Administrative Package Cover Page

This file contains the following documents:

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

Portada de Paquete Administrativo

Este archivo contiene los siguientes documentos:

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

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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

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

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

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

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS INDUSTRAIL WASTEWATER/STORMWATER

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

Coleto Creek Power, LLC (CN605521988) operates the Coleto Creek Power Station (RN100226919), with a total generating capacity of a nominal net 632 megawatts. The facility is located at 45 Farm-to-Market Road 2987 near the Town of Fannin, Goliad County, Texas 77960.

This application is to amend TPDES Permit No. WQ0002159000 to add proposed internal Outfall 401, to add a proposed retention pond, and to update the name of the Secondary Pond. Outfall 401 would discharge low volume wastes, metal cleaning wastes, coal pile runoff, and stormwater. The facility currently has one final Outfall 001 and three internal outfalls (101, 201, 301), which discharge to the final outfall.

Outfall 001 is authorized to discharge a maximum average of 557 million gallons per day of once-through cooling water, treated domestic wastewater, ash transport water, low volume wastes, metal cleaning wastes, coal pile runoff, and stormwater. Cooling water is withdrawn from Coleto Creek Reservoir. Treatment processes include oil/water separation and solids settling. Domestic wastewater is treated in an aerobic septic system with spray field.

The discharge from Outfall 001 is subject to federal effluent limitation guidelines at 40 CFR Part 423. The pollutants expected from these discharges include free available and total residual chlorine, total suspended solids, oil and grease, metals, pH, and temperature.

PLANTILLA EN ESPAÑOL PARA SOLICITUDES NUEVAS/RENOVACIONES/ENMIENDAS DE TPDES o TLAP

AGUAS RESIDUALES INDUSTRIALES /AGUAS PLUVIALES

El siguiente resumen se proporciona para esta solicitud de permiso de calidad del agua pendiente que está siendo revisada por la Comisión de Calidad Ambiental de Texas según lo requerido por el Capítulo 39 del Código Administrativo de Texas 30. La información proporcionada en este resumen puede cambiar durante la revisión técnica de la solicitud y no es una representación ejecutiva fedérale de la solicitud de permiso.

Coleto Creek Power, LLC (CN605521988) opera la central eléctrica Coleto Creek (RN100226919), con una capacidad total de generación nominal neta de 632 megavatios. La instalación está ubicada en el 45 Farm-to-Market Road 2987, cerca de la localidad de Fannin, Condado de Goliad, Texas 77960.

Esta solicitud es para la modificación el permiso TPDES No. WQ0002159000 para añadir el Outfall interno 401 propuesto, añadir un estanque de retención propuesto y actualizar el nombre del estanque secundario. El Outfall 401 descargaría residuos de bajo volumen, residuos de limpieza de metales, escorrentía de pilas de carbón y aguas pluviales. La instalación tiene actualmente el Outfall final 001 y tres Outfalls internos (101, 201, 301), que descargan al Outfall final.

El Outfall 001 está autorizado a verter un promedio máximo de 557 millones de galones al día de agua de refrigeración de un solo paso, aguas residuales domésticas tratadas, agua de transporte de cenizas, residuos de bajo volumen, residuos de limpieza de metales, escorrentía de pilas de carbón y aguas pluviales. El agua de refrigeración se extrae del embalse de Coleto Creek. Los procesos de tratamiento incluyen la separación de aceite y agua y la sedimentación de sólidos. Las aguas residuales domésticas se tratan en un sistema séptico aeróbico con campo de aspersión.

El vertido del Outfall 001 está sujeto a las directrices federales de limitación de efluentes del título 40 del CFR, parte 423. Los contaminantes que se esperan de estos vertidos incluyen cloro libre disponible y residual total, sólidos suspendidos totales, aceites y grasas, metales, pH y temperatura.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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

PERMIT NO. WQ0002159000

APPLICATION. Coleto Creek Power, LLC, 6555 Sierra Drive, Irving, Texas 75039, which owns a coal-fired steam electric generating facility, has applied to the Texas Commission on Environmental Quality (TCEQ) to amend Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0002159000 (EPA I.D. No. TX0070068) to authorize the addition of new proposed internal Outfall 401 for the discharge of low volume wastes, metal cleaning wastes, coal pile runoff, and stormwater, addition of a new proposed Retention Pond to the list of impoundments in Other Requirement No. 17, and to change the label for the Secondary Pond. The facility is located at 45 Farm-to-Market Road 2987, near Fannin, in Goliad County, Texas 77960. The discharge route is from the plant site directly to Coleto Creek Reservoir, which is part of Coleto Creek. TCEQ received this application on June 5, 2025. The permit application will be available for viewing and copying at Goliad County Clerk's Office, 127 North Courthouse Square, Goliad, in Goliad County, Texas, and at Victoria County Clerk's Office, 115 North Bridge Street, Victoria, in Victoria 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/tpdes-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=-97.214444,28.712777&level=18

ALTERNATIVE LANGUAGE NOTICE. Alternative language notice in Spanish is available at: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-applications. El aviso de idioma alternativo en español está disponible en https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-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 Coleto Creek Power, LLC at the address stated above or by calling Mr. Ryan Bayle, Environmental Manager, Luminant Generation Company LLC, at 214-875-8294.

Issuance Date: June 25, 2025

Comisión de Calidad Ambiental del Estado de Texas

AVISO DE RECIBO DE LA SOLICITUD Y
EL INTENTO DE OBTENER PERMISO PARA LA CALIDAD DEL AGUA PERMISO MODIFICACION

PERMISO NO. WQ0002159000

SOLICITUD. Coleto Creek Power, LLC, 6555 Sierra Drive, Irving, Texas 75039, propietaria de una planta generadora de electricidad a vapor a carbón, ha solicitado a la Comisión de Calidad Ambiental de Texas (TCEQ) la modificación del Permiso n.˚ WQ0002159000 del Sistema de Eliminación de Descargas Contaminantes de Texas (TPDES) (N.˚ de identificación de la EPA: TX0070068) para autorizar la adición del nuevo Desagüe Interno 401 propuesto para la descarga de residuos de bajo volumen, residuos de limpieza de metales, escorrentía de pilas de carbón y aguas pluviales, la adición de un nuevo Estanque de Retención propuesto a la lista de embalses del Requisito n.˚ 17, y el cambio de la etiqueta del Estanque Secundario. La planta está ubicada en 45 Farm-to-Market Road 2987, cerca de Fannin, en el condado de Goliad, Texas 77960. La ruta de descarga va desde la planta directamente al embalse de Coleto Creek, que forma parte de Coleto Creek. La TCEQ recibió esta solicitud el 5 de junio de 2025. La solicitud de permiso estará disponible para su consulta y copia en la Oficina del Secretario del Condado de Goliad, ubicada en 127 North Courthouse Square, Goliad, Texas, y en la Oficina del Secretario del Condado de Victoria, ubicada en 115 North Bridge Street, Victoria, Texas, antes de la fecha de publicación de este aviso en el periódico. La solicitud, incluyendo sus actualizaciones y los avisos correspondientes, están disponibles electrónicamente en la siguiente página web:
https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-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=-97.214444,28.712777&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/tpdes-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 especifico. Si desea que se agrega su nombre en una de las listas designe cual lista(s) y envía por correo su pedido a la Oficina del Secretario Principal de la TCEQ.

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

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

También se puede obtener información adicional del Coleto Creek Power, LLC a la dirección indicada arriba o llamando a Sr. Ryan Bayle, P.G., Environmental Manager, al 214-875-8294.

Fecha de emisión: 25 de junio de 2025

Leah Whallon

From: Bayle, Ryan <Ryan.Bayle@luminant.com>
Sent: Friday, June 20, 2025 12:04 PM
To: Leah Whallon
Cc: Manthei, Dustin; Chavers, Eric; Collins, Renee
Subject: RE: Application to Amend Permit No. WQ0002159000; Coleto Creek Power, LLC; Coleto Creek Power Station
Attachments: TCEQ ePay3.pdf; WQ0002159000_Industrial Discharge Amendment Spanish NORI.docx

Follow Up Flag: Follow up
Flag Status: Flagged

Good afternoon Ms. Whallon,

Coleto Creek Power, LLC offers the following responses to your emailed letter originally dated June 10, 2025:

1. Administrative Report 1.1. Please confirm no information is available for landowner list numbers 302-315.

   Response: *Site Map LLC was contracted to compile the adjacent landowner information and prepare the landowner maps for the application. The Goliad County Appraisal District was not able to provide any information for the fourteen (14) adjacent parcels of land noted above. According to the district, there are a significant number of "unknown" parcels in the county. The adjacent landowner information provided in this application represents the most complete information available.*

2. The $50.00 WQ notification fee included in the application fee covers postage for notifying up to 100 affected landowners. An additional $50.00 water quality notice fee is required for each increment of 100 additional landowners. Please provide the epay voucher number for payment of the additional WQ notification fee of $100.00 for landowners 100-300.

   Response: *The requested epay voucher covering the additional WQ notification fee of $100.00 for landowners 100-300 is attached to this email.*

3. The following is a portion of the NORI which contains information relevant to your application. Please read it carefully and indicate if it contains any errors or omissions. The complete notice will be sent to you once the application is declared administratively complete.

   APPLICATION. Coleto Creek Power, LLC, 6555 Sierra Drive, Irving, Texas 75039, which owns a coal-fired steam electric generating facility, has applied to the Texas Commission on Environmental Quality (TCEQ) to amend Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0002159000 (EPA I.D. No. TX0070068) to authorize the addition of new proposed internal Outfall 401 for the discharge of low volume wastes, metal cleaning wastes, coal pile runoff, and stormwater, addition of a new proposed Retention Pond to the list of impoundments in Other Requirement No. 17, and to change the label for the Secondary Pond. The facility is located at 45 Farm-to-Market Road 2987, near Fannin, in Goliad County, Texas 77960. The discharge route is from the plant site directly to Coleto Creek Reservoir, which is part of Coleto Creek. TCEQ received this application on June 5, 2025. The permit application will be available for viewing and copying at Goliad County Clerk's Office, 127 North Courthouse Square, Goliad, in Goliad County, Texas, and at Victoria County Clerk's Office, 115 North Bridge Street, Victoria, in Victoria 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/tpdes-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=-97.214444,28.712777&level=18

Further information may also be obtained from Coleto Creek Power, LLC at the address stated above or by calling Mr. Ryan Bayle, Environmental Manager, Luminant Generation Company LLC, at 214-875-8294.

Response: *The above NORI language appears correct.*

4. The application indicates that public notices in Spanish are required. After confirming the portion of the NORI above does not contain any errors or omissions, please use the attached template to translate the NORI into Spanish. Only the first and last paragraphs are unique to this application and require translation. Please provide the translated Spanish NORI in a Microsoft Word document.

   Response: *A Word document of the requested Spanish language NORI is attached to this email.*

If you need any further information or have any questions about the responses above, please do not hesitate to contact me.

Thank you,

Ryan Bayle, P.G.
Environmental Manager
Ryan.Bayle@vistracorp.com
Vistra

6555 Sierra Drive | Irving, Texas, 75039
M 214.212.2777

From: Leah Whallon <Leah.Whallon@Tceq.Texas.Gov>
Sent: Tuesday, June 10, 2025 4:40 PM
To: Bayle, Ryan <Ryan.Bayle@luminant.com>
Cc: Manthei, Dustin <Dustin.Manthei@luminant.com>
Subject: Application to Amend Permit No. WQ0002159000; Coleto Creek Power, LLC; Coleto Creek Power Station

Good Afternoon,

Please see the attached Notice of Deficiency letter dated June 10, 2025 requesting additional information needed to declare the application administratively complete. Please send the complete response by June 24, 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

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:	769696
Trace Number:	582EA000671159
Date:	06/05/2025 01:22 PM
Payment Method:	CC - Authorization 0000066944
Voucher Amount:	$100.00
Fee Type:	ADDITIONAL 30 TAC 305.53B WQ NOTIFICATION FEE
ePay Actor:	RYAN BAYLE
Actor Email:	ryan.bayle@luminant.com
IP:	170.85.101.21

Payment Contact Information

Name:	RYAN BAYLE
Company:	LUMINANT GENERATION COMPANY LLC
Address:	6555 SIERRA DRIVE, IRVING, TX 75039
Phone:	214-875-8294

Site Information

Site Name:	COLETO CREEK POWER STATION
Site Address:	45 FARM-TO-MARKET ROAD 2987, FANNIN, TX 77960
Site Location:	45 FARM-TO-MARKET ROAD 2987 NEAR THE TOWN OF FANNIN GOLIAD COUNTY TEXAS 77960

Customer Information

Customer Name:	CN605521988

Other Information

Comments:	Additional notification fee for Coleto Creek TPDES Permit Amendment

Close

Comisión de Calidad Ambiental del Estado de Texas

AVISO DE RECIBO DE LA SOLICITUD Y
EL INTENTO DE OBTENER PERMISO PARA LA CALIDAD DEL AGUA PERMISO
MODIFICACION

PERMISO NO. WQ000_____

SOLICITUD. SOLICITUD. Coleto Creek Power, LLC, 6555 Sierra Drive, Irving, Texas 75039, propietaria de una planta generadora de electricidad a vapor a carbón, ha solicitado a la Comisión de Calidad Ambiental de Texas (TCEQ) la modificación del Permiso n.˚ WQ0002159000 del Sistema de Eliminación de Descargas Contaminantes de Texas (TPDES) (N.˚ de identificación de la EPA: TX0070068) para autorizar la adición del nuevo Desagüe Interno 401 propuesto para la descarga de residuos de bajo volumen, residuos de limpieza de metales, escorrentía de pilas de carbón y aguas pluviales, la adición de un nuevo Estanque de Retención propuesto a la lista de embalses del Requisito n.˚ 17, y el cambio de la etiqueta del Estanque Secundario. La planta está ubicada en 45 Farm-to-Market Road 2987, cerca de Fannin, en el condado de Goliad, Texas 77960. La ruta de descarga va desde la planta directamente al embalse de Coleto Creek, que forma parte de Coleto Creek. La TCEQ recibió esta solicitud el 5 de junio de 2025. La solicitud de permiso estará disponible para su consulta y copia en la Oficina del Secretario del Condado de Goliad, ubicada en 127 North Courthouse Square, Goliad, Texas, y en la Oficina del Secretario del Condado de Victoria, ubicada en 115 North Bridge Street, Victoria, Texas, antes de la fecha de publicación de este aviso en el periódico. La solicitud, incluyendo sus actualizaciones y los avisos correspondientes, están disponibles electrónicamente en la siguiente página web: https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-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=-97.214444,28.712777&level=18

Include the following non-italicized sentence if the facility is located in the Coastal Management Program boundary and is an application for a major amendment which will increase the pollutant loads to coastal waters or would result in relocation of an outfall to a critical area, or a renewal with such a major amendment. The Coastal Management Program boundary is the area along the Texas Coast of the Gulf of México as depicted on the map in 31 TAC §503.1 and includes part or all of the following counties: Cameron, Willacy, Kenedy, Kleberg, Nueces, San Patricio, Aransas, Refugio, Calhoun, Victoria, Jackson, Matagorda, Brazoria, Galveston, Harris, Chambers, Jefferson y Orange. If the application is for amendment that does not meet the above description or a renewal without such a major amendment, do not include the sentence:
El Director Ejecutivo de la TCEQ ha revisado esta medida para ver si está de acuerdo con los objetivos y las regulaciones del Programa de Administración Costero de Texas (CMP) de

acuerdo con las regulaciones del Consejo Coordinador de la Costa (CCC) y ha determinado que la acción es conforme con las metas y regulaciones pertinentes del CMP.

AVISO DE IDIOMA ALTERNATIVO. El aviso de idioma alternativo en español está disponible en https://www.tceq.texas.gov/permitting/wastewater/pending-permits/tpdes-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 especifico. Si desea que se agrega su nombre en una de las listas designe cual lista(s) y envía por correo su pedido a la Oficina del Secretario Principal de la TCEQ.

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

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

También se puede obtener información adicional del Coleto Creek Power, LLC a la dirección indicada arriba o llamando a Sr. Ryan Bayle, P.G., Environmental Manager, al 214-875-8294.

Fecha de emisión: *[Date notice issued]*

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

June 5, 2025

Re: Confirmation of Submission of the Major Amendment without Renewal for Industrial Wastewater Authorization.

Dear Applicant:

This is an acknowledgement that you have successfully completed Major Amendment without Renewal for the Industrial Wastewater authorization.

ER Account Number: ER002931
Application Reference Number: 783775
Authorization Number: WQ0002159000
Site Name: Coleto Creek Power Station
Regulated Entity: RN100226919 - Coleto Creek Power Station
Customer(s): CN605521988 - Coleto Creek Power, LLC

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

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

Sincerely,
Applications Review and Processing Team
Water Quality Division

Texas Commission on Environmental Quality

Update Domestic or Industrial Individual Permit

WQ0002159000

Site Information (Regulated Entity)

What is the name of the site to be authorized?	COLETO CREEK POWER STATION
Does the site have a physical address?	Yes
Physical Address	
Number and Street	45 FM 2987
City	FANNIN
State	TX
ZIP	77960
County	GOLIAD
Latitude (N) (##.######)	28.712777
Longitude (W) (-###.######)	-97.214444
Primary SIC Code	4911
Secondary SIC Code	
Primary NAICS Code	221119
Secondary NAICS Code	
Regulated Entity Site Information	
What is the Regulated Entity's Number (RN)?	RN100226919
What is the name of the Regulated Entity (RE)?	COLETO CREEK POWER STATION
Does the RE site have a physical address?	Yes
Physical Address	
Number and Street	45 FM 2987
City	FANNIN
State	TX
ZIP	77960
County	GOLIAD
Latitude (N) (##.######)	28.731111
Longitude (W) (-###.######)	-97.215277
Facility NAICS Code	
What is the primary business of this entity?	INDUSTRIAL

Coleto -Customer (Applicant) Information (Owner)

How is this applicant associated with this site?	Owner
What is the applicant's Customer Number (CN)?	CN605521988
Type of Customer	Corporation

Full legal name of the applicant:	
Legal Name	Coleto Creek Power, LLC
Texas SOS Filing Number	802989013
Federal Tax ID	
State Franchise Tax ID	10305996836
State Sales Tax ID	
Local Tax ID	
DUNS Number	
Number of Employees	0-20
Independently Owned and Operated?	Yes
I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas.	Yes
Responsible Authority Contact	
Organization Name	Coleto Creek Power, LLC
Prefix	MS
First	RENEE
Middle	
Last	COLLINS
Suffix	
Credentials	
Title	SENIOR DIRECTOR ENVIRONMENTAL SERVICES
Responsible Authority Mailing Address	
Enter new address or copy one from list:	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	6555 SIERRA DR
Routing (such as Mail Code, Dept., or Attn:)	
City	IRVING
State	TX
ZIP	75039
Phone (###-###-####)	2148758338
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	RENEE.COLLINS@LUMINANT.COM

Billing Contact

Responsible contact for receiving billing statements:	
Select the permittee that is responsible for payment of the annual fee.	CN605521988, Coleto Creek Power, LLC

Organization Name	LUMINANT GENERATION COMPANY LLC
Prefix	MR
First	RYAN
Middle	
Last	BAYLE
Suffix	
Credentials	
Title	ENVIRONMENTAL MANAGER
Enter new address or copy one from list:	

Mailing Address

Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	6555 SIERRA DR
Routing (such as Mail Code, Dept., or Attn:)	
City	IRVING
State	TX
ZIP	75039
Phone (###-###-####)	2148758294
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	RYAN.BAYLE@LUMINANT.COM

Application Contact

Person TCEQ should contact for questions about this application:

Same as another contact?	Billing Contact
Organization Name	LUMINANT GENERATION COMPANY LLC
Prefix	MR
First	RYAN
Middle	
Last	BAYLE
Suffix	
Credentials	
Title	ENVIRONMENTAL MANAGER
Enter new address or copy one from list:	

Mailing Address

Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	6555 SIERRA DR

Routing (such as Mail Code, Dept., or Attn:)	
City	IRVING
State	TX
ZIP	75039
Phone (###-###-####)	2148758294
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	RYAN.BAYLE@LUMINANT.COM

Technical Contact

Person TCEQ should contact for questions about this application:

Same as another contact?	
Organization Name	LUMINANT GENERATION COMPANY LLC
Prefix	MR
First	DUSTIN
Middle	
Last	MANTHEI
Suffix	
Credentials	
Title	ENVIRONMENTAL MANAGER
Enter new address or copy one from list:	

Mailing Address

Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	6555 SIERRA DR
Routing (such as Mail Code, Dept., or Attn:)	
City	IRVING
State	TX
ZIP	75039
Phone (###-###-####)	2142957334
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	DUSTIN.MANTHEI@LUMINANT.COM

DMR Contact

Person responsible for submitting Discharge Monitoring Report Forms:

Same as another contact?	
Organization Name	LUMINANT GENERATION COMPANY LLC
Prefix	
First	JOSH
Middle	
Last	WHITAKER
Suffix	
Credentials	
Title	DIRECTOR ENVIRONMENTAL
Enter new address or copy one from list:	
Mailing Address:	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	6555 SIERRA DR
Routing (such as Mail Code, Dept., or Attn:)	
City	IRVING
State	TX
ZIP	75039
Phone (###-###-####)	2178758378
Extension	
Alternate Phone (###-###-####)	
Fax (###-###-####)	
E-mail	JOSH.WHITAKE@LUMINANT.COM

Section 1# Permit Contact

Permit Contact#: 1

Person TCEQ should contact throughout the permit term.

1) Same as another contact?	Application Contact
2) Organization Name	LUMINANT GENERATION COMPANY LLC
3) Prefix	MR
4) First	RYAN
5) Middle	
6) Last	BAYLE
7) Suffix	
8) Credentials	
9) Title	ENVIRONMENTAL MANAGER
Mailing Address	
10) Enter new address or copy one from list	

11) Address Type	Domestic
11.1) Mailing Address (include Suite or Bldg. here, if applicable)	6555 SIERRA DR
11.2) Routing (such as Mail Code, Dept., or Attn:)	
11.3) City	IRVING
11.4) State	TX
11.5) ZIP	75039
12) Phone (###-###-####)	2148758294
13) Extension	
14) Alternate Phone (###-###-####)	
15) Fax (###-###-####)	
16) E-mail	RYAN.BAYLE@LUMINANT.COM

Section 2# Permit Contact

Permit Contact#: 2

Person TCEQ should contact throughout the permit term.

1) Same as another contact?	Technical Contact
2) Organization Name	LUMINANT GENERATION COMPANY LLC
3) Prefix	MR
4) First	DUSTIN
5) Middle	
6) Last	MANTHEI
7) Suffix	
8) Credentials	
9) Title	ENVIRONMENTAL MANAGER

Mailing Address

10) Enter new address or copy one from list	
11) Address Type	Domestic
11.1) Mailing Address (include Suite or Bldg. here, if applicable)	6555 SIERRA DR
11.2) Routing (such as Mail Code, Dept., or Attn:)	
11.3) City	IRVING
11.4) State	TX
11.5) ZIP	75039
12) Phone (###-###-####)	2142957334
13) Extension	
14) Alternate Phone (###-###-####)	
15) Fax (###-###-####)	
16) E-mail	DUSTIN.MANTHEI@LUMINANT.COM

Owner Information

Owner of Treatment Facility	
1) Prefix	
2) First and Last Name	
3) Organization Name	COLETO CREEK POWER LLC
4) Mailing Address	6555 SIERRA DR
5) City	IRVING
6) State	TX
7) Zip Code	75039
8) Phone (###-###-####)	2148758338
9) Extension	
10) Email	RENEE.COLLINS@LUMINANT.COM
11) What is ownership of the treatment facility?	Private
Owner of Land (where treatment facility is or will be)	
12) Prefix	
13) First and Last Name	
14) Organization Name	COLETO CREEK POWER LLC
15) Mailing Address	6555 SIERRA DR
16) City	IRVING
17) State	TX
18) Zip Code	75039
19) Phone (###-###-####)	2148758338
20) Extension	
21) Email	RENEE.COLLINS@LUMINANT.COM
22) Is the landowner the same person as the facility owner or co-applicant?	Yes

General Information Renewal-Amendment

1) Current authorization expiration date:	11/20/2028
2) Current Facility operational status:	Active
3) Is the facility located on or does the treated effluent cross American Indian Land?	No
4) What is the application type that you are seeking?	Major Amendment without Renewal

4.1) Describe the proposed changes:	1-Add a new proposed internal Outfall 401 for the discharge of low volume wastes, metal cleaning wastes, coal pile runoff, and stormwater 2-Add a new proposed Retention Pond to the list of impoundments in Other Requirement No. 17 and 3-Change the label for the Secondary Pond.
5) Current Authorization type:	Industrial Wastewater
5.1) What is your EPA facility classification?	Major
5.1.1) Select the applicable fee	Major Amendment - $2,050
6) What is the classification for your authorization?	TPDES
6.1) What is the EPA Identification Number?	TX0070068
6.2) Is the wastewater treatment facility location in the existing permit accurate?	Yes
6.3) Are the point(s) of discharge and the discharge route(s) in the existing permit correct?	Yes
6.4) City nearest the outfall(s):	FANNIN
6.5) County where the outfalls are located:	GOLIAD|VICTORIA
6.6) Is or will the treated wastewater discharge to a city, county, or state highway right-of-way, or a flood control district drainage ditch?	No
6.7) Is the daily average discharge at your facility of 5 MGD or more?	Yes
6.7.1) Provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge:	CALHOUN|GOLIAD|REFUGIO|VICTORIA
7) Did any person formerly employed by the TCEQ represent your company and get paid for service regarding this application?	No

Public Notice Information

Individual Publishing the Notices

1) Prefix	MR
2) First and Last Name	RYAN BAYLE
3) Credential	
4) Title	ENVIRONMENTAL MANAGER
5) Organization Name	LUMINANT GENERATION COMPANY LLC
6) Mailing Address	6555 SIERRA DR
7) Address Line 2	
8) City	IRVING
9) State	TX
10) Zip Code	75039
11) Phone (###-###-####)	2148758294
12) Extension	

13) Fax (###-###-####)	
14) Email	RYAN.BAYLE@LUMINANT.COM
Contact person to be listed in the Notices	
15) Prefix	MR
16) First and Last Name	RYAN BAYLE
17) Credential	
18) Title	ENVIRONMENTAL MANAGER
19) Organization Name	LUMINANT GENERATION COMPANY LLC
20) Phone (###-###-####)	2148758294
21) Fax (###-###-####)	
22) Email	RYAN..BAYLE@LUMINANT.COM
Bilingual Notice Requirements	
23) Is a bilingual education program required by the Texas Education Code at the elementary or middle school nearest to the facility or proposed facility?	Yes
23.1) Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?	No
23.2) Do the students at these schools attend a bilingual education program at another location?	Yes
23.3) 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)?	No
23.4) Which language is required by the bilingual program?	SPANISH

Section 1# Public Viewing Information

County#: 1

1) County	GOLIAD
2) Public building name	GOLIAD COUNTY CLERK OFFICE
3) Location within the building	
4) Physical Address of Building	127 N COURTHOUSE SQUARE
5) City	GOLIAD
6) Contact Name	
7) Phone (###-###-####)	3616453294
8) Extension	
9) Is the location open to the public?	Yes

County#: 2

1) County	VICTORIA
2) Public building name	VICTORIA COUNTY CLERK OFFICE
3) Location within the building	ROOM 103

4) Physical Address of Building	115 N BRIDGE ST
5) City	VICTORIA
6) Contact Name	
7) Phone (###-###-####)	3615751478
8) Extension	
9) Is the location open to the public?	Yes

Plain Language

1) Plain Language

[File Properties]

File Name	LANG_Attachment PLS-1 Plain Language Summary WQ0002159000 2025.pdf
Hash	42F81261323A1103BA0D96FADA5C19A609FB7D6C3C394991928DACE163ABB29A
MIME-Type	application/pdf

Supplemental Permit Information Form

1) Supplemental Permit Information Form (SPIF)

[File Properties]

File Name	SPIF_Attachment SPIF-1 WQ0002159000 Supplemental Permit Information Form 2025.pdf
Hash	1CFFFC7EA9EA3C430C60917B65290C8B999E14F772C79375EC00DA7DD1B411C7
MIME-Type	application/pdf

[File Properties]

File Name	SPIF_Attachment SPIF-2 WQ0002159000 USGS Maps.pdf
Hash	3334BFBCB22E346024D445891CCC3E5F09503C8BB4BC6357881A2507AD91DC44
MIME-Type	application/pdf

Industrial Attachments

1) Attach an 8.5"x11", reproduced portion of the most current and original USGS Topographic Quadrangle Map(s) that meets the 1:24,000 scale.

[File Properties]

File Name	MAP_Attachment A-2 WQ0002159000 USGS Maps.pdf
Hash	181BFDE149E64AF69279A09C5EEF1C1E65EDE08514D19127112767BD856671E6
MIME-Type	application/pdf

2) Public Involvement Plan (TCEQ Form 20960)

[File Properties]

File Name	PIP_Attachment PIP-1 Public Involvement Plan pg1 WQ0002159000 2025.pdf
Hash	15DF3C08024CBF3FDC9FDD7B973C313514C4EC94940C9F7DC373BA378A36E13A
MIME-Type	application/pdf

3) Administrative Report 1.1

[File Properties]

File Name	ARPT_WQ0002159000 TPDES Administrative Report 1-1 2025.pdf
Hash	57097109E23E1E88CE97B11E3F0A3ED1A6C742E3A89696A4F079BE9050793154
MIME-Type	application/pdf

4) I confirm that all required sections of Technical Report 1.0 are complete and will be included in the Technical Attachment.	Yes
4.1) I confirm that Worksheet 4.0 (Receiving Waters) is complete and included in the Technical Attachment.	Yes
4.2) Are you planning to include Worksheet 4.1 (Waterbody Physical Characteristics) in the Technical Attachment?	No
4.3) Are you planning to include Worksheet 6.0 (Industrial Waste Contribution) in the Technical Attachment?	No
4.4) Are you planning to include Worksheet 7.0 (Stormwater Discharges Associated with Industrial Activities) to the Technical Attachment?	No
4.5) Are you planning to include Worksheet 8.0 (Aquaculture) in the Technical Attachment?	No
4.6) Are you planning to include Worksheet 9.0 (Class V Injection Well Inventory/Authorization) in the Technical Attachment?	No
4.7) Are you planning to include Worksheet 10.0 (Quarries in the John Graves Scenic Riverway) in the Technical Attachment?	No
4.8) Are you planning to include Worksheet 11.0 (Cooling Water System Information) in the Technical Attachment?	No
4.9) Are you planning to include Worksheet 11.1 (Impingement Mortality) in the Technical Attachment?	No
4.10) Are you planning to include Worksheet 11.2 (Source Water Biological Data) in the Technical Attachment?	No
4.11) Are you planning to include Worksheet 11.3 (Entrainment) in the Technical Attachment?	No

4.12) Technical Attachment

[File Properties]

File Name	TECH_WQ0002159000 TPDES Amendment Technical Report 2025.pdf
Hash	810DDCE965940BDA16F2E97619B49C8510FD4A21CD7962C1917AFA8A6E026056

MIME-Type	application/pdf

5) Affected Landowners Map

[File Properties]

File Name	LANDMP_Attachment A-3-1 WQ0002159000 Landowner Map.pdf
Hash	24B85ABE99C02A9C528886E06EEA614AD66669EA7493691EA595E90F38CA3065
MIME-Type	application/pdf

6) Landowners Cross Reference List

[File Properties]

File Name	LANDCRL_Attachment A-3-2 WQ0002159000 Landowner List.pdf
Hash	F8ACA03E5C74B13123C9D1188B7CFE5338AFF42FB6F4F3B0385B275D12AA8044
MIME-Type	application/pdf

7) Landowner Avery Template

[File Properties]

File Name	LANDAT_Attachment A-3-3 WQ0002159000 Landowner Labels.docx
Hash	663BF8849BB4396A65FE764E55D795712EC939BA2629BF6232D3B6AC143E656B
MIME-Type	application/vnd.openxmlformats-officedocument.wordprocessingml.document

8) Flow Diagram

[File Properties]

File Name	FLDIA_WQ0002159000 Figure 2 Water Balance Flow Diagram 2025.pdf
Hash	033EC41962B966168093DE99DA47369125DD46AB6C661755E72A0F6470D427D8
MIME-Type	application/pdf

9) Site Drawing

[File Properties]

File Name	SITEDR_Attachment T-2 WQ0002159000 Site Arrangement Plot Plan.pdf
Hash	8AB99CFB5B1048A1C3FCD0DAA847E5EE18034ED7CC4DBC86CA14C9AF4C163E56
MIME-Type	application/pdf

10) Original Photographs

[File Properties]

File Name	ORIGPH_Attachment A-1 WQ0002159000 Coleto Creek Outfall Photos 2025.pdf
Hash	1F92D72B9933C3975DB57A1E3B121F175EC5410556424DEEB00768A9D341A3C9

MIME-Type	application/pdf

11) Design Calculations

[File Properties]

File Name	DES_CAL_WQ0002159000 Table 1 Outfall Wastewaters.pdf
Hash	23838C7025D58351F7BF78CE8FCF73BC9BC4E5B5CDF85984A8C09B641B3855FE
MIME-Type	application/pdf

12) Solids Management Plan

13) Water Balance

[File Properties]

File Name	WB_WQ0002159000 Figure 2 Water Balance Flow Diagram 2025.pdf
Hash	033EC41962B966168093DE99DA47369125DD46AB6C661755E72A0F6470D427D8
MIME-Type	application/pdf

14) Other Attachments

[File Properties]

File Name	OTHER_WQ0002159000 Table of Contents.pdf
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[File Properties]

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File Name	OTHER_Attachment T-3 WQ0002159000 Treatment Chemicals 2025.pdf
Hash	CEDEBEED970C0DFF4B748A3FB8BFD9773B855E2E35A503B1775D5E33354C225C
MIME-Type	application/pdf

[File Properties]

File Name	OTHER_Attachment T-1 WQ0002159000 Coleto Creek Facility Description 2025.pdf
Hash	3A996583FBF1BE839CFC130B51C94242AE0817ED2479E928F09167210E4A43A9
MIME-Type	application/pdf

Certification

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

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the person or persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware there are significant penalties for submitting false information, including the possibility of fine and imprisonment for knowing violations.

1. I am Renee A Collins, the owner of the STEERS account ER009906.
2. I have the authority to sign this data on behalf of the applicant named above.
3. I have personally examined the foregoing and am familiar with its content and the content of any attachments, and based upon my personal knowledge and/or inquiry of any individual responsible for information contained herein, that this information is true, accurate, and complete.
4. I further certify that I have not violated any term in my TCEQ STEERS participation agreement and that I have no reason to believe that the confidentiality or use of my password has been compromised at any time.
5. I understand that use of my password constitutes an electronic signature legally equivalent to my written signature.
6. I also understand that the attestations of fact contained herein pertain to the implementation, oversight and enforcement of a state and/or federal environmental program and must be true and complete to the best of my knowledge.
7. I am aware that criminal penalties may be imposed for statements or omissions that I know or have reason to believe are untrue or misleading.
8. I am knowingly and intentionally signing Update Domestic or Industrial Individual Permit WQ0002159000.
9. My signature indicates that I am in agreement with the information on this form, and authorize its submittal to the TCEQ.

OWNER Signature: Renee A Collins OWNER

Customer Number:	CN605521988
Legal Name:	Coleto Creek Power, LLC
Account Number:	ER009906
Signature IP Address:	136.226.100.207
Signature Date:	2025-06-04
Signature Hash:	F3CA92C838DEE2B58F45AD30B06BEDC348A2B2B85F06302E533C41C11BFC8597
Form Hash Code at time of Signature:	8CC02999D4A9E3F4F225220026CDA45AD409378761B7F0DB258F3FBA0D0795F8

Fee Payment

Transaction by:	The application fee payment transaction was made by ER002931/Ryan Bayle
Paid by:	The application fee was paid by RYAN BAYLE
Fee Amount:	$2000.00
Paid Date:	The application fee was paid on 2025-06-05
Transaction/Voucher number:	The transaction number is 582EA000671159 and the voucher number is 769694

Submission

Reference Number:	The application reference number is 783775
Submitted by:	The application was submitted by ER002931/ Ryan Bayle
Submitted Timestamp:	The application was submitted on 2025-06-05 at 13:27:58 CDT
Submitted From:	The application was submitted from IP address 170.85.101.21
Confirmation Number:	The confirmation number is 657268
Steers Version:	The STEERS version is 6.91
Permit Number:	The permit number is WQ0002159000

Additional Information

Application Creator: This account was created by Dianna Kocurek

Coleto Creek Power, LLC
Coleto Creek Power Station
TPDES WQ0002159000 Amendment Application 2025

Application Contents

Administrative Report 1.0
Administrative Report 1.1
Technical Report 1.0
- Worksheet 1 Effluent Guidelines
- Worksheet 4 Receiving Waters

Attachments

		Cross-reference to Application Item
SPIF-1	Supplemental Permit Information Form (SPIF)	AR
SPIF-2	USGS Maps (7 sheets)	SPIF-7
PLS-1	Plain Language Summary	AR1.0-9.f
PIP-1	Public Information Plan	AR1.0-9.g
A-1	Outfall Photos	AR1.1-2
A-2	USGS Maps (7 sheets)	AR1.0-11.b
A-3-1	Landowner Maps (7 sheets)	AR1.1-1.a
A-3-2	Landowner List	AR1.1-1.c
A-3-3	Landowner Mailing Labels	AR1.1-1.b
T-0	Amendment Requests	TR-13
T-1	Facility Description	
	Table 1. Wastewater Sources by Outfall	TR-2.b, 4; W1-3
	Figure 1. Coleto Creek Reservoir Configuration	
	Figure 2. Water Balance Flow Diagram	TR-2.b
T-2	Site Arrangement Plot Plan	TR-1.d
T-3	Treatment Chemicals and SDSs	TR-5.b

Reference Key

AR1.x	Administrative Report
TR	Technical Report
SPIF	Supplemental Permit Information Form
W#	Worksheet #

INDUSTRIAL WASTEWATER PERMIT APPLICATION ADMINISTRATIVE REPORT 1.1

The following information is required for new and amendment applications.

Item 1. Affected Landowner Information (Instructions, Page 35)

a. Attach a landowner map or drawing, with scale, as applicable. Check the box next to each item to confirm it has been provided.

- ☒ The applicant's property boundaries.
- ☒ The facility site boundaries within the applicant's property boundaries.
- ☐ The distance the buffer zone falls into adjacent properties and the property boundaries of the landowners located within the buffer zone.
- ☒ The property boundaries of all landowners surrounding the applicant's property. (Note: if the application is a major amendment for a lignite mine, the map must include the property boundaries of all landowners adjacent to the new facility (ponds).)
- ☒ The point(s) of discharge and highlighted discharge route(s) clearly shown for one mile downstream.
- ☒ The property boundaries of the landowners located on both sides of the discharge route for one full stream mile downstream of the point of discharge.
- ☐ The property boundaries of the landowners along the watercourse for a one-half mile radius from the point of discharge if the point of discharge is into a lake, bay, estuary, or affected by tides.
- ☐ The boundaries of the effluent disposal site (e.g., irrigation area or subsurface drainfield site) and all evaporation/holding ponds within the applicant's property.
- ☐ The property boundaries of all landowners surrounding the applicant's property boundaries where the effluent disposal site is located.
- ☐ The boundaries of the sludge land application site (for land application of sewage sludge for beneficial use) and the property boundaries of landowners within one-quarter mile of the applicant's property boundaries where the sewage sludge land application site is located.
- ☐ The property boundaries of landowners within one-half mile in all directions from the applicant's property boundaries where the sewage sludge disposal site (e.g., sludge surface disposal site or sludge monofil) is located.

Attachment: A-3-1 Landowner Map

b. ☒ that the landowners list has also been provided as mailing labels in electronic format (Avery 5160). Attachment: A-3-3 Landowner Labels

c. Check this box to confirm a separate list with the landowners' names and mailing addresses cross-referenced to the landowner's map has been provided. Provide the source of the landowners' names and mailing addresses: Attachment A-3-2 Landowner List (Goliad and Victoria Counties Appraisal Districts)

e. As required by Texas Water Code § 5.115, is any permanent school fund land affected by this application?

☐ Yes ☒ No

If yes, provide the location and foreseeable impacts and effects this application has on the land(s): N/A

Item 2. Original Photographs (Instructions, Page 37)

Provide original ground level photographs. Check the box next to each of the following items to indicate it is included.

☐ At least one original photograph of the new or expanded treatment unit location.

☒ At least two photographs of the existing/proposed point of discharge and as much area downstream (photo 1) and upstream (photo 2) as can be captured. If the discharge is to an open water body (e.g., lake, bay), the point of discharge should be in the right or left edge of each photograph showing the open water and with as much area on each respective side of the discharge as can be captured.

☐ At least one photograph of the existing/proposed effluent disposal site.

☒ A plot plan or map showing the location and direction of each photograph.

Attachment: A-1 Outfall Photos

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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

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

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

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

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS INDUSTRAIL WASTEWATER/STORMWATER

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

Coleto Creek Power, LLC (CN605521988) operates the Coleto Creek Power Station (RN100226919), with a total generating capacity of a nominal net 632 megawatts. The facility is located at 45 Farm-to-Market Road 2987 near the Town of Fannin, Goliad County, Texas 77960.

This application is to amend TPDES Permit No. WQ0002159000 to add proposed internal Outfall 401, to add a proposed retention pond, and to update the name of the Secondary Pond. Outfall 401 would discharge low volume wastes, metal cleaning wastes, coal pile runoff, and stormwater. The facility currently has one final Outfall 001 and three internal outfalls (101, 201, 301), which discharge to the final outfall.

Outfall 001 is authorized to discharge a maximum average of 557 million gallons per day of once-through cooling water, treated domestic wastewater, ash transport water, low volume wastes, metal cleaning wastes, coal pile runoff, and stormwater. Cooling water is withdrawn from Coleto Creek Reservoir. Treatment processes include oil/water separation and solids settling. Domestic wastewater is treated in an aerobic septic system with spray field.

The discharge from Outfall 001 is subject to federal effluent limitation guidelines at 40 CFR Part 423. The pollutants expected from these discharges include free available and total residual chlorine, total suspended solids, oil and grease, metals, pH, and temperature.

PLANTILLA EN ESPAÑOL PARA SOLICITUDES NUEVAS/RENOVACIONES/ENMIENDAS DE TPDES o TLAP

AGUAS RESIDUALES INDUSTRIALES /AGUAS PLUVIALES

El siguiente resumen se proporciona para esta solicitud de permiso de calidad del agua pendiente que está siendo revisada por la Comisión de Calidad Ambiental de Texas según lo requerido por el Capítulo 39 del Código Administrativo de Texas 30. La información proporcionada en este resumen puede cambiar durante la revisión técnica de la solicitud y no es una representación ejecutiva fedérale de la solicitud de permiso.

Coleto Creek Power, LLC (CN605521988) opera la central eléctrica Coleto Creek (RN100226919), con una capacidad total de generación nominal neta de 632 megavatios. La instalación está ubicada en el 45 Farm-to-Market Road 2987, cerca de la localidad de Fannin, Condado de Goliad, Texas 77960.

Esta solicitud es para la modificación el permiso TPDES No. WQ0002159000 para añadir el Outfall interno 401 propuesto, añadir un estanque de retención propuesto y actualizar el nombre del estanque secundario. El Outfall 401 descargaría residuos de bajo volumen, residuos de limpieza de metales, escorrentía de pilas de carbón y aguas pluviales. La instalación tiene actualmente el Outfall final 001 y tres Outfalls internos (101, 201, 301), que descargan al Outfall final.

El Outfall 001 está autorizado a verter un promedio máximo de 557 millones de galones al día de agua de refrigeración de un solo paso, aguas residuales domésticas tratadas, agua de transporte de cenizas, residuos de bajo volumen, residuos de limpieza de metales, escorrentía de pilas de carbón y aguas pluviales. El agua de refrigeración se extrae del embalse de Coleto Creek. Los procesos de tratamiento incluyen la separación de aceite y agua y la sedimentación de sólidos. Las aguas residuales domésticas se tratan en un sistema séptico aeróbico con campo de aspersión.

El vertido del Outfall 001 está sujeto a las directrices federales de limitación de efluentes del título 40 del CFR, parte 423. Los contaminantes que se esperan de estos vertidos incluyen cloro libre disponible y residual total, sólidos suspendidos totales, aceites y grasas, metales, pH y temperatura.

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:

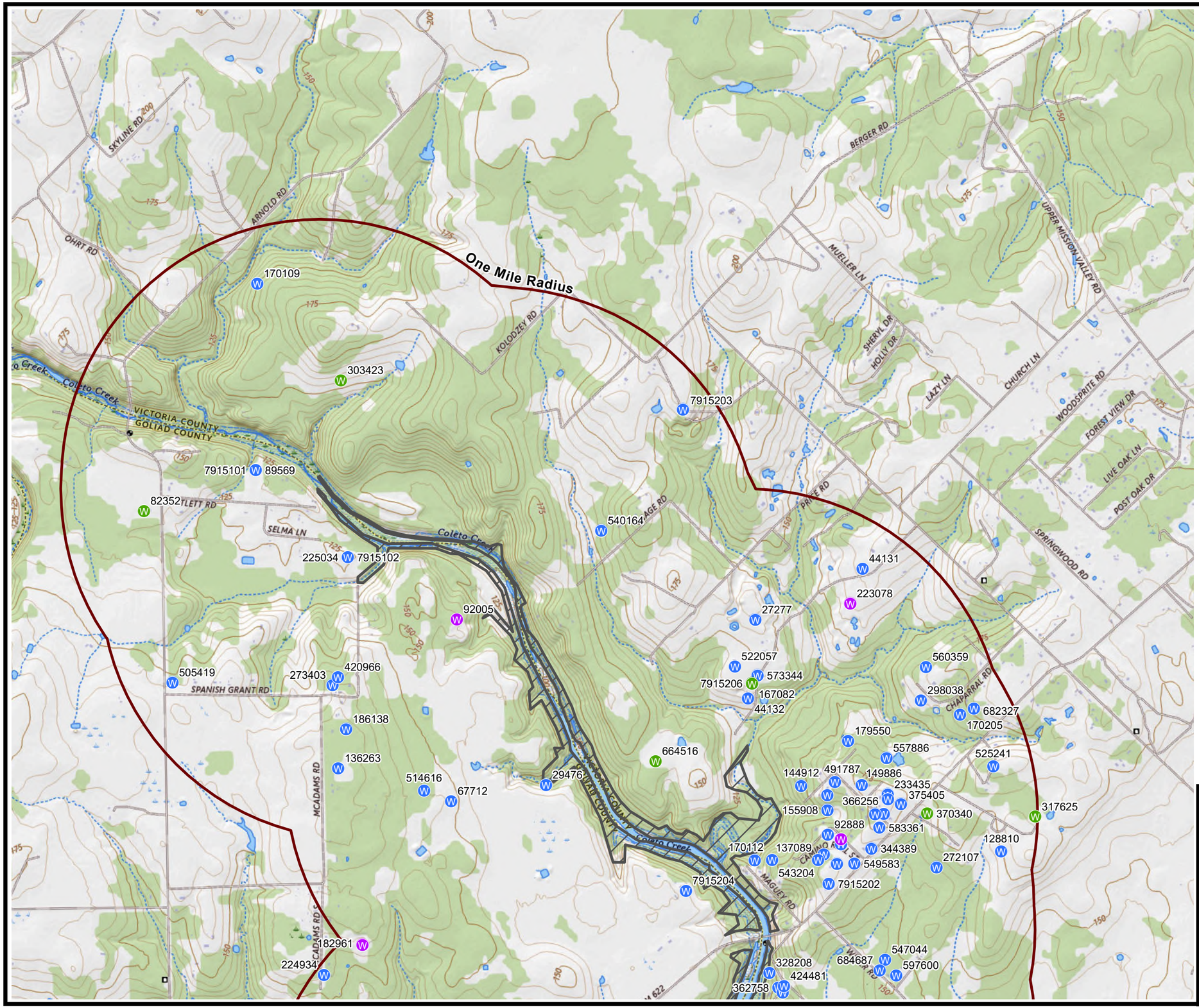
- Austin
- Dallas
- Fort Worth
- Houston
- San Antonio
- West Texas
- Texas Panhandle
- Along the Texas/Mexico Border
- Other geographical locations should be decided on a case-by-case basis

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.

The activity does not meet all three of the above criteria.

ATTACHMENT A-2

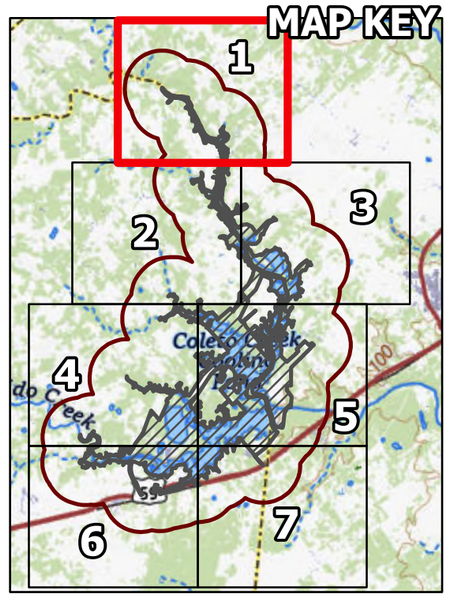


LEGEND

- Coleto Creek Power, LLC Property Boundary
- One Mile Radius

TWDB Wells

- Domestic / Public Supply
- Industrial / Monitor
- Irrigation / Stock
- Plugged / Destroyed / Unused / Other
- Rig Supply / Test Well



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Sources:
1. TWDB Wells - Texas Water Development Board GIS Data, April 2025.
2. USGS Topographic Quadrangles 7.5 Minute Series: Schroeder, Fannin, & Hensley Lake, TX 2022

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

USGS MAP
FIGURE 1 OF 7

DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
CHECKED BY:	D KOCUREK	AS NOTED	USGS Map
APPROVED BY:	D KOCUREK	DATE PRINTED:	
DATE:	May 2025	*5/19/2025*	

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Ph. 409-738-2133

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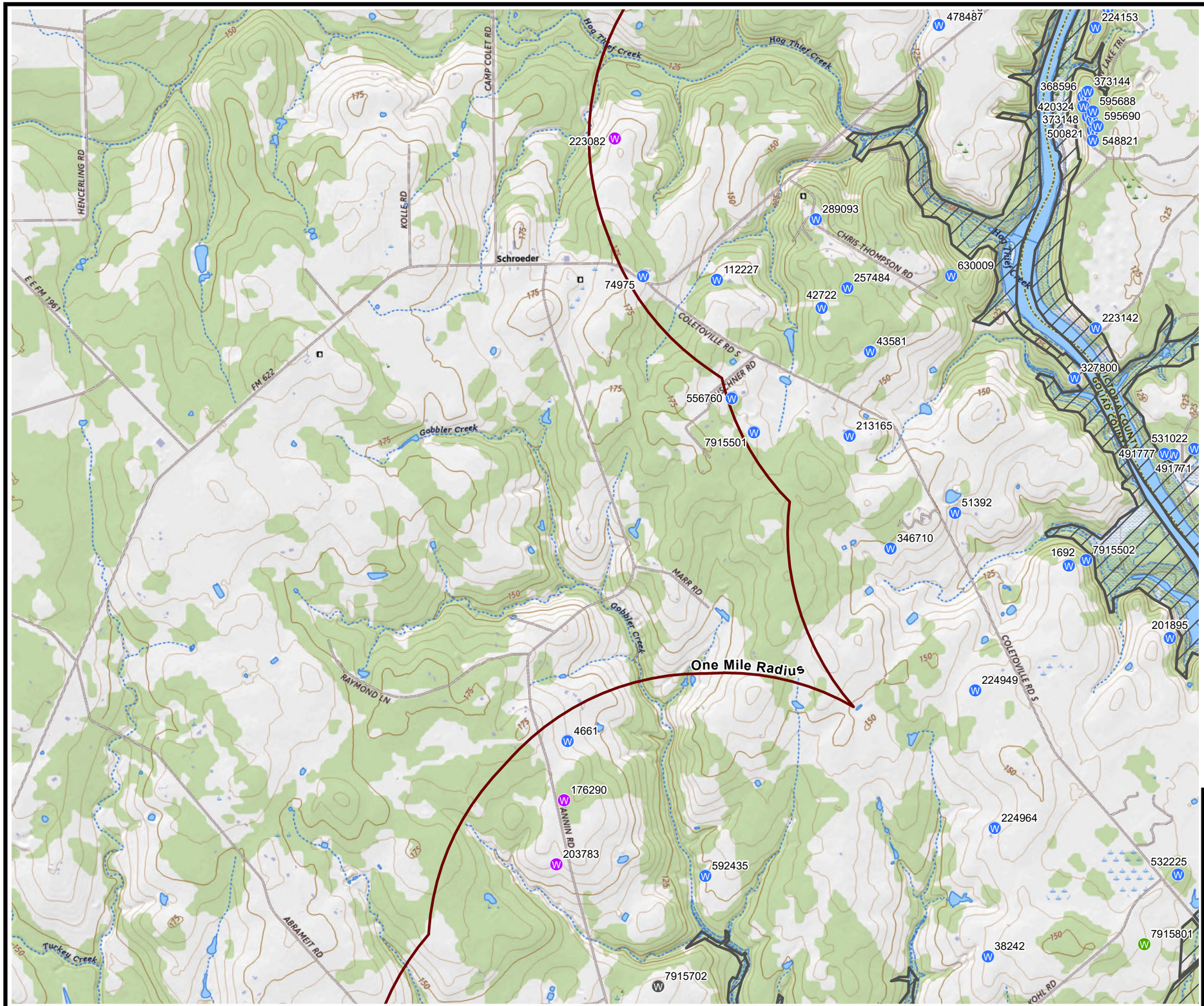
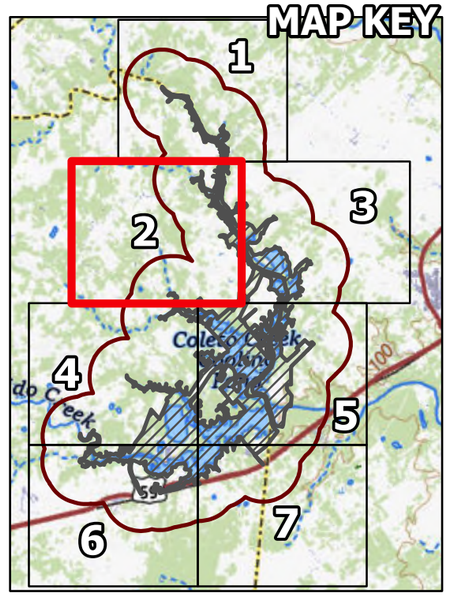


LEGEND

- Coleto Creek Power, LLC Property Boundary
- One Mile Radius

TWDB Wells

- Domestic / Public Supply
- Industrial / Monitor
- Irrigation / Stock
- Plugged / Destroyed / Unused / Other
- Rig Supply / Test Well



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Sources:
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2. USGS Topographic Quadrangles 7.5 Minute Series: Schroeder, Fannin, & Hensley Lake, TX 2022

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

USGS MAP
FIGURE 2 OF 7

DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
CHECKED BY:	D KOCUREK	AS NOTED	USGS Map
APPROVED BY:	D KOCUREK	DATE PRINTED:	
DATE:	May 2025	*5/19/2025*	

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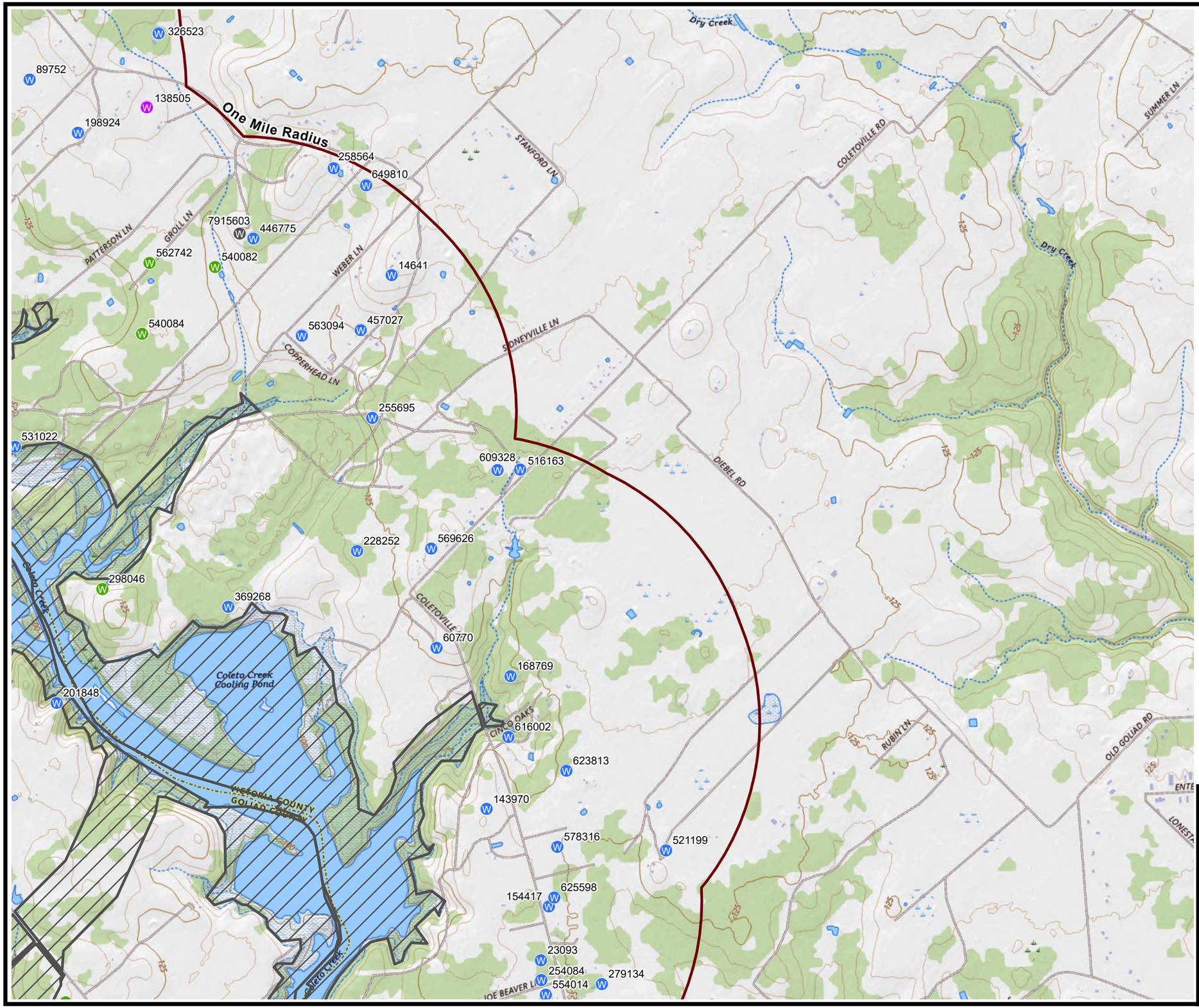
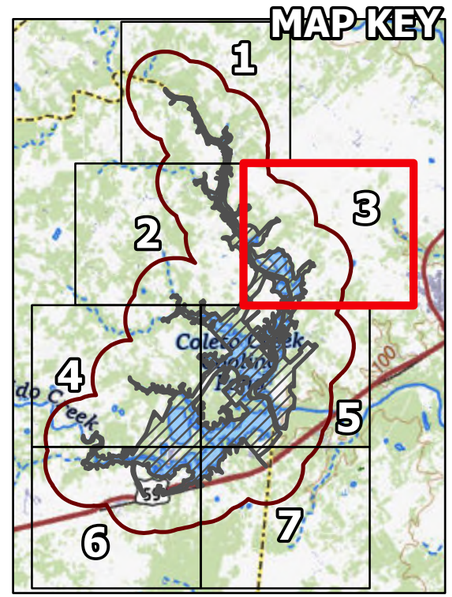


