



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

Plain Language Summary for Industrial Wastewater Permit Application

All Industrial Wastewater permit applications subject to the public notice requirements of 30 Texas Administrative Code (TAC) Chapter 39 must prepare and submit to the TCEQ a plain-language summary of the application. The summary must be provided in English and the alternative language as required by 30 TAC § 39.426, if applicable.

Ingleside Clean Ammonia Partners, LLC (ICAP) (CN 606190668) plans to build the Ingleside Blue Ammonia (IBA) (RN 111826111) plant at 1450 Lexington Blvd, Ingleside, Texas 78362, which is in San Patricio County. The IBA plant will manufacture low carbon ammonia, also known as blue ammonia.

This application is for authorization to discharge up to 45,000 gallons per minute (gpm) of water to Corpus Christi Bay. This water will consist of a routine 40,000 gpm of water obtained from Corpus Christi Bay which has been primarily used for boiler feed water and cooling of the IBA plant and would be a continuous discharge. The additional volume would be stormwater collected from the site to facilitate controlling storm events and would be added at an approximate rate of 5,000 gpm. All waters will be discharged to the bay through a diffuser to promote rapid mixing with bay water.

The discharges are expected to contain higher salinity bay water. Temperature changes are also expected. Mixing zone modeling was performed based on the conceptual diffuser configuration. The mixing zone model results were evaluated based on temperature and salinity changes. Temperature may not increase above ambient by more than 1.5° Fahrenheit (summer) or 4° Fahrenheit (winter) at the edge of the mixing zone boundary, and salinity may not increase above ambient by more than 2 parts per thousand at 100 meters (328 feet) away from the discharge. Mixing zone modeling demonstrated that the proposed discharge meets the flow class requirements and evaluation criteria for temperature and salinity.

Resumen en lenguaje sencillo para la solicitud de permiso de aguas residuales industriales

Todas las solicitudes de permiso de aguas residuales industriales sujetas a los requisitos de notificación pública del Capítulo 39 del Código Administrativo de Texas (TAC) 30 deben preparar y presentar a la TCEQ un resumen de la solicitud en lenguaje sencillo. El resumen debe proporcionarse en inglés y en el idioma alternativo según lo exige 30 TAC § 39.426, si corresponde.

Ingleside Clean Ammonia Partners, LLC (ICAP) (CN 606190668) planea construir la planta Ingleside Blue Ammonia (IBA) (RN 111826111) en 1450 Lexington Blvd, Ingleside, Texas 78362, que se encuentra en el condado de San Patricio. La planta de IBA fabricará amoníaco bajo en carbono, también conocido como amoníaco azul.

Esta solicitud es para autorización para descargar hasta 45,000 galones por minuto (gpm) de agua a la Bahía de Corpus Christi. Esta agua consistirá en una rutina de 40,000 gpm de agua obtenida de la Bahía de Corpus Christi que se ha utilizado principalmente para agua de alimentación de calderas y enfriamiento de la planta IBA y sería una descarga continua. El volumen adicional sería agua de lluvia recolectada del sitio para facilitar el control de las tormentas y se agregaría a una tasa aproximada de 5,000 gpm. Todas las aguas se descargarán a la bahía a través de un difusor para promover una rápida mezcla con el agua de la bahía.

Se espera que las descargas contengan agua de la bahía con mayor salinidad. También se esperan cambios de temperatura. El modelado de la zona de mezcla se realizó basándose en la configuración conceptual del difusor. Los resultados del modelo de zona de mezcla se evaluaron en función de los cambios de temperatura y salinidad. La temperatura no puede aumentar por encima de la temperatura ambiente en más de 1,5° Fahrenheit (verano) o 4° Fahrenheit (invierno) en el borde del límite de la zona de mezcla, y la salinidad no puede aumentar por encima de la temperatura ambiente en más de 2 partes por mil a 100 metros (328 pies) lejos de la descarga. El modelado de la zona de mezcla demostró que la descarga propuesta cumple con los requisitos de clase de flujo y los criterios de evaluación de temperatura y salinidad.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



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

PROPOSED PERMIT NO. WQ0005473000

APPLICATION. Ingleside Clean Ammonia Partners, LLC, 915 North Eldridge Parkway, Suite 1100, Houston, Texas 77079, which will operate a blue ammonia production, storage, and marine loading facility, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0005473000 (EPA I.D. No. TX0147184) to authorize the discharge of treated wastewater and stormwater at a volume not to exceed a daily average flow of 52,130,700 gallons per day. The facility will be located at 1450 Lexington Boulevard, in the city of Ingleside, San Patricio County, Texas 78362. The discharge route will be from the plant site via pipe to Corpus Christi Bay. TCEQ received this application on December 27, 2024. The permit application will be available for viewing and copying at Sinton Public Library, 100 North Pirate Boulevard, Sinton, in San Patricio County, Texas and at La Retama Central Library, 805 Comanche Street, Corpus Christi, in Nueces 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=-97.205277,27.825&level=18>

The application is subject to the goals and policies of the Texas Coastal Management Program and must be consistent with the applicable Coastal Management Program goals and policies.

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 Ingleside Clean Ammonia Partners, LLC at the address stated above or by calling Mr. Clayton Curtis, Enbridge U.S. Gulf Coast Terminals, LLC, at 855-385-6645.

Issuance Date: January 28, 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 PROPUESTO NO. WQ0005473000

SOLICITUD. Ingleside Clean Ammonia Partners, LLC, 915 North Eldridge Parkway, Suite 1100, Houston, Texas 77079, que operará una instalación de producción, almacenamiento y carga marítima de amoníaco azul, ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para el propuesto Permiso No. WQ0005473000 (EPA I.D. No. TX0147184) del Sistema de Eliminación de Descargas de Contaminantes de Texas (TPDES) para autorizar la descarga de aguas residuales tratadas y aguas pluviales en un volumen que no sobrepasa un flujo promedio diario de 52,130,700 galones por día. La planta estará ubicada 1450 Lexington Boulevard, en la ciudad de Ingleside en el Condado de San Patricio, Texas, 78362. La ruta de descarga es del sitio de la planta a bahía de Corpus Christi. La TCEQ recibió esta solicitud el 27 de diciembre de 2024. La solicitud para el permiso estará disponible para leerla y copiarla en Sinton Public Library, 100 North Pirate Boulevard, Sinton, en el Condado de San Patricio, Texas y La Retama Central Library, 805 Comanche, Corpus Christi, en el Condado de Nueces, Texas antes de la fecha de publicación de este aviso en el periódico. La solicitud (cualquier actualización y aviso inclusive) está disponible 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 de la instalación es proporcionado como una cortesía y no es parte de la solicitud o del aviso. Para la ubicación exacta, consulte la solicitud. <https://gisweb.tceq.texas.gov/LocationMapper/?marker=-97.205277,27.825&level=18>

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 específico. Si desea que se agregue su nombre en una de las listas designe cual lista(s) y envía por correo su pedido a la Oficina del Secretario Principal de la TCEQ.

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 Ingleside Clean Ammoni Partners, LLC a la dirección indicada arriba o llamando a Sr. Clayton Curtis, Enbridge U.S. Gulf Coast Terminals, LLC al 855-385-6645.

Fecha de emisión el 28 de enero de 2025



December 2024
Ingleside Blue Ammonia Plant

Texas Pollutant Discharge Elimination System (TPDES) Industrial Wastewater Permit Application

Ingleside Clean Ammonia Partners, LLC

December 2024
Ingleside Blue Ammonia Plant

Texas Pollutant Discharge Elimination System (TPDES) Industrial Wastewater Permit Application

Prepared for

Ingleside Clean Ammonia Partners, LLC
915 North Eldridge Parkway, Suite 1100
Houston, Texas 77079

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1 Industrial Administrative Report 1.0

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

TCEQ INDUSTRIAL WASTEWATER PERMIT APPLICATION

INDUSTRIAL ADMINISTRATIVE REPORT 1.0

This report is required for all applications for TPDES permits and TLAPs. Contact the Applications Review and Processing Team at 512-239-4671 with any questions about completing this report

Item 1. Application Information and Fees (Instructions, Page 25)

- a. Complete each field with the requested information, if applicable.

Applicant Name: Ingleside Clean Ammonia Partners, LLC EPA ID No.: TX0 [Click to enter text.](#)

Permit No.: WQ000 [Click to enter text.](#) Expiration Date: [Click to enter text.](#)

- b. Check the box next to the appropriate authorization type.

☒ Industrial Wastewater (wastewater and stormwater)

☐ Industrial Stormwater (stormwater only)

- c. Check the box next to the appropriate facility status.

☐ Active

☒ Inactive

- d. Check the box next to the appropriate permit type.

☒ TPDES Permit

☐ TLAP

- e. Check the box next to the appropriate application type.

☒ New

☐ Renewal with changes

☐ Renewal without changes

☐ Major amendment with renewal

☐ Major amendment without renewal

☐ Minor amendment without renewal

☐ Minor modification without renewal

- f. If applying for an amendment or modification, describe the request: N/A

- g. Application Fee

EPA Classification	New	Major Amend. (with or without renewal)	Renewal (with or without changes)	Minor Amend. / Minor Mod. (without renewal)
Minor facility not subject to EPA categorical effluent guidelines (40 CFR Parts 400-471)	☒ \$350	☐ \$350	☐ \$315	☐ \$150
Minor facility subject to EPA categorical effluent guidelines (40 CFR Parts 400-471)	☐ \$1,250	☐ \$1,250	☐ \$1,215	☐ \$150
Major facility	N/A ¹	☐ \$2,050	☐ \$2,015	☐ \$450

For TCEQ Use Only

Segment Number _____ County _____

Expiration Date _____ Region _____

Permit Number _____

¹ All facilities are designated as minors until formally classified as a major by EPA.

h. Payment Information

Mailed

Check or money order No.: [Click to enter text.](#) Check or money order amt.: [Click to enter text.](#)

Named printed on check or money order: [Click to enter text.](#)

Epay

Voucher number: [Click to enter text.](#) Copy of voucher attachment: [Click to enter text.](#)

Item 2. Applicant Information (Instructions, Pages 25)

- a. Customer Number, if applicant is an existing customer: CN606190668

Note: Locate the customer number using the [TCEQ's Central Registry Customer Search](#)².

- b. Legal name of the entity (applicant) applying for this permit: Ingleside Clean Ammonia Partners, LLC

Note: The owner of the facility must apply for the permit. The legal name must be spelled exactly as filed with the TX SOS, Texas Comptroller of Public Accounts, County, or in the legal documents forming the entity.

- c. Name and title of the person signing the application. (**Note:** The person must be an executive official that meets signatory requirements in 30 TAC § 305.44.)

☒ Mr. ☐ Ms. First/Last Name: Luis Perez

Title: Vice President of Operations; Ingleside Clean Ammonia Partners, LLC Credential: Vice President

- d. Will the applicant have overall financial responsibility for the facility?

☒ Yes ☐ No

Note: The entity with overall financial responsibility for the facility must apply as a co-applicant, if not the facility owner.

Item 3. Co-applicant Information (Instructions, Page 26)

- ☒ Check this box if there is no co-applicant.; otherwise, complete the below questions.

- a. Legal name of the entity (co-applicant) applying for this permit: N/A

Note: The legal name must be spelled exactly as filed with the TX SOS, Texas Comptroller of Public Accounts, County, or in the legal documents forming the entity.

- b. Customer Number (if applicant is an existing customer): CN[Click to enter text.](#)

Note: Locate the customer number using the TCEQ's Central Registry Customer Search.

- c. Name and title of the person signing the application. (**Note:** The person must be an executive official that meets signatory requirements in 30 TAC § 305.44.)

☐ Mr. ☐ Ms. First/Last Name: N/A

Title: N/A

Credential: N/A

- d. Will the co-applicant have overall financial responsibility for the facility?

☐ Yes ☐ No

² <https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch>

Note: The entity with overall financial responsibility for the facility must apply as a co-applicant, if not the facility owner.

Item 4. Core Data Form (Instructions, Pages 26)

- a. Complete one Core Data Form (TCEQ Form 10400) for each customer (applicant and co-applicant(s)) and include as an attachment. If the customer type selected on the Core Data Form is Individual, complete Attachment 1 of the Administrative Report. Attachment: Attachment 1

Item 5. Application Contact Information (Instructions, Page 26)

Provide names of two individuals who can be contact for additional information about this application. Indicate if the individual can be contact about administrative or technical information, or both.

- a. ☒ Administrative Contact . ☐ Technical Contact

☒ Mr. ☐ Ms. Full Name (First and Last): Luis Perez

Title: Vice President of Operations; Ingleside Clean Ammonia Partners, LLC Credential: Vice President

Organization Name: Ingleside Clean Ammonia Partners, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100

City: Houston

State: Texas

Zip Code: 77079

Phone No: 713-627-4546

Fax No: N/A

Email: Luis.Perez@enbridge.com

- b. ☐ Administrative Contact . ☒ Technical Contact

☒ Mr. ☐ Ms. Full Name (First and Last): Clayton Curtis

Title: Director Regulatory Compliance USGC Terminals Credential: Director

Organization Name: Enbridge U.S. Gulf Coast Terminals, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100

City: Houston

State: Texas

Zip Code: 77079

Phone No: 1-855-385-6645

Fax No: N/A

Email: clayton.curtis@enbridge.com

Attachment: N/A

Item 6. Permit Contact Information (Instructions, Pages 26)

Provide two names of individuals that can be contacted throughout the permit term.

- a. ☒ Mr. ☐ Ms. Full Name (First and Last): Luis Perez

Title: Vice President of Operations; Ingleside Clean Ammonia Partners, LLC Credential: Vice President

Organization Name: Ingleside Clean Ammonia Partners, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100

City: Houston

State: Texas

Zip Code: 77079

Phone No: 713-627-4546

Fax No: N/A

Email: Luis.Perez@enbridge.com

- b. ☒ Mr. ☐ Ms. Full Name (First and Last): Clayton Curtis

Title: Director Regulatory Compliance USGC Terminals Credential: Director

Organization Name: Enbridge U.S. Gulf Coast Terminals, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100

City: Houston

State: Texas

Zip Code: 77079

Phone No: 1-855-385-6645

Fax No: N/A

Email: clayton.curtis@enbridge.com

Attachment: N/A

Item 7. Billing Contact Information (Instructions, Page 27)

The permittee is responsible for paying the annual fee. The annual fee will be assessed for permits **in effect on September 1 of each year**. The TCEQ will send a bill to the address provided in this section. The permittee is responsible for terminating the permit when it is no longer needed (form TCEQ-20029).

Provide the complete mailing address where the annual fee invoice should be mailed and the name and phone number of the permittee's representative responsible for payment of the invoice.

☒ Mr. ☐ Ms. Full Name (First and Last): Clayton Curtis

Title: Director Regulatory Compliance USGC Terminals Credential: Director

Organization Name: Enbridge U.S. Gulf Coast Terminals, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100

City: Houston

State: Texas

Zip Code: 77079

Phone No: 1-855-385-6645

Fax No: N/A

Email: clayton.curtis@enbridge.com

Item 8. DMR/MER Contact Information (Instructions, Page 27)

Provide the name and mailing address of the person delegated to receive and submit DMRs or MERs. **Note:** DMR data must be submitted through the NetDMR system. An electronic reporting account can be established once the facility has obtained the permit number.

☒ Mr. ☐ Ms. Full Name (First and Last): Clayton Curtis

Title: Director Regulatory Compliance USGC Terminals Credential: Director

Organization Name: Enbridge U.S. Gulf Coast Terminals, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100

City: Houston

State: Texas

Zip Code: 77079

Phone No: 1-855-385-6645

Fax No: N/A

Email: clayton.curtis@enbridge.com

Item 9. NOTICE INFORMATION (Instructions, Pages 27

a. Individual Publishing the Notices

☒ Mr. ☐ Ms. Full Name (First and Last): Clayton Curtis

Title: Director Regulatory Compliance USGC Terminals Credential: Director

Organization Name: Enbridge U.S. Gulf Coast Terminals, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100

City: Houston

State: Texas

Zip Code: 77079

Phone No: 1-855-385-6645

Fax No: N/A

Email: clayton.curtis@enbridge.com

b. Method for Receiving Notice of Receipt and Intent to Obtain a Water Quality Permit Package (only for NORI, NAPD will be sent via regular mail)

☒ E-mail: clayton.curtis@enbridge.com

☐ Fax: N/A

☐ Regular Mail (USPS)

Mailing Address: N/A

City: N/A

State: N/A

Zip Code: N/A

c. Contact in the Notice

☒ Mr. ☐ Ms. Full Name (First and Last): Clayton Curtis

Title: Director Regulatory Compliance USGC Terminals Credential: Director

Organization Name: Enbridge U.S. Gulf Coast Terminals, LLC

Phone No: 1-855-385-6645

Fax No: N/A

Email: clayton.curtis@enbridge.com

d. Public Viewing Location Information

Note: If the facility or outfall is located in more than one county, provide a public viewing place for each county.

Public building name: Sinton Public Library

Location within the building: N/A

Physical Address of Building: 100 North Pirate Boulevard

City: Sinton

County: San Patricio

e. Bilingual Notice Requirements

This information is required for new, major amendment, minor amendment or minor modification, and renewal applications.

This section of the application is only used to determine if alternative language notices will be needed. Complete instructions on publishing the alternative language notices will be in your public notice package.

Please call the bilingual/ESL coordinator at the nearest elementary and middle schools and obtain the following information to determine whether an alternative language notices are required.

1. 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 ☐ No

If no, publication of an alternative language notice is not required; skip to Item 8 (Regulated Entity and Permitted Site Information.)

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

☒ Yes ☐ No

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

☐ Yes ☒ No

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

☐ Yes ☒ No ☐ N/A

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

f. Plain Language Summary Template - Complete the Plain Language Summary at the end of this application.

g. Complete one Public Involvement Plan (PIP) Form (TCEQ Form 20960) for each application for a new permit or major amendment and include as an attachment. Attachment: 7: Public Involvement Plan Form for Permit and Registration Applications

Item 10. Regulated Entity and Permitted Site Information (Instructions Pages 28-30)

- a. TCEQ issued Regulated Entity Number (RN), if available: RN111826111

Note: If your business site is part of a larger business site, a Regulated Entity Number (RN) may already be assigned for the larger site. Use the RN assigned for the larger site. Search the TCEQ's Central Registry to determine the RN or to see if the larger site may already be registered as a Regulated Entity. If the site is found, provide the assigned RN.

- b. Name of project or site (the name known by the community where located): Ingleside Blue Ammonia Plant

- c. Is the location address of the facility in the existing permit the same?

☐ Yes ☐ No ☒ N/A (new permit)

Note: If the facility is located in Bexar, Comal, Hays, Kinney, Medina, Travis, Uvalde, or Williamson County, additional information concerning protection of the Edwards Aquifer may be required.

- d. Owner of treatment facility:

☐ Mr. ☐ Ms. Full Name (First and Last): N/A

or Organization Name: Ingleside Clean Ammonia Partners, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100

City: Houston

State: Texas

Zip Code: 77079

Phone No: 1-855-385-6645

Fax No: N/A

Email: clayton.curtis@enbridge.com

- e. Ownership of facility: ☐ Public ☒ Private ☐ Both ☐ Federal

- f. Owner of land where treatment facility is or will be: Enbridge Ingleside Oil Terminal, LLC

☐ Mr. ☐ Ms. Full Name (First and Last): N/A

or Organization Name: Enbridge Ingleside Oil Terminal, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100

City: Houston

State: Texas

Zip Code: 77079

Phone No: 1-855-385-6645

Fax No: N/A

Email: clayton.curtis@enbridge.com

Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years (In some cases, a lease may not suffice - see instructions). Attachment: Attachment 8

- g. Owner of effluent TLAP disposal site (if applicable): N/A

☐ Mr. ☐ Ms. Full Name (First and Last): N/A

or Organization Name: N/A

Mailing Address: N/A

City: N/A

State: N/A

Zip Code: N/A

Phone No: N/A

Fax No: N/A

Email: N/A

Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years. Attachment: N/A

- h. Owner of sewage sludge disposal site (if applicable):

☐ Mr. ☐ Ms. Full Name (First and Last): NA

or Organization Name: N/A

Mailing Address: N/A

City: N/A

State: N/A

Zip Code: N/A

Phone No: N/A

Fax No: N/A

Email: N/A

Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years. Attachment: N/A

Item 11. TDPES Discharge/TLAP Disposal Information (Instructions, Pages 30-32)

- a. Is the facility located on or does the treated effluent cross Native American Land?

☐ Yes ☒ No

- b. Attach an original full size USGS Topographic Map (or an 8.5"×11" reproduced portion for renewal or amendment applications) with all required information. Check the box next to each item below to confirm it has been included on the map.

☒ One-mile radius

☒ Three-miles downstream information

☒ Applicant's property boundaries

☒ Treatment facility boundaries

☒ Labeled point(s) of discharge

☒ Highlighted discharge route(s)

☒ Effluent disposal site boundaries

☒ All wastewater ponds

☐ Sewage sludge disposal site

☒ New and future construction

Attachment: 5, Figure 20a

- c. Is the location of the sewage sludge disposal site in the existing permit accurate?

☐ Yes ☒ No or New Permit

If no, or a new application, provide an accurate location description: N/A

- d. Are the point(s) of discharge in the existing permit correct?

☐ Yes ☒ No or New Permit

If no, or a new application, provide an accurate location description:

- e. Are the discharge route(s) in the existing permit correct?

☐ Yes ☒ No or New Permit

If no, or a new permit, provide an accurate description of the discharge route: Refer to Attachment 5 Figures 2, 2a, and 2b. The proposed 60-inch pipeline will be routed from the vicinity of the wastewater facility along facility access roads to the end of Dock 1B.

- f. City nearest the outfall(s): Ingleside, TX

- g. County in which the outfalls(s) is/are located: San Patricio

- h. Is or will the treated wastewater discharge to a city, county, or state highway right-of-way, or a flood control district drainage ditch?

☐ Yes ☒ No

If yes, indicate by a check mark if: ☐ Authorization granted ☐ Authorization pending

For new and amendment applications, attach copies of letters that show proof of contact and provide the approval letter upon receipt. Attachment: N/A

For all applications involving an average daily discharge of 5 MGD or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge: San Patricio, Nueces, Kleberg, Kenedy, Willacy, and Cameron Counties

- i. For TLAPs, is the location of the effluent disposal site in the existing permit accurate?
☐ Yes ☒ No or New Permit
If no, or a new application, provide an accurate location description: N/A
- j. City nearest the disposal site: N/A
- k. County in which the disposal site is located: N/A
- l. Disposal Site Latitude: N/A Longitude: N/A
- m. For TLAPs, describe how effluent is/will be routed from the treatment facility to the disposal site:
N/A
- n. For TLAPs, identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: N/A

Item 12. MISCELLANEOUS INFORMATION (Instructions, Page 32)

- a. Did any person formerly employed by the TCEQ represent your company and get paid for service regarding this application?
☒ Yes ☐ No
If yes, list each person: Jeff Saitas (Departed TCEQ 2002)
- b. Do you owe any fees to the TCEQ?
☐ Yes ☒ No
If yes, provide the account no.: N/A and total amount due: N/A
- c. Do you owe any penalties to the TCEQ?
☐ Yes ☒ No
If yes, provide the enforcement order no.: N/A and amount due: N/A

Item 13. SIGNATURE PAGE (Instructions, Pages 32-33)

Permit No: WQ000Click to enter text.

Applicant Name: Ingleside Clean Ammonia Partners, LLC

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

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

Signatory name (typed or printed): Luis Perez

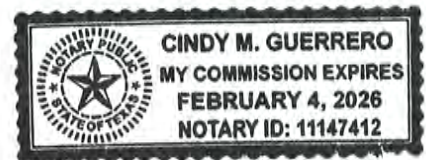
Signatory title: Vice President of Operations; Ingleside Clean Ammonia Partners, LLC

Signature: _____ Date: 12/19/2024
(Use blue ink)

Subscribed and Sworn to before me by the said Luis Perez VP Operations
on this 19th day of December, 2024.
My commission expires on the 4th day of February, 2026.

Cindy M. Guerrero
Notary Public

[SEAL]



Harri's
County, Texas

Note: *If co-applicants are necessary, each entity must submit an original, separate signature page.*

INDUSTRIAL ADMINISTRATIVE REPORT 1.1

The following information is required for new and amendment applications.

Item 1. AFFECTED LANDOWNER INFORMATION (Instructions, Pages 34-35)

- 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: 5: Figure Figures 21 and 22

- b. Check the box next to the format of the landowners list:

☒ Readable/Writeable CD ☐ Four sets of labels

Attachment: Click to enter text.

- d. Provide the source of the landowners' names and mailing addresses: San Patricio County Appraisal District
- 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. Public Involvement Plan Form (Instructions, Page 36)

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

Item 3. ORIGINAL PHOTOGRAPHS (Instructions, Page 36)

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: 5: Figure 18

.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

**FOR AGENCIES REVIEWING 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 36)

The SPIF must be completed as a separate document. The TCEQ will mail a copy of the SPIF to each agency as required by the TCEQ agreement with EPA. If any of the items are not completely addressed or further information is needed, you will be contacted to provide the information before the permit is issued. Each item must be completely addressed.

Do not refer to a response of any item in the permit application form. Each attachment must be provided with this form separately from the administrative report of the application. The application will not be declared administratively complete without this form being completed in its entirety including all attachments.

The following applies to all applications:

1. Permittee Name: Ingleside Clean Ammonia Partners, LLC
2. Permit No.: WQ000 [Click to enter text.](#) EPA ID No.: TX0 [Click to enter text.](#)
3. Address of the project (location description that includes street/highway, city/vicinity, and county):
1450 Lexington Drive, Ingleside, Texas 78362
4. Provide the name, address, phone and fax number, and email address of an individual that can be contacted to answer specific questions about the property.

Full Name (First and Last): Clayton Curtis

Organization Name: Enbridge U.S. Gulf Coast Terminals, LLC. Mailing Address: 915 North Eldridge Parkway, Suite 1100

City: Houston

State: Texas

Zip Code: 77079

Phone No: 1-855-385-6645

Fax No: N/A

Email: clayton.curtis@enbridge.com

5. List the county in which the facility is located: San Patricio
6. If the property is publicly owned and the owner is different than the permittee/applicant, please list the owner of the property: Enbridge Ingleside Oil Terminal, LLC

7. 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: Effluent flows from the facility through underground piping and discharges directly into Corpus Christi Bay (Oyster Waters)(Segment ID 2481OW)
8. 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: 5: Figure 19
9. Provide original photographs of any structures 50 years or older on the property. Attachment: N/A
10. 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
 - ☐ Additional phases of development that are planned for the future
 - ☐ Sealing caves, fractures, sinkholes, other karst features
 - ☒ Disturbance of vegetation or wetlands
11. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves, or other karst features): N/A
12. Describe existing disturbances, vegetation, and land use: Existing Disturbances: N/A; Vegetation: partial grass coverage; Land Use: mixed-use - material storage sheds and vacant land

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

13. List construction dates of all buildings and structures on the property: 1988 - 1990 a road and paved storage area was constructed by the United States Navy as part of Naval Station Ingleside. The paved storage area was expanded between 1990 and 1995. The remainder of the property is historically undeveloped.
14. Provide a brief history of the property, and name of the architect/builder, if known: The property was undeveloped until it became part of Naval Station Ingleside in 1987. The naval base operated until 2010 at which time it was closed and the property was returned to the Port of Corpus Christi Authority. Aside from the road and storage area described in 13, the property remains undeveloped.

Page 15 of 21 titled "Water Quality Permit Payment Submittal Form" was submitted separately from this application according to the following instructions detailed in the permit application:

- Do not mail this form with the application form.
- Do not mail this form to the same address as the application.
- Do not submit a copy of the application with this form as it could cause duplicate permit entries.

Page 15 of 21 was mailed to:

**Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, Texas 78753**

ATTACHMENT 1

INDIVIDUAL INFORMATION

Item 1. Individual information (Instructions, Page 37)

Complete this attachment if the facility applicant or co-applicant is an individual. Make additional copies of this attachment if both are individuals.

Prefix (Mr., Ms., or Miss): N/A

Full legal name (first, middle, and last): N/A

Driver's License or State Identification Number: N/A

Date of Birth: N/A

Mailing Address: N/A

City, State, and Zip Code: N/A

Phone No.: N/A

Fax No.: N/A

E-mail Address: N/A

CN: N/A

Checklist of Common Deficiencies

Below is a list of common deficiencies found during the administrative review of industrial wastewater permit applications. To ensure the timely processing of this application, please review the items below and indicate each item is complete and in accordance applicable rules at 30 TAC Chapters 21, 281, and 305 by checking the box next to the item. If an item is not required this application, indicate by checking N/A where appropriate. Please do not submit the application until all items below are addressed.

- ☒ Core Data Form (TCEQ Form No. 10400)
(Required for all applications types. Must be completed in its entirety and signed. Note: Form may be signed by applicant representative.)
- ☒ Correct and Current Industrial Wastewater Permit Application Forms
*(TCEQ Form Nos. 10055 and 10411.
Version dated 5/10/2019 or later.)*
- ☒ Water Quality Permit Payment Submittal Form (Page 14) (Paid via STEERS)
*(Original payment sent to TCEQ Revenue Section.
See instructions for mailing address.)*
- ☒ 7.5 Minute USGS Quadrangle Topographic Map Attached
*(Full-size map if seeking "New" permit.
8 ½ x 11 acceptable for Renewals and Amendments.)*
- ☒ N/A ☐ Current/Non-Expired, Executed Lease Agreement or Easement Attached
Documentation of land-owner permission is included in Attachment 8
- ☐ N/A ☒ Landowners Map
(See instructions for landowner requirements.)

Things to Know:

- All the items shown on the map must be labeled.
- The applicant's complete property boundaries must be delineated which includes boundaries of contiguous property owned by the applicant.
- The applicant cannot be its own adjacent landowner. You must identify the landowners immediately adjacent to their property, regardless of how far they are from the actual facility.
- If the applicant's property is adjacent to a road, creek, or stream, the landowners on the opposite side must be identified. Although the properties are not adjacent to applicant's property boundary, they are considered potentially affected landowners. If the adjacent road is a divided highway as identified on the USGS topographic map, the applicant does not have to identify the landowners on the opposite side of the highway.

- ☐ N/A ☒ Landowners Cross Reference List
(See instructions for landowner requirements.)
- ☐ N/A ☒ Landowners Labels or CD-RW attached
(See instructions for landowner requirements.)
- ☒ Original signature per 30 TAC § 305.44 – Blue Ink Preferred
(If signature page is not signed by an elected official or principle executive officer, a copy of signature authority/delegation letter must be attached.)
- ☒ Plain Language Summary

Plain Language Summary Template and Instructions for Texas Pollutant Discharge Elimination System (TPDES) and Texas Land Application (TLAP) Permit Applications

This template is a guide to assist applicant's in developing a plain language summary as required by [30 Texas Administrative Code Chapter 39 Subchapter H](#). Applicant's may modify the template as necessary to accurately describe their 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 the applicant will control those pollutants, so that the proposed plant will not have an adverse impact on human health or the environment.

Fill in the highlighted areas below to describe your facility and application in plain language. Instructions and examples are provided below. Make any other edits necessary to improve readability or grammar and to comply with the rule requirements.

If you are subject to the alternative language notice requirements in [30 Texas Administrative Code §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 INDUSTRIAL 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 Texas Administrative Code Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations of the permit application.

1. Enter applicant's name here. (2. Enter Customer Number here (i.e., CN6#####).) proposes to operate 4. Enter name of facility here. 5. Enter Regulated Entity Number here (i.e., RN1#####). a 7. Enter facility description here.. The facility will be located 9. Enter location here. , in Ingleside, San Patricio County, Texas 78362. 13. Enter summary of application request here.<<For TLAP applications include the following sentence, otherwise delete:>> This permit will not authorize a discharge of pollutants into water in the state.

Discharges from the facility are expected to contain 14. List all expected pollutants here.. 15. Enter types of wastewater discharged here. will be treated by 17. Enter a description of wastewater treatment used at the facility here..

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 son representaciones federales exigibles de la solicitud de permiso.

1. Introduzca el nombre del solicitante aquí. (2. Introduzca el número de cliente aquí (es decir, CN6 #####).) 3. Elija del menú desplegable. 4. Introduzca el nombre de la instalación aquí. 5. Introduzca el número de entidad regulada aquí (es decir, RN1 #####). 6. Elija del menú desplegable. 7. Introduzca la descripción de la instalación aquí. . La instalación 8. Elija del menú desplegable. ubicado 9. Introduzca la ubicación aquí. , en 10. Introduzca el nombre de la ciudad aquí. , Condado de 11. Introduzca el nombre del condado aquí. , Texas 12. Introduzca el código postal aquí. .
13. Introduzca el resumen de la petición de solicitud aquí. <<Para las solicitudes de TLAP incluya la siguiente oración, de lo contrario, elimine:>> Este permiso no autorizará una descarga de contaminantes en el agua en el estado.
Se espera que las descargas de la instalación contengan 14. Liste todos los contaminantes esperados aquí. . 15. Introduzca los tipos de aguas residuales descargadas aquí. 16. Elija del menú desplegable. tratado por 17. Introduzca una descripción del tratamiento de aguas residuales utilizado en la instalación aquí. .

INSTRUCTIONS

1. Enter the name of applicant in this section. The applicant name should match the name associated with the customer number.
2. Enter the Customer Number in this section. Each Individual or Organization is issued a unique 11-digit identification number called a CN (e.g. CN123456789).
3. Choose "operates" in this section for existing facility applications or choose "proposes to operate" for new facility applications.
4. Enter the name of the facility in this section. The facility name should match the name associated with the regulated entity number.
5. Enter the Regulated Entity number in this section. Each site location is issued a unique 11-digit identification number called an RN (e.g. RN123456789).
6. Choose the appropriate article (a or an) to complete the sentence.
7. Enter a description of the facility in this section. For example: steam electric generating facility, nitrogenous fertilizer manufacturing facility, etc.
8. Choose "is" for an existing facility or "will be" for a new facility.
9. Enter the location of the facility in this section.
10. Enter the City nearest the facility in this section.
11. Enter the County nearest the facility in this section.
12. Enter the zip code for the facility address in this section.
13. Enter a summary of the application request in this section. For example: renewal to discharge 25,000 gallons per day of treated domestic wastewater, new application to

discharge process wastewater and stormwater on an intermittent and flow-variable basis, or major amendment to reduce monitoring frequency for pH, etc. If more than one outfall is included in the application, provide applicable information for each individual outfall.

14. List all pollutants expected in the discharge from this facility in this section. If applicable, refer to the pollutants from any federal numeric effluent limitations that apply to your facility.
15. Enter the discharge types from your facility in this section (e.g., stormwater, process wastewater, once through cooling water, etc.)
16. Choose the appropriate verb tense to complete the sentence.
17. Enter a description of the wastewater treatment used at your facility. Include a description of each process, starting with initial treatment and finishing with the outfall/point of disposal. Use additional lines for individual discharge types if necessary.

Example

Individual Industrial Wastewater Application

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 Texas Administrative Code Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations of the permit application.

ABC Corporation (CN600000000) operates the Starr Power Station (RN10000000000), a two-unit gas fired electric generating facility. Unit 1 has a generating capacity of 393 megawatts (MWs) and Unit 2 has a generating capacity of 528 MWs. The facility is located at 1356 Starr Street, near the City of Austin, Travis County, Texas 78753.

This application is for a renewal to discharge 870,000,000 gallons per day of once through cooling water, auxiliary cooling water, and also authorizes the following waste streams monitored inside the facility (internal outfalls) before it is mixed with the other wastewaters authorized for discharge via main Outfall 001, referred as “previously monitored effluents” (low volume wastewater, metal cleaning waste, and stormwater (from diked oil storage area yards, and storm drains)) via Outfall 001. Low volume waste sources, metal cleaning waste, and stormwater drains on a continuous and flow-variable basis via internal Outfall 101.

The discharge of once through cooling water via Outfall 001 and low volume waste and metal cleaning waste via Outfall 101 from this facility is subject to federal effluent limitation guidelines at 40 CFR Part 423. The pollutants expected from these discharges based on 40 CFR Part 423 are: free available chlorine, total residual chlorine, total suspended solids, oil and grease, total iron, total copper, and pH. Temperature is also expected from these discharges. Additional potential pollutants are included in the Industrial Wastewater Application Technical Report, Worksheet 2.0.

Cooling water and boiler make-up water are supplied by Lake Starr Reservoir. The City of Austin municipal water plant (CN600000000, PWS 00000) supplies the facility’s potable water and serves as an alternate source of boiler make-up water. Water from the Lake Starr Reservoir is withdrawn at the intake structure and treated with sodium hypochlorite to prevent biofouling and sodium bromide as a chlorine enhancer to improve efficacy and then passed through condensers and auxiliary equipment on a once-through basis to cool equipment and condense exhaust steam. Low volume wastewater from blowdown of boiler Units 1 and 2 and metal cleaning wastes receive no treatment prior to discharge via Outfall 101. Plant floor and equipment drains and stormwater runoff from diked oil storage areas, yards, and storm drains are routed through an oil and water separator prior to discharge via Outfall 101. Domestic wastewater, blowdown, and backwash water from the service water filter, clarifier, and sand filter are routed to the Starr Creek Domestic Sewage Treatment Plant, TPDES Permit No. WQ0010000001, for treatment and disposal. Metal cleaning waste from equipment cleaning is generally disposed of off-site.

Plain Language Summary for Industrial Wastewater Permit Application

All Industrial Wastewater permit applications subject to the public notice requirements of 30 Texas Administrative Code (TAC) Chapter 39 must prepare and submit to the TCEQ a plain-language summary of the application. The summary must be provided in English and the alternative language as required by 30 TAC § 39.426, if applicable.

Ingleside Clean Ammonia Partners, LLC (ICAP) (CN 606190668) plans to build the Ingleside Blue Ammonia (IBA) (RN 111826111) plant at 1450 Lexington Blvd, Ingleside, Texas 78362, which is in San Patricio County. The IBA plant will manufacture low carbon ammonia, also known as blue ammonia.

This application is for authorization to discharge up to 45,000 gallons per minute (gpm) of water to Corpus Christi Bay. This water will consist of a routine 40,000 gpm of water obtained from Corpus Christi Bay which has been primarily used for boiler feed water and cooling of the IBA plant and would be a continuous discharge. The additional volume would be stormwater collected from the site to facilitate controlling storm events and would be added at an approximate rate of 5,000 gpm. All waters will be discharged to the bay through a diffuser to promote rapid mixing with bay water.

The discharges are expected to contain higher salinity bay water. Temperature changes are also expected. Mixing zone modeling was performed based on the conceptual diffuser configuration. The mixing zone model results were evaluated based on temperature and salinity changes. Temperature may not increase above ambient by more than 1.5° Fahrenheit (summer) or 4° Fahrenheit (winter) at the edge of the mixing zone boundary, and salinity may not increase above ambient by more than 2 parts per thousand at 100 meters (328 feet) away from the discharge. Mixing zone modeling demonstrated that the proposed discharge meets the flow class requirements and evaluation criteria for temperature and salinity.

Resumen en lenguaje sencillo para la solicitud de permiso de aguas residuales industriales

Todas las solicitudes de permiso de aguas residuales industriales sujetas a los requisitos de notificación pública del Capítulo 39 del Código Administrativo de Texas (TAC) 30 deben preparar y presentar a la TCEQ un resumen de la solicitud en lenguaje sencillo. El resumen debe proporcionarse en inglés y en el idioma alternativo según lo exige 30 TAC § 39.426, si corresponde.

Ingleside Clean Ammonia Partners, LLC (ICAP) (CN 606190668) planea construir la planta Ingleside Blue Ammonia (IBA) (RN 111826111) en 1450 Lexington Blvd, Ingleside, Texas 78362, que se encuentra en el condado de San Patricio. La planta de IBA fabricará amoníaco bajo en carbono, también conocido como amoníaco azul.

Esta solicitud es para autorización para descargar hasta 45,000 galones por minuto (gpm) de agua a la Bahía de Corpus Christi. Esta agua consistirá en una rutina de 40,000 gpm de agua obtenida de la Bahía de Corpus Christi que se ha utilizado principalmente para agua de alimentación de calderas y enfriamiento de la planta IBA y sería una descarga continua. El volumen adicional sería agua de lluvia recolectada del sitio para facilitar el control de las tormentas y se agregaría a una tasa aproximada de 5,000 gpm. Todas las aguas se descargarán a la bahía a través de un difusor para promover una rápida mezcla con el agua de la bahía.

Se espera que las descargas contengan agua de la bahía con mayor salinidad. También se esperan cambios de temperatura. El modelado de la zona de mezcla se realizó basándose en la configuración conceptual del difusor. Los resultados del modelo de zona de mezcla se evaluaron en función de los cambios de temperatura y salinidad. La temperatura no puede aumentar por encima de la temperatura ambiente en más de 1,5° Fahrenheit (verano) o 4° Fahrenheit (invierno) en el borde del límite de la zona de mezcla, y la salinidad no puede aumentar por encima de la temperatura ambiente en más de 2 partes por mil a 100 metros (328 pies) lejos de la descarga. El modelado de la zona de mezcla demostró que la descarga propuesta cumple con los requisitos de clase de flujo y los criterios de evaluación de temperatura y salinidad.

2 Industrial Wastewater Permit Application Technical Report

1.0



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).

Ingleside Clean Ammonia Partners, LLC (ICAP) plans to build the Ingleside Blue Ammonia (IBA) plant (the Plant) located at 1450 Lexington Blvd in Ingleside, San Patricio County, Texas. The IBA plant will be a blue ammonia production, storage, and marine loading operation, which will be comprised of two production trains. SIC Code 2873. (Refer to Attachment 2 Section 1 and 2 for further information.)

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

Refer to Attachment 2 Section 3.2.

¹

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

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

Materials List

Raw Materials	Intermediate Products	Final Products
Natural Gas	Synthetic Gas	Anhydrous Ammonia
Sulfuric Acid	Oxygen	CO ₂
Caustic Soda	Nitrogen	
O ₂ Scavenger		
Sodium Hypochlorite		
Bisulfite		
Corrosion Inhibitor		
Methyl diethanolamine		

Attachment: N/A

- 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: 5: Figures 2, 2a, and 2b

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

☐ Yes ☒ No

If **yes**, provide background discussion: [Click to enter text.](#)

- 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:

Flood Insurance Rate Map (FIRM), Panel 605 of 610, Community Panel Number 48409C0605E Map revised November 4, 2016.

Attachment: 5: Figure 7

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: [Click to enter text.](#)

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.

Refer to Attachment 2: Section 3.3

- 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: 2: Section 3.1 and Attachment 5: Figures 3 and 4

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 # 01	Pond #	Pond #	Pond #
Use Designation: (T) (D) (C) or (E)	C			
Associated Outfall Number	D-001			
Liner Type (C) (I) (S) or (A)	Not yet designed			
Alt. Liner Attachment Reference	Not yet designed			
Leak Detection System, Y/N	N			
Groundwater Monitoring Wells, Y/N	N			
Groundwater Monitoring Data Attachment	N			
Pond Bottom Located Above The Seasonal High-Water Table, Y/N	N			
Length (ft)	~523			
Width (ft)	~295			
Max Depth From Water Surface (ft), Not Including Freeboard	~9.73			
Freeboard (ft)	Not yet designed			
Surface Area (acres)	3.45			
Storage Capacity (gallons)	11,229,709			

Parameter	Pond #	Pond #	Pond #	Pond #
40 CFR Part 257, Subpart D, Y/N	N			
Date of Construction	pending			

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: N/A

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/or 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)
D-001	27.818914 (~)	-97.202256 (~)

Outfall Location Description

Outfall No.	Location Description
D-001	Outfall associated with treated wastewater resulting from the Facility on Dock 1B.

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

Outfall No.	Description of sampling point
D-001	Sample will be collected from the wastewater stream prior to entering the bay.

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)
D-001	52.1307	57.3680	52.1307	57.3680	TBD; 2028-2031

Outfall Discharge – Method and Measurement

Outfall No.	Pumped Discharge? Y/N	Gravity Discharge? Y/N	Type of Flow Measurement Device Used
D-001	Y	N	TBD

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)
D-001	N	Y	N	24	All	12

Outfall Wastestream Contributions

Outfall No. D-001

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow
Sea Water Cooling System (Train 1)	26.1986	40.80
Sea Water Cooling System (Train 2)	26.1986	40.80
Desalination Unit (Train 1)	2.1110	3.29
Desalination Unit (Train 2)	2.1110	3.29
Demin. Ion Exchange Plant (Train 1)	0.1699	0.26
Demin. Ion Exchange Plant (Train 2)	0.1699	0.26
Boilers (Train 1)	0.0245	0.04
Boilers (Train 2)	0.0245	0.04
Stormwater	7.2000	11.21

Outfall No.

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow

Outfall No.

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow

Attachment: 4: Supplemental Stormwater Calculations

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: 6

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	2	47,160,000	52,397,280
Boilers	2	48,960	48,960

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: The first 0.5 inch of stormwater that contacts developed portions of the facility will be pumped to the Waste Water Treatment Unit. The comingled waste water and treated stormwater will then be routed Outfall D-001.

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.

- d. 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.
 - ☐ Domestic and industrial treatment sludge ARE comingled prior to use or disposal.
 - ☐ Industrial wastewater and domestic sewage are treated separately, and the respective sludge IS NOT comingled 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: [Click to enter text.](#)
- e. 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.
City of Ingleside Wastewater Treatment Plant	WQ0010422001

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: [Click to enter text.](#)

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: [Click to enter text.](#)

Additionally, attach a copy of all tests performed which **have not** been submitted to the TCEQ or EPA. **Attachment:** [Click to enter text.](#)

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

- d. 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.

- e. 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: [Click to enter text.](#)

- f. 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: [Click to enter text.](#)

- g. 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)

- 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)

Item 12. Cooling Water (Instructions, Page 46)

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

☒ Yes ☐ No

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

- 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	Intake-001 (I-001)			
Owner	Ingleside Clean Ammonia Partners, LLC			
Operator	Ingleside Clean Ammonia Partners, LLC			

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

☐ Yes ☒ No

If **no**, continue. If **yes**, provide the PWS Registration No. and stop here: PWS No. [Click to enter text.](#)

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

☐ Yes ☒ No

If **no**, continue. If **yes**, provide the Reuse Authorization No. and stop here: [Click to enter text.](#)

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

☐ Yes ☒ No

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: [Click to enter text.](#)

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 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

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*: N/A

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: 2 Supplemental Information Section 4

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.

Click to enter text.

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

☐ Yes ☐ No

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

Click to enter text.

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

☐ Yes ☐ No

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

Click to enter text.

Item 14. Laboratory Accreditation (Instructions, Page 49)

All laboratory tests performed must meet the requirements of *30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification*, which includes the following general exemptions from National Environmental Laboratory Accreditation Program (NELAP) certification requirements:

- The laboratory is an in-house laboratory and is:
 - o periodically inspected by the TCEQ; or
 - o located in another state and is accredited or inspected by that state; or
 - o performing work for another company with a unit located in the same site; or
 - o performing pro bono work for a governmental agency or charitable organization.
- The laboratory is accredited under federal law.
- The data are needed for emergency-response activities, and a laboratory accredited under the Texas Laboratory Accreditation Program is not available.
- The laboratory supplies data for which the TCEQ does not offer accreditation.

The applicant should review *30 TAC Chapter 25* for specific requirements.

The following certification statement shall be signed and submitted with every application. See the *Signature Page* section in the Instructions, for a list of designated representatives who may sign the certification.

CERTIFICATION:

I certify that all laboratory tests submitted with this application meet the requirements of *30 TAC Chapter 25, Environmental Testing Laboratory Accreditation and Certification*.

Printed Name: Click to enter text.

Title: Click to enter text.

Signature: _____

Date: _____

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
SIC 2783, subject to 40 CFR Part 418. However, 418.20 Applicability; description of the ammonia subcategory. The provisions of this subpart are applicable to discharges resulting from the manufacture of ammonia. Discharges attributable to shipping losses and cooling tower blowdown are excluded. Since the water discharges from this ammonia plant are not <i>process wastewater</i> as defined in 40 CFR 418.21(d), this Project's wastewaters are exempt from the ELGs in this Part.	418.20

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

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

c. Refineries (40 CFR Part 419)

Provide the applicable subcategory and a brief justification.

Click to enter text.

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.

Click to enter text.

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

N/A - See Item 2, Pollutant table for details.

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 2.0: POLLUTANT ANALYSIS

Worksheet 2.0 is **required** for all applications submitted for a TPDES permit. Worksheet 2.0 is not required for applications for a permit to dispose of all wastewater by land disposal or for discharges solely of stormwater associated with industrial activities.

Item 1. General Testing Requirements (Instructions, Page 55)

- a. Provide the date range of all sampling events conducted to obtain the analytical data submitted with this application (e.g., 05/01/2018-05/30/2018): [Click to enter text.](#)
- b. ☐ Check the box to confirm all samples were collected no more than 12 months prior to the date of application submittal.
- c. Read the general testing requirements in the instructions for important information about sampling, test methods, and MALs. If a contact laboratory was used, attach a list which includes the name, contact information, and pollutants analyzed for each laboratory/firm.
Attachment: [Click to enter text.](#)

Item 2. Specific Testing Requirements (Instructions, Page 56)

Attach correspondence from TCEQ approving submittal of less than the required number of samples, if applicable. **Attachment:** [Click to enter text.](#)

TABLE 1 and TABLE 2 (Instructions, Page 58)

Completion of Tables 1 and 2 is required for all external outfalls for all TPDES permit applications.

Table 1 for Outfall No.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)
BOD (5-day)	Per Instructions, Page 58, this application requests authorization to discharge a proposed wastewater stream which the facility has not yet generated and testing would not be representative of the effluent to be discharged. Per instructions, contact was made with the Industrial Permits Team on March 22, 2024, and determined that testing is not required for this application. The applicant will comply with testing requirements provided by TCEQ in the permit, once operational, including specific minimum analytical levels for each given parameter.			
CBOD (5-day)				
Chemical oxygen demand				
Total organic carbon				
Dissolved oxygen				
Ammonia nitrogen				
Total suspended solids				
Nitrate nitrogen				
Total organic nitrogen				
Total phosphorus				
Oil and grease				
Total residual chlorine				

Pollutant	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)
Total dissolved solids				
Sulfate				
Chloride				
Fluoride				
Total alkalinity (mg/L as CaCO3)				
Temperature (°F)				
pH (standard units)				

Table 2 for Outfall No.: [Click to enter text.](#)

Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	MAL (µg/L)
Aluminum, total					
Antimony, total					
Arsenic, total					
Barium, total					
Beryllium, total					
Cadmium, total					
Chromium, total					
Chromium, hexavalent					
Chromium, trivalent					
Copper, total					
Cyanide, available					
Lead, total					
Mercury, total					
Nickel, total					
Selenium, total					
Silver, total					
Thallium, total					
Zinc, total					

TABLE 3 (Instructions, Page 58)

Completion of Table 3 **is required** for all **external outfalls** which discharge process wastewater.

Partial completion of Table 3 **is required** for all **external outfalls** which discharge non-process wastewater and stormwater associated with industrial activities commingled with other wastestreams (see instructions for additional guidance).

Table 3 for Outfall No.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
Acrylonitrile					
Anthracene					
Benzene					
Benidine					
Benzo(a)anthracene					
Benzo(a)pyrene					
Bis(2-chloroethyl)ether					
Bis(2-ethylhexyl)phthalate					
Bromodichloromethane [Dichlorobromomethane]					
Bromoform					
Carbon tetrachloride					
Chlorobenzene					
Chlorodibromomethane [Dibromochloromethane]					
Chloroform					
Chrysene					
m-Cresol [3-Methylphenol]					
o-Cresol [2-Methylphenol]					
p-Cresol [4-Methylphenol]					
1,2-Dibromoethane					
m-Dichlorobenzene [1,3-Dichlorobenzene]					
o-Dichlorobenzene [1,2-Dichlorobenzene]					
p-Dichlorobenzene [1,4-Dichlorobenzene]					
3,3'-Dichlorobenzidine					
1,2-Dichloroethane					

N/A - See Table 2, above for details

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
1,1-Dichloroethene [1,1-Dichloroethylene]					
Dichloromethane [Methylene chloride]					
1,2-Dichloropropane					
1,3-Dichloropropene [1,3-Dichloropropylene]					
2,4-Dimethylphenol					
Di-n-Butyl phthalate					
Ethylbenzene					
Fluoride					
Hexachlorobenzene					
Hexachlorobutadiene					
Hexachlorocyclopentadiene					
Hexachloroethane					
Methyl ethyl ketone					
Nitrobenzene					
N-Nitrosodiethylamine					
N-Nitroso-di-n-butylamine					
Nonylphenol					
Pentachlorobenzene					
Pentachlorophenol					
Phenanthrene					
Polychlorinated biphenyls (PCBs) (**)					
Pyridine					
1,2,4,5-Tetrachlorobenzene					
1,1,2,2-Tetrachloroethane					
Tetrachloroethene [Tetrachloroethylene]					
Toluene					
1,1,1-Trichloroethane					
1,1,2-Trichloroethane					
Trichloroethene [Trichloroethylene]					

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
2,4,5-Trichlorophenol					
TTHM (Total trihalomethanes)					
Vinyl chloride					

TABLE 4 (Instructions, Pages 58-59)

Partial completion of Table 4 **is required** for each **external outfall** based on the conditions below.

a. Tributyltin

Is this facility an industrial/commercial facility which currently or proposes to directly dispose of wastewater from the types of operations listed below or a domestic facility which currently or proposes to receive wastewater from the types of industrial/commercial operations listed below?

☐ Yes ☒ No

If **yes**, check the box next to each of the following criteria which apply and provide the appropriate testing results in Table 4 below (check all that apply).

- ☐ Manufacturers and formulators of tributyltin or related compounds.
- ☐ Painting of ships, boats and marine structures.
- ☐ Ship and boat building and repairing.
- ☐ Ship and boat cleaning, salvage, wrecking and scaling.
- ☐ Operation and maintenance of marine cargo handling facilities and marinas.
- ☐ Facilities engaged in wood preserving.
- ☐ Any other industrial/commercial facility for which tributyltin is known to be present, or for which there is any reason to believe that tributyltin may be present in the effluent.

b. Enterococci (discharge to saltwater)

This facility discharges/proposes to discharge directly into saltwater receiving waters **and** Enterococci bacteria are expected to be present in the discharge based on facility processes.

☐ Yes ☒ No

Domestic wastewater is/will be discharged.

☐ Yes ☒ No

If **yes to either** question, provide the appropriate testing results in Table 4 below.

c. E. coli (discharge to freshwater)

This facility discharges/proposes to discharge directly into freshwater receiving waters **and** *E. coli* bacteria are expected to be present in the discharge based on facility processes.

☐ Yes ☒ No

Domestic wastewater is/will be discharged.

☐ Yes ☒ No

If **yes to either** question, provide the appropriate testing results in Table 4 below.

Table 4 for Outfall No.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1	Sample 2	Sample 3	Sample 4	MAL
Tributyltin (µg/L)					
Enterococci (cfu or MPN/100 mL)					
<i>E. coli</i> (cfu or MPN/100 mL)					

2. Pollutant present in receiving water (IE, intake water); treatment process will not increase pollutant concentration.

TABLE 5 (Instructions, Page 59)

Completion of Table 5 **is required** for all **external outfalls** which discharge process wastewater from a facility which manufactures or formulates pesticides or herbicides or other wastewaters which may contain pesticides or herbicides.

If this facility does not/will not manufacture or formulate pesticides or herbicides and does not/will not discharge other wastewaters that may contain pesticides or herbicides, check N/A.

☒ N/A

Table 5 for Outfall No.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
Aldrin					
Carbaryl					
Chlordane					
Chlorpyrifos					
4,4'-DDD					
4,4'-DDE					
4,4'-DDT					
2,4-D					
Danitol [Fenpropathrin]					
Demeton					
Diazinon					
Dicofol [Kelthane]					
Dieldrin					
Diuron					
Endosulfan I (<i>alpha</i>)					
Endosulfan II (<i>beta</i>)					
Endosulfan sulfate					

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
Endrin					
Guthion [Azinphos methyl]					
Heptachlor					
Heptachlor epoxide					
Hexachlorocyclohexane (<i>alpha</i>)					
Hexachlorocyclohexane (<i>beta</i>)					
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]					
Hexachlorophene					
Malathion					
Methoxychlor					
Mirex					
Parathion (ethyl)					
Toxaphene					
2,4,5-TP [Silvex]					

* Indicate units if different from µg/L.

TABLE 6 (Instructions, Page 59)

Completion of Table 6 is required for all external outfalls.

Table 6 for Outfall No.: **D001**

Samples are (check one): ☐ Composite ☒ Grab

Pollutants	Believed Present	Believed Absent	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)	MAL (µg/L)*
Bromide	☐	☒					400
Color (PCU)	☐	☒					—
Nitrate-Nitrite (as N)	☐	☒	-- ²				—
Sulfide (as S)	☐	☒	-- ²				—
Sulfite (as SO ₃)	☐	☒					—
Surfactants	☐	☒	-- ²				—
Boron, total	☐	☒					20
Cobalt, total	☐	☒					0.3
Iron, total	☒	☐	-- ¹²				7
Magnesium, total	☒	☐	-- ²				20
Manganese, total	☒	☐	-- ²				0.5
Molybdenum, total	☐	☒	-- ²				1
Tin, total	☐	☒					5
Titanium, total	☐	☒					30

1. Data can only be determined during detail Engineering Phase of the project.
2. Pollutant may be present in receiving water (i.e. intake water) based on TCEQ surface water quality station data. The treatment process will not increase concentration beyond design concentration values.

TABLE 7 (Instructions, Page 60)

Check the box next to any of the industrial categories applicable to this facility. If no categories are applicable, check N/A. If GC/MS testing is required, check the box provided to confirm the testing results for the appropriate parameters are provided with the application.

☒ N/A

Table 7 for Applicable Industrial Categories

Industrial Category	40 CFR Part	Volatiles Table 8	Acids Table 9	Bases/Neutrals Table 10	Pesticides Table 11
☐ Adhesives and Sealants		☐ Yes	☐ Yes	☐ Yes	No
☐ Aluminum Forming	467	☐ Yes	☐ Yes	☐ Yes	No
☐ Auto and Other Laundries		☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Battery Manufacturing	461	☐ Yes	No	☐ Yes	No
☐ Coal Mining	434	No	No	No	No
☐ Coil Coating	465	☐ Yes	☐ Yes	☐ Yes	No
☐ Copper Forming	468	☐ Yes	☐ Yes	☐ Yes	No
☐ Electric and Electronic Components	469	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Electroplating	413	☐ Yes	☐ Yes	☐ Yes	No
☐ Explosives Manufacturing	457	No	☐ Yes	☐ Yes	No
☐ Foundries		☐ Yes	☐ Yes	☐ Yes	No
☐ Gum and Wood Chemicals - Subparts A,B,C,E	454	☐ Yes	☐ Yes	No	No
☐ Gum and Wood Chemicals - Subparts D,F	454	☐ Yes	☐ Yes	☐ Yes	No
☐ Inorganic Chemicals Manufacturing	415	☐ Yes	☐ Yes	☐ Yes	No
☐ Iron and Steel Manufacturing	420	☐ Yes	☐ Yes	☐ Yes	No
☐ Leather Tanning and Finishing	425	☐ Yes	☐ Yes	☐ Yes	No
☐ Mechanical Products Manufacturing		☐ Yes	☐ Yes	☐ Yes	No
☐ Nonferrous Metals Manufacturing	421,471	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Oil and Gas Extraction - Subparts A, D, E, F, G, H	435	☐ Yes	☐ Yes	☐ Yes	No
☐ Ore Mining - Subpart B	440	No	☐ Yes	No	No
☐ Organic Chemicals Manufacturing	414	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Paint and Ink Formulation	446,447	☐ Yes	☐ Yes	☐ Yes	No
☐ Pesticides	455	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Petroleum Refining	419	☐ Yes	No	No	No
☐ Pharmaceutical Preparations	439	☐ Yes	☐ Yes	☐ Yes	No
☐ Photographic Equipment and Supplies	459	☐ Yes	☐ Yes	☐ Yes	No
☐ Plastic and Synthetic Materials Manufacturing	414	☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Plastic Processing	463	☐ Yes	No	No	No
☐ Porcelain Enameling	466	No	No	No	No
☐ Printing and Publishing		☐ Yes	☐ Yes	☐ Yes	☐ Yes
☐ Pulp and Paperboard Mills - Subpart C	430	☐ *	☐ Yes	☐ *	☐ Yes
☐ Pulp and Paperboard Mills - Subparts F, K	430	☐ *	☐ Yes	☐ *	☐ *
☐ Pulp and Paperboard Mills - Subparts A, B, D, G, H	430	☐ Yes	☐ Yes	☐ *	☐ *
☐ Pulp and Paperboard Mills - Subparts I, J, L	430	☐ Yes	☐ Yes	☐ *	☐ Yes
☐ Pulp and Paperboard Mills - Subpart E	430	☐ Yes	☐ Yes	☐ Yes	☐ *
☐ Rubber Processing	428	☐ Yes	☐ Yes	☐ Yes	No
☐ Soap and Detergent Manufacturing	417	☐ Yes	☐ Yes	☐ Yes	No
☐ Steam Electric Power Plants	423	☐ Yes	☐ Yes	No	No
☐ Textile Mills (Not Subpart C)	410	☐ Yes	☐ Yes	☐ Yes	No
☐ Timber Products Processing	429	☐ Yes	☐ Yes	☐ Yes	☐ Yes

* Test if believed present.

TABLES 8, 9, 10, and 11 (Instructions, Page 60)

Completion of Tables 8, 9, 10, and 11 **is required** as specified in Table 7 for all **external outfalls** that contain process wastewater.

Completion of Tables 8, 9, 10, and 11 **may be required** for types of industry not specified in Table 7 for specific parameters that are believed to be present in the wastewater.

Table 8 for Outfall No.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
Acrolein					50
Acrylonitrile					50
Benzene					10
Bromoform					10
Carbon tetrachloride					2
Chlorobenzene					10
Chlorodibromomethane					10
Chloroethane					50
2-Chloroethylvinyl ether					10
Chloroform					10
Dichlorobromomethane [Bromodichloromethane]					10
1,1-Dichloroethane					10
1,2-Dichloroethane					10
1,1-Dichloroethylene [1,1-Dichloroethene]					10
1,2-Dichloropropane					10
1,3-Dichloropropylene [1,3-Dichloropropene]					10
Ethylbenzene					10
Methyl bromide [Bromomethane]					50
Methyl chloride [Chloromethane]					50
Methylene chloride [Dichloromethane]					20
1,1,2,2-Tetrachloroethane					10
Tetrachloroethylene [Tetrachloroethene]					10
Toluene					10
1,2-Trans-dichloroethylene [1,2-Trans-dichloroethene]					10

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
1,1,1-Trichloroethane					10
1,1,2-Trichloroethane					10
Trichloroethylene [Trichloroethene]					10
Vinyl chloride					10

* Indicate units if different from µg/L.

Table 9 for Outfall No.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
2-Chlorophenol					10
2,4-Dichlorophenol					10
2,4-Dimethylphenol					10
4,6-Dinitro-o-cresol					50
2,4-Dinitrophenol					50
2-Nitrophenol					20
4-Nitrophenol					50
p-Chloro-m-cresol					10
Pentachlorophenol					5
Phenol					10
2,4,6-Trichlorophenol					10

* Indicate units if different from µg/L.

Table 10 for Outfall No.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
Acenaphthene					10
Acenaphthylene					10
Anthracene					10
Benzidine					50
Benzo(a)anthracene					5
Benzo(a)pyrene					5
3,4-Benzofluoranthene [Benzo(b)fluoranthene]					10
Benzo(ghi)perylene					20
Benzo(k)fluoranthene					5
Bis(2-chloroethoxy)methane					10

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
Bis(2-chloroethyl)ether					10
Bis(2-chloroisopropyl)ether					10
Bis(2-ethylhexyl)phthalate					10
4-Bromophenyl phenyl ether					10
Butylbenzyl phthalate					10
2-Chloronaphthalene					10
4-Chlorophenyl phenyl ether					10
Chrysene					5
Dibenzo(a,h)anthracene					5
1,2-Dichlorobenzene [o-Dichlorobenzene]					10
1,3-Dichlorobenzene [m-Dichlorobenzene]					10
1,4-Dichlorobenzene [p-Dichlorobenzene]					10
3,3'-Dichlorobenzidine					5
Diethyl phthalate					10
Dimethyl phthalate					10
Di-n-butyl phthalate					10
2,4-Dinitrotoluene					10
2,6-Dinitrotoluene					10
Di-n-octyl phthalate					10
1,2-Diphenylhydrazine (as Azobenzene)					20
Fluoranthene					10
Fluorene					10
Hexachlorobenzene					5
Hexachlorobutadiene					10
Hexachlorocyclopentadiene					10
Hexachloroethane					20
Indeno(1,2,3-cd)pyrene					5
Isophorone					10
Naphthalene					10
Nitrobenzene					10
N-Nitrosodimethylamine					50

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
N-Nitrosodi-n-propylamine					20
N-Nitrosodiphenylamine					20
Phenanthrene					10
Pyrene					10
1,2,4-Trichlorobenzene					10

* Indicate units if different from µg/L.

Table 11 for Outfall No.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
Aldrin					0.01
alpha-BHC [alpha-Hexachlorocyclohexane]					0.05
beta-BHC [beta-Hexachlorocyclohexane]					0.05
gamma-BHC [gamma-Hexachlorocyclohexane]					0.05
delta-BHC [delta-Hexachlorocyclohexane]					0.05
Chlordane					0.2
4,4'-DDT					0.02
4,4'-DDE					0.1
4,4'-DDD					0.1
Dieldrin					0.02
Endosulfan I (alpha)					0.01
Endosulfan II (beta)					0.02
Endosulfan sulfate					0.1
Endrin					0.02
Endrin aldehyde					0.1
Heptachlor					0.01
Heptachlor epoxide					0.01
PCB 1242					0.2
PCB 1254					0.2
PCB 1221					0.2
PCB 1232					0.2
PCB 1248					0.2

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
PCB 1260					0.2
PCB 1016					0.2
Toxaphene					0.3

* Indicate units if different from µg/L.

Attachment: [Click to enter text.](#)

TABLE 12 (DIOXINS/FURAN COMPOUNDS)

Complete of Table 12 **is required** for **external outfalls**, as directed below. (Instructions, Pages 59-60)

Indicate which compound(s) are manufactured or used at the facility and provide a brief description of the conditions of its/their presence at the facility (check all that apply).

- ☐ 2,4,5-trichlorophenoxy acetic acid (2,4,5-T) CASRN 93-76-5
- ☐ 2-(2,4,5-trichlorophenoxy) propanoic acid (Silvex, 2,4,5-TP) CASRN 93-72-1
- ☐ 2-(2,4,5-trichlorophenoxy) ethyl 2,2-dichloropropionate (Erbon) CASRN 136-25-4
- ☐ 0,0-dimethyl 0-(2,4,5-trichlorophenyl) phosphorothioate (Ronnell) CASRN 299-84-3
- ☐ 2,4,5-trichlorophenol (TCP) CASRN 95-95-4
- ☐ hexachlorophene (HCP) CASRN 70-30-4
- ☒ None of the above

Description: [Click to enter text.](#)

Does the applicant or anyone at the facility know or have any reason to believe that 2,3,7,8-tetrachlorodibenzo-p-dioxin (TCDD) or any congeners of TCDD may be present in the effluent proposed for discharge?

- ☐ Yes ☒ No

Description: [Click to enter text.](#)

If **yes** to either Items a **or** b, complete Table 12 as instructed.

Table 12 for Outfall No.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

Compound	Toxicity Equivalent Factors	Wastewater Concentration (ppq)	Wastewater Toxicity Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Toxicity Equivalents (ppt)	MAL (ppq)
2,3,7,8-TCDD	1	-- ²	-- ²	-- ²	-- ²	10
1,2,3,7,8-PeCDD	1.0	-- ²	-- ²	-- ²	-- ²	50
2,3,7,8-HxCDDs	0.1	-- ²	-- ²	-- ²	-- ²	50
1,2,3,4,6,7,8-HpCDD	0.01	-- ²	-- ²	-- ²	-- ²	50

Compound	Toxicity Equivalent Factors	Wastewater Concentration (ppq)	Wastewater Toxicity Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Toxicity Equivalents (ppt)	MAL (ppq)
2,3,7,8-TCDF	0.1	-- ²	-- ²	-- ²	-- ²	10
1,2,3,7,8-PeCDF	0.03	-- ²	-- ²	-- ²	-- ²	50
2,3,4,7,8-PeCDF	0.3	-- ²	-- ²	-- ²	-- ²	50
2,3,7,8-HxCDFs	0.1	-- ²	-- ²	-- ²	-- ²	50
2,3,4,7,8-HpCDFs	0.01	-- ²	-- ²	-- ²	-- ²	50
OCDD	0.0003	-- ²	-- ²	-- ²	-- ²	100
OCDF	0.0003	-- ²	-- ²	-- ²	-- ²	100
PCB 77	0.0001	-- ²	-- ²	-- ²	-- ²	500
PCB 81	0.0003	-- ²	-- ²	-- ²	-- ²	500
PCB 126	0.1	-- ²	-- ²	-- ²	-- ²	500
PCB 169	0.03	-- ²	-- ²	-- ²	-- ²	500
Total						

2. Pollutant present in receiving water (IE, intake water); treatment process will not increase pollutant concentration.

TABLE 13 (HAZARDOUS SUBSTANCES)

Complete Table 13 **is required** for all **external outfalls** as directed below. (Instructions, Pages 60-61)

Are there any pollutants listed in the instructions (pages 55-62) believed present in the discharge?

☐ Yes ☒ No

Are there pollutants listed in Item 1.c. of Technical Report 1.0 which are believed present in the discharge and have not been analytically quantified elsewhere in this application?

☐ Yes ☒ No

If **yes** to either Items a **or** b, complete Table 13 as instructed.

Table 13 for Outfall No.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

Pollutant	CASRN	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	Analytical Method

Pollutant	CASRN	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	Analytical Method

**INDUSTRIAL WASTEWATER PERMIT APPLICATION
WORKSHEET 3.0: LAND APPLICATION OF EFFLUENT**

This worksheet **is required** for all applications for a permit to disposal of wastewater by land application (i.e., TLAP)).

Item 1. Type of Disposal System (Instructions, Page 69)

Check the box next to the type of land disposal requested by this application:

- ☐ Irrigation
- ☐ Evaporation
- ☐ Evapotranspiration beds
- ☐ Drip irrigation system
- ☐ Subsurface application
- ☐ Subsurface soils absorption
- ☐ Surface application
- ☐ Other, specify: [Click to enter text.](#)

Item 2. Land Application Area (Instructions, Page 69)

Land Application Area Information

Effluent Application (gallons/day)	Irrigation Acreage (acres)	Describe land use & indicate type(s) of crop(s)	Public Access? (Y/N)

Item 3. Annual Cropping Plan (Instructions, Page 69)

Attach the required cropping plan that includes each of the following:

- Cool and warm season plant species
- Breakdown of acreage and percent of total acreage for each crop
- Crop growing season
- Harvesting method/number of harvests
- Minimum/maximum harvest height
- Crop yield goals
- Soils map
- Nitrogen requirements per crop
- Additional fertilizer requirements

- Supplemental watering requirements
- Crop salt tolerances
- Justification for not removing existing vegetation to be irrigated

Attachment:

Item 4. Well and Map Information (Instructions, Page 70)

- a. Check each box to confirm the required information is shown and labeled on the attached USGS map:

- ☐ The exact boundaries of the land application area
- ☐ On-site buildings
- ☐ Waste-disposal or treatment facilities
- ☐ Effluent storage and tailwater control facilities
- ☐ Buffer zones
- ☐ All surface waters in the state onsite and within 500 feet of the property boundaries
- ☐ All water wells within ½-mile of the disposal site, wastewater ponds, or property boundaries
- ☐ All springs and seeps onsite and within 500 feet of the property boundaries

Attachment: [Click to enter text.](#)

- b. List and cross reference all water wells located on or within 500 feet of the disposal site, wastewater ponds, or property boundaries in the following table. Attach additional pages as necessary to include all of the wells.

Well and Map Information Table

Well ID	Well Use	Producing? Y/N/U	Open, cased, capped, or plugged?	Proposed Best Management Practice

Attachment: [Click to enter text.](#)

- c. Groundwater monitoring wells or lysimeters are/will be installed around the land application site or wastewater ponds.

- ☐ Yes ☐ No

If **yes**, provide the existing/proposed location of the monitoring wells or lysimeters on the site map attached for Item 4.a. Additionally, attach information on the depth of the wells or lysimeters, sampling schedule, and monitoring parameters for TCEQ review, possible modification, and approval.

Attachment: [Click to enter text.](#)

- d. Attach a short groundwater technical report using *30 TAC § 309.20(a)(4)* as guidance.
Attachment:

Item 5. Soil Map and Soil Information (Instructions, Page 71)

Check each box to confirm that the following information is attached:

- a. ☐ USDA NRCS Soil Survey Map depicting the area to be used for land application with the locations identified by fields and crops.
- b. ☐ Breakdown of acreage and percent of total acreage for each soil type.
- c. ☐ Copies of laboratory soil analyses. Attachment: [Click to enter text.](#)

Item 6. Effluent Monitoring Data (Instructions, Page 72)

- a. Completion of Table 14 **is required** for all **renewal** and **major amendment** applications. Complete the table with monitoring data for the previous two years for all parameters regulated in the current permit. An additional table has been provided with blank headers for parameters regulated in the current permit which are not listed in Table 14.

Table 14 for Outfall No.: [Click to enter text.](#)

Samples are (check one): ☐ Composite ☐ Grab

Date (mo/yr)	Daily Avg Flow (gpd)	BOD5 (mg/L)	TSS (mg/L)	Nitrogen (mg/L)	Conductivity (mmhos/cm)	Total acres irrigated	Hydraulic Application rate (acre-feet/month)

Date (mo/yr)							

- c. Attach an explanation of all persistent excursions to permitted parameters and corrective actions taken. **Attachment:** [Click to enter text.](#)

Item 7. Pollutant Analysis (Instructions, Page 72)

- a. Provide the date range of all sampling events conducted to obtain the analytical data submitted with this application (e.g., 05/01/2018-05/30/2018): [Click to enter text.](#)
- b. ☐ Check the box to confirm all samples were collected no more than 12 months prior to the date of application submittal.
- c. Complete Tables 15 and 16.

