						
Clairette, very fine sandy loam		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	90						
Clairette, loam		Somewhat limited		Somewhat limited		Somewhat limited	
		Slow water movement	0.37	Slow water movement	0.37	Seepage	0.50
		Too steep for surface application	0.08			Slope	0.32

Selected Soil Interpretations--Erath County, Texas							
Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
DeB--Denton silty clay, 1 to 3 percent slopes Denton	85	Very limited Slow water movement	1.00	Very limited Slow water movement	1.00	Somewhat limited 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 Slow water movement	1.00	Very limited Slow water movement	1.00	Very limited 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 Flooding	0.60	Very limited Flooding	1.00	Very limited 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 Slow water movement	1.00	Very limited Slow water movement	1.00	Not limited	

Selected Soil Interpretations---Erath County, Texas							
Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
HwD3---Hico and Windthorst sandy clay loams, 1 to 8 percent slopes, severely eroded	50	Somewhat limited		Somewhat limited		Somewhat limited	
Hico, severely eroded		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		
LaB---Topsey loam, 1 to 3 percent slopes	90			Droughty	0.03		
Topsey		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		
Ma---Maloterre gravelly clay loam, 1 to 8 percent slopes	80			Slow water movement	0.37		
Maloterre		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
MfB---May fine sandy loam, 1 to 3 percent slopes	90						
May, fine sandy loam		Too steep for surface application	0.32				
		Not limited		Not limited		Very limited	
						Seepage	1.00

Selected Soil Interpretations--Erath County, Texas							
Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
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				

Selected Soil Interpretations--Erath County, Texas							
Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
Pd---Purves-Dugout- Maloterre complex, 1 to 20 percent slopes Purves, stony clay	37	Very limited		Very limited		Very limited	
		Droughty	1.00	Droughty	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.08
		Slow water movement	1.00	Slow water movement	1.00		
		Large stones on the surface	1.00	Large stones on the surface	1.00		
		Seepage, porous bedrock	0.50				
Dugout, gravelly clay loam	25	Very limited		Very limited		Very limited	
		Depth to bedrock	1.00	Depth to bedrock	1.00	Depth to hard bedrock	1.00
		Droughty	1.00	Droughty	1.00	Slope	0.68
		Seepage, porous bedrock	0.50	Slow water movement	0.37	Seepage	0.21
		Slow water movement	0.37				
		Too steep for surface application	0.32				
Maloterre, gravelly clay loam	22	Very limited		Very limited		Very limited	
		Slow water movement	1.00	Slow water movement	1.00	Depth to hard bedrock	1.00
		Depth to bedrock	1.00	Depth to bedrock	1.00	Slope	0.32
		Droughty	1.00	Droughty	1.00		
		Seepage, porous bedrock	0.50				
		Too steep for surface application	0.08				
WnC---Windthorst loamy fine sand, 1 to 5 percent slopes Windthorst	90	Very limited		Very limited		Somewhat limited	
		Filtering capacity	1.00	Filtering capacity	1.00	Seepage	0.50
		Slow water movement	0.37	Slow water movement	0.37	Slope	0.08
		Too acid	0.08	Too acid	0.08		

Selected Soil Interpretations--Erath County, Texas							
Map symbol and soil name	Pct. of map unit	AWM - Irrigation Disposal of Wastewater		AWM - Land Application of Municipal Sewage Sludge		ENG - Sewage Lagoons	
		Rating class and limiting features	Value	Rating class and limiting features	Value	Rating class and limiting features	Value
WoB--Windthorst very fine sandy loam, 1 to 5 percent slopes	85						
Windthorst, very fine sandy loam		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	85						
Windthorst, moderately eroded		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.

RUSLE2 Related Attributes—Erath County, Texas								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
BaB—Blanket clay loam, 1 to 3 percent slopes								
Blanket	90	298	C	.32	5	25.0	44.0	31.0
BdC—Bolar-Denton complex 3 to 5 percent slopes								
Bolar	55	180	C	.20	2	34.0	36.0	30.0
Denton	35	200	D	.17	2	6.0	48.0	46.0
BsB—Bastil fine sandy loam, 1 to 3 percent slopes								
Bastil, fine sandy loam	90	200	B	.28	5	73.0	19.0	8.0
BsC—Bastil fine sandy loam, 3 to 5 percent slopes								
Bastil, fine sandy loam	85	180	B	.28	5	73.0	19.0	8.0
BtB—Bastil loamy fine sand, 1 to 3 percent slopes								
Bastil, loamy fine sand	85	200	B	.24	5	80.0	12.0	8.0
Bu—Bunyan fine sandy loam, occasionally flooded								
Bunyan	80	98	B	.28	5	69.6	16.4	14.0
CtB—Clairette-Hassee very fine sandy loams, 1 to 3 percent slopes								
Clairette, very fine sandy loam	50	200	C	.48	5	68.0	21.0	11.0
Hassee, very fine sandy loam	40	200	D	.55	5	68.0	19.0	13.0

RUSLE2 Related Attributes--Erath County, Texas								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
CtC—Clairette loam, 3 to 5 percent slopes								
Clairette, loam	90	180	C	.37	5	44.0	36.0	20.0
DeB—Denton silty clay, 1 to 3 percent slopes								
Denton	85	298	C	.20	3	6.0	44.0	50.0
FhC2—Fairy-Hico complex, 1 to 5 percent slopes, moderately eroded								
Fairy, moderately eroded	45	180	B	.55	5	68.0	26.0	6.0
Hico, moderately eroded	35	200	B	.28	5	65.0	24.0	11.0
FrA—Frio silty clay, 0 to 1 percent slopes, occasionally flooded								
Frio, occasionally flooded	85	98	C	.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	B	.24	4	64.0	11.0	25.0
Windthorst, severely eroded	40	200	C	.43	4	62.0	15.0	23.0
LaB—Topsey loam, 1 to 3 percent slopes								
Topsey	90	200	C	.17	3	37.0	37.0	26.0
Ma—Malotterre gravelly clay loam, 1 to 8 percent slopes								
Malotterre	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	B	.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

RUSLE2 Related Attributes—Erath County, Texas								
Map symbol and soil name	Pct. of map unit	Slope length (ft)	Hydrologic group	Kf	T factor	Representative value		
						% Sand	% Silt	% Clay
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	C	.28	5	82.0	12.0	6.0
WoB—Windthorst very fine sandy loam, 1 to 5 percent slopes								
Windthorst, very fine sandy loam	85	298	C	.43	5	68.0	21.0	11.0
WoB2—Windthorst fine sandy loam, 1 to 5 percent slopes, moderately eroded								
Windthorst, moderately eroded	85	298	C	.28	5	67.0	21.0	12.0

Data Source Information

Soil Survey Area: Erath County, Texas
 Survey Area Data: Version 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, sieving, or micrometric methods. Particle sizes are expressed as classes with specific effective diameter class limits. The broad classes are sand, silt, and clay, ranging from the larger to the smaller.

Sand as a soil separate consists of mineral soil particles that are 0.05 millimeter to 2 millimeters in diameter. In this table, the estimated sand content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Silt as a soil separate consists of mineral soil particles that are 0.002 to 0.05 millimeter in diameter. In this table, the estimated silt content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

Clay as a soil separate consists of mineral soil particles that are less than 0.002 millimeter in diameter. In this table, the estimated clay content of each soil layer is given as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter.

The content of sand, silt, and clay affects the physical behavior of a soil. Particle size is important for engineering and agronomic interpretations, for determination of soil hydrologic qualities, and for soil classification.

The amount and kind of clay affect the fertility and physical condition of the soil and the ability of the soil to adsorb cations and to retain moisture. They influence shrink-swell potential, saturated hydraulic conductivity (Ksat), plasticity, the ease of soil dispersion, and other soil properties. The amount and kind of clay in a soil also affect tillage and earthmoving operations.

Moist bulk density is the weight of soil (oven-dry) per unit volume. Volume is measured when the soil is at field moisture capacity, that is, the moisture content at 1/3- or 1/10-bar (33kPa or 10kPa) moisture tension. Weight is determined after the soil is dried at 105 degrees C. In the table, the estimated moist bulk density of each soil horizon is expressed in grams per cubic centimeter of soil material that is less than 2 millimeters in diameter. Bulk density data are used to compute linear extensibility, shrink-swell potential, available water capacity, total pore space, and other soil properties. The moist bulk density of a soil indicates the pore space available for water and roots. Depending on soil texture, a bulk density of more than 1.4 can restrict water storage and root penetration. Moist bulk density is influenced by texture, kind of clay, content of organic matter, and soil structure.

Saturated hydraulic conductivity (Ksat) refers to the ease with which pores in a saturated soil transmit water. The estimates in the table are expressed in terms of micrometers per second. They are based on soil characteristics observed in the field, particularly structure, porosity, and texture. Saturated hydraulic conductivity (Ksat) is considered in the design of soil drainage systems and septic tank absorption fields.

Available water capacity refers to the quantity of water that the soil is capable of storing for use by plants. The capacity for water storage is given in inches of water per inch of soil for each soil layer. The capacity varies, depending on soil properties that affect retention of water. The most important properties are the content of organic matter, soil texture, bulk density, and soil structure. Available water capacity is an important factor in the choice of plants or crops to be grown and in the design and management of irrigation systems. Available water capacity is not an estimate of the quantity of water actually available to plants at any given time.

Linear extensibility refers to the change in length of an unconfined clod as moisture content is decreased from a moist to a dry state. It is an expression of the volume change between the water content of the clod at 1/3- or 1/10-bar tension (33kPa or 10kPa tension) and oven dryness. The volume change is reported in the table as percent change for the whole soil. The amount and type of clay minerals in the soil influence volume change.

Linear extensibility is used to determine the shrink-swell potential of soils. The shrink-swell potential is low if the soil has a linear extensibility of less than 3 percent; moderate if 3 to 6 percent; high if 6 to 9 percent; and very high if more than 9 percent. If the linear extensibility is more than 3, shrinking and swelling can cause damage to buildings, roads, and other structures and to plant roots. Special design commonly is needed.

Organic matter is the plant and animal residue in the soil at various stages of decomposition. In this table, the estimated content of organic matter is expressed as a percentage, by weight, of the soil material that is less than 2 millimeters in diameter. The content of organic matter in a soil can be maintained by returning crop residue to the soil.

Organic matter has a positive effect on available water capacity, water infiltration, soil organism activity, and tilth. It is a source of nitrogen and other nutrients for crops and soil organisms.

Erosion factors are shown in the table as the K factor (Kw and Kf) and the T factor. Erosion factor K indicates the susceptibility of a soil to sheet and rill erosion by water. Factor K is one of six factors used in the Universal Soil Loss Equation (USLE) and the Revised Universal Soil Loss Equation (RUSLE) to predict the average annual rate of soil loss by sheet and rill erosion in tons per acre per year. The estimates are based primarily on percentage of silt, sand, and organic matter and on soil structure and Ksat. Values of K range from 0.02 to 0.69. Other factors being equal, the higher the value, the more susceptible the soil is to sheet and rill erosion by water.

Erosion factor Kw indicates the erodibility of the whole soil. The estimates are modified by the presence of rock fragments.

Erosion factor Kf indicates the erodibility of the fine-earth fraction, or the material less than 2 millimeters in size.

Erosion factor T is an estimate of the maximum average annual rate of soil erosion by wind and/or water that can occur without affecting crop productivity over a sustained period. The rate is in tons per acre per year.

Wind erodibility groups are made up of soils that have similar properties affecting their susceptibility to wind erosion in cultivated areas. The soils assigned to group 1 are the most susceptible to wind erosion, and those assigned to group 8 are the least susceptible. The groups are described in the "National Soil Survey Handbook."

Wind erodibility index is a numerical value indicating the susceptibility of soil to wind erosion, or the tons per acre per year that can be expected to be lost to wind erosion. There is a close correlation between wind erosion and the texture of the surface layer, the size and durability of surface clods, rock fragments, organic matter, and a calcareous reaction. Soil moisture and frozen soil layers also influence wind erosion.

Reference:

United States Department of Agriculture, Natural Resources Conservation Service. National soil survey handbook, title 430-VI. (<http://soils.usda.gov>)

Report—Physical Soil Properties

Physical Soil Properties—Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
BaB—Blanket clay loam, 1 to 3 percent slopes														
Blanket	0-14	20-25- 45	28-44- 53	27-31- 35	1.30-1.50	4.00-14.00	0.15-0.20	3.4-5.3	1.0-3.0	.32	.32	5	6	48
	14-40	5-24- 40	13-38- 60	35-38- 50	1.35-1.55	0.42-4.00	0.12-0.20	4.8-8.6	0.5-2.0	.32	.32			
	40-56	5-28- 40	10-39- 68	27-33- 50	1.35-1.55	1.40-14.00	0.12-0.20	2.6-7.9	0.3-1.0	.37	.37			
	56-80	5-35- 40	10-37- 66	27-28- 50	1.35-1.55	1.40-14.00	0.12-0.20	2.6-7.9	0.1-0.8	.43	.43			
BdC—Bolar- Denton complex 3 to 5 percent slopes														
Bolar	0-16	20-34- 45	17-36- 53	27-30- 40	1.21-1.38	4.00-14.00	0.17-0.21	2.4-6.8	1.0-4.0	.20	.20	2	4L	86
	16-32	15-34- 45	15-36- 50	20-30- 40	1.34-1.46	4.00-14.00	0.16-0.20	0.4-5.9	0.5-2.0	.28	.28			
	32-36	15-34- 45	15-36- 50	20-30- 40	1.38-1.56	4.00-14.00	0.12-0.16	0.3-5.5	0.3-1.0	.17	.32			
	36-80	—	—	—	—	0.42-14.00	—	—	—					
Denton	0-10	3- 6- 15	40-48- 57	40-46- 57	1.16-1.34	0.42-1.40	0.11-0.15	5.0-11.1	1.0-4.0	.17	.17	2	4	86
	10-28	5- 7- 25	28-48- 60	35-45- 55	1.28-1.41	0.42-1.40	0.09-0.14	3.7-10.3	1.0-4.0	.20	.20			
	28-32	5- 7- 25	28-48- 60	35-45- 55	1.31-1.41	0.42-1.40	0.09-0.13	2.7-9.4	0.5-2.0	.32	.32			
	32-38	5- 7- 30	40-63- 83	12-30- 40	1.36-1.45	4.00-14.00	0.08-0.12	0.0-5.2	0.1-1.0	.43	.43			
	38-80	—	—	—	—	0.42-14.00	—	—	—					

Physical Soil Properties—Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/In	Pct	Pct					
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			
	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			
	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														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	<i>In</i>	<i>Pct</i>	<i>Pct</i>	<i>Pct</i>	<i>g/cc</i>	<i>micro m/sec</i>	<i>In/In</i>	<i>Pct</i>	<i>Pct</i>					
BitB—Bastsil loamy fine sand, 1 to 3 percent slopes														
Bastsil, loamy 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	1.48-1.58	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			
	46-62	-35-	-38-	18-27- 35	1.40-1.60	4.00-14.00	0.18-0.22	0.0-2.9	0.1-1.0	.32	.32			

Physical Soil Properties—Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	<i>In</i>	<i>Pct</i>	<i>Pct</i>	<i>Pct</i>	<i>g/cc</i>	<i>micro m/sec</i>	<i>In/in</i>	<i>Pct</i>	<i>Pct</i>					
ClB—Clairette- Hassee very fine sandy loams, 1 to 3 percent slopes														
Clairette, very fine sandy loam	0-4	52-68- 80	2-21- 42	5-11- 18	1.42-1.60	14.00-42.00	0.10-0.17	0.2-1.5	0.5-2.0	.49	.49	5	3	86
	4-10	35-49- 75	5-32- 50	10-19- 24	1.44-1.57	4.00-14.00	0.15-0.19	0.7-2.3	0.5-1.5	.37	.37			
	10-26	20-31- 60	0-31- 48	32-38- 55	1.42-1.66	1.40-4.00	0.10-0.18	3.7-8.7	0.3-1.0	.28	.28			
	26-56	25-40- 60	0-27- 53	18-33- 45	1.46-1.54	4.00-14.00	0.16-0.20	1.1-6.3	0.1-0.8	.24	.24			
	56-74	25-47- 70	0-27- 53	15-26- 45	1.54-1.64	4.00-14.00	0.12-0.13	0.8-6.2	0.1-0.6	.28	.28			
	74-80	10-56- 75	0-27- 73	10-17- 45	1.50-1.70	14.00-42.00	0.12-0.17	0.4-6.3	0.1-0.5	.32	.32			
Hassee, very fine sandy loam	0-5	52-68- 80	0-19- 38	10-13- 20	1.54-1.58	4.00-14.00	0.10-0.14	0.4-2.4	0.5-1.5	.55	.55	5	3	86
	5-14	35-68- 75	5-17- 45	10-15- 20	1.41-1.52	4.00-14.00	0.07-0.12	0.4-2.4	0.2-1.2	.55	.55			
	14-35	25-30- 50	7-27- 40	35-43- 50	1.40-1.53	0.01-0.42	0.06-0.10	5.8-10.4	0.5-1.2	.32	.32			
	35-45	25-32- 55	0-24- 45	30-44- 50	1.45-1.52	0.01-0.42	0.06-0.10	3.8-10.2	0.2-1.0	.28	.28			
	45-79	25-35- 55	4-26- 45	30-39- 45	1.40-1.53	0.01-0.42	0.05-0.10	3.7-8.5	0.1-0.5	.32	.32			

Physical Soil Properties—Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
CtC—Clairette loam, 3 to 5 percent slopes														
Clairette, loam	0-4	35-44- 75	9-36- 50	10-20- 24	1.47-1.62	4.00-14.00	0.15-0.19	0.7-2.3	0.5-1.5	.37	.37	.5	6	48
	4-10	35-49- 75	5-32- 50	10-19- 24	1.44-1.57	4.00-14.00	0.15-0.19	0.7-2.3	0.5-1.5	.37	.37			
	10-26	20-31- 60	0-31- 48	32-38- 55	1.42-1.66	1.40-4.00	0.10-0.18	3.7-8.7	0.3-1.0	.28	.28			
	26-56	25-40- 60	0-27- 53	18-33- 45	1.46-1.54	4.00-14.00	0.16-0.20	1.1-6.3	0.1-0.8	.24	.24			
	56-74	25-47- 70	0-27- 53	15-26- 45	1.54-1.64	4.00-14.00	0.12-0.13	0.8-6.2	0.1-0.6	.28	.28			
	74-80	10-56- 75	0-27- 73	10-17- 45	1.50-1.70	14.00-42.00	0.12-0.17	0.4-6.3	0.1-0.5	.32	.32			
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	—	—	—					

Physical Soil Properties—Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	<i>In</i>	<i>Pct</i>	<i>Pct</i>	<i>Pct</i>	<i>g/cc</i>	<i>micro m/sec</i>	<i>In/in</i>	<i>Pct</i>	<i>Pct</i>					
FhC2—Fairy- Hico complex, 1 to 5 percent slopes, moderately eroded														
Fairy, moderately eroded	0-13	52-68- 80	6-26- 43	5- 6- 18	1.47-1.51	14.00-42.00	0.10-0.17	0.3-1.8	0.5-2.0	.55	.55	5	3	86
	13-45	30-55- 75	0-21- 52	17-24- 34	1.40-1.60	4.00-14.00	0.05-0.17	1.3-4.6	0.3-1.3	.24	.24			
	45-68	40-45- 90	0-33- 56	4-22- 31	1.50-1.66	4.00-42.00	0.05-0.17	0.0-2.8	0.1-0.5	.32	.32			
	68-80	5-15- 75	0-43- 53	5-42- 45	1.60-1.76	0.42-42.00	0.12-0.18	0.0-6.1	0.0-0.5	.32	.32			
Hico, moderately eroded	0-12	55-65- 80	6-24- 39	6-11- 18	1.46-1.51	14.00-42.00	0.10-0.15	0.4-2.0	0.5-2.0	.28	.28	5	3	86
	12-51	30-55- 75	0-17- 48	17-28- 34	1.44-1.64	4.00-14.00	0.05-0.17	1.7-4.4	0.3-1.3	.20	.20			
	51-80	40-60- 90	0-24- 50	4-16- 31	1.53-1.64	4.00-42.00	0.05-0.17	0.1-3.5	0.1-0.5	.28	.28			
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			

Physical Soil Properties—Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	<i>In</i>	<i>Pct</i>	<i>Pct</i>	<i>Pct</i>	<i>g/cc</i>	<i>micro m/sec</i>	<i>in/in</i>	<i>Pct</i>	<i>Pct</i>					
HoB—Slidell clay, 1 to 3 percent slopes														
Slidell	0-19	0-22- 35	20-28- 40	40-50- 60	1.10-1.45	0.01-0.42	0.10-0.18	7.0-16.0	1.0-4.0	.17	.17	5	4	86
	19-32	0-22- 35	20-28- 60	40-50- 60	1.10-1.45	0.01-0.42	0.10-0.18	6.6-17.0	1.0-3.0	.24	.24			
	32-49	0-22- 35	20-28- 60	40-50- 60	1.20-1.55	0.01-0.42	0.10-0.18	4.9-13.0	0.1-1.0	.24	.24			
	49-80	0-22- 35	20-28- 60	40-50- 60	1.20-1.55	0.01-0.42	0.10-0.18	4.9-10.8	0.1-1.0	.24	.24			
HwD3—Hico and Windthorst sandy clay loams, 1 to 8 percent slopes, severely eroded														
Hico, severely eroded	0-7	59-64- 70	10-11- 18	20-25- 30	1.46-1.60	4.00-42.00	0.11-0.13	2.1-3.8	0.4-2.0	.24	.24	4	5	56
	7-44	43-57- 61	11-18- 23	18-25- 39	1.48-1.60	4.00-14.00	0.11-0.13	1.9-5.1	0.2-0.6	.32	.32			
	44-60	33-66- 81	12-15- 42	4-19- 32	1.55-1.61	4.00-42.00	0.13-0.15	0.1-3.7	0.1-0.3	.37	.37			
	60-79	26-61- 85	8-27- 57	7-12- 25	1.76-1.88	0.42-4.00	0.01-0.03	0.5-2.7	0.0-0.2	.64	.64			
Windthorst, severely eroded	0-6	46-62- 66	14-15- 27	20-23- 34	1.47-1.56	1.40-14.00	0.11-0.14	0.7-5.3	0.5-1.0	.43	.43	4	5	56
	6-16	32-40- 43	16-24- 33	26-36- 43	1.35-1.51	1.40-4.00	0.15-0.19	3.8-5.6	0.5-1.0	.37	.37			
	16-25	31-41- 52	16-26- 39	27-33- 38	1.39-1.55	1.40-4.00	0.16-0.20	3.2-5.6	0.3-0.8	.37	.37			
	25-33	36-46- 59	19-32- 41	14-22- 30	1.35-1.60	1.40-4.00	0.15-0.19	2.0-5.0	0.1-0.4	.55	.55			
	33-79	26-61- 85	8-27- 57	7-12- 25	1.76-1.88	0.42-4.00	0.01-0.03	0.5-2.6	0.0-0.2	.64	.64			

Physical Soil Properties—Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
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	—	—	—					
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														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	In	Pct	Pct	Pct	g/cc	micro m/sec	In/in	Pct	Pct					
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			
	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	—	—	—					
PcC—Purves clay, 3 to 5 percent slopes														
Purves	0-7	8-25- 40	7-28- 40	40-48- 55	1.15-1.45	0.42-1.40	0.12-0.20	5.4-10.9	1.0-5.0	.15	.15	1	4	86
	7-12	8-26- 40	20-29- 54	35-45- 55	1.20-1.45	0.42-4.00	0.08-0.18	5.0-10.3	1.0-4.0	.17	.17			
	12-17	8-26- 40	20-29- 54	35-45- 55	1.20-1.45	0.42-4.00	0.04-0.07	1.0-6.9	1.0-3.0	.05	.17			
	17-40	—	—	—	—	0.42-14.00	—	—	—					

Physical Soil Properties—Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	<i>In</i>	<i>Pct</i>	<i>Pct</i>	<i>Pct</i>	<i>g/cc</i>	<i>micro m/sec</i>	<i>In/In</i>	<i>Pct</i>	<i>Pct</i>					
Pd—Purves- Dugout- Maloterre complex, 1 to 20 percent slopes														
Purves, stony clay	0-8	8-25- 40	7-28- 40	40-48- 55	1.16-1.35	0.42-1.40	0.11-0.20	4.1-9.3	1.0-5.0	.05	.10	1	5	56
	8-12	8-26- 40	20-29- 54	35-45- 55	1.17-1.47	0.42-4.00	0.08-0.18	2.9-10.8	1.0-4.0	.15	.15			
	12-14	8-26- 40	20-29- 54	35-45- 55	1.21-1.47	0.42-4.00	0.04-0.07	1.0-7.3	1.0-3.0	.05	.17			
	14-24	—	—	—	—	0.42-14.00	—	—	—					
Dugout, gravelly clay loam	0-8	22-30- 42	28-42- 51	27-28- 35	1.31-1.47	1.40-4.00	0.06-0.15	1.9-5.4	1.0-2.0	.15	.28	1	5	56
	8-18	20-23- 40	28-48- 60	15-29- 35	1.40-1.53	1.40-4.00	0.07-0.16	0.0-4.9	0.1-1.2	.28	.28			
	18-28	—	—	—	—	0.42-14.00	—	—	—					
Maloterre, gravelly clay loam	0-8	30-35- 45	24-36- 43	27-29- 35	1.18-1.40	4.00-14.00	0.06-0.11	1.8-6.0	1.0-7.0	.15	.24	1	5	56
	8-18	—	—	—	—	0.01-0.42	—	—	—					
WnC— Windthorst loamy fine sand, 1 to 5 percent slopes														
Windthorst	0-10	73-82- 90	0-12- 24	3- 6- 15	1.40-1.65	42.00-141.00	0.06-0.13	0.2-1.2	0.5-2.0	.28	.28	5	2	134
	10-38	30-46- 60	5-16- 35	35-38- 50	1.43-1.60	1.40-4.00	0.10-0.20	3.7-6.5	0.2-1.0	.32	.32			
	38-50	30-46- 70	5-18- 35	25-36- 50	1.38-1.60	1.40-14.00	0.10-0.20	2.3-6.5	0.2-1.0	.37	.37			
	50-80	30-50- 75	5-25- 40	15-25- 45	1.43-1.70	1.40-42.00	0.11-0.18	1.0-5.5	0.0-0.5	.49	.49			

Physical Soil Properties—Erath County, Texas														
Map symbol and soil name	Depth	Sand	Silt	Clay	Moist bulk density	Saturated hydraulic conductivity	Available water capacity	Linear extensibility	Organic matter	Erosion factors			Wind erodibility group	Wind erodibility index
										Kw	Kf	T		
	<i>in</i>	<i>Pct</i>	<i>Pct</i>	<i>Pct</i>	<i>g/cc</i>	<i>micro m/sec</i>	<i>in/in</i>	<i>Pct</i>	<i>Pct</i>					
WoB— Windthorst very fine sandy loam, 1 to 5 percent slopes														
Windthorst, very fine sandy loam	0-8	52-68- 80	5-21- 40	5-11- 18	1.42-1.60	14.00-42.00	0.10-0.17	0.2-1.5	0.5-2.0	.43	.43	5	3	86
	8-33	30-46- 60	5-16- 35	35-38- 50	1.43-1.60	1.40-4.00	0.10-0.20	4.4-7.6	0.2-1.0	.28	.28			
	33-46	30-46- 70	5-18- 35	25-36- 50	1.38-1.60	1.40-14.00	0.10-0.20	2.4-7.6	0.2-1.0	.32	.32			
	46-80	30-65- 75	0-25- 53	5-10- 45	1.45-1.70	1.40-42.00	0.11-0.18	0.1-6.5	0.0-0.5	.55	.55			
WoB2— Windthorst fine sandy loam, 1 to 5 percent slopes, moderately eroded														
Windthorst, moderately eroded	0-4	52-67- 80	5-21- 40	5-12- 18	1.42-1.60	14.00-42.00	0.10-0.17	0.3-1.5	0.5-2.0	.28	.28	5	3	86
	4-33	30-46- 60	5-16- 35	35-38- 50	1.43-1.60	1.40-4.00	0.10-0.20	4.4-7.6	0.2-1.0	.28	.28			
	33-46	30-46- 70	5-18- 35	25-36- 50	1.38-1.60	1.40-14.00	0.10-0.20	2.4-7.6	0.2-1.0	.32	.32			
	46-80	30-65- 75	0-25- 53	5-10- 45	1.45-1.70	1.40-42.00	0.11-0.18	0.1-6.5	0.0-0.5	.55	.55			

Data Source Information

Soil Survey Area: Erath County, Texas

Survey Area Data: Version 21, Aug 30, 2024



Natural Resources
Conservation Service

Web Soil Survey
National Cooperative Soil Survey

4/8/2025
Page 14 of 14

Kathleen Hartnett White, *Chairman*
Larry R. Soward, *Commissioner*
H. S. Buddy Garcia, *Commissioner*
Glenn Shankle, *Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 1, 2007

CERTIFIED MAIL

Mr. James Byer
JB Grand Canyon 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.

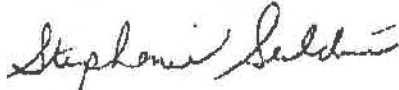
Mr. Mullin also indicates that all wells are located topographically upgradient from the confinement pens and retention control structures (RCS). Well #3 is identified as being located south and upgradient of RCS #6, and within a building. Well #4 is a windmill described as located south and upgradient 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 slab.

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,



Stephanie 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@tceq.texas.gov.

Sincerely,

A handwritten signature in dark ink, appearing to read "Lynda Clayton".

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

STATE OF TEXAS PLUGGING REPORT for Tracking #59975

Owner:	Grand Canyon Dairy	Owner Well #:	8
Address:	8892 S US 377 Dublin, TX 76446	Grid #:	31-62-9
Well Location:	2179 CR 308 Dublin, TX 76446	Latitude:	32° 01' 15" N
Well County:	Erath	Longitude:	098° 17' 03" W
		Elevation:	No Data

Well Type: **Withdrawal of Water**

Drilling Information

Company:	No Data	Date Drilled:	No Data
Driller:	Unknown	License Number:	No Data

	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
Borehole:	4		67

Plugging Information

Date Plugged: 5/13/2009 Plugger: **Jim Beyer/Landowner**

Plug Method: **Tremmie pipe bentonite from bottom to 2 feet from surface, cement top 2 feet**

Casing Left in Well:			Plug(s) Placed in Well:		
Dia (in.)	Top (ft.)	Bottom (ft.)	Top (ft.)	Bottom (ft.)	Description (number of sacks & material)
4	6	67	0	6	3 Cement
			6	67	7 Bentonite Chips

Certification Data: The driller certified that the driller plugged this well (or the well was plugged under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the reports(s) being returned for completion and resubmittal.