LEGEND

- Coleto Creek Power, LLC Property Boundary
- One Mile Radius

TWDB Wells

- Domestic / Public Supply
- Industrial / Monitor
- Irrigation / Stock
- Plugged / Destroyed / Unused / Other
- Rig Supply / Test Well



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Sources:
1. TWDB Wells - Texas Water Development Board GIS Data, April 2025.
2. USGS Topographic Quadrangles 7.5 Minute Series: Schroeder, Fannin, & Hensley Lake, TX 2022

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

USGS MAP
FIGURE 3 OF 7

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CHECKED BY:	D KOCUREK	AS NOTED	USGS Map
APPROVED BY:	D KOCUREK	DATE PRINTED:	
DATE:	May 2025	*5/19/2025*	

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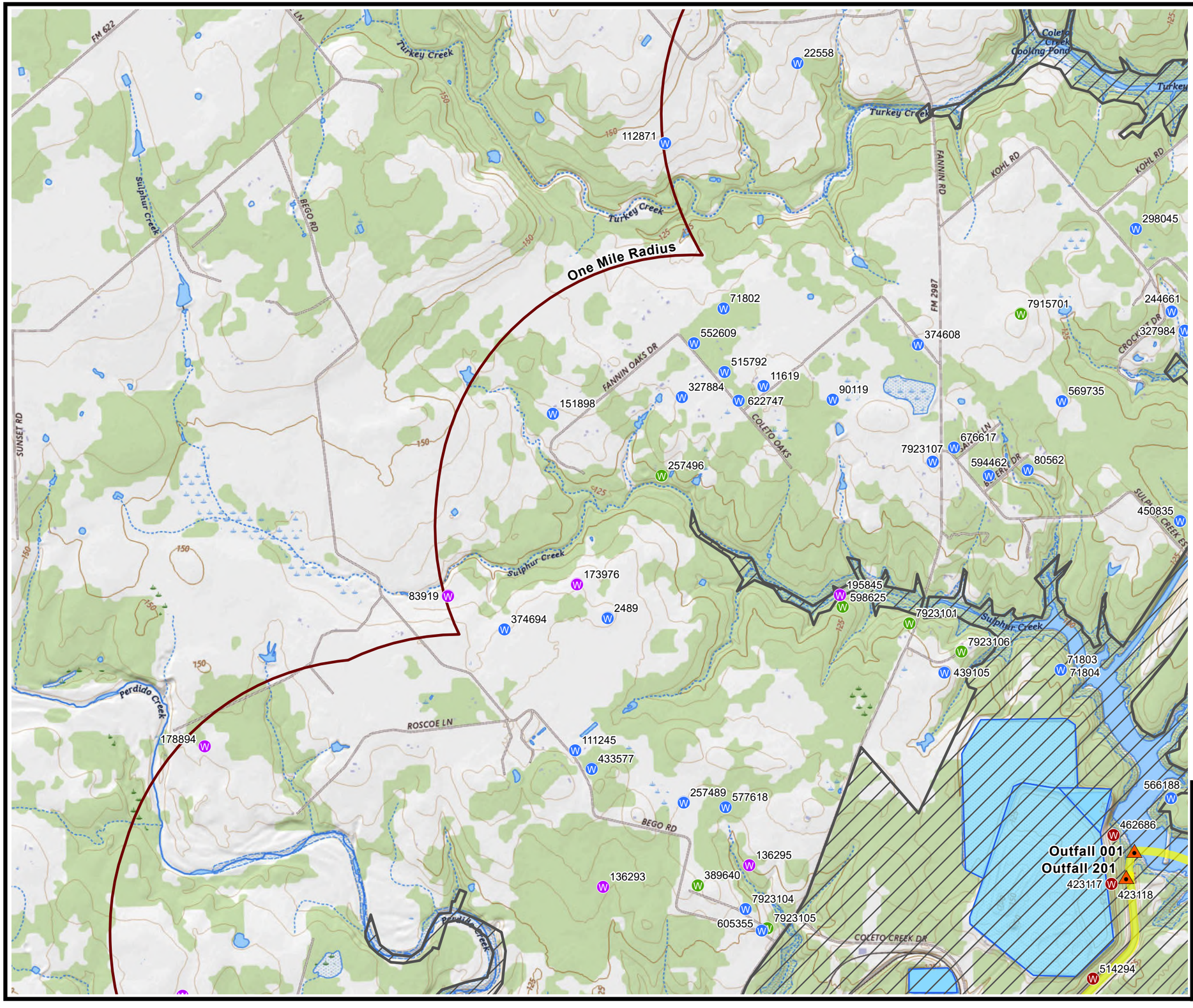
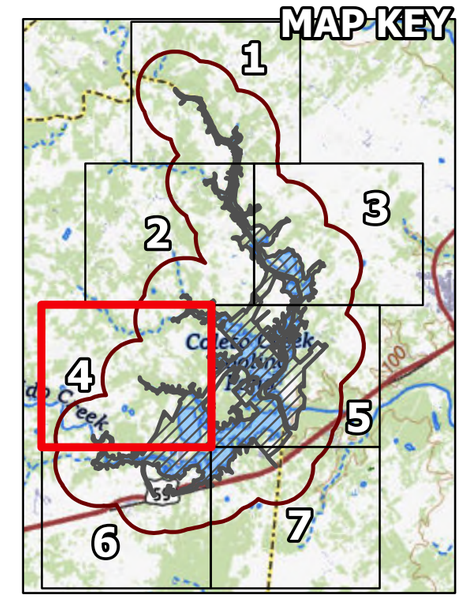


LEGEND

- Coleto Creek Power, LLC Property Boundary
- Ponds
- Outfall Location
- Discharge Route
- One Mile Radius

TWDB Wells

- Domestic / Public Supply
- Industrial / Monitor
- Irrigation / Stock
- Plugged / Destroyed / Unused / Other
- Rig Supply / Test Well



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Sources:
1. TWDB Wells - Texas Water Development Board GIS Data, April 2025.
2. USGS Topographic Quadrangles 7.5 Minute Series: Schroeder, Fannin, & Hensley Lake, TX 2022

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

USGS MAP
FIGURE 4 OF 7

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APPROVED BY:	D KOCUREK	DATE PRINTED:			
DATE:	May 2025		*5/19/2025*		

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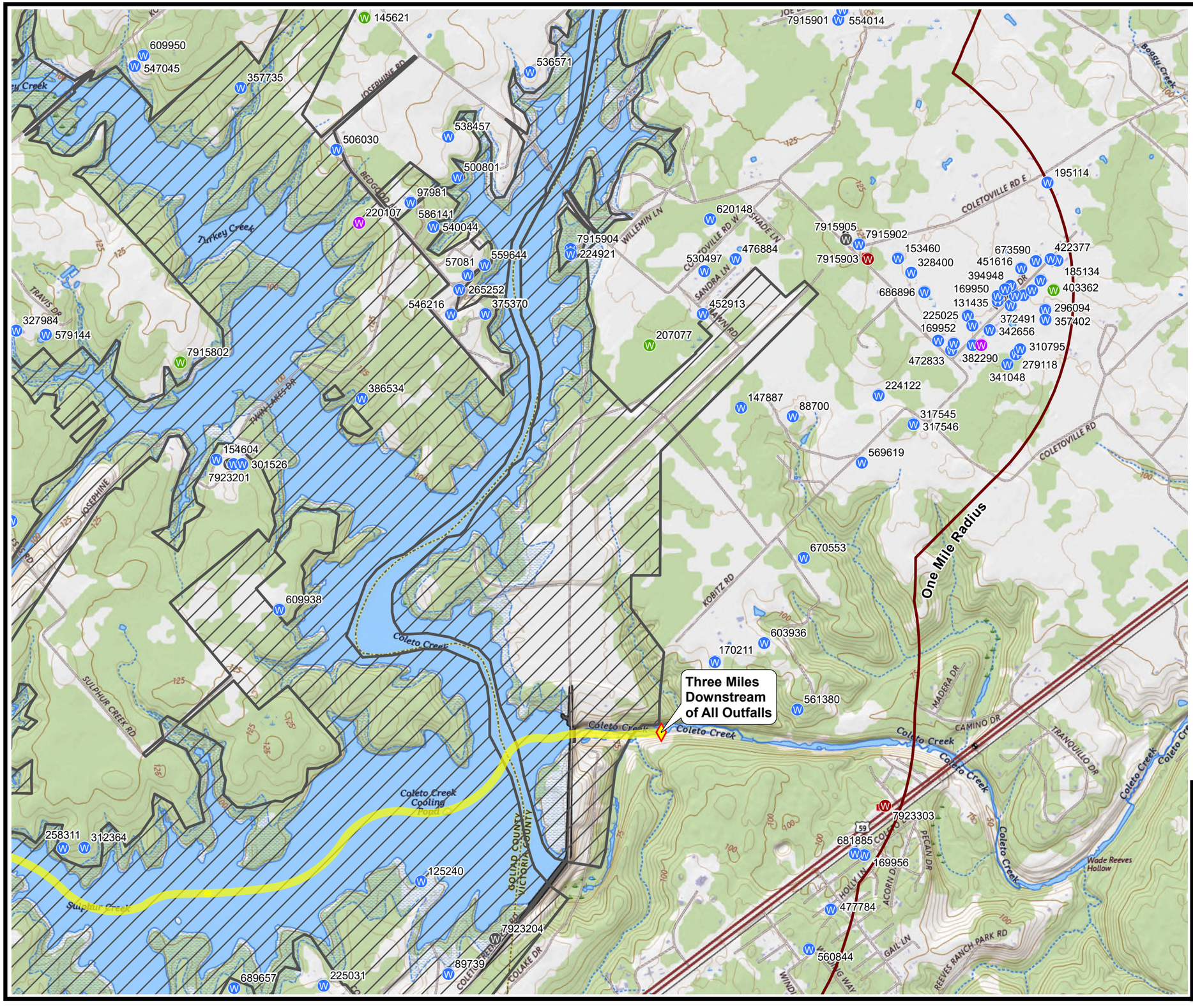
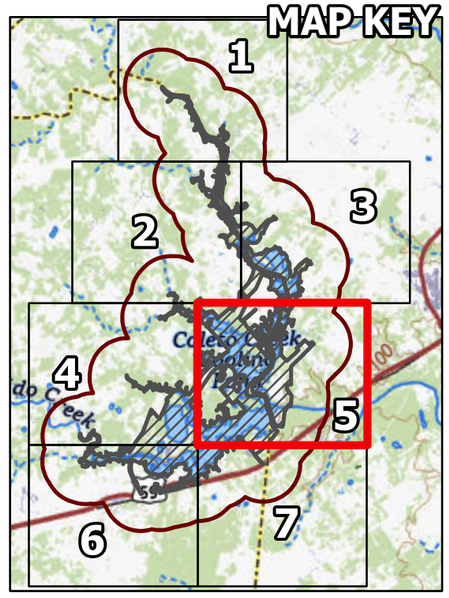


LEGEND

- Coleto Creek Power, LLC Property Boundary
- Discharge Route
- Downstream Marker
- One Mile Radius

TWDB Wells

- Domestic / Public Supply
- Industrial / Monitor
- Irrigation / Stock
- Plugged / Destroyed / Unused / Other
- Rig Supply / Test Well



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Sources:
1. TWDB Wells - Texas Water Development Board GIS Data, April 2025.
2. USGS Topographic Quadrangles 7.5 Minute Series: Schroeder, Fannin, & Hensley Lake, TX 2022

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

USGS MAP
FIGURE 5 OF 7

DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
CHECKED BY:	D KOCUREK	AS NOTED	USGS Map
APPROVED BY:	D KOCUREK	DATE PRINTED:	
DATE:	May 2025	*5/19/2025*	

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Ph. 409-738-2133

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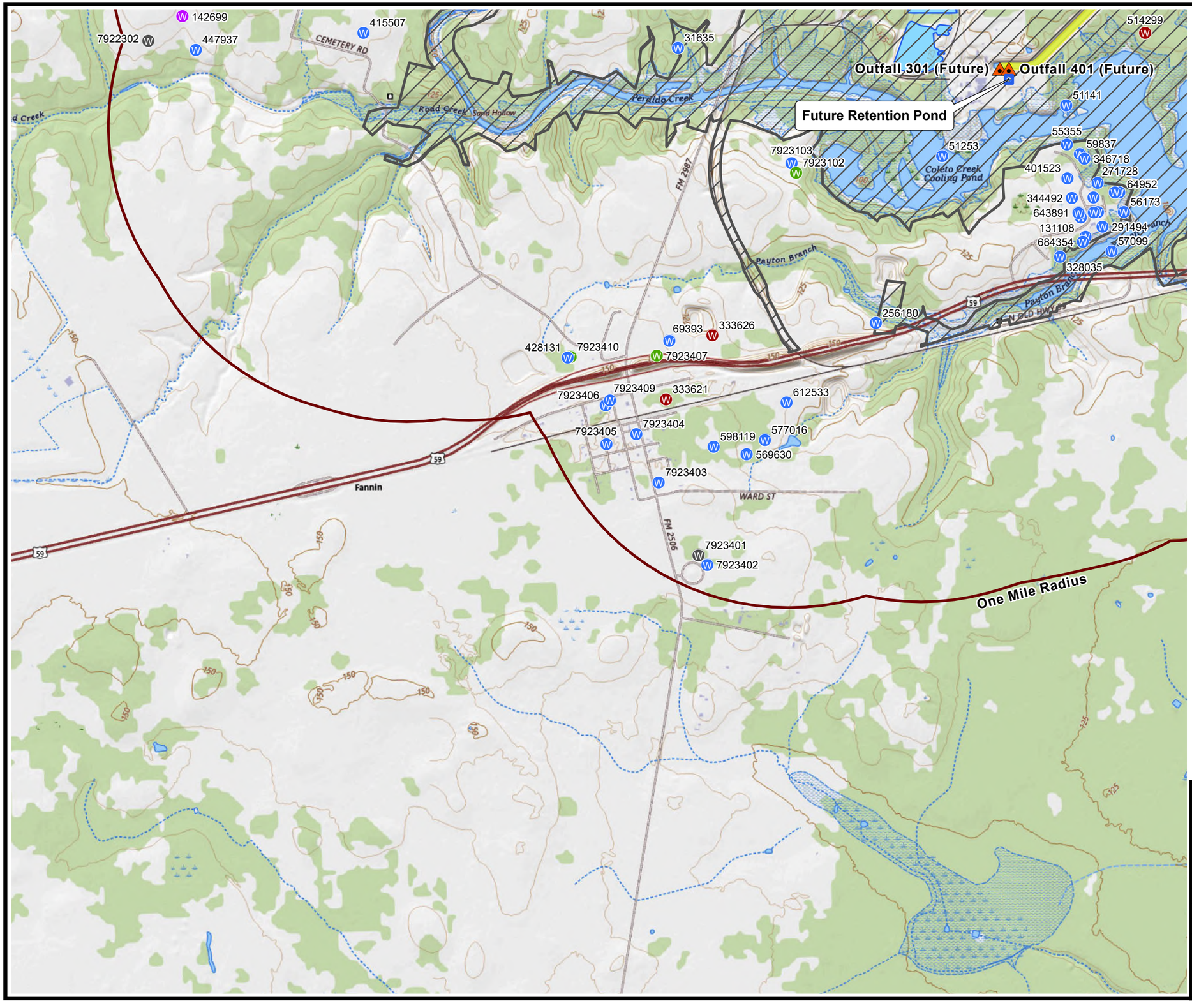
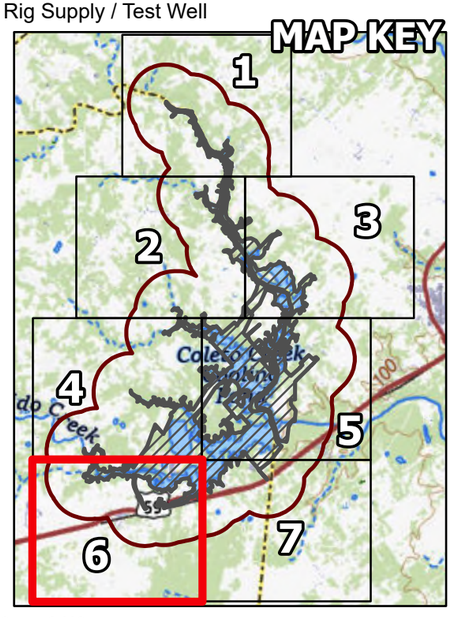


LEGEND

- Coleto Creek Power, LLC Property Boundary
- Future Retention Pond
- Ponds
- Outfall Location
- Discharge Route
- One Mile Radius

TWDB Wells

- Domestic / Public Supply
- Industrial / Monitor
- Irrigation / Stock
- Plugged / Destroyed / Unused / Other
- Rig Supply / Test Well



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Sources:
1. TWDB Wells - Texas Water Development Board GIS Data, April 2025.
2. USGS Topographic Quadrangles 7.5 Minute Series: Schroeder, Fannin, & Hensley Lake, TX 2022

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

USGS MAP
FIGURE 6 OF 7

DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
CHECKED BY:	D KOCUREK	AS NOTED	USGS Map
APPROVED BY:	D KOCUREK	DATE PRINTED:	
DATE:	May 2025	*5/19/2025*	

sitemap your mapping professional
www.SiteMapLLC.com
Ph. 409-998-1834
Ph. 409-738-2133

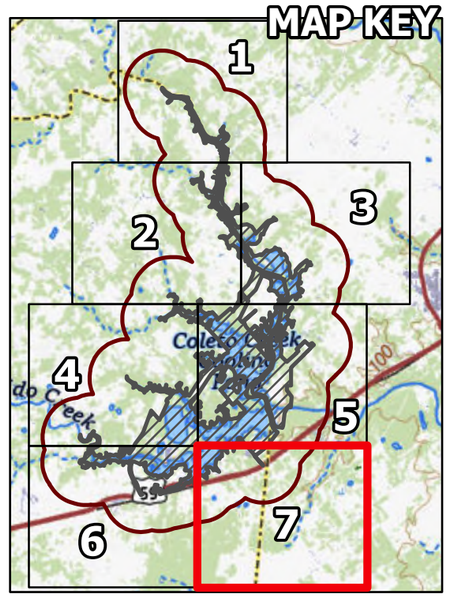
J:\Prj\Coleto Creek\TPDES 2025\Coleto Creek GIS.aprx

LEGEND

- Coleto Creek Power, LLC Property Boundary
- One Mile Radius

TWDB Wells

- Domestic / Public Supply
- Industrial / Monitor
- Irrigation / Stock
- Plugged / Destroyed / Unused / Other
- Rig Supply / Test Well



N

0 1,000 2,000 FEET

1" = 2,000 FEET
1:24,000

Sources:
1. TWDB Wells - Texas Water Development Board GIS Data, April 2025.
2. USGS Topographic Quadrangles 7.5 Minute Series: Schroeder, Fannin, & Hensley Lake, TX 2022

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

USGS MAP
FIGURE 7 OF 7

DRAWN BY:	S WILSON	SCALE:		PROJ. NO.	TPDES 2025
CHECKED BY:	D KOCUREK		AS NOTED		USGS Map
APPROVED BY:	D KOCUREK	DATE PRINTED:			
DATE:	May 2025		*5/19/2025*		

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ATTACHMENT A-3-2
Landowner List
Coleto Creek Power Station
WQ0002159000

MAP ID	OWNER NAME	ADDRESS	CITY	STATE	ZIP CODE
1	ANAYA SUSIE ANNA (STARNES)	64 SPRING RIDGE	VICTORIA	TX	77904
2	ASKEW JENELL KOLLE	4517 TRIANGLE AVE APT 502	AUSTIN	TX	78751
3	AWALT LISA	81 SANDRA LN	VICTORIA	TX	77905
4	BAGWELL JOHN D & LINDA M	P O BOX 5114	VICTORIA	TX	77903
5	BARCLAY HAL JR & JUDY	1593 HOWARD LN	VICTORIA	TX	77905
6	BECK ROBIN ETAL	901 WEBER LN	VICTORIA	TX	77905
7	BERGER JAMES J	PO BOX 856	PORT OCONNOR	TX	77982
8	BERNHARD MATTHEW	258 CINCO OAKS	VICTORIA	TX	77905
9	BIEDIGER ALFRED O III	3499 WEBER RD	VICTORIA	TX	77905-3135
10	BONE JO ANN P	199 SHADE LN	VICTORIA	TX	77905
11	BRAGG MELANIE J & WILLEMIN DAVID W	384 ALOE RD	VICTORIA	TX	77905
12	BROWN PATTI KOBITZ	1709 BENEDICT CT	ROWLETT	TX	75088
13	BRUNS MARGARET GAY	11638 FM 622	GOLIAD	TX	77963
14	BURES TODD ANTHONY JR & HANNAH LEIGH MITCHELL	15 SANDRA LANE	VICTORIA	TX	77905
15	BURRIS DONALD L	905 COLAKE DR	VICTORIA	TX	77905-4001
16	CHARLES EDWARD J JR & KIMBERLY DRAKE	21 MAGUEY	VICTORIA	TX	77905-3114
17	CHRISTOPHER PAUL WAYNE	157 SHADE LN	VICTORIA	TX	77905
18	CLEMMONS ANDREW CHARLES	900 OSAGE RD	VICTORIA	TX	77905-2593
19	COLETO LAKE ESTATES HOMEOWNERS ASSOCIATION INC	443 WATERS EDGE DR	VICTORIA	TX	77905-3182
20	COLLINS AMANDA BEDGOOD & SHANE WELSEY COLLINS	102 TURTLE ROCK DR	VICTORIA	TX	77904
21	DANIEL JON HARVEY JR & STEPHANIE ANN	908 WEST LAKE TRAIL	VICTORIA	TX	77905
22	DE ATLEY CAROL MAREK	104 WHISPERING CREEK	VICTORIA	TX	77904
23	DIEBEL LOUIS C	3497 WEBER RD	VICTORIA	TX	77905
24	DIETZEL BARBARA ANN LEMKE	3484 COLETOVILLE RD EAST	VICTORIA	TX	77905
25	DIETZEL DENNIS D & DEE	1053 COLLETOVILLE RD W	VICTORIA	TX	77905
26	DIETZEL GLENN HARVEY FAMILY TRUST	3484 COLETOVIILE RD E	VICTORIA	TX	77905
27	FAREK HENRIETTA DIETZEL & HAROLD (LIFE ESTATE)	2620 WEBER RD	VICTORIA	TX	77905
28	FOSS BRAD & MYLES MCLEAN	4436 COLETOVILLE RD	VICTORIA	TX	77905
29	FOSS YVONNE (LIFE ESTATE)	4278 COLETOVILLE RD	VICTORIA	TX	77905
30	FOTIADES STEPHEN M JR & RHONDA F	57 MAGUEY	VICTORIA	TX	77905-3114
31	FRANK WILLIAM E & GAIL & JAMES R CREEKMORE JR	1595 HOWARD LN	VICTORIA	TX	77905
32	FRANKE KODY RYAN	PO BOX 111	BLOOMINGTON	TX	77951
33	FREEMAN STANLEY M	6422 WINTHROP TERRACE TRL	KATY	TX	77493
34	GETSCHMANN RUSSELL	283 MAGUEY	VICTORIA	TX	77905
35	GISLER CURTIS JAMES	810 PRICE RD	VICTORIA	TX	77905
36	GREEN BETTY FAYE	799 SUNSET RD	GOLIAD	TX	77963
37	GUERRA BARBARA	41 SANDRA LN	VICTORIA	TX	77905
38	HARTMAN MADELENE	78 S MAGNOLIA POND	THE WOODLANDS	TX	77381
39	HERBOLD ERIC & SAMANTHA K	932 WESTLAKE TRAIL	VICTORIA	TX	77905
40	HODGKINSON RYAN	304 E HILLER ST	VICTORIA	TX	77901
41	JANAK BRENDA	9539 KINDLETREE DR	HOUSTON	TX	77040
42	JANYSEK JERRETT LYNN & CHARA LEIAN	1131 COUNTY RD 352	KARNES CITY	TX	78118
43	JANYSEK TIMOTHY RAY	1387 HOWARD LANE	VICTORIA	TX	77905
44	JOCHETZ SHANE & SHELBY	268 MAGUEY DR	VICTORIA	TX	77905
45	JOHNSON LYNETTE	428 BRADY RD	INEZ	TX	77968-3001
46	JOHNSTON JOSEPH ROSCOE	1133 WEBER LN	VICTORIA	TX	77905-3125
47	JORDAN BRYAN COLLINS	3918 COLETOVILLE RD	VICTORIA	TX	77905
48	JORDAN NICOLE & BRANDON	3922 COLETOVILLE RD	VICTORIA	TX	77905
49	KATCH KEITH & CYNTHIA	961 OSAGE RD	VICTORIA	TX	77905
50	KOLLE DENNIS RAY & LAURIE ANN & INNOCENTI LORI KOLLE	3928 OLD GOLIAD RD	VICTORIA	TX	77905
51	KUECKER L P & G M REVOC TRUST	930 PRICE ROAD	VICTORIA	TX	77905
52	KUECKER SIDNEY M & BECKY J	645 HUNTERS CIR	VICTORIA	TX	77905-9854
53	LAGAL KAY M GISLER & CAROL A GISLER WATKINS	807 BERGER RD	VICTORIA	TX	77905
54	LEMKE KENNETH ALLEN	3417 COLLETOVILLE RD E	VICTORIA	TX	77905
55	MAREK WARREN LEE & TRACY LYNN HALLAM	149 SANDRA LN	VICTORIA	TX	77905
56	MAYES REX & MARY	320 MAGUEY	VICTORIA	TX	77905
57	MC GINNIS CHERYL G	924 PRICE RD	VICTORIA	TX	77905
58	MENDOZA ERNESTO JR & MARY ANN	189 SANDRA LN	VICTORIA	TX	77905
59	MOODY BROCK L & AMANDA L	213 CHARLESTON DR	VICTORIA	TX	77904
60	MOWDY HAL & LENORA	866 WESTLAKE TRL	VICTORIA	TX	77905
61	NRKRUE L L C	304 SALEM CROSSING DR	VICTORIA	TX	77904
62	PANTEL STANLEY RAY & MARK A	4396 LEDGESTONE TR	COLLEGE STATION	TX	77845
63	PATTERSON PATRICK DOWE TRUSTEE	120 PATTERSON LN	VICTORIA	TX	77905
64	PIERCE CAROLYN MARIE & JEFREY W	316 CAMINO REAL ST	VICTORIA	TX	77905
65	RAMIREZ LIBRADA L	4605 E NORTH	VICTORIA	TX	77901
66	RAYBON WALTER L & PAMELA K	229 MAGUEY	VICTORIA	TX	77905
67	RIEMENSCHNEIDER NEAL & URSULA	126 WATERS EDGE	VICTORIA	TX	77905
68	RYAN MICHAEL W & CONNIE S	812 WESTLAKE TRL	VICTORIA	TX	77905-2123
69	SAGER NORREAN	2248 FM 3157	CUERO	TX	77954-6646
70	SANDHOP AUGUSTA H ESTATE	608 N WELLS	EDNA	TX	77957
71	SEALE ROBERT A SPEND THRIFT TRUST	1598 KOLODZEY RD	VICTORIA	TX	77905
72	SEALS KENNETH P & CAROLYN A	315 MAGUEY	VICTORIA	TX	77905
73	SEWALT STEVEN L & SHERYL D	PO BOX 2183	VICTORIA	TX	77902
74	SHUTTER KENNETH ROBERT	702 TEXAS STAR DR	RICHMOND	TX	77469
75	SHUTTER STEPHEN EDWARD	120 KOBITZ RD	VICTORIA	TX	77905
76	SMITH KATIE L & WILLIAM J	95 DAWN DR	VICTORIA	TX	77905
77	STANFORD FRED & PATRICE	PO BOX 4583	VICTORIA	TX	77903
78	STAVINOHA MICHAEL L & JAMIE L B	379 CAMINO REAL	VICTORIA	TX	77905-3149
79	THORN LYNDA & RICHARD GALLARDO	80 WATERS EDGE DR	VICTORIA	TX	77905-3290
80	TOTAH JOSEPH L ETAL	2180 W VINEYARD ST #112	WAILUKU	HI	96793
81	TUCKER JAMES BRADLEY & KIMBERLY JANE	834 WEST LAKE TRAIL	VICTORIA	TX	77905
82	VERRET NELSON & SABRINA	195 SANDRA LN	VICTORIA	TX	77905

ATTACHMENT A-3-2
Landowner List
Coleto Creek Power Station
WQ0002159000

MAP ID	OWNER NAME	ADDRESS	CITY	STATE	ZIP CODE
83	WALDORFF CONNIE	3489 WEBER RD	VICTORIA	TX	77905
84	WALK EMMA 2007 TRUST	388 HARTNELL ROAD	SANTA MARIA	CA	93455
85	WARTSBAUGH GEORGE CHARLES JR & ALISON	22 WATERS EDGE	VICTORIA	TX	77905
86	WENDEL HALLEY B & JANE B	83 MAGUEY	VICTORIA	TX	77905
87	WEST D A	443 WATERS EDGE DR	VICTORIA	TX	77905-3182
88	WIELAND DON RAY & SUSAN	3010 FM 240	YORKTOWN	TX	78164
89	WILLEMIN CHARLES F JR ETAL	924 WILLEMIN LN	VICTORIA	TX	77905
90	WOODALL CHARLES GEORGE & JANET (LIFE ESTATE)	192 WESTLAKE TRAIL	VICTORIA	TX	77905
91	WOYTASCZYK GAIL	806 PRICE RD	VICTORIA	TX	77905
92	ZANDONATTI MARLIES & HILARY A ZANSONATTI	1411 KOBITZ RD	VICTORIA	TX	77905
93	ZAPLAC CHARLES W & NANCY	886-A OSAGE RD	VICTORIA	TX	77905-2521
94	AJRAMI ABED	181 BURES RD	VICTORIA	TX	77905
95	ALBRECHT DEAN EDWARD	728 COLETO PARK RD	VICTORIA	TX	77905
96	ANDREWS DAVID & DEBRA	1002 SCENIC LOOP DR	GOLIAD	TX	77963
97	ANGER JOHN PAUL & LISA B	P O DRAWER A	VICTORIA	TX	77902
98	ANGERSTEIN PAUL & CRISTINA GALLEGOS	1149 SPANISH GRANT RD	GOLIAD	TX	77963
99	ARCHER DAVID G. & DEBRA K. LIFE ESTATE & AARON D ARCHER ETAL	281 TWIN LAKE DRIVE	VICTORIA	TX	77905
100	BAKER MATTHEW & MEGAN	953 BEDGOOD LN	VICTORIA	TX	77905
101	BARFIELD ALANA S	P O BOX 187	FANNIN	TX	77960
102	BARFIELD FRANK TODD III	P O BOX 1015	COLUMBUS	TX	78934
103	BARKER BLAINE F II ET UX	1235 NORTH LOOP WEST, SUITE 205	HOUSTON	TX	77008
104	BARNETT MICHAEL & CATHY	274 LAKEVIEW	VICTORIA	TX	77905
105	BARNETT MICHAEL K ET UX	274 LAKEVIEW DR	VICTORIA	TX	77905
106	BARRETT CARL W ET UX	2 CARRINGTON COURT	BAY CITY	TX	77414
107	BELK JEREMY & LAUREN	355 PERDIDO POINT CIRCLE	VICTORIA	TX	77905
108	BERAN WAYNE B ET UX	562 LAKESHORE DR	VICTORIA	TX	77905
109	BEYER CHRISTINE	669 COUNTY ROAD 422	D,HANIF	TX	78850
110	BLAIN ROBERT L ET UX	640 LAKESHORE DR	VICTORIA	TX	77905
111	BOUCHER BRENDA SUE	504 BARTLETT	VICTORIA	TX	77905
112	BOYD CHARLES R	340 LAKEVIEW DR	VICTORIA	TX	77905
113	BRANDL RICHARD JR & STACEY	859 LAKESHORE DRIVE	VICTORIA	TX	77905
114	BRITTEN DEBRA ANNE	3096 PETERSON WAY	BRYAN	TX	77802
115	BROWN ERIC K & LAURA RENEE	345 LAKEVIEW DRIVE	VICTORIA	TX	77905
116	BROWN SUSAN WITTE & JAN WITTE MULLE	10819 SHELL CREEK CT	HOUSTON	TX	77345
117	BRUNS GAY L	185 LAKEVIEW DR	VICTORIA	TX	77905
118	BUHLER LISA & JOSEPH	327 COLETO PARK RD	VICTORIA	TX	77905
119	BURNETT ROBERT G & CAROL	1974 STATE HIGHWAY 119	GOLIAD	TX	77963
120	CARAWAY JAMES E ET UX	334 LAKESHORE DR	VICTORIA	TX	77905
121	CAREY DANIEL L & LEE A	636 BARLETT RD	VICTORIA	TX	77905
122	CAWTHON ELISABETH ALBRECHT	7236 SPANISH GRANT	GALVESTON	TX	77554
123	CHAPA CARLOS V & ERMELINDA	65 PERDIDO OAK DR	VICTORIA	TX	77905
124	CHILDRESS TERESA	768 LAKESHORE DR	VICTORIA	TX	77905
125	CHOVANEC MARK A & LISA	277 LAKEVIEW DR	VICTORIA	TX	77905
126	COLES ARTHUR RAY JR & DONNA	P O BOX 51	FANNIN	TX	77960
127	COLETO LAKE RV LLC	9454 WILSHIRE BLVD PENTHOUSE	BEVERLY HILLS	CA	90212
128	COPE RUBY PIEPER	3753 COLETOVILLE RD SOUTH	VICTORIA	TX	77905
129	COUNCIL JOSHUA LOREN	613 N SAN PATRICIO	GOLIAD	TX	77963
130	COURVILLE SCOTT W & DANIELLE M	448 TRAVIS	VICTORIA	TX	77905
131	DAVIS KEVIN B & KIMBERERLY	699 BEDGOOD LN	VICTORIA	TX	77905
132	DAY DUSTIN C & JANET DENISE	2409 TWIN OAKS DR	PORTLAND	TX	78374
133	DERMODY LINDA	3353 FM 2987	VICTORIA	TX	77905
134	DIETZEL GLENN HARVEY FAMILY TRUST	3484 COLATOVILLE RD E	VICTORIA	TX	77905
135	DIETZEL JEFFREY PAUL	402 PAISANO DR	VICTORIA	TX	77904
136	DIETZEL MILTON RAWLEY JR	955 BAYMEADOW DR	PORT LAVACA	TX	77979
137	DIETZEL RUBY M	5572 HANSELMAN RD	VICTORIA	TX	77905
138	DODDS MICHAEL M & JESSICA L	107 TWIN LAKES CIR	VICTORIA	TX	77905
139	DUPREE BRYAN K & VIKKI L	72 PERDIDO CT	VICTORIA	TX	77905
140	EDWARDS GARY & CHARLENE	662 LAKESHORE DR	VICTORIA	TX	77905
141	EVANS DAN LEE	352 LAKESHORE DR	VICTORIA	TX	77905
142	FOSTER WILLIAM C	2616 FLAGSTICK DRIVE	MATHEWS	NC	28104
143	FRANKE KELLY K & BETTY L	889 CR 224	KARNES CITY	TX	78118
144	FRIEDRICHS RICK G & CAROL E	22349 MUESCHKE	TOMBALL	TX	77377
145	GALVEZ SERGIO A & GUADALUPE C	209 KINGWOOD FOREST DR	VICTORIA	TX	77904
146	GAMBLIN DEBORAH B	P O BOX 768	GOLIAD	TX	77960
147	GARDNER ROBERT J & RENEE M LF EST	129 COLETO PARK RD	VICTORIA	TX	77905
148	GARRISON RODNEY & CAROLYN	3522 ARBOR	HOUSTON	TX	77004
149	GIBBS STEPHEN B & CARLEE H	53 TWIN LAKE DRIVE	VICTORIA	TX	77905
150	GOHMERT JOHN LLOYD ET UX	840 LAKESHORE DR	VICTORIA	TX	77905
151	GOLDEN GRADY	1177 BEDGOOD LN	VICTORIA	TX	77905
152	GOLDEN JULIANNE	4513 HEBERT LANE	CORPUS CHRISTI	TX	78413
153	GORDON GEORGE E FAM TR UTA ET AL	3110 BRIAR COURT	SUGARLAND	TX	77478
154	GORDON/BIGHAM TRUSTS & GEORGE E GORDON TTEE	3110 BRIAR CT	SUGAR LAND	TX	77478
155	GRASON JOHN C JR & JO ANNE	975 BEDGOOD LN	VICTORIA	TX	77905
156	GRAY LARRY J & LINDA K	323 PERDIDO POINTE CIR	VICTORIA	TX	77905
157	GREEN PATRICK ALLAN	1175 BEDGOOD LANE	VICTORIA	TX	77905
158	GREGORY OSCAR EXEMPT DESCENDANT'S TRUST	7831 US HWY 87 N	VICTORIA	TX	77904
159	GRUBBS DONALD R ET UX	595 PERDIDO POINTE CIR	VICTORIA	TX	77905
160	HALE DONALD K & SHARI	2646 SULPHUR CREEK ESTS RD	VICTORIA	TX	77905
161	HANCOCK MARK A & SANDRA	P O BOX 5	FANNIN	TX	77960
162	HANLEY MICHAEL & PATRICIA	576 LAKESHORE DR	VICTORIA	TX	77905
163	HANLEY RANCH PARTNERSHIP	576 LAKESHORE DR	VICTORIA	TX	77905
164	HARRIS CRAIG WAYNE	1094 COLETOVILLE RD S	VICTORIA	TX	77905

ATTACHMENT A-3-2
Landowner List
Coleto Creek Power Station
WQ0002159000

MAP ID	OWNER NAME	ADDRESS	CITY	STATE	ZIP CODE
165	HARRIS JANICE L EST	241 N MASQUITE DR	VICTORIA	TX	77905
166	HARRIS STEVEN R	939 COLETOVILLE RD S	VICTORIA	TX	77905
167	HARRISON THOMAS WAYNE ET UX	P O BOX 163	FANNIN	TX	77960
168	HARTMAN DENISE & WADE	149 LAKEVIEW DR	VICTORIA	TX	77905
169	HEAD REVOCABLE LIVING TRUST	617 PERDIDO POINT CIR	VICTORIA	TX	77905
170	HEARD MYRA S	P O BOX 85	FANNIN	TX	77960
171	HEIBEL NANCY & JASON HERNANDEZ	668 COLETO PARK RD	RAISIN	TX	77905
172	HEIMANN JACOB HENRY & KELCI MARIE	2013 E MIMOSA	VICTORIA	TX	77901
173	HEMPHILL DOLORES LIFE ESTATE	992 CHURCH ST	VICTORIA	TX	77905
174	HENDERSON JOE BRENT & CHARLOTTE R	251 LAKEVIEW DR	VICTORIA	TX	77905
175	HENRY PHILLIP	3053 COLETOVILLE RD S	VICTORIA	TX	77905
176	HENSEL HARLAN ET UX	1171 BEDGOOD LN	VICTORIA	TX	77905
177	HEPPARD MELISSA DAWN & MICHAEL RAY VASQUEZ	416 LAKESHORE DRIVE	VICTORIA	TX	77905
178	HILL BILLY W	PO BOX 115	THOMASTON	TX	77989
179	HILL DAVID M	138 STANGE LANE	VICTORIA	TX	77905
180	HOLCOMB JOYCE SPEAKERMAN EST	3705 WM SCARBROUGH	SCHERTZ	TX	78154
181	HOLLAND NATHAN & HOLLY	86 LAKEPLACE	VICTORIA	TX	77905
182	HORADAM HENRY L JR	8988 FM 446	VICTORIA	TX	77905
183	HORADAM JAMES F FAMILY TRUST & BRYAN HORADAM TTEE	PO BOX 151	FANNIN	TX	77960
184	HORADAM VICTOR WM	6054 ABERDEEN	DALLAS	TX	75230
185	HOSEK HENRY A III & JANET	95 PERDIDO OAKS	VICTORIA	TX	77905
186	HOTZ ROGER D JR & MEAGAN	760 LAKESHORE DR	VICTORIA	TX	77905
187	HOWARD CLINT & JENNIFER	P O BOX 3527	VICTORIA	TX	77903
188	JANOTA J TODD	388 LAKESHORE DR	VICTORIA	TX	77905
189	JANYSEK VIVIAN J	108 PERDIDO OAKS	VICTORIA	TX	77905
190	JEANE MICHAEL L & MARIA CRISTINA	67 PERDIDO OAKS DR.	VICTORIA	TX	77905
191	JOHNSON ALBERT F	105 WINDY WAY DR	VICTORIA	TX	77904
192	JOHNSON JAMES W	1889 KOHL RD	VICTORIA	TX	77900
193	JOSEPH TRUCKING INC DBA WOOD HIGH GRAIN	968 DODD RD	INEZ	TX	77968
194	KEZAR MICHAEL D	157 TWIN LAKES CIRCLE	VICTORIA	TX	77905
195	KLIEM RICKY & LINDA	10194 FM 444 S	INEZ	TX	77968
196	KLIMITCHECK ROBERT J JR & REBECCA	548 LAKESHORE DR	VICTORIA	TX	77905
197	KOEHLER GARY D & CHARLOTTE A	P O BOX 72	BELTON	TX	76513
198	KUNKEL CLIFFORD G	604 KING ARTHUR ST	VICTORIA	TX	77904
199	LAUNDRIE THOMAS F & PAMELA G	722 LAKESHORE DR	VICTORIA	TX	77905
200	LINEBARGER DEBBIE	99 LAKEOAK	VICTORIA	TX	77905
201	LORENZEN PRESTON C & DARLA G	80 LAKEWAY COURT	VICTORA	TX	77904
202	LOTT SHAVOHN KYLE	20375 MATHIS LANDING DR	CYPRESS	TX	77433
203	MACHICEK DUSTIN A	536 LAKESHORE DR	VICTORIA	TX	77905
204	MAIKOETTER RANCH LLC	104 PECOS DR	VICTORIA	TX	77904
205	MANGUM JASON & CASSIE L	137 LAKEVIEW DR	VICTORIA	TX	77905
206	MANUEL JAYNE	503 FLOYD ST	BLACKBURG	TX	24060
207	MARSHALL MIKE & JEAN	301 LAKEVIEW DR	VICTORIA	TX	77905
208	MARTIN JANA	530 FANNIN RD	VICTORIA	TX	77905
209	MARTIN JOSHUA D & KRISTIN R WAGNER	458 LAKESHORE DR	VICTORIA	TX	77905
210	MATOS KERMIT CRUZ	5919 FOREST LEDGE STREET	SAN ANTONIO	TX	78240
211	MAY DON E & SANDRA KAY	331 LAKEVIEW DR	VICTORIA	TX	77905
212	MCADAMS SHANE PRESTON	12705 US HWY 59 S	VICTORIA	TX	77905
213	MCCONNELL SHANNON JON & AMY MARIE	1718 BREEZY BEND DRIVE	KATY	TX	77494
214	MCELROY BRENDA	8939 ST HWY 97 E	STOCKDALE	TX	78160
215	MCFADIN LEWIS P JR	303 LAKEVIEW DRIVE	VICTORIA	TX	77905
216	MCNEIL AIMEE J	P O BOX 152	FANNIN	TX	77960
217	MOON RUSSELL DEWAYNE	210 YUMS DR	VICTORIA	TX	77904
218	MORENO ESTEBAN	617 BARTLETT RD	VICTORIA	TX	77905
219	NARANJO CRISTELIA /LIFE EST & TERESA H THEODORIDIS	624 COLETO PARK RD	VICTORIA	TX	77905
220	NARANJO FRED H JR & WENDY	1150 SPANISH GRANT RD	GOLIAD	TX	77963
221	NEAL DAVID	13747 FM 622	VICTORIA	TX	77905
222	NEUVAR KAYSI	328 COLAKE DR	VICTORIA	TX	77905
223	NEUVAR KYLE R ET UX	328 COLAKE DR	VICTORIA	TX	77905
224	NORTON JAKE & STACEY	308 LAKESHORE DR	VICTORIA	TX	77963
225	OBELGONER JAMES ROBERT	1246 US HWY 77N	HALLETTSVILLE	TX	77964
226	OLADE MARIA	470 TRAVIS	GOLIAD	TX	77963
227	OLQUIN JONATHAN M	3503 MEADOW LANE ST	VICTORIA	TX	77905
228	PALMER DAN C	570 COLETO PARK RD	VICTORIA	TX	77905
229	PARKS JACKIE	955 THOMASTON RIVER RD	CUERO	TX	77954
230	PENTECOST MICHAEL	922 US HIGHWAY 59 S	VICTORIA	TX	77905
231	PERDIDO POINTE CIVIC COMMITTEE	PO BOX 176	FANNIN	TX	77960
232	PERDIDO POINTE ESTATES	3110 BRIAR COURT	SUGARLAND	TX	77478
233	POST HELEN	3073 FM 2987	VICTORIA	TX	77905
234	POST PAUL T DESCENDANTS TRUST	3075 FM 2987	VICTORIA	TX	77905
235	POWELL MARTHA J	900 DIKE # 2 SERVICE RD	VICTORIA	TX	77905
236	PREISS RANDY	15042 FM 622	VICTORIA	TX	77905
237	PRINCE ANDREW III ET AL	PO BOX 4481	VICTORIA	TX	77903
238	PRINCE PERRY EST	6901 WILLOW OAK DRIVE	CORPUS CHRISTI	TX	78413
239	PRINCE THELMA EST	4121 OAK ARBOR DR	DALLAS	TX	75233
240	RAFTER J PROPERTIES LLC	36 HUNTERS CIRCLE	VICTORIA	TX	77905
241	RAMOS RAMICO SR	753 SPANISH GRANT RD	GOLIAD	TX	77963
242	RAMPLEY WM HARVEY ET UX	PO BOX 63	GOLIAD	TX	77963
243	RARRAT MICHAEL & KARLA	64 COLAKE DR	VICTORIA	TX	77905
244	RAY JOE DAVID & DENESE J	618 LAKESHORE DR	VICTORIA	TX	77905
245	REYNOLDS DONNA	230 LABORATORY RD	FLORESVILLE	TX	78114
246	RILEY MARY ANN	107 TRENTWOOD	VICTORIA	TX	77901

ATTACHMENT A-3-2
Landowner List
Coleto Creek Power Station
WQ0002159000

MAP ID	OWNER NAME	ADDRESS	CITY	STATE	ZIP CODE
247	ROHDE ROCKY & MICHELLE	943 LAKESHORE DR	VICTORIA	TX	77905
248	SCHERER GREG	7875 US HWY 87N	VICTORIA	TX	77904
249	SCHMIDT PHIL R	88 SCHMIDT DR	VICTORIA	TX	77905
250	SCHMIDT SKANDY L	3007 COLETOVILLE RD S	VICTORIA	TX	77904
251	SEGLER DEREK & AMY	P O BOX 118	FANNIN	TX	77960
252	SEWALT STEVE & SHERYL	P O BOX 2183	VICTORIA	TX	77902
253	SHANNON JACQUELYN ASHLEY	623 CROCKETT DRIVE	VICTORIA	TX	77905
254	SHARKEY ROBERT & LUCY	231 N SEAKIST LN	PORT LAVACA	TX	77979
255	SINGLES SANDY & TONI	2031 KOHL ROAD	VICTORIA	TX	77905
256	SONSALLA SCOTT E & LORETTA L	653 PERDIDO POINT CIR	VICTORIA	TX	77905
257	SPEAKERMAN RAYMOND EST ET AL	302 HARRISON	VICTORIA	TX	77904
258	SPIES HARVEY R	101 HILL CREEK LANE	VICTORIA	TX	77905
259	STANFORD BRETT ANTHONY	PO BOX 4583	VICTORIA	TX	77903
260	STANFORD FRED & PATRICE	6910 US HW 59 N	VICTORIA	TX	77905
261	STANFORD JUSTIN	2049 SULPHER CREEK EST	VICTORIA	TX	77905
262	STANGE CURTIS D	2710 COLETOVILLE RD S	VICTORIA	TX	77905
263	STANGE WADE NICHOLAS	103 CANTERBURY LANE	VICTORIA	TX	77904
264	STANGE WILLIAM NOEL JR	2459 COLETOVILLE RD S	VICTORIA	TX	77905
265	STONE GABLE INVESTMENTS LLC	P O BOX 4969	VICTORIA	TX	77903
266	STRATMANN RODNEY C	282 LAKEVIEW DR	VICTORIA	TX	77905
267	STRATTON NATALIE & WILLIAM EASLEY JR	183 EDDIE ST	VICTORIA	TX	77905
268	STROOP MARK & BARBARA	129 TWIN LAKE CIRCLE	VICTORIA	TX	77905
269	SULLINS CATHY ET AL	2620 WEBER RD	VICTORIA	TX	77905
270	SWICKHEIMER RANCHES LTD	P O BOX 217	FANNIN	TX	77960
271	TERRELL LUCILLE	1920 CHERRY AVE	SIGNAL HILL	CA	90755
272	THIGPEN JIMMY E	P O BOX 428	TEMPLE	TX	76503
273	TODD ELIZA WILKERSON EST	806 E CONVENT	VICTORIA	TX	77901
274	TRAUTWEIN COLLEEN	8246 S US HWY 183	CUERO	TX	77954
275	TSCHOEPE TYSON L & SARAH	518 SUNSET DR	VICTORIA	TX	77904
276	TUMLINSON JANET SEPARATE TRUST & JANET TUMLINSON TTEE	7542 E FM 1961	GOLIAD	TX	77963
277	TUTTLE DONALD	401 JOSEPHINE RD	VICTORIA	TX	77905
278	VARNADO JONELL	51 LONGVIEW DR	VICTORIA	TX	77904
279	VAUGHN TERENCE GLEN ET UX	85 LAKEVIEW DR	VICTORIA	TX	77905
280	VOLKMER BARBARA A LIFE ESTATE	1645 COLETOVILLE RD SOUTH	VICTORIA	TX	77905
281	WACKER SANDRA GAYLE	361 JOSEPHINE RD	VICTORIA	TX	77905
282	WAGNER MILTON STEVE & DIANA LYN	1785 KOHL RD	VICTORIA	TX	77905
283	WALDEN HAROLD RAY & VALERIE G	1381 COLETOVILLE RD S	VICTORIA	TX	77905
284	WALL MATTHEW J JR & BARBARA M	PO BOX 16097	SUGARLAND	TX	77496
285	WALLS GENEVIEVE ET AL	3225 CALUMET	HOUSTON	TX	77004
286	WALLS HOMER B EST & HOWELL WALLS	5 CHLOE COURT	LONG BEACH	MS	39560
287	WASHINGTON PATRICK ET AL	19022 BRESCIA LN	KATY	TX	77449
288	WATTS CHARLES A	680 LAKESHORE DR	VICTORIA	TX	77905
289	WDS RANCH LTD	4119 HIGHGROVE DR	DALLAS	TX	75220
290	WEAVER WILLIAM O & DEBRA F	372 LAKESHORE	VICTORIA	TX	77905
291	WELFEL TRENT	101 LAKEPLACE	VICTORIA	TX	77905
292	WELFEL TRENT & REAGAN GASCH	252 LAKEVIEW DRIVE	VICTORIA	TX	77905
293	WHITFIELD BILLY M ET UX	903 RANCH RD	GEORGETOWN	TX	78628
294	WILLIAMS FRED A& BARBARA A LIVING TRUST	179 LAKEVIEW DR	VICTORIA	TX	77905
295	WYOTEX REALTY LLC	P O BOX 280969	LAKEWOOD	CO	80228
296	YOUNG J R EST	522 ROYAL OAK DRIVE	PASS CHRISTIAN	MS	39571
297	YOUNG LEROY JR	1920 CHERRY AVE	SIGNAL HILL	CA	90755
298	YOUNGBLOOD VICKIE	973 CHURCH ST	VICTORIA	TX	77905
299	BURES LEROY	159 BURES RD	VICTORIA	TX	77905
300	HEINOLD LARRY M ET UX	1287 COLETOVILLE RD S	VICTORIA	TX	77905
301	YOUNG JAMES GARLAND & ETHEL JOYCE	PO BOX 56	FANNIN	TX	77960
302	UNKNOWN	UNKNOWN	UNKNOWN		
303	UNKNOWN	UNKNOWN	UNKNOWN		
304	UNKNOWN	UNKNOWN	UNKNOWN		
305	UNKNOWN	UNKNOWN	UNKNOWN		
306	UNKNOWN	UNKNOWN	UNKNOWN		
307	UNKNOWN	UNKNOWN	UNKNOWN		
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309	UNKNOWN	UNKNOWN	UNKNOWN		
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311	UNKNOWN	UNKNOWN	UNKNOWN		
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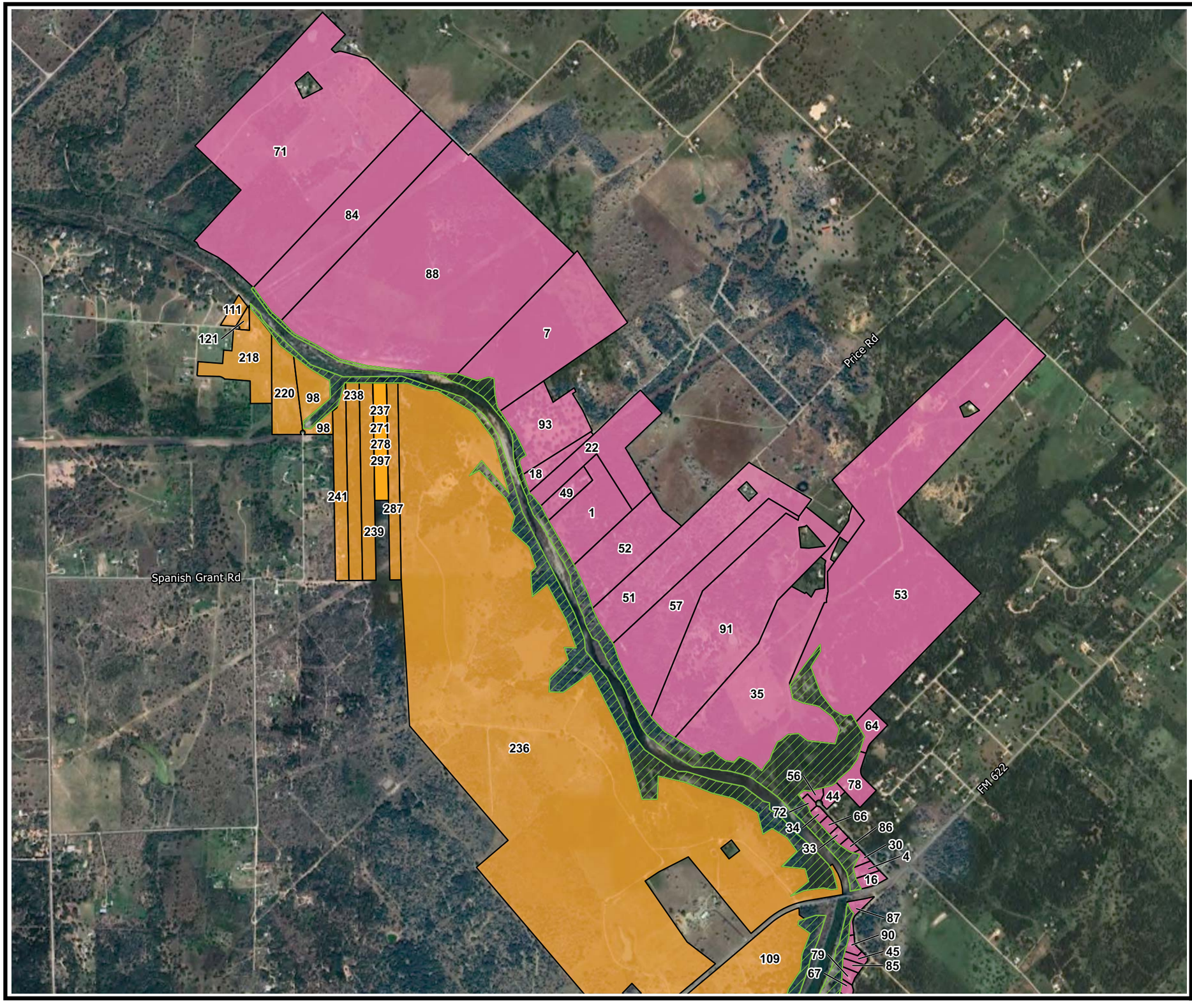
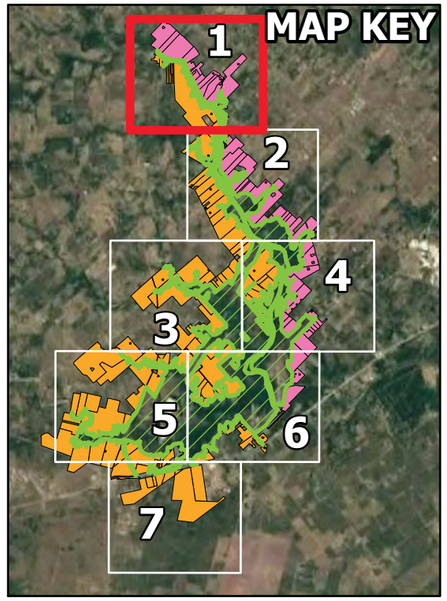
314	UNKNOWN	UNKNOWN	UNKNOWN		
315	UNKNOWN	UNKNOWN	UNKNOWN		
					5/19/25



LEGEND

- Coleto Creek Power, LLC Property Boundary
- 1 — Victoria County Adjacent Landowners
- 94 — Goliad County Adjacent Landowners

Sources:
1. Coleto Creek Power, LLC Property Boundary created from American Surveying & Mapping Inc. ZipMap Exhibit of Coleto Creek Reservoir and Power Plant, dated 03-29-17, and Goliad and Victoria County Appraisal Districts GIS Data, May 2025.
2. Adjacent Landowner Parcel data from Goliad and Victoria County Appraisal Districts GIS Data, May 2025



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1" = 1,500 FEET
1:18,000

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

ADJACENT LANDOWNER MAP
FIGURE 1 OF 7

DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
CHECKED BY:	D KOCUREK	AS NOTED	Adjacent Landowner
APPROVED BY:	D KOCUREK	DATE PRINTED:	
DATE:	May 2025	*5/19/2025*	