Table 15 for Outfall No.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)
BOD (5-day)				
CBOD (5-day)				
Chemical oxygen demand				
Total organic carbon				
Dissolved oxygen				
Ammonia nitrogen				
Total suspended solids				
Nitrate nitrogen				
Total organic nitrogen				
Total phosphorus				
Oil and grease				
Total residual chlorine				
Total dissolved solids				
Sulfate				
Chloride				
Fluoride				
Total alkalinity (mg/L as CaCO ₃)				
Temperature (°F)				
pH (standard units)				

Table 16 for Outfall No.: [Click to enter text.](#)

Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	MAL (µg/L)
Aluminum, total					2.5
Antimony, total					5
Arsenic, total					0.5
Barium, total					3
Beryllium, total					0.5
Cadmium, total					1
Chromium, total					3
Chromium, hexavalent					3
Chromium, trivalent					N/A
Copper, total					2
Cyanide, available					2/10
Lead, total					0.5
Mercury, total					0.005/0.0005
Nickel, total					2
Selenium, total					5
Silver, total					0.5
Thallium, total					0.5
Zinc, total					5.0

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 3.1: SURFACE LAND APPLICATION AND APPLICATION

This worksheet **is required** for all applications for a permit to disposal of wastewater by surface land application or evaporation.

Item 1. Edwards Aquifer (Instructions, Page 73)

a. Is the facility subject to *30 TAC Chapter 213*, Edwards Aquifer Rules?

☐ Yes ☐ No

If **no**, proceed to Item 2. If **yes**, complete Items 1.b and 1.c.

b. Check the box next to the subchapter applicable to the facility.

☐ 30 TAC Chapter 213, Subchapter A
☐ 30 TAC Chapter 213, Subchapter B

c. If *30 TAC Chapter 213, Subchapter A* applies, attach **either**: 1) a Geologic Assessment (if conducted in accordance with *30 TAC § 213.5*) **or** 2) a report that contains the following:

- A description of the surface geological units within the proposed land application site and wastewater pond area.
- The location and extent of any sensitive recharge features in the land application site and wastewater pond area
- A list of any proposed BMPs to protect the recharge features.

Attachment: [Click to enter text.](#)

Item 2. Surface Spray/Irrigation (Instructions, Page 73)

a. Provide the following information on the irrigation operations:

Area under irrigation (acres): [Click to enter text.](#)

Design application rate (acre-ft/acre/yr): [Click to enter text.](#)

Design application frequency (hours/day): [Click to enter text.](#)

Design application frequency (days/week): [Click to enter text.](#)

Design total nitrogen loading rate (lbs nitrogen/acre/year): [Click to enter text.](#)

Average slope of the application area (percent): [Click to enter text.](#)

Maximum slope of the application area (percent): [Click to enter text.](#)

Irrigation efficiency (percent): [Click to enter text.](#)

Effluent conductivity (mmhos/cm): [Click to enter text.](#)

Soil conductivity (mmhos/cm): [Click to enter text.](#)

Curve number: [Click to enter text.](#)

Describe the application method and equipment: [Click to enter text.](#)

- b. Attach a detailed engineering report which includes a water balance, storage volume calculations, and a nitrogen balance. **Attachment:** [Click to enter text.](#)

Item 3. Evaporation Ponds (Instructions, Page 74)

- a. Daily average effluent flow into ponds: [Click to enter text.](#) gallons per day
- b. Attach a separate engineering report of evaporation calculations for average long-term and worst-case critical conditions. **Attachment:** [Click to enter text.](#)

Item 4. Evapotranspiration Beds (Instructions, Page 74)

- a. Provide the following information on the evapotranspiration beds:
- Number of beds: [Click to enter text.](#)
- Area of bed(s) (acres): [Click to enter text.](#)
- Depth of bed(s) (feet): [Click to enter text.](#)
- Void ratio of soil in the beds: [Click to enter text.](#)
- Storage volume within the beds (include units): [Click to enter text.](#)
- Description of any lining to protect groundwater: [Click to enter text.](#)
- b. Attach a certification by a licensed Texas professional engineer that the liner meets TCEQ requirements. **Attachment:** [Click to enter text.](#)
- c. Attach a separate engineering report with water balance, storage volume calculations, and description of the liner. **Attachment:** [Click to enter text.](#)

Item 5. Overland Flow (Instructions, Page 74)

- a. Provide the following information on the overland flow:
- Area used for application (acres): [Click to enter text.](#)
- Slopes for application area (percent): [Click to enter text.](#)
- Design application rate (gpm/foot of slope width): [Click to enter text.](#)
- Slope length (feet): [Click to enter text.](#)
- Design BOD5 loading rate (lbs BOD5/acre/day): [Click to enter text.](#)
- Design application frequency (hours/day): [Click to enter text.](#)
- Design application frequency (days/week): [Click to enter text.](#)
- b. Attach a separate engineering report with the method of application and design requirements according to 30 TAC § 217.212. **Attachment:** [Click to enter text.](#)

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 3.2: SUBSURFACE IRRIGATION (NON-DRIP)

This worksheet **is required** for all applications for a permit to disposal of wastewater by subsurface land application.

- ☐ Check the box to confirm the Class V Injection Well Inventory/Authorization Form (Worksheet 9.0) has been submitted to the TCEQ UIC Permits Team as directed.

Item 1. Edwards Aquifer (Instructions, Page 75)

- a. The subsurface system is/will be located on the Edwards Aquifer Recharge Zone, as mapped by TCEQ?
- ☐ Yes ☐ No
- b. The subsurface system is/will be located on the Edwards Aquifer Transition Zone, as mapped by TCEQ?
- ☐ Yes ☐ No

If **yes** to Item 1.a **or** 1.b, the subsurface system may be prohibited by *30 TAC § 213.8*. Contact the Water Quality Assessment Section at (512) 239-4671 for a preapplication meeting.

Item 2. Subsurface Application (Instructions, Page 75)

- a. Check the box next to the type of subsurface land disposal system requested:
- ☐ Conventional drainfield, beds, or trenches
- ☐ Low pressure dosing
- ☐ Other: [Click to enter text.](#)
- b. Provide the following information on the irrigation operations:
- Application area (acres): [Click to enter text.](#)
- Area of drainfield (square feet): [Click to enter text.](#)
- Application rate (gal/square ft/day): [Click to enter text.](#)
- Depth to groundwater (feet): [Click to enter text.](#)
- Area of trench (square feet): [Click to enter text.](#)
- Dosing duration per area (hours): [Click to enter text.](#)
- Number of beds: [Click to enter text.](#)
- Dosing amount per area (inches/day): [Click to enter text.](#)
- Soil infiltration rate (inches/hour): [Click to enter text.](#)
- Storage volume (gallons): [Click to enter text.](#)
- Area of bed(s) (square feet): [Click to enter text.](#)
- Soil classification: [Click to enter text.](#)
- c. Attach a separate engineering report using *30 TAC § 309.20, Subchapter C, Land Disposal of Sewage Effluent* as guidance, excluding items b(3)(A) and b(3)(B). Include a description of the schedule of dosing basin rotation. **Attachment:** [Click to enter text.](#)

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 3.3: SUBSURFACE AREA DRIP DISPERSAL SYSTEMS

This worksheet **is required** for all applications for a permit to dispose of wastewater using a subsurface area drip dispersal system (SADDS).

- ☐ Check the box to confirm the Class V Injection Well Inventory/Authorization Form (Worksheet 9.0) has been submitted to the TCEQ UIC Permits Team as directed.

Item 1. Edwards Aquifer (Instructions, Page 76)

- a. The subsurface system is/will be located on the Edwards Aquifer Recharge Zone, as mapped by TCEQ?
- ☐ Yes ☐ No
- b. The subsurface system is/will be located on the Edwards Aquifer Transition Zone, as mapped by TCEQ?
- ☐ Yes ☐ No

If **yes** to Item 1.a **or** 1.b, the subsurface system may be prohibited by *30 TAC § 213.8*. Contact the Water Quality Assessment Section at (512) 239-4671 for a preapplication meeting.

Item 2. Administrative Information (Instructions, Page 76)

- a. Provide the legal name of all corporations or other business entities managed, owned, or otherwise closely related to the owner of the treatment facility: [Click to enter text.](#)
- b. The owner of the land where the WWTF is/will be located is the same as the owner of the WWTF.
- ☐ Yes ☐ No

If **no**, provide the legal name of all corporations or other business entities managed, owned, or otherwise closely related to the owner of the land where the WWTF is/will be located: [Click to enter text.](#)

- c. Provide the legal name of the owner of the SADDS: [Click to enter text.](#)
- d. The owner of the SADDS is the same as the owner of the WWTF or the site where the WWTF is/will be located.
- ☐ Yes ☐ No

If **no**, identify the legal name of all corporations or other business entities managed, owned, or otherwise closely related to the entity identified in Item 1.c: [Click to enter text.](#)

- e. Provide the legal name of the owner of the land where the SADDS is located: [Click to enter text.](#)

- f. The owner of the land where the SADDs is/will be located is the same as owner of the WWTF, the site where the WWTF is located, or the owner of the SADDs.

☐ Yes ☐ No

If **no**, provide the legal name of all corporations or other business entities managed, owned, or otherwise closely related to the entity identified in item 1.e: [Click to enter text.](#)

Item 3. SADDs (Instructions, Page 77)

- a. Check the box next to the type SADDs requested by this application:

☐ Subsurface drip/trickle irrigation
☐ Surface drip irrigation
☐ Other: [Click to enter text.](#)

- b. Attach a description of the SADDs proposed/used by the facility (see instructions for guidance). **Attachment:** [Click to enter text.](#)

- c. Provide the following information on the SADDs:

Application area (acres): [Click to enter text.](#)

Soil infiltration rate (inches/hour): [Click to enter text.](#)

Average slope of the application area: [Click to enter text.](#)

Maximum slope of the application area: [Click to enter text.](#)

Storage volume (gallons): [Click to enter text.](#)

Major soil series: [Click to enter text.](#)

Depth to groundwater (feet): [Click to enter text.](#)

Effluent conductivity (mmhos/cm): [Click to enter text.](#)

- d. The facility is/will be located west of the boundary shown in 30 TAC § 222.83 **and** using a vegetative cover of non-native grasses over seeded with cool-season grasses.

☐ Yes ☐ No

If **yes**, the facility may propose a hydraulic application rate up to, but not to exceed, 0.1 gal/ft²/day.

- e. The facility is/will be located east of the boundary shown in 30 TAC § 222.83 **or** is the facility proposing any crop other than non-native grasses.

☐ Yes ☐ No

If **yes**, the facility must use the formula in 30 TAC § 222.83 to calculate the maximum hydraulic application rate.

- f. The facility has or plans to submit an alternative method to calculate the hydraulic application rate for approval by the ED.

☐ Yes ☐ No

If **yes**, provide the following information on the hydraulic application rates:

- Hydraulic application rate (gal/square foot/day): [Click to enter text.](#)
- Nitrogen application rate (gal/square foot/day): [Click to enter text.](#)

g. Provide the following dosing information:

Number of doses per day: [Click to enter text.](#)

Dosing duration per area (hours): [Click to enter text.](#)

Rest period between doses (hours): [Click to enter text.](#)

Dosing amount per area (inches/day): [Click to enter text.](#)

Number of zones: [Click to enter text.](#)

h. The system is/will be a surface drip irrigation system using existing native vegetation as a crop?

☐ Yes ☐ No

If **yes**, attach the following information:

- A vegetation survey by a certified arborist describing the percent canopy cover and relative percentage of major overstory and understory plant species.

Attachment: [Click to enter text.](#)

- Attach a separate engineering report using *30 TAC § 309.20, Subchapter C, Land Disposal of Sewage Effluent* as guidance, excluding items b(3)(A) and b(3)(B). Include a description of the schedule of dosing basin rotation.

Attachment: [Click to enter text.](#)

Item 4. Required Plans (Instructions, Page 78)

a. Attach a Soil Evaluation with all information required in *30 TAC § 222.73*.

Attachment: [Click to enter text.](#)

b. Attach a Site Preparation Plan with all information required in *30 TAC § 222.75*.

Attachment: [Click to enter text.](#)

c. Attach a Recharge Feature Plan with all information required in *30 TAC § 222.79*.

Attachment: [Click to enter text.](#)

d. Provide soil sampling and testing with all information required in *30 TAC § 222.157*.

Attachment: [Click to enter text.](#)

Item 5. Flood and Run-On Protection (Instructions, Page 79)

a. Is the existing/proposed SADDs located within the 100-year frequency flood level?

☐ Yes ☐ No

Source: [Click to enter text.](#)

If **yes**, describe how the site will be protected from inundation: [Click to enter text.](#)

b. Is the existing/proposed SADDs within a designated floodway?

☐ Yes ☐ No

If **yes**, attach either the FEMA flood map or alternate information used to make this determination. **Attachment:** [Click to enter text.](#)

Item 6. Surface Waters in The State (Instructions, Page 79)

a. Attach a buffer map which shows the appropriate buffers on surface waters in the state, water wells, and springs/seeps. **Attachment:** [Click to enter text.](#)

b. The facility has or plans to request a buffer variance from water wells or waters in the state?

☐ Yes ☐ No

If **yes**, attach the additional information required in *30 TAC § 222.81(c)*. **Attachment:** [Click to enter text.](#)

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: [Click to enter text.](#)
2. The distance and direction from the outfall to the drinking water supply intake: [Click to enter text.](#)

- 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: 3,100 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: 18,800 feet west-northwest

- 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: Approximately 1,250 feet west of outfall

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.

Item 4. Description of Immediate Receiving Waters (Instructions, Page 80)

- a. Name of the immediate receiving waters: [Click to enter text.](#)
- b. Check the appropriate description of the immediate receiving waters:
- ☐ Lake or Pond
 - Surface area (acres): [Click to enter text.](#)
 - Average depth of the entire water body (feet): [Click to enter text.](#)
 - Average depth of water body within a 500-foot radius of the discharge point (feet): [Click to enter text.](#)
 - ☐ Man-Made Channel or Ditch
 - ☐ Stream or Creek
 - ☐ Freshwater Swamp or Marsh
 - ☐ Tidal Stream, Bayou, or Marsh
 - ☐ Open Bay
 - ☐ Other, specify:

If **Man-Made Channel or Ditch** or **Stream or Creek** were selected above, provide responses to Items 4.c – 4.g below:

- c. For **existing discharges**, check the description below that best characterizes the area **upstream** of the discharge.

For **new discharges**, check the description below that best characterizes the area **downstream** of the discharge.

- ☐ Intermittent (dry for at least one week during most years)
- ☐ Intermittent with Perennial Pools (enduring pools containing habitat to maintain aquatic life uses)
- ☐ Perennial (normally flowing)

Check the source(s) of the information used to characterize the area upstream (existing discharge) or downstream (new discharge):

- ☐ USGS flow records
- ☐ personal observation
- ☐ historical observation by adjacent landowner(s)
- ☐ other, specify: [Click to enter text.](#)

- d. List the names of all perennial streams that join the receiving water within three miles downstream of the discharge point: [Click to enter text.](#)
- e. The receiving water characteristics change within three miles downstream of the discharge (e.g., natural or man-made dams, ponds, reservoirs, etc.).
- ☐ Yes ☐ No

If **yes**, describe how: [Click to enter text.](#)

- f. General observations of the water body during normal dry weather conditions: [Click to enter text.](#)

Date and time of observation: [Click to enter text.](#)

- g. The water body was influenced by stormwater runoff during observations.

☐ Yes ☐ No

If **yes**, describe how: [Click to enter text.](#)

Item 5. General Characteristics of Water Body (Instructions, Page 81)

- a. Is the receiving water upstream of the existing discharge or proposed discharge site influenced by any of the following (check all that apply):

☐ oil field activities	☐ urban runoff
☐ agricultural runoff	☐ septic tanks
☐ upstream discharges	☐ other, specify: Click to enter text.

- b. Uses of water body observed or evidence of such uses (check all that apply):

☐ livestock watering	☐ industrial water supply
☐ non-contact recreation	☐ irrigation withdrawal
☐ domestic water supply	☐ navigation
☐ contact recreation	☐ picnic/park activities
☐ fishing	☐ other, specify: Click to enter text.

- c. Description which best describes the aesthetics of the receiving water and the surrounding area (check only one):

☐ **Wilderness:** outstanding natural beauty; usually wooded or un-pastured area: water clarity exceptional

☐ **Natural Area:** trees or native vegetation common; some development evident (from fields, pastures, dwellings); water clarity discolored

☐ **Common Setting:** not offensive, developed but uncluttered; water may be colored or turbid

☐ **Offensive:** stream does not enhance aesthetics; cluttered; highly developed; dumping areas; water discolored

N/A - No discharge to a stream

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 4.1: WATERBODY PHYSICAL CHARACTERISTICS

The following information **is required** for new applications, EPA-designated Major facilities, and major amendment applications requesting to add an outfall if the receiving waters are perennial or intermittent with perennial pools (including impoundments) for a TDPES permit.

Complete the transects downstream of the existing or proposed discharges.

Item 1. Data Collection (Instructions, Page 82)

- a. Date of study: [Click to enter text.](#) Time of study: [Click to enter text.](#)
Waterbody name: [Click to enter text.](#)
General location: [Click to enter text.](#)
- b. Type of stream upstream of an existing discharge or downstream of a proposed discharge (check only one):
☐ perennial ☐ intermittent with perennial pools ☐ impoundment
- c. No. of defined stream bends:
Well: [Click to enter text.](#) Moderately: [Click to enter text.](#) Poorly: [Click to enter text.](#)
- d. No. of riffles: [Click to enter text.](#)
- e. Evidence of flow fluctuations (check one):
☐ Minor ☐ Moderate ☐ Severe
- f. Provide the observed stream uses and where there is evidence of channel obstructions/modifications: [Click to enter text.](#)
- g. Complete the following table with information regarding the transect measurements.

Stream Transect Data

Transect Location	Habitat Type*	Water Surface Width (ft)	Stream Depths (ft)**								

* riffle, run, glide, or pool

** channel bed to water surface

Item 2. Summarize Measurements (Instructions, Page 83)

Provide the following information regarding the transect measurements:

Streambed slope of entire reach (from USGS map in ft. /ft.): [Click to enter text.](#)

Approximate drainage area above the most downstream transect from USGS map or county highway map (square miles): [Click to enter text.](#)

Length of stream evaluated (ft): [Click to enter text.](#)

Number of lateral transects made: [Click to enter text.](#)

Average stream width (ft): [Click to enter text.](#)

Average stream depth (ft): [Click to enter text.](#)

Average stream velocity (ft/sec): [Click to enter text.](#)

Instantaneous stream flow (ft³/sec): [Click to enter text.](#)

Indicate flow measurement method (VERY IMPORTANT – type of meter, floating chip timed over a fixed distance, etc.): [Click to enter text.](#)

Flow fluctuations (i.e., minor, moderate, or severe): [Click to enter text.](#)

Size of pools (i.e., large, small, moderate, or none): [Click to enter text.](#)

Maximum pool depth (ft): [Click to enter text.](#)

Total number of stream bends: [Click to enter text.](#)

Number well defined: [Click to enter text.](#)

Number moderately defined: [Click to enter text.](#)

Number poorly defined: [Click to enter text.](#)

Total number of riffles: [Click to enter text.](#)

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 5.0: SEWAGE SLUDGE MANAGEMENT AND DISPOSAL

The following information **is required** for all TPDES permit applications that meet the conditions as outlined in Technical Report 1.0, Item 7.

Item 1. Sewage Sludge Solids Management Plan (Instructions, Page 84)

a. Is this a new permit application or an amendment permit application?

☐ Yes ☐ No

b. Does or will the facility discharge in the Lake Houston watershed?

☐ Yes ☐ No

If **yes** to either Item 1.a or 1.b, attach a solids management plan. **Attachment:** [Click to enter text.](#)

Item 2. Sewage Sludge Management and Disposal (Instructions, Page 84)

a. Check the box next to the sludge disposal method(s) authorized under the facility's existing permit (check all that apply).

- ☐ Permitted landfill
- ☐ Marketing and distribution by the permittee, attach Form TCEQ-00551
- ☐ Registered land application site, attach Form TCEQ-00565
- ☐ Processed by the permittee, attach Form TCEQ-00744
- ☐ Surface disposal site (sludge monofill), attach Form TCEQ-00744
- ☐ Transported to another WWTP
- ☐ Beneficial land application, attach Form TCEQ-10451
- ☐ Incineration, attach Form TCEQ-00744

Based on the selection(s) made above, complete and attach the required TCEQ forms as directed. Failure to submit the required TCEQ form will result in delays in processing the application

Attachment: [Click to enter text.](#)

b. Provide the following information for each disposal site:

Disposal site name: [Click to enter text.](#)

TCEQ Permit/Registration Number: [Click to enter text.](#)

County where disposal site is located: [Click to enter text.](#)

c. Method of sewage sludge transportation:

☐ truck ☐ train ☐ pipe ☐ other: [Click to enter text.](#)

TCEQ Hauler Registration Number: [Click to enter text.](#)

d. Sludge is transported as a:

☐ liquid ☐ semi-liquid ☐ semi-solid ☐ solid

e. Purpose of land application: ☐ reclamation ☐ soil conditioning ☐ N/A

f. If sewage sludge is transported to another WWTP for treatment, attach a written statement or copy of contractual agreements confirming that the WWTP identified above will accept and be responsible for the sludge from this facility for the life of the permit (at least 5 years).

Attachment: [Click to enter text.](#)

Item 3. Authorization for Sewage Sludge Disposal (Instructions, Page 85)

If this is a new or major amendment application which requests authorization of a new sewage sludge disposal method, check the new sewage disposal method(s) requested for authorization (check all that apply):

- ☐ Marketing and distribution by the permittee, attach Form TCEQ-00551
- ☐ Processed by the permittee, attach Form TCEQ-00744
- ☐ Surface disposal site (sludge monofill), attach Form TCEQ-00744
- ☐ Beneficial land application, attach Form TCEQ-10451
- ☐ Incineration, attach Form TCEQ-00744

Based on the selection(s) made above, complete and attach any required TCEQ forms, as directed. Failure to submit the required TCEQ form will result in delays in processing the application.

Attachment: [Click to enter text.](#)

NOTE: New authorization for beneficial land application, incineration, processing, or disposal in the TPDES permit or TLAP **requires a major amendment to the permit.** New authorization for composting may require a major amendment to the permit. See the instructions to determine if a major amendment is required or if authorization for composting can be added through the renewal process.

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 6.0: INDUSTRIAL WASTE CONTRIBUTION

The following information is **required** for all applications for publicly-owned treatment works (POTWs).

For an explanation of the terms used in this worksheet, refer to the General Definitions on pages 4-12 and the Definitions Relating to Pretreatment on pages 13-14 of the Instructions.

Item 1. All POTWs (Instructions, Page 86)

- a. Complete the following table with the number of each type of industrial users (IUs) that discharge to the POTW and the daily average flows from each.

Industrial User Information

Type of Industrial User	Number of Industrial Users	Daily Average Flow (gallons per day)
CIU		
SIU - Non-categorical		
Other IU		

- b. In the past three years, has the POTW experienced treatment plant interference?

☐ Yes ☐ No

If **yes**, identify the date(s), duration, nature of interference, and probable cause(s) and possible source(s) of each interference event. Include the names of the IU(s) that may have caused the interference: [Click to enter text.](#)

- c. In the past three years, has the POTW experienced pass-through?

☐ Yes ☐ No

If **yes**, identify the date(s), duration, pollutants passing through the treatment plant, and probable cause(s) and possible source(s) of each pass-through event. Include the names of the IU(s) that may have caused the pass-through: [Click to enter text.](#)

- d. Does the POTW have, or is it required to develop, an approved pretreatment program?

☐ Yes ☐ No

If **yes**, answer all questions in Item 2 and skip Item 3.

If **no**, skip Item 2 and answer all questions in Item 3 for each SIU and CIU.

Item 2. POTWs With Approved Pretreatment Programs or Those Required To Develop A Pretreatment Program (Instructions, Page 86)

- a. Have there been any substantial modifications to the POTW's approved pretreatment program that have not been submitted to the Approval Authority (TCEQ) for approval according to 40 CFR § 403.18?

☐ Yes ☐ No

If **yes**, include an attachment which identifies all substantial modifications that have not been submitted to the TCEQ and the purpose of the modifications.

Attachment: [Click to enter text.](#)

- b. Have there been any non-substantial modifications to the POTW's approved pretreatment program that have not been submitted to the Approval Authority (TCEQ)?

☐ Yes ☐ No

If **yes**, include an attachment which identifies all non-substantial modifications that have not been submitted to the TCEQ and the purpose of the modification.

Attachment: [Click to enter text.](#)

- c. List all parameters measured above the MAL in the POTW's effluent monitoring during the last three years:

Effluent Parameters Measured Above the MAL

Pollutant	Concentration	MAL	Units	Date

Attachment: [Click to enter text.](#)

- d. Has any SIU, CIU, or other IU caused or contributed to any other problems (excluding interference or pass-through) at the POTW in the past three years?

☐ Yes ☐ No

If **yes**, provide a description of each episode, including date(s), duration, description of problems, and probable pollutants. Include the name(s) of the SIU(s)/CIU(s)/other IU(s) that may have caused or contributed to any of the problems: [Click to enter text.](#)

Item 3. Significant Industrial User and Categorical Industrial User Information (Instructions, Pages 88-87)

POTWs that **do not** have an approved pretreatment program **are required** to provide the following information for each SIU and CIU:

- a. Mr. or Ms.: [Click to enter text.](#) First/Last Name: [Click to enter text.](#)

Organization Name: [Click to enter text.](#)

SIC Code: [Click to enter text.](#)

Phone number: [Click to enter text.](#)

Email address: [Click to enter text.](#)

Physical Address: [Click to enter text.](#)

City/State/ZIP Code: [Click to enter text.](#)

Attachment: [Click to enter text.](#)

- b. Describe the industrial processes or other activities that affect or contribute to the SIU(s) or CIU(s) discharge (e.g., process and non-process wastewater): [Click to enter text.](#)

c. Provide a description of the principal products(s) or service(s) performed: [Click to enter text.](#)

d. Flow rate information

Flow Rate Information

Effluent Type	Discharge Day (gallons per day)	Discharge Frequency (Continuous, batch, or intermittent)
Process Wastewater		
Non-process Wastewater		

e. Pretreatment Standards

1. Is the SIU or CIU subject to technology-based local limits as defined in the application instructions?

☐ Yes ☐ No

2. Is the SIU subject to categorical pretreatment standards?

☐ Yes ☐ No

If **yes**, provide the category and subcategory or subcategories in the SIUs Subject To Categorical Pretreatment Standards table.

SIUs Subject to Categorical Pretreatment Standards

Category in 40 CFR	Subcategory in 40 CFR	Subcategory in 40 CFR	Subcategory in 40 CFR	Subcategory in 40 CFR

f. Has the SIU or CIU caused or contributed to any problem(s) (e.g., interferences, pass through, odors, corrosion, blockages) at the POTW in the past three years?

☐ Yes ☐ No

If **yes**, provide a description of each episode, including dates, duration, description of problems, and probable pollutants, and include the name(s) of the SIU(s)/CIU(s) that may have caused or contributed to the problem(s): [Click to enter text.](#)

INDUSTRIAL WASTEWATER PERMIT APPLICATION

WORKSHEET 7.0: STORMWATER DISCHARGES ASSOCIATED WITH INDUSTRIAL ACTIVITIES

This worksheet **is required** for all TPDES permit applications requesting individual permit coverage for discharges consisting of **either**: 1) solely of stormwater discharges associated with industrial activities, as defined in *40 CFR § 122.26(b)(14)(i-xi)*, **or** 2) stormwater discharges associated with industrial activities and any of the listed allowable non-stormwater discharges, as defined in the MSGP (TXR05000), Part II, Section A, Item 6.

Discharges of stormwater as defined in *40 CFR § 122.26 (b)(13)* are not required to obtain authorization under a TPDES permit (see exceptions at *40 CFR §§ 122.26(a)(1)* and *(9)*). Authorization for discharge may be required from a local municipal separate storm sewer system.

Item 1. Applicability (Instructions, Page 89)

Do discharges from any of the existing/proposed outfalls consist either 1) solely of stormwater discharges associated with industrial activities **or** 2) stormwater discharges associated with industrial activities and any of the allowable non-stormwater discharges?

☒ Yes ☐ No

If **no**, stop here. If **yes**, proceed as directed.

Item 2. Stormwater Coverage (Instructions, Page 89)

List each existing/proposed stormwater outfall at the facility and indicate which type of authorization covers or is proposed to cover discharges.

Authorization Coverage

Outfall	Authorization under MSGP	Authorized Under Individual Permit
D-001	☐	☒ Industrial wastewater and stormwater
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

If **all** existing/proposed outfalls which discharge stormwater associated with industrial activities (and any of the allowable non-stormwater discharges) are **authorized under the MSGP**, **stop** here.

If **seeking authorization** for any outfalls which discharge stormwater associated with industrial activities (and any of the allowable non-stormwater discharges) **under an individual permit**, **proceed**.

NOTE: The following information is required for each existing/proposed stormwater outfall for which the facility is seeking individual permit authorization under this application

Item 3. Site Map (Instructions, Page 90)

Attach a site map or maps (drawn to scale) of the entire facility with the following information.

- the location of each stormwater outfall to be covered by the permit
- an outline of the drainage area that is within the facility's boundary and that contributes stormwater to each outfall to be covered by the permit
- connections or discharge points to municipal separate storm sewer systems
- locations of all structures (e.g. buildings, garages, storage tanks)
- structural control devices that are designed to reduce pollution in discharges of stormwater associated with industrial activities
- process wastewater treatment units (including ponds)
- bag house and other air treatment units exposed to stormwater (stormwater runoff, snow melt runoff, and surface runoff and drainage)
- landfills; scrapyards; surface water bodies (including wetlands)
- vehicle and equipment maintenance areas
- physical features of the site that may influence discharges of stormwater associated with industrial activities or contribute a dry weather flow
- locations where spills or leaks of reportable quality (as defined in 30 TAC § 327.4) have occurred during the three years before this application was submitted to obtain coverage under an individual permit
- processing areas, storage areas, material loading/unloading areas, and other locations where significant materials are exposed to stormwater (stormwater runoff, snow melt runoff, and surface runoff and drainage)

☒ Check the box to confirm all above information was provided on the facility site map(s).

Attachment: [5 Figures 6, 6a, and 6b](#)

Item 4. Facility/Site Information (Instructions, Page 90)

- a. Provide the area of impervious surface and the total area drained by each stormwater outfall requested for authorization by this permit application.

Impervious Surfaces

Outfall	Area of Impervious Surface (include units)	Total Area Drained (include units)
D-001	26.5 acres	26.5

- b. Provide the following local area rainfall information and the source of the information.

Wettest month: September

Average rainfall for wettest month (total inches): Approximately 5.33

25-year, 24-hour rainfall (inches): 9.99

Source: NOAA's National Weather Service –Precipitation Frequency Data Server (NOAA Atlas 14 Volume 11 Climate Regions)

- c. Attach an inventory, or list, of materials currently handled at the facility that may be exposed to precipitation. **Attachment:** N/A; no current operations
- d. Attach narrative descriptions of the industrial processes and activities involving the materials in the above-listed inventory that occur outdoors or in some manner that may result in exposure of the materials to precipitation or runoff (see instructions for guidance). **Attachment:** N/A; no current operations
- e. Describe any BMPs and controls the facility uses/proposes to prevent or effectively reduce pollution in stormwater discharges from the facility: Detention Pond

Item 5. Pollutant Analysis (Instructions, Page 91)

- a. Provide the date range of all sampling events conducted to obtain the analytical data submitted with this application (e.g., 05/01/2018-05/30/2018): N/A
- b. ☐ Check the box to confirm all samples were collected no more than 12 months prior to the date of application submittal.
- c. Complete Table 17 as directed on page 92 of the Instructions.

Table 17 for Outfall No.: N/A

Pollutant	Grab Sample* Maximum (mg/L)	Composite Sample** Maximum (mg/L)	Grab Sample* Average (mg/L)	Composite Sample** Average (mg/L)	Number of Storm Events Sampled	MAL (mg/L)
pH (standard units)	N/A	N/A	N/A	N/A	N/A	—
Total suspended solids	N/A	N/A	N/A	N/A	N/A	—
Chemical oxygen demand	N/A	N/A	N/A	N/A	N/A	—
Total organic carbon	N/A	N/A	N/A	N/A	N/A	—
Oil and grease	N/A	N/A	N/A	N/A	N/A	—
Arsenic, total	N/A	N/A	N/A	N/A	N/A	0.0005
Barium, total	N/A	N/A	N/A	N/A	N/A	0.003
Cadmium, total	N/A	N/A	N/A	N/A	N/A	0.001
Chromium, total	N/A	N/A	N/A	N/A	N/A	0.003
Chromium, trivalent	N/A	N/A	N/A	N/A	N/A	—
Chromium, hexavalent	N/A	N/A	N/A	N/A	N/A	0.003
Copper, total	N/A	N/A	N/A	N/A	N/A	0.002
Lead, total	N/A	N/A	N/A	N/A	N/A	0.0005

Pollutant	Grab Sample* Maximum (mg/L)	Composite Sample** Maximum (mg/L)	Grab Sample* Average (mg/L)	Composite Sample** Average (mg/L)	Number of Storm Events Sampled	MAL (mg/L)
Mercury, total	N/A	N/A	N/A	N/A	N/A	0.000005
Nickel, total	N/A	N/A	N/A	N/A	N/A	0.002
Selenium, total	N/A	N/A	N/A	N/A	N/A	0.005
Silver, total	N/A	N/A	N/A	N/A	N/A	0.0005
Zinc, total	N/A	N/A	N/A	N/A	N/A	0.005

* Taken during first 30 minutes of storm event

** Flow-weighted composite sample

d. Complete Table 18 as directed on pages 92-94 of the Instructions.

Table 18 for Outfall No.: N/A

Pollutant	Grab Sample* Maximum (mg/L)	Composite Sample** Maximum (mg/L)	Grab Sample* Average (mg/L)	Composite Sample** Average (mg/L)	Number of Storm Events Sampled
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A
N/A	N/A	N/A	N/A	N/A	N/A

* Taken during first 30 minutes of storm event

** Flow-weighted composite sample

Attachment: N/A

Item 6. Storm Event Data (Instructions, Page 93)

Provide the following data for the storm event(s) which resulted in the maximum values for the analytical data submitted:

Date of storm event: N/A

Duration of storm event (minutes): N/A

Total rainfall during storm event (inches): N/A

Number of hours the between beginning of the storm measured and the end of the previous measurable storm event (hours): N/A

Maximum flow rate during rain event (gallons/minute): N/A

Total stormwater flow from rain event (gallons): N/A

Provide a description of the method of flow measurement or estimate:

**INDUSTRIAL WASTEWATER PERMIT APPLICATION
WORKSHEET 8.0: AQUACULTURE**

This worksheet **is required** for all TPDES permit applications requesting individual permit coverage for discharges of aquaculture wastewater.

Item 1. Facility/Site Information (Instructions, Page 94)

- a. Complete the following table with information regarding production ponds, raceways, and fabricated tanks at the facility.

Production Pond Descriptions

Number of Ponds	Dimensions (include units)	Area of Each Pond (include units)	Number of Ponds x Area of Ponds (include Units)

Total surface area of all ponds: [Click to enter text.](#)

Raceway Descriptions

Number of Raceways	Dimensions (include units)

Fabricated Tank Descriptions

Number of Tanks	Dimensions (include units)

b. Does the facility have a TPWD-approved emergency plan?

☐ Yes ☐ No

If **yes**, attach a copy of the approved plan.

Attachment: [Click to enter text.](#)

c. Does the facility have an aquatic plant transplant authorization?

☐ Yes ☐ No

If **yes**, attach a copy of the authorization letter.

Attachment: [Click to enter text.](#)

d. Provide the number of aquaculture facilities located within 25-miles of this facility: [Click to enter text.](#)

Item 2. Species Identification (Instructions, Page 95)

Complete the following table regarding each species raised, source, origin, and disease status of the stock. Identify and attach copies of any current relevant authorizations or permits that authorize the species.

Stock Species Information

Species	Source of Stock	Origin of Stock	Disease Status	Authorizations

Attachment: [Click to enter text.](#)

Item 3. Stock Management Plan (Instructions, Page 95)

Attach a detailed stock management plan: [Click to enter text.](#)

Item 4. Water Treatment and Discharge Description (Instructions, Page 96)

Attach a detailed description of the discharge practices and water treatment process(es): [Click to enter text.](#)

Item 5. Solid Waste Management (Instructions, Page 96)

Attach a description of the solid waste-disposal practices: [Click to enter text.](#)

Item 6. Site Assessment Report (Instructions, Page 96)

All new and expanding commercial shrimp facilities located/to be located within the coastal zone must attach a detailed site assessment report which identifies sensitive aquatic habitats within the coastal zone: [Click to enter text.](#)

WORKSHEET 9.0

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

CLASS V INJECTION WELL INVENTORY/AUTHORIZATION FORM

Submit the completed form to:

TCEQ
IUC Permits Team
Radioactive Materials Division
MC-233
PO Box 13087
Austin, Texas 78711-3087
512-239-6466

For TCEQ Use Only

Reg. No. _____

Date Received _____

Date Authorized _____

Item 1. General Information (Instructions Page 99)

1. TCEQ Program Area

Program Area (PST, VCP, IHW, etc.): [Click to enter text.](#)

Program ID: [Click to enter text.](#)

Contact Name: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

2. Agent/Consultant Contact Information

Contact Name: [Click to enter text.](#)

Address: [Click to enter text.](#)

City, State, and Zip Code: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

3. Owner/Operator Contact Information

☐ Owner ☐ Operator

Owner/Operator Name: [Click to enter text.](#)

Contact Name: [Click to enter text.](#)

Address: [Click to enter text.](#)

City, State, and Zip Code: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

4. Facility Contact Information

Facility Name: [Click to enter text.](#)

Address: [Click to enter text.](#)

City, State, and Zip Code: [Click to enter text.](#)

Location description (if no address is available): [Click to enter text.](#)

Facility Contact Person: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

5. Latitude and Longitude, in degrees-minutes-seconds

Latitude: [Click to enter text.](#)

Longitude: [Click to enter text.](#)

Method of determination (GPS, TOPO, etc.): [Click to enter text.](#)

Attach topographic quadrangle map as attachment A.

6. Well Information

Type of Well Construction, select one:

- ☐ Vertical Injection
- ☐ Subsurface Fluid Distribution System
- ☐ Infiltration Gallery
- ☐ Temporary Injection Points
- ☐ Other, Specify: [Click to enter text.](#)

Number of Injection Wells: [Click to enter text.](#)

7. Purpose

Detailed Description regarding purpose of Injection System:

[Click to enter text.](#)

Attach a Site Map as Attachment B (Attach the Approved Remediation Plan, if appropriate.)

8. Water Well Driller/Installer

Water Well Driller/Installer Name: [Click to enter text.](#)

City, State, and Zip Code: [Click to enter text.](#)

Phone Number: [Click to enter text.](#)

License Number: [Click to enter text.](#)

Item 2. Proposed Down Hole Design

Attach a diagram signed and sealed by a licensed engineer as Attachment C.

Down Hole Design Table

Name of String	Size	Setting Depth	Sacks Cement/Grout – Slurry Volume – Top of Center	Hole Size	Weight (lbs/ft) PVC/Steel
Casing					
Tubing					
Screen					

Item 3. Proposed Trench System, Subsurface Fluid Distribution System, or Infiltration Gallery

Attach a diagram signed and sealed by a licensed engineer as Attachment D.

System(s) Dimensions: [Click to enter text.](#)

System(s) Construction: [Click to enter text.](#)

Item 4. Site Hydrogeological and Injection Zone Data

1. Name of Contaminated Aquifer: [Click to enter text.](#)

2. Receiving Formation Name of Injection Zone: [Click to enter text.](#)

3. Well/Trench Total Depth: [Click to enter text.](#)

4. Surface Elevation: [Click to enter text.](#)

5. Depth to Ground Water: [Click to enter text.](#)

6. Injection Zone Depth: [Click to enter text.](#)

7. Injection Zone vertically isolated geologically? ☐ Yes ☐ No

Impervious Strata between Injection Zone and nearest Underground Source of Drinking Water:

Name: [Click to enter text.](#)

Thickness: [Click to enter text.](#)

8. Attach a list of contaminants and the levels (ppm) in contaminated aquifer as Attachment E.

9. Attach the Horizontal and Vertical extent of contamination and injection plume as Attachment F.

10. Attach Formation (Injection Zone) Water Chemistry (Background levels) TDS, etc., as Attachment G.

11. Injection Fluid Chemistry in PPM at point of injection. Attach as Attachment H.

12. Lowest Known Depth of Ground Water with < 10,000 PPM TDS: [Click to enter text.](#)

13. Maximum injection Rate/Volume/Pressure: [Click to enter text.](#)

14. Water wells within 1/4 mile radius (attach map as Attachment I): [Click to enter text.](#)

15. Injection wells within 1/4 mile radius (attach map as Attachment J): [Click to enter text.](#)

16. Monitor wells within 1/4 mile radius (attach drillers logs and map as Attachment K): [Click to enter text.](#)

17. Sampling frequency: [Click to enter text.](#)

18. Known hazardous components in injection fluid: [Click to enter text.](#)

Item 5. Site History

1. Type of Facility: [Click to enter text.](#)
2. Contamination Dates: [Click to enter text.](#)
3. Original Contamination (VOCs, TPH, BTEX, etc.) and Concentrations. Attach as Attachment L.
4. Previous Remediation. Attach results of any previous remediation as Attachment M.

NOTE: Authorization Form should be completed in detail and authorization given by the TCEQ before construction, operation, and/or conversion can begin. Attach additional pages as necessary.

Item 6. CLASS V INJECTION WELL DESIGNATIONS

- 5A07 Heat Pump/AC return (IW used for groundwater to heat or cool buildings)
- 5A19 Industrial Cooling Water Return Flow (IW used to cool industrial process equipment)
- 5B22 Salt Water Intrusion Barrier (IW used to inject fluids to prevent the intrusion of salt water into an aquifer)
- 5D02 Stormwater Drainage (IW designed for the disposal of rain water)
- 5D04 Industrial Stormwater Drainage Wells (IW designed for the disposal of rain water associated with industrial facilities)
- 5F01 Agricultural Drainage (IW that receive agricultural runoff)
- 5R21 Aquifer Recharge (IW used to inject fluids to recharge an aquifer)
- 5S23 Subsidence Control Wells (IW used to control land subsidence caused by groundwater withdrawal)
- 5W09 Untreated Sewage
- 5W10 Large Capacity Cesspools (Cesspools that are designed for 5,000 gpd or greater)
- 5W11 Large Capacity Septic systems (Septic systems designed for 5,000 gpd or greater)
- 5W12 WTPP disposal
- 5W20 Industrial Process Waste-disposal Wells
- 5W31 Septic System (Well Disposal method)
- 5W32 Septic System Drainfield Disposal
- 5X13 Mine Backfill (IW used to control subsidence, dispose of mining byproducts, or fill sections of a mine)
- 5X25 Experimental Wells (Pilot Test) (IW used to test new technologies or tracer dye studies)
- 5X26 Aquifer Remediation (IW used to clean up, treat, or prevent contamination of a USDW)
- 5X27 Other Wells
- 5X28 Motor Vehicle Waste-disposal Wells (IW used to dispose of waste from a motor vehicle site - These are currently banned)
- 5X29 Abandoned Drinking Water Wells (waste disposal)

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 10.0: QUARRIES IN THE JOHN GRAVES SCENIC RIVERWAY

This worksheet **is required** for all applications for individual permits for a municipal solid waste facility or mining facility located within a Water Quality Protection Area in the John Graves Scenic Riverway. **Note: Review 30 TAC §§ 311.71-311.82 thoroughly prior to completing any portion of this worksheet.**

Item 1. Exclusions (Instructions, Page 100)

- a. Is this a municipal solid waste facility?
☐ Yes ☐ No
- b. Has this quarry been in operation since January 1, 1994 without cessation of operation for more than 30 consecutive days and under the same ownership?
☐ Yes ☐ No
- c. Is this a coal mine?
☐ Yes ☐ No
- d. Is this facility mining clay and/or shale for use in manufacturing structural clay products?
☐ Yes ☐ No

If **yes** to **any** above question, **stop here**. The facility is required to maintain documentation, as outlined in 30 TAC § 311.72(c), at the facility to demonstrate the exclusion(s).

Item 2. Location of the Quarry (Instructions, Page 101)

Check the box next to the distance between the quarry and the nearest navigable water body:

- ☐ < 200 feet ☐ 200 feet – 1,500 feet ☐ 1,500 feet – 1 mile ☐ > 1 mile

NOTE: The construction or operation of any new quarry or expansion of any existing quarry **is prohibited** within 200 feet of any water body located within a Water Quality Protection Area in the John Graves Scenic Riverway.

Item 3. Additional Requirements (Instructions, Page 101)

Use the table in the Instructions to determine if additional application requirements apply to the facility based on distance between the quarry and the nearest waterway. Attach as appropriate or enter N/A.

- a. Attach a Restoration Plan: [Click to enter text.](#)
- b. Amount of Financial Assurance for Restoration: \$ [Click to enter text.](#)
Mechanism: [Click to enter text.](#)
- c. Attach a Technical Demonstration: [Click to enter text.](#)
- d. Attach a Reclamation Plan: [Click to enter text.](#)
- e. Amount of Financial Assurance for Reclamation: \$ [Click to enter text.](#)
Mechanism: [Click to enter text.](#)

INDUSTRIAL WASTEWATER PERMIT APPLICATION

WORKSHEET 11.0: COOLING WATER SYSTEM INFORMATION

This worksheet is **required** for all TPDES permit applications that meet the conditions outlined in Technical Report 1.0, Item 12.

Item 1. Cooling Water System Data (Instructions, Page 104)

- a. Complete the following table with information regarding the cooling water system.

Cooling Water System Data

Parameter	Volume (include units)
Total DIF	74.1 MGD
Total AIF	67.3 MGD ¹
Intake Flow Use(s) (%)	<u>AIF Basis</u>
Contact cooling	0%
Non-contact cooling	91.3%
Process Wastewater	N/A
Other	

1. 8.7% desalination feed, constitutes difference in DIF and AIF, but is not used for cooling purposes.
- b. Attach the following information:
1. A narrative description of the design and annual operation of the facility's cooling water system and its relationship to the CWIS(s).
 2. A scaled map depicting the location of each CWIS, impoundment, intake pipe, and canals, pipes, or waterways used to convey cooling water to, or within, the cooling water system. Provide the latitude and longitude for each CWIS and any intake pipe(s) on the map. Indicate the position of the intake pipe within the water column.
 3. A description of water reuse activities, if applicable, reductions in total water withdrawals, if applicable, and the proportion of the source waterbody withdrawn (on a monthly basis).
 4. Design and engineering calculations prepared by a qualified professional and data to support the information provided in above item a.
 5. Previous year (a minimum of 12 months) of AIF data.
 6. A narrative description of existing or proposed impingement and entrainment technologies or operation measures and a summary of their performance, including, but not limited to, reductions in impingement mortality and entrainment due to intake location and reductions in total water withdrawals and usage.

Attachment: 2 Section 5.2 and 5.4

Item 2. Cooling Water Intake Structure(s) Data (Instructions, Page 105)

- a. Complete the following table with information regarding each cooling water intake structure (this includes primary and make-up CWIS(s)).

Cooling Water Intake Structure(s) Data

CWIS ID	001	
DIF (include units)	74.1 MGD	
AIF (include units)	67.3 MGD ¹	
Intake Flow Use(s) (%)	<u>AIF Basis</u>	
Contact cooling	0%	
Non-contact cooling	91.3%	
Process Wastewater	N/A	
Other	1. 8.7% desalination feed, constitutes difference in DIF and AIF, but is not used for cooling purposes.	
Latitude (decimal degrees)	27.820867 (~)	
Longitude (decimal degrees)	-97.207744 (~)	

- b. Attach the following information regarding the CWIS(s):
1. A narrative description of the configuration of each CWIS, annual and daily operation, including any seasonal changes, and where it is located in the water body and in the water column.
 2. Engineering calculations for each CWIS.

Attachment: Attachment 2

Item 3. Source Water Physical Data (Instructions, Page 105)

- a. Complete the following table with information regarding the CWIS(s) source waterbody (this includes primary and make-up CWIS(s)).

Source Waterbody Data

CWIS ID	001	
Source Waterbody	Corpus Christi Bay	
Mean Annual Flow	Not applicable to bay system.	
Source	N/A	

- b. Attach the following information regarding the source waterbody.
1. A narrative description of the source water for each CWIS, including areal dimensions, depths, salinity and temperature regimes, and other documentation that supports this

determination of the water body type where each cooling water intake structure is located.

2. A narrative description of the source waterbody's hydrological and geomorphological features.
3. Scaled drawings showing the physical configuration of all source water bodies used by the facility, including the source waterbody's hydrological and geomorphological features. **NOTE:** The source waterbody's hydrological and geomorphological features may be included on the map submitted for item 1.b.ii of this worksheet.
4. A description of the methods used to conduct any physical studies to determine the intake's area of influence within the waterbody and the results of such studies.

Attachment: Attachment 2, Section 5

Item 4. Operational Status (Instructions, Page 106)

- a. Is this application for a power production or steam generation facility?

☐ Yes ☒ No

If **no**, proceed to Item 4.b. If **yes**, provide the following information as an attachment:

1. Describe the operating status of each individual unit, including age, capacity utilization rate (or equivalent) for the previous five years (a minimum of 60 months), and any seasonal changes in operation.
2. Describe any extended or unusual outages or other factors which significantly affect current data for flow, impingement, entrainment.
3. Identify any operating unit with a capacity utilization rate of less than 8 percent averaged over a contiguous period of two years (a minimum of 24 months).
4. Describe any major upgrades completed within the last 15 years, including but not limited to boiler replacement, condenser replacement, turbine replacement, or changes of fuel type.

Attachment:

- b. Process Units

1. Is this application for a facility which has process units that use cooling water (other than for power production or steam generation)?

☒ Yes ☐ No

If **no**, proceed to Item 4.c. If **yes**, continue.

2. Does the facility use or intend to use reductions in flow or changes in operations to meet the requirements of *40 CFR § 125.94(c)*?

☒ Yes ☐ No

If **no**, proceed to Item 4.c. If **yes**, attach descriptions of the following information:

- Individual production processes and product lines
- The operating status, including age of each line and seasonal operation

- Any extended or unusual outages that significantly affect current data for flow, impingement, entrainment, or other factors
- Any major upgrades completed within the last 15 years and plans or schedules for decommissioning or replacement of process units or production processes and product lines.

Attachment: Attachment 2

c. Is this an application for a nuclear power production facility?

☐ Yes ☒ No

If **no**, proceed to Item 4.d. If **yes**, attach a description of completed, approved, or scheduled upgrades and the Nuclear Regulatory Commission relicensing status for each unit at the facility.

Attachment: Click to enter text.

d. Is this an application for a manufacturing facility?

☒ Yes ☐ No

If **no**, proceed to Worksheet 11.1. If **yes**, attach descriptions of current and future production schedules and any plans or schedules for any new units planned within the next five years (a minimum of 60 mos)

Attachment: Attachment 2, Section 1

INDUSTRIAL WASTEWATER PERMIT APPLICATION

WORKSHEET 11.1: IMPINGEMENT MORTALITY

This worksheet is **required** for all TPDES permit applications that **meet the conditions outlined in Technical Report 1.0, Item 12**. Complete one copy of this worksheet for **each** individual CWIS the facility uses or proposes to use.

CWIS ID: 1001

Item 1. Impingement Compliance Technology Selection (Instructions, Page 107)

Check the box next to the method of compliance for the Impingement Mortality Standard selected by the facility.

- ☐ Closed-cycle recirculating system(CCRS) [40 CFR § 125.94(c)(1)]
- ☒ 0.5 ft/s Through-Screen Design Velocity [40 CFR § 125.94(c)(2)] – Proceed to Worksheet 11.2
- ☐ 0.5 ft/s Through Screen Actual Velocity [40 CFR § 125.94(c)(3)]
- ☐ Existing offshore velocity cap [40 CFR § 125.94(c)(4)] – Proceed to Worksheet 11.2
- ☐ Modified traveling screens [40 CFR § 125.94(c)(5)]
- ☐ System of technologies [40 CFR § 125.94(c)(6)]
- ☐ Impingement mortality performance standard [40 CFR § 125.94(c)(7)]
- ☐ De minimis rate of impingement [40 CFR § 125.94(c)(11)]
- ☐ Low capacity utilization power-generation facilities [40 CFR § 125.94(c)(12)]

If 0.5 ft/s Through-Screen Design Velocity [40 CFR § 125.94(c)(2)] or existing offshore velocity cap [40 CFR § 125.94(c)(4)] was selected, proceed to Worksheet 11.2. Otherwise, continue to Item 2.

Item 2. Impingement Compliance Technology Information (Instructions, Page 107)

Complete the following sections based on the selection made for item 1 above.

a. CCRS [40 CFR § 125.94(c)(1)]

- ☐ Check this box to confirm the CWS meets the definition of CCRS located at 40 CFR § 125.91(c) and provide a response to the following questions.

1. Does the facility use or propose to use a CWIS to replenish water losses to the CWS?

- ☐ Yes ☐ No

If **no**, proceed to item a.2. If **yes**, provide the following information as an attachment and continue.

- CWIS ID
- 12 months of intake flow data for any CWIS used for make-up intake flows to replenish cooling water losses, excluding intakes for losses due to blowdown, drift, or evaporation.

- A narrative description of any physical or operational measures taken to minimize make-up withdraws.

Attachment: [Click to enter text.](#)

NOTE: Do not complete a separate Worksheet 11.1 for a make-up CWIS.

2. Does the facility use or propose to use cooling towers?

☐ Yes ☐ No

If **no**, proceed to Worksheet 11.2. If **yes**, provide the following information and proceed to Worksheet 11.2.

- Average number of cycles of concentration (COCs) prior to blowdown:

Average COCs Prior to Blowdown

Cooling Tower ID	All			
COCs				

- Attach COC monitoring data for each cooling tower from the previous year (a minimum of 12 months): [Click to enter text.](#)
- Maximum number of COCs each cooling tower can accomplish based on design of the system.

Calculated COCs Prior to Blowdown

Cooling Tower ID	All			
COCs				

- Describe conditions that may limit the number of COCs prior to blowdown, if any, including but not limited to permit conditions: [Click to enter text.](#)

b. 0.5 ft/s Through Screen Actual Velocity [40 CFR § 125.94(c)(3)]

Provide daily intake flow measurement monitoring data from the previous year (a minimum of 12 months) as an attachment and proceed to Worksheet 11.2.

Attachment: [Click to enter text.](#)

c. Modified traveling screens [40 CFR § 125.94(c)(5)]

Provide the following information as an attachment and proceed to Worksheet 11.2.

1. A description of the modified traveling screens and associated equipment.
2. A site-specific impingement technology performance optimization study that includes a narrative description of the biological data collection methods
3. Biological sampling data from the previous two years (a minimum of 24 months).

Attachment: [Click to enter text.](#)

d. System of technologies [40 CFR § 125.94(c)(6)] or impingement mortality performance standard [40 CFR § 125.94(c)(7)]

Provide the following information as an attachment and proceed to Worksheet 11.2.

1. A description of the system of technologies used or proposed for use by the facility to

achieve compliance with the impingement mortality standard.

2. A site-specific impingement technology performance optimization study that includes a narrative description of the biological data collection methods.
3. Biological sampling data from the previous two years (a minimum of 24 months).

Attachment: [Click to enter text.](#)

- e. De minimis rate of impingement [*40 CFR § 125.94(c)(11)*]

Provide the following information and proceed to Worksheet 11.2.

1. Attach monitoring data from the previous year (a minimum of 12 months) of intake flow measured at a frequency of 1/day on days of operation.

Attachment: [Click to enter text.](#)

2. If the rate of impingement caused by the CWIS is extremely low (at an organism or age-one equivalent count), attach supplemental information to Worksheet 11.0, item 1.b.6. to support this determination.

Attachment: [Click to enter text.](#)

- f. Low capacity utilization power-generation facilities [*40 CFR § 125.94(c)(12)*]

Attach monthly utilization data from the previous 2 years (a minimum of 24 months) for each operating unit and proceed to Worksheet 11.2.

Attachment: [Click to enter text.](#)

INDUSTRIAL WASTEWATER PERMIT APPLICATION

WORKSHEET 11.2: SOURCE WATER BIOLOGICAL DATA

This worksheet is **required** for all TPDES permit applications that **meet the conditions outlined in Technical Report 1.0, Item 12**. Complete one copy of this worksheet for **each** source waterbody of a CWIS for which a facility has selected an Impingement Mortality Technology Option described at *40 CFR §§ 125.94(c)(1)-(7)*.

Name of source waterbody: Corpus Christi Bay

Item 1. Species Management (Instructions, Page 109)

- a. The facility has obtained an incidental take permit for its cooling water intake structure(s) from the USFWS or the NMFS.

☐ Yes ☒ No

If yes, attach any information submitted in order to obtain that permit, which may be used to supplement the permit application information requirements of paragraph *40 CFR § 125.95(f)*.

Attachment: [Click to enter text.](#)

- b. Is the facility requesting a waiver from application requirements at *40 CFR § 122.21(r)(4)* in accordance with *40 CFR § 125.95* for any CWIS(s) that withdraw from a man-made reservoir that is stocked and managed by a state or federal natural resources agency or the equivalent?

☐ Yes ☒ No

If **yes**, attach a copy of the most recent managed fisheries report to TPWD, or equivalent.

Attachment: [Click to enter text.](#)

- c. There are no federally listed threatened or endangered species or critical habitat designations within the source water body.

☐ True ☒ False

Item 2. Source Water Biological Data (Instructions, Page 109)

New Facilities (Phase I, Track I and II)

- Provide responses to all items in this section and stop.

Existing Facilities (Phase II)

- If the answer to **1.b.** above was **no**, provide responses to all items in this section and proceed to Worksheet 11.3.
- If the answer to **1.b.** was **yes** and **1.c.** was **true**, do not complete any items in this section and proceed to Worksheet 11.3.
- If the answer to **1.b.** was **yes** and **1.c.** was **false**, attach a response for any item in this section that is not contained within the most recent TPWD, or equivalent and proceed to Worksheet 11.3.

Attachment: [Click to enter text.](#)

- a. A list of the data requested at *40 CFR § 122.21(r)(4)(ii)* through (vi) that are not available, and efforts made to identify sources of the data.
- b. Provide a list of species (or relevant taxa) in the vicinity of the CWIS and identify the following information regarding each species listed.
 - all life stages and their relative abundance,
 - identification of all species and life stages that would be most susceptible to impingement and entrainment,
 - forage base,
 - significance to commercial fisheries,
 - significance to recreational fisheries,
 - primary period of reproduction,
 - larval recruitment, and
 - period of peak abundance for relevant taxa.
- c. Data representative of the seasonal and daily activities (e.g., feeding and water column migration) of biological organisms in the vicinity of the CWIS(s).
- d. Identify all threatened, endangered, and other protected species that might be susceptible to impingement and entrainment at the CWIS(s).
- e. Documentation of any public participation or consultation with federal or state agencies undertaken.

The following is required for existing facilities only. Include the following information with the above listed attachment.

- f. Identify any protective measures and stabilization activities that have been implemented and provide a description of how these measures and activities affected the baseline water condition in the vicinity of the intake.
- g. A list of fragile species, as defined at *40 CFR § 125.92(m)*, at the facility. The applicant need only identify those species not already identified as fragile at *40 CFR § 125.92(m)*.

NOTE: New units at an existing facility are not required to resubmit this information if the cooling water withdrawals for the operation of the new unit are from an existing intake.

Attachment: 3

INDUSTRIAL WASTEWATER PERMIT APPLICATION

WORKSHEET 11.3: ENTRAINMENT

This worksheet is **required** for all TPDES permit applications that **meet the conditions outlined in Technical Report 1.0, Item 12**. Complete one copy of this worksheet for **each** individual CWIS the facility uses or proposes to use.

CWIS ID: 1001

Item 1. Applicability (Instructions, Page 111)

Is the AIF of the CWIS identified above greater than, or equal to, 125 MGD?

☐ Yes ☒ No

- If **no** or the facility has selected **CCRS** [40 CFR § 125.94(c)(1)] for the impingement mortality compliance method, complete Item 2 and stop here.
- If **yes** and the facility is **seeking a waiver** from application requirements in accordance with 40 CFR § 125.95 for any CWIS(s) that withdraw from a man-made reservoir that is stocked and managed by a state or federal natural resources agency or the equivalent, complete item 2 and stop.
- If **yes** and the facility is **not seeking a waiver** from application requirements in accordance with 40 CFR § 125.95, complete item 2 and provide any required and completed studies listed in item 3. For any required studies in item 3 that are not complete, provide a detailed explanation for the delay and an anticipated schedule for completion and submittal.

Item 2. Existing Entrainment Performance Studies (Instructions, Page 111)

Attach any previously conducted studies or studies obtained from other facilities addressing technology efficacy, through-facility entrainment survival, and other entrainment studies.

Attachment: N/A

Item 3. Facility Entrainment Performance Studies (Instructions, Page 111)

- Attach an entrainment characterization study, as described at 40 CFR § 122.21(r)(9): [Click to enter text.](#)
- Attach a comprehensive feasibility study, as described as 40 CFR § 122.21(r)(10): [Click to enter text.](#)
- Attach a benefits valuation study, as described as 40 CFR § 122.21(r)(11): [Click to enter text.](#)
- Attach a non-water quality environmental and other impacts study, as described as 40 CFR § 122.21(r)(12): [Click to enter text.](#)
- Attach a peer review analysis, as described as 40 CFR § 122.21(r)(13): [Click to enter text.](#)

N/A - No oil and gas exploration, development, or production wastewater discharges or discharges subject to ELG under 40 CFR Part 435.

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 12.0: OIL AND GAS EXPLORATION, DEVELOPMENT, AND PRODUCTION WASTEWATER DISCHARGES

This worksheet **is required** for all TPDES permit applications that are subject to Effluent Limitation Guidelines in 40 CFR Part 435.

Item 1. Operational Information (Instructions, Page 112)

- a. Is the wastewater from an oil and gas exploration, development, or production facility located west of the 98th meridian?

☐ Yes ☐ No

If yes, continue to the next question. If no, skip to Item 2 relating to Production/Process Data.

- b. Provide justification for how the wastewater is/will be used for agriculture or wildlife propagation.

Click to enter text.

Item 2. Production/Process Data (Instructions, Page 112)

- a. Provide the applicable 40 CFR Part 435 Subpart(s).

Click to enter text.

- b. Describe if the permit being sought is for discharges from exploration, development, production, or for a combination of more than one of those activities.

Click to enter text.

c. Provide information on all waste-streams generated and specify which waste-streams you are requesting to be authorized for discharge.

Wastestreams Generated			
Wastestream	Requesting authorization to discharge? (Yes/No)	Volume (MGD)	% of Total Flow

d. Describe how the facility will manage wastestreams for which discharge authorization is not being sought.

Click to enter text.

Attachment: Click to enter text.

e. Provide information on miscellaneous discharges.

Click to enter text.

Attachment: Click to enter text.

- f. List of chemicals that are in use, or will be used, downhole. Provide the category, concentration used/to be used, and purpose of using the chemical. Attach a safety data sheet for each chemical listed.

Chemicals List

Category	Chemical Name	Concentration (include units)	Purpose

Attachment: [Click to enter text.](#)

- g. List of chemicals that are in use, or will be used, to treat the wastewater to be discharged under this authorization. Provide the concentration used/to be used and purpose of using the chemical. Attach a safety data sheet for each chemical listed.

Water Treatment Chemicals List

Category	Chemical Name	Concentration (include units)	Purpose

Attachment: [Click to enter text.](#)

Item 3. Pollutant Analysis (Instructions, Page 113)

Tables 1, 2, 6, and 7 located in Worksheet 2.0 are required. In addition, Table 19 below is required and must be completed for each outfall and submitted with this application. The remaining tables in Worksheet 2.0, are required as applicable.

- a. Provide the date range of all sampling events conducted to obtain the analytical data submitted with this application (e.g., 05/01/2018-05/30/2018): [Click to enter text.](#)
- b. ☐ Check the box to confirm all samples were collected no more than 12 months prior to the date of application submittal.
- c. Read the general testing requirements in the instructions for important information about sampling, test methods, and MALs. If a contact laboratory was used, attach a list which includes the name, contact information, and pollutants analyzed for each laboratory/firm.
Attachment: [Click to enter text.](#)
- d. Attach correspondence from TCEQ approving submittal of less than the required number of samples, if applicable. **Attachment:** [Click to enter text.](#)

Table 19 for Outfall No.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1 (mg/L)*	Sample 2 (mg/L)*	Sample 3 (mg/L)*	Sample 4 (mg/L)*
Calcium				
Potassium				
Sodium				

*Indicate units if different from mg/L.

Attachments

Attachment 1 Core Data Form



TCEQ Core Data Form

For detailed instructions on completing this form, please read the Core Data Form Instructions or call 512-239-5175.

1.1 SECTION I: General Information

1. Reason for Submission (If other is checked please describe in space provided.)		
☒ New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
☐ Renewal (Core Data Form should be submitted with the renewal form)		☐ Other
2. Customer Reference Number (if issued)		3. Regulated Entity Reference Number (if issued)
CN 606190668		RN 111826111

[Follow this link to search for CN or RN numbers in Central Registry**](#)

1.2 SECTION II: Customer Information

4. General Customer Information		5. Effective Date for Customer Information Updates (mm/dd/yyyy)		12/17/2024	
☐ New Customer		☒ Update to Customer Information		☐ Change in Regulated Entity Ownership	
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)					
The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).					
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)				<i>If new Customer, enter previous Customer below:</i>	
Ingleside Clean Ammonia Partners, LLC.					
7. TX SOS/CPA Filing Number		8. TX State Tax ID (11 digits)		9. Federal Tax ID (9 digits)	
805083647		32090052138			
10. DUNS Number (if applicable)					
11. Type of Customer:		☒ Corporation		☐ Individual	
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other		☐ Sole Proprietorship		Partnership: ☐ General ☐ Limited	
12. Number of Employees		☒ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☐ 501 and higher		13. Independently Owned and Operated?	
				☒ Yes ☐ No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following					
☐ Owner		☐ Operator		☒ Owner & Operator	
☐ Occupational Licensee		☐ Responsible Party		☐ VCP/BSA Applicant	
☐ Other:					
15. Mailing Address:	915 North Eldridge Parkway				
	Suite 1100				
	City	Houston	State	TX	ZIP
16. Country Mailing Information (if outside USA)		17. E-Mail Address (if applicable)			
18. Telephone Number		19. Extension or Code		20. Fax Number (if applicable)	
(855) 385-6645				() -	

1.3 SECTION III: Regulated Entity Information

21. General Regulated Entity Information (If 'New Regulated Entity' is selected, a new permit application is also required.)	
☐ New Regulated Entity ☐ Update to Regulated Entity Name ☒ Update to Regulated Entity Information	
The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).	
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)	

Ingleside Blue Ammonia							
23. Street Address of the Regulated Entity: <i>(No PO Boxes)</i>	1450 Lexington Drive						
	City	Ingleside	State	TX	ZIP	78362	ZIP + 4
24. County	San Patricio						

If no Street Address is provided, fields 25-28 are required.

25. Description to Physical Location:										
26. Nearest City					State			Nearest ZIP Code		
<i>Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).</i>										
27. Latitude (N) In Decimal:						28. Longitude (W) In Decimal:				
Degrees	Minutes		Seconds		Degrees	Minutes		Seconds		
29. Primary SIC Code (4 digits)		30. Secondary SIC Code (4 digits)		31. Primary NAICS Code (5 or 6 digits)			32. Secondary NAICS Code (5 or 6 digits)			
2873				325311						
33. What is the Primary Business of this entity? <i>(Do not repeat the SIC or NAICS description.)</i>										
Blue Ammonia Production										
34. Mailing Address:	1450 Lexington Drive									
	City	Ingleside	State	TX	ZIP	78362	ZIP + 4			
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(855) 385-6645							() -			

39. TCEQ Programs and ID Numbers Check all Programs and write in the permits/registration numbers that will be affected by the updates submitted on this form. See the Core Data Form instructions for additional guidance.

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☐ Industrial Hazardous Waste
☐ Municipal Solid Waste	☒ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
	174275, PSDTX1628, GHGPSDTX234			
☐ Sludge	☐ Storm Water	☐ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☒ Wastewater	☐ Wastewater Agriculture	☒ Water Rights	☐ Other:
	To Be Determined		To Be Determined	

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SECTION V: Authorized Signature

46. By my signature below, I certify, to the best of my knowledge, that the information provided in this form is true and complete, and that I have signature authority to submit this form on behalf of the entity specified in Section II, Field 6 and/or as required for the updates to the ID numbers identified in field 39.

Company:	Ingleisde Clean Ammonia Partners, LLC	Job Title:	Vice President, Operations
Name (In Print):	Luis Perez Vera	Phone:	(713) 627- 4546
Signature:		Date:	12/19/2024

Attachment 2 Technical Supplemental Information



December 2024
Ingleside Blue Ammonia Plant



Industrial Wastewater Permit Application: Supplemental Information

Prepared for Ingleside Clean Ammonia Partners, LLC
Ingleside, San Patricio County, Texas

December 2024
Ingleside Blue Ammonia Plant

Industrial Wastewater Permit Application: Supplemental Information

Prepared for
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ABBREVIATIONS

AIF	average intake flow
Application	Industrial Wastewater Permit Application Technical Report 1.0 form
ATR	autothermal reforming
Bay	Corpus Christi Bay
BOG	boil-off gas
CCSC	Corpus Christi Ship Channel
CFR	Code of Federal Regulations
CO	Carbon monoxide
CO ₂	carbon dioxide
CWIS	cooling water intake structure
°F	degrees Fahrenheit
fps	foot per second
gpd	gallons per day
gpm	gallon per minute
HHMZ	human health mixing zone
H ₂ S	hydrogen sulfide
ICAP	Ingleside Clean Ammonia Partners, LLC
kg/m ³	kilogram per cubic meter
LD	limiting dilution
LE	limiting effluent
m	meter
m ²	square meter
MDEA	3,4-methylenedioxy-n-ethylamphetamine
MGD	million gallons per day
MLW	mean low water
m/s	meter per second
MLLW	mean lower low water
MZ	mixing zone
NAVD88	North American Vertical Datum of 1988
NOAA	National Oceanic and Atmospheric Administration
NMFS	National Marine Fisheries Service
ppt	part per thousand
SCF	seawater concentration factor
TCEQ	Texas Commission on Environmental Quality
ZID	zone of initial dilution

1 Introduction

Ingleside Clean Ammonia Partners, LLC (ICAP) plans to build the Ingleside Blue Ammonia (IBA) plant at the Enbridge Ingleside Energy Center located at 1450 Lexington Boulevard in Ingleside, San Patricio County, Texas. The IBA plant will be a blue ammonia production facility and includes autothermal reforming (ATR) with carbon dioxide (CO₂) capture. The IBA plant will be on Corpus Christi Bay (Bay) near Corpus Christi, Texas. The IBA plant will include two complete blue ammonia trains, each with a design capacity of 4,000 metric tons per day and 95% CO₂ capture, based on natural gas feed and ATR technology. The two trains of the IBA plant will have common utilities, storage, and support systems. Ammonia will be transferred offsite through closed-loop marine vessel loading.

Producing blue ammonia is a low-carbon alternative to traditional ammonia manufacturing methods. Blue ammonia uses CO₂ capture, permanent sequestration, and storage technologies. Blue ammonia plants require industrial water for boiler and process feed and for IBA plant cooling. The IBA plant will be designed to use seawater from the Bay for these needs and to discharge cooling tower blowdown, boiler blowdown and condensate wastewater back to the Bay after treatment. A portion of water (as steam) is fed to and consumed in the process, generating no wastewater.

This report was prepared as Attachment 2 to the Industrial Wastewater Permit Application Technical Report 1.0 form (Application) to provide narrative, figure, diagram and other information required to be included by the Application as attachments across multiple items and worksheets. Application Attachment 2 references include sections and subsections of this report. Figures referenced in this supplement are provided in Attachment 5 to the Application.

2 Ingleside Blue Ammonia Process Description

This section addresses Item 1a of the Application and provides information related to the IBA plant's water and wastewater demands.

The IBA plant general location and site facility maps are included in Application Attachment 5 as Figures 1, 2, 2a and 2b, respectively. The IBA plant will receive natural gas via pipeline and produce blue ammonia, which will be stored in refrigerated storage tanks prior to loading into marine vessels, and CO₂ which will be sequestered.

The IBA plant will have the capacity to produce 8,000 metric tons per day of blue ammonia based on natural gas feed, with an overall CO₂ capture rate of 95% for all continuous users of natural gas in the project captured and sent via pipeline for off-site CO₂ sequestration. The IBA plant will consist of two complete blue ammonia trains, each generating blue ammonia from natural gas, and common utilities, storage, and marine loading operations.

Each train will be designed to operate at a range of 70% to 100% capacity. The full range of production for two trains ranges from 35% (70% of one train) to 100% (100% of two trains). Each train will also have its own ammonia synthesis equipment, as described in this section. The produced ammonia will be chilled and sent to storage in one of four ammonia storage tanks prior to off-site marine loading. Each of these tanks will be double containment, low pressure refrigerated tanks that maintain the ammonia below its boiling point, at approximately -28 degrees Fahrenheit (°F). The ammonia storage tanks will have a common boil-off gas (BOG) refrigeration system that will capture tank ammonia vapors generated during normal operations. This boil-off gas refrigeration system will compress and condense the ammonia vapors and return the liquid back to the tanks, providing closed-loop vapor control. The boil-off gas system will include redundant units. Ammonia vapors generated during transfer of ammonia from the ammonia tanks to marine vessels will return to the refrigerated ammonia tanks via a closed-loop system. Residual ammonia in the transfer system will also be returned to refrigerated ammonia tanks with the provision of nitrogen purge.

CO₂ is captured using methyl diethanolamine (MDEA). Tanks will store bulk MDEA as needed and will be used to prepare the MDEA to the proper concentration for use in the CO₂ absorber; solution drain tanks will assist in managing the MDEA concentration in the closed-loop amine system. MDEA in the absorber column will facilitate the absorption of CO₂ from the process stream. CO₂ captured in the CO₂ removal section will be compressed, conditioned, and sent offsite in a pipeline for sequestration and/or geological injection by a third party.

3 Water and Wastewater Flows

This section supports Items 1 and 2 of the Application.

3.1 Water and Wastewater Balance

The overall water and wastewater flow diagram and water balance for the IBA plant is shown in Application Attachment 5, Figure 3. It is based primarily on IBA plant preliminary design information provided by ICAP. Attachment 5, Figure 3 addresses the Application, including Bay water intake influence, screening, water use and balance, wastewater sources and treatment, wastewater discharge, and effluent mixing. It is based on peak and average annual operating conditions for double-train operation at 100% capacity (no turndown). Attachment 5, Figure 4 presents the wastewater process flow diagram, which also includes stormwater flow that will be routed to Outfall D-001, as well as the first half inch flush routed through treatment and the post-flush stormwater that bypasses treatment.