Company Information: **Landowner Plugged**
8892 S US 377
Dublin, TX 76446

Driller Name: **Jim Beyer** License Number: **N/A**

Comments: **^EO**

Public GIS Viewer Legend

Well Number	Water Supply from Oil / Gas
Well Locations	Observation
Permitted Location	Observation from Oil
Dry Hole	Observation from Gas
Oil	Observation from Oil / Gas
Gas	Storage
Oil / Gas	Service
Plugged Oil	Service from Oil
Plugged Gas	Service from Gas
Canceled / Abandoned Location	Service from Oil / Gas
Plugged Oil / Gas	Storage from Oil / Gas
Injection / Disposal	Injection / Disposal from Storage
Core Test	Injection / Disposal from Storage / Oil
Sulfur Test	Injection / Disposal from Storage / Gas
Storage from Oil	Injection / Disposal from Storage / Oil / Gas
Storage from Gas	Observation from Storage
Shut-In Oil	Observation from Storage / Oil
Shut-In Gas	Observation from Storage / Gas
Injection / Disposal from Oil	Observation from Storage / Oil / Gas
Injection / Disposal from Gas	Service from Storage
Injection / Disposal from Oil / Gas	Service from Storage / Oil
Geothermal	Service from Storage / Gas
Brine Mining	Service from Storage / Oil / Gas
Water Supply	Plugged Storage
Water Supply from Oil	Plugged Storage / Oil
Water Supply from Gas	

Page 1 of 3

Public GIS Viewer Legend

Plugged Storage / Gas	Storage / Brine Mining / Oil
Plugged Storage Oil / Gas	Storage / Brine Mining / Gas
Brine Mining	Storage / Brine Mining / Oil / Gas
Brine Mining / Oil	Injection / Disposal from Storage / Brine Mining
Brine Mining / Gas	Injection / Disposal from Storage / Brine Mining / Oil
Brine Mining / Oil / Gas	Injection / Disposal from Storage / Brine Mining / Gas
Injection / Disposal from Brine Mining	Injection / Disposal from Storage / Brine Mining / Oil / Gas
Injection / Disposal from Brine Mining / Oil	Observation from Storage / Brine Mining
Injection / Disposal from Brine Mining / Gas	Observation from Storage / Brine Mining / Oil
Observation from Brine Mining	Observation from Storage / Brine Mining / Gas
Observation from Brine Mining / Oil	Observation from Storage / Brine Mining / Oil / Gas
Observation from Brine Mining / Gas	Plugged Storage / Brine Mining
Observation from Brine Mining / Oil / Gas	Plugged Storage / Brine Mining / Oil
Service from Brine Mining	Plugged Storage / Brine Mining / Gas
Service from Brine Mining / Oil	Plugged Storage / Brine Mining / Oil / Gas
Service from Brine Mining / Gas	Orphan Walls
Service from Brine Mining / Oil / Gas	Commercial Disposal
Plugged Brine Mining	Injection/Disposal
Plugged Brine Mining / Oil	HCTS Deeper than 15,000 ft.
Plugged Brine Mining / Gas	
Plugged Brine Mining / Oil / Gas	
Storage / Brine Mining	

Page 2 of 3

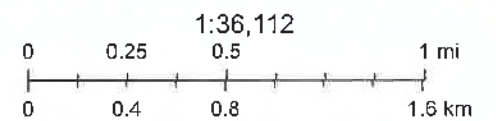
Public GIS Viewer Legend

High Cost Tight Sands	
EOR H13 Oil Wells	Alert Areas
Well Logs	Water
Horiz/Dir Surface Locations	City Limits
Horizontal Well	Counties
Directional Well	
Horizontal/Directional Lines	Operator Cleanup Program Sites
	Active
LPGAS Sites	Closed
Q Pipelines	Voluntary Cleanup Program Sites
Pipelines	VCP, Accepted
	VCP, Closed
Bay Tracts	Brownfield Response Program Sites
	Brownfield, Accepted
Offshore Areas	Brownfield, Closed
	Commercial Waste Disposal Sites & Discharge Permits
Offshore Tracts	Commercial Waste Disposal
	Discharge Permits
Water Lines	Oil and Gas Districts
Subdivisions	AED Districts
Railroads	Pipeline Safety Regions
Surveys	
Quads	

Page 3 of 3



April 9, 2025



Source: Esri, Maxar Earthstar Geographics, and the GIS User Community

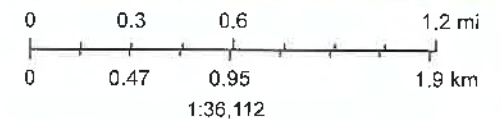
Grand Canyon Dairy 2025



Texas Water
Development Board

April 9, 2025

-  Plugging Reports
-  TWDB Groundwater
-  Well Reports



Source: Esri, Maxar, Earthstar Geographics, and the GIS User Community

The data in Water Data Interactive represents the best available information provided by the TWDB and third-party cooperators of the TWDB. The TWDB provides information via this web site as a public service. Neither the State of Texas nor the TWDB assumes any legal liability or responsibility or makes any guarantees or warranties as to the accuracy, completeness or suitability of the information for any particular purpose. The TWDB systematically revises or removes data discovered to be incorrect. If you find inaccurate information or have questions, please contact

STATE OF TEXAS PLUGGING REPORT for Tracking #44221

Owner:	JW Grand Canyon Dairy	Owner Well #:	No Data
Address:	2179 CR 308 Dublin, TX 76446	Grid #:	31-62-9
Well Location:	2179 CR 308 (next to back) Dublin, TX 76446	Latitude:	32° 01' 31" N
		Longitude:	098° 16' 05" W
Well County:	Erath	Elevation:	No Data

Well Type: **Withdrawal of Water**

Drilling Information

Company:	No Data	Date Drilled:	No Data
Driller:	No Data	License Number:	No Data

Borehole: **No Data**

Plugging Information

Date Plugged: **11/8/2007** Plugger: **Colton Aardal**
Plug Method: **Tremmie pipe bentonite from bottom to 2 feet from surface, cement top 2 feet**

Casing Left in Well:

Dia (in.)	Top (ft.)	Bottom (ft.)
8.625	0	380

Plug(s) Placed in Well:

Top (ft.)	Bottom (ft.)	Description (number of sacks & material)
1	10	4 Portland
10	330	33 Bentonite Grout
330	380	10 Portland

Certification Data: The driller certified that the driller plugged this well (or the well was plugged under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the reports(s) being returned for completion and resubmittal.

Company Information: **Associated Services**
PO Box 16
Stephenville, TX 76401

Driller Name: **Colton Aardal** License Number: **55034**

Comments: **Pumped 10 sacks of cement into perforations and filled up to 10' below surface w/ez seal. Cut casing off even concrete ally way.**
^EO

STATE OF TEXAS WELL REPORT for Tracking #388094

Owner: **Tim Miranda** Owner Well #: **No Data**
 Address: **2179 CR 308** Grid #: **31-62-9**
Dublin, TX 76446 Latitude: **32° 01' 10" N**
 Well Location: **2179 CR 308** Longitude: **098° 16' 09" W**
Dublin, TX 76446 Elevation: **No Data**

Type of Work: **New Well** Proposed Use: **Irrigation**

Drilling Start Date: **12/24/2014** Drilling End Date: **1/30/2015**

Borehole:	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
	12.25	0	503

Drilling Method: **Mud (Hydraulic) Rotary**

Borehole Completion: **Filter Packed**

Filter Pack Intervals:	Top Depth (ft.)	Bottom Depth (ft.)	Filter Material	Size
	209	503	Gravel	25"

Annular Seal Data:	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
	0	5	2 Cement
	5	300	20 Bentonite

Seal Method: **Exterior Positive Displacement**
 Sealed By: **Dowell**

Distance to Property Line (ft.): **59**
 Distance to Septic Field or other concentrated contamination (ft.): **200+**
 Distance to Septic Tank (ft.): **No Data**
 Method of Verification: **Owner**

Surface Completion: **Unknown**

Water Level: **346 ft. below land surface, and 0 GPM** Measurement Method: **Unknown**
 artesian flow on 2015-01-30

Packers: **None**

Type of Pump: **Submersible** Pump Depth (ft.): **462**

Well Test(s): **Jelled** Yield: **220 GPM with 150 ft. drawdown after 3 hours**

Plug Information:	Description (number of sacks & material)	Top Depth (ft.)	Bottom Depth (ft.)
	N/A		

4/9/2015 2:47:27 PM

Well Report Tracking Number 388094
 Submitted on: 2/13/2015

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IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY

TEX. DEC. CODE Title 12, Chapter 190.1251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
 P.O. Box 12157
 Austin, TX 78711
 (512) 334-5540

Water Quality:	Static Depth (ft.)	Water Type
	345	Fresh

Chemical Analysis Made: **No**

Did the driller knowingly penetrate any strata which contained injurious constituents? **No**

Certification Data: The driller certifies that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understands that failure to complete the required items will result in the report(s) being returned for completion and resubmission.

Company Information: **Dowell Well Service**
P.O. Box 492
Stephenville, TX 76401

Driller Name: **Mark Dowell** License Number: **1891**

Comments: **No Data**

Lithology: DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing: BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description	Size (in.)	Area/Used	Type	Setting From To (ft.)
0	2	Brown Clay	8 5/8	N Steel Blank	482-503	.188" Wall
2	48	Caliche	8 5/8	N SS Screen	440-482	.188" Wall
48	247	Shale/Limestone	8 5/8	N Steel Blank	419-440	.188" Wall
247	325	Black Shale	8 5/8	N SS Screen	398-419	.188" Wall
325	345	Blue Clay	8 5/8	N Steel Blank	0-398	.188" Wall
345	405	Sand and Gravel				
405	411	Clay				
411	415	Sand				
415	417	Clay				
417	429	Sand				
429	439	Clay				
439	442	Red and Blue Clay				
442	447	Sand with Sandstone streaks				
447	454	Blue Clay				
454	460	Sand				
460	482	Sand and Gravel with Sandstone Streaks				
482	503	Tan Clay				

4/9/2015 2:47:27 PM

Well Report Tracking Number 388094
 Submitted on: 2/13/2015

Page 2 of 3

STATE OF TEXAS WELL REPORT for Tracking #459112			
Owner:	Tim Miranda	Owner Well #:	No Data
Address:	2179 County Road 308 Dublin, TX 76446	Grid #:	31-62-9
Well Location:	County Road 308 Dublin, TX 78445	Latitude:	32° 01' 45.8" N
Well County:	Erath	Longitude:	098° 15' 15.6" W
		Elevation:	No Data
Type of Work:	New Well	Proposed Use:	Irrigation

Drilling Start Date: 4/28/2017 Drilling End Date: 6/10/2017

Borehole:	Diameter (in.)	Top Depth (ft.)	Bottom Depth (ft.)
	12.25	0	404

Drilling Method: Mud (Hydraulic) Rotary

Borehole Completion: Filter Packed

Filter Pack Intervals:	Top Depth (ft.)	Bottom Depth (ft.)	Filter Material	Size
	200	404	Gravel	25"

Annular Seal Data:	Top Depth (ft.)	Bottom Depth (ft.)	Description (number of sacks & material)
	0	3	Cement 2 Bags/Sacks
	3	200	Bentonite 22 Bags/Sacks

Seal Method: Tremie

Sealed By: Driller

Distance to Property Line (ft.): 110+

Distance to Septic Field or other concentrated contamination (ft.): 110+

Distance to Septic Tank (ft.): 110+

Method of Verification: sight

Surface Completion: Steel Cased Surface Completion by Driller

Water Level: 259 ft. below land surface, and 9 GPM artesian flow on 2017-08-18 Measurement Method: Air Line

Packers: No Data

Type of Pump: Submersible

Well Tests: Pump Yield: 90 GPM with 149 ft. drawdown after 1 hour

4/9/2025 10:40:17 AM

Well Report Tracking Number 459112
Submitted on: 5/1/2017

Page 1 of 3

Water Quality:	State Depth (ft.)	Water Type
	200 - 390	Trinity
Chemical Analysis Made:		No
Did the driller knowingly penetrate any strata which contained injurious constituents?		
No		
Certification Date:	The driller certified that the driller drilled this well (or the well was drilled under the driller's direct supervision) and that each and all of the statements herein are true and correct. The driller understood that failure to complete the required items will result in the report(s) being returned for completion and resubmission.	
Company Information:	Dowell Well Service	
	PO Box 492 Stephenville, TX	
Driller Name:	Justin Dowell	Licence Number: 59086
Comments:	No Data	

Lithology:
DESCRIPTION & COLOR OF FORMATION MATERIAL

Casing:
BLANK PIPE & WELL SCREEN DATA

Top (ft.)	Bottom (ft.)	Description	Dia (in.)	Type	Material	Sch./Gage	Top (ft.)	Bottom (ft.)
0	1	Topsoil	8.63	Blank	New Steel	188wall 0.030	0	254
1	4	Ten Sandy Clay	8.63	Screen	New Stainless Steel	188wall 0.030	254	304
4	40	Blue sandy clay with sand streaks	8.63	Blank	New Steel	188wall 0.030	304	344
40	164	Grey shale/Limestone	8.63	Screen	New Stainless Steel	188wall 0.030	344	404
154	170	blue sandy clay						
170	199	Sand						
199	207	blue sandy clay						
207	250	blue sandy clay with sand streaks						
250	319	sand and gravel						
319	345	blue and red clay						
345	358	sand/ sand streaks with clay streaks						
358	370	red clay						
370	390	Sand stone						
390	404	tan clay						

4/9/2025 10:40:17 AM

Well Report Tracking Number 459112
Submitted on: 5/1/2017

Page 2 of 3

IMPORTANT NOTICE FOR PERSONS HAVING WELLS DRILLED CONCERNING CONFIDENTIALITY
TEX. OCC. CODE Title 12, Chapter 1901.251, authorizes the owner (owner or the person for whom the well was drilled) to keep information in Well Reports confidential. The Department shall hold the contents of the well log confidential and not a matter of public record if it receives, by certified mail, a written request to do so from the owner.

Please include the report's Tracking Number on your written request.

Texas Department of Licensing and Regulation
P.O. Box 12157
Austin, TX 78711
(512) 334-5540

4/9/2025 10:40:17 AM

Well Report Tracking Number 459112
Submitted on: 5/1/2017

Page 3 of 3

6.0 SURFACE WATER & TMDL ASSESSMENT

6.1 Surface Water Assessment

Figures 6.1A-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.)

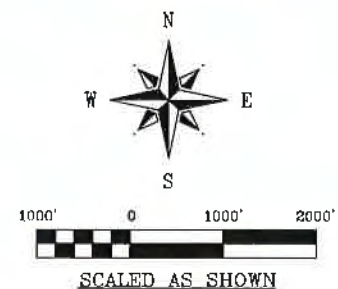
- c. Reduce the potential for soil erosion and downgradient sediment deposition by maintaining permanent pastures and additional filter strips adjacent to waters in the state, as described above in Section 6.1



Map Generated 2/13/2025

LEGEND:

- Denotes Plugged/No Evidence Well
- Denotes Water Well
- Denotes Water Well with 100' or 150' Buffer
- ▨ Denotes Caliche Pit
- ▨ Denotes Surface Water
- ▨ Denotes Burial Site
- ▨ Denotes 136' Buffer Zone



Source: USDA-NRCS. Geospatial Data Gateway. Available at: <http://datagateway.nrcs.usda.gov/>. Digital Raster Graphic County Mosaic by NRCS - Accessed December 2017.

• Refer to Figures 1.4A-B for a detailed production area map.

Grand Canyon Dairy
Dublin, TX
Erath County

Aerial Photograph
Figure 6.1A
Page 52

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Enviro-Ag Engineering, Inc.
ENGINEERING CONSULTANTS
3404 Airway Boulevard
AARILLO, TEXAS 79018
TEL (806) 353-6123 FAX (806) 353-4132



Map Generated 2/13/2025

LEGEND:

- ⊗ Denotes Plugged/No Evidence Well
- Denotes Water Well
- ⊙ Denotes Water Well with 100' or 150' Buffer
- ⊘ Denotes Caliche Pit
- ▨ Denotes Surface Water
- ▩ Denotes Burial Site
- ▨ Denotes 136' Buffer Zone



SCALED AS SHOWN

Source: USDA-NRCS. Geospatial Data Gateway. Available at:
<http://datagateway.nrcs.usda.gov/>. Digital Raster Graphic
 County Mosaic by NRCS - Accessed December 2017.

- Refer to Figures 1.4A-B for a detailed production area map.

Grand Canyon Dairy
 Dublin, TX
 Erath County

Aerial Photograph
 Figure 6.1B
 Page 53



Enviro-Ag Engineering, Inc.
 ENGINEERING CONSULTANTS
 3404 A Highway Boulevard
 AMARILLO, TEXAS 79118
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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

Source: USDS-NRCS. Geospatial Data Gateway. Available at:
<http://datagateway.nrcs.usda.gov/>. Digital Raster Graphic County
Mosaic by NRCS - Accessed December 2017.

1250' 0 1250' 2500'



SCALED AS SHOWN

Note:

Hatched area represents permanent odor sources. These include, but are not limited to, pens, confinement buildings, lagoons, RCSs, manure stockpile areas, separators. Permanent odor sources do not include any feed handling facilities, land application equipment or fields.

Grand Canyon Dairy
Dublin, TX
Erath County

Area Land Use Map
Figure 7.1
Page 56

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Enviro-Ag Engineering, Inc.
ENGINEERING CONSULTANTS
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AMARILLO, TEXAS 79118
TEL (806) 353-6123 FAX (806) 353-4132

Leah Whallon

From: Jourdan Mullin <jmullin@enviroag.com>
Sent: Wednesday, May 21, 2025 10:01 AM
To: 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 <Leah.Whallon@Tceq.Texas.Gov>
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 <cmullin@enviroag.com>
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

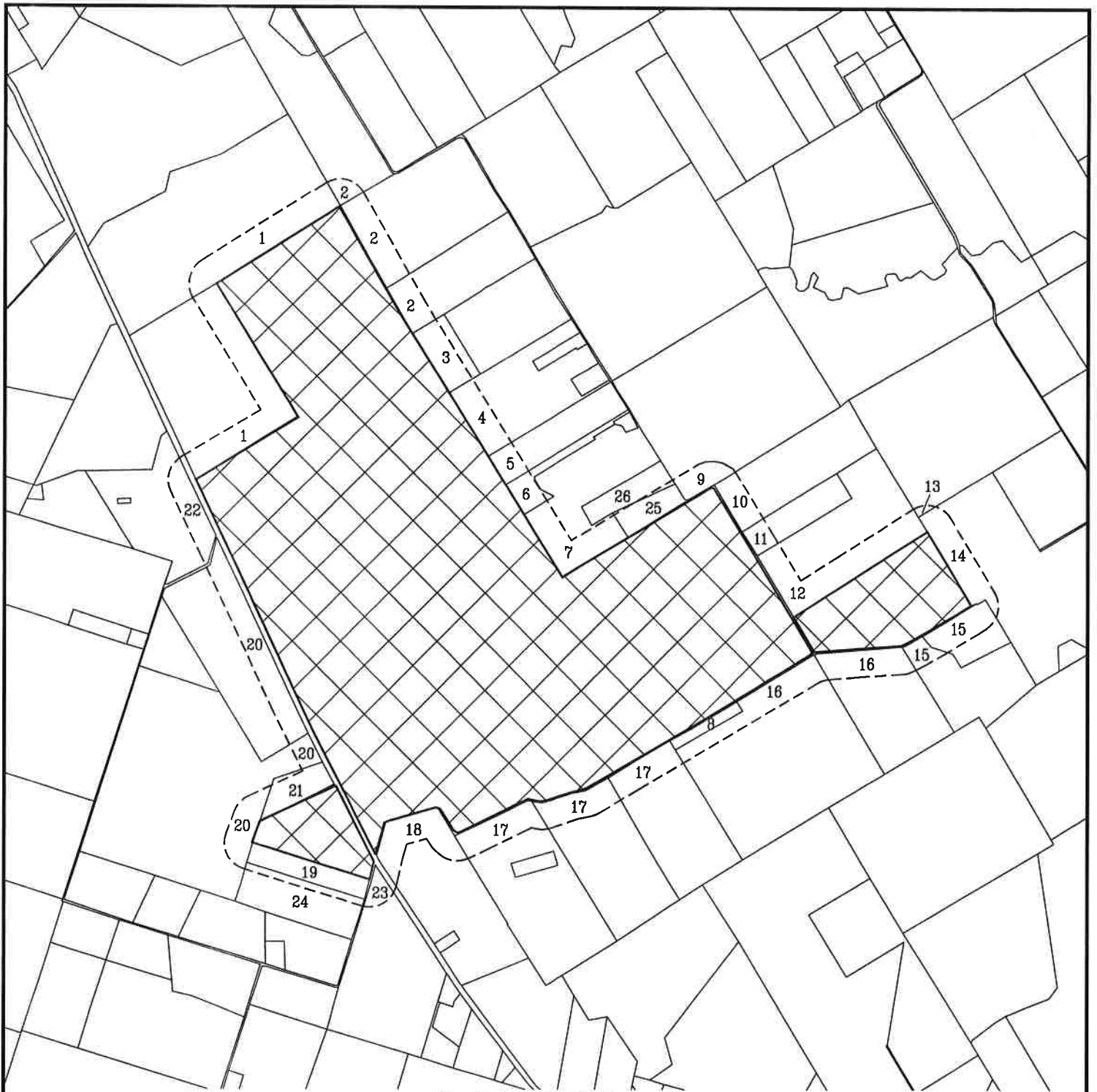
leah.whallon@tceq.texas.gov

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

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Map Revised 5/20/2025

LEGEND:

- Denotes Adjacent Landowner Tract
- - - Denotes 500 ft. Radius from Circle 7 Dairy LLC Property
- ▨ Denotes Circle 7 Dairy LLC Property



SCALED AS SHOWN

Grand Canyon Dairy
Dublin, TX
Erath County

ALO Map



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

ADJACENT LANDOWNERS LIST

Name: <u>Blue Sky Farms, LLC.</u> Number on Map: <u>1</u> Address: <u>4611 S FM 219</u> Address: <u>Dublin, TX 76446</u>	Name: <u>Johnny Feagan</u> Number: on Map <u>2</u> Address: <u>2775 CR 307</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Gustavo Frias</u> Number: on Map <u>3</u> Address: <u>3626 CR 307</u> Address: <u>Dublin, TX 76446</u>	Name: <u>Salavador & Leondies Solano</u> Number on Map <u>4</u> Address: <u>4042 CR 307</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Gabriel E Dagley</u> Number on Map: <u>5</u> Address: <u>3313 CR 132</u> Address: <u>Stephenville, TX 76401</u>	Name: <u>Michael Brent & Lisa Dianne Chambers</u> Number on Map: <u>6</u> Address: <u>4600 CR 307</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Tony & Sally Gray</u> Number on Map: <u>7</u> Address: <u>5170 CR 307</u> Address: <u>Dublin, TX 76446</u>	Name: <u>James & Tracy Holleman</u> Number on Map: <u>8</u> Address: <u>3048 CR 308</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Wallace Family Trust</u> Number on Map: <u>9</u> Address: <u>4879 CR 307</u> Address: <u>Dublin, TX 76446</u>	Name: <u>Haros Ranch LLC.</u> Number on Map: <u>10</u> Address: <u>830 Kingston Dr</u> Address: <u>Mansfield, TX 76063</u>
Name: <u>Luciano Haros</u> Number on Map: <u>11</u> Address: <u>830 Kingston Dr</u> Address: <u>Mansfield, TX 76063</u>	Name: <u>Rygh & Lyn Fullagar</u> Number on Map: <u>12</u> Address: <u>6291 CR 307</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Dickie D & Nancy R Palmore</u> Number on Map: <u>13</u> Address: <u>927 Preston Lane</u> Address: <u>Dublin, TX 76446</u>	Name: <u>Frederick Wayne & Gregory Alan Gibson</u> Number on Map: <u>14</u> Address: <u>2801 FM 1496</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Paulo A & Cathy S Valle</u> Number on Map: <u>15</u> Address: <u>PO Box 207</u> Address: <u>Dublin, TX 76446</u>	Name: <u>Seven R Corporation</u> Number on Map: <u>16</u> Address: <u>PO Box 83701</u> Address: <u>Baton Rouge, LA 70884</u>
Name: <u>Jesse Lee Tackett Credit Shelter Trust</u> Number on Map: <u>17</u> Address: <u>1256 CR 308</u> Address: <u>Dublin, TX 76446</u>	Name: <u>Deboer Reo, LLC</u> Number on Map: <u>18</u> Address: <u>451 Eagle Station Lane</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> Number on Map: <u>19</u> Address: <u>260 CR 317</u> Address: <u>Dublin, TX 76446</u>	Name: <u>Sonrisa Land & Cattle Co Inc</u> Number: on Map <u>20</u> Address: <u>PO Box 250</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Eddie & Effie Leatherwood</u> Number: on Map <u>21</u> Address: <u>414 CR 336</u> Address: <u>Dublin, TX 76446</u>	Name: <u>La Perla Land & Livestock, LLC</u> Number on Map <u>22</u> Address: <u>PO Box 367</u> Address: <u>Dublin, TX 76446</u>
Name: <u>Joseph Hines</u> Number: on Map <u>23</u> Address: <u>1418 W Torrey St.</u> Address: <u>Granbury, TX 76048</u>	Name: <u>Janice Hess</u> Number: on Map <u>24</u> Address: <u>570 Alexander Rd.</u> Address: <u>Stephenville, TX 76401</u>
Name: <u>Christopher Proscelle & Danielle Pros</u> Number: on Map <u>25</u> Address: <u>3532 Seagate Way Unit 110</u> Address: <u>Oceanside, CA 92056</u>	Name: <u>Ross & Tammy Carpenter</u> Number: on Map <u>26</u> Address: <u>HC 12 BOC 1209</u> Address: <u>Roswell, NM 88201</u>

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

GUSTAVO FRIAS
3626 CR 307
DUBLIN TX 76446

JOHNNY FEAGAN
2775 CR 307
DUBLIN TX 76446

JOSEPH HINES
1418 W TORREY ST
GRANBURY TX 76048

WALLACE FAMILY TRUST
4879 CR 307
DUBLIN TX 76446

LUCIANO HAROS
830 KINGSTON DR
MANSFIELD TX 76063

DICKIE D & NANCY R PALMORE
927 PRESTON LANE
DUBLIN TX 76446

PAULO A & CATHY S VALLE
925 S MAIN ST. #3105
GRAPEVINE TX 76051

JESSE LEE TACKETT CREDIT SHELTER
TRUST
1256 CR 308
DUBLIN TX 76446

GABRIEL E DAGLEY
3313 CR 132
STEPHENVILLE TX 76401

SALAVADOR & LEONDIES SOLANO
4042 CR 307
DUBLIN TX 76446

MICHAEL BRENT & LISA DIANNE
CHAMBERS
4600 CR 307
DUBLIN TX 76446

TONY & SALLY GRAY
5170 CR 307
DUBLIN TX 76446

HAROS RANCH LLC
830 KINGSTON DR
MANSFIELD TX 76063

JAMES & TRACY HOLLEMAN
3048 CR 308
DUBLIN TX 76446

FREDERICK WAYNE & GREGORY ALAN
GIBSON
2801 FM 1496
DUBLIN TX 76446

SEVEN R CORPORATION
PO BOX 83701
BATON ROUGE LA 70884

DEBOER REO LLC
451 EAGEL STATION LANE
CARSON CITY NV 89701

LUCIANO HAROS
830 KINGSTON DR
MANSFIELD TX 76063

RYGH & LYN FULLAGER
6291 CR 307
DUBLIN TX 76446

FREDERICK WAYNE & GREGORY ALAN
GIBSON
2801 FM 1496
DUBLIN TX 76446

PAULO A & CATHY S VALLE
PO BOX 207
DUBLIN TX 76446

VENTURA & RAFAELA BOTELLO
260 CR 317
DUBLIN TX 76446

SONRISA LAND & CATTLE CO INC
PO BOX 250
DUBLIN TX 76446

EDDIE & EFFIE LEATHERWORD
414 CR 336
DUBLIN TX 76446

LA PERLA LAND & LIVESTOCK, LLC
PO BOX 367
DUBLIN TX 76446

JANICE HESS
570 ALEXANDER RD
STEPHENVILLE TX 76401

CHRISTOPHER PROSCHELLE & DANIELLE
PROS
3532 SEAGATE WAY UNIT 110
OCEANSIDE CA 92056

ROSS & TAMMY CARPENTER
HC 12 BOC 1209
ROSWELL NM 88201

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 - 91 ac; propuesta - 66 ac) y LMU #14 (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 sobrellenos/derrames. Animales muertos - elimínelos a través de un servicio de procesamiento de terceros o entierro 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.



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

June 11, 2025

TCEQ

Land Applications Team, Water Quality Division, MC-150

Attn: Joy Alabi

P.O. Box 13087

Austin, TX 78711-3087

RECEIVED
JUNE 11 2025

CAFO PERMITS TEAM

TCEQ

Re: Requested Information – CAFO Individual Permit Major Application
WQ#2950 – Grand Canyon Dairy, Erath County, Texas.

Dear Ms. Alabi,

This letter is in response to your June 10, 2025, email regarding the above-referenced facility. From your email specifically:

1. Attached is revised Section 2.D of the Application, Item #6 of the PLS and Section 2.1 of the Calculations and Specifications.
2. Attached is revised Section 2.1 of the Calculations and Specifications.
3. Attached is revised Section 2.A.2 of the TIP for Phases 1 & 2.
4. Attached is revised Table 6 of the TIP.
5. Attached is Figure 1.3A with the 136-ft Buffer shown.
6. Attached is revised Section 2.A.1 of the TIP for Phases 1 & 2.
7. Attached is revised Table 4 of the TIP for Phase 1.
8. Attached is revised Table 4 of the TIP for Phase 2.
9. Yes, the redesign for the RCSs is still applicable to this major amendment application.
10. Attached are the labeled Liner Certification for RCSs #1 & #3.
11. Attached are the approved Alternative Crops for this site.
12. Yes, that is correct, RCSs #2 & #3 have had a sludge cleanout per Section X.A.1 and 4.
13. The "current conditions" referred to the maps. This major amendment is for Phase 1 to reduce the headcount to 2,150 in total of which all are milking.
14. Attached are Figures 1.3A-B with Phase 1 & Phase 2 labeled.
15. Attached are Figures 1.4A-B with Phase 1 & Phase 2 labeled.
16. Attached is Figure 1.4A with the flow arrows shown.
17. Attached are Figure 1.4A-B with the "feedlane" font size enlarged.
18. Attached is Figure 1.4B with the "composting/manure storage area" font sized enlarged.

19. Attached are Figures 2.1 A-B with the runoff label font sized enlarged.
20. The settling pond efficiency has been verified and is correct at 30%.
21. The settling efficiency is different in Phase 1 and Phase 2 because Phase 2 includes the addition of a digester and associated equipment.
22. That is incorrect, Table 2.3C does have double cropping of coastal and winter wheat.

Please let me know if you have any questions.

Respectfully Submitted,



Jourdan Mullin

Enviro-Ag Engineering, Inc.

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CAFO PERMITS TEAM
TCEQ

Cc: TCEQ Region 4, Stephenville
Grand Canyon Dairy
EAE file



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

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Mailed Check/Money Order Number:

Check/Money Order Amount:

Name Printed on Check:

EPAY Voucher Number: 765911 & 765912

Copy of Payment Voucher enclosed?

Yes ☐

SECTION 2. TYPE OF APPLICATION

A. Coverage: State Only ☐

TPDES ☒

B. Media Type: Water Quality ☐

Air and Water Quality ☒

C. Application Type: New ☐

Major Amendment ☒

Renewal ☐

Minor Amendment ☐

D. For amendments, describe the proposed changes: 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 62ac), 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 #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

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 62ac), 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. Revised 6/10/25
- 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.

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SPANISH

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

1) Nombre del solicitante: 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 62 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 - 91 ac; propuesta - 66 ac) y LMU #14 (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

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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 – 62ac), LMU #3A (21ac) is new and is in portion of LMU #3 (current - 91ac; 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. This strategic phasing ensures that the dairy operates within regulatory standards while scaling up operations. Revised 6/10/2025

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.