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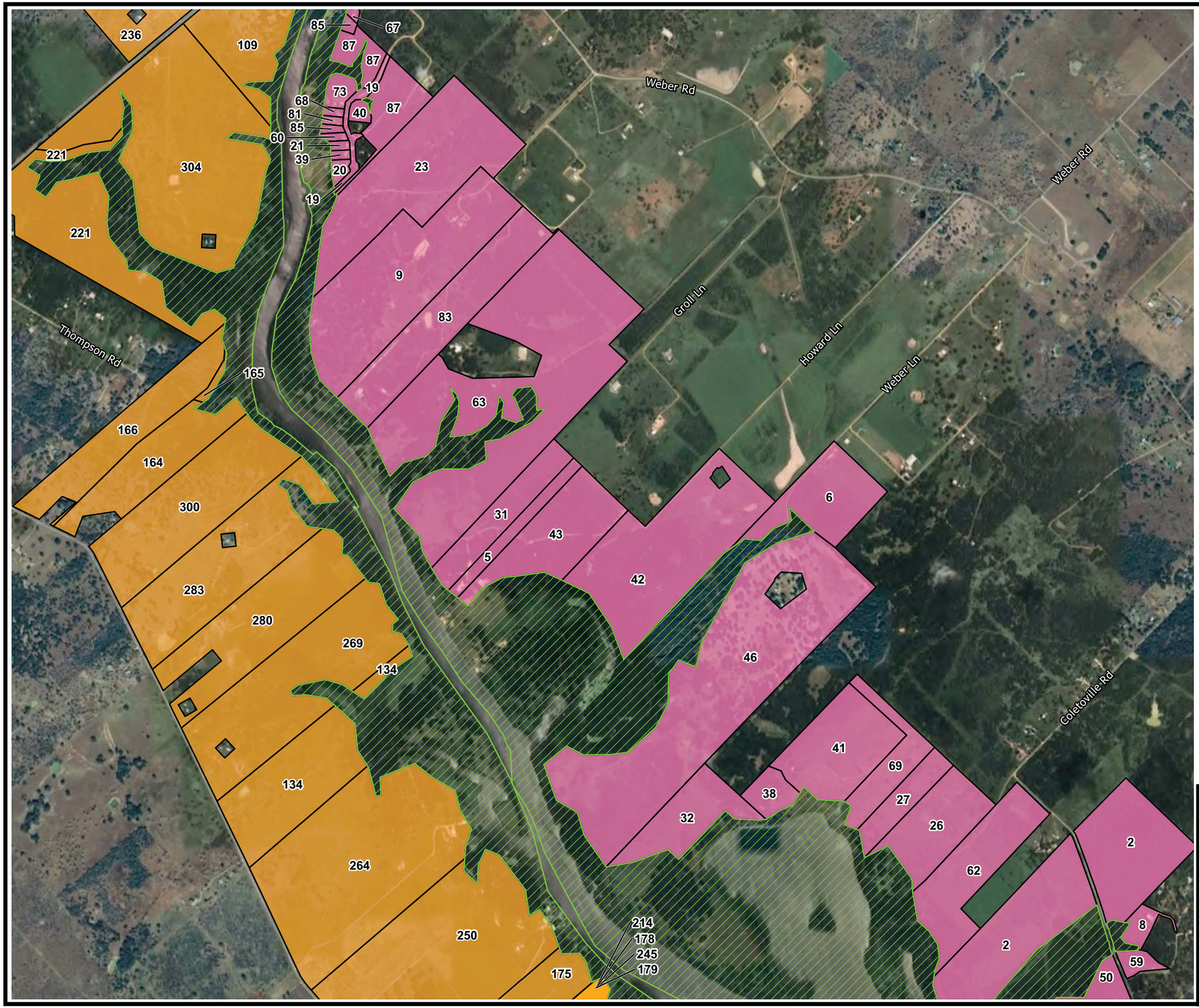
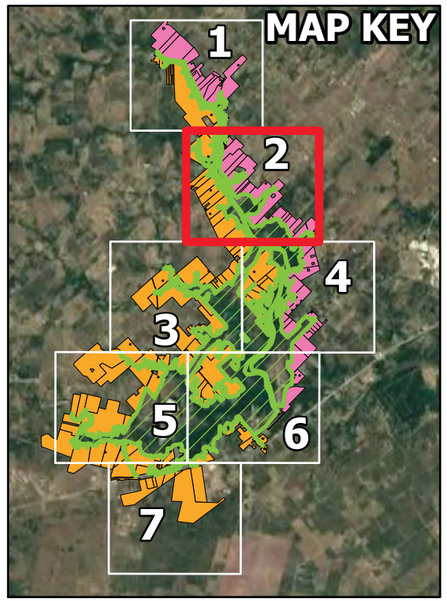


LEGEND

- Coleto Creek Power, LLC Property Boundary
- 1 — Victoria County Adjacent Landowners
- 94 — Goliad County Adjacent Landowners

Sources:
1. Coleto Creek Power, LLC Property Boundary created from American Surveying & Mapping Inc. ZipMap Exhibit of Coleto Creek Reservoir and Power Plant, dated 03-29-17, and Goliad and Victoria County Appraisal Districts GIS Data, May 2025.
2. Adjacent Landowner Parcel data from Goliad and Victoria County Appraisal Districts GIS Data, May 2025



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0 750 1,500 FEET

1" = 1,500 FEET
1:18,000

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

ADJACENT LANDOWNER MAP
FIGURE 2 OF 7

DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
CHECKED BY:	D KOCUREK	AS NOTED	Adjacent Landowner
APPROVED BY:	D KOCUREK	DATE PRINTED:	
DATE:	May 2025	*5/19/2025*	

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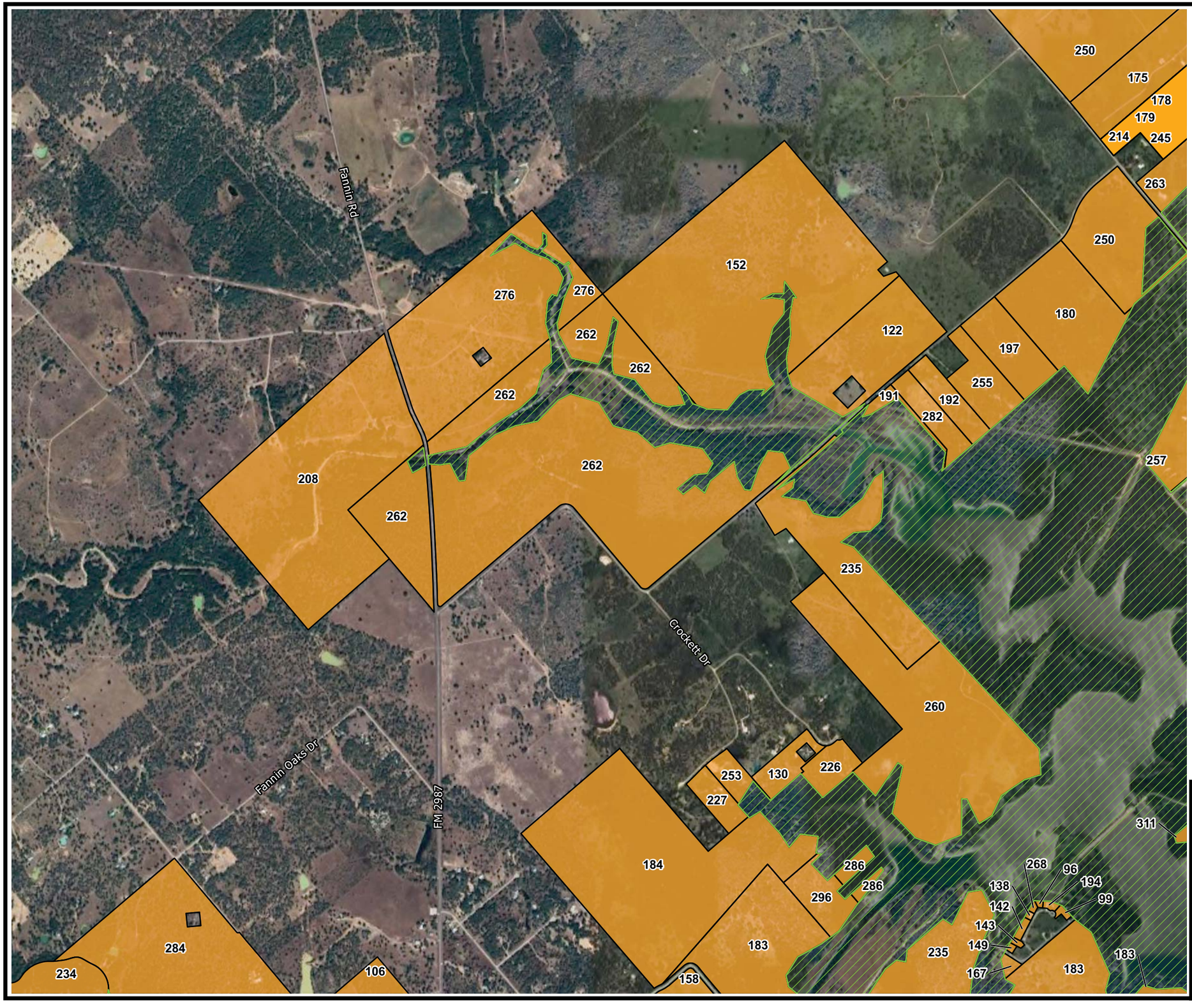
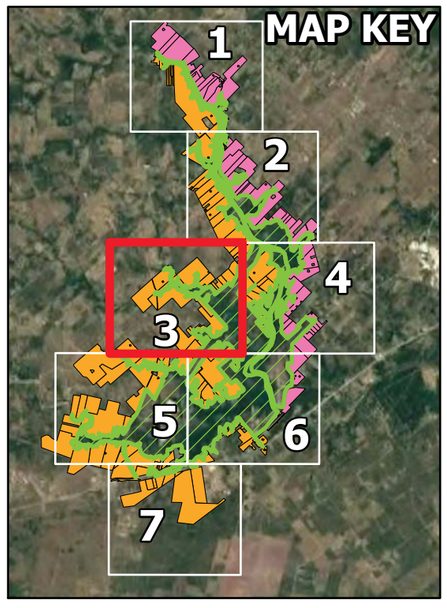


LEGEND

- Coleto Creek Power, LLC Property Boundary
- 1 — Victoria County Adjacent Landowners
- 94 — Goliad County Adjacent Landowners

Sources:
1. Coleto Creek Power, LLC Property Boundary created from American Surveying & Mapping Inc. ZipMap Exhibit of Coleto Creek Reservoir and Power Plant, dated 03-29-17, and Goliad and Victoria County Appraisal Districts GIS Data, May 2025.
2. Adjacent Landowner Parcel data from Goliad and Victoria County Appraisal Districts GIS Data, May 2025



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1" = 1,500 FEET
1:18,000

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

ADJACENT LANDOWNER MAP
FIGURE 3 OF 7

DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
CHECKED BY:	D KOCUREK	AS NOTED	Adjacent Landowner
APPROVED BY:	D KOCUREK	DATE PRINTED:	
DATE:	May 2025	*5/19/2025*	

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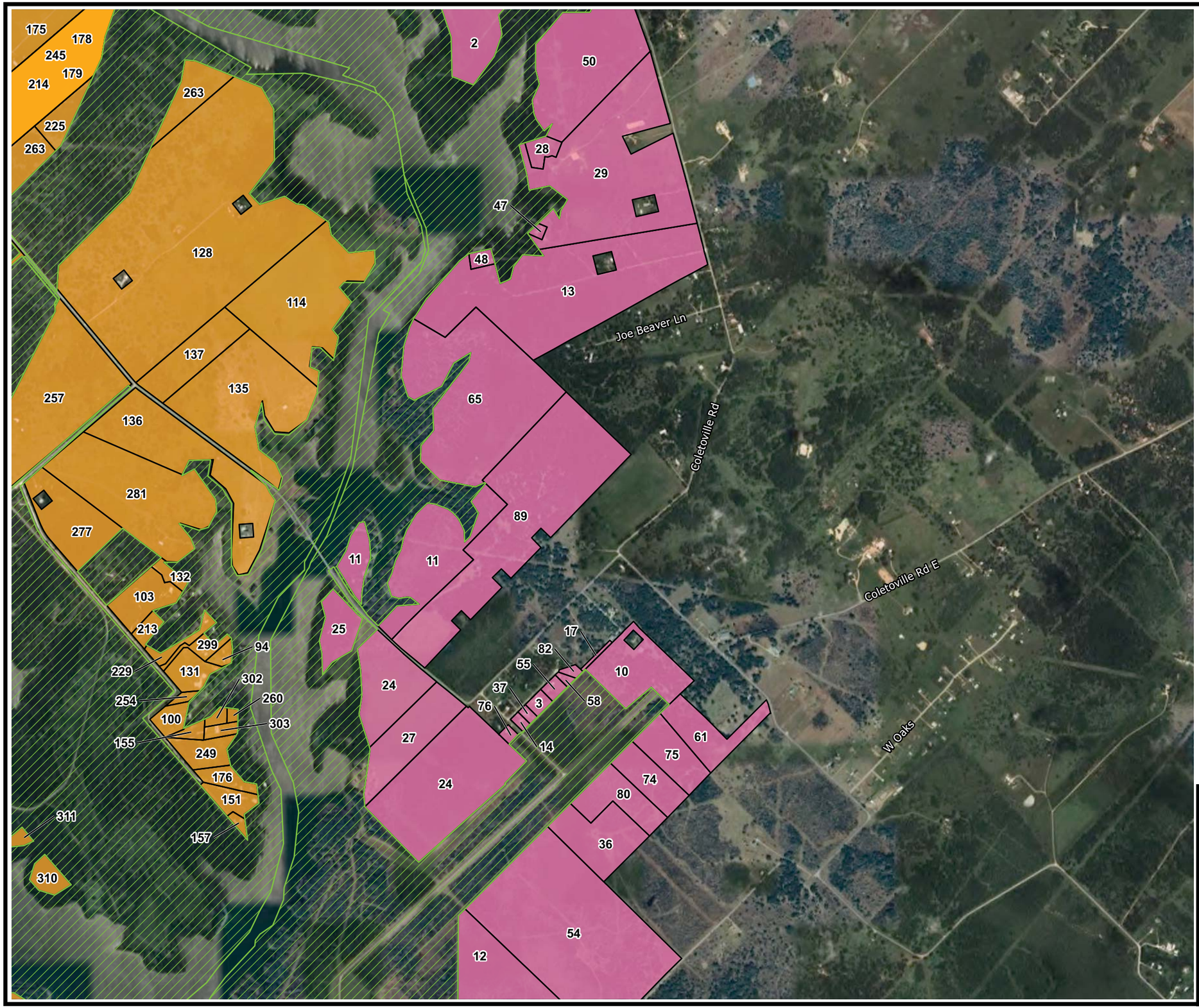

LEGEND

- Coleto Creek Power, LLC Property Boundary
- 1 — Victoria County Adjacent Landowners
- 94 — Goliad County Adjacent Landowners

Sources:
1. Coleto Creek Power, LLC Property Boundary created from American Surveying & Mapping Inc. ZipMap Exhibit of Coleto Creek Reservoir and Power Plant, dated 03-29-17, and Goliad and Victoria County Appraisal Districts GIS Data, May 2025.
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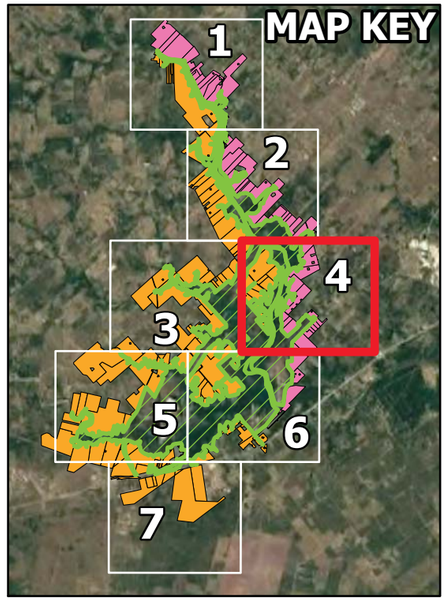

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1" = 1,500 FEET
1:18,000

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

ADJACENT LANDOWNER MAP
FIGURE 4 OF 7

DRAWN BY:	S WILSON	SCALE:		PROJ. NO.	TPDES 2025
CHECKED BY:	D KOCUREK	AS NOTED			Adjacent Landowner
APPROVED BY:	D KOCUREK	DATE PRINTED:			
DATE:	May 2025	*5/19/2025*			

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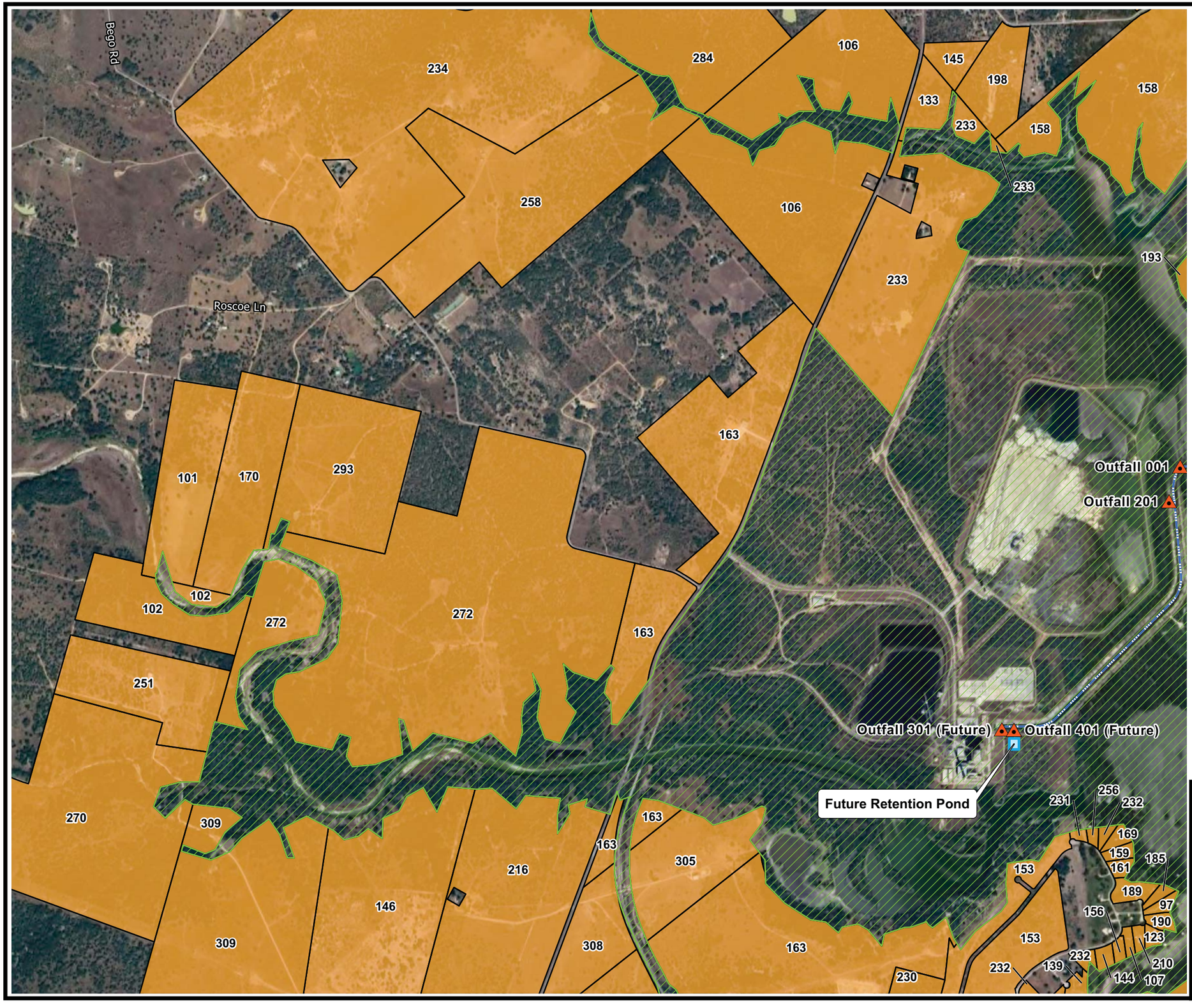

LEGEND

- Coleto Creek Power, LLC Property Boundary
- 1 — Victoria County Adjacent Landowners
- 94 — Goliad County Adjacent Landowners
- Future Retention Pond
- Outfall Location
- Discharge Route

Sources:
1. Coleto Creek Power, LLC Property Boundary created from American Surveying & Mapping Inc. ZipMap Exhibit of Coleto Creek Reservoir and Power Plant, dated 03-29-17, and Goliad and Victoria County Appraisal Districts GIS Data, May 2025.
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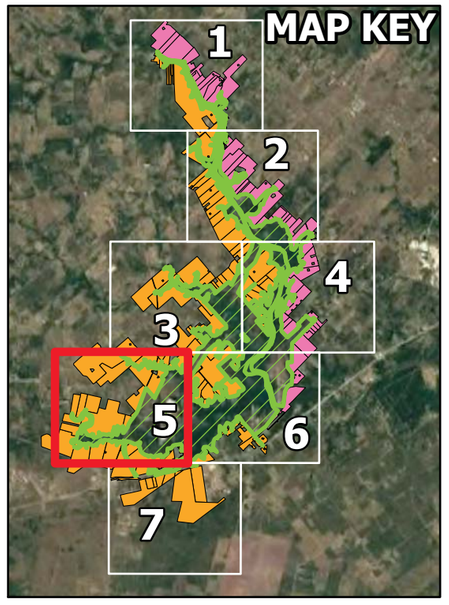

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1" = 1,500 FEET
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COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

ADJACENT LANDOWNER MAP
FIGURE 5 OF 7

DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
CHECKED BY:	D KOCUREK	AS NOTED	Adjacent Landowner
APPROVED BY:	D KOCUREK	DATE PRINTED:	
DATE:	May 2025	*5/19/2025*	

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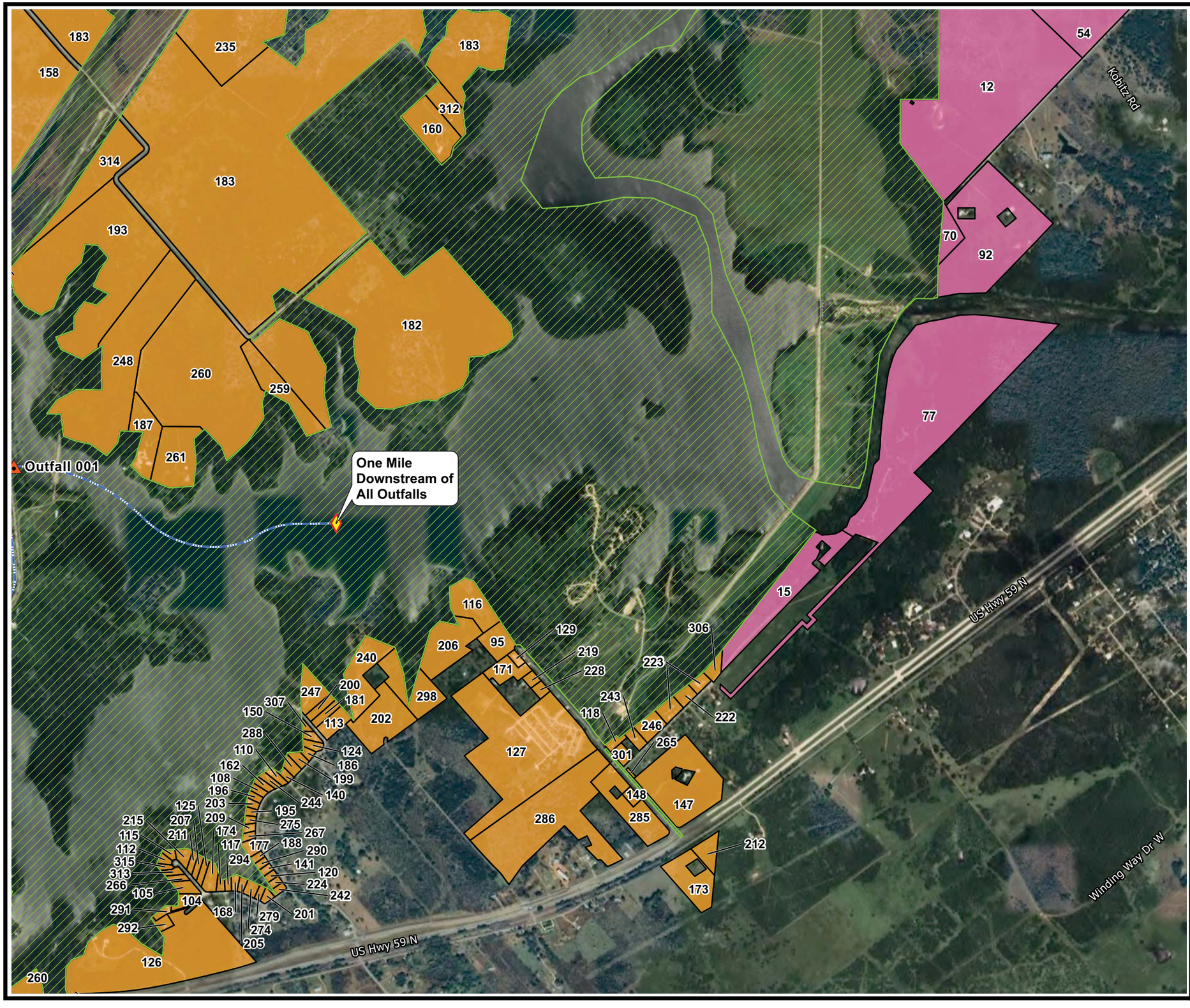

LEGEND

- Coleto Creek Power, LLC Property Boundary
- 1 — Victoria County Adjacent Landowners
- 94 — Goliad County Adjacent Landowners
- Outfall Location
- Discharge Route
- Downstream Marker

Sources:
1. Coleto Creek Power, LLC Property Boundary created from American Surveying & Mapping Inc. ZipMap Exhibit of Coleto Creek Reservoir and Power Plant, dated 03-29-17, and Goliad and Victoria County Appraisal Districts GIS Data, May 2025.
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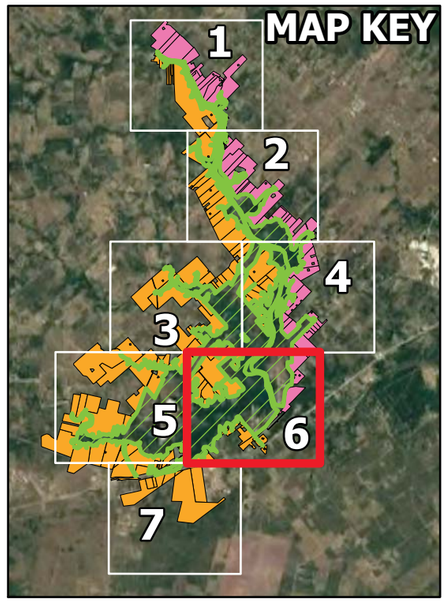

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1" = 1,500 FEET
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COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

ADJACENT LANDOWNER MAP
FIGURE 6 OF 7

DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
CHECKED BY:	D KOCUREK	AS NOTED	Adjacent Landowner
APPROVED BY:	D KOCUREK	DATE PRINTED:	
DATE:	May 2025	*5/19/2025*	

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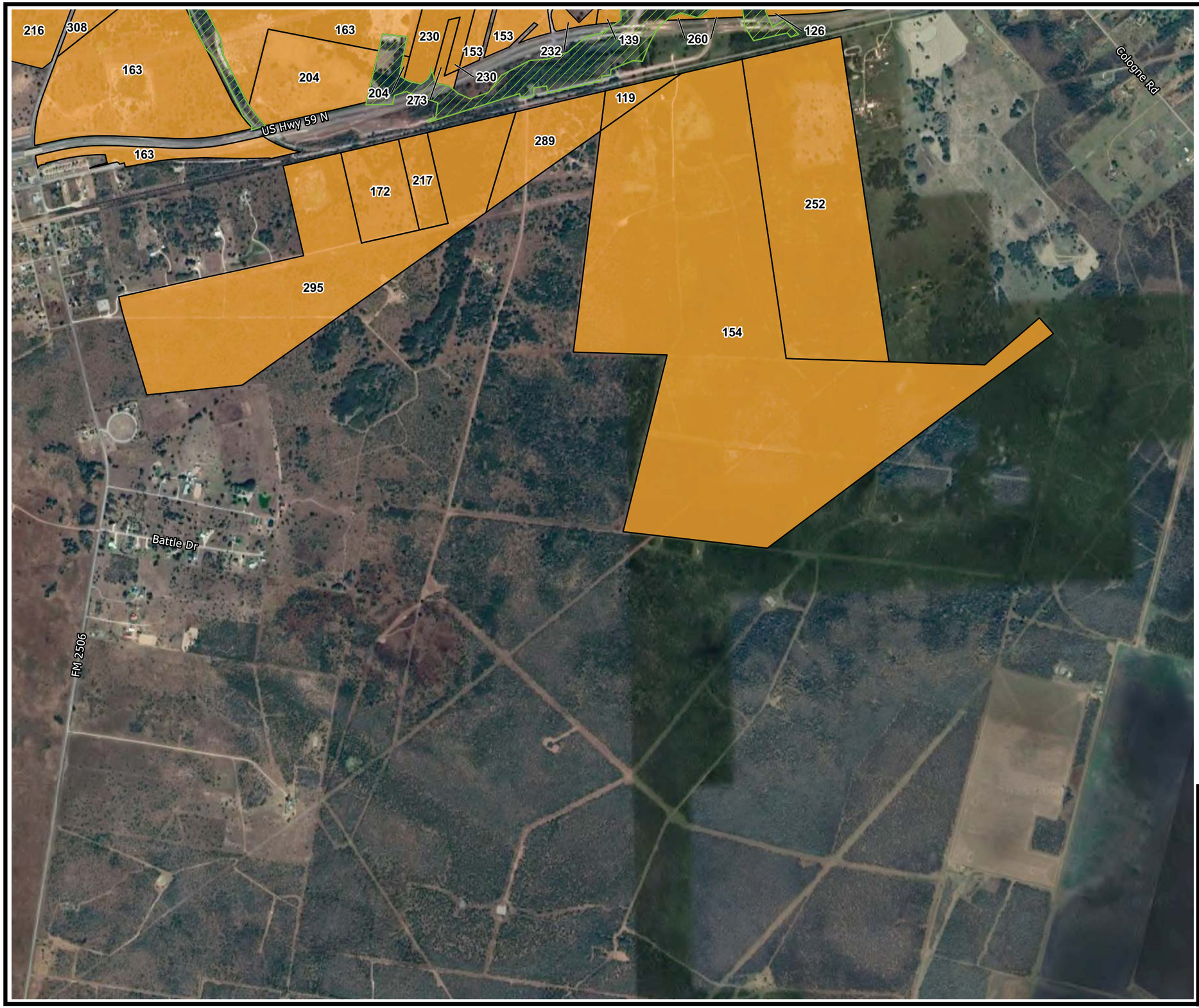

LEGEND

- Coleto Creek Power, LLC Property Boundary
- 1 — Victoria County Adjacent Landowners
- 94 — Goliad County Adjacent Landowners

Sources:
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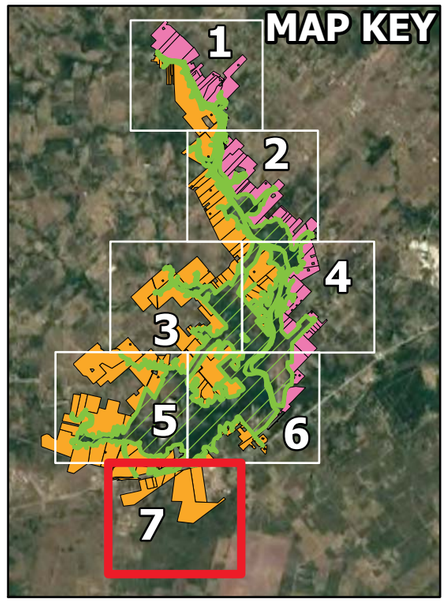

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1" = 1,500 FEET
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COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

ADJACENT LANDOWNER MAP
FIGURE 7 OF 7

DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
CHECKED BY:	D KOCUREK	AS NOTED	Adjacent Landowner
APPROVED BY:	D KOCUREK	DATE PRINTED:	
DATE:	May 2025	*5/19/2025*	

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Ph. 409-738-2133

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ANAYA SUSIE ANNA (STARNES)
64 SPRING RIDGE
VICTORIA TX 77904

ASKEW JENELL KOLLE
4517 TRIANGLE AVE APT 502
AUSTIN TX 78751

AWALT LISA
81 SANDRA LN
VICTORIA TX 77905

BAGWELL JOHN D & LINDA M
P O BOX 5114
VICTORIA TX 77903

BARCLAY HAL JR & JUDY
1593 HOWARD LN
VICTORIA TX 77905

BECK ROBIN ETAL
901 WEBER LN
VICTORIA TX 77905

BERGER JAMES J
PO BOX 856
PORT OCONNOR TX 77982

BERNHARD MATTHEW
258 CINCO OAKS
VICTORIA TX 77905

BIEDIGER ALFRED O III
3499 WEBER RD
VICTORIA TX 77905-3135

BONE JO ANN P
199 SHADE LN
VICTORIA TX 77905

BRAGG MELANIE J & WILLEMIN DAVID W
384 ALOE RD
VICTORIA TX 77905

BROWN PATTI KOBITZ
1709 BENEDICT CT
ROWLETT TX 75088

BRUNS MARGARET GAY
11638 FM 622
GOLIAD TX 77963

BURES TODD ANTHONY JR & HANNAH LEIGH MITCHELL
15 SANDRA LANE
VICTORIA TX 77905

BURRIS DONALD L
905 COLAKE DR
VICTORIA TX 77905-4001

CHARLES EDWARD J JR & KIMBERLY DRAKE
21 MAGUEY
VICTORIA TX 77905-3114

CHRISTOPHER PAUL WAYNE
157 SHADE LN
VICTORIA TX 77905

CLEMMONS ANDREW CHARLES
900 OSAGE RD
VICTORIA TX 77905-2593

COLETO LAKE ESTATES HOMEOWNERS ASSOCIATION INC
443 WATERS EDGE DR
VICTORIA TX 77905-3182

COLLINS AMANDA BEDGOOD & SHANE WELSEY COLLINS
102 TURTLE ROCK DR
VICTORIA TX 77904

DANIEL JON HARVEY JR & STEPHANIE ANN
908 WEST LAKE TRAIL
VICTORIA TX 77905

DE ATLEY CAROL MAREK
104 WHISPERING CREEK
VICTORIA TX 77904

DIEBEL LOUIS C
3497 WEBER RD
VICTORIA TX 77905

DIETZEL BARBARA ANN LEMKE
3484 COLETOVILLE RD EAST
VICTORIA TX 77905

DIETZEL DENNIS D & DEE
1053 COLLETOVILLE RD W
VICTORIA TX 77905

DIETZEL GLENN HARVEY FAMILY TRUST
3484 COLETOVIILE RD E
VICTORIA TX 77905

FAREK HENRIETTA DIETZEL & HAROLD (LIFE ESTATE)
2620 WEBER RD
VICTORIA TX 77905

FOSS BRAD & MYLES MCLEAN
4436 COLETOVILLE RD
VICTORIA TX 77905

FOSS YVONNE (LIFE ESTATE)
4278 COLETOVILLE RD
VICTORIA TX 77905

FOTIADES STEPHEN M JR & RHONDA F
57 MAGUEY
VICTORIA TX 77905-3114

FRANK WILLIAM E & GAIL & JAMES R CREEKMORE JR
1595 HOWARD LN
VICTORIA TX 77905

FRANKE KODY RYAN
PO BOX 111
BLOOMINGTON TX 77951

FREEMAN STANLEY M
6422 WINTHROP TERRACE TRL
KATY TX 77493

GETSCHMANN RUSSELL
283 MAGUEY
VICTORIA TX 77905

GISLER CURTIS JAMES
810 PRICE RD
VICTORIA TX 77905

GREEN BETTY FAYE
799 SUNSET RD
GOLIAD TX 77963

GUERRA BARBARA
41 SANDRA LN
VICTORIA TX 77905

HARTMAN MADELENE
78 S MAGNOLIA POND
THE WOODLANDS TX 77381

HERBOLD ERIC & SAMANTHA K
932 WESTLAKE TRAIL
VICTORIA TX 77905

HODGKINSON RYAN
304 E HILLER ST
VICTORIA TX 77901

JANAK BRENDA
9539 KINDLETREE DR
HOUSTON TX 77040

JANYSEK JERRETT LYNN & CHARA LEIAN
1131 COUNTY RD 352
KARNES CITY TX 78118

JANYSEK TIMOTHY RAY
1387 HOWARD LANE
VICTORIA TX 77905

JOCHETZ SHANE & SHELBY
268 MAGUEY DR
VICTORIA TX 77905

JOHNSON LYNETTE
428 BRADY RD
INEZ TX 77968-3001

JOHNSTON JOSEPH ROSCOE
1133 WEBER LN
VICTORIA TX 77905-3125

JORDAN BRYAN COLLINS
3918 COLETOVILLE RD
VICTORIA TX 77905

JORDAN NICOLE & BRANDON
3922 COLETOVILLE RD
VICTORIA TX 77905

KATCH KEITH & CYNTHIA
961 OSAGE RD
VICTORIA TX 77905

KOLLE DENNIS RAY & LAURIE ANN & INNOCENTI LORI KOLLE
3928 OLD GOLIAD RD
VICTORIA TX 77905

KUECKER L P & G M REVOC TRUST
930 PRICE ROAD
VICTORIA TX 77905

KUECKER SIDNEY M & BECKY J
645 HUNTERS CIR
VICTORIA TX 77905-9854

LAGAL KAY M GISLER & CAROL A GISLER WATKINS
807 BERGER RD
VICTORIA TX 77905

LEMKE KENNETH ALLEN
3417 COLLETOVILLE RD E
VICTORIA TX 77905

MAREK WARREN LEE & TRACY LYNN HALLAM
149 SANDRA LN
VICTORIA TX 77905

MAYES REX & MARY
320 MAGUEY
VICTORIA TX 77905

MC GINNIS CHERYL G
924 PRICE RD
VICTORIA TX 77905

MENDOZA ERNESTO JR & MARY ANN
189 SANDRA LN
VICTORIA TX 77905

MOODY BROCK L & AMANDA L
213 CHARLESTON DR
VICTORIA TX 77904

MOWDY HAL & LENORA
866 WESTLAKE TRL
VICTORIA TX 77905

NRKRUE L L C
304 SALEM CROSSING DR
VICTORIA TX 77904

PANTEL STANLEY RAY & MARK A
4396 LEDGESTONE TR
COLLEGE STATION TX 77845

PATTERSON PATRICK DOWE TRUSTEE
120 PATTERSON LN
VICTORIA TX 77905

PIERCE CAROLYN MARIE & JEFREY W
316 CAMINO REAL ST
VICTORIA TX 77905

RAMIREZ LIBRADA L
4605 E NORTH
VICTORIA TX 77901

RAYBON WALTER L & PAMELA K
229 MAGUEY
VICTORIA TX 77905

RIEMENSCHNEIDER NEAL & URSULA
126 WATERS EDGE
VICTORIA TX 77905

RYAN MICHAEL W & CONNIE S
812 WESTLAKE TRL
VICTORIA TX 77905-2123

SAGER NORREAN
2248 FM 3157
CUERO TX 77954-6646

SANDHOP AUGUSTA H ESTATE
608 N WELLS
EDNA TX 77957

SEALE ROBERT A SPEND THRIFT TRUST
1598 KOLODZEY RD
VICTORIA TX 77905

SEALS KENNETH P & CAROLYN A
315 MAGUEY
VICTORIA TX 77905

SEWALT STEVEN L & SHERYL D
PO BOX 2183
VICTORIA TX 77902

SHUTTER KENNETH ROBERT
702 TEXAS STAR DR
RICHMOND TX 77469

SHUTTER STEPHEN EDWARD
120 KOBITZ RD
VICTORIA TX 77905

SMITH KATIE L & WILLIAM J
95 DAWN DR
VICTORIA TX 77905

STANFORD FRED & PATRICE
PO BOX 4583
VICTORIA TX 77903

STAVINOHA MICHAEL L & JAMIE L B
379 CAMINO REAL
VICTORIA TX 77905-3149

THORN LYNDA & RICHARD GALLARDO
80 WATERS EDGE DR
VICTORIA TX 77905-3290

TOTAH JOSEPH L ETAL
2180 W VINEYARD ST #112
WAILUKU HI 96793

TUCKER JAMES BRADLEY & KIMBERLY JANE
834 WEST LAKE TRAIL
VICTORIA TX 77905

VERRET NELSON & SABRINA
195 SANDRA LN
VICTORIA TX 77905

WALDORFF CONNIE
3489 WEBER RD
VICTORIA TX 77905

WALK EMMA 2007 TRUST
388 HARTNELL ROAD
SANTA MARIA CA 93455

WARTSBAUGH GEORGE CHARLES JR & ALISON
22 WATERS EDGE
VICTORIA TX 77905

WENDEL HALLEY B & JANE B
83 MAGUEY
VICTORIA TX 77905

WEST D A
443 WATERS EDGE DR
VICTORIA TX 77905-3182

WIELAND DON RAY & SUSAN
3010 FM 240
YORKTOWN TX 78164

WILLEMIN CHARLES F JR ETAL
924 WILLEMIN LN
VICTORIA TX 77905

WOODALL CHARLES GEORGE & JANET (LIFE ESTATE)
192 WESTLAKE TRAIL
VICTORIA TX 77905

WOYTASCZYK GAIL
806 PRICE RD
VICTORIA TX 77905

ZANDONATTI MARLIES & HILARY A ZANSONATTI
1411 KOBITZ RD
VICTORIA TX 77905

ZAPLAC CHARLES W & NANCY
886-A OSAGE RD
VICTORIA TX 77905-2521

AJRAMI ABED
181 BURES RD
VICTORIA TX 77905

ALBRECHT DEAN EDWARD
728 COLETO PARK RD
VICTORIA TX 77905

ANDREWS DAVID & DEBRA
1002 SCENIC LOOP DR
GOLIAD TX 77963

ANGER JOHN PAUL & LISA B
P O DRAWER A
VICTORIA TX 77902

ANGERSTEIN PAUL & CRISTINA GALLEGOS
1149 SPANISH GRANT RD
GOLIAD TX 77963

ARCHER DAVID G. & DEBRA K. LIFE ESTATE & AARON D ARCHER ETAL
281 TWIN LAKE DRIVE
VICTORIA TX 77905

BAKER MATTHEW & MEGAN
953 BEDGOOD LN
VICTORIA TX 77905

BARFIELD ALANA S
P O BOX 187
FANNIN TX 77960

BARFIELD FRANK TODD III
P O BOX 1015
COLUMBUS TX 78934

BARKER BLAINE F II ET UX
1235 NORTH LOOP WEST, SUITE 205
HOUSTON TX 77008

BARNETT MICHAEL & CATHY
274 LAKEVIEW
VICTORIA TX 77905

BARNETT MICHAEL K ET UX
274 LAKEVIEW DR
VICTORIA TX 77905

BARRETT CARL W ET UX
2 CARRINGTON COURT
BAY CITY TX 77414

BELK JEREMY & LAUREN
355 PERDIDO POINT CIRCLE
VICTORIA TX 77905

BERAN WAYNE B ET UX
562 LAKESHORE DR
VICTORIA TX 77905

BEYER CHRISTINE
669 COUNTY ROAD 422
D,HANIF TX 78850

BLAIN ROBERT L ET UX
640 LAKESHORE DR
VICTORIA TX 77905

BOUCHER BRENDA SUE
504 BARTLETT
VICTORIA TX 77905

BOYD CHARLES R
340 LAKEVIEW DR
VICTORIA TX 77905

BRANDL RICHARD JR & STACEY
859 LAKESHORE DRIVE
VICTORIA TX 77905

BRITTEN DEBRA ANNE
3096 PETERSON WAY
BRYAN TX 77802

BROWN ERIC K & LAURA RENEE
345 LAKEVIEW DRIVE
VICTORIA TX 77905

BROWN SUSAN WITTE & JAN WITTE MULLE
10819 SHELL CREEK CT
HOUSTON TX 77345

BRUNS GAY L
185 LAKEVIEW DR
VICTORIA TX 77905

BUHLER LISA & JOSEPH
327 COLETO PARK RD
VICTORIA TX 77905

BURNETT ROBERT G & CAROL
1974 STATE HIGHWAY 119
GOLIAD TX 77963

CARAWAY JAMES E ET UX
334 LAKESHORE DR
VICTORIA TX 77905

CAREY DANIEL L & LEE A
636 BARLETT RD
VICTORIA TX 77905

CAWTHON ELISABETH ALBRECHT
7236 SPANISH GRANT
GALVESTON TX 77554

CHAPA CARLOS V & ERMELINDA
65 PERDIDO OAK DR
VICTORIA TX 77905

CHILDRESS TERESA
768 LAKESHORE DR
VICTORIA TX 77905

CHOVANEC MARK A & LISA
277 LAKEVIEW DR
VICTORIA TX 77905

COLES ARTHUR RAY JR & DONNA
P O BOX 51
FANNIN TX 77960

COLETO LAKE RV LLC
9454 WILSHIRE BLVD PENTHOUSE
BEVERLY HILLS CA 90212

COPE RUBY PIEPER
3753 COLETOVILLE RD SOUTH
VICTORIA TX 77905

COUNCIL JOSHUA LOREN
613 N SAN PATRICIO
GOLIAD TX 77963

COURVILLE SCOTT W & DANIELLE M
448 TRAVIS
VICTORIA TX 77905

DAVIS KEVIN B & KIMBERERLY
699 BEDGOOD LN
VICTORIA TX 77905

DAY DUSTIN C & JANET DENISE
2409 TWIN OAKS DR
PORTLAND TX 78374

DERMODY LINDA
3353 FM 2987
VICTORIA TX 77905

DIETZEL GLENN HARVEY FAMILY TRUST
3484 COLATOVILLE RD E
VICTORIA TX 77905

DIETZEL JEFFREY PAUL
402 PAISANO DR
VICTORIA TX 77904

DIETZEL MILTON RAWLEY JR
955 BAYMEADOW DR
PORT LAVACA TX 77979

DIETZEL RUBY M
5572 HANSELMAN RD
VICTORIA TX 77905

DODDS MICHAEL M & JESSICA L
107 TWIN LAKES CIR
VICTORIA TX 77905

DUPREE BRYAN K & VIKKI L
72 PERDIDO CT
VICTORIA TX 77905

EDWARDS GARY & CHARLENE
662 LAKESHORE DR
VICTORIA TX 77905

EVANS DAN LEE
352 LAKESHORE DR
VICTORIA TX 77905

FOSTER WILLIAM C
2616 FLAGSTICK DRIVE
MATHEWS NC 28104

FRANKE KELLY K & BETTY L
889 CR 224
KARNES CITY TX 78118

FRIEDRICHS RICK G & CAROL E
22349 MUESCHKE
TOMBALL TX 77377

GALVEZ SERGIO A & GUADALUPE C
209 KINGWOOD FOREST DR
VICTORIA TX 77904

GAMBLIN DEBORAH B
P O BOX 768
GOLIAD TX 77960

GARDNER ROBERT J & RENEE M LF EST
129 COLETO PARK RD
VICTORIA TX 77905

GARRISON RODNEY & CAROLYN
3522 ARBOR
HOUSTON TX 77004

GIBBS STEPHEN B & CARLEE H
53 TWIN LAKE DRIVE
VICTORIA TX 77905

GOHMERT JOHN LLOYD ET UX
840 LAKESHORE DR
VICTORIA TX 77905

GOLDEN GRADY
1177 BEDGOOD LN
VICTORIA TX 77905

GOLDEN JULIANNE
4513 HEBERT LANE
CORPUS CHRISTI TX 78413

GORDON GEORGE E FAM TR UTA ET AL
3110 BRIAR COURT
SUGARLAND TX 77478

GORDON/BIGHAM TRUSTS & GEORGE E GORDON TTEE
3110 BRIAR CT
SUGAR LAND TX 77478

GRASON JOHN C JR & JO ANNE
975 BEDGOOD LN
VICTORIA TX 77905

GRAY LARRY J & LINDA K
323 PERDIDO POINTE CIR
VICTORIA TX 77905

GREEN PATRICK ALLAN
1175 BEDGOOD LANE
VICTORIA TX 77905

GREGORY OSCAR EXEMPT DESCENDANT'S TRUST
7831 US HWY 87 N
VICTORIA TX 77904

GRUBBS DONALD R ET UX
595 PERDIDO POINTE CIR
VICTORIA TX 77905

HALE DONALD K & SHARI
2646 SULPHUR CREEK ESTS RD
VICTORIA TX 77905

HANCOCK MARK A & SANDRA
P O BOX 5
FANNIN TX 77960

HANLEY MICHAEL & PATRICIA
576 LAKESHORE DR
VICTORIA TX 77905

HANLEY RANCH PARTNERSHIP
576 LAKESHORE DR
VICTORIA TX 77905

HARRIS CRAIG WAYNE
1094 COLETOVILLE RD S
VICTORIA TX 77905

HARRIS JANICE L EST
241 N MASQUITE DR
VICTORIA TX 77905

HARRIS STEVEN R
939 COLETOVILLE RD S
VICTORIA TX 77905

HARRISON THOMAS WAYNE ET UX
P O BOX 163
FANNIN TX 77960

HARTMAN DENISE & WADE
149 LAKEVIEW DR
VICTORIA TX 77905

HEAD REVOCABLE LIVING TRUST
617 PERDIDO POINT CIR
VICTORIA TX 77905

HEARD MYRA S
P O BOX 85
FANNIN TX 77960

HEIBEL NANCY & JASON HERNANDEZ
668 COLETO PARK RD
RAISIN TX 77905

HEIMANN JACOB HENRY & KELCI MARIE
2013 E MIMOSA
VICTORIA TX 77901

HEMPHILL DOLORES LIFE ESTATE
992 CHURCH ST
VICTORIA TX 77905

HENDERSON JOE BRENT & CHARLOTTE R
251 LAKEVIEW DR
VICTORIA TX 77905

HENRY PHILLIP
3053 COLETOVILLE RD S
VICTORIA TX 77905

HENSEL HARLAN ET UX
1171 BEDGOOD LN
VICTORIA TX 77905

HEPPARD MELISSA DAWN & MICHAEL RAY VASQUEZ
416 LAKESHORE DRIVE
VICTORIA TX 77905

HILL BILLY W
PO BOX 115
THOMASTON TX 77989

HILL DAVID M
138 STANGE LANE
VICTORIA TX 77905

HOLCOMB JOYCE SPEAKERMAN EST
3705 WM SCARBROUGH
SCHERTZ TX 78154

HOLLAND NATHAN & HOLLY
86 LAKEPLACE
VICTORIA TX 77905

HORADAM HENRY L JR
8988 FM 446
VICTORIA TX 77905

HORADAM JAMES F FAMILY TRUST & BRYAN HORADAM TTEE
PO BOX 151
FANNIN TX 77960

HORADAM VICTOR WM
6054 ABERDEEN
DALLAS TX 75230

HOSEK HENRY A III & JANET
95 PERDIDO OAKS
VICTORIA TX 77905

HOTZ ROGER D JR & MEAGAN
760 LAKESHORE DR
VICTORIA TX 77905

HOWARD CLINT & JENNIFER
P O BOX 3527
VICTORIA TX 77903

JANOTA J TODD
388 LAKESHORE DR
VICTORIA TX 77905

JANYSEK VIVIAN J
108 PERDIDO OAKS
VICTORIA TX 77905

JEANE MICHAEL L & MARIA CRISTINA
67 PERDIDO OAKS DR.
VICTORIA TX 77905

JOHNSON ALBERT F
105 WINDY WAY DR
VICTORIA TX 77904

JOHNSON JAMES W
1889 KOHL RD
VICTORIA TX 77900

JOSEPH TRUCKING INC DBA WOOD HIGH GRAIN
968 DODD RD
INEZ TX 77968

KEZAR MICHAEL D
157 TWIN LAKES CIRCLE
VICTORIA TX 77905

KLIEM RICKY & LINDA
10194 FM 444 S
INEZ TX 77968

KLIMITCHECK ROBERT J JR & REBECCA
548 LAKESHORE DR
VICTORIA TX 77905

KOEHLER GARY D & CHARLOTTE A
P O BOX 72
BELTON TX 76513

KUNKEL CLIFFORD G
604 KING ARTHUR ST
VICTORIA TX 77904

LAUNDRIE THOMAS F & PAMELA G
722 LAKESHORE DR
VICTORIA TX 77905

LINEBARGER DEBBIE
99 LAKEOAK
VICTORIA TX 77905

LORENZEN PRESTON C & DARLA G
80 LAKEWAY COURT
VICTORA TX 77904

LOTT SHAVOHN KYLE
20375 MATHIS LANDING DR
CYPRESS TX 77433

MACHICEK DUSTIN A
536 LAKESHORE DR
VICTORIA TX 77905

MAIKOETTER RANCH LLC
104 PECOS DR
VICTORIA TX 77904

MANGUM JASON & CASSIE L
137 LAKEVIEW DR
VICTORIA TX 77905

MANUEL JAYNE
503 FLOYD ST
BLACKBURG TX 24060

MARSHALL MIKE & JEAN
301 LAKEVIEW DR
VICTORIA TX 77905

MARTIN JANA
530 FANNIN RD
VICTORIA TX 77905

MARTIN JOSHUA D & KRISTIN R WAGNER
458 LAKESHORE DR
VICTORIA TX 77905

MATOS KERMIT CRUZ
5919 FOREST LEDGE STREET
SAN ANTONIO TX 78240

MAY DON E & SANDRA KAY
331 LAKEVIEW DR
VICTORIA TX 77905

MCADAMS SHANE PRESTON
12705 US HWY 59 S
VICTORIA TX 77905

MCCONNELL SHANNON JON & AMY MARIE
1718 BREEZY BEND DRIVE
KATY TX 77494

MCELROY BRENDA
8939 ST HWY 97 E
STOCKDALE TX 78160

MCFADIN LEWIS P JR
303 LAKEVIEW DRIVE
VICTORIA TX 77905

MCNEIL AIMEE J
P O BOX 152
FANNIN TX 77960

MOON RUSSELL DEWAYNE
210 YUMS DR
VICTORIA TX 77904

MORENO ESTEBAN
617 BARTLETT RD
VICTORIA TX 77905

NARANJO CRISTELIA /LIFE EST & TERESA H THEODORIDIS
624 COLETO PARK RD
VICTORIA TX 77905

NARANJO FRED H JR & WENDY
1150 SPANISH GRANT RD
GOLIAD TX 77963

NEAL DAVID
13747 FM 622
VICTORIA TX 77905

NEUVAR KAYSI
328 COLAKE DR
VICTORIA TX 77905

NEUVAR KYLE R ET UX
328 COLAKE DR
VICTORIA TX 77905

NORTON JAKE & STACEY
308 LAKESHORE DR
VICTORIA TX 77963

OBELGONER JAMES ROBERT
1246 US HWY 77N
HALLETTSVILLE TX 77964

OLADE MARIA
470 TRAVIS
GOLIAD TX 77963

OLQUIN JONATHAN M
3503 MEADOW LANE ST
VICTORIA TX 77905

PALMER DAN C
570 COLETO PARK RD
VICTORIA TX 77905

PARKS JACKIE
955 THOMASTON RIVER RD
CUERO TX 77954

PENTECOST MICHAEL
922 US HIGHWAY 59 S
VICTORIA TX 77905

PERDIDO POINTE CIVIC COMMITTEE
PO BOX 176
FANNIN TX 77960

PERDIDO POINTE ESTATES
3110 BRIAR COURT
SUGARLAND TX 77478

POST HELEN
3073 FM 2987
VICTORIA TX 77905

POST PAUL T DESCENDANTS TRUST
3075 FM 2987
VICTORIA TX 77905

POWELL MARTHA J
900 DIKE # 2 SERVICE RD
VICTORIA TX 77905

PREISS RANDY
15042 FM 622
VICTORIA TX 77905

PRINCE ANDREW III ET AL
PO BOX 4481
VICTORIA TX 77903

PRINCE PERRY EST
6901 WILLOW OAK DRIVE
CORPUS CHRISTI TX 78413

PRINCE THELMA EST
4121 OAK ARBOR DR
DALLAS TX 75233

RAFTER J PROPERTIES LLC
36 HUNTERS CIRCLE
VICTORIA TX 77905

RAMOS RAMICO SR
753 SPANISH GRANT RD
GOLIAD TX 77963

RAMPLEY WM HARVEY ET UX
PO BOX 63
GOLIAD TX 77963

RARRAT MICHAEL & KARLA
64 COLAKE DR
VICTORIA TX 77905

RAY JOE DAVID & DENESE J
618 LAKESHORE DR
VICTORIA TX 77905

REYNOLDS DONNA
230 LABORATORY RD
FLORESVILLE TX 78114

RILEY MARY ANN
107 TRENTWOOD
VICTORIA TX 77901

ROHDE ROCKY & MICHELLE
943 LAKESHORE DR
VICTORIA TX 77905

SCHERER GREG
7875 US HWY 87N
VICTORIA TX 77904

SCHMIDT PHIL R
88 SCHMIDT DR
VICTORIA TX 77905

SCHMIDT SKANDY L
3007 COLETOVILLE RD S
VICTORIA TX 77904

SEGLER DEREK & AMY
P O BOX 118
FANNIN TX 77960

SEWALT STEVE & SHERYL
P O BOX 2183
VICTORIA TX 77902

SHANNON JACQUELYN ASHLEY
623 CROCKETT DRIVE
VICTORIA TX 77905

SHARKEY ROBERT & LUCY
231 N SEAKIST LN
PORT LAVACA TX 77979

SINGLES SANDY & TONI
2031 KOHL ROAD
VICTORIA TX 77905

SONSALLA SCOTT E & LORETTA L
653 PERDIDO POINT CIR
VICTORIA TX 77905

SPEAKERMAN RAYMOND EST ET AL
302 HARRISON
VICTORIA TX 77904

SPIES HARVEY R
101 HILL CREEK LANE
VICTORIA TX 77905

STANFORD BRETT ANTHONY
PO BOX 4583
VICTORIA TX 77903

STANFORD FRED & PATRICE
6910 US HW 59 N
VICTORIA TX 77905

STANFORD JUSTIN
2049 SULPHER CREEK EST
VICTORIA TX 77905

STANGE CURTIS D
2710 COLETOVILLE RD S
VICTORIA TX 77905

STANGE WADE NICHOLAS
103 CANTERBURY LANE
VICTORIA TX 77904

STANGE WILLIAM NOEL JR
2459 COLETOVILLE RD S
VICTORIA TX 77905

STONE GABLE INVESTMENTS LLC
P O BOX 4969
VICTORIA TX 77903

STRATMANN RODNEY C
282 LAKEVIEW DR
VICTORIA TX 77905

STRATTON NATALIE & WILLIAM EASLEY JR
183 EDDIE ST
VICTORIA TX 77905

STROOP MARK & BARBARA
129 TWIN LAKE CIRCLE
VICTORIA TX 77905

SULLINS CATHY ET AL
2620 WEBER RD
VICTORIA TX 77905

SWICKHEIMER RANCHES LTD
P O BOX 217
FANNIN TX 77960

TERRELL LUCILLE
1920 CHERRY AVE
SIGNAL HILL CA 90755

THIGPEN JIMMY E
P O BOX 428
TEMPLE TX 76503

TODD ELIZA WILKERSON EST
806 E CONVENT
VICTORIA TX 77901

TRAUTWEIN COLLEEN
8246 S US HWY 183
CUERO TX 77954

TSCHOEPE TYSON L & SARAH
518 SUNSET DR
VICTORIA TX 77904

TUMLINSON JANET SEPARATE TRUST & JANET TUMLINSON TTEE
7542 E FM 1961
GOLIAD TX 77963

TUTTLE DONALD
401 JOSEPHINE RD
VICTORIA TX 77905

VARNADO JONELL
51 LONGVIEW DR
VICTORIA TX 77904

VAUGHN TERENCE GLEN ET UX
85 LAKEVIEW DR
VICTORIA TX 77905

VOLKMER BARBARA A LIFE ESTATE
1645 COLETOVILLE RD SOUTH
VICTORIA TX 77905

WACKER SANDRA GAYLE
361 JOSEPHINE RD
VICTORIA TX 77905

WAGNER MILTON STEVE & DIANA LYN
1785 KOHL RD
VICTORIA TX 77905

WALDEN HAROLD RAY & VALERIE G
1381 COLETOVILLE RD S
VICTORIA TX 77905

WALL MATTHEW J JR & BARBARA M
PO BOX 16097
SUGARLAND TX 77496

WALLS GENEVIEVE ET AL
3225 CALUMET
HOUSTON TX 77004

WALLS HOMER B EST & HOWELL WALLS
5 CHLOE COURT
LONG BEACH MS 39560

WASHINGTON PATRICK ET AL
19022 BRESCIA LN
KATY TX 77449

WATTS CHARLES A
680 LAKESHORE DR
VICTORIA TX 77905

WDS RANCH LTD
4119 HIGHGROVE DR
DALLAS TX 75220

WEAVER WILLIAM O & DEBRA F
372 LAKESHORE
VICTORIA TX 77905

WELFEL TRENT
101 LAKEPLACE
VICTORIA TX 77905

WELFEL TRENT & REAGAN GASCH
252 LAKEVIEW DRIVE
VICTORIA TX 77905

WHITFIELD BILLY M ET UX
903 RANCH RD
GEORGETOWN TX 78628

WILLIAMS FRED A& BARBARA A LIVING TRUST
179 LAKEVIEW DR
VICTORIA TX 77905

WYOTEX REALTY LLC
P O BOX 280969
LAKEWOOD CO 80228

YOUNG J R EST
522 ROYAL OAK DRIVE
PASS CHRISTIAN MS 39571

YOUNG LEROY JR
1920 CHERRY AVE
SIGNAL HILL CA 90755

YOUNGBLOOD VICKIE
973 CHURCH ST
VICTORIA TX 77905

BURES LEROY
159 BURES RD
VICTORIA TX 77905

HEINOLD LARRY M ET UX
1287 COLETOVILLE RD S
VICTORIA TX 77905

YOUNG JAMES GARLAND & ETHEL JOYCE PO BOX 56 FANNIN TX 77960	UNKNOWN UNKNOWN UNKNOWN	UNKNOWN UNKNOWN UNKNOWN
UNKNOWN UNKNOWN UNKNOWN	UNKNOWN UNKNOWN UNKNOWN	UNKNOWN UNKNOWN UNKNOWN
UNKNOWN UNKNOWN UNKNOWN	UNKNOWN UNKNOWN UNKNOWN	UNKNOWN UNKNOWN UNKNOWN
UNKNOWN UNKNOWN UNKNOWN	UNKNOWN UNKNOWN UNKNOWN	UNKNOWN UNKNOWN UNKNOWN
UNKNOWN UNKNOWN UNKNOWN	UNKNOWN UNKNOWN UNKNOWN	UNKNOWN UNKNOWN UNKNOWN