The production of ammonia at the IBA plant requires seawater (bay water) that will be drawn from an intake system within the Bay. The Bay is a partially enclosed estuarine system, with barrier islands (Mustang and Padre Islands) that separate it from the Gulf of Mexico. While the presence of the barrier islands generally limits hydrologic connection between the Bay and the Gulf of Mexico, a limited amount of exchange occurs through tidal cycles, largely via the dredged navigation channels within the Bay. The Bay is generally shallow, averaging 11 feet deep; although, the ship channel is dredged to maintain a depth of 50 to 60 feet. The Bay's primary freshwater input is from the Nueces River via Nueces Bay, with additional freshwater inputs from streams, direct runoff, and precipitation. The Bay experiences natural shifts in salinity, typically ranging from 28 to 40 parts per thousand (ppt), which are correlated with periods of high freshwater inflow during floods and/or heavy rains and with periods of low freshwater inflow or increased evaporation during drought. Bay water ambient temperature has historically varied from 46°F to 93°F.

ICAP plans to locate the intake and discharge structures at the Enbridge Ingleside Energy Center to optimize the use of existing pier and dock infrastructure for intake and discharge pipeline installation. This location defines an industrial water intake and discharge far field zone for the Bay. The infrastructure will be adjacent to the Port of Corpus Christi ship channel, where currents flow in a general east-west direction, primarily controlled by tidal ebb and flow. In addition to the near field mixing requirements, far field impacts also need to be evaluated to determine the area of influence on the Bay associated with the cooling water intake. Section 6 presents preliminary assessment of a hydrodynamic model developed to assess the impacts of the wastewater discharge at the outfall on the Bay.

3.2 Wastewater Generating Processes

The IBA plant's wastewater process flow diagram is shown in Application Attachment 5, Figure 4. Withdrawn Bay water will be used to produce desalinated and demineralized water primarily for the boiler system (approximately 10% of total water intake), with the remaining 90% used to supply make-up water for the seawater cooling towers.

The desalination system will use multi effect distillation thermal vapor compression technology to generate the total desalinated water requirements for the plant. Demineralization system will be fed by desalinated water and will use ion exchanging technology to produce the required demineralized water for the plant. The demineralized water is then further treated and preheated to use as boiler feed water for steam production.

Steam and process condensates will be treated in dedicated polishing units, stored and reused in the plant. Service utility water for the plant will be collected in drains and routed to the wastewater pond for further treatment in the wastewater treatment unit. IBA plant washdown areas susceptible to contact with oils will be drained to an oil/water separator prior to further treatment. Regeneration wastewater from demineralization units will be routed to a pH neutralization system then routed to the wastewater pond for further treatment in the wastewater treatment unit. Brine reject from the desalination unit and cooling tower blowdown will be routed to a common pipeline and dechlorinated by sodium sulfite injection on site prior to discharge to Outfall D-001. The cooling tower and associated heat exchanger systems will be protected from suspended solids and grit using Bernoulli self-cleaning filters, which will discharge removed solids into the blowdown stream for return to the Bay. Treatment unit effluent will be routed to the common pipeline for commingled discharge back to the Bay via Outfall D-001. Stormwater will be collected and temporarily held in a rain and stormwater collection pit prior to being comingled with any wastewater enroute to Outfall D-001 for discharge. The first half-inch flush of stormwater will be transferred to the wastewater pond for further treatment in wastewater unit as needed before discharging to the common pipeline.

The wastewater stream from the cooling water system, known as blowdown, will be 25% to 30% (1.25 to 1.3 times the concentration) higher in salinity than the ambient Bay water, whereas the wastewater stream from the desalination system, known as brine reject, will be up to 46% (1.46 times the concentration) higher in salinity than that of the Bay water. Because the brine reject portion of the stream is small, the combined blowdown and brine reject wastewater stream salinity will be modeled at seawater concentration factor (SCF) of 1.26 to 1.31. The combined stream will have an essentially constant discharge temperature of < 95 °F. The discharged fresh water from the wastewater treatment unit will be mixed with Bay water at the point of discharge (outfall) to reduce salinity and temperature to near Bay water ambient conditions as prescribed by the Texas Commission on Environmental Quality (TCEQ) discharge permit requirements.

3.3 Wastewater Treatment Systems

Wastewater produced from the ammonia and utility boiler blowdowns and demineralized and boiler feed water treatment systems will be routed to a neutralization system pit. Acid and/or caustic treatment chemicals are separately pumped into the pit using injection pumps to adjust the wastewater pH to neutral condition prior to discharge. Following neutralization, the wastewater will be pumped to the wastewater pond for further treatment in the wastewater treatment unit. The treated wastewater will then be pumped to the common pipeline for discharge to Outfall D-001. The first half inch of contact stormwater will be treated as wastewater; therefore, it will be transferred from the stormwater retention pit to the wastewater pond for further treatment in the wastewater treatment unit. The remaining contact stormwater that passes through a stormwater retention pit will only be pumped to the common pipeline to Outfall D-001 when its quality meets the required specification.

4 Cooling Water System Information (Worksheet 11.0)

As required by Worksheet 11.0 in accordance with Title 40 Code of Federal Regulations (CFR) §122.21(r)(4), this section provides information on the design and annual operation of the cooling water system for the IBA plant. Supporting the process description will be a discussion on water reuse activities, attempts made to reduce the volume of water required by the cooling water system, engineering calculations, a year's worth of average intake flow (AIF) data, and a discussion of impingement and entrainment technologies that will be employed at the facility.

4.1 Water Reuse Activities

As described in Section 3.2, steam process condensates will be treated in dedicated polishing units, stored and reused in the plant. Wastewater from the process and blowdown will be recycled within the process to the maximum extent practicable. Moreover, ICAP may implement the following options during the execution phase of the project upon confirmation of technical feasibility:

- Use the collected contact stormwater in the cooling tower's basin
- Treatment of wastewater for cooling system – cooling tower's basin use or agriculture use

4.2 Cooling Water Use Reduction Methods

Evaporative cooling, or cooling via latent heat of vaporization, uses orders of magnitude less water than once-through cooling, which is based on sensible heat exchange. The cooling water demand is based on the evaporation rate needed for a given heat load and on the cycles of concentration. Cycles of concentration, or, for the IBA plant, SCF, is the ratio of dissolved solids in an operating tower to that of the intake water. When the SCF is reached, cooling water is discharged (blown down) to prevent the elevated concentrations from causing scaling, corrosion, and biological fouling problems. ICAP has estimated a design basis for cooling water operating at an SCF of 1.25. For CORMIX modeling purposes, a conservative SCF value of 1.3 is used. The desalination system can reach SCF of up to 1.46, but the brine reject portion of the stream is small .

Representative of the processes maximum heat load, ICAP estimated a maximum evaporation rate of approximately 10,800 gpm. Per Figure 3 in Application Attachment 5, this rate at SCF 1.3 requires approximately 51,500 gallons per minute (gpm; 74.1 million gallons per day [mgd]) of total intake flow. Greater than 90% of the intake, approximately 47,200 gpm (68 mgd), will be pumped to the cooling water system, while 4,300 gpm (6 mgd) will be pumped to the desalination system. The cooling water and desalination systems will operate independently; however, the blow down, brine reject wastewater, and other minor wastewater streams will be combined prior to discharge at the outfall.

Within the cooling water system, approximately 10,800 gpm (15.53 mgd) will be lost due to drift, evaporation and miscellaneous losses, while approximately 36,400 gpm (52.40 mgd) will be blown down as discharge from the cooling water system to maintain the needed concentration cycle. Indicative drift losses from 100% 2-train operation are 3,600 gallons per day (gpd) carrying approximately 1,200 pounds per day (ppd) of salt.

Within the desalination system, approximately 2,950 gpm (4.22 mgd) will be removed as brine reject and approximately 1,350 gpm (1.91 mgd) will be produced as water for the plant. The water will be further treated in the demineralization unit together with the recovered steam condensates. The regeneration water (wastewater) from the demineralization unit will be 236 gpm (0.34 mgd). The demineralized water will then be further treated and heated to produce boiler feed water, and 50 gpm (0.07 mgd) will be blown down as wastewater to maintain the quality of the boiler feed water system.

Apart from seawater discharge (blowdown, drains, etc.) and brine reject from desalination unit, the other plant wastewater streams plus the first half inch of contact stormwater (up to 386 gpm (0.556 mgd)) will be collected in the wastewater pond and enter an on-site wastewater treatment unit.

Discharge from the cooling system (blowdown, drains, etc.) will be combined with the brine reject stream from the desalination unit and will enter an on-site dechlorination unit or injection point. From the dechlorination unit or injection point, approximately 39,700 gpm (57.17 mgd) will be combined with the discharge of the other treated non-saline wastewater (up to approximately 400 gpm (0.556 mgd)) from the on-site wastewater treatment unit along with the stormwater of up to approximately 5,000 gpm (7.24 mgd) during storm events.

Stormwater is expected to be an intermittent input to the on-site wastewater collection system. Total annual discharge time is estimated to be less than 1 week (2%) at approximately 5,000 gpm. Of the total intermittent flow rate of stormwater expected to enter the collection system, 116 gpm (0.17 mgd) will enter the wastewater pond.

As shown on Figure 3 at the point entering the diffuser, maximum flow rates can vary widely. The highest flow rate occurs at SCF of 1.25 combined with 5,000 gpm of stormwater. Nonetheless, 40,000 gpm at SCF 1.3 represents the CORMIX modeling basis. Flow rates higher than 40,000 gpm would occur at a lower SCF, thus require less mixing than the design condition.

4.3 Water Balance Variations

As noted, Figure 3 in Application Attachment 5 is based on double-train, no-turndown production for average annual and peak day conditions. Across the potential 35% to 100% operation, all values are proportional to the turndown. Thus, intake and discharge flow rates would be as low as 17,000 gpm (24.48 mgd) and 12,600 gpm (18.14 mgd), respectively, for average annual ambient

atmospheric and Bay water temperature conditions. The evaporative cooling demand is also related to atmospheric and ambient Bay water temperature. Cold air and Bay water temperature days will also cause a decrease to intake and discharge flow. Combined 35% turndown on a cold day would yield discharge flow rates below 12,600 gpm. The preliminary CORMIX mixing modeling (Section 6) accounts for this wide range of variability.

4.4 Engineering Calculations and AIF Data

At this stage of the project, the design has not been advanced to a stage where final engineering calculations are available. ICAP has provided preliminary maximum water usage design data based on worst case (warm) ambient air conditions of 96.8°F dry bulb temperature, 82°F wet bulb temperature, 89.1% relative humidity, 14.686 psia barometric pressure, and 93°F Bay water temperature. Such conditions increase evaporative losses in evaporative cooling system operations above those required for process cooling. In Application Attachment 5, Figure 3, pending cooling system engineering, AIF conditions are currently presented as 90% of peak conditions correlated with annual average ambient dry bulb and Bay water temperatures.

4.5 Impingement and Entrainment Technologies

A detailed discussion of the impingement and entrainment technologies employed at the IBA plant is presented in Section 5.

5 Source Waterbody Flow Information (Item 12.g.1)

5.1 Regulatory Requirements

Per CFR §125.86(a)(1)(i), the following information must be submitted to the Director to demonstrate the cooling water intake structure (CWIS) meets the flow requirements in CFR §125.84(b)(3) or (c)(2), and the following sections provide the required information for CFR §125.84(b)(3)(iii):

For cooling water intake structures located in an estuary or tidal river, the total design intake flow over one tidal cycle of ebb and flow must be no greater than one (1) percent of the volume of the water column within the area centered about the opening of the intake with a diameter defined by the distance of one tidal excursion at the mean low water level.

5.2 Cooling Water Intake Structure

The proposed CWIS is located approximately one-fourth the distance from shore along Dock 4/5, offshore of the proposed facility (Table 1; Application Attachment 5, Figure 5), and will be positioned off the seafloor to avoid impacts to benthic organisms. The maximum potential diversion through the CWIS is 55,000 gpm, equating to 79.2 mgd.

Table 1
Location of Proposed CWIS

Location	Latitude (Degrees)	Longitude (Degrees)
I-001	27.820867 (indicative)	-97.207744 (indicative)

5.3 Mean Tidal Excursion

Predicted water velocity data from the National Oceanic and Atmospheric Administration (NOAA) Enbridge station (NOAA 2024a) were used to determine the mean tidal excursion distance (Application Attachment 5, Figure 8). Data from January 1, 2023, through December 31, 2023, were used to represent the most recent complete year. These predicted currents represent the tidal current speeds through the channel at the proposed facility. Velocity ranged from -1.8 to 1.8 feet per second (fps) and was 0 fps during slack tide (Application Attachment 5, Figure 9). The tidal excursion distance for each tide during 2023 was calculated from these data for determination of the mean tidal excursion distance. The calculated mean tidal excursion was 5 miles.

A combination of site-specific bathymetry data, NOAA bathymetry data for the surrounding area, and U.S. Army Corps of Engineers channel surveys was used to develop an unstructured mesh to determine the volume of water within the mean tidal excursion of the CWIS. The mesh was developed in North American Vertical Datum of 1988 (NAVD88) and converted to MLW for estimation of the volume of water within the mean tidal excursion (5 miles) of the CWIS. Uncertainty

in the conversion from NAVD88 to MLW was included by using the conversions from two NOAA gauge locations; La Quinta Channel North (Station 8775132) and Port Aransas (Station 8775237). The datum conversion from NAVD88 to MLW at La Quinta is -0.1 foot and Port Aransas is 0.03 foot (NOAA 2024b, 2024c).

The volume of water within a 5-mile diameter circle centered on CWIS location I-001 is 1.4085x10¹¹ to 1.4237x10¹¹ gallons. Assuming a 12-hour tidal period and maximum proposed intake rate of 55,000 gpm equates to a maximum proposed intake of 39.6 million gallons (3.96x10⁷ gallons) over the flood-ebb tidal period. Using the smaller source water volume estimate, 39.6 million gallons equates to 0.03% of the water volume within a diameter defined by the distance of one tidal excursion at the MLW level from I-001.

The estimate of 0.03% is less than the 1% requirement in CFR §125.84(b)(3). Adjusting the location of the intake within the footprint of the proposed facility will not change the conclusion of the analysis, namely that the CWIS intake flow rate does not exceed the 1% limitation in CFR §125.84(b)(3)(iii). Adjusting the bathymetry mesh or the datum conversion will also not affect the analysis that the CWIS intake flow rate does not exceed the 1% requirement in CFR §125.84(b)(3).

5.4 Design and Construction Technology Plan

ICAP will take reasonable measures to avoid impingement and entrainment of aquatic organisms at the new diversion structure. The conceptual CWIS, shown in Attachment 5 Figure 10, will include three stages of screening to protect pumping systems and process equipment and to minimize the intake of grit, sand, and sediments that may accumulate in the cooling water sumps. The first stage of screening will be a trash rack (bar screen) to prevent intake of large debris (e.g., twigs or driftwood). The second stage of screening will be lift screens to provide secondary cleanup. The third stage of screening will be final seawater filtering by traveling screens. In case high suspended solids greater than 200 mesh (e.g. sand) are expected, ejectors will be installed upstream and downstream of the traveling screen to remove accumulated sand and solids from the intake bay in these areas.

Velocities through openings in each stage of screening will be limited to a maximum 0.5 fps to limit impingement of species on mechanical surfaces. As a result, approach velocities to each screen will be less than 0.5 fps. The 200-mesh traveling screen will be designed to prevent entrainment of designated species into the pumping systems and industrial processes. Species may enter past the first two levels of screens but also may escape against the low intake velocities. CWIS design and permitting under the industrial discharge permitting process is in progress and is identifying the limiting species size for preventing entrainment. Per species studies, the design of the second stage screen will be based on preventing organisms in the range of 2 to 6 millimeter from being entrained.

5.5 Zone of Hydraulic Influence

The proposed CWIS is located approximately one-fourth the distance from shore along Dock 4/5, offshore of the proposed facility (Table 1; Application Attachment 5, Figure 11). The maximum potential diversion through the CWIS is 55,000 gpm. For this delineation, the zone of hydraulic influence was assumed to be based on the volume of water passing into the intake during a 12-hour and 24-hour period. During a 12-hour period 39.6 million gallons of water will pass into the intake, and 79.2 million gallons will pass into the intake in a 24-hour period. The zone of hydraulic influence was then the surface area of the Bay surrounding the CWIS where the volume of water equals 39.6 and 79.2 million gallons.

The same bathymetric mesh described in Section 5 was used to determine the volume of the Bay with distance from the CWIS and delineate the zone of hydraulic influence. For the 12-hour period, the zone of influence was delineated as a 77-meter (m; 253 feet) circle around the CWIS (Application Attachment 5, Figure 11). The wetted area of this circle (i.e., not including dry land) was 12,209.7 square meters (m²; 3.0 acres). For the 24-hour period, the zone of influence was delineated as a 113 m (371 feet) circle around the CWIS. The wetted area of this circle (i.e., not including dry land) was 23,726.5 m² (5.9 acres).

The surface area of the Bay is 106,990 acres (TWDB 2024). The zone of hydraulic influence represents only 0.003% of the Bay assuming the 12-hour period and 0.005% assuming the 24-hour period. These percentages for the hydraulic zone of influence will not increase appreciably regardless of where the CWIS system is located along Dock 4/5 because of the relatively deep water along the entire length of the dock.

6 CORMIX Mixing Modeling

The preliminary CORMIX mixing model (Doneker and Jirka 2021) version 12.0GTD was used to evaluate the mixing of the discharged effluent with ambient waters in the vicinity of the proposed facility. TCEQ guidance suggests that CORMIX is a suitable model to analyze mixing of effluent and receiving waters and evaluate whether the project ICAP will meet the mixing zone (MZ) requirements. The mixing modeling and analysis described in this report followed the methods outlined in the TCEQ guidance document (TCEQ 2018).

For the purposes of this analysis, the mixing targets associated with discharge include the following:

- Temperature may not increase above ambient by more than 1.5°F (summer) or 4°F (winter) at the edge of the MZ boundary (30 Texas Administrative Code 307.4(f) for tidal river reaches, bay, and gulf waters)
- Salinity may not increase above ambient by more than 2 ppt at 100 m away from the discharge (based on the Port of Corpus Christi Authority's draft permit for the Harbor Island desalination permit, which is assumed to be a likely requirement for similar permit applications)
- CORMIX-assigned flow class of IMU6

6.1 Ambient Data

CORMIX uses ambient data to represent the receiving waters in the model. The ambient data needed for CORMIX include the following:

- Receiving water width and depth (geometry)
- Receiving water velocity
- Wind speed
- Receiving water density

6.1.1 Receiving Water Geometry (Width and Depth)

The proposed discharge from the IBA plant is into the area of the Corpus Christi Ship Channel (CCSC), with the discharge located at the end of Dock 1B (Application Attachment 5, Figure 12). All elevation data in this report and modeling effort are referenced to feet mean lower low water (MLLW). The area near the CCSC has a maximum depth of approximately 60 feet in the vicinity of the proposed approximate diffuser location (Application Attachment 5, Figure 12).

CORMIX requires the bathymetry and geometry of the receiving waterbody to be schematized (i.e., simplified) into a geometry represented by a few line segments. For this analysis, the CCSC was schematized into a bounded channel 365.74 m wide and 12.8 m deep (approximately 1,200 feet wide by 42 feet deep). Application Attachment 5, Figure 13 shows an across-channel transect of the

bathymetry and the resulting schematized geometry for CORMIX. The schematized CORMIX geometry assumed the deeper berthing area north of the CCSC does not exist. CORMIX modeling neglected the deeper berthing area because CORMIX does not allow for schematized geometries as complex as this site and neglecting the deeper berthing area results in more conservative mixing predictions (i.e., less overall mixing) from CORMIX than if the berthing area was included.

CORMIX assumes a steady state condition and that the prescribed geometry extends far into the distance. At this site, the deeper berthing area is a spatially limited area and should not be included in the CORMIX geometry. If the berthing area was included in the CORMIX schematized geometry, the amount of ambient water available for mixing with the effluent would be overestimated.

6.1.2 Receiving Water Velocity

TCEQ guidance states a small ambient water velocity should be used in CORMIX modeling of tidal waterbodies (TCEQ 2018). An ambient water velocity of 0.05 m per second (m/s) was used in the CORMIX modeling, consistent with previous CORMIX modeling for TCEQ (Amec Foster Wheeler 2017). The ambient velocity was prescribed to be in the X (along-channel) direction because that is the dominant tidal flow direction.

6.1.3 Wind Speed

A wind speed of 2 m/s was used for the CORMIX modeling, based on the TCEQ (2018) guidance document.

6.1.4 Ambient Receiving Water Density

The density of the ambient receiving water was calculated from water temperature and salinity using the equation provided in the TCEQ (2018) guidance document (Equation 1).

Equation 1

$$\rho_{s,t,0} = \left[1 + \left(0.001((28.14 - 0.0735T - 0.00469T^2) + (0.802 - 0.002T)(S - 35)) \right) \right] * 1,000$$

where:

ρ = water density (kilograms per m³ [kg/m³])
 T = water temperature (°C)
 S = water salinity (ppt)

Water temperature and salinity data were retrieved from the TCEQ Surface Water Quality Web Reporting Tool to characterize the ambient water conditions. Stations in the same segment as the proposed facility (2481, the Bay) were considered for evaluation of ambient water conditions. The

data stations closest to the proposed facility are located in shallower water and more central in the Bay than the proposed facility. As such, the closest station in the segment (13409), which is also located in deeper water near a navigation channel, was chosen for this analysis (Application Attachment 5, Figure 14).

Data are available at this location spanning 1973 through 2023. Following the TCEQ (2018) guidance document, the 5% and 95% occurrences of salinity and temperature were determined for summer (June, July, and August) and winter (December, January, and February) using all available data. These percent occurrences are summarized in Table 2. Density of the ambient water was calculated for each of the summer and winter 5% and 95% ambient conditions using Equation 1. Density stratification was determined for each sampling event in the available data where both nearsurface and nearbottom data were collected. The density stratification was calculated as the nearbottom density minus the nearsurface density, per TCEQ (2018) guidance. The median density stratification was 1.2 kilograms per m3 (kg/m3).

Stratification was included in the CORMIX modeling by adjusting the ambient water density based on the median stratification. The nearsurface density was prescribed as the density from the analysis of ambient temperature and salinity minus one-half the stratification, whereas the nearbottom density was prescribed as the density from the analysis of ambient temperature and salinity plus one-half the stratification (TCEQ 2018).

Table 2
Ambient Water Conditions

Season	Scenario	Salinity (ppt)	Temperature (°C)	Density (kg/m3)	Stratification (kg/m3)	Velocity (m/s)
Summer	5% S/5% T	25.3	27.0	1,015.5	1.2	0.05
	5% S/95% T	25.3	31.5	1,014.0		
	95% S/5% T	38.9	27.0	1,025.7		
	95% S/95% T	38.9	31.5	1,024.1		
Winter	5% S/5% T	26.6	11.3	1,020.2		
	5% S/95% T	26.6	19.0	1,018.6		
	95% S/5% T	34.9	11.3	1,026.6		
	95% S/95% T	34.9	19.0	1,025.0		

Notes:

S: salinity

T: temperature

6.2 Mixing Zones

The zone of initial dilution (ZID), MZ, and human health mixing zone (HHMZ) were specified as being rectangular in shape and equal in surface area to the area of a circle with the radiuses provided in the TCEQ (2018) guidance document. The surface areas of these three mixing zones (zones) are as follows:

- ZID: 729.7 m²
- MZ: 11,674.5 m²
- HHMZ: 46,698.2 m²

The dimensions of the zones were defined using a method provided by TCEQ (Michalk 2024). The X direction of the zones was aligned with the CCSC direction, whereas the Y direction of the zones was aligned in the across-channel direction. The X direction was prescribed to be longer than the Y direction by the length of the diffuser (Application Attachment 5, Figure 15). The suggested preliminary diffuser length for this modeling work was 60 feet (18.3 m). In Application Attachment 5, Figure 15, the distance D is solved for to determine the total X (along-channel) and Y (across-channel) zone dimensions. As such, the zone dimensions used in this analysis were prescribed as shown in Table 3. For the analysis of the CORMIX modeling results, the zones were centered on the diffuser in the X (along-channel) direction, to account for tidal flow in both the flood and ebb directions. The landward edge of the zones in the Y (across-channel) direction was centered on the diffuser, to account of the diffuser being located along the side of the CCSC. Application Attachment 5, Figure 16 shows a schematic of the zones.

Table 3
Mixing Zone Dimensions

Mixing Zone	X Direction (m)	Y Direction (m)
ZID	37.7	19.4
MZ	117.6	99.3
HHMZ	225.4	207.1

The evaluation of the CORMIX temperature mixing results occurred at one-half the X (along-channel) dimension of the zones, because the zones were centered on the diffuser in the X direction. The distances from the diffuser evaluated were as follows:

- ZID: 18.8 m
- MZ: 58.8 m
- HHMZ: 112.7 m

The evaluation of the CORMIX salinity mixing results occurred at a distance of 100 m from the center of the diffuser based on the formula of $distance = \sqrt{X^2 + Y^2}$, where X and Y are the distances along the plume centerline.

6.3 Effluent Discharge

The proposed plant will operate at a maximum concentration factor of 1.3 and have a discharge temperature of a constant 86°F. A concentration factor of 1.3 results in the discharge salinity being 1.3 times (30% greater than) the intake water salinity. The ambient water properties in Table 2, representing the summer and winter 5% and 95% salinity, were used to determine the intake water salinity. This intake water salinity was multiplied by 1.3, and the temperature was set at a constant 86°F for the effluent. These salinities and temperatures were then used with Equation 1 to calculate the density, the excess salinity above ambient, and the excess temperature above ambient of the effluent (Table 4).

Table 4
Effluent Discharge Properties

Season	Scenario	Density (kg/m ³)	Excess Salinity (ppt)	Excess Temperature (°F)
Summer	5% S/5% T	1,021.2	7.6	5.4
	5% S/95% T	1,034.4	11.7	-2.7
	95% S/5% T	1,019.6	7.6	5.4
	95% S/95% T	1,032.7	11.7	-2.7
Winter	5% S/5% T	1,026.4	8	33.7
	5% S/95% T	1,034.8	10.5	19.8
	95% S/5% T	1,024.7	8	33.7
	95% S/95% T	1,033	10.5	19.8

Note:

A negative excess temperature represents effluent water cooler than the ambient water.

6.4 Conceptual Diffuser Configuration

The IBA plant conceptual diffuser configuration is expected to be designed to operate at a variety of flows and SCF's depending on the final build-out, which will be determined during later stages of design. The highest SCF, which requires the most mixing, is 1.3. The IBA plant will be designed to operate with double train diffuser flow rate as high 39,705 gpm at a SCF of 1.3. Single-train diffuser flow rates would thus range from 13,900 to 19,853 gpm. Double train diffuser flow rates would range from 27,794 to 39,705 gpm.

Preliminary CORMIX modeling suggested designing a single-diffuser configuration to meet the evaluation criteria over the wide range of flows evaluated would be challenging. As such, for the single-train flow, the diffuser configuration will use four nozzles. When operating for double-train flow, the diffuser configuration will include seven nozzles or equivalent.

Subsequent preliminary modeling indicated that four-nozzle operation could provide a wider range than required for single-train operation. In addition, input parameters were rounded to bracket the design flow rate resulting in a single-train range of 11,500 to 23,000 gpm, and a double-train range from 23,000 to 40,000 gpm.

The diffusers are oriented such that the discharge is exactly perpendicular to the ambient flow direction. That is, the discharge occurs in the Y direction (Application Attachment 5, Figure 16).

6.4.1 Depth of Discharge and Nozzle Angle Optimization for Mixing

To evaluate and optimize the discharge depth for the conceptual diffuser configuration and the nozzle angle, two geometry configurations were preliminarily evaluated with CORMIX modeling. Table 5 provides the two depths and nozzle angles evaluated.

Table 5
Diffuser Depth and Nozzle Angle Geometries

Geometry	Depth of Discharge (feet below MLLW)	Nozzle Angle (degrees)
Case 1	12.6	15 upward
Case 2	10	5 downward

6.4.2 Depth of Discharge and Nozzle Angle Optimization Mixing Results

After determining the ambient water properties and effluent properties, two cases were determined controlling cases for initial analysis. Because stratification was applied to all the ambient conditions, one controlling case is where the difference between ambient water properties and discharge water properties is minimized. In this case, the stratification of the ambient water could result in a flow class and mixing that does not meet the requirements. The other controlling case is one in which the ambient water properties and discharge properties difference is maximized. For this case, meeting the regulatory requirements for temperature or salinity would require the most mixing. The two controlling cases are listed in Table 6.

Table 6
Controlling Cases for Preliminary Modeling for Depth of Discharge and Nozzle Angle

Season	Scenario	Ambient Water Density			Effluent Density	Density Difference
		Density	Density Top of Water Column	Density Bottom of Water Column		
Summer	5% S/95% T	1,014.0	1,013.4	1,014.6	1,019.6	5.6
	95% S/5% T	1,025.7	1,025.1	1,026.3	1,034.4	8.7

Note:

The density at the top and bottom of the water column are the resulting values after accounting for stratification of the ambient water.

A range of discharge flow rates was evaluated for each single-train and double-train diffuser configurations. Specifically, discharge flows ranging from 11,500 to 24,000 gpm were evaluated for a four-nozzle diffuser configuration. The associated CORMIX results are provided for the two controlling scenarios in Table 7. Discharge flows ranging from 15,000 to 40,000 gpm were evaluated for a seven-nozzle diffuser configuration. The associated CORMIX results are provided for the controlling cases in Table 8.

Table 7
Single-Train Four-Nozzle Diffuser Depth of Discharge and Nozzle Angle CORMIX Results

Geometry	Summer Scenario	Effluent Discharge (gpm)	MZ Results			Other Evaluation Criteria Results		
			Effluent (%)	Temperature Above Ambient (°F)	Evaluation (<1.5°F)	Salinity Above Ambient at 100 m Away (ppt)	Evaluation (<2 ppt)	CORMIX Flow Class
Case 1	5% S/ 95% T	11,500	5.2	-0.14	Yes	0.24	Yes	IMU6
		14,000	5.8	-0.16	Yes	0.27	Yes	IMU6
		16,500	3.3	N/A	N/A	N/A	N/A	IMS4
		19,000	3.5	N/A	N/A	N/A	N/A	IMS4
		22,500	3.6	N/A	N/A	N/A	N/A	IMS4
		24,000	3.7	N/A	N/A	N/A	N/A	IMS4
	95% S/ 5% T	11,500	5.2	0.28	Yes	0.36	Yes	IMU6
		14,000	5.8	0.31	Yes	0.41	Yes	IMU6
		16,500	6.3	0.34	Yes	0.45	Yes	IMU6
		19,000	6.7	0.36	Yes	0.48	Yes	IMU6
		22,500	7.0	0.38	Yes	0.52	Yes	IMU6
		24,000	7.2	0.39	Yes	0.57	Yes	IMU6
Case 2	5% S/ 95% T	11,500	5.2	-0.14	Yes	0.24	Yes	IMU6
		14,000	5.8	-0.16	Yes	0.27	Yes	IMU6
		16,500	6.3	-0.17	Yes	0.3	Yes	IMU6
		19,000	6.7	-0.18	Yes	0.32	Yes	IMU6
		22,500	7	-0.19	Yes	0.35	Yes	IMU6
		24,000	7.2	-0.19	Yes	0.38	Yes	IMU6
	95% S/ 5% T	11,500	5.2	0.28	Yes	0.36	Yes	IMU6
		14,000	5.8	0.31	Yes	0.41	Yes	IMU6
		16,500	6.3	0.34	Yes	0.45	Yes	IMU6
		19,000	6.7	0.36	Yes	0.48	Yes	IMU6
		22,500	7	0.38	Yes	0.52	Yes	IMU6
		24,000	7.2	0.39	Yes	0.57	Yes	IMU6

Notes:

Red shading indicates the evaluation criteria were not met.

N/A: not applicable

Table 8
Double-Train Seven-Nozzle Diffuser Depth of Discharge and Nozzle Angle CORMIX Results

Geometry	Summer Scenario	Effluent Discharge (gpm)	MZ Results			Other Evaluation Criteria Results		
			Effluent (%)	Temperature Above Ambient (°F)	Evaluation (<1.5°F)	Salinity Above Ambient at 100 m Away (ppt)	Evaluation (<2 ppt)	CORMIX Flow Class
Case 1	5% S/ 95% T	15,000	6.8	-0.18	Yes	0.31	Yes	IMU6
		20,000	8.0	-0.22	Yes	0.37	Yes	IMU6
		25,000	8.8	-0.24	Yes	0.42	Yes	IMU6
		30,000	9.3	-0.25	Yes	0.47	Yes	IMU6
		35,000	5.2	N/A	N/A	N/A	N/A	IMS4
		40,000	5.4	N/A	N/A	N/A	N/A	IMS4
	95% S/ 5% T	15,000	6.8	0.37	Yes	0.46	Yes	IMU6
		20,000	8.0	0.43	Yes	0.55	Yes	IMU6
		25,000	8.8	0.47	Yes	0.63	Yes	IMU6
		30,000	9.3	0.50	Yes	0.70	Yes	IMU6
		35,000	9.7	0.53	Yes	0.82	Yes	IMU6
		40,000	10.0	0.54	Yes	1.14	Yes	IMU6
Case 2	5% S/ 95% T	15,000	6.8	-0.18	Yes	0.31	Yes	IMU6
		20,000	8.0	-0.22	Yes	0.37	Yes	IMU6
		25,000	8.8	-0.24	Yes	0.42	Yes	IMU6
		30,000	9.3	-0.25	Yes	0.47	Yes	IMU6
		35,000	9.7	-0.26	Yes	0.55	Yes	IMU6
		40,000	10.0	-0.27	Yes	0.74	Yes	IMU6
	95% S/ 5% T	15,000	6.8	0.37	Yes	0.46	Yes	IMU6
		20,000	8.0	0.43	Yes	0.55	Yes	IMU6
		25,000	8.8	0.47	Yes	0.63	Yes	IMU6
		30,000	9.3	0.50	Yes	0.70	Yes	IMU6
		35,000	9.7	0.53	Yes	0.82	Yes	IMU6
		40,000	10.0	0.54	Yes	1.14	Yes	IMU6

Note:

Red shading indicates the evaluation criteria were not met.

As shown in Tables 7 and 8, the Geometry Case 1 discharge depth of 12.6 feet below MLLW and nozzle angle of 15 degrees upward provides an IMS4 flow class for the higher effluent discharge flows for both the four- and seven-nozzle diffuser configuration. The IMS flow class indicates the flow is trapped in a layer within the linear ambient stratification. When flow trapping occurs, the flow is jet-like and is strongly affected by the ambient density stratification with weak crossflow effect, if

there is any crossflow effect at all. Geometry Case 1 at high-discharge flows do not meet the required flow class and also results in predicted effluent concentrations at the MZ lower than concentrations at the MZ for the smaller discharge flow rates. Therefore, the Geometry Case 1 was deemed unsuitable, and the selected conceptual diffuser geometry configuration is Case 2, with a discharge depth of 10 feet below MLLW and a nozzle angle of 5 degrees downward.

6.4.3 Conceptual Diffuser Configuration and Geometry

The proposed plant may operate at single-train capacity or at full double-train capacity flows, depending on operational conditions. Therefore, the diffuser configuration is modeled for both single-train and double-train operational conditions. The design includes seven nozzles in total and operational flexibility to shut off three of the nozzles if single-train flow is required. A schematic of the conceptual diffuser configuration is shown in Application Attachment 5, Figure 17.

The diffuser pipe length is 60 feet and includes seven total nozzles spaced 10 feet apart, with a nozzle diameter of 18 inches and a 5-degree downward angle to the nozzle outlet.

Under the single-train flow conditions, discharges are between 11,500 and 23,000 gpm, and flow entering the distribution pipe will be restricted (i.e., only allowing flow into the larger outer pipe and discharging through 4 of the nozzles), as shown in Application Attachment 5, Figure 17 (always flowing). Therefore, the single-train diffuser configuration would include a 60-foot-long diffuser pipe, four nozzles spaced 20 feet apart, a nozzle diameter of 18 inches, and a 5-degree downward angle for the nozzle outlet.

Under the double-train flow conditions, discharges are between 23,000 and 40,000 gpm, and the remaining three nozzles are used, and discharge occurs through all seven nozzles, as shown in Application Attachment 5, Figure 17 (flowing at high discharge only). The diffuser would include the ability to operate at either single-train or double-train flow.

6.5 CORMIX Mixing Results

CORMIX was used to simulate the performance of the conceptual diffuser configuration for a range of various flows that encompassed the expected flows for each of the single-train and double-train configurations separately. CORMIX results for 48 scenarios for each configuration (eight sets of ambient conditions times six flow rates) were evaluated based on the following criteria:

Temperature may not increase above ambient by more than 1.5°F (summer) or 4°F (winter) at the edge of the MZ boundary. Salinity may not increase above ambient by more than 2 ppt at 100 meters (328 feet) away from the discharge CORMIX-assigned flow class of IMU6

6.5.1 *Considering the Limiting Effluent Percentage*

For the CORMIX analysis, it is necessary to consider the limiting effluent (LE) percentage when interpreting the model's numerical predictions of effluent percentages with distance from the diffuser. The LE is the lowest physically achievable effluent percentage for the system after mixing. Because the effluent is discharged into a channel, the effluent's ability to dilute with ambient water is constrained by the amount of ambient background flow passing through the channel. LE is inversely related to the limiting dilution (LD), which is a limit determined by CORMIX. The LD is a mass balance of the effluent discharge flow and the ambient background flow. This relationship is expressed in Equation 2.

Equation 2

$$LD = \frac{Q_A}{Q_E} + 1$$

where:

Q_A = ambient flow (m³/s)

Q_E = effluent discharge (m³/s)

If the CORMIX results predict effluent dilution exceeding the LD (i.e., more dilution than should be possible) then the CORMIX software would provide a note stating the predictions would be unreliable. Because the evaluations for the temperature at the edge of the MZ and the salinity at 100 m away from the diffuser location are based on the effluent percentage instead of dilutions, the LE is calculated from the LD. The equation for LE is provided in Equation 3.

Equation 3

$$LE = \frac{1}{\frac{Q_A}{Q_E} + 1} * 100$$

where:

Q_A = ambient flow (m³/s)

Q_E = effluent discharge (m³/s)

LE constrains the effluent percentage value after mixing based on a theoretical maximum achievable amount of mixing. Therefore, in the interpretation of the CORMIX model results, any predicted effluent percentage value less than the LE would be set to the value of the LE.

The ambient flow, Q_A , is determined based on the ambient velocity of 0.05 m/s (per TCEQ 2018) and the rectangular schematized channel (Application Attachment 5, Figure 15), which has dimensions of 365.74 by 12.8 m. Therefore, Q_A is 234.07 m³/s.

The LE is different for each effluent discharge, Q_E . Tables 9 and 10 summarize the LE calculated for each effluent discharge for the four-nozzle and seven-nozzle diffuser configurations.

Table 9
Single-Train Four-Nozzle Diffuser Limiting Effluent Percentage

Effluent Discharge (gpm)	Effluent Discharge (m ³ /s)	Ambient Flow (m ³ /s)	LE Percentage (%)
11,500	0.7255	234.07	0.31
14,000	0.8833	234.07	0.38
16,500	1.0410	234.07	0.44
19,000	1.1987	234.07	0.51
22,500	1.3564	234.07	0.58
24,000	1.5142	234.07	0.64

Table 10
Double-Train Seven-Nozzle Diffuser Limiting Effluent Percentage

Effluent Discharge (gpm)	Effluent Discharge (m ³ /s)	Ambient Flow (m ³ /s)	LE Percentage (%)
15,000	0.946	234.07	0.40
20,000	1.2615	234.07	0.54
25,000	1.5769	234.07	0.67
30,000	1.8924	234.07	0.80
35,000	2.2078	234.07	0.93
40,000	2.5233	234.07	1.07

6.5.2 Evaluation of Diffuser Performance for Single-Train Configuration

Results from the analysis for the single-train configuration are provided in Table 11 (summer) and Table 12 (winter). For the flow rates evaluated, all scenarios result in sufficient mixing to achieve the evaluation criteria. All increases in temperature at the MZ are less than 1.5°F in summer and 4°F in winter, all increases in salinity at 100 m from the discharge are less than 2 ppt, and all flow classes are IMU6. This indicates the proposed diffuser configuration will meet the evaluation criteria for flows between 11,500 and 24,000 gpm when operated in the single-train configuration.

Table 11
Single-Train Four-Nozzle Diffuser Summer Scenario CORMIX Results

Season	Scenario	Effluent Discharge (gpm)	MZ Results			Other Evaluation Criteria Results		
			Effluent (%)	Temperature Above Ambient (°F)	Evaluation (<1.5°F)	Salinity Above Ambient at 100 m Away (ppt)	Evaluation (<2 ppt)	CORMIX Flow Class
Summer	5% S/ 5% T	11,500	5.2	0.28	Yes	0.24	Yes	IMU6
		14,000	5.8	0.31	Yes	0.27	Yes	IMU6
		16,500	6.3	0.34	Yes	0.30	Yes	IMU6
		19,000	6.7	0.36	Yes	0.32	Yes	IMU6
		22,500	7.0	0.38	Yes	0.35	Yes	IMU6
		24,000	7.2	0.39	Yes	0.38	Yes	IMU6
	5% S/ 95% T	11,500	5.2	-0.14	Yes	0.24	Yes	IMU6
		14,000	5.8	-0.16	Yes	0.27	Yes	IMU6
		16,500	6.3	-0.17	Yes	0.30	Yes	IMU6
		19,000	6.7	-0.18	Yes	0.32	Yes	IMU6
		22,500	7.0	-0.19	Yes	0.35	Yes	IMU6
		24,000	7.2	-0.19	Yes	0.38	Yes	IMU6
	95% S/ 5% T	11,500	5.2	0.28	Yes	0.36	Yes	IMU6
		14,000	5.8	0.31	Yes	0.41	Yes	IMU6
		16,500	6.3	0.34	Yes	0.45	Yes	IMU6
		19,000	6.7	0.36	Yes	0.48	Yes	IMU6
		22,500	7.0	0.38	Yes	0.52	Yes	IMU6
		24,000	7.2	0.39	Yes	0.57	Yes	IMU6
	95% S/ 95% T	11,500	5.2	-0.14	Yes	0.36	Yes	IMU6
		14,000	5.8	-0.16	Yes	0.41	Yes	IMU6
		16,500	6.3	-0.17	Yes	0.45	Yes	IMU6
		19,000	6.7	-0.18	Yes	0.48	Yes	IMU6
		22,500	7.0	-0.19	Yes	0.52	Yes	IMU6
		24,000	7.2	-0.19	Yes	0.57	Yes	IMU6

Table 12

Single-Train Four-Nozzle Diffuser Winter Scenario CORMIX Results

Season	Scenario	Effluent Discharge (gpm)	MZ Results			Other Evaluation Criteria Results		
			Effluent (%)	Temperature Above Ambient (°F)	Evaluation (<4°F)	Salinity Above Ambient at 100 m Away (ppt)	Evaluation (<2 ppt)	CORMIX Flow Class
Winter	5% S/ 5% T	11,500	5.2	1.76	Yes	0.25	Yes	IMU6
		14,000	5.8	1.96	Yes	0.29	Yes	IMU6
		16,500	6.3	2.12	Yes	0.31	Yes	IMU6
		19,000	6.7	2.25	Yes	0.34	Yes	IMU6
		22,500	7.0	2.35	Yes	0.37	Yes	IMU6
		24,000	7.2	2.42	Yes	0.40	Yes	IMU6
	5% S/ 95% T	11,500	5.2	1.03	Yes	0.25	Yes	IMU6
		14,000	5.8	1.15	Yes	0.29	Yes	IMU6
		16,500	6.3	1.25	Yes	0.31	Yes	IMU6
		19,000	6.7	1.32	Yes	0.34	Yes	IMU6
		22,500	7.0	1.38	Yes	0.37	Yes	IMU6
		24,000	7.2	1.42	Yes	0.40	Yes	IMU6
	95% S/ 5% T	11,500	5.2	1.76	Yes	0.33	Yes	IMU6
		14,000	5.8	1.96	Yes	0.37	Yes	IMU6
		16,500	6.3	2.12	Yes	0.40	Yes	IMU6
		19,000	6.7	2.25	Yes	0.44	Yes	IMU6
		22,500	7.0	2.35	Yes	0.47	Yes	IMU6
		24,000	7.2	2.42	Yes	0.51	Yes	IMU6
	95% S/ 95% T	11,500	5.2	1.03	Yes	0.33	Yes	IMU6
		14,000	5.8	1.15	Yes	0.37	Yes	IMU6
		16,500	6.3	1.25	Yes	0.40	Yes	IMU6
		19,000	6.7	1.32	Yes	0.44	Yes	IMU6
		22,500	7.0	1.38	Yes	0.47	Yes	IMU6
		24,000	7.2	1.42	Yes	0.51	Yes	IMU6

6.5.3 Evaluation of Diffuser Performance for Double-train Configuration

Results from the analysis for the double-train configuration are provided in Table 13 (summer) and Table 14 (winter). For the flow rates evaluated, all scenarios result in sufficient mixing to achieve the evaluation criteria. All increases in temperature at the MZ are less than 1.5°F in summer and 4°F in winter, all increases in salinity at 100 meters (328 feet) from the discharge are less than 2 ppt, and all

flow classes are IMU6. This indicates the conceptual diffuser configuration will meet the evaluation criteria for flows between 15,000 and 40,000 gpm when operated in the double-train configuration.

Table 13
Double-Train Seven-Nozzle Diffuser Summer Scenario CORMIX Results

Season	Scenario	Effluent Discharge (gpm)	MZ Results			Other Evaluation Criteria Results		
			Effluent (%)	Temperature Above Ambient (°F)	Evaluation (<1.5°F)	Salinity Above Ambient at 100 m Away (ppt)	Evaluation (<2 ppt)	CORMIX Flow Class
Summer	5% S/ 5% T	15,000	6.8	0.37	Yes	0.31	Yes	IMU6
		20,000	8.0	0.43	Yes	0.37	Yes	IMU6
		25,000	8.8	0.47	Yes	0.42	Yes	IMU6
		30,000	9.3	0.50	Yes	0.47	Yes	IMU6
		35,000	9.7	0.53	Yes	0.55	Yes	IMU6
		40,000	10.0	0.54	Yes	0.74	Yes	IMU6
	5% S/ 95% T	15,000	6.8	-0.18	Yes	0.31	Yes	IMU6
		20,000	8.0	-0.22	Yes	0.37	Yes	IMU6
		25,000	8.8	-0.24	Yes	0.42	Yes	IMU6
		30,000	9.3	-0.25	Yes	0.47	Yes	IMU6
		35,000	9.7	-0.26	Yes	0.55	Yes	IMU6
		40,000	10.0	-0.27	Yes	0.74	Yes	IMU6
	95% S/ 5% T	15,000	6.8	0.37	Yes	0.46	Yes	IMU6
		20,000	8.0	0.43	Yes	0.55	Yes	IMU6
		25,000	8.8	0.47	Yes	0.63	Yes	IMU6
		30,000	9.3	0.50	Yes	0.70	Yes	IMU6
		35,000	9.7	0.53	Yes	0.82	Yes	IMU6
		40,000	10.0	0.54	Yes	1.14	Yes	IMU6
	95% S/ 95% T	15,000	6.8	-0.18	Yes	0.46	Yes	IMU6
		20,000	8.0	-0.22	Yes	0.55	Yes	IMU6
		25,000	8.8	-0.24	Yes	0.63	Yes	IMU6
		30,000	9.3	-0.25	Yes	0.70	Yes	IMU6
		35,000	9.7	-0.26	Yes	0.82	Yes	IMU6
		40,000	10.0	-0.27	Yes	1.14	Yes	IMU6

Table 14
Double-Train Seven-Nozzle Diffuser Winter Scenario CORMIX Results

Season	Scenario	Effluent Discharge (gpm)	MZ Results			Other Evaluation Criteria Results		
			Effluent (%)	Temperature Above Ambient (°F)	Evaluation (<4°F)	Salinity Above Ambient at 100 m Away (ppt)	Evaluation (<2 ppt)	CORMIX Flow Class
Winter	5% S/ 5% T	15,000	6.8	2.30	Yes	0.39	Yes	IMU6
		20,000	8.0	2.70	Yes	0.39	Yes	IMU6
		25,000	8.8	2.97	Yes	0.44	Yes	IMU6
		30,000	9.4	3.15	Yes	0.49	Yes	IMU6
		35,000	9.7	3.28	Yes	0.58	Yes	IMU6
		40,000	10.0	3.37	Yes	0.78	Yes	IMU6
	5% S/ 95% T	15,000	6.8	1.35	Yes	0.32	Yes	IMU6
		20,000	8.0	1.58	Yes	0.39	Yes	IMU6
		25,000	8.8	1.74	Yes	0.44	Yes	IMU6
		30,000	9.4	1.85	Yes	0.49	Yes	IMU6
		35,000	9.7	1.93	Yes	0.58	Yes	IMU6
		40,000	10.0	1.98	Yes	0.78	Yes	IMU6
	95% S/ 5% T	15,000	6.8	2.30	Yes	0.42	Yes	IMU6
		20,000	8.0	2.70	Yes	0.50	Yes	IMU6
		25,000	8.8	2.97	Yes	0.56	Yes	IMU6
		30,000	9.4	3.15	Yes	0.63	Yes	IMU6
		35,000	9.7	3.28	Yes	0.74	Yes	IMU6
		40,000	10.0	3.37	Yes	1.02	Yes	IMU6
	95% S/ 95% T	15,000	6.8	1.35	Yes	0.42	Yes	IMU6
		20,000	8.0	1.58	Yes	0.50	Yes	IMU6
		25,000	8.8	1.74	Yes	0.56	Yes	IMU6
		30,000	9.4	1.85	Yes	0.63	Yes	IMU6
		35,000	9.7	1.93	Yes	0.74	Yes	IMU6
		40,000	10.0	1.98	Yes	1.02	Yes	IMU6

6.5.4 Low Concentration Factor and Stormwater Discharge

During precipitation events, the diffuser will also discharge stormwater from the facility. During these precipitation events, approximately 5,000 gpm of stormwater flow could occur in combination with the effluent discharges. Because the stormwater would be discharged in combination with the effluent during or following precipitation events, the SCF of the effluent with stormwater would

decrease to <1.2. That is, the effluent would be prediluted with stormwater prior to discharging into the ambient water, and the effluent density would be closer to ambient density than with a concentration factor of 1.3. As shown in Tables 11 to 14, all evaluation criteria are met for the concentration factor of 1.3. In addition, with the proposed diffuser configuration (Case 2), Tables 7 and 8 show the evaluation criteria are met when the effluent water density is both most similar to, and most different from, the ambient water density. This demonstrates the proposed diffuser is effective at meeting the evaluation criteria over a wide range of ambient and effluent properties and flow rates.

6.6 Summary

This report describes the mixing modeling study for the IBA plant. The modeling has been performed for the IBA plant operating within two potential discharge flow ranges. The first is the single-train diffuser configuration in which effluent discharges would range from 11,500 to 24,000 gpm. The second is the double-train diffuser configuration in which effluent discharges would range from 20,000 to 40,000 gpm. Ambient water density conditions were determined for the 5% and 95% salinity and temperature during both winter and summer. Ambient stratification was determined based on the ambient water data and included in all the CORMIX model scenarios.

The conceptual diffuser configuration is a multiport diffuser assembly consisting of a 60-foot-long diffuser pipe with seven risers and seven nozzles with 18-inch diameter ports. When operating under the single-train flow ranges, four ports would be open to discharge the effluent. When operating under the double-train flow ranges, all seven ports would be open to discharge the effluent. This is to maintain a diffuser configuration for a range of flows from 11,500 to 40,000 gpm that achieves all the evaluation criteria.

The diffuser would be placed at a depth of 10 feet below MLLW and be mechanically attached to the existing pier at the proposed location. The diffuser nozzles would be angled 5 degrees below the horizon. Because the diffuser is a multiport diffuser, rectangular mixing zones for the ZID, MZ, and HHMZ were defined following TCEQ methodology (Michalk 2024). The resulting mixing zone rectangular dimensions are as follows:

- ZID: 37.7 m x 19.4 m
- MZ: 117.6 m x 99.3 m
- HHMZ: 225.4 m x 207.1 m

The CORMIX model results were evaluated based on the following evaluation criteria:

- Temperature may not increase above ambient by more than 1.5°F (summer) or 4°F (winter) at the edge of the MZ boundary

- Salinity may not increase above ambient by more than 2 ppt at 100 m away from the discharge
- CORMIX-assigned flow class of IMU6

Tables 11 through 14 provide the CORMIX results for the conceptual diffuser configuration for the single-train four-nozzle diffuser and double-train seven-nozzle diffuser for effluent discharges ranging from 11,500 to 40,000 gpm. The diffuser configuration meets all the evaluation criteria for the temperature, salinity, and flow class requirements and would continue to meet these criteria with the addition of stormwater (see Section 6.5.4).

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Attachment 3 Source Water Baseline Biological Characterization Report



December 2024
Ingleside Blue Ammonia Plant



Source Water Baseline Biological Characterization Report (Worksheet 11.2)

Prepared for Ingleside Clean Ammonia Partners, LLC

December 2024
Ingleside Blue Ammonia Plant

Source Water Baseline Biological Characterization Report (Worksheet 11.2)

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ABBREVIATIONS

Bay	Corpus Christi Bay
CWIS	cooling water intake structure
NMFS	National Marine Fisheries Service

1 Source Water Baseline Biological Characterization Data (Worksheet 11.2)

As required by Worksheet 11.2 in accordance with Title 40 *Code of Federal Regulations* §122.21(r)(4), this section provides information on the source waterbody to characterize the biological community in the vicinity of the cooling water intake structure (CWIS) at the Ingleside Blue Ammonia Plant. This report relies upon relevant literature in the public domain and information provided by Ingleside Clean Ammonia Partners, LLC.

1.1 Regulatory Requirements

This section summarizes the requirements found in Worksheet 11.2 in accordance with Title 40 *Code of Federal Regulations* Section 122.21(r)(4) and where items can be found within this report.

The following requirements can be found in Section 1.2:

- Item 2A: A list of the data requested at 40 CFR § 122.21(r)(4)(ii) through (vi) that are not available, and efforts made to identify sources of the data.

The following requirements can be found in Section 1.3:

- Item 2B: Provide a list of species (or relevant taxa) in the vicinity of the CWIS.
- Item 2D: Identify all threatened, endangered, and other protected species that might be susceptible to impingement and entrainment at the CWIS.

The following requirements can be found in Section 1.4:

- Item 2B: Identify the following information regarding each species listed:
 - all life stages and their relative abundance
 - identification of all species and life stages that would be most susceptible to impingement and entrainment
 - significance to commercial fisheries
 - significance to recreational fisheries
 - primary period of reproduction
 - period of peak abundance for relevant taxa

The following requirements can be found in Section 1.5:

- Item 2B: Identify the following information regarding each species listed:
 - forage base
 - larval recruitment
- Item 2C: Data representative of the seasonal and daily activities (e.g., feeding and water column migration) of biological organisms in the vicinity of the CWIS.

The following requirements can be found in Section 1.6:

- Item 2E: Documentation of any public participation or consultation with federal or state agencies undertaken.

The following requirements can be found in Section 1.7:

- Item 2F: Identify any protective measures and stabilization activities that have been implemented and provide a description of how these measures and activities affected the baseline water condition in the vicinity of the intake.
- Item 2G: A list of fragile species, as defined at 40 CFR § 125.92(m), at the facility. The applicant need only identify those species not already identified as fragile at 40 CFR § 125.92(m).

1.2 Information Not Available (Item 2A)

All relevant information necessary to fulfill the reporting requirements of Sections (r)(4)(ii) through (r)(4)(vi) was determined to be available for the purpose of this report, except the abundance by life stage. Intensive literature reviews were conducted in an attempt to identify sources of the missing data. While the literature typically summarized the overall abundance of species found in Corpus Christi Bay (Bay), it did not specify the abundance of each individual life stage. Instead, where data are available, the abundance of each species reflects a combination of all life stages (Table 1).

1.3 Species in the Vicinity of the Cooling Water Intake Structure and Their Protective Statuses (Items 2B and 2D)

This section uses both general and site-specific literature and serves to satisfy the requirements of Items 2B and 2D of Worksheet 11.2. Item 2B requires a list of species (or relevant taxa) in the vicinity of the CWIS. Item 2D requires identification of all threatened, endangered, and other protected species susceptible to impingement and entrainment at the CWIS.

Based on Texas Commission on Environmental Quality coordination and the abundance of available scientific literature on biological resources within Corpus Christi Bay, biological studies were not conducted for the specific purpose of supporting this report. Table 1 provides a comprehensive list of species in the vicinity of the CWIS and their protective statuses.

1.3.1 Relevant Literature Review

The Bay is a well-studied waterbody that supports a diverse collection of aquatic and amphibious wildlife. The Bay is one of seven major estuaries along the Gulf Coast of Texas and has been deemed an estuary of national significance by the U.S. Environmental Protection Agency. Two documents, summarized in the following sections, were used in this report to compile the kinds of species anticipated to be present in the Bay. Although species gathered from various Gulf of Mexico estuary settings are mentioned in the literature, this report focuses solely on the Bay.

1.3.1.1 *Distribution and Abundance of Fishes and Invertebrates in Gulf of Mexico Estuaries*

The *Distribution and Abundance of Fishes and Invertebrates in Gulf of Mexico Estuaries* (Nelson and Pattillo 1992) is a synthesis of previously written reports for estuaries along the Gulf of Mexico and the coasts of Florida, Alabama, Mississippi, Louisiana, and Texas. Data are provided on spatial and temporal distribution and relative abundance of 44 fish and invertebrate species found within the previously mentioned estuaries. The data are part of the National Oceanic and Atmospheric Administration's Estuarine Living Marine Resources program, which is conducted through joint regional studies by the National Ocean Service and National Marine Fisheries Service (NMFS).

Species within the report were selected based on four parameters: 1) commercial value; 2) recreational value; 3) indicator species of environmental stress; and 4) ecological value. Commercial value was determined by review of catch data and value statistics from NMFS, whereas recreational value was determined by consulting regional experts and NMFS. Indicator species of environmental stress were identified from the literature, discussions with fisheries experts, and from monitoring programs. Lastly, ecological value was based on trophic level, relative abundance, and importance as a key predator or prey species. For well-studied species, quantitative data were used to estimate abundance levels. Regional and local experts were consulted to estimate relative abundances for lesser-studied species based on these parameters.

1.3.1.2 *Current Status and Historical Trends of the Estuarine Living Resources Within the Corpus Christi Bay National Estuary Program Study Area*

As part of the *Current Status and Historical Trends of Estuarine Living Resources of the Corpus Christi Bay National Estuary Program Study Area* (Tunnell et al. 1996), a checklist was created to compile all known records of species inhabiting the area. The checklist includes a taxonomic listing of all reported species living within the Corpus Christi Bay National Estuary Program study area, as well as habitat, distribution, relative abundance, and references.

In its study, the authors acknowledged that the various scientific studies and published literature were not conducted consistently, certain information may have been deficient or erroneous. These constraints in the source literature resulted in missing or unknown information when the authors developed their checklist. Therefore, their report categorized unknown data in various ways, such as using generic or familia names for unidentified species or using symbols within columns and categories to indicate missing information. As a result, the data presented in the checklist are incomplete and were recommended to be expanded upon over time¹.

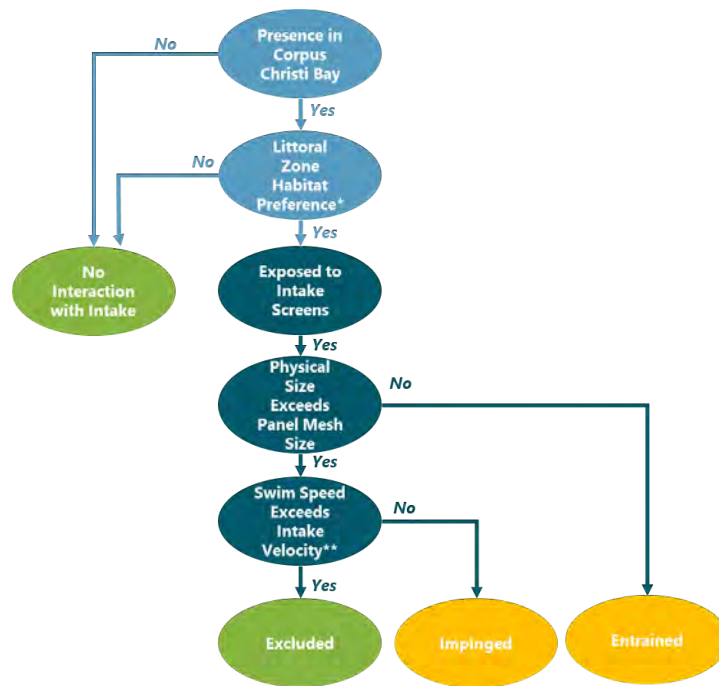
¹ The decision was made to use this reference to supplement the other primary literature used, and, despite the constraints the authors noted, their dataset did provide value in establishing a list of organisms from which to select organisms the report would further evaluate.

1.4 Species Susceptible to Impingement or Entrainment, Significance of Species to Commercial and Recreational Fisheries, Primary Period of Species Reproduction, and Period of Peak Abundance (Item 2B)

Due to the extensive list of species found in the Bay, only select species were evaluated to further satisfy the requirements of Item 2B. In consideration of the CWIS design still being finalized, the following assumptions were made to focus the list of species to those that encounter the intake and could be at risk because of their biological characteristics:

1. Given the anticipated location of the CWIS in the water column, benthic organisms are not likely to encounter the CWIS.
2. The CWIS “innermost” mesh panel size is anticipated to be between 2 to 6 millimeters. An organism with a body size smaller than the mesh intake panel is more likely to experience entrainment, whereas an organism with a body size that exceeds the mesh panel size is potentially susceptible to impingement, depending on their swim speed.
3. Per the U.S. Environmental Protection Agency, the design through-screen intake velocity is restricted to 0.5 foot per second for new CWIS (Title 40 *Code of Federal Regulations* §125.84(b)(4)). Therefore, organisms residing in the water column that have swimming abilities sufficient to escape intake velocities of up to 0.5 foot per second were deemed not as susceptible to impingement (Figure 1).

Figure 1
Flowchart Depicting the Susceptibility of an Organism to Impingement or Entrainment



Notes:

*The littoral zone is a shallow marine habitat that experiences effects of tidal and longshore currents. This zone is distinct from the benthic zone, where bottom-dwelling creatures reside.

**U.S. Environmental Protection Agency Regulation 40 CFR §125.84(b)(4) restricts the design through-screen intake velocity to 0.5 foot per second for the new CWIS.

Additionally, the species defined by the criteria listed previously were further categorized on the basis of robust data regarding their abundance (Highly Abundant or Abundant), as well as their International Union for Conservation of Nature Red List protected status (Near Threatened, Threatened, Vulnerable, Endangered, or Critically Endangered). Important gamefish species for the state of Texas were also considered, due to their significance to recreational anglers (TPWD 2024c, 2024e). Species abundance was collected from Tunnell et al. (1996) and Nelson and Pattillo (1992); whereas, protected statuses were collected from the U.S. Fish and Wildlife Service (2024), National Oceanic and Atmospheric Administration Fisheries (NOAA 2024j), and International Union for Conservation of Nature Red List (2024). Table 2 provides a comprehensive list of the aforementioned species.

Item 2B of Worksheet 11.2 requires the following:

- Identify the following information regarding each species listed:
 - all life stages and their relative abundance

- identification of all species and life stages that would be most susceptible to impingement and entrainment
- significance to commercial fisheries
- significance to recreational fisheries
- primary period of reproduction
- period of peak abundance for relevant taxa

1.5 Life History Evaluation and Daily and Seasonal Activities (Items 2B and 2C)

Literature was reviewed for each of the selected species and information is provided to satisfy requirements for lifespan, reproduction, diet, range, habitat, and size. The lifespan of a species is defined as the average number of years a species was found living in the wild. Reproduction details how many offspring are produced by a species per breeding season, as well as larval recruitment habits. Because certain life phases feed on the diet of other life stages, a species' diet combines the preferences of all life stages; the diet of a species includes their forage base and daily feeding habits. The range of a species is defined as the area where a particular species can be found during its lifetime. A species' habitat describes the places where an organism lives during its juvenile and adult life stages, including the daily and seasonal habits of those stages. Species' size is defined by the average length of a species upon reaching adulthood.

Item 2B requires identifying information regarding each species listed (i.e., forage base and larval recruitment). Item 2C requires data representative of the seasonal and daily activities (e.g., feeding and water column migration) of biological organisms in the vicinity of the CWIS.