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- 2) Total Number of Animals:
In Open Lots: 2,500 In Buildings: 2,500
- 3) Animal Housing Location, hours/day:
Open Lots: 21 Buildings: 3
- 4) Average Liveweight, pounds per head: 1,400 lbs
- 5) Volatile Solids Removed by Separator System: 50%
- 6) Volatile Solids Loading Rate, lbs/day/1000 ft³: 5.30
- 7) Spilled Drinking Water, gallons/day: Included in cleanup
- 8) Water for Cleanup, gallons/day: 37,500 gal/day
- 9) Water for Manure Removal, gallons/day: Included in cleanup
- 10) Recycled Wastewater, gallons/day: n/a

B. Wastewater Runoff

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- 1) Design Rainfall Amount, inches: 12
- 2) Design Rainfall Event:
 - ☐ 25-year, 24 hour
 - ☐ Soil Plant Air and Water (SPAW) Field and Pond Hydrology Model
 - ☒ 25-year, 10 day
 - ☐ Other; specify: [Click here to enter text.](#)

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

Table 2. RCS Volume Allocations (Acre-Feet)

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity	Actual Capacity
1	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 Figure ^Phase 1	

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

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

B. Wastewater Runoff

- 1) Design Rainfall Amount, inches: 12
- 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.](#)

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

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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	

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

Table 6: Water Well Status and Protective Measures

Well ID Number	Well Type	Producing or Non-Producing	Open, Cased, or Capped	Protective 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	See Attached Plugging Report
7	Domestic	Producing	Cased	See Approved Well Buffer Exception
8	Domestic	Non-Producing	Cased	See Attached Plugging Report
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

C. Wastewater:

1) Use or Disposal Method:

- ☒ Land Application to LMUs
☐ Total Evaporation
☒ Third Party Fields
☐ Other; specify: [Click here to enter text.](#)

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2) Land Application Location:

- ☒ Onsite ☒ Offsite ☐ Not Applicable

D. Land Application Summary from the Nutrient Management Plan

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

Table 4: Land Management Unit Summary from the Current NMP

LMU Name	Acre	Crop(s) and Yield Goal(s)	Application Rate (Ac-ft/Ac/Year OR Tons/Ac/Year)
1	62	Silage-Corn 21-25T; SG Green Chop 6-7T H	0.333 ac-ft/ac/yr
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	0.492 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 6-7T M	0.158 ac-ft/ac/yr
3A	21	Coastal GC 9-11T; SG GC 6-7T M	0.392 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 6-7T H	17.9 tons/ac/yr
7	30	Silage-Corn 16-20T; SG Green Chop 6-7T M	17.9 tons/ac/yr
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 6-7T H	17.9 tons/ac/yr

C. Wastewater:

1) Use or Disposal Method:

- ☒ Land Application to LMUs
☐ Total Evaporation
☒ Third Party Fields
☐ Other; specify: [Click here to enter text.](#)

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2) Land Application Location:

- ☒ Onsite ☒ Offsite ☐ Not Applicable

D. Land Application Summary from the Nutrient Management Plan

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

Table 4: Land Management Unit Summary from the Current NMP

LMU Name	Acre	Crop(s) and Yield Goal(s)	Application Rate (Ac-ft/Ac/Year OR Tons/Ac/Year)
1	62	Silage-Corn 21-25T; SG Green Chop 6-7T H	0.65 ac-ft/ac/yr
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 6-7T M	0.317 ac-ft/ac/yr
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	0.842 ac-ft/ac/yr
6	62	Silage-Corn 16-20T; SG Green Chop 6-7T H	17.9 tons/ac/yr
7	30	Silage-Corn 16-20T; SG Green Chop 6-7T M	17.9 tons/ac/yr
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 6-7T H	17.9 tons/ac/yr

July 3, 1989

RCS #1 - Liner Cert.

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

Attn: Tom Haberle
Water Quality Division

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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

Kemp E. Akeman, P.E.
Materials Engineer



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

ns

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.a
GRAND CANYON DAIRY
RCS HYDROLOGIC CONNECTION

Grand Canyon Dairy, June 14, 1989

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

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SOUTHWESTERN LABORATORIES



RCS #3 - Liner Cert.

March 16, 1990

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

Attn: Tom Haberle
Water Quality Division

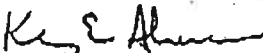
Re: Grand Canyon Dairy
Erath County, Texas

Gentlemen:

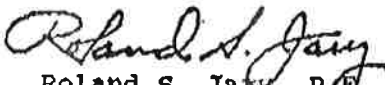
Southwestern Laboratories has completed sampling and testing of the soils exposed in a wastewater retention pond at the Grand Canyon Dairy Farm in Erath County. The test results including sample thickness, Atterberg limits, percent passing the number 200 sieve, permeability, and in-place density tests 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. Jany, P.E.
Vice President

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TCEQ

tj

Submitted by: Grand Canyon Dairy

Signed by: _____

Date: _____

Grand Canyon Dairy - August 13, 1990Pond Number 7

Test Location	No. 1	No. 2	No. 3	Minimum Requirement
Soil Description				
Color	Dark Gray Clay	Dark Gray Clay	Dark Gray Clay	
Texture	CH	CH	CH	
Unified Classification	12 ^u +	12 ^u +	12 ^u +	12
Sample Depth, Inches				
Atterberg Limits				
Liquid Limit, (%)	61	59	66	30
Plastic Limit, (%)	19	18	19	15
Plasticity Index	42	41	47	30
Passing No. 200 sieve, (%)	88.0	86.5	89.3	1.0 x 10 ⁻⁷
Permeability - 2.0 x 10 ⁻⁸ cm/sec.				

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SWL Report No. 004704

SOUTHWESTERN LABORATORIES

ATTACHMENT F

SITE SPECIFIC INFORMATION FOR LAND MANAGEMENT UNITS FROM NUTRIENT MANAGEMENT PLAN

Table 1: Alternative Crops and Yield Goals
Applicable to ALL Land Management Units: - 1,034 Acres

Crop and Yield Goal	Nitrogen		P2O5	
	Requirement	Removal	Requirement	Removal
Alfalfa Hay 10 Tons	550	552	180	101
Alfalfa Hay 12 Tons	640	638	180	121
Alfalfa Hay 2 Tons	120	106	35	20
Alfalfa Hay 4 Tons	210	213	80	40
Alfalfa Hay 6 Tons	300	319	130	60
Alfalfa Hay 8 Tons	420	426	180	81
Bahia 2 Cut Hay 7000 #	140	89	70	21
Bahia 3 Cut Hay 8000 #	210	102	80	24
Bahia 4 Cut Hay 9000 #	280	114	115	27
Bahia Grazing + 1 Hay	110	83	70	19
Bahia Grazing 1 AU/1 ac	260	114	70	27
Bahia Grazing 1 AU/2 ac	220	108	45	25
Bahia Grazing 1 AU/3 ac	180	102	45	24
Bahia Grazing 1 AU/4 ac	140	95	45	22
Bahia Grazing 1 AU/5 ac	100	79	45	18
Bahia Grazing 1 AU/6 ac	60	65	45	15
Cantaloupes 15-20 tons	120	88	105	82
Coastal 2 Cut + Graze	260	198	125	62
Coastal 2 Cut Hay	200	169	125	39
Coastal 3 Cut + Graze	360	257	125	80
Coastal 3 Cut Hay	300	238	125	74
Coastal 4 Cut Hay	400	257	170	80
Coastal 5-6 Cut Hay	500	297	170	93
Coastal Grazing + 1 Hay	160	145	70	34
Coastal Grazing 1 AU/0.5 ac	300	218	70	68
Coastal Grazing 1 AU/1 ac	240	198	70	62
Coastal Grazing 1 AU/2 ac	200	169	70	39
Coastal Grazing 1 AU/3 ac	160	145	70	34
Coastal Grazing 1 AU/4 ac	120	120	70	28
Coastal Grazing 1 AU/5 ac	90	103	70	24
Coastal Grazing 1 AU/6 ac	60	86	70	20
Coastal GC (30%DM) 21-23 Ton	400	345	170	95
Coastal GC (30%DM) 18-20 Ton	350	300	170	82
Coastal GC (30%DM) 15-17 Ton	300	255	125	70
Coastal GC (30%DM) 9-11 Ton	200	170	125	47
Common 2 Cut Hay 6000 #	140	113	80	26
Common 3 Cut Hay 7400 #	210	141	80	46
Common 4 Cut Hay 8000 #	280	152	80	49
Common 5-6 Cut Hay 9000 #	350	171	80	56
Common Grazing + 1 Hay	110	100	70	23
Common Grazing + 2 Hay	180	132	80	30
Common Grazing + 3 Hay	250	148	80	48
Common Grazing 1 AU/1ac	260	152	70	49
Common Grazing 1 AU/2 ac	220	145	45	46
Common Grazing 1 AU/3 ac	180	132	45	30
Common Grazing 1 AU/4 ac	140	113	45	26
Common Grazing 1 AU/5 ac	100	94	45	22
Common Grazing 1 AU/6 ac	60	79	45	18

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ATTACHMENT F

SITE SPECIFIC INFORMATION FOR LAND MANAGEMENT UNITS FROM NUTRIENT MANAGEMENT PLAN

Table 1: Alternative Crops and Yield Goals
Applicable to ALL Land Management Units: - 1,034 Acres

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

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ATTACHMENT F

SITE SPECIFIC INFORMATION FOR LAND MANAGEMENT UNITS FROM NUTRIENT MANAGEMENT PLAN

Table 1: Alternative Crops and Yield Goals
Applicable to ALL Land Management Units: - 1,034 Acres

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

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ATTACHMENT F

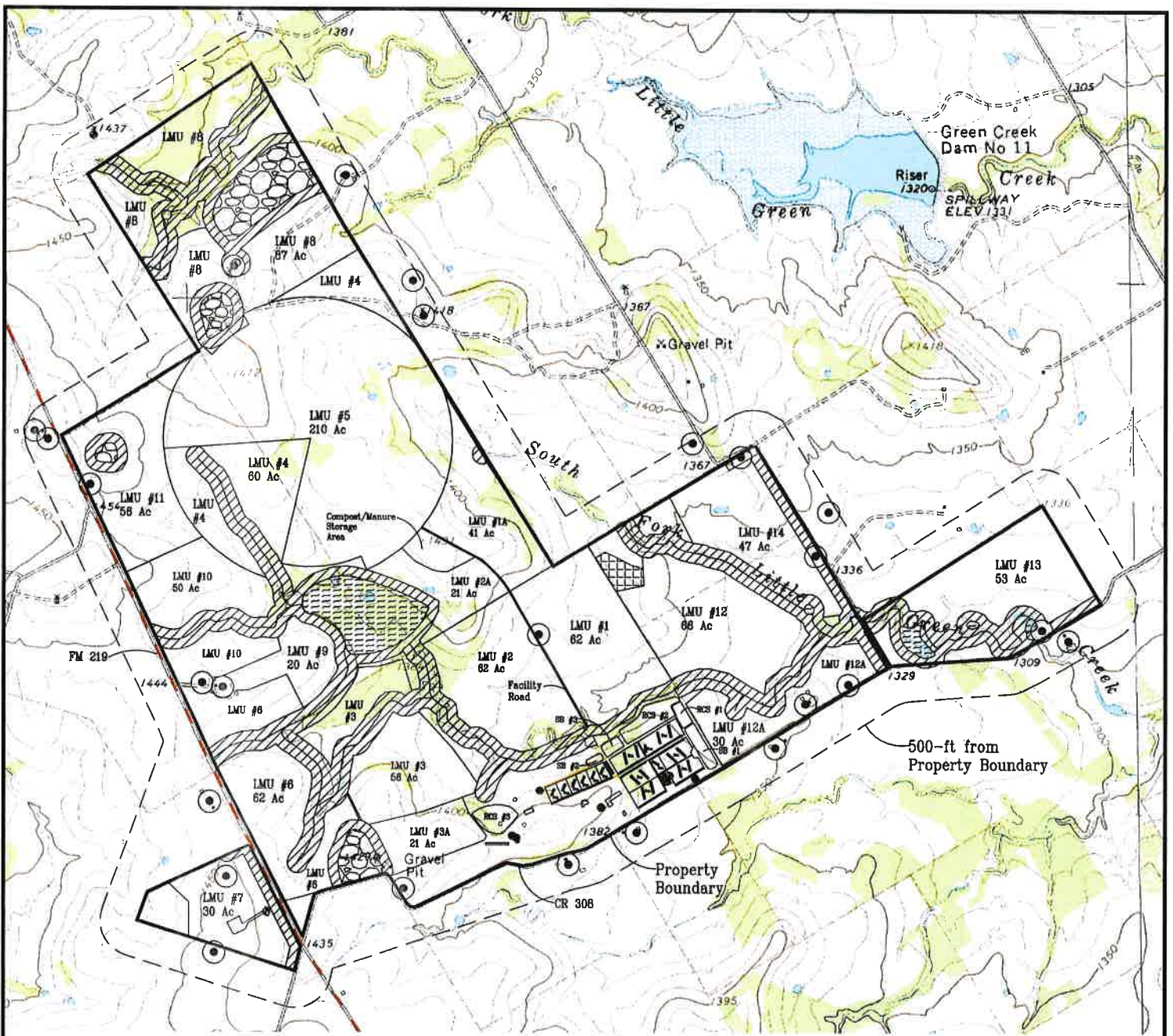
SITE SPECIFIC INFORMATION FOR LAND MANAGEMENT UNITS FROM NUTRIENT MANAGEMENT PLAN

Table 1: Alternative Crops and Yield Goals
Applicable to ALL Land Management Units: - 1,034 Acres

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

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Map Revised 6/11/2025

LEGEND:

- ⊕ Denotes Plugged/No Evidence Well
- Denotes Water Well
- ⊙ Denotes Water Well with 100' or 150' Buffer
- ▨ Denotes Caliche Pit
- ▧ Denotes Surface Water
- ▩ Denotes Burial Site
- ▤ Denotes 136' Buffer Zone

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1000' 0 1000' 2000'

SCALED AS SHOWN

Source: USDA-NRCS. Geospatial Data Gateway. Available at:
<http://datagateway.nrcs.usda.gov/>. Digital Raster Graphic
County Mosaic by NRCS - Accessed December 2017.

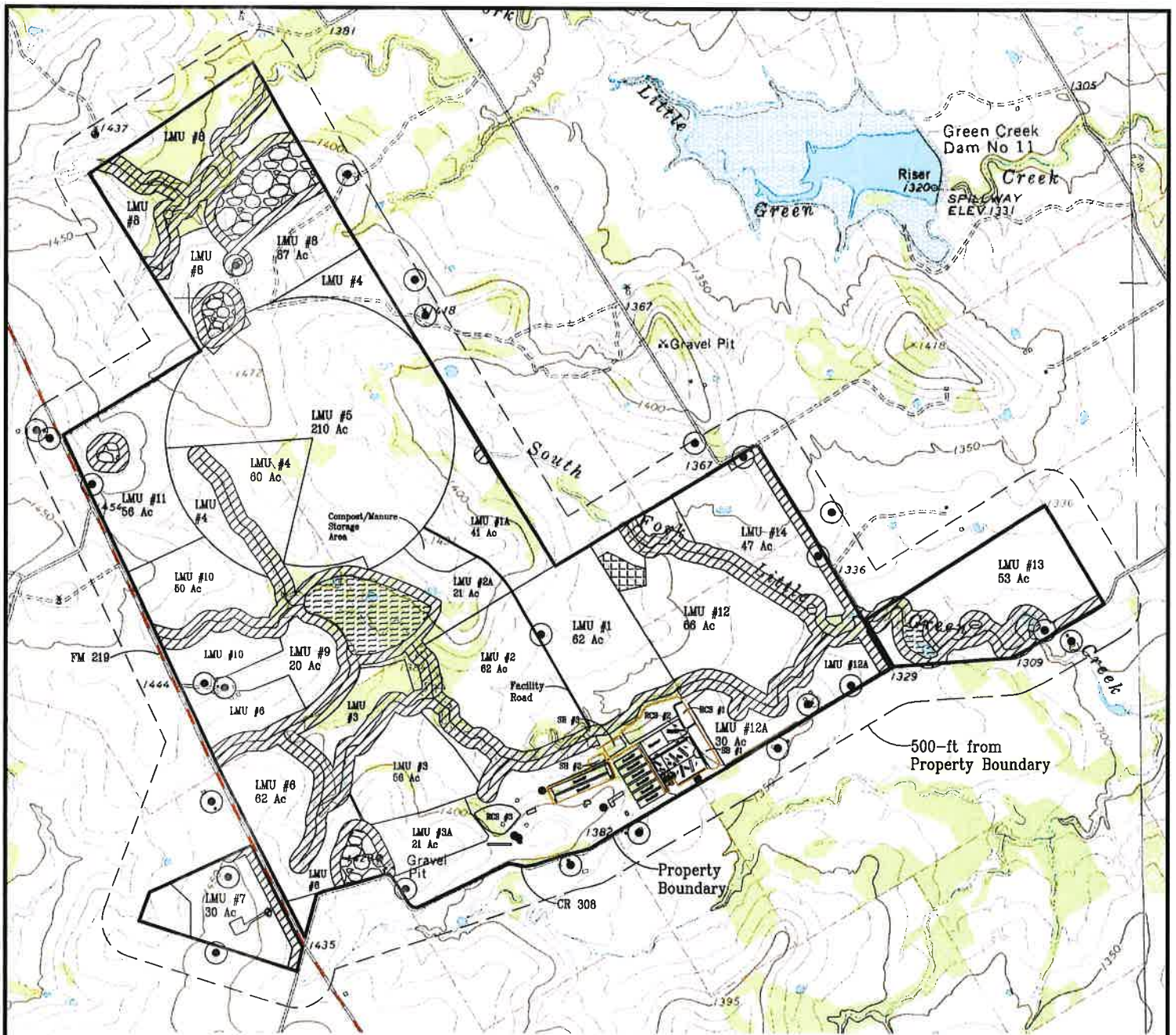
- Refer to Figures 1.4A-B for a detailed production area map.

Grand Canyon Dairy
Dublin, TX
Erath County

Site Map-Phase 1
Figure 1.3A
Page 4

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

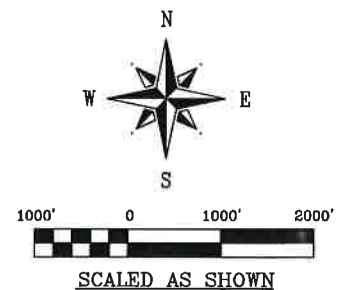


Map Generated 2/13/2025

LEGEND:

- ⊕ Denotes Plugged/No Evidence Well
- Denotes Water Well
- ⊙ Denotes Water Well with 100' or 150' Buffer
- ▨ Denotes Caliche Pit
- ▧ Denotes Surface Water
- ▩ Denotes Burial Site
- ▤ Denotes 136' Buffer Zone

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Source: USDA-NRCS. Geospatial Data Gateway. Available at:
<http://datagateway.nrcs.usda.gov/>. Digital Raster Graphic
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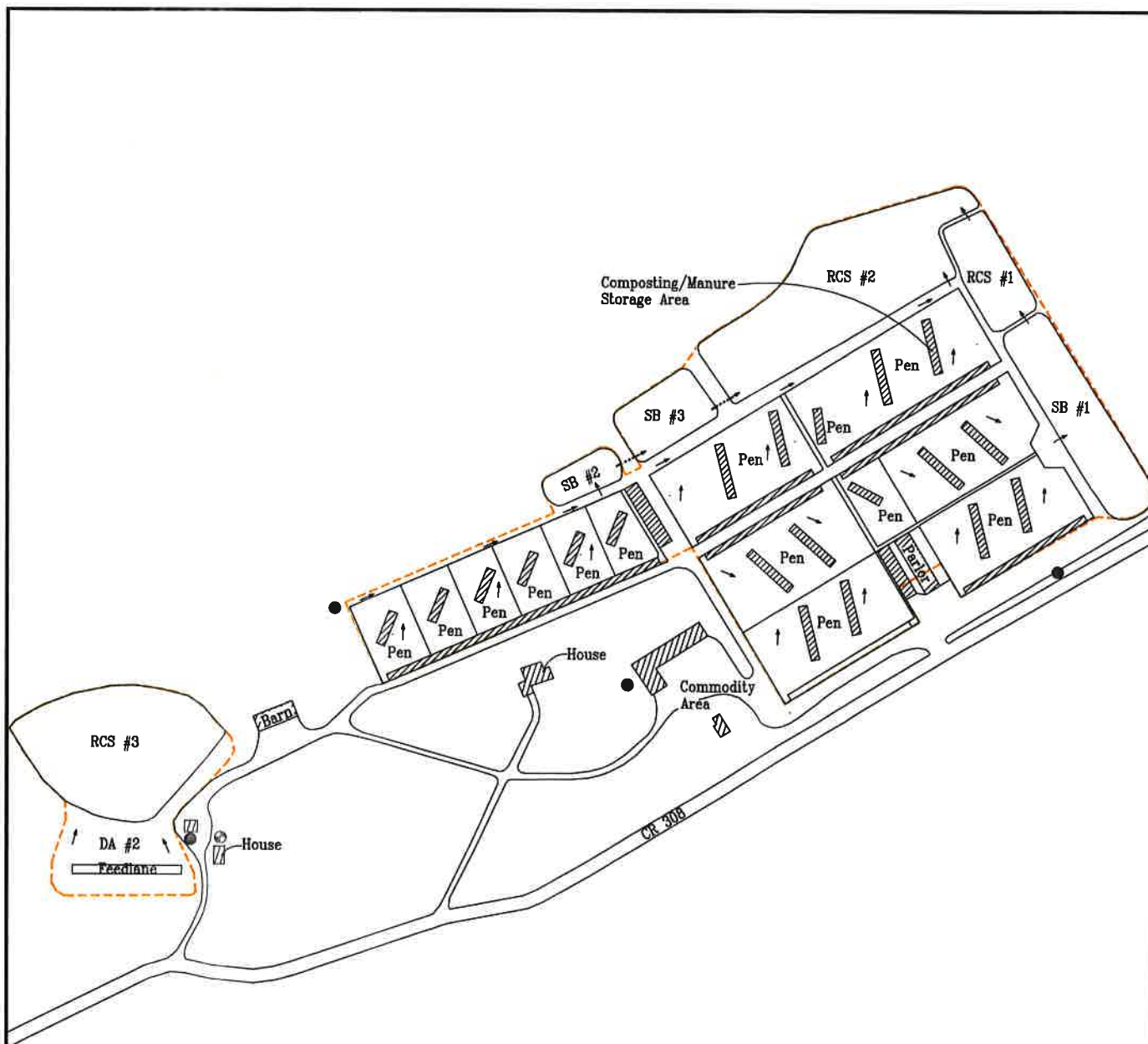
- Refer to Figures 1.4A-B for a detailed production area map.

Grand Canyon Dairy
Dublin, TX
Erath County

Site Map-Phase 2
Figure 1.3B
Page 5

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



Map Revised 6/11/2025

LEGEND:

- Denotes Ditches and/or Berms
- Denotes Underground Pipe
- ▨ Denotes Roofed Areas
- Denotes Water Well
- ⊙ Denotes Plugged Water Well

Runoff Control:

Drainage is depicted by arrows shown on maps. The drainage will be directed to the RCS via ditches, berms or underground pipe. The proposed Freestalls will be guttered out of the drainage area.

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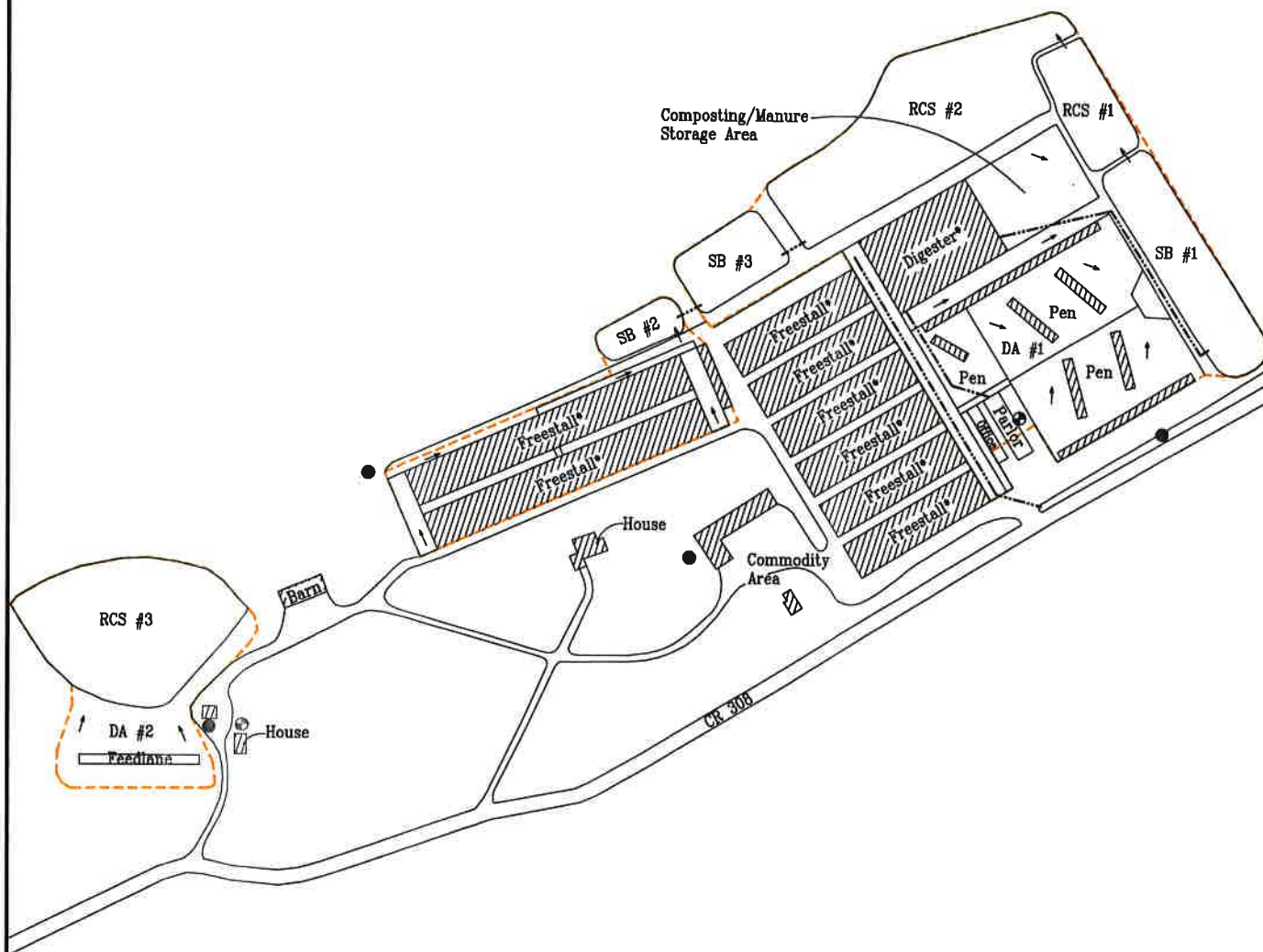
- Refer to Figure 1.3 for an overall facility map.

Grand Canyon Dairy
Dublin, TX
Erath County

Runoff Control Map-Phase 1
Figure 1.4A
Page 5



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



Map Revised 6/11/2025

LEGEND:

- Denotes Ditches and/or Berms
- Denotes Underground Pipe
- ▨ Denotes Roofed Areas
- * Denotes Proposed Structure
- Denotes Water Well
- ⊙ Denotes Plugged Water Well

Runoff Control:

Drainage is depicted by arrows shown on maps. The drainage will be directed to the RCS via ditches, berms or underground pipe. The proposed Freestalls will be guttered out of the drainage area.

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• Refer to Figure 1.3 for an overall facility map.

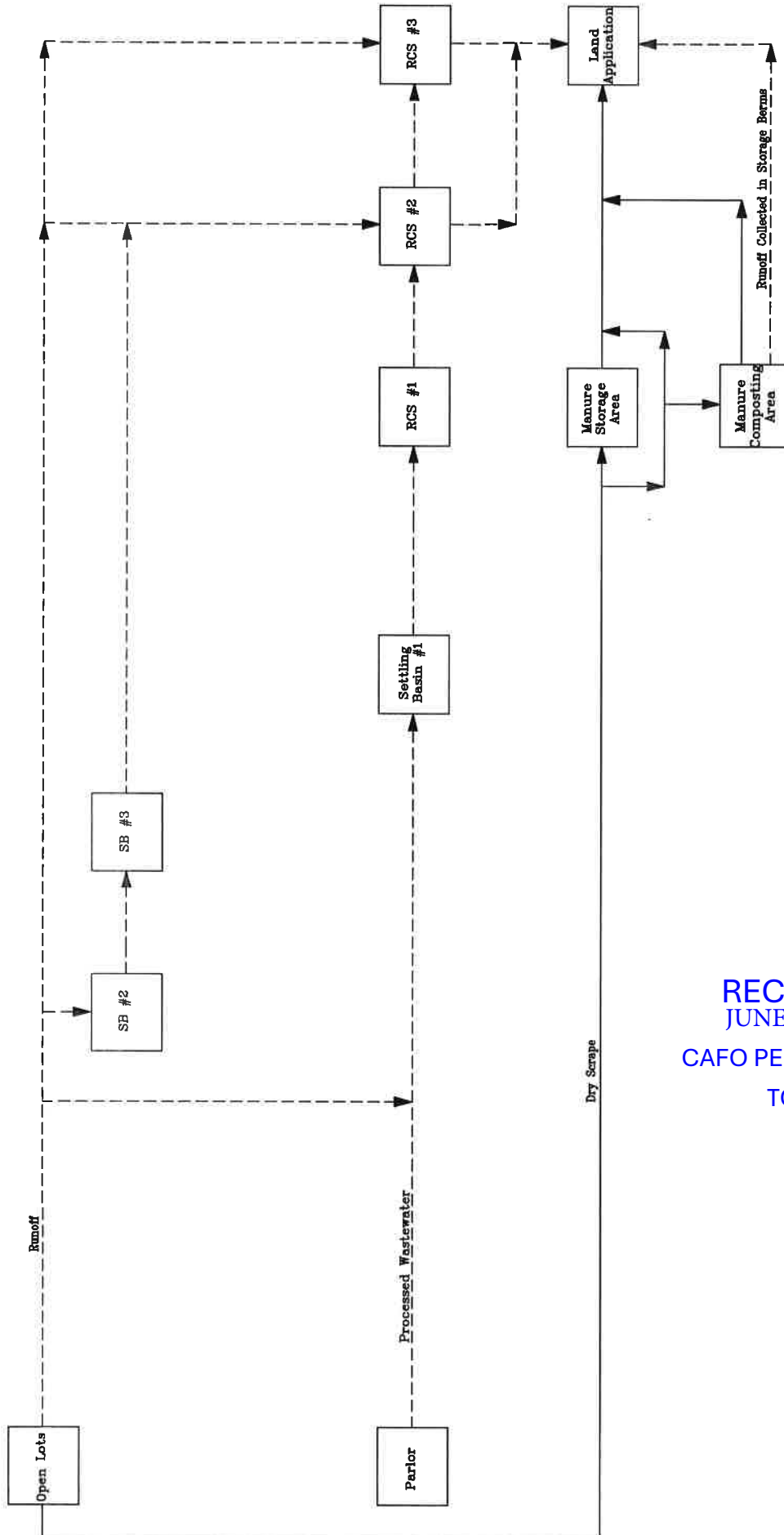
Grand Canyon Dairy
Dublin, TX
Erath County

Runoff Control Map-Phase 2
Figure 1.4B
Page 5



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Phase 1



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Legend:
- - - Liquid Waste
— Solid Manure

Grand Canyon Dairy
Dublin, TX
Erath County

Proposed Manure & Wastewater Flow Chart
Figure 2.1A Revised 6/11/2025
Page 5

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Liquid Waste

CAFO PERMITS TEAM
TCEQ



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

June 16, 2025

TCEQ
Land Applications Team, Water Quality Division, MC-150
Attn: Joy Alabi
P.O. Box 13087
Austin, TX 78711-3087

Re: Requested Information – CAFO Individual Permit Major Application
WQ#2950 – Grand Canyon Dairy, Erath County, Texas.

Dear Ms. Alabi,

This letter is in response to your June 16, 2025, email regarding the above-referenced facility. From your email specifically:

1. Attached is revised Section 2.1 of the Calculations and Specifications.
2. The "current conditions" referred to the maps. This major amendment is for Phase 1 to reduce the headcount to 2,500 in total of which all are milking.
3. Attached are Enforcement Closure Letters for Case No. 62488 for the sludge cleanouts of RCSs #2 and #3.

Please let me know if you have any questions.

Respectfully Submitted,

Jourdan Mullin

Enviro-Ag Engineering, Inc.

Cc: TCEQ Region 4, Stephenville
Grand Canyon Dairy
EAE file

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 – 62ac), LMU #3A (21ac) is new and is in 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. This strategic phasing ensures that the dairy operates within regulatory standards while scaling up operations. Revised 6/16/2025

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.

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

May 16, 2025

Dorice Miranda, Member
Circle 7 Dairy LLC and GRAND CANYON DAIRY LLC
2179 County Road 308
Dublin, Texas 76446

Via email

Re: Notice of Closure
Circle 7 Dairy LLC and GRAND CANYON DAIRY LLC; RN100794155
Docket No. 2022-0651-AGR-E; Enforcement Case No. 62418

Dear Dorice Miranda:

This letter is to inform you that the Enforcement Division has conducted a review of Texas Commission on Environmental Quality ("TCEQ") records on the above-referenced enforcement action. Our records indicate that while the enforcement case file can be closed, payment of all or a portion of the penalty remains outstanding. The matter has been referred to the Financial Administration Division, who will monitor collection of the remaining penalties. You may contact them at AcctRec@tceq.texas.gov or 512-239-0300 with questions related to payments.

Although the enforcement case file has been closed, the terms and conditions of the associated administrative order ("Order") remain in effect. The Order will remain on the regulated entity's compliance history for five years from the effective date of the Order.

If we can be of further assistance, please contact Ms. Mistie Gonzales of my staff at (254) 761-3056-8753 or at mistie.gonzales@tceq.texas.gov.