ATTACHMENT A-1 Outfall Photos
Coleto Creek Power Station (WQ0002159000)

Aerial View

1

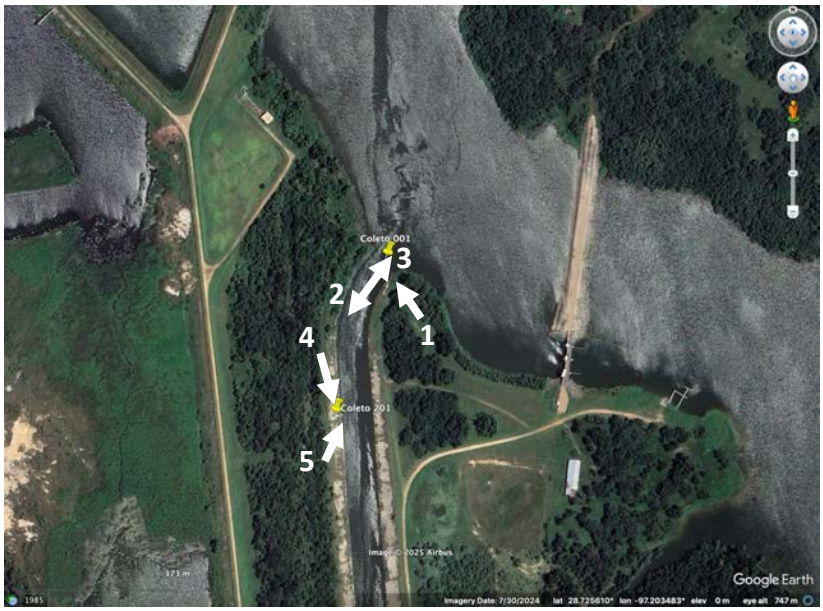


Photo Map 1

2

ATTACHMENT A-1 Outfall Photos
Coleto Creek Power Station (WQ0002159000)

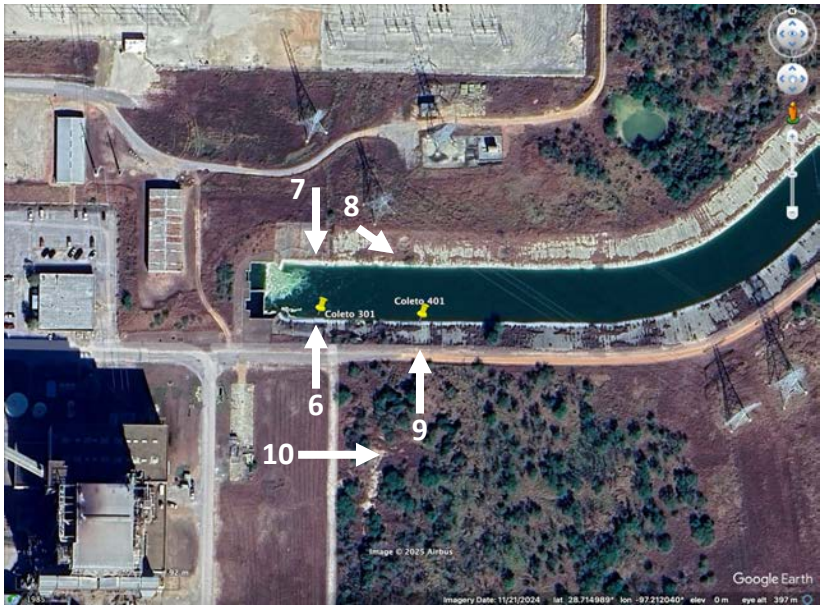


Photo Map 2

3

Photo 1: Location where Outfall 001 enters Coleto Creek Reservoir
(Sulphur Creek arm of reservoir)

4

ATTACHMENT A-1 Outfall Photos
Coleto Creek Power Station (WQ0002159000)

Photo 2: Upstream of Outfall 001

5

Photo 3: Downstream of Outfall 001

6

ATTACHMENT A-1 Outfall Photos
Coleto Creek Power Station (WQ0002159000)

Photo 4: Outfall 201 looking upstream

7

Photo 5: Outfall 201 looking downstream

8

ATTACHMENT A-1 Outfall Photos
Coleto Creek Power Station (WQ0002159000)

Photo 6: Outfall 301 (future) looking north

9

Photo 7: Outfall 301 (future) looking south

10

ATTACHMENT A-1 Outfall Photos
Coleto Creek Power Station (WQ0002159000)

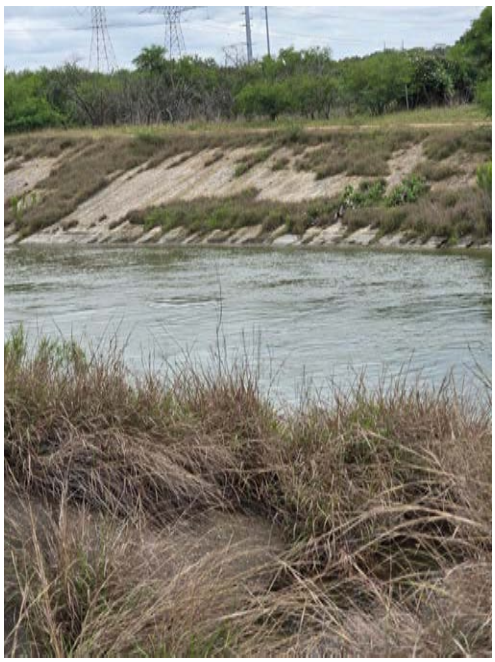


Photo 8: Outfall 401 (future) view across channel

11

Photo 9: Outfall 401 (future) view from south

12

Photo 10: Site for new Retention Pond

13

Attachment SPIF-1

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

FOR AGENCIES REVIEWING DOMESTIC OR INDUSTRIAL TPDES WASTEWATER PERMIT APPLICATIONS

TCEQ USE ONLY:

Application type: _____Renewal _____Major Amendment ____Minor Amendment _____New

County: _____ Segment Number: _____

Admin Complete Date: _____

Agency Receiving SPIF:

_____ Texas Historical Commission _____ U.S. Fish and Wildlife

_____ Texas Parks and Wildlife Department _____ U.S. Army Corps of Engineers

This form applies to TPDES permit applications only. (Instructions, Page 53)

Complete this form as a separate document. TCEQ will mail a copy to each agency as required by our agreement with EPA. If any of the items are not completely addressed or further information is needed, we will contact you to provide the information before issuing the permit. Address each item completely.

Do not refer to your response to any item in the permit application form. Provide each attachment for this form separately from the Administrative Report of the application. The application will not be declared administratively complete without this SPIF form being completed in its entirety including all attachments. Questions or comments concerning this form may be directed to the Water Quality Division's Application Review and Processing Team by email at WQ-ARPTeam@tceq.texas.gov or by phone at (512) 239-4671.

The following applies to all applications:

1. Permittee: Coleto Creek Power, LLC

   Permit No. WQ00 02159000 EPA ID No. TX 0070068

2. Address of the project (or a location description that includes street/highway, city/vicinity, and county):

   45 Farm-to-Market Road 2987, near the Town of Fannin, Goliad County, Texas 77960

Attachment SPIF-1

3. Provide the name, address, phone and fax number of an individual that can be contacted to answer specific questions about the property.

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

   First and Last Name: Ryan Bayle

   Credential (P.E, P.G., Ph.D., etc.): N/A

   Title: Environmental Manager

   Mailing Address: Luminant Generation Company LLC

   City, State, Zip Code: 6555 Sierra Drive, Irving, TX 75039

   Phone No.: 214-875-8294 Ext.: N/A Fax No.: N/A

   E-mail Address: ryan.bayle@luminant.com

4. List the county in which the facility is located: Goliad

5. If the property is publicly owned and the owner is different than the permittee/applicant, please list the owner of the property.

   N/A

6. Provide a description of the effluent discharge route. The discharge route must follow the flow of effluent from the point of discharge to the nearest major watercourse (from the point of discharge to a classified segment as defined in 30 TAC Chapter 307). If known, please identify the classified segment number.

   Directly to Coleto Creek Reservoir, part of Coleto Creek in Segment No. 1807 of the Guadalupe River Basin

7. Please provide a separate 7.5-minute USGS quadrangle map with the project boundaries plotted and a general location map showing the project area. Please highlight the discharge route from the point of discharge for a distance of one mile downstream. (This map is required in addition to the map in the administrative report).

   Attachment SPIF-2 USGS Map

8. Provide original photographs of any structures 50 years or older on the property.

   N/A. Facility is less than 50 years old.

Attachment SPIF-1

9. Does your project involve any of the following? Check all that apply.

- ☐ Proposed access roads, utility lines, 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
- X Additional phases of development that are planned for the future
- ☐ Sealing caves, fractures, sinkholes, other karst features
- ☐ Disturbance of vegetation or wetlands

10. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves, or other karst features):

~10 acres for natural gas pipeline, <1 acre for new retention pond

11. Describe existing disturbances, vegetation, and land use:

The facility is an electricity generation station. The power plant includes a 3,100-acre cooling reservoir, paved and unpaved areas for electrical systems, and impoundments for waste storage and wastewater treatment.

THE FOLLOWING ITEMS APPLY ONLY TO APPLICATIONS FOR NEW TPDES PERMITS AND MAJOR AMENDMENTS TO TPDES PERMITS

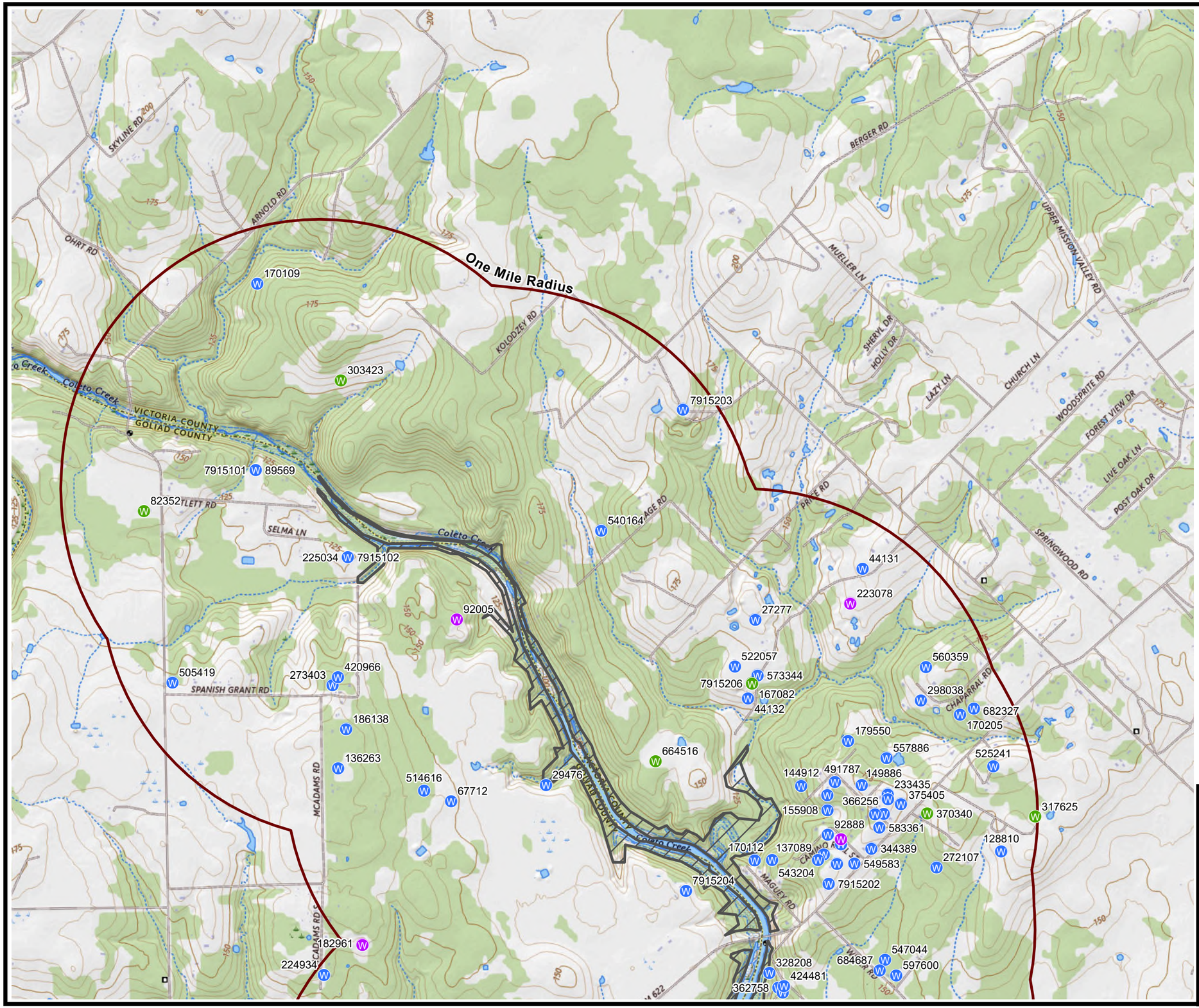
1. List construction dates of all buildings and structures on the property:

Unit 1, associated buildings and equipment, and the cooling reservoir were constructed from 1976-1980.

2. Provide a brief history of the property, and name of the architect/builder, if known.

Prior to construction of Unit 1, the property was rangeland. Zachry Construction Corporation was the construction company for Unit 1. Sargent and Lundy Engineers was the design firm for Unit 1 construction.

ATTACHMENT SPIF-2

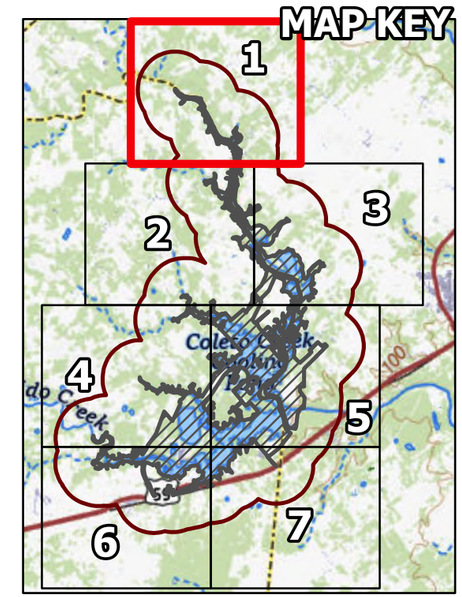


LEGEND

- Coleto Creek Power, LLC Property Boundary
- One Mile Radius

TWDB Wells

- Domestic / Public Supply
- Industrial / Monitor
- Irrigation / Stock
- Plugged / Destroyed / Unused / Other
- Rig Supply / Test Well



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1" = 2,000 FEET
1:24,000

Sources:
1. TWDB Wells - Texas Water Development Board GIS Data, April 2025.
2. USGS Topographic Quadrangles 7.5 Minute Series: Schroeder, Fannin, & Hensley Lake, TX 2022

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

USGS MAP
FIGURE 1 OF 7

DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
CHECKED BY:	D KOCUREK	AS NOTED	USGS Map
APPROVED BY:	D KOCUREK	DATE PRINTED:	
DATE:	May 2025	*5/19/2025*	

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Ph. 409-738-2133

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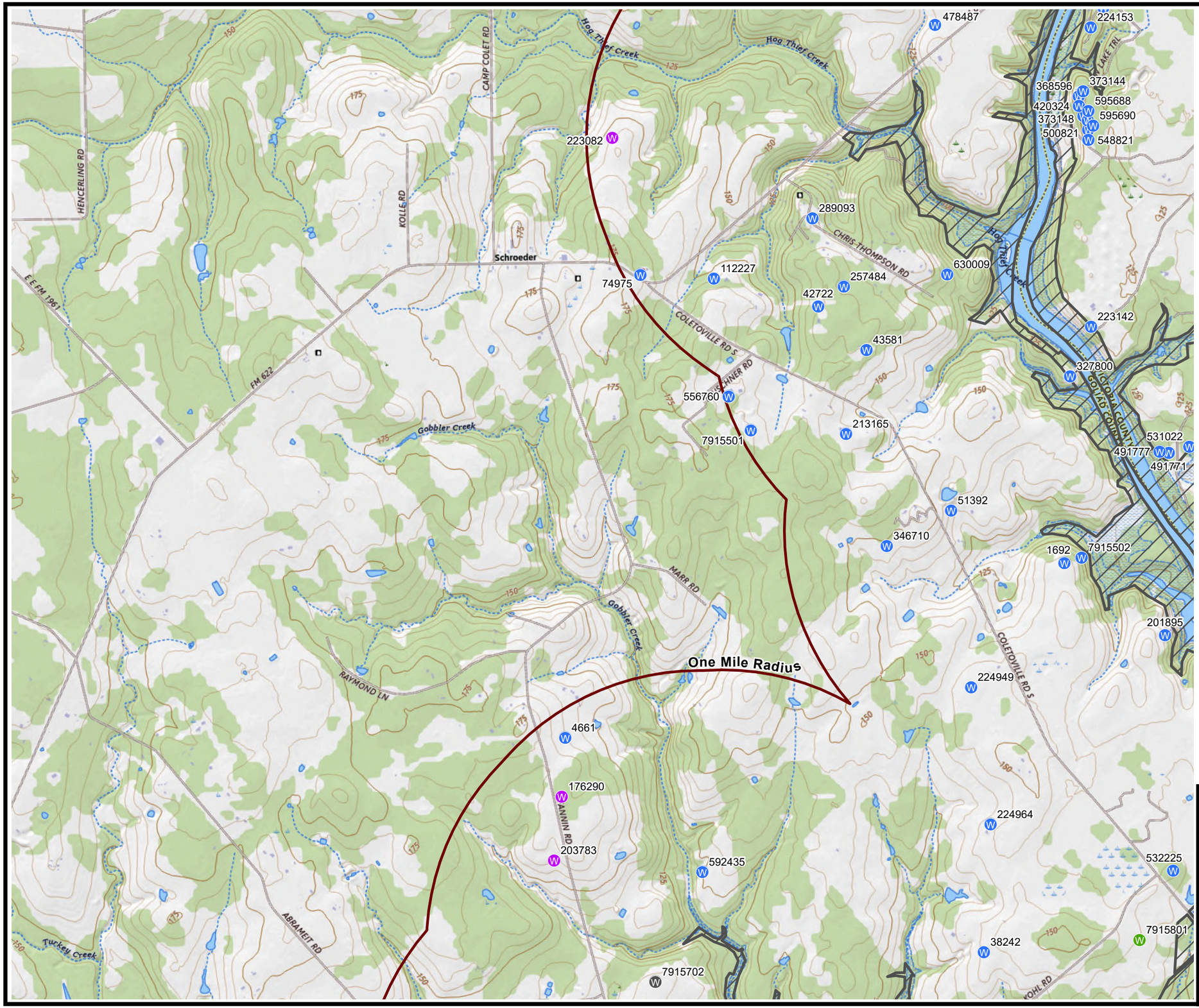
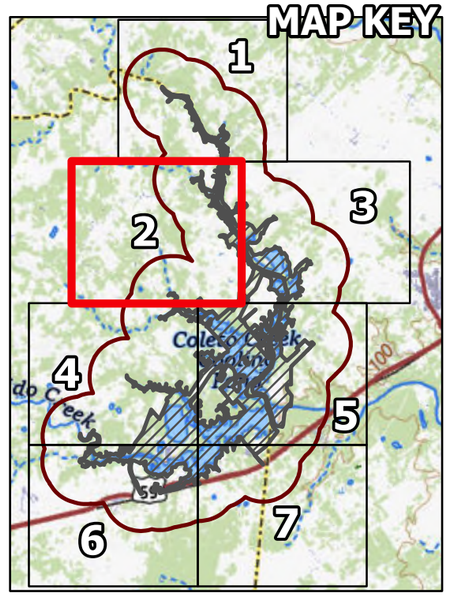


LEGEND

- Coleto Creek Power, LLC Property Boundary
- One Mile Radius

TWDB Wells

- Domestic / Public Supply
- Industrial / Monitor
- Irrigation / Stock
- Plugged / Destroyed / Unused / Other
- Rig Supply / Test Well



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Sources:
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2. USGS Topographic Quadrangles 7.5 Minute Series: Schroeder, Fannin, & Hensley Lake, TX 2022

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

USGS MAP
FIGURE 2 OF 7

DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
CHECKED BY:	D KOCUREK	AS NOTED	USGS Map
APPROVED BY:	D KOCUREK	DATE PRINTED:	
DATE:	May 2025	*5/19/2025*	

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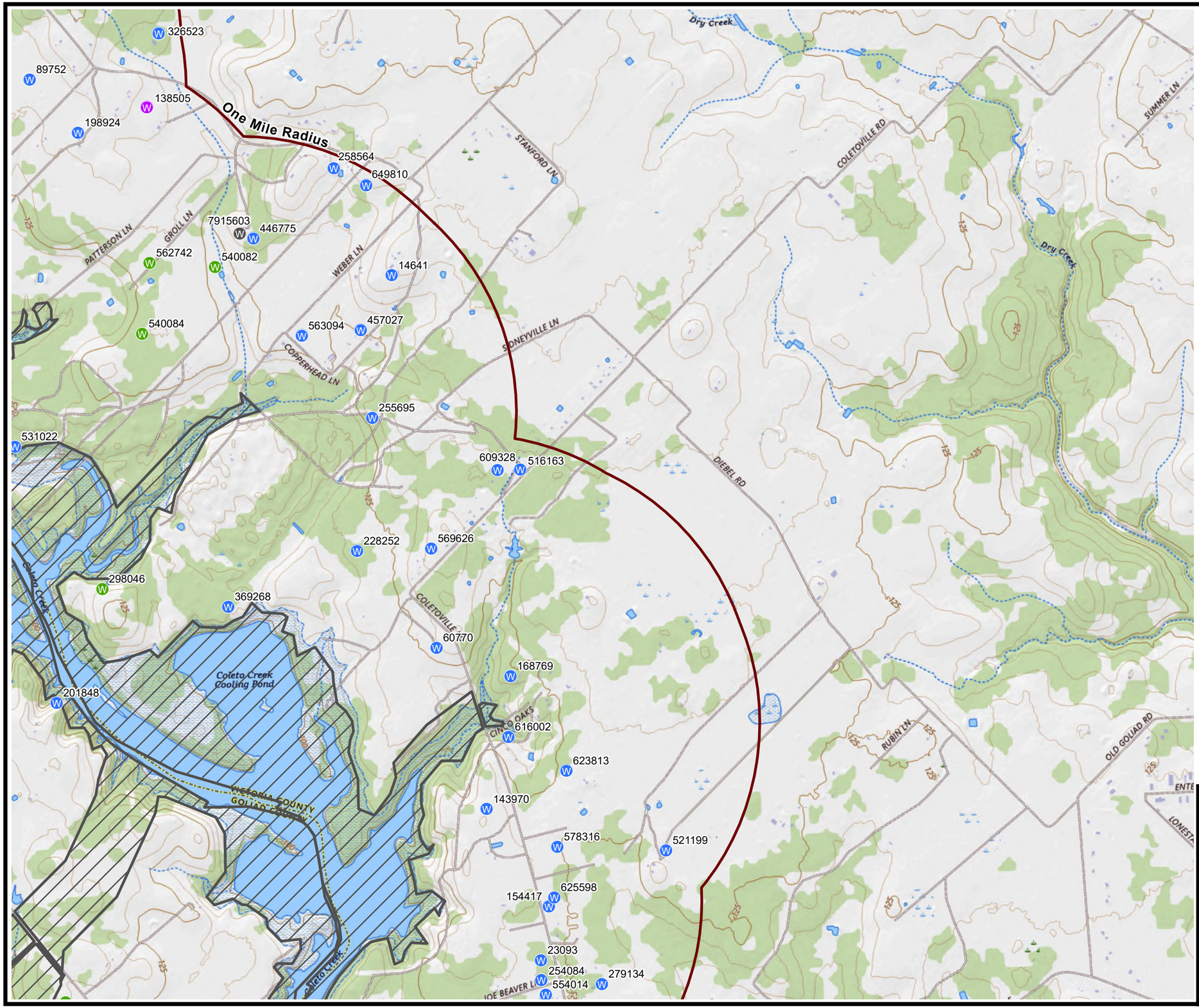
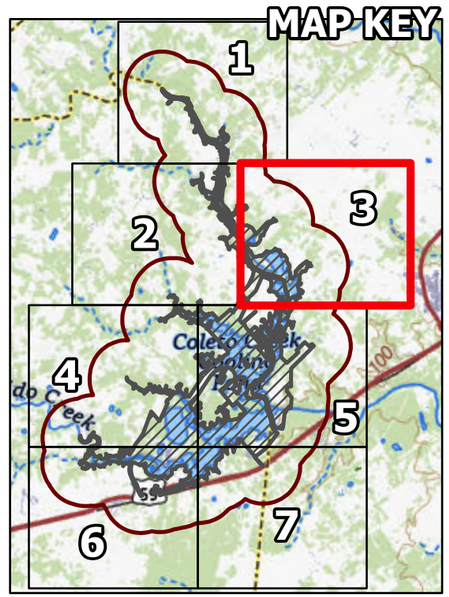


LEGEND

- Coleto Creek Power, LLC Property Boundary
- One Mile Radius

TWDB Wells

- Domestic / Public Supply
- Industrial / Monitor
- Irrigation / Stock
- Plugged / Destroyed / Unused / Other
- Rig Supply / Test Well



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Sources:
1. TWDB Wells - Texas Water Development Board GIS Data, April 2025.
2. USGS Topographic Quadrangles 7.5 Minute Series: Schroeder, Fannin, & Hensley Lake, TX 2022

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

USGS MAP
FIGURE 3 OF 7

DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
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APPROVED BY:	D KOCUREK	DATE PRINTED:	
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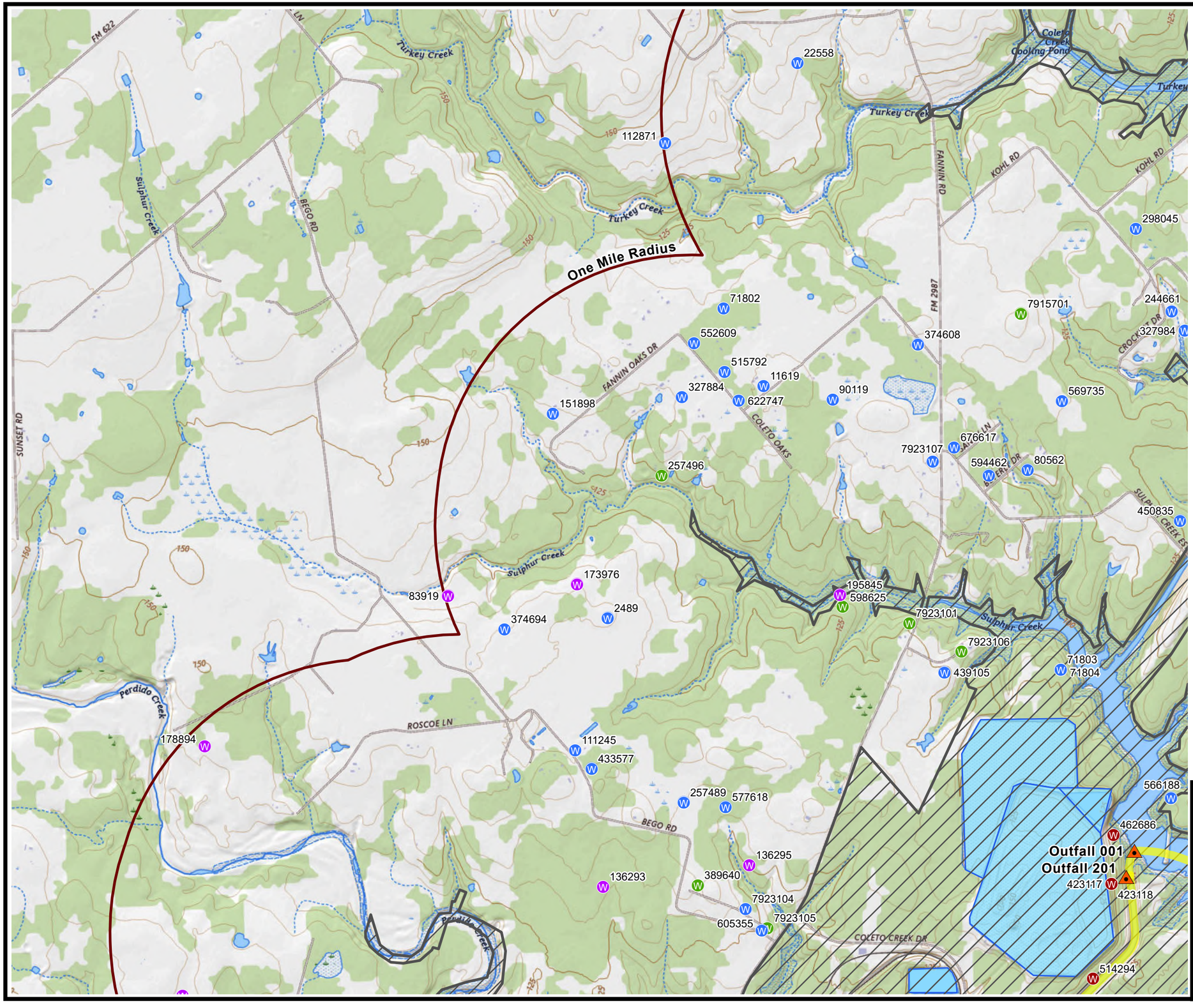
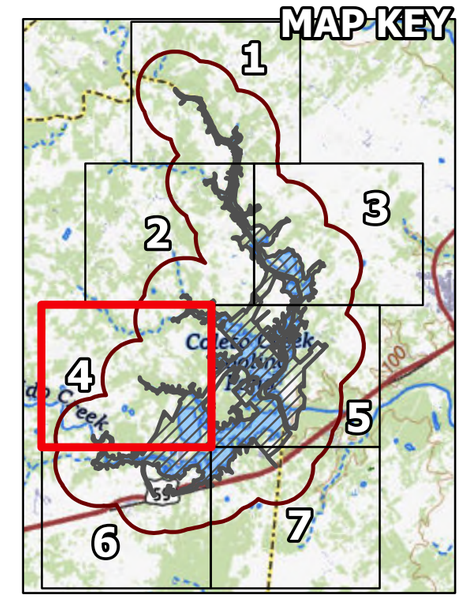


LEGEND

- Coleto Creek Power, LLC Property Boundary
- Ponds
- Outfall Location
- Discharge Route
- One Mile Radius

TWDB Wells

- Domestic / Public Supply
- Industrial / Monitor
- Irrigation / Stock
- Plugged / Destroyed / Unused / Other
- Rig Supply / Test Well



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1" = 2,000 FEET
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Sources:
1. TWDB Wells - Texas Water Development Board GIS Data, April 2025.
2. USGS Topographic Quadrangles 7.5 Minute Series: Schroeder, Fannin, & Hensley Lake, TX 2022

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

USGS MAP
FIGURE 4 OF 7

DRAWN BY:	S WILSON	SCALE:		PROJ. NO.	TPDES 2025
CHECKED BY:	D KOCUREK		AS NOTED		USGS Map
APPROVED BY:	D KOCUREK	DATE PRINTED:			
DATE:	May 2025		*5/19/2025*		

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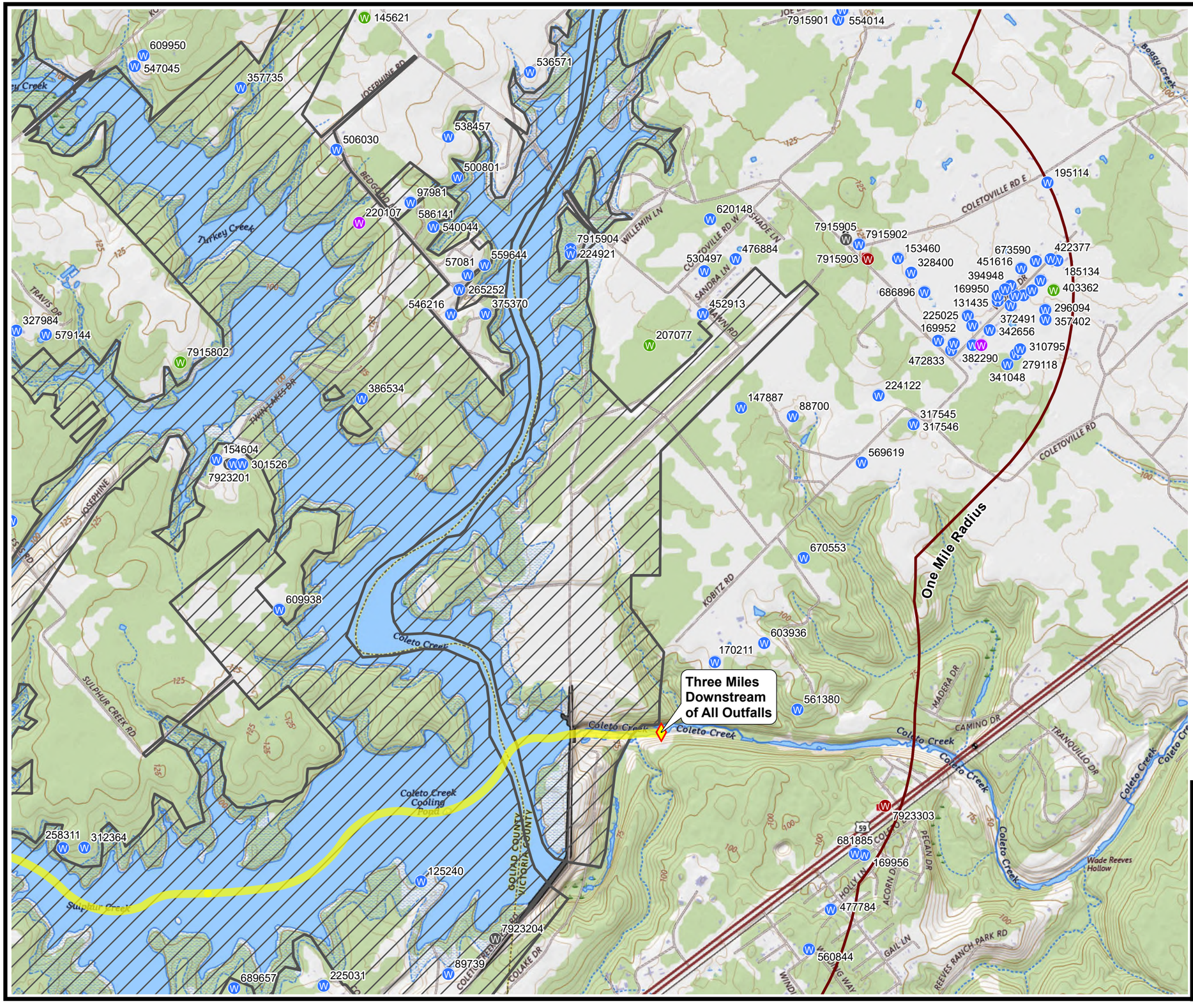
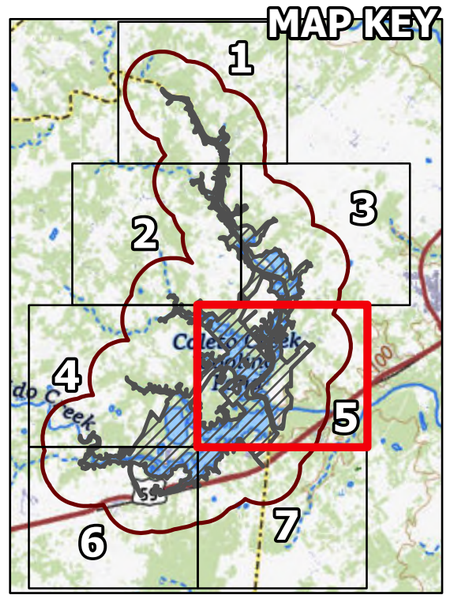


LEGEND

- Coleto Creek Power, LLC Property Boundary
- Discharge Route
- Downstream Marker
- One Mile Radius

TWDB Wells

- Domestic / Public Supply
- Industrial / Monitor
- Irrigation / Stock
- Plugged / Destroyed / Unused / Other
- Rig Supply / Test Well



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1" = 2,000 FEET
1:24,000

Sources:
1. TWDB Wells - Texas Water Development Board GIS Data, April 2025.
2. USGS Topographic Quadrangles 7.5 Minute Series: Schroeder, Fannin, & Hensley Lake, TX 2022

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

USGS MAP
FIGURE 5 OF 7

DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
CHECKED BY:	D KOCUREK	AS NOTED	USGS Map
APPROVED BY:	D KOCUREK	DATE PRINTED:	
DATE:	May 2025	*5/19/2025*	

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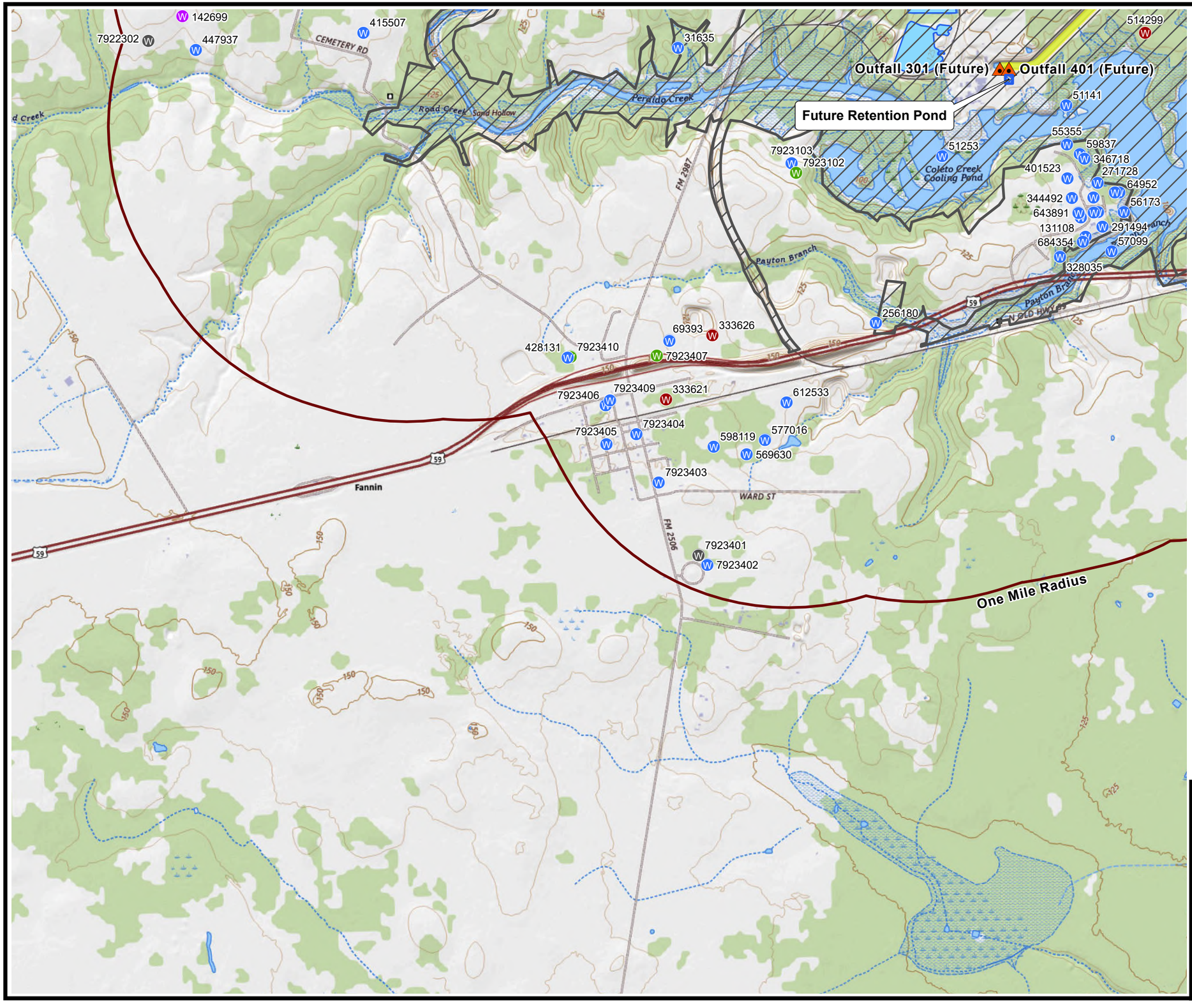
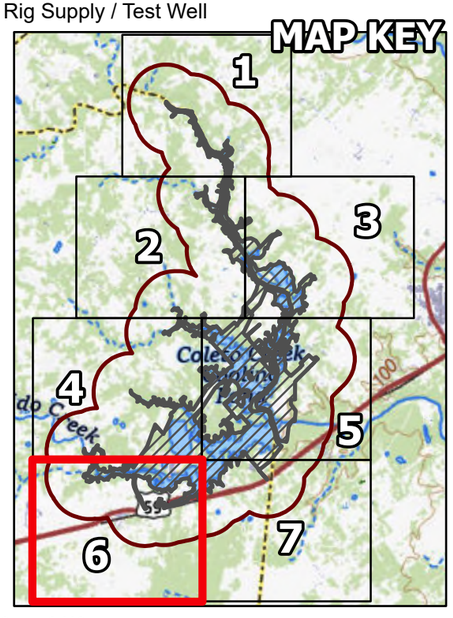


LEGEND

- Coleto Creek Power, LLC Property Boundary
- Future Retention Pond
- Ponds
- Outfall Location
- Discharge Route
- One Mile Radius

TWDB Wells

- Domestic / Public Supply
- Industrial / Monitor
- Irrigation / Stock
- Plugged / Destroyed / Unused / Other
- Rig Supply / Test Well



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Sources:
1. TWDB Wells - Texas Water Development Board GIS Data, April 2025.
2. USGS Topographic Quadrangles 7.5 Minute Series: Schroeder, Fannin, & Hensley Lake, TX 2022

COLETO CREEK POWER, LLC
FANNIN, TEXAS
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USGS MAP
FIGURE 6 OF 7

DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
CHECKED BY:	D KOCUREK	AS NOTED	USGS Map
APPROVED BY:	D KOCUREK	DATE PRINTED:	
DATE:	May 2025	*5/19/2025*	

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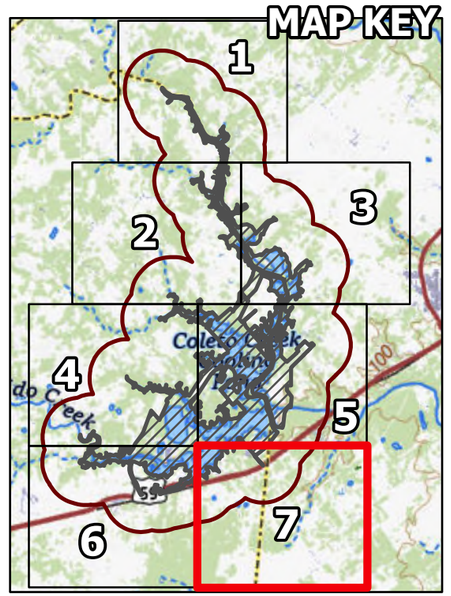
LEGEND

- Coleto Creek Power, LLC Property Boundary
- One Mile Radius

TWDB Wells

- Domestic / Public Supply
- Industrial / Monitor
- Irrigation / Stock
- Plugged / Destroyed / Unused / Other
- Rig Supply / Test Well



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Sources:
1. TWDB Wells - Texas Water Development Board GIS Data, April 2025.
2. USGS Topographic Quadrangles 7.5 Minute Series: Schroeder, Fannin, & Hensley Lake, TX 2022

COLETO CREEK POWER, LLC
FANNIN, TEXAS
WQ0002159000

USGS MAP
FIGURE 7 OF 7

DRAWN BY:	S WILSON	SCALE:		PROJ. NO.	TPDES 2025
CHECKED BY:	D KOCUREK		AS NOTED		USGS Map
APPROVED BY:	D KOCUREK	DATE PRINTED:			
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TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION TECHNICAL REPORT 1.0

The following information **is required** for all applications for a TLAP or an individual TPDES discharge permit.

For **additional information** or clarification on the requested information, please refer to the Instructions for Completing the Industrial Wastewater Permit Application[1] available on the TCEQ website. Please contact the Industrial Permits Team at 512-239-4671 with any questions about this form.

If more than one outfall is included in the application, provide applicable information for each individual outfall. **If an item does not apply to the facility, enter N/A** to indicate that the item has been considered. Include separate reports or additional sheets as **clearly cross-referenced attachments** and provide the attachment number in the space provided for the item the attachment addresses.

NOTE: This application is for an industrial wastewater permit only. Additional authorizations from the TCEQ Waste Permits Division or the TCEQ Air Permits Division may be needed.

Item 1. Facility/Site Information (Instructions, Page 39)

a. Describe the general nature of the business and type(s) of industrial and commercial activities. Include all applicable SIC codes (up to 4).

Coleto Creek Power Station is a steam electric power generation facility. Fuel is used for combustion and conversion to water to steam for turbines, which then generate electricity. Currently, the station uses coal as a fuel source, but plans to convert to natural gas by 2027. Cooling water is passed through condensers in the plant and returned to Coleto Creek Reservoir. The facility has one unit with a nominal net 632-megawatt capacity.

Applicable SIC code is 4911 (Electric Services).

b. Describe all wastewater-generating processes at the facility.

See Attachment T-1 Facility Description.

c. Provide a list of raw materials, major intermediates, and final products handled at the facility.

Materials List

Raw Materials	Intermediate Products	Final Products
Coal Natural gas (conversion from coal by 2027)	None	Electric power

Attachment: N/A

[1] https://www.tceq.texas.gov/permitting/wastewater/industrial/TPDES_industrial_wastewater_steps.html

d. Attach a facility map (drawn to scale) with the following information:

- Production areas, maintenance areas, materials-handling areas, waste-disposal areas, and water intake structures.
- The location of each unit of the WWTP including the location of wastewater collection sumps, impoundments, outfalls, and sampling points, if significantly different from outfall locations.

Attachment: A-2 USGS Maps, T-2 Site Arrangement Plot Plan

e. Is this a new permit application for an existing facility?

☐ Yes ☒ No

If **yes**, provide background discussion: N/A

f. Is/will the treatment facility/disposal site be located above the 100-year frequency flood level.

☒ Yes ☐ No

List source(s) used to determine 100-year frequency flood plain: San Antonio River Authority, Preliminary FEMA FIRM

If **no**, provide the elevation of the 100-year frequency flood plain and describe what protective measures are used/proposed to prevent flooding (including tail water and rainfall run-on controls) of the treatment facility and disposal area: N/A

Attachment: N/A

g. For **new** or **major amendment** permit applications, will any construction operations result in a discharge of fill material into a water in the state?

☐ Yes ☒ No ☐ N/A (renewal only)

h. If **yes** to Item 1.g, has the applicant applied for a USACE CWA Chapter 404 Dredge and Fill permit?

☐ Yes ☐ No

If **yes**, provide the permit number: N/A

If **no**, provide an approximate date of application submittal to the USACE: N/A

Item 2. Treatment System (Instructions, Page 40)

a. List any physical, chemical, or biological treatment process(es) used/proposed to treat wastewater at this facility. Include a description of each treatment process, starting with initial treatment and finishing with the outfall/point of disposal.

See Attachment T-1 Facility Description.

b. Attach a flow schematic **with a water balance** showing all sources of water and wastewater flow into the facility, wastewater flow into and from each treatment unit, and wastewater flow to each outfall/point of disposal.

Attachment: T-1 Facility Description, Figure 2 Water Balance Flow Diagram

Item 3. Impoundments (Instructions, Page 40)

Does the facility use or plan to use any wastewater impoundments (e.g., lagoons or ponds?)

☒ Yes ☐ No

If **no**, proceed to Item 4. If **yes**, complete **Item 3.a** for **existing** impoundments and **Items 3.a - 3.e** for **new or proposed** impoundments. **NOTE:** See instructions, Pages 40-42, for additional information on the attachments required by Items 3.a – 3.e.

a. Complete the table with the following information for each existing, new, or proposed impoundment. Attach additional copies of the Impoundment Information table, if needed.

Use Designation: Indicate the use designation for each impoundment as Treatment (**T**), Disposal (**D**), Containment (**C**), or Evaporation (**E**).

Associated Outfall Number: Provide an outfall number if a discharge occurs or will occur.

Liner Type: Indicate the liner type as Compacted clay liner (**C**), In-situ clay liner (**I**), Synthetic/plastic/rubber liner (**S**), or Alternate liner (**A**). **NOTE:** See instructions for further detail on liner specifications. If an alternate liner (A) is selected, include an attachment that provides a description of the alternate liner and any additional technical information necessary for an evaluation.

Leak Detection System: If any leak detection systems are in place/planned, enter **Y** for yes. Otherwise, enter **N** for no.

Groundwater Monitoring Wells and Data: If groundwater monitoring wells are in place/planned, enter **Y** for yes. Otherwise, enter **N** for no. Attach any existing groundwater monitoring data.

Dimensions: Provide the dimensions, freeboard, surface area, storage capacity of the impoundments, and the maximum depth (not including freeboard). For impoundments with irregular shapes, submit surface area instead of length and width.

Compliance with 40 CFR Part 257, Subpart D: If the impoundment is required to be in compliance with 40 CFR Part 257, Subpart D, enter **Y** for yes. Otherwise, enter **N** for no.

Date of Construction: Enter the date construction of the impoundment commenced (mm/dd/yy).

Impoundment Information

Parameter	Pond #1 Primary Ash Pond	Pond #2 Secondary Pond	Pond #3 Coal Pile Retention Pond	Pond #4 Evaporation Pond	Pond #5 Retention Pond (future)
Use Designation: (T) (D) (C) or (E)	T	T	T	E	T
Associated Outfall Number	N/A (Pond No. 2)	201	301	N/A	401 (future)
Liner Type (C) (I) (S) or (A)	C	C	C	C	C
Alt. Liner Attachment Reference	N/A	N/A	N/A	N/A	N/A
Leak Detection System, Y/N	N	N	N	N	N
Groundwater Monitoring Wells, Y/N	Y	Y	Y	Y	N

Parameter	Pond #1 Primary Ash Pond	Pond #2 Secondary Pond	Pond #3 Coal Pile Retention Pond	Pond #4 Evaporation Pond	Pond #5 Retention Pond (future)
Groundwater Monitoring Data Attachment	N/A	N/A	N/A	N/A	N/A
Pond Bottom Located Above The Seasonal High-Water Table, Y/N	Y	Y	Y	Y	Y
Length (ft)	Irregular	Irregular	Irregular	Irregular	140
Width (ft)	Irregular	Irregular	Irregular	Irregular	105
Max Depth From Water Surface (ft), Not Including Freeboard	-	-	-	-	6
Freeboard (ft)	2	2	2	2	2
Surface Area (acres)	190	10	10	100	0.32
Storage Capacity (gallons)	880,000,000	99,000,000	44,000,000	81,500,000	449,000
40 CFR Part 257, Subpart D, Y/N	Y	N*	N	N*	N
Date of Construction	1978	1978	1978	1978	2026 (future)

* *Considered to receive only de minimis accounts of coal combustion residuals (CCR) and as such does not meet the definition of a CCR impoundment (it is not designed to hold an accumulation of CCR and liquid). The reference to de minimis CCR is found in the preamble to the 2015 final rule (80 FR 21357).*

Attachment: N/A

The following information (**Items 3.b – 3.e**) is required only for **new or proposed** impoundments.

b. For new or proposed impoundments, attach any available information on the following items. If attached, check **yes** in the appropriate box. Otherwise, check **no** or **not yet designed**.

1. Liner data

☐ Yes ☐ No ☒ Not yet designed

2. Leak detection system or groundwater monitoring data

☐ Yes ☒ No ☐ Not yet designed

3. Groundwater impacts

☐ Yes ☒ No ☐ Not yet designed

NOTE: Item b.3 is required if the bottom of the pond is not above the seasonal high-water table in the shallowest water-bearing zone.

Attachment: A certification for construction of the liner for the future Retention Pond will be submitted to the TCEQ in accordance with Other Requirement No. 19 of the TPDES permit.

For TLAP applications: Items 3.c – 3.e are **not required**, continue to Item 4.

c. Attach a USGS map or a color copy of original quality and scale which accurately locates and identifies all known water supply wells and monitor wells within ½-mile of the impoundments.

Attachment: N/A

d. Attach copies of State Water Well Reports (e.g., driller's logs, completion data, etc.), and data on depths to groundwater for all known water supply wells including a description of how the depths to groundwater were obtained.

Attachment: N/A

e. Attach information pertaining to the groundwater, soils, geology, pond liner, etc. used to assess the potential for migration of wastes from the impoundments or the potential for contamination of groundwater or surface water.

Attachment: N/A

Item 4. Outfall/Disposal Method Information (Instructions, Page 42)

Complete the following tables to describe the location and wastewater discharge or disposal operations for each outfall for discharge, and for each point of disposal for TLAP operations.

If there are more outfalls/points of disposal at the facility than the spaces provided, copies of pages 6 and/0r numbered accordingly (i.e., page 6a, 6b, etc.) may be used to provide information on the additional outfalls.

For TLAP applications: Indicate the disposal method and each individual irrigation area **I**, evaporation pond **E**, or subsurface drainage system **S** by providing the appropriate letter designation for the disposal method followed by a numerical designation for each disposal area in the space provided for **Outfall** number (e.g. **E1** for evaporation pond 1, **I2** for irrigation area No. 2, etc.).

Outfall Longitude and Latitude

Outfall No.	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
001	28.726033	-97.203758
101	*	*
201	28.724554	-97.204318
301*	28.714934 (estimated)	-97.212579 (estimated)
401 (proposed outfall)	28.714904 (estimated)	-97.211994 (estimated)
* Outfalls 101 and 301 are authorized by the current TPDES permit, but have not yet been constructed/located.		

Outfall Location Description

Outfall No.	Location Description
001	Where once-through cooling water is discharged from the canal that discharges to the Coleto Creek Reservoir
101	The effluent from the treatment facility prior to mixing with other wastestreams
201	The effluent from the Secondary Pond prior to mixing with once-through cooling water and discharge to Coleto Creek Reservoir

Outfall No.	Location Description
301	Effluent from the coal pile retention pond prior to mixing with once-through cooling water and discharge to Coleto Creek Reservoir
401	Effluent from the Retention Pond prior to mixing with once-through cooling water and discharge to Coleto Creek Reservoir

Description of Sampling Point(s) (if different from Outfall location)

Outfall No.	Description of sampling point
001	Same as outfall location
101	Same as outfall location
201	Same as outfall location
301	Same as outfall location
401	Same as outfall location

Outfall Flow Information – Permitted and Proposed

Outfall No.	Permitted Daily Avg Flow (MGD)	Permitted Daily Max Flow (MGD)	Proposed Daily Avg Flow (MGD)	Proposed Daily Max Flow (MGD)	Anticipated Discharge Date (mm/dd/yy)
001	557	560	557	560	N/A
101	0.010	0.012	0.010	0.012	N/A
201	Intermittent and flow-variable	Intermittent and flow-variable	Intermittent and flow-variable	Intermittent and flow-variable	N/A
301	Intermittent and flow-variable	Intermittent and flow-variable	Intermittent and flow-variable	Intermittent and flow-variable	N/A
401	-	-	Intermittent and flow-variable	Intermittent and flow-variable	2027

Outfall Discharge – Method and Measurement

Outfall No.	Pumped Discharge? Y/N	Gravity Discharge? Y/N	Type of Flow Measurement Device Used
001	Y	N	Pump curve chart
101	*	*	*
201	N	Y	Weir
301	*	*	*
401	N	Y	*
* To be determined in final design.			