1.5.1 Crustaceans

Crustaceans are defined by the presence of an exoskeleton, boneless body, and a pair of antennae. Within the Bay, the following seven crustacean species were found to be Highly Abundant or Abundant:

- Brown Shrimp (*Penaeus aztecus*; Nelson and Patillo 1992)
 - Lifespan: usually <2 years
 - Reproduction: able to reproduce when approximately 5.5 inches long; spawn in relatively deep water (females typically release approximately 500,000 to 1 million eggs near the ocean floor); newly hatched shrimp travel to estuarine nursery habitats
 - Diet: plankton, worms, algae, microscopic animals, and organic debris; feed on the bottom at night
 - Range: western north Atlantic, from Massachusetts to the Florida Keys, and along the Gulf Coast to northwestern Yucatan in Mexico

- Habitat: muddy or peaty bottoms rich in organic matter and decaying vegetation; primarily travel at night and bury themselves during the day; newly hatched shrimp enter estuaries and migrate to deeper, saltier water as they grow
- Size: can reach up to 7 inches in length
- White Shrimp (*Penaeus setiferus*; Nelson and Patillo 1992)
 - Lifespan: usually <2 years
 - Reproduction: able to reproduce when approximately 5.5 inches long; spawn when offshore ocean bottom water temperatures increase (females typically release approximately 500,000 to 1 million eggs near the ocean floor); newly hatched shrimp travel to estuarine nursery habitats
 - Diet: plankton, detritus, plants, microorganisms, macroinvertebrates, and small fish; feed on the bottom; cannibalism common among adults
 - Range: New York to the Atlantic Coast of Florida, and along the Gulf Coast from Florida to Mexico
 - Habitat: estuaries and coastal areas approximately 100 feet offshore; young shrimp live and grow in nursery areas with muddy ocean bottoms; often found with brown shrimp
 - Size: can reach up to 7 or 8 inches in length
- Daggerblade Grass Shrimp (*Palaemonetes pugio*; ADW 2024a)
 - Lifespan: 6 to 13 months
 - Reproduction: spawn when water warms up (females can release 250 to 450 eggs in a season); fertilized eggs take between 15 and 20 days to mature); juveniles mature at 1.5 to 2 months
 - Diet: oligochaetes, polychaetes, copepods, zooplankton, algae, and detritus; feed on the bottom
 - Range: Maine to Texas
 - Habitat: all life stages reside in salt marshes and connecting streams where fresh and saltwater combine; prefer submerged vegetation
 - Size: can reach up to 50 millimeters in length
- Green Porcelain Crab (*Petrolisthes armatus*, SERC 2024)
 - Lifespan: 3+ years in captivity; lifespan in the wild unknown
 - Reproduction: spawn when water warms up (females can release 25 to 900 eggs in a season); larvae tend to move toward deeper water during development, leading to upstream transport into estuaries, where they'll reside until becoming juveniles
 - Diet: phytoplankton and detritus
 - Range: Mexico to Peru; North Carolina to southern Brazil, and Senegal to Angola
 - Habitat: adults and juveniles found in subtidal habitats, such as rock rubble and oyster reefs
 - Size: 6 to 8 millimeters

- Ridgeback Mud Crab (*Eurypanopeus turgidus*; Hudson River Park 2020): very little is known about the Ridgeback Mud Crab, the following information is given as an overall description of the Mud Crab family (*Xanthidae*):
 - Lifespan: unknown
 - Reproduction: spawn when water warms up (females migrate offshore to spawn and can release 2 to 5 million eggs)
 - Diet: mollusks, smaller crabs, worms, and plant material; emerge at night to forage for food
 - Range: western Atlantic Ocean
 - Habitat: estuaries, salt marshes, and mangroves; bury themselves in mud during the day
 - Size: <3 inches
- Gulf Grassflat Crab (*Dyspanopeus texanus*; iNaturalist AU 2024)
 - Lifespan: unknown
 - Reproduction: spawn when water warms up (females migrate offshore to spawn and can release 2 to 5 million eggs); very little known; the Mud Crab family (*Xanthidae*) is used as a general description
 - Diet: zooplankton and red algae
 - Range: Gulf of Mexico
 - Habitat: coastal lagoons; usually found on macroalgae, seagrasses, and submerged aquatic vegetation
 - Size: 2.5 centimeters
- Blue Crab (*Callinectes sapidus*; Nelson and Patillo 1992)
 - Lifespan: 3 to 4 years
 - Reproduction: females can produce between 750,000 and 3.2 million eggs per brood; eggs hatch into larvae and go through a series of molts in high-salinity coastal water, followed by migration back into estuaries; seagrass beds often used as nursery habitats for young
 - Diet: clams, oysters, mussels, smaller crustaceans, dead fish, plant and animal detritus, and smaller soft-shelled blue crabs; feed off the bottom
 - Range: Atlantic Coast of the Americas from Nova Scotia to Argentina, including the Gulf of Mexico
 - Habitat: very common in estuaries and can be found offshore; juveniles and adults use multiple habitats, such as seagrasses and oyster reefs; strong swimmers; will burrow into sand to hide from predators; abundant in shallow water areas during warm weather, but burrow into sediment when water temperature drops
 - Size: up to 9 inches

1.5.2 Bony Fish

Bony fish have a skeleton made of bone rather than cartilage, have scales, and belong to the class Osteichthyes. Within the Bay, the following 23 bony fish species were found to be Abundant or Highly Abundant, and occasionally Vulnerable:

- Sheepshead Minnow (*Cyprinodon variegatus*; TPWD 2024a)
 - Lifespan: unknown
 - Reproduction: females deposit between 100 to 300 eggs per spawning period; eggs clump together and sink to seabed
 - Diet: plant material, algae, detritus, mosquitoes, and smaller fish
 - Range: found along the Atlantic Coast, Gulf of Mexico, and South American coastline
 - Habitat: prefer quiet, shallow waters; found in saltwater bays and estuaries, as well as coastal inland areas, such as creeks, canals, and ditches; travel in schools, especially when frightened; dig into sediment to hide from predators or seek refuge from very warm or cold water; larvae, juveniles, and adults typically move during the day and rest at night
 - Size: 1.8 to 4.6 inches
- Lined Seahorse (*Hippocampus erectus*; Florida Museum 2024)
 - Lifespan: approximately 1 year
 - Reproduction: females transfer between 250 and 650 eggs into the brood pouch of males; hatchlings are carried within the pouch until they can actively swim; once hatched, they reside near the surface of the water column until adulthood
 - Diet: small shrimp, very small fish, plants, and plankton
 - Range: western Atlantic coastlines, from Cape Cod to Uruguay
 - Habitat: adults observed clinging to aquatic vegetation, including mangroves, seagrasses, sponges, corals, and floating sargassum; adults associated with vegetation or swimming freely in the water column; newborns and juveniles tend to swim close to the surface of the water; poor swimmers; move to deeper waters during winter months
 - Size: up to 7.5 inches
- Gray Triggerfish (*Balistes capriscus*; NOAA, 2024i)
 - Lifespan: up to 16 years
 - Reproduction: spawning occurs on offshore reefs or hard-bottom habitats; females deposit an average of 770,000 demersal eggs into guarded nests; once hatched, larvae travel to surface where they reside among mats of Sargassum
 - Diet: shrimps, crabs, mollusks, sea urchins, sand dollars, starfish, and sea cucumbers
 - Range: Nova Scotia to the Caribbean Sea, the Gulf of Mexico and Bermuda, and southwards towards Argentina

- Habitat: adults are typically found over hard bottoms on reefs and rocky areas, in lagoons and bays that exceed 80 feet; larvae and juveniles eventually move to the ocean bottom; adults are found either alone or in small groups
- Size: 17 to 28 inches
- Tarpon (*Megalops atlanticus*; ADW 2024b)
 - Lifespan: 55 to 63 years
 - Reproduction: females produce 4.5 to 20.7 million eggs; known to spawn multiple times in a season; migrate offshore to spawn; upon hatching, larvae float into estuaries via currents
 - Diet: zooplankton, fish, insects, and crustaceans
 - Range: eastern and western Atlantic Ocean (United States to Brazil) and Senegal to the Congo
 - Habitat: adults and juveniles found in estuaries, bays, and lagoons; occupy warmer waters in subtropical areas; feed mostly on midwater prey during day and night; and form schools, particularly while feeding
 - Size: 5 to 7 feet
- Gulf Menhaden (*Brevoortia patronus*; Louisiana Fisheries 2024)
 - Lifespan: 5 to 6 years
 - Reproduction: females release an average of 23,000 eggs; eggs and larvae spend 3 to 5 weeks in offshore waters as currents carry them into estuaries; currents take larvae through open bays via tidal flows to maximize transport into estuaries; larvae show a diel pattern in vertical distribution, where they are found at the surface water throughout the day, followed by vertical dispersion at night
 - Diet: filter feeders; primarily feed on zooplankton, phytoplankton, and detritus
 - Range: Gulf of Mexico
 - Habitat: adults inhabit nearshore waters and lower bays; juveniles reside in fresh and brackish estuaries and rivers; migrate offshore late-summer and fall; do not exhibit an extensive migratory pattern
 - Size: 8 to 12 inches
- Bay Anchovy (*Anchoa mitchilli*; Nelson and Patillo 1992)
 - Lifespan: 3 years
 - Reproduction: females can spawn 50 times in one season producing 1,000 eggs each time; eggs are spawned in waters <60 feet deep; most abundant at surface; larvae primarily occupy upper portion of the water column
 - Diet: zooplankton, detritus, and microinvertebrates; form small schools at night while feeding in presence of predators
 - Range: Atlantic Ocean and Gulf of Mexico, from Maine to Yucatan
 - Habitat: adults and juveniles spend most time swimming through the water column; can also be found over bare substrates at the ocean floor and in tide pool and surf zones; can live in

muddy, brackish waters; move into deeper waters of bays and estuaries during winter and back inshore during summer

- Size: up to 2.5 inches
- Bluefish (*Pomatomus saltatrix*; Nelson and Patillo 1992)
 - Lifespan: up to 12 years
 - Reproduction: females can have between 400,000 and 2 million eggs; spawn multiple times throughout season; females release eggs in the open ocean; larvae develop into juveniles near surface in continental shelf waters and eventually move to estuarine and nearshore shelf habitats
 - Diet: squid, shrimp, crabs, and fish; exhibit feeding behavior called the “bluefish blitz” where large schools of big fish attack bait fish near the surface; feeds voraciously on prey, eating almost anything they can catch and swallow
 - Range: worldwide temperate and tropical oceans, except eastern Pacific
 - Habitat: travel in very large schools; migrate north in spring and summer; south in autumn and winter; juveniles prefer sandy ocean bottoms, but will inhabit mud, silt, or clay ocean bottoms or vegetated areas; adults live inshore and offshore and favor warmer water; adults are diurnal, active all daylight hours
 - Size: 1 to 4 feet
- Pinfish (*Lagodon rhomboides*; Nelson and Patillo 1992)
 - Lifespan: up to 7 years
 - Reproduction: spawn in deeper Gulf waters; females release from 7,000 to 90,000 eggs; fertile eggs are semibuoyant; once hatched, larvae begin to move into estuaries from marine environment
 - Diet: shrimp, fish eggs, insect larvae, marine worms, and plant matter
 - Range: Bermuda, Massachusetts to Texas, and down along the Gulf Coast of Mexico
 - Habitat: estuarine dependent species; juveniles inhabit vegetated shallow estuaries and mangroves; adults inhabit vegetated deeper channels, jetties, and offshore reefs; diurnal pattern of activity with some nocturnal activity observed
 - Size: 4.5 to 8 inches
- Sand Seatrout (*Cynoscion arenarius*; Nelson and Patillo 1992)
 - Lifespan: up to 6 years
 - Reproduction: spawn in offshore areas where tidal currents move eggs towards the shore; once hatched, larvae are found in estuarine marsh habitats and inshore gulf waters; larvae become demersal with size
 - Diet: fish and crustaceans; feeds primarily in the daylight hours on live and dead organisms
 - Range: Western Atlantic Ocean, Florida into the Gulf of Mexico
 - Habitat: estuarine-dependent; adults and juveniles inhabit shallow coastal waters, including surf zones and estuaries; seasonally migrate to avoid high water temperatures

- Size: 1 to 2 feet
- Spot Croaker (*Leiostomus xanthurus*; ADW 2024c)
 - Lifespan: 4 to 5 years
 - Reproduction: females spawn from 100,000 to 1.7 million eggs; spawn offshore at night; larvae grow offshore and move into coastal shallows and lower bays once they become juveniles
 - Diet: opportunistic bottom feeders; feed on crabs, shrimp, marine worms, small fish, plankton, mollusks, plant, and animal detritus
 - Range: Gulf of Maine to the mouth of the Rio Grande
 - Habitat: Found in estuaries and coastal saltwater roaming over sandy and muddy bottoms; seasonal migrators; enters bays and estuaries in spring; form schools; juveniles known to reside in eelgrass communities
 - Size: 6 to 12 inches
- Atlantic Croaker (*Micropogonias undulatus*; TPWD 2024b)
 - Lifespan: up to 8 years
 - Reproduction: females release between 100,000 and 2 million eggs during spawning season; travel offshore to breed; larvae drift towards land after hatching; later larval stages become more demersal, found inshore and in estuary habitats
 - Diet: bottom feeders; feed on shrimp, crabs, and detritus
 - Range: Atlantic coastline from Massachusetts southward and throughout the Gulf of Mexico
 - Habitat: estuarine-dependent; adults are demersal and move between estuarine and oceanic waters; juveniles are estuarine and riverine; abundant on soft bottoms, such as mud; prefer estuaries and bays
 - Size: up to 12 inches
- Flathead Mullet (*Mugil cephalus*; FishBase 2024a)
 - Lifespan: up to 16 years
 - Reproduction: catadromous spawners (spawn in saltwater yet spend most of their lives in freshwater); migrate offshore to spawn; females release 0.8 to 2.6 million eggs, all developing at sea; developed larvae migrate to extremely shallow inshore waters
 - Diet: detritus, micro-algae, and benthic organisms; feed diurnally
 - Range: cosmopolitan in coastal waters of the tropical, subtropical, and temperate zones of all seas
 - Habitat: inhabit fresh, brackish, and marine habitats; adults found in coastal waters, often entering estuaries, rivers, and lagoons; form schools over sandy or muddy bottoms
 - Size: 1.5 to 3.5 feet
- Southern Flounder (*Paralichthys lethostigma*; Nelson and Patillo 1992)
 - Lifespan: 5 to 8 years

- Reproduction: spawn offshore; eggs float at or near surface and develop offshore until late-larvae stage; larvae pushed by currents into estuaries where they settle into sediment and grow into juveniles
- Diet: bottom feeders; feed on zooplankton, invertebrates, and fish
- Range: east coast of the United States and along the northern Gulf of Mexico
- Habitat: adults and juveniles are bottom dwellers; found in coastal embayment, nearshore shelf waters, and estuaries; juveniles stay in estuaries until they reach sexual maturity; adults and juveniles more active at night
- Size: 12 to 14 inches
- Snook (*Centropomus undecimalis*; ADW 2024a, TPWD 2024d)
 - Lifespan: 18 to 20 years
 - Reproduction: must spawn in saltwater; spawn in evening over a period of several days; born male and change from male to female after maturation
 - Diet: pelagic feeders; feed on fish, crustaceans, and zooplankton; feeding peaks before sunrise and after sunset
 - Range: coastal mid-Atlantic regions of the United States through the Gulf of Mexico
 - Habitat: can be found in freshwater, brackish, or marine environments; commonly associate with underwater structures, such as piling, reefs, or seagrass beds but often prefer mangrove estuarine habitats; congregate seasonally in saltwater near the mouths of rivers, inlets, and canals to spawn; often found in groups
 - Size: up to 4.5 feet
- Spotted Seatrout (*Cynoscion nebulosus*; Nelson and Patillo 1992)
 - Lifespan: up to 15 years
 - Reproduction: spawning occurs between dusk and dawn; spawn within coastal bays, estuaries, and lagoons; females may spawn several times during the season; can release up to 1 million eggs; eggs can be either buoyant or demersal, depending on salinity; larvae are demersal
 - Diet: zooplankton, small crustaceans, invertebrates, and fish
 - Range: western Atlantic and the Gulf of Mexico, from Massachusetts to the Yucatan peninsula
 - Habitat: estuarine-dependent; prefer shallower bays and estuaries with oyster and seagrass beds; most common in shallow bays during spring and summer; move into deeper bay waters and the Gulf of Mexico as water temperatures decline; form schools
 - Size: 19 to 25 inches
- Red Drum (*Sciaenops ocellatus*; Nelson and Patillo 1992)
 - Lifespan: up to 37 years
 - Reproduction: spawn in nearshore and inshore waters, close to barrier island passes and channels; females can lay up to 1.5 million eggs; eggs are buoyant; after hatching, larvae are carried by tidal currents into the shallow inside waters of bays and estuaries

- Diet: primarily bottom feeders; feeding habits related to the tide; feed on copepods, shrimp, amphipods, decapods, and fish
- Range: western Atlantic from Maine to Florida, and the Gulf of Mexico from Florida to Mexico
- Habitat: estuarine-dependent; live in bays, surf zones, and the Gulf of Mexico; prefer shallow waters with submerged vegetation; found over all bottom types, including submerged vegetation, soft mud, and oyster reefs; form schools
- Size: up to 5 feet
- Spanish Mackerel (*Scomberomorus maculatus*; Nelson and Patillo 1992)
 - Lifespan: up to 12 years
 - Reproduction: females can release 500,000 to 1.5 million eggs during the spawning season; spawning can occur during the day or at night, with multiple spawnings possible; spawning primarily takes place in inner shelf waters, and occasionally over the middle and outer shelf; larvae occur offshore
 - Diet: feed throughout the day and night; feed on other fish, fish eggs, and invertebrates
 - Range: western Atlantic coast from Nova Scotia to Florida, along the north coast of Cuba, and in the Gulf of Mexico from the Florida Keys to the Yucatan Peninsula, Mexico
 - Habitat: typically found offshore; swim in large, fast schools near the surface of the water; mostly live in open water, but occasionally found over deep grass beds, reefs, and shallow estuaries; migrate seasonally
 - Size: 19 to 33 inches
- White Mullet (*Mugil curema*; FishBase 2024b)
 - Lifespan: up to 19 years
 - Reproduction: spawn in the open sea; females spawn several million eggs; eggs are pelagic and buoyant; larvae move into estuarine waters after hatching
 - Diet: littoral feeders; eat mud off the bottom, feeding on detritus, algae, and plankton
 - Range: Atlantic coast from Cape Cod to Brazil and Pacific Coast from Chile to Gulf of California
 - Habitat: inhabit bays, lagoons, muddy areas, and places with underwater flora, such as coral reefs; occasionally found up rivers as they move with the tide adults; form schools during the day; abandon schools at night and forage freely; migrate between spawning and nonspawning habitats
 - Size: up to 36 inches
- Fringed Flounder (*Etropus crossotus*; Reichert 2015)
 - Lifespan: 1 year
 - Reproduction: spawning takes place in shallow coastal waters; multiple batches of pelagic eggs can be spawned; females can lay up to 47,000 eggs in a single batch; once hatched, larvae are transported into estuarine nursery areas
 - Diet: bottom feeders; feed on copepods, crustaceans, and polychaetas

- Range: Virginia to Brazil, southeast coast of the United States, and the Gulf of Mexico
- Habitat: juveniles and adults are bottom dwellers; commonly found in shallow coastal waters and estuaries, over mud and muddy sand
- Size: up to 6.7 inches
- Broad Flounder (*Paralichthys squamilentus*; All Fishing Buy 2024)
 - Lifespan: unknown
 - Reproduction: spawning occurs in bays, lagoons, and shallow coastal waters; once hatched, larvae migrate inshore
 - Diet: bottom feeders; feed on amphipods, mysids, small crustaceans, and fish
 - Range: western Atlantic from North Carolina to Florida and the entire Gulf of Mexico
 - Habitat: found in bays, lagoons, and shallow coastal waters; adults tend to occur in deeper water, whereas juveniles occur inshore in shallow water and migrate to deeper water as they grow; juveniles occasionally found in estuaries
 - Size: up to 18 inches
- Black Drum (*Pogonias cromis*; Nelson and Patillo 1992)
 - Lifespan: up to 43 years
 - Reproduction: females can lay up to 67 million eggs during the spawning season spawning occurs primarily in nearshore waters and estuarine passes; eggs are pelagic and buoyant; once hatched, larvae are transported by tidal currents to estuarine waters and tidal creeks
 - Diet: benthic feeders; feed on zooplankton, mollusks, arthropods, annelids, and fish
 - Range: Massachusetts to Argentina
 - Habitat: estuarine-dependent; juveniles and young adults prefer estuarine habitats, but older adults move to nearshore Gulf waters; found in river mouths, bays, passes, and the nearshore Gulf; form schools
 - Size: up to 17 inches
- Gulf Flounder (*Paralichthys albigutta*; Nelson and Patillo 1992)
 - Lifespan: 3 to 5 years
 - Reproduction: females swim to the surface and release eggs; eggs are buoyant and float at or near the surface; once hatched, larvae can be found throughout the water column
 - Diet: zooplankton, crustaceans, fish, and polychaetas
 - Range: North Carolina to Florida on the east coast, and Florida to Texas in the Gulf of Mexico
 - Habitat: juveniles and adults are demersal; associated with fine sediments, seagrasses, and muddy substrates while in estuaries; emigrate from estuaries to spawn in deeper offshore waters; more active at night
 - Size: up to 22 inches
- Cobia (*Rachycentron canadum*; NOAA 2024c)

- Lifespan: up to 12 years
- Reproduction: spawn in coastal bays and estuaries several times throughout spawning season; females can release up to 2 million eggs each time they spawn
- Diet: feed on crustaceans, fish, and squid
- Range: Virginia through the Gulf of Mexico
- Habitat: found near structures in the water (e.g., buoys, debris, shipwrecks, and artificial reefs) or large animals (e.g., sharks, turtles, and stingrays); seasonal migrators moving south and offshore toward warmer waters during late fall and winter; travel alone or in small groups
- Size: up to 6 feet

1.5.3 Reptiles

Reptiles are air-breathing, cold-blooded vertebrates that have scaly bodies rather than hair or feathers and belong to the class Reptilia. Within Corpus Christi Bay, of the following five reptiles species were found to be Abundant and Vulnerable, Endangered, or Critically Endangered:

- Loggerhead Sea Turtle (*Caretta caretta*; NOAA 2024h)
 - Lifespan: 70 to 80 years
 - Reproduction: females lay 110 to 130 eggs and can lay multiple clutches; females nest on beaches, primarily at night; hatchlings found in the open ocean
 - Diet: algae, hard-shelled organisms, sponges, jellyfish, cephalopods, shrimp, insects, sea urchins, fish, and fish eggs
 - Range: worldwide temperate and tropical oceans
 - Habitat: juveniles and adults found in coastal water and prefer rocky or muddy substrate; may be found near coral reefs, salt marshes, brackish lagoons, and river mouths; migrate to tropical and subtropical waters during the winter months
 - Size: 2 to 3 feet
- Green Sea Turtle (*Chelonia mydas*; NOAA 2024d)
 - Lifespan: 70 years or more
 - Reproduction: females lay 110 eggs per nest and nest every 2 weeks over several months; eggs are laid on land, at night; hatchlings swim to offshore areas
 - Diet: algae, seagrasses, sponges, invertebrates, and discarded fish
 - Range: worldwide in tropical, subtropical, and temperate waters
 - Habitat: juveniles and adults spend most time in shallow, coastal waters with lush seagrass beds; frequent inshore bays, lagoons, shoals, coral reefs, and salt marshes; solitary; migrate very long distances between foraging areas and nesting grounds
 - Size: 3 to 4 feet
- Hawksbill Sea Turtle (*Eretmochelys imbricata imbricata*; NOAA 2024e)
 - Lifespan: 50 to 60 years

- Reproduction: females lay 130 to 160 eggs per nest and lay multiple nests per season; nests at night on small beaches with little or no sand and a rocky approach; hatchlings enter the open sea habitat, where they reside in floating algal mats
- Diet: marine algae, corals, mollusks, tunicates, crustaceans, sea urchins, small fish, jelly fish, and sponges
- Range: worldwide in tropical and subtropical waters
- Habitat: adults and juveniles primarily found nearshore, especially in coral reef habitats; may be found around rock formations, sand bars and estuaries; migrate very long distances between foraging areas and nesting grounds
- Size: 2 to 3 feet
- Kemp's Ridley Sea Turtle (*Lepidochelys kempi*; NOAA 2024f)
 - Lifespan: at least 30 years
 - Reproduction: females can lay up to 100 eggs per clutch and lay multiple clutches per season; nests in sand in large groups; hatchlings swim offshore after emerging from the nest
 - Diet: crab, shrimp, snails, clams, jellyfish, sea stars, and fish
 - Range: Gulf of Mexico and from Florida to New England
 - Habitat: juveniles are associated with Sargassum algae; recruit to shallow coastal areas upon reaching adulthood; migrate very long distances between foraging areas and nesting grounds
 - Size: 2 feet
- Leatherback Sea Turtle (*Dermochelys coriacea*; NOAA 2024g)
 - Lifespan: 45 to 50 years
 - Reproduction: females lay clutches of approximately 100 eggs and lay multiple clutches in a season; leaves water to lay eggs; hatchlings enter the open ocean
 - Diet: soft-bodied open ocean prey, such as jellyfish and salps
 - Range: worldwide in tropical, subtropical, and temperate waters
 - Habitat: undergo the longest migrations between breeding and feeding grounds of any sea turtle; adults spend most of their lives in the open ocean; typically end up in deeper water during the day and shallower water at night to follow prey
 - Size: 5 to 6 feet

1.6 Participation (Item 2E)

Item 2E requires documentation of any public participation or consultation with federal or state agencies undertaken. The development of this report did not involve public participation or consultation with federal or state agencies.

1.7 Worksheet 11.2, Items 2F and 2G

Because the Ingleside Blue Ammonia Plant CWIS is not currently an existing facility, Items 2F and 2G of Worksheet 11.2 are not applicable to this permit request.

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Tables

Table 1
Summary of Species and Their Protected Statuses in the Vicinity of the CWIS

Common Name	Scientific Name	Species Abundance	USFWS Status (Texas)*	NOAA Fisheries Status**	IUCN Status***	Reference(s)
Cephalopods						
Bay Squid	<i>Lolliguncula brevis</i>	Common	Not Evaluated	Not Evaluated	Data Deficient	Nelson and Pattillo (1992)
Crustaceans						
Dwarf Humpback Shrimp	<i>Solenocera atlantidis</i>	Rare	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Rose Shrimp	<i>Parapenaeus politus</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Roughback Shrimp	<i>Trachypenaeus similis</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Roughneck Shrimp	<i>Trachypenaeus constrictus</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Brown Rock Shrimp	<i>Sicyonia brevirostris</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Sergestic Shrimp	<i>Acetes americanus</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Lucifer Prawn	<i>Lucifer faxoni</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Bermuda Comb Shrimp	<i>Leptochela bermudensis</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Combclaw Shrimp	<i>Leptochela serratorbita</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Marsh Grass Shrimp	<i>Palaemonetes vulgaris</i>	Rare	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Brackish Grass Shrimp	<i>Palaemonetes intermedius</i>	Common	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Bigclaw Snapping Shrimp	<i>Alpheus heterochaelis</i>	Common	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Estuarine Longeye Shrimp	<i>Ogyrides alphaerostris</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Zostera Shrimp	<i>Hippolyte zostericola</i>	Common	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Slender Sargassum Shrimp	<i>Latreutes fucorum</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Sargassum Shrimp	<i>Latreutes parvulus</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Brown Shrimp	<i>Penaeus aztecus</i>	Highly Abundant	Not Evaluated	Not Evaluated	Not Evaluated	Nelson and Pattillo (1992), Tunnell et al. (1996)
Pink Shrimp	<i>Penaeus duorarum</i>	Common	Not Evaluated	Not Evaluated	Not Evaluated	Nelson and Pattillo (1992), Tunnell et al. (1996)
White Shrimp	<i>Penaeus setiferus</i>	Abundant	Not Evaluated	Not Evaluated	Not Evaluated	Nelson and Pattillo (1992), Tunnell et al. (1996)
Daggerblade Grass Shrimp	<i>Palaemonetes pugio</i>	Highly Abundant	Not Evaluated	Not Evaluated	Not Evaluated	Nelson and Pattillo (1992), Tunnell et al. (1996)
West Atlantic Mantis Shrimp	<i>Squilla empusa</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Arrow Shrimp	<i>Tozeuma carolinense</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Olivepit Porcelain Crab	<i>Euceramus praelongus</i>	Rare	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Green Porcelain Crab	<i>Petrolisthes armatus</i>	Abundant	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Spotted Porcelain Crab	<i>Porcellana sayana</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Flecked Box Crab	<i>Hepatus pudibundus</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Mottled Purse Crab	<i>Persephona mediterranea</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Longnose Spider Crab	<i>Libinia dubia</i>	Rare	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Portly Spider Crab	<i>Libinia emarginata</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Smooth Elbow Crab	<i>Heterocrypta granulata</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Lesser Blue Crab	<i>Callinectes similis</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Ornate Blue Crab	<i>Callinectes ornatus</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Iridescent Swimming Crab	<i>Portunus gibbesii</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Blotched Swimming Crab	<i>Portunus spinimanus</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)

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Summary of Species and Their Protected Statuses in the Vicinity of the CWIS

Common Name	Scientific Name	Species Abundance	USFWS Status (Texas)*	NOAA Fisheries Status**	IUCN Status***	Reference(s)
White-tipped Mud Crab	<i>Rhithropanopeus harrisi</i>	Uncommon	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Beaded Mud Crab	<i>Micropanope nuttingi</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Sculptured Mud Crab	<i>Micropanope sculptipes</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Ridgeback Mud Crab	<i>Eurypanopeus turgidus</i>	Abundant	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Flatback Mud Crab	<i>Eurypanopeus depressus</i>	Uncommon	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Gulf Grassflat Crab	<i>Dyspanopeus texanus</i>	Abundant	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Atlantic Mud Crab	<i>Panopeus herbstii</i>	Common	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Small Mud Crab	<i>Dyspanopeus sayi</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Roughwrist Soft Crab	<i>Chasmocarcinus mississippiensis</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Oyster Pea Crab	<i>Zaops ostreum</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Cristate Pea Crab	<i>Pinnixa cristata</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Laguna Madre Fiddler Crab	<i>Uca subcylindrica</i>	Missing Info	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Blue Crab	<i>Callinectes sapidus</i>	Highly Abundant	Not Evaluated	Not Evaluated	Not Evaluated	Nelson and Pattillo (1992), Tunnell et al. (1996)
Gulf Stone Crab	<i>Menippe adina</i>	Common	Not Evaluated	Not Evaluated	Not Evaluated	Nelson and Pattillo (1992), Tunnell et al. (1996)
Cartilaginous Fish						
Bull Shark	<i>Carcharhinus leucas</i>	Common	Not Evaluated	Not Evaluated	Vulnerable	Nelson and Pattillo (1992)
Thresher Shark	<i>Alopias vulpinus</i>	Uncommon	Not Evaluated	Not Evaluated	Vulnerable	Tunnell et al. (1996)
Atlantic Sharpnose Shark	<i>Rhizoprionodon terraenovae</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Scalloped Hammerhead	<i>Sphyrna lewini</i>	Uncommon	Not Evaluated	Endangered	Critically Endangered	Tunnell et al. (1996)
Bonnethead Shark	<i>Sphyrna tiburo</i>	Rare	Not Evaluated	Not Evaluated	Endangered	Tunnell et al. (1996)
Atlantic Angel Shark	<i>Squatina dumeril</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Smalltooth Sawfish	<i>Pristis pectinata</i>	Uncommon	Not Evaluated	Endangered	Critically Endangered	Tunnell et al. (1996)
Brazilian Electric Ray	<i>Narcine brasiliensis</i>	Rare	Not Evaluated	Not Evaluated	Near Threatened	Tunnell et al. (1996)
Roundel Skate	<i>Raja texana</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Southern Stingray	<i>Dasyatis americana</i>	Common	Not Evaluated	Not Evaluated	Near Threatened	Tunnell et al. (1996)
Atlantic Stingray	<i>Dasyatis sabina</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Bluntnose Stingray	<i>Dasyatis say</i>	Uncommon	Not Evaluated	Not Evaluated	Near Threatened	Tunnell et al. (1996)
Spotted Eagle Ray	<i>Aetobatis narinari</i>	Uncommon	Not Evaluated	Not Evaluated	Endangered	Tunnell et al. (1996)
Bony Fish						
Ladyfish	<i>Elops saurus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Ridged Eel	<i>Neoconger mucronatus</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Speckled Worm-Eel	<i>Myrophis punctatus</i>	Abundant	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Spoon-nose Eel	<i>Echiophis punctifer</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Scaled Sardine	<i>Harengula jaguana</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Broad-striped Anchovy	<i>Anchoa hepsetus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Short-finger Anchovy	<i>Anchoa nasuta</i>	Rare	Not Evaluated	Not Evaluated	Not Evaluated	Tunnell et al. (1996)
Common Carp	<i>Cyprinus carpio</i>	Uncommon	Not Evaluated	Not Evaluated	Vulnerable	Tunnell et al. (1996)
River Carpsucker	<i>Carpiodes carpio</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Smallmouth Buffalo	<i>Ictiobus bubalus</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)

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Common Name	Scientific Name	Species Abundance	USFWS Status (Texas)*	NOAA Fisheries Status**	IUCN Status***	Reference(s)
Black Bullhead Catfish	<i>Ameiurus melas</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Hardhead Catfish	<i>Arius felis</i>	Abundant	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Inshore Lizardfish	<i>Synodus foetens</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Southern Codling	<i>Urophycis floridana</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Atlantic Bearded Brotula	<i>Brotula barbata</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Shortbeard Cusk-eel	<i>Lepophidium brevibarbe</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Striped Cusk-eel	<i>Ophidion marginatum</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Gulf Toadfish	<i>Opsanus beta</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Leopard Toadfish	<i>Opsanus pardus</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Pancake Batfish	<i>Halieutichthys aculeatus</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Atlantic Silverstripe Halfbeak	<i>Hyporhamphus unifasciatus</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Atlantic Needlefish	<i>Strongylura marina</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Sheepshead Minnow	<i>Cyprinodon variegatus</i>	Abundant	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Longnose Killifish	<i>Fundulus similis</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Rainwater Killifish	<i>Lucania parva</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Mosquitofish	<i>Gambusia affinis</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Rough Silverside	<i>Membras martinica</i>	Abundant	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Dwarf Seahorse	<i>Hippocampus zosterae</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Lined Seahorse	<i>Hippocampus erectus</i>	Rare	Not Evaluated	Not Evaluated	Vulnerable	Tunnell et al. (1996)
Dusky Pipefish	<i>Syngnathus floridae</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Gulf Pipefish	<i>Syngnathus scovelli</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Northern Pipefish	<i>Syngnathus fuscus</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Chain Pipefish	<i>Syngnathus louisianae</i>	Uncommon	Not Evaluated	Not Evaluated	Data Deficient	Tunnell et al. (1996)
Spotted Scorpionfish	<i>Scorpaena plumieri</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Bighead Searobin	<i>Prionotus tribulus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Striped Searobin	<i>Prionotus evolans</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Bigeye Searobin	<i>Prionotus longispinosus</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Rock Seabass	<i>Centropristis philadelphica</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Rock Hind	<i>Epinephelus adscensionis</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Warsaw Grouper	<i>Hyporthodus nigritus</i>	Missing Info	Not Evaluated	Not Evaluated	Near Threatened	Tunnell et al. (1996)
Green Sunfish	<i>Lepomis cyanellus</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Bluegill	<i>Lepomis macrochirus</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Longear Sunfish	<i>Lepomis megalotis</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Redear Sunfish	<i>Lepomis microlophus</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Largemouth Bass	<i>Micropterus salmoides</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
White Crappie	<i>Pomoxis annularis</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Cobia	<i>Rachycentron canadum</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Live Sharksucker	<i>Echeneis naucrates</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)

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Atlantic Bumper	<i>Chloroscombrus chrysurus</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Leatherjacket Fish	<i>Oligoplites saurus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Atlantic Moonfish	<i>Selene setapinnis</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Permit	<i>Trachinotus falcatus</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Palometa	<i>Trachinotus goodei</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Mahi-mahi	<i>Coryphaena hippurus</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Mahogany Snapper	<i>Lutjanus mahogoni</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Dog Snapper	<i>Lutjanus jocu</i>	Uncommon	Not Evaluated	Not Evaluated	Data Deficient	Tunnell et al. (1996)
Vermilion Snapper	<i>Rhomboplites aurorubens</i>	Uncommon	Not Evaluated	Not Evaluated	Vulnerable	Tunnell et al. (1996)
Spotfin Mojarra	<i>Eucinostomus argenteus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Tidewater Mojarra	<i>Eucinostomus harengulus</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Mottled mojarra	<i>Eucinostomus lefroyi</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Yellowfin Mojarra	<i>Gerres cinereus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Barred Grunt	<i>Conodon nobilis</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Pigfish	<i>Orthopristis chrysoptera</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Gulf Kingcroaker	<i>Menticirrhus littoralis</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Bermuda Chub	<i>Kyphosus sectatrix</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
White Mullet	<i>Mugil curema</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Great Barracuda	<i>Sphyaena barracuda</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Atlantic Threadfin	<i>Polydactylus octonemus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Hairy Blenny	<i>Labrisomus nuchipinnis</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Striped Blenny	<i>Chasmodes bosquianus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Feather Blenny	<i>Hypsoblennius hentz</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
American Freshwater Goby	<i>Gobionellus shufeldti</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Code Goby	<i>Gobiosoma robustum</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992), Tunnell et al. (1996)
Naked Goby	<i>Gobiosoma boscii</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992), Tunnell et al. (1996)
Twoscale Goby	<i>Gobiosoma longipala</i>	Uncommon	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Green Goby	<i>Microgobius thalassinus</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Clown Goby	<i>Microgobius gulosus</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Largehead Hairtail	<i>Trichiurus lepturus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Little Tunny	<i>Euthynnus alletteratus</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
American Harvestfish	<i>Peprilus paru</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Fringed Flounder	<i>Etropus crossotus</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Broad Flounder	<i>Paralichthys squamilentus</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Lined Sole	<i>Achirus lineatus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Blackcheek Tonguefish	<i>Symphurus plagiusa</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Gray Triggerfish	<i>Balistes capriscus</i>	Common	Not Evaluated	Not Evaluated	Vulnerable	Tunnell et al. (1996)
Orange Filefish	<i>Aluterus schoepfi</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Bandtail Puffer	<i>Spoeroides spengleri</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Least Puffer	<i>Sphoeroides parvus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Tarpon	<i>Megalops atlanticus</i>	Rare	Not Evaluated	Not Evaluated	Vulnerable	Nelson and Pattillo (1992)
Gulf Menhaden	<i>Brevoortia patronus</i>	Abundant	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992)
Gizzard Shad	<i>Dorosoma cepedianum</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992)
Bay Anchovy	<i>Anchoa mitchilli</i>	Highly Abundant	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992), Tunnell et al. (1996)
Bayou Killifish	<i>Fundulus pulvereus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)

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Diamond Killifish	<i>Adinia xenica</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Gulf Killifish	<i>Fundulus grandis</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992)
Inland Silversides	<i>Menidia beryllina</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Snook	<i>Centropomus undecimalis</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992), TXNDD (2019)
Bluefish	<i>Pomatomus saltatrix</i>	Rare	Not Evaluated	Not Evaluated	Vulnerable	Nelson and Pattillo (1992)
Crevalle Jack	<i>Caranx hippos</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992)
Florida Pompano	<i>Trachinotus carolinus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992)
Gray Snapper	<i>Lutjanus griseus</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992)
Sheepshead	<i>Archosargus probatocephalus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992), Tunnell et al. (1996)
Pinfish	<i>Lagodon rhomboides</i>	Abundant	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992), Tunnell et al. (1996)
Silver Perch	<i>Bairdiella chrysoura</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992), Tunnell et al. (1996)
Sand Seatrout	<i>Cynoscion arenarius</i>	Abundant	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992), Tunnell et al. (1996), Portnoy and Robinson (2023)
Spotted Seatrout	<i>Cynoscion nebulosus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992), Tunnell et al. (1996), Portnoy and Robinson (2023)
Spot Croaker	<i>Leiostomus xanthurus</i>	Abundant	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992), Tunnell et al. (1996)
Atlantic Croaker	<i>Micropogonias undulatus</i>	Abundant	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992), Tunnell et al. (1996), Portnoy and Robinson (2023)
Black Drum	<i>Pogonias cromis</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992), Tunnell et al. (1996)
Red Drum	<i>Sciaenops ocellatus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992), Tunnell et al. (1996), Portnoy and Robinson (2023)
Flathead Mullet	<i>Mugil cephalus</i>	Abundant	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992), Tunnell et al. (1996)
Spanish Mackerel	<i>Scomberomorus maculatus</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992), Tunnell et al. (1996)
Gulf Flounder	<i>Paralichthys albigutta</i>	Rare	Not Evaluated	Not Evaluated	Least Concern	Nelson and Pattillo (1992)
Southern Flounder	<i>Paralichthys lethostigma</i>	Abundant	Not Evaluated	Not Evaluated	Near Threatened	Nelson and Pattillo (1992), Tunnell et al. (1996), TXNDD (2019)
Amphibians						
Western Lesser Siren	<i>Siren nettingi</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Black-spotted Newt	<i>Notophthalmus meridionalis</i>	Missing Info	Threatened	Not Evaluated	Endangered	Tunnell et al. (1996), TXNDD (2019)
Central Newt	<i>Notophthalmus viridescens louisianensis</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Plains Spadefoot	<i>Scaphiopus bombifrons</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Hurter's Spadefoot	<i>Scaphiopus holbrooki hurteri</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Couch's Spadefoot	<i>Scaphiopus couchi</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Mexican White-lipped Frog	<i>Leptodactylus fragilis</i>	Missing Info	Threatened	Not Evaluated	Vulnerable	Tunnell et al. (1996), TXNDD (2019)
Blanchard's Cricket Frog	<i>Acris crepitans blanchardi</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Cope's Gray Treefrog	<i>Hyla chrysoscelis</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Green Treefrog	<i>Hyla cinerea</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Squirrel Treefrog	<i>Hyla squirella</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Gray Treefrog	<i>Hyla versicolor</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Spotted Chorus Frog	<i>Pseudacris clarki</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Strecker's Chorus Frog	<i>Pseudacris streckeri</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Upland Chorus Frog	<i>Pseudacris triseriata feriarum</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Chihuahuan Green Toad	<i>Bufo debilis</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Central American Gulf Coast Toad	<i>Incilius valliceps</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Woodhouse's Toad	<i>Anaxyrus woodhousii</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996), TXNDD (2019)
Crawfish Frog	<i>Lithobates areolatus</i>	Missing Info	Not Evaluated	Not Evaluated	Near Threatened	Tunnell et al. (1996), TXNDD (2019)

Table 1
Summary of Species and Their Protected Statuses in the Vicinity of the CWIS

Common Name	Scientific Name	Species Abundance	USFWS Status (Texas)*	NOAA Fisheries Status**	IUCN Status***	Reference(s)
American Bullfrog	<i>Lithobates catesbeianus</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Rio Grande Leopard Frog	<i>Lithobates berlandieri</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Southern Leopard Frog	<i>Lithobates sphenocephalus</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Eastern Narrow-mouthed Toad	<i>Gastrophryne carolinensis</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Western Narrow-mouthed Toad	<i>Gastrophryne olivacea</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Sheep Frog	<i>Hypopachus variolosus</i>	Missing Info	Threatened	Not Evaluated	Least Concern	Tunnell et al. (1996), TXNDD (2019)
Reptiles						
American Alligator	<i>Alligator mississippiensis</i>	Missing Info	Threatened	Not Evaluated	Least Concern	Tunnell et al. (1996)
Common Snapping Turtle	<i>Chelydra serpentina</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Yellow Mud Turtle	<i>Kinosternon flavescens</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Mississippi Mud Turtle	<i>Kinosternon subrubrum hippocrepis</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Texas Cooter	<i>Pseudemys texana</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Red-eared Slider	<i>Trachemys scripta elegans</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Cagle's Map Turtle	<i>Graptemys caglei</i>	Missing Info	Threatened	Not Evaluated	Endangered	Tunnell et al. (1996)
Three-toed Box Turtle	<i>Terrepene carolina triunguis</i>	Missing Info	Not Evaluated	Not Evaluated	Vulnerable	Tunnell et al. (1996)
Ornate Box Turtle	<i>Terrapene ornata</i>	Missing Info	Not Evaluated	Not Evaluated	Near Threatened	Tunnell et al. (1996)
Texas Diamondback Terrapin	<i>Malaclemys terrapin littoralis</i>	Missing Info	Not Evaluated	Not Evaluated	Vulnerable	Tunnell et al. (1996)
Texas Tortoise	<i>Gopherus berlandieri</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Guadalupe Spiny Softshell	<i>Apalone spinifera guadalupensis</i>	Missing Info	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Loggerhead Sea Turtle	<i>Caretta caretta</i>	Missing Info	Threatened	Threatened	Vulnerable	Tunnell et al. (1996)
Green Sea Turtle	<i>Chelonia mydas</i>	Uncommon	Threatened	Threatened	Endangered	Tunnell et al. (1996)
Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Rare	Endangered	Endangered	Critically Endangered	Tunnell et al. (1996)
Kemp's Ridley Sea Turtle	<i>Lepidochelys kemp</i>	Abundant	Endangered	Endangered	Critically Endangered	Tunnell et al. (1996)
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Missing Info	Endangered	Endangered	Vulnerable	Tunnell et al. (1996)
Mammals						
West Indian Manatee	<i>Trichechus manatus</i>	Rare	Threatened	Threatened	Vulnerable	Tunnell et al. (1996), TXNDD (2019)
Pygmy Sperm Whale	<i>Kogia breviceps</i>	Stranding	Threatened	Not Evaluated	Least Concern	Tunnell et al. (1996), TXNDD (2019)
Gervais' Beaked Whale	<i>Mesoplodon europaeus</i>	Stranding	Threatened	Not Evaluated	Least Concern	Tunnell et al. (1996), TXNDD (2019)
Risso's Dolphin	<i>Grampus griseus</i>	Stranding	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Bottlenose Dolphin	<i>Tursiops truncatus</i>	Common	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Clymene Dolphin	<i>Stenella clymene</i>	Stranding	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Atlantic Spotted Dolphin	<i>Stenella frontalis</i>	Stranding	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)
Fraser's Dolphin	<i>Lagenodelphis hosei</i>	Stranding	Not Evaluated	Not Evaluated	Least Concern	Tunnell et al. (1996)

Notes:

Nelson, David M., and Mark E. Pattillo, 1992. *Distribution and Abundance of Fishes and Invertebrates in Gulf of Mexico Estuaries* . 1992.

Portnoy, D., and O. Robinson, 2023. *Planktonic Larval Fin & Shellfish Ingress & Vertical Distribution in the Aransas Pass Inlet System* . Prepared for: Coastal Bend Bays & Estuaries Program, Corpus Christi, Texas. August 2023.

TXNDD (Texas Natural Diversity Database). 2019. "Element Occurrence Data Export." Wildlife Diversity Program of Texas Parks & Wildlife Department, Texas Natural Diversity Database. Available at: https://tpwd.texas.gov/huntwild/wild/wildlife_diversity/txndd/.

Tunnell, J.W., Q. Dokken, E.H. Smith, and K. Withers, 1996. *Current Status and Historical Trends of the Estuarine Living Resources within the Corpus Christi Bay National Estuary Program Study Area: Volume 1a of 4* . January 1996.

*Species status determined by the USFWS, specific to Texas. Statuses consist of Not Evaluated, Endangered Species Act (ESA) Threatened, or ESA Endangered. "Not evaluated" implies that the USFWS has not published information about a species. All mammal species listed are additionally protected under the Marine Mammal Protection Act (MMPA).

**Species status determined by the NOAA Fisheries. Statuses consist of Not Evaluated, ESA Threatened, or ESA Endangered. "Not evaluated" implies that NOAA Fisheries has not published information about a species.

***Species status determined by the International Union for Conservation of Nature (IUCN) Red List. Statuses consist of Not Evaluated, Data Deficient, Least Concern, Near Threatened, Vulnerable, Endangered, Critically Endangered, Extinct in the Wild, or Extinct. "Not evaluated" implies that the IUCN has not published information about a species, while "Data Deficient" implies that the species has been studied, but there is little data on abundance & distribution.

IUCN: International Union for Conservation of Nature

NOAA: National Oceanic and Atmospheric Administration

USFWS: U.S. Fish and Wildlife Service

Table 2
Summary of Species Most Susceptible to Impingement or Entrainment, Significance of Species to Commercial and Recreational Fisheries, Primary Period of Reproduction, and Period of Peak Abundance

Common Name	Scientific Name	Life Stage Susceptible to Impingement*	Life Stage Susceptible to Entrainment*	Significance to Commercial Fisheries**	Significance to Recreational Fisheries***	Primary Period of Reproduction	Period of Peak Abundance
Crustaceans							
Brown Shrimp	<i>Penaeus aztecus</i>	Adult, Juvenile	Larval	\$\$\$	--	Spring to Summer	Summer
White Shrimp	<i>Penaeus setiferus</i>	Adult, Juvenile	Larval	\$\$\$\$	--	March to September	Fall
Daggerblade Grass Shrimp	<i>Palaemonetes pugio</i>	Adult	Larval, Juvenile	--	--	Spring to Summer	Summer to Fall
Green Porcelain Crab	<i>Petrolisthes armatus</i>	--	Larval	--	--	Summer	Summer
Ridgeback Mud Crab	<i>Eurypanopeus turgidus</i>	--	Larval	--	--	Unknown	Unknown
Gulf Grassflat Crab	<i>Dyspanopeus texanus</i>	--	Larval	--	--	Unknown	Unknown
Blue Crab	<i>Callinectes sapidus</i>	--	Larval	\$\$\$	▶▶▶	Spring to Fall	Fall
Reptiles							
Loggerhead Sea Turtle	<i>Caretta caretta</i>	Neonate	--	--	--	May to July	Year-round
Green Sea Turtle	<i>Chelonia mydas</i>	Neonate	--	--	--	Late Spring	Summer
Hawksbill Sea Turtle	<i>Eretmochelys imbricata</i>	Neonate	--	--	--	April to November	Year-round
Kemp's Ridley Sea Turtle	<i>Lepidochelys kemp</i>	Neonate	--	--	--	April to July	Fall
Leatherback Sea Turtle	<i>Dermochelys coriacea</i>	Neonate	--	--	--	March to July	Year-round
Bony Fish							
Sheepshead Minnow	<i>Cyprinodon variegatus</i>	Adult	Larval, Juvenile	--	--	Spring to Summer	Year-round
Lined Seahorse	<i>Hippocampus erectus</i>	Adult, Juvenile	Larval	--	--	May to October	September to November
Gray Triggerfish	<i>Balistes capris</i>	Juvenile	Larval	\$	▶▶	April to August	Fall
Tarpon	<i>Megalops atlanticus</i>	Juvenile	Larval	--	▶▶▶	Summer	Summer
Gulf Menhaden	<i>Brevoortia patronus</i>	Juvenile	Larval	\$\$\$\$	▶▶	Winter	Spring
Bay Anchovy	<i>Anchoa mitchilli</i>	Adult, Juvenile	Larval	--	--	Year-round	Year-round
Bluefish	<i>Pomatomus saltatrix</i>	--	Larval	\$\$\$	▶▶▶	Spring to Summer	July to August
Pinfish	<i>Lagodon rhomboides</i>	Juvenile	Larval	--	--	Fall to Winter	Late Summer to Fall
Sand Seatrout	<i>Cynoscion arenarius</i>	Juvenile	Larval	\$	▶	Summer	Year-round
Spot Croaker	<i>Leiostomus xanthurus</i>	Juvenile	--	\$	▶	October to March	Year-round
Atlantic Croaker	<i>Micropogonias undulatus</i>	Juvenile	Larval	\$\$\$\$	▶▶▶	Fall	Summer to Fall
Flathead Mullet	<i>Mugil cephalus</i>	Juvenile	Larval	\$\$\$	▶	November to December	Winter
Southern Flounder	<i>Paralichthys lethostigma</i>	--	Larval	\$\$\$	▶▶	Fall to Winter	Year-round
Snook	<i>Centropomus undecimalis</i>	Juvenile	Larval	--	▶▶▶	August to October	Summer
Spotted Seatrout	<i>Cynoscion nebulosus</i>	Juvenile	Larval	\$	▶▶▶	March to October	Year-round
Red Drum	<i>Sciaenops ocellatus</i>	Juvenile	Larval	\$	▶▶▶	Summer to Winter	Summer
Spanish Mackerel	<i>Scomberomorus maculatus</i>	Juvenile	Larval	\$\$\$	▶▶▶	April to October	September to October
White Mullet	<i>Mugil curema</i>	Juvenile	Larval	\$\$\$	▶▶	February to May	Summer
Fringed Flounder	<i>Etropus crossotus</i>	--	Larval	--	▶	Spring to Summer	Year-round
Broad Flounder	<i>Paralichthys squamilentus</i>	--	Larval	--	▶	Fall to Winter	Year-round
Black Drum	<i>Pogonias cromis</i>	Juvenile	Larval	\$\$\$	▶	January to April	Year-round
Gulf Flounder	<i>Paralichthys albigutta</i>	--	Larval	\$\$\$	▶	Fall to Winter	Year-round
Cobia	<i>Rachycentron canadum</i>	--	Larval	\$	▶▶▶	Summer to Fall	June to September

Table 2
Summary of Species Most Susceptible to Impingement or Entrainment, Significance of Species to Commercial and Recreational Fisheries, Primary Period of Reproduction, and Period of Peak Abundance

Notes:

*Life stages defined as Larval/Neonate, Juvenile, or Adult. Susceptibility to entrainment or impingement determined by the assumptions found in Section 1.4 of this report.

-- : Not applicable implies there are no susceptible life stages.

** \$-\$\$\$\$: Least to most sought after by commercial fishermen, with regards to overall revenue. See **Section 2** of this report for a list of references.

\$: <\$50,000

\$ \$: \$50,000 to \$1 million

\$ \$ \$: \$1 million to \$100 million

\$ \$ \$ \$: >\$100 million

-- : Not applicable implies there is no recognized commercial fishery for a particular species.

*** ▷-▷▷▷ : Least to most sought after by recreational fishermen. See Section 2 of this report for a list of references.

▷ : Least sought after by recreational fishermen

▷▷ : Moderately sought after by recreational fishermen

▷▷▷ : Most sought after by recreational fishermen

-- : Not applicable implies there is no recognized recreational fishery for a particular species.

Attachment 4 Supplemental Stormwater Calculations

Supplemental Stormwater Calculations

Facility Units

Contributing Wastestreams: Stormwater

Contributing Wastestreams: Facility Wastewater

Facility Units

Unit/Area	Acres
Air Separation Units	3.86
Sea Water Cooling Tower	2.24
Materials Handling Area	2.17
Compression & Power House CO2, Synthesis Gas, Ammonia, Steam Turbine Power Generators	1.88
Compression & Power House CO2, Synthesis Gas, Ammonia, Steam Turbine Power Generators	1.88
Desulfurization Reforming Shift Conversion	1.85
Desulfurization Reforming Shift Conversion	1.83
CO2 Removal and Purification	1.83
CO2 Removal and Purification	1.83
Closed Cooling Water Circulation	1.62
Closed Cooling Water Circulation	1.62
Ammonia Synthesis and Refrigeration	1.12
Ammonia Synthesis and Refrigeration	1.12
Wastewater Treatment Plant	0.51
Substation Local Instrument Room	0.38
Seawater / Closed Cooling Water Heat Exchange	0.3
Seawater / Closed Cooling Water Heat Exchange	0.3
Electro-Chlorination Unit	0.16
Total Area	26.5

Contributing Waste Streams: Stormwater

Drainage Area	D-001
Location	Into CC Bay
Area (acres)	26.50
Area Sqft	1,154,340.00
24hr, 25yr Rainfall (in)	9.99
24hr, 25yr Rainfall (ft)	0.83
24hr, 25yr Rainfall (cuft)	960,988.05
24hr, 25yr Rainfall (gal)	7,188,690.33
Max Flow (MGD)	7.19
Max Flow (GPM)	5,000

Contributing Wastestreams: Facility Wastewater

Contributing Wastestream	Discharge (GPM)	Discharge (GPD)	Discharge (MGD)	Percent of Total Flow
Sea water Cooling System*	36,387	52,397,280	52.3973	81.61%
Sea water Cooling System (Contribution from Train 1)	18,194	26,198,640	26.1986	40.80%
Sea water Cooling System (Contribution from Train 2)	18,194	26,198,640	26.1986	40.80%
Desalination Units	2,932	4,222,080	4.2221	6.58%
Desalination Unit (Contribution from Train 1)	1,466	2,111,040	2.1110	3.29%
Desalination Unit (Contribution from Train 2)	1,466	2,111,040	2.1110	3.29%
Demin. Ion Exchange Plants	236	339,840	0.3398	0.53%
Demin. Ion Exchange Plant (Contribution from Train 1)	118	169,920	0.1699	0.26%
Demin. Ion Exchange Plant (Contribution from Train 2)	118	169,920	0.1699	0.26%
Boilers	34	48,960	0.0490	0.08%
Boilers (Contribution from Train 1)	17	24,480	0.0245	0.04%
Boilers (Contribution from Train 2)	17	24,480	0.0245	0.04%
Stormwater	5,000	7,200,000	7.2000	11.21%
Total Discharge of Contributing Wastestreams	44,589	64,208,160	64.2082	100.00%

* = Daily maximum flow is listed. Average daily blowdown for the Cooling Towers is 47,160,000 gal/day
- Contributing streams are a common blowdown stream and are divided between the two trains for informational purposes.
- All streams are co-mingled and discharged through outfall D-001.

Attachment 5 Figures

Figure 1 General Location Map



Scale: 1" = 1,250 feet

<u>Legend</u>	
	Property Boundary



0 0.125 0.25
Miles



Figure 1
General Location Map

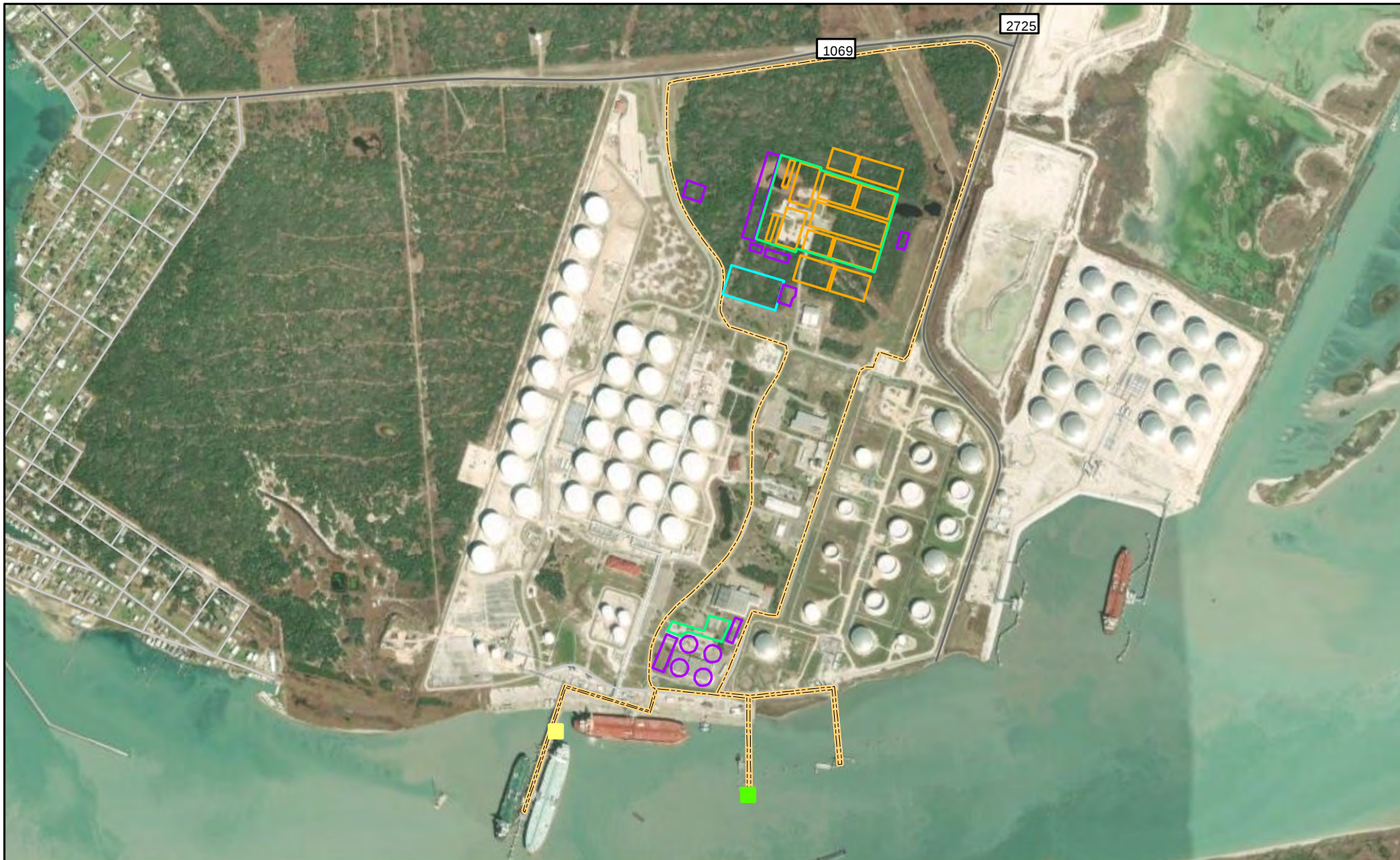
Ingleside Clean Ammonia Partners, LLC
Ingleside Blue Ammonia
Ingleside, San Patricio County, Texas



Date: 09/27/2024

Revised: 11/20/2024

Figures 2, 2a, and 2b Facilities Maps



Legend

- Outfall*
- Water Intake Structure*
- Pond
- Facility Units
- Production Areas
- Materials Handling Areas
- Property Boundary

* = Approximate Location

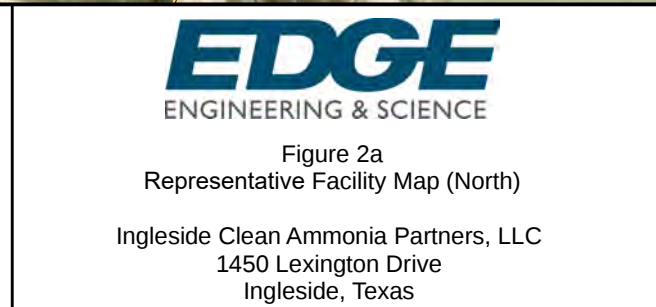
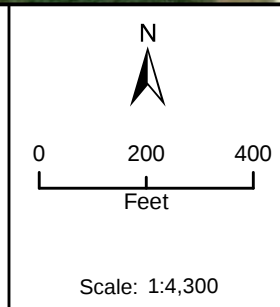
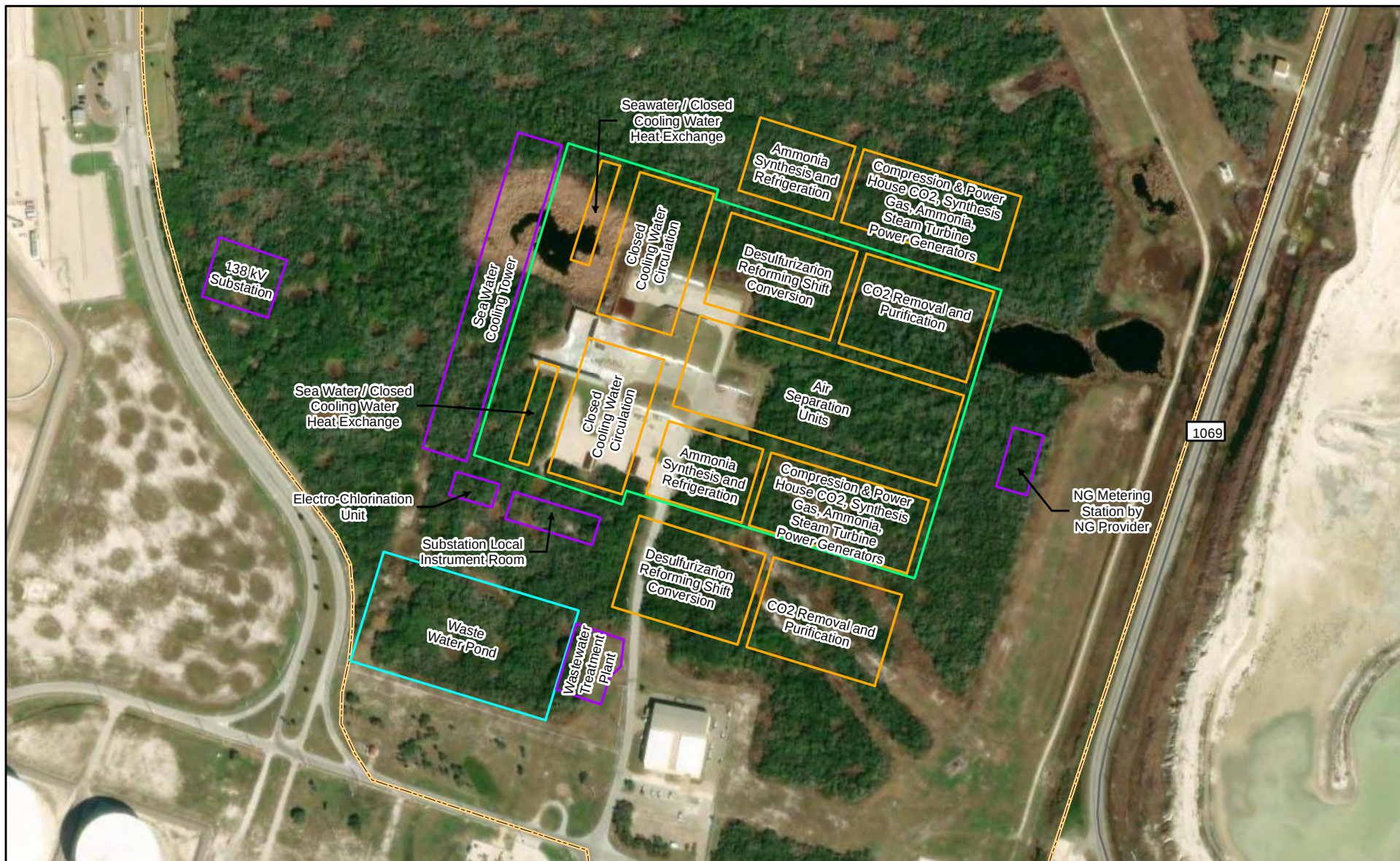
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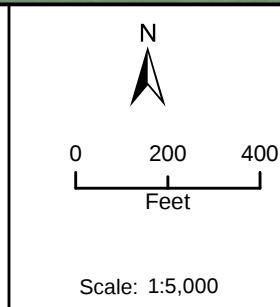
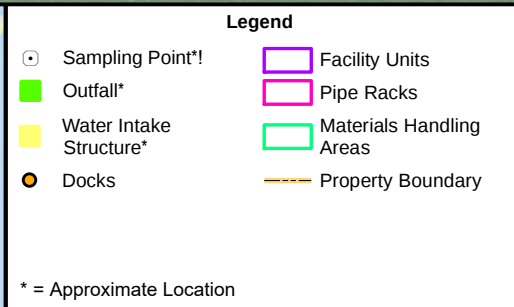
 0 500 1,000
 Feet
 Scale: 1:16,000

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Figure 2
 Representative Facility Map

Ingleside Clean Ammonia Partners, LLC
 1450 Lexington Drive
 Ingleside, Texas



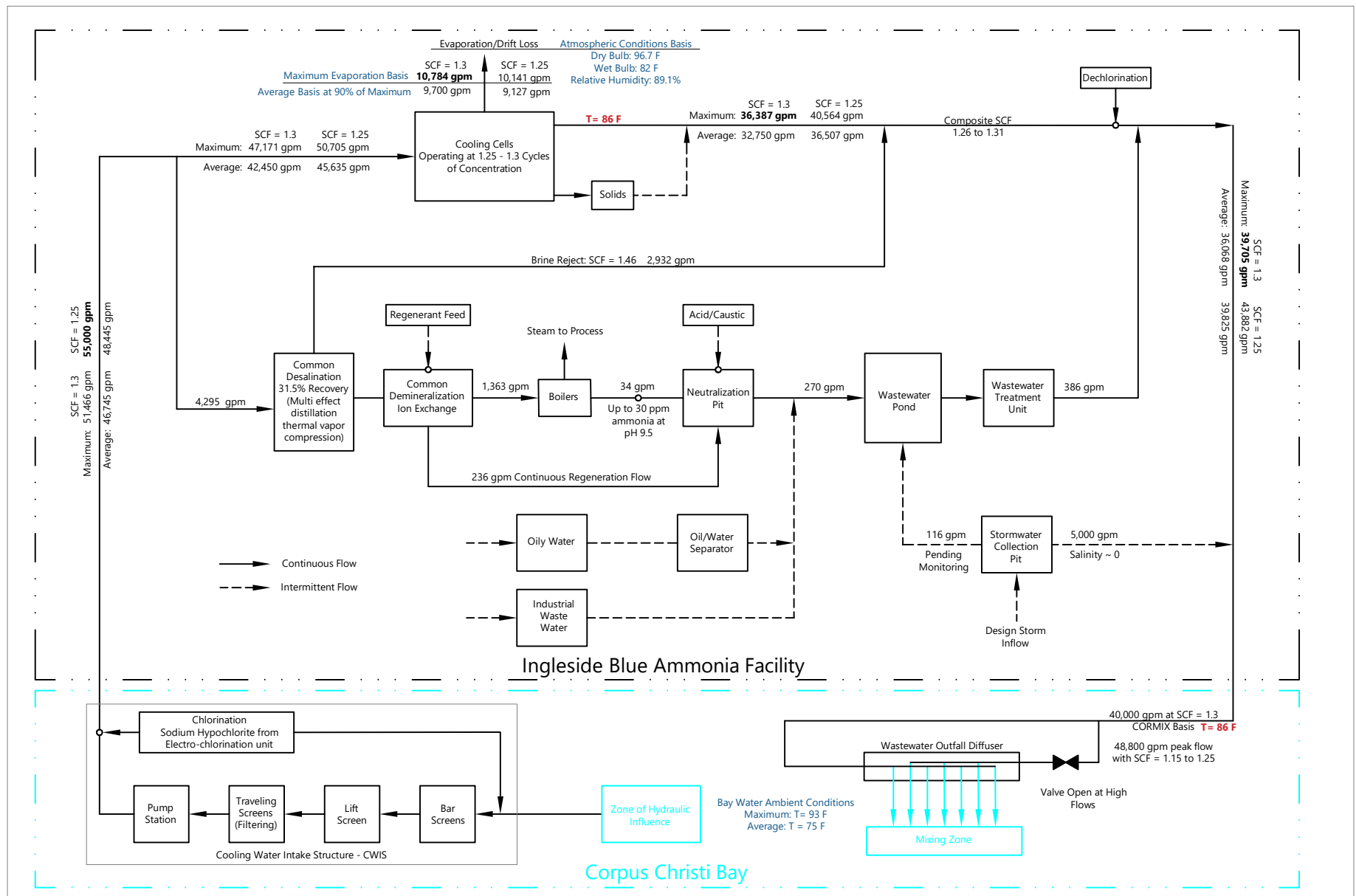


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Figure 2b
Representative Facility Map (South)

Ingleside Clean Ammonia Partners, LLC!
1450 Lexington Drive
Ingleside, Texas

Figure 3 Flow Balance Diagram



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 Filepath: K:\Projects\2702-Enbridge Discharge Permit Support and Modeling\2702-RP-003 Water and Wastewater Flow Balance.dwg



FIGURE 3
Water and Wastewater Balance - Approximate Representative Flow Rates

Figure 4 Wastewater Flow Diagram

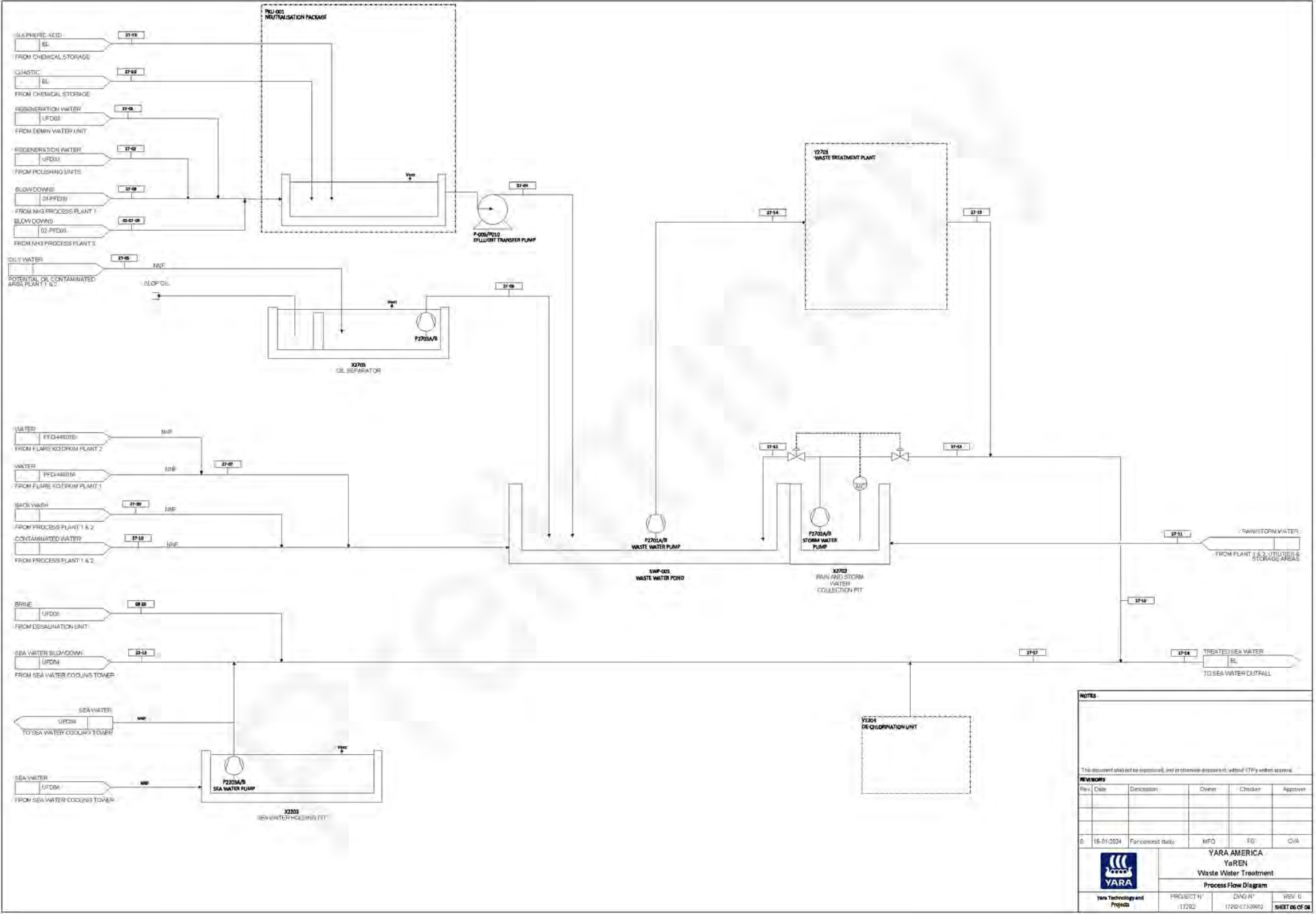


Figure 5 Intake Outfall Locations Map



Legend

- Outfall*
- Docks
- Intake Location*
- Property Boundary

* = Approximate Location

N

0 500 1,000
Feet

Scale: 1:16,000

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Figure 5
Representative Intake/Outfall Locations Map

Ingleside Clean Ammonia Partners, LLC 1450 Lexington Drive
Ingleside, Texas

Figures 6, 6a, and 6b Drainage and Potential Pollutants Maps



Legend

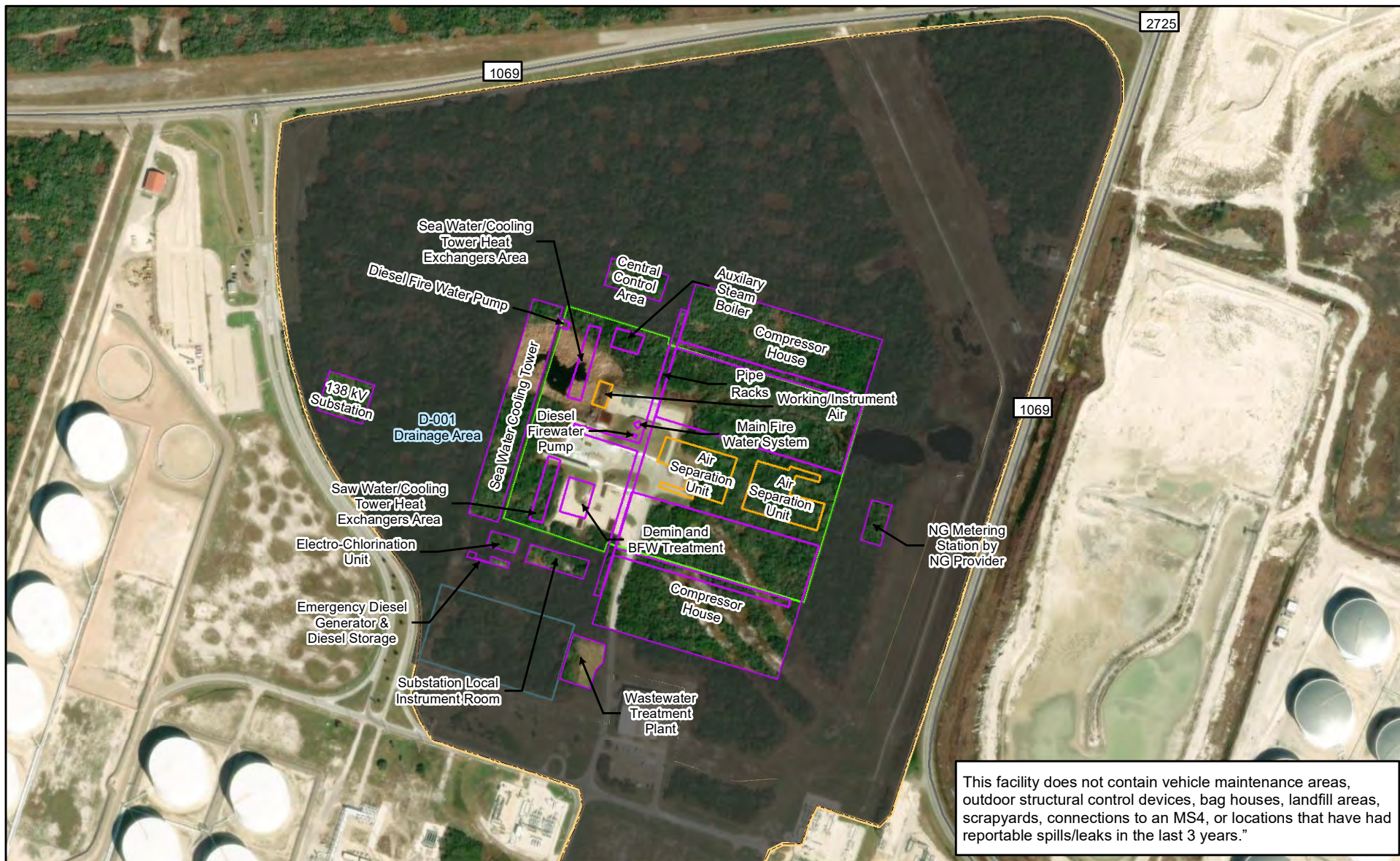
- Outfall*
- Sampling Point*
- Docks
- Drainage Covered by Other Permit
- Drainage Area
- Facility Structures/Processing Areas
- Pond
- Exposed Air Separation Units
- Material Loading/Unloading and Storage Areas
- Property Boundary

* = Approximate Location

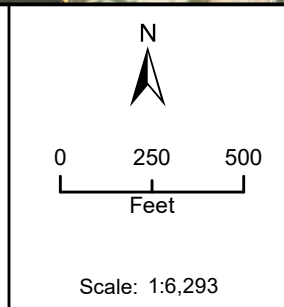
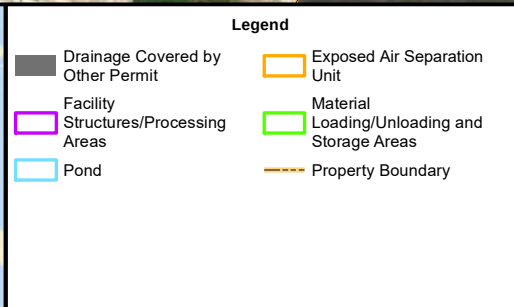
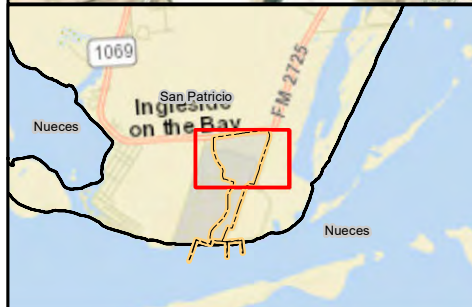
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 0 500 1,000
 Feet
 Scale: 1:16,000

Figure 6
Representative Drainage and Potential Pollutants Map
 Ingleside Clean Ammonia Partners, LLC
 1450 Lexington Drive
 Ingleside, Texas



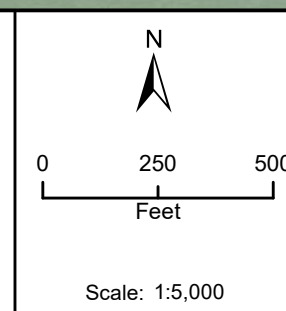
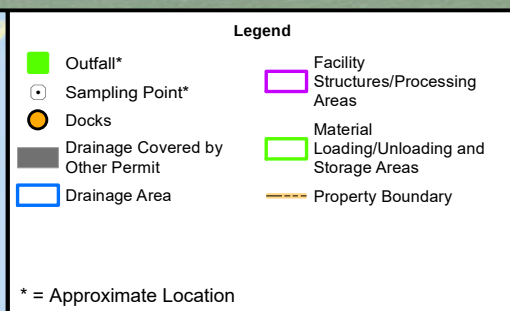
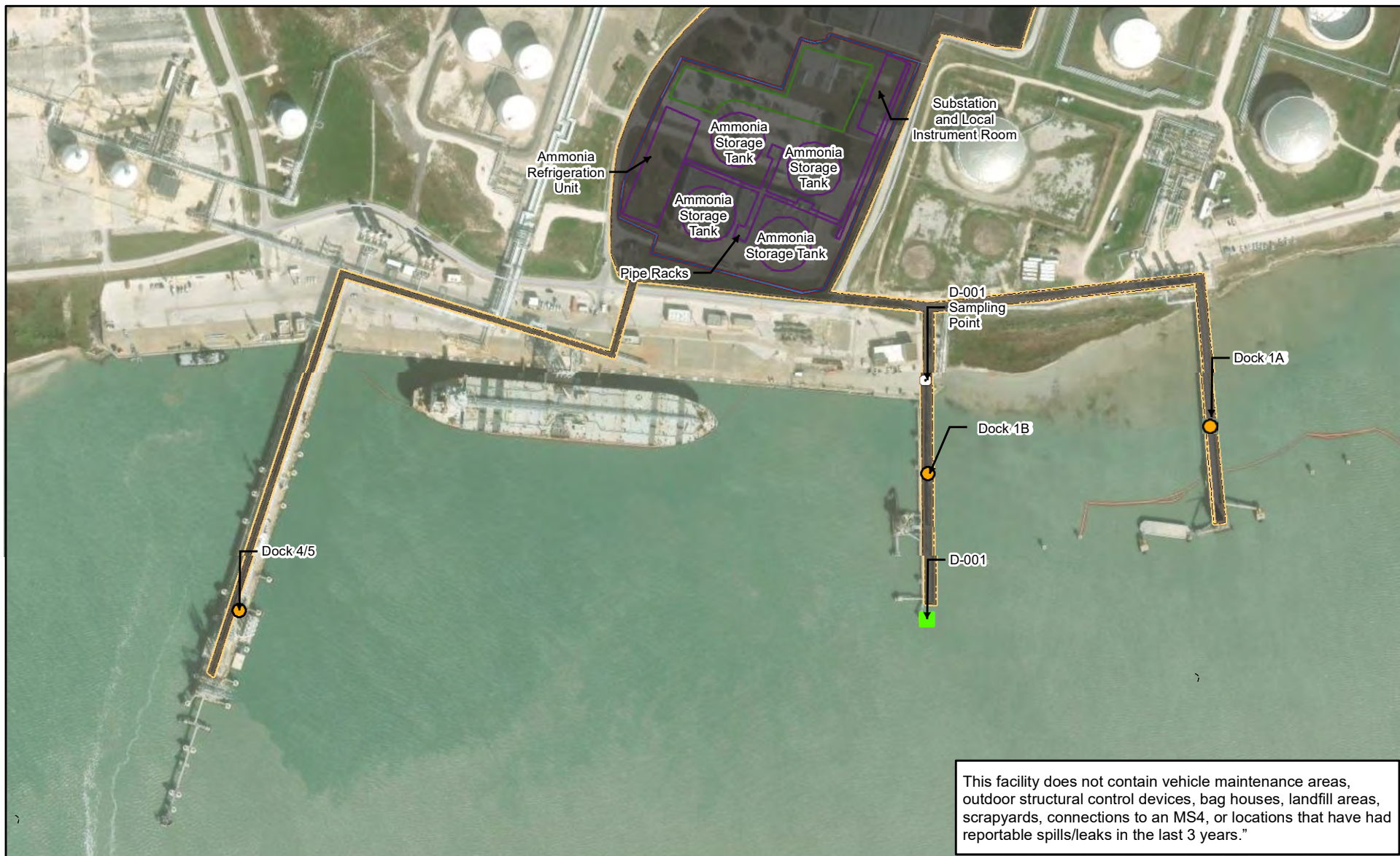
This facility does not contain vehicle maintenance areas, outdoor structural control devices, bag houses, landfill areas, scrapyards, connections to an MS4, or locations that have had reportable spills/leaks in the last 3 years."