Sincerely,

Laura Draper, Team Leader
Enforcement Division

LD/mg

cc: Via email, Corey Mullin, Consultant, Enviro-Ag Engineering

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

May 13, 2025

Dorice Miranda, Member
Circle 7 Dairy LLC and GRAND CANYON DAIRY LLC
2179 County Road 308
Dublin, Texas 76446

Via email

Re: Notice of Closure
Circle 7 Dairy LLC and GRAND CANYON DAIRY LLC; RN100794155
Docket No. 2022-0651-AGR-E; Enforcement Case No. 62418

Dear Dorice Miranda:

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Although the enforcement case file has been closed, the terms and conditions of the associated administrative order ("Order") remain in effect. The Order will remain on the regulated entity's compliance history for five years from the effective date of the Order.

If we can be of further assistance, please contact Ms. Mistie Gonzales of my staff at (254) 761-3056 or at mistie.gonzales@tceq.texas.gov.

Sincerely,

Laura Draper

Laura Draper, Team Leader
Enforcement Division

LD/mg

cc: Via email, Corey Mullin, Consultant, Enviro-Ag Engineering

Joy Alabi

From: Jourdan Mullin <jmullin@enviroag.com>
Sent: Monday, June 16, 2025 1:58 PM
To: Joy Alabi
Subject: RE: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC, WQ0002950000 - Major Amendment

Ok, understood. Please leave that provision in the permit and we will provide new liner and capacity certification.

Thank you,
Jourdan

-----Original Message-----

From: Joy Alabi <Joy.Alabi@tceq.texas.gov>
Sent: Monday, June 16, 2025 1:52 PM
To: Jourdan Mullin <jmullin@enviroag.com>
Subject: Re: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC, WQ0002950000 - Major Amendment

Jourdan,

Yes, you are correct that the cleanout had to happen before the headcount increase. However, the requirement for the new liner and capacity certification is also applicable to the RCSs that have been cleaned out.

Thank you,
Joy

From: Jourdan Mullin <jmullin@enviroag.com>
Sent: Monday, June 16, 2025 1:25 PM
To: Joy Alabi
Subject: RE: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC, WQ0002950000 - Major Amendment

Joy,

There is no proposed construction to the RCSs with either the currently authorized permit or the major amendment application submitted. The Cleanout had to happen before the headcount increase. Please see Special Provision X.A.1. Please let me know if you have any questions.

Thank you,
Jourdan Mullin

From: Joy Alabi <Joy.Alabi@tceq.texas.gov>
Sent: Monday, June 16, 2025 11:36 AM
To: Jourdan Mullin <jmullin@enviroag.com>

Subject: RE: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC, WQ0002950000 - Major Amendment

Jourdan,

The document (Enforcement Closure Letters for Case No.62488) that you submitted in response to comment #3 of the cleanup items is not sufficient. The permit requirement is that "Once construction is complete, and the sludge cleanout in RCSs #2 and #3, new capacity and liner certifications for the RCSs will be provided." Please submit the new capacity and liner certifications to comply with the permit requirement.

Thank you,

Joy

From: Jourdan Mullin <jmullin@enviroag.com<mailto:jmullin@enviroag.com>>

Sent: Monday, June 16, 2025 11:25 AM

To: Joy Alabi <Joy.Alabi@tceq.texas.gov<mailto:Joy.Alabi@tceq.texas.gov>>

Subject: RE: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC, WQ0002950000 - Major Amendment

[cid:image001.gif@01DBDEC2.143DFCB0]

Good Monday Morning Joy,

Attached is the information you requested for Grand Canyon Dairy, WQ0002950000. Please let me know if have any questions.

Thank you,

Jourdan Mullin

From: Joy Alabi <Joy.Alabi@tceq.texas.gov<mailto:Joy.Alabi@tceq.texas.gov>>

Sent: Monday, June 16, 2025 9:31 AM

To: Jourdan Mullin <jmullin@enviroag.com<mailto:jmullin@enviroag.com>>

Cc: Richard George <rgeorge@enviroag.com<mailto:rgeorge@enviroag.com>>

Subject: RE: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC, WQ0002950000 - Major Amendment

Good morning Jourdan & Richard.

We have reviewed the responses to the comments. Please find below a few cleanup items.

1. This is from the original comment that was not addressed. Please correct the current acreage of LMU #3 in Section 2.1 (2nd paragraph) of the Calculations and Specifications.
2. The response to Comment #13 said to reduce the headcount to 2,150 in total of which all are milking. In the original application it is decrease to 2,500 head, all of which are milking. Please clarify.
3. It is indicated in your response to Comment #12 of my original comment, that the sludge in RCS #2 and #3 were cleaned out. Section VII.A.3(2) of the permit states: "Once construction is complete, and the sludge cleanout in RCSs #2 and #3, new capacity and liner certifications for the RCSs will be provided." Please submit the documents so that the Special Provision in Sections X.A.1 and 4 can be amended.

Please let me know if you need additional time.

Thank you,

Joy

From: Jourdan Mullin <jmullin@enviroag.com<mailto:jmullin@enviroag.com>>

Sent: Wednesday, June 11, 2025 2:42 PM

To: Joy Alabi <Joy.Alabi@tceq.texas.gov<mailto:Joy.Alabi@tceq.texas.gov>>

Cc: Robert Chavez <Robert.Chavez@tceq.texas.gov<mailto:Robert.Chavez@tceq.texas.gov>>; Corey Mullin <cmullin@enviroag.com<mailto:cmullin@enviroag.com>>

Subject: RE: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC, WQ0002950000 - Major Amendment

[cid:image001.gif@01DBDEC2.143DFCB0]

Good Afternoon Joy,

Attached is the information you requested for Grand Canyon Dairy, WQ0002950000. Please let me know if you have any questions.

Thank you,

Jourdan Mullin

From: Joy Alabi <Joy.Alabi@tceq.texas.gov<mailto:Joy.Alabi@tceq.texas.gov>>

Sent: Tuesday, June 10, 2025 2:08 PM

To: Richard George <rgeorge@enviroag.com<mailto:rgeorge@enviroag.com>>

Cc: Jourdan Mullin <jmullin@enviroag.com<mailto:jmullin@enviroag.com>>; Robert Chavez <Robert.Chavez@tceq.texas.gov<mailto:Robert.Chavez@tceq.texas.gov>>

Subject: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC, WQ0002950000 - Major Amendment

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 Richard.

Please find below our comments on the subject major amendment application.

1. In Section 2.D of the application and Item #6 of the plain language summaries, the proposed LMU 2 is 21 acres which is not consistent with the rest of the application. Also see Section 2.1 of the calculations and Specifications showing 56 acres for the same LMU. Please revise.
2. Please correct the acreage of current and proposed LMU #3 in Section 2.1 (2nd paragraph) of the Calculations and Specifications.
3. Section 2.A.2) of the technical information packet (TIP) (Phase 1 & Phase 2) shows zero in open lots, however Section 2.A.3) listed 21 hours in open lots. Please reconcile.
4. On Table 6 of the TIP (Well Table), the protective measure for Wells #6 and #8 is "see approved well buffer exception", even though Table 5.4 of the recharge feature certification shows plugged. Please revise.
5. Please show the 136 ft buffer zone that is referenced in the Map legend for Figure 1.3A – Site Map.
6. The manure production tables show that the animals will be in the pasture for 6 hours. Please reconcile this with comment 3) above.
7. The effluent application rates (acre-feet/acre) for LMUs #1, #2, #3, #3A and #5 on Table 4 of the TIP for Phase 1 is not consistent with the planned effluent application rate of the Phase 1 NMP. Please revise.
8. Please revise the effluent application rate for LMUs #1 and #5, and also the unit for LMU #5 for Phase II

on Table 4 of the TIP to be consistent with the planned effluent rate of the Phase II NMP.

9. The old and new RCS table says it is for a minor amendment. Please confirm that the re-designation of the RCSs is still applicable to this major amendment.

10. I am unable to identify the liner certifications for RCSs #1 and #3 in the supporting documents. Please note it on the documents.

11. Please submit the list of alternative crops/yield goals that was approved for this site.

12. Sections X.A.1 and 4 of the current permit require the Permittee to clean out sludge from RCSs #2 and #3 and all RCSs modifications prior to exceeding 2,150 head, of which 1,950 head are milking. Please verify if the Permittee has complied with this Special Provision.

13. If the permit amendment will reflect the current condition of the production area in Phase 1, then the proposed number of head should also be based on the 2,150 head, of which 1,950 head are milking. Please revise the application to be consistent.

14. Please label Phase 1 and Phase 2 on the Site Maps.

15. Please label Phase 1 and Phase 2 on Runoff Control Maps.

16. Please label the additional flow arrow on Figure 1.4A

17. Please increase the font of the feedlane on Figure 1.4A and 1.4B

18. Please increase the font on the Composting/Manure Storage Area on Figure 1.4B

19. Please enlarge all the runoff labels fonts (i.e. dry scrape, runoff, processed WW, etc) on the WW flowchart on Figure 2.1A and 2.1B

20. Please verify the 30% efficiency for the settling pond.

21. Please indicate why the settling efficiency from Phase 1 and 2 is different when nothing has changed.

22. Confirm that Table 2.3C does not have any double cropping.

The response is due on June 24, 2025.

Please let me know if you have any questions.

Thank you,

Joy Alabi

Land Applications Team, Water Quality Division Texas Commission on Environmental Quality P.O. Box 13087 Austin, Texas 78711-3087

Phone: 512-239-1318

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Jon Niermann, *Chairman*
Emily Lindley, *Commissioner*
Bobby Janecka, *Commissioner*
Kelly Keel, *Interim Executive Director*



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

August 25, 2023

Tim Miranda, Member
Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
965 Waddington Road
Ferndale, California 95536

RE: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
Permit No. WQ0002950000

This letter is your notice that the Texas Commission on Environmental Quality (TCEQ) executive director (ED) has acted on the above-named application. According to 30 Texas Administrative Code (TAC) Section 50.135 the ED's action became effective on the date the ED signed the permit or other action. A copy of the final action is enclosed and cites the effective date.

For certain matters, a **motion to overturn**, which is a request that the commission review the ED's action on an application, may be filed with the chief clerk. Whether a motion to overturn is procedurally available for a specific matter is determined by Title 30 of the Texas Administrative Code Chapter 50. According to 30 TAC Section 50.139, an action by the ED is not affected by a motion to overturn filed under this section unless expressly ordered by the commission.

If a motion to overturn is filed, the motion must be received by the chief clerk within 23 days after the date of this letter. An original and 7 copies of a motion must be filed with the chief clerk in person or by mail. The Chief Clerk's mailing address is Office of the Chief Clerk (MC 105), TCEQ, P.O. Box 13087, Austin, Texas 78711-3087. On the same day the motion is transmitted to the chief clerk, please provide copies to the Environmental Law Deputy Director (MC 173), and the Public Interest Counsel (MC 103), both at the same TCEQ address listed above. If a motion is not acted on by the commission within 45 days after the date of this letter, then the motion shall be deemed overruled.

You may also request **judicial review** of the ED's action. The procedure and timelines for seeking judicial review of a commission or ED action are governed by Texas Water Code Section 5.351.

Individual members of the public may seek further information by calling the TCEQ Public Education Program, toll free, at 1-800-687-4040.

Sincerely,

A handwritten signature in black ink that reads "Laurie Gharis". The signature is fluid and cursive.

Laurie Gharis
Chief Clerk

LG/cb

cc: Garrett T. Arthur, TCEQ Public Interest Counsel (MC 103)

Jon Niermann, *Presidente*
Emily Lindley, *Comisionada*
Bobby Janecka, *Comisionado*
Kelly Keel, *Director Ejecutivo interino*



COMISIÓN DE CALIDAD AMBIENTAL DE TEXAS

Protegiendo a Texas al Reducir y Prevenir la Contaminación

Agosto 25, 2023

Tim Miranda, Member
Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
965 Waddington Road
Ferndale, California 95536

RE: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
Permiso No. WQ0002950000

Esta carta es su aviso de que el director ejecutivo (ED, por sus siglas en inglés) de la Comisión de Calidad Ambiental de Texas (TCEQ, por sus siglas en inglés) ha actuado sobre la solicitud mencionada anteriormente. De acuerdo con 30 Código Administrativo de Texas (TAC, por sus siglas en inglés) Sección 50.135, la acción del ED entró en vigencia en la fecha en que el ED firmó el permiso u otra acción. Se adjunta una copia de la acción final y se cita la fecha de vigencia.

Para ciertos asuntos, una **moción para revocar**, que es una solicitud para que la comisión revise la acción del ED sobre una solicitud, puede presentarse ante el secretario oficial. Si una moción para revocar está disponible desde el punto de vista procesal para un asunto específico está determinado por el Título 30 del Capítulo 50 del Código Administrativo de Texas. De acuerdo con 30 TAC Sección 50.139, una acción del ED no se ve afectada por una moción de revocación presentada bajo esta sección a menos que la comisión lo ordene expresamente.

Si se presenta una moción para revocarla, la moción debe ser recibida por el secretario oficial dentro de los 23 días posteriores a la fecha de esta carta. Se debe presentar una copia original y 7 copias de una moción ante el secretario oficial en persona o por correo. La dirección postal del Secretario Oficial es Office of the Chief Clerk (MC 105), TCEQ, P.O. Box 13087, Austin, Texas 78711-3087. El mismo día en que se transmite la moción al secretario oficial, proporcione copias al Director Adjunto de Derecho Ambiental D (MC 173) y al Asesor de Interés Público (MC 103), ambos en la misma dirección de la TCEQ mencionada anteriormente. Si una moción no es tomada en cuenta por la comisión dentro de los 45 días posteriores a la fecha de esta carta, entonces la moción se considerará anulada.

También puede solicitar una **revisión judicial** de la acción del ED. El procedimiento y los plazos para solicitar la revisión judicial de una comisión o acción del ED se rigen por la Sección 5.351 del Código de Agua de Texas.

Los miembros individuales del público pueden solicitar más información llamando al Programa de Educación Pública de la TCEQ, al número gratuito, al 1-800-687-4040.

Atentamente,

A handwritten signature in black ink that reads "Laurie Gharis".

Laurie Gharis
Secretaria Oficial

LG/cb

cc: Garrett T. Arthur, Asesor de Interés Público de la TCEQ (MC 103)



TPDES Permit No. WQ0002950000
This Permit supersedes and replaces
Permit No. WQ0002950000 issued on July 23, 2019
[For TCEQ use only EPA ID No. TX0130923]

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

P.O. Box 13087

Austin, Texas 78711-3087

TPDES PERMIT FOR CONCENTRATED ANIMAL FEEDING OPERATIONS

under provisions of

Section 402 of the Clean Water Act

Chapter 26 of the Texas Water Code and

Section 382.051 of the Texas Clean Air Act

I. Permittee:

- A. Owner: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC
- B. Business Name: Grand Canyon Dairy
- C. Owner Address: 965 Waddington Road
Ferndale, California 95536

II. Type of Permit: Major Amendment / Air & Water Quality

III. Nature of Business Producing Waste: Concentrated Animal Feeding Operation (CAFO): Dairy Cattle; **SIC No.** 0241

IV. General Description and Location of Waste Disposal System:

Maximum Capacity: 4,000 total head, all of which are milking cows

Site Plan: See Attachment A

Retention Control Structures (RCSs) total required capacities without freeboard (Acre-Feet): RCS #1 (Covered Digester) – 0, RCS #2 – 58.81 (Digester operational) or 54.96 (Digester bypassed), RCS #3 – 22.79; RCS #1 and #2 act in-series. Other components of the waste management system are a covered anaerobic digester, screw press separator, and a methane generating system

Land Management Units (LMUs) (Acres): 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, LMU #14 – 52; See Attachment B for locations

Terms of the Nutrient Management Plan (NMP): See Attachments E and F

Location: The facility is located at 2179 County Road 308, Dublin, Erath County, Texas.
Latitude: 32.023055° N and Longitude: 98.270833° W. See Attachment C

Drainage Basin: The facility is located in the drainage area of the North Bosque River in Segment No. 1226 of the Brazos River Basin

This permit contained herein shall expire at midnight, five years after the date of Commission approval.

ISSUED DATE: August 17, 2023

A handwritten signature in black ink, appearing to read "K. Keel".

For the Commission

V. Rule and Statute Applicability

- A. Definitions.** All definitions in Chapter 26 of the Texas Water Code, 30 Texas Administrative Code (TAC) Chapters 305 and 321, Subchapter B shall apply to this permit and are incorporated by reference.
- B. Amendments, renewals, transfers, corrections, revocation, and suspension of permit.** The requirements in 30 TAC Chapter 305, Subchapter D apply to this permit.

VI. Permit Applicability and Coverage

- A. Discharge Authorization.** No discharge is authorized by this permit except as allowed by the provisions in this permit and 40 Code of Federal Regulations Chapter 412, which is adopted by reference in 30 TAC Chapter 305.541.
- B. Application Applicability.** The application pursuant to which the permit has been issued is incorporated herein; provided, however, that in the event of a conflict between the provisions of this permit and the application, the provisions of the permit shall control.
- C. Air Quality Authorization.** The permittee shall comply with the requirements listed in Section VII.D. of this permit and shall:
1. maintain a minimum treatment capacity of 18.41 acre-feet in RCS #2 when the covered digester is operational and 15.28 acre-feet when the covered digester is bypassed;
 2. identify the maximum sludge volume and the minimum treatment volume on the permanent pond marker in RCS #2;
 3. maintain a copy of the odor control plan in the Pollution Prevention Plan; and
 4. include a stage storage table for the treatment pond in the RCS Management Plan.

VII. Pollution Prevention Plan (PPP) Requirements**A. Technical Requirements**

1. PPP General Requirements.
 - (a) The permittee shall update and implement a PPP for this facility upon issuance of this permit. The PPP shall:
 - (1) be prepared in accordance with good engineering practices;
 - (2) include measures necessary to limit the discharge of pollutants to surface water in the state;
 - (3) describe and ensure the implementation of practices which are to be used to assure compliance with the limitations and conditions of this permit;
 - (4) include all information listed in Section VII.A.;
 - (5) identify specific individual(s) who is/are responsible for development, implementation, operation, maintenance, inspections, recordkeeping, and revision of the PPP. The activities and responsibilities of the pollution prevention personnel shall address all aspects of the facility's PPP;
 - (6) be signed by the permittee or other signatory authority in accordance with 30 TAC §305.44 (relating to Signatories to Applications); and
 - (7) be retained on-site.
 - (b) The permittee shall amend the PPP:
 - (1) before any change in the number or configuration of LMUs;
 - (2) before any increase in the maximum number of animals;
 - (3) before operation of any new control facilities;

- (4) before any change that has a significant effect on the potential for the discharge of pollutants to water in the state;
 - (5) if the PPP is not effective in achieving the general objectives of controlling discharges of pollutants from the production area or LMUs; or
 - (6) within 90 days following written notification from the Executive Director that the plan does not meet one or more of the minimum requirements of this permit.
- (c) Maps. The permittee shall maintain the following maps as part of the PPP.
 - (1) Site Map. The permittee shall update the site map as needed, by permit amendment, to reflect the layout of the facility. The map shall include, at a minimum, the following information: facility boundaries; pens; barns; berms; open lots; manure storage areas; areas used for composting; dead animal burial sites; RCSs or other control facilities; LMUs; water wells, abandoned and in use, which are on-site or within 500 feet of the facility boundary; and all springs, lakes, or ponds located on-site or within one mile of the facility boundary.
 - (2) Land Application Map. Natural Resource Conservation Service (NRCS) soil survey maps of all LMUs shall depict:
 - (i) the boundary of each LMU and acreage;
 - (ii) all buffer zones required by this permit; and
 - (iii) the unit name and symbol of all soils in the LMU(s).
- (d) Potential Pollutant Sources/Site Evaluation.
 - (1) Potential Pollutant Sources. The PPP shall include a description of potential pollutant sources and indicate all measures that will be used to prevent contamination from the pollutant sources. Potential pollutant sources include any activity or material that may reasonably be expected to add pollutants to surface water in the state from the facility.
 - (2) Soil Erosion. The PPP shall identify areas that, due to topography, activities, or other factors, have a high potential for significant soil erosion. If these areas have the potential to contribute pollutants to surface water in the state, the PPP shall identify measures used to limit erosion and pollutant runoff.
 - (3) Control Facilities. The PPP shall include the location and a description of control facilities. The control facilities shall be appropriate for the identified sources of pollutants at the CAFO.
 - (4) Recharge Feature Certification. The recharge feature certification submitted in the permit application shall be implemented, updated by the permittee as often as necessary, and maintained in the PPP.
 - (5) 100-year Floodplain. All control facilities, including holding pens and RCSs, shall be located outside of the 100-year floodplain or protected from inundation and damage that may occur during the flood.
- (e) Spill Prevention and Recovery. The permittee shall take appropriate measures necessary to prevent spills and to clean up spills of any toxic pollutant. Where potential spills can occur, materials, handling procedures and storage shall be specified. The permittee shall identify the procedures for cleaning up spills and shall make available the necessary equipment to personnel to implement a clean up. The permittee shall store, use, and dispose of all pesticides in accordance with label instructions. There shall be no disposal of pesticides, solvents or heavy

metals, or of spills or residues from storage or application equipment or containers, into RCSs. Incidental amounts of such substances entering a RCS as a result of stormwater transport of properly applied chemicals is not a violation of this permit.

2. Discharge Restrictions and Monitoring Requirements.
 - (a) Discharge Restrictions. Wastewater may be discharged to water in the state from a properly designed (25-year frequency 10-day duration (25 year/10 day)), constructed, operated and maintained RCS whenever chronic or catastrophic rainfall, or catastrophic conditions cause an overflow. There shall be no effluent limitations on discharges from RCSs which meet the above criteria.
 - (b) Monitoring Requirements. The permittee shall sample all discharges from the RCS(s) and LMU(s). The effluent shall be analyzed by a National Environmental Laboratory Accreditation Conference (NELAC) accredited lab for the parameters shown in Table 1.

Table 1: Monitoring Requirements

Parameter	Sample Type	Sample Frequency
5 Day Biochemical Oxygen Demand (BOD ₅)	Grab	1/day ¹
<i>Escherichia coli</i>	Grab	1/day ¹
Total Dissolved Solids (TDS)	Grab	1/day ¹
Total Suspended Solids (TSS)	Grab	1/day ¹
Nitrate (N)	Grab	1/day ¹
Total Phosphorus	Grab	1/day ¹
Ammonia Nitrogen	Grab	1/day ¹
Pesticides ²	Grab	1/day ¹

¹Sample shall be taken within the first thirty (30) minutes following the initial discharge and then once per day while discharging.

²Any pesticide which the permittee has reason to believe could be present in the wastewater.

- (c) If the permittee is unable to collect samples due to climatic conditions that create dangerous conditions for personnel (such as local flooding, high winds, hurricane, tornadoes, electrical storms, etc.), the permittee shall document why discharge samples could not be collected. Once dangerous conditions have passed, the permittee shall conduct the required sampling.
3. RCS Design and Construction.
 - (a) RCS Certifications
 - (1) The permittee shall ensure that the design and completed construction of the modified RCS(s) and the anaerobic digester system (See Special Provision X.A.) is certified by a licensed Texas Professional Engineer prior to use. The certification shall be signed and sealed in accordance with the Texas Board of Professional Engineers requirements.
 - (2) Documentation of liner and capacity certifications must be completed for each RCS prior to use and kept on-site in the PPP. Once construction is complete, and the sludge cleanout in RCSs #2 and #3, new capacity and liner certifications for the RCSs will be provided. Table 2 below shows the current RCS liner and capacity certifications.

Table 2: Current Liner and Capacity Certifications

RCS Name	Liner Certification Date	Capacity Certification Date	Certified Capacity (Acre-Feet)
RCS #1	June 14, 1989	March 10, 2010	4.04
RCS #2	August 27, 2010	August 27, 2010	64.87
RCS #3	August 13, 1990	August 1, 2007	25.95
Settling Basin #1	July 3, 1989	Not Applicable	
Settling Basin #2	July 3, 1989		
Settling Basin #3	February 8, 1989		

- (b) **Design and Construction Standards.** The permittee shall ensure that each RCS is designed and constructed in accordance with the technical standards developed by the NRCS, American Society of Agricultural and Biological Engineers, American Society of Civil Engineers, or American Society of Testing Materials that are in effect at the time of construction. Where site-specific variations are warranted, a licensed Texas Professional Engineer must document these variations and their appropriateness to the design.
- (c) **RCS Drainage Area.**
- (1) The permittee shall describe in the PPP and implement measures that will be used to minimize entry of uncontaminated stormwater into the RCS(s).
 - (2) Stormwater must be diverted, as indicated in Attachment A - Site Map from contact with feedlots and holding pens, and manure and/or process wastewater storage systems. In cases where it is not feasible to divert stormwater from the production area, the retention structures shall include adequate storage capacity for the additional stormwater. Stormwater includes rain falling on the roofs of facilities, runoff from adjacent land, or other sources.
 - (3) The permittee shall maintain the drainage area to minimize ponding or puddling of water outside the RCS(s).
- (d) **RCS Sizing**
- (1) The design plan must include documentation describing the sources of information, assumptions and calculations used in determining the appropriate volume capacity and structural features of each RCS, including embankment and liners.
 - (2) **Design Rainfall Event.** Each RCS authorized under this permit shall be designed and constructed to meet or exceed the margin of safety, equivalent to the volume of runoff and direct precipitation from the 25 year/10 day rainfall event. The design rainfall event for this CAFO is **12.0** inches.
 - (3) Any RCS capacity that is greater than the minimum capacity required by this permit may be allocated to additional sludge storage volume, which will increase the design sludge cleanout interval for the RCS. The new sludge cleanout interval will be identified in the RCS management plan maintained in the PPP, the stage storage tables will accurately reflect the new volumes, and the pond markers will visually identify the new volume levels.
- (e) **Irrigation Equipment Design.** The permittee shall ensure that the irrigation system design is capable of removing wastewater from the RCS(s) on a regular schedule. Equipment capable of dewatering the RCS(s) shall be available and

operational whenever needed to restore the operating capacity required by the RCS management plan.

- (f) Embankment Design and Construction. The RCS(s) have a depth of water impounded against the embankment at the spillway elevation of three feet or more, therefore the RCS(s) are considered to be designed with an embankment. The PPP shall include a description of the design specifications for the RCS embankments. The following design specifications are required for all new construction and/or the modified portions of existing RCSs.
 - (1) Soil Requirements. Soils used in the embankment shall be free of foreign material such as rocks larger than four (4) inches, trash, brush, and fallen trees.
 - (2) Embankment Lifts. The embankment shall be constructed in lifts or layers no more than eight (8) inches compacted to six (6) inches thick at a minimum compaction effort of 95 per cent (%) Standard Proctor Density (ASTM D698) at -1% to +3% of optimum moisture content.
 - (3) Stabilize Embankment Walls. All embankment walls shall be stabilized to prevent erosion or deterioration.
 - (4) Compaction Testing. Embankment construction must be accompanied by certified compaction tests including in place density and moisture in accordance with the American Society of Testing Materials (ASTM) D1556, D2167 or D2937 for density and D2216, D4643, D4944 or D4959 for moisture, or D6938 for moisture and density or equivalent testing standards. Compaction tests will provide support for the liner certification performed by a licensed Texas Professional Engineer as meeting a permeability no greater than 1×10^{-7} centimeters per second (cm/sec) over a thickness of 18 inches or its equivalency in other materials, and not to exceed a specific discharge through the liner of 1.1×10^{-6} cm/sec with a water level at spillway depth.
 - (5) Spillway or Equivalent Protection. The new or modified RCS(s), which are constructed with embankments, shall be constructed with a spillway or other outflow device properly sized according to NRCS design and specifications to protect the integrity of the embankment.
 - (6) Embankment Protection. The new or modified RCS(s) must have a minimum of two (2) vertical feet of materials equivalent to those used at the time of design and construction between the top of the embankment and the structure's spillway. RCS(s) without spillways must have a minimum of two (2) vertical feet between the top of the embankment and the required storage capacity.
- (g) RCS Liner Requirements. For all new construction and for all structural modifications of existing RCS(s), the RCS must have a liner consistent with one of the following:
 - (1) In-situ Material. In-situ material is undisturbed, in-place, native soil material. In-situ materials must at least meet the minimum criteria for hydraulic conductivity and thickness and specific discharge as described in Section VII.A.3(g)(2) of this permit. Samples shall be collected and analyzed in accordance with Section VII.A.3(g)(3) of this permit. This documentation must be certified by a licensed Texas Professional Engineer or licensed Texas Professional Geoscientist.

- (2) Constructed or Installed Liner.
 - (i) Constructed or installed liners must be designed by a licensed Texas Professional Engineer. The liner must be constructed in accordance with the design and certified as such by a licensed Texas Professional Engineer. Compaction tests and post construction sampling and analyses, conducted in accordance with Sections VII.A.3(f)(4) and VII.A.3(g)(3) of this permit, will provide support for the liner certification.
 - (ii) Liners shall be designed and constructed to have hydraulic conductivities no greater than 1×10^{-7} centimeters per second (cm/sec), with a thickness of 18 inches or its equivalency in other materials, and not to exceed a specific discharge through the liner of 1.1×10^{-6} cm/sec with a water level at spillway depth.
 - (iii) Constructed or installed liners must be designed and constructed to meet the soil requirements, lift requirements, and compaction testing requirements as listed in Section VII.A.3(f)(1), (2) and (4) of this permit.
- (3) Liner Sampling and Analyses
 - (i) The licensed Texas Professional Engineer or licensed Texas Professional Geoscientist shall use best professional practices to ensure that corings or other liner samples will be appropriately plugged with material that also meets liner requirements of this subsection.
 - (ii) Samples shall be collected in accordance with ASTM D1587 or other method approved by the Executive Director. For each RCS, a minimum of two core samples collected from the bottom of the RCS and a minimum of at least one core sample from each sidewall shall be collected. Additional samples may be necessary based on the best professional judgment of the licensed Professional Engineer. Distribution of the samples shall be representative of liner characteristics, and proportional to the surface area of the sidewalls and floor. Documentation shall be provided identifying the sample locations with respect to the RCS liner.
 - (iii) Undisturbed samples shall be analyzed for hydraulic conductivity in accordance with ASTM D5084 or other method approved by the Executive Director.
- (4) Leak Detection System. If notified by the Executive Director that significant potential exists for the adverse impact of water in the state or drinking water from leakage of a RCS, the permittee shall install a leak detection system or monitoring well(s) in accordance with that notice. Documentation of compliance with the notification must be kept with the PPP, as well as copies of all sampling data.
- 4. Special Considerations for Existing RCS(s). An existing RCS that has been properly maintained without any modifications and has no apparent structural problems or leakage is considered to be properly designed with respect to the embankment design and construction and liner requirements of this permit, provided that any required documentation was completed in accordance with the requirements at the time of construction. If no documentation exists, the RCS must be certified by a licensed

Texas Professional Engineer as providing protection equivalent to the requirements of this permit.

5. Operation and Maintenance of RCSs.

- (a) The permittee must operate and maintain a margin of safety in the RCS(s) to contain the volume of runoff and direct precipitation from the 25 year/10 day rainfall event.
- (b) The permittee shall implement a RCS management plan incorporating the margin of safety developed by a licensed Texas Professional Engineer. The management plan shall become a component of the PPP, shall be developed for each RCS, and must describe or include:
 - (1) RCS management controls appropriate for the CAFO and the methods and procedures for implementing such controls;
 - (2) the methods and procedures for proper operation and maintenance of each RCS consistent with the system design;
 - (3) the appropriateness and priorities of any controls reflecting the identified sources of pollutants at the facility;
 - (4) a stage/storage table for each RCS with minimum depth increments of one-foot, including the storage volume provided at each depth;
 - (5) a second table or sketch that includes increments of water level ranges for volumes of total design storage, including the storage volume provided at each specified depth (or water level) and the type of storage designated by that depth; and
 - (6) the planned end of month storage volume anticipated for each RCS for each month of the year and the corresponding operating depth expected at the end of each month of the year, based on the design assumptions.
- (c) The wastewater level in the RCS shall be maintained at or below the maximum operating level expected during that month, according to the design of the RCS. When rainfall volumes exceed average rainfall data used in design calculations planned end of month storage volumes may encroach into the design storm event storage provided that documentation is available to support that the design parameters have been exceeded and that the RCS is otherwise being managed according to the RCS management plan criteria. In circumstances where the RCS has a water level exceeding the expected end of the month depth, the permittee shall document in the PPP why the level of water in the structure is not at or below the expected depth. Also, if the water level in the RCS encroaches into the storage volume reserved for the design rainfall event, the permittee must document, in the PPP, the conditions that resulted in this occurrence. As soon as irrigation is feasible and not prohibited by Section VII.A.8(f) and (g), the permittee shall irrigate until the RCS water level is at or below the maximum operating level expected during that month.
- (d) Imminent Overflow. If a RCS is in danger of imminent overflow from chronic or catastrophic rainfall or catastrophic conditions, the permittee shall take reasonable steps to irrigate wastewater to the LMU(s) only to the extent necessary to prevent overflow from the RCS. If irrigation results in a discharge from a LMU, the permittee shall collect samples from the drainage pathway at the point of the discharge from the edge of the LMU where the discharge occurs, analyze the samples for the parameters listed in Section VII.A.2.(b), and provide

the appropriate notifications as required by Section VIII.B of this permit and 30 TAC §321.44.