Outfall Discharge – Flow Characteristics

Outfall No.	Intermittent Discharge? Y/N	Continuous Discharge? Y/N	Seasonal Discharge? Y/N	Discharge Duration (hrs/day)	Discharge Duration (days/mo)	Discharge Duration (mo/yr)
001	N	Y	N	24	31	12
101	N	Y	N	24	31	12
201	Y	N	N	Variable	Variable	Variable
301	Y	N	N	Variable	Variable	Variable
401	Y	N	N	Variable	Variable	Variable

Outfall Wastestream Contributions

Outfall No. 001, 101, 201, 301, 401

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow
See Attachment T-1 Facility Description, Table 1 Wastewater Sources by Outfall.		

Attachment: N/A

Item 5. Blowdown and Once-Through Cooling Water Discharges (Instructions, Page 43)

a. Indicate if the facility currently or proposes to:

☐ Yes ☒ No Use cooling towers that discharge blowdown or other wastestreams

☒ Yes ☐ No Use boilers that discharge blowdown or other wastestreams

☒ Yes ☐ No Discharge once-through cooling water

NOTE: If the facility uses or plans to use cooling towers or once-through cooling water, Item 12 **is required**.

b. If **yes** to any of the above, attach an SDS with the following information for each chemical additive.

- Manufacturers Product Identification Number
- Product use (e.g., biocide, fungicide, corrosion inhibitor, etc.)
- Chemical composition including CASRN for each ingredient
- Classify product as non-persistent, persistent, or bioaccumulative
- Product or active ingredient half-life
- Frequency of product use (e.g., 2 hours/day once every two weeks)
- Product toxicity data specific to fish and aquatic invertebrate organisms
- Concentration of whole product or active ingredient, as appropriate, in wastestream.

In addition to each SDS, attach a summary of the above information for each specific wastestream and the associated chemical additives. Specify which outfalls are affected.

Attachment: T-3 Treatment Chemicals and SDSs

c. Cooling Towers and Boilers

If the facility currently or proposes to use cooling towers or boilers that discharge blowdown or other wastestreams to the outfall(s), complete the following table.

Cooling Towers and Boilers

Type of Unit	Number of Units	Daily Avg Blowdown (gallons/day)	Daily Max Blowdown (gallons/day)
Cooling Towers	0	N/A	N/A
Boilers	1	10,000	12,000

Item 6. Stormwater Management (Instructions, Page 44)

Will any existing/proposed outfalls discharge stormwater associated with industrial activities, as defined at *40 CFR § 122.26(b)(14)*, commingled with any other wastestream?

☒ Yes ☐ No

If **yes**, briefly describe the industrial processes and activities that occur outdoors or in a manner which may result in exposure of the activities or materials to stormwater: See Attachment T-1 Facility Description.

Item 7. Domestic Sewage, Sewage Sludge, and Septage Management and Disposal (Instructions, Page 44)

Domestic Sewage - Waste and wastewater from humans or household operations that is discharged to a wastewater collection system or otherwise enters a treatment works.

a. Check the box next to the appropriate method of domestic sewage and domestic sewage sludge treatment or disposal. Complete Worksheet 5.0 or Item 7.b if directed to do so.

☐ Domestic sewage is routed (i.e., connected to or transported to) to a WWTP permitted to receive domestic sewage for treatment, disposal, or both. Complete Item 7.b.

☒ Domestic sewage disposed of by an on-site septic tank and drainfield system. Complete Item 7.b. *(Note: Aerobic septic system with spray field)*

☐ Domestic and industrial treatment sludge ARE commingled prior to use or disposal.

☐ Industrial wastewater and domestic sewage are treated separately, and the respective sludge IS NOT commingled prior to sludge use or disposal. Complete Worksheet 5.0.

☐ Facility is a POTW. Complete Worksheet 5.0.

☐ Domestic sewage is not generated on-site.

☐ Other (e.g., portable toilets), specify and Complete Item 7.b: N/A

b. Provide the name and TCEQ, NPDES, or TPDES Permit No. of the waste-disposal facility which receives the domestic sewage/septage. If hauled by motorized vehicle, provide the name and TCEQ Registration No. of the hauler.

Domestic Sewage Plant/Hauler Name

Plant/Hauler Name	Permit/Registration No.
N/A – Not related to amendment request	

Item 8. Improvements or Compliance/Enforcement Requirements (Instructions, Page 45)

a. Is the permittee currently required to meet any implementation schedule for compliance or enforcement?

☒ Yes ☐ No

b. Has the permittee completed or planned for any improvements or construction projects?

☒ Yes ☐ No

c. If **yes** to either 8.a **or** 8.b, provide a brief summary of the requirements and a status update: See Other Requirement No. 26 in TPDES permit.

Item 9. Toxicity Testing (Instructions, Page 45)

Have any biological tests for acute or chronic toxicity been made on any of the discharges or on a receiving water in relation to the discharge within the last three years?

☒ Yes ☐ No

If **yes**, identify the tests and describe their purposes: Routine biomonitoring is conducted for Outfall 001 as specified in the current TPDES permit.

Additionally, attach a copy of all tests performed which **have not** been submitted to the TCEQ or EPA. **Attachment:** N/A

Item 10. Off-Site/Third Party Wastes (Instructions, Page 45)

a. Does or will the facility receive wastes from off-site sources for treatment at the facility, disposal on-site via land application, or discharge via a permitted outfall?

☐ Yes ☒ No

If **yes**, provide responses to Items 10.b through 10.d below.

If **no**, proceed to Item 11.

b. Attach the following information to the application:

- List of wastes received (including volumes, characterization, and capability with on-site wastes).
- Identify the sources of wastes received (including the legal name and addresses of the generators).
- Description of the relationship of waste source(s) with the facility's activities.

Attachment: N/A

c. Is or will wastewater from another TCEQ, NPDES, or TPDES permitted facility commingled with this facility's wastewater after final treatment and prior to discharge via the final outfall/point of disposal?

☐ Yes ☐ No

If **yes**, provide the name, address, and TCEQ, NPDES, or TPDES permit number of the contributing facility and a copy of any agreements or contracts relating to this activity.

Attachment: N/A

d. Is this facility a POTW that accepts/will accept process wastewater from any SIU and has/is required to have an approved pretreatment program under the NPDES/TPDES program?

☐ Yes ☐ No

If **yes**, **Worksheet 6.0** of this application **is required**.

Item 11. Radioactive Materials (Instructions, Page 46)

a. Are/will radioactive materials be mined, used, stored, or processed at this facility?

☐ Yes ☒ No

If **yes**, use the following table to provide the results of one analysis of the effluent for all radioactive materials that may be present. Provide results in pCi/L.

Radioactive Materials Mined, Used, Stored, or Processed

Radioactive Material Name	Concentration (pCi/L)
N/A	

b. Does the applicant or anyone at the facility have any knowledge or reason to believe that radioactive materials may be present in the discharge, including naturally occurring radioactive materials in the source waters or on the facility property?

☐ Yes ☒ No

If **yes**, use the following table to provide the results of one analysis of the effluent for all radioactive materials that may be present. Provide results in pCi/L. Do not include information provided in response to Item 11.a.

Radioactive Materials Present in the Discharge

Radioactive Material Name	Concentration (pCi/L)
N/A	

Item 12. Cooling Water (Instructions, Page 46)

a. Does the facility use or propose to use water for cooling purposes?

☒ Yes

☐ No

☐ Decommissioned: N/A

☐ To Be Decommissioned: N/A

If **yes**, complete Items 12.b thru 12.f. If **no**, stop here.

If **decommissioned**, provide the date operation ceased and stop here.

If to **be decommissioned**, provide the date operation is anticipated to cease and stop here.

b. Cooling water is/will be obtained from a groundwater source (e.g., on-site well).

☐ Yes ☒ No

If **yes**, stop here. If **no**, continue.

c. Cooling Water Supplier

1. Provide the name of the owner(s) and operator(s) for the CWIS that supplies or will supply water for cooling purposes to the facility.

Cooling Water Intake Structure(s) Owner(s) and Operator(s)

CWIS ID				
Owner				
Operator				
N/A – Not related to permit amendment.				

2. Cooling water is/will be obtained from a Public Water Supplier (PWS)

☐ No ☐ Yes; PWS No.: N/A

If **no**, continue. If **yes**, provide the PWS Registration No. and stop here.

3. Cooling water is/will be obtained from a reclaimed water source?

☐ No ☐ Yes; Auth No.: N/A

If **no**, continue. If **yes**, provide the Reuse Authorization No. and stop here.

4. Cooling water is/will be obtained from an Independent Supplier

☐ No ☐ Yes; AIF: N/A

If **no**, proceed to Item 12.d. If **yes**, provide the actual intake flow of the Independent Supplier's CWIS that is/will be used to provide water for cooling purposes and proceed.

d. 316(b) General Criteria

1. The CWIS(s) used to provide water for cooling purposes to the facility has or will have a cumulative design intake flow of 2 MGD or greater.

☐ Yes ☐ No

2. At least 25% of the total water withdrawn by the CWIS(s) is/will be used at the facility exclusively for cooling purposes on an annual average basis.

☐ Yes ☐ No

3. The CWIS(s) withdraw(s)/propose(s) to withdraw water for cooling purposes from surface waters that meet the definition of Waters of the United States in *40 CFR § 122.2*.

☐ Yes ☐ No. Explanation: N/A

If **no**, provide an explanation of how the waterbody does not meet the definition of Waters of the United States in *40 CFR § 122.2*.

If **yes** to all three questions in Item 12.d, the facility **meets** the minimum criteria to be subject to the full requirements of Section 316(b) of the CWA. Proceed to **Item 12.f**.

If **no** to any of the questions in Item 12.d, the facility **does not meet** the minimum criteria to be subject to the full requirements of Section 316(b) of the CWA; however, a determination is required based upon BPJ. Proceed to **Item 12.e**.

e. The facility does not meet the minimum requirements to be subject to the fill requirements of Section 316(b) **and uses**/proposes **to use cooling towers**.

☐ Yes ☐ No

If **yes**, stop here. If **no**, complete Worksheet 11.0, Items 1.a, 1.b.1-3 and 6, 2.b.1, and 3.a to allow for a determination based upon BPJ.

f. Oil and Gas Exploration and Production

1. The facility is subject to requirements at 40 CFR Part 435, Subparts A or D.

☐ Yes ☐ No

If **yes**, continue. If **no**, skip to Item 12.g.

2. The facility is an existing facility as defined at 40 CFR § 125.92(k) or a new unit at an existing facility as defined at 40 CFR § 125.92(u).

☐ Yes ☐ No

If **yes**, complete Worksheet 11.0, Items 1.a, 1.b.1-3 and 6, 2.b.1, and 3.a to allow for a determination based upon BPJ. If **no**, skip to Item 12.g.3.

g. Compliance Phase and Track Selection

1. Phase I – New facility subject to 40 CFR Part 125, Subpart I

☐ Yes ☐ No

If **yes**, check the box next to the compliance track selection, attach the requested information, and complete Worksheet 11.0, Items 2 and 3, and Worksheet 11.2.

☐ Track I – AIF greater than 2 MGD, but less than 10 MGD

- Attach information required by *40 CFR §§ 125.86(b)(2)-(4)*.

☐ Track I – AIF greater than 10 MGD

- Attach information required by *40 CFR § 125.86(b)*.

☐ Track II

- Attach information required by *40 CFR § 125.86(c)*.

Attachment: N/A

2. Phase II – Existing facility subject to 40 CFR Part 125, Subpart J

☐ Yes ☐ No

If **yes**, complete Worksheets 11.0 through 11.3, as applicable.

3. Phase III – New facility subject to 40 CFR Part 125, Subpart N

☐ Yes ☐ No

If **yes**, check the box next to the compliance track selection and provide the requested information.

☐ Track I – Fixed facility

- Attach information required by 40 CFR § 125.136(b) and complete Worksheet

11.0, Items 2 and 3, and Worksheet 11.2.

☐ Track I – Not a fixed facility

- Attach information required by 40 CFR § 125.136(b) and complete Worksheet 11.0, Item 2 (except CWIS latitude/longitude under Item 2.a).

☐ Track II – Fixed facility

- Attach information required by 40 CFR § 125.136(c) and complete Worksheet 11.0, Items 2 and 3.

Attachment: N/A

Item 13. Permit Change Requests (Instructions, Page 48)

This item is only applicable to existing permitted facilities.

a. Is the facility requesting a **major amendment** of an existing permit?

☒ Yes ☐ No

If **yes**, list each request individually and provide the following information: 1) detailed information regarding the scope of each request and 2) a justification for each request. Attach any supplemental information or additional data to support each request.

1. Add a new proposed internal Outfall 401 for the discharge of low volume wastes, metal cleaning wastes, coal pile runoff, and stormwater.
2. Add a new proposed Retention Pond to the list of impoundments in Other Requirement No. 17.

b. Is the facility requesting any **minor amendments** to the permit?

☒ Yes ☐ No

If **yes**, list and describe each change individually.

Change the label of the Secondary Ash Pond to the Secondary Pond on pages 2b and 17 of the permit.

c. Is the facility requesting any **minor modifications** to the permit?

☐ Yes ☒ No

If **yes**, list and describe each change individually.

N/A

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 1.0: EPA CATEGORICAL EFFLUENT GUIDELINES

This worksheet **is required** for all applications for TPDES permits for discharges of wastewaters subject to EPA categorical effluent limitation guidelines (ELGs).

Item 1. Categorical Industries (Instructions, Page 53)

Is this facility subject to any 40 CFR categorical ELGs outlined on page 53 of the instructions?

☒ Yes ☐ No

If **no**, this worksheet is not required. If **yes**, provide the appropriate information below.

40 CFR Effluent Guideline

Industry	40 CFR Part
Steam Electric Power Generating	423

Item 2. Production/Process Data (Instructions, Page 54)

NOTE: For all TPDES permit applications requesting individual permit coverage for discharges of oil and gas exploration and production wastewater (discharges into or adjacent to water in the state, falling under the Oil and Gas Extraction Effluent Guidelines – 40 CFR Part 435), see Worksheet 12.0, Item 2 instead.

a. Production Data

Provide appropriate data for effluent guidelines with production-based effluent limitations.

Production Data

Subcategory	Actual Quantity/Day	Design Quantity/Day	Units
N/A			

b. Organic Chemicals, Plastics, and Synthetic Fibers Manufacturing Data (40 CFR Part 414)

Provide each applicable subpart and the percent of total production. Provide data for metal-bearing and cyanide-bearing wastestreams, as required by *40 CFR Part 414, Appendices A and B*.

Percentage of Total Production

Subcategory	Percent of Total Production	Appendix A and B - Metals	Appendix A - Cyanide
N/A			

c. Refineries (40 CFR Part 419)

Provide the applicable subcategory and a brief justification.

N/A

Item 3. Process/Non-Process Wastewater Flows (Instructions, Page 54)

Provide a breakdown of wastewater flow(s) generated by the facility, including both process and non-process wastewater flow(s). Specify which wastewater flows are to be authorized for discharge under this permit and the disposal practices for wastewater flows, excluding domestic, which are not to be authorized for discharge under this permit.

See Attachment T-1 Facility Description, Table 1 Wastewater Flows by Outfall.

Item 4. New Source Determination (Instructions, Page 54)

Provide a list of all wastewater-generating processes subject to EPA categorical ELGs, identify the appropriate guideline Part and Subpart, and provide the date the process/construction commenced.

Wastewater Generating Processes Subject to Effluent Guidelines

Process	EPA Guideline Part	EPA Guideline Subpart	Date Process/ Construction Commenced
Once through cooling water	423	N/A	1978
Fly ash and bottom ash transport water	423	N/A	1978
Low volume wastes	423	N/A	1978
Metal cleaning waste	423	N/A	1978
Coal pile runoff	423	N/A	1978

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 4.0: RECEIVING WATERS

This worksheet **is required** for all TPDES permit applications.

Item 1. Domestic Drinking Water Supply (Instructions, Page 80)

a. There is a surface water intake for domestic drinking water supply located within 5 (five) miles downstream from the point/proposed point of discharge.

☐ Yes ☒ No

If **no**, stop here and proceed to Item 2. If **yes**, provide the following information:

1. The legal name of the owner of the drinking water supply intake: N/A
2. The distance and direction from the outfall to the drinking water supply intake: N/A

b. Locate and identify the intake on the USGS 7.5-minute topographic map provided for Administrative Report 1.0.

☐ Check this box to confirm the above requested information is provided.

Item 2. Discharge Into Tidally Influenced Waters (Instructions, Page 80)

If the discharge is to tidally influenced waters, complete this section. Otherwise, proceed to Item 3.

a. Width of the receiving water at the outfall: N/A feet

b. Are there oyster reefs in the vicinity of the discharge?

☐ Yes ☐ No

If **yes**, provide the distance and direction from the outfall(s) to the oyster reefs: N/A

c. Are there sea grasses within the vicinity of the point of discharge?

☐ Yes ☐ No

If **yes**, provide the distance and direction from the outfall(s) to the grasses: N/A

Item 3. Classified Segment (Instructions, Page 80)

The discharge is/will be directly into (or within 300 feet of) a classified segment.

☒ Yes ☐ No

If **yes**, stop here and do not complete Items 4 and 5 of this worksheet or Worksheet 4.1.

If **no**, complete Items 4 and 5 and Worksheet 4.1 may be required.

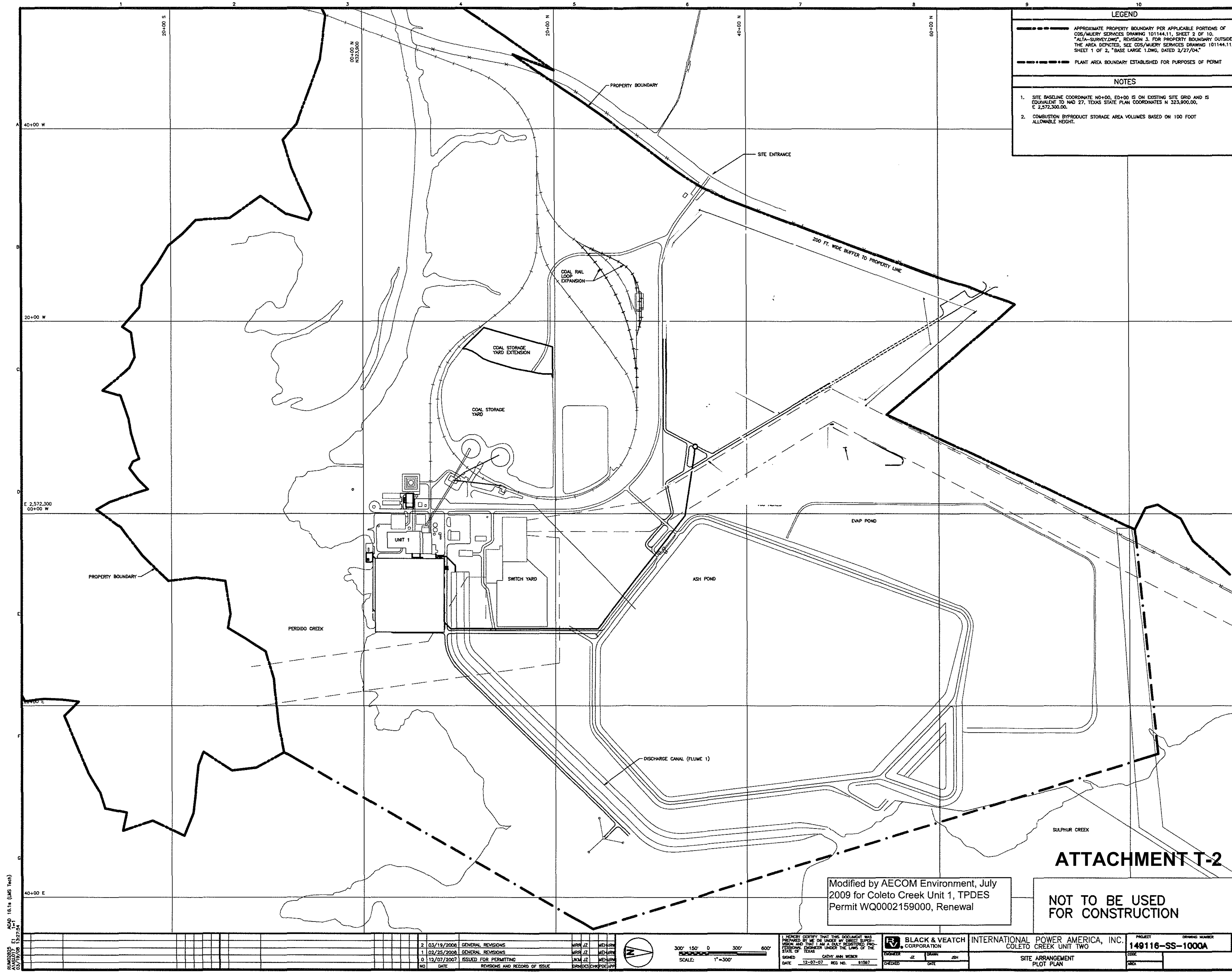
LEGEND
APPROXIMATE PROPERTY BOUNDARY PER APPLICABLE PORTIONS OF CDS/MUERY SERVICES DRAWING 101144.11, SHEET 2 OF 10, "ALTA-SURVEY.DWG", REVISION 3. FOR PROPERTY BOUNDARY OUTSIDE THE AREA DEPICTED, SEE CDS/MUERY SERVICES DRAWING 101144.11, SHEET 1 OF 2, "BASE LARGE 1.DWG, DATED 2/27/04."
PLANT AREA BOUNDARY ESTABLISHED FOR PURPOSES OF PERMIT
NOTES
1. SITE BASELINE COORDINATE N0+00, E0+00 IS ON EXISTING SITE GRID AND IS EQUIVALENT TO NAD 27, TEXAS STATE PLAN COORDINATES N 323,900.00, E 2,572,300.00.
2. COMBUSTION BYPRODUCT STORAGE AREA VOLUMES BASED ON 100 FOOT ALLOWABLE HEIGHT.
PROPERTY BOUNDARY
SITE ENTRANCE
200 FT. WIDE BUFFER TO PROPERTY LINE
COAL RAIL LOOP EXPANSION
COAL STORAGE YARD EXTENSION
COAL STORAGE YARD
UNIT 1
SWITCH YARD
ASH POND
EVAP POND
PERDIDO CREEK
DISCHARGE CANAL (FLUME 1)
SULPHUR CREEK
ATTACHMENT T-2
Modified by AECOM Environment, July 2009 for Coleto Creek Unit 1, TPDES Permit WQ0002159000, Renewal
NOT TO BE USED FOR CONSTRUCTION
2 03/19/2008 GENERAL REVISIONS
1 02/25/2008 GENERAL REVISIONS
0 12/07/2007 ISSUED FOR PERMITTING
NO DATE REVISIONS AND RECORD OF ISSUE
SCALE: 1"=300'
I HEREBY CERTIFY THAT THIS DOCUMENT WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF TEXAS
SIGNED CATHY ANN WEBER
DATE 12-07-07 REG NO. 91597
BLACK & VEATCH CORPORATION
INTERNATIONAL POWER AMERICA, INC.
COLETO CREEK UNIT TWO
SITE ARRANGEMENT PLOT PLAN
149116-SS-1000A
REV 2

Table 1. Wastewater Sources by Outfall

Outfall		Wastewater Sources	Applicable Effluent Guideline 40 CFR 423	Monthly Average (MGD)
001	001	Once-through cooling water (condenser cooling water and auxiliary cooling water) from Unit 1	423.12(b)(1) 423.12(b)(6) 423.13(b)(1)	557
	101	Treated domestic wastewater	N/A	0.01
	201	Fly ash transport water *(no longer generated)*	N/A	Intermittent and flow-variable
		Bottom ash transport water	423.12(b)(1) 423.12(b)(4) 423.13(k)(1)-(2)	
		Low volume waste sources	423.12(b)(1) 423.12(b)(3)	
		Metal cleaning waste	423.12(b)(1) 423.12(b)(5)	
		Stormwater	N/A	
	301	Coal pile runoff	423.12(b)(1) 423.12(b)(9)-(10)	Intermittent and flow-variable
		Treated domestic wastewater (Outfall 101)	N/A	
	401 (proposed)	Low volume waste sources	423.12(b)(1) 423.12(b)(3)	Intermittent and flow-variable
		Metal cleaning waste	423.12(b)(1) 423.12(b)(5)	
		Coal pile runoff	423.12(b)(1) 423.12(b)(9)-(10)	
		Stormwater	N/A	
MGD - million gallons per day				

Coleto Creek Reservoir
001
Discharge Canal
201
Ash Handling System
Primary Ash Pond
Secondary Pond
401
39 MGD
Service Water Pumps
Once Through Misc. Cooling
Treatment Pond
301
557 MGD
Intake Screens
Bleach Treatment
Boiler Sump
518 MGD
Circulating Water Pumps
Once Through Condenser Cooling
Makeup Pumps
3.0 MGD
Emergency Fire and Cooling Water Supply
Fire Water Pump
2.8 MGD
Exhaust Steam
Condenser Polisher Regenerant
Fabric Filter Area
Coal Pile Runoff Pond
Anaerobic Sprinklers
0.006 MGD
Condensate Return
Blowdown
0.01 MGD
Guadalupe River
Steam
Turbine Generator
Air Preheater Wash
Coal Pile Runoff
Boiler
Boiler Cleaning Waste
Sewage Treatment System
Domestic and Sanitary Use
Makeup
0.076 MGD
Transformer Sumps
Laboratory Drains
5.4 MGD
Water Wells
0.01 MGD
Filters
Demineralizer
Ash
Plant Drains and Sumps
Reservoir Flow to Coleto Creek
R.O. Unit
Demin. Regenerant
Storm Water
Demin. Regenerant
Backwash
SW 001
SW 002
SW 003
Storm Water

REV.

Luminant Power

WATER BALANCE FLOW DIAGRAM

DWG. NO. COC1-M | SH. NO. 1 OF 1 | REV. 1

Coleto Creek Reservoir
001
Discharge Canal
201
Ash Handling System
Primary Ash Pond
Secondary Pond
401
39 MGD
Service Water Pumps
Once Through Misc. Cooling
Treatment Pond
301
557 MGD
Intake Screens
Bleach Treatment
Boiler Sump
518 MGD
Circulating Water Pumps
Once Through Condenser Cooling
Makeup Pumps
3.0 MGD
Emergency Fire and Cooling Water Supply
Fire Water Pump
2.8 MGD
Exhaust Steam
Condenser Polisher Regenerant
Fabric Filter Area
Coal Pile Runoff Pond
Anaerobic Sprinklers
0.006 MGD
Condensate Return
Blowdown
0.01 MGD
Guadalupe River
Steam
Turbine Generator
Air Preheater Wash
Coal Pile Runoff
Boiler
Boiler Cleaning Waste
Sewage Treatment System
Domestic and Sanitary Use
Makeup
0.076 MGD
Transformer Sumps
Laboratory Drains
5.4 MGD
Water Wells
0.01 MGD
Filters
Demineralizer
Ash
Plant Drains and Sumps
Reservoir Flow to Coleto Creek
R.O. Unit
Demin. Regenerant
Storm Water
Demin. Regenerant
Backwash
SW 001
SW 002
SW 003
Storm Water

REV.

Luminant Power

WATER BALANCE FLOW DIAGRAM

DWG. NO. COC1-M | SH. NO. 1 OF 1 | REV. 1

ATTACHMENT T-0
COLETO CREEK POWER STATION
AMENDMENT REQUESTS
TPDES PERMIT NO. WQ0002159000

1. Add Internal Outfall 401 2
2. Add Retention Pond to Other Requirement No. 17 2
3. Label Change 2

COLETO CREEK POWER STATION
AMENDMENT REQUESTS
TPDES PERMIT NO. WQ0002159000

Coleto Creek Power, LLC requests the following amendments to TPDES Permit No. WQ0002159000 for the Coleto Creek Power Station.

1. Add a new proposed internal Outfall 401 for the discharge of low volume wastes, metal cleaning wastes, coal pile runoff, and stormwater.
2. Add a new proposed Retention Pond to the list of impoundments in Other Requirement No. 17.
3. Change the label for the Secondary Pond.

Further discussion of the requested amendments is provided in the following sections.

1. ADD INTERNAL OUTFALL 401

Coleto Creek Power requests the addition of new proposed internal Outfall 401 to authorize the discharge of low volume wastes, metal cleaning wastes, coal pile runoff, and stormwater. Outfall 401 is one of the changes planned at the facility as part of its conversion from coal to natural gas for the production of electricity.

Low volume wastes, metal cleaning wastes, and some stormwater are routed to the boiler sump. The boiler sump currently discharges to the Primary Ash Pond, which flows to the Secondary Pond, which flows to internal Outfall 201. Both ponds are scheduled to be closed and wastewaters from the boiler sump will be rerouted to a new proposed Retention Pond. Outfall 401 will be the discharge from the Retention Pond to Flume 1, which flows to final Outfall 001.

Coal pile runoff will be rerouted to discharge into Flume 1 via Outfall 301. Rerouting of water from the Coal Pile Retention Pond will also include the option to discharge to the boiler sump with eventual discharge via Outfall 401.

Outfall 201 will be retained in the TPDES permit until closure of the ponds and when all discharges to the outfall have ceased.

2. ADD RETENTION POND TO OTHER REQUIREMENT NO. 17

Coleto Creek Power requests that the new proposed Retention Pond be added to the list of facility impoundments in Other Requirement No. 17 in the TPDES permit.

3. LABEL CHANGE

The label for the Secondary Ash Pond should be changed to the Secondary Pond on page 2b (Outfall 201) and page 17 (Other Requirement No. 17).

ATTACHMENT T-1

COLETO CREEK POWER, LLC
COLETO CREEK POWER STATION
FACILITY DESCRIPTION

SITE OPERATIONS **2**

COOLING WATER SYSTEM **2**

OUTFALLS **3**

WASTEWATER SOURCES **3**

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TABLE 1. WASTEWATER SOURCES BY OUTFALL

FIGURE 1. COLETO CREEK RESERVOIR CONFIGURATION
FIGURE 2. WATER BALANCE FLOW DIAGRAM

COLETO CREEK POWER, LLC
COLETO CREEK POWER STATION
FACILITY DESCRIPTION

This document describes the Coleto Creek Power Station near Fannin, Texas in relation to its wastewater discharge TPDES Permit No. WQ0002159000. The station is located on approximately 8,000 acres on FM 2987.

This description includes outfall locations and wastewaters discharged, wastewater and stormwater management, and applicability of national effluent guidelines.

SITE OPERATIONS

Coleto Creek Power Station currently uses coal to produce electricity, but expects to complete conversion to natural gas by 2027. The generation capacity of Coleto Creek Unit One (CC1) is a nominal net 632 megawatts.

Below is a summary of changes that are planned for the facility. Additional detail is provided in the sections that follow.

Planned facility changes

- Conversion of fuel source from coal to natural gas
- After conversion to natural gas, rerouting of some wastewaters to a new Retention Pond, with discharge via new Outfall 401

COOLING WATER SYSTEM

Coleto Creek Power, LLC owns the cooling water intake structure (CWIS) and wastewater treatment system that services CC1. CC1 uses water from Coleto Creek Reservoir for cooling. Coleto Creek Reservoir was completed in 1980 for use as an industrial cooling impoundment and covers approximately 3,100 acres. A dam with a spillway to Coleto Creek is located on the southeast side of the Reservoir. The Reservoir receives drainage from four major creeks; they are from south to north, Perdido Creek, Sulphur Creek, Turkey Creek, and Coleto Creek (see Figure 1). The drainage area for the Reservoir is approximately 507 square miles, and the average depth of the Reservoir is about eleven feet. The Coleto Creek Power Station is located on the southwestern side of the Reservoir between the Perdido Creek and Turkey Creek arms. The Coleto Creek Reservoir dam and park facilities are maintained by the Guadalupe- Blanco River Authority (GBRA).

Coleto Creek Power, LLC owns and operates the CWIS. The facility is subject to the requirements of Section 316(b) of the Clean Water Act (CWA) because the CWIS withdraws more than 2 million gallons per day (MGD) and more than 25% of the water withdrawn is used for cooling purposes within the facility. Coleto Creek Reservoir is a cooling water impoundment and the TCEQ has determined that the facility's CWIS is operated in a manner consistent with a closed-cycle recirculating system

(CCRS), as defined at 40 CFR 125.92(c). The operation of a CCRS reduces withdrawals from surface waters effectively, thereby reducing the impingement and entrainment of aquatic organisms. The TCEQ has determined that the facility meets Best Technology Available (BTA) standards.

OUTFALLS

There are four outfalls (001, 101, 201, 301) authorized by the current TPDES permit. Outfall 401 is a new proposed outfall. Sources of wastewater for each outfall are listed in Table 1. A wastewater flow diagram is provided in Figure 2.

Outfall 001 is the primary outfall, used to discharge once-through cooling water from the condenser and miscellaneous heat exchangers. Outfall 001 flows from the Flume 1 discharge canal to the Sulphur Creek arm of Coleto Creek Reservoir.

Outfall 101 is authorized to discharge treated domestic (sanitary) wastewater. It is currently inactive, but is being retained in the TPDES permit should it be reactivated.

Outfall 201 is authorized to discharge bottom ash transport water, low volume waste, metal cleaning waste, and stormwater. Fly ash transport water, which was previously discharged through Outfall 201, is no longer generated. Outfall 201 receives effluent from the Secondary Pond and discharges into the Flume 1 discharge canal where it commingles with other wastewaters discharged via Outfall 001.

Outfall 301 was added to the TPDES permit in 2023 for the discharge of coal pile runoff and treated domestic wastewater (via Outfall 101), but it has not been constructed yet. The facility plans to construct Outfall 301 where it will discharge into the Flume 1 discharge canal.

Outfall 401 is a proposed outfall that will discharge low volume waste, metal cleaning waste, coal pile runoff, and stormwater. These wastewaters will be routed to a proposed Retention Pond. Outfall 401 will be the discharge from the Retention Pond into the Flume 1 discharge canal.

WASTEWATER SOURCES

Once-through Cooling Water

Once-through cooling water is used to cool and condense steam for reuse, and circulates continuously when the plant is generating electricity. Water is pumped from the Perdido Creek arm of the Reservoir into the condensers after passing through traveling intake screens. The circulating flow is periodically chlorinated upstream of the condensers to control biofouling.

Once-through cooling water is discharged from the condenser at the head of Flume 1, which continues approximately one-mile before entering the Sulphur Creek arm of the Reservoir (see Figure 1). The TPDES monitoring location for Outfall 001 is in Flume 1 approximately 200 feet upstream of the confluence with Sulphur Creek. Dike 1 on the Sulphur Creek arm prevents the cooling water from entering the main part of the reservoir at that location. Flume 2 routes the cooling water to the Turkey Creek arm of the Reservoir. Dike 2 on the Turkey Creek arm regulates the upstream level and returns

the cooling water to the main body of the Coleto Creek Reservoir. Thermal load is rejected from the water during this travel by evaporative cooling.

Low Pressure Service Water

The low pressure service water system provides cooling for miscellaneous heat exchangers in the plant and also supplies the fire protection system. The system is fed by pumps located at the intake along with the main circulating pumps behind the intake screens. The wastewater is either discharged with the circulating water from the condenser to Outfall 001, or is used in the ash handling system with eventual discharge to Outfall 201.

Coal Storage and Handling System

Coal is stored in an on-site pile and runoff from the coal pile storage area is contained in a 10-acre Coal Pile Retention Pond. Water from coal storage area dust suppression also drains to the pond. Although much of the water evaporates in the Coal Pile Retention Pond, water may be routed from the pond to Outfall 301 or routed to the boiler sump where it would commingle with other wastewaters that will discharge through Outfall 401.

Ash Handling System

Bottom ash is removed from the boiler in an enclosed wet system. Bottom ash, economizer ash, and mill rejects are hydraulically sluiced to the 190-acre Primary Ash Pond. Solids settle in this pond. Water overflows a weir into a 10-acre Secondary Pond for final settling. The Secondary Pond effluent is routed to Outfall 201. Makeup water for ash transport comes from the low pressure service water system.

Fly ash is pneumatically conveyed to silos from where it can be loaded into trucks and sold for beneficial reuse. Bottom ash may also be dewatered and trucked off-site for beneficial reuse.

The Primary Ash Pond is scheduled for closure by October 2028. Dewatering and consolidation activities are expected to begin in 2025. The station will continue to operate during closure activities. Flows to the Primary Ash Pond will eventually cease. Outfall 201 will remain in use until the Primary Ash Pond and Secondary Pond are completely dewatered and closed.

Evaporation Pond

The Evaporation Pond is currently inactive with no wastewaters routed to it.

Boiler Water Circuit

The boiler water circuit consists of high purity, chemically treated water that circulates in a closed loop in the steam cycle. To maintain purity, a portion is periodically discharged (boiler blowdown). The boiler is periodically drained for maintenance, and the drainage is routed through the plant drains.

The boiler sump receives boiler blowdown, boiler cleaning wastes, filter backwash from well water treatment, other wastewaters from condenser polisher regenerant, fabric filter area, air preheater wash, transformer sumps, and plant drains and sumps, and some stormwater.

The boiler sump is currently pumped to the Primary Ash Pond. The boiler sump discharge will be rerouted to a new Retention Pond east of Unit 1. Proposed Outfall 401 will be the discharge from the Retention Pond into Flume 1. The rerouting of the boiler sump discharge is planned during the station fuel conversion outage and expected to be completed by 2027. Along with these changes, rerouting of water from the Coal Pile Retention Pond will include the option to discharge to the boiler sump with eventual discharge via Outfall 401.

Low Volume Waste Processes

Low volume wastes include, but are not limited to, floor drainage (washdown, runoff), laboratory and sampling streams, boiler blowdown, and water treatment system wastewater. All of the low volume wastes are currently authorized for discharge through Outfall 201.

Because the facility handles coal dust and accumulates dust from the atmosphere, both plant area washdown and runoff are controlled. Oil/water separators installed at the facility are listed below. The water effluent from the separators are currently discharged to the Primary Ash Pond via the boiler sump.

Oil/water Separators

- Precipitator area: 5,000-gallon capacity
- Transformer area: 19,000-gallon capacity
- Storeroom: 50-gallon capacity
- Turbine/generator area: 200-gallon capacity
- Tractor garage area: 100-gallon capacity

Two on-site groundwater wells provide water for the potable water system and boiler makeup water system. The well water is treated as needed for facility needs.

The treated water is supplied to the potable water system and to the reverse osmosis (RO) and demineralizer systems for the boiler water makeup system. Water for potable water use is chlorinated and distributed from an aboveground tank. Treatment for boiler makeup water consists of two parallel treatment processes, one consisting of a RO unit followed by a demineralizer and the other consisting only of a demineralizer. Concentrate (reject) from the RO is pumped to the Primary Ash Pond via the boiler sump. The demineralizer resin is regenerated on-site. Acid is used to regenerate the cation resin

and caustic is used to regenerate the anion resin. Regeneration wastes are collected in a sump before being pumped to the Primary Ash Pond via the boiler sump.

A condensate polisher is provided downstream of the condenser. The polisher protects the cycle water from leaks in the condenser and other sources of contamination. The resin from the polisher is regenerated on-site in the same resin regeneration system used for the demineralizer. Regeneration wastes are routed to the boiler sump.

Laboratory wastes of approximately 120 gallons per day (gpd) are routed to the boiler sump. Sampling streams include a mercury sorbent trap sampling system for emissions monitoring, which generates about a quart a week of condensate water with some metals in it.

Facility metal process equipment requires cleaning infrequently. This includes, but is not limited to, boiler tube cleaning, boiler fireside cleaning, and air preheater cleaning. These cleaning processes generally are performed when the unit is shut down, and have specific procedures to ensure that wastes are handled in an appropriate manner. Wastewater from metal cleaning may be directed to the Primary Ash Pond via the boiler sump.

Domestic Wastewater

The on-site domestic (sanitary) wastewater treatment package plant has been inactivated. Currently, domestic wastewater is treated in an on-site aerobic septic system with spray field and there is no discharge of treated domestic wastewater. However, Outfall 101, which is in the current TPDES permit for the discharge of treated domestic wastewater, is being retained as a future option.

Stormwater

Stormwater from the powerblock area of the plant is routed to the Primary Ash Pond via the boiler sump. A large portion of the solids settle in the Primary Ash Pond. Water from the Primary Ash Pond overflows to the Secondary Pond for final settling. Water from the Secondary Pond can be discharged through Outfall 201.

Stormwater from areas of the plant that are not routed to the Primary Ash Pond via the boiler sump is discharged from outfalls authorized under TCEQ's multi-sector general permit (MSGP) No. TXR05T691.

EFFLUENT GUIDELINES

National effluent guidelines that apply to process wastewaters at the Coleto Creek Power Station are those for Steam Electric Power Generating at 40 CFR 423 (see Table 1 for wastewater sources and flows).

Table 1. Wastewater Sources by Outfall

Outfall		Wastewater Sources	Applicable Effluent Guideline 40 CFR 423	Monthly Average (MGD)
001	001	Once-through cooling water (condenser cooling water and auxiliary cooling water) from Unit 1	423.12(b)(1) 423.12(b)(6) 423.13(b)(1)	557
	101	Treated domestic wastewater	N/A	0.01
	201	Fly ash transport water *(no longer generated)*	N/A	Intermittent and flow-variable
		Bottom ash transport water	423.12(b)(1) 423.12(b)(4) 423.13(k)(1)-(2)	
		Low volume waste sources	423.12(b)(1) 423.12(b)(3)	
		Metal cleaning waste	423.12(b)(1) 423.12(b)(5)	
		Stormwater	N/A	
	301	Coal pile runoff	423.12(b)(1) 423.12(b)(9)-(10)	Intermittent and flow-variable
		Treated domestic wastewater (Outfall 101)	N/A	
	401 (proposed)	Low volume waste sources	423.12(b)(1) 423.12(b)(3)	Intermittent and flow-variable
		Metal cleaning waste	423.12(b)(1) 423.12(b)(5)	
		Coal pile runoff	423.12(b)(1) 423.12(b)(9)-(10)	
		Stormwater	N/A	
MGD - million gallons per day				

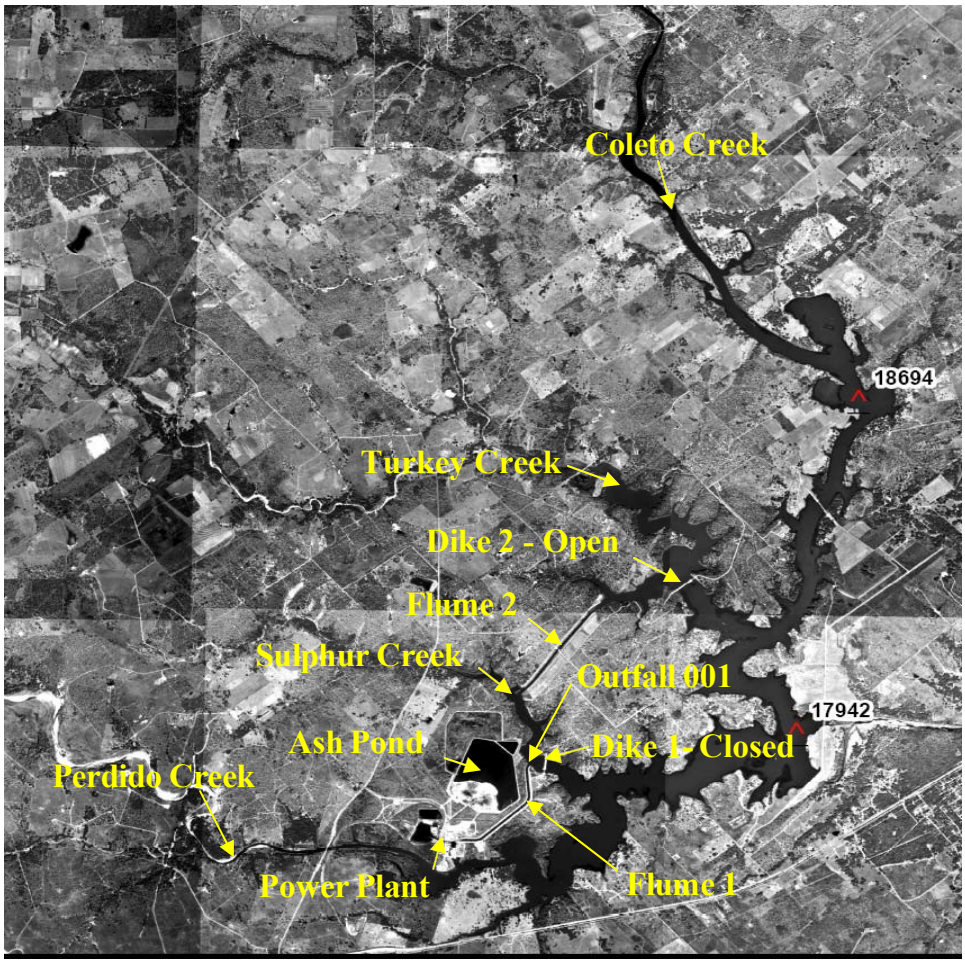

Figure 1. Coleto Creek Reservoir Configuration

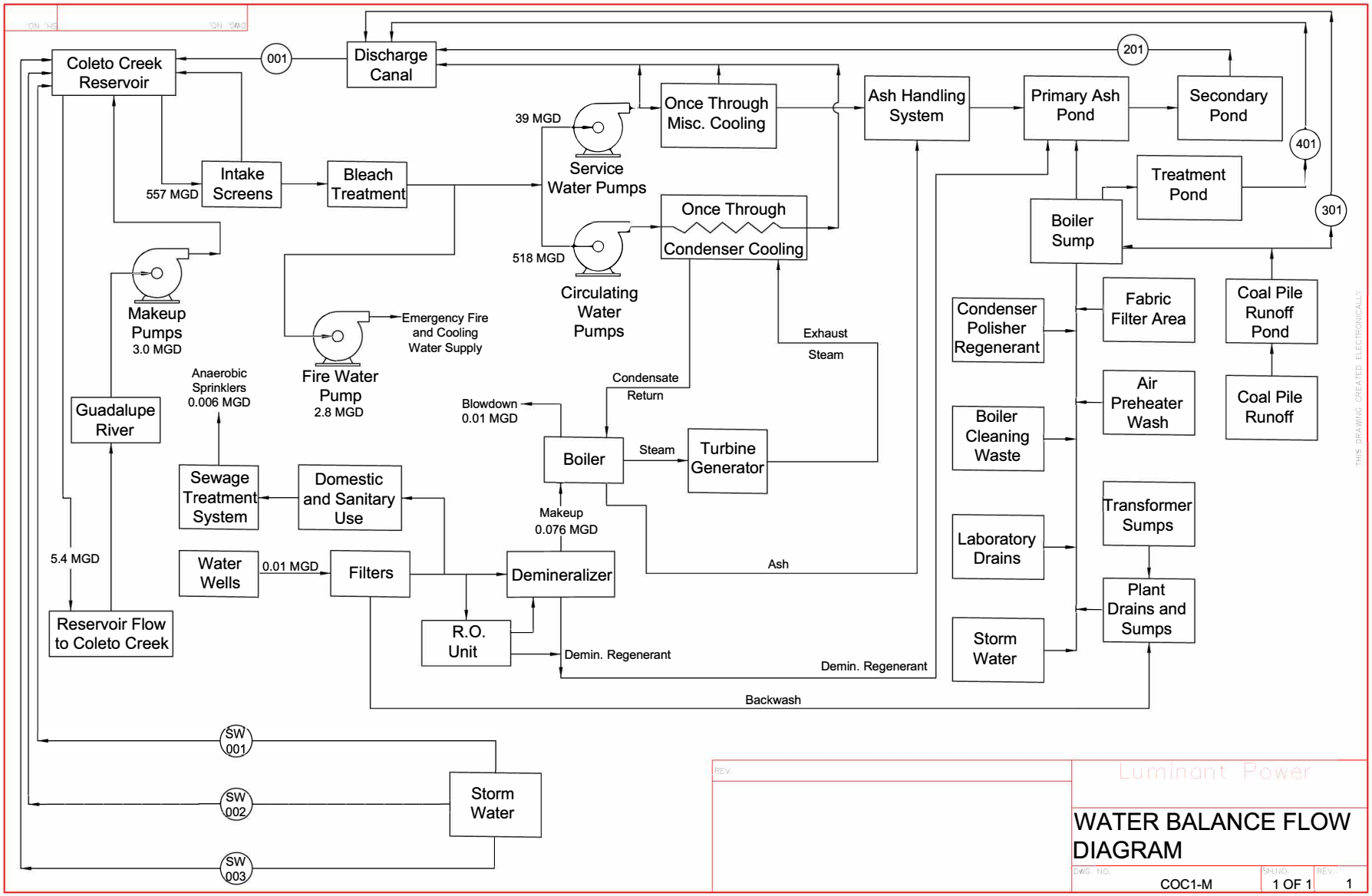

Figure 2. Water Balance Flow Diagram

ATTACHMENT T-3
Treatment Chemicals
Coleto Creek Power WQ0002159000

Product Name	Usage	Dosage	Chemicals Listed in SDS [CAS]	Aquatic Toxicity Data in SDS	Bioaccumulation / Persistence Data in SDS
Ammonium hydroxide	pH adjustment	Intermittent as needed	Ammonium hydroxide [1336-21-6]	Yes	Yes
BULAB 6067	Biocide	Intermittent as needed	Gluteraldehyde [111-30-8]	Yes	No
Caustic soda	pH adjustment	Continuous low concentration feed	Sodium hydroxide [1310-73-2]	Yes	No
ChemTreat P850L	Water clarification	Intermittent as needed	No hazardous ingredients listed	Yes	No
ChemTreat P975L	Water clarification	Intermittent as needed	No hazardous ingredients listed	Yes	No
RoClean L403	Raw water treatment	Intermittent as needed	Chelate agent F [N/A] Inorganic phosphorous compounds [N/A] Organic acid B [N/A]	Yes	No
RoClean P111	Raw water treatment	Intermittent as needed	Chelate agent F [N/A] Polyphosphate sale [N/A] Oxygenated inorganic salt [N/A] Carbonate sale [N/A]	Yes	No
Sodium bisulfite	Raw water treatment	Intermittent as needed	Sodium bisulfite [7631-90-5]	No	No
Sodium hypochlorite	Biocide	Intermittent, not exceeding 2 hours/day	Hypochlorous acid, sodium salt [7681-52-9]	Yes	No
Sulfuric acid	pH adjustment	Intermittent as needed	Sulfuric acid [7664-93-9]	Yes	No
Vitec 3000 NSF	Raw water treatment	Intermittent as needed	Deflocculant / sequestrant [N/A] Chelate agent [N/A]	Yes	Yes

6/3/25

Univar USA Inc Material Safety Data Sheet

MSDS No:	MZA5916A
Version No:	013 2013-03-12
Order No:	

Univar USA Inc., 17425 NE Union Hill Rd., Redmond WA 98052
(425) 889 3400

Emergency Assistance

For emergency assistance involving chemicals call
Chemtrec - (800) 424-9300

UNIVAR USA INC. MSDS NO:MZA5916A
ISSUE DATE:2008-07-14 VERSION:009 2008-07-14
Annotation:

The Version Date and Number for this MSDS is : 07/14/2008 - #009

PRODUCT NAME: AMMONIUM HYDROXIDE (4 19% NH3)

MSDS NUMBER: MZA5916A

DATE ISSUED: 07/14/2008

SUPERSEDES: 12/10/2004

ISSUED BY: 008614

==========

AMMONIUM HYDROXIDE (4 - 19% NH3)

==========

1. PRODUCT IDENTIFICATION

SYNONYMS: AMMONIUM HYDROXIDE SOLUTIONS; AMMONIA AQUEOUS; AMMONIA SOLUTIONS
CAS NO: 1336-21-6
CHEMICAL FORMULA: NH4OH IN H2O

Distributed by:
Univar USA Inc.
17425 NE Union Hill Rd.
Redmond, WA 98052
425-889-3400

==========

2. COMPOSITION/INFORMATION ON INGREDIENTS

INGREDIENT	CAS NO	PERCENT	HAZARDOUS
AMMONIUM HYDROXIDE	1336-21-6	>4	YES
WATER	7732-18-5	<96%	NO

CONTAINS BETWEEN 4 AND 19% AMMONIA.

==========

3. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

POISON! DANGER! CORROSIVE. MAY BE FATAL IF SWALLOWED OR INHALED. MIST AND VAPOR CAUSE BURNS TO EVERY AREA OF CONTACT.

POTENTIAL HEALTH EFFECTS

INHALATION:
VAPORS AND MISTS CAUSE IRRITATION TO THE RESPIRATORY TRACT. HIGHER CONCENTRATIONS CAN CAUSE BURNS, PULMONARY EDEMA AND DEATH. BRIEF EXPOSURE TO 5000 PPM CAN BE FATAL.

INGESTION:
TOXIC! MAY CAUSE CORROSION TO THE ESOPHAGUS AND STOMACH WITH PERFORATION AND PERITONITIS. SYMPTOMS MAY INCLUDE PAIN IN THE MOUTH, CHEST, AND ABDOMEN, WITH COUGHING, VOMITING AND COLLAPSE. INGESTION OF AS LITTLE AS 3-4 ML MAY BE FATAL.

SKIN CONTACT:
CAUSES IRRITATION AND BURNS TO THE SKIN.

EYE CONTACT:
VAPORS CAUSE IRRITATION. SPLASHES CAUSE SEVERE PAIN, EYE DAMAGE, AND PERMANENT BLINDNESS.

CHRONIC EXPOSURE:
REPEATED EXPOSURE MAY CAUSE DAMAGE TO THE TISSUES OF THE MUCOUS MEMBRANES, UPPER RESPIRATORY TRACT, EYES AND SKIN.

AGGRAVATION OF PRE-EXISTING CONDITIONS:
PERSONS WITH PRE-EXISTING EYE DISORDERS OR IMPAIRED RESPIRATORY FUNCTION MAY BE MORE SUSCEPTIBLE TO THE EFFECTS OF THIS MATERIAL.

==========

4. FIRST AID MEASURES

INHALATION:
REMOVE TO FRESH AIR. IF NOT BREATHING, GIVE ARTIFICIAL RESPIRATION. IF BREATHING IS DIFFICULT, GIVE OXYGEN. CALL A PHYSICIAN IMMEDIATELY.

INGESTION:
IF SWALLOWED, DO NOT INDUCE VOMITING. GIVE LARGE QUANTITIES OF WATER. NEVER GIVE ANYTHING BY MOUTH TO AN UNCONSCIOUS PERSON. GET MEDICAL ATTENTION IMMEDIATELY.

SKIN CONTACT:
IMMEDIATELY FLUSH SKIN WITH PLENTY OF WATER FOR AT LEAST 15 MINUTES WHILE REMOVING CONTAMINATED CLOTHING AND SHOES. CALL A PHYSICIAN, IMMEDIATELY. WASH CLOTHING BEFORE REUSE.

EYE CONTACT:
IMMEDIATELY FLUSH EYES WITH GENTLE BUT LARGE STREAM OF WATER FOR AT LEAST 15 MINUTES, LIFTING LOWER AND UPPER EYELIDS OCCASIONALLY. CALL A PHYSICIAN IMMEDIATELY. IMMEDIATE ACTION IS CRITICAL TO MINIMIZE POSSIBILITY OF BLINDNESS.

UNIVAR USA INC.
ISSUE DATE:2008-07-14
Annotation:

MSDS NO:MZA5916A
VERSION:009 2008-07-14

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5. FIRE FIGHTING MEASURES

FIRE:
AUTOIGNITION TEMPERATURE: 651C (1204F)
FLAMMABLE LIMITS IN AIR % BY VOLUME:
LEL: 16; UEL: 25

EXPLOSION:
FLAMMABLE VAPORS MAY ACCUMULATE IN CONFINED SPACES.

FIRE EXTINGUISHING MEDIA:
USE ANY MEANS SUITABLE FOR EXTINGUISHING SURROUNDING FIRE. USE WATER SPRAY TO BLANKET FIRE, COOL FIRE EXPOSED CONTAINERS, AND TO FLUSH NON-IGNITED SPILLS OR VAPORS AWAY FROM FIRE.

SPECIAL INFORMATION:
IN THE EVENT OF A FIRE, WEAR FULL PROTECTIVE CLOTHING AND NIOSH-APPROVED SELF-CONTAINED BREATHING APPARATUS WITH FULL FACEPIECE OPERATED IN THE PRESSURE DEMAND OR OTHER POSITIVE PRESSURE MODE.

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6. ACCIDENTAL RELEASE MEASURES

VENTILATE AREA OF LEAK OR SPILL. KEEP UNNECESSARY AND UNPROTECTED PEOPLE AWAY FROM AREA OF SPILL. WEAR APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT AS SPECIFIED IN SECTION 8. CONTAIN AND RECOVER LIQUID WHEN POSSIBLE. DO NOT FLUSH CAUSTIC RESIDUES TO THE SEWER. RESIDUES FROM SPILLS CAN BE DILUTED WITH WATER, NEUTRALIZED WITH DILUTE ACID SUCH AS ACETIC, HYDROCHLORIC OR SULFURIC. ABSORB NEUTRALIZED CAUSTIC RESIDUE ON CLAY, VERMICULITE OR OTHER INERT SUBSTANCE AND PACKAGE IN A SUITABLE CONTAINER FOR DISPOSAL.
US REGULATIONS (CERCLA) REQUIRE REPORTING SPILLS AND RELEASES TO SOIL, WATER AND AIR IN EXCESS OF REPORTABLE QUANTITIES. THE TOLL FREE NUMBER FOR THE US COAST GUARD NATIONAL RESPONSE CENTER IS (800) 424-8802.
J. T. BAKER NEUTRACIT(R)-2 OR BUCAIM(R) CAUSTIC NEUTRALIZERS ARE RECOMMENDED FOR SPILLS OF THIS PRODUCT.

==========

7. HANDLING AND STORAGE

KEEP IN A TIGHTLY CLOSED CONTAINER, STORED IN A COOL, DRY, VENTILATED AREA. PROTECT AGAINST PHYSICAL DAMAGE. SEPARATE FROM INCOMPATIBILITIES. STORE BELOW 25C. PROTECT FROM DIRECT SUNLIGHT. CONTAINERS OF THIS MATERIAL MAY BE HAZARDOUS WHEN EMPTY SINCE THEY RETAIN PRODUCT RESIDUES (VAPORS, LIQUID); OBSERVE ALL WARNINGS AND PRECAUTIONS LISTED FOR THE PRODUCT.

==========

8. EXPOSURE CONTROLS/PERSONAL PROTECTION

AIRBORNE EXPOSURE LIMITS:
-OSHA PERMISSIBLE EXPOSURE LIMIT (PEL):
50 PPM (NH3)
-ACGIH THRESHOLD LIMIT VALUE (TLV):
25 PPM (NH3) (TWA) 35 PPM (STEL)

VENTILATION SYSTEM:
A SYSTEM OF LOCAL AND/OR GENERAL EXHAUST IS RECOMMENDED TO KEEP EMPLOYEE EXPOSURES BELOW THE AIRBORNE EXPOSURE LIMITS. LOCAL EXHAUST VENTILATION IS GENERALLY PREFERRED BECAUSE IT CAN CONTROL THE EMISSIONS OF THE CONTAMINANT AT ITS SOURCE, PREVENTING DISPERSION OF IT INTO THE GENERAL WORK AREA. PLEASE REFER TO THE ACGIH DOCUMENT, "INDUSTRIAL VENTILATION, A MANUAL OF RECOMMENDED PRACTICES", MOST RECENT EDITION, FOR DETAILS.