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Figure 6a
Representative Drainage and Potential Pollutants Map (North)

Ingleside Clean Ammonia Partners, LLC
1450 Lexington Drive
Ingleside, Texas



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Figure 6b
Representative Drainage and Potential Pollutants Map (South)

Ingleside Clean Ammonia Partners, LLC
Ingleside Blue Ammonia
Ingleside, Texas

Figure 7 100-Year Floodplain Map

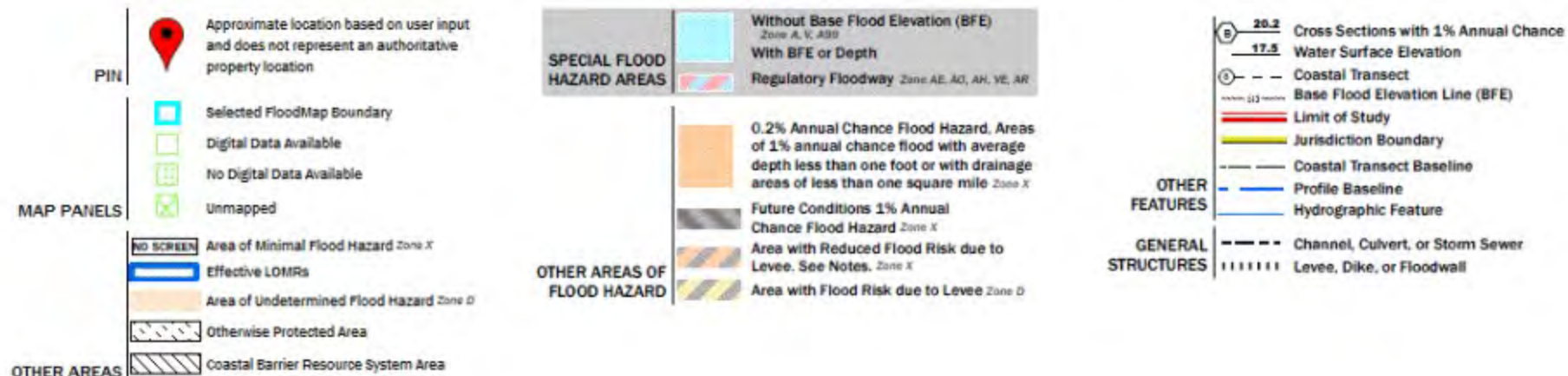
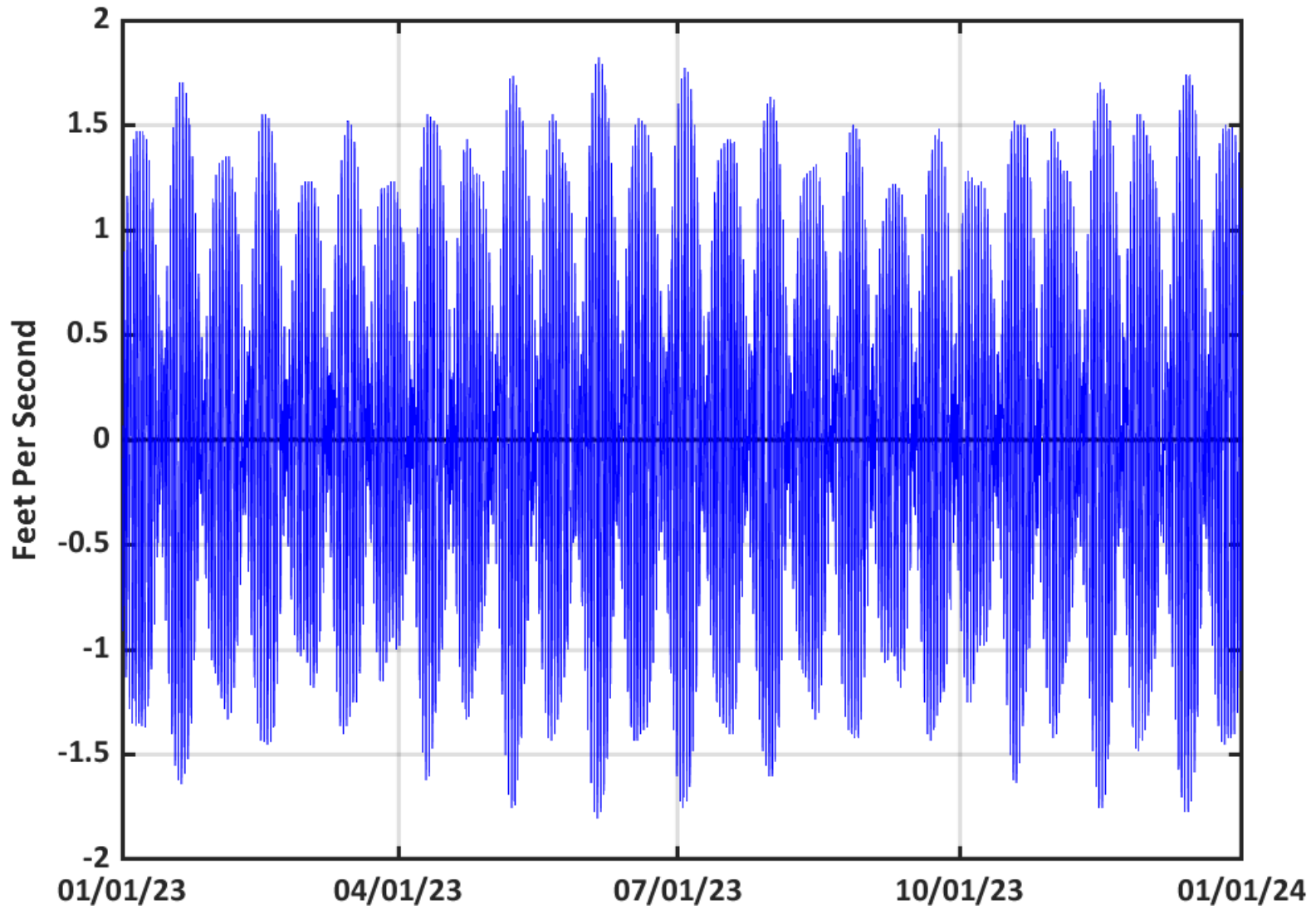


Figure 8 NOAA Stations



Note:
Station location shown with blue (currents) and red/yellow (water level and meteorology) markers.

Figure 9 Tidal Velocity



Note:
Positive velocity is flood directed and negative velocity is ebb directed.

Figure 10 CWIS Schematic

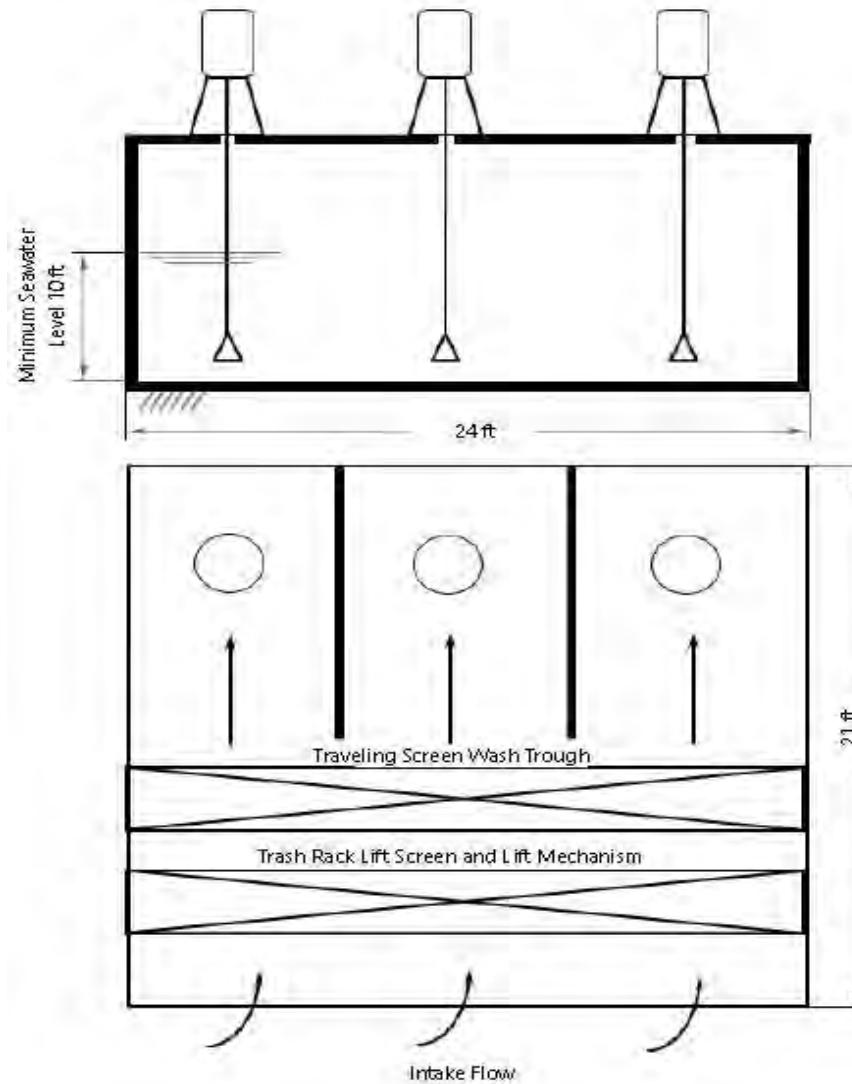
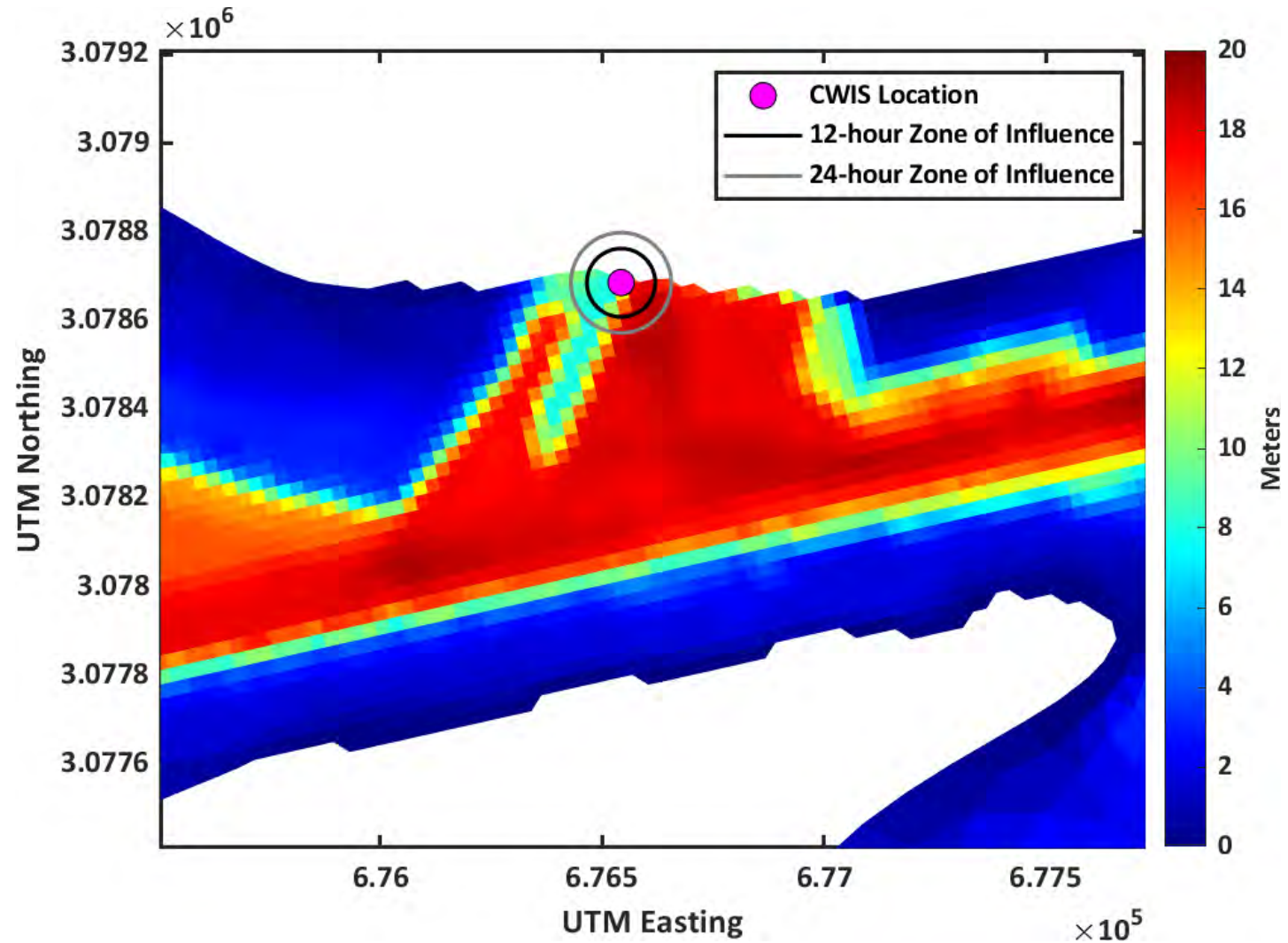


Figure 10
Conceptual Cooling Water Intake Structure Schematic

Industrial Wastewater Permit Application: Supplemental Information
 Ingleside Blue Ammonia Plant

Figure 11 Hydraulic Influence



Notes:
 White areas indicate dry land.
 Only wetted (colored) areas were used in the estimation of the zone of hydraulic influence.

Figure 12 Discharge Location

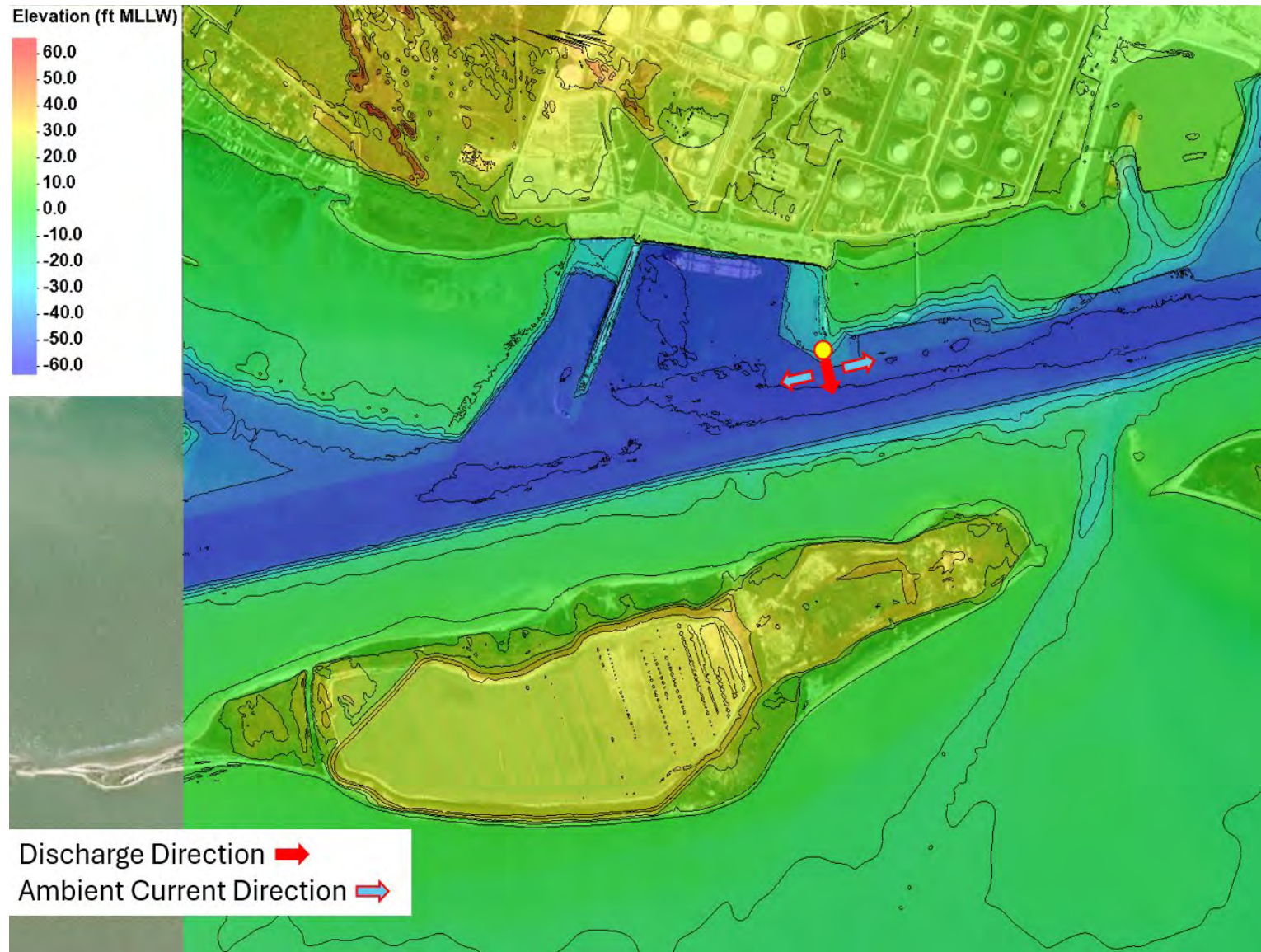


Figure 13 CORMIX Geometry

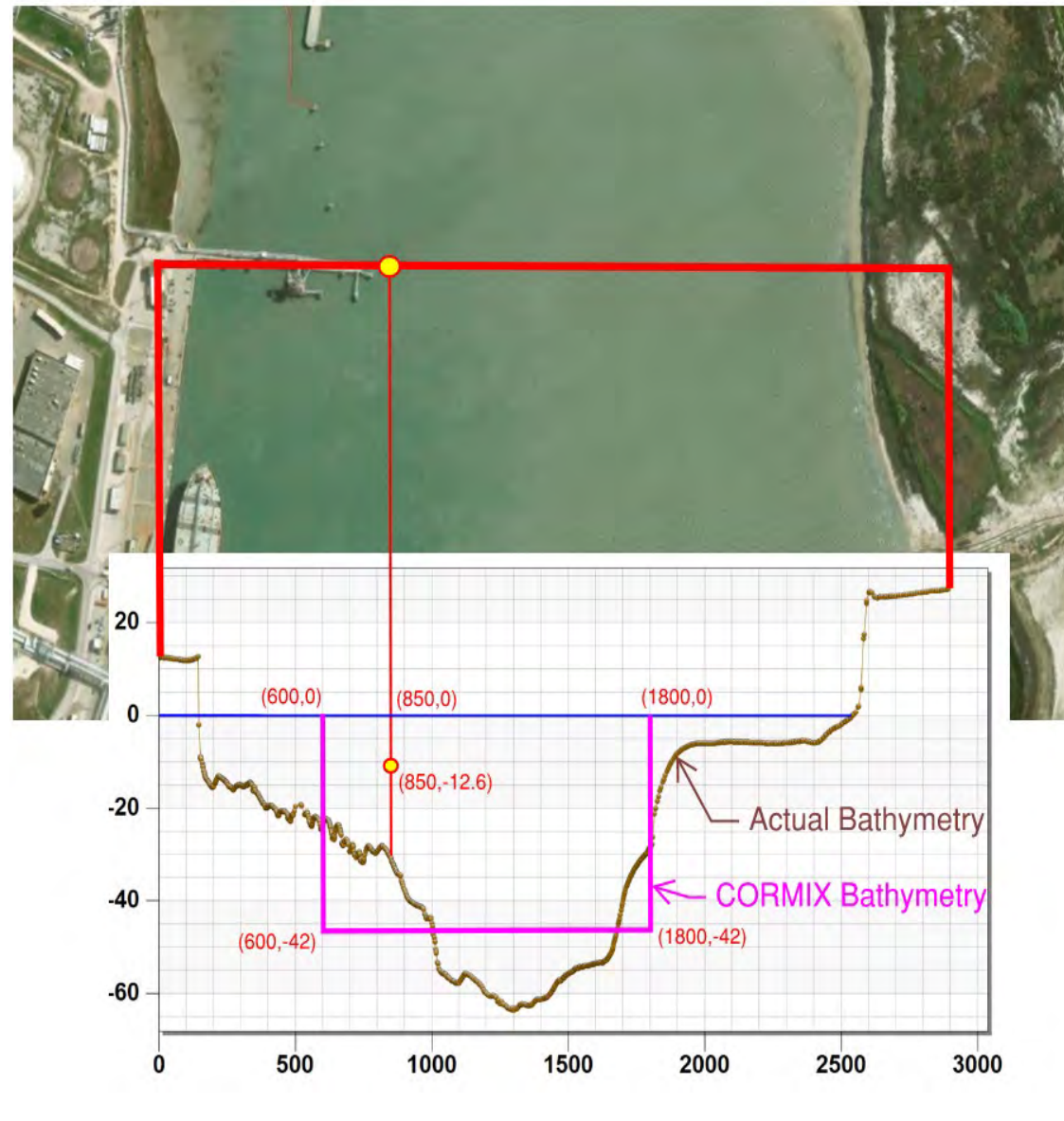


Figure 14 Data Station

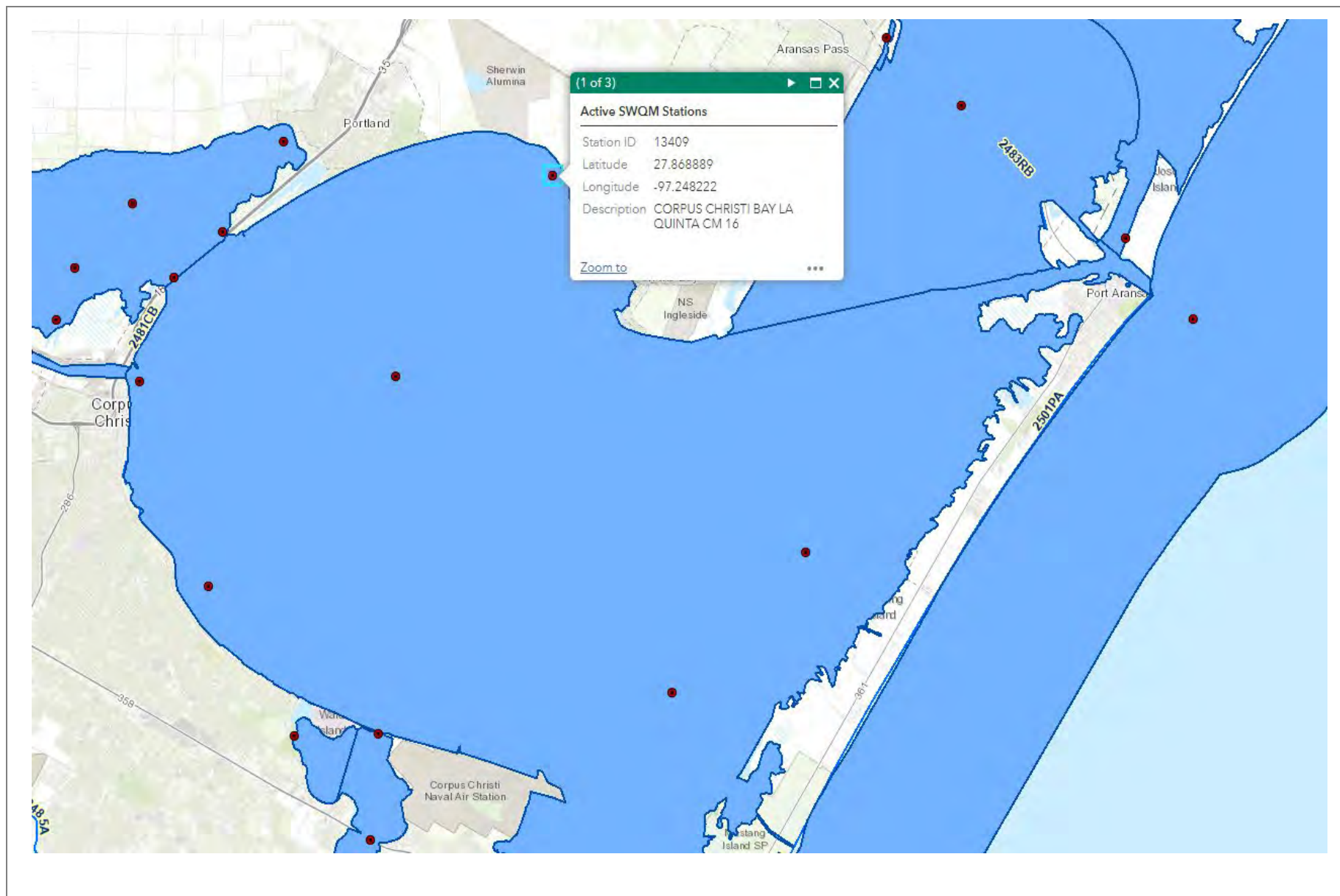
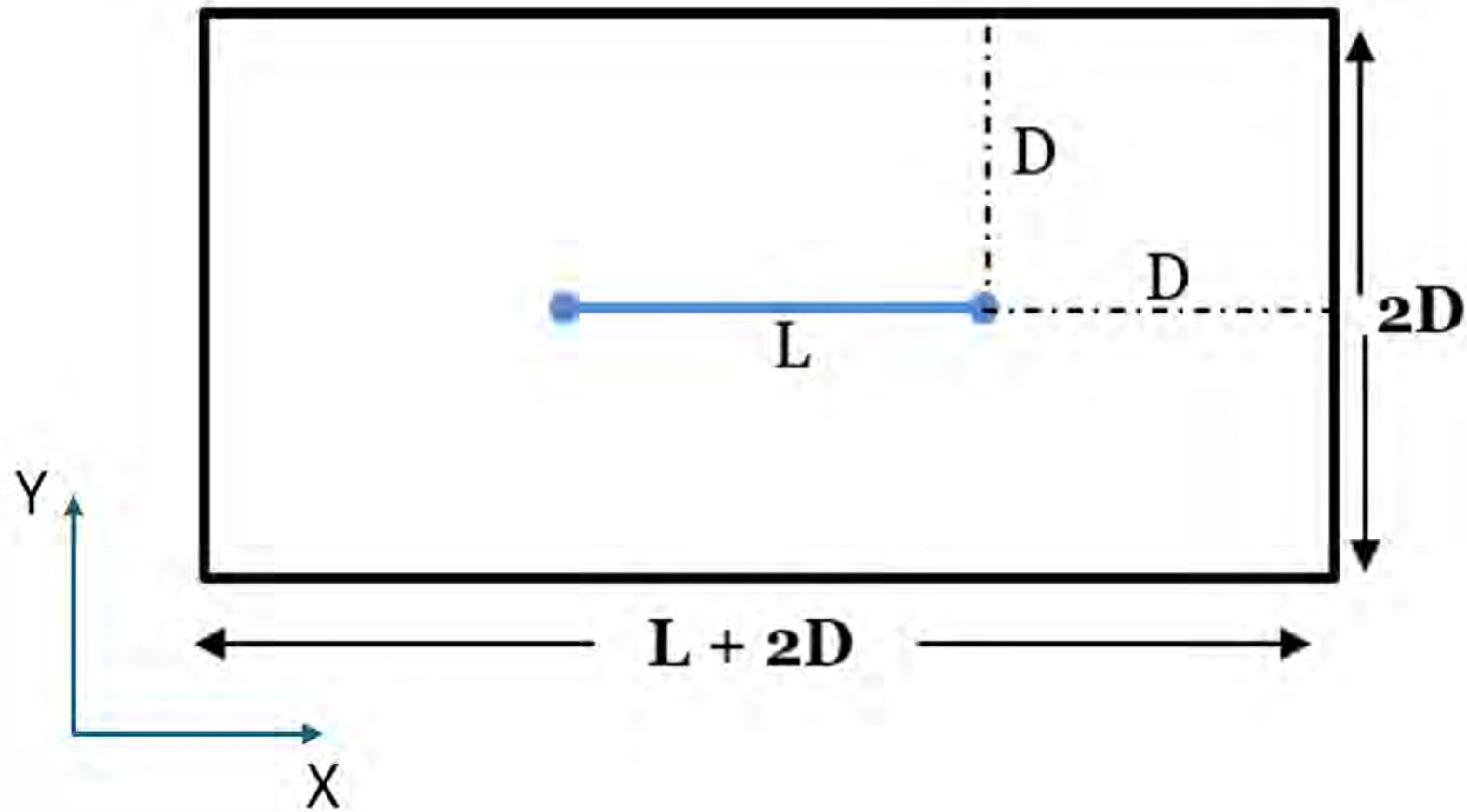


Figure 15 Mixing Zone Dimensions

**Notes:**

X and Y represent the X and Y directions.

L represents the length of the diffuser.

D is the distance solved for to determine the overall zone dimensions.

X and Y dimensions are not to scale.

Figure 16 Mixing Zone Directions

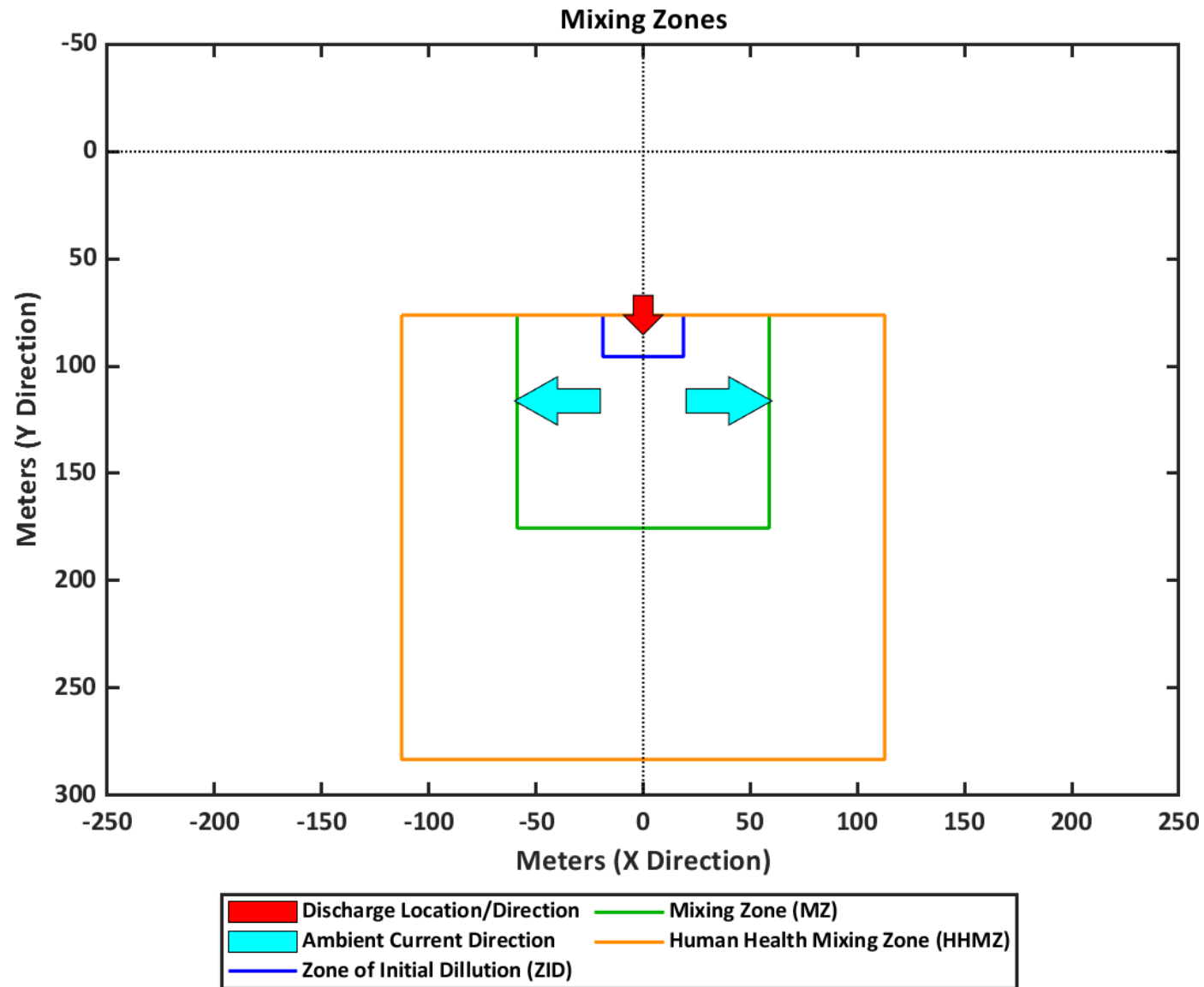


Figure 17 Conceptual Diffuser Configuration

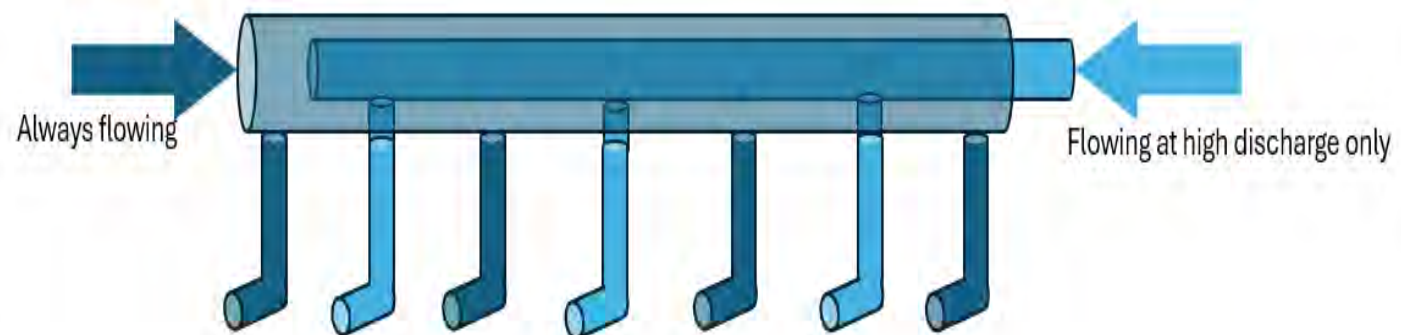


Figure 18 Original Photos Map



Legend

- Photo Location
- Property Boundary



0 500 1,000
Feet

Scale: 1:16,000

EDGE
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Figure 18
Original Photographs Map

Ingleside Clean Ammonia Partners, LLC
1450 Lexington Drive
Ingleside, Texas

Industrial Wastewater Permit Application
Supplemental Information: Photo Log
Ingleside, San Patricio County, Texas



Photograph 1 – View of the proposed point of discharge (D-001) for the proposed facility.



Photograph 2 – Additional view of the proposed point of discharge (D-001) for the proposed facility.

Industrial Wastewater Permit Application
Supplemental Information: Photo Log
Ingleside, San Patricio County, Texas



Photograph 3 – View of Corpus Christi Bay upstream from the proposed discharge location.



Photograph 4 – Additional view of Corpus Christi Bay upstream from the proposed discharge location.

Industrial Wastewater Permit Application
Supplemental Information: Photo Log
Ingleside, San Patricio County, Texas



Photograph 5 – View of Corpus Christi Bay downstream from the proposed discharge location.



Photograph 6 – View of the proposed facility location.

Industrial Wastewater Permit Application
Supplemental Information: Photo Log
Ingleside, San Patricio County, Texas



Photograph 7 – View of the proposed location of the facility's Pond.

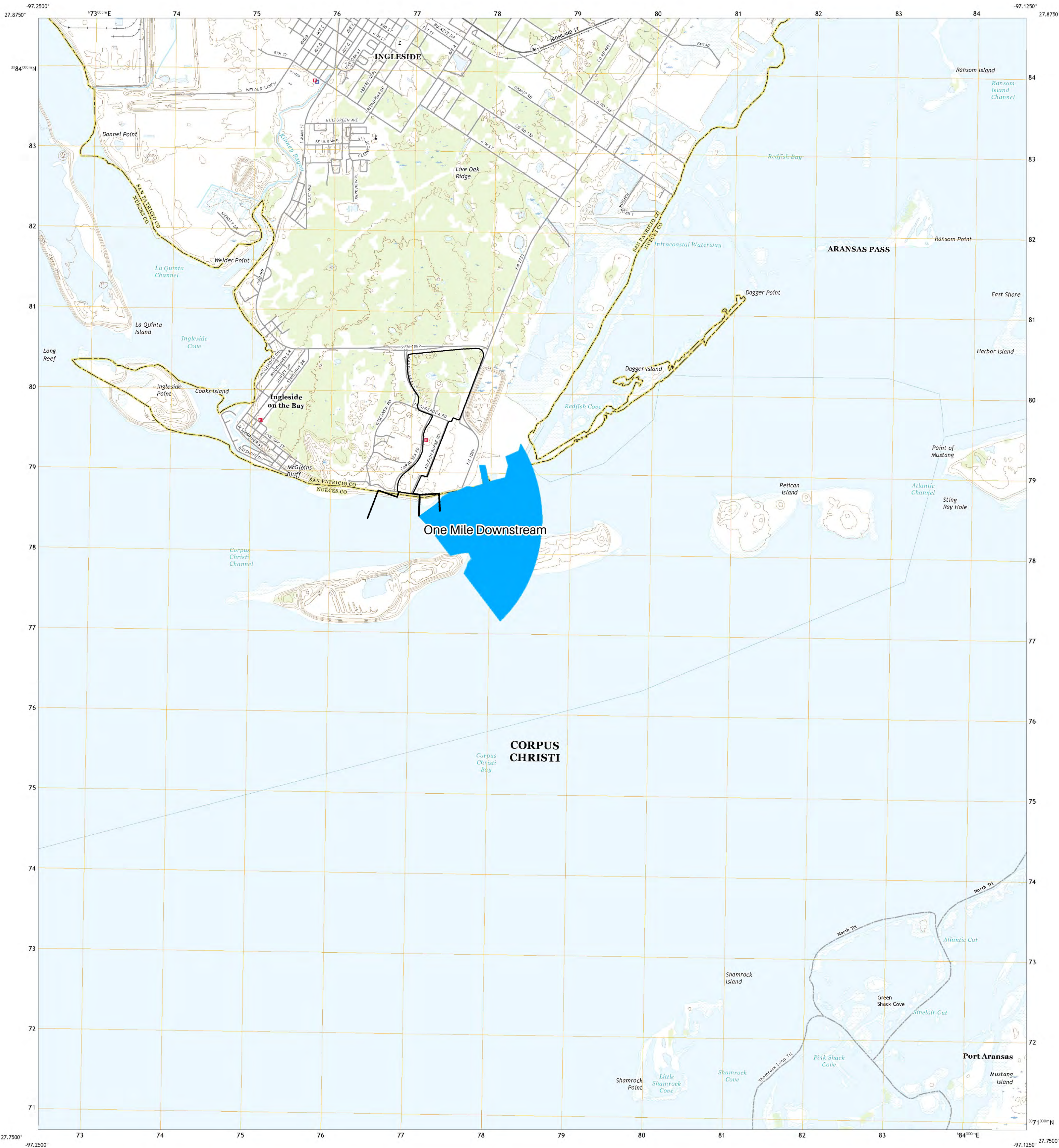
Figure 19 Supplemental Permit Information Form



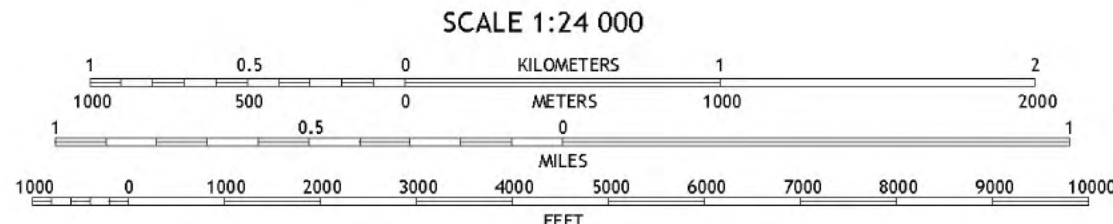
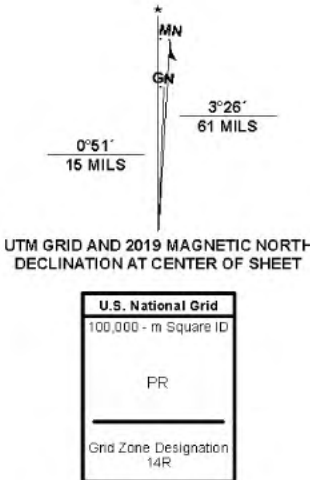
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



PORT INGLESIDE QUADRANGLE
TEXAS
7.5-MINUTE SERIES



Produced by the United States Geological Survey
North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 300-meter grid/Universal Transverse Mercator, Zone 14R.
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.
Imagery.....NADIP, September 2016 - December 2016
Roads.....U.S. Census Bureau, 2015 - 2018
Names.....GNS, 1979 - 2022
Hydrography.....National Hydrography Dataset, 2004 - 2018
Contours.....National Elevation Dataset, 2019
Boundaries.....Multiple sources; see metadata file 2019 - 2021
Wetlands.....FWS National Wetlands Inventory Not Available



CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
This map was produced to conform with the
National Geospatial Program US Topo Product Standard.



1	2	3	1 Gregory
4	5	2 Aransas Pass	
6	7	3 Estes	
		4 Portland	
		5 Port Aransas	
		6 Oso Creek NE	
		7 Crane Islands NW	
		8 Crane Islands NW OE	

ROAD CLASSIFICATION	
Expressway	Local Connector
Secondary Hwy	Local Road
Ramp	4WD
Interstate Route	US Route
	State Route

PORT INGLESIDE, TX
2022



Figure 20 7.5 Minute Topographic Maps and Required Information



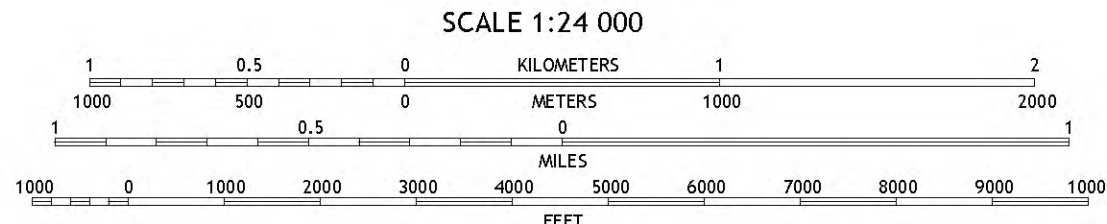
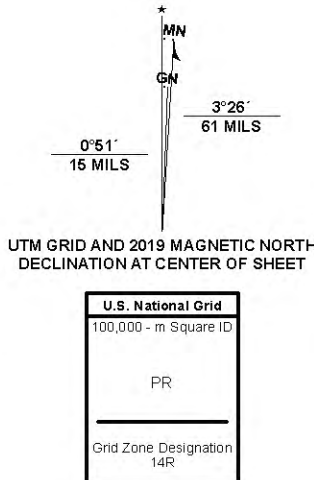
U.S. DEPARTMENT OF THE INTERIOR
U.S. GEOLOGICAL SURVEY



PORT INGLESIDE QUADRANGLE
TEXAS
7.5-MINUTE SERIES



Produced by the United States Geological Survey
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World Geodetic System of 1984 (WGS84). Projection and
1 500-meter grid/Universal Transverse Mercator, Zone 14R.
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reservations may not be shown. Obtain permission before
entering private lands.
Imagery.....NAIP, September 2016 - December 2016
Roads.....U.S. Census Bureau, 2015 - 2018
Names.....GNS, 1979 - 2022
Hydrography.....National Hydrography Dataset, 2004 - 2018
Contours.....National Elevation Dataset, 2019
Boundaries.....Multiple sources; see metadata file 2019 - 2021
Wetlands.....FWS National Wetlands Inventory Not Available



CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
This map was produced to conform with the
National Geospatial Program US Topo Product Standard.

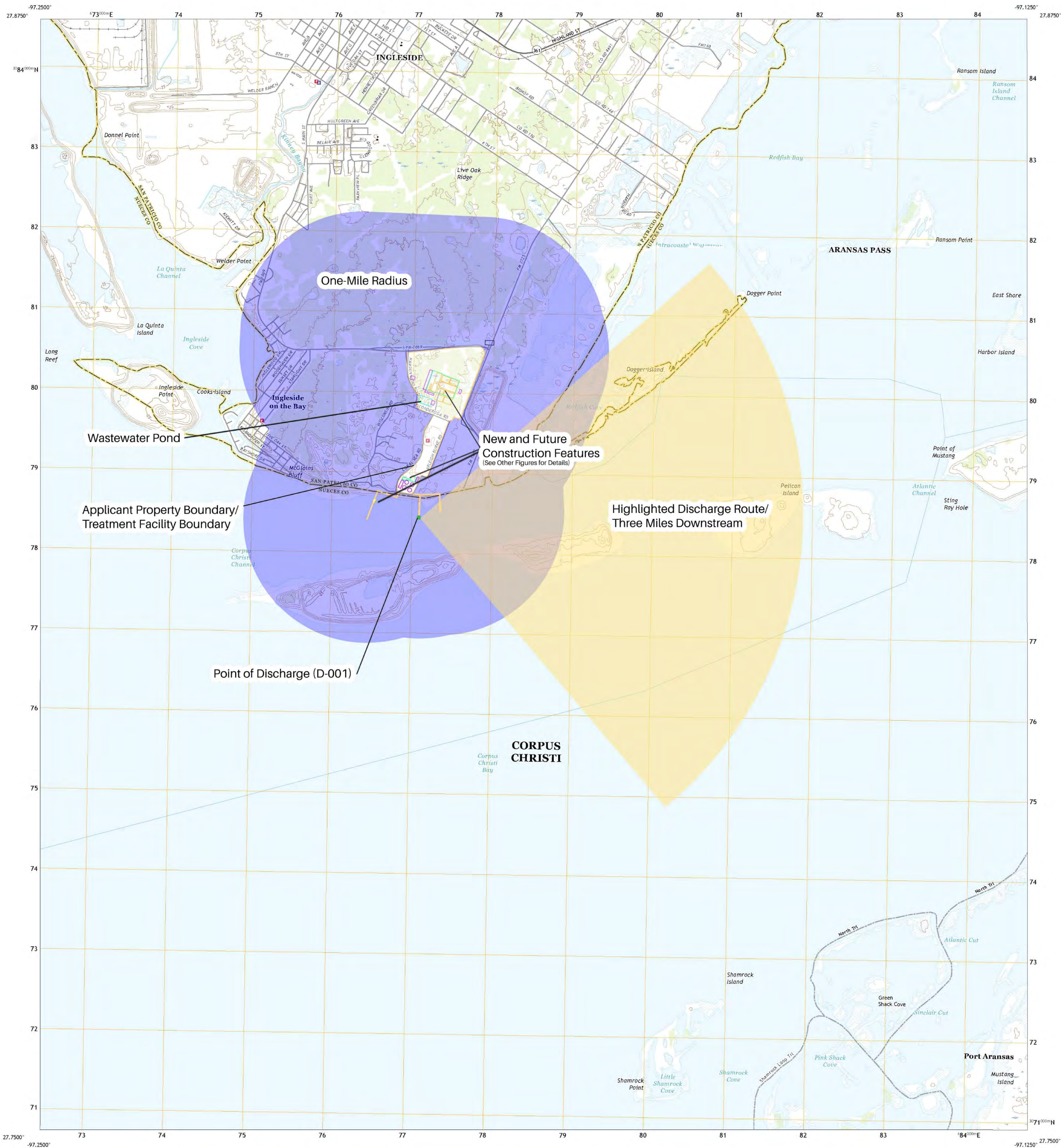


1	2	3	1 Gregory
4	5	2 Aransas Pass	
6	7	3 Estes	
		4 Portland	
		5 Port Aransas	
		6 Oso Creek NE	
		7 Crane Islands NW	
		8 Crane Islands NW OE E	

ROAD CLASSIFICATION	
Expressway	Local Connector
Secondary Hwy	Local Road
Ramp	4WD
Interstate Route	US Route
	State Route

PORT INGLESIDE, TX
2022

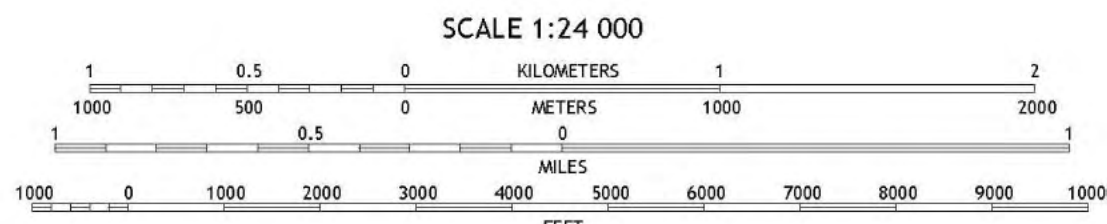
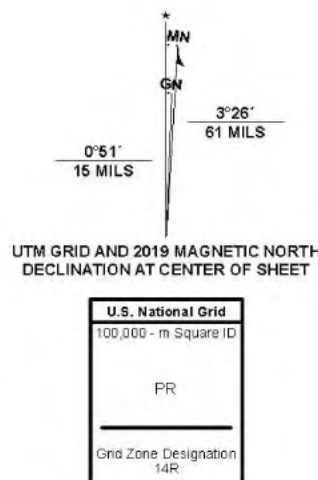




Produced by the United States Geological Survey

North American Datum of 1983 (NAD83)
World Geodetic System of 1984 (WGS84). Projection and
1 000-meter grid/Universal Transverse Mercator, Zone 14R.
This map is not a legal document. Boundaries may be
generalized for this map scale. Private lands within government
reservations may not be shown. Obtain permission before
entering private lands.

Imagery.....NAP, September 2016 - December 2016
Roads.....U.S. Census Bureau, 2015 - 2018
Names.....GNS, 1979 - 2022
Hydrography.....National Hydrography Dataset, 2004 - 2018
Contours.....National Elevation Dataset, 2019
Boundaries.....Multiple sources; see metadata file 2019 - 2021
Wetlands.....FWS National Wetlands Inventory Not Available



CONTOUR INTERVAL 5 FEET
NORTH AMERICAN VERTICAL DATUM OF 1988
This map was produced to conform with the
National Geospatial Program US Topo Product Standard.



1	2	3
4	5	6
7	8	9

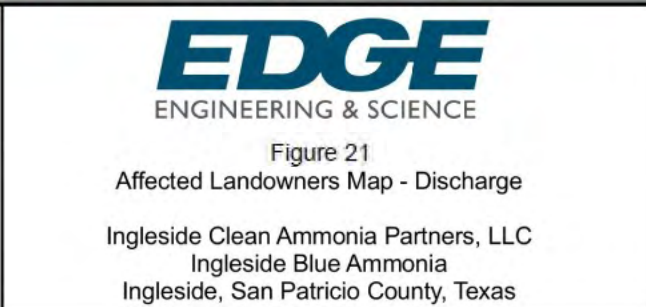
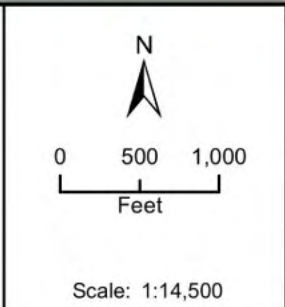
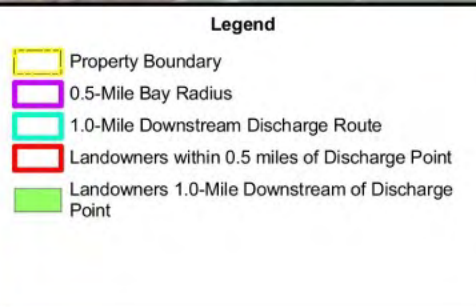
1 Gregory
2 Aransas Pass
3 Estes
4 Portland
5 Port Aransas
6 Oso Creek NE
7 Crane Islands NW
8 Crane Islands NW OE E

ROAD CLASSIFICATION		
Expressway	Local Connector	
Secondary Hwy	Local Road	
Ramp	4WD	
Interstate Route	US Route	State Route

PORT INGLESIDE, TX
2022



Figure 21 Affected Landowners Map Discharge



Figures 22 Affected Landowners Map Adjacent



Legend

- Outfall
- Adjacent Landowners Property Boundary
- Applicant Lease Property Boundary
- Landowner Property Boundary

Scale

0 1,000 2,000 Feet

Scale: 1:27,000

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Figure 22
Affected Landowners Map - Adjacent

Ingleside Clean Ammonia Partners, LLC
Ingleside Blue Ammonia
Ingleside, San Patricio County, Texas

WALTER AND MELISSA JOHNSON
93 STARLIGHT DR
INGLESIDE TX 78362

SABRINA BROWN
95 STARLIGHT DR
INGLESIDE TX 78362

CYNTHIA ROMINES
97 STARLIGHT DR
INGLESIDE TX 78362

BONNY VECHELL AND JOHN LUNDY
105 STARLIGHT DR
INGLESIDE TX 78362

CLIFFORD AND LISA MCDONALD
109 STARLIGHT DR
INGLESIDE TX 78362

RYAN MCCREADY
111 STARLIGHT DR
INGLESIDE TX 78362

DONALD SCHRIEFER
113 STARLIGHT DR
INGLESIDE TX 78362

MARIETTA GRIMES LIVING TRUST
115 STARLIGHT DR
INGLESIDE TX 78362

BRANDON AND PENNY NIEMTSCHK
155 STARLIGHT DR
INGLESIDE TX 78362

CHRISTOPHER AUSTIN
201 STARLIGHT DR
INGLESIDE TX 78362

TERESA AND CARL MILLER
221 STARLIGHT DR
INGLESIDE TX 78362

WILLIAM AND ISABELL MCKENZIE
301 STARLIGHT DR
INGLESIDE TX 78362

SHERREL AND DOUG STANFORD
307 STARLIGHT DR
INGLESIDE TX 78362

BRYAN TATUM
309 STARLIGHT DR
INGLESIDE TX 78362

CINDIA CAGLE
311 STARLIGHT DR
INGLESIDE TX 78362

JAMES GARRETT AND DEIDRA BLAKELY
313 STARLIGHT DR
INGLESIDE TX 78362

ADRIAN AND DIANA RODRIQUEZ
315 STARLIGHT DR
INGLESIDE TX 78362

PHILLIP AND TOMMIE RENFRO
373 STARLIGHT DR
INGLESIDE TX 78362

JOYCE SPIEGELHOFF
401 STARLIGHT DR
INGLESIDE TX 78362

STEVEN AND GLORIA OLIVAREZ
403 STARLIGHT DR
INGLESIDE TX 78362

ERIC AND DAVID DAWSON
405 STARLIGHT DR
INGLESIDE TX 78362

MICHAEL AND JENNIFER BILLMAN
502 E STARLIGHT DR
INGLESIDE TX 78362

SCOTT FRANKLIN
609 ANACUA RD
INGLESIDE TX 78362

SHANE CHIDDIX
96 BAYSHORE DR
INGLESIDE TX 78362

JAMES AND SHEILA WALTON
108 BAYSHORE DR
INGLESIDE TX 78362

IOB INVESTMENT LLC
1105 BAYSHORE DR
INGLESIDE TX 78362

WILD DUCK CREEK RV PARK LLC
1233 BAYSHORE DR
INGLESIDE TX 78362

WILLIAM AND LINDA MILLER
124 SUNSET DR
INGLESIDE TX 78362

STUART CLYMER
126 SUNSET DR
INGLESIDE TX 78362

JO EHMANN
436 SUNSET DR
INGLESIDE TX 78362

FRANK SMITH
2011 OCEAN DR
INGLESIDE TX 78362

ELMER HARRISON JR
609 WOODCREST DR
INGLESIDE TX 78362

RAYMOND AND ANNE CARROLL
2083 GLENWOOD DR
INGLESIDE TX 78362

BRIAN D AND BRIAN E KIMBELL
505 E WILDWOOD DR
INGLESIDE TX 78362

EDDIE AND CHERYL-ANNE CROW
601 DRIFTWOOD LN
INGLESIDE TX 78362

DAVID HUGHES
601 WILDWOOD DR
INGLESIDE TX 78362

SARAH MAYFIELD
602 TANGLEWOOD DR
INGLESIDE TX 78362

MICHAEL AND CHRISTA WOOD
603 TANGLEWOOD DR
INGLESIDE TX 78362

LIONEL RODRIGUEZ
PO BOX 773
INGLESIDE TX 78362

JIMMY MORGAN
PO BOX 502
INGLESIDE TX 78362

MARY CALLENDER
PO BOX 1115
INGLESIDE TX 78362

CITY OF INGLESIDE ON THE BAY
PO BOX 309
INGLESIDE TX 78362

SOUTH TEXAS GATEWAY TERMINAL
1201 LOUISIANA ST
HOUSTON TX 77002

JAMES HASKIN
PO BOX 302
INGLESIDE TX 78362

WAYNE JONES
748 KIMBERLY DR
PIPE CREEK TX 78063

JESSICA NEYMAN
108 THORNWOOD RD
GEORGETOWN TX 78628

ERF INGLESIDE INC
555 N CARANCAHUA ST
CORPUS CHRISTI TX 78401

CARL AND RUBY GUINN
3122 SAND SHADOW DR
LEAGUE CITY TX 77573

CHALENE BRAUN
12943 WATER RIDGE DR
MCCORDSVILLE IN 46055

FLINT HILLS RESOURCES LLC
PO BOX 2900
WICHITA KS 67201

FLINT HILLS RESOURCES LLC
PO BOX 3755
WICHITA KS 67201

Attachment 6 Safety Data Sheets

TRICARD

TRIANGLE CHEMICAL COMPANY – P.O. BOX 4528, MACON, GEORGIA 31213
CARDINAL CHEMICALS, INC. – KINSTON, NC

IN CASE OF EMERGENCY, CALL CHEMTREC
UNITED STATES: 1-800-424-9300
INTERNATIONAL: 1-202-483-7616

MATERIAL SAFETY DATA

1. PRODUCT IDENTIFICATION

PRODUCT NAME:	CONCENTRATED DEFOAMER
SYNONYMS:	Proprietary Silicone Antifoam Emulsion
CHEMICAL FAMILY:	Silicone Antifoam

2. HAZARDOUS INGREDIENTS

OSHA REGULATED COMPONENTS

COMPONENT	CAS. NO.	WT %	EXPOSURE LIMITS
None Known			

3. EFFECTS OF OVEREXPOSURE:

EYE:	May cause irritation and discomfort. Avoid eye contact with product at all times.
SKIN:	Effects of short- term exposure are expected to be minimal. Some individuals may experience irritation and discomfort to skin. Avoid prolonged and unnecessary skin contact with product.
INHALATION:	Not expected to be an inhalation hazard. Avoid prolonged exposure to product vapors.
ORAL:	Effects of ingesting small quantities are expected to be minimal. Never taste or Swallow product.

4. EMERGENCY FIRST AID

Call a poison control center or doctor immediately for treatment advice.

IF SWALLOWED:	Have person sip a glass of water if able to swallow. Do not induce vomiting unless told to do so by a poison control center or doctor. Do not give anything by mouth to an unconscious person.
IF ON SKIN OR CLOTHING:	Take off contaminated clothing. Rinse skin immediately with plenty of water for 15-20 minutes.
IF INHALED:	Move person to fresh air. If person is not breathing, call 911 or an ambulance, then give artificial respiration, preferably mouth to mouth if possible.
IF IN EYES:	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. Have the product container with you when calling a poison control center or doctor, or going for treatment.

5. REACTIVITY DATA

STABILITY:	Stable under normal conditions.
CONDITIONS TO AVOID:	See Section 9
INCOMPATIBILITY:	Strong acids and oxidizers.
HAZARDOUS DECOMPOSITION:	Incomplete combustion may produce carbon monoxide and other asphyxiants.

6. PHYSICAL PROPERTIES

APPEARANCE AND ODOR:	Thin, Milky White Emulsion, Slight Polyol
BOILING POINT:	>212° F
FREEZING POINT:	< 32° F
VAPOR PRESSURE:	No Data
SPECIFIC GRAVITY:	1.01 @ 25° C (+/- .05)
VAPOR DENSITY (AIR=1):	No Data
% VOLATILE ORGANIC:	Negligible
pH (neat @ 25°C):	6.0 – 8.0
EVAPORATION RATE :	No Data
SOLUBILITY IN WATER:	Readily Dispersible

7. NFPA HAZARD RATING (National Fire Protection Association)

Flammability	Health:	Exposure could cause irritation but only minor residual injury even if no treatment is given.
1		
Health 1	0 Instability	Flammability: Must be preheated before ignition can occur.
—		
Special Hazard	Instability:	Normally stable, even under fire exposure conditions, and are not reactive with water.

8. FIRE AND EXPLOSION HAZARD INFORMATION

FLASHPOINT:	>200°F 93°C
FLAMMABLE LIMITS:	Not Available
EXTINGUISHING MEDIA:	Foam, Dry Chemical, Water Spray, or Carbon Dioxide
FIRE FIGHTING:	Use water spray to cool containers exposed to flames. Use self-contained breathing apparatus with fighting any fire in an enclosed area. If leak or spill has not ignited, use water spray to disperse the vapors.
UNUSUAL FIRE HAZARD:	None Known

9. SPECIAL PRECAUTIONS

HANDLING AND STORAGE:	Store in cool dry place away from direct sources of intensive heat or excessive moisture. Keep from freezing. Keep in original container tightly closed. Do not reuse empty container. Preferably store product below 110°F (43°C).
OTHER PRECAUTIONS:	Keep out of reach of children.

10. SPECIAL PROTECTION INFORMATION

RESPIRATORY PROTECTION:	None required for normal use.
VENTILATION:	Normal room ventilation (mechanical) should be satisfactory.
PROTECTIVE GLOVES:	PVC-coated.
EYE PROTECTION:	Wear goggles or safety glasses with side shields.
OTHER PROTECTION:	Eye wash and safety shower should be available. Wash with soap and water before eating, drinking, smoking, or using toilet facilities.

11. SPILL OR LEAK PROCEDURES

SPILLS OR RELEASES:	Soak up with absorbent materials and remove to containers. Wash area thoroughly with soap and water.
WASTE DISPOSAL:	Do not contaminate water, food or feed by storage or disposal. Dispose of in an approved waste disposal facility in accordance with all Federal, State and Local Regulations.
CONTAINER DISPOSAL:	Triple rinse (or equivalent) adding rinse water to application tank. Offer container for recycling or dispose of in a sanitary landfill or by other procedures approved by local regulations.

12. REGULATORY INFORMATION

COMPOUNDS WHICH REQUIRE REPORTING UNDER SARA TITLE III

Sara regulated compounds	% Wt	CAS NO.
--------------------------	------	---------

No compounds present in quantities, which are regulated.		
--	--	--

The recommendation for safe handling and protection procedures is believed to be generally suitable for the standard uses of this compound. However, each user should identify his intended uses of this material and determine whether they are appropriate. All data included in this document is released as typical values and should not be utilized to determine the suitability of this material for a particular use or purpose. No warranty, either expressed or implied, is hereby made, nor do we give permission, inducement, or recommendations to practice any patented invention without a license. All data is offered for consideration, investigation and verification purposes only.

1. CHEMICAL IDENTIFICATION

Product Name..... AN-450FG
Recommended Use..... Water Treatment Antiscalent, Descaler
Restrictions on Use..... Not Determined
Emergency Number..... Infotrac 1-800-535-5053
Customer Service Hotline..... 281-286-7562 (8 AM to 5 PM CST)

Supplier of SDS:

Analytix Technologies LLC
PO Box 590466
Houston TX 77259-0466
Tel: (281) 286-7562
Web: www.analytixtechnoloies.com
Email: analytix@earthlink.net

2. HAZARD IDENTIFICATION**Hazard classification**

This material is not hazardous under the criteria of the Federal OSHA Hazard Communication Standard 29CFR 1910.1200.

(a) GHS Classification of the substance/mixture and any national or regional information
Classification according to GHS Not classified

(b) GHS Label Elements

Hazard Pictogram	None
Signal Word	None
Hazard Statements	None
Precautionary Statements	None

(c) Other Hazards None

Other hazards: no data available

3. COMPOSITION / INFORMATION ON INGREDIENTS

Mixture of water soluble compounds

Chemical Name	CAS No.	GHS Classification
Sodium Polycarboxylate	Not Hazardous	None
Water	7732-18-5	None

Specific chemical identity and/or percentages of composition have been withheld as a trade secret

4. FIRST AID MEASURES

Eyes: Immediately flush with water for at least 15 minutes, lifting the upper and lower eyelids intermittently. See a medical doctor or ophthalmologist immediately.

Skin: Immediate first aid is not likely to be required. Wash with plenty of soap and water. Get medical attention if irritation occurs and persists.

5. FIRST AID MEASURES (continued)

Ingestion: Immediate first aid is not likely to be required. Rinse mouth with water. Dilute by giving 2 glasses of water. Do not induce vomiting. Never give anything by mouth to an unconscious person. A physician can be contacted for advice.

Inhalation: Immediate first aid is not likely to be required. Remove to fresh air. If breathing difficulty or discomfort occurs and persists, contact a medical doctor.

NOTES TO MEDICAL DOCTOR: Treatment is controlled removal of exposure with symptomatic and supportive care.

6. FIRE FIGHTING MEASURES

SUITABLE EXTINGUISHING MEDIA: alcohol resistant foam, CO₂, powder, water spray

UNSUITABLE EXTINGUISHING MEDIA: Water jet

SPECIAL FIRE FIGHTING PROCEDURES Wear self-contained breathing apparatus with a full face piece operated in the positive pressure demand mode when fighting fires.

HAZARDOUS DECOMPOSITION: CO, CO₂

6. ACCIDENTAL RELEASE MEASURES

PROTECTIVE PRECAUTIONS AND EMERGENCY PROCEDURES Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapors. Ensure adequate ventilation

CONTAINMENT PROCEDURE Prevent further leakage or spillage if safe to do so. Contain spills to prevent migration and entry into waterway.

CLEANUP PROCEDURE Contain large spills with dikes and transfer material to appropriate containers for reclamation or disposal. Absorb remaining material or small spills with inert material and then place in a chemical waste container.

7. HANDLING AND STORAGE

Handling – Avoid contact with eyes, skin and clothing. Avoid breathing vapor or mist and use approved splash goggles and vapor respirator fitted with approved organic cartridge if vaporization or misting occurs. Use with adequate ventilation.

Storage: Store at > 32 °F. Stir well before use. Keep containers tightly closed when not in use and when in transit.

8. EXPOSURE CONTROLS/PERSONAL PROTECTION EQUIPMENT

Control Parameters: No specific occupational exposure limit have been established.

Exposure Controls:

Eye Protection: Wear Face Shield or chemical splash goggles meeting ANSI Z87.1 or approved equivalent.

Hand & Body Protection: Minimize skin contact by wearing protective PVC or Neoprene gloves, overalls or apron is also recommended.

Respiratory Protection: None required under normal handling and transfer conditions. An approved respiratory protection program meeting OSHA 1910.134 and ANSI Z88.2 requirements or equivalent must be followed whenever workplace conditions warrant use of a respirator. Where vapors or mist may occur, wear a properly fitted NIOSH-approved or equivalent half-mask, air-purifying respirator fitted with NIOSH-approved organic vapor cartridges.

Engineering Controls: Facilities storing or utilizing this material should be equipped with adequate ventilation, eyewash and shower facility.

9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance:	Pale Amber Clear Liquid
Upper/Lower Flammability Or Explosive Limits:	Not Determined
Odor:	Mild
Vapor Pressure:	17.5 Mm Hg @ 20 ⁰ c
Odor Threshold:	Not Determined
Vapor Density:	Not Determined
pH (1% solution):	4.0 – 5.0
Specific Gravity:	1.10 - 1.20
Melting Point/Freezing Point:	< 0 ⁰ C
Solubility(in water):	Completely Soluble
Initial Boiling Point And Boiling Range:	101 ⁰ C To 103 ⁰ C
Flash Point:	Not Determined
Evaporation Rate:	Not Determined
Flammability (Solid, Gas):	Not Determined
Partition Coefficient: N-Octanol/Water:	Not Determined
Auto-Ignition Temperature:	Not Determined
Decomposition Temperature:	Not Determined
Viscosity:	50 – 350 cps

Note: The above physical data are typical values. They should not be construed as specification for the product.

10. STABILITY AND REACTIVITY

REACTIVITY : No Data Available

STABILITY: Stable under normal conditions

CONDITIONS TO AVOID: No Data Available

INCOMPATIBILITY: There are no known materials which are incompatible with this product

HAZARDOUS DECOMPOSITION: CO, CO₂

HAZARDOUS POLYMERIZATION: Will not occur.

11. TOXICOLOGICAL INFORMATION**Acute Toxicity:**

Dermal LD₅₀.....> 5000 mg/kg (rabbit)

Oral LD₅₀> 5000 mg/kg (rat)

Inhalation.....data not available

Skin corrosion/irritation : No skin irritation

Serious eye damage/eye irritation: slight irritation

Sensitization: Product test data not available.

Specific Target Organ Systemic Toxicity (Single Exposure): Product test data not available.

Specific Target Organ Systemic Toxicity (Repeated Exposure): Product test data not available.

Carcinogenicity: Product test data not available.

Teratogenicity: Product test data not available.

Reproductive toxicity: Product test data not available.

Mutagenicity: Product test data not available.

Aspiration Hazard: Product test data not available.

12. ECOLOGICAL INFORMATION

Biodegradability:

BOD: Modified OECD test 301E - Not biodegradable.
OECD Closed bottle test 301D - Not biodegradable.

Ecological Toxicity:

Rainbow Trout (*Oncorhynchus mykiss*): LC50 (96 hour)..... = > 1,000 ppm
Bluegill Sunfish (*Lepomis macrochirus*): LC50 (96 hour)..... = > 1,000 ppm
Daphnia Magna (Water Flea): EC50 (48 hour)..... > 700 ppm
Algae – EC50 (96 hour, Growth rate inhibition)..... > 180 ppm

Mobility in Soil: No data available.

13. DISPOSAL CONSIDERATION

Disposal Method: For small spills, neutralize with lime or soda ash and flush away with plenty of water.
For large spillage absorb spillage onto sand or other absorbent material and dispose of as solid waste as per local regulations (e.g. incineration). Surplus product can be incinerated.

If the product was supplied in a single use container, care should be taken to dispose of the container in a responsible manner and in accordance with applicable regulations. Label precautions should be followed for any residual material in the container. Whenever possible, our company encourages recycling of containers.

14. TRANSPORT INFORMATION

U.S. DOT (Department of Transportation): Nonregulated

Other Shipping Information – DOT Marking – Not applicable
Hazardous Substance/RQ – Not applicable
49 STCC Number – Not applicable

Keep container tightly closed. Protect against physical damage.

15. REGULATORY INFORMATION

Following information pertains to each active component in the product, when applicable.

UNITED STATES

SARA TITLE 3 (Superfund Amendments and Reauthorization Act) – Not listed
Section 302 Extremely Hazardous Substances (40 CFR 355) – Not listed
Section 311 Hazard Category (40 CFR 370) – Not Hazardous
Section 312 Threshold Planning Quantity (40 CFR 370) – None
Section 313 Reportable Ingredients (40 CFR 372) – Not listed

CERCLA (Comprehensive Environmental Response Compensation and Liability Act) (40 CFR 302.4)-Not listed.

TSCA (Toxic Substance Control Act) (40 CFR 710) – Listed

California proposition 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

Suggested HMIS Ratings -	Health - 1	Flammability - 0	Reactivity - 0	Protection - B
NFPA Rating	Health - 1	Flammability - 0	Reactivity - 0	Special - None

HMIS Rating notes - Protection B = Splash Proof Goggles, Gloves

Date Prepared: 9-10-2019

The information contained herein is to the best of our knowledge and belief, accurate, but any recommendations or suggestions made are without warranty or guarantee of results, expressed or implied. We therefore, assume no liability for loss or damage incurred by following these suggestions. Any determination of fitness for a particular purpose is the buyer's responsibility. Analytix Technologies urges persons receiving this information to make their own determination as to the information's suitability and completeness for their particular application. Analytix Technologies' only obligation will be to replace such quantity of product proved to be defective. User assumes all risks and liability whatsoever in connection with the suitability of the product for the users intended application. Analytix Technologies shall not be responsible in tort, contract or under any theory for any loss or damage, incidental or consequential, arising out of the use of or the inability to use the products.

Safety Data Sheet

CAUSTIC SODA 25%

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Revision Date: 01/10/2024

SECTION 1. PRODUCT AND COMPANY IDENTIFICATION

Product name : CAUSTIC SODA 25%

Recommended use of the chemical and restrictions on use

Recommended use : Reserved for industrial and professional use.

Restrictions on use : None known.