- (e) Permanent Pond Marker. The permittee shall install and maintain a permanent pond marker (measuring device) in the RCS(s), visible from the top of the levee to show the following:
 - (1) the volume for the design rainfall event;
 - (2) one-foot increments beginning from the predetermined minimum treatment volume of the RCS, or the bottom of the RCS for those without treatment volume, to the top of the embankment or spillway; and
 - (3) design volume levels for maximum sludge accumulation and operating volume (calculated process generated wastewater plus rainfall runoff minus evaporation) must be identifiable on the marker.
 - (f) Rain Gauge. A rain gauge capable of measuring the design rainfall event shall be kept on-site and properly maintained.
 - (g) Sludge Removal. The permittee shall monitor sludge accumulation and depth, based upon the design sludge storage volume in the RCS. (See Special Provision X.E for additional requirements related to sludge monitoring.) Sludge shall be removed from the RCS(s) in accordance with the design schedule for cleanout in the RCS Management Plan to prevent the accumulation of sludge from exceeding the designed sludge volume of the structure. Removal of sludge shall be conducted during favorable wind conditions that carry odors away from nearby receptors. Sludge may only be beneficially utilized by land application to a LMU if in accordance with a nutrient management plan or disposed of in accordance with Section VII.A.8(e) of this permit. A sludge sample must be collected and analyzed in accordance with Section VII.A.9(a) prior to each clean out.
 - (h) Liner Protection and Maintenance. The permittee shall maintain the liner to inhibit infiltration of wastewater. Liners must be protected from animals by fences or other protective devices. No tree shall be allowed to grow such that the root zone would intrude or compromise the structure of the liner or embankment. Any mechanical or structural damage to the liner shall be evaluated by a licensed Texas Professional Engineer within thirty (30) days of the damage.
 - (i) Closure Requirements. A closure plan must be developed when a RCS will no longer be used and/or when the CAFO ceases or plans to cease operation. The closure plan shall be submitted to the appropriate regional office and the CAFO Permits Team of the Water Quality Division in Austin (MC-150) within ninety (90) days of when operation of the CAFO or the RCS terminates. The closure plan for the RCS must, at a minimum, be developed using standards contained in the NRCS Practice Standard Code 360 (Closures of Waste Impoundments), as amended, and using the guidelines contained in the Texas AgriLife Extension/ NRCS publication #B-6122 (Closure of Lagoons and Earthen Manure Storage Structures), as amended. The permittee shall maintain or renew its existing authorization and maintain compliance with the requirements of this permit until the facility has been closed.
6. General Operating Requirements.
- (a) Flush/Scrape Systems. Flush/scrape systems shall be flushed/scraped in accordance with design criteria in the application.

- (b) Pen Maintenance. The permittee shall maintain earthen pens to ensure good drainage, minimize ponding, and minimize the entrance of uncontaminated storm water to the RCSs.
- (c) Carcass Disposal. Carcasses shall be collected within twenty four (24) hours of death and properly disposed of within three days of death in accordance with Texas Water Code, Chapter 26; Texas Health and Safety Code, Chapter 361; and 30 TAC Chapter 335 (relating to Industrial Solid Waste and Municipal Hazardous Waste) unless otherwise provided for by the commission. Animals must not be disposed of in any liquid manure or process wastewater system. Disposal of diseased animals shall also be conducted in a manner that prevents a public health hazard in accordance with Texas Agriculture Code, §161.004, and 4 TAC §31.3, §58.31(b), and §59.12. The collection area for carcasses shall be addressed in the potential pollutant sources section of the PPP with the management practices to prevent contamination of surface or groundwater, control access, and minimize odor.
- (d) Manure and Sludge Storage
 - (1) Manure and sludge storage capacity requirements shall be based on manure and sludge production, land availability, and the NRCS Field Office Technical Guide (Part 651, Chapter 10) or equivalent standards. (See Special Provision X.I for the storage requirements applicable to slurry collected from freestall barns.)
 - (2) When manure is stockpiled, it shall be stored in a well-drained area, and the top and sides of stockpiles shall be adequately sloped to ensure proper drainage and prevent ponding of water. Runoff from manure or sludge storage piles must be retained on-site. If the manure or sludge areas are not roofed or covered with impermeable material, protected from external rainfall, or bermed to protect from runoff during the design rainfall event, the manure or sludge areas must be located within the drainage area of a RCS and accounted for in the design calculations of the RCS.
 - (3) Manure or sludge stored for more than thirty (30) days must be stored within the drainage area of a RCS or stored in a manner (i.e. storage shed, bermed area, tarp covered area, etc.) that otherwise prevents contaminated storm water runoff from leaving the storage area. All storage sites and structures located outside the drainage area shall be designated on the site map. Storage for more than thirty (30) days is prohibited in the 100-year floodplain.
 - (4) Temporary storage of manure or sludge shall not exceed thirty (30) days and is allowed only in a LMU or a RCS drainage area. Temporary storage of manure and sludge in the 100-year floodplain, near water courses or near recharge features may be allowed if protected by berms or other structures to prevent inundation or damage that may occur.
- (e) Composting. Composting on-site shall be performed in accordance with 30 TAC Chapter 332 (relating to Composting). The permittee may compost waste generated on-site, including manure, sludge, bedding, feed and dead animals. The permittee may add agricultural products to provide an additional carbon source or bulking agent to aid in the composting process. If the compost areas are not roofed or covered with impermeable material, protected from external rainfall, or bermed to protect from runoff in the case of the design rainfall event,

the compost areas must be located within the drainage of an RCS and must be shown on the site plan and accounted for in the design calculations of the RCS.

7. Site Specific Conservation Practice.

(a) Well Protection Requirements

- (1) The permittee shall not locate or operate a new RCS, holding pen, or LMU within the following buffer zones:
 - (i) public water supply wells 500 feet;
 - (ii) wells used exclusively for private water supply 150 feet; or
 - (iii) wells used exclusively for agriculture irrigation 100 feet.
- (2) Irrigation of wastewater directly over a well head will require a structure protective of the wellhead that will prevent contact from irrigated wastewater.
- (3) Construction of any new water wells must be done by a licensed water well driller.
- (4) All abandoned and unuseable wells shall be plugged according to 16 TAC §76.104.
- (5) The permittee may continue the operation and use of any existing holding pens and RCSs located within the required well buffer zones provided they are in accordance with the facility's approved recharge feature evaluation and certification. Buffer zone variance documentation must be kept on-site and made available to TCEQ personnel upon request. A Well Buffer Exception requests for Wells #3, #4, #5, #7, and #9 were submitted to and approved by the TCEQ Water Quality Assessment Team. Permittee shall implement the requirements of the Well Buffer Exception approval by TCEQ. Table 3 below shows the status of all wells on the facility and the best management practices (BMPs) used to protect them.

Table 3: Well Status and Best Management Practices

Well Number*	Status	BMPs
1	Producing	Maintain 150 ft buffer
2	Producing	Maintain 150 ft buffer
3	Producing	Maintain surface gradients sloping away from wellhead
4	Producing	Maintain surface gradients sloping away from wellhead
5	Producing	Maintain surface gradients sloping away from wellhead
6	Non-Producing	Plugged
7	Producing	Maintain surface gradients sloping away from wellhead
8	Non-Producing	Plugged
9	Producing	Concrete surface slab
10	Producing	Maintain 150 ft buffer
11	Producing	Maintain 150 ft buffer
12	Producing	Maintain 100 ft buffer
13	Producing	Maintain 100 ft buffer
14	Producing	Maintain 100 ft buffer
15	Non-Producing	No evidence of well

Well Number*	Status	BMPs
16	Producing	Maintain 100 ft buffer
17	Producing	Maintain 100 ft buffer
18	Producing	Maintain 100 ft buffer
19	Producing	Maintain 100 ft buffer
20	Producing	Maintain 100 ft buffer

*Well Numbers correspond with Attachment D

- (b) Soil Limitations. The permittee shall implement the BMPs on Table 4 for the specified soil series.

Table 4: Soil Limitations and Best Management Practices

Soil Series and Map ID	Potential Limitations	BMPs*
Bolar-Denton: BdC	Depth to bedrock, Slow water movement	Land application will be based on the Available Water Capacity of the soil and will not exceed agronomic rates for nutrients (refer to the nutrient management plan (NMP)) No land application to inundated soils
Topsey: Lab Hico: HwD3	Depth to Soft Bedrock	
Maloterre: Ma	Depth to Bedrock, Droughty	
Bunyan: Bu Frio: FriA	Flooding	Land application will not exceed soil hydraulic rates (refer to NMP)
Bastsil: BsB, BsC, BtB May: MfB Fairy: FhC2	Seepage	Maintain clay liners in RCS No land application to inundated soils
Denton: DeB Slidell: HoB Fairy: FhC2	Slow water movement	Land application not to exceed agronomic rates for nutrients and soil hydraulic rates. No land application to inundated soils.
Clairette: CtB	Slow water movement Depth to Saturated Zone	
Windthorst: Wnc	Filtering capacity	
Purves: PcC, PcB	Droughty, Depth to bedrock, Slow water movement	Land application will be based on the Available Water Capacity of the soil and will not exceed agronomic rates for nutrients (refer to the nutrient management plan (NMP)) Irrigation events will be managed to assist in maintaining soil moisture levels within the range of the available water holding capacity of the soils in the LMUs. No land application to inundated soils.
Purves-Dugout: Pd	Droughty, Depth to bedrock, Slow water movement Large stones on surface	

*or an equivalent protective measure identified in an NRCS Practice Standard.

- (c) Pollutant Sources and Management. The permittee shall implement the BMPs on Table 5 for handling dead animals and pesticides.

Table 5: Pollutant Sources and Best Management Practices

Potential Pollutant Source	BMPs*
Dead Animals	Collect within 24 hours of death and remove within three days of death by a third-party rendering service, compost in accordance with Section VII.A.6(e) or bury onsite in accordance with Section X.Q of this permit
Pesticides/Parlor Chemicals	Store under roof Handle and dispose according to label directions

*or an alternative BMP as allowed by 30 TAC 321 Subchapter B or an equivalent protective measure identified in an NRCS Practice Standard.

8. Land Application.

- (a) Nutrient Management Plan (NMP) Required. The certified NMP submitted in the permit application shall be implemented upon issuance of this permit. The plan shall be updated as appropriate or at a minimum of annually according to NRCS Practice Standard Code 590. The permittee shall make available to the Executive Director, upon request, a copy of the site specific NMP and documentation of the implementation.
 - (1) For Terms of the NMP see Attachments E and F.
 - (2) The following changes to the terms of the NMP are substantial:
 - (i) Increase in animal headcount;
 - (ii) Increase in LMU acreage or a change in LMU location;
 - (iii) Change in crop and yield goal (not listed in Attachment F);
 - (3) Substantial and Non-Substantial Change to the terms of the NMP
 - (i) Any changes (substantial or non-substantial) to the NMP, other than the Annual Recalculation of Application Rates outlined in Attachment E, must be submitted to the Executive Director for review, and may be subject to public comment;
 - (ii) If the Executive Director determines that the changes to the NMP are not substantial, the revised NMP will be made publicly available and included in the permit record; and
 - (iii) If the Executive Director determines that the changes to the NMP are substantial, the information provided by the permittee will be subject to a major amendment process as set in 30 TAC §§305.61-305.72.
- (b) Comprehensive Nutrient Management Plan (CNMP) required. The permittee must continue to operate under a CNMP certified by the Texas State Soil and Water Conservation Board.
- (c) Critical Phosphorus Level
 - (1) When results of the annual soil analysis show a phosphorus level in the soil of more than 200 ppm but not more than 500 ppm in Zone 1 depth (0-6 inch incorporated; 0-2 or 2-6 inch if not incorporated) for a particular LMU or if ordered by the commission to do so in order to protect the quality of water in the state, then the permittee shall:
 - (i) file with the Executive Director a new or amended nutrient utilization plan (NUP) with a phosphorus reduction component based on crop removal that is certified as acceptable by a person described in (3) below; or

- (ii) show that the level is supported by a NUP that is certified as acceptable by a person described in (3) below.
 - (2) The permittee shall cease land application of compost, manure, sludge, slurry and wastewater to the affected area until the NUP has been approved by the TCEQ. After a NUP is approved, the permittee shall land apply in accordance with the NUP until soil phosphorus is reduced below the critical phosphorus level of 200 ppm extractable phosphorus. Thereafter, the permittee shall implement the requirements of the nutrient management plan.
 - (3) NUP. A NUP is a NMP, based on NRCS Practice Standard Code 590, which utilizes a crop removal application rate. The NUP, based on crop removal, must be developed and certified by one of the following individuals or entities:
 - (i) an employee of the NRCS;
 - (ii) a nutrient management specialist certified by the NRCS;
 - (iii) the Texas State Soil and Water Conservation Board;
 - (iv) the Texas AgriLife Extension;
 - (v) an agronomist or soil scientist on full-time staff at an accredited university located in the State of Texas; or
 - (vi) a Certified Professional Agronomist certified by the American Society of Agronomy, a Certified Professional Soil Scientist certified by the Soil Science Society of America, or a licensed Texas Professional Geoscientist-soil scientist after approval by the Executive Director based on a determination by the Executive Director that another person or entity identified in this paragraph cannot develop the plan in a timely manner.
 - (4) When results of the annual soil analysis for extractable phosphorus indicate a level greater than 500 ppm in Zone 1 depth (0-6 inch incorporated; 0-2 or 2-6 inch if not incorporated), the permittee shall file with the Executive Director a new or amended NUP with a phosphorus reduction component, based on crop removal, that is certified as acceptable by a person described in (3) above. After the new or amended NUP is approved, the permittee shall land apply in accordance with the NUP until soil phosphorus is reduced below 500 ppm extractable phosphorus.
 - (5) If the permittee is required to have a NUP with a phosphorus reduction component based on crop removal, and if the results of tests performed on composite soil samples collected 12 months or more after the plan is filed do not show a reduction in phosphorus concentration in Zone 1 depth (0-6 inch incorporated; 0-2 or 2-6 inch if not incorporated), then the permittee is subject to enforcement action at the discretion of the Executive Director.
- (d) Buffer Requirements. The permittee shall meet the following buffer requirements for each LMU:
- (1) Water in the State. The permittee shall not apply compost, manure, sludge, slurry and wastewater within the buffer distances as noted on Attachment B and Special Provision X.D. Vegetative buffers shall be maintained in accordance with NRCS Field Office Technical Guidance. The permittee shall maintain the filter strip (according to NRCS Code 393) between the vegetative buffer and the land application area. If the land application area

is cropland, the permittee shall install and maintain contour buffer strips (according to NRCS Code 332) within the land application area in addition to the buffer distances required by this permit.

- (2) Water Wells. The permittee shall comply with the well protection requirements listed in Section VII.A.7.(a).
- (e) Exported wastewater, sludge, and/or manure. Wastewater, sludge, and/or manure removed from the operation shall be disposed of by:
 - (1) delivery to a composting facility authorized by the Executive Director;
 - (2) delivery to a permitted landfill located outside of the major sole source impairment zone;
 - (3) beneficial use by land application to land located outside of the major sole source impairment zone;
 - (4) put to another beneficial use approved by the Executive Director; or
 - (5) providing wastewater, sludge, and/or manure to operators of third-party fields, i.e. areas of land in the major sole source impairment zone not owned, operated, controlled, rented, or leased by the CAFO owner or operator, that have been identified in the PPP.
 - (i) There must be a written contract between the permittee and the recipient that includes, but is not limited to, the following provisions:
 - (A) All transferred wastewater, sludge, and/or manure shall be beneficially applied to third-party fields identified in the PPP in accordance with the applicable requirements in 30 TAC §321.36 and §321.40 at an agronomic rate based on soil test phosphorus. The requirements for development or implementation of a nutrient management plan or nutrient utilization plan, under 30 TAC §321.40, do not apply to third-party fields.
 - (B) Manure and sludge must be incorporated on cultivated fields within forty-eight (48) hours after land application.
 - (C) Land application rates shall not exceed the crop nitrogen requirement when the soil phosphorus concentration in Zone 1 depth (0-6 inch if incorporated; 0-2 or 2-6 inch if not incorporated) is less than or equal to 50 ppm phosphorus.
 - (D) Land application rates shall not exceed two times the phosphorus crop removal rate, and not to exceed the crop nitrogen requirement, when soil phosphorus concentration in Zone 1 depth (0-6 inch if incorporated; 0-2 or 2-6 inch if not incorporated) is greater than 50 ppm phosphorus and less than or equal to 150 ppm phosphorus.
 - (E) Land application rates shall not exceed one times the phosphorus crop removal rate, and not to exceed the crop nitrogen requirement, when soil phosphorus concentration in Zone 1 depth (0-6 inch if incorporated; 0-2 or 2-6 inch if not incorporated) is greater than 150 ppm phosphorus and less than 200 ppm phosphorus.
 - (F) Before commencing manure, wastewater, compost, and/or sludge application to third-party fields, at least one representative soil sample from each third-party field must be collected by a certified nutrient management specialist and analyzed in accordance with

- 30 TAC §321.36. Third-party fields which have had wastewater, sludge, compost, and/or manure applied during the preceding year must be sampled annually by a certified nutrient management specialist and the samples analyzed in accordance with 30 TAC §321.36. For third-party fields that have not received wastewater, sludge, compost, and/or manure during the preceding year, initial sampling must be completed before re-starting land application to the third-party field.
- (G) A copy of the annual soil analyses shall be provided to the permittee within sixty (60) days of the date the samples were taken.
 - (H) Temporary storage of wastewater, sludge, and/or manure is prohibited on third-party fields.
 - (ii) The permittee is prohibited from delivering wastewater, sludge, and/or manure to an operator of a third-party field once the soil test phosphorus analysis shows a level equal to or greater than 200 ppm or after becoming aware that the third-party operator is not following appropriate provisions of 30 TAC §321.36, §321.40 and/or the contract.
 - (iii) The permittee will be subject to enforcement action for violations of the land application requirements on any third-party field under contract.
 - (iv) The permittee shall submit records to the appropriate regional office quarterly that contain the name, locations, and amounts of wastewater, sludge, and/or manure transferred to operators of third-party fields.
- (f) Irrigation Operating Requirements
- (1) Minimize Ponding. Irrigation practices shall be managed so as to minimize ponding or puddling of wastewater on the site, prevent tailwater discharges to water in the state, and prevent the occurrence of nuisance conditions.
 - (2) Discharge Prohibited
 - (i) The drainage of compost, manure, sludge, slurry and wastewater is prohibited from the LMU(s), unless authorized under Section VII.A.5(d).
 - (ii) Where compost, manure, sludge, slurry and wastewater is applied in accordance with the nutrient management plan and/or NUP, precipitation-related runoff from the LMU(s) under the control of the permittee is authorized.
 - (iii) If a discharge from the irrigation system is documented as a violation, the permittee may be required by the Executive Director to install an automatic emergency shut-down or alarm system to notify the permittee of system problems.
 - (3) Backflow Prevention. If the permittee introduces wastewater or chemicals to water well heads for the purpose of irrigation, then backflow prevention devices shall be installed according to 16 TAC Chapter 76 (related to Water Well Drillers and Water Well Pump Installers).

- (g) Nighttime Application
 - (1) Land application at night shall only be allowed if there is no occupied residence(s) within one quarter (0.25) of a mile from the outer boundary of the actual area receiving compost, manure, sludge, slurry and wastewater application. In areas with an occupied residence within one quarter (0.25) of a mile from the outer boundary of the actual area receiving compost, manure, sludge, slurry and wastewater application, application shall only be allowed from one (1) hour after sunrise until one (1) hour before sunset, unless the current occupant of such residences have, in writing, agreed to specified nighttime applications.
 - (2) Land application of compost, manure, sludge, slurry and wastewater is prohibited between 12 a.m. and 4 a.m. during normal operating conditions.
- 9. Sampling and Testing.
 - (a) Manure and Wastewater. The permittee shall collect and analyze at least one representative sample of wastewater and one representative sample of manure each year for total nitrogen, total phosphorus, and total potassium. The results of these analyses shall be used in determining application rates.
 - (b) Soils
 - (1) Initial Sampling. Before commencing compost, manure, sludge, slurry and wastewater application to the LMU(s), the permittee shall have at least one representative soil sample from each LMU, collected and analyzed according to the following procedures.
 - (2) Annual Sampling. The TCEQ or its designee shall have soil samples collected annually for each current and historical LMU.
 - (3) Sampling Procedures. Sampling procedures shall employ accepted techniques of soil science for obtaining representative samples and analytical results, and be consistent with approved methods described in the Executive Director's guidance entitled "Soil Sampling for Concentrated Animal Feeding Operations (CAFOs) (RG-408)."
 - (i) Soil samples must be collected by one of the following persons:
 - (A) the NRCS;
 - (B) a certified nutrient management specialist;
 - (C) the Texas State Soil and Water Conservation Board;
 - (D) the Texas AgriLife Extension; or
 - (E) an agronomist or soil scientist on full-time staff at an accredited university located in the State of Texas.
 - (ii) Samples shall be collected and analyzed within the same forty-five (45) day time frame each year, except when crop rotations or inclement weather require a change in the sampling time. The reason for a change in sampling timeframe shall be documented in the PPP.
 - (iii) Obtain one composite sample for each soil depth zone per uniform soil type (soils with the same characteristics and texture) within each LMU.
 - (iv) Composite samples shall be comprised of 10 - 15 randomly sampled cores obtained from each of the following soil depth zones:
 - (A) Zone 1: 0-6 inches (where the manure, sludge, slurry, or compost is physically incorporated or injected directly into the soil) or 0-2 inches (where the manure, sludge or slurry is not incorporated into the soil). Wastewater is considered to be incorporated upon

land application if it is less than two percent (2%) solids. Slurry from freestall barns is treated like manure for this sampling requirement. If a 0-2 inch sample is required, then an additional sample from the 2-6 inch soil depth zone shall be obtained in accordance with the provisions of this section; and

(B) Zone 2: 6-24 inches.

- (4) Laboratory Analysis. Samples shall be analyzed by a soil testing laboratory. Physical and chemical parameters and analytical procedures for laboratory analysis of soil samples shall include the following:
- (i) nitrate reported as nitrogen in ppm;
 - (ii) phosphorus (extractable, ppm) using Mehlich III with Inductively Coupled Plasma (ICP);
 - (iii) potassium (extractable, ppm);
 - (iv) sodium (extractable, ppm);
 - (v) magnesium (extractable, ppm);
 - (vi) calcium (extractable, ppm);
 - (vii) soluble salts (ppm) or electrical conductivity (dS/m) – determined from extract of 2:1 (v/v) water/soil mixture; and
 - (viii) soil water pH (soil:water, 1:2 ratio).

10. Preventative Maintenance Program.

(a) Facility Inspections

(1) General Requirements

- (i) Inspections shall include visual inspections and equipment testing to determine conditions that could cause breakdowns or failures resulting in discharge of pollutants to water in the state or the creation of a nuisance condition.
- (ii) The permittee shall draft a report, to be maintained in the PPP, to document the date of inspections, observations and actions taken in response to deficiencies identified during the inspection. The permittee shall correct all the deficiencies within thirty (30) days or shall document the factors preventing immediate correction.

(2) Daily Inspections. The permittee shall conduct daily inspections on all water lines, including drinking water and cooling water lines, which are located within the drainage area of a RCS.

(3) Weekly Inspections. The permittee shall conduct weekly inspections on:

- (i) all control facilities, including RCSs, storm water diversion devices, runoff diversion structures, control devices for management of potential pollutant sources, and devices channeling contaminated storm water to RCSs; and
- (ii) equipment used for land application of compost, manure, sludge, slurry and wastewater.

(4) Monthly Inspections. The permittee shall conduct monthly inspections on:

- (i) mortality management systems, including collection areas; and
- (ii) disposal and storage of toxic pollutants, including pesticide containers.

(5) Annual Site Inspection.

- (i) The permittee shall annually conduct a complete site inspection of the production area and the LMU(s).
- (ii) The inspection shall verify that:

- (A) the description of potential pollutant sources is accurate;
 - (B) the site plan/map has been updated or otherwise modified to reflect current conditions; and
 - (C) the controls outlined in the PPP to reduce pollutants and avoid nuisance conditions are being implemented and are adequate.
- (b) Five Year Evaluation. Once every five years the permittee shall have a licensed Texas Professional Engineer review the existing engineering documentation, complete a site evaluation of the structural controls, review existing liner and RCS capacity documentation, and complete and certify a report of their findings. The report must be kept in the PPP.
- 11. Management Documentation. The permittee shall maintain the following records in the PPP:
 - (a) a copy of the administratively complete and technically complete individual water quality permit application and the written authorization issued by the commission or Executive Director;
 - (b) a copy of the approved recharge feature certification and appropriate updates;
 - (c) a copy of the comprehensive nutrient management plan, nutrient management plan, nutrient utilization plan and appropriate updates to these plans, if required;
 - (d) the RCS liner certification(s);
 - (e) any written agreement with a landowner which documents the allowance of nighttime application of compost, manure, sludge, slurry and wastewater;
 - (f) documentation of employee and operator training, including verification of the date, time of attendance, and completion of training;
 - (g) the RCS management plan;
 - (h) the capacity of each RCS as certified by a licensed Texas Professional Engineer; and
 - (i) a copy of all third-party field contracts.

B. General Requirements

1. The permittee shall not construct any component of the production area in any stream, river, lake, wetland, or playa (except as defined by and in accordance with the Texas Water Code §26.048).
2. Animals confined on the CAFO shall be restricted from coming into direct contact with surface water in the state through the use of fences or other controls.
3. The permittee shall prevent the discharge of pesticide contaminated waters into water in the state. All wastes from dipping vats, pest and parasite control units, and other facilities used for the application of potentially hazardous or toxic chemicals shall be handled and disposed of in a manner that prevents any significant pollutants from entering water in the state or creating a nuisance condition.
4. The permittee shall operate the CAFO in such a manner as to prevent nuisance conditions of air pollution as mandated by Texas Health and Safety Code, Chapters 341 and 382.
5. The permittee shall take reasonable steps necessary to prevent adverse effects to human health or safety, or to the environment.
6. The permittee shall maintain control of the RCS(s), required LMU(s), and control facilities identified on the site map submitted in the application. In the event the

permittee loses control of any of these areas, the permittee shall notify the Executive Director within five (5) working days.

7. If animals are maintained in pastures, the permittee shall maintain crops, vegetation, forage growth or post harvest residues in those pastures during the normal growing season, excluding the feed and/or water trough areas.

C. Training

1. Employee Training
 - (a) Employees at the CAFO facility who are responsible for work activities relating to compliance with provisions of this permit must be regularly trained or informed of any information pertinent to the proper operation and maintenance of the facility and land application of manure, sludge, and wastewater.
 - (b) Employee training shall address all levels of responsibility of the general components and goals of the PPP. Training shall include appropriate topics, such as land application of manure, sludge, and wastewater, proper operation and maintenance of the facility, good housekeeping, material management practices, recordkeeping requirements, and spill response and clean up.
 - (c) The permittee is responsible for determining the appropriate training frequency for different levels of personnel. The PPP shall identify periodic dates for such training.
2. Operator Training. The operator shall attend at least eight (8) hours of continuing education in animal waste management or its equivalent, developed by the Executive Director and the Texas AgriLife Extension, for each two year period.
3. Verification of the date and time(s) of attendance and completion of required training shall be documented in the PPP.

D. Air Standard Permit Requirements

1. Air emission limitations.
 - (a) Facilities shall be operated in such a manner as to prevent the creation of a nuisance as defined by Texas Health and Safety Code, 30 TAC §§341.011 and 321.32(32), and as prohibited by 30 TAC §101.4. Facilities shall be operated in such a manner as to prevent a condition of air pollution as defined by Texas Health and Safety Code and 30 TAC §382.003(3).
 - (b) The permittee shall take necessary action to identify any nuisance condition that occurs. The permittee shall take action to abate any nuisance condition as soon as practicable or as specified by the Executive Director.
2. Wastewater treatment. The permittee shall design and operate RCSs to minimize odors in accordance with accepted engineering practices. Each RCS shall be operated in accordance with the design and an operation and maintenance plan that minimizes odors. The primary lagoon in a multi-stage lagoon system shall be designed with a minimum treatment volume so that the lagoon maintains a constant level at all times unless prohibited by climatic conditions. A multi-stage lagoon system shall be designed to minimize the amount of contaminated storm water runoff entering the primary lagoon by routing the contaminated storm water runoff into a secondary RCS.
 - (a) Accepted engineering practices to minimize odors include anaerobic treatment lagoons, aerobic treatment lagoons, or other equivalent technology.

- (b) Accepted design standards and requirements for each of these methods of treatment are:
 - (1) an anaerobic treatment lagoon shall be designed in accordance with American National Standards Institute/American Society of Agricultural Engineers EP403.3 July 1999 (or subsequent updates); NRCS Field Office Technical Guidance, Practice Standard 359, Waste Treatment Lagoon, or the equivalent for the control of odors. The primary lagoon in a multi-stage lagoon system shall be designed with a minimum treatment volume so that the lagoon maintains a constant level at all times unless prohibited by climatic conditions. A multi-stage lagoon system shall be designed to minimize the amount of contaminated storm water runoff entering the primary lagoon by routing the contaminated storm water runoff into a secondary RCS;
 - (2) aerobic treatment lagoons shall be designed in accordance with NRCS, Field Office Technical Guidance, Practice Standard 359, Waste Treatment Lagoon; or technical requirements for sizing the aeration portion of the system located in 30 TAC Chapter 317; and
 - (3) equivalent technology or design standards shall indicate how the design of the RCS minimizes odors equivalent to an aerobic or anaerobic lagoon. These designs shall be developed and certified by a licensed Texas Professional Engineer. An "as-built" certification in letter form shall be completed by a licensed Texas Professional Engineer before operation of the RCSs.
 - (c) This permit authorizes the use of a covered anaerobic digester system.
3. Dust Control. To minimize dust emissions, the CAFO shall be operated and maintained as follows:
- (a) Fugitive emissions from all grain receiving pits, where a pit is used, shall be minimized through the use of "choke feeding" or through an equivalent method of control. If choke feeding is used, operation of conveyors associated with receiving shall not commence until the receiving pits are full.
 - (b) As necessary, emissions from all in-plant roads, truck loading and unloading areas, parking areas, and other traffic areas shall be controlled with one or more of the following methods to minimize nuisance conditions and maintain compliance with all applicable commission requirements:
 - (1) sprinkled with water;
 - (2) treated with effective dust suppressant(s); or
 - (3) paved with a cohesive hard surface and cleaned.
 - (c) All non-vehicular external conveyors or other external conveying systems associated with the feedmill shall be enclosed.
 - (d) On-site feed milling operations with processing equipment using a pneumatic conveying system (which may include, but are not limited to, pellet mill/pellet cooler systems, flaker systems, grinders, and roller-mills) shall vent the exhaust air through a properly-sized high efficiency cyclone collector or an equivalent control device before releasing the exhaust air to the atmosphere. This requirement does not include cyclones used as product separators.
 - (e) If the Executive Director determines that the implementation and employment of these practices is not effective in controlling dust, the permittee shall implement

any necessary additional abatement measures to control and minimize this contaminant within the time period specified by the Executive Director.