PERSONAL RESPIRATORS (NIOSH APPROVED):
IF THE EXPOSURE LIMIT IS EXCEEDED AND ENGINEERING CONTROLS ARE NOT FEASIBLE, A FULL FACEPIECE RESPIRATOR WITH AN AMMONIA/METHYLAMINE CARTRIDGE MAY BE WORN UP TO 50 TIMES THE EXPOSURE LIMIT OR THE MAXIMUM USE CONCENTRATION SPECIFIED BY THE APPROPRIATE REGULATORY AGENCY OR RESPIRATOR SUPPLIER, WHICHEVER IS LOWEST. FOR EMERGENCIES OR INSTANCES WHERE THE EXPOSURE LEVELS ARE NOT KNOWN, USE A FULL-FACEPIECE POSITIVE-PRESSURE, AIR-SUPPLIED RESPIRATOR. WARNING: AIR PURIFYING RESPIRATORS DO NOT PROTECT WORKERS IN OXYGEN-DEFICIENT ATMOSPHERES.

SKIN PROTECTION:
WEAR IMPERVIOUS PROTECTIVE CLOTHING, INCLUDING BOOTS, GLOVES, LAB COAT, APRON OR COVERALLS, AS APPROPRIATE, TO PREVENT SKIN CONTACT. NEOPRENE AND NITRILE RUBBER ARE RECOMMENDED MATERIALS. POLYVINYL ALCOHOL IS NOT RECOMMENDED.

EYE PROTECTION:
USE CHEMICAL SAFETY GOGGLES AND/OR FULL FACE SHIELD WHERE DUSTING OR SPLASHING OF SOLUTIONS IS POSSIBLE. MAINTAIN EYE WASH FOUNTAIN AND QUICK-DRENCH FACILITIES IN WORK AREA.

==========

9. PHYSICAL AND CHEMICAL PROPERTIES

APPEARANCE:
CLEAR, COLORLESS SOLUTION.

BOILING POINT:
CA. 36C (CA. 97F)

ODOR:
AMMONIA ODOR.

MELTING POINT:
-72C (-98F)

SOLUBILITY:
INFINITELY SOLUBLE.

VAPOR DENSITY (AIR=1):
0.60 NH3

SPECIFIC GRAVITY:
0.9 (28% NH4OH)
580 @ 20C FOR 28% SOLUTION.

VAPOR PRESSURE (MM HG):
115 @ 20C FOR 10% SOLUTION;

PH:
13.8 (29% SOLUTION).

EVAPORATION RATE (BUAC=1):
NO INFORMATION FOUND.

% VOLATILES BY VOLUME @ 21C (70F):
NO INFORMATION FOUND.

==========

10. STABILITY AND REACTIVITY

STABILITY:
STABLE UNDER ORDINARY CONDITIONS OF USE AND STORAGE.

HAZARDOUS DECOMPOSITION PRODUCTS:
BURNING MAY PRODUCE AMMONIA, NITROGEN OXIDES.

HAZARDOUS POLYMERIZATION:
WILL NOT OCCUR.

INCOMPATIBILITIES:
ACIDS, ACROLEIN, DIMETHYL SULFATE, HALOGENS, SILVER NITRATE, PROPYLENE OXIDE, NITROMETHANE, SILVER OXIDE, SILVER PERMANGANATE, OLEUM, BETA-PROPIOLACTONE. MOST COMMON METALS.

CONDITIONS TO AVOID:
HEAT, SUNLIGHT, INCOMPATIBLES, SOURCES OF IGNITION.

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11. TOXICOLOGICAL INFORMATION

FOR AMMONIUM HYDROXIDE:
ORAL RAT LD50: 350 MG/KG; EYE, RABBIT, STANDARD DRAIZE, 250 UG; SEVERE, INVESTIGATED AS A MUTAGEN.
FOR AMMONIA:
INHALATION RAT LC50: 2000 PPM/4-HR; INVESTIGATED AS A TUMORIGEN, MUTAGEN.

--------\CANCER LISTS\----------
---NTP CARCINOGEN---

INGREDIENT	KNOWN	ANTICIPATED	IARC CATEGOR
AMMONIUM HYDROXIDE (1336-21-6)	NO	NO	NONE
WATER (7732-18-5)	NO	NO	NONE

==========

12. ECOLOGICAL INFORMATION

ENVIRONMENTAL FATE:
THIS MATERIAL IS NOT EXPECTED TO SIGNIFICANTLY BIOACCUMULATE.

ENVIRONMENTAL TOXICITY:
24 HR LC50 RAINBOW TROUT: 0.008 MG/L;
96 HR LC50 FATHEAD MINNOW: 8.2 MG/L;
48 HR LC50 BLUEGILL: 0.024 MG/L;
48 HR EC50 WATER FLEA: 0.66 MG/L

==========

13. DISPOSAL CONSIDERATIONS

WHATEVER CANNOT BE SAVED FOR RECOVERY OR RECYCLING SHOULD BE MANAGED IN AN APPROPRIATE AND APPROVED WASTE FACILITY. ALTHOUGH NOT A LISTED RCRA HAZARDOUS WASTE, THIS MATERIAL MAY EXHIBIT ONE OR MORE CHARACTERISTICS OF A HAZARDOUS WASTE AND REQUIRE APPROPRIATE ANALYSIS TO DETERMINE SPECIFIC DISPOSAL REQUIREMENTS. PROCESSING, USE OR CONTAMINATION OF THIS PRODUCT MAY CHANGE THE WASTE MANAGEMENT OPTIONS. STATE AND LOCAL DISPOSAL REGULATIONS MAY DIFFER FROM FEDERAL DISPOSAL REGULATIONS.

DISPOSE OF CONTAINER AND UNUSED CONTENTS IN ACCORDANCE WITH FEDERAL, STATE AND LOCAL REQUIREMENTS.

==========

14. TRANSPORT INFORMATION

DOMESTIC (LAND, D.O.T.)

PROPER SHIPPING NAME: AMMONIA SOLUTIONS (WITH 4-19% AMMONIA)
HAZARD CLASS: 8
UN/NA: UN2672 PACKING GROUP: III

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15. REGULATORY INFORMATION

WHMIS CLASSIFICATION: D1B, E

--------\CHEMICAL INVENTORY STATUS - PART 1\---

INGREDIENT	TSCA	EC	JAPAN	AUSTRALIA
AMMONIUM HYDROXIDE (1336-21-6)	YES	YES	YES	YES
WATER (7732-18-5)	YES	YES	YES	YES

--------\CHEMICAL INVENTORY STATUS - PART 2\---

		--CANADA--		
INGREDIENT	KOREA	DSL	NDSL	PHIL.

AMMONIUM HYDROXIDE (1336-21-6)	YES	YES	NO	YES
WATER (7732-18-5)	YES	YES	NO	YES

-------\FEDERAL, STATE & INTERNATIONAL REGULATIONS - PART 1\----------

	-SARA 302-		------SARA 313-----	
INGREDIENT	RQ	TPQ	LIST	CHEMICAL CATG
AMMONIUM HYDROXIDE (1336-21-6)	NO	NO	NO	NO
WATER (7732-18-5)	NO	NO	NO	NO

--------\FEDERAL, STATE & INTERNATIONAL REGULATIONS - PART 2\----------

		-RCRA-	-TSCA-
INGREDIENT	CERCLA	261.33	8(D)
AMMONIUM HYDROXIDE (1336-21-6)	1000	NO	NO
WATER (7732-18-5)	NO	NO	NO

CHEMICAL WEAPONS CONVENTION: NO TSCA 12(B): NO CDTA: NO
SARA 311/312: ACUTE: YES CHRONIC: YES FIRE: NO PRESSURE: NO
REACTIVITY: NO (MIXTURE / LIQUID)

AUSTRALIAN HAZCHEM CODE: 2P
POISON SCHEDULE: S6

WHMIS: THIS MSDS HAS BEEN PREPARED ACCORDING TO THE HAZARD CRITERIA OF THE CONTROLLED PRODUCTS REGULATIONS (CPR) AND THE MSDS CONTAINS ALL OF THE INFORMATION REQUIRED BY THE CPR.

==========

16. OTHER INFORMATION

NFPA RATINGS:
HEALTH: 3 FLAMMABILITY: 1 REACTIVITY: 0

Univar USA Inc Material Safety Data Sheet

For Additional Information contact MSDS Coordinator during business hours, Pacific time: (425) 889-3400

Notice

Univar USA Inc. (”Univar”) expressly disclaims all express or implied warranties of merchantability and fitness for a particular purpose, with respect to the product or information provided herein, and shall under no circumstances be liable for incidental or consequential damages.

Do not use ingredient information and/or ingredient percentages in this MSDS as a product specification. For product specification information refer to a product specification sheet and/or a certificate of analysis. These can be obtained from your local Univar sales office.

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This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process

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All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Univar makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Univar's control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein.

This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process

Buckman

SAFETY DATA SHEET

BULAB 6067

Section 1. Identification

GHS product identifier : BULAB 6067

Other means of identification : Biocides

Product type : Liquid.

Relevant identified uses of the substance or mixture and uses advised against

See label and/or technical data sheet, if available.

Supplier's details : Buckman Laboratories, Inc.
1256 North McLean Boulevard
Memphis, TN 38108
Phone 1-800-282-5626

Emergency telephone number (with hours of operation) : 24 Hour Emergency Phone (901) 767-2722

Section 2. Hazards identification

OSHA/HCS status : This material is considered hazardous by the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Classification of the substance or mixture : ACUTE TOXICITY (oral) - Category 3
ACUTE TOXICITY (inhalation) - Category 2
SKIN CORROSION/IRRITATION - Category 1B
SERIOUS EYE DAMAGE/ EYE IRRITATION - Category 1
RESPIRATORY SENSITIZATION - Category 1
SKIN SENSITIZATION - Category 1
SPECIFIC TARGET ORGAN TOXICITY (SINGLE EXPOSURE) (Respiratory tract irritation) - Category 3

GHS label elements

Hazard pictograms :

Signal word : Danger

Hazard statements : Fatal if inhaled.
Toxic if swallowed.
Causes severe skin burns and eye damage.
May cause allergy or asthma symptoms or breathing difficulties if inhaled.
May cause an allergic skin reaction.
May cause respiratory irritation.

Precautionary statements

Prevention : Wear protective gloves. Wear eye or face protection. Wear respiratory protection. In case of inadequate ventilation wear respiratory protection. Use only outdoors or in a well-ventilated area. Do not breathe vapor. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace.

Section 2. Hazards identification

Response : IF INHALED: Remove victim to fresh air and keep at rest in a position comfortable for breathing. Immediately call a POISON CENTER or physician. If experiencing respiratory symptoms: Call a POISON CENTER or physician. IF SWALLOWED: Immediately call a POISON CENTER or physician. Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water or shower. Wash contaminated clothing before reuse. Immediately call a POISON CENTER or physician. IF ON SKIN: Wash with plenty of soap and water. If skin irritation or rash occurs: Get medical attention. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or physician.

Storage : Store locked up.

Disposal : Dispose of contents and container in accordance with all local, regional, national and international regulations.

Hazards not otherwise classified : None known.

Section 3. Composition/information on ingredients

Substance/mixture : Mixture

Other means of identification : Biocides

Product code : BLB6067

Ingredient name	%	CAS number
Glutaraldehyde	45	111-30-8

Any concentration shown as a range is to protect confidentiality or is due to batch variation.

While some substances are claimed as trade secret in accordance with the provision of OSHA 29 CFR 1910.1200(i), all known hazards are clearly communicated within this document.

Per Appendix D 1910.1200 OSHA, ranges can be used when there is batch-to-batch variability in a mixture or a trade secret claim.

There are no additional ingredients present which, within the current knowledge of the supplier and in the concentrations applicable, are classified as hazardous to health or the environment and hence require reporting in this section.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact : - Hold eye open and rinse slowly and gently with water for 15-20 minutes.
- Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye.
- Call a poison control center or doctor for further treatment advice.

Inhalation : - Move person to fresh air.
- If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably by mouth-to-mouth if possible.
- Call a poison control center or doctor for further treatment advice.

Skin contact : - Take off contaminated clothing.
- Rinse skin immediately with plenty of water for 15-20 minutes.
- Call a poison control center or doctor for treatment advice.

Ingestion : - Call poison control center or doctor immediately for treatment advice.
- Have person sip a glass of water, if able to swallow.
- Do not induce vomiting unless told to do so by the poison control center or doctor.
- Do not give anything by mouth to an unconscious person.

Notes to physician : Probable mucosal damage may contraindicate the use of gastric lavage.

Section 4. First aid measures

See toxicological information (Section 11)

Section 5. Fire-fighting measures

Extinguishing media

Suitable extinguishing media : Use an extinguishing agent suitable for the surrounding fire.

Unsuitable extinguishing media : None known.

Specific hazards arising from the chemical : In a fire or if heated, a pressure increase will occur and the container may burst. Fire water contaminated with this material must be contained and prevented from being discharged to any waterway, sewer or drain.

Hazardous thermal decomposition products : Decomposition products may include the following materials:
carbon dioxide
carbon monoxide

Special protective actions for fire-fighters : Promptly isolate the scene by removing all persons from the vicinity of the incident if there is a fire. No action shall be taken involving any personal risk or without suitable training.

Special protective equipment for fire-fighters : Fire-fighters should wear appropriate protective equipment and self-contained breathing apparatus (SCBA) with a full face-piece operated in positive pressure mode.

Section 6. Accidental release measures

Personal precautions, protective equipment and emergency procedures

For non-emergency personnel : No action shall be taken involving any personal risk or without suitable training. Evacuate surrounding areas. Keep unnecessary and unprotected personnel from entering. Do not touch or walk through spilled material. Do not breathe vapor or mist. Provide adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Put on appropriate personal protective equipment.

For emergency responders : If specialised clothing is required to deal with the spillage, take note of any information in Section 8 on suitable and unsuitable materials. See also the information in "For non-emergency personnel".

Environmental precautions : Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air). Water polluting material. May be harmful to the environment if released in large quantities.

Methods and materials for containment and cleaning up

Small spill : Stop leak if without risk. Move containers from spill area. Dilute with water and mop up if water-soluble. Alternatively, or if water-insoluble, absorb with an inert dry material and place in an appropriate waste disposal container. Dispose of via a licensed waste disposal contractor.

Large spill : Stop leak if without risk. Move containers from spill area. Approach release from upwind. Prevent entry into sewers, water courses, basements or confined areas. Wash spillages into an effluent treatment plant or proceed as follows. Contain and collect spillage with non-combustible, absorbent material e.g. sand, earth, vermiculite or diatomaceous earth and place in container for disposal according to local regulations (see Section 13). Dispose of via a licensed waste disposal contractor. Contaminated absorbent material may pose the same hazard as the spilled product. Note: see Section 1 for emergency contact information and Section 13 for waste disposal.

Section 7. Handling and storage

Precautions for safe handling

Protective measures : Put on appropriate personal protective equipment (see Section 8). Do not get in eyes or on skin or clothing. Do not breathe vapor or mist. Do not ingest. Avoid release to the environment. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Keep in the original container or an approved alternative made from a compatible material, kept tightly closed when not in use. Empty containers retain product residue and can be hazardous. Do not reuse container.

Advice on general occupational hygiene : Eating, drinking and smoking should be prohibited in areas where this material is handled, stored and processed. Workers should wash hands and face before eating, drinking and smoking. Remove contaminated clothing and protective equipment before entering eating areas. See also Section 8 for additional information on hygiene measures.

Conditions for safe storage, including any incompatibilities : Store in accordance with local regulations. Store in original container protected from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10) and food and drink. Store locked up. Keep container tightly closed and sealed until ready for use. Containers that have been opened must be carefully resealed and kept upright to prevent leakage. Do not store in unlabeled containers. Use appropriate containment to avoid environmental contamination.

Satisfactory Materials of Construction : Not available.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Glutaraldehyde	**ACGIH (United States).** CEIL: 0.2 mg/m³ CEIL: 0.05 ppm **ACGIH TLV (United States, 4/2014). Skin sensitizer.** C: 0.05 ppm **OSHA PEL 1989 (United States, 3/1989).** CEIL: 0.2 ppm CEIL: 0.8 mg/m³

Appropriate engineering controls : Use only with adequate ventilation. Use process enclosures, local exhaust ventilation or other engineering controls to keep worker exposure to airborne contaminants below any recommended or statutory limits.

Environmental exposure controls : Emissions from ventilation or work process equipment should be checked to ensure they comply with the requirements of environmental protection legislation. In some cases, fume scrubbers, filters or engineering modifications to the process equipment will be necessary to reduce emissions to acceptable levels.

Individual protection measures

Hygiene measures : Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using the lavatory and at the end of the working period. Appropriate techniques should be used to remove potentially contaminated clothing. Contaminated work clothing should not be allowed out of the workplace. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

Section 8. Exposure controls/personal protection

Eye/face protection : Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists, gases or dusts. If contact is possible, the following protection should be worn, unless the assessment indicates a higher degree of protection: chemical splash goggles and/or face shield. If inhalation hazards exist, a full-face respirator may be required instead.

Skin protection

Hand protection : Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

Body protection : Personal protective equipment for the body should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Other skin protection : Appropriate footwear and any additional skin protection measures should be selected based on the task being performed and the risks involved and should be approved by a specialist before handling this product.

Respiratory protection : Use a properly fitted, air-purifying or air-fed respirator complying with an approved standard if a risk assessment indicates this is necessary. Respirator selection must be based on known or anticipated exposure levels, the hazards of the product and the safe working limits of the selected respirator.

Section 9. Physical and chemical properties

Appearance

Physical state : Liquid. [Colorless to light yellow.]

Color : Colorless to light yellow.

Odor : Characteristic.

Odor threshold : <1 ppm

pH : 3.1 to 4.5

Melting point : -17°C (1.4°F)

Boiling point : 100.7°C (213.3°F)

Flash point : Closed cup: >100°C (>212°F) [Pensky-Martens.]

Evaporation rate : 1 (butyl acetate = 1)

Flammability (solid, gas) : Not available.

Lower and upper explosive (flammable) limits : Not available.

Vapor pressure : 0.04 kPa (0.3 mm Hg) [room temperature]

Vapor density : Not available.

Relative density : 1.12

Dispersibility properties : Not available.

Solubility : Easily soluble in the following materials: cold water and hot water.

Partition coefficient: n-octanol/water : Not available.

Auto-ignition temperature : Not available.

Decomposition temperature : Not available.

Viscosity : Not available.

VOC : Not available.

Section 10. Stability and reactivity

Reactivity : No specific test data related to reactivity available for this product or its ingredients.

Chemical stability : The product is stable.

Possibility of hazardous reactions : Under normal conditions of storage and use, hazardous reactions will not occur.

Conditions to avoid : No specific data.

Incompatible materials : No specific data.

Hazardous decomposition products : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Product/ingredient name	Result	Species	Dose	Exposure
Glutaraldehyde	LD50 Oral	Mouse	100 mg/kg	-
	LD50 Oral	Rat	134 mg/kg	-
	LD50 Oral	Rat	134 mg/kg	-
BULAB 6067	LC50 Inhalation Dusts and mists	Rat - Female	0.28 mg/l	4 hours
	LC50 Inhalation Dusts and mists	Rat - Male	0.35 mg/l	4 hours
	LD50 Dermal	Rabbit	>2000 mg/kg	-
	LD50 Oral	Female	200 mg/kg	-

Conclusion/Summary : Not tested, data based on 50% aqueous solution.

Irritation/Corrosion

Not available.

Sensitization

Product/ingredient name	Route of exposure	Species	Result
Glutaraldehyde	skin	Rabbit	Sensitizing
	Respiratory	Rat	Sensitizing

Mutagenicity

Not available.

Conclusion/Summary : For glutaraldehyde: In vitro genetic toxicity studies were negative in some cases and positive in other cases. Animal genetic toxicity studies were predominantly negative.

Carcinogenicity

This product has not been tested unless noted in summary results.

Conclusion/Summary : In a NTP chronic 2-year inhalation study on glutaraldehyde, no carcinogenicity was seen in rats or in mice. An increase in large granular lymphocytes in Fischer rats dosed with glutaraldehyde for two years was random or a secondary carcinogenic effect due to a modifying influence on the occurrence of this common neoplasm in this rat strain.

Reproductive toxicity

Not available.

Conclusion/Summary : For glutaraldehyde: In animal studies, did not interfere with reproduction.

Section 11. Toxicological information

Teratogenicity

Not available.

Conclusion/Summary : For glutaraldehyde: Has been toxic to the fetus in laboratory animals at doses toxic to the mother. Did not cause birth defects in laboratory animals.

Specific target organ toxicity (single exposure)

Name	Category	Route of exposure	Target organs
Glutaraldehyde	Category 3	Not applicable.	Respiratory tract irritation

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Routes of entry anticipated: Dermal, Inhalation.
Routes of entry not anticipated: Oral.

Potential acute health effects

Eye contact : Causes serious eye damage.

Inhalation : Fatal if inhaled. May cause respiratory irritation. May cause allergy or asthma symptoms or breathing difficulties if inhaled.

Skin contact : Causes severe burns. May cause an allergic skin reaction.

Ingestion : Toxic if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : Adverse symptoms may include the following:
pain
watering
redness

Inhalation : Adverse symptoms may include the following:
respiratory tract irritation
coughing
wheezing and breathing difficulties
asthma

Skin contact : Adverse symptoms may include the following:
pain or irritation
redness
blistering may occur

Ingestion : Adverse symptoms may include the following:
stomach pains

Delayed and immediate effects and also chronic effects from short and long term exposure

Short term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Section 11. Toxicological information

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : Once sensitized, a severe allergic reaction may occur when subsequently exposed to very low levels.

Carcinogenicity : No known significant effects or critical hazards.

Mutagenicity : No known significant effects or critical hazards.

Teratogenicity : No known significant effects or critical hazards.

Developmental effects : No known significant effects or critical hazards.

Fertility effects : No known significant effects or critical hazards.

Numerical measures of toxicity

Acute toxicity estimates

Route	ATE value
Oral	297.8 mg/kg

Section 12. Ecological information

Toxicity

Product/ingredient name	Result	Species	Exposure
BULAB 6067	Acute EC50 2.64 mg/l Acute EC50 0.69 mg/l Acute LC50 10.8 mg/l	Algae Daphnia Fish	96 hours 48 hours 96 hours

Section 13. Disposal considerations

Disposal methods : The generation of waste should be avoided or minimized wherever possible. Disposal of this product, solutions and any by-products should at all times comply with the requirements of environmental protection and waste disposal legislation and any regional local authority requirements. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers or liners may retain some product residues. Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.

RCRA classification : When disposed of, this product may be regulated as a RCRA Hazardous Waste with the characteristics of corrosivity.

Section 14. Transport information

Section 14. Transport information

	DOT Classification	IMDG	IATA
UN number	2922	2922	2922
UN proper shipping name	CORROSIVE LIQUID, TOXIC, N.O.S. (Glutaraldehyde, solution)	CORROSIVE LIQUID, TOXIC, N.O.S. (Glutaraldehyde, solution). Marine pollutant (Glutaraldehyde)	CORROSIVE LIQUID, TOXIC, N.O.S. (Glutaraldehyde, solution)
Transport hazard class(es)	8 (6.1) 	8 (6.1) 	8 (6.1) 
Packing group	II	II	II
Environmental hazards	No.	Yes.	No.
Additional information	**Remarks** ERG Guide 154	The marine pollutant mark is not required when transported in sizes of ≤5 L or ≤5 kg. **Emergency schedules (EmS)** F-A, S-B **IMDG Code Segregation group** 1 - Acids **Remarks** ERG Guide 154, HazMat Code 4936015	The environmentally hazardous substance mark may appear if required by other transportation regulations. **Remarks** ERG Guide 154, ERG Code 8P

Special precautions for user : **Transport within user's premises:** always transport in closed containers that are upright and secure. Ensure that persons transporting the product know what to do in the event of an accident or spillage.

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code : Not available.

Section 15. Regulatory information

Potential impurities present in trace quantities are included in the regulatory listings of this section.

U.S. Federal regulations : **United States inventory (TSCA 8b)**: This product is subject to regulation under the US Federal Insecticide, Fungicide and Rodenticide Act (FIFRA) and is therefore exempt from US Toxic Substances Control Act (TSCA) Inventory listing requirements.

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Section 15. Regulatory information

Classification : Immediate (acute) health hazard

Composition/information on ingredients

Name	%	Fire hazard	Sudden release of pressure	Reactive	Immediate (acute) health hazard	Delayed (chronic) health hazard
Glutaraldehyde	45	No.	No.	No.	Yes.	No.

CERCLA : CERCLA: Hazardous substances.: No products were found.

FDA : This product is allowed under the following FDA (21 CFR) sections :173.320 (Limitations: as a single additive in beet-sugar mills at a level not higher than 250 ppm); 175.105;176.170 & 176.180 (Limitation: as an antimicrobial agent in pigment and filler slurries used in the manufacture of paper and paperboard at levels not to exceed 300 parts per million by slurry weight of the slurry solids.); 176.300.

EPA Reg. No. : 1448-421

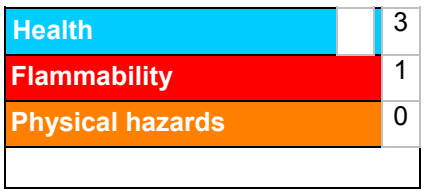
FIFRA : This chemical is a pesticide product registered by the United States Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets (SDS), and for workplace labels of non-pesticide chemicals. The hazard information required on the pesticide label is reproduced below. The pesticide label also includes other important information, including directions for use.

Corrosive. May be fatal if swallowed. Causes irreversible eye damage. Causes skin burns. Harmful if absorbed through skin. Prolonged or frequently repeated skin contact may cause allergic reactions in some individuals. Harmful if inhaled. Causes asthmatic signs and symptoms in hyper-reactive individuals. Do not swallow. Do not get in eyes, on skin, or on clothing. Avoid breathing vapor. Wear goggles, protective clothing, and butyl or nitrile gloves. Wash thoroughly with soap and water after handling and before eating, drinking, chewing gum, using tobacco, or using the toilet. Remove and wash contaminated clothing before reuse.

ENVIRONMENTAL HAZARDS: This pesticide is toxic to fish and aquatic organisms. Do not discharge effluent containing this product into lakes, streams, ponds, estuaries, oceans, or other waters unless in accordance with the requirements of a National Pollutant Discharge Elimination System (NPDES) permit, and the permitting authority has been notified in writing prior to discharge. Do not discharge effluent containing this product to sewer systems without previously notifying the sewage treatment plant authority. For guidance, contact your State Water Board or Regional Office of the EPA.

Section 16. Other information

Hazardous Material Information System (U.S.A.)



Caution: HMIS® ratings are based on a 0-4 rating scale, with 0 representing minimal hazards or risks, and 4 representing significant hazards or risks Although HMIS® ratings are not required on SDSs under 29 CFR 1910. 1200, the preparer may choose to provide them. HMIS® ratings are to be used with a fully implemented HMIS® program. HMIS® is a registered mark of the National Paint & Coatings Association (NPCA). HMIS® materials may be purchased exclusively from J. J. Keller (800) 327-6868.

The customer is responsible for determining the PPE code for this material.

Section 16. Other information

National Fire Protection Association (U.S.A.)

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Copyright ©2001, National Fire Protection Association, Quincy, MA 02269. This warning system is intended to be interpreted and applied only by properly trained individuals to identify fire, health and reactivity hazards of chemicals. The user is referred to certain limited number of chemicals with recommended classifications in NFPA 49 and NFPA 325, which would be used as a guideline only. Whether the chemicals are classified by NFPA or not, anyone using the 704 systems to classify chemicals does so at their own risk.

History

Date of printing	:	5/23/2016.
Date of issue/Date of revision	:	5/23/2016.
Date of previous issue	:	5/26/2015.
Version	:	0.02
Prepared by	:	Buckman Regulatory Affairs
Key to abbreviations	:	ATE = Acute Toxicity Estimate BCF = Bioconcentration Factor GHS = Globally Harmonized System of Classification and Labelling of Chemicals IATA = International Air Transport Association IBC = Intermediate Bulk Container IMDG = International Maritime Dangerous Goods LogPow = logarithm of the octanol/water partition coefficient MARPOL 73/78 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution) UN = United Nations

Indicates information that has changed from previously issued version.

Notice to reader

To the best of our knowledge, the information contained herein is accurate. However, neither the above-named supplier, nor any of its subsidiaries, assumes any liability whatsoever for the accuracy or completeness of the information contained herein.
Final determination of suitability of any material is the sole responsibility of the user. All materials may present unknown hazards and should be used with caution. Although certain hazards are described herein, we cannot guarantee that these are the only hazards that exist.

Buckman Laboratories, Inc. warrants that this product conforms to its chemical description and is reasonably fit for the purpose referred to in the directions for use when used in accordance with the directions under normal conditions. Buyer assumes the risk of any use outside of such directions.

Seller makes no other warranty or representation of any kind, express or implied, concerning the product, including NO IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS OF THE GOODS FOR ANY OTHER PARTICULAR PURPOSE. No such warranties shall be implied by law and no agent of seller is authorized to alter this warranty in any way except in writing with a specific reference to this warranty.
The exclusive remedy against seller shall be in a claim for damages not to exceed the purchase price of the product, without regard to whether such a claim is based upon breach of warranty or tort.

Any controversy or claim arising out or relating to this contract, or breach thereof, shall be settle by arbitration

Section 16. Other information

in accordance with the commercial arbitration rules of the American Arbitration Association, and judgment upon the rendered by the Arbitrator(s) may be entered in any court having jurisdiction thereof.

MATERIAL SAFETY DATA SHEET

Bayer MaterialScience

Bayer MaterialScience LLC
Product Safety & Regulatory Affairs
100 Bayer Road
Pittsburgh, PA 15205-9741
USA

TRANSPORTATION EMERGENCY

CALL CHEMTREC:	(800) 424-9300
INTERNATIONAL:	(703) 527-3887

NON-TRANSPORTATION

Emergency Phone:	Call Chemtrec
Information Phone:	(800) 662-2927

1. Product and Company Identification

Product Name:	CAUSTIC SODA SOLUTION (50%)
Material Number:	5452627
CAS-No.:	1310-73-2

2. Hazards Identification

Emergency Overview

Danger **Color:** Clear, Opaque **Form:** liquid **Odor:** Odorless.
Water runoff from fire fighting may be corrosive. Irritating gases/fumes may be given off during burning or thermal decomposition. Contact with metals liberates flammable gas. Reacts violently with water. Causes respiratory tract burns. Causes skin burns. May be harmful if absorbed through skin. Causes eye burns. Causes digestive tract burns. Harmful if swallowed.

Potential Health Effects

Primary Routes of Entry:	Skin Contact, Eye Contact, Ingestion, Inhalation
Medical Conditions Aggravated by Exposure:	Skin disorders, Respiratory disorders, Eye disorders

HUMAN EFFECTS AND SYMPTOMS OF OVEREXPOSURE

Inhalation
Acute Inhalation
For Component: Sodium hydroxide
Corrosive with symptoms of coughing, burning, ulceration, and pain.

Skin
Acute Skin
For Component: Sodium hydroxide
Corrosive with symptoms of reddening, itching, swelling, burning and possible permanent damage.

Eye
Acute Eye
For Component: Sodium hydroxide

Corrosive with symptoms of reddening, tearing, swelling, burning and possible permanent damage.

Ingestion
Acute Ingestion
For Component: Sodium hydroxide
Harmful if swallowed. Corrosive to the digestive tract with symptoms of burning and ulceration.

General Effects of Exposure
Chronic Effects of Exposure
For Product: CAUSTIC SODA SOLUTION (50%)
Repeated or prolonged overexposure may cause effects as noted under acute health effects.

Carcinogenicity:

No carcinogenic substances as defined by IARC, NTP and/or OSHA

3. Composition/Information on Ingredients

Hazardous components

Weight percent	Components	CAS-No.
45 - 55%	Sodium hydroxide	1310-73-2

4. First aid measures

Eye contact
In case of contact, immediately flush eyes with plenty of water for at least 15 minutes. Use fingers to ensure that eyelids are separated and that the eye is being irrigated. Call a physician immediately.

Skin contact
Wash off immediately with plenty of water for at least 15 minutes. Immediately remove contaminated clothing and shoes. Call a physician immediately. Wash clothing and shoes before reuse.

Inhalation
If inhaled, remove to fresh air. If breathing is difficult, give oxygen. If not breathing, give artificial respiration using a pocket mask type resuscitator. Call a physician immediately.

Ingestion
Do not induce vomiting. If conscious, give 2 glasses of water. Get immediate medical attention. Never give anything by mouth to an unconscious person.

5. Firefighting measures

Suitable extinguishing media: Carbon dioxide (CO2), Foam, Dry chemical

Special Fire Fighting Procedures
Firefighters should be equipped with self-contained breathing apparatus to protect against potentially toxic and irritating fumes.

Unusual Fire/Explosion Hazards
Water runoff from fire fighting may be corrosive. Toxic and irritating gases/fumes may be given off during burning or thermal decomposition. Contact with metals liberates flammable gas.

6. Accidental release measures

Spill and Leak Procedures
Cleanup personnel must use appropriate personal protective equipment. Cover spill with inert material (e. g., dry sand or earth) and collect for proper disposal. Do not allow spilled material or wash water to enter sewers, surface waters, or groundwater systems. Decontaminant/Neutralizer: Dilute hydrochloric acid solution. Wash spill area with water. Collect wash water for approved disposal.

7. Handling and storage

Storage period
Not Applicable

Handling/Storage Precautions
Do not breathe vapours or spray mist. Do not get on skin or clothing. Do not get in eyes. Do not taste or swallow. Use only with adequate ventilation/personal protection. Wash thoroughly after handling. Keep container closed when not in use.

Further Info on Storage Conditions
Material can be stored safely at ambient temperatures. Do not expose to direct sunlight. Protect from freezing. This product is corrosive to metal(s). Product can react with water.

8. Exposure controls/personal protection

Sodium hydroxide (1310-73-2)
US. ACGIH Threshold Limit Values
Ceiling Limit Value: 2 mg/m3
US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)
PEL: 2 mg/m3

Industrial Hygiene/Ventilation Measures
General dilution and local exhaust as necessary to control airborne vapors, mists, dusts and thermal decomposition products below appropriate airborne concentration standards/guidelines.

Respiratory protection
In case of insufficient ventilation, wear suitable respiratory equipment.

Hand protection
Permeation resistant gloves.

Eye protection
Chemical resistant goggles must be worn., Chemical safety goggles in combination with a full face shield if a splash hazard exists.

Skin and body protection

Permeation resistant clothing and foot protection.

Additional Protective Measures
Employees should wash their hands and face before eating, drinking, or using tobacco products. Educate and train employees in the safe use and handling of this product. Emergency showers and eye wash stations should be available.

9. Physical and chemical properties

Form:	liquid
Color:	Clear, Opaque
Odor:	Odorless
pH:	14
Melting Point:	12 °C (53.6 °F)
Boiling point/boiling range:	140 °C (284 °F) @ 1,013 hPa
Flash point:	Not Applicable
Vapour pressure:	13 mmHg @ 15.56 °C (60.01 °F)
Density:	1.54 g/cm³ @ 15 °C (59 °F) (DIN 51757) 1.52 g/cm³ @ 20 °C (68 °F) (DIN 51757) 1.505 g/cm³ @ 50 °C (122 °F) (DIN 51757)
Specific Gravity:	1.53 @ 15.56 °C (60.01 °F)
Solubility in Water:	Soluble
Viscosity, dynamic:	79 mPa.s @ 20 °C (68 °F)

10. Stability and reactivity

Hazardous Reactions
Hazardous polymerisation does not occur.

Hazardous polymerisation does not occur.

Stability
Stable

Stable

Materials to avoid
Combustible material, Acids, Halogenated compounds, Halogens, Metals, Oxidizing agents, Peroxides, Organic nitro compounds

Oxidizing agents

Conditions to avoid
Avoid contact with moisture / water. Do not expose to direct sunlight. Protect from freezing.

Heat, flames and sparks.

Hazardous decomposition products
By Fire and Thermal Decomposition: Sodium oxides, other potentially toxic fumes
Other decomposition products Hydrogen;
By Fire and Thermal Decomposition: Phenol; Carbon monoxide, Carbon oxides, other potentially toxic fumes

11. Toxicological information

Toxicity Data for CAUSTIC SODA SOLUTION (50%)
Toxicity Data for Sodium hydroxide
Acute oral toxicity
LD50: 140 - 340 mg/kg (Rat)

Acute dermal toxicity
LD50: 1,350 mg/kg (rabbit)

Skin irritation
Human, Corrosive

Eye irritation
Human, severe irritant

Sensitisation
Skin sensitisation:: negative (Human experience, Patch Test)

Mutagenicity
Genetic Toxicity in Vitro:
Ames: negative (Salmonella typhimurium)
Positive and negative results were seen in various in vitro studies.
Genetic Toxicity in Vivo:
Micronucleus Assay: (mouse, Male/Female, intraperitoneal)
negative

12. Ecological information

Ecological Data for CAUSTIC SODA SOLUTION (50%)
Ecological Data for Sodium hydroxide
Acute and Prolonged Toxicity to Fish
LC50: 45.4 mg/L (50 %, pH 8) (Rainbow (Donaldson)Trout (Oncorhynchus mykiss), 96 h)

Acute Toxicity to Aquatic Invertebrates
LC100: 156 mg/L (pH 9.1 - 9.5) (Water flea (Daphnia magna))

Toxicity to Aquatic Plants
The freshwater algae are destroyed at a pH of >8.5.

13. Disposal considerations

Waste Disposal Method
Waste disposal should be in accordance with existing federal, state and local environmental control laws.

Empty Container Precautions
Recondition or dispose of empty container in accordance with governmental regulations. Do not reuse empty container without proper cleaning. Label precautions also apply to this container when empty.

14. Transport information

Land transport (DOT)
Proper shipping name: Sodium hydroxide solution
Hazard Class or Division: 8
UN/NA Number: UN1824
Packaging group: II
Hazard Label(s): Corrosive

RSPA/DOT Regulated Components:
Sodium hydroxide

Reportable Quantity: 907 kg (2000 lb)

Sea transport (IMDG)
Proper shipping name: SODIUM HYDROXIDE SOLUTION
Hazard Class or Division: 8
UN number: UN1824
Packaging group: II
Hazard Label(s): CORROSIVE

Air transport (ICAO/IATA)
Proper shipping name: Sodium hydroxide solution
Hazard Class or Division: 8
UN number: UN1824
Packaging group: II
Hazard Label(s): CORROSIVE

Additional Transportation Information
Pollution category: Y - Ship type: 3

15. Regulatory information

United States Federal Regulations

OSHA Hazcom Standard Rating: Hazardous

US. Toxic Substances Control Act: Listed on the TSCA Inventory.

US. EPA CERCLA Hazardous Substances (40 CFR 302):
Components
Sodium hydroxide Reportable quantity: 1000 lbs

SARA Section 311/312 Hazard Categories:
Acute Health Hazard, Reactivity Hazard, Chronic Health Hazard

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 302 Extremely Hazardous Substance (40 CFR 355, Appendix A):
Components
None

US. EPA Emergency Planning and Community Right-To-Know Act (EPCRA) SARA Title III Section 313 Toxic Chemicals (40 CFR 372.65) - Supplier Notification Required:
Components
None

US. EPA Resource Conservation and Recovery Act (RCRA) Composite List of Hazardous Wastes and Appendix VIII Hazardous Constituents (40 CFR 261)
Under RCRA, it is the responsibility of the person who generates a solid waste, as defined in 40 CFR 261.2, to determine if that waste is a hazardous waste., In its purchased form, this product meets the criteria of corrosivity under 40 CFR 261.22(a), and, when discarded in that form, should be managed as a hazardous waste.

State Right-To-Know Information

The following chemicals are specifically listed by individual states; other product specific health and safety data in other sections of the MSDS may also be applicable for state requirements. For details on your regulatory requirements you should contact the appropriate agency in your state.

Massachusetts, New Jersey or Pennsylvania Right to Know Substance Lists:

Weight percent	Components	CAS-No.
>=1%	Water	7732-18-5
45 - 55%	Sodium hydroxide	1310-73-2

New Jersey Environmental Hazardous Substances List and/or New Jersey RTK Special Hazardous Substances Lists:

Weight percent	Components	CAS-No.
45 - 55%	Sodium hydroxide	1310-73-2

California Prop. 65:

To the best of our knowledge, this product does not contain any of the listed chemicals, which the state of California has found to cause cancer, birth defects or other reproductive harm.

16. Other information

NFPA 704M Rating

Health	3
Flammability	0
Reactivity	2
Other	

0=Insignificant 1=Slight 2=Moderate 3=High 4=Extreme

HMIS Rating

Health	3*
Flammability	0
Physical Hazard	2

0=Minimal 1=Slight 2=Moderate 3=Serious 4=Severe
* = Chronic Health Hazard

The method of hazard communication for Bayer MaterialScience LLC is comprised of Product Labels and Material Safety Data Sheets. HMIS and NFPA ratings are provided by Bayer MaterialScience LLC as a customer service.

Contact person: Product Safety Department

Telephone:	(412) 777-2835
MSDS Number:	112000014025
Version Date:	07/20/2014
Report version:	2.10

This information is furnished without warranty, express or implied. This information is believed to be accurate to the best knowledge of Bayer MaterialScience LLC. The information in this MSDS relates only to the specific material designated herein. Bayer MaterialScience LLC assumes no legal responsibility for use of or reliance upon the information in this MSDS.

Changes since the last version are highlighted in the margin. This version replaces all previous versions.

SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification

Product Name:	ChemTreat P850L
Product Use:	Water Clarification Agent
Supplier's Name:	ChemTreat, Inc.
Emergency Telephone Number:	(800)424−9300 (Toll Free)
Address (Corporate Headquarters):	5640 Cox Road Glen Allen, VA 23060
Telephone Number for Information:	(800)648−4579
Date of SDS:	October 9, 2019
Revision Date:	October 9, 2019
Revision Number:	19100901AN

Section 2. Hazard(s) Identification

Signal Word: **None**

GHS Classification(s): Non−Hazardous Substance

Hazard Statement(s): Non−Hazardous Substance

Precautionary Statement(s): No significant health risks are expected from exposures under normal conditions of use.

- **Prevention:** None.
- **Response:** None.
- **Storage:** None.
- **Disposal:** None.

System of Classification Used: Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Hazards Not Otherwise Classified: None.

Section 3. Composition/Hazardous Ingredients

Component	CAS Registry #	Wt.%
Components not listed are either non hazardous or in concentration of less than 1%	N/A	N/A

Comments If chemical identity and/or exact percentage of composition has been withheld, this information is considered to be a trade secret.

Section 4. First Aid Measures

Inhalation: Call a POISON CENTER or doctor/physician if you feel unwell.

Eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Skin: Call a poison center or doctor/physician if you feel unwell.

Ingestion: Rinse mouth. Call a poison center or doctor/physician if you feel unwell.

Most Important Symptoms: N/D

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary: N/A

Section 5. Fire Fighting Measures

Flammability of the Product: Not flammable.

Suitable Extinguishing Media: Use extinguishing media suitable to surrounding fire.

Specific Hazards Arising from the Chemical: None known.

Protective Equipment: If product is involved in a fire, wear full protective clothing including a positive−pressure, NIOSH approved, self−contained breathing apparatus.

Section 6. Accidental Release Measures

Personal Precautions: Use appropriate Personal Protective Equipment (PPE).

Environmental Precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.

Methods for Cleaning up: Contain and recover liquid when possible. Flush spill area with water spray.
Material is very slippery if spilled.

Other Statements: None.

Section 7. Handling and Storage

Handling: Wear appropriate Personal Protective Equipment (PPE) when handling this product. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Do not ingest. Avoid breathing vapors, mist or dust.

Storage: Store away from incompatible materials (see Section 10). Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations. For Industrial use only.
Protect from heat and sources of ignition.
Store above Freeze Point.

Section 8. Exposure Controls/Personal Protection

Exposure Limits

Component	Source	Exposure Limits
Components not listed are either non hazardous or in concentration of less than 1%	N/E	N/E

Engineering Controls: Use only with adequate ventilation. The use of local ventilation is recommended to control emission near the source.

Personal Protection

Eyes:	Safety glasses are recommended if risk of eye contact.
Skin:	Wear butyl rubber or neoprene gloves. Wash them after each use and replace as necessary. If conditions warrant, wear protective clothing such as boots, aprons, and coveralls to prevent skin contact.
Respiratory:	If misting occurs, use NIOSH approved organic vapor/acid gas dual cartridge respirator with a dust/mist prefilter in accordance with 29 CFR 1910.134.

Section 9. Physical and Chemical Properties

Physical State and Appearance:	Liquid, Colorless, Clear
Specific Gravity:	1.002 @ 20°C
pH:	7.0 @ 20°C, 100.0%
Freezing Point:	36°F
Flash Point:	N/D
Odor:	Mild
Melting Point:	N/A
Initial Boiling Point and Boiling Range:	N/D
Solubility in Water:	N/D
Evaporation Rate:	N/D
Vapor Density:	N/D
Molecular Weight:	N/D
Viscosity:	N/A
Flammability (solid, gas):	N/D
Flammable Limits:	N/A
Autoignition Temperature:	N/A
Density:	8.36 LB/GA
Vapor Pressure:	N/D
% VOC:	0
Odor Threshold	N/D
n−octanol Partition Coefficient	N/D
Decomposition Temperature	N/D

Section 10. Stability and Reactivity

Chemical Stability: Stable at normal temperatures and pressures.

Incompatibility with Various Substances: Strong oxidizers, Strong bases.

Hazardous Decomposition Products: Oxides of nitrogen, Oxides of carbon.

Possibility of Hazardous Reactions: None known.

Reactivity: N/D

Conditions To Avoid: N/D

Section 11. Toxicological Information

Acute Toxicity

Chemical Name	Exposure	Type of Effect	Concentration	Species
N/D	N/D	N/D	N/D	N/D

Carcinogenicity Category

Component	Source	Code	Brief Description
Components not listed are either non hazardous or in concentration of less than 1%	N/E	N/E	N/E

Likely Routes of Exposure: N/D

Symptoms

Inhalation: N/D

Eye Contact: N/D

Skin Contact: N/D

Ingestion: N/D

Skin Corrosion/Irritation: N/D

Serious Eye Damage/Eye Irritation: N/D

Sensitization: N/D

Germ Cell Mutagenicity: N/D

Reproductive/Developmental Toxicity: N/D

Specific Target Organ Toxicity

Single Exposure: N/D

Repeated Exposure: N/D

Aspiration Hazard: N/D

Comments: None.

Section 12. Ecological Information

Ecotoxicity

Species	Duration	Type of Effect	Test Results
Ceriodaphnia dubia	48h	LC50	840.9 mg/l
Algae	96h	EC50	>500 mg/l
Fathead Minnow	96h	LC50	>1000 mg/l
	48h	LC50	>10000 mg/l
Daphnia pulex	48h	LC50	8680 mg/l

Persistence and Biodegradability: N/D

Bioaccumulative Potential: N/D

Mobility In Soil: N/D

Other Adverse Effects: N/D

Comments: Water clarification polymers function by multipoint adsorption and charge neutralization with suspended solids. Polymers inherently migrate with solids in the separation process and with the exception of uneconomic overdose do not remain in the clarified waters. Aquatic toxicity determinations in test method protocol waters without suspended solids overestimate the toxicity compared to natural receiving waters.

Section 13. Disposal Considerations

Dispose of in accordance with local, state and federal regulations.

Section 14. Transport Information

Controlling Regulation	UN/NA#:	Proper Shipping Name:	Technical Name:	Hazard Class:	Packing Group:
DOT	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A
IMDG	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A
TDG	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A
ICAO	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A

Note: N/A

Section 15. Regulatory Information

Inventory Status

United States (TSCA): All ingredients listed.
Canada (DSL/NDSL): All ingredients listed.

Federal Regulations

SARA Title III Rules

Sections 311/312 Hazard Classes

Fire Hazard: No
Reactive Hazard: No
Release of Pressure: No
Acute Health Hazard: Yes
Chronic Health Hazard: No

Other Sections

Component	Section 313 Toxic Chemical	Section 302 EHS TPQ	CERCLA RQ
Components not listed are either non hazardous or in concentration of less than 1%	N/A	N/A	N/A

Comments: None.

State Regulations

California Proposition 65: WARNING: This product can expose you to chemicals including Acrylamide, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Special Regulations

Component	States
Components not listed are either non hazardous or in concentration of less than 1%	None.

Compliance Information

NSF: N/A

Food Regulations: N/A

KOSHER: This product has not been evaluated for Kosher approval.

Halal: This product has not been evaluated for Halal approval.

FIFRA: N/A

Other: None

Comments: None.

Section 16. Other Information

HMIS Hazard Rating

Health: 0
Flammability: 0
Physical Hazard: 0
PPE: X

Notes:

The PPE rating depends on circumstances of use. See Section 8 for recommended PPE.
The Hazardous Material Information System (HMIS) is a voluntary, subjective alpha−numeric symbolic system for recommending hazard risk and personal protection equipment information. It is a subjective rating system based on the evaluator's understanding of the chemical associated risks. The end−user must determine if the code is appropriate for their use.

Abbreviations

Abbreviation	Definition
<	Less Than
>	Greater Than
ACGIH	American Conference of Governmental Industrial Hygienists
EHS	Environmental Health and Safety Dept
N/A	Not Applicable
N/D	Not Determined
N/E	Not Established
OSHA	Occupational Health and Safety Dept
PEL	Personal Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TWA	Time Weight Average
UNK	Unknown

Prepared by: Product Compliance Department; ProductCompliance@chemtreat.com

Revision Date: October 9, 2019

Disclaimer

SAFETY DATA SHEET

Section 1. Chemical Product and Company Identification

Product Name:	ChemTreat P975L
Product Use:	Water Clarification Agent
Supplier's Name:	ChemTreat, Inc.
Emergency Telephone Number:	(800)424−9300 (Toll Free)
Address (Corporate Headquarters):	5640 Cox Road Glen Allen, VA 23060
Telephone Number for Information:	(800)648−4579
Date of SDS:	March 26, 2019
Revision Date:	March 26, 2019
Revision Number:	19032601AN

Section 2. Hazard(s) Identification

Signal Word: **None**

GHS Classification(s): Non−Hazardous Substance

Hazard Statement(s): Non−Hazardous Substance

Precautionary Statement(s): No significant health risks are expected from exposures under normal conditions of use.

- **Prevention:** None.
- **Response:** None.
- **Storage:** None.
- **Disposal:** None.

System of Classification Used: Classification under 2012 OSHA Hazard Communication Standard (29 CFR 1910.1200).

Hazards Not Otherwise Classified: None.

Section 3. Composition/Hazardous Ingredients

Component	CAS Registry #	Wt.%
Components not listed are either non hazardous or in concentration of less than 1%	N/A	N/A

Comments If chemical identity and/or exact percentage of composition has been withheld, this information is considered to be a trade secret.

Section 4. First Aid Measures

Inhalation: Call a POISON CENTER or doctor/physician if you feel unwell.

Eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists, get medical advice/attention.

Skin: Call a poison center or doctor/physician if you feel unwell.

Ingestion: Rinse mouth. Call a poison center or doctor/physician if you feel unwell.

Most Important Symptoms: N/D

Indication of Immediate Medical Attention and Special Treatment Needed, If Necessary: N/A

Section 5. Fire Fighting Measures

Flammability of the Product: Not flammable.

Suitable Extinguishing Media: Use extinguishing media suitable to surrounding fire.

Specific Hazards Arising from the Chemical: None known.

Protective Equipment: If product is involved in a fire, wear full protective clothing including a positive−pressure, NIOSH approved, self−contained breathing apparatus.

Section 6. Accidental Release Measures

Personal Precautions: Use appropriate Personal Protective Equipment (PPE).

Environmental Precautions: Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains, and sewers.

Methods for Cleaning up: Contain and recover liquid when possible. Flush spill area with water spray.

Other Statements: None.

Section 7. Handling and Storage

Handling: Wear appropriate Personal Protective Equipment (PPE) when handling this product. Do not get in eyes, or on skin and clothing. Wash thoroughly after handling. Do not ingest. Avoid breathing vapors, mist or dust.
Material is very slippery if spilled.

Storage: Store away from incompatible materials (see Section 10). Store at ambient temperatures. Keep container securely closed when not in use. Label precautions also apply to empty container. Recondition or dispose of empty containers in accordance with government regulations. For Industrial use only.
Do not freeze. Store above Freeze Point. If freezes, then mechanical mixing is required.

Section 8. Exposure Controls/Personal Protection

Exposure Limits

Component	Source	Exposure Limits
Components not listed are either non hazardous or in concentration of less than 1%	N/E	N/E

Engineering Controls: Use only with adequate ventilation. The use of local ventilation is recommended to control emission near the source.

Personal Protection

Eyes:	Safety glasses are recommended if risk of eye contact.
Skin:	Wear butyl rubber or neoprene gloves. Wash them after each use and replace as necessary. If conditions warrant, wear protective clothing such as boots, aprons, and coveralls to prevent skin contact.
Respiratory:	If misting occurs, use NIOSH approved organic vapor/acid gas dual cartridge respirator with a dust/mist prefilter in accordance with 29 CFR 1910.134.

Section 9. Physical and Chemical Properties

Physical State and Appearance:	Liquid, Colorless, Clear
Specific Gravity:	1.016 @ 20°C
pH:	6.6 @ 20°C, 100.0%
Freezing Point:	41°F
Flash Point:	N/A
Odor:	Odorless
Melting Point:	N/A
Initial Boiling Point and Boiling Range:	N/D
Solubility in Water:	Complete
Evaporation Rate:	N/D
Vapor Density:	N/D
Molecular Weight:	N/D
Viscosity:	15000 − 25000 CPS @ 20°C
Flammability (solid, gas):	N/D
Flammable Limits:	N/A
Autoignition Temperature:	N/A
Density:	8.47 LB/GA
Vapor Pressure:	N/D
% VOC:	N/D
Odor Threshold	N/D
n−octanol Partition Coefficient	N/D
Decomposition Temperature	N/D

Section 10. Stability and Reactivity

Chemical Stability: Stable at normal temperatures and pressures.

Incompatibility with Various Substances: Strong oxidizers.

Hazardous Decomposition Products: Oxides of carbon, Oxides of nitrogen, Hydrogen chloride, Hydrogen cyanide.

Possibility of Hazardous Reactions: None known.

Reactivity: N/D

Conditions To Avoid: N/D

Section 11. Toxicological Information

Acute Toxicity

Chemical Name	Exposure	Type of Effect	Concentration	Species
ChemTreat P975L	Oral	LD50	>5000 MG/KG	Rat
	Dermal	LD50	>5000 MG/KG	Rat

Carcinogenicity Category

Component	Source	Code	Brief Description
Components not listed are either non hazardous or in concentration of less than 1%	N/E	N/E	N/E

Likely Routes of Exposure: N/D

Symptoms

Inhalation: N/D

Eye Contact: N/D

Skin Contact: N/D

Ingestion: N/D

Skin Corrosion/Irritation: N/D

Serious Eye Damage/Eye Irritation: N/D

Sensitization: N/D

Germ Cell Mutagenicity: N/D

Reproductive/Developmental Toxicity: N/D

Specific Target Organ Toxicity

Single Exposure: N/D

Repeated Exposure: N/D

Aspiration Hazard: N/D

Comments: None.

Section 12. Ecological Information

Ecotoxicity

Species	Duration	Type of Effect	Test Results
Daphnia magna	48h	EC50	>100 mg/l
Fathead Minnow	96h	LC50	>100 mg/l
Mysid Shrimp	7d	IC25	672 mg/l
	7d	NOEC	312.5 mg/l
	7d	LOEC	625 mg/l

Persistence and Biodegradability: N/D

Bioaccumulative Potential: N/D

Mobility In Soil: N/D

Other Adverse Effects: N/D

Comments: None.

Section 13. Disposal Considerations

Dispose of in accordance with local, state and federal regulations.
Not a RCRA−regulated hazardous waste when disposed in the original product form.

Section 14. Transport Information

Controlling Regulation	UN/NA#:	Proper Shipping Name:	Technical Name:	Hazard Class:	Packing Group:
DOT	N/A	COMPOUND, INDUSTRIAL WATER TREATMENT, LIQUID	N/A	N/A	N/A

Note: N/A

Section 15. Regulatory Information

Inventory Status

United States (TSCA): All ingredients listed.
Canada (DSL/NDSL): All ingredients listed.

Federal Regulations

SARA Title III Rules

Sections 311/312 Hazard Classes

Fire Hazard: No
Reactive Hazard: No
Release of Pressure: No
Acute Health Hazard: No
Chronic Health Hazard: No

Other Sections

Component	Section 313 Toxic Chemical	Section 302 EHS TPQ	CERCLA RQ
Components not listed are either non hazardous or in concentration of less than 1%	N/A	N/A	N/A

Comments: None.

State Regulations

California Proposition 65: WARNING: This product can expose you to chemicals including Acrylamide, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

Special Regulations

Component	States
Components not listed are either non hazardous or in concentration of less than 1%	None.

Compliance Information

NSF: N/A

Food Regulations: N/A

KOSHER: This product has not been evaluated for Kosher approval.

Halal: This product has not been evaluated for Halal approval.

FIFRA: N/A

Other: None

Comments: None.

Section 16. Other Information

HMIS Hazard Rating

Health: 0
Flammability: 0
Physical Hazard: 0
PPE: X

Notes:

The PPE rating depends on circumstances of use. See Section 8 for recommended PPE.
The Hazardous Material Information System (HMIS) is a voluntary, subjective alpha−numeric symbolic system for recommending hazard risk and personal protection equipment information. It is a subjective rating system based on the evaluator's understanding of the chemical associated risks. The end−user must determine if the code is appropriate for their use.

Abbreviations

Abbreviation	Definition
<	Less Than
>	Greater Than
ACGIH	American Conference of Governmental Industrial Hygienists
EHS	Environmental Health and Safety Dept
N/A	Not Applicable
N/D	Not Determined
N/E	Not Established
OSHA	Occupational Health and Safety Dept
PEL	Personal Exposure Limit
STEL	Short Term Exposure Limit
TLV	Threshold Limit Value
TWA	Time Weight Average
UNK	Unknown

Prepared by: Product Compliance Department; ProductCompliance@chemtreat.com

Revision Date: March 26, 2019

Disclaimer

Safety Data Sheet

RoClean™ L403

Date of compilation: 2022-09-28

SECTION 1: Identification

1.1 Product identifier

Trade name **RoClean™ L403**

CAS number none

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses Water treatment chemical
RO Reverse Osmosis

1.3 Details of the supplier of the safety data sheet

Avista Technologies, Inc.
140 Bosstick Blvd.
92069 San Marcos
United States

Cellular Device: +1 (760) 744 0536
e-mail: regulatory@avistatech.com
Website: AvistaMembraneSolutions.com

1.4	**Emergency telephone number**	Emergency Number (USA, Canada): 1 (800) 424-9300 (ChemTrec) Emergency Number (International): 1 (703) 527-3887 (International Collect)

1.5 Registration

This product is designed to be used off-line and is to be flushed out prior to using the system for drinking water, following the manufacturer's use instructions.