Manufacturer or supplier's details

Company : Univar Solutions USA
Address : 3075 Highland Pkwy Suite 200
 Downers Grove, IL 60515
 United States of America (USA)

Emergency telephone number:

Transport North America: CHEMTREC (1-800-424-9300)

CHEMTREC INTERNATIONAL Tel # 703-527-3887

Additional Information: : Responsible Party: Product Compliance Department
 E-mail: SDSNA@univarsolutions.com
 SDS Requests: 1-855-429-2661
 Website: www.univarsolutions.com

SECTION 2. HAZARDS IDENTIFICATION

GHS Classification

Corrosive to metals : Category 1

Skin corrosion : Category 1A

Serious eye damage : Category 1

GHS label elements

Hazard pictograms :



Signal word : Danger

Hazard statements : H290 May be corrosive to metals.
 H314 Causes severe skin burns and eye damage.

Precautionary statements : **Prevention:**
 P234 Keep only in original container.
 P264 Wash skin thoroughly after handling.
 P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
 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 + P310 IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON

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CENTER/ doctor.
P305 + P351 + P338 + P310 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.
P363 Wash contaminated clothing before reuse.
P390 Absorb spillage to prevent material damage.
Storage:
P405 Store locked up.
P406 Store in corrosive resistant container with a resistant inner liner.
Disposal:
P501 Dispose of contents/ container to an approved waste disposal plant.

Other hazards

None known.

SECTION 3. COMPOSITION/INFORMATION ON INGREDIENTS

Substance / Mixture : Mixture

Hazardous components

CAS-No.	Chemical name	Weight percent
1310-73-2	Sodium hydroxide	20 - 30

Actual concentration is withheld as a trade secret

Any Concentration shown as a range is due to batch variation.

Synonyms : Sodium Hydroxide,

SECTION 4. FIRST AID MEASURES

General advice : Move out of dangerous area.
Consult a physician.
Show this safety data sheet to the doctor in attendance.
Do not leave the victim unattended.

If inhaled : If unconscious, place in recovery position and seek medical advice.
If symptoms persist, call a physician.

In case of skin contact : Immediate medical treatment is necessary as untreated wounds from corrosion of the skin heal slowly and with difficulty.
If on skin, rinse well with water.
If on clothes, remove clothes.

In case of eye contact : Small amounts splashed into eyes can cause irreversible tissue damage and blindness.
In the case of contact with eyes, rinse immediately with plenty of water and seek medical advice.
Continue rinsing eyes during transport to hospital.
Remove contact lenses.
Protect unharmed eye.
Keep eye wide open while rinsing.
If eye irritation persists, consult a specialist.

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- | | |
|--------------|---|
| If swallowed | Take victim immediately to hospital.
: Keep respiratory tract clear.
Do not induce vomiting without medical advice.
Do not give milk or alcoholic beverages.
Never give anything by mouth to an unconscious person.
If symptoms persist, call a physician.
Take victim immediately to hospital. |
|--------------|---|

SECTION 5. FIREFIGHTING MEASURES

- | | |
|---|---|
| Suitable extinguishing media | : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. |
| Unsuitable extinguishing media | : High volume water jet |
| Specific hazards during fire-fighting | : Do not allow run-off from fire fighting to enter drains or water courses. |
| Hazardous combustion products | : No hazardous combustion products are known |
| Further information | : Collect contaminated fire extinguishing water separately. This must not be discharged into drains.
Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. |
| Special protective equipment for firefighters | : Wear self-contained breathing apparatus for firefighting if necessary. |

SECTION 6. ACCIDENTAL RELEASE MEASURES

- | | |
|---|---|
| Personal precautions, protective equipment and emergency procedures | : Use personal protective equipment. |
| Environmental precautions | : Prevent product from entering drains.
Prevent further leakage or spillage if safe to do so.
If the product contaminates rivers and lakes or drains inform respective authorities. |
| Methods and materials for containment and cleaning up | : Neutralise with acid.
Soak up with inert absorbent material (e.g. sand, silica gel, acid binder, universal binder, sawdust).
Keep in suitable, closed containers for disposal. |

SECTION 7. HANDLING AND STORAGE

- | | |
|---|---|
| Advice on protection against fire and explosion | : Normal measures for preventive fire protection. |
| Advice on safe handling | : Do not breathe vapours/dust.
Avoid contact with skin and eyes.
For personal protection see section 8.
Smoking, eating and drinking should be prohibited in the ap- |

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plication area.
To avoid spills during handling keep bottle on a metal tray.
Dispose of rinse water in accordance with local and national regulations.

Conditions for safe storage : Keep container tightly closed in a dry and well-ventilated place.
Containers which are opened must be carefully resealed and kept upright to prevent leakage.
Observe label precautions.
Electrical installations / working materials must comply with the technological safety standards.

Recommended storage temperature : > 10 °C

SECTION 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

CAS-No.	Components	Value type (Form of exposure)	Control parameters / Permissible concentration	Basis
1310-73-2	Sodium hydroxide	C	2 mg/m3	ACGIH
		C	2 mg/m3	NIOSH REL
		TWA	2 mg/m3	OSHA Z-1
		C	2 mg/m3	OSHA P0
		C	2 mg/m3	CAL PEL

Personal protective equipment

Respiratory protection : General and local exhaust ventilation is recommended to maintain vapor exposures below recommended limits. Where concentrations are above recommended limits or are unknown, appropriate respiratory protection should be worn. Follow OSHA respirator regulations (29 CFR 1910.134) and use NIOSH/MSHA approved respirators. Protection provided by air purifying respirators against exposure to any hazardous chemical is limited. Use a positive pressure air supplied respirator if there is any potential for uncontrolled release, exposure levels are unknown, or any other circumstance where air purifying respirators may not provide adequate protection.

Hand protection

Remarks : The suitability for a specific workplace should be discussed with the producers of the protective gloves.

Eye protection : Eye wash bottle with pure water
Tightly fitting safety goggles
Wear face-shield and protective suit for abnormal processing problems.

Skin and body protection : Impervious clothing
Choose body protection according to the amount and concentration of the dangerous substance at the work place.

Hygiene measures : When using do not eat or drink.
When using do not smoke.
Wash hands before breaks and at the end of workday.

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SECTION 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	: liquid
Colour	: colourless
Odour	: odourless
Odour Threshold	: No data available
pH	: 14 @ 20 - 25 °C (68 - 77 °F)
Freezing Point (Freezing Point)	: -18 °C (-0.40 °F)
Boiling Point	: No data available
Flash point	: 94 °C (201 °F) No data available
Evaporation rate	: No data available
Flammability (solid, gas)	: No data available
Upper explosion limit	: No data available
Lower explosion limit	: No data available
Vapour pressure	: No data available
Relative vapour density	: No data available
Relative density	: 1.27 - 1.28 @ 20 - 25 °C (68 - 77 °F) Reference substance: (water = 1)
Density	: No data available
Water solubility	: No data available
Solubility in other solvents	: No data available
Partition coefficient: n-octanol/water	: No data available
Auto-ignition temperature	: No data available
Thermal decomposition	: No data available

SECTION 10. STABILITY AND REACTIVITY

Reactivity	: No dangerous reaction known under conditions of normal use.
Chemical stability	: Stable under normal conditions.
Possibility of hazardous reactions	: No decomposition if stored and applied as directed.
Conditions to avoid	: Keep away from heat, flame, sparks and other ignition sources.
Incompatible materials	: Acids Halogenated compounds Metals organic nitro compounds Zinc

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SECTION 11. TOXICOLOGICAL INFORMATION**Skin corrosion/irritation****Components:****1310-73-2:**

Species: Rabbit

Result: Causes severe burns.

Serious eye damage/eye irritation**Components:****1310-73-2:**

Species: Rabbit

Result: Risk of serious damage to eyes.

Carcinogenicity**IARC**

No component of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

OSHA

No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

NTP

No component of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

Further information**Product:**

Remarks: No data available

SECTION 12. ECOLOGICAL INFORMATION**Ecotoxicity**

No data available

Persistence and degradability

No data available

Bioaccumulative potential

No data available

Mobility in soil

No data available

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Other adverse effects

Product:

Ozone-Depletion Potential : Regulation: 40 CFR Protection of Environment; Part 82 Protection of Stratospheric Ozone - CAA Section 602 Class I Substances
Remarks: This product neither contains, nor was manufactured with a Class I or Class II ODS as defined by the U.S. Clean Air Act Section 602 (40 CFR 82, Subpt. A, App.A + B).

Additional ecological information : No data available

SECTION 13. DISPOSAL CONSIDERATIONS

Disposal methods

Waste from residues : Dispose of in accordance with all applicable local, state and federal regulations.
For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Univar Solutions ChemCare: 1-800-637-7922

Dispose of in accordance with all applicable local, state and federal regulations.
For assistance with your waste management needs - including disposal, recycling and waste stream reduction, contact Univar Solutions ChemCare: 1-800-637-7922

Contaminated packaging : Empty remaining contents.
Dispose of as unused product.
Do not re-use empty containers.

SECTION 14. TRANSPORT INFORMATION

DOT (Department of Transportation):

UN1824, Sodium hydroxide solution, 8, II

IATA (International Air Transport Association):

UN1824, Sodium hydroxide solution, 8, II

IMDG (International Maritime Dangerous Goods):

UN1824, SODIUM HYDROXIDE SOLUTION, 8, II, Flash Point:94 °C(201 °F)

SECTION 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
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Sodium hydroxide	1310-73-2	1000	3921
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SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Corrosive to metals
Skin corrosion or irritation
Serious eye damage or eye irritation

SARA 302 : This material does not contain any components with a section 302 EHS TPQ.

SARA 313 : This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

Clean Air Act

This product does not contain any hazardous air pollutants (HAP), as defined by the U.S. Clean Air Act Section 112 (40 CFR 61).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 112(r) for Accidental Release Prevention (40 CFR 68.130, Subpart F).

This product does not contain any chemicals listed under the U.S. Clean Air Act Section 111 SOCM I Intermediate or Final VOC's (40 CFR 60.489).

Clean Water Act

The following Hazardous Substances are listed under the U.S. CleanWater Act, Section 311, Table 116.4A:

1310-73-2 Sodium hydroxide

The following Hazardous Chemicals are listed under the U.S. CleanWater Act, Section 311, Table 117.3:

1310-73-2 Sodium hydroxide

This product does not contain any toxic pollutants listed under the U.S. Clean Water Act Section 307

Massachusetts Right To Know

1310-73-2 Sodium hydroxide

Pennsylvania Right To Know

7732-18-5 Water

1310-73-2 Sodium hydroxide

California Prop 65 : This product does not contain any chemicals known to State of California to cause cancer, birth defects, or any other reproductive harm.

The components of this product are reported in the following inventories:

TSCA : Listed on TSCA

DSL : All components of this product are on the Canadian DSL

AICS : On the inventory, or in compliance with the inventory

NZIoC : On the inventory, or in compliance with the inventory

ENCS : Not in compliance with the inventory

KECI : On the inventory, or in compliance with the inventory

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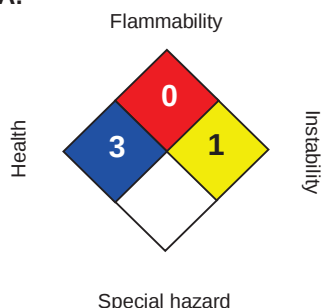
Revision Date: 01/10/2024

PICCS : On the inventory, or in compliance with the inventory

IECSC : On the inventory, or in compliance with the inventory

SECTION 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	3
FLAMMABILITY	0
PHYSICAL HAZARD	4

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

The information accumulated is based on the data of which we are aware and is believed to be correct as of the date hereof. Since this information may be applied under conditions beyond our control and with which we may be unfamiliar and since data made become available subsequently to the date hereof, we do not assume any responsibility for the results of its use. Recipients are advised to confirm in advance of need that the information is current, applicable, and suitable to their circumstances. This SDS has been prepared by Univar Solutions Product Compliance Department (1-855-429-2661) SDSNA@univarsolutions.com.

Revision Date : 01/10/2024

Material number:

16212546, 16212036, 16209256, 16197210, 16206616, 16206171, 16181533, 16192173, 16192016, 16132255, 16158399, 16146684, 16182270, 16148128, 16162026, 16188797, 16145004, 16188640, 16163721, 16162553, 16147855, 16151729, 16147016, 16002081, 16002153, 16163814, 16181444, 16185708, 16185366, 16178437, 16176600, 16176259, 16175654, 16175444, 16175415, 16174721, 16176744, 16170086, 16169860, 16169683, 16146335, 16146334, 16143884, 16145401, 16145323, 16145278, 16145243, 16145242, 16125921, 16116103, 16113730, 755848, 650799, 546389, 70561, 53072, 574261, 53570, 16150734, 16149350, 16149457, 16144981, 16145777, 16147137, 16163653, 102698, 16160832, 16137556, 16137474, 16137324, 16152197, 16158393, 16152426, 16144481, 16147885, 16159715, 16143521, 16160487, 16160771, 16160572, 16160486, 16147888, 16147884, 16147854, 16147799, 16148872, 16144724, 16144461, 16148802, 16152705, 16136108, 16135793, 16135298, 16143511, 16143409, 16143472, 16143461, 16143389, 16142429, 16140693

Key or legend to abbreviations and acronyms used in the safety data sheet

ACGIH	American Conference of Govern-	LD50	Lethal Dose 50%
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Safety Data Sheet

CAUSTIC SODA 25%

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	ment Industrial Hygienists		
AICS	Australia, Inventory of Chemical Substances	LOAEL	Lowest Observed Adverse Effect Level
DSL	Canada, Domestic Substances List	NFPA	National Fire Protection Agency
NDSL	Canada, Non-Domestic Substances List	NIOSH	National Institute for Occupational Safety & Health
CNS	Central Nervous System	NTP	National Toxicology Program
CAS	Chemical Abstract Service	NZIoC	New Zealand Inventory of Chemicals
EC50	Effective Concentration	NOAEL	No Observable Adverse Effect Level
EC50	Effective Concentration 50%	NOEC	No Observed Effect Concentration
EGEST	EOSCA Generic Exposure Scenario Tool	OSHA	Occupational Safety & Health Administration
EOSCA	European Oilfield Specialty Chemicals Association	PEL	Permissible Exposure Limit
EINECS	European Inventory of Existing Chemical Substances	PICCS	Philippines Inventory of Commercial Chemical Substances
MAK	Germany Maximum Concentration Values	PRNT	Presumed Not Toxic
GHS	Globally Harmonized System	RCRA	Resource Conservation Recovery Act
>=	Greater Than or Equal To	STEL	Short-term Exposure Limit
IC50	Inhibition Concentration 50%	SARA	Superfund Amendments and Reauthorization Act.
IARC	International Agency for Research on Cancer	TLV	Threshold Limit Value
IECSC	Inventory of Existing Chemical Substances in China	TWA	Time Weighted Average
ENCS	Japan, Inventory of Existing and New Chemical Substances	TSCA	Toxic Substance Control Act
KECI	Korea, Existing Chemical Inventory	UVCB	Unknown or Variable Composition, Complex Reaction Products, and Biological Materials
<=	Less Than or Equal To	WHMIS	Workplace Hazardous Materials Information System
LC50	Lethal Concentration 50%		



Safety Data Sheet

Carbon Dioxide

WestAir Gases & Equipment, Inc.

2505 Congress St.

San Diego, CA 92110

619-239-7571

<http://westairgases.com>

Emergency Contact (24hrs, 7 days a week): Chemtrec #1-800-424-9300

Section 1: Product and Company Identification

WestAir Gases & Equipment, Inc.

2505 Congress St.

San Diego, CA 92110

619-239-7571

<http://westairgases.com>

Product Code: Carbon Dioxide

Section 2: Hazards Identification



Warning

Hazard Classification:

Gases Under Pressure

Hazard Statements:

Contains gas under pressure; may explode if heated

Precautionary Statements

Storage:

Protect from sunlight.

Store in well-ventilated place.

Section 3: Composition/Information on Ingredients

CAS #
124-38-9

Chemical Substance	Chemical Family	Trade Names
CARBON DIOXIDE, GAS	Inorganic gases	CARBONIC ACID GAS; CARBONIC ANHYDRIDE; CARBON DIOXIDE; CARBON OXIDE; UN 1013; CO2

Section 4: First Aid Measures

Skin Contact	Eye Contact	Ingestion	Inhalation	Note to Physicians
If frostbite or freezing occur, immediately flush with plenty of lukewarm water (105-115 F; 41-46 C). DO NOT USE HOT WATER. If warm water is not available, gently wrap affected parts in blankets. Get immediate medical attention.	Contact with liquid: Immediately flush eyes with plenty of water for at least 15 minutes. Then get immediate medical attention.	Do not induce vomiting.	If adverse effects occur, remove to uncontaminated area. Give artificial respiration if not breathing. If breathing is difficult, oxygen should be administered by qualified personnel. Get immediate medical attention.	For inhalation, consider oxygen.

Section 5: Fire Fighting Measures

Suitable Extinguishing Media	Products of Combustion	Protection of Firefighters
Non-flammable	Non-flammable	- Any appropriate escape-type, self-contained breathing apparatus. - Non-flammable

Section 6: Accidental Release Measures

Personal Precautions	Environmental Precautions	Methods for Containment
Keep unnecessary people away, isolate hazard area and deny entry. Ventilate closed spaces before entering. Do not touch spilled material.	Subject to California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65). Keep out of water supplies and sewers.	Stop leak if possible without personal risk.

Methods for Cleanup	Other Information
Stop leak, evacuate, remove source of ignition.	None

Section 7: Handling and Storage

Handling	Storage
Subject to storage regulations: U.S. OSHA 29 CFR 1910.101. Keep separated from incompatible substances.	Store and handle in accordance with all current regulations and standards

Section 8: Exposure Controls/Personal Protection

Exposure Guidelines

Exposure Guidelines
CARBON DIOXIDE, GAS: CARBON DIOXIDE: 5000 ppm (9000 mg/m3) OSHA TWA 10000 ppm (18000 mg/m3) OSHA TWA (vacated by 58 FR 35338, June 30, 1993) 30000 ppm (54000 mg/m3) OSHA STEL (vacated by 58 FR 35338, June 30, 1993) 5000 ppm ACGIH TWA 30000 ppm ACGIH STEL 5000 ppm (9000 mg/m3) NIOSH recommended TWA 10 hour(s) 30000 ppm (54000 mg/m3) NIOSH recommended STEL

Engineering Controls

Handle only in fully enclosed systems.

Eye Protection	Skin Protection	Respiratory Protection
For the gas: Eye protection not required, but recommended. For the liquid: Wear splash resistant safety goggles. Contact lenses should not be worn. Provide an emergency eye wash fountain and quick drench shower in the immediate work area.	For the gas: Protective clothing is not required. For the liquid: Wear appropriate protective, cold insulating clothing.	Any appropriate escape-type, self-contained breathing apparatus.

General Hygiene considerations

- Avoid breathing vapor or mist
- Avoid contact with eyes and skin
- Wash thoroughly after handling and before eating or drinking

Section 9: Physical and Chemical Properties

Physical State	Appearance	Color	Change in Appearance	Physical Form	Odor	Taste
Gas	Colorless	Colorless	N/A	Gas	Odorless	Acid taste

Flash Point	Flammability	Partition Coefficient	Autoignition Temperature	Upper Explosive Limits	Lower Explosive Limits
Not flammable	Not available	N/A	Nonflammable	Nonflammable	Nonflammable

Boiling Point	Freezing Point	Vapor Pressure	Vapor Density	Specific Gravity	Water Solubility	pH	Odor Threshold	Evaporation Rate	Viscosity
Not available	-71 F (-57 C) @ 4000 mmHg	43700 mmHg @ 21 C	1.5 (Air=1)	1.522 @ 21 C	Soluble	3.7 (saturated aqueous solution) @ 101.3 kPa (carbonic acid)	Not available	Not applicable	0.01657 cP @ 0 C

Molecular Weight	Molecular Formula	Density	Weight per Gallon	Volatility by Volume	Volatility	Solvent Solubility
44.01	C-O2	0.114	Not available	Not applicable	Not applicable	Soluble: Alcohol, acetone, hydrocarbons, organic solvents

Section 10: Stability and Reactivity

Stability	Conditions to Avoid	Incompatible Materials
Stable at normal temperatures and pressure.	Stable at normal temperatures and pressure.	Combustible materials, oxidizing materials, metal salts, reducing agents, metal carbide, metals, bases

Hazardous Decomposition Products	Possibility of Hazardous Reactions
Carbon monoxide	Will not polymerize.

Section 11: Toxicology Information

Acute Effects

Oral LD50	Dermal LD50	Inhalation
Not established	Not established	Ringin in the ears, nausea, irregular heartbeat, headache, drowsiness, dizziness, tingling sensation, visual disturbances, suffocation, convulsions, coma

Eye Irritation	Skin Irritation	Sensitization
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Eye Irritation	Skin Irritation	Sensitization
Irritation, frostbite, blurred vision	Liquid: blisters, frostbite	Difficulty breathing

Chronic Effects

Carcinogenicity	Mutagenicity	Reproductive Effects	Developmental Effects
Not available	Not established	Available.	No data

Section 12: Ecological Information

Fate and Transport

Eco toxicity	Persistence / Degradability	Bioaccumulation / Accumulation	Mobility in Environment
Fish toxicity: 150000 ug/L 48 day(s) (Mortality) Brown trout (Salmo trutta) Invertebrate toxicity: Not available Algal toxicity: Not available Phyto toxicity: Not available Other toxicity: Not available	Relatively non-persistent in the environment. Moderately volatile from water.	Accumulates very little in the bodies of living organisms.	Leaches through the soil

Section 13: Disposal Considerations

Dispose in accordance with all applicable regulations.

Section 14: Transportation Information

U.S. DOT 49 CFR 172.101

Proper Shipping Name	ID Number	Hazard Class or Division	Packing Group	Labeling Requirements	Passenger Aircraft or Railcar Quantity Limitations	Cargo Aircraft Only Quantity Limitations	Additional Shipping Description
Carbon dioxide	UN1013	2.2	Not applicable	2.2	75 kg or L	150kg	None

Canadian Transportation of Dangerous Goods

Shipping Name	UN Number	Class	Packing Group / Risk Group
Carbon dioxide	UN1013	2.2	Not applicable

Section 15: Regulatory Information

U.S. Regulations

CERCLA Sections	SARA 355.30	SARA 355.40
Not regulated.	Not regulated.	Not regulated.

SARA 370.21

Acute	Chronic	Fire	Reactive	Sudden Release
Yes	No	No	No	Yes

SARA 372.65

Not regulated.

OSHA Process Safety

Not regulated.

State Regulations

CA Proposition 65

Not regulated.

Canadian Regulations

WHMIS Classification

A

National Inventory Status

US Inventory (TSCA)	TSCA 12b Export Notification	Canada Inventory (DSL/NDSL)
Listed on inventory.	Not listed.	Listed on inventory.

Section 16: Other Information

NFPA Rating

HEALTH=3 FIRE=0 REACTIVITY=0 SPECIAL=SA

0 = minimal hazard, 1 = slight hazard, 2 = moderate hazard, 3 = severe hazard, 4 = extreme hazard

SAFETY DATA SHEET

Creation Date 22-June-2009

Revision Date 26-March-2024

Revision Number 6

1. Identification

Product Name Sodium chloride, ACS

Cat No. : 12314

CAS-No 7647-14-5
Synonyms Halite; Common salt; Rock salt

Recommended Use Laboratory chemicals.
Uses advised against Food, drug, pesticide or biocidal product use.

Details of the supplier of the safety data sheet

Company

Importer/Distributor

Fisher Scientific
112 Colonnade Road,
Ottawa, ON K2E 7L6,
Canada
Tel: 1-800-234-7437

Emergency Telephone Number

For information **US** call: 001-800-227-6701 / **Europe** call: +32 14 57 52 11

Emergency Number **US**:001-201-796-7100 / **Europe**: +32 14 57 52 99

CHEMTREC Tel. No. **US**:001-800-424-9300 / **Europe**:001-703-527-3887

2. Hazard(s) identification

Classification

WHMIS 2015 Classification Not classified under the Hazardous Products Regulations (SOR/2015-17)

Not a dangerous substance or mixture according to the
Globally Harmonized System (GHS)

Label Elements

None required

3. Composition/Information on Ingredients

Component	CAS-No	Weight %
Sodium chloride	7647-14-5	>95

4. First-aid measures

Eye Contact	Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Get medical attention.
Skin Contact	Wash off immediately with plenty of water for at least 15 minutes. Get medical attention immediately if symptoms occur.
Inhalation	Remove to fresh air. Get medical attention immediately if symptoms occur.
Ingestion	Get medical attention if symptoms occur. Clean mouth with water and drink afterwards plenty of water.
Most important symptoms/effects Notes to Physician	None reasonably foreseeable. Treat symptomatically

5. Fire-fighting measures

Unsuitable Extinguishing Media	No information available
Flash Point	No information available
Method -	No information available
Autoignition Temperature	No information available
Explosion Limits	
Upper	No data available
Lower	No data available
Sensitivity to Mechanical Impact	No information available
Sensitivity to Static Discharge	No information available

Specific Hazards Arising from the Chemical

Thermal decomposition can lead to release of irritating gases and vapors. Keep product and empty container away from heat and sources of ignition.

Hazardous Combustion Products

Hydrogen chloride gas. Sodium oxides.

Protective Equipment and Precautions for Firefighters

As in any fire, wear self-contained breathing apparatus pressure-demand, MSHA/NIOSH (approved or equivalent) and full protective gear.

NFPA

Health
1

Flammability
0

Instability
1

Physical hazards
N/A

6. Accidental release measures

Personal Precautions	Ensure adequate ventilation. Use personal protective equipment as required. Avoid dust formation.
Environmental Precautions	Should not be released into the environment.

Methods for Containment and Clean Up Sweep up and shovel into suitable containers for disposal. Avoid dust formation.

7. Handling and storage

Handling	Wear personal protective equipment/face protection. Ensure adequate ventilation. Avoid contact with skin, eyes or clothing. Avoid ingestion and inhalation. Avoid dust formation.
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Storage. Keep containers tightly closed in a dry, cool and well-ventilated place. To maintain product quality. Store under an inert atmosphere. Protect from moisture. Incompatible Materials. Strong oxidizing agents. Metals. Strong acids.

8. Exposure controls / personal protection

Exposure Guidelines This product does not contain any hazardous materials with occupational exposure limits established by the region specific regulatory bodies.

Engineering Measures Ensure adequate ventilation, especially in confined areas. Ensure that eyewash stations and safety showers are close to the workstation location.

Personal protective equipment

Eye Protection Wear appropriate protective eyeglasses or chemical safety goggles as described by OSHA's eye and face protection regulations in 29 CFR 1910.133 or European Standard EN166.

Hand Protection Wear appropriate protective gloves and clothing to prevent skin exposure.

Glove material	Breakthrough time	Glove thickness	Glove comments
Natural rubber	See manufacturers	-	Splash protection only
Nitrile rubber	recommendations		
Neoprene			
PVC			

Inspect gloves before use. observe the instructions regarding permeability and breakthrough time which are provided by the supplier of the gloves. (Refer to manufacturer/supplier for information) gloves are suitable for the task: Chemical compatability, Dexterity, Operational conditions, User susceptibility, e.g. sensitisation effects, also take into consideration the specific local conditions under which the product is used, such as the danger of cuts, abrasion. gloves with care avoiding skin contamination.

Respiratory Protection

When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Follow the OSHA respirator regulations found in 29 CFR 1910.134 or European Standard EN 149. Use a NIOSH/MSHA or European Standard EN 149 approved respirator if exposure limits are exceeded or if irritation or other symptoms are experienced.

Recommended Filter type: Particle filter

Environmental exposure controls

No information available.

Hygiene Measures

Handle in accordance with good industrial hygiene and safety practice. Keep away from food, drink and animal feeding stuffs. Do not eat, drink or smoke when using this product. Remove and wash contaminated clothing and gloves, including the inside, before re-use. Wash hands before breaks and after work.

9. Physical and chemical properties

Physical State	Solid
Appearance	White
Odor	Odorless
Odor Threshold	No information available
pH	5.0-8.0 @ 20°C; 5% aq.sol
Melting Point/Range	801 °C / 1473.8 °F
Boiling Point/Range	1461 °C / 2661.8 °F @ 760 mmHg
Flash Point	No information available
Evaporation Rate	Not applicable

Flammability (solid,gas)	No information available
Flammability or explosive limits	
Upper	No data available
Lower	No data available
Vapor Pressure	1 mmHg @ 865 °C
Vapor Density	Not applicable
Specific Gravity	No information available
Solubility	Soluble in water
Partition coefficient; n-octanol/water	No data available
Autoignition Temperature	No information available
Decomposition Temperature	No information available
Viscosity	Not applicable
Molecular Formula	Cl Na
Molecular Weight	58.44

10. Stability and reactivity

Reactive Hazard	None known, based on information available
Stability	Hygroscopic.
Conditions to Avoid	Incompatible products. Excess heat. Avoid dust formation. Exposure to moist air or water.
Incompatible Materials	Strong oxidizing agents, Metals, Strong acids
Hazardous Decomposition Products	Hydrogen chloride gas, Sodium oxides
Hazardous Polymerization	Hazardous polymerization does not occur.
Hazardous Reactions	None under normal processing.

11. Toxicological information

Acute Toxicity

Product Information	See actual entry in RTECS for complete information.
Component Information	

Component	LD50 Oral	LD50 Dermal	LC50 Inhalation
Sodium chloride	LD50 = 3 g/kg (Rat)	LD50 > 10000 mg/kg (Rabbit)	LC50 > 42 mg/L (Rat) 1 h

Toxicologically Synergistic Products	No information available
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Delayed and immediate effects as well as chronic effects from short and long-term exposure

Irritation	No information available
Sensitization	No information available
Carcinogenicity	The table below indicates whether each agency has listed any ingredient as a carcinogen.

Component	CAS-No	IARC	NTP	ACGIH	OSHA	Mexico
Sodium chloride	7647-14-5	Not listed	Not listed	Not listed	Not listed	Not listed

Mutagenic Effects	Not mutagenic in AMES Test
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Reproductive Effects	No information available.
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Developmental Effects	No information available.
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Teratogenicity	No information available.
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STOT - single exposure	None known
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STOT - repeated exposure	None known
Aspiration hazard	No information available
Symptoms / effects, both acute and delayed	No information available
Endocrine Disruptor Information	No information available
Other Adverse Effects	The toxicological properties have not been fully investigated.

12. Ecological information

Ecotoxicity

Do not empty into drains. .

Component	Freshwater Algae	Freshwater Fish	Microtox	Water Flea
Sodium chloride	Not listed	Pimephals prome: LC50: 7650 mg/L/96h	Not listed	EC50: 1000 mg/L/48h

Persistence and Degradability Soluble in water Persistence is unlikely based on information available.

Bioaccumulation/ Accumulation No information available.

Mobility Will likely be mobile in the environment due to its water solubility.

13. Disposal considerations

Waste Disposal Methods Chemical waste generators must determine whether a discarded chemical is classified as a hazardous waste. Chemical waste generators must also consult local, regional, and national hazardous waste regulations to ensure complete and accurate classification.

14. Transport information

DOT	Not regulated
TDG	Not regulated
IATA	Not regulated
IMDG/IMO	Not regulated

15. Regulatory information

International Inventories

Component	CAS-No	DSL	NDSL	TSCA	TSCA Inventory notification - Active-Inactive	EINECS	ELINCS	NLP
Sodium chloride	7647-14-5	X	-	X	ACTIVE	231-598-3	-	-

Component	CAS-No	IECSC	KECL	ENCS	ISHL	TCSI	AICS	NZIoC	PICCS
Sodium chloride	7647-14-5	X	KE-31387	X	X	X	X	X	X

Legend:

X - Listed '-' - Not Listed

KECL - NIER number or KE number (<http://ncis.nier.go.kr/en/main.do>)

DSL/NDSL - Canadian Domestic Substances List/Non-Domestic Substances List

TSCA - United States Toxic Substances Control Act Section 8(b) Inventory

EINECS/ELINCS - European Inventory of Existing Commercial Chemical Substances/EU List of Notified Chemical Substances

IECSC - Chinese Inventory of Existing Chemical Substances

KECL - Korean Existing and Evaluated Chemical Substances

ENCS - Japanese Existing and New Chemical Substances

AICS - Australian Inventory of Chemical Substances

PICCS - Philippines Inventory of Chemicals and Chemical Substances

Canada

SDS in compliance with provisions of information as set out in Canadian Standard - Part 4, Schedule 1 and 2 of the Hazardous Products Regulations (HPR) and meets the requirements of the HPR (Paragraph 13(1)(a) of the Hazardous Products Act (HPA)).

Other International Regulations

Authorisation/Restrictions according to EU REACH Not applicable

Safety, health and environmental regulations/legislation specific for the substance or mixture

Component	CAS-No	OECD HPV	Persistent Organic Pollutant	Ozone Depletion Potential	Restriction of Hazardous Substances (RoHS)
Sodium chloride	7647-14-5	Listed	Not applicable	Not applicable	Not applicable

Component	CAS-No	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Major Accident Notification	Seveso III Directive (2012/18/EC) - Qualifying Quantities for Safety Report Requirements	Rotterdam Convention (PIC)	Basel Convention (Hazardous Waste)
Sodium chloride	7647-14-5	Not applicable	Not applicable	Not applicable	Not applicable

16. Other information

Prepared By Product Safety Department
Email: chem.techinfo@thermofisher.com
www.thermofisher.com

Creation Date 22-June-2009
Revision Date 26-March-2024
Print Date 26-March-2024
Revision Summary New emergency telephone response service provider.

Disclaimer

The information provided in this Safety Data Sheet is correct to the best of our knowledge, information and belief at the date of its publication. The information given is designed only as a guidance for safe handling, use, processing, storage, transportation, disposal and release and is not to be considered a warranty or quality specification. The information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process, unless specified in the text

End of SDS

SAFETY DATA SHEET

Nitrogen

Airgas
an Air Liquide company

Section 1. Identification

GHS product identifier	: Nitrogen
Chemical name	: nitrogen
Other means of identification	: nitrogen (dot); nitrogen gas; Nitrogen NF, Nitrogen FG
Product type	: Gas.
Product use	: Synthetic/Analytical chemistry.
Synonym	: nitrogen (dot); nitrogen gas; Nitrogen NF, Nitrogen FG
SDS #	: 001040
Supplier's details	: Airgas USA, LLC and its affiliates 259 North Radnor-Chester Road Suite 100 Radnor, PA 19087-5283 1-610-687-5253 Inside the US: 1-800-424-9300 (Chemtrec, 24 hours) Outside the US: 1-703-527-3887 (Chemtrec, 24 hours)
24-hour telephone	: Airgas Emergency Response Center 1-866-734-3438

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	: GASES UNDER PRESSURE - Compressed gas SIMPLE ASPHYXIANTS

GHS label elements

Hazard pictograms

:



Signal word

: Warning

Hazard statements

: Contains gas under pressure; may explode if heated.
May displace oxygen and cause rapid suffocation.
May displace oxygen and cause rapid suffocation.

Precautionary statements

General

: Read and follow all Safety Data Sheets (SDS'S) before use. Read label before use. Keep out of reach of children. If medical advice is needed, have product container or label at hand. Close valve after each use and when empty. Use equipment rated for cylinder pressure. Do not open valve until connected to equipment prepared for use. Use a back flow preventative device in the piping. Use only equipment of compatible materials of construction.

Prevention

: Not applicable.

Response

: Not applicable.

Storage

: Protect from sunlight. Store in a well-ventilated place.

Disposal

: Not applicable.

Supplemental label elements

: Keep container tightly closed. Use only with adequate ventilation. Do not enter storage areas and confined spaces unless adequately ventilated.

Hazards not otherwise classified

: In addition to any other important health or physical hazards, this product may displace oxygen and cause rapid suffocation.

Section 3. Composition/information on ingredients

Substance/mixture	: Substance
Chemical name	: nitrogen
Other means of identification	: nitrogen (dot); nitrogen gas; Nitrogen NF, Nitrogen FG
Product code	: 001040

CAS number/other identifiers

CAS number : 7727-37-9

Ingredient name	%	CAS number
Nitrogen	100	7727-37-9

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

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.

Occupational exposure limits, if available, are listed in Section 8.

Section 4. First aid measures

Description of necessary first aid measures

Eye contact	: Immediately flush eyes with plenty of water, occasionally lifting the upper and lower eyelids. Check for and remove any contact lenses. Get medical attention if irritation occurs.
Inhalation	: Remove victim to fresh air and keep at rest in a position comfortable for breathing. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus. Get medical attention if adverse health effects persist or are severe. 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.
Skin contact	: Flush contaminated skin with plenty of water. Remove contaminated clothing and shoes. Get medical attention if symptoms occur.
Ingestion	: As this product is a gas, refer to the inhalation section.

Most important symptoms/effects, acute and delayed

Potential acute health effects

Eye contact	: Contact with rapidly expanding gas may cause burns or frostbite.
Inhalation	: At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.
Skin contact	: Contact with rapidly expanding gas may cause burns or frostbite.
Frostbite	: Try to warm up the frozen tissues and seek medical attention.
Ingestion	: As this product is a gas, refer to the inhalation section.

Over-exposure signs/symptoms

Eye contact	: No specific data.
Inhalation	: No specific data.
Skin contact	: No specific data.
Ingestion	: No specific data.

Indication of immediate medical attention and special treatment needed, if necessary

Notes to physician	: 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.
Specific treatments	: No specific treatment.

Section 4. First aid measures

- Protection of first-aiders** : No action shall be taken involving any personal risk or without suitable training. If it is suspected that fumes are still present, the rescuer should wear an appropriate mask or self-contained breathing apparatus.

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** : Contains gas under pressure. In a fire or if heated, a pressure increase will occur and the container may burst or explode.

- Hazardous thermal decomposition products** : Decomposition products may include the following materials:
nitrogen oxides

- 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. Contact supplier immediately for specialist advice. Move containers from fire area if this can be done without risk. Use water spray to keep fire-exposed containers cool.

- 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. Put on appropriate personal protective equipment.
- For emergency responders** : If specialized 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** : Ensure emergency procedures to deal with accidental gas releases are in place to avoid contamination of the environment. Inform the relevant authorities if the product has caused environmental pollution (sewers, waterways, soil or air).

Methods and materials for containment and cleaning up

- Small spill** : Immediately contact emergency personnel. Stop leak if without risk.
- Large spill** : Immediately contact emergency personnel. Stop leak if without risk. 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). Contains gas under pressure. Avoid breathing gas. Use only with adequate ventilation. Wear appropriate respirator when ventilation is inadequate. Do not puncture or incinerate container. Use equipment rated for cylinder pressure. Close valve after each use and when empty. Protect cylinders from physical damage; do not drag, roll, slide, or drop. Use a suitable hand truck for cylinder movement.
Avoid contact with eyes, skin and clothing. Empty containers retain product residue and can be hazardous.

Section 7. Handling and storage

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 a segregated and approved area. Store away from direct sunlight in a dry, cool and well-ventilated area, away from incompatible materials (see Section 10). Cylinders should be stored upright, with valve protection cap in place, and firmly secured to prevent falling or being knocked over. Cylinder temperatures should not exceed 52 °C (125 °F). Keep container tightly closed and sealed until ready for use. See Section 10 for incompatible materials before handling or use.

Section 8. Exposure controls/personal protection

Control parameters

Occupational exposure limits

Ingredient name	Exposure limits
Nitrogen	ACGIH TLV (United States, 1/2021). Oxygen Depletion [Asphyxiant].

Biological exposure indices

No exposure indices known.

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. Wash contaminated clothing before reusing. Ensure that eyewash stations and safety showers are close to the workstation location.

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: safety glasses with side-shields.

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.

Section 8. Exposure controls/personal protection

- Respiratory protection** : The gas can cause asphyxiation without warning by replacing the oxygen in the air. Based on the hazard and potential for exposure, select a respirator that meets the appropriate standard or certification. If operating conditions cause high gas concentrations to be produced or any recommended or statutory exposure limit is exceeded, use an air-fed respirator or self-contained breathing apparatus. Respirators must be used according to a respiratory protection program to ensure proper fitting, training, and other important aspects of use. 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** : Gas. [Compressed gas.]
- Color** : Colorless.
- Odor** : Odorless.
- Odor threshold** : Not available.
- pH** : Not applicable.
- Melting point** : -210.01°C (-346°F)
- Boiling point** : -196°C (-320.8°F)
- Critical temperature** : -146.95°C (-232.5°F)
- Flash point** : [Product does not sustain combustion.]
- Evaporation rate** : Not available.
- Flammability (solid, gas)** : Not available.
- Lower and upper explosive (flammable) limits** : Not available.
- Vapor pressure** : Not available.
- Vapor density** : 0.97 (Air = 1)
- Specific Volume (ft³/lb)** : 13.8889
- Gas Density (lb/ft³)** : 0.072
- Relative density** : Not applicable.
- Solubility in water** : Not available.
- Partition coefficient: n-octanol/water** : 0.67
- Auto-ignition temperature** : Not available.
- Decomposition temperature** : Not available.
- Flow time (ISO 2431)** : Not available.
- Molecular weight** : 28.02 g/mole

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** : Do not allow gas to accumulate in low or confined areas.
- Incompatible materials** : No specific data.
- Hazardous decomposition products** : Under normal conditions of storage and use, hazardous decomposition products should not be produced.

Section 10. Stability and reactivity

Hazardous polymerization : Under normal conditions of storage and use, hazardous polymerization will not occur.

Section 11. Toxicological information

Information on toxicological effects

Acute toxicity

Not available.

Irritation/Corrosion

Not available.

Sensitization

Not available.

Mutagenicity

Not available.

Carcinogenicity

Not available.

Reproductive toxicity

Not available.

Teratogenicity

Not available.

Specific target organ toxicity (single exposure)

Not available.

Specific target organ toxicity (repeated exposure)

Not available.

Aspiration hazard

Not available.

Information on the likely routes of exposure : Not available.

Potential acute health effects

Eye contact : Contact with rapidly expanding gas may cause burns or frostbite.

Inhalation : At very high concentrations, can displace the normal air and cause suffocation from lack of oxygen.

Skin contact : Contact with rapidly expanding gas may cause burns or frostbite.

Ingestion : As this product is a gas, refer to the inhalation section.

Symptoms related to the physical, chemical and toxicological characteristics

Eye contact : No specific data.

Inhalation : No specific data.

Skin contact : No specific data.

Ingestion : No specific data.

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

Short term exposure

Potential immediate effects : Not available.

Section 11. Toxicological information

Potential delayed effects : Not available.

Long term exposure

Potential immediate effects : Not available.

Potential delayed effects : Not available.

Potential chronic health effects

Not available.

General : No known significant effects or critical hazards.

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

Not available.

Section 12. Ecological information

Toxicity

Not available.

Persistence and degradability

Not available.

Bioaccumulative potential

Product/ingredient name	LogP _{ow}	BCF	Potential
Nitrogen	0.67	-	Low

Mobility in soil

Soil/water partition coefficient (K_{oc}) : Not available.

Other adverse effects : No known significant effects or critical hazards.

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. Empty pressure vessels should be returned to the supplier. 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. Empty containers or liners may retain some product residues. Do not puncture or incinerate container.

Section 14. Transport information

	DOT	TDG	Mexico	IMDG	IATA
UN number	UN1066	UN1066	UN1066	UN1066	UN1066
UN proper shipping name	Nitrogen, compressed	NITROGEN, COMPRESSED	NITROGEN, COMPRESSED	NITROGEN, COMPRESSED	Nitrogen, compressed
Transport hazard class(es)	2.2 	2.2 	2.2 	2.2 	2.2 
Packing group	-	-	-	-	-
Environmental hazards	No.	No.	No.	No.	No.

“Refer to CFR 49 (or authority having jurisdiction) to determine the information required for shipment of the product.”

Additional information

DOT Classification

: **Limited quantity** Yes.
Packaging instruction Exceptions: 306, 307. Non-bulk: 302. Bulk: 314, 315.
Quantity limitation Passenger aircraft/rail: 75 kg. Cargo aircraft: 150 kg.

TDG Classification

: Product classified as per the following sections of the Transportation of Dangerous Goods Regulations: 2.13-2.17 (Class 2).
Explosive Limit and Limited Quantity Index 0.125
Passenger Carrying Road or Rail Index 75
Special provisions 148

IMDG

: **Emergency schedules** F-C, S-V
Special provisions 378, 392

IATA

: **Quantity limitation** Passenger and Cargo Aircraft: 75 kg. Packaging instructions: 200. Cargo Aircraft Only: 150 kg. Packaging instructions: 200. Limited Quantities - Passenger Aircraft: Forbidden. Packaging instructions: Forbidden.
Special provisions A69, A202

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 IMO instruments : Not available.

Section 15. Regulatory information

U.S. Federal regulations

: **TSCA 8(a) CDR Exempt/Partial exemption:** This material is listed or exempted.

Clean Air Act Section 112 (b) Hazardous Air Pollutants (HAPs) : Not listed

Clean Air Act Section 602 Class I Substances : Not listed

Clean Air Act Section 602 Class II Substances : Not listed

DEA List I Chemicals (Precursor Chemicals) : Not listed

Section 15. Regulatory information

**DEA List II Chemicals
(Essential Chemicals)** : Not listed

SARA 302/304

Composition/information on ingredients

No products were found.

SARA 304 RQ : Not applicable.

SARA 311/312

Classification : Refer to Section 2: Hazards Identification of this SDS for classification of substance.

State regulations

Massachusetts : This material is listed.

New York : This material is not listed.

New Jersey : This material is listed.

Pennsylvania : This material is listed.

California Prop. 65

This product does not require a Safe Harbor warning under California Prop. 65.

International regulations

Chemical Weapon Convention List Schedules I, II & III Chemicals

Not listed.

Montreal Protocol

Not listed.

Stockholm Convention on Persistent Organic Pollutants

Not listed.

Rotterdam Convention on Prior Informed Consent (PIC)

Not listed.

UNECE Aarhus Protocol on POPs and Heavy Metals

Not listed.

Inventory list

Australia : This material is listed or exempted.

Canada : This material is listed or exempted.

China : This material is listed or exempted.

Eurasian Economic Union : **Russian Federation inventory**: Not determined.

Japan : **Japan inventory (CSCL)**: Not determined.
Japan inventory (ISHL): Not determined.

New Zealand : This material is listed or exempted.

Philippines : This material is listed or exempted.

Republic of Korea : This material is listed or exempted.

Taiwan : This material is listed or exempted.

Thailand : This material is listed or exempted.

Turkey : Not determined.

United States : This material is active or exempted.

Viet Nam : This material is listed or exempted.

Section 16. Other information

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

Health	/	0
Flammability		0
Physical hazards		3

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 and the associated label are not required on SDSs or products leaving a facility 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 trademark and service mark of the American Coatings Association, Inc.

The customer is responsible for determining the PPE code for this material. For more information on HMIS® Personal Protective Equipment (PPE) codes, consult the HMIS® Implementation Manual.

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



Reprinted with permission from NFPA 704-2001, Identification of the Hazards of Materials for Emergency Response Copyright ©1997, National Fire Protection Association, Quincy, MA 02269. This reprinted material is not the complete and official position of the National Fire Protection Association, on the referenced subject which is represented only by the standard in its entirety.

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.

Procedure used to derive the classification

Classification	Justification
GASES UNDER PRESSURE - Compressed gas	Expert judgment
SIMPLE ASPHYXIANTS	Expert judgment

History

Date of printing : 9/13/2024

Date of issue/Date of revision : 9/13/2024

Date of previous issue : 7/19/2024

Version : 21.05

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 = International Convention for the Prevention of Pollution From Ships, 1973 as modified by the Protocol of 1978. ("Marpol" = marine pollution)
 UN = United Nations

References : Not available.

Notice to reader

Section 16. Other information

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.

Oxygen, compressed

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2015/830
Reference number: EIGA097A
Issue date: 16/01/2013 Revision date: 04/10/2024 Supersedes version of: 04/10/2024 Version: 2.3

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product form	: Substance
Name	: Oxygen, compressed
Trade name	:
EC Index-No.	: 008-001-00-8
EC-No.	: 231-956-9
CAS-No.	: 7782-44-7
REACH registration No	: Listed in Annex IV / V REACH, exempted from registration.
Product code	: 000010021701
Formula	: O ₂
Other means of identification	: Oxygen (Special Gases), Oxygen (and High Purity Oxygen)

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

1.2.1. Relevant identified uses

Relevant identified uses	: Industrial and professional uses. Perform risk assessment prior to use. Consumer use. Test gas/Calibration gas. Chemical reaction / Synthesis. Laboratory use. Food applications. Shield gas for welding processes. Laser gas. Welding, cutting, heating and brazing. It is the responsibility of the end user to ensure that the product as supplied is suitable for its intended use.
Use of the substance/mixture	: Balance gas for mixtures. Carrier gas. Combustion, melting and cutting processes. Process gas. Oxidizing agent Raw material for pharmaceutical products

1.2.2. Uses advised against

Uses advised against	: Industrial or technical grade is unsuitable for medical and/or food applications or inhalation.
Restrictions on use	: None.

1.3. Details of the supplier of the safety data sheet

BOC Ltd. (UK)
Priestley Road, Worsley
M28 2UT Manchester
Great Britain
T 0800 111 333
ReachSDS@boc.com

1.4. Emergency telephone number

Emergency number	: 0800 111 333
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Oxygen, compressed

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2015/830

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification according to Regulation (EC) No. 1272/2008 [CLP]

Physical hazards Oxidising Gases, Category 1 H270
Gases under pressure : Compressed gas H280

Full text of H- and EUH-statements: see section 16

Adverse physicochemical, human health and environmental effects

No additional information available

2.2. Label elements

Labelling according to Regulation (EC) No. 1272/2008 [CLP]

Hazard pictograms (CLP)



Signal word (CLP) : Danger
Hazard statements (CLP) : H270 – May cause or intensify fire: oxidiser.
H280 – Contains gas under pressure: may explode if heated.

Precautionary statements (CLP)
– Prevention : P220 – Keep away from clothing and other combustible materials.
P244 – Keep valves and fittings free from oil and grease.
– Response : P370+P376 – In case of fire: Stop leak if safe to do so.
– Storage : P403 – Store in a well-ventilated place.

2.3. Other hazards

Other hazards : Not classified as PBT or vPvB. The substance/mixture has no endocrine disrupting properties.

SECTION 3: Composition/information on ingredients

3.1. Substances

Name	Product identifier	%	Classification according to Regulation (EC) No. 1272/2008 [CLP]
Oxygen, compressed	CAS-No.: 7782-44-7 EC-No.: 231-956-9 EC Index-No.: 008-001-00-8 REACH-no: *1	100	Ox. Gas 1, H270 Press. Gas (Comp.), H280

Full text of H- and EUH-statements: see section 16

Contains no other components or impurities which will influence the classification of the product.

**1: Listed in Annex IV/V REACH, exempted from registration.*

**3: Registration not required: Substance manufactured or imported < 1t/y.*

3.2. Mixtures

Not applicable

Oxygen, compressed

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according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2015/830

SECTION 4: First aid measures

4.1. Description of first aid measures

First-aid measures after inhalation	: Remove victim to uncontaminated area.
First-aid measures after skin contact	: Adverse effects not expected from this product.
First-aid measures after eye contact	: Adverse effects not expected from this product.
First-aid measures after ingestion	: Ingestion is not considered a potential route of exposure.

4.2. Most important symptoms and effects, both acute and delayed

Most important symptoms and effects, both acute and delayed	Continuous inhalation of concentrations higher than 75% may cause nausea, dizziness, respiratory difficulty and convulsion. See section 11.
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4.3. Indication of any immediate medical attention and special treatment needed

None.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media	: Water spray or fog. Product does not burn, use fire control measures appropriate for the surrounding fire.
Unsuitable extinguishing media	: Do not use water jet to extinguish.

5.2. Special hazards arising from the substance or mixture

Reactivity in case of fire	: No reactivity hazard other than the effects described in sub-sections below.
Specific hazards	: Supports combustion. Exposure to fire may cause containers to rupture/explode.
Hazardous combustion products	: None.

5.3. Advice for firefighters

Specific methods	: Use fire control measures appropriate for the surrounding fire. Exposure to fire and heat radiation may cause gas receptacles to rupture. Cool endangered receptacles with water spray jet from a protected position. Prevent water used in emergency cases from entering sewers and drainage systems. If possible, stop flow of product. Use water spray or fog to knock down fire fumes if possible. Move containers away from the fire area if this can be done without risk.
Special protective equipment for fire fighters	: Standard protective clothing and equipment (Self Contained Breathing Apparatus) for fire fighters. Standard EN 469 - Protective clothing for firefighters. Standard - EN 659: Protective gloves for firefighters. Standard EN 137 - Self-contained open-circuit compressed air breathing apparatus with full face mask.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

6.1.1. For non-emergency personnel

Emergency procedures	: Act in accordance with local emergency plan. Try to stop release. Evacuate area. Eliminate ignition sources. Ensure adequate air ventilation. See section 8 of the SDS for more information on personal protective equipment.
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Oxygen, compressed

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according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2015/830

6.1.2. For emergency responders

Emergency procedures : Monitor concentration of released product. Wear self-contained breathing apparatus when entering area unless atmosphere is proved to be safe. See section 5.3 of the SDS for more information.

6.2. Environmental precautions

Try to stop release.

6.3. Methods and material for containment and cleaning up

Methods and material for containment and cleaning up : Ventilate area.

6.4. Reference to other sections

See also sections 8 and 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Safe use of the product : Use only oxygen approved lubricants and oxygen approved sealings.
Use only with equipment cleaned for oxygen service and rated for container pressure.
Keep equipment free from oil and grease. For more guidance, refer to the EIGA Doc. 33 - Cleaning of Equipment for Oxygen Service downloadable at <http://www.eiga.eu>.
Use no oil or grease.
The product must be handled in accordance with good industrial hygiene and safety procedures.
Only experienced and properly instructed persons should handle gases under pressure.
Consider pressure relief device(s) in gas installations.
Ensure the complete gas system was (or is regularly) checked for leaks before use.
Do not smoke while handling product.
Use only properly specified equipment which is suitable for this product, its supply pressure and temperature. Contact your gas supplier if in doubt.
Avoid suck back of water, acid and alkalis.
Do not breathe gas.

Safe handling of the gas receptacle : Refer to supplier's container handling instructions.
Do not allow backfeed into the container.
Protect containers from physical damage; do not drag, roll, slide or drop.
When moving cylinders, even for short distances, use a cart (trolley, hand truck, etc.) designed to transport cylinders.
Leave valve protection caps in place until the container has been secured against either a wall or bench or placed in a container stand and is ready for use.
If user experiences any difficulty operating valve discontinue use and contact supplier.
Never attempt to repair or modify container valves or safety relief devices.
Damaged valves should be reported immediately to the supplier.
Keep container valve outlets clean and free from contaminants particularly oil and water.
Replace valve outlet caps or plugs and container caps where supplied as soon as container is disconnected from equipment.
Close container valve after each use and when empty, even if still connected to equipment.
Never attempt to transfer gases from one cylinder/container to another.
Never use direct flame or electrical heating devices to raise the pressure of a container.
Do not remove or deface labels provided by the supplier for the identification of the content of the container.
Suck back of water into the container must be prevented.
Open valve slowly to avoid pressure shock.

Oxygen, compressed

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7.2. Conditions for safe storage, including any incompatibilities

Conditions for safe storage, including any incompatibilities

: Segregate from flammable gases and other flammable materials in store.
Observe all regulations and local requirements regarding storage of containers.
Containers should not be stored in conditions likely to encourage corrosion.
Container valve guards or caps should be in place.
Containers should be stored in the vertical position and properly secured to prevent them from falling over.
Stored containers should be periodically checked for general condition and leakage.
Keep container below 50°C in a well ventilated place.
Store containers in location free from fire risk and away from sources of heat and ignition.
Keep away from combustible materials.

7.3. Specific end use(s)

None.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.1.1 National occupational exposure and biological limit values

No additional information available

8.1.2. Recommended monitoring procedures

No additional information available

8.1.3. Air contaminants formed

No additional information available

8.1.4. DNEL and PNEC

Oxygen, compressed (7782-44-7)

DNEL/DMEL (additional information)

Additional information

None available.

PNEC (additional information)

Additional information

None available.

Additional information

: None available.

8.1.5. Control banding

No additional information available

8.2. Exposure controls

8.2.1. Appropriate engineering controls

Appropriate engineering controls:

Avoid oxygen rich (>23.5%) atmospheres. Gas detectors should be used when oxidising gases may be released. Provide adequate general and local exhaust ventilation. Consider the use of a work permit system e.g. for maintenance activities. Systems under pressure should be regularly checked for leakages.

8.2.2. Personal protection equipment

Personal protective equipment:

A risk assessment should be conducted and documented in each work area to assess the risks related to the use of the product and to select the PPE that matches the relevant risk. The following recommendations should be considered: PPE compliant to the recommended EN/ISO standards should be selected.

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Personal protective equipment symbol(s):



8.2.2.1. Eye and face protection

Eye protection:

Wear safety glasses with side shields.

Standard EN 166 – Personal eye-protection – specifications

8.2.2.2. Skin protection

Hand protection:

Wear working gloves when handling gas containers.

Standard EN 388 – Protective gloves against mechanical risks, performance level 1 or higher.

Other skin protection

Consider the use of flame resistant safety clothing.

Standard EN ISO 14116 – Limited flame spread materials.

Wear safety shoes while handling containers.

Standard EN ISO 20345 – Personal protective equipment – Safety footwear.

Other information:

Consider the use of flame resistant safety clothing.

Standard EN ISO 14116 – Limited flame spread materials.

Wear safety shoes while handling containers.

Standard EN ISO 20345 – Personal protective equipment – Safety footwear.

8.2.2.3. Respiratory protection

Respiratory protection:

None necessary.

Self contained breathing apparatus is recommended, where unknown exposure may be expected, e.g. during maintenance activities on installation systems.

Standard EN 137 – Self-contained open-circuit compressed air breathing apparatus with full face mask.

8.2.2.4. Thermal hazards

Thermal hazard protection:

None in addition to the above sections.

8.2.3. Environmental exposure controls

Environmental exposure controls:

Refer to local regulations for restriction of emissions to the atmosphere. See section 13 for specific methods for waste gas treatment.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Appearance	
Molecular mass	: 32 g/mol
Physical state	: Gas
Form	: Compressed gas
Colour	: Colourless.
Odour	: Odourless.
Odour threshold	: Odour threshold is subjective and inadequate to warn of overexposure.
pH	: Not applicable for gases and gas mixtures.
Relative evaporation rate (butylacetate=1)	: No data available
Melting point	: -219 °C
Freezing point	: No data available
Boiling point	: -183 °C

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Flash point	: Not applicable for gases and gas mixtures.
Critical temperature	: -118 °C
Auto-ignition temperature	: Non flammable.
Decomposition temperature	: Not applicable.
Flammability (solid, gas)	: Non flammable.
Vapour pressure	: Not applicable.
Vapour pressure at 50°C	: Not applicable.
Critical pressure	: 5043 kPa
Relative vapour density at 20°C	: Not applicable.
Relative density	: 1.1 EC-TEMP: 0; EC-PRESS: 1013.25-KPA; EC-REFMAT: Water
Density	: Not applicable for gases and gas mixtures.
Relative gas density	: 1.1
Solubility in water	: 0.039 mg/l
Partition coefficient n-octanol/water (Log Pow)	: Not applicable for gas mixtures.
Partition coefficient n-octanol/water (Log Kow)	: Not applicable for inorganic products.
Viscosity, kinematic	: No reliable data available.
Viscosity, dynamic	: No reliable data available.
Explosive properties	: No data available
Oxidising properties	: Oxidiser.
Explosive limits	: Not known.
Lower explosive limit (LEL)	: Not applicable.
Upper explosive limit (UEL)	: Not applicable.
Particle characteristics	: Not applicable for gases and gas mixtures. Nanoforms are not relevant for gases and gas mixtures.

9.2. Other information

Gas group	: Compressed gas
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SECTION 10: Stability and reactivity

10.1. Reactivity

No reactivity hazard other than the effects described in sub-sections below.

10.2. Chemical stability

Stable under normal conditions.

10.3. Possibility of hazardous reactions

Violently oxidises organic material.

10.4. Conditions to avoid

Avoid moisture in installation systems.

10.5. Incompatible materials

Consider the potential toxicity hazard due to the presence of chlorinated or fluorinated polymers in high pressure (> 30 bar) oxygen lines in case of combustion. May react violently with combustible materials. May react violently with reducing agents. Keep equipment free from oil and grease. For more guidance, refer to the EIGA Doc. 33 - Cleaning of Equipment for Oxygen Service downloadable at <http://www.eiga.eu>. For additional information on compatibility refer to ISO 11114.

10.6. Hazardous decomposition products

None.

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Acute toxicity	: No known toxicological effects from this product.
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Acute toxicity (dermal)	: Not classified
Acute toxicity (inhalation)	: Not classified
Skin corrosion/irritation	: No known effects from this product. pH: Not applicable for gases and gas mixtures.
Serious eye damage/irritation	: No known effects from this product. pH: Not applicable for gases and gas mixtures.
Respiratory or skin sensitisation	: No known effects from this product.
Germ cell mutagenicity	: No known effects from this product.
Carcinogenicity	: No known effects from this product.
Reproductive toxicity	: Not classified
Toxic for reproduction : Fertility	: No known effects from this product.
Toxic for reproduction : unborn child	: No known effects from this product.
STOT-single exposure	: No known effects from this product.
STOT-repeated exposure	: No known effects from this product.
Aspiration hazard	: Not applicable for gases and gas mixtures.

Oxygen, compressed (7782-44-7)

Viscosity, kinematic	No reliable data available.
Other information	: The substance/mixture has no endocrine disrupting properties.

SECTION 12: Ecological information

12.1. Toxicity

Assessment	: No ecological damage caused by this product.
Hazardous to the aquatic environment, short-term (acute)	: Not classified
Hazardous to the aquatic environment, long-term (chronic)	: Not classified
Not rapidly degradable	

Oxygen, compressed (7782-44-7)

LC50 96 h - Fish [mg/l]	No data available.
EC50 48h - Daphnia magna [mg/l]	No data available.
EC50 72h - Algae [mg/l]	No data available.

12.2. Persistence and degradability

Oxygen, compressed (7782-44-7)

Assessment	No ecological damage caused by this product.
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12.3. Bioaccumulative potential

Oxygen, compressed (7782-44-7)

Partition coefficient n-octanol/water (Log Pow)	Not applicable for gas mixtures.
Partition coefficient n-octanol/water (Log Kow)	Not applicable for inorganic products.
Assessment	No ecological damage caused by this product.

12.4. Mobility in soil

Oxygen, compressed (7782-44-7)

Assessment	No ecological damage caused by this product.
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Oxygen, compressed

Safety Data Sheet

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12.5. Results of PBT and vPvB assessment

Assessment : Not classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects : No known effects from this product.
Assessment : The substance/mixture has no endocrine disrupting properties.
Effect on the ozone layer : No effect on the ozone layer.
Effect on global warming : None.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Waste treatment methods : Contact supplier if guidance is required. May be vented to atmosphere in a well ventilated place. Ensure that the emission levels from local regulations or operating permits are not exceeded. Refer to the EIGA code of practice Doc.30 "Disposal of Gases", downloadable at <http://www.eiga.eu> for more guidance on suitable disposal methods. Do not discharge into any place where its accumulation could be dangerous. Return unused product in original container to supplier.

List of hazardous waste codes (from Commission Decision 2000/532/EC as amended) : 16 05 04 *: Gases in pressure containers (including halons) containing hazardous substances.

13.2. Additional information

External treatment and disposal of waste should comply with applicable local and/or national regulations.

SECTION 14: Transport information

In accordance with ADR / IMDG / IATA / ADN / RID

ADR	IMDG	IATA	ADN	RID
14.1. UN number				
UN 1072	UN 1072	UN 1072	UN 1072	UN 1072
14.2. UN proper shipping name				
OXYGEN, COMPRESSED	OXYGEN, COMPRESSED	Oxygen, compressed	OXYGEN, COMPRESSED	OXYGEN, COMPRESSED
Transport document description				
UN 1072 OXYGEN, COMPRESSED, 2.2 (5.1), (E)	UN 1072 OXYGEN, COMPRESSED, 2.2 (5.1)	UN 1072 Oxygen, compressed, 2.2 (5.1)	UN 1072 OXYGEN, COMPRESSED, 2.2 (5.1)	UN 1072 OXYGEN, COMPRESSED, 2.2 (5.1)
14.3. Transport hazard class(es)				
2.2 (5.1)	2.2 (5.1)	2.2 (5.1)	2.2 (5.1)	2.2 (5.1)
				
14.4. Packing group				
Not applicable	Not applicable	Not applicable	Not applicable	Not applicable

Oxygen, compressed

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ADR	IMDG	IATA	ADN	RID
14.5. Environmental hazards				
Dangerous for the environment: No	Dangerous for the environment: No Marine pollutant: No	Dangerous for the environment: No	Dangerous for the environment: No	Dangerous for the environment: No
No supplementary information available				

14.6. Special precautions for user

Special transport precautions : Avoid transport on vehicles where the load space is not separated from the driver's compartment. Ensure vehicle driver is aware of the potential hazards of the load and knows what to do in the event of an accident or an emergency. Before transporting product containers: - Ensure there is adequate ventilation. - Ensure that containers are firmly secured. - Ensure valve is closed and not leaking. - Ensure valve outlet cap nut or plug (where provided) is correctly fitted. - Ensure valve protection device (where provided) is correctly fitted.

Overland transport

Classification code (ADR) : 10
Special provisions (ADR) : 355, 655, 662
Limited quantities (ADR) : 0
Excepted quantities (ADR) : E0
Packing instructions (ADR) : P200
Mixed packing provisions (ADR) : MP9
Portable tank and bulk container instructions (ADR) : (M)
Tank code (ADR) : CxBN(M)
Tank special provisions (ADR) : TA4, TT9
Vehicle for tank carriage : AT
Transport category (ADR) : 3
Special provisions for carriage - Loading, unloading and handling (ADR) : CV9, CV10, CV36
Hazard identification number (Kemler No.) : 25
Orange plates :



Tunnel restriction code (ADR) : E
EAC code : 2S

Transport by sea

Special provisions (IMDG) : 355
Limited quantities (IMDG) : 0
Excepted quantities (IMDG) : E0
Packing instructions (IMDG) : P200
EmS-No. (Fire) : F-C
EmS-No. (Spillage) : S-W
Stowage category (IMDG) : A
Properties and observations (IMDG) : Non-flammable, odourless gas. Strong oxidizing agent. Heavier than air (1.1).

Air transport

PCA Excepted quantities (IATA) : E0
PCA Limited quantities (IATA) : FORBIDDEN
PCA limited quantity max net quantity (IATA) : FORBIDDEN
PCA packing instructions (IATA) : 200
PCA max net quantity (IATA) : 75kg
CAO packing instructions (IATA) : 200
CAO max net quantity (IATA) : 150kg
Special provisions (IATA) : A175, A302

Oxygen, compressed

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ERG code (IATA) : 2X

Inland waterway transport

Classification code (ADN) : 10
Special provisions (ADN) : 355, 655, 662
Limited quantities (ADN) : 0
Excepted quantities (ADN) : E0
Equipment required (ADN) : PP
Number of blue cones/lights (ADN) : 0

Rail transport

Classification code (RID) : 10
Special provisions (RID) : 355, 655, 662
Limited quantities (RID) : 0
Excepted quantities (RID) : E0
Packing instructions (RID) : P200
Mixed packing provisions (RID) : MP9
Portable tank and bulk container instructions (RID) : (M)
Tank codes for RID tanks (RID) : CxBN(M)
Special provisions for RID tanks (RID) : TA4, TT9
Transport category (RID) : 3
Special provisions for carriage - Loading, unloading and handling (RID) : CW9, CW10, CW36
Colis express (express parcels) (RID) : CE3
Hazard identification number (RID) : 25

14.7. Transport in bulk according to Annex II of Marpol and the IBC Code

IBC code : Not applicable.

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

15.1.1. EU-Regulations

[REACH Annex XVII \(Restriction List\)](#)

Not listed on REACH Annex XVII

[REACH Annex XIV \(Authorisation List\)](#)

[REACH Candidate List \(SVHC\)](#)

[PIC Regulation \(Prior Informed Consent\)](#)

Not listed on the PIC list (Regulation EU 649/2012)

[POP Regulation \(Persistent Organic Pollutants\)](#)

Not listed on the POP list (Regulation EU 2019/1021)

[Ozone Regulation \(1005/2009\)](#)

Not listed on the Ozone Depletion list (Regulation EU 1005/2009)

[VOC Directive \(2004/42\)](#)

Restrictions on use : None.

[Seveso Directive \(Disaster Risk Reduction\)](#)

Seveso Directive : 2012/18/EU (Seveso III) : Listed.

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Seveso III Part II (Named dangerous substances)	Qualifying quantity (tonnes)	
	Lower-tier	Upper-tier
Oxygen	200	2000

Explosives Precursors Regulation (2019/1148)

Contains no substance(s) listed on the Explosives Precursors list (Regulation EU 2019/1148 on the marketing and use of explosives precursors)

Drug Precursors Regulation (273/2004)

Contains no substance(s) listed on the Drug Precursors list (Regulation EC 273/2004 on the manufacture and the placing on market of certain substances used in the illicit manufacture of narcotic drugs and psychotropic substances)

15.1.2. National regulations

Ensure all national/local regulations are observed.

Safety data sheet in accordance with commission regulation (EU) No 2020/878.

Council Directive 89/391/EEC on the introduction of measures to encourage improvements in the safety and health of workers at work

Directive 2016/425/EEC on personal protective equipment

Directive 2014/34/EU on equipment and protective systems intended for use in potentially explosive atmospheres (ATEX)

Only products that comply with the food regulations (EC) No. 1333/2008 and (EU) No. 231/2012 and are labelled as such may be used as food additives.

This Safety Data Sheet has been produced to comply with Regulation (EU) 2015/830.

United Kingdom

British National Regulations

: Dangerous Substances and Explosive Atmospheres Regulations (DSEAR 2002 No. 2776).
Management of Health and Safety at Work Regulations (1999 No. 3242).
The Regulatory Reform (Fire Safety) Order 2005 (2005 No. 1541).
Control of Substances Hazardous to Health Regulations (COSHH, 2002 No. 2677).
Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations (EPS, 1996 No. 192).
Provision and Use of Work Equipment Regulations (PUWER, 1998 No. 2306).
Personal Protective Equipment Regulations (1992 No. 2966).
Control of Major Accident Hazards Regulations (COMAH, 2015 No. 483).
Chemical Hazards Information and Packaging for Supply (CHIP, 1994 No. 3247).
Pressure Systems Safety Regulations (PSSR, 2000 No. 128).
Only products that comply with the food regulations (EC) No. 1333/2008 and (EU) No. 231/2012 and are labelled as such may be used as food additives.

15.2. Chemical safety assessment

A CSA does not need to be carried out for this product.

SECTION 16: Other information

Indication of changes:

Safety data sheet in accordance with commission regulation (EU) No 2020/878.

Indication of changes	
Changed item	Change Comments
9.1 > Solubility	Modified
12.2 > Persistence and degradability	Modified
12.3 > Bioaccumulative potential	Modified
12.4 > Mobility in soil	Modified
16 > Abbreviations and acronyms	Modified

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Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2015/830

Abbreviations and acronyms:

ADN	European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
	ADR - Agreement concerning the International Carriage of Dangerous Goods by Road
	ATE - Acute Toxicity Estimate
BLV	Biological limit value
BOD	Biochemical oxygen demand (BOD)
CAO	Cargo Aircraft only / Cargo Aircraft only
CAS-No.	Chemical Abstract Service number
	CLP - Classification Labelling Packaging Regulation: Regulation (EC) No 1272/2008
COD	Chemical oxygen demand (COD)
	CSA - Chemical Safety Assessment
DMEL	Derived Minimal Effect level
DNEL	Derived-No Effect Level
EC50	Median effective concentration
EC	European Inventory of Existing Commercial Chemical Substances
ED	Endocrine disrupting properties
	EINECS - European Inventory of Existing Commercial Chemical Substances
EN	European Standard
IARC	International Agency for Research on Cancer
IATA	International Air Transport Association
IMDG	International Maritime Dangerous Goods
IOELV	Indicative Occupational Exposure Limit Value
LC50	Median lethal concentration
LD50	Median lethal dose
LOAEL	Lowest Observed Adverse Effect Level
NOAEC	No-Observed Adverse Effect Concentration
NOAEL	No-Observed Adverse Effect Level
NOEC	No-Observed Effect Concentration
N.O.S.	Not Otherwise Specified
OECD	Organisation for Economic Co-operation and Development
OEL	Occupational Exposure Limit
PBT	Persistent Bioaccumulative Toxic
PCA	Passenger and Cargo Aircraft / Passenger and Cargo Aircraft
PNEC	Predicted No-Effect Concentration
	PPE - Personal Protection Equipment
REACH	Registration, Evaluation, Authorisation and Restriction of Chemicals Regulation (EC) No 1907/2006
RID	Regulations concerning the International Carriage of Dangerous Goods by Rail
	RMM - Risk Management Measures
STP	Sewage treatment plant

Oxygen, compressed

Safety Data Sheet

according to the REACH Regulation (EC) 1907/2006 amended by Regulation (EU) 2015/830

Abbreviations and acronyms:

ThOD	Theoretical oxygen demand (ThOD)
TLM	Median Tolerance Limit
TRGS	Technical Rules for Hazardous Substances
STOT-RE	Specific Target Organ Toxicity-Repeated Exposure
STOT-SE	Specific Target Organ Toxicity-Single Exposure
UFI	Unique Formula Identifier
	UN - United Nations
VOC	Volatile Organic Compounds
vPvB	Very Persistent and Very Bioaccumulative
WGK	Water Hazard Class

Training advice : Ensure operators understand the hazard of oxygen enrichment.
Other information : Classification in accordance with the procedures and calculation methods of Regulation (EC) 1272/2008 (CLP). Key literature references and sources of data are maintained in EIGA doc 169 : 'Classification and Labelling Guide', downloadable at <http://www.Eiga.eu>.

Full text of H- and EUH-statements:

H270	May cause or intensify fire; oxidiser.
H280	Contains gas under pressure; may explode if heated.
Ox. Gas 1	Oxidising Gases, Category 1
Press. Gas (Comp.)	Gases under pressure : Compressed gas

The classification complies with : ATP 12
DISCLAIMER OF LIABILITY : Before using this product in any new process or experiment, a thorough material compatibility and safety study should be carried out.
Details given in this document are believed to be correct at the time of going to press.
Whilst proper care has been taken in the preparation of this document, no liability for injury or damage resulting from its use can be accepted.