4. Maintenance and Housekeeping. The permittee shall comply with the following to help prevent nuisance conditions.
 - (a) The premises shall be maintained to prevent the occurrence of nuisance conditions from odors and dust. Spillage of any raw products or waste products causing a nuisance condition shall be picked up and properly disposed of daily.
 - (b) Proper pen drainage shall be maintained at all times. Earthen pen areas shall be maintained by scraping uncompacted manure and shaping pen surfaces as necessary to minimize odors and ponding.

VIII. Recordkeeping, Reporting, and Notification Requirements

A. Recordkeeping

The permittee shall keep records on-site for a minimum of five (5) years from the date the record was created and shall submit them within five (5) days of a written request by the Executive Director.

1. The permittee shall update records daily to include:
 - (a) all measurable rainfall events; and
 - (b) the wastewater levels in each RCS, as shown on the depth marker. In circumstances where a RCS has a water level exceeding the expected end of the month depth, the permittee shall document in the PPP why the level of water in the structure is not at or below the expected depth.
2. The permittee shall update records weekly to include:
 - (a) records of all wastewater, sludge, and/or manure removed from the CAFO that shows the dates, amount, and recipient. The permittee must make the most recent nutrient analysis available to any hauler; and
 - (b) inspections of control facilities and land application equipment.
3. The permittee shall update records monthly to include:
 - (a) records describing mortality management practices;
 - (b) storage and disposal of chemicals, including pesticide containers; and
 - (c) records of all compost, manure, sludge, slurry and wastewater applied on the LMU(s). Such records must include the following information:
 - (i) date of compost, manure, sludge, slurry and wastewater application to each LMU;
 - (ii) location of the specific LMU and the volume applied during each application event;
 - (iii) acreage on which compost, manure, sludge, slurry and wastewater is applied;
 - (iv) basis for and the total amount of nitrogen and phosphorus applied per acre to each LMU on a dry basis, including sources of nutrients other than compost, manure, sludge, slurry and wastewater; and
 - (v) weather conditions, such as temperature, precipitation, and cloud cover, during the land application and twenty-four (24) hours before and after the land application.
4. The permittee shall update records annually to include:

- (a) annual nutrient analysis for at least one representative sample of wastewater and one representative sample of manure for total nitrogen, total phosphorus, and total potassium;
 - (b) any initial and annual soil analysis reports;
 - (c) the annual site inspection report;
 - (d) percent moisture content of the manure, sludge, slurry, and wastewater; and
 - (e) actual annual yield of each harvested crop for each LMU.
5. The Five Year Evaluation report must be updated every five (5) years.
6. The permittee shall keep the following records on-site:
- (a) a list of any significant spills of potential pollutants at the CAFO that have a significant potential to reach water in the state;
 - (b) documentation of liner maintenance by an NRCS engineer, a licensed Texas Professional Engineer or a licensed Texas Professional Geoscientist;
 - (c) RCS design calculations and as built capacity certification;
 - (d) embankment certification;
 - (e) liner certification;
 - (f) a copy of current and amended site plans;
 - (g) copies of all notifications to the Executive Director, including any made to a regional office; and
 - (h) the record of digester maintenance.

B. Reporting and Notifications

1. The permittee shall provide written notice to the appropriate TCEQ regional office as soon as the RCS cleaning is scheduled, but not less than ten (10) days before cleaning. The permittee shall also provide written verification of completion to the same regional office within five (5) days after the cleaning has been completed. This paragraph does not apply to the cleaning of solid separators or settling basins that are functioning as solid separators.
2. The permittee shall notify the appropriate TCEQ regional office in writing or by electronic mail with the date, time, and location at least ten (10) working days before collecting soil samples from current and historical LMUs; and third-party fields.
3. Discharge Notification. If for any reason there is a discharge of manure, sludge or wastewater into water in the state, the permittee shall notify the appropriate TCEQ regional office orally within one (1) hour of discovery; unless it is not reasonably possible to do so in which event the discharge shall be reported as soon as reasonably possible, but in no event later than twenty-four (24) hours from when the discharge occurred. The permittee shall also submit written notice, within fourteen (14) working days of the discharge to the Office of Compliance and Enforcement, Enforcement Division (MC 224). In addition, the permittee shall document the following information, keep the information on-site, and submit the information to the appropriate regional office within fourteen (14) working days of becoming aware of such discharge. The written notification must include:
 - (a) a description and cause of the discharge, including a description of the flow path to the receiving water body and an estimation of the volume discharged;
 - (b) the period of discharge, including exact dates and times, and, if not corrected, the anticipated time the discharge is expected to continue, and steps being taken to reduce, eliminate and prevent recurrence of the discharge;

- (c) if caused by a precipitation event(s), the date(s) of the event(s) and the rainfall amount(s) recorded from an on-site rain gauge; and
 - (d) discharge monitoring analyses required by this permit.
- 4. In the event of a discharge of manure, sludge, or wastewater from a RCS or a LMU during a chronic or catastrophic rainfall event or resulting from catastrophic conditions, the permittee shall orally notify the appropriate TCEQ regional office within one (1) hour of the discovery of the discharge. The permittee shall send written notification to the appropriate regional office within fourteen (14) working days.
- 5. Chronic Rainfall Discharge. In the event of a discharge of manure, sludge or wastewater from a RCS or a LMU due to chronic rainfall, the permittee shall submit a report to the appropriate TCEQ regional office showing the CAFO records that substantiates that the overflow was a result of cumulative rainfall that exceeded the design rainfall event without the opportunity for dewatering, and was beyond the control of the permittee. After review of the report, if required by the Executive Director, the permittee shall have an engineering evaluation by a licensed Texas Professional Engineer developed and submitted to the Executive Director. This requirement is in addition to the discharge notification requirement in this permit.
- 6. Impacts to Human Health or Safety, or the Environment. The permittee shall provide the following noncompliance notifications:
 - (a) Any noncompliance which may endanger human health or safety, or the environment shall be reported by the permittee to the TCEQ. Report of such information shall be provided orally, by e-mail, or electronic facsimile transmission (Fax) to the TCEQ regional office within twenty four (24) hours of becoming aware of the noncompliance. A written submission of such information shall also be provided by the permittee to the TCEQ regional office and the Enforcement Division (MC 224) within five (5) days of becoming aware of the noncompliance. The written submission shall contain a description of the noncompliance and its cause; the potential danger to human health or safety, or the environment; the period of noncompliance, including exact dates and times. If the noncompliance has not been corrected, the anticipated time it is expected to continue, and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance and to mitigate its adverse effects.
 - (b) In the event the permittee discharges manure, sludge, or wastewater other than as authorized in the permit, the permittee shall give twenty four (24) hour oral, e-mail, or fax notice and five (5) day written notice to TCEQ as required by paragraph (a) above.
- 7. The permittee shall submit an annual report to the appropriate regional office and the Enforcement Division (MC 224) by March 31 of each year for the 12-month reporting period of January 1 to December 31 of the previous year. The report shall be submitted on forms prescribed by the Executive Director to include, but not limited to:
 - (a) number and type of animals, whether in open confinement or housed under roof;
 - (b) estimated total manure, sludge, and wastewater generated during the reporting period;
 - (c) total compost, manure, sludge, slurry and wastewater land applied during the last twelve (12) months on-site at the CAFO facility;
 - (d) total wastewater, sludge, and/or manure transferred to other persons during the reporting period;

- (e) total number of acres for land application under the control of the permittee and all third-party acreage;
 - (f) summary of discharges of manure, sludge, or wastewater from the production area that occurred during the reporting period including dates, times, and approximate volume;
 - (g) a statement indicating that the NMP/NUP, under which the CAFO is operating, was developed and approved by a certified nutrient management specialist;
 - (h) a copy of the initial soil analysis for each new LMU, regardless of whether manure, wastewater, or sludge has been applied;
 - (i) soil monitoring reports of all soil samples collected in accordance with the requirements of this permit;
 - (j) groundwater monitoring reports (if applicable);
 - (k) the actual crop(s) planted and yield(s) for each LMU;
 - (l) the actual nitrogen and phosphorus content of manure, sludge or process wastewater that was land applied;
 - (m) the results of data used in calculations and the results of calculations conducted in accordance with Attachment E;
 - (n) the results of any soil testing for nitrogen and phosphorus conducted during the previous 12 months;
 - (o) the amount of any supplemental fertilizer applied during the previous 12 months; and
 - (p) any other information requested by the Executive Director.
8. The permittee shall furnish to the appropriate regional office, and the Enforcement Division (MC 224), soil testing analysis for third-party fields of all soil samples within sixty (60) days of the date the samples were taken in accordance with the requirements of this permit.

IX. Standard Permit Conditions

- A. The permittee has a duty to comply with all permit conditions. Failure to comply with any permit conditions is a violation of the permit and statutes under which it was issued and is ground for enforcement action, for permit amendment, revocation or suspension, or for denial of a permit renewal application or an application for a permit for another facility.
- B. The permittee must apply for an amendment or renewal before the expiration of the existing permit in order to continue a permitted activity after the expiration date of the permit. Authorization to continue such activity terminates upon the effective denial of said permit.
- C. It is not a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the permit conditions.
- D. The permittee shall take all reasonable steps to minimize or prevent any discharge or sludge use or disposal or other permit violation which has a reasonable likelihood of adversely affecting human health or the environment.
- E. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) installed or used by the permittee to achieve compliance with the permit conditions. Proper operation and maintenance also includes adequate laboratory and process controls, and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with the permit conditions.

- F. The permittee shall furnish any information, at the request of the Executive Director, which is necessary to determine whether cause exists for revoking, suspending, or terminating authorization under this permit. The requested information must be provided within a reasonable time frame and in no case later than thirty (30) days from the date of the request.
- G. The permittee shall give notice to the Executive Director before physical alterations or additions to the permitted facility if such alterations or additions would require a permit amendment or result in a violation of permit requirements.
- H. Authorization from the Commission is required before beginning any change in the permitted facility or activity that would result in noncompliance with other permit requirements.
- I. Inspection and entry shall be allowed under Texas Water Code, Chapters 26-28, Health and Safety Code, §§361.032-361.033 and §361.037, and 40 Code of Federal Regulations (CFR) §122.41(I). The statement in Texas Water Code, §26.014 that the Commission entry of a facility shall occur in accordance with an establishment's rules and regulations concerning safety, internal security, and fire protection is not grounds for denial or restriction of entry to any part of the facility, but merely describes the Commission's duty to observe appropriate rules and regulations during inspection.
- J. Standard Monitoring Requirements
 - 1. Samples required by this permit shall be collected and measurements shall be taken at times and in a manner so as to be representative of the monitored discharge or activity. Samples shall be delivered to the laboratory immediately upon collection, in accordance with any applicable analytical method and required maximum holding time. Unless otherwise specified in this permit, test procedures for the analysis of pollutants shall comply with procedures specified in 30 TAC §§319.11 – 319.12. Measurements, tests and calculations shall be accurately accomplished in a representative manner.
 - 2. Records of monitoring activities must include:
 - (a) the date, time, and place of sample or measurement;
 - (b) the identity of any individual who collected the sample or made the measurement;
 - (c) the chain-of-custody procedures used to maintain sample integrity from sample collection to laboratory delivery;
 - (d) the date and time of laboratory analysis;
 - (e) the identity of the individual and laboratory who performed the analysis;
 - (f) the technique or method of analysis; and
 - (g) the results of the analysis or measurement and quality assurance/quality control records.
 - 3. The permittee shall ensure that properly trained and authorized personnel monitor and sample the soil or wastewater related to any permitted activity.
- K. Any noncompliance other than that specified in this section, or any required information not submitted or submitted incorrectly shall be reported to the Executive Director as promptly as possible.
- L. A permit may be transferred only according to the provisions of 30 TAC §305.64 (relating to Transfer of Permits) and 30 TAC §305.97 (relating to Action on Application for Transfer).

- M. PPPs, reports, and other information requested or required by the Executive Director shall be signed in accordance with the requirements of 30 TAC §305.128 (relating to Signatories to Reports).
- N. A permit may be amended, suspended and re-issued, or revoked for cause. The filing of a request by the permittee for a permit amendment, suspension and re-issuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit condition.
- O. A permit does not convey any property rights of any sort or any exclusive privilege.
- P. Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of the permit shall be submitted no later than fourteen (14) days following each schedule date.
- Q. If the permittee becomes aware that he/she failed to submit any relevant facts in a permit application, or submitted incorrect information in an application, or in any report to the Executive Director, the permittee shall promptly submit such facts or information.
- R. The permittee is subject to administrative, civil, and criminal penalties, as applicable, under Texas Water Code, §§26.136, 26.212, and 26.213, for violations including but not limited to the following:
 - 1. negligently or knowingly violating Clean Water Act (CWA) §§301, 302, 306, 307, 308, 318, or 405 or any condition or limitation implementing any sections in a permit issued under CWA §402, or any requirement imposed in a pretreatment program approved under CWA §402(a)(3) or §402(b)(8);
 - 2. falsifying, tampering with, or knowingly rendering inaccurate any monitoring device or method required to be maintained under a permit; or
 - 3. knowingly making any false statement, representation, or certification in any record or other document submitted or required to be maintained under a permit, including monitoring reports or reports of compliance or noncompliance.
- S. The permittee shall comply with all applicable rules and regulations of the commission, including 30 TAC 321, Subchapter B.
- T. This permit is granted on the basis of the information supplied and representations made by the permittee during action on an application, and relying upon the accuracy and completeness of that information and those representations. After notice and opportunity for a hearing, this permit may be modified, suspended, or revoked, in whole or in part, in accordance with 30 TAC Chapter 305, Subchapter D, during its term for good cause including, but not limited to, the following:
 - 1. Violation of any terms or conditions of this permit;
 - 2. Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
 - 3. A change in any condition that requires either a temporary or permanent reduction or elimination of the authorized discharge.
- U. Acceptance of the permit by the person to whom it is issued constitutes acknowledgement and agreement that such person will comply with all the terms and conditions embodied in the permit, and the rules and other orders of the Commission.
- V. In accordance with the Texas Water Code §26.029(b), after a public hearing, notice of which shall be given to the permittee, the Commission may require the permittee, from time to time, for good cause, in accordance with applicable laws, to conform to new or additional conditions.
- W. The conditions of this permit are severable, and if any provision of this permit, or the application of any provision of this permit to any circumstances, is held invalid, the

application of such provision to other circumstances, and the remainder of this permit, shall not be affected thereby.

X. Notice of Bankruptcy.

1. Each permittee shall notify the Executive Director, in writing, immediately following the filing of a voluntary or involuntary petition for bankruptcy under any chapter of Title 11 (Bankruptcy) of the United States Code (11 USC) by or against:
 - (a) the permittee;
 - (b) an entity (as that term is defined in 11 USC, §101(14)) controlling the permittee or listing the permit or permittee as property of the estate; or
 - (c) an affiliate (as that term is defined in 11 USC, §101(2)) of the permittee.
2. This notification must indicate:
 - (a) the name of the permittee;
 - (b) the permit number(s);
 - (c) the bankruptcy court in which the petition for bankruptcy was filed; and
 - (d) the date of filing of the petition.

X. Special Provisions

A. RCS Volumes

1. The permittee shall remove sludge from existing RCS #2 and RCS #3 to meet the total required capacity as listed on page 1 of this permit. This sludge removal shall be completed within 180 days from the issuance date of this permit and prior to exceeding 2,150 head, of which 1,950 head are milking. Once sludge removal from RCSs is completed, the RCS management plan shall be developed and implemented within thirty (30) days.
2. The permittee shall construct the other components of the waste management system, which includes a covered digester, screw separator, and a methane generating system. Modifications shall comply with Section VII.A.3 of this permit.
3. The permittee shall maintain the wastewater volumes in each RCS in accordance with Table 6.

Table 6: Volume Allocations for RCSs (Acre-Feet)

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity Without Freeboard	Actual Capacity Without Freeboard
RCS #1	0	0	0	0	0	0	4.04
*RCS #2	27.80	10.00	15.28	5.73	0	58.81	64.87
**RCS #2	27.80	5.52	18.41	3.23	0	54.96	64.87
RCS #3	5.89	0	0	0.02	16.89	22.79	25.95

* Volumes to be maintained in RCS #2 when the covered digester is operational.

** Volumes to be maintained in RCS #2 during the digester bypass.

4. Compliance Schedule. All RCS modifications required by this permit shall be completed within 180 days after the issuance date of this permit and prior to exceeding 2,150 head. Upon written request to the TCEQ Regional Office, the Executive Director may grant an extension to the 180 day requirement. However, all modifications must be completed prior to exceeding 2,150 head.

5. All certifications required by Section VII.A.3(a) of this permit shall be submitted to the TCEQ Regional Office and CAFO Permitting, Water Quality Division (MC 150) within 30 days of completing construction and/or modification.
- B. Future Revisions to Bosque River Total Maximum Daily Load (TMDL). The permittee is hereby placed on notice that this permit may be amended by the TCEQ in order to make the terms and conditions of this permit consistent with any revisions to the Bosque River TMDL, associated Implementation Plan, and any revisions to federal regulations.
- C. The permittee shall submit the following record to the appropriate Regional Office and the Enforcement Division (MC 224) by March 31 of each year for the 12-month reporting period of January 1 to December 31 of the previous year.
 1. date of compost, manure, sludge, slurry and wastewater application to each LMU;
 2. location of the specific LMU and the volume applied during each application event;
 3. acreage of each individual crop on which compost, manure, sludge, slurry and wastewater is applied;
 4. basis for and the total amount of nitrogen and phosphorus applied per acre to each LMU, including sources of nutrients other than compost, manure, sludge, slurry and wastewater on a dry basis;
 5. weather conditions, such as temperature, precipitation, and cloud cover, during the land application and twenty-four (24) hours before and after the land application;
 6. annual nutrient analysis for at least one (1) representative sample of manure, sludge (if applicable), slurry, and wastewater for total nitrogen, total phosphorus, and total potassium; and
 7. any measurements of sludge accumulations as required in each RCS.
- D. Table 7 describes the buffers that the permittee is required to install and maintain according to the NRCS practice standards in the referenced code. The map in Attachment B includes the location and distance requirements for all buffers.

Table 7: Buffer Distances

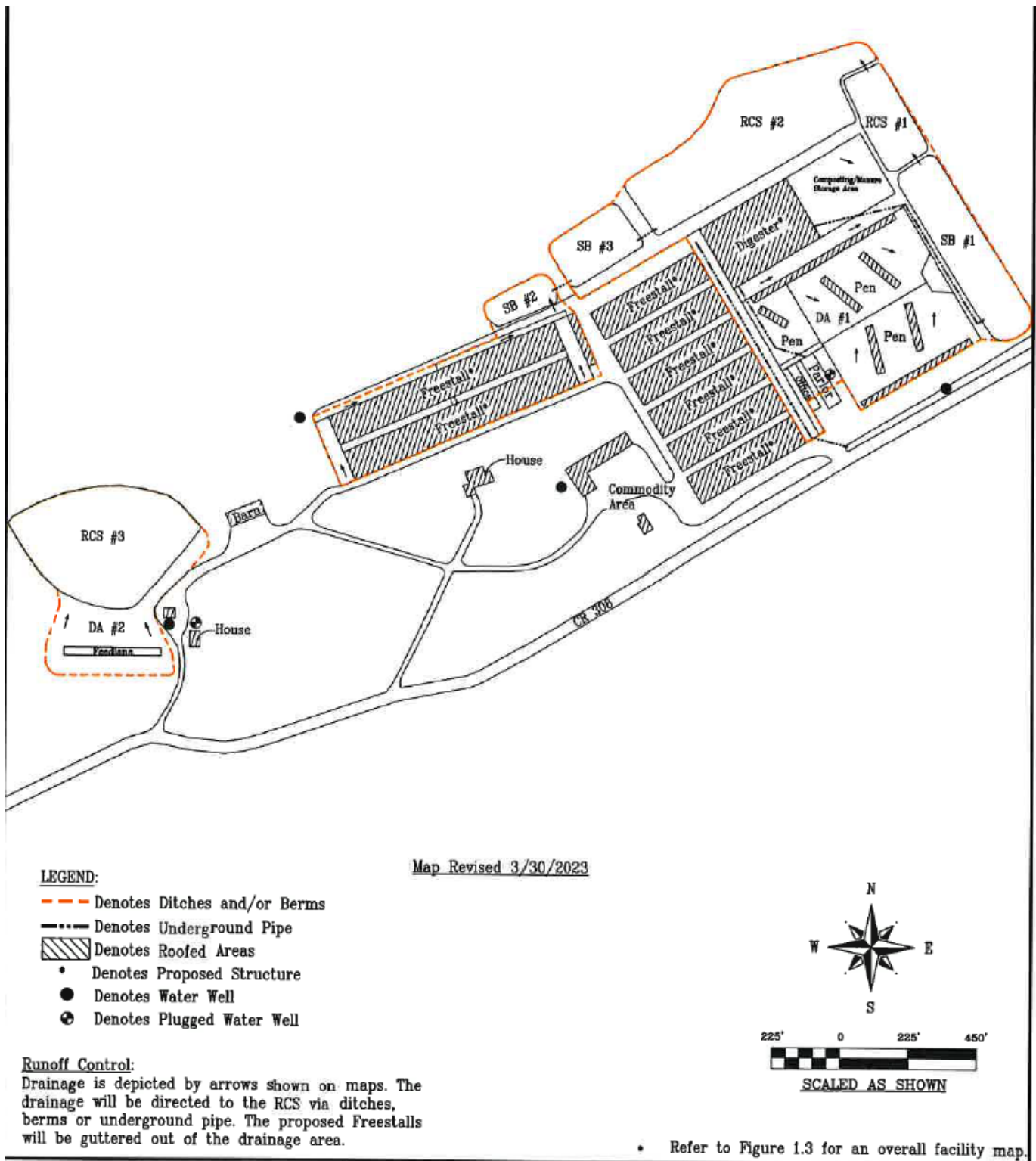
LMU Name	Vegetative Buffer Setback (feet)	Additional Buffer Setback NRCS Code 393 Filter Strip Flow Length (feet)
LMU #1	100	36
LMU #2	100	36
LMU #3	100	36
LMU #4	100	36
LMU #5	100	36
LMU #6	100	36
LMU #7	100	36
LMU #8	100	36
LMU #9	100	36
LMU #10	100	36
LMU #11	100	36
LMU #12	100	36
LMU #13	100	36
LMU #14	100	36

- E. The sludge volume in each RCS will be measured and recorded in the PPP as necessary, but at least annually.
- F. There will be no grazing of livestock on the LMUs for this CAFO unless the NMP reflects grazing and the grazing practices mentioned in the NRCS Conservation Practice Code 393, Filter Strip, are implemented to protect buffers.
- G. Settling Basin Solids.
 - 1. For the purpose of this permit, settling basin solids shall be defined as manure.
 - 2. If settling basin solids are land applied, an annual sample must be collected and analyzed in accordance with Section VII.A.9(a), in addition to other manure and wastewater.
 - 3. Settling basin solids shall be cleaned out regularly to maintain the percent settling basin design efficiency.
- H. All runoff from silage, commodity, and hay storage outside the RCS drainage area will be contained. Appropriate provisions for that containment will be stated in the PPP upon issuance of the permit. This permit does not authorize any discharge from the silage, commodity, or hay storage areas located outside the drainage area of the RCSs.
- I. Slurry from freestall barn
 - 1. For the purpose of this permit, slurry from freestall barns shall be defined as manure.
 - 2. If slurry from freestall barns is land applied, an annual sample must be collected and analyzed in accordance with Section VII.A.9(a), in addition to other manure and wastewater.
 - 3. Slurry removed from freestall barns must be stored within the drainage area of an RCS, and the storage area must be large enough to prevent overflow into settling basins and/or RCSs. Any overflow of these storage basins shall be recorded in the PPP and notification shall be provided to the Regional Office within thirty (30) days. Based on review of the information this permit may be formally amended to require additional controls or other requirements.
- J. Irrigation of wastewater from the LMU #5 center pivot sprinkler is prohibited over the buffered areas. The irrigation system must be capable of restricting flow to the required number of drop nozzles (and end gun if present) to protect the buffer. Cut-off points for center pivot in LMU #5 must be clearly identified on the surface of the LMU.
- K. During the annual site inspection, the permittee will inspect Wells #3, #4, #5 #7, and #9 (if applicable). Special attention should be given to ensure that the concrete slabs, well heads, and the best management practices listed in Table 3 are in place and functional. Integrity compromises, such as the concrete slab cracking, sanitary seal deterioration, cracks in the well casing, or well house deterioration will be repaired within 30 days of the discovery. Permittee shall ensure no runoff or wastes encroach upon the wells. Fertilizers and pesticides will not be stored on or in any structure that houses the water wellhead. Maintenance records for the wells shall be maintained onsite.
- L. Sludge must be analyzed for nutrient content prior to routing offsite for any land application. The analysis for each haul off shall be maintained in the PPP. (See Section VII.A.5(g) for additional requirements relating to sludge cleanout.)
- M. Manure and settled solids accumulations in the settling pond must be removed on a regular and consistent basis so as to assure attainment of the 30% designed removal efficiency; and maintain 42% anaerobic digester efficiency, and 76% Dissolved Air Flotation efficiency.
- N. The culverts located between Settling Basin #2 and Settling Basin #3 should be inspected at least once a month to ensure wastewater can adequately drain to Settling Basin #3.

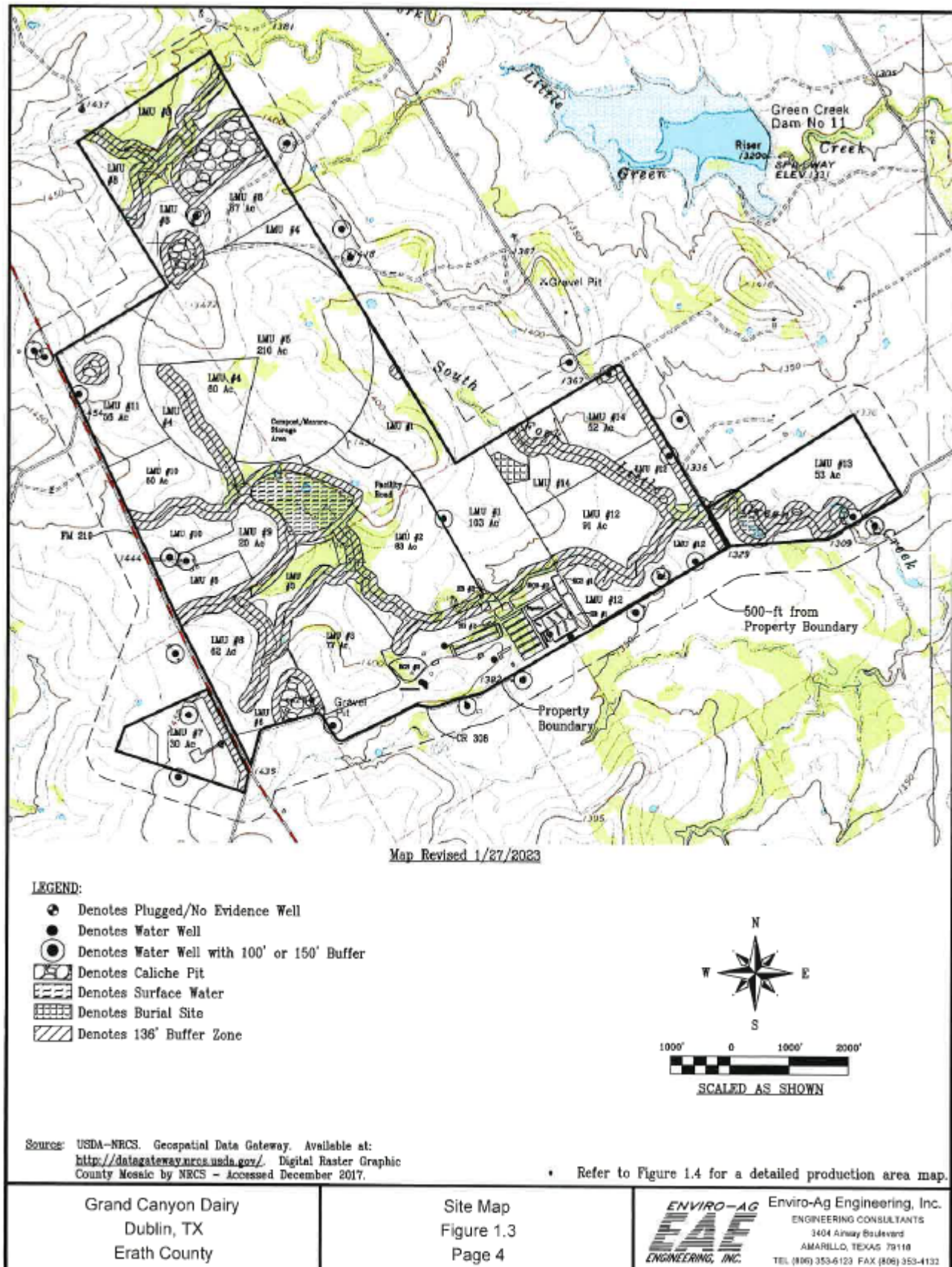
- O. The surface water features (drainage/waterway) on LMU #13 that are to be leveled shall be completed before any land application of manure or wastewater to the LMU.
- P. A LMU map showing historical LMUs shall be maintained in the PPP.
- Q. Onsite Burial.
1. The permittee shall collect non-diseased carcasses within 24 hours of death and properly dispose of them within three days of death, in accordance with Texas Water Code Section 26.0405; Texas Health and Safety Code Section 361.090; and 30 TAC 335.4–335.6, unless otherwise provided for by the TCEQ.
 2. The permittee shall comply with the following requirements:
 - (a) The permittee shall properly design or install the pit or trench, and shall not cause contamination of ground water, seepage, or contamination of stream systems from surface drainage or floodwater.
 - (b) Animal burial sites that have highly permeable soils, fractured or cavernous bedrock, or a seasonal high water table are not suitable.
 - (c) Depth to ground water table shall be at least 5 feet below the bottom of the excavation. The site shall not be subject to flooding and surface water should be diverted from the excavation.
 - (d) The soil for the final cover of the pit or trench shall be of soil material that favors revegetation and shall not contain excess sodium or salts and shall not be too acid. It is recommended that topsoil from the excavation be set aside for the top layer of final cover.
 - (e) Burial sites should be located in an area not likely to be disturbed in the near future.
 - (f) The permittee shall maintain the following setbacks for burial:
 - (i) Minimum of 300 feet downgradient from any ground water supply source and nearest drinking water well.
 - (ii) Minimum of 300 feet from the nearest surface water including but not limited to creek, stream, pond, lake, or river, and not in a floodplain.
 - (iii) Minimum of 200 feet from adjacent property lines.
 - (iv) Depth of burial shall be at least 3 feet below the natural surface of the ground, with at least 3 feet of earthen material (soil) over the carcass.
- R. Anaerobic Digester
1. The permittee shall have adequate RCS capacity to maintain minimum treatment volume for odor control at all times, including when the digester is bypassed or during digester maintenance.
 2. The facility shall maintain the ability to bypass the digester in the event it is taken offline for maintenance or repair. If the digester is taken offline for a period lasting longer than 90 days, the Permittee shall notify the TCEQ Regional Office. If the digester is to be permanently discontinued, a permit amendment must be obtained.
 3. The permittee shall use only cattle manure as feedstock and shall obtain a major amendment prior to use of cattle manure that is generated by another AFO for digester feedstock. The use of additional feedstocks other than cattle manure is prohibited by this permit.
 4. The permittee shall ensure that the owner and operator of the digester obtains all necessary authorizations from the TCEQ Air Permits Division for the digester operation. Off-gasses, flares, internal combustion engines, or other emissions associated with the digester are not authorized under the CAFO standard air permit.

5. Digestate shall be defined as manure. The permittee shall land apply the digestate in accordance with the site-specific certified nutrient management plan.
 6. The anaerobic digester and any appurtenances such as recirculation basins and mixing pits shall be certified in accordance with 30 TAC §321.38(g)(2).
 7. Discharges from the digester or digester appurtenances are not authorized under this permit. Any leaks or spills shall be retained on site.
- S. Upon issuance of the permit, prior to land application of manure or wastewater, a current NMP must be in place and it shall thereafter be updated annually with the most recent soil, manure, and wastewater analyses. For LMUs that have a phosphorus level in the soil of more than 200 ppm, a NUP must be developed or updated in accordance with Section VII.A.8(c).