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Hazard class	*Category*	*Hazard statement*
acute toxicity (oral)	4	H302
skin corrosion/irritation	2	H315
serious eye damage/eye irritation	2A	H319
specific target organ toxicity - single exposure	2	H371
specific target organ toxicity - repeated exposure	2	H373
substance or mixture corrosive to metals	1	H290

For full text of abbreviations: see SECTION 16.

2.2 Label elements

Signal word warning

Pictograms

GHS05, GHS07, GHS08

Hazard statements

H290	May be corrosive to metals.
H302	Harmful if swallowed.
H315	Causes skin irritation.
H319	Causes serious eye irritation.
H371	May cause damage to organs (respiratory system).
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P234	Keep only in original container.
P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P270	Do not eat, drink or smoke when using this product.
P280	Wear protective gloves.
P301+P312	If swallowed: Call a poison center/doctor if you feel unwell.
P302+P352	If on skin: Wash with plenty of water.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P308+P311	If exposed or concerned: Call a poison center/doctor.
P314	Get medical advice/attention if you feel unwell.
P330	Rinse mouth.
P332+P313	If skin irritation occurs: Get medical advice/attention.
P337+P313	If eye irritation persists: Get medical advice/attention.
P362	Take off contaminated clothing and wash it before reuse.
P390	Absorb spillage to prevent material damage.
P405	Store locked up.
P406	Store in corrosive resistant container with a resistant inner liner.
P501	Dispose of contents/container to industrial combustion plant.

2.3 Other hazards

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Mixtures

Hazardous ingredients

Name of substance	*Identifier*	*Wt%*	*Classification acc. to GHS*
Chelate agent F	CAS No Proprietary	10 – < 20	Acute Tox. 4 / H302 Acute Tox. 4 / H332 Eye Dam. 1 / H318 STOT RE 2 / H373

Water	7732-18-5	50 – < 60	Not established
Inorganic phosphorous compound	7664-38-2	20 – < 30	Skin Corr. 1 / H314 Eye Dam. 1 / H318 Met. Corr. 1 / H290
Organic acid B	77-92-9	10 – < 20	Not established

For full text of abbreviations: see SECTION 16.
Specific chemical identity and concentration of some ingredients are protected as Trade Secret information.

Canada HMIRA Registration Number: 03331706 Registration date: 30 May 2019.

SECTION 4: First-aid measures

4.1 Description of first-aid measures

General notes

Take off immediately all contaminated clothing. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

In case of respiratory tract irritation, consult a physician.

Following skin contact

Rinse skin with water/shower. Take off contaminated clothing. After contact with skin, wash immediately with plenty of water. In all cases of doubt, or when symptoms persist, seek medical advice.

Following eye contact

Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Immediately call a doctor.

4.2 Most important symptoms and effects, both acute and delayed

Symptoms and effects are not known to date.

4.3 Indication of any immediate medical attention and special treatment needed

No specific antidote is known. Treatment of the symptoms.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Non-combustible. Coordinate firefighting measures to the fire surroundings. Water spray, Alcohol resistant foam, Fire extinguishing powder, Carbon dioxide (CO2)

Unsuitable extinguishing media

None

5.2 Special hazards arising from the substance or mixture

Substance or mixture corrosive to metals.

Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO2), Phosphorus oxides (PxOy)

5.3 Advice for firefighters

Keep containers cool with water spray. In case of fire and/or explosion do not breathe fumes. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

Special protective equipment for firefighters

Chemical protection suit, Use suitable breathing apparatus

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Aqueous solutions or powders that become wet produce extremely slippery conditions.

For non-emergency personnel

Follow emergency procedures such as the need to evacuate the danger area or to consult an expert. Remove persons to safety. Prevent skin contact. Avoid inhaling sprayed product. Aqueous solutions or powders that become wet produce extremely slippery conditions.

For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases. Wear personal protective equipment/face protection. Aqueous solutions or powders that become wet produce extremely slippery conditions. Special danger of slipping by leaking/spilling product.

Suitable fabric for personal protective clothing

PE: polyethylene, NR: natural rubber, latex, CR: chloroprene (chlorobutadiene) rubber

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority. Disposal considerations: see section 13. Chemicals generally shouldn't reach surface water.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains

Advice on how to clean up a spill

Wipe up with absorbent material (e.g. cloth, fleece). Collect spillage: Absorbent material (e.g. sand, diatomaceous earth, acid binder, universal binder, sawdust, etc.)

Appropriate containment techniques

Neutralization techniques. Decontamination techniques. Use of adsorbent materials. Vacuuming techniques.

Equipment required for containment/clean-up

Approved industrial vacuum cleaner, Absorbent material (e.g. sand, diatomaceous earth, acid binder, universal binder, sawdust, etc.), Sweeping compounds (oil absorbing), Shovel, Drain seal, Collecting container, Protective gloves, Eye protection (e.g. protective goggles), Personal protective equipment: see section 8

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Section 7: Handling and storage. See also to sections 8 and 13 of the safety data sheet.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

Measures to prevent fire as well as aerosol and dust generation

Use local and general ventilation.

Handling of incompatible substances or mixtures

Do not mix with other chemicals.

Keep away from

Bases, Alkalis, Strong oxidizers, Other chemicals

Measures to protect the environment

Do not empty into drains; dispose of this material and its container at hazardous or special waste collection point.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Managing of associated risks

Corrosive conditions

Store in corrosive resistant container with a resistant inner liner.

Consideration of other advice Store between 5°C and 40°C. Avoid freezing.

Specific designs for storage rooms or vessels

No special measures are necessary. Keep container tightly closed.

Packaging compatibilities

Keep only in original container.

7.3 Specific end use(s)

Water treatment chemical. RO Reverse Osmosis.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational Exposure Limits: PELs, TLVs, etc

Occupational exposure limit values (Workplace Exposure Limits)

Name of substance	*Identifier*	*TWA [ppm]*	*TWA [mg/m³]*	*STEL [ppm]*	*STEL [mg/m³]*
Inorganic phosphorous compound	PEL (CA)	Not established	1	Not established	3

Occupational exposure limit values (Workplace Exposure Limits)					
Name of substance	*Identifier*	*TWA [ppm]*	*TWA [mg/m³]*	*STEL [ppm]*	*STEL [mg/m³]*
Inorganic phosphorous compound	REL	Not established	1 (10 h)	Not established	3
Inorganic phosphorous compound	TLV®	Not established	1	Not established	3
Inorganic phosphorous compound	PEL	Not established	1	Not established	Not established

Notation

STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified

8.2 Exposure controls

Appropriate engineering controls

Exhaust ventilation.

Individual protection measures (personal protective equipment)

Guarantee that the eye flushing systems and safety showers are closely located to the working place.

Eye/face protection

Wear eye/face protection.

Skin protection

Chemical resistant protective clothing.

Hand protection

Wear suitable gloves. Chemical protection gloves are suitable, which are tested according to EN 374. Check leak-tightness/impermeability prior to use. For special purposes, it is recommended to check the resistance to chemicals of the protective gloves mentioned above together with the supplier of these gloves. In case of spray contact at least protection index 2 recommended, according to more than 30 min. penetration time (EN 374).
Layer thickness of gloves at least: 0.4 mm
In case of prolonged and intensive contact protection index 6 recommended, according to more than 480 min. penetration time (EN 374).
Layer thickness of gloves at least: 0.7 mm.

Type of material

PVC: polyvinyl chloride, PE: polyethylene, CR: chloroprene (chlorobutadiene) rubber, NBR: acrylonitrile-butadiene rubber, IIR: isobutene-isoprene (butyl) rubber, FKM: fluoro-elastomer

Breakthrough times of the glove material

Breakthrough times and swelling properties of the material must be taken into consideration

Other protection measures

Wash hands thoroughly after handling.

Respiratory protection

Not necessary under normal conditions and provided good general ventilation. In case of inadequate ventilation wear respiratory protection. Type : E (against acidic gases like sulfur dioxide or hydrogen chloride, color code: Yellow).

Environmental exposure controls

Disposal considerations: see section 13.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	liquid
Color	clear , amber to yellow liquid
Odor	mild sweet
Odor threshold	no data available

Other safety parameters

pH (value)	ca. 2.5 – 3.5 (in aqueous solution: 2 wt%, 25 °C)
Melting point/freezing point	ca. <0 °C at 1 atm
Initial boiling point and boiling range	ca. >100 °C at 1 atm
Flash point	not applicable
Evaporation rate	not determined
Flammability (solid, gas)	not applicable
Upper/lower flammability or explosive limits	not determined
Vapor pressure	ca. 18 – 20 Pa at 20 °C
Vapor density	this information is not available
Density	not determined
Relative density	1.3 – 1.4 at 20 °C (water = 1)

Solubility(ies)

Water solubility	miscible in any proportion

Partition coefficient

-n-Octanol/water (log KOW)	this information is not available

Auto-ignition temperature	not determined not applicable
Decomposition temperature	not determined
Viscosity	not determined
Explosive properties	none
Oxidizing properties	none

9.2 Other information

There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

Substance or mixture corrosive to metals.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

No known hazardous reactions.

10.4 Conditions to avoid

Incompatible materials.

10.5 Incompatible materials

Oxidizers

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Acute toxicity

Harmful if swallowed.

Acute toxicity of components of the mixture

Name of substance	*Exposure route*	*Endpoint*	*Value*	*Species*
Organic acid B	oral	LD50	5,400 $^{mg}/_{kg}$	mouse
Organic acid B	dermal	LD50	>2,000 $^{mg}/_{kg}$	rat

Skin corrosion/irritation

Causes skin irritation.

Serious eye damage/eye irritation

Causes serious eye irritation.

Respiratory or skin sensitization

Shall not be classified as a respiratory or skin sensitizer.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

May cause damage to organs (respiratory system).

Hazard category	*Target organ*	*Exposure route*
2	respiratory system	if exposed

Specific target organ toxicity - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

Endpoint	*Value*	*Species*	*Exposure time*
LC50	>1,000 $^{mg}/_{l}$	daphnia magna	48 h
LC50	>1,000 $^{mg}/_{l}$	fathead minnow	48 h

Aquatic toxicity (acute) of components of the mixture

Name of substance	*Endpoint*	*Exposure time*	*Value*	*Species*	*Source*
Inorganic phosphorous compound	EC50	48 h	>100 $^{mg}/_{l}$	aquatic invertebrates	European Chemicals Agency, http://echa.europa.eu/
Inorganic phosphorous compound	ErC50	72 h	>100 $^{mg}/_{l}$	algae	European Chemicals Agency, http://echa.europa.eu/

Aquatic toxicity (acute) of components of the mixture					
Name of substance	*Endpoint*	*Exposure time*	*Value*	*Species*	*Source*
Organic acid B	LC50	48 h	440 $^{mg}/_{l}$	fish	European Chemicals Agency, http://echa.europa.eu/

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Not applicable.

12.6 Other adverse effects

Data are not available.

Remarks

Do not empty into drains or surface water.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Do not empty into drains; dispose of this material and its container at hazardous or special waste collection point. Dispose of waste according to applicable legislation.

Waste treatment of containers/packages

Only packagings which are approved (e.g. acc. to DOT) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Avoid release to the environment.

SECTION 14: Transport information

14.1 UN number 3264

14.2 UN proper shipping name Corrosive liquid, acidic, inorganic, n.o.s.

Technical name (hazardous ingredients) contains: (2-hydroxypropane-1,2,3-tricarboxylic acid) (Phosphoric acid)

14.3 Transport hazard class(es)

Class 8

14.4 Packing group III

14.5 Environmental hazards non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user

There is no additional information.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

Information for each of the UN Model Regulations

Transport of dangerous goods by road or rail (49 CFR US DOT)

Index number	3264
Proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s.
Particulars in the shipper's declaration	UN3264, Corrosive liquid, acidic, inorganic, n.o.s., (2-hydroxypropane-1,2,3-tricarboxylic acid, Phosphoric acid), 8, III
Class	8
Packing group	III
Danger label(s)	8

Special provisions (SP)	IB3, T7, TP1, TP28
ERG No	154

International Maritime Dangerous Goods Code (IMDG)

UN number	3264
Proper shipping name	CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S.
Particulars in the shipper's declaration	UN3264, CORROSIVE LIQUID, ACIDIC, INORGANIC, N.O.S., (2-hydroxypropane-1,2,3-tricarboxylic acid, Phosphoric acid), 8, III
Class	8
Marine pollutant	-
Packing group	III
Danger label(s)	8

EmS	F-A, S-B
Segregation group	1 - Acids
Segregation codes	SG36, SG49

International Civil Aviation Organization (ICAO-IATA/DGR)

UN number	3264
Proper shipping name	Corrosive liquid, acidic, inorganic, n.o.s.

Particulars in the shipper's declaration	UN3264, Corrosive liquid, acidic, inorganic, n.o.s., (2-hydroxypropane-1,2,3-tricarboxylic acid, Phosphoric acid), 8, III
Class	8
Environmental hazards	no
Packing group	III
Danger label(s)	8

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

National regulations (United States)

Toxic Substance Control Act (TSCA) all ingredients are listed or exempt from listing

Superfund Amendment and Reauthorization Act (SARA TITLE III)

The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)

none of the ingredients are listed

Specific Toxic Chemical Listings (EPCRA Section 313)

none of the ingredients are listed

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

Name of substance	*Statutory code*	*Final RQ pounds (Kg)*
Inorganic phosphorous compound	1	5000 (2270)

Legend

1 "1" indicates that the statutory source is section 311(b)(2) of the Clean Water Act

Clean Air Act

none of the ingredients are listed

New Jersey Worker and Community Right to Know Act

NJ-RTK List
Name of substance
Inorganic phosphorous compound

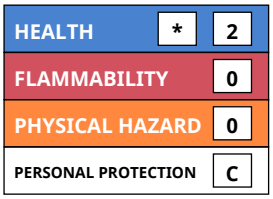
California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

none of the ingredients are listed

Industry or sector specific available guidance(s)

NPCA-HMIS® III

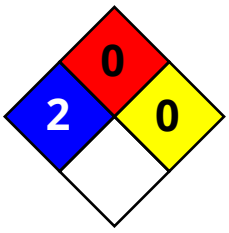
Hazardous Materials Identification System. American Coatings Association.



A "*" on the health line indicates a chronic health hazard is present.

NFPA® 704

National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).



Additional information

Substance is listed in the following national inventories:
The contained substances are listed in the following national inventories:
AICS (Australia)
ASIA-PAC (Asia-Pacific Region)
DSL (Canada)
NDSL (Canada)
DSL/NDSL (Canada)
IECSC (China)
EINECS/ELINCS/NLP (Europe)
EINECS (European Union)
REACH (Europe)
ENCS, class 1 and 2 (MITI-inventory, Japan)
CSCL-ENCS (Japan)
ISHA-ENCS (Japan)
KECL (Republic of Korea)
INSQ (Mexico)
NZIoC (New Zealand)
PICCS (Philippines)
CICR (Turkey)
TCSI (Taiwan)
TSCA (United States)

15.2 Chemical Safety Assessment

Chemical Safety Assessment: No.

SECTION 16: Other information, including date of preparation or last revision

Abbreviations and acronyms

Abbr.	*Descriptions of used abbreviations*
49 CFR US DOT	49 CFR U.S. Department of Transportation
Acute Tox.	Acute toxicity
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
DGR	Dangerous Goods Regulations (see IATA/DGR)
DOT	Department of Transportation (USA)
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
ErC50	≡ EC50: in this method, that concentration of test substance which results in a 50 % reduction in either growth (EbC50) or growth rate (ErC50) relative to the control
ERG No	Emergency Response Guidebook - Number
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
Met. Corr.	Substance or mixture corrosive to metals
NJ-RTK List	Hazardous Substance List (NJ-RTK)
NLP	No-Longer Polymer
NPCA-HMIS® III	National Paint and Coatings Association: Hazardous Materials Identification System - HMIS® III, Third Edition
OSHA	Occupational Safety and Health Administration (United States)
PBT	Persistent, Bioaccumulative and Toxic

Abbr.	*Descriptions of used abbreviations*
PEL	Permissible exposure limit
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals
Skin Corr.	Corrosive to skin
Skin Irrit.	Irritant to skin
STEL	Short-term exposure limit
STOT RE	Specific target organ toxicity - repeated exposure
TLV®	Threshold Limit Values
TWA	Time-weighted average
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

ECHA: European Chemicals Agency, http://echa.europa.eu/.

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties: The classification is based on tested mixture.
Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	*Text*
H290	May be corrosive to metals.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H332	Harmful if inhaled.
H371	May cause damage to organs (respiratory system).
H373	May cause damage to organs through prolonged or repeated exposure.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

Safety Data Sheet

RoClean™ P111

Date of compilation: 2022-09-28

SECTION 1: Identification

1.1 Product identifier

Trade name **RoClean™ P111**

CAS number none

1.2 Relevant identified uses of the substance or mixture and uses advised against

Relevant identified uses Water treatment chemical
RO Reverse Osmosis

1.3 Details of the supplier of the safety data sheet

Avista Technologies, Inc.
140 Bosstick Blvd.
92069 San Marcos
United States

Cellular Device: +1 (760) 744 0536
e-mail: regulatory@avistatech.com
Website: AvistaMembraneSolutions.com

1.4	**Emergency telephone number**	Emergency Number (USA, Canada): 1 (800) 424-9300 (ChemTrec) Emergency Number (International): 1 (703) 527-3887 (International Collect)

1.5 Registration

This product is designed to be used off-line and is to be flushed out prior to using the system for drinking water, following the manufacturer's use instructions.

SECTION 2: Hazard(s) identification

2.1 Classification of the substance or mixture

Classification acc. to OSHA "Hazard Communication Standard" (29 CFR 1910.1200)

Hazard class	*Category*	*Hazard statement*
acute toxicity (oral)	4	H302
acute toxicity (inhal.)	4	H332
skin corrosion/irritation	1B	H314
serious eye damage/eye irritation	2A	H319
specific target organ toxicity - repeated exposure	2	H373

For full text of abbreviations: see SECTION 16.

2.2 Label elements

Signal word danger

Pictograms

GHS05, GHS07, GHS08

Hazard statements

H302+H332	Harmful if swallowed or if inhaled.
H314	Causes severe skin burns and eye damage.
H373	May cause damage to organs through prolonged or repeated exposure.

Precautionary statements

P260	Do not breathe dusts or mists.
P270	Do not eat, drink or smoke when using this product.
P271	Use only outdoors or in a well-ventilated area.
P280	Wear eye protection/face protection.
P301+P330+P331	If swallowed: Rinse mouth. Do NOT induce vomiting.
P303+P361+P353	If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.
P304+P340	If inhaled: Remove person to fresh air and keep comfortable for breathing.
P305+P351+P338	If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
P310	Immediately call a poison center/doctor.
P363	Wash contaminated clothing before reuse.
P405	Store locked up.
P501	Dispose of contents/container to industrial combustion plant.

2.3 Other hazards

Hazards not otherwise classified

May be harmful in contact with skin (GHS category 5: acutely toxic - dermal).

Results of PBT and vPvB assessment

This mixture does not contain any substances that are assessed to be a PBT or a vPvB.

SECTION 3: Composition/information on ingredients

3.1 Mixtures

Hazardous ingredients

Name of substance	*Identifier*	*Wt%*	*Classification acc. to GHS*
Chelate agent F	CAS No Proprietary	20 – < 30	Acute Tox. 4 / H302 Acute Tox. 4 / H332 Eye Dam. 1 / H318 STOT RE 2 / H373
Polyphosphate salt	CAS No Proprietary EC No Proprietary	20 – < 30	Acute Tox. 2 / H330
Oxygenated inorganic salt	15630-89-4	20 – < 30	Acute Tox. 4 / H302 Eye Dam. 1 / H318 Ox. Sol. 2 / H272
Carbonate salt	497-19-8	20 – < 30	Eye Irrit. 2 / H319

For full text of abbreviations: see SECTION 16.
Specific chemical identity and concentration of some ingredients are protected as Trade Secret information.

HMIRA Registry Number: 3331682 Date filed: 5/30/2019.

SECTION 4: First-aid measures

4.1 Description of first-aid measures

General notes

Do not leave affected person unattended. Remove victim out of the danger area. Keep affected person warm, still and covered. Take off immediately all contaminated clothing. In case of unconsciousness place person in the recovery position. Never give anything by mouth.

Following inhalation

In case of respiratory tract irritation, consult a physician. In all cases of doubt, or when symptoms persist, seek medical advice.

Following skin contact

Brush off loose particles from skin. Rinse skin with water/shower. Take off contaminated clothing. After contact with skin, take off immediately all contaminated clothing, and wash immediately with plenty of water. Immediately call a doctor. In all cases of doubt, or when symptoms persist, seek medical advice.

Following eye contact

Irrigate copiously with clean, fresh water for at least 15 minutes, holding the eyelids apart. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician immediately.

Following ingestion

Rinse mouth with water (only if the person is conscious). Do NOT induce vomiting. Immediately call a doctor.

4.2 Most important symptoms and effects, both acute and delayed

Causes severe skin burns and eye damage. Splashes cause strong tearing, pain, may cause permanent visual impairment. Prolonged contact may cause dryness, redness, burns, blistering and ulceration. Can be partially absorbed by the skin. Ingestion causes pain, burns, abdominal pain, possible general impact (shock).

4.3 Indication of any immediate medical attention and special treatment needed

No specific antidote is known. Treatment of the symptoms.

SECTION 5: Fire-fighting measures

5.1 Extinguishing media

Suitable extinguishing media

Non-combustible. Coordinate firefighting measures to the fire surroundings. Water, Foam, Fire extinguishing powder, ABC-powder

Unsuitable extinguishing media

None

5.2 Special hazards arising from the substance or mixture

Deposited combustible dust has considerable explosion potential.

Hazardous combustion products

Carbon monoxide (CO), Carbon dioxide (CO_2)

5.3 Advice for firefighters

Keep containers cool with water spray. In case of fire and/or explosion do not breathe fumes. Do not allow firefighting water to enter drains or water courses. Collect contaminated firefighting water separately. Fight fire with normal precautions from a reasonable distance.

Special protective equipment for firefighters

Chemical protection suit, Use suitable breathing apparatus

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Aqueous solutions or powders that become wet produce extremely slippery conditions.

For non-emergency personnel

Follow emergency procedures such as the need to evacuate the danger area or to consult an expert. Remove persons to safety. Prevent skin contact. Avoid inhaling sprayed product. Aqueous solutions or powders that become wet produce extremely slippery conditions.

For emergency responders

Wear breathing apparatus if exposed to vapors/dust/aerosols/gases. Wear personal protective equipment/face protection. Do not breathe dust. Aqueous solutions or powders that become wet produce extremely slippery conditions. Special danger of slipping by leaking/spilling product.

Suitable fabric for personal protective clothing

PE: polyethylene, NR: natural rubber, latex, CR: chloroprene (chlorobutadiene) rubber

6.2 Environmental precautions

Keep away from drains, surface and ground water. Retain contaminated washing water and dispose of it. If substance has entered a water course or sewer, inform the responsible authority. Disposal considerations: see section 13. Chemicals generally shouldn't reach surface water.

6.3 Methods and material for containment and cleaning up

Advice on how to contain a spill

Covering of drains, Take up mechanically

Advice on how to clean up a spill

Take up mechanically. Collect spillage: Material for neutralising like diluted acetic acid. Control of dust.

Appropriate containment techniques

Neutralization techniques. Decontamination techniques. Use of adsorbent materials. Vacuuming techniques.

Equipment required for containment/clean-up

Approved industrial vacuum cleaner, Absorbent material (e.g. sand, diatomaceous earth, acid binder, universal binder, sawdust, etc.), Sweeping compounds (oil absorbing), Shovel, Drain seal, Collecting container, Protective gloves, Eye protection (e.g. protective goggles), Personal protective equipment: see section 8

Other information relating to spills and releases

Place in appropriate containers for disposal. Ventilate affected area.

6.4 Reference to other sections

Section 7: Handling and storage. See also to sections 8 and 13 of the safety data sheet.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

Recommendations

Avoid dust formation. Avoid breathing dust.

Measures to prevent fire as well as aerosol and dust generation

Take precautionary measures against static discharge. Use local and general ventilation.

Handling of incompatible substances or mixtures

Do not mix with acids. Do not mix with other chemicals.

Keep away from

Strong oxidizers, Other chemicals

Measures to protect the environment

Do not empty into drains; dispose of this material and its container at hazardous or special waste collection point.

Advice on general occupational hygiene

Wash hands after use. Do not eat, drink and smoke in work areas. Remove contaminated clothing and protective equipment before entering eating areas. Never keep food or drink in the vicinity of chemicals. Never place chemicals in containers that are normally used for food or drink. Keep away from food, drink and animal feedingstuffs.

7.2 Conditions for safe storage, including any incompatibilities

Consideration of other advice Store between 5°C and 40°C. Avoid freezing.

Ventilation requirements

Keep any substance that emits harmful vapors or gases in a place that allows these to be permanently extracted. Use local and general ventilation.

Specific designs for storage rooms or vessels

No special measures are necessary. Keep container tightly closed.

Packaging compatibilities

Keep only in original container.

7.3 Specific end use(s)

Water treatment chemical. RO Reverse Osmosis.

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

National limit values

Occupational Exposure Limits: PELs, TLVs, etc

Occupational exposure limit values (Workplace Exposure Limits)

Name of substance	*Identifier*	*TWA [ppm]*	*TWA [mg/m³]*	*STEL [ppm]*	*STEL [mg/m³]*
Dust and particulates	REL	Not established	Not established	Not established	Not established
Dust and particulates	PEL	1,766	15	Not established	Not established

Occupational exposure limit values (Workplace Exposure Limits)					
Name of substance	*Identifier*	*TWA [ppm]*	*TWA [mg/m³]*	*STEL [ppm]*	*STEL [mg/m³]*
Dust and particulates	PEL	529.5	5	Not established	Not established
Dust and particulates	PEL (CA)	Not established	10	Not established	Not established
Dust and particulates	PEL (CA)	Not established	5	Not established	Not established

Notation

STEL short-term exposure limit: a limit value above which exposure should not occur and which is related to a 15-minute period (unless otherwise specified)

TWA time-weighted average (long-term exposure limit): measured or calculated in relation to a reference period of 8 hours time-weighted average (unless otherwise specified

8.2 Exposure controls

Appropriate engineering controls

Exhaust ventilation.

Individual protection measures (personal protective equipment)

Guarantee that the eye flushing systems and safety showers are closely located to the working place.

Eye/face protection

Wear eye/face protection.

Skin protection

Chemical resistant protective clothing.

Hand protection

In case of spray contact at least protection index 2 recommended, according to more than 30 min. penetration time (EN 374).
Layer thickness of gloves at least: 0.4 mm
In case of prolonged and intensive contact protection index 6 recommended, according to more than 480 min. penetration time (EN 374).
Layer thickness of gloves at least: 0.7 mm.

Type of material

PVC: polyvinyl chloride, PE: polyethylene, CR: chloroprene (chlorobutadiene) rubber, NBR: acrylonitrile-butadiene rubber, IIR: isobutene-isoprene (butyl) rubber, FKM: fluoro-elastomer

Breakthrough times of the glove material

Breakthrough times and swelling properties of the material must be taken into consideration

Other protection measures

Wash hands thoroughly after handling.

Respiratory protection

Not necessary under normal conditions and provided good general ventilation. In case of inadequate ventilation wear respiratory protection. Particulate filter device (EN 143). Type : E (against acidic gases like sulfur dioxide or hydrogen chloride, color code: Yellow).

Environmental exposure controls

Disposal considerations: see section 13.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

Appearance

Physical state	solid (powder, granular)
Color	white
Odor	odorless
Odor threshold	not applicable

Other safety parameters

pH (value)	ca. 10.5 – 11.5 (in aqueous solution: 2 wt%, 25 °C)
Melting point/freezing point	not determined
Initial boiling point and boiling range	not determined
Flash point	not applicable not applicable
Evaporation rate	not determined
Flammability (solid, gas)	not applicable
Explosion limits of dust clouds	not determined
Vapor pressure	not applicable
Vapor density	this information is not available
Density	not determined
Relative density	information on this property is not available
Solubility(ies)	not determined

Partition coefficient

-n-Octanol/water (log KOW)	this information is not available
Auto-ignition temperature	not determined not applicable
Decomposition temperature	not determined
Viscosity	not relevant (solid matter)
Explosive properties	none

Oxidizing properties	none

9.2 Other information

There is no additional information.

SECTION 10: Stability and reactivity

10.1 Reactivity

This material is not reactive under normal ambient conditions.

10.2 Chemical stability

The material is stable under normal ambient and anticipated storage and handling conditions of temperature and pressure.

10.3 Possibility of hazardous reactions

Dangerous/dangerous reactions with Acids.

10.4 Conditions to avoid

Incompatible materials.

Hints to prevent fire or explosion

The product in the delivered form is not dust explosion capable; the enrichment of fine dust however leads to the danger of dust explosion.

10.5 Incompatible materials

Oxidizers

10.6 Hazardous decomposition products

Reasonably anticipated hazardous decomposition products produced as a result of use, storage, spill and heating are not known. Hazardous combustion products: see section 5.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Test data are not available for the complete mixture.

Classification procedure

The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

Acute toxicity

Harmful if swallowed. Harmful if inhaled.

Acute toxicity of components of the mixture

Name of substance	*Exposure route*	*Endpoint*	*Value*	*Species*
sodium carbonate peroxyhydrate	oral	LD50	1,034 $^{mg}/_{kg}$	rat
sodium carbonate peroxyhydrate	dermal	LD50	>2,000 $^{mg}/_{kg}$	rabbit
Carbonate salt	oral	LD50	2,800 $^{mg}/_{kg}$	rat
Carbonate salt	dermal	LD50	>2,000 $^{mg}/_{kg}$	rabbit

Skin corrosion/irritation

Causes severe skin burns and eye damage.

Serious eye damage/eye irritation

Causes serious eye damage. Causes serious eye irritation.

Respiratory or skin sensitization

Shall not be classified as a respiratory or skin sensitizer.

Germ cell mutagenicity

Shall not be classified as germ cell mutagenic.

Carcinogenicity

Shall not be classified as carcinogenic.

Reproductive toxicity

Shall not be classified as a reproductive toxicant.

Specific target organ toxicity - single exposure

Shall not be classified as a specific target organ toxicant (single exposure).

Specific target organ toxicity - repeated exposure

May cause damage to organs through prolonged or repeated exposure.

Aspiration hazard

Shall not be classified as presenting an aspiration hazard.

SECTION 12: Ecological information

12.1 Toxicity

Shall not be classified as hazardous to the aquatic environment.

Aquatic toxicity (acute)

Endpoint	*Value*	*Species*	*Exposure time*
LC50	342 $^{mg}/_{l}$	fathead minnow	96 h
LC50	41 $^{mg}/_{l}$	Ceriodaphnia dubia (water flea)	48 h
LC50	1,342 $^{mg}/_{l}$	marine fish	96 h
LC50	17.89 $^{mg}/_{l}$	Arcatia tonsa	48 h

Aquatic toxicity (acute) of components of the mixture

Name of substance	*Endpoint*	*Exposure time*	*Value*	*Species*	*Source*
sodium carbonate peroxyhydrate	LC50	48 h	70.7 $^{mg}/_{l}$	fish	European Chemicals Agency, http://echa.europa.eu/
sodium carbonate peroxyhydrate	EC50	48 h	4.9 $^{mg}/_{l}$	aquatic invertebrates	European Chemicals Agency, http://echa.europa.eu/

Aquatic toxicity (acute) of components of the mixture					
Name of substance	*Endpoint*	*Exposure time*	*Value*	*Species*	*Source*
Carbonate salt	LC50	96 h	300 $^{mg}/_{l}$	fish	European Chemicals Agency, http://echa.europa.eu/
Carbonate salt	EC50	48 h	227 $^{mg}/_{l}$	aquatic invertebrates	European Chemicals Agency, http://echa.europa.eu/

12.2 Persistence and degradability

Data are not available.

12.3 Bioaccumulative potential

Data are not available.

12.4 Mobility in soil

Data are not available.

12.5 Results of PBT and vPvB assessment

Not applicable.

12.6 Other adverse effects

Data are not available.

Remarks

Do not empty into drains or surface water.

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Do not empty into drains; dispose of this material and its container at hazardous or special waste collection point. Dispose of waste according to applicable legislation.

Waste treatment of containers/packages

Only packagings which are approved (e.g. acc. to DOT) may be used. Completely emptied packages can be recycled. Handle contaminated packages in the same way as the substance itself.

Remarks

Please consider the relevant national or regional provisions. Waste shall be separated into the categories that can be handled separately by the local or national waste management facilities. Avoid release to the environment.

SECTION 14: Transport information

14.1 UN number	3262
14.2 UN proper shipping name	Corrosive solid, basic, inorganic, n.o.s.
Technical name (hazardous ingredients)	contains: (sodium carbonate peroxyhydrate) (disodium carbonate)
14.3 Transport hazard class(es)	
Class	8
14.4 Packing group	II
14.5 Environmental hazards	non-environmentally hazardous acc. to the dangerous goods regulations

14.6 Special precautions for user

There is no additional information.

14.7 Transport in bulk according to Annex II of MARPOL and the IBC Code

The cargo is not intended to be carried in bulk.

Information for each of the UN Model Regulations

Transport of dangerous goods by road or rail (49 CFR US DOT)

Index number	3262
Proper shipping name	Corrosive solid, basic, inorganic, n.o.s.
Particulars in the shipper's declaration	UN3262, Corrosive solid, basic, inorganic, n.o.s., (sodium carbonate peroxyhydrate, disodium carbonate), 8, II
Class	8
Packing group	II
Danger label(s)	8

Special provisions (SP)	IB8, IP2, IP4, T3, TP33
ERG No	154

International Maritime Dangerous Goods Code (IMDG)

UN number	3262
Proper shipping name	CORROSIVE SOLID, BASIC, INORGANIC, N.O.S.
Particulars in the shipper's declaration	UN3262, CORROSIVE SOLID, BASIC, INORGANIC, N.O.S., (sodium carbonate peroxyhydrate, disodium carbonate), 8, II
Class	8
Marine pollutant	-
Packing group	II
Danger label(s)	8

EmS	F-A, S-B
Segregation group	18 - Alkalis
Segregation codes	SG35

International Civil Aviation Organization (ICAO-IATA/DGR)

UN number	3262
Proper shipping name	Corrosive solid, basic, inorganic, n.o.s.
Particulars in the shipper's declaration	UN3262, Corrosive solid, basic, inorganic, n.o.s., (sodium carbonate peroxyhydrate, disodium carbonate), 8, II
Class	8
Environmental hazards	no
Packing group	II
Danger label(s)	8

SECTION 15: Regulatory information

15.1 Safety, health and environmental regulations specific for the product in question

National regulations (United States)

Toxic Substance Control Act (TSCA) all ingredients are listed or exempt from listing

Superfund Amendment and Reauthorization Act (SARA TITLE III)

The List of Extremely Hazardous Substances and Their Threshold Planning Quantities (EPCRA Section 302, 304)

none of the ingredients are listed

Specific Toxic Chemical Listings (EPCRA Section 313)

none of the ingredients are listed

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA)

List of Hazardous Substances and Reportable Quantities (CERCLA section 102a) (40 CFR 302.4)

none of the ingredients are listed

Clean Air Act

none of the ingredients are listed

New Jersey Worker and Community Right to Know Act

none of the ingredients are listed

California Environmental Protection Agency (Cal/EPA): Proposition 65 - Safe Drinking Water and Toxic Enforcement Act of 1987

none of the ingredients are listed

Industry or sector specific available guidance(s)

NPCA-HMIS® III

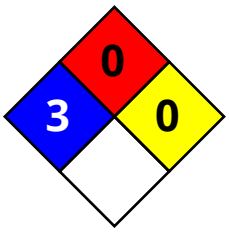
Hazardous Materials Identification System. American Coatings Association.

HEALTH	*	3
FLAMMABILITY		0
PHYSICAL HAZARD		0
PERSONAL PROTECTION		-

A "*" on the health line indicates a chronic health hazard is present.

NFPA® 704

National Fire Protection Association: Standard System for the Identification of the Hazards of Materials for Emergency Response (United States).



Additional information

Substance is listed in the following national inventories:
The contained substances are listed in the following national inventories:
AICS (Australia)
ASIA-PAC (Asia-Pacific Region)
DSL (Canada)
NDSL (Canada)
DSL/NDSL (Canada)
IECSC (China)
EINECS/ELINCS/NLP (Europe)
EINECS (European Union)
REACH (Europe)
ENCS, class 1 and 2 (MITI-inventory, Japan)
CSCL-ENCS (Japan)
ISHA-ENCS (Japan)
KECL (Republic of Korea)
INSQ (Mexico)
NZIoC (New Zealand)
PICCS (Philippines)
CICR (Turkey)
TCSI (Taiwan)
TSCA (United States)

15.2 Chemical Safety Assessment

Chemical Safety Assessment: No.

SECTION 16: Other information, including date of preparation or last revision

Abbreviations and acronyms

Abbr.	*Descriptions of used abbreviations*
49 CFR US DOT	49 CFR U.S. Department of Transportation
Acute Tox.	Acute toxicity
CAS	Chemical Abstracts Service (service that maintains the most comprehensive list of chemical substances)
DGR	Dangerous Goods Regulations (see IATA/DGR)
DOT	Department of Transportation (USA)
EC50	Effective Concentration 50 %. The EC50 corresponds to the concentration of a tested substance causing 50 % changes in response (e.g. on growth) during a specified time interval
EC No	The EC Inventory (EINECS, ELINCS and the NLP-list) is the source for the seven-digit EC number, an identifier of substances commercially available within the EU (European Union)
EINECS	European Inventory of Existing Commercial Chemical Substances
ELINCS	European List of Notified Chemical Substances
EmS	Emergency Schedule
ERG No	Emergency Response Guidebook - Number
Eye Dam.	Seriously damaging to the eye
Eye Irrit.	Irritant to the eye
GHS	"Globally Harmonized System of Classification and Labelling of Chemicals" developed by the United Nations
IATA	International Air Transport Association
IATA/DGR	Dangerous Goods Regulations (DGR) for the air transport (IATA)
ICAO	International Civil Aviation Organization
IMDG	International Maritime Dangerous Goods Code
LC50	Lethal Concentration 50%: the LC50 corresponds to the concentration of a tested substance causing 50 % lethality during a specified time interval
LD50	Lethal Dose 50 %: the LD50 corresponds to the dose of a tested substance causing 50 % lethality during a specified time interval
MARPOL	International Convention for the Prevention of Pollution from Ships (abbr. of "Marine Pollutant")
NLP	No-Longer Polymer
NPCA-HMIS® III	National Paint and Coatings Association: Hazardous Materials Identification System - HMIS® III, Third Edition
OSHA	Occupational Safety and Health Administration (United States)
Ox. Sol.	Oxidizing solid
PBT	Persistent, Bioaccumulative and Toxic
PEL	Permissible exposure limit
ppm	Parts per million
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals

Abbr.	*Descriptions of used abbreviations*
STEL	Short-term exposure limit
STOT RE	Specific target organ toxicity - repeated exposure
TWA	Time-weighted average
vPvB	Very Persistent and very Bioaccumulative

Key literature references and sources for data

ECHA: European Chemicals Agency, http://echa.europa.eu/.

OSHA Hazard Communication Standard (HCS), 29 CFR 1910.1200.

Transport of dangerous goods by road or rail (49 CFR US DOT). International Maritime Dangerous Goods Code (IMDG). Dangerous Goods Regulations (DGR) for the air transport (IATA).

Classification procedure

Physical and chemical properties: The classification is based on tested mixture.
Health hazards, Environmental hazards: The method for classification of the mixture is based on ingredients of the mixture (additivity formula).

List of relevant phrases (code and full text as stated in section 2 and 3)

Code	*Text*
H272	May intensify fire; oxidizer.
H302	Harmful if swallowed.
H314	Causes severe skin burns and eye damage.
H318	Causes serious eye damage.
H319	Causes serious eye irritation.
H330	Fatal if inhaled.
H332	Harmful if inhaled.
H373	May cause damage to organs through prolonged or repeated exposure.

Disclaimer

This information is based upon the present state of our knowledge. This SDS has been compiled and is solely intended for this product.

Univar USA Inc Safety Data Sheet

SDS No:	
Version No:	009 2015-01-12
Order No:	

3075 Highland Pkwy, Ste 200, Downers Grove, IL 60515
(425) 889 3400

Emergency Assistance

For emergency assistance involving chemicals call
Chemtrec - (800) 424-9300

COMPANY IDENTITY: Univar
PRODUCT IDENTITY: SODIUM BISULFITE SOLUTION

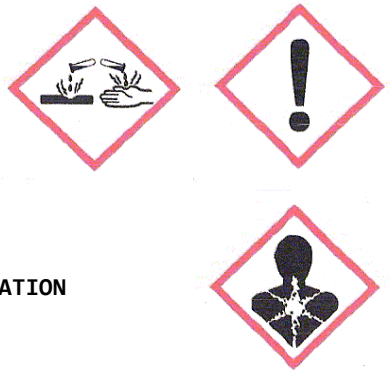
SDS DATE: 01/09/2015
REPLACES: 07/18/2014

SAFETY DATA SHEET

This Safety Data Sheet conforms to ANSI Z400.5, and to the format requirements and the International Chemical Safety Cards of the Global Harmonizing System.
THIS SDS COMPLIES WITH 29 CFR 1910.1200 (HAZARD COMMUNICATION STANDARD)
IMPORTANT: Read this SDS before handling & disposing of this product.
Pass this information on to employees, customers, & users of this product.

SECTION 1. IDENTIFICATION OF THE SUBSTANCE OR MIXTURE AND OF THE SUPPLIER

PRODUCT IDENTITY: SODIUM BISULFITE SOLUTION
SDS NUMBER: CDS-2115
COMPANY IDENTITY: Univar
COMPANY ADDRESS: 17425 NE Union Hill Road
COMPANY CITY: Redmond, WA 98052
COMPANY PHONE: 1-425-889-3400
EMERGENCY PHONES: CHEMTREC: 1-800-424-9300 (USA)
CANUTEC: 1-613-996-6666 (CANADA)



SECTION 2. HAZARDS IDENTIFICATION

WARNING!

2.1 HAZARD STATEMENTS:
H100s = General, H200s = Physical, H300s = Health, H400s = Environmental

H290	May be corrosive to metals.
H314	Causes severe skin burns and eye damage.
H335	May cause respiratory irritation.

2.2 PRECAUTIONARY STATEMENTS:
P100s = General, P200s = Prevention, P300s = Response, P400s = Storage, P500s = Disposal

P260	Do not breathe dust/fume/gas/mist/vapors/spray.
P262	Do not get in eyes, on skin, or on clothing.
P280	Wear protective gloves/protective clothing/eye protection/face protection.
P301+330+331	IF SWALLOWED: Rinse mouth. Do NOT induce vomiting.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

MATERIAL	CAS#	EINECS#	WT %
Water	7732-18-5	231-791-2	58-73
Sodium Bisulfite	7631-90-5	-	27-42

Trace components: Trace ingredients (if any) are present in < 1% concentration, (< 0.1% for potential carcinogens, reproductive toxins, respiratory tract mutagens, and sensitizers). None of the trace ingredients contribute significant additional hazards at the concentrations that may be present in this product. All pertinent hazard information has been provided in this document, per the requirements of the Federal Occupational Safety and Health Administration Standard (29 CFR 1910.1200), U.S. State equivalents, and Canadian Hazardous Materials Identification System Standard (CPR 4).

SEE SECTIONS 8, 11 & 12 FOR TOXICOLOGICAL INFORMATION.

SECTION 4. FIRST AID MEASURES

4.1 GENERAL ADVICE:
First Aid responders should pay attention to self-protection and use the recommended protective clothing (chemical resistant gloves, splash protection). If potential for exposure exists, refer to Section 8 for specific personal protective equipment.

4.2 EYE CONTACT:
If this product enters the eyes, open eyes while under gently running water. Use sufficient force to open eyelids. "Roll" eyes to expose more surface. Minimum flushing is for 15 minutes. Seek immediate medical attention.

4.3 SKIN CONTACT:
If the product contaminates the skin, immediately begin decontamination with running water. Minimum flushing is for 15 minutes. Remove contaminated clothing, taking care not to contaminate eyes. If skin becomes irritated and irritation persists, medical attention may be necessary. Wash contaminated clothing before reuse, discard contaminated shoes.

4.4 INHALATION:
After high vapor exposure, remove to fresh air. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Keep person warm and at rest. breathing is difficult, give oxygen. If breathing has stopped, trained personnel should immediately begin artificial respiration. It may be dangerous to the person providing aid to give mouth-to-mouth resuscitation. If unconscious, place in recovery position and get medical attention immediately. Maintain an open airway. Loosen tight clothing such as a collar, tie, belt or waistband. If the heart has stopped, trained personnel should immediately begin cardiopulmonary resuscitation (CPR). Seek immediate medical attention. In case of inhalation of decomposition products in a fire, symptoms may be delayed.The exposed person may need to be kept under medical surveillance for 48 hours.

4.5 SWALLOWING:
If swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. If professional advice is not available, give two glasses of water to drink. DO NOT INDUCE VOMITING. Never induce vomiting or give liquids to someone who is unconscious, having convulsions, or unable to swallow. Seek immediate medical attention.

4.6 NOTES TO PHYSICIAN:
There is no specific antidote. Treatment of overexposure should be directed at the control of symptoms and the clinical condition of the patient. Any material aspirated during vomiting may cause lung injury. Therefore, emesis should not be induced mechanically or pharmacologically. If it is considered necessary to evacuate the stomach contents, this should be done by means least likely to cause aspiration (such as: Gastric lavage after endotracheal intubation).

Victims of chemical exposure must be taken for medical attention. Rescuers should be taken for medical attention, if necessary. Take a copy of label and SDS to physician or health professional with victim.

SECTION 5. FIRE FIGHTING MEASURES

5.1 FIRE & EXPLOSION PREVENTIVE MEASURES
Isolate from oxidizers, acids, and extreme heat.

5.2 EXTINGUISHING MEDIA
Use appropriate extinguishing media for surrounding fire.

5.3 SPECIAL FIRE FIGHTING PROCEDURES
Water spray may be ineffective on fire but can protect fire-fighters
& cool closed containers. Use fog nozzles if water is used.
Do not enter confined fire-space without full bunker gear.
(Helmet with face shield, bunker coats, gloves & rubber boots).
Use NIOSH approved positive-pressure self-contained breathing apparatus.

SECTION 5. FIRE FIGHTING MEASURES (CONTINUED)

5.4 UNUSUAL EXPLOSION AND FIRE PROCEDURES
Noncombustible.
Thermal decomposition produces toxic fumes.
Closed containers may explode if exposed to extreme heat.
Applying to hot surfaces requires special precautions.

SECTION 6. ACCIDENTAL RELEASE MEASURES

6.1 SPILL AND LEAK RESPONSE AND ENVIRONMENTAL PRECAUTIONS:
Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area, protect people, and respond with trained personnel.

6.2 PERSONAL PROTECTIVE EQUIPMENT
The proper personal protective equipment for incidental releases (such as: 1 Liter of the product released in a well-ventilated area), use impermeable gloves (triple-gloves (rubber gloves and nitrile gloves, over latex gloves), goggles, face shield, and appropriate body protection. In the event of a large release, use impermeable gloves, specific for the material handled, chemically resistant suit and boots, and hard hat. Self-Contained Breathing Apparatus or respirator may be required where engineering controls are not adequate or conditions for potential exposure exist. When respirators are required, select NIOSH/MSHA approved based on actual or potential airborne concentrations in accordance with latest OSHA and/or ANSI recommendations.

6.3 ENVIRONMENTAL PRECAUTIONS:
Stop spill at source. Construct temporary dikes of dirt, sand, or any appropriate readily available material to prevent spreading of the material. Close or cap valves and/or block or plug hole in leaking container and transfer to another container. Keep from entering storm sewers and ditches which lead to waterways, and if necessary, call the local fire or police department for immediate emergency assistance.

6.4 CONTAINMENT AND CLEAN-UP MEASURES:
Absorb spilled liquid with polypads or other suitable absorbent materials. If necessary, neutralize using suitable buffering material, (acid with soda ash or base with phosphoric acid), and test area with litmus paper to confirm neutralization. Clean up with non-combustible absorbent (such as: sand, soil, and so on). Shovel up and place all spill residue in suitable containers. dispose of at an appropriate waste disposal facility according to current applicable laws and regulations and product characteristics at time of disposal (see Section 13 - Disposal Considerations).

SECTION 7. HANDLING AND STORAGE

7.1 PRECAUTIONS FOR SAFE HANDLING
Isolate from oxidizers, heat, & open flame. Use only with adequate ventilation. Avoid breathing of vapor or spray mist. Avoid contact with skin & eyes. Wear OSHA Standard goggles or face shield. Consult Safety Equipment Supplier. Wear goggles, face shield, gloves, apron & footwear impervious to material. Wash clothing before reuse.
Empty container very hazardous! Continue all label precautions!

7.2 CONDITIONS FOR SAFE STORAGE, INCLUDING ANY INCOMPATIBILITIES:
Isolate from acids, strong oxidants. Do not store above 49 C/120 F.
Keep container tightly closed & upright when not in use to prevent leakage.

7.3 NONBULK: CONTAINERS:
Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Material should be stored in secondary containers or in a diked area, as appropriate. Store containers away from incompatible chemicals (see Section 10, Stability and Reactivity). Post warning and "NO SMOKING" signs in storage and use areas, as appropriate. Empty containers should be handled with care. Never store food, feed, or drinking water in containers which held this product.

SECTION 7. HANDLING AND STORAGE (CONTINUED)

7.4 BULK CONTAINERS:
All tanks and pipelines which contain this material must be labeled. Perform routine maintenance on tanks or pipelines which contain this product. Report all leaks immediately to the proper personnel.

7.5 TANK CAR SHIPMENTS:
Tank cars carrying this product should be loaded and unloaded in strict accordance with tank-car manufacturer's recommendation and all established on-site safety procedures. Appropriate personal protective equipment must be used (see Section 8, Engineering Controls and Personal Protective Equipment.). All loading and unloading equipment must be inspected, prior to each use. Loading and unloading operations must be attended, at all times. Tank cars must be level, brakes must be set or wheels must be locked or blocked prior to loading or unloading. Tank car (for loading) or storage tanks (for unloading) must be verified to be correct for receiving this product and be properly prepared, prior to starting the transfer operations. Hoses must be verified to be in the correct positions, before starting transfer operations. A sample (if required) must be taken and verified (if required) prior to starting transfer operations. All lines must be blown-down and purged before disconnecting them from the tank car or vessel.

7.6 PROTECTIVE PRACTICES DURING MAINTENANCE OF CONTAMINATED EQUIPMENT:
Follow practices indicated in Section 6 (Accidental Release Measures). Make certain application equipment is locked and tagged-out safely. Always use this product in areas where adequate ventilation is provided. Collect all rinsates and dispose of according to applicable Federal, State, Provincial, or local procedures.

7.7 EMPTY CONTAINER WARNING:
Empty containers may contain residue and can be dangerous. Do not attempt to refill or clean containers without proper instructions. Empty drums should be completely drained and safely stored until appropriately reconditioned or disposed. Empty containers should be taken for recycling, recovery, or disposal through suitably qualified or licensed contractor and in accordance with governmental regulations. **DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE SUCH CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY BURST AND CAUSE INJURY OR DEATH.**

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

MATERIAL	CAS#	EINECS#	TWA (OSHA)	TLV (ACGIH)
Water	7732-18-5	231-791-2	None Known	None Known
Sodium Bisulfite	7631-90-5	-	None Known	None Known

This product contains no EPA Hazardous Air Pollutants (HAP) in amounts > 0.1%.

8.2 APPROPRIATE ENGINEERING CONTROLS:

RESPIRATORY EXPOSURE CONTROLS
Airborne concentrations should be kept to lowest levels possible. If vapor, dust or mist is generated and the occupational exposure limit of the product, or any component of the product, is exceeded, use appropriate NIOSH or MSHA approved air purifying or air-supplied respirator authorized in 29 CFR 1910.134, European Standard EN 149, or applicable State regulations, after determining the airborne concentration of the contaminant. Air supplied respirators should always be worn when airborne concentration of the contaminant or oxygen content is unknown. Maintain airborne contaminant concentrations below exposure limits. If adequate ventilation is not available or there is potential for airborne exposure above the exposure limits, a respirator may be worn up to the respirator exposure limitations, check with respirator equipment manufacturer's recommendations/limitations. For particulates, a particulate respirator (NIOSH Type N95 or better filters) may be worn. If oil particles (such as: lubricants, cutting fluids, glycerine, and so on) are present, use a NIOSH Type R or P filter. For a higher level of protection, use positive pressure supplied air respiration protection or Self-Contained Breathing Apparatus or if oxygen levels are below 19.5% or are unknown.

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION (CONTINUED)

EMERGENCY OR PLANNED ENTRY INTO UNKNOWN CONCENTRATIONS OR IDLH CONDITIONS
Positive pressure, full-face piece Self-Contained Breathing Apparatus; or positive pressure, full-face piece Self-Contained Breathing Apparatus with an auxilliary positive pressure Self-Contained Breathing Apparatus.

VENTILATION

LOCAL EXHAUST:	Necessary	MECHANICAL (GENERAL):	Necessary
SPECIAL:	None	OTHER:	None

Please refer to ACGIH document, "Industrial Ventilation, A Manual of Recommended Practices", most recent edition, for details.

8.3 INDIVIDUAL PROTECTION MEASURES, SUCH AS PERSONAL PROTECTIVE EQUIPMENT:

EYE PROTECTION:
Safety eyewear complying with an approved standard should be used when a risk assessment indicates this is necessary to avoid exposure to liquid splashes, mists or dusts. If contact is possible, chemical splash goggles should be worn, when a higher degree of protection is necessary, use splash goggles or safety glasses. Face-shields are recommended when the operation can generate splashes, sprays or mists.

HAND PROTECTION:
Use gloves chemically resistant to this material. Preferred examples: Butyl rubber, Chlorinated Polyethylene, Polyethylene, Ethyl vinyl alcohol laminate ("EVAL"), Polyvinyl alcohol ("PVA"). Examples of acceptable glove barrier materials include: Natural rubber ("latex"), Neoprene, Nitrile/butadiene rubber ("nitril") or ("NBR"), Polyvinyl chloride ("PVC") or "vinyl"), Viton. Chemical-resistant, impervious gloves complying with an approved standard should be worn at all times when handling chemical products if a risk assessment indicates this is necessary. Considering the parameters specified by the glove manufacturer, check during use that the gloves are still retaining their protective properties. It should be noted that the time to breakthrough for any glove material may be different for different glove manufacturers. In the case of mixtures, consisting of several substances, the protection time of the gloves cannot be accurately estimated.

BODY PROTECTION:
Use body protection appropriate for task. Cover-all, rubber aprons, or chemical protective clothing made from impervious materials are generally acceptable, depending on the task.

WORK & HYGIENIC PRACTICES:
Wash hands, forearms and face thoroughly after handling chemical products, before eating, smoking and using toilet facilities and at the end of the working period. Provide readily accessible eye wash stations & safety showers. Remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

NOTICE: The selection of a specific glove for a particular application and duration of use in a workplace should also take into account all relevant workplace factors such as, but not limited to: Other chemicals which may be handled, physical requirements (cut/puncture protection, dexterity, thermal protection), potential body reactions to glove materials, as well as the instructions/specifications provided by the glove supplier.

BODY PROTECTION:
Use body protection appropriate for task. Cover-all, rubber aprons, or chemical protective clothing made from impervious materials are generally acceptable, depending on the task.

WORK & HYGIENIC PRACTICES:
Provide readily accessible eye wash stations & safety showers. Wash at end of each shift & before eating, smoking or using the toilet. Remove clothing that becomes contaminated. Destroy contaminated leather articles. Launder or discard contaminated clothing.

SECTION 9. PHYSICAL & CHEMICAL PROPERTIES

APPEARANCE:	Liquid, Straw Yellow
ODOR:	Sharp, Pungent
ODOR THRESHOLD:	Not Available
pH (Neutrality):	4.1 - 4.6
BOILING RANGE (IBP,50%,Dry Point):	> 100 C / > 212 F
FLASH POINT (TEST METHOD):	Not Applicable
EVAPORATION RATE (n-BUTYL ACETATE=1):	Not Applicable
FLAMMABILITY CLASSIFICATION:	Non-Combustible
LOWER FLAMMABLE LIMIT IN AIR (% by vol):	Not Applicable
UPPER FLAMMABLE LIMIT IN AIR (% by vol):	Not Available
VAPOR PRESSURE (mm of Hg)@20 C	9
VAPOR DENSITY (air=1):	0.670
GRAVITY @ 68/68 F / 20/20 C:	
SPECIFIC GRAVITY (Water=1):	1.320
POUNDS/GALLON:	10.996
WATER SOLUBILITY:	Complete
PARTITION COEFFICIENT (n-Octane/Water):	Not Available
AUTO IGNITION TEMPERATURE:	Not Applicable
DECOMPOSITION TEMPERATURE:	Not Available
VOCs (>0.044 Lbs/Sq In) :	0.0 Vol% /0.0 g/L / 0.000 Lbs/Gal
TOTAL VOC'S (TVOC)*:	0.0 Vol% /0.0 g/L / 0.000 Lbs/Gal
NONEXEMPT VOC'S (CVOC)*:	0.0 Vol% /0.0 g/L / 0.000 Lbs/Gal
HAZARDOUS AIR POLLUTANTS (HAPS):	0.0 Wt% /0.0 g/L / 0.000 Lbs/Gal
NONEXEMPT VOC PARTIAL PRESSURE (mm of Hg @ 20 C)	0.0

* Using California Air Resources Board (CARB) Rule 310.

SECTION 10. STABILITY & REACTIVITY

10.1 STABILITY
Stable under normal conditions.

10.2 CONDITIONS TO AVOID
Gradually oxidizes to sodium sulfate on exposure to air. Temperatures at or near boiling point causes evolution of toxic and corrosive sulfur dioxide.

10.3 MATERIALS TO AVOID
Mineral acids, oxidizing agents. Contact with acid liberates irritating sulfur dioxide gas. Corrosive to steel, carbon steel, and other common materials of construction at ambient temperatures.

10.4 HAZARDOUS DECOMPOSITION PRODUCTS
Sodium Oxide & Hydroxide, Sulfur Dioxide from heating.

10.5 HAZARDOUS POLYMERIZATION
Will not occur.

SECTION 11. TOXICOLOGICAL INFORMATION

11.1 ACUTE HAZARDS

11.11 EYE & SKIN CONTACT:
CORROSIVE! Causes severe skin burns.
Causes severe eye damage.
Wash thoroughly after handling.

11.12 INHALATION:
Mist irritating to respiratory tract.

11.13 SWALLOWING:
Swallowing can cause abdominal irritation, nausea, vomiting & diarrhea.

11.2 SUBCHRONIC HAZARDS/CONDITIONS AGGRAVATED

CONDITIONS AGGRAVATED
None Known.