Safety Data Sheet (SDS), EU GB

This information is based on our current knowledge and is intended to describe the product for the purposes of health, safety and environmental requirements only. It should not therefore be construed as guaranteeing any specific property of the product.

End of document

SAFETY DATA SHEET

Version 6.20
Revision Date 05/23/2024
Print Date 06/08/2024

SECTION 1: Identification of the substance/mixture and of the company/undertaking**1.1 Product identifiers**

Product name : Sodium bisulfite

Product Number : 243973
Brand : SIGALD
Index-No. : 016-064-00-8
CAS-No. : 7631-90-5

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

Identified uses : Laboratory chemicals, Synthesis of substances

Uses advised against : The product is being supplied under the TSCA R&D Exemption (40 CFR Section 720.36). It is the recipient's responsibility to comply with the requirements of the R&D exemption. The product may not be used for a non-exempt commercial purpose under TSCA unless appropriate consent is granted in writing by MilliporeSigma.

1.3 Details of the supplier of the safety data sheet

Company : Sigma-Aldrich Inc.
3050 SPRUCE ST
ST. LOUIS MO 63103
UNITED STATES

Telephone : +1 314 771-5765
Fax : +1 800 325-5052

1.4 Emergency telephone

Emergency Phone # : 800-424-9300 CHEMTREC (USA) +1-703-527-3887 CHEMTREC (International) 24 Hours/day; 7 Days/week

SECTION 2: Hazards identification**2.1 Classification of the substance or mixture****GHS Classification in accordance with 29 CFR 1910 (OSHA HCS)**

Acute toxicity, Oral (Category 4), H302
Eye irritation (Category 2A), H319
Short-term (acute) aquatic hazard (Category 3), H402

SIGALD - 243973

Page 1 of 13

For the full text of the H-Statements mentioned in this Section, see Section 16.

2.2 GHS Label elements, including precautionary statements

Pictogram



Signal Word

Warning

Hazard Statements

H302

Harmful if swallowed.

H319

Causes serious eye irritation.

H402

Harmful to aquatic life.

Precautionary Statements

P264

Wash skin thoroughly after handling.

P270

Do not eat, drink or smoke when using this product.

P273

Avoid release to the environment.

P280

Wear eye protection/ face protection.

P301 + P312 + P330

IF SWALLOWED: Call a POISON CENTER/ doctor if you feel unwell. Rinse mouth.

P305 + P351 + P338

IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P337 + P313

If eye irritation persists: Get medical advice/ attention.

P501

Dispose of contents/ container to an approved waste disposal plant.

2.3 Hazards not otherwise classified (HNOC) or not covered by GHS

Contact with acids liberates toxic gas.

SECTION 3: Composition/information on ingredients

3.2 Mixtures

Synonyms : Sodium hydrogensulfite

Formula : NaHSO₃

Molecular weight : 104.06 g/mol

Component		Classification	Concentration
sodium hydrogensulphite			
CAS-No.	7631-90-5	Acute Tox. 4; Eye Irrit. 2A; Aquatic Acute 3; H302, H319, H402	<= 100 %
EC-No.	231-548-0		
Index-No.	016-064-00-8		

For the full text of the H-Statements mentioned in this Section, see Section 16.

SECTION 4: First aid measures

4.1 Description of first-aid measures

General advice

Show this material safety data sheet to the doctor in attendance.

If inhaled

After inhalation: fresh air.

In case of skin contact

In case of skin contact: Take off immediately all contaminated clothing. Rinse skin with water/ shower.

In case of eye contact

After eye contact: rinse out with plenty of water. Call in ophthalmologist. Remove contact lenses.

If swallowed

After swallowing: immediately make victim drink water (two glasses at most). Consult a physician.

4.2 Most important symptoms and effects, both acute and delayed

The most important known symptoms and effects are described in the labelling (see section 2.2) and/or in section 11

4.3 Indication of any immediate medical attention and special treatment needed

No data available

SECTION 5: Firefighting measures

5.1 Extinguishing media

Suitable extinguishing media

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media

For this substance/mixture no limitations of extinguishing agents are given.

5.2 Special hazards arising from the substance or mixture

Sulfur oxides

Sodium oxides

Not combustible.

Ambient fire may liberate hazardous vapours.

5.3 Advice for firefighters

In the event of fire, wear self-contained breathing apparatus.

5.4 Further information

Suppress (knock down) gases/vapors/mists with a water spray jet. Prevent fire extinguishing water from contaminating surface water or the ground water system.

SECTION 6: Accidental release measures

6.1 Personal precautions, protective equipment and emergency procedures

Advice for non-emergency personnel: Avoid inhalation of dusts. Avoid substance contact. Ensure adequate ventilation. Evacuate the danger area, observe emergency procedures, consult an expert.

For personal protection see section 8.

6.2 Environmental precautions

Do not let product enter drains.

6.3 Methods and materials for containment and cleaning up

Cover drains. Collect, bind, and pump off spills. Observe possible material restrictions (see sections 7 and 10). Take up dry. Dispose of properly. Clean up affected area. Avoid generation of dusts.

6.4 Reference to other sections

For disposal see section 13.

SECTION 7: Handling and storage

7.1 Precautions for safe handling

For precautions see section 2.2.

7.2 Conditions for safe storage, including any incompatibilities

Storage conditions

Tightly closed. Dry.

Do not store near acids.

Air and moisture sensitive.

Storage class

Storage class (TRGS 510): 13: Non Combustible Solids

7.3 Specific end use(s)

Apart from the uses mentioned in section 1.2 no other specific uses are stipulated

SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Ingredients with workplace control parameters

Component	CAS-No.	Value	Control parameters	Basis
sodium hydrogensulphite	7631-90-5	TWA	5 mg/m ³	USA. ACGIH Threshold Limit Values (TLV)
	Remarks	Not classifiable as a human carcinogen		

		TWA	5 mg/m ³	USA. NIOSH Recommended Exposure Limits
		PEL	5 mg/m ³	California permissible exposure limits for chemical contaminants (Title 8, Article 107)

8.2 Exposure controls

Appropriate engineering controls

Change contaminated clothing. Preventive skin protection recommended. Wash hands after working with substance.

Personal protective equipment

Eye/face protection

Use equipment for eye protection tested and approved under appropriate government standards such as NIOSH (US) or EN 166(EU). Safety glasses

Skin protection

Handle with impervious gloves.

This recommendation applies only to the product stated in the safety data sheet, supplied by us and for the designated use. When dissolving in or mixing with other substances and under conditions deviating from those stated in EN 16523-1 please contact the supplier of CE-approved gloves (e.g. KCL GmbH, D-36124 Eichenzell, Internet: www.kcl.de).

Full contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatrill® L

Splash contact

Material: Nitrile rubber

Minimum layer thickness: 0.11 mm

Break through time: 480 min

Material tested: KCL 741 Dermatrill® L

Body Protection

protective clothing

Respiratory protection

Recommended Filter type: Filter type P2

The entrepreneur has to ensure that maintenance, cleaning and testing of respiratory protective devices are carried out according to the instructions of the producer.

These measures have to be properly documented.

required when dusts are generated.

Our recommendations on filtering respiratory protection are based on the following standards: DIN EN 143, DIN 14387 and other accompanying standards relating to the used respiratory protection system.

Control of environmental exposure

Do not let product enter drains.

SECTION 9: Physical and chemical properties

9.1 Information on basic physical and chemical properties

a) Appearance	Form: solid Color: white
b) Odor	No data available
c) Odor Threshold	No data available
d) pH	4.3 at 10 g/l
e) Melting point/freezing point	Melting point/range: 300 °C (572 °F)
f) Initial boiling point and boiling range	No data available
g) Flash point	()No data available
h) Evaporation rate	No data available
i) Flammability (solid, gas)	The product is not flammable.
j) Upper/lower flammability or explosive limits	No data available
k) Vapor pressure	No data available
l) Vapor density	No data available
m) Density	1.348 g/cm ³ at 20 °C (68 °F) - OECD Test Guideline 109
Relative density	No data available
n) Water solubility	ca.42 g/l at 20 °C (68 °F) - completely soluble
o) Partition coefficient: n-octanol/water	Not applicable for inorganic substances
p) Autoignition temperature	Not applicable
q) Decomposition temperature	No data available
r) Viscosity	No data available
s) Explosive properties	Not classified as explosive.
t) Oxidizing properties	none

9.2 Other safety information

No data available

SECTION 10: Stability and reactivity

10.1 Reactivity

Contact with acids liberates toxic gas.

10.2 Chemical stability

The product is chemically stable under standard ambient conditions (room temperature) .

10.3 Possibility of hazardous reactions

Generates dangerous gases or fumes in contact with:
Acids

10.4 Conditions to avoid

no information available

10.5 Incompatible materials

Strong oxidizing agents, Strong acids

10.6 Hazardous decomposition products

In the event of fire: see section 5

SECTION 11: Toxicological information

11.1 Information on toxicological effects

Mixture

Acute toxicity

Oral: No data available

LD50 Oral - Rat - male and female - 1,540 mg/kg

(OECD Test Guideline 401)

Symptoms: Possible symptoms:, mucosal irritations

LC50 Inhalation - Rat - male and female - 4 h - > 5.5 mg/l - dust/mist

(OECD Test Guideline 403)

Remarks: (ECHA)

The value is given in analogy to the following substances: sodium sulphite

Dermal: No data available

LD50 Dermal - Rat - male and female - > 2,000 mg/kg

(OECD Test Guideline 402)

Remarks: (ECHA)

The value is given in analogy to the following substances: sodium sulphite

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation

(OECD Test Guideline 404)

Remarks: (in analogy to similar products)

Serious eye damage/eye irritation

Remarks: Mixture causes serious eye irritation.

Remarks: Causes serious eye irritation.

(in analogy to similar products)

Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: negative

(OECD Test Guideline 429)

Remarks: (ECHA)

The value is given in analogy to the following substances: sodium sulphite

Germ cell mutagenicity

Test Type: Mutagenicity (mammal cell test): chromosome aberration.

Species: Rat

Result: negative

Remarks: (ECHA)

Carcinogenicity

Carcinogenicity classification not possible from current data.

IARC: No ingredient of this product present at levels greater than or equal to 0.1% is identified as probable, possible or confirmed human carcinogen by IARC.

NTP: No ingredient of this product present at levels greater than or equal to 0.1% is identified as a known or anticipated carcinogen by NTP.

OSHA: No component of this product present at levels greater than or equal to 0.1% is on OSHA's list of regulated carcinogens.

Reproductive toxicity

Weight of evidence does not support classification for reproductive toxicity

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

No data available

Aspiration hazard

No data available

11.2 Additional Information

Repeated dose toxicity - Rat - male and female - Oral

Remarks: (ECHA)

burning sensation, Cough, wheezing, laryngitis, Shortness of breath, Headache, chest pain
To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

To the best of our knowledge, the chemical, physical, and toxicological properties have not been thoroughly investigated.

Other dangerous properties can not be excluded.

Handle in accordance with good industrial hygiene and safety practice.

Components

sodium hydrogensulphite

Acute toxicity

LD50 Oral - Rat - male and female - 1,540 mg/kg

(OECD Test Guideline 401)

LC50 Inhalation - Rat - male and female - 4 h - > 5.5 mg/l - dust/mist

(OECD Test Guideline 403)

Remarks: (ECHA)

The value is given in analogy to the following substances: sodium sulphite

LD50 Dermal - Rat - male and female - > 2,000 mg/kg

(OECD Test Guideline 402)

Remarks: (ECHA)

The value is given in analogy to the following substances: sodium sulphite

No data available

Skin corrosion/irritation

Skin - Rabbit

Result: No skin irritation

(OECD Test Guideline 404)

Remarks: (in analogy to similar products)

Serious eye damage/eye irritation

Remarks: Causes serious eye irritation.

(in analogy to similar products)

Respiratory or skin sensitization

Local lymph node assay (LLNA) - Mouse

Result: negative

(OECD Test Guideline 429)

Remarks: (ECHA)

The value is given in analogy to the following substances: sodium sulphite

Germ cell mutagenicity

Species: Rat - male

Result: negative

Remarks: (ECHA)

Carcinogenicity

Carcinogenicity classification not possible from current data.

Reproductive toxicity

Weight of evidence does not support classification for reproductive toxicity

Specific target organ toxicity - single exposure

No data available

Specific target organ toxicity - repeated exposure

Aspiration hazard

No data available

SECTION 12: Ecological information

12.1 Toxicity

Mixture

Toxicity to fish	static test LC50 - <i>Leuciscus idus</i> (Golden orfe) - > 215 - < 464 mg/l - 96 h Remarks: (ECHA) The value is given in analogy to the following substances: potassium sulfite
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - <i>Daphnia magna</i> (Water flea) - 89 mg/l - 48 h Remarks: (ECHA) The value is given in analogy to the following substances: sodium metabisulphite
Toxicity to algae	static test ErC50 - <i>Desmodesmus subspicatus</i> (green algae) - 43.8 mg/l - 72 h (OECD Test Guideline 201) Remarks: (ECHA) The value is given in analogy to the following substances: sodium metabisulphite
Toxicity to bacteria	static test EC50 - activated sludge - > 1,000 mg/l - 3 h (OECD Test Guideline 209) Remarks: (ECHA) The value is given in analogy to the following substances: sodium sulphite
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - <i>Danio rerio</i> (zebra fish) - >= 316 mg/l - 34 d (OECD Test Guideline 210)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - <i>Daphnia magna</i> (Water flea) - > 10 mg/l - 21 d (OECD Test Guideline 211)

12.2 Persistence and degradability

Not applicable for inorganic substances

12.3 Bioaccumulative potential

No data available

12.4 Mobility in soil

No data available

12.5 Results of PBT and vPvB assessment

PBT/vPvB assessment not available as chemical safety assessment not required/not conducted

12.6 Endocrine disrupting properties

No data available

SIGALD - 243973

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12.7 Other adverse effects

No data available

Components

sodium hydrogensulphite

Toxicity to fish	static test LC50 - Leuciscus idus (Golden orfe) - > 215 - < 464 mg/l - 96 h Remarks: (ECHA) The value is given in analogy to the following substances: potassium sulfite
Toxicity to daphnia and other aquatic invertebrates	static test EC50 - Daphnia magna (Water flea) - 89 mg/l - 48 h Remarks: (ECHA) The value is given in analogy to the following substances: sodium metabisulphite
Toxicity to algae	static test ErC50 - Desmodesmus subspicatus (green algae) - 43.8 mg/l - 72 h (OECD Test Guideline 201) Remarks: (ECHA) The value is given in analogy to the following substances: sodium metabisulphite
Toxicity to bacteria	static test EC50 - activated sludge - > 1,000 mg/l - 3 h (OECD Test Guideline 209) Remarks: (ECHA) The value is given in analogy to the following substances: sodium sulphite
Toxicity to fish(Chronic toxicity)	flow-through test NOEC - Danio rerio (zebra fish) - >= 316 mg/l - 34 d (OECD Test Guideline 210)
Toxicity to daphnia and other aquatic invertebrates(Chronic toxicity)	semi-static test NOEC - Daphnia magna (Water flea) - > 10 mg/l - 21 d (OECD Test Guideline 211)

SECTION 13: Disposal considerations

13.1 Waste treatment methods

Product

Waste material must be disposed of in accordance with the national and local regulations. Leave chemicals in original containers. No mixing with other waste. Handle uncleaned containers like the product itself.

SECTION 14: Transport information

DOT (US)

UN number: 3077 Class: 9 Packing group: III
Proper shipping name: Environmentally hazardous substance, solid, n.o.s. (sodium hydrogensulphite)
Reportable Quantity (RQ): 5000 lbs
Poison Inhalation Hazard: No

IMDG

Not dangerous goods

IATA

Not dangerous goods

Further information

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

SARA 302 Components

This material does not contain any components with a section 302 EHS TPQ.

SARA 313 Components

This material does not contain any chemical components with known CAS numbers that exceed the threshold (De Minimis) reporting levels established by SARA Title III, Section 313.

SARA 311/312 Hazards

Acute Health Hazard

Massachusetts Right To Know Components

sodium hydrogensulphite

CAS-No.
7631-90-5

Revision Date
2007-03-01

Pennsylvania Right To Know Components

sodium hydrogensulphite

CAS-No.
7631-90-5

Revision Date
2007-03-01

SECTION 16: Other information

Further information

The information is believed to be correct but is not exhaustive and will be used solely as a guideline, which is based on current knowledge of the chemical substance or mixture and is applicable to appropriate safety precautions for the product. It does not represent any guarantee of the properties of the product. Sigma-Aldrich Corporation and its Affiliates shall not be held liable for any damage resulting from handling or from contact with the above product. See www.sigma-aldrich.com and/or the reverse side of invoice or packing slip for additional terms and conditions of sale.

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Version: 6.20

Revision Date: 05/23/2024

Print Date: 06/08/2024

Safety Data Sheet

acc. to OSHA HCS

Printing date 12/29/2017

Reviewed on 12/29/2017

1 Identification

- **Product identifier**
- **Trade name:** Sulfuric Acid 98.0 +- 0.2% w/w
- **Article number:** SPE247
- **CAS Number:**
7664-93-9
- **EC number:**
231-639-5
- **Index number:**
016-020-00-8
- **Details of the supplier of the safety data sheet**
- **Manufacturer/Supplier:**
Aqua Solutions, Inc.
6913 Highway 225
DEER PARK, TX 77536
USA
800-256-2586
- **Information department:**
Technical Coordinator
Sherman Nelson sherman@aquasolutions.org
- **Emergency telephone number:**
Chemtrec: 800-424-9300
Canutec: 613-996-6666



2 Hazard(s) identification

- **Classification of the substance or mixture**



GHS08 Health hazard

Carc. 1A H350 May cause cancer.



GHS05 Corrosion

Skin Corr. 1A H314 Causes severe skin burns and eye damage.

- **Label elements**

- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).

- **Hazard pictograms**



GHS05



GHS08

- **Signal word** Danger

- **Hazard statements**

Causes severe skin burns and eye damage.

May cause cancer.

- **Precautionary statements**

Obtain special instructions before use.

Do not handle until all safety precautions have been read and understood.

(Contd. on page 2)

Safety Data Sheet

acc. to OSHA HCS

Printing date 12/29/2017

Reviewed on 12/29/2017

Trade name: Sulfuric Acid 98.0 +- 0.2% w/w

(Contd. of page 1)

*Do not breathe dusts or mists.**Wash thoroughly after handling.**Wear protective gloves/protective clothing/eye protection/face protection.**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.**IF exposed or concerned: Get medical advice/attention.**Immediately call a poison center/doctor.**Specific treatment (see on this label).**Wash contaminated clothing before reuse.**Store locked up.**Dispose of contents/container in accordance with local/regional/national/international regulations.*

- **Classification system:**

- **NFPA ratings (scale 0 - 4)**



Health = 3

Fire = 0

Reactivity = 0

- **HMIS-ratings (scale 0 - 4)**



Health = 3

Fire = 0

Reactivity = 2

- **Other hazards**

- **Results of PBT and vPvB assessment**

- **PBT:** Not applicable.

- **vPvB:** Not applicable.

3 Composition/information on ingredients

- **Chemical characterization: Substances**

- **CAS No. Description**

- 7664-93-9 Sulfuric Acid 96 - 98%

- **Identification number(s)**

- **EC number:** 231-639-5

- **Index number:** 016-020-00-8

4 First-aid measures

- **Description of first aid measures**

- **General information:** Immediately remove any clothing soiled by the product.

- **After inhalation:** In case of unconsciousness place patient stably in side position for transportation.

- **After skin contact:** Immediately wash with water and soap and rinse thoroughly.

- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.

- **After swallowing:** Drink copious amounts of water and provide fresh air. Immediately call a doctor.

- **Information for doctor:**

- **Most important symptoms and effects, both acute and delayed** No further relevant information available.

(Contd. on page 3)

Safety Data Sheet

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Printing date 12/29/2017

Reviewed on 12/29/2017

Trade name: Sulfuric Acid 98.0 +- 0.2% w/w

(Contd. of page 2)

- **Indication of any immediate medical attention and special treatment needed**
No further relevant information available.

5 Fire-fighting measures

- **Extinguishing media**
- **Suitable extinguishing agents:** Use fire fighting measures that suit the environment.
- **Special hazards arising from the substance or mixture**
During heating or in case of fire poisonous gases are produced.
- **Advice for firefighters**
- **Protective equipment:** Mouth respiratory protective device.

6 Accidental release measures

- **Personal precautions, protective equipment and emergency procedures**
Mount respiratory protective device.
Wear protective equipment. Keep unprotected persons away.
- **Environmental precautions:**
Dilute with plenty of water.
Do not allow to enter sewers/ surface or ground water.
- **Methods and material for containment and cleaning up:**
Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
Use neutralizing agent.
Dispose contaminated material as waste according to item 13.
Ensure adequate ventilation.
- **Reference to other sections**
See Section 7 for information on safe handling.
See Section 8 for information on personal protection equipment.
See Section 13 for disposal information.
- **Protective Action Criteria for Chemicals**
 - **PAC-1:** 0.20 mg/m³
 - **PAC-2:** 8.7 mg/m³
 - **PAC-3:** 160 mg/m³

7 Handling and storage

- **Handling:**
- **Precautions for safe handling**
Ensure good ventilation/exhaustion at the workplace.
Open and handle receptacle with care.
Prevent formation of aerosols.
- **Information about protection against explosions and fires:** Keep respiratory protective device available.
- **Conditions for safe storage, including any incompatibilities**
- **Storage:**
- **Requirements to be met by storerooms and receptacles:** No special requirements.
- **Information about storage in one common storage facility:** Not required.
- **Further information about storage conditions:** Keep receptacle tightly sealed.
- **Specific end use(s)** No further relevant information available.

US

(Contd. on page 4)

Safety Data Sheet

acc. to OSHA HCS

Printing date 12/29/2017

Reviewed on 12/29/2017

Trade name: Sulfuric Acid 98.0 +- 0.2% w/w

(Contd. of page 3)

8 Exposure controls/personal protection

· **Additional information about design of technical systems:** No further data; see item 7.

· **Control parameters**

· **Components with limit values that require monitoring at the workplace:**

CAS: 7664-93-9 Sulfuric Acid 96 - 98%

PEL Long-term value: 1 mg/m³

REL Long-term value: 1 mg/m³

TLV Long-term value: 0.2* mg/m³
*as thoracic fraction

· **Additional information:** The lists that were valid during the creation were used as basis.

· **Exposure controls**

· **Personal protective equipment:**

· **General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing.

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the eyes and skin.

· **Breathing equipment:**

In case of brief exposure or low pollution use respiratory filter device. In case of intensive or longer exposure use respiratory protective device that is independent of circulating air.

· **Protection of hands:**



Protective gloves

The glove material has to be impermeable and resistant to the product/ the substance/ the preparation.

Due to missing tests no recommendation to the glove material can be given for the product/ the preparation/ the chemical mixture.

Selection of the glove material on consideration of the penetration times, rates of diffusion and the degradation

· **Material of gloves**

The selection of the suitable gloves does not only depend on the material, but also on further marks of quality and varies from manufacturer to manufacturer.

· **Penetration time of glove material**

The exact break through time has to be found out by the manufacturer of the protective gloves and has to be observed.

· **Eye protection:**



Tightly sealed goggles

· **Body protection:** Protective work clothing

US

(Contd. on page 5)

Safety Data Sheet

acc. to OSHA HCS

Printing date 12/29/2017

Reviewed on 12/29/2017

Trade name: Sulfuric Acid 98.0 +- 0.2% w/w

(Contd. of page 4)

9 Physical and chemical properties

· Information on basic physical and chemical properties	
· General Information	
· Appearance:	
Form:	Liquid
Color:	Colorless to yellow
· Odor:	Odorless
· Odor threshold:	Not determined.
· pH-value:	Not determined.
· Change in condition	
Melting point/Melting range:	Undetermined.
Boiling point/Boiling range:	Undetermined.
· Flash point:	Not applicable.
· Flammability (solid, gaseous):	Not applicable.
· Ignition temperature:	
Decomposition temperature:	Not determined.
· Auto igniting:	Not determined.
· Danger of explosion:	Product does not present an explosion hazard.
· Explosion limits:	
Lower:	Not determined.
Upper:	Not determined.
· Vapor pressure at 20 °C (68 °F):	<0.01 hPa (>0 mm Hg)
· Density at 20 °C (68 °F):	1.84 g/cm ³ (15.3548 lbs/gal)
· Relative density	Not determined.
· Vapor density	Not determined.
· Evaporation rate	Not determined.
· Solubility in / Miscibility with	
Water:	Fully miscible.
· Partition coefficient (n-octanol/water):	
Not determined.	
· Viscosity:	
Dynamic at 20 °C (68 °F):	23 mPas
Kinematic:	Not determined.
· Other information	No further relevant information available.

10 Stability and reactivity

- **Reactivity** No further relevant information available.
- **Chemical stability**
- **Thermal decomposition / conditions to be avoided:** No decomposition if used according to specifications.
- **Possibility of hazardous reactions** No dangerous reactions known.
- **Conditions to avoid** No further relevant information available.
- **Incompatible materials:** No further relevant information available.

(Contd. on page 6)

Safety Data Sheet

acc. to OSHA HCS

Printing date 12/29/2017

Reviewed on 12/29/2017

Trade name: Sulfuric Acid 98.0 +- 0.2% w/w

(Contd. of page 5)

· **Hazardous decomposition products:** No dangerous decomposition products known.

11 Toxicological information

- **Information on toxicological effects**
- **Acute toxicity:**
- **Primary irritant effect:**
- **on the skin:** Strong caustic effect on skin and mucous membranes.
- **on the eye:** Strong caustic effect.
- **Sensitization:** No sensitizing effects known.
- **Additional toxicological information:**
Swallowing will lead to a strong caustic effect on mouth and throat and to the danger of perforation of esophagus and stomach.
- **Carcinogenic categories**
- **IARC (International Agency for Research on Cancer) 1**
- **NTP (National Toxicology Program) K**
- **OSHA-Ca (Occupational Safety & Health Administration)** Substance is not listed.

12 Ecological information

- **Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **Persistence and degradability** No further relevant information available.
- **Behavior in environmental systems:**
- **Bioaccumulative potential** No further relevant information available.
- **Mobility in soil** No further relevant information available.
- **Additional ecological information:**
- **General notes:**
Water hazard class 1 (Assessment by list): slightly hazardous for water
Do not allow undiluted product or large quantities of it to reach ground water, water course or sewage system.
Must not reach bodies of water or drainage ditch undiluted or unneutralized.
- **Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **Other adverse effects** No further relevant information available.

13 Disposal considerations

- **Waste treatment methods**
- **Recommendation:**
Must not be disposed of together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packagings:**
- **Recommendation:** Disposal must be made according to official regulations.
- **Recommended cleansing agent:** Water, if necessary with cleansing agents.

-US-

(Contd. on page 7)

Safety Data Sheet

acc. to OSHA HCS

Printing date 12/29/2017

Reviewed on 12/29/2017

Trade name: Sulfuric Acid 98.0 +- 0.2% w/w

(Contd. of page 6)

14 Transport information

· UN-Number	UN1830
· DOT, IMDG, IATA	
· UN proper shipping name	Sulfuric acid
· DOT	SULPHURIC ACID
· IMDG, IATA	
· Transport hazard class(es)	
· DOT	
	
· Class	8 Corrosive substances
· Label	8
· IMDG, IATA	
	
· Class	8 Corrosive substances
· Label	8
· Packing group	
· DOT, IMDG, IATA	II
· Environmental hazards:	
· Marine pollutant:	No
· Special precautions for user	Warning: Corrosive substances
· Danger code (Kemler):	80
· EMS Number:	F-A,S-B
· Segregation groups	Acids
· Stowage Category	E
· Stowage Code	SW15 For metal drums, stowage category B.
· Transport in bulk according to Annex II of MARPOL73/78 and the IBC Code	Not applicable.
· Transport/Additional information:	
· DOT	
· Quantity limitations	On passenger aircraft/rail: 1 L On cargo aircraft only: 30 L
· Hazardous substance:	1000 lbs, 454 kg
· IMDG	
· Limited quantities (LQ)	1L
· Excepted quantities (EQ)	Code: E2 Maximum net quantity per inner packaging: 30 ml Maximum net quantity per outer packaging: 500 ml

(Contd. on page 8)

US

Safety Data Sheet

acc. to OSHA HCS

Printing date 12/29/2017

Reviewed on 12/29/2017

Trade name: Sulfuric Acid 98.0 +- 0.2% w/w

(Contd. of page 7)

· UN "Model Regulation":

UN 1830 SULFURIC ACID, 8, II

15 Regulatory information

- **Safety, health and environmental regulations/legislation specific for the substance or mixture**
- **Sara**
- **Section 355 (extremely hazardous substances):** Substance is listed.
- **Section 313 (Specific toxic chemical listings):** Substance is listed.

· TSCA (Toxic Substances Control Act):

Sulfuric Acid 96 - 98%

- **Proposition 65**
- **Chemicals known to cause cancer:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for females:** Substance is not listed.
- **Chemicals known to cause reproductive toxicity for males:** Substance is not listed.
- **Chemicals known to cause developmental toxicity:** Substance is not listed.
- **Carcinogenic categories**
- **EPA (Environmental Protection Agency)** Substance is not listed.
- **TLV (Threshold Limit Value established by ACGIH)** A2
- **NIOSH-Ca (National Institute for Occupational Safety and Health)** Substance is not listed.
- **GHS label elements** The substance is classified and labeled according to the Globally Harmonized System (GHS).
- **Hazard pictograms**



GHS05 GHS08

- **Signal word** *Danger*
- **Hazard statements**
 - Causes severe skin burns and eye damage.*
 - May cause cancer.*
- **Precautionary statements**
 - Obtain special instructions before use.*
 - Do not handle until all safety precautions have been read and understood.*
 - Do not breathe dusts or mists.*
 - Wash thoroughly after handling.*
 - Wear protective gloves/protective clothing/eye protection/face protection.*
 - 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.*
 - IF exposed or concerned: Get medical advice/attention.*
 - Immediately call a poison center/doctor.*
 - Specific treatment (see on this label).*
 - Wash contaminated clothing before reuse.*
 - Store locked up.*
 - Dispose of contents/container in accordance with local/regional/national/international regulations.*

(Contd. on page 9)

Safety Data Sheet

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Reviewed on 12/29/2017

Trade name: Sulfuric Acid 98.0 +- 0.2% w/w

(Contd. of page 8)

- **National regulations:**
- **Additional classification according to Decree on Hazardous Materials:**
 - Carcinogenic hazardous material group I (extremely dangerous).
 - Carcinogenic hazardous material group II (very dangerous).
 - Carcinogenic hazardous material group III (dangerous).
- **Information about limitation of use:**

Workers are not allowed to be exposed to this hazardous material. Exceptions can be made by the authorities in certain cases.
- **Chemical safety assessment:** A Chemical Safety Assessment has not been carried out.

16 Other information

This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.

- **Department issuing SDS:** Environment protection department.
- **Contact:**
- **Date of preparation / last revision**
 - Creation date for SDS 01-07-2014. STN
 - 12-29-2017: review SDS for accuracy. STN
 - 12/29/2017 / -
- **Abbreviations and acronyms:**
 - ADR: Accord européen sur le transport des marchandises dangereuses par Route (European Agreement concerning the International Carriage of Dangerous Goods by Road)
 - IMDG: International Maritime Code for Dangerous Goods
 - DOT: US Department of Transportation
 - IATA: International Air Transport Association
 - ACGIH: American Conference of Governmental Industrial Hygienists
 - EINECS: European Inventory of Existing Commercial Chemical Substances
 - CAS: Chemical Abstracts Service (division of the American Chemical Society)
 - NFPA: National Fire Protection Association (USA)
 - HMIS: Hazardous Materials Identification System (USA)
 - PBT: Persistent, Bioaccumulative and Toxic
 - vPvB: very Persistent and very Bioaccumulative
 - NIOSH: National Institute for Occupational Safety
 - OSHA: Occupational Safety & Health
 - TLV: Threshold Limit Value
 - PEL: Permissible Exposure Limit
 - REL: Recommended Exposure Limit
 - Skin Corr. 1A: Skin corrosion/irritation – Category 1A
 - Carc. 1A: Carcinogenicity – Category 1A

US

Attachment 7 Public Involvement Plan



Texas Commission on Environmental Quality

Public Involvement Plan Form for Permit and Registration Applications

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

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

Section 1. Preliminary Screening

New Permit or Registration Application

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

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

Section 2. Secondary Screening

Requires public notice,

Considered to have significant public interest, and

Located within any of the following geographical locations:

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

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

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

Section 3. Application Information

Type of Application (check all that apply):

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

Water Quality

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

Water Rights New Permit

- New Appropriation of Water
- New or existing reservoir

Amendment to an Existing Water Right

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

Section 4. Plain Language Summary

Provide a brief description of planned activities.

Section 5. Community and Demographic Information

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

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

(City)

(County)

(Census Tract)

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

City

County

Census Tract

- (a) Percent of people over 25 years of age who at least graduated from high school
- (b) Per capita income for population near the specified location
- (c) Percent of minority population and percent of population by race within the specified location
- (d) Percent of Linguistically Isolated Households by language within the specified location
- (e) Languages commonly spoken in area by percentage
- (f) Community and/or Stakeholder Groups
- (g) Historic public interest or involvement

Section 6. Planned Public Outreach Activities

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

Yes No

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

Yes No

If Yes, please describe.

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

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

Yes No

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

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

Publish in alternative language newspaper

Posted on Commissioner's Integrated Database Website

Mailed by TCEQ's Office of the Chief Clerk

Other (specify)

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

Yes No

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

Yes No

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

TCEQ Regional Office

TCEQ Central Office

Public Place (specify)

Section 7. Voluntary Submittal

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

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

Yes No

What types of notice will be provided?

Publish in alternative language newspaper

Posted on Commissioner's Integrated Database Website

Mailed by TCEQ's Office of the Chief Clerk

Other (specify)

Attachment 8 Ownership Documentation



Enbridge
Energy Center Five
915 N Eldridge Parkway,
Suite 1100
Houston, Texas 77056

December 17, 2024

Permission for Land Use

Enbridge Ingleside Oil Terminal, LLC gives permission to Ingleside Clean Ammonia Partners, LLC (ICAP) to use the property located at 1450 Lexington Blvd., Ingleside, San Patricio County, Texas for construction and operation of a low carbon ammonia facility. This permission allows ICAP to install and maintain equipment for industrial wastewater discharge into Corpus Christi Bay.

Regards,

A handwritten signature in black ink, appearing to read 'Luis Perez Vera', with a stylized flourish at the end.

Luis Perez Vera

Vice President USGC Terminal Operations
Energy Centre Five, 915 N Eldridge Parkway, Suite 1100
Houston, TX 77079

Delaware

The First State

Page 1

I, JEFFREY W. BULLOCK, SECRETARY OF STATE OF THE STATE OF DELAWARE, DO HEREBY CERTIFY THE ATTACHED IS A TRUE AND CORRECT COPY OF THE CERTIFICATE OF AMENDMENT OF "MODA INGLESIDE OIL TERMINAL, LLC", CHANGING ITS NAME FROM "MODA INGLESIDE OIL TERMINAL, LLC" TO "ENBRIDGE INGLESIDE OIL TERMINAL, LLC", FILED IN THIS OFFICE ON THE TWELFTH DAY OF OCTOBER, A.D. 2021, AT 3:56 O`CLOCK P.M.



Jeffrey W. Bullock, Secretary of State

5130003 8100
SR# 20213491834

You may verify this certificate online at corp.delaware.gov/authver.shtml

Authentication: 204396652
Date: 10-13-21

**STATE OF DELAWARE
CERTIFICATE OF AMENDMENT**

1. Name of Limited Liability Company: _____
Moda Ingleside Oil Terminal, LLC

2. The Certificate of Formation of the limited liability company is hereby amended as follows:

Article First is amended to read as follows:

"The name of the limited liability company is "Enbridge Ingleside Oil Terminal, LLC"

IN WITNESS WHEREOF, the undersigned have executed this Certificate on the 12th day of October, A.D. 2021.

By: Kelly Gray
Authorized Person(s)

Name: Kelly L. Gray
Print or Type

State of Delaware
Secretary of State
Division of Corporations
Delivered 03:56 PM 10/12/2021
FILED 03:56 PM 10/12/2021
SR 20213491834 - File Number 5130003

INGLESIDE CLEAN AMMONIA PARTNERS, LLC

UNANIMOUS WRITTEN CONSENT OF

THE BOARD OF MANAGERS

September 18, 2024

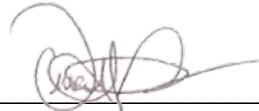
Subject: Removal and Election of Officers

The undersigned, being all of the Managers of Ingleside Clean Ammonia Partners, LLC, a Delaware limited liability company (the “**Company**”), do hereby, in conformity with the laws of the State of Delaware (as may be amended from time to time), consent to the adoption of the following resolutions, as though such resolutions had been unanimously adopted at a meeting of the Board of Managers of the Company duly called, noticed, convened and held for the purpose of considering the same, and direct that this consent be filed with the minutes of the proceedings of the Company.

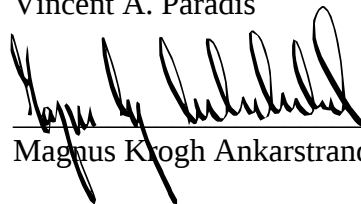
IN WITNESS WHEREOF, all of the Managers of the Company have executed this Consent in one or more counterparts effective as of the date first written above.



Luis E. Perez



Vincent A. Paradis



Magnus Knogh Ankarstrand

Lise Winther

INGLESIDE CLEAN AMMONIA PARTNERS, LLC

UNANIMOUS WRITTEN CONSENT OF

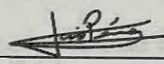
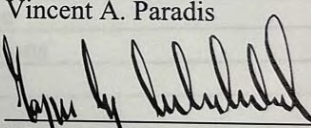
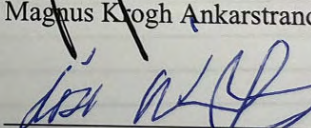
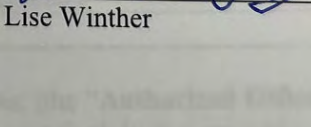
THE BOARD OF MANAGERS

September 18, 2024

Subject: Removal and Election of Officers

The undersigned, being all of the Managers of Ingleside Clean Ammonia Partners, LLC, a Delaware limited liability company (the "**Company**"), do hereby, in conformity with the laws of the State of Delaware (as may be amended from time to time), consent to the adoption of the following resolutions, as though such resolutions had been unanimously adopted at a meeting of the Board of Managers of the Company duly called, noticed, convened and held for the purpose of considering the same, and direct that this consent be filed with the minutes of the proceedings of the Company.

IN WITNESS WHEREOF, all of the Managers of the Company have executed this Consent in one or more counterparts effective as of the date first written above.

Signature	Title	Effective Date
	Vice President, Operations	August 7, 2024
Luis E. Perez		
	President	
Vincent A. Paradis		
	Vice President, Finance	
Magnus Krogh Ankarstrand		
	Vice President, Operations	
Lise Winther		

Removal of Officer

WHEREAS, roles of various management have changed, and the Company has determined it to be advisable and in the best interests of the Company to realign the roles of management of the Company.

RESOLVED, that the following officer of the Company is hereby removed without cause from the office and position set forth opposite his name, effective as of the date set forth below:

Officer	Title	Effective Date
Javier del Olmo	Vice President	August 9, 2024

Election of Officer

RESOLVED, that the following individual is hereby appointed to the office and position set forth opposite his name, effective as of the date set forth below, to act on behalf of the Company and to serve until the election and qualification of the individual's successor or until his earlier death, resignation, or removal, and otherwise in accordance with and subject to the provisions of the Limited Liability Company Agreement of the Company:

Officer	Title	Effective Date
Luis E. Perez	Vice President	August 9, 2024

RESOLVED, that immediately following the above removal and appointment, for the avoidance of doubt, the officers of the Company shall be as follows:

Officer	Title
Vincent A. Paradis	Vice President
Nafeesa Kassam	Vice President, Finance
Luis E. Perez	Vice President
Ivan de Witte	Vice President
Lise Winther	Vice President
Jonathan E. Gould	Treasurer
David L. Berry	Controller
Kelly L. Gray	Corporate Secretary
Lee Ann Cis	Assistant Corporate Secretary
LaWonda C. Love	Tax Officer

RESOLVED, that the officers set forth above (the "**Authorized Officers**") be, and each of them individually hereby is, granted the authority set forth in the governing documents of the Company (and such other authority normal or incident to such office and as may from time to time be delegated or assigned by the Board) and are authorized and empowered to take any and all such actions and to execute and deliver any and all such contracts, documents and any other instruments in the name and on behalf of the Company, including without limitation actions taken by the Company on behalf of or with respect to any subsidiary of the Company, and to affix the corporate seal if applicable;

RESOLVED, that the Authorized Officers be, and each of them hereby is, authorized and empowered to delegate the roles and responsibilities conferred by these resolutions to employees of the Company or an affiliate entity to the extent permitted by law, the entity's governing documents, and the Policies of the Company; and

RESOLVED, that all acts and deeds previously performed by the Authorized Officers or their delegates on behalf of the Company or its subsidiaries prior to the date of these resolutions that are within the authority conferred by the foregoing resolutions are hereby approved, authorized, ratified and confirmed in all respects as the authorized acts and deeds of the Company or its subsidiaries, as applicable.

General

RESOLVED, that Authorized Officers be, and each them individually hereby is, authorized and empowered to take all such action and otherwise to do or cause to be done in the name and on behalf of the Company or any subsidiary of the Company any and all actions, including, without limitation, to execute and deliver, or cause to be executed and delivered, any and all such further documents, notices, requests, demands, directions, consents, approvals, orders, applications, certificates, agreements, undertakings, supplements, amendments, further assurances or other instruments or communications and to pay all such expenses, as are deemed by them necessary or advisable to fully effectuate the intent and purposes of the foregoing resolutions (the taking of each such action, the execution and delivery of each such document, and the payment of each such expense being conclusive evidence of its necessity or advisability), and that any and all such actions taken by the Authorized Officers relating to and within the terms of these resolutions be, and they hereby are, adopted, affirmed, approved and ratified in all respects as the act and deed of the Company or its subsidiaries, as applicable.

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TAB 10

SPECIAL WARRANTY DEED

Special Warranty Deed
Execution Copy

energy), hard rock minerals and base precious metals; and the term "gas" shall include helium, carbon dioxide, gaseous sulfur compounds, coal bed methane, and any other commercial gaseous substances, as well as natural gas and other "normal" hydrocarbon gases (hereinafter being collectively referred to as the "**Oil, Gas and Other Minerals**"). Notwithstanding Grantor's mineral reservation, it is expressly understood and agreed, and Grantor does hereby covenant, stipulate and agree in favor of Grantee and its successors and assigns, as follows:

(a) Grantor does hereby expressly release and waive, on behalf of itself and its successors and assigns, all rights of ingress and egress and all other rights of every kind and character whatsoever, to enter upon or to use the surface of the Land or any part thereof, including without limitation the right to enter upon the surface of the Land for purposes of exploring for, developing, drilling, producing, transporting, mining, treating, storing or any other purposes incident to the development or production of the Oil, Gas and Other Minerals in, on and under the Land, even if the foregoing release and waiver make it impossible or materially more expensive to do any of the foregoing. Without limiting the generality of the foregoing, Grantor further covenants and agrees that any directional drilling for, or other method of extracting, the Oil, Gas and Other Minerals by Grantor and any lessees shall be done in such a way so as not to interfere with Grantee's use of or operations on the Land or diminish or impair the value of the Land or the Improvements.

(b) Subject in all respects to the restrictions set forth in the immediately preceding paragraph, it is understood and agreed by Grantor and Grantee that nothing herein shall ever be construed as an absolute prohibition on Grantor or Grantor's lessees, and their respective heirs, successors and assigns, developing and producing the Oil, Gas and Other Minerals in and under the Land by pooling or by directional drilling from well sites located on tracts other than the Land.

(c) Without limiting the foregoing, Grantor does further hereby expressly covenant and agree that any lease for the Oil, Gas and Other Minerals hereafter executed by Grantor in favor of any person, firm or corporation covering or affecting any portion of the reserved mineral estate or the Land shall be expressly made subject to the terms and provisions of this instrument.

(d) These provisions relating to minerals and surface rights are covenants running with the Land binding upon and inuring to the benefit of Grantor and Grantee and their respective successors and assigns.

2. **Reservation of Littoral Rights.** Grantor reserves unto itself, its successors and assigns, all littoral rights belonging or in anywise appertaining to the Land or Improvements, and the right to access the waters of Corpus Christi Bay from the Property.

3. **Reservation of a Road and Utility Easement.** Grantor reserves unto Grantor, its successors and assigns an easement in, on, along, under and across all main road rights of way located on the Land and existing as of the date hereof, for the purpose of allowing ingress and egress between FM 1069 and Grantor's Adjacent Lands (defined below); for the purpose of ingress and egress between any two non-contiguous portions of Grantor's Adjacent Lands; and for the purpose of providing utilities (i.e., water, gas, sewer, electricity, telephone and cable) to

Grantor's Adjacent Lands. Notwithstanding the foregoing reservations, Grantor's, and its successors' and assigns', maintenance and construction of any utility lines or equipment within such rights of way shall not unreasonably interfere with utility and road access by the owners of the Land. For the purposes of this reservation "**Grantor's Adjacent Lands**" means the real property described in Exhibit B attached hereto.

4. **Other Matters.** In addition, this Special Warranty Deed and the conveyance hereinabove set forth is executed by Grantor and accepted by Grantee subject to the matters described in Exhibit C attached hereto, to the extent the same are validly existing and applicable to the Property.

5. **"As Is".** Grantor conveys the Property and Grantee accepts the Property "AS IS, WHERE IS AND WITH ALL FAULTS". EXCEPT AS EXPRESSLY SET FORTH HEREIN OR IN THAT SURPLUS PROPERTY SALES AGREEMENT DATED MAY 8, 2012, BY AND BETWEEN GRANTOR AND GRANTEE, GRANTOR MAKES NO WARRANTY OR REPRESENTATION, EXPRESS OR IMPLIED, OR ARISING BY OPERATION OF LAW, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE, OF THE PROPERTY, OR ANY PART THEREOF. GRANTEE EXPRESSLY WAIVES, TO THE EXTENT ALLOWED BY LAW, ANY CLAIMS UNDER FEDERAL, STATE OR OTHER LAW THAT GRANTEE MIGHT OTHERWISE HAVE AGAINST GRANTOR RELATING TO THE CONDITION OF THE PROPERTY.

TO HAVE AND TO HOLD the Property, together with all and singular the rights and appurtenances thereunto in anywise belonging, unto Grantee, its successors and assigns forever, and Grantor does hereby bind itself, its successors and assigns, to WARRANT AND FOREVER DEFEND all and singular the title to the Property unto the said Grantee, its successors and assigns against every person whomsoever lawfully claiming or to claim the same or any part thereof by, through, or under Grantor but not otherwise, subject to the Permitted Encumbrances.

[Signature Page(s) Follow This Page]

DATED to be effective the 8th day of November, 2012.

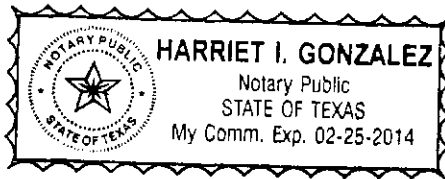
GRANTOR:

**PORT OF CORPUS CHRISTI AUTHORITY
OF NUECES COUNTY, TEXAS**

By: Mike Carrell
Mike Carrell,
Chairman of the Port Commission

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 7th day of November, 2012, by Mike Carrell, Chairman of the Port Commission of Port of Corpus Christi Authority of Nueces County, Texas, a navigation district and political subdivision of the State of Texas, on behalf of said navigation district.



Harriet I. Gonzalez
NOTARY PUBLIC, State of Texas

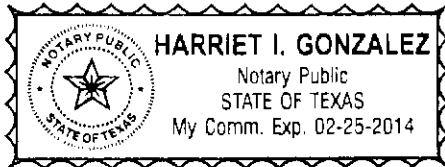
GRANTEE:

OXY INGLESIDE ENERGY CENTER, LLC, a
Delaware limited liability company

By: *Hasham Mukadam*
Hasham Mukadam, President

STATE OF TEXAS §
 §
COUNTY OF NUECES §

This instrument was acknowledged before me on the 7th day of November, 2012, by Hasham Mukadam, President of Oxy Ingleside Energy Center, LLC, a Delaware limited liability company, on behalf of said limited liability company.



Harriet I. Gonzalez
NOTARY PUBLIC, State of Texas

EXHIBIT A
TO
SPECIAL WARRANTY DEED
LAND
TRACT 1
(378.83 Acres)

A 378.83 acre tract of land, more or less, herein designated Tract I, being out of a 478.551-acre remainder of 483.158-acres known as Tract I as described in a deed to The Department of The Navy as recorded in Volume 2081, Page 483, Deed Records, Nueces County, Texas and being out of the L. Von Zacharias Survey 1, Abstract 271 and the T.H. Judson Survey 63, Abstract 177, both in San Patricio County, Texas, Save and Except a 8.496-acre tract herein designated Tract V, Campus "A", a 85.947-acre tract herein designated Tract VI, Campus "B" and a 5.280-acre tract herein designated Tract VII, Campus "C", said 378.83-acre tract being more particularly described by metes and bounds as follows;

BEGINNING at a concrete monument with a square brass plate stamped "14.86" found in the west right-of-way of F.M. Road 1069 at the southwest area of the intersection with F.M. 2725 for the most southerly northeast corner of this tract, said monument having coordinates of N 17195295.81, E 1406451.58, Texas State Plane Coordinates, South Zone, NAD 83;

THENCE, S-21°-18'-43"-W, along said west right-of-way, a distance of **1216.17'** to a concrete monument with a square brass plate found for a bend point in said right-of-way and a bend point in the east line of this tract;

THENCE, S-21°-09'-10"-W, continuing along said right-of-way and along the west line of a called 40-acre tract described in a deed to the State of Texas as recorded in Volume 195, Page 19, Deed Records, San Patricio County, Texas, at **541.46'** pass a found concrete monument with a square brass plate, in all a distance of **1610.15'** to a concrete monument with a square brass plate found for an exterior corner in the east line of this tract;

THENCE, N-68°-51'-00"-W, a distance of **249.35'** to a concrete monument with a square brass plate found for an interior corner of this tract;

THENCE, S-21°-08'-35"-W, a distance of **191.54'** to a monument with a cap stamped "OXY Ingleside Property Holdings", herein after referred to as "an OXY monument", set at the time of this survey to replace the original found property marker in the north line of the current Flint Hills facility described in a deed to Koch Refining Company, L.P. as recorded in Clerks File #447427, Real Property Records, San Patricio County, Texas for an exterior of this tract;

THENCE, N-68°-54'-55"-W, at **86.04'** pass a concrete monument with a square brass plate found for the northwest corner of said Flint Hills tract and the northeast corner of a 1.62-acre tract of land out of said Tract I described as Parcel A in a deed to Flint Hills Resources Corpus

Christi, LLC as recorded in Clerks File #606859, Official Public Records, San Patricio, Texas, in all a distance of **105.04'** to an OXY monument set for an interior corner of this tract;

THENCE, S-21°-08'-40"-W, a distance of **2505.41'** to an OXY monument set for an interior corner of said Parcel A and an exterior corner of this tract;

THENCE, N-68°-51'-30"-W, a distance of **260.90'** to an OXY monument set for an exterior corner of said Parcel A and an interior corner of this tract;

THENCE, S-65°-41'-03"-W, a distance of **16.86'** to an OXY monument for an exterior corner of said Parcel A and an interior corner of this tract;

THENCE, S-21°-08'-50"-W, at 812.38' pass a 5/8" steel rod found for the southwest corner of said Parcel A and the northwest corner of Parcel B as recorded in the same deed, in all a distance of **855.93'** to an OXY monument set for an exterior corner of said Parcel B and an interior corner of this tract;

THENCE, S-81°-27'-49"-E, a distance of **20.23'** to an OXY monument set for an interior corner of said Parcel B and an exterior corner of this tract;

THENCE, S-07°-57'-56"-W, a distance of **138.38'** to an OXY monument set for an interior corner of said Parcel B and an exterior corner of this tract;

THENCE, N-82°-02'-54"-W, a distance of **168.65'** to an OXY monument set for an exterior corner of said Parcel B and an interior corner of this tract;

THENCE, S-07°-57'-06"-W, at 64.41' pass an OXY monument set for a 15.00' offset to the corner, in all a distance of **79.41'** to a point on the face of the bulkhead of the existing dock facility, now agreed on to be the location of the existing shoreline, said point being the northeast corner of Tract IV of this description, shown on the same plat as this Tract I and the southeast corner of this tract, said point having coordinates of N 17189367.17, E 1403379.78, Texas State Plane Coordinates, South Zone, NAD 83;

THENCE, along the south line of said Tract I, said line being the face of the bulkhead, the following calls;

N-82°-03'-17"-W, a distance of **1364.36'**;

N-69°-04'-59"-W, a distance of **79.86'**;

S-88°-09'-25"-W, a distance of **559.60'**;

THENCE, N-47°-31'-29"-W, continuing along said bulkhead line, a distance of **33.82'** to the point at which the bulkhead line meets the existing natural shoreline as determined by the 0.7' contour line, then continuing along said contour line the following calls;

S-47°-55'-30"-W, a distance of **15.27'**;
S-68°-58'-00"-W, a distance of **38.73'**;
N-64°-23'-51"-W, a distance of **27.79'**;
N-73°-10'-44"-W, a distance of **62.07'**;
S-76°-13'-49"-W, a distance of **43.76'**;
S-87°-56'-22"-W, a distance of **41.82'**;
S-70°-46'-41"-W, a distance of **64.04'**;
S-73°-12'-49"-W, a distance of **126.80'**;
S-62°-08'-19"-W, a distance of **160.68'**;
S-60°-21'-58"-W, a distance of **85.26'**;
S-74°-07'-34"-W, a distance of **97.00'**;
N-89°-52'-20"-W, a distance of **119.54'**;
N-89°-06'-15"-W, a distance of **26.69'**;

THENCE, N-84°-55'-44"-W, continuing along the shoreline, a distance of **2.79'** to an unmarked point in the east boundary line of a called 98.44-acre tract described in a deed to Baker's Port, Inc. as recorded in Clerks File #353262, Real Property Records, San Patricio County, Texas for the northwest corner of said Tract IV and the southwest corner of this tract;

THENCE, N-21°-09'-21"-E, at 100.00' pass an OXY monument set on line for reference, at 156.92' pass a found concrete monument with a square brass plate, at 6308.78' pass an OXY monument set for the south right-of-way of F.M. 1069 as described in Clerks File #374150, Real Property Records, San Patricio County, Texas, in all a distance of **6628.43'** to a broken concrete monument found in the original south right-of-way of F.M. 1069 for the northeast corner of said 98.44-acre tract and for the northwest corner of this tract;

THENCE, N-88°-21'-05"-E, a distance of **3291.23'** to an OXY monument set for the most northerly northeast corner of this tract, said point being the point of curvature for a curve to the right from which the radius bears S-01°-38'-55"-E, 266.26, said curve having a central angle of 112°-57'-40" and a tangent of 401.98';

THENCE, along said curve and right-of-way, an arc length of **524.94'** to the **POINT OF BEGINNING** and containing 478.551-acres of land of which 6.849-acres are within the right-of-way of F.M. 1069.

SAVE AND EXCEPT TRACT V, CAMPUS "A"

Save and except an 8.496 acre tract of land, more or less, herein designated Tract V, Campus "A", being out of the 478.551-acre remainder of a 483.158-acre tract known as Tract I as described in a deed to The Department of The Navy as recorded in Volume 2081, Page 483, Deed Records, Nueces County, Texas and being out of the L. Von Zacharias Survey 1, Abstract 271 and the T.H. Judson Survey 63, Abstract 177, both in San Patricio County, Texas, said 8.496-acre tract being more particularly described by metes and bounds as follows;

BEGINNING at a 5/8" steel rod set for the northwest corner of this tract and having coordinates of N 17193449.71, E 1402151.38, Texas State Plane Coordinates, South Zone, NAD 83, from which an OXY monument found in the south right-of-way of F.M. Road 1069 for the lower northwest corner of said 478.551-acre tract bears N-68°-50'-39"-W, 60.00' and N-21°-09'-21"-E, 2081.34';

THENCE, S-68°-50'-39"-E, a distance of **535.54'** to a 5/8" steel rod set 40' west of the centerline of Wisconsin Road as constructed for the northeast corner of this tract, said point being the non-tangent point of curvature for a curve to the left from which the radius bears S-48°-23'-39"-E, 455.00', said curve having a central angle of 25°-14'-53" and a tangent of 101.90';

THENCE, continuing along said curve and 40' offset, an arc length of **200.50'** to a 5/8" steel rod set for the point of tangency;

THENCE, S-16°-21'-28"-W, continuing along 40' offset, a distance of **152.49'** to a 5/8" steel rod set for the point of curvature for a curve to the right from which the radius bears N-73°-38'-32"-W, 675.00', said curve having a central angle of 28°-08'-16" and a tangent of 169.16';

THENCE, continuing along said curve and 40' offset, an arc length of **331.49'** to a 5/8" steel rod set for the point of tangency;

THENCE, S-44°-29'-44"-W, a distance of **30.41'** to a 5/8 steel rod set for the point of curvature for a curve to the left from which the radius bears S-45°-30'-16"-E, 1255.00', said curve having a central angle of 01°-24'-37" and a tangent of 15.45';

THENCE, continuing along said curve and 40' offset, an arc length of **30.89'** to a 5/8" steel rod set for the southeast corner of this tract;

THENCE, N-68°-50'-39"-W, a distance of **444.41'** to a 5/8" steel rod set for the southwest corner of this tract;

THENCE, N-21°-09'-21"-E, a distance of **729.30'** to the **POINT OF BEGINNING** and containing 8.496-acres of land, more or less.

SAVE AND EXCEPT TRACT VI, CAMPUS "B"

Save and except an 85.947 acre tract of land, more or less, herein designated Tract VI, Campus "B", being out of the 478.551-acre remainder of a 483.158-acre tract known as Tract I as described in a deed to The Department of The Navy as recorded in Volume 2081, Page 483, Deed Records, Nueces County, Texas and being out of the L. Von Zacharias Survey 1, Abstract 271 and the T.H. Judson Survey 63, Abstract 177, both in San Patricio County, Texas, said 85.947-acre tract being more particularly described by metes and bounds as follows;

BEGINNING at a 5/8" steel rod set in a 40' offset from the centerline of South Coral Sea Road as constructed for the lower northeast corner of this tract and having coordinates of N 17192761.03, E 1404254.52, Texas State Plane Coordinates, South Zone, NAD 83, from which an OXY monument found for the northwest corner of a 1.62-acre tract described as "Parcel A" in a deed to Flint Hills as recorded in Clerks File #606859, Official Public Records, San Patricio County, Texas and an interior corner in the east line of said 478.551-acre tract bears S-78°-59'-23"-E, 788.23';

THENCE, S-21°-07'-17"-W, continuing along said 40' offset, a distance of **63.27'** to a 5/8" steel rod set for the point of curvature for a curve to the right from which the radius bears N-68°-52'-43"-W, 675.00', said curve having a central angle of 15°-05'-38" and a tangent of 89.43';

THENCE, continuing along said curve and 40' offset, an arc length of **177.82'** to a 5/8" steel rod set for the point of tangency;

THENCE, S-36°-12'-56"-W, continuing along 40' offset, a distance of **140.09'** to a 5/8" steel rod set for the point of curvature for a curve to the left from which the radius bears S-53°-47'-04"-E, 855.00', said curve having a central angle of 35°-56'-54" and a tangent of 277.38';

THENCE, continuing along said curve and 40' offset, an arc length of **536.44'** to a Mag nail set in asphalt paving for the point of tangency;

THENCE, S-00°-16'-01"-W, a distance of **268.99'** to a 5/8 steel rod set for the point of curvature for a curve to the right from which the radius bears N-89°-43'-59"-W, 1175.00', said curve having a central angle of 45°-21'-40" and a tangent of 491.05';

THENCE, continuing along said curve and 40' offset, an arc length of **930.25'** to a 5/8" steel rod set for the upper southeast corner of this tract and the point of compound curvature for a curve to the right from which the radius bears N-44°-22'-19"-W, 50.00', said curve having a central angle of 85°-00'-14" and a tangent of 45.82';

THENCE, continuing along said curve, an arc length of **74.18'** to a 5/8" steel rod set in a 40' offset from the centerline of Midway Road as constructed and the lower southeast corner of this tract for the point of reverse curvature for a curve to the left from which the radius bears S-40°-37'-58"-W, 505.00', said curve having a central angle of 39°-45'-31" and a tangent of 182.60';

THENCE, continuing along said curve and 40' offset, an arc length of **350.43'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-89°-07'-35"-W, continuing along said 40' offset, a distance of **84.85'** to a 5/8" steel rod set for the point of curvature for a curve to the right from which the radius bears N-00°-52'-25"-E, 475.00', said curve having a central angle of 20°-14'-52" and a tangent of 84.81';

THENCE, continuing along said curve and 40' offset, an arc length of **167.86'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-68°-52'-43"-W, continuing along said 40' offset, a distance of **201.09'** to a 5/8" steel rod set for the point of curvature for a curve to the left from which the radius bears S-21°-07'-17"-W, 530.00', said curve having a central angle of 07°-30'-56" and a tangent of 34.81';

THENCE, continuing along said curve and 40' offset, an arc length of **69.52'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-76°-23'-38"-W, continuing along said 40' offset, a distance of **106.64'** to a 5/8" steel rod set for the point of curvature for a curve to the right from which the radius bears N-13°-36'-22"-E, 475.00', said curve having a central angle of 26°-57'-20" and a tangent of 113.84';

THENCE, continuing along said curve and 40' offset, an arc length of **223.47'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-49°-26'-18"-W, continuing along 40' offset, a distance of **87.14'** to a 5/8" steel rod set for the point of curvature for a curve to the left from which the radius bears S-40°-33'-42"-W, 455.00', said curve having a central angle of 29°-59'-07" and a tangent of 121.85';

THENCE, continuing along said curve and 40' offset, an arc length of **238.12'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-79°-25'-26"-W, continuing along said 40' offset, a distance of **24.84'** to a 5/8" steel rod set for the lower southwest corner of this tract and the point of curvature for a curve to the right from which the radius bears N-10°-34'-34"-E, 50.00', said curve having a central angle of 84°-40'-18" and a tangent of 45.55';

THENCE, continuing along said curve, an arc length of **73.89'** to a 5/8" steel rod set in a 40' offset from the centerline of Wisconsin Road as constructed for the upper southwest corner of this tract and for the point of tangency;

THENCE, N-05°-15'-11"-E, continuing along said 40' offset, a distance of **444.22'** to a 5/8" steel rod set for the point of curvature for a curve to the right from which the radius bears S-84°-44'-49"-E, 1175.00', said curve having a central angle of 39°-14'-33" and a tangent of 418.89';

THENCE, continuing along said curve and 40' offset, an arc length of **804.77'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-44°-29'-44"-E, continuing along 40' offset, a distance of **30.41'** to a Mag nail set in asphalt paving for the point of curvature for a curve to the left from which the radius bears N-45°-30'-16"-W, 755.00', said curve having a central angle of 28°-08'-17" and a tangent of 189.21';

THENCE, continuing along said curve and 40' offset, an arc length of **370.78'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-16°-21'-28"-E, continuing along said 40' offset, a distance of **152.49'** to a 5/8" steel rod set for the lower northwest corner of this tract and for the point of curvature for a curve to the right from which the radius bears S-73°-38'-32"-E, 375.00', said curve having a central angle of 94°-45'-51" and a tangent of 407.55';

THENCE, continuing along said curve, an arc length of **620.23'** to a 5/8" steel rod set in a 40' offset from the centerline of Ticonderoga Road as constructed for the upper northwest corner of this tract and for the point of tangency;

THENCE, S-68°-52'-43"-E, a distance of **1148.24'** to a 5/8" steel rod set for the upper northeast corner of this tract and for the point of curvature for a curve to the right from which the radius bears S-21°-07'-17"-W, 100.00', said curve having a central angle of 90°-00'-01" and a tangent of 100.00';

THENCE, continuing along said curve, an arc length of **157.08'** to the **POINT OF BEGINNING** and containing 85.947-acres of land, more or less.

SAVE AND EXCEPT TRACT VII, CAMPUS "C"

Save and except a 5.280 acre tract of land, more or less, herein designated Tract VII, Campus "C", being out of the 478.551-acre remainder of a 483.158-acre tract known as Tract I as described in a deed to The Department of The Navy as recorded in Volume 2081, Page 483, Deed Records, Nueces County, Texas and being out of the L. Von Zacharias Survey 1, Abstract 271 in San Patricio County, Texas, said 5.280-acre tract being more particularly described by metes and bounds as follows;

BEGINNING at a 5/8" steel rod set for the northeast corner of this tract and having coordinates of N 17192157.44, E 1404820.86, Texas State Plane Coordinates, South Zone, NAD 83, from which an OXY monument found for the northwest corner of a 1.62-acre tract of land described as "Parcel A" in a deed to Flint Hills as recorded in Clerks File #606859, Official Public Records, San Patricio County, Texas bears S-68°-51'-20"-E, 30.00' and N-21°-08'-40"-E, 497.36';

THENCE, S-21°-08'-40"-W, a distance of **258.89'** to a 5/8" steel rod set for the southeast corner of this tract;

THENCE, N-68°-51'-20"-W, a distance of **554.93'** to a drill hole set in concrete for an interior corner in the south line of this tract;

THENCE, S-21°-17'-40"-W, a distance of **35.01'** to a drill hole set in concrete for an exterior corner in the south line of this tract;

THENCE, N-68°-49'-05"-W, a distance of **197.93'** to a drill hole set in concrete 40' east of the centerline of South Coral Sea Road as constructed for the southwest corner of this tract, said point being the non-tangent point of curvature for a curve to the right from which the radius bears S-72°-59'-03"-E, 775.00', said curve having a central angle of 19°-11'-59" and a tangent of 131.08';

THENCE, continuing along said 40' offset and curve, an arc length of **259.70'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-36°-12'-56"-E, continuing along said 40' offset, a distance of **140.09'** to a Mag nail set in asphalt paving for the point of curvature for a curve to the left from which the radius bears N-53°-47'-04"-W, 755.00', said curve having a central angle of 01°-00'-03" and a tangent of 6.60';

THENCE, continuing along said 40' offset and curve, an arc length of **13.19'** to a 5/8" steel rod set for the northwest corner of this tract;

THENCE, S-55°-00'-01"-E, a distance of **282.69'** to a drill hole set in concrete for the point of curvature for a curve to the left from which the radius bears N-34°-59'-59"-E, 202.50', said curve having a central angle of 13°-45'-14" and a tangent of 24.42';

THENCE, along said curve, an arc length of **48.61'** to a 5/8" steel rod set for the point of tangency;

THENCE, S-68°-45'-15"-E, a distance of **60.33'** to a 5/8" steel rod set for the point of curvature for a curve to the left from which the radius bears N-21°-14'-45"-E, 20.00', said curve having a central angle of 89°-45'-14" and a tangent of 19.91';

THENCE, continuing along said 40' offset and curve, an arc length of **31.33'** to a drill hole set in concrete for the point of tangency;

THENCE, N-21°-29'-38"-E, a distance of **12.27'** to a 5/8" steel rod set for an exterior corner in the north line of this tract;

THENCE, S-68°-36'-41"-E, a distance of **23.78'** to a drill hole set in concrete for an exterior corner in the north line of this tract;

THENCE, S-20°-53'-41"-W, a distance of **30.14'** to a Mag nail set in concrete for an interior corner of this tract;

THENCE, S-69°-08'-07"-E, a distance of **20.02'** to a 5/8" steel rod set for an exterior corner in the north line of this tract;

THENCE, S-21°-12'-41"-W, a distance of **39.89'** to a 5/8" steel rod set for an interior corner of this tract;

THENCE, S-68°-51'-20"-E, a distance of **241.64'** to the **POINT OF BEGINNING** and containing 5.280-acres of land, more or less.

TRACT II
(435.7 Acres)

A 435.7 acre tract of land, more or less, herein called Tract II, being the 258.879-acre "Exhibit A" in a correction deed to The Port of Corpus Christi Authority as recorded in Clerks File #512869, Real Property Records, San Patricio County, Texas, 74.71-acres as described in a deed to The Port of Corpus Christi Authority as recorded in Clerks File #353260, Real Property Records, San Patricio County, Texas, a called 98.44-acre tract described in a deed to The Port of Corpus Christi Authority as recorded in Clerks File #353262, Real Property Records, San Patricio County, Texas and a called 3.861-acre tract described in a quitclaim deed to The Port of Corpus Christi Authority as recorded in Clerks File #508819, Real Property Records, San Patricio County, Texas, all being out of the L. Von Zacharias Survey 1, Abstract 271, the T.H. Judson Survey 63, Abstract 177, the J. Robinson Survey, Abstract 225 and the T.T. Williamson Survey, Abstract 295, all in San Patricio County, Texas, said 435.7-acre tract being more particularly described by metes and bounds as follows:

BEGINNING at a broken concrete monument found in the original south right-of-way of F.M. Road 1069 for the northwest corner of a called 483.158-acre tract of land described as Tract I in a deed to the Department of the Navy as recorded in Volume 2081, Page 483, Deed Records, Nueces County, Texas and the northeast corner of this tract, said monument having coordinates of N 17195564.17, E 1402905.32, Texas State Plane Coordinates, South Zone, NAD 83;

THENCE, S-21°-09'-21"-W, at 162.72' pass a monument with a cap stamped "OXY Ingleside Property Holdings", herein after referred to as "an OXY monument", set at the time of this survey to replace the original found property marker in the existing south right-of-way of F.M. 1069 for the southeast corner of a tract described in Clerks File #383009, Real Property Records, San Patricio County, Texas, at 6471.50' pass a found concrete monument with a square brass plate previously set for reference, at 6528.43' pass an OXY monument set online for reference, in all a distance of **6628.43'** to an unmarked point on the existing shoreline for the southeast corner of this tract and being the beginning of the state land boundary as measured along the 0.7' contour;

THENCE, along the north line of a 29.26-acre tract, herein called Tract III, said line being the 0.7' contour as observed on this date, the following calls;

N-84°-55'-44"-W, a distance of **90.28'**;

N-80°-56'-04"-W, a distance of **90.53'**;
N-73°-42'-00"-W, a distance of **117.72'**;
N-76°-25'-18"-W, a distance of **94.85'**;
N-79°-09'-39"-W, a distance of **99.99'**;
N-81°-46'-03"-W, a distance of **83.76'**;
N-82°-55'-50"-W, a distance of **74.82'**;
S-85°-18'-45"-W, a distance of **71.05'**;
S-89°-06'-28"-W, a distance of **75.93'**;
S-89°-05'-16"-W, a distance of **91.98'**;
N-83°-31'-46"-W, a distance of **125.10'**;
N-67°-25'-49"-W, a distance of **95.44'**;

THENCE, N-52°-26'-36"-W, a distance of **31.20'** to an unmarked point which is the point of intersection of the current shoreline and a line created to parallel the east line of this tract for the northwest corner of said Tract III and the southwest corner of this tract;

THENCE, N-21°-09'-21"-E, at 30.00' set an OXY monument online for reference, in all a distance of **71.36'** to an OXY monument set for the southwest corner of said 3.861-acre tract and an interior corner of this tract;

THENCE, N-01°-14'-20"-W, along a line which is the extension of the east right-of-way of Rustic Avenue as shown on the plat of Ingleside Townsite as recorded in Volume 5, Page 39, Map Records, San Patricio County, Texas, at 316.16' pass the northwest corner of said 3.861-acre tract and the southwest corner of said 258.879-acre tract, from this point continuing along said right-of-way as platted (70' r.o.w.), in all a distance of **898.51'** to an OXY monument set in the northeast right-of-way of Live Oak Street (50' r.o.w.) as shown on said plat for an interior corner of this tract;

THENCE, N-53°-28'-10"-W, along said right-of-way, a distance of **2425.49'** to an OXY monument set in the southeast right-of-way of Wildwood Drive (50' r.o.w.) as shown on said plat for an exterior corner in the west line of this tract;

THENCE, N-36°-31'-10"-E, along said right-of-way, a distance of **349.90'** to an OXY monument set in the northeast right-of-way of Ebony Street (49.90' r.o.w.) as shown on said plat for an interior corner in the west line of this tract;

THENCE, N-53°-28'-50"-W, along said right-of-way, a distance of **210.00'** to an OXY monument set for the south corner of Lot 1, Block 105, as shown on the old map of Ingleside Townsite as recorded in Volume 2, Pages 5 and 6, Map Records, San Patricio County, several blocks of which have been vacated except those portions of Blocks 105 and 93 as described in a Cession Agreement recorded in Clerks File 587749, Real Property Records, San Patricio County, Texas and for an exterior corner in the west line of this tract;

THENCE, N-36°-31'-10"-E, a distance of **300.00'** to an OXY monument set for the east corner of Lot 6 in said Block 105 and the southwest right-of-way of Fifteenth Street (unopened 49.90' r.o.w.) for an exterior corner in the west line of this tract;

THENCE, S-53°-28'-50"-E, along said right-of-way, a distance of **10.00'** to an OXY monument set in the centerline of a 20' wide alley shown on said plat for an interior corner in the west line of this tract;

THENCE, N-36°-31'-10"-E, along the center of said alley, a distance of **150.32'** to an OXY monument set found for an interior corner in the west line of this tract;

THENCE, N-53°-28'-50"-W, at 10' pass the east corner of Lot 5, Block 93 of said subdivision, in all a distance of **149.64'** to an OXY monument set in the south right-of-way of Starlight Drive (50' r.o.w.) for the north corner of said Lot 5 and an exterior corner in the west line of this tract;

THENCE, N-36°-30'-45"-E, along said right-of-way, a distance of **2782.72'** to an OXY monument set in said east right-of-way of Rustic Avenue for an interior corner in the west line of this tract;

THENCE, N-01°-13'-43"-W, along said right-of-way, at 392.73 pass an OXY monument set in the existing south right-of-way of F.M. 1069, in all a distance of **402.73'** to an OXY monument set in the original south right-of-way of said F.M. 1069 for the northwest corner of this tract;

THENCE, N-88°-21'-05"-E, along said original right-of-way, a distance of **3609.81'** to the **POINT OF BEGINNING** and containing 435.7-acres of land of which 3.677-acres are within the right-of-way of F.M. 1069.