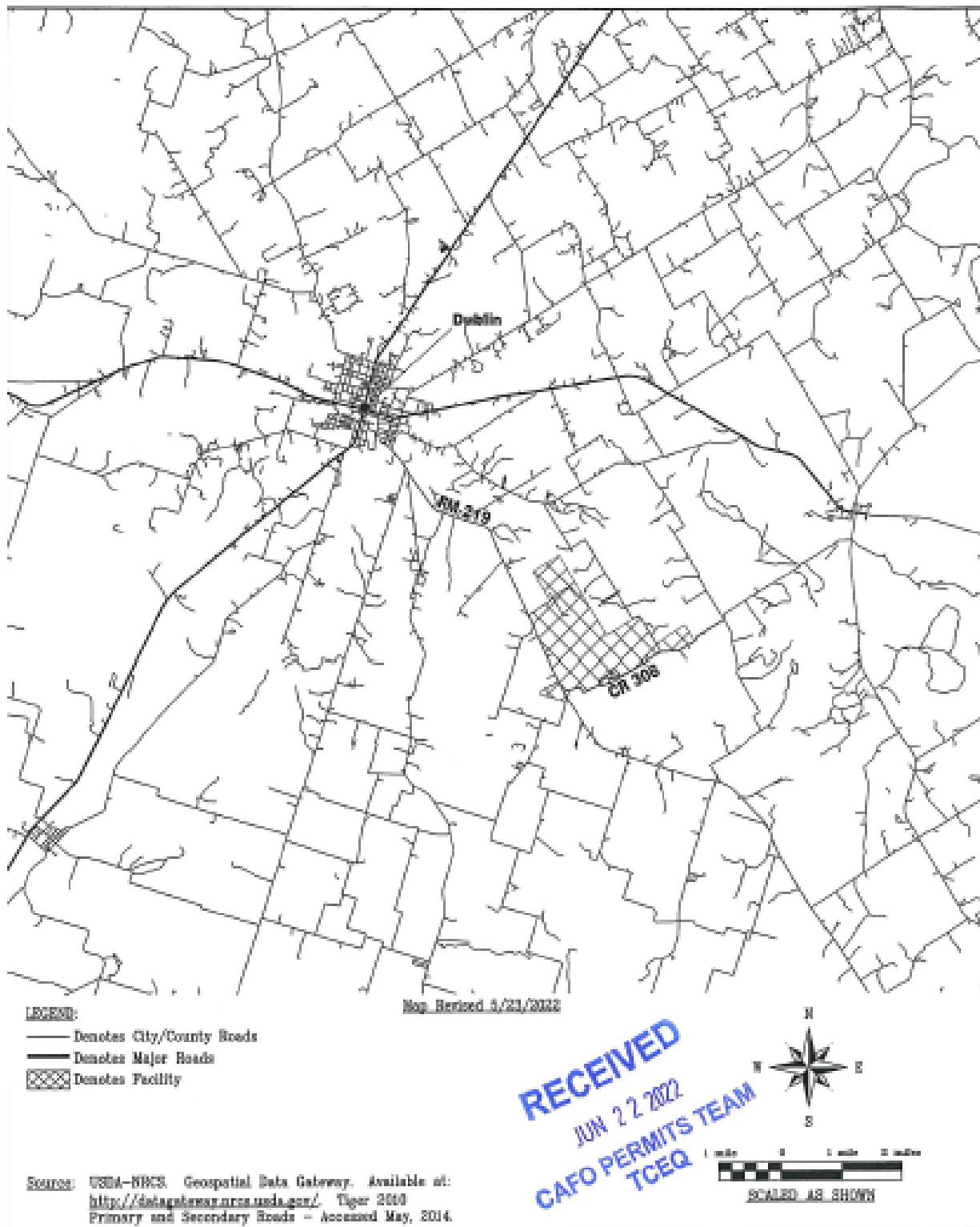
ATTACHMENT A - SITE MAP



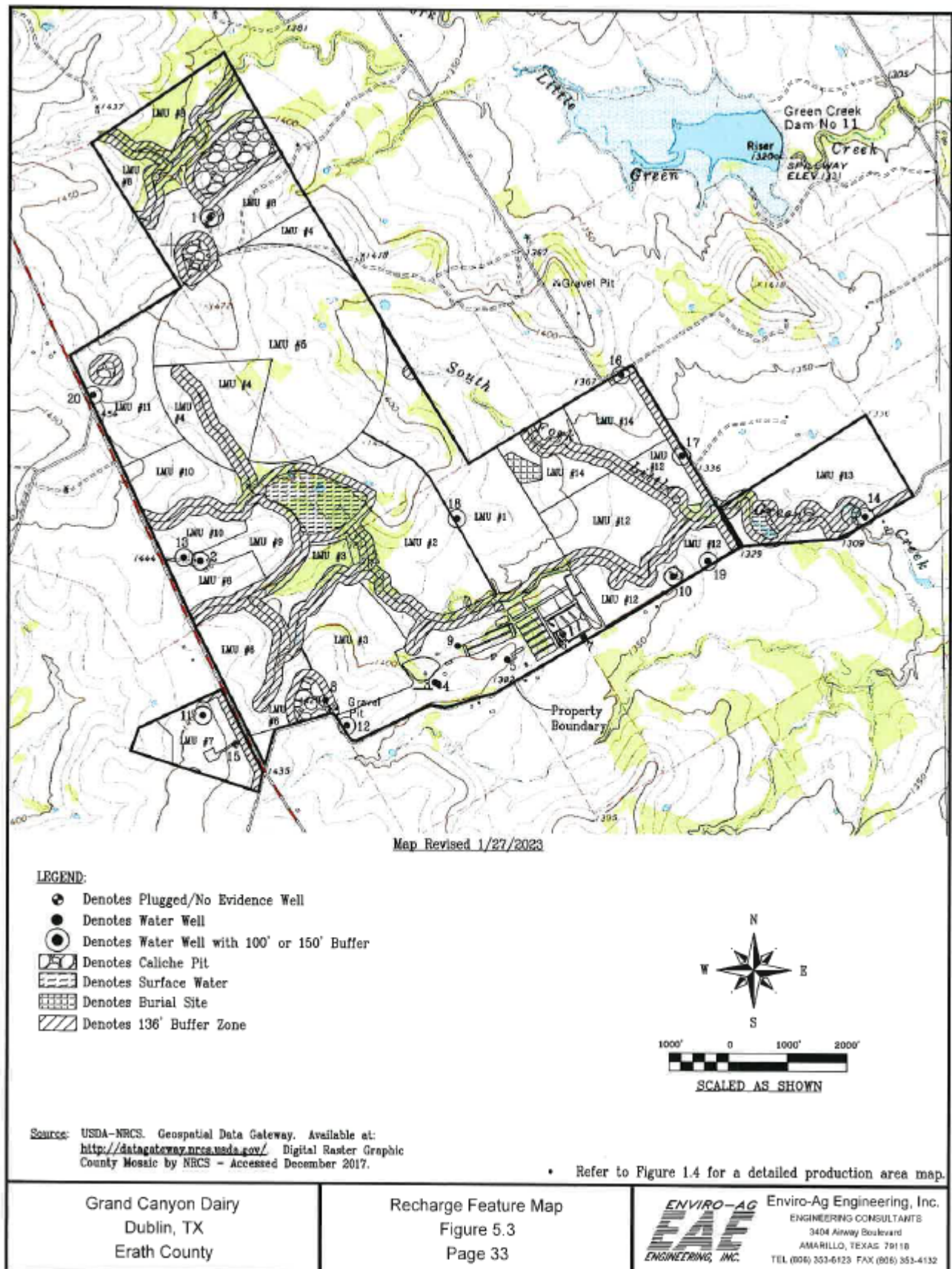
ATTACHMENT B - LAND MANAGEMENT UNITS



ATTACHMENT C - VICINITY MAP



ATTACHMENT D - WELL LOCATION AREAS



ATTACHMENT E

METHODOLOGY FOR CALCULATING MAXIMUM APPLICATION RATES AND ANNUAL RECALCULATION OF APPLICATION RATES

1. Identify the Soil Test Phosphorus (P) Level (Extremely Low, Very Low- Low, Medium, High, Very High) on the soil test analysis.

Soil Test P Rating	Soil Test P Levels (ppm*)
Extremely Low	Less than 5
Very Low - Low	5 to less than 20
Medium	20 to less than 50
High	50 to less than 100
Very High	Greater than or equal to 100

*ppm is equivalent to mg/kg of solids

2. Update Table 1 to Attachment E:
 - (a) Populate the Sub Total column with the point value that corresponds to the Site Characteristic for each.
 - (b) Calculate the Total Index Points
 - (c) Select the P Runoff Potential from the total sum of the Index Points of the Site Characteristics using the Phosphorus Index Classification Table.
3. Determine which of the tables (Table 2A or Table 2B) of Table 2 to Attachment E on the following page is appropriate to use. Each table describes the criteria for its use.
4. Determine which application rate column is appropriate using the following criteria:
 - (a) Use the Maximum TMDL Annual P Rate if this LMU is located in a segment with an approved TMDL.
 - (b) Use Maximum Annual P Application if this LMU is not located in a segment with an approved TMDL and you wish to apply annually.
 - (c) Use Maximum Biennial Application Rate if this LMU is not located in a segment with an approved TMDL and you wish to apply biennially.
5. Determine the Maximum Application Rate using the table identified in Step 3, the column identified in Step 4, and the P Runoff Potential identified in Step 2.(c).
6. Using one of the approved crops and yield goals identified on Attachment F for this LMU, determine the maximum application rate (in lbs/ac) for that crop and yield goal and the Maximum Application Rate identified in Step 5 from the S-Crop Table.
 - (a) Example 1: If the Maximum Application Rate in Step 5 is “1.5 Times Annual Crop P Requirement”, find the number identified on the S-Crop Table under the column “Crop P₂O₅ requirement” for your crop/yield goal, then multiply that number by 1.5 to determine your maximum application rate (in lbs/ac P₂O₅).
 - (b) Example 2: If the Maximum Application Rate in Step 5 is “0.5 Times Annual Crop P Removal”, find the number identified on the S-Crop Table under the column “Crop P₂O₅ Removal Rate” for your crop/yield goal, then multiply that number by 0.5 to determine your maximum application rate (in lbs/ac P₂O₅).

ATTACHMENT E

TABLE 1: PHOSPHORUS INDEX WORKSHEET FOR EAST TEXAS FROM NRCS PRACTICE STANDARD 590

Client Name:			Field(s):			Date:	
Planner:			Location:			Crop:	
Impaired Watershed (Y or N):			Runoff Curve No.:			% Slope:	
Site Characteristic (Weighting Factor)	[Weighting Factor Times the Column Factor]					Sub Total	
	0	1	2	4	8		
Soil Test P Rating (1.00)	N/A	Very Low – Low	Moderate	High	Very High		
	[0]	[1.0]	[2.0]	[4.0]	[8.0]		
Fertilizer Phosphorus (P ₂ O ₅) Application Rate (0.75)	None Applied	1-40 lbs/ac P ₂ O ₅	41-90 lbs/ac P ₂ O ₅	91-150 lbs/ac P ₂ O ₅	>150 lbs/ac P ₂ O ₅		
	[0]	[0.75]	[1.5]	[3.0]	[6.0]		
Organic Phosphorus (P ₂ O ₅) Application Rate (0.75)	None Applied	1-40 lbs/ac P ₂ O ₅	41-90 lbs/ac P ₂ O ₅	91-150 lbs/ac P ₂ O ₅	>150 lbs/ac P ₂ O ₅		
	[0]	[0.75]	[1.5]	[3.0]	[6.0]		
Phosphorus Fertilizer Application Method and Timing (0.50)	None Applied	Placed deeper than 2 in. or broadcast and incorporated within 48 hours	Surface applied 12/1-2/15	Surface applied 2/16-4/15 or 6/16-11/30	Surface Applied 4/16-6/15		
	[0]	[0.50]	[1.0]	[2.0]	[4.0]		
Organic Phosphorus source Application Method and Timing (0.50)	None Applied	Placed deeper than 2 in. or broadcast and incorporated within 48 hours	Surface applied 12/1-2/15	Surface applied 2/16-4/15 or 6/16-11/30	Surface Applied 4/16-6/15		
	[0]	[0.50]	[1.0]	[2.0]	[4.0]		
Proximity of nearest field edge to named stream or lake (1.25)	> 2000 feet	1000 – 1999 feet	500 – 999 feet	100 – 499 feet	< 100 feet		
	[0]	[1.25]	[2.5]	[5.0]	[10.0]		
Runoff Class (Runoff Class Table 3) (1.00)	Negligible	Low	Moderate	High	Very High		
	[0]	[1.0]	[2.0]	[4.0]	[8.0]		
Soil Erosion (all sources) (1.50)	Very Low <1 t/ac	Low 1-3 t/ac	Medium 3-5 t/ac	High 5-10 t/ac	Very High >10 t/ac		
	[0]	[1.5]	[3.0]	[6.0]	[12.0]		
Total Index Points:							

ATTACHMENT E

TABLE 2: APPLICATION RATES FROM NRCS PRACTICE STANDARD 590

Commercial fertilizers must be applied in accordance with SWFTL* recommendations. Application of all organic soil amendments must not exceed the values in Table 2A or 2B.

Table 2A. A Nutrient Management Plan (NMP)¹ is required where any organic soil amendments are applied where Soil Test P Level is less than 200 ppm statewide or, less than 350 ppm in arid areas² with distance to a named stream greater than one mile.

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

Table 2B. A Nutrient Utilization Plan (NUP)¹ is required where Soil Test P Level is: equal to or greater than 200 ppm in nonarid areas², or equal to or greater than 350 ppm in arid areas² with distance to a named stream greater than one mile and erosion control is adequate to keep erosion at the soil loss tolerance (T) or less, or equal to or greater than 200 ppm in arid areas² with distance to a named stream less than one mile.

P – Index Rating	Maximum TMDL Annual P Application Rate	Maximum Annual P Application Rate	Maximum Biennial Application Rate
Very Low, Low	1.0 Times Annual Crop P Removal ⁴	Annual Crop N Removal	2.0 Times Crop 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 Crop N Removal
High	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 Crop N Removal
Very High	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 Crop N Removal

Footnotes Applicable to both Tables

¹NMP and NUP designations are consistent with 30 TAC §321.40.

²All counties must use the 200 ppm P level limit to determine whether to use Table 2A or Table 2B. However, in counties receiving less than 25 inches of annual rainfall, the 350 ppm P level limit applies if the field application area is greater than 1 mile from a named stream or lake. See map in current Texas Agronomy Technical Note 15, Phosphorus Assessment Tool for Texas for county rainfall designations.

³Not to exceed the annual nitrogen requirement rate.

⁴Not to exceed the annual nitrogen removal rate.

SWFTL* Texas A&M AgriLife Extension Soil, Water and Forage Testing Laboratory

ATTACHMENT F

SITE SPECIFIC INFORMATION FOR LAND MANAGEMENT UNITS FROM NUTRIENT MANAGEMENT PLAN

Table 1: Alternative Crops and Yield Goals
Applicable to ALL Land Management Units: - 1,034 Acres

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

ATTACHMENT F

SITE SPECIFIC INFORMATION FOR LAND MANAGEMENT UNITS FROM NUTRIENT MANAGEMENT PLAN

Table 1: Alternative Crops and Yield Goals**Applicable to ALL Land Management Units: - 1,034 Acres**

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

ATTACHMENT F

SITE SPECIFIC INFORMATION FOR LAND MANAGEMENT UNITS FROM NUTRIENT MANAGEMENT PLAN

Table 1: Alternative Crops and Yield Goals**Applicable to ALL Land Management Units: - 1,034 Acres**

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

ATTACHMENT F

SITE SPECIFIC INFORMATION FOR LAND MANAGEMENT UNITS FROM NUTRIENT MANAGEMENT PLAN

Table 1: Alternative Crops and Yield Goals**Applicable to ALL Land Management Units: - 1,034 Acres**

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

ATTACHMENT F

SITE SPECIFIC INFORMATION FOR LAND MANAGEMENT UNITS (LMUs) FROM NUTRIENT MANAGEMENT PLAN**Table 2: Current Site Specific Information from NMP**

LMU Name	Acreage	Crop(s) and Yield Goal(s)	*Nitrogen Recommendation (lbs/ac)(*1)	*Phosphorus as P ₂ O ₅ Recommendation (lbs/ac)(*1)	Nitrogen Maximum Application Rates (lbs/ac)* (*1)	Phosphorus as P ₂ O ₅ Maximum Application Rates (lbs/ac)* (*1)
LMU #1	103	Silage-Corn: 21-25 Tons Small Grain Mod Graze	417	256	417	256
LMU #2	83	Silage-Corn: 21-25 Tons Small Grain Mod Graze	503	308	503	308
LMU #3	78	Silage-Corn: 21-25 Tons Small Grain Mod Graze	503	308	503	308
LMU #4	60	Silage-Corn: 21-25 Tons Small Grain Mod Graze	503	308	503	308
LMU #5	210	Coastal Graze: 1 AU/1 Acre Small Grain Mod Graze	399	236	399	236
LMU #6	65	Silage-Corn: 21-25 Tons Small Grain Mod Graze	503	308	503	308
LMU #7	30	Coastal Graze: 1 AU/ 1 Acre Small Grain Mod Graze	400	245	400	245
LMU #8	87	Silage-Corn: 21-25 Tons Small Grain Mod Graze	503	308	503	308
LMU #9	20	Silage-Corn: 21-25 Tons Small Grain Mod Graze	417	256	417	256
LMU #10	15	Silage-Corn: 21-25 Tons Small Grain Mod Graze	417	256	417	256
LMU #11	56	Silage-Corn: 21-25 Tons Small Grain Mod Graze	503	308	503	308
LMU #12	91	Silage-Corn: 21-25 Tons	216	132	216	132

LMU Name	Acreage	Crop(s) and Yield Goal(s)	*Nitrogen Recommendation (lbs/ac)(*1)	*Phosphorus as P ₂ O ₅ Recommendation (lbs/ac)(*1)	Nitrogen Maximum Application Rates (lbs/ac)* (*1)	Phosphorus as P ₂ O ₅ Maximum Application Rates (lbs/ac)* (*1)
		Small Grain Mod Graze				
LMU #13	53	Silage-Corn: 21-25 Tons Small Grain Mod Graze	503	308	503	308
LMU #14	52	Silage-Corn: 21-25 Tons Small Grain Mod Graze	503	308	503	308

NOTE

*Nutrients Applied When Application is At Maximum Rates from NMP 590-633 Plan V 5.0 with the Print Date 01/27/2023. Any future revision to the NMP will be based on the current version of the 590-633 CNMP Component (NMP/NUP) Worksheet. Maximum rates are based on wastewater and manure analyses dated 07/23/2021 and soil analysis reports dated 09/15/2021, 09/16/2021, and 03/04/2022 by the Soil, Water and Forage Testing Laboratory, AgriLife Extension, College Station, Texas. The Maximum Rates (lb/ac) for nitrogen (N) and phosphorus (P₂O₅) will be updated based on most recent annual analyses of soil and waste.

(*1) Nutrient recommendations and maximum amount of nutrients derived from all sources have been established for both nitrogen and phosphorus based on the NMP submitted with the application. The permittee is required to recalculate these values annually in accordance with the requirements of this permit. These annual recalculations do not constitute a substantial change and therefore do not require an amendment of this permit.

Fact Sheet and Executive Director's Preliminary Decision

I. Description of Application

Applicant: Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC

Permit No.: WQ0002950000

Regulated Activity: Concentrated Animal Feeding Operation; dairy cattle

Permit Action: Major Amendment

Authorization: Air & Water Quality Authorization

II. Executive Director's Recommendation

The Executive Director has made a preliminary decision that this permit, if issued, meets all statutory and regulatory requirements. For New, Major Amend & Renewal: The proposed permit shall be issued for a 5-year term in accordance with 30 TAC Chapter 305.

III. Reason for Proposed Project

The applicant has applied to the Texas Commission on Environmental Quality (TCEQ) for a major amendment of Texas Pollutant Discharge Elimination System Permit No.

WQ0002950000 to authorize the permittee to modify an existing dairy cattle Concentrated Animal Feeding Operation (CAFO) by constructing the proposed changes to the site that were approved in the permit that was issued on August 17, 2023 in phases, including the addition of freestall barns and an anaerobic digester to the waste management system, and the headcount change from 2,150 head to 4,000 head, all of which are milking cows.

Two phases are proposed: Phase 1: Confine a total of 2,500 head, all of which will be milking cows; reconfigure existing land management units (LMUs) as follows: create LMU #1A – 41 acres from current LMU #1 – 103 acres, decrease LMU #1 to 62 acres, create LMU #2A – 21 acres from current LMU #2 – 83 acres and decrease LMU #2 to 62 acres, create LMU #3A – 21 acres from current LMU #3 – 78 acres and decrease LMU #3 to 56 acres; decrease LMU #6 from 65 to 62 acres, reconfigure LMU #12 and LMU #14 to create LMU #12A – 30 acres from current LMU #12 – 91 acres, decrease LMU #12 to 66 acres; and decrease LMU #14 from 52 to 47 acres, which will decrease the total land application area from 1,038 to 1,034 acres; and update the facility maps to reflect current conditions (which includes to remove the proposed structures such as the digester, freestall barns; and show the reconfigured LMUs boundaries).

Phase 2: Increase the maximum capacity to the currently authorized 4,000 head, all of which are milking cows; add the authorized digester and associated equipment, and the freestall barns.

IV. Facility Description and Location

Maximum Capacity: 4,000 total head, of which 4,000 head are milking

Land Management Units (LMUs) (Acres): LMU #1 – 62, LMU #1A – 41, LMU #2 – 62, LMU #2A – 21, LMU #3 – 56, LMU #3A – 21, LMU #4 – 60, LMU #5 – 210, LMU #6 – 62, LMU #7 – 30, LMU #8 – 87, LMU #9 – 20, LMU #10 – 50, LMU #11 – 56, LMU #12 – 66, LMU #12A – 30, LMU #13 – 53, LMU #14 – 47

Location: The facility is located at 2179 County Road 308, Dublin in Erath County, Texas.

Latitude: 32.023333° N and Longitude: 98.270833° W.

Drainage Basin: The facility is located in the drainage area of the North Bosque River in Segment No. 1226 of the Brazos River Basin.

Fact Sheet and Executive Director's Preliminary Decision

Circle 7 Dairy, LLC & Grand Canyon Dairy, LLC, TPDES Permit No. WQ0002950000

The facility consists of three (3) Retention Control Structures (RCSs) and three (3) Settling Basins. The tables below indicate the volume allocations for the RCSs:

RCS #1 and #2 act in-series.

Table 1: Volume Allocations for RCSs (Acre-Feet) – Phase 1

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity Without Freeboard	Actual Capacity Without Freeboard
RCS #1	0.0	0.0	0.0	0.0	0.0	0.0	4.04
RCS #2	34.59	3.45	11.51	2.30	0.0	51.84	64.87
RCS #3	5.89	0.0	0.0	0.02	10.84	16.74	25.95

Table 2: Volume Allocations for RCSs (Acre-Feet) – Phase 2 – Digester Operational or on Bypass

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity Without Freeboard	Actual Capacity Without Freeboard
RCS #1	0.0	0.0	0.0	0.0	0.0	0.0	4.04
RCS #2	27.80	10.0	15.28	5.72	0.0	58.81	64.87
RCS #2*	27.80	5.52	18.41	3.22	0.0	54.96	64.87
RCS #3	5.89	0.0	0.0	0.02	16.83	22.73	25.95
RCS #3*	5.89	0.0	0.0	0.02	12.20	18.10	25.95

*Volumes to be maintained in RCSs #2 and #3 when the Digester is on Bypass.

- A. The volume allocations are determined using Natural Resource Conservation Service standards, American Society of Agricultural and Biological Engineers standards, and/or site-specific data submitted in the permit application.
- B. The Design Rainfall Event is the volume of runoff from the 25 year, 10 day storm event. The RCS is required to include adequate capacity to contain this amount of runoff as a margin of safety to protect against discharges during rainfall events that may exceed the average monthly values used to design the RCS, but do not constitute chronic or catastrophic rainfall. This volume allocation accommodates runoff from open lot surfaces, all areas between the open lots and the RCS, runoff from roofed areas that contribute to the RCS and direct rainfall on the surface of the RCS. Runoff curve numbers used to calculate the runoff volume from the open lot surfaces are reflective of the characteristics of open lot surfaces and range between 90 and 95. Runoff curve numbers used to compute the runoff from areas between the open lots and the RCS are reflective of the land use and condition of the areas between the open lots and RCS. A curve number of 100 is used for the RCS surface and all roofed areas.

- C. Process Generated Wastewater is the volume of wet manure and wastewater generated by the facility that is flushed or otherwise directed to the RCS. Wastewater includes all water used directly or indirectly by the facility that comes in contact with manure or other waste. The RCS must contain the process generated wastewater from a 21 day period or greater. RCS #2 is designed to contain 30 days of process generated wastewater for this permit.
- D. Treatment volume is required to minimize odors for facilities requesting air authorization under the Air Standard Permit in 30 TAC Section 321.43. Treatment volume is based on the amount of volatile solids produced and the volatile solids loading rate. Volatile solids are solid material in waste that can be decomposed through biological, physical, and chemical activity. The rate of solids decomposition is based on temperature; therefore it varies by geographic location. The volatile solids loading rate for this facility is 5.3 pounds per day of volatile solids per 1000 ft³ of treatment volume.
- E. Sludge accumulation volumes are required in the RCS that receives runoff from open lots, flushwater from freestall barns and flushwater from the milking parlor. The sludge accumulation volume for flushwater entering the RCS is based on a rate of 0.0729 cubic feet of storage capacity per pound of total solids in the wet manure entering the RCS during the design sludge accumulation period. The sludge accumulation volume allocated for runoff from open lots is calculated using USDA Agricultural Field Waste Handbook, Kansas, Part 651.1083, which uses the following equation: $(\%SC) \times (MAR) \times (DA) \times (SP)$, where %SC = percent solids content of runoff, MAR = mean annual runoff (in inches), DA = contributing drainage area (in acres), and SP = sediment storage period (in years). A minimum of one year of sludge storage is required in the RCS. Design sludge volumes in this permit reflect a one (1) year sludge accumulation period.
- F. The RCS volume designated as Water Balance is the capacity needed in addition to the Process Generated Wastewater volume to provide adequate operating capacity so that the operating volume does not encroach into the design storm volume. The water balance is an analysis of the inflow into the RCS, all outflows from the RCS and the consumptive use requirements of the crops on the land areas being irrigated. The water balance is developed on a monthly basis. It estimates all inflows into the RCS including process generated wastewater and runoff from open lots, areas between open lots and the RCS, roofed areas and direct rainfall onto the RCS surface. Consumptive use potential for the areas to be irrigated is developed based on the potential evapotranspiration of the crops and the effective average monthly rainfall on the area to be irrigated. Runoff curve numbers used for the water balance are adjusted from one (1) day to 30 day curve numbers to more accurately reflect monthly values. Evaporation from the RCS surface is computed on a monthly basis. Monthly withdrawals from the RCS are developed based on the total inflow to the RCS minus evaporation from the RCS surface and limited by the monthly crop consumptive use potential.
- G. Anaerobic Digester.
The other components of the waste management system are a covered anaerobic digester system, and a methane generating system to process the wastewater from the milking parlor only. At the end of the digester process, the resulting liquid (wastewater) and the solids that are separated from the process generated wastewater will be land applied in accordance with the facility's nutrient management plan.

The NRCS Practice Standard Code 366 describes the digester is a component of a waste management system in which biological treatment breaks down animal manure and other organic materials in the absence of oxygen. This practice is applicable for one or more of the following purposes:

- Manage odors
- Reduce the net effect of greenhouse gas emissions
- Reduce pathogens
- Captures biogas to facilitate energy production
- Biogas production and capture are components of a waste management system plan and comprehensive nutrient management plan (CNMP)
- Sufficient and suitable organic feedstocks are readily available.

The table below shows the summary of impact of anaerobic digestion of dairy cattle manure on odor, greenhouse gas, ammonia, water quality and net farm income.

Table 2: Summary of observed impacts of anaerobic digestion on semisolid dairy cattle manure management.

Parameters	Impact
Odor	Substantial reduction
Greenhouse gas emissions	Methane – substantial reduction (2.32 tons/cow/yr on a carbon dioxide equivalent basis) Carbon dioxide 1.33 tons/cow/yr associated with the reduction in fossil fuel use to generate electricity
Ammonia emissions	No significant reduction
Potential Water quality impacts	Oxygen demand – substantial reduction (5.1 lbs/cow/day) Indicator organisms and potentially pathogens – significant reduction (fecal coliforms: >99 % (Fecal streptococcus: > 90%) Nutrient enrichment – no reduction
Economic impact	Significant increase in net farm income (\$101/cow/year after recovery of capital invested in 6.3 years)

Source: John H. Martin, Jr. Ph.D., July 20, 2005. An Evaluation of a Mesophilic, Modified Plug Flow Anaerobic Digester For Dairy Cattle Manure.

V. Summary of Changes from Existing Authorization

- A. The following changes have been made to Section IV on page 1 of the permit:
 1. Added Phase 1 and Phase 2; included the number of heads and RCSs required capacity for each phase; and the reconfigured LMUs and acreage.
 2. Revised the other components of the waste management system to include a mixing pit, anaerobic digester, screw press separator and dissolved air flotation.
- B. Amended Section VI.C.1 that relates to the Air Quality Authorization to include the phases and the minimum treatment volume required in RCS #2 for each phase.

- C. Section X.A that relates to the retention control structure volume allocation has been amended as follows: Added Phase 1 to X.A.1, created tables for each proposed phase, renumbered tables to Table 6A and 6B, added Phase 2, and the compliance schedule for each phase (as shown below). In addition, the total number of dairy cattle was changed from 2,150 head of which 1,950 head are milking, to 2,500 head of which 2,500 head are milking.

A. RCS Volumes.

1. **Phase 1.** The permittee shall remove sludge from existing RCS #2 and RCS #3 to meet the total required capacity as listed on page 1 of this permit. This sludge removal shall be completed within 180 days from the issuance date of this permit and prior to exceeding 2,500 head, of which 2,500 head are milking. Upon written request to the TCEQ Regional Office, the Executive Director may grant an extension to the 180 day requirement. Once sludge removal from RCSs is completed, the RCS management plan shall be developed and implemented within thirty (30) days. The permittee shall maintain the wastewater volumes in each RCS in accordance with Table 6A.

Table 6A: Volume Allocations for RCSs (Acre-Feet)

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity Without Freeboard	Actual Capacity Without Freeboard
RCS #1	0.0	0.0	0.0	0.0	0.0	0.0	4.04
RCS #2	34.59	3.45	11.51	2.30	0.0	51.84	64.87
RCS #3	5.89	0.0	0.0	0.02	10.84	16.74	25.95

2. **Phase 2.** The permittee shall construct the freestall barns, the other components of the waste management system, which includes a mixing pit, anaerobic digester, screw press separator and dissolved air flotation. Modifications shall comply with Section VII.A.3 of this permit. The permittee shall maintain the wastewater volumes in each RCS in accordance with Table 6B.

Table 6B: Volume Allocations for RCSs (Acre-Feet) – Digester Installed & Operational or on Bypass

RCS Name	Design Rainfall Event Runoff	Process Generated Wastewater	Minimum Treatment Volume	Sludge Accumulation	Water Balance	Required Capacity Without Freeboard	Actual Capacity Without Freeboard
RCS #1	0.0	0.0	0.0	0.0	0.0	0.0	4.04
RCS #2	27.80	10.0	15.28	5.72	0.0	58.81	64.87
RCS #2*	27.80	5.52	18.41	3.22	0.0	54.96	64.87
RCS #3	5.89	0.0	0.0	0.02	16.83	22.73	25.95
RCS #3*	5.89	0.0	0.0	0.02	12.20	18.10	25.95

*Volumes to be maintained in RCSs #2 and #3 when the Digester is on Bypass.