11.3 CHRONIC HAZARDS

11.31 CANCER, REPRODUCTIVE & OTHER CHRONIC HAZARDS:
This product has no carcinogens listed by IARC, NTP, NIOSH, OSHA or ACGIH, as of this date, greater or equal to 0.1%.

11.32 IRRITANCY OF PRODUCT: This product is irritating to contaminated tissue.

11.33 SENSITIZATION TO THE PRODUCT: No component of this product is known to be a sensitizer.

11.34 MUTAGENICITY: This product is not reported to produce mutagenic effects in humans.

11.35 EMBRYOTOXICITY: This product is not reported to produce embryotoxic effects in humans.

11/36 TERATOGENICITY: This product is not reported to produce teratogenic effects in humans.

11.37REPRODUCTIVE TOXICITY: This product is not reported to cause reproductive effects in humans.

A mutagen is a chemical which causes permanent changes to genetic material (DNA) such that the changes will propagate through generational lines. An embryotoxin is a chemical which causes damage to a developing embryo (such as: within the eight weeks of pregnancy in humans), but the damage does not propagate across generational lines. A teratogen is a chemical which causes damage to a developing fetus, but the damage does not propagate across generational lines. A reproductive toxin is any substance which interferes in any way with the reproductive process.

MAMMALIAN TOXICITY INFORMATION

LD50 (Oral): 820 mg/kg (Mouse)

COMPANY IDENTITY: Univar
PRODUCT IDENTITY: SODIUM BISULFITE SOLUTION

SDS DATE: 01/09/2015
REPLACES: 07/18/2014

SECTION 12. ECOLOGICAL INFORMATION

12.1 ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

12.2 EFFECT OF MATERIAL ON PLANTS AND ANIMALS:
This product may be harmful or fatal to plant and animal life if released into the environment. Refer to Section 11 (Toxicological Information) for further data on the effects of this product's components on test animals.

12.3 EFFECT OF MATERIAL ON AQUATIC LIFE:
No aquatic environmental information is available on this product.

12.4 MOBILITY IN SOIL
Mobility of this material has not been determined.

12.5 DEGRADABILITY
This product is completely biodegradable.

12.6 ACCUMULATION
Bioaccumulation of this product has not been determined.

SECTION 13. DISPOSAL CONSIDERATIONS

The generation of waste should be avoided or minimized wherever possible. Dispose of surplus and non-recyclable products via a licensed waste disposal contractor. Waste should not be disposed of untreated to the sewer unless fully compliant with the requirements of all authorities with jurisdiction. Waste packaging should be recycled. Incineration or landfill should only be considered when recycling is not feasible. This material and its container must be disposed of in a safe way. Care should be taken when handling emptied containers that have not been cleaned or rinsed out. Empty containers and liners may retain some product residues. Vapor from some product residues may create a highly flammable or explosive atmosphere inside the container. **DO NOT PRESSURIZE, CUT, WELD, BRAZE, SOLDER, DRILL, GRIND, OR EXPOSE USED CONTAINERS TO HEAT, FLAME, SPARKS, STATIC ELECTRICITY, OR OTHER SOURCES OF IGNITION. THEY MAY BURST AND CAUSE INJURY OR DEATH.** Avoid dispersal of spilled material and runoff and contact with soil, waterways, drains and sewers.Processing, use or contamination may change the waste management options. Recycle / dispose of observing national, regional, state, provincial and local health, safety & pollution laws. If in doubt, contact appropriate agencies. Deactivating Chemicals: Soda Ash, Lime or Limestone. EPA Waste Number: D002.

SECTION 14. TRANSPORT INFORMATION

DOT/TDG SHIP NAME:	UN2693, Bisulfites, aqueous solutions, n.o.s. (contains: Sodium Bisulfite), 8, PG-III
DRUM LABEL:	Corrosive (8)
IATA / ICAO:	UN2693, Bisulfites, aqueous solutions, n.o.s. (contains: Sodium Bisulfite), 8, PG-III
IMO / IMDG:	UN2693, Bisulfites, aqueous solutions, n.o.s. (contains: Sodium Bisulfite), 8, PG-III

EMERGENCY RESPONSE GUIDEBOOK NUMBER: 154

SECTION 15. REGULATORY INFORMATION

15.1 EPA REGULATION:
SARA SECTION 311/312 HAZARDS: Acute Health, Chronic Health, Reactivity

All components of this product are on the TSCA list.
SARA Title III Section 313 Supplier Notification
This product contains the indicated <*> toxic chemicals subject to the reporting requirements of Section 313 of the Emergency Planning & Community Right-To-Know Act of 1986 & of 40 CFR 372. This information must be

included in all MSDSs that are copied and distributed for this material.

EPA CLEAN WATER ACT
Sodium Bisulfite is listed as a hazardous substance which, if discharged to the water, may require immediate response to mitigate dangers to human healt and the environment.

SARA TITLE III INGREDIENTS	CAS#	EINECS#	WT%	(REG.SECTION)	RQ(LBS)
Sodium Bisulfite	7631-90-5	-	27-42	(311,312)	5000

SECTION 15. REGULATORY INFORMATION (CONTINUED)

15.2 STATE REGULATIONS:
CALIFORNIA SAFE DRINKING WATER & TOXIC ENFORCEMENT ACT (PROPOSITION 65):
This product contains no chemicals known to the State of California to cause cancer or reproductive toxicity.

15.3 INTERNATIONAL REGULATIONS
The components of this product are listed on the chemical inventories of the following countries:
Australia (AICS), Canada (DSL or NDSL), China (IECSC), Europe (EINECS, ELINCS)G
Japan (METI/CSCL, MHLW/ISHL), South Korea (KECI), New Zealand (NZIoC),
Philippines (PICCS), Switzerland (SWISS), Taiwan (NECSI), USA (TSCA).

15.4 CANADA: WORKPLACE HAZARDOUS MATERIALS INFORMATION SYSTEM (WHMIS)
D2B: Irritating to skin / eyes.
E: Corrosive

This product has been classified in accordance with hazard criteria of the Controlled Products Regulations (CPR) and the SDS contains all the information required by the CPR.

14.5 SDS DATE: 07/18/2014

SECTION 16. OTHER INFORMATION

16.1 HAZARD RATINGS:
HEALTH (NFPA): 2, HEALTH (HMIS): 2, FLAMMABILITY: 0, PHYSICAL HAZARD: 0
(Personal Protection Rating to be supplied by user based on use conditions.)
This information is intended solely for the use of individuals trained in the NFPA & HMIS hazard rating systems.

Univar USA Inc Safety Data Sheet

For Additional Information contact SDS Coordinator during business hours, Pacific time: (425) 889-3400

Notice

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Do not use ingredient information and/or ingredient percentages in this SDS as a product specification. For product specification information refer to a product specification sheet and/or a certificate of analysis. These can be obtained from your local Univar sales office.

All information appearing herein is based upon data obtained from the manufacturer and/or recognized technical sources. While the information is believed to be accurate, Univar makes no representations as to its accuracy or sufficiency. Conditions of use are beyond Univar's control and therefore users are responsible to verify this data under their own operating conditions to determine whether the product is suitable for their particular purposes and they assume all risks of their use, handling, and disposal of the product, or from the publication or use of, or reliance upon, information contained herein.

This information relates only to the product designated herein, and does not relate to its use in combination with any other material or in any other process

BRENNTAG

SAFETY DATA SHEET

1. Identification

Other means of identification	None known.
Product identifier	**SODIUM HYPOCHLORITE 12.5% NSF**
Recommended use	ALL PROPER AND LEGAL PURPOSES
Recommended restrictions	None known.

Manufacturer/Importer/Supplier/Distributor information

Manufacturer

Company name	Brenntag Northeast, LLC
Address	81 West Huller Lane Reading, PA 19605
Telephone	610-926-4151
E-mail	Not available.
Emergency phone number	800-424-9300 Chemtrec

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
Environmental hazards	Not classified.	
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	Causes severe skin burns and eye damage. Causes serious eye damage.
Precautionary statement	
Prevention	Do not breathe mist/vapors. Wash thoroughly after handling. Wear protective gloves/protective clothing/eye protection/face protection.
Response	If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor. Wash contaminated clothing before reuse.
Storage	Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	12.5% of the mixture consists of component(s) of unknown acute dermal toxicity. 100% of the mixture consists of component(s) of unknown acute inhalation toxicity.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
HYPOCHLOROUS ACID, SODIUM SALT (1:1)		7681-52-9	12.5
Other components below reportable levels			87.5

4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Foam. Powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist/vapors. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Use water spray to reduce vapors or divert vapor cloud drift. Prevent entry into waterways, sewer, basements or confined areas. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Do not breathe mist/vapors. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store locked up. Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value
HYPOCHLOROUS ACID, SODIUM SALT (1:1) (CAS 7681-52-9)	STEL	2 mg/m3

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Good general ventilation should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

The following are recommendations for Personnel Protective Equipment (PPE). The employer/user of this product must perform a Hazard Assessment of the workplace according to OSHA regulations 29 CFR 1910.132 to determine the appropriate PPE for use while performing any task involving potential exposure to this product.

Eye/face protection Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

Hand protection Wear appropriate chemical resistant gloves.

Other Wear appropriate chemical resistant clothing.

Respiratory protection In case of insufficient ventilation, wear suitable respiratory equipment.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Physical state	Liquid.
Form	Liquid.
Color	CLEAR PALE YELLOW
Odor	CHLORINE
Odor threshold	Not available.
pH	11.5 - 13.5
Melting point/freezing point	-3 °F (-19.44 °C)
Initial boiling point and boiling range	212 °F (100 °C) estimated
Flash point	Not available.
Evaporation rate	Not available.
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	Not available.
Vapor density	Not available.
Relative density	Not available.
Solubility(ies)	
Solubility (water)	Not available.

Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Other information	
Density	10.06 lbs/gal 1.21 g/ml
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Percent volatile	87.5 % estimated
Specific gravity	1.21

10. Stability and reactivity

Reactivity	Reacts violently with strong acids. This product may react with oxidizing agents.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials. Do not mix with other chemicals.
Incompatible materials	Acids. Oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity Not known.

Components	Species	Test Results
HYPOCHLOROUS ACID, SODIUM SALT (1:1) (CAS 7681-52-9)		
Acute		
Oral		
LD50	Rat	8.91 g/kg

Skin corrosion/irritation	Causes severe skin burns and eye damage.
Serious eye damage/eye irritation	Causes serious eye damage.
Respiratory or skin sensitization	
Respiratory sensitization	Due to partial or complete lack of data the classification is not possible.
Skin sensitization	Due to partial or complete lack of data the classification is not possible.
Germ cell mutagenicity	Due to partial or complete lack of data the classification is not possible.
Carcinogenicity	Due to partial or complete lack of data the classification is not possible.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity	Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - single exposure	Due to partial or complete lack of data the classification is not possible.
Specific target organ toxicity - repeated exposure	Due to partial or complete lack of data the classification is not possible.
Aspiration hazard	Due to partial or complete lack of data the classification is not possible.
Chronic effects	Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Components		Species	Test Results
HYPOCHLOROUS ACID, SODIUM SALT (1:1) (CAS 7681-52-9)			
Aquatic			
Crustacea	EC50	Water flea (Ceriodaphnia dubia)	0.11 - 0.13 mg/l, 24 hours
	LC50	Calanoid copepod (Acartia tonsa)	0.313 - 0.497 mg/l, 24 hours
		Coon stripe shrimp (Pandalus danae)	0.246 - 0.333 mg/l, 96 hours
		Daggerblade grass shrimp (Palaemonetes pugio)	46 - 58.8 mg/l, 96 hours
		Opossum shrimp (Americamysis bahia)	0.229 - 0.321 mg/l, 96 hours
		Rotifer (Brachionus calyciflorus)	0.35 - 0.39 mg/l, 24 hours
		Scud (Hyalella azteca)	0.252 - 0.362 mg/l, 96 hours
		Water flea (Ceriodaphnia dubia)	0.14 mg/l, 24 hours
		Water flea (Daphnia magna)	0.045 - 0.068 mg/l, 48 hours
Fish	LC50	Bleak (Alburnus alburnus)	30 - 35 mg/l, 96 hours
		Brown trout (Salmo trutta)	0.02 - 0.05 mg/l, 1.5 hours
		California grunion (Leuresthes tenuis)	0.139 mg/l, 24 hours
		Carp (Cyprinus carpio)	1.75 - 1.89 mg/l, 160 minutes
		Channel catfish (Ictalurus punctatus)	0.45 mg/l, 96 hours
		Chinook salmon (Oncorhynchus tshawytscha)	0.038 - 0.065 mg/l, 96 hours
		Coho salmon,silver salmon (Oncorhynchus kisutch)	0.245 - 0.328 mg/l, 15 minutes
		Fathead minnow (Pimephales promelas)	4.4 - 7.1 mg/l, 24 hours
		Freshwater drum (Aplodinotus grunniens)	1.67 - 1.83 mg/l, 160 minutes
		Rainbow trout,donaldson trout (Oncorhynchus mykiss)	0.05 - 0.071 mg/l, 96 hours
		Shiner perch (Cymatogaster aggregata)	0.045 - 0.098 mg/l, 96 hours
		Yellow perch (Perca flavescens)	18 - 28.7 mg/l, 15 minutes
		Yellowtail flounder (Pleuronectes ferrugineus)	0.1 mg/l, 24 hours

Persistence and degradability	No data is available on the degradability of this product.
Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.

Hazardous waste code	D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel] The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN1791
UN proper shipping name	HYPOCHLORITE SOLUTIONS MARINE POLLUTANT (SODIUM HYPOCHLORITE) RQ
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

Transport information on packaging may be different from that listed. Transportation information on packaging may be different from that listed.

IMDG

UN number	UN1791
UN proper shipping name	HYPOCHLORITE SOLUTIONS MARINE POLLUTANT (SODIUM HYPOCHLORITE) RQ, MARINE POLLUTANT
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-F
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

DOT

IMDG

Marine pollutant

General information IMDG Regulated Marine Pollutant.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Toxic Substances Control Act (TSCA)

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

HYPOCHLOROUS ACID, SODIUM SALT (1:1) (CAS 7681-52-9)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1053)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical	Yes
Classified hazard categories	Skin corrosion or irritation Serious eye damage or eye irritation

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)	Not regulated.

US state regulations

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

International Inventories

Country(s) or region	Inventory name	On inventory (yes/no)*
Australia	Australian Inventory of Chemical Substances (AICS)	Yes
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
China	Inventory of Existing Chemical Substances in China (IECSC)	Yes
Europe	European Inventory of Existing Commercial Chemical Substances (EINECS)	Yes
Europe	European List of Notified Chemical Substances (ELINCS)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
Japan	Inventory of Existing and New Chemical Substances (ENCS)	Yes
Korea	Existing Chemicals List (ECL)	Yes
New Zealand	New Zealand Inventory	Yes
Philippines	Philippine Inventory of Chemicals and Chemical Substances (PICCS)	Yes
Taiwan	Taiwan Chemical Substance Inventory (TCSI)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

16. Other information, including date of preparation or last revision

Issue date	11-11-2016
Revision date	05-21-2022
Version #	65
HMIS® ratings	Health: 3 Flammability: 0 Physical hazard: 0
NFPA ratings	Health: 3 Flammability: 0 Instability: 0
Disclaimer	While Brenntag believes the information contained herein to be accurate, Brenntag makes no representation or warranty, express or implied, regarding, and assumes no liability for, the accuracy or completeness of the information. The Buyer assumes all responsibility for handling, using and/or reselling the Product in accordance with applicable federal, state, and local law. This SDS shall not in any way limit or preclude the operation and effect of any of the provisions of Brenntag's terms and conditions of sale.

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MATERIAL SAFETY DATA SHEET

Sulfuric Acid 93% - 98%

Transportation Emergencies CHEMTREC: 800-424-9300

SECTION 1: PRODUCT AND COMPANY IDENTIFICATION

PRODUCT NAME:	Sulfuric Acid 93%; Sulfuric Acid 98%
CHEMICAL NAME/ FAMILY:	Acids
TRADE NAMES/ SYNONYMS:	Sulfuric Acid; Oil of Vitriol
MOLECULAR FORMULA:	H_2SO_4
MANUFACTURER OR FORMULATOR:	BRENNTAG, 610 Fisher Road, Longview, TX 75604 800-945-4528

SECTION 2: COMPOSITION/ INFORMATION ON INGREDIENTS

CHEMICAL NAME	CAS NUMBER	% RANGE
Sulfuric Acid*	7664-93-9	93-98%
Water	7732-18-5	2-7%

* Denotes chemical subject to reporting requirements of Section 313 of Title III of the 1986 Superfund Amendments and Reauthorization Act (SARA) and 40 CFR Part 372.

SECTION 3: HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW

DANGER! Causes severe burns. Do not get in eyes, on skin or on clothing. May be harmful if inhaled, do not breathe mist. May be fatal if swallowed. Reacts violently with water. Flammable and explosive hydrogen gas can be generated inside metal drums and storage tanks. Highly reactive and capable of igniting combustible material on contact.

POTENTIAL HEALTH EFFECTS

EYE
Liquid contact with eyes can cause irritation, corneal burns and blindness. Mist contact may irritate or burn.

SKIN
Fumes or mists may cause severe irritation or burns to skin. Skin contact with liquid sulfuric acid may cause skin corrosion, burns or ulcers.

INGESTION
Oral and gastrointestinal irritation. May cause burns of the mouth, throat, esophagus and stomach resulting in local tissue damage. Nausea, vomiting, diarrhea, and gastrointestinal bleeding, and collapse of blood pressure may follow – damage may appear days after exposure. **Can be fatal if swallowed**.

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MATERIAL SAFETY DATA SHEET – Sulfuric Acid 93%-98%

INHALATION
Irritation of the respiratory system. May cause sneezing, sore throat or runny nose; non specific effects such as headache, nausea and weakness.

SIGNS AND SYMPTOMS OF EXPOSURE
Irritation and or burns to exposed tissue, respiratory distress, nausea, vomiting or diarrhea.

MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE
Medical conditions generally aggravated are acute and chronic respiratory diseases.

EFFECTS FOLLOWING REPEATED EXPOSURE
Repeated and/ or prolonged exposure to mists may cause irritation with itching, burning, redness, swelling or rash to the skin and irritation with tearing, pain or blurred vision to they eyes. Long term exposure to high levels of acid fumes may cause erosion of teeth followed by jaw necrosis, bronchial irritation, coughing, and bronchial pneumonia, or gastrointestinal disturbances.

SECTION 4: FIRST AID MEASURES

EYES
Hold eye open and rinse slowly and gently for 15-20 minutes. Remove contact lenses, if present, after the first 5 minutes, then continue rinsing eye. Get medical attention for irritation or any other symptom.

SKIN
Take off contaminated clothing and shoes. Rinse skin immediately with plenty of water for 15-20 minutes. Get immediate medical attention for irritation or burns. Wash clothing and thoroughly clean shoes before reuse.

While the patient is being transported to a medical facility, continue to the application of cold, wet compresses. If medical treatment must be delayed, repeat the flushing with cold water or soak the affected area with cold water to help remove the last traces of sulfuric acid. Creams or ointments should not be applied before or during the washing phase of treatment.

INGESTION
Call a poison control center or doctor for immediate advice. Have person drink large quantities of water immediately if able to swallow. **Do not induce vomiting** unless directed to do so by medical personnel. Do not give anything by mouth to an unconscious person.

INHALATION
Remove person from exposure to fresh air. If person is not breathing, call 911 or an ambulance, and then give artificial respiration (CPR). If individual is breathing, but with difficulty, get immediate medical attention.

NOTES TO PHYSICIAN
All treatment should be based on observed signs and symptoms of distress in the patient. Consideration should be given to the possibility that overexposure to materials other than this product may have occurred.

Continued washing of the affected area with cold or iced water will be helpful in removing the last traces of sulfuric acid. Creams or ointments should not be applied before or during the washing phase of treatment.

See Section 11 for Toxicological Information.

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MATERIAL SAFETY DATA SHEET – Sulfuric Acid 93%-98%

SECTION 5: FIRE FIGHTING MEASURES

FLAMMABLE PROPERTIES

FLASH POINT
Not Applicable

AUTOIGNITION TEMPERATURE
Not Applicable

FLAMMABLE LIMITS IN AIR (% BY VOLUME)
Not Applicable

FLAMMABLE PROPERTIES
Will not burn

EXTINGUISHING MEDIA
Choose extinguishing media suitable for surrounding materials. Use water spray to cool containers exposed to fire; do not get water inside containers.

HAZARDOUS COMBUSTION PRODUCTS
Flammable and explosive hydrogen gas can be generated inside metal drums and storage tanks. Concentrated acid can ignite combustible materials on contact. Acid plus active metals can form explosive concentrations of hydrogen. At high temperatures, sulfur trioxide mists may release from vented or ruptured containers.

FIRE FIGHTING INSTRUCTIONS
Use NIOSH/MSHA approved self-contained breathing apparatus and full protective clothing if involved in a fire. Evacuate personnel to a safe area. Approach fire from upwind to avoid hazardous vapors and toxic decomposition products. Move container from fire area if it can be done without risk. Avoid direct streams of water, product generates heat and may cause splattering. Do not release runoff from fire control methods to sewers or waterways. Dike area to prevent runoff and water source contamination. Neutralize run-off with lime, soda ash etc., to prevent corrosion of metals and formation of hydrogen gas.

SECTION 6: ACCIDENTAL RELEASE MEASURES

WATER SPILL
Prevent additional discharge of material, if possible to do so without hazard.

LAND SPILL
Prevent additional discharge of material, if possible to do so without hazard. For small spills implement cleanup procedures; for large spills implement cleanup procedures and, if in public area, advise authorities.

GENERAL PROCEDURES
Personnel handling this material should be thoroughly trained to handle spills and releases. Review "Fire and Explosion Hazards" and "Safety Precautions" before proceeding with clean up. Do not direct hose streams into an unignited transportation spill (tank truck or tank car).

No smoking in spill areas. Isolate spill area and deny entry to unnecessary or unprotected personnel. Remove all sources of ignition, such as flames, hot glowing surfaces or electric arcs. Stop source of spill as soon as possible and notify appropriate personnel. Cleanup personnel must wear proper protective equipment (refer to Section 8). Decontaminate all clothing. Notify all downstream water users of possible contamination.

Pump any free liquid into an appropriate closed container. Exercise caution during neutralization as considerable heat may be generated. Carefully neutralize spill with lime or soda ash, and transfer to wastewater treatment system. Prevent liquid from entering sewers, waterways, or low areas.

Small spills may also be absorbed using clay, soil or nonflammable commercial absorbents. Scrape up and place in appropriate closed container.

Do not place spill materials back in their original container. Containerize and label all spill materials properly.

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RELEASE NOTES
Do not flush to drain. Notify the National Response Center (800/424/8802) of uncontained releases to the environment in excess of the Reportable Quantity (RQ). See Section 15, Regulatory Information. Recycle or dispose of recovered material in accordance with all federal, state, and local, regulations.

For all transportation accidents, call CHEMTREC at 800/424-9300.

SECTION 7: HANDLING AND STORAGE

HANDLING
Do not get in eyes, or on skin, or clothing. Do not taste or swallow. Avoid breathing mists or fumes. Do not handle with bare hands. This product reacts violently with bases and water liberating heat and causing splattering.

Carefully monitor handling, use and storage to avoid spills and leaks. Follow protective controls set forth in Section 8 when handling this product. **Do not eat, drink, or smoke in work area**. Wash hands prior to eating, drinking, or using restroom.

STORAGE

STORAGE CONDITIONS
Do not put concentrate or dilutions of concentrate on food or drink containers. Store in closed, properly labeled tanks or containers. Do not remove or deface labels or tags. Store in a cool, well ventilated place away heat sources direct sunlight and incompatible materials. DO NOT pressurize, cut, heat, or weld containers. DO NOT drop, roll or skid drums. Keep drums upright. DO NOT reuse empty containers without commercial cleaning or reconditioning.

When diluting, always add acid to water **cautiously with agitation.**

STORAGE TEMPERATURE
Do not allow product to freeze. Do not store above 36°C (97°F).

SECTION 8: EXPOSURE CONTROLS PERSONAL PROTECTION

ENGINEERING CONTROLS

VENTILATION
Local exhaust ventilation is recommended if vapors, mists or aerosols are generated. Otherwise, use general exhaust ventilation.

PERSONAL PROTECTIVE EQUIPMENT (PPE)

EYE AND FACE PROTECTION
Wear chemical goggles. A face shield should be worn in addition to goggles where splashing or spraying is possible.

SKIN PROTECTION
Wear chemical resistant clothing. Neoprene gloves, boots and apron or slicker suit. In case of emergency or where there is a strong possibility of considerable exposure, wear a complete acid suit with hood, boots, and gloves.

RESPIRATORY PROTECTION
When respirators are required, select NIOSH/MSHA approved equipment based on actual or potential airborne concentrations and in accordance with the appropriate regulatory standards and/or industrial recommendations. Under normal conditions, in the absence of other airborne contaminants, the following devices should provide protection from this material up to the conditions specified by the appropriate OSHA, WHMIS or ANSI standard(s): Air-purifying (half-mask/full-face) respirator with cartridges/canister approved for use against acid gases.

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MATERIAL SAFETY DATA SHEET – Sulfuric Acid 93%-98%

GENERAL
Safety shower and eye wash station must be provided in the immediate work area. Protective equipment and clothing should be selected, used, and maintained according to applicable standards and regulations. For further information, contact the clothing or equipment manufacturer.

EXPOSURE GUIDELINES

PEL (OSHA):	1.0mg/m^3, 8 Hr. TWA
TLV (ACGIH):	1.0 mg/m^3, 8 Hr. TWA A2 (Sulfuric acid contained in strong inorganic acid mists)
IDLH (NIOSH):	15 mg/m^3.

SECTION 9: PHYSICAL AND CHEMICAL PROPERTIES

CHEMICAL FORMULA	H_2SO_4
MOLECULAR WEIGHT	98.08
APPEARANCE	Oily, colorless to slightly yellow, clear to turbid liquid
ODOR	Odorless
pH @ 25°C	<1
VAPOR PRESSURE	< 0.3 mm Hg @ 25°C (77°F), < 0.6 mm Hg @ 38°C (100°F)
VOLATILES, % BY VOLUME	Not Established
BOILING POINT	276-281°C
MELTING POINT	Not Established
FREEZING POINT	-29°C (93%); -1°C (98%)
SOLUBILITY IN WATER	Complete
SPECIFIC GRAVITY	1.8347-1.8424 @ 25°C (77°F)
DENSITY	15.3 – 15.4 lbs./gal @ 25°C (77°F)
VISCOSITY	Not Established

SECTION 10: STABILITY AND REACTIVITY

CHEMICAL STABILITY
Stable

CONDITIONS TO AVOID
Reacts violently with water and organic materials with evolution of heat.

INCOMPATIBILITY WITH OTHER MATERIALS
Vigorous reactions with water; alkaline solutions; metals, metal powder; carbides; chlorates; fuminates; nitrates; picrates; strong oxidizing, reducing, or combustible organic materials. Hazardous gases are evolved on contact with chemicals such as cyanides, sulfides, and carbides.

HAZARDOUS DECOMPOSITION PRODUCTS
Release of sulfur dioxide at extremely high temperatures.

HAZARDOUS POLYMERIZATION
Will not occur.

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SECTION 11: TOXICOLOGICAL INFORMATION

ANIMAL TOXICOLOGY

EYES
Animal testing indicates this material is corrosive to the eye, when tested undiluted. Animal testing indicates this material is a moderate eye irritant, when tested s 10% solution.

SKIN
The concentrated compound is corrosive. Animal testing indicates this material is a slight skin irritant, when tested as 10% solution.

ACUTE ORAL EFFECTS
LD_{50} rat: > 2,140 mg/kg

ACUTE INHALATION EFFECTS
8 hour, LC_{50}, guinea pigs: 30 mg/m^3.

EFFECTS FOLLOWING PROLONGED OR REPEATED EXPOSURE
Single and repeated exposure caused: Irritation of the respiratory tract. Corrosion of the respiratory tract. Lung damage. Labored breathing. Altered respiratory rate. Pulmonary edema. Repeated exposure caused: Altered red blood cell count.

CARCINOGENICITY
IARC classifies "strong inorganic acid mists containing sulfuric acid" as carcinogenic. This classification does not apply to sulfuric acid or sulfuric acid solutions. No adequate animal data are available to define the carcinogenic potential of this material. Limited studies do not suggest effects.

MUTAGENICITY
Sulfuric acid has no mutagenicity.

REPRODUCTIVE/DEVELOPMENTAL TOXICITY
This material has not produced genetic damage in bacterial cultures. It has not been tested for genetic toxicity in mammalian cell cultures or in animals.

SECTION 12: ECOLOGICAL INFORMATION

AQUATIC TOXICITY
Slightly to moderately toxic.
96 hour LC_{50} – Bluegill sunfish: 10.5 ppm
48 hour TLm – Flounder: 100-300 ppm

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MATERIAL SAFETY DATA SHEET – Sulfuric Acid 93%-98%

SECTION 13: DISPOSAL CONSIDERATIONS

SPILL RESIDUES
Processing, use or contamination of this product may change the waste management options. Cleaned-up material may be a RCRA Hazardous Waste due to the corrosively characteristic, Number D002 (Corrosive). All disposals of this material must be done in accordance with Federal, state and local regulations. Waste characterization and compliance with disposal regulations are the responsibilities of the waste generator.

SECTION 14: TRANSPORT INFORMATION

THIS MATERIAL IS HAZARDOUS AS DEFINED BY 49 CFR 172.01 BY THE U.S DEPARTMENT OF TRANSPORTATION.

DOT IDENTIFICATION NO.: UN 1830

DOT SHIPPING DESCRIPTION (49 CFR 172.101): Sulfuric Acid, II

PLACARD REQUIRED: Corrosive, 1830, Class 8

LABEL REQUIRED: Corrosive, Class 8

Label as required by EPA and by OSHA Hazard Communication Standard, and any applicable state and local regulations.

EMERGENCY RESPONSE GUIDE NUMBER: 137

SECTION 15: REGULATORY INFORMATION

U S FEDERAL REGULATIONS

CERCLA REPORTABLE QUANTITY (RQ)
Sulfuric Acid (7664-93-9) 1,000 lbs.

TSCA (TOXIC SUBSTANCES CONTROL ACT)
All components of this product are listed on the TSCA Inventory or are exempt from TSCA Inventory requirements.

SUPERFUND AMENDMENTS AND REAUTHORIZATION ACT (SARA) TITLE III
Components identified with an asterisk (*) in Section 2 are subject to the reporting requirements of Section 313 of Title III of the 1986 Superfund Amendments and Reauthorization Act (SARA) and 40 CFR Part 372.

SARA HAZARD CATEGORIES (40 CFR 370.2)

Fire Hazard	No
Reactivity Hazard	Yes
Release of Pressure	No
Acute Heath Hazard	Yes
Chronic Health Hazard	Yes

INTERNATIONAL REGULATIONS

CANADA

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)
This product, or its components, are listed on or are exempt from the Canadian Domestic Substance List (DSL).

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MATERIAL SAFETY DATA SHEET – Sulfuric Acid 93%-98%

SECTION 16: OTHER INFORMATION

NFPA RATINGS	
HEALTH	3
FLAMMABILITY	0
INSTABILITY	2

HMIS CODES	
HEALTH Y	3
FLAMMABILIT	0
INSTABILITY	2

Personal Protection rating to be supplied by user depending on use conditions.

HIMIS RATING NOTES
This information is for people trained in Key the National Paint & Coatings Association's 4 = Severe (NPCA) Hazardous Materials Identification 3 = Serious System (HMIS). 2 = Moderate, 1 = Slight, 0 = Minimal.

8-22-13 Updated to Brenntag

This MSDS conforms to ANSI Standard Z400.1-1998.

Disclaimer of Warranty:
The information provided in this Material Safety Data Sheet has been obtained from sources believed to be reliable. BRENNTAG provides no warranties, either expressed or implied and assumes no responsibility for the accuracy or completeness of the data contained herein. This information is offered for your information, consideration, and investigation. You should satisfy yourself that you have all current data relevant to your particular use. BRENNTAG knows of no medical condition, other than those noted on this material safety data sheet, which are generally recognized as being aggravated by exposure to this product.

Vitec® 3000 NSF
SAFETY DATA SHEET

1. Company and Product Identification

1.1	Identification – Product Name:	**Vitec® 3000 NSF**
1.2	Other means of identification Synonym:	Organo-phosphorous compounds Mixture, none
1.3	Recommended Use of the Chemical and Restrictions on Use:	Reverse osmosis membrane antiscalant Use only as directed on the label.
1.4	Name, Address, and Telephone Number of the Manufacturer, or Other Responsible Party: Competent Person email address	**AVISTA TECHNOLOGIES** 140 Bosstick Street San Marcos, CA 92069 (760) 744-0536 klindsey@avistatech.com
1.5	24 Hour Emergency No.:	1-800-424-9300 (United States) 1-703 527-3887 (International Collect)

CERTIFIED BY NSF INTERNATIONAL TO NSF/ANSI 60 AS STANDARD DRINKING WATER TREATMENT CHEMICAL FOR USE IN REVERSE OSMOSIS SYSTEMS AT A MAXIMUM LEVEL OF 7 mg/l.

2. HAZARDS IDENTIFICATION

EMERGENCY OVERVIEW: This product is a clear, amber liquid. This product may irritate contaminated tissue. This product is neither reactive nor flammable.

Physical Hazards Summary	None
Potential Health Hazards Summary	Skin corrosion/irritation, Category 2
Potential Ecological Effects Summary	None

2.1 Classification Of Product

U.S. OSHA classification	Skin corrosion/irritation, Category 2
Classification as per EC 1272/2008 (CLP/GHS)	Skin corrosion/irritation, Category 2
WHMIS classification	Skin corrosion/irritation, Category 2

Hazardous Materials Information System (HMIS) Rating

Health	**2**
Flammability	**0**
Physical Hazard	**0**
Protective Equipment	**C**

2.2 Label Elements OSHA/GHS

General Warnings	P101	If medical advice is needed, have product container or label at hand.
	P102	Keep out of reach of children.
	P103	Read label before use
Signal Word	WARNING	
Hazard statements	H315	Causes skin irritation
	H 319	Causes serious eye irritation
	H335	May cause respiratory irritation
Precautionary statements	P271	Use only outdoors or in a well-ventilated area.
	P281	Use personal protective equipment as required.
	P312	IF SWALLOWED: Call a POISON CENTER or doctor/physician if you feel unwell.
	P302/P352	
	P261	Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray.
	P305 + P351 + P338	P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Hazard pictograms		

2.3 Unclassified Hazards None

2.4 Ingredients with unknown acute toxicity None

3. COMPOSITION and INFORMATION ON INGREDIENTS

Chemical name **CAS #** **EINECS #**	**% w/w**	**US OSHA**	**GHS/EU CLP**	**WHMIS**
Deflocculant & Sequestrant Proprietary Proprietary	20-30	Skin corrosion/irritation, Category 2 H315 Causes skin irritation H319 Causes serious eye irritation H335 May cause respiratory irritation P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep out of reach of children.	Skin corrosion/irritation, Category 2 H315 Causes skin irritation H319 Causes serious eye irritation H335 May cause respiratory irritation P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin. Avoid contact with eyes. In case of contact with	Skin corrosion/irritation, Category 2 H315 Causes skin irritation H319 Causes serious eye irritation H335 May cause respiratory irritation P261 Avoid breathing dust/ fume/ gas/ mist/ vapors/ spray. P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin. Avoid contact

		Keep away from food, drink and animal feeding stuffs. Avoid contact with skin. Avoid contact with eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. If swallowed, seek medical advice immediately and show this container or label	eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. If swallowed, seek medical advice immediately and show this container or label	with eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. If swallowed, seek medical advice immediately and show this container or label
Chelate Agent Proprietary Proprietary	10-20	Skin corrosion/irritation, Category 2 H319 Causes serious eye irritation P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin. Avoid contact with eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. If swallowed, seek medical advice immediately and show this container or label	Skin corrosion/irritation, Category 2 H319 Causes serious eye irritation P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin. Avoid contact with eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. If swallowed, seek medical advice immediately and show this container or label	Skin corrosion/irritation, Category 2 H319 Causes serious eye irritation P305 + P351 + P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Keep out of reach of children. Keep away from food, drink and animal feeding stuffs. Avoid contact with skin. Avoid contact with eyes. In case of contact with eyes, rinse immediately with plenty of water and seek medical advice. Wear suitable protective clothing. If swallowed, seek medical advice immediately and show this container or label
Water or other chemicals do not contribute to any additional hazards of this product	balance	N/A	N/A	N/A
PRODUCT	100	Skin corrosion/irritation, Category 2		

NE = Not Established. C = Ceiling Limit. See Section 16 for Definitions of Terms Used.

4. FIRST-AID MEASURES

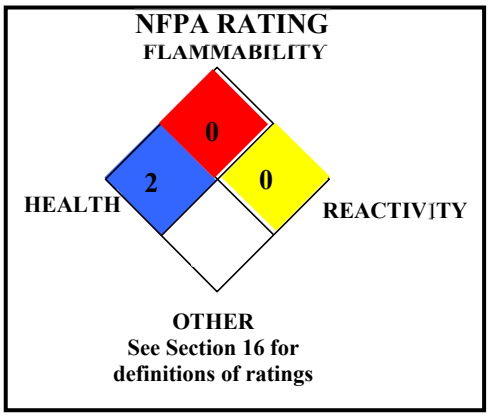
4.1 Description of Necessary Measures

Skin exposure:	If this product contaminates the skin, immediately begin decontamination with running water. Remove exposed or contaminated clothing, taking care not to contaminate eyes. Victim should seek immediate medical attention if any adverse exposure symptoms develop.
Eye exposure:	If this product enters the eyes, open victim's eyes while under gently running water. Use sufficient force to open eyelids. Have victim "roll" eyes. Minimum flushing is for 15 minutes. Victim must seek medical attention.
Inhalation:	If vapors, mists, or sprays of this product are inhaled, remove victim to fresh air. If necessary, use artificial respiration to support vital functions. Remove or cover gross contamination to avoid exposure to rescuers.
Ingestion:	If this product is swallowed, CALL PHYSICIAN OR POISON CONTROL CENTER FOR MOST CURRENT INFORMATION. DO NOT INDUCE VOMITING. Have victim rinse mouth with water, if conscious. Never induce vomiting or give a diluent (e.g., water) to someone who is unconscious, having convulsions, or unable to swallow. If contaminated individual is convulsing, maintain an open airway and obtain immediate medical attention.
4.2 Most Important Symptoms/Effects:	Immediate: Inhalation exposure may cause coughing or sneezing. Symptoms of skin and eye contact may include redness and irritation. Ingestion may cause stomach pains, cramps, and gastritis. Delayed: Prolonged or repeated skin overexposure to this product may cause dermatitis (dry, red skin). Symptoms may include tingling, redness, and visible injury.
4.3 Indication Of Immediate Medical Attention And Special Treatment Needed, If Necessary:	**TARGET ORGANS:** Acute: Skin, eyes. Chronic: Skin.

Victims of chemical exposure must be taken for medical attention if any adverse effects occur. Rescuers should be taken for medical attention if necessary. Take a copy of label and MSDS to physician or health professional with victim.

5. FIRE-FIGHTING MEASURES

Flammable properties Non-flammable solution aqueous



Flash Point °C: Not applicable.

Autoignition Temperature °C: Not applicable.

Flammable Limits (in air by volume, %):
Upper: Not applicable.
Lower: Not applicable.

5.1	Suitable and Unsuitable Extinguishing Media:	This material will not contribute to the intensity of a fire. Use extinguishing material suitable to the surrounding fire.

Water spray	YES	Carbon dioxide	YES
Foam	YES	Dry chemical	YES
Halon	YES	Other	YES

5.2	Specific Hazards Arising from Chemical:	When involved in a fire, this material may decompose and produce irritating fumes and toxic gases (e.g., carbon monoxide, carbon dioxide, and phosphorous oxides). Explosion Sensitivity to Mechanical Impact: Not sensitive. Explosion Sensitivity to Static Discharge: Not sensitive.
5.3	Special Protective Equipment and Precautions For Fire-Fighters:	Incipient fire responders should wear eye protection. Structural firefighters must wear Self-Contained Breathing Apparatus and full protective equipment. Move containers from fire area if it can be done without risk to personnel. If possible, prevent runoff water from entering storm drains, bodies of water, or other environmentally sensitive areas.

6. ACCIDENTAL RELEASE MEASURES

6.1	Personal Precautions	Uncontrolled releases should be responded to by trained personnel using pre-planned procedures. Proper protective equipment should be used. In case of a spill, clear the affected area and protect people.
	Protective equipment	For small releases (< 5 gallons), clean up spilled liquid wearing gloves, goggles, faceshield, and suitable body protection. The minimum Personal Protective Equipment recommended for response to non-incidental releases (more than 5 gallons) should be Level C: triple-gloves (neoprene gloves and nitrile gloves over latex gloves), chemical resistant suit and boots, hard hat, and full-face respirator with HEPA filter.
	Emergency procedures	Monitoring must indicate that exposure levels are below those provided in Section 8 (Exposure Controls-Personal Protection) and that oxygen levels are above 19.5% before anyone is permitted in the area without Self-Contained Breathing Apparatus.
6.2	Methods and Materials for Containment and Cleaning Up	Soak up or wet vacuum spilled liquid. Neutralize residue with sodium bicarbonate or other neutralizing agent for dilute acids. Decontaminate the area thoroughly. Test area with litmus paper to ensure neutralization. Place all spill residues in a suitable container. Dispose of in accordance with applicable U.S. Federal, State, or local procedures, or appropriate local standards (see Section 13, Disposal Considerations).

7. HANDLING and STORAGE

7.1	Precautions for Safe Handling	All employees who handle this material should be trained to handle it safely. Open containers carefully on a stable surface. Empty containers may contain residual liquid; therefore, empty containers should be handled with care. As with all chemicals, avoid getting this product ON YOU or IN YOU. Wash thoroughly after handling this product. Do not eat or drink while handling this material. Avoid generating mists and sprays of this product. Remove contaminated clothing immediately. During equipment maintenance follow practices indicated in Section 6 (Accidental Release Measures) to decontaminate equipment or clean-up small spills. Make certain that application equipment is locked and tagged-out safely if necessary. Collect all rinsates and dispose of according to applicable U.S. Federal, State, or local procedures or appropriate local standards.
7.2	Conditions For Safe Storage	Store containers in a cool, dry location, away from direct sunlight, sources of intense heat, or where freezing is possible. Store away from incompatible materials. Material should be stored in secondary containers, or in a diked area, as appropriate. Storage and use areas should be covered with impervious materials. Keep container tightly closed when not in

use. If appropriate, post warning signs in storage and use areas. Inspect all incoming containers before storage, to ensure containers are properly labeled and not damaged.

Incompatibilities Strong bases, strong oxidizers, very strong acids, water reactive materials.

8. EXPOSURE CONTROLS - PERSONAL PROTECTION

8.1 Control Parameters

CHEMICAL NAME	CAS #	EXPOSURE LIMITS IN AIR					
		ACGIH-TLV		OSHA-PEL			
		TWA mg/m³	STEL mg/m³	TWA mg/m³	STEL mg/m³	IDLH mg/m³	OTHER mg/m³
Deflocculant & Sequestrant	Proprietary	NE	NE	NE	NE	NE	NE
Chelate agent	Proprietary	NE	NE	NE	NE	NE	NE
NE = Not Established. C = Ceiling Limit. See Section 16 for Definitions of Terms Used.							

8.2 Appropriate Engineering Controls. Use with adequate ventilation to ensure exposure levels are maintained below the limits provided in this Section or as low as reasonably practical. Ensure eyewash/safety shower stations are available near areas where this product is used.

8.3 Personal Protective Equipment

Respiratory protection: None needed under normal conditions of use. Use NIOSH approved respirators if ventilation is inadequate to control mists or vapor. If respiratory protection is needed, use only protection authorized in the U.S. Federal OSHA Standard (29 CFR 1910.134), applicable U.S. State regulations, or the applicable local standards. Oxygen levels below 19.5% are considered IDLH by OSHA. In such atmospheres, use of a full-face piece pressure/demand SCBA or a full-face piece, supplied air respirator with auxiliary self-contained air supply is required under OSHA's Respiratory Protection Standard (1910.134-1998).

Eye protection: Use approved safety goggles or safety glasses, as described in OSHA 29 CFR 1910.133. Splash goggles with a faceshield may be needed if splash hazards exist.

Hand protection: Wear chemical impervious gloves (e.g., Neoprene or Nitrile).

Body protection: If needed, use body protection appropriate for task (e.g., Tyvek suit, rubber apron) to protect from splashes and sprays.

9. PHYSICAL and CHEMICAL PROPERTIES

Appearance	This product is a clear, amber liquid.		
Odor	Light disinfectant odor	Odor Threshold	N/A
Melting Point °C	Similar to water	pH	10.7-11.8
Initial Boiling Point °C	100	Boiling Point Range °C	N/A
Flammability	Non-flammable	Evaporation Rate (water = 1)	Similar to water
Vapor Density (air = 1)	Similar to water	Vapor Pressure mm Hg @ 20°C:	18
Solubility (in water)	Soluble	Relative density (water = 1)	1.2– 1.3
Viscosity	Similar to water	Oil-Water Partition Coefficient	N/A
Decomposition Temperature	N/A		
How To Detect This Substance (Warning Properties):	The color and odor may act as warning properties associated with this product.		

10. STABILITY and REACTIVITY

10.1	Reactivity	Not considered reactive.
10.2	Chemical Stability	Stable
10.3	Possibility of hazardous reactions	Hazardous polymerization will not occur.
10.4	Conditions to avoid	Avoid mixing with incompatible materials.
10.5	Incompatible Materials	Strong bases, strong oxidizers, very strong acids, water reactive materials.
10.6	Hazardous Decomposition Products	Thermal decomposition of this product may generate carbon monoxide, carbon dioxide, and phosphorus oxides.

11. TOXICOLOGICAL INFORMATION

11.1 Information on Toxicological Effects

Toxicity data for hazardous ingredients	Oral LD_{50} mg/kg	Dermal LD_{50} mg/kg	Inhalation LD_{50} mg/kg
Deflocculant & Sequestrant	N/A	N/A	N/A
Chelate agent	LD_{50} (Oral-Rat) 2100 mg/kg LD_{50} (Skin-Rabbit) > 6310 mg/kg LD_{50} (Oral-Quail) > 2510 mg/kg LD_{50} (Oral-Duck) > 2510 mg/kg TDLo (Oral-Rat) 1302 mg/kg/31 days-intermittent: Kidney, Urethra, Bladder: other changes in urine composition; Nutritional and Gross Metabolic: weight loss or decreased weight gain, changes in sodium.	Standard Draize Test (Skin-Rabbit) 500 mg/24 hours Standard Draize Test (Eye-Rabbit) 100 mg: Moderate	N/A

Potential routes of exposure	Inhalation, skin contact, eye contact
Potential effects of acute over-exposure	Inhalation exposure may cause tingling, coughing, sneezing, and difficulty breathing. Symptoms of skin and eye contact may include redness and irritation. Ingestion may cause stomach pains, cramps, and gastritis.
Potential effects of chronic over-exposure	Prolonged or repeated skin overexposure to this product may cause dermatitis (dry, red skin). Symptoms may include tingling, redness, and visible injury.
Symptoms of over-exposure	Immediate: Inhalation exposure may cause tingling, coughing, sneezing, and difficulty breathing. Symptoms of skin and eye contact may include redness and irritation. Ingestion may cause stomach pains, cramps, and gastritis. Delayed: Prolonged or repeated skin overexposure to this product may cause dermatitis (dry, red skin). Symptoms may include tingling, redness, and visible injury.
Conditions aggravated by over-exposure	Preexisting dermatitis, other skin conditions, and respiratory conditions may be aggravated by exposures to this product.
Recommendations to physicians:	Treat symptoms and eliminate exposure.
Irritation	YES This product can be irritating to contaminated tissue.
Sensitization	NO

Carcinogenicity	NTP	IARC	US OSHA	CAL OSHA	67/548 EEC Annex 1
	NO	NO	NO	NO	NO

Mutagenicity	NO
Reproductive toxicity	NO
Biological Exposure Index	N/A
Other potential health effects	Currently, there are no Biological Exposure Indices (BEIs) for any component of this product.

12. ECOLOGICAL INFORMATION

ALL WORK PRACTICES MUST BE AIMED AT ELIMINATING ENVIRONMENTAL CONTAMINATION.

12.1 Ecotoxicity		LC_{50}, mg/L	EC_{50}, mg/L
Vitec® 3000 NSF			
	Aquatic	LC50 (*Mysidopsis bahai*) > 1000 mg/L 7 days LC50 (Oncorhynchus mykiss: Rainbow Trout), 96 hours, >1000 mg/L	EC_{50} (*Daphnia magna*) 48 hours = >1000 mg/L NOEC (*Daphnia magna*) 48 hours = 1000 mg/L
	Terrestrial	N/A	N/A
	Aquatic	Acute Hazard Level: Lethal pH (goldfish) = 10.9 Lethal pH (bluegill) = 10.5 LC_{100} (*Cyprimus carpio)* 24 hours = 180 ppm/ 25□C TL_m (mosquito fish) 96 hours = 125 ppm/ fresh water TL_m (bluegill) 48 hours = 99 mg/L/ tap water	N/A
	Terrestrial	N/A	N/A

12.2	Persistence and Degradability	The components of this product decompose in soil and water.
12.3	Bioaccumulative Potential	The components of this product are not expected to bioaccumulate.
12.4	Mobility in Soil	Moderately mobile.
12.5	Other Adverse Ecological Effects	This product may be harmful to aquatic life if large volumes of it are released into an aquatic environment.

13. DISPOSAL CONSIDERATIONS

Preparing Wastes of this Product for Disposal	Waste disposal must be in accordance with appropriate U.S. Federal, State, and local regulations or with local regulations. This product, if unaltered by the handling, may be disposed of by treatment at a permitted facility or as advised by your local waste regulatory authority.
Disposal of Contaminated Packaging	Cleaned containers can be recycled or disposed of as non-contaminated waste, if authorized by your local authorities. Dispose of containers as required by local regulations.
U.S. EPA Waste Number	Not applicable.

14. TRANSPORTATION INFORMATION

THIS MATERIAL IS NOT HAZARDOUS AS DEFINED BY 49 CFR 172.101 BY THE U.S. DEPARTMENT OF TRANSPORTATION.

14.1	UN Number	Not applicable
14.2	UN Proper Shipping Name	Not applicable
14.3	Transport Hazard Class(es)	Not applicable
	Transport label(s) required	Not applicable
14.4	Packing Group	Not applicable
14.5	Marine Pollutant	Not applicable
	NA Emergency Response Guide Number (2008)	Not applicable
14.6	Transport in Bulk (Annex II of MARPOL 73/78 and IBC Code)	Not applicable

14.7	Special Transport Precautions	Not applicable

International Air Transport Association

UN Number	Not applicable
UN Proper Shipping Name	Not applicable
Transport Hazard Class(es)	Not applicable
Transport label(s) required	Not applicable
Packing Group	Not applicable
IATA Emergency Response Code	Not applicable
Excepted Quantity	Not applicable
Packaging Instructions	Not applicable

International Maritime Organization

UN Number	Not applicable
UN Proper Shipping Name	Not applicable
Transport Hazard Class(es)	Not applicable
Transport label(s) required	Not applicable
Packing Group	Not applicable
Marine Pollutant	Not applicable
NA Emergency Response Guide Number (2008)	Not applicable
Transport in Bulk (Annex II of MARPOL 73/78 and IBC Code)	Not applicable

15. SAFETY, HEALTH and ENVIRONMENTAL REGULATIONS SPECIFIC FOR THE PRODUCT

PROGRAM	Deflocculant & Sequestrant	Chelate Agent	
US EPA PROGRAMS			
Clean Air Act Hazardous Air Pollutants	NO	NO	
Safe Drinking Water Act	NO	NO	
RCRA F, K, P, U or D-lists	NO	NO	
SARA 302 RQ	NO	NO	
SARA 302 TPQ	NO	NO	
SARA 313 LISTED	NO	NO	
SARA CHEMICAL CATEGORIES			
SARA 311/312 ACUTE	YES	YES	
SARA 311/312 CHRONIC	NO	NO	
SARA 311/312 FIRE	NO	NO	
SARA 311/312 PRESSURE	NO	NO	
SARA 311/312 REACTIVITY	NO	NO	
EPA EXTREMELY HAZARDOUS SUBSTANCE	NO	NO	
CALIFORNIA SAFE DRINKING WATER ACT (Proposition 65)			
This product does not contain any chemical listed on the California Safe Drinking Water Act list (Proposition 65)			
US OSHA PROGRAMS			
PEL	NO	NO	

PSM	NO	NO
CHEMICAL SECURITY PROGRAMS		
DHS CFATS	NO	NO
CHEMICAL WEAPONS CONVENTION		
	NO	NO
US DRUG ENFORCEMENT ADMINISTRATION		
DEA Controlled Substances	NO	NO
CHEMICAL INVENTORY PROGRAMS		
WHMIS	NO	NO
DSL	YES	YES
REACH Pre-registered List	YES	YES
TSCA	YES	YES
European Inventory of Existing Commercial Chemical Substances (EINECS)	YES	YES
EU No-Longer Polymers List (NLP)	NO	NO
EEC Classification Packaging, and Labeling of Dangerous Substances(Annex 1)	Skin corrosion/irritation, Category	Skin corrosion/irritation, Category 2
Philippines	YES	YES
Japan	YES	YES
Australia	YES	YES
Korea	YES	YES
China	NO	NO
New Zealand Inventory of Chemicals	YES	YES

16. OTHER INFORMATION

16.1	Original Preparation	14 Nov 2005; update 11 April 2011
16.2	Revision History	13 March 2013 Reformatted to GHS Requirements; 16 July13 added aquatic toxicity data for product; 2 August 2016 format update; 12 January 2018 proprietary information format update; 9 April 2018 Section 12 addition.
16.3	Prepared by	ADVANCED CHEMICAL SAFETY, Inc. PO Box 152329 San Diego, CA 92195 (858)-874-5577
16.4	Date of Printing	May 10, 2018

DEFINITIONS OF TERMS

16.5	A large number of abbreviations and acronyms appear on a MSDS. Some of these which are commonly used include the following:	
	Section 2	**GHS**: Global Harmonization System **OSHA:** U.S. Occupational Safety and Health Administration. **CLP**: Classification and Packaging **WHMIS**: Workplace Hazardous Materials Information System **STOT**: Specific Target Organ Toxicity
	Section 3	**CAS #:** Chemical Abstract Service index number **EINECS #:** European Chemical Substances Information System index number
	Section 5	**NFPA:** Nation Fire Protection Association **Health Hazard: 0** (material that on exposure under fire conditions would offer no hazard beyond that of ordinary combustible materials); **1** (materials that on exposure under fire conditions could cause irritation or minor residual injury); **2** (materials that on intense or continued exposure under fire conditions could cause temporary incapacitation or possible residual injury); **3** (materials that can on short exposure could cause serious temporary or residual injury); **4** (materials that under very short exposure could cause death or major residual injury). **Flammability Hazard** **Reactivity Hazard:** Refer to definitions for "Hazardous Materials Identification System". **Flash Point**: Minimum temperature at which a liquid gives off sufficient vapors to form an ignitable mixture with air. **Autoignition Temperature:** The minimum temperature required to initiate combustion in air with no other source of ignition. **LEL:** The lowest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source. **UEL**: The highest percent of vapor in air, by volume, that will explode or ignite in the presence of an ignition source.
	Section 8	**ACGIH** - American Conference of Governmental Industrial Hygienists, a professional association which establishes exposure limits. **TLV -** Threshold Limit Value - an airborne concentration of a substance which represents conditions under which it is generally believed that nearly all workers may be repeatedly exposed without adverse effect. The duration must be considered, including the 8-hour Time Weighted Average **(TWA)**, the 15-minute Short Term Exposure Limit, and the instantaneous Ceiling Level **(C)**. Skin absorption effects must also be considered **PEL -** Permissible Exposure Limit - This exposure value means exactly the same as a TLV, except that it is enforceable by OSHA. The OSHA Permissible Exposure Limits are based in the 1989 PELs and the June, 1993 Air Contaminants Rule (Federal Register: 58: 35338-35351 and 58: 40191). Both the current PELs and the vacated PELs are indicated. The phrase, "Vacated 1989 PEL," is placed next to the PEL which was vacated by Court Order. **IDLH -** Immediately Dangerous to Life and Health **-** This level represents a concentration from which one can escape within 30-minutes without suffering escape-preventing or permanent injury. **The DFG - MAK** is the Republic of Germany's Maximum Exposure Level, similar to the U.S. PEL. **NIOSH** is the National Institute of Occupational Safety and Health, which is the research arm of the U.S. **O**ccupational **S**afety and **H**ealth **A**dministration (**OSHA**). NIOSH issues exposure guidelines called **R**ecommended **E**xposure **L**evels (**REL**s). When no exposure guidelines are established, an entry of **NE (Not Established)** is made for reference.
	Section 11	**LD_{50}** : Lethal Dose (solids & liquids) which kills 50% of the exposed animals; **LC_{50}** : Lethal Concentration (gases) which kills 50% of the exposed animals; **ppm:** Concentration expressed in parts of material per million parts of air or water; **mg/m^3** : Concentration expressed in weight of substance per volume of air; **mg/kg:** Quantity of material, by weight, administered to a test subject, based on their body weight in kg **IARC** - the International Agency for Research on Cancer; **NTP** - the National Toxicology Program, **RTECS** - the Registry of Toxic Effects of Chemical Substances, **OSHA** and **CAL/OSHA**. IARC and NTP rate chemicals on a scale of decreasing potential to cause human cancer with rankings from 1 to 4. Subrankings (2A, 2B, etc.) are also used. **TDLo**, the lowest dose to cause a symptom and **TCLo** the lowest concentration to cause a symptom; **TDo**, **LDLo**, and **LDo**, or **TC**, **TCo**, **LCLo**, and **LCo**, the lowest dose (or concentration) to cause lethal or toxic effects. **BEI** - Biological Exposure Indices, represent the levels of determinants which are most likely to be observed in specimens collected from a healthy worker who has been exposed to chemicals to the same extent as a worker with inhalation exposure to the TLV.
	Section 12	**LC_{50}:** The lowest concentration in water which kills 50% of the test subjects. **EC_{50}:** The Effect Concentration in water at which 50% of the test species if affected.
	Section 13	**US EPA Hazardous Waste Codes**: refer to 40 CFR 261.20
	Section 14	**DOT**: US Department of Transportation **IATA**: International Air Transport Association **IMO**: International Maritime Organization **MARPOL:** International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978 **IBC Code** : Merchant Shipping Code
	Section 15	**RCRA**: US Resource Conservation and Recovery Act **SARA:** US Superfund Amendments and Reauthorization Act **PSM**: US OSHA Process Safety Management **CFATS:** US Department of Homeland Security Chemical Facility Anti-terrorism Standard **DSL:** Canadian Domestic Substances List **NDSL:** Canadian Non-Domestic Substances List **REACH**: European Registration, Evaluation, Authorization and Restriction of Chemicals list **TSCA:** US Toxic Substances Control Act