3. **Compliance Schedule - Phase 1.** Within 180 days of permit issuance, the Permittee shall decrease the total dairy cattle from 4,000 to 2,500 head, of which 2,500 head are milking cows, maintain the RCS drainage area as shown on Attachment A – Phase 1, the volume allocations on Table 6A to the permit– Phase 1, and update the Nutrient Management Plan for this phase.
 4. **Compliance Schedule - Phase 2.** Once construction of the freestall barns, and the other components of the waste management system are complete (as shown in Attachment A – Phase 2, to the permit, the Permittee shall notify the TCEQ Region 4- Stephenville Office within 7 business days. The Permittee will increase the number of total dairy cattle from 2,500 head to 4,000 head, all of which will be milking cows, and update the NMP for this phase upon TCEQ Regional office approval. (see note *** to Table 2 of Attachment F to the permit). This permit prohibits any headcount increase at this phase until the TCEQ Stephenville Office has certified that the modifications for the phase have been completed, and the facility can function as indicated on Attachment A- Phase 2).
 5. In Phase 2, all drainage area modifications required by this permit shall be completed within 180 days after the completion of Phase 1. Upon written request to the TCEQ Regional Office, the Executive Director may grant an extension to the 180 day requirement.
- D. Added the new LMUs #1A, #2A, #3A and #12A that were created from the current LMUs to Table 7, and Table 2 to Attachment F to the permit.
- E. Corrected the acreage of LMU #10 from 15 to 50 acres on Table 2 to Attachment F to the permit.
- F. Added Attachments A – runoff control map; and Attachment B -land management units for Phases 1 and 2.

VI. Proposed Permit Conditions and Monitoring Requirements

A. Effluent Limitations

Compost, manure, sludge, slurry and wastewater may only be discharged from a LMU or a properly designed, constructed, operated and maintained RCS into water in the state from this CAFO if any of the following conditions are met:

- discharge resulting from a catastrophic condition other than a rainfall event that the permittee cannot reasonably prevent or control;
- a discharge resulting from a catastrophic rainfall event from a RCS;
- a discharge resulting from a chronic rainfall event from a RCS; or
- a discharge resulting from a chronic rainfall event from a LMU that occurs because the permittee takes measures to de-water the RCS in accordance with the individual permit, relating to imminent overflow.

40 CFR §122.44 specifies that any requirements, in addition to or more stringent than promulgated effluent limitation guidelines, must be applied when they are necessary to achieve state water quality standards. Water quality based effluent limitations must be established when the TCEQ determines there is a reasonable potential to cause or to contribute to an in-stream excursion above the allowable ambient concentration of a state numeric criterion. For CAFO discharges the TCEQ must consider:

1. existing controls on point and non-point sources of pollution;
2. variability of the pollutant in the effluent; and

3. dilution of the effluent in the receiving water.

In proposing this permit, the TCEQ addresses considerations 2 and 3 since continuous discharges are prohibited and effluent discharges are authorized only during catastrophic conditions or a chronic or catastrophic rainfall event from a RCS properly designed, constructed, operated and maintained. The effluent pollutant levels are variable and effluent is usually not discharged. Additionally, during these climatic events, water bodies receiving a contribution of CAFO wastewater should be significantly diluted by other rainfall runoff.

Consideration 1 requires permit controls on CAFO discharges which will result in the numeric criteria of the water quality standards being met, thus ensuring that applicable uses of water in the state are attained. The principal pollutants of concern include organic matter causing biochemical oxygen demand, the discharge of ammonia-nitrogen, phosphorus and *Escherichia coli*. This permit requires discharges to be monitored for the pollutants of concern. Existing technology does not allow for practicable or economically achievable numeric effluent limitations at this time. The Environmental Protection Agency (EPA) has not promulgated effluent guidelines or numeric effluent limitations that would allow regular discharges of CAFO process wastewater or process-generated wastewater. The proposed permit addresses potential pollutant impacts through requirements including numerous narrative (non-numeric) controls on CAFO process wastewater and non-point sources of pollutant discharges associated with CAFOs. Setting specific water quality-based effluent limitations in this permit is not feasible (see 40 CFR §122.44 (k)(3)).

The general and site-specific provisions which are expected to result in compliance with water quality criteria and protection of attainable water quality are discussed in the following sections of this fact sheet: RCS Design and Operational Requirements; Requirements for Beneficial Use of Manure, Sludge, and Wastewater; Additional Water Quality Requirements; and Monitoring and Reporting Requirements.

B. RCS Design and Operational Requirements

The draft permit includes the following requirements related to proper RCS design, construction, operation and maintenance:

1. The RCS(s) must be designed and constructed to meet or exceed the margin of safety, equivalent to the volume of runoff and direct precipitation from the 25 year/10 day rainfall event. The design rainfall event, at which time the CAFO is authorized to discharge, is 12.0 inches. The application includes design calculations and certification by a Professional Engineer, which determine the design criteria for the RCS(s).
2. A RCS management plan is required to be implemented. This plan must establish expected end of the month water storage volumes for each RCS. These maximum levels are based on the design assumptions used to determine the required size of the RCS. This plan assures the permittee will maintain wastewater volumes within the designed operating capacity of the structures, except during chronic or catastrophic rainfall events. The permittee must document and provide an explanation for all occasions where the water level exceeds the expected end of the month storage volumes. By maintaining the wastewater level at or below the expected monthly

volume, the RCS will be less likely to encroach into the volume reserved for the design rainfall event and/or discharge during smaller rainfall events.

3. The pond marker must have one-foot increments. This requirement identifies the level of wastewater storage to assist the permittee in the implementation of the RCS management plan. It also acts as an enforcement tool for TCEQ to determine compliance with the RCS management plan.
4. The wastewater level in the RCS(s) must be recorded daily. This requirement will assist the permittee in the implementation of the RCS management plan and will provide a visual indication of compliance.
5. The amount of sludge in the RCS(s) must be maintained at or below the designed sludge volume. Proper sludge management will reduce overflows associated with insufficient wastewater storage capacity. This permit requires that sludge accumulations in the RCS(s) be measured at least annually.
6. The RCS(s) must be adequately lined and certified by a Texas Professional Engineer; alternatively, certification must document that in situ material meets the requirements of constructed and installed liners. Groundwater has the potential to resurface as surface water. Therefore, preventing impacts to groundwater also provides protection to surface water. A liner certification, certified by a Professional Engineer, for the existing RCSs was submitted with the application.

Table 3: Existing RCS Liner Certifications

RCS Name	Liner Certification Date
RCS #1	July 3, 1989
RCS #2	August 27, 2010
RCS #3	March 16, 1990
Settling Basin #1	July 3, 1989
Settling Basin #2	July 3, 1989
Settling Basin #3	February 8, 1989

7. The RCS(s) must maintain two vertical feet of material equivalent to construction materials between the top of the embankment and the structure's spillway to protect from overtopping the structure. RCS(s) without spillways must have a minimum of two vertical feet between the top of the embankment and the required storage capacity.
8. The entry of uncontaminated stormwater runoff into RCS(s) must be minimized. The site includes diversion structures to direct contaminated runoff into the RCS(s) and to prevent uncontaminated stormwater runoff from entering the RCS(s).

C. Requirements for Beneficial Use of Manure, Sludge, and Wastewater

Nutrient pollutants of concern have narrative criteria and are discharged in CAFO wastewater. Nutrient pollutants have been addressed through imposition of BMPs. No water quality impacts are expected to occur from land application based upon properly prepared and implemented nutrient management practices. The proposed permit contains requirements related to the collection, handling, storage and beneficial use of manure, wastewater, and sludge. These requirements were established based on TCEQ rules, EPA guidance, NRCS Field Operations Technical Guidance and the Animal Waste

Management Field Handbook, recommendations from the TCEQ's Water Quality Assessment Team, and best professional judgment.

The elements of a NMP as listed in 40 CFR §122.42(e)(1) have been incorporated into this permit. This permit requires a NMP developed by a certified nutrient management specialist, based on United States Department of Agriculture/Natural Resource Conservation Service (NRCS) Practice Standard 590 and each of the required elements to be implemented upon issuance of this permit. In relation to these items, the proposed permit meets federal requirements.

1. For LMUs with a soil phosphorus concentration of less than 200 ppm in Zone 1 depth (0-6 inches if incorporated, 0-2 or 2-6 inch if not incorporated), land application of commercial fertilizer, compost, manure, sludge, slurry and wastewater must be in accordance with a certified NMP. This plan is based on the NRCS Practice Standard Code 590. This plan involves a site-specific evaluation of the LMU to include soils, crops, nutrient need and includes the phosphorus index tool. The phosphorus index is a site-specific evaluation of the risk potential for phosphorus movement into watercourses. The risk potential is determined by site characteristics such as soil phosphorus level, proposed phosphorus application rate, application method and timing, proximity of the nearest field edge to a named stream or lake, runoff class, and soil erosion potential. The application rates are adjusted according to the risk potential. The higher the risk potential, the lower the application rate; thus there is minimal potential to have excess nutrients available to leave the site and affect water quality.
2. For LMUs with a soil phosphorus concentration of 200-500 ppm in Zone 1 depth (0-6 inches if incorporated, 0-2 or 2-6 inch if not incorporated), land application of commercial fertilizer, compost, manure, sludge, slurry and wastewater must be in accordance with a nutrient utilization plan (NUP). The NUP is a revised NMP based on crop removal. A crop removal application rate is the amount of nutrients contained in and removed by the proposed crop. At the discretion of the certified nutrient management specialist, the NUP may also include a phosphorus reduction component. This NUP must be submitted to the TCEQ for review and approval.
3. For LMUs with a soil phosphorus concentration of greater than 500 ppm in Zone 1 depth (0-6 inches if incorporated, 0-2 or 2-6 inch if not incorporated), land application of commercial fertilizer, compost, manure, sludge, slurry and wastewater must be in accordance with a NUP based on crop removal which also includes a phosphorus reduction component. A phosphorus reduction component is a management practice, incorporated into the NUP, which is designed to further reduce the soil phosphorus concentration by means such as phosphorus mining, moldboard plowing, or other practices utilized by the permittee. This revised NUP must also be submitted to the TCEQ for review and approval. Permittees required to operate under a NUP with a phosphorus reduction component must show a reduction in the soil phosphorus concentration within twelve (12) months or may be subject to enforcement actions.
4. Table 4 below identifies the maximum application rate, as shown in the NMP submitted in the permit application. NMPs are routinely updated and the values shown below are subject to change.

Table 4: LMU Maximum Application Rates and Soil Phosphorus Levels

LMU Name	Soil Test P (ppm)	Max Annual P₂O₅ (lbs/ac)
LMU #1	194	277
LMU #1A	194	208
LMU #2	140	410
LMU #2A	140	208
LMU #3	224	132
LMU #3A	224	104
LMU #4	57	308
LMU #5	141	307
LMU #6	146	270
LMU #7	88	270
LMU #8	93	318
LMU #9	95	318
LMU #10	121	270
LMU #11	27	270
LMU #12	207	104
LMU #12A	207	156
LMU #13	79	270
LMU #14	26	270

5. All generated manure, sludge or wastewater in excess of the amount allowed to be land applied by the NMP or NUP must be delivered to a composting facility authorized by the Executive Director, delivered to a permitted landfill, beneficially used by land application on land located outside of the major sole source impairment zone, or provided to operators of third-party fields for beneficial use subject to specified land application requirements and testing. By requiring specific outlets for excess manure, sludge and wastewater, the permit limits unregulated use of manure, sludge and wastewater within the watershed.
6. The permittee must continue to operate under a Comprehensive NMP (CNMP) certified by the Texas State Soil and Water Conservation Board (TSSWCB). The CNMP must be developed by a qualified individual(s) in accordance with TSSWCB regulations. The CNMP is a whole farm plan that addresses nutrient management from the origin in the feed rations to final disposition. The CNMP considers all nutrient inputs, onsite use and treatment, outputs, and losses. Inputs include animal feed, purchased animals, and commercial fertilizer. Outputs include animals sold, harvested crops removed from the facility, and manure removed from the facility. Losses include volatilization, stormwater runoff, and leaching.
7. The permittee must implement additional conservation practices on LMUs adjacent to water in the state. These conservation practices include a 100-foot vegetative buffer, filter strips, vegetative barrier, and/or contour buffer strips. Site specific conditions and NRCS practice standards specify which conservation practices, in addition to the required 100-foot vegetative buffer, must be implemented. The conservation practices reduce erosion, suspended solids and nutrients in runoff from LMUs. This will improve the quality of stormwater runoff prior to entering water in the state.

8. In Table 5 below, the Additional Buffer Setback distance was determined by using the NRCS Conservation Practice Code 393, Filter Strip. The practice code uses a combination of hydrologic soil groups and field slope percentages to calculate an appropriate filter strip length.

Table 5: Buffer Distances for Each LMU

LMU Name	Vegetative Buffer Setback (feet)	Additional Buffer Setback NRCS Code 393 Filter Strip Flow Length (feet)
LMU #1	100	36
LMU #1A	100	36
LMU #2	100	36
LMU #2A	100	36
LMU #3	100	36
LMU #3A	100	36
LMU #4	100	36
LMU #5	100	36
LMU #6	100	36
LMU #7	100	36
LMU #8	100	36
LMU #9	100	36
LMU #10	100	36
LMU #11	100	36
LMU #12	100	36
LMU #12A	100	36
LMU #13	100	36
LMU #14	100	36

9. Land application is prohibited between the hours of 12 a.m. and 4 a.m. This provision reduces the potential of irrigation related discharges associated with equipment malfunctions.
10. Discharge of wastewater from irrigation is prohibited, except a discharge resulting from irrigation events associated with imminent overflow conditions. Precipitation-related runoff from LMUs is allowed by the permit, when land application practices are consistent with a NMP or NUP.
11. Terms of the NMP and Changes to the Terms of the NMP
The permit addresses the terms of the NMP and changes to the terms of the NMP to clarify substantial and non-substantial changes.
 - (a) Attachment E of the draft permit describes the methodology for calculating maximum application rates and annual recalculation of application rates and Attachment F of the draft permit shows the list of the proposed alternative crops, their yield goals, and the N and P requirements and removal rates for each crop and yield goal.
 - (b) To the extent that the alternative crops were identified in the application, annual recalculations do not constitute a substantial change to the terms of the NMP, and therefore will not require a permit amendment. The maximum

amounts of N and P from all sources of nutrients and the amounts of manure and process wastewater to be applied on alternative crops will be determined in accordance with the methodology described in Attachment E of the draft permit when such crops are being used.

- (c) Nutrient recommendations and maximum amount of nutrients derived from all sources have been established for both nitrogen (N) and phosphorus (P) based on the NMP that was submitted with the application. The permittee is required to recalculate these values annually based on the most recent analyses of wastewater, manure, and soil.
 - (d) Section VII.A.8(a)(2) of the permit lists changes to the terms of the NMP that will require a major amendment to the permit. Changes that would result in a major amendment are:
 - Increase in animal headcount;
 - Increase in LMU acreage or a change in LMU location; or
 - Change in crop and yield goal (not listed in Attachment F of the proposed permit).
 - (e) Any changes (substantial or non-substantial) to the NMP, other than the annual recalculation of application rates outlined in Attachment E, must be submitted to the ED for review. If the ED determines that the changes to the NMP are non-substantial, the revised NMP will be made publicly available and included in the permit record. If the ED determines that the changes to the NMP are substantial, the information provided by the permittee will be subject to the major amendment process.
12. Third-Party Fields.
- The proposed permit authorizes the use of third-party fields, i.e. land not owned, operated, controlled, rented, or leased by the CAFO owner or operator that have been identified in the Pollution Prevention Plan (PPP). The permittee must have a contract with the operator of the third-party fields. The written contract must require all transferred manure, wastewater, and sludge to be beneficially applied to third-party fields in accordance with the applicable requirements in 30 Texas Administrative Code §321.36 and §321.40 at an agronomic rate based on soil test phosphorus in Zone 1 depth (0-6 inches if incorporated, 0-2 or 2-6 inch if not incorporated). A certified nutrient management specialist must annually collect soil samples from each third-party field used and have the samples analyzed in accordance with the requirements for permitted LMUs. The permittee is prohibited from delivering manure, wastewater, and sludge to an operator of a third-party field once the soil test phosphorus analysis shows a level equal to or greater than 200 ppm in Zone 1 depth (0-6 inches if incorporated, 0-2 or 2-6 inch if not incorporated) or after becoming aware that the third-party operator is not following the specified requirements and the contract. The permittee will be subject to enforcement action for violations of the land application requirements on any third-party field. The third-party fields must be identified in the PPP. The permittee must submit a quarterly report with the name, locations, and amounts of manure, wastewater, and sludge transferred to operators of third-party fields.

VII. Additional Water Quality Requirements

The approved recharge feature certification submitted in the permit application must be updated and maintained in the onsite PPP. The recharge feature certification identifies any natural or artificial features on the CAFO site, either on or beneath the ground surface, which could provide or create significant pathways for wastewater or manure to enter the underlying aquifer, and describes measures to prevent adverse impacts to groundwater. Groundwater has the potential to resurface as surface water. Therefore, preventing impacts to groundwater also provides protection to surface water.

Table 6 below shows potential soil limitations identified in the recharge feature evaluation and the proposed management practices to address those limitations.

Table 6: Soil Limitations

Soil Series and Map ID	Potential Limitations	BMPs
Bolar-Denton: BdC	Depth to bedrock, Slow water movement	Land application will be based on the Available Water Capacity of the soil and will not exceed agronomic rates for nutrients (refer to the nutrient management plan (NMP))
Topsey: Lab Hico: HwD3	Depth to Soft Bedrock	
Maloterre: Ma	Depth to Bedrock, Droughty	
Bunyan: Bu Frio: FriA	Flooding	Land application will not exceed soil hydraulic rates (refer to NMP)
Bastsil: BsB, BsC, BtB May: MfB Fairy: FhC2	Seepage	Maintain clay liners in RCS No land application to inundated soils
Denton: DeB Slidell: HoB Fairy: FhC2	Slow water movement	Land application not to exceed agronomic rates for nutrients and soil hydraulic rates. No land application to inundated soils.
Clairette: CtB	Slow water movement Depth to Saturated Zone	
Windthorst: Wnc	Filtering capacity	Land application will be based on the Available Water Capacity of the soil and will not exceed agronomic rates for nutrients (refer to the nutrient management plan (NMP)) Irrigation events will be managed to assist in maintaining soil moisture levels within the range of the available water holding capacity of the soils in the LMUs. No land application to inundated soils.
Purves: PcC, PcB	Droughty, Depth to bedrock, Slow water movement	
Purves-Dugout: Pd	Droughty, Depth to bedrock, Slow water movement Large stones on surface	

Table 7 below lists all wells on the facility, their status, and what BMP will be implemented to protect groundwater. A Well Buffer Exception request for Wells #3, #4, #5, #7, and #9 was submitted to and approved by the TCEQ Water Quality Assessment Team.

Table 7: Water Well Protection

Well Number	Status	BMPs
1	Producing	Maintain 150 ft buffer
2	Producing	Maintain 150 ft buffer
3	Producing	Maintain surface gradients sloping away from wellhead
4	Producing	Maintain surface gradients sloping away from wellhead
5	Producing	Maintain surface gradients sloping away from wellhead
6	Non-Producing	Plugged
7	Producing	Maintain surface gradients sloping away from wellhead
8	Non- Producing	Plugged
9	Producing	Concrete Surface Slab
10	Producing	Maintain 150 ft buffer
11	Producing	Maintain 150 ft buffer
12	Producing	Maintain 100 ft buffer
13	Producing	Maintain 100 ft buffer
14	Producing	Maintain 100 ft buffer
15	Non- Producing	No evidence of well
16	Producing	Maintain 100 ft buffer
17	Producing	Maintain 100 ft buffer
18	Producing	Maintain 100 ft buffer
19	Producing	Maintain 100 ft buffer
20	Producing	Maintain 100 ft buffer

VIII. Monitoring and Reporting Requirements

- A. The permittee is required to report all discharges to TCEQ. Discharges resulting from a chronic or catastrophic rainfall event or catastrophic conditions must be reported orally within one hour of the discovery of the discharge and in writing within fourteen (14) working days. For any discharges, grab samples must be collected and analyzed for Biochemical Oxygen Demand, *Escherichia coli*, Total Dissolved Solids, Total Suspended Solids, Nitrate, Total Phosphorus, Ammonia Nitrogen and pesticides (if suspected).
- B. The permittee must provide a report to the TCEQ to substantiate a chronic rainfall discharge. After review of the report, if required by the Executive Director, the permittee must have an engineering evaluation by a licensed Texas Professional Engineer developed and submitted to the Executive Director. The report and engineering evaluation may be used to verify that the facility was maintained and operated according to the permit conditions. Information reviewed may include rainfall records at the CAFO, RCS wastewater levels preceding the discharge, irrigation records, and the current sludge volume. This requirement allows for closer scrutiny by TCEQ for discharges resulting from chronic conditions and provides documentation for enforcement of unauthorized discharges.

- C. Soil samples must be taken annually from LMUs and analyzed for Nitrate, Phosphorus, Potassium, Sodium, Magnesium, Calcium, Soluble salts/electrical conductivity, and pH. The results are used in the NMP to determine land application rates. Annual soil samples must be collected by one of the following persons:
- the NRCS; a certified nutrient management specialist;
 - the Texas State Soil and Water Conservation Board;
 - the Texas AgriLife Extension; or
 - an agronomist or soil scientist on full-time staff at an accredited university located in the State of Texas.

The TCEQ or its designee shall have soil samples collected annually for each current and historical LMUs and the TCEQ Regional Office must be notified ten (10) days prior to annual soil sample collection activities on third-party fields. The permittee is required to submit soil analyses for third-party fields to TCEQ.

- D. The permittee is required to annually collect and analyze at least one (1) representative sample of wastewater, sludge (if applicable), or manure for total nitrogen, total phosphorus, and total potassium. The results are used in the NMP to determine land application rates.
- E. Some of the land application records maintained by the permittee must be submitted to the TCEQ annually. These records include: date of compost, manure, sludge, slurry and wastewater application to each LMU; location of the specific LMU and the volume applied during each application event; acreage of each individual crop on which compost, manure, sludge, slurry and wastewater is applied; basis for and the total amount of nitrogen and phosphorus applied per acre to each LMU, including sources of nutrients and amount of nutrients on a dry weight basis other than compost, manure, sludge, slurry and wastewater and; weather conditions, such as temperature, precipitation, and cloud cover, during the land application and twenty-four (24) hours before and after the land application.
- F. Other recordkeeping requirements include: daily records of RCS wastewater levels and measurable rainfall; weekly records of manure, wastewater, and sludge removed from the facility, inspections of control facilities and land application equipment; and monthly records of compost, manure, sludge, slurry and wastewater land applied.

IX. 303(D) Listing and Total Maximum Daily Load (TMDL)

The facility for this permit action is located within the watershed of the North Bosque River in Segment No. 1226 of the Brazos River Basin. The designated uses and dissolved oxygen criterion as stated in Appendix A of the Texas Surface Water Quality Standards (30 TAC §307.10) for Segment No. 1226 are primary contact recreation, public water supply, high aquatic life use, and 5.0 mg/L dissolved oxygen.

Green Creek, in its entirety, is currently listed on the State's inventory of impaired and threatened waters (the 2024 Clean Water Act (CWA) Section 303(d) list) for depressed dissolved oxygen.

The North Bosque River (Segments 1226 and 1255) was included in the 1998 Texas Clean Water Act 303(d) List and deemed impaired under narrative water quality standards related to nutrients and aquatic plant growth. Segment No. 1226 is included in the Agency's document Two Total Maximum Daily Loads for Phosphorus in the North Bosque River,

adopted by the Commission on February 9, 2001 and approved by EPA on December 13, 2001. An Implementation Plan for Soluble Reactive Phosphorus in the North Bosque River Watershed (I-Plan) was approved by the Commission on December 13, 2002 and approved by the Texas State Soil and Water Conservation Board on January 16, 2003. According to the TMDL I-Plan, management measures for control of phosphorus loading will also have some corollary effect on reducing bacteria loading, since the nonpoint source nutrient and bacteria loads largely originate from the same sites and materials and are transported via the same processes and pathways. Similarly, TCEQ expects that management measures for control of phosphorus loading will also have direct and indirect effects on dissolved oxygen by reducing the load of oxygen demanding materials.

The TMDL for the North Bosque River, Segments 1226 and 1255, identified the amount of phosphorus introduced into these segments, i.e. the load. Phosphorus load from two categories of sources was modeled to calculate the expected reductions in phosphorus load to meet instream water quality standards. Point sources included wastewater treatment plants; non-point sources included all other sources, such as CAFOs. The TMDL called for an average 50% reduction in the average concentration of soluble reactive phosphorus loadings from both point sources and non-point sources. The TMDL was developed assuming implementation of specific best management practices. This set of best management practices represents one way to achieve the water quality targets in stream and the overall reduction goal of the TMDL.

The TMDL was approved with the understanding that an adaptive management approach was an appropriate means to manage phosphorus load to the stream. The I-Plan emphasized this approach to achieve the phosphorus reductions targeted in the TMDL. Adaptive management envisions adjustment of management practices over time as necessary to reach this target. The TMDL anticipated that, to control loading to the stream, dairy CAFO permittees would implement those best management practices which best addressed site-specific conditions. Accordingly, the TMDL is not directly tied to the number of animal units permitted in the watershed; it is instead tied to the amount of nutrients that may be land applied consistent with management practices that ensure appropriate agricultural utilization of nutrients.

Primary management strategies for dairies, both voluntary and regulatory, were identified in the I-Plan which included: phosphorus-based application rates in LMUs, voluntarily measures to reduce the amount of phosphorus in dairy cow diets, voluntarily removing 50% of dairy-generated manure from the watershed, more stringent RCS design requirements to reduce the potential for overflows from RCSs, evaluation of chronic rainfall and incidences of RCS overflows, additional tailwater requirements, additional protective measures to prevent runoff caused by excessive irrigation, CNMPs, and educational requirements for dairy operators and employees.

The proposed permit includes the following requirements to address the recommendations in the I-Plan:

- RCS(s) designed and constructed for 25 year, 10 day rainfall event
- RCS management plan
- pond marker with one foot increments
- daily recordkeeping of wastewater levels

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- chronic rainfall discharge notification, including records that substantiate that the overflow was a result of cumulative rainfall that exceeded the design rainfall event without the opportunity for dewatering
- NMP and NUP based on phosphorus risk index
- CNMP
- specific outlets for excess manure, sludge and wastewater
- additional record-keeping for exported manure, sludge and wastewater to track each permittee's contribution toward the 50% voluntary removal goal in the Bosque River Total Maximum Daily Load (TMDL)
- prohibition of discharges from LMUs, except as related to imminent overflow
- minimize ponding and puddling of wastewater and prevent tailwater discharges
- additional conservation practices between land application areas and water in the state
- prohibition of land application between 12 a.m. and 4 a.m.
- automatic shutdown or alarm system may be required if unauthorized discharge occurs from irrigation system
- employee and operator required training related to land application of manure, sludge, and wastewater, proper operation and maintenance of the facility, good housekeeping, material management practices, recordkeeping requirements, and spill response and clean up

The voluntary phosphorus diet reductions may be implemented through consultations between a nutritionist and the permittee. Any such dietary phosphorus reductions will result in reduced phosphorus concentrations in manure. These strategies are facets of CNMPs.

The RCS storage capacity requirements, nutrient management practices, increased TCEQ oversight of operational activities, and requirements of the I-Plan, which are incorporated into the draft permit, are designed to reduce the potential for this CAFO to contribute to further impairment from bacteria, oxygen-demanding constituents and nutrients such as total phosphorus. Furthermore, it is anticipated the implementation of the primary management strategies and permit provisions identified above will result in phosphorus load reduction in the watershed and achieve the reductions targeted in the TMDL. The draft permit provisions are consistent with the approved TMDL and I-Plan that establish measures for reductions in loading of phosphorus (and consequently other potential pollutants) to the North Bosque River Watershed. Therefore, the draft permit is consistent with the requirements of the antidegradation implementation procedures in 30 Texas Administrative Code Section 307.5 (c)(2)(G) of the Texas Surface Water Quality Standards.

X. Threatened or Endangered Species

The discharge from this permit action is not expected to have an effect on any federal endangered or threatened aquatic or aquatic dependent species or proposed species or their critical habitat. This determination is based on the United States Fish and Wildlife Service's (USFWS) Biological Opinion on the State of Texas authorization of the Texas

Pollutant Discharge Elimination System (TPDES) dated September 14, 1998 and the October 21, 1998 update. To make this determination for TPDES permits, TCEQ and Environmental Protection Agency only considered aquatic or aquatic dependent species occurring in watersheds of critical concern or high priority as listed in Appendix A of the USFWS Biological Opinion. This determination is subject to reevaluation due to subsequent updates or amendments to the Biological Opinion. The permit does not require Environmental Protection Agency review with respect to the presence of endangered or threatened species.

XI. Procedures for Final Decision

When an application is declared administratively complete, the Chief Clerk sends a letter to the applicant instructing the applicant to publish the Notice of Receipt of Application and Intent to Obtain Permit in the newspaper. In addition, the Chief Clerk instructs the applicant to place a copy of the application in a public place for review and copying in the county where the facility is or will be located. This application will be in a public place throughout the comment period. The Chief Clerk also mails this notice to any interested persons and, if required, to landowners identified in the permit application. This notice informs the public about the application, and provides that an interested person may file comments on the application or request a contested case hearing or a public meeting.

Once a draft permit is completed, it is sent, along with the Fact Sheet and Executive Director's Preliminary Decision, to the Office of the Chief Clerk. At that time, Notice of Application and Preliminary Decision will be mailed to the individuals identified on the Office of the Chief Clerk mailing list and published in the newspaper. This notice sets a deadline for making public comments. The applicant must place a copy of the Executive Director's Preliminary Decision and draft permit in the public place with the application.

Any interested person may request a public meeting on the application. A public meeting is intended for the taking of public comment, and is not a contested case proceeding.

After the public comment deadline, the Executive Director prepares a response to all timely, relevant and material, or significant public comments significant on the application or the draft permit raised during the public comment period. The Office of the Chief Clerk then mails the Executive Director's Response to Comments and Final Decision to individuals who have filed comments, requested a contested case hearing, or requested to be on the mailing list. This notice provides that a person may request a contested case hearing or file a request for reconsideration of the Executive Director's decision within thirty (30) days after the notice is mailed.

The Executive Director will issue the permit unless a written hearing request or request for reconsideration is filed within thirty (30) days after the Executive Director's Response to Comments and Final Decision is mailed. If a hearing request or request for reconsideration is filed, the Executive Director will not issue the permit and will forward the application and request to the TCEQ's Commissioners for their consideration at a scheduled Commission meeting. If a contested case hearing is held, it will be a legal proceeding similar to a civil trial in state district court.

If the Executive Director calls a public meeting or the Commission grants a contested case hearing as described above, the Commission will give notice of the date, time, and place of the meeting or hearing. If a hearing request or request for reconsideration is made, the

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Commission will consider all public comments in making its decision and shall either adopt the Executive Director's response to public comments or prepare its own response.

For additional information about this application, contact Joy Alabi at (512) 239-1318.

XII. Administrative Record

The following items were considered in developing the proposed draft permit:

- TCEQ Permit No. WQ0002950000 issued August 17, 2023.
- The application received on May 12, 2025 and subsequent revisions.
- Interoffice Memorandum for groundwater review from the Water Quality Assessment Team, Water Quality Assessment Section, Water Quality Division dated June 6, 2025.
- Interoffice Memorandum for NMP review from the Water Quality Assessment Team, Water Quality Assessment Section, Water Quality Division, dated June 18, 2025.
- Interoffice Memorandum from the Standards Implementation Team, Water Quality Assessment Section, Water Quality Division, dated June 12, 2025.
- Bosque River TMDL Implementation Plan.
- Federal Clean Water Act - Section 402; Section 382.051 of the; Texas Water Code §26.027; 30 TAC §39, §305, §321 Subchapter B; Commission Policies; and EPA Guidelines.
- Texas 2024 Clean Water Act Section 303(d) List, Texas Commission on Environmental Quality, June 26, 2024; approved by EPA on November 13, 2024.
- NRCS Animal Waste Management Field Handbook and Field Office Technical Guidance for Texas.
- NRCS, ASABE and ASTM Standards.
- John Borrelli, Clifford B. Fedler & James M. Gregory, February 1, 1998. Mean Crop Consumptive Use and Free-Water Evaporation for Texas.
- U.S. Department of Agriculture, Natural Resources Conservation Service, 25-Year, 10 – Day precipitation (inches), Arkansas, Louisiana, New Mexico, Oklahoma and Texas. USDA, Technical Paper No 49, Weather Bureau.
- American Society of Agricultural and Biological Engineers (ASABE) Standards:
 - ASABE D384.2 MAR05_R2010) Manure Production and Characteristics
 - ASABE EP403 4 FEB2011- Figure 2 (Loading Rate) and Table 1 (Sludge accumulation Rate)