EXHIBIT B
TO
SPECIAL WARRANTY DEED
GRANTOR'S ADJACENT LANDS

TRACT V
(Campus "A" - 8.496 acres)

An 8.496 acre tract of land, more or less, herein designated Tract V, Campus "A", being out of the 478.551-acre remainder of a 483.158-acre tract known as Tract I as described in a deed to The Department of The Navy as recorded in Volume 2081, Page 483, Deed Records, Nueces County, Texas and being out of the L. Von Zacharias Survey 1, Abstract 271 and the T.H. Judson Survey 63, Abstract 177, both in San Patricio County, Texas, said 8.496-acre tract being more particularly described by metes and bounds as follows;

BEGINNING at a 5/8" steel rod set for the northwest corner of this tract and having coordinates of N 17193449.71, E 1402151.38, Texas State Plane Coordinates, South Zone, NAD 83, from which an OXY monument found in the south right-of-way of F.M. Road 1069 for the lower northwest corner of said 478.551-acre tract bears N-68°-50'-39"-W, 60.00' and N-21°-09'-21"-E, 2081.34';

THENCE, S-68°-50'-39"-E, a distance of **535.54'** to a 5/8" steel rod set 40' west of the centerline of Wisconsin Road as constructed for the northeast corner of this tract, said point being the non-tangent point of curvature for a curve to the left from which the radius bears S-48°-23'-39"-E, 455.00', said curve having a central angle of 25°-14'-53" and a tangent of 101.90';

THENCE, continuing along said curve and 40' offset, an arc length of **200.50'** to a 5/8" steel rod set for the point of tangency;

THENCE, S-16°-21'-28"-W, continuing along 40' offset, a distance of **152.49'** to a 5/8" steel rod set for the point of curvature for a curve to the right from which the radius bears N-73°-38'-32"-W, 675.00', said curve having a central angle of 28°-08'-16" and a tangent of 169.16';

THENCE, continuing along said curve and 40' offset, an arc length of **331.49'** to a 5/8" steel rod set for the point of tangency;

THENCE, S-44°-29'-44"-W, a distance of **30.41'** to a 5/8 steel rod set for the point of curvature for a curve to the left from which the radius bears S-45°-30'-16"-E, 1255.00', said curve having a central angle of 01°-24'-37" and a tangent of 15.45';

THENCE, continuing along said curve and 40' offset, an arc length of **30.89'** to a 5/8" steel rod set for the southeast corner of this tract;

THENCE, N-68°-50'-39"-W, a distance of **444.41'** to a 5/8" steel rod set for the southwest corner of this tract;

THENCE, N-21°-09'-21"-E, a distance of **729.30'** to the **POINT OF BEGINNING** and containing 8.496-acres of land, more or less.

TRACT VI
(Campus "B" – 85.947 acres)

An 85.947 acre tract of land, more or less, herein designated Tract VI, Campus "B", being out of the 478.551-acre remainder of a 483.158-acre tract known as Tract I as described in a deed to The Department of The Navy as recorded in Volume 2081, Page 483, Deed Records, Nueces County, Texas and being out of the L. Von Zacharias Survey 1, Abstract 271 and the T.H. Judson Survey 63, Abstract 177, both in San Patricio County, Texas, said 85.947-acre tract being more particularly described by metes and bounds as follows;

BEGINNING at a 5/8" steel rod set in a 40' offset from the centerline of South Coral Sea Road as constructed for the lower northeast corner of this tract and having coordinates of N 17192761.03, E 1404254.52, Texas State Plane Coordinates, South Zone, NAD 83, from which an OXY monument found for the northwest corner of a 1.62-acre tract described as "Parcel A" in a deed to Flint Hills as recorded in Clerks File #606859, Official Public Records, San Patricio County, Texas and an interior corner in the east line of said 478.551-acre tract bears S-78°-59'-23"-E, 788.23';

THENCE, S-21°-07'-17"-W, continuing along said 40' offset, a distance of **63.27'** to a 5/8" steel rod set for the point of curvature for a curve to the right from which the radius bears N-68°-52'-43"-W, 675.00', said curve having a central angle of 15°-05'-38" and a tangent of 89.43';

THENCE, continuing along said curve and 40' offset, an arc length of **177.82'** to a 5/8" steel rod set for the point of tangency;

THENCE, S-36°-12'-56"-W, continuing along 40' offset, a distance of **140.09'** to a 5/8" steel rod set for the point of curvature for a curve to the left from which the radius bears S-53°-47'-04"-E, 855.00', said curve having a central angle of 35°-56'-54" and a tangent of 277.38';

THENCE, continuing along said curve and 40' offset, an arc length of **536.44'** to a Mag nail set in asphalt paving for the point of tangency;

THENCE, S-00°-16'-01"-W, a distance of **268.99'** to a 5/8 steel rod set for the point of curvature for a curve to the right from which the radius bears N-89°-43'-59"-W, 1175.00', said curve having a central angle of 45°-21'-40" and a tangent of 491.05';

THENCE, continuing along said curve and 40' offset, an arc length of **930.25'** to a 5/8" steel rod set for the upper southeast corner of this tract and the point of compound curvature for a

curve to the right from which the radius bears N-44°-22'-19"-W, 50.00', said curve having a central angle of 85°-00'-14" and a tangent of 45.82';

THENCE, continuing along said curve, an arc length of **74.18'** to a 5/8" steel rod set in a 40' offset from the centerline of Midway Road as constructed and the lower southeast corner of this tract for the point of reverse curvature for a curve to the left from which the radius bears S-40°-37'-58"-W, 505.00', said curve having a central angle of 39°-45'-31" and a tangent of 182.60';

THENCE, continuing along said curve and 40' offset, an arc length of **350.43'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-89°-07'-35"-W, continuing along said 40' offset, a distance of **84.85'** to a 5/8" steel rod set for the point of curvature for a curve to the right from which the radius bears N-00°-52'-25"-E, 475.00', said curve having a central angle of 20°-14'-52" and a tangent of 84.81';

THENCE, continuing along said curve and 40' offset, an arc length of **167.86'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-68°-52'-43"-W, continuing along said 40' offset, a distance of **201.09'** to a 5/8" steel rod set for the point of curvature for a curve to the left from which the radius bears S-21°-07'-17"-W, 530.00', said curve having a central angle of 07°-30'-56" and a tangent of 34.81';

THENCE, continuing along said curve and 40' offset, an arc length of **69.52'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-76°-23'-38"-W, continuing along said 40' offset, a distance of **106.64'** to a 5/8" steel rod set for the point of curvature for a curve to the right from which the radius bears N-13°-36'-22"-E, 475.00', said curve having a central angle of 26°-57'-20" and a tangent of 113.84';

THENCE, continuing along said curve and 40' offset, an arc length of **223.47'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-49°-26'-18"-W, continuing along 40' offset, a distance of **87.14'** to a 5/8" steel rod set for the point of curvature for a curve to the left from which the radius bears S-40°-33'-42"-W, 455.00', said curve having a central angle of 29°-59'-07" and a tangent of 121.85';

THENCE, continuing along said curve and 40' offset, an arc length of **238.12'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-79°-25'-26"-W, continuing along said 40' offset, a distance of **24.84'** to a 5/8" steel rod set for the lower southwest corner of this tract and the point of curvature for a curve to the right from which the radius bears N-10°-34'-34"-E, 50.00', said curve having a central angle of 84°-40'-18" and a tangent of 45.55';

THENCE, continuing along said curve, an arc length of **73.89'** to a 5/8" steel rod set in a 40' offset from the centerline of Wisconsin Road as constructed for the upper southwest corner of this tract and for the point of tangency;

THENCE, N-05°-15'-11"-E, continuing along said 40' offset, a distance of **444.22'** to a 5/8" steel rod set for the point of curvature for a curve to the right from which the radius bears S-84°-44'-49"-E, 1175.00', said curve having a central angle of 39°-14'-33" and a tangent of 418.89';

THENCE, continuing along said curve and 40' offset, an arc length of **804.77'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-44°-29'-44"-E, continuing along 40' offset, a distance of **30.41'** to a Mag nail set in asphalt paving for the point of curvature for a curve to the left from which the radius bears N-45°-30'-16"-W, 755.00', said curve having a central angle of 28°-08'-17" and a tangent of 189.21';

THENCE, continuing along said curve and 40' offset, an arc length of **370.78'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-16°-21'-28"-E, continuing along said 40' offset, a distance of **152.49'** to a 5/8" steel rod set for the lower northwest corner of this tract and for the point of curvature for a curve to the right from which the radius bears S-73°-38'-32"-E, 375.00', said curve having a central angle of 94°-45'-51" and a tangent of 407.55';

THENCE, continuing along said curve, an arc length of **620.23'** to a 5/8" steel rod set in a 40' offset from the centerline of Ticonderoga Road as constructed for the upper northwest corner of this tract and for the point of tangency;

THENCE, S-68°-52'-43"-E, a distance of **1148.24'** to a 5/8" steel rod set for the upper northeast corner of this tract and for the point of curvature for a curve to the right from which the radius bears S-21°-07'-17"-W, 100.00', said curve having a central angle of 90°-00'-01" and a tangent of 100.00';

THENCE, continuing along said curve, an arc length of **157.08'** to the **POINT OF BEGINNING** and containing 85.947-acres of land, more or less.

TRACT VII
(Campus "C" – 5.280 acres)

A 5.280 acre tract of land, more or less, herein designated Tract VII, Campus "C", being out of the 478.551-acre remainder of a 483.158-acre tract known as Tract I as described in a deed to The Department of The Navy as recorded in Volume 2081, Page 483, Deed Records, Nueces County, Texas and being out of the L. Von Zacharias Survey 1, Abstract 271 in San Patricio County, Texas, said 5.280-acre tract being more particularly described by metes and bounds as follows;

BEGINNING at a 5/8" steel rod set for the northeast corner of this tract and having coordinates of N 17192157.44, E 1404820.86, Texas State Plane Coordinates, South Zone, NAD 83, from which an OXY monument found for the northwest corner of a 1.62-acre tract of land described as "Parcel A" in a deed to Flint Hills as recorded in Clerks File #606859, Official Public Records, San Patricio County, Texas bears S-68°-51'-20"-E, 30.00' and N-21°-08'-40"-E, 497.36';

THENCE, S-21°-08'-40"-W, a distance of **258.89'** to a 5/8" steel rod set for the southeast corner of this tract;

THENCE, N-68°-51'-20"-W, a distance of **554.93'** to a drill hole set in concrete for an interior corner in the south line of this tract;

THENCE, S-21°-17'-40"-W, a distance of **35.01'** to a drill hole set in concrete for an exterior corner in the south line of this tract;

THENCE, N-68°-49'-05"-W, a distance of **197.93'** to a drill hole set in concrete 40' east of the centerline of South Coral Sea Road as constructed for the southwest corner of this tract, said point being the non-tangent point of curvature for a curve to the right from which the radius bears S-72°-59'-03"-E, 775.00', said curve having a central angle of 19°-11'-59" and a tangent of 131.08';

THENCE, continuing along said 40' offset and curve, an arc length of **259.70'** to a 5/8" steel rod set for the point of tangency;

THENCE, N-36°-12'-56"-E, continuing along said 40' offset, a distance of **140.09'** to a Mag nail set in asphalt paving for the point of curvature for a curve to the left from which the radius bears N-53°-47'-04"-W, 755.00', said curve having a central angle of 01°-00'-03" and a tangent of 6.60';

THENCE, continuing along said 40' offset and curve, an arc length of **13.19'** to a 5/8" steel rod set for the northwest corner of this tract;

THENCE, S-55°-00'-01"-E, a distance of **282.69'** to a drill hole set in concrete for the point of curvature for a curve to the left from which the radius bears N-34°-59'-59"-E, 202.50', said curve having a central angle of 13°-45'-14" and a tangent of 24.42';

THENCE, along said curve, an arc length of **48.61'** to a 5/8" steel rod set for the point of tangency;

THENCE, S-68°-45'-15"-E, a distance of **60.33'** to a 5/8" steel rod set for the point of curvature for a curve to the left from which the radius bears N-21°-14'-45"-E, 20.00', said curve having a central angle of 89°-45'-14" and a tangent of 19.91';

THENCE, continuing along said 40' offset and curve, an arc length of **31.33'** to a drill hole set in concrete for the point of tangency;

THENCE, N-21°-29'-38"-E, a distance of **12.27'** to a 5/8" steel rod set for an exterior corner in the north line of this tract;

THENCE, S-68°-36'-41"-E, a distance of **23.78'** to a drill hole set in concrete for an exterior corner in the north line of this tract;

THENCE, S-20°-53'-41"-W, a distance of **30.14'** to a Mag nail set in concrete for an interior corner of this tract;

THENCE, S-69°-08'-07"-E, a distance of **20.02'** to a 5/8" steel rod set for an exterior corner in the north line of this tract;

THENCE, S-21°-12'-41"-W, a distance of **39.89'** to a 5/8" steel rod set for an interior corner of this tract;

THENCE, S-68°-51'-20"-E, a distance of **241.64'** to the **POINT OF BEGINNING** and containing 5.280-acres of land, more or less.

EXHIBIT C
TO
SPECIAL WARRANTY DEED

1. The following restrictive covenants of record itemized below:

Clerk's file No. 294033, Volume 455, Page 586, Deed Records of San Patricio County, Texas.
Clerk's file No. 578022, Volume 2081, Page 483, Deed Records of Nueces County, Texas and
under Clerk's file No. 363726, Official Public Records of San Patricio County, Texas.

2. Any shortages in area.

3. Intentionally omitted.

4. ANY TITLES OR RIGHTS asserted by anyone, including but not limited to persons, corporations, governments or other entities to tidelands, or lands comprising the shores or beds of navigable or perennial rivers and streams, lakes, bays, gulfs, or oceans or to any lands extending beyond the line of the harbor or bulkhead lines as established or changed by any government or to filled-in lands, or artificial islands, or to statutory water rights, including riparian rights, or to the area extending from the line of mean low tide to the line of vegetation, or the right of access to that area or easement along and across that area.

5. Standby fees, taxes and assessments by any taxing authority for the year 2012, and subsequent years; and subsequent taxes and assessments by any taxing authority for prior years due to change in land usage or ownership, but not those taxes or assessments for prior years because of an exemption granted to a previous owner of the property under Section 11.13, Texas Tax Code, or because of improvements not assessed for a previous tax year.

6. The matters and terms set forth in the following documents:

Documents applicable to Tracts I, II, III & IV:

- a. Rights of the public in and to any portion of subject property lying within FM 1069 along the Northern boundary of Tract I.
- b. All leases, grants, exceptions or reservations of coal, lignite, oil, gas and other minerals, together with all rights, privileges and immunities relating thereto, appearing in the Public Records whether listed herein or not. There may be leases, grants, exceptions or reservations of mineral interest that are not listed herein.

Documents applicable to Tract I:

- c. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated December 28, 1938 recorded in Volume 32, Page 526, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument

is here made for particulars.

- d. Coal, lignite, oil, gas or other mineral interest(s), together with rights incident thereto, contained in instrument dated January 15, 1969 and recorded in Volume 69, Page 1, Oil and Gas Records of Aransas County, Texas and in Volume 209, Page 281, Deed Records of San Patricio County, Texas which document contains the following language: reservation of an undivided 1/2 interest in and to all oil, gas and other minerals in and under or hereafter produced from the above described land. Reference to which instrument is here made for full particulars.
- e. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated November 6, 1937 recorded in Volume 129, Page 566, Oil and Gas Records of San Patricio County, Texas; Amended by instrument recorded in Volume 134, Page 439, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- f. Right of Way Easement dated July 28, 1950 executed by Ingleside Land Co. to Tennessee Gas Transmission Co., recorded under Clerk's file No. 71075, Volume 165, Page 352, Deed Records of San Patricio County, Texas, (Affects Tract I only) located and limited as shown on the survey prepared by David L. Nesbitt, P.L.S. #5302 of Coym, Rehmet & Gutierrez Engineering, L.P. dated May 9, 2011, last revised August 6, 2012.
- g. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated December 22, 1958 recorded in Volume 240, Page 473, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- h. Coal, lignite, oil, gas or other mineral interest(s), together with rights incident thereto, contained in instrument dated January 15, 1969, recorded under Clerk's file No. 196435, Volume 382, Page 452, Deed Records of San Patricio County, Texas which document contains the following language "conveyance of surface estate only". Reference to which instrument is here made for full particulars.
- i. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated August 12, 1981 recorded in Volume 308, Page 359, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- j. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated August 26, 1981 recorded in Volume 308, Page 377, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- k. Terms, provisions and conditions as contained in Memorandum of Agreement for Donation of Land and Establishment of Homeport dated June 8, 1987 by and between the United States of America and the Port of Corpus Christi Authority recorded under Clerk's file No. 363659, Official Public Records of San Patricio County, Texas, also recorded under Clerk's file No. 578021, Official Public Records of Nueces County, Texas. Amendment recorded under Clerk's file No. 373407, Official Public Records of San Patricio County, Texas. Amendment recorded under Clerk's file No. 373408, Official Public Records of San Patricio County, Texas.

- l. Terms, provisions and conditions as contained in Special Warranty Deed dated September 15, 1987 executed by Port of Corpus Christi Authority to United States America, acting by and through the Department of the Navy recorded under Clerk's file No. 578022, Volume 2081, Page 483, Deed Records of Nueces County, Texas and under Clerk's file No. 363726, Official Public Records of San Patricio County, Texas. (contains reverter clause)
- m. Subordination of Reversionary Interest dated September 20, 1988 executed by the Port of Corpus Christi Authority to State of Texas recorded under Clerk's file No. 374149, Official Public Records of San Patricio County, Texas, located and limited as shown on the survey prepared by David L. Nesbitt, P.L.S. #5302 of Coym, Rehmet & Gutierrez Engineering, L.P. dated May 9, 2011, last revised August 6, 2012.
- n. Grant of Easement dated December 23, 1987 between the United States of America and the State of Texas Highway Department recorded under Clerk's file No. 374150, Official Public Records of San Patricio County, Texas, located and limited as shown on the survey prepared by David L. Nesbitt, P.L.S. #5302 of Coym, Rehmet & Gutierrez Engineering, L.P. dated May 9, 2011, last revised August 6, 2012.
- o. Grant of Easement dated February 6, 1990 executed by and between the United States of America and GTE Southwest Incorporated recorded under Clerk's file No. 386560, Official Public Records of San Patricio County, Texas, (Affects Tract I only) located and limited as shown on the survey prepared by David L. Nesbitt, P.L.S. #5302 of Coym, Rehmet & Gutierrez Engineering, L.P. dated May 9, 2011, last revised August 6, 2012.
- p. Intentionally omitted.
- q. Intentionally omitted.
- r. Intentionally omitted.
- s. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated February 19, 2003 recorded under Clerk's file No. 515627, Official Public Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- t. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated November 14, 2006 recorded under Clerk's file No. 562965, Official Public Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- u. Intentionally omitted.
- v. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated January 15, 1969 recorded under Clerk's file No. 196735, Volume 209, Page 327, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- w. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated January 15, 1969 recorded under Clerk's file No.

196736 Volume 209, Page 373, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.

- x. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated January 15, 1969 recorded under Clerk's file No. 196737, Volume 209, Page 419, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- y. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated January 15, 1969 recorded under Clerk's file No. 196738, Volume 209, Page 465, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- z. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated January 15, 1969 recorded under Clerk's file No. 196739, Volume 210, Page 1, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- aa. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated June 26, 1959 recorded in Volume 246, Page 311, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- bb. Intentionally omitted.
- cc. Intentionally omitted.
- dd. Acknowledgment of Reversion effectively dated April 30, 2010 recorded under Clerk's file No. 600060, Official Public Records of San Patricio County, Texas (Affects Tracts I and IV).
- ee. 50' foot Pipeline Easement date January 10th, 2011, recorded on, February 7, 2011, under Clerk's file No. 606142, Official Public Records of San Patricio County, Texas, (Affects Tract I) located and limited as shown on the survey prepared by David L. Nesbitt, P.L.S. #5302 of Coym, Rehmet & Gutierrez Engineering, L.P. dated May 9, 2011, last revised August 6, 2012.
- ff. Special Warranty Deed, dated March 7, 2011, between the Port of Corpus Christi Authority of Nueces County, Texas and Flint Hills Resources Corpus Christi, LLC, recorded on March 7, 2011 under Clerk's File No.606859, Official Public Records of San Patricio County, Texas, (conveying portion of subject property, contains numerous provisions) (Affects Tracts I and IV) located and limited as shown on the survey prepared by David L. Nesbitt, P.L.S. #5302 of Coym, Rehmet & Gutierrez Engineering, L.P. dated May 9, 2011, last revised August 6, 2012.
- gg. 10 foot Pipeline Easement date February 17, 2011, recorded on, March 10, 2011, under Clerk's file No. 2011008369, Official Public Records of Nueces County, Texas, (Affects Tract I) located and limited as shown on the survey prepared by David L. Nesbitt, P.L.S. #5302 of Coym, Rehmet & Gutierrez Engineering, L.P. dated May 9, 2011, last revised August 6, 2012.

Documents applicable to Tract II:

- hh. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated December 28, 1938 recorded in Volume 32, Page 526, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- ii. Coal, lignite, oil, gas or other mineral interest(s), together with rights incident thereto, contained in instrument dated January 15, 1969 and recorded in Volume 69, Page 1, Oil and Gas Records of Aransas County, Texas and in Volume 209, Page 281, Deed Records of San Patricio County, Texas which document contains the following language: reservation of an undivided 1/2 interest in and to all oil, gas and other minerals in and under or hereafter produced from the above described land. Reference to which instrument is here made for full particulars.
- jj. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated November 6, 1957 recorded in Volume 129, Page 566, Oil and Gas Records of San Patricio County, Texas. Amendment recorded in Volume 134, Page 439, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- kk. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated December 22, 1958 recorded in Volume 240, Page 473, Deed Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- ll. Intentionally omitted.
- mm. Coal, lignite, oil, gas or other mineral interest(s), together with rights incident thereto, contained in instrument dated January 15, 1969, recorded under Clerk's file No. 196435, Volume 382, Page 452, Deed Records of San Patricio County, Texas which document contains the following language "conveyance of surface estate only". Reference to which instrument is here made for full particulars.
- nn. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated August 12, 1981 recorded in Volume 308, Page 359, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- oo. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated August 26, 1981 recorded in Volume 308, Page 377, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- pp. Easement and Right of Way dated February 28, 1989 executed by Port of Corpus Christi Authority to Central Power and Light Company recorded under Clerk's file No. 377701, Official Public Records of San Patricio County, Texas located and limited as shown on the survey prepared by David L. Nesbitt, P.L.S. #5302 of Coym, Rehmet & Gutierrez Engineering, L.P. dated May 9, 2011, last revised August 6, 2012.
- qq. Easement and Right of Way dated February 28, 1989 executed by Port of Corpus Christi

Authority to Central Power and Light Company recorded under Clerk's file No. 377702, Official Public Records of San Patricio County, Texas, located and limited as shown on the survey prepared by David L. Nesbitt, P.L.S. #5302 of Coym, Rehmet & Gutierrez Engineering, L.P. dated May 9, 2011, last revised August 6, 2012. (Substation)

- rr. Right of Way Deed dated August 8, 1989 executed by Port of Corpus Christi Authority of Nueces County, Texas to State of Texas recorded under Clerk's file No. 383009, Official Public Records of San Patricio County, Texas, (Affects Tract II only) located and limited as shown on the survey prepared by David L. Nesbitt, P.L.S. #5302 of Coym, Rehmet & Gutierrez Engineering, L.P. dated May 9, 2011, last revised August 6, 2012.
- ss. Intentionally omitted.
- tt. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated February 19, 2003 recorded under Clerk's file No. 515627, Official Public Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- uu. Lease for coal, lignite, oil, gas or other minerals, together with rights incident thereto, dated December 19, 2006, by and between Dagger Island Partners, Ltd., as Lessor, and Davis Petroleum Corp., as Lessee, recorded under Clerk's file No. 564436, Official Public Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- vv. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated January 15, 1969 recorded under Clerk's file No. 196734, Volume 209, Page 281, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- ww. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated January 15, 1969 recorded under Clerk's file No. 196735, Volume 209, Page 327, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- xx. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated January 15, 1969 recorded in Volume 209, Page 373, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- yy. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated January 15, 1969 recorded under Clerk's file No. 196737, Volume 209, Page 419, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- zz. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated January 15, 1969 recorded under Clerk's file No. 196738, Volume 209, Page 465, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- aaa. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated January 15, 1969 recorded under Clerk's file No.

196739, Volume 210, Page 1, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.

- bbb. Interest in and to all coal, lignite, oil, gas and other minerals, and all rights incident thereto, contained in instrument dated June 26, 1959 recorded in Volume 246, Page 311, Deed Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- ccc. Intentionally omitted.
- ddd. Intentionally omitted.
- eee. Coal, lignite, oil, gas or other mineral interest(s), together with rights incident thereto, contained in instrument dated October 21, 2002 and recorded under Clerk's file No. 508818, Official Public Records of San Patricio County, Texas; As recorded and refiled under Clerk's file No. 512869, Official Public Records of San Patricio County, Texas which document contains the following language: reservation of an undivided 50% interest in and to all oil, gas and other minerals in and under or hereafter produced from the above described land. Reference to which instrument is here made for full particulars.
- fff. Easement by and between Ingleside Land Company and Central Power and Light Easement dated August 11, 1952 filed for record under Volume 179, Page 25, Deed Records of San Patricio County, Texas located and limited as shown on the survey prepared by David L. Nesbitt, P.L.S. #5302 of Coym, Rehmet & Gutierrez Engineering, L.P. dated May 9, 2011, last revised August 6, 2012.

Documents applicable to Tract III:

- ggg. Coal, lignite, oil, gas or other mineral interest(s), together with rights incident thereto, contained in instrument dated January 14, 1950, recorded under Clerk's file No. 294033, Volume 455, Page 586, Deed Records of Nueces County, Texas which document contains the following language "reserving all the minerals". Reference to which instrument is here made for full particulars.
- hhh. Intentionally omitted.
- iii. Intentionally omitted.
- jjj. Intentionally omitted.
- kkk. Utility Easement dated February 13, 1996 executed by Port of Corpus Christi Authority to Diamond Shamrock Refining Company, LP, a Delaware limited partnership recorded under Clerk's file No. 2000027718, Official Public Records of Nueces County, Texas. (no metes and bounds attached)

Documents applicable to Tract IV:

- III. ANY TITLES OR RIGHTS asserted by anyone, including but not limited to persons, corporations, governments or other entities to tidelands, or lands comprising the shores or beds of navigable or perennial rivers and streams, lakes, bays, gulfs, or oceans or to any land extending from the line of mean low tides to the line of vegetation, or to lands

beyond the line of the harbor or bulkhead lines as established or changed by any government or to filled lands, or artificial islands, or to riparian rights or the rights of interest of the State of Texas, or the public generally in the area extending from the line of mean low tide to the line of vegetation or their rights of access thereto or right to easement along and across the same.

- mmm. Terms, conditions, restrictions, and stipulations as contained in Patent 217 dated January 14, 1950 from the State of Texas to Nueces County Navigation District No. 1 recorded under Clerk's file No. 294033, Volume 455, Page 586, Deed Records of Nueces County, Texas and in Warranty Deed dated November 8, 1973 executed by Nueces County Navigation District No. 1 to Natural Gas Pipeline Company of America recorded under Clerk's file No. 932366, Volume 1482, Page 16, Deed Records of Nueces County, Texas.
- nnn. Coal, lignite, oil, gas or other mineral interest(s), together with rights incident thereto, contained in instrument dated January 14, 1950, recorded under Clerk's file No. 294033, Volume 455, Page 586, Deed Records of Nueces County, Texas which document contains the following language "reserving all the minerals". Reference to which instrument is here made for full particulars.
- ooo. Terms, provisions and conditions as contained in Memorandum of Agreement for Donation of Land and Establishment of Homeport dated June 8, 1987 by and between the United States of America and the Port of Corpus Christi Authority recorded under Clerk's file No. 363659, Official Public Records of San Patricio County, Texas. Amendment recorded under Clerk's file No. 373407, Official Public Records of San Patricio County, Texas. Amendment recorded under Clerk's file No. 373408, Official Public Records of San Patricio County, Texas.
- ppp. Terms, provisions and conditions as contained in Special Warranty Deed dated September 15, 1987 executed by Port of Corpus Christi Authority to United States America, acting by and through the Department of the Navy recorded under Clerk's file No. 578022, Volume 2081, Page 483, Deed Records of Nueces County, Texas and under Clerk's file No. 363726, Official Public Records of San Patricio County, Texas. (contains reverter clause)
- qqq. Lease for coal, lignite, oil, gas or other minerals, together with rights incident thereto, dated April 6, 1976, by and between The State of Texas., as Lessor, and Getty Oil Company., as Lessee, recorded under Clerk's file No. 11920, Volume 310, Page 374, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- rrr. Lease for coal, lignite, oil, gas or other minerals, together with rights incident thereto, dated October 7, 1980, by and between The State of Texas., as Lessor, and Getty Oil Company., as Lessee, recorded under Clerk's file No. 209440, Volume 342, Page 807, Oil and Gas Records of San Patricio County, Texas. Reference to which instrument is here made for particulars.
- sss. Acknowledgment of Reversion effectively dated April 30, 2010 recorded under Clerk's file No. 600060, Official Public Records of San Patricio County, Texas (Affects Tracts I and IV) located and limited as shown on the survey prepared by David L. Nesbitt, P.L.S. #5302 of Coym, Rehmet & Gutierrez Engineering, L.P. dated May 9, 2011, last revised August 6, 2012.

- ttt. Special Warranty Deed, dated March 7, 2011, between the Port of Corpus Christi Authority of Nueces County, Texas and Flint Hills Resources Corpus Christi, LLC, recorded on March 7, 2011 under Clerk's File No. 606859, Official Public Records of San Patricio County, Texas (conveying portion of subject property, contains numerous provisions) (Affects Tracts I and IV) located and limited as shown on the survey prepared by David L. Nesbitt, P.L.S. #5302 of Coym, Rehmet & Gutierrez Engineering, L.P. dated May 9, 2011, last revised August 6, 2012.
- uuu. Memorandum of Lease recorded under Clerk's file No. 606954, Official Public Records of San Patricio County, Texas and Clerk's file No. 2011010166, Official Public Records of Nueces County, Texas. (Affects Tract IV)

Additional document applicable to Tracts I & IV:

- vvv. Terms, conditions and provisions as set forth in that certain Special Warranty Deed dated March 7, 2011, from Port of Corpus Christi Authority of Nueces County, Texas to Flint Hills Resources Corpus Christi, LLC, recorded under Clerk's File No. 606859, Official Public Records of San Patricio County, Texas.

FILED AND RECORDED
OFFICIAL PUBLIC RECORDS

Gracie Alaniz-Gonzales

Gracie Alaniz-Gonzales, County Clerk
San Patricio Texas



November 08, 2012 08:57:31 AM

FEE: \$136.00
DEED

622714

CHARGE & RETURN TO:

San Jacinto Title Services
520 Lawrence Street
Corpus Christi, Texas 78401

GF#: 120221353

NUMBER OF PAGES: _____

FEE: _____

Doc# 2012044015

Pages 32

11/08/2012 10:28AM

e-Filed & e-Recorded in the

Official Public Records of

NUECES COUNTY

DIANA T. BARRERA

COUNTY CLERK

Fees \$135.00

Any provision herein which restricts the Sale, Rental
or use of the described REAL PROPERTY because of
Race, Color, Religion, Sex, Handicap, Familial Status
or National Origin is invalid and unenforceable
under FEDERAL LAW, 3/12/89

STATE OF TEXAS

COUNTY OF NUECES

I HEREBY CERTIFY THAT THIS INSTRUMENT WAS
FILED IN FILE NUMBER SEQUENCE ON THE DATE AND
AT THE TIME STAMPED HEREON BY ME AND WAS DULY
RECORDED IN THE OFFICIAL PUBLIC
RECORDS OF NUECES COUNTY TEXAS



Diana T. Barrera
COUNTY CLERK
NUECES COUNTY, TEXAS

Leah Whallon

From: Austin Taylor <austin.taylor@enbridge.com>
Sent: Monday, January 20, 2025 5:01 PM
To: Leah Whallon
Cc: Clayton Curtis; Chris Boozer; Tarek Shaaban
Subject: RE: Application for Proposed Permit No. WQ0005473000; Ingleside Clean Ammonia Partners, LLC; Ingleside Blue Ammonia
Attachments: 1 Administrative Report TCEQ 10411_2024_SIGNED.pdf; 1 SPIF TCEQ 20971.docx; 2 ePay Voucher Receipts.pdf; 5 Affected Landowners Mailing List Labels.docx; 5 Cross-reference Landowners List.pdf; 5 Figure 22 Affected Landowners Map 01-15-2025.pdf; 6 Industrial Discharge New English NORI.docx; 7 Industrial Discharge New Spanish NORI.docx; ICAP NOD Response_2025-01-20_As Submitted.pdf
Follow Up Flag: Follow up
Flag Status: Flagged

Dear Ms. Whallon,

Please find enclosed the Ingleside Clean Ammonia Partners, LLC (ICAP) responses to the Notice of Deficiency (NOD) dated January 6, 2025. As a matter of convenience, ICAP has restated each NOD item, with ICAP's responses immediately following each question in *italic* font.

1. An older version of the Administrative Report form (TCEQ-10411) was used. Please complete and provide the current version of the Administrative Report (rev. date 09/13/2024).

The current version of the Administrative Report form (rev. date 09/13/2024) for this project is enclosed. Please refer to the attachments labelled "1 Administrative Report TCEQ 10411_2024_SIGNED" and "1 SPIF TCEQ 20971".

2. Administrative Report 1.0, Item 1.h: No payment information was provided. Please include the check or voucher number to confirm payment received for this application.

Payment of the applicable fees totaling \$350 were made on December 30, 2024, and TCEQ ePay Voucher Receipts are enclosed. Voucher numbers are 738188 and 738189. Please refer to the attachment labelled "2 ePay Voucher Receipts".

3. Administrative Report 1.0, Item 9.d: The outfall discharges to Nueces County. Please provide an additional public viewing place in Nueces County.

An additional public viewing place in Nueces County has been included in the revised Administrative Report Form. The second viewing place is La Retama Central Library, 805 Comanche Street, Corpus Christi, Nueces County, Texas.

4. Administrative Report 1.0, Item 10.f: The owner of the land where the facility will be located is not the same as the facility owner and an executed long term lease agreement is required. Attachment 8 is referenced but does not include a lease agreement. Please provide a lease agreement between the applicant and landowner, or the landowner must apply as a co-applicant.

As confirmed in a telephone conference with TCEQ personnel on January 17, 2025, ICAP anticipates providing a supplement to this NOD response addressing the lease agreement issue by January 24, 2025.

5. Administrative Report 1.1, Affected Landowner Information

Please provide a revised affected landowner map(s) that labels the adjacent and downstream properties in numerical order in place of the property tax ID numbers. Please provide a cross-reference list of the landowner names and addresses on a separate page, corresponding to the property numbers on the map. Please also provide the list formatted for mailing labels (Avery 5160) in a Microsoft Word document.

A revised affected landowner map, cross reference list, and a file with these landowners and their addresses formatted for Avery 5160 style mailing labels are enclosed. Please refer to the attachments labelled "5 Affected Landowners Mailing List Labels", "5 Cross-reference Landowners List", and "5 Figure 22 Affected Landowners Map 01-15-2025".

6. 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. Ingleside Clean Ammonia Partners, LLC, 915 North Eldridge Parkway, Suite 1100, Houston, Texas 77079, which will operate a blue ammonia production, storage, and marine loading facility, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0005473000 (EPA I.D. No. TX0147184) to authorize the discharge of treated wastewater and stormwater at a volume not to exceed a daily average flow of 52,130,700 gallons per day. The facility will be located at 1450 Lexington Boulevard, in the city of Ingleside, San Patricio County, Texas 78362. The discharge route will be from the plant site to Corpus Christi Bay (pending RWA). TCEQ received this application on December 27, 2024. The permit application will be available for viewing and copying at Sinton Public Library, 100 North Pirate Boulevard, Sinton, in San Patricio County, Texas and at (pending response) in Nueces 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=-97.205277,27.825&level=18>

Further information may also be obtained from Ingleside Clean Ammonia Partners, LLC at the address stated above or by calling Mr. Clayton Curtis, Enbridge U.S. Gulf Coast Terminals, LLC, at 855-385-6645.

Please refer to the attachment labelled "6 Industrial Discharge New English NORI, which includes the additional La Retama Central Library location for the public to view and copy the permit application.

7. 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.

The revised portion of the NORI is provided in Spanish using TCEQ's template. Please refer to the attachment labelled "7 Industrial Discharge New Spanish NORI", which also includes the additional La Retama Central Library viewing/copying location.

Should you have any questions or additional requests please contact Clayton Curtis via email at: Clayton.Curtis@Enbridge.com or via phone at: 713-410-6096.

Sincerely,

Austin Taylor

Sr. Advisor Environment
LP US Gulf Coast Terminals

ENBRIDGE

CELL: 361-238-9969 | Austin.Taylor@Enbridge.com
915 North Eldridge Parkway, Suite 1100, Houston, Texas 77079
enbridge.com

Safety. Integrity. Respect. Inclusion

From: Leah Whallon <Leah.Whallon@Tceq.Texas.Gov>

Sent: Monday, January 6, 2025 2:30 PM

To: Luis Perez <luis.perez@enbridge.com>

Cc: Clayton Curtis <clayton.curtis@enbridge.com>

Subject: [External] Application for Proposed Permit No. WQ0005473000; Ingleside Clean Ammonia Partners, LLC; Ingleside Blue Ammonia

CAUTION! EXTERNAL SENDER

Were you expecting this email? TAKE A CLOSER LOOK. Is the sender legitimate?
DO NOT click links or open attachments unless you are 100% sure that the email is safe.

Good Afternoon,

Please see the attached Notice of Deficiency letter dated January 6, 2025 requesting additional information needed to declare the application administratively complete. Please send the complete response by January 20, 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



Enbridge
915 North Eldridge Parkway,
Suite 1100
Houston, TX 77079

January 20, 2025

Sent via e-mail: Leah.Wallon@TCEQ.Texas.Gov

Leah Wallon
Application Review and Processing Team (MC-148)
Water Quality Division
Texas Commission on Environmental Quality
P.O. Box 13087
Austin, Texas 78711-3087

RE: Application for Proposed Permit No: WQ0005473000 (EPA I.D. No TX0147184)
Applicant Name: Ingleside Clean Ammonia Partners, LLC (CN606190668)
Site Name: Ingleside Blue Ammonia Plant (RN111826111)

Dear Ms. Whallon,

Please find enclosed the Ingleside Clean Ammonia Partners, LLC (ICAP) responses to the Notice of Deficiency (NOD) dated January 6, 2025. As a matter of convenience, ICAP has restated each NOD item, with ICAP's responses immediately following each question in *italic* font.

1. An older version of the Administrative Report form (TCEQ-10411) was used. Please complete and provide the current version of the Administrative Report (rev. date 09/13/2024).

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An additional public viewing place in Nueces County has been included in the revised Administrative Report Form. The second viewing place is La Retama Central Library, 805 Comanche Street, Corpus Christi, Nueces County, Texas.

4. Administrative Report 1.0, Item 10.f: The owner of the land where the facility will be located is not the same as the facility owner and an executed long term lease agreement is required. Attachment 8 is referenced but does not include a lease agreement. Please provide a lease agreement between the applicant and landowner, or the landowner must apply as a co-applicant.

As confirmed in a telephone conference with TCEQ personnel on January 17, 2025, ICAP anticipates providing a supplement to this NOD response addressing the lease agreement issue by January 24, 2025.

5. Administrative Report 1.1, Affected Landowner Information
Please provide a revised affected landowner map(s) that labels the adjacent and downstream properties in numerical order in place of the property tax ID numbers. Please provide a cross-reference list of the landowner names and addresses on a separate page, corresponding to the property numbers on the map. Please also provide the list formatted for mailing labels (Avery 5160) in a Microsoft Word document.

A revised affected landowner map, cross reference list, and a file with these landowners and their addresses formatted for Avery 5160 style mailing labels are enclosed. Please refer to the attachment labelled "5 Affected Landowners Mailing List Labels", "5 Cross-reference Landowners List", and "5 Figure 22 Affected Landowners Map 01-15-2025".

6. 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. Ingleside Clean Ammonia Partners, LLC, 915 North Eldridge Parkway, Suite 1100, Houston, Texas 77079, which will operate a blue ammonia production, storage, and marine loading facility, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0005473000 (EPA I.D. No. TX0147184) to authorize the discharge of treated wastewater and stormwater at a volume not to exceed a daily average flow of 52,130,700 gallons per day. The facility will be located at 1450 Lexington Boulevard, in the city of Ingleside, San Patricio County, Texas 78362. The discharge route will be from the plant site to Corpus Christi Bay (pending RWA). TCEQ received this application on December 27, 2024. The permit application will be available for viewing and copying at Sinton Public Library, 100 North Pirate Boulevard, Sinton, in San Patricio County, Texas and at (pending response) in Nueces 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=-97.205277,27.825&level=18>

Further information may also be obtained from Ingleside Clean Ammonia Partners, LLC at the address stated above or by calling Mr. Clayton Curtis, Enbridge U.S. Gulf Coast Terminals, LLC, at 855-385-6645.

Please refer to the attachment labelled “6 Industrial Discharge New English NORI, which includes the additional La Retama Central Library location for the public to view and copy the permit application.

7. 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.

The revised portion of the NORI is provided in Spanish using TCEQ’s template. Please refer to the attachment labelled “7 Industrial Discharge New Spanish NORI”, which also includes the additional La Retama Central Library viewing/copying location.

Should you have any questions or additional requests please contact Clayton Curtis via email at: Clayton.Curtis@Enbridge.com or via phone at: 713-410-6096.

Sincerely,

Austin Taylor
Sr. Advisor Environment
Enbridge US Gulf Coast Terminals

Enclosures

Cc: via email:

Tarek Shaaban, Project Director – YaREN, Yara: Tarek.Shaaban@yara.com

Chris Boozer, Director, Enbridge USGC Engineering and Projects: Chris.Boozer@Enbridge.com

Clayton Curtis, Director, Regulatory Compliance, Enbridge USGC Terminals: Clayton.Curtis@Enbridge.com



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION
CHECKLIST

Complete and submit this checklist with the industrial wastewater permit application.

APPLICANT NAME: Ingleside Clean Ammonia Partners, LLC

PERMIT NUMBER (If new, leave blank): WQ00 05473000

Indicate if each of the following items is included in your application.

	Y	N		Y	N
Administrative Report 1.0	☒	☐	Worksheet 8.0	☒	☐
Administrative Report 1.1	☒	☐	Worksheet 9.0	☒	☐
SPIF	☒	☐	Worksheet 10.0	☒	☐
Core Data Form	☒	☐	Worksheet 11.0	☒	☐
Summary of Application (PLS)	☒	☐	Worksheet 11.1	☒	☐
Public Involvement Plan Form	☒	☐	Worksheet 11.2	☒	☐
Technical Report 1.0	☒	☐	Worksheet 11.3	☒	☐
Worksheet 1.0	☒	☐	Original USGS Map	☒	☐
Worksheet 2.0	☒	☐	Affected Landowners Map	☒	☐
Worksheet 3.0	☒	☐	Landowner Disk or Labels	☒	☐
Worksheet 3.1	☒	☐	Flow Diagram	☒	☐
Worksheet 3.2	☒	☐	Site Drawing	☒	☐
Worksheet 3.3	☒	☐	Original Photographs	☒	☐
Worksheet 4.0	☒	☐	Design Calculations	☒	☐
Worksheet 4.1	☒	☐	Solids Management Plan	☐	☒
Worksheet 5.0	☒	☐	Water Balance	☒	☐
Worksheet 6.0	☒	☐			
Worksheet 7.0	☒	☐			

For TCEQ Use Only

Segment Number _____ County _____
Expiration Date _____ Region _____
Permit Number _____



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION

ADMINISTRATIVE REPORT 1.0

This report is required for all applications for TPDES permits and TLAPs, except applications for oil and gas extraction operations subject to 40 CFR Part 435. Contact the Applications Review and Processing Team at 512-239-4671 with any questions about completing this report.

Applications for oil and gas extraction operations subject to 40 CFR Part 435 must use Oil and Gas Exploration and Production Administrative Report ([TCEQ Form-20893 and 20893-inst¹](#)).

Item 1. Application Information and Fees (Instructions, Page 26)

- a. Complete each field with the requested information, if applicable.

Applicant Name: Ingleside Clean Ammonia Partners, LLC

Permit No.: WQ0005473000

EPA ID No.: TX0147184

Expiration Date: Click to enter text.

- b. Check the box next to the appropriate authorization type.

☒ Industrial Wastewater (wastewater and stormwater)

☐ Industrial Stormwater (stormwater only)

☐ Reverse Osmosis Water Treatment (reverse osmosis water treatment wastewaters only)

- c. Check the box next to the appropriate facility status.

☐ Active

☒ Inactive

- d. Check the box next to the appropriate permit type.

☒ TPDES Permit

☐ TLAP

☐ TPDES with TLAP component

- e. Check the box next to the appropriate application type.

☒ New

☐ Renewal with changes

☐ Renewal without changes

☐ Major amendment with renewal

☐ Major amendment without renewal

☐ Minor amendment without renewal

☐ Minor modification without renewal

- f. If applying for an amendment or modification, describe the request: N/A

For TCEQ Use Only

Segment Number _____ County _____

Expiration Date _____ Region _____

Permit Number _____

¹ https://www.tceq.texas.gov/publications/search_forms.html

g. Application Fee

EPA Classification	New	Major Amend. (with or without renewal)	Renewal (with or without changes)	Minor Amend. / Minor Mod. (without renewal)
Minor facility not subject to EPA categorical effluent guidelines (40 CFR Parts 400-471)	☒ \$350	☐ \$350	☐ \$315	☐ \$150
Minor facility subject to EPA categorical effluent guidelines (40 CFR Parts 400-471)	☐ \$1,250	☐ \$1,250	☐ \$1,215	☐ \$150
Major facility	N/A ²	☐ \$2,050	☐ \$2,015	☐ \$450

h. Payment Information

Mailed

Check or money order No.: N/A

Check or money order amt.: N/A

Named printed on check or money order: N/A

Epay

Voucher number: 738188 and 738189

Copy of voucher attachment: 9

Item 2. Applicant Information (Instructions, Pages 26)

a. Customer Number, if applicant is an existing customer: CN606190668

Note: Locate the customer number using the [TCEQ's Central Registry Customer Search](#)³.

b. Legal name of the entity (applicant) applying for this permit: Ingleside Clean Ammonia Partners, LLC

Note: The owner of the facility must apply for the permit. The legal name must be spelled exactly as filed with the TX SOS, Texas Comptroller of Public Accounts, County, or in the legal documents forming the entity.

c. Name and title of the person signing the application. (**Note:** The person must be an executive official that meets signatory requirements in 30 TAC § 305.44.)

Prefix: Mr. Full Name (Last/First Name): Perez, Luis

Title: Vice President of Operations; Ingleside Clean Ammonia Partners, LLC Credential: Vice President

d. Will the applicant have overall financial responsibility for the facility?

² All facilities are designated as minors until formally classified as a major by EPA.

³ <https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch>

☒ Yes ☐ No

Note: The entity with overall financial responsibility for the facility must apply as a co-applicant, if not the facility owner.

Item 3. Co-applicant Information (Instructions, Page 27)

☒ Check this box if there is no co-applicant.; otherwise, complete the below questions.

a. Legal name of the entity (co-applicant) applying for this permit: N/A

Note: The legal name must be spelled exactly as filed with the TX SOS, Texas Comptroller of Public Accounts, County, or in the legal documents forming the entity.

b. Customer Number (if applicant is an existing customer): CNClick to enter text.

Note: Locate the customer number using the TCEQ's Central Registry Customer Search.

c. Name and title of the person signing the application. (**Note:** The person must be an executive official that meets signatory requirements in 30 TAC § 305.44.)

Prefix: N/A Full Name (Last/First Name): N/A

Title: N/A Credential: N/A

d. Will the co-applicant have overall financial responsibility for the facility?

☐ Yes ☐ No

Note: The entity with overall financial responsibility for the facility must apply as a co-applicant, if not the facility owner.

Item 4. Core Data Form (Instructions, Pages 27)

a. Complete and attach one Core Data Form (TCEQ Form 10400) for each customer (applicant and co-applicant(s)). If the customer type selected on the Core Data Form is Individual, complete Attachment 1 of the Administrative Report. Attachment: Attachment 1

Item 5. Application Contact Information (Instructions, Page 27)

Provide names of two individuals who can be contacted about this application. Indicate if the individual can be contacted about administrative or technical information, or both.

a. ☒ Administrative Contact ☐ Technical Contact

Prefix: Mr. Full Name (Last/First Name): Perez, Luis

Title: Vice President of Operations; Ingleside Clean Ammonia Partners, LLC. Credential: Vice President

Organization Name: Ingleside Clean Ammonia Partners, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100 City/State/Zip: Houston, Texas 77079

Phone No: 713-627-4546 Email: Luis.Perez@enbridge.com

b. ☐ Administrative Contact ☒ Technical Contact

Prefix: Mr. Full Name (Last/First Name): Curtis, Clayton

Title: Director Regulatory Compliance USGC Terminals Credential: Director

Organization Name: Enbridge U.S. Gulf Coast Terminals, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100 City/State/Zip: Houston, Texas 77079

Phone No: 1-855-385-6645 Email: clayton.curtis@enbridge.com

Attachment: N/A

Item 6. Permit Contact Information (Instructions, Page 28)

Provide two names of individuals that can be contacted throughout the permit term.

- a. Prefix: Mr. Full Name (Last/First Name): Luis Perez

Title: Vice President of Operations; Ingleside Clean Ammonia Partners, LLC Credential: Vice President

Organization Name: Ingleside Clean Ammonia Partners, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100 City/State/Zip: Houston, Texas 77079

Phone No: 713-627-4546 Email: luis.perez@enbridge.com

- b. Prefix: Mr. Full Name (Last/First Name): Curtis, Clayton

Title: Director Regulatory Compliance USGC Terminals Credential: Director

Organization Name: Enbridge U.S. Gulf Coast Terminals, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100 City/State/Zip: Houston, Texas 77079

Phone No: 1-855-385-6645 Email: clayton.curtis@enbridge.com

Attachment: N/A

Item 7. Billing Contact Information (Instructions, Page 28)

The permittee is responsible for paying the annual fee. The annual fee will be assessed for permits **in effect on September 1 of each year**. The TCEQ will send a bill to the address provided in this section. The permittee is responsible for terminating the permit when it is no longer needed (form TCEQ-20029).

Provide the complete mailing address where the annual fee invoice should be mailed and the name and phone number of the permittee's representative responsible for payment of the invoice.

Prefix: Mr. Full Name (Last/First Name): Curtis, Clayton

Title: Director Regulatory Compliance USGC Terminals Credential: Director

Organization Name: Enbridge U.S. Gulf Coast Terminals, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100 City/State/Zip: Houston, Texas 77079

Phone No: 1-855-385-6645 Email: clayton.curtis@enbridge.com

Item 8. DMR/MER Contact Information (Instructions, Page 28)

Provide the name and mailing address of the person delegated to receive and submit DMRs or MERs. **Note:** DMR data must be submitted through the NetDMR system. An electronic reporting account can be established once the facility has obtained the permit number.

Prefix: Mr. Full Name (Last/First Name): Curtis, Clayton

Title: Director Regulatory Compliance USGC Terminals Credential: Director

Organization Name: Enbridge U.S. Gulf Coast Terminals, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100 City/State/Zip: Houston, Texas 77079

Phone No: 1-855-385-6645 Email: clayton.curtis@enbridge.com

Item 9. Notice Information (Instructions, Pages 28)

a. Individual Publishing the Notices

Prefix: Mr. Full Name (Last/First Name): Curtis, Clayton

Title: Director Regulatory Compliance USGC Terminals Credential: Director

Organization Name: Enbridge U.S. Gulf Coast Terminals, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100 City/State/Zip: Houston, Texas 77079

Phone No: 1-855-385-6645 Email: clayton.curtis@enbridge.com

b. Method for Receiving Notice of Receipt and Intent to Obtain a Water Quality Permit Package (only for NORI, NAPD will be sent via regular mail)

☒ E-mail: clayton.curtis@enbridge.com

☐ Fax: N/A

☐ Regular Mail (USPS)

Mailing Address: N/A

City/State/Zip Code: N/A

c. Contact in the Notice

Prefix: Mr. Full Name (Last/First Name): Curtis, Clayton

Title: Director Regulatory Compliance USGC Terminals Credential: Director

Organization Name: Enbridge U.S. Gulf Coast Terminals, LLC

Phone No: 1-855-385-6645 Email: clayton.curtis@enbridge.com

d. Public Viewing Location Information

Note: If the facility or outfall is located in more than one county, provide a public viewing place for each county.

Public building name: (1) Sinton Pubic Library (2) La Retama Central Library Location within the building: N/A

Physical Address of Building: (1) 100 North Pirate Boulevard (2) 805 Comanche Street

City: (1) Sinton (2) Corpus Christi County: (1) San Patricio (2) Nueces

e. Bilingual Notice Requirements

This information is required for new, major amendment, minor amendment or minor modification, and renewal applications.

This section of the application is only used to determine if alternative language notices will be needed. Complete instructions on publishing the alternative language notices will be in your public notice package.

Call the bilingual/ESL coordinator at the nearest elementary and middle schools and obtain the following information to determine if an alternative language notice(s) is required.

1. 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 ☐ No

If no, publication of an alternative language notice is not required; skip to Item 8 (Regulated Entity and Permitted Site Information.)

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

☒ Yes ☐ No

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

☐ Yes ☒ No

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

☐ Yes ☒ No ☐ N/A

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

- f. Summary of Application in Plain Language Template – Complete and attach the Summary of Application in Plain Language Template (TCEQ Form 20972), also known as the plain language summary or PLS. Attachment: 10
- g. Complete and attach one Public Involvement Plan (PIP) Form (TCEQ Form 20960) for each application for a new permit or major amendment. Attachment: Public Involvement Plan Form for Permit and Registration Applications

Item 10. Regulated Entity and Permitted Site Information (Instructions Page 29)

- a. TCEQ issued Regulated Entity Number (RN), if available: RN111826111

Note: If your business site is part of a larger business site, a Regulated Entity Number (RN) may already be assigned for the larger site. Use the RN assigned for the larger site. Search the TCEQ's Central Registry to determine the RN or to see if the larger site may already be registered as a Regulated Entity. If the site is found, provide the assigned RN.

- b. Name of project or site (name known by the community where located): Ingleside Blue Ammonia Plant

c. Is the location address of the facility in the existing permit the same?

☐ Yes ☐ No ☒ N/A (new permit)

Note: If the facility is located in Bexar, Comal, Hays, Kinney, Medina, Travis, Uvalde, or Williamson County, additional information concerning protection of the Edwards Aquifer may be required.

d. Owner of treatment facility:

Prefix: Mr. Full Name (Last/First Name): Curtis, Clayton

or Organization Name: Enbridge U.S. Gulf Coast Terminals, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100 City/State/Zip: Houston, Texas 77079

Phone No: 1-855-385-6645 Email: clayton.curtis@enbridge.com

e. Ownership of facility: ☐ Public ☒ Private ☐ Both ☐ Federal

f. Owner of land where treatment facility is or will be: Enbridge Ingleside Oil Terminal, LLC

Prefix: N/A Full Name (Last/First Name): N/A

or Organization Name: Enbridge Ingleside Oil Terminal, LLC

Mailing Address: 915 North Eldridge Parkway, Suite 1100 City/State/Zip: Houston, Texas 77079

Phone No: 1-855-385-6645 Email: clayton.curtis@enbridge.com

Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years (In some cases, a lease may not suffice - see instructions). Attachment: Attachment 8

g. Owner of effluent TLAP disposal site (if applicable): N/A

Prefix: N/A Full Name (Last/First Name): N/A

or Organization Name: N/A

Mailing Address: N/A City/State/Zip: N/A

Phone No: N/A Email: N/A

Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years. Attachment: N/A

h. Owner of sewage sludge disposal site (if applicable):

Prefix: N/A Full Name (Last/First Name): N/A

or Organization Name: N/A

Mailing Address: N/A City/State/Zip: N/A

Phone No: N/A Email: N/A

Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years. Attachment: N/A

Item 11. TD PES Discharge/TLAP Disposal Information (Instructions, Page 31)

- a. Is the facility located on or does the treated effluent cross Native American Land?

☐ Yes ☒ No

- b. Attach an original full size USGS Topographic Map (or an 8.5"×11" reproduced portion for renewal or amendment applications) with all required information. Check the box next to each item below to confirm it has been included on the map.

☒ One-mile radius	☒ Three-miles downstream information
☒ Applicant's property boundaries	☒ Treatment facility boundaries
☒ Labeled point(s) of discharge	☒ Highlighted discharge route(s)
☒ Effluent disposal site boundaries	☒ All wastewater ponds
☐ Sewage sludge disposal site	☒ New and future construction

Attachment: 5, Figure 20a

- c. Is the location of the sewage sludge disposal site in the existing permit accurate?

☐ Yes ☒ No or New Permit

If no, or a new application, provide an accurate location description: N/A

- d. Are the point(s) of discharge in the existing permit correct?

☐ Yes ☒ No or New Permit

If no, or a new application, provide an accurate location description: Refer to Attachment 5 Figures 2, 2a, and 2b. The proposed 60-inch pipeline will be routed from the vicinity of the wastewater facility along facility access roads to the end of Dock 1B.

- e. Are the discharge route(s) in the existing permit correct?

☐ Yes ☒ No or New Permit

If no, or a new permit, provide an accurate description of the discharge route: Refer to Attachment 5 Figures 2, 2a, and 2b. The proposed 60-inch pipeline will be routed from the vicinity of the wastewater facility along facility access roads to the end of Dock 1B.

- f. City nearest the outfall(s): Ingleside, Texas

- g. County in which the outfalls(s) is/are located: San Patricio

- h. Is or will the treated wastewater discharge to a city, county, or state highway right-of-way, or a flood control district drainage ditch?

☐ Yes ☒ No

If yes, indicate by a check mark if: ☐ Authorization granted ☐ Authorization pending

For new and amendment applications, attach copies of letters that show proof of contact and provide the approval letter upon receipt. Attachment: N/A

For all applications involving an average daily discharge of 5 MGD or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge: San Patricio, Nueces, Kleberg, Kenedy, Willacy, and Cameron Counties

- i. For TLAPs, is the location of the effluent disposal site in the existing permit accurate?

☐ Yes No or New Permit ☒ N/A

If no, or a new application, provide an accurate location description: N/A

- j. City nearest the disposal site: N/A

- k. County in which the disposal site is located: N/A

- l. For TLAPs, describe how effluent is/will be routed from the treatment facility to the disposal site: N/A

- m. For TLAPs, identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: N/A

Item 12. Miscellaneous Information (Instructions, Page 33)

- a. Did any person formerly employed by the TCEQ represent your company and get paid for service regarding this application?

☒ Yes ☐ No

If yes, list each person: Jeff Saitas (Departed TCEQ 2002)

- b. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

If yes, provide the following information:

Account no.: N/A

Total amount due: N/A

- c. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

If yes, provide the following information:

Enforcement order no.: N/A

Amount due: N/A

Item 13. Signature Page (Instructions, Page 33)

Permit No: WQ0005473000

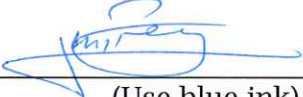
Applicant Name: Ingleside Clean Ammonia Partners, LLC

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

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

Signatory name (typed or printed): Luis Perez

Signatory title: Vice President of Operations; Ingleside Clean Ammonia Partners, LLC

Signature:  Date: 1/17/2025
(Use blue ink)

Subscribed and Sworn to before me by the said Luis Perez
on this 17th day of January, 2025.
My commission expires on the 14th day of September, 2027.

Christine Marie Schoppe
Notary Public

[SEAL]



Harris
County, Texas

Note: *If co-applicants are necessary, each entity must submit an original, separate signature page.*

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: 5: Figure Figures 21 and 22
- b. ☒ that the landowners list has also been provided as mailing labels in electronic format (Avery 5160).
- 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: San Patricio County Appraisal District

- 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: 5: Figure 18

INDUSTRIAL WASTEWATER PERMIT APPLICATION

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

This form applies to TPDES permit applications only. Complete and attach the Supplemental Permit information Form (SPIF) (TCEQ Form 20971).

Attachment: 11

WATER QUALITY PERMIT

PAYMENT SUBMITTAL FORM

Use this form to submit the Application Fee, if mailing the payment. (Instructions, Page 36-37)

- Complete items 1 through 5 below.
- Staple the check or money order in the space provided at the bottom of this document.
- Do not mail this form with the application form.
- Do not mail this form to the same address as the application.
- Do not submit a copy of the application with this form as it could cause duplicate permit entries.

Mail this form and the check or money order to:

BY REGULAR U.S. MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, Texas 78711-3088

BY OVERNIGHT/EXPRESS MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
12100 Park 35 Circle
Austin, Texas 78753

Fee Code: WQP **Permit No:** WQ000 [Click to enter text.](#)

1. Check or Money Order Number: [Click to enter text.](#)
2. Check or Money Order Amount: [Click to enter text.](#)
3. Date of Check or Money Order: [Click to enter text.](#)
4. Name on Check or Money Order: [Click to enter text.](#)
5. APPLICATION INFORMATION

Name of Project or Site: [Click to enter text.](#)

Physical Address of Project or Site: [Click to enter text.](#)

If the check is for more than one application, attach a list which includes the name of each Project or Site (RE) and Physical Address, exactly as provided on the application.

Attachment: [Click to enter text.](#)

Staple Check or Money Order in This Space

ATTACHMENT 1

INDIVIDUAL INFORMATION

Item 1. Individual information (Instructions, Page 38)

Complete this attachment if the facility applicant or co-applicant is an individual. Make additional copies of this attachment if both are individuals.

Prefix (Mr., Ms., or Miss): N/A

Full legal name (first, middle, and last): N/A

Driver's License or State Identification Number: N/A

Date of Birth: N/A

Mailing Address: N/A

City, State, and Zip Code: N/A

Phone No.: N/A

Fax No.: N/A

E-mail Address: N/A

CN: N/A

INDUSTRIAL WASTEWATER PERMIT APPLICATION CHECKLIST OF COMMON DEFICIENCIES

Below is a list of common deficiencies found during the administrative review of industrial wastewater permit applications. To ensure the timely processing of this application, please review the items below and indicate each item is complete and in accordance applicable rules at 30 TAC Chapters 21, 281, and 305 by checking the box next to the item. If an item is not required this application, indicate by checking N/A where appropriate. Please do not submit the application until all items below are addressed.

- ☒ Core Data Form (TCEQ Form No. 10400)
(Required for all applications types. Must be completed in its entirety and signed. Note: Form may be signed by applicant representative.)
- ☒ Correct and Current Industrial Wastewater Permit Application Forms
(TCEQ Form Nos. 10055 and 10411. Version dated 5/10/2019 or later.)
- ☒ Water Quality Permit Payment Submittal Form (Page 14)
(Original payment sent to TCEQ Revenue Section. See instructions for mailing address.)
- ☒ 7.5 Minute USGS Quadrangle Topographic Map Attached
*(Full-size map if seeking "New" permit.
8 ½ x 11 acceptable for Renewals and Amendments.)*
- ☒ N/A ☐ Current/Non-Expired, Executed Lease Agreement or Easement Attached
- ☐ N/A ☒ Landowners Map
(See instructions for landowner requirements.)

Things to Know:

- All the items shown on the map must be labeled.
- The applicant's complete property boundaries must be delineated which includes boundaries of contiguous property owned by the applicant.
- The applicant cannot be its own adjacent landowner. You must identify the landowners immediately adjacent to their property, regardless of how far they are from the actual facility.
- If the applicant's property is adjacent to a road, creek, or stream, the landowners on the opposite side must be identified. Although the properties are not adjacent to applicant's property boundary, they are considered potentially affected landowners. If the adjacent road is a divided highway as identified on the USGS topographic map, the applicant does not have to identify the landowners on the opposite side of the highway.

- ☐ N/A ☒ Landowners Labels and Cross Reference List
(See instructions for landowner requirements.)
- ☒ Electronic Application Submittal
(See application submittal requirements on page 23 of the instructions.)
- ☒ Original signature per 30 TAC § 305.44 – Blue Ink Preferred
(If signature page is not signed by an elected official or principle executive officer, a copy of signature authority/delegation letter must be attached.)

☒ Summary of Application (in Plain Language)

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: Ingleside Clean Ammonia Partners, LLC

Permit No. WQ00 05473000EPA ID No. TX 0147184

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

1450 Lexington Drive, Ingleside, Texas 78362

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: Clayton Curtis

Credential (P.E, P.G., Ph.D., etc.): Director

Title: Director Regulatory Compliance USGC Terminals

Mailing Address: 915 North Eldridge Parkway, Suite 1100

City, State, Zip Code: Houston, Texas 77079

Phone No.: 1-855-385-6645 Ext.:

Fax No.:

E-mail Address: clayton.curtis@enbridge.com

2. List the county in which the facility is located: San Patricio
3. If the property is publicly owned and the owner is different than the permittee/applicant, please list the owner of the property.

Enbridge Ingleside Oil Terminal, LLC

4. 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.

Effluent flows from the facility through underground piping and discharges directly into Corpus Christi Bay (Oyster Waters) (Segment ID 2481OW)

5. 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).

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

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
- ☐ Additional phases of development that are planned for the future
- ☐ Sealing caves, fractures, sinkholes, other karst features

☒ Disturbance of vegetation or wetlands

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

N/A

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

Existing Disturbances: N/A; Vegetation: partial grass coverage; Land Use: mixed-use - material storage sheds and vacant land

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

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

1988-1990 a road and paved storage area was constructed by the United States Navy as part of Naval Station Ingleside. The paved storage area was expanded between 1990 and 1995. The remainder of the property is historically undeveloped.

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

The property was undeveloped until it became part of the Naval Station Ingleside in 1987. The naval base operated until 2010 at which time it was closed, and the property was returned to the Port of Corpus Christi Authority. Aside from the road and storage area described in #3, the property remains undeveloped.

TCEQ ePay Voucher Receipt

Transaction Information

Voucher Number:	738189
Trace Number:	582EA000641048
Date:	12/30/2024 04:05 PM
Payment Method:	CC - Authorization 000006249C
Voucher Amount:	\$50.00
Fee Type:	30 TAC 305.53B WQ NOTIFICATION FEE
ePay Actor:	JESSE CHENCHARICK

Payment Contact Information

Name:	JESSE CHENCHARICK
Company:	EDGE ENGINEERING & SCIENCE
Address:	16285 PARK TEN PLACE SUITE 30, HOUSTON, TX 77084
Phone:	814-553-4499

TCEQ ePay Voucher Receipt

Transaction Information

Voucher Number: 738188
Trace Number: 582EA000641048
Date: 12/30/2024 04:05 PM
Payment Method: CC - Authorization 000006249C
Voucher Amount: \$300.00
Fee Type: WW PERMIT - MINOR FACILITY NOT SUBJECT
TO 40 CFR 400-471 - NEW
ePay Actor: JESSE CHENCHARICK

Payment Contact Information

Name: JESSE CHENCHARICK
Company: EDGE ENGINEERING & SCIENCE
Address: 16285 PARK TEN PLACE SUITE 30, HOUSTON, TX
77084
Phone: 814-553-4499

Site Information

Site Name: INGLESIDE BLUE AMMONIA PLANT
Site Address: 1450 LEXINGTON BLVD, INGLESIDE, TX 78362
Site Location: 1450 LEXINGTON BLVD INGLESIDE TEXAS 78362

Customer Information

Customer Name: INGLESIDE CLEAN AMMONIA PARTNERS LLC
Customer Address: 915 N ELDRIDGE PKWY STE 1100, HOUSTON, TX
77079

Other Information

Comments: WQ0005473000



Legend

- Outfall
- Adjacent Landowners
- Applicant Project Boundary
- Landowner Property Boundary

N
↑

0 1,000 2,000
Feet

Scale: 1:27,000

EDGE
ENGINEERING & SCIENCE

Figure 22
Affected Landowners Map - Adjacent

Ingleside Clean Ammonia Partners, LLC
Ingleside Blue Ammonia
Ingleside, San Patricio County, Texas

Simplified Mailing List		
No.	Owner Name(s)	Mailing Address
1	William and Linda Miller	124 Sunset Drive, Ingleside, TX 78362
2	Stuart Clymer	126 Sunset Drive, Ingleside, TX 78362
3	Walter and Melissa Johnson	93 Starlight Drive, Ingleside, TX 78362
4	Sabrina Brown	95 Starlight Drive, Ingleside, TX 78362
5	Cynthia Romines	97 Starlight Drive, Ingleside, TX 78362
6	Wesley and Irene McCollough	PO Box 802, Ingleside, TX 78362
7	Bonny Vechell and John Lundy	105 Starlight Drive, Ingleside, TX 78362
8	Raymond and Anne Carroll	2083 Glenwood Drive, Ingleside, TX 78362
9	Clifford and Lisa McDonald	109 Starlight Drive, Ingleside, TX 78362
10	Ryan Mccready	111 Starlight Drive, Ingleside, TX 78362
11	Donald Schriefer	113 Starlight Drive, Ingleside, TX 78362
12	Marietta Grimes Living Trust	115 Starlight Drive, Ingleside, TX 78362
13	Brandon and Penny Niemtschk	155 Starlight Drive, Ingleside, TX 78362
14	Christopher Austin	201 Starlight Drive, Ingleside, TX 78362
15	Teresa and Carl Miller	221 Starlight Drive, Ingleside, TX 78362
16	William and Isabell McKenzie	301 Starlight Drive, Ingleside, TX 78362
17	Sherrel and Doug Stanford	307 Starlight Drive, Ingleside, TX 78362
18	Bryan Tatum	309 Starlight Drive, Ingleside, TX 78362
19	Cindia Cagle	311 Starlight Drive, Ingleside, TX 78362
20	James Garrett and Deidra Blakely	313 Starlight Drive, Ingleside, TX 78362
21	Adrian and Diana Rodriquez	315 Starlight Drive, Ingleside, TX 78362
22	Lionel Rodriguez	PO Box 773, Ingleside, TX 78362
23	IOB Investment LLC	1105 Bayshore Drive, Ingleside, TX 78362
24	Jimmy Morgan	PO Box 502, Ingleside, TX 78362
25	Phillip and Tommie Renfro	373 Starlight Drive, Ingleside, TX 78362
26	Joyce Spiegelhoff	401 Starlight Drive, Ingleside, TX 78362
27	Steven and Gloria Olivarez	403 Starlight Drive, Ingleside, TX 78362
28	Eric and David Dawson	405 Starlight Drive, Ingleside, TX 78362
29	Parcel 66996; No Owner	406-435 Starlight Drive, Ingleside, TX 78362
30	Jo Ehmann	436 Sunset Drive, Ingleside, TX 78362
31	Frank Smith	2011 Ocean Drive, Ingleside, TX 78362
32	Frank Smith	2011 Ocean Drive, Ingleside, TX 78362
33	Wayne Jones	748 Kimberly Drive, Pipe Creek, TX 78063
34	City of Ingleside on the Bay	PO Box 309, Ingleside, TX 78362
35	Michael and Jennifer Billman	502 E Starlight Drive, Ingleside, TX 78362
36	Michael and Jennifer Billman	502 E Starlight Drive, Ingleside, TX 78362
37	Brian D. and Brian E. Kimbell	505 E Wildwood Drive, Ingleside, TX 78362
38	David Hughes	601 Wildwood Drive, Ingleside, TX 78362
39	Chalene Braun	12943 Water Ridge Drive, McCordsville, IN 46055
40	Elmer Harrison Jr.	609 Woodcrest Drive, Ingleside, TX 78362
41	Carl and Ruby Guinn	3122 Sand Shadow Drive, League City, TX 77573
42	Scott Franklin	609 Anacua Road, Ingleside, TX 78362
43	Shane Chiddix	96 Bayshore Drive, Ingleside, TX 78362
44	Eddie and Cheryl-Anne Crow	601 Driftwood Lane, Ingleside, TX 78362
45	Mary Callender	PO Box 1115, Ingleside, TX 78362
46	Michael and Christa Wood	603 Tanglewood Drive, Ingleside, TX 78362
47	Sarah Mayfield	602 Tanglewood Drive, Ingleside, TX 78362
48	James and Sheila Walton	108 Bayshore Drive, Ingleside, TX 78362
49	James Haskin	PO Box 302, Ingleside, TX 78362
50	Jessic Neyman	108 Thornwood Road, Georgetown, TX 78628
51	City of Ingleside on the Bay	PO Box 309, Ingleside, TX 78362
52	City of Ingleside on the Bay	PO Box 309, Ingleside, TX 78362
53	Wild Duck Creek RV Park LLC	1233 Bayshore Drive, Ingleside, TX 78362
54	Flint Hills Resources Corpus Christi LLC	PO Box 3755, Wichita, KS 67201
55	G&H Towing Company	PO Box 2270, Galveston TX 77553
56	South Texas Gateway Terminal LLC	1201 Louisiana Street, Suite 3300, Houston, TX 77002
57	Flint Hills Resources Ingleside LLC	PO Box 2900, Wichita, KS 67201
58	South Texas Gateway Terminal LLC	1201 Louisiana Street, Suite 3300, Houston, TX 77002
59	Flint Hills Resources Ingleside LLC	PO Box 2900, Wichita, KS 67201
60	Flint Hills Resources Ingleside LLC	PO Box 2900, Wichita, KS 67201
61	City of Ingleside	PO Drawer 400, Ingleside, TX 78362
62	Flint Hills Resources Ingleside LLC	PO Box 2900, Wichita, KS 67201
63	Flint Hills Resources Ingleside LLC	PO Box 2900, Wichita, KS 67201
64	ERF Ingleside, Inc.	555 N Carancahua Street, Suite 700, Corpus Christi, TX 78401
65	ERF Ingleside, Inc.	555 N Carancahua Street, Suite 700, Corpus Christi, TX 78401

Data sourced from San Patricio County Appraisal District Website (<https://gis.bisclient.com/sanpatriciocad/>)

Red = Duplicate Address

WALTER AND MELISSA JOHNSON
93 STARLIGHT DR
INGLESIDE TX 78362

SABRINA BROWN
95 STARLIGHT DR
INGLESIDE TX 78362

CYNTHIA ROMINES
97 STARLIGHT DR
INGLESIDE TX 78362

BONNY VECHELL AND JOHN LUNDY
105 STARLIGHT DR
INGLESIDE TX 78362

CLIFFORD AND LISA MCDONALD
109 STARLIGHT DR
INGLESIDE TX 78362

RYAN MCCREADY
111 STARLIGHT DR
INGLESIDE TX 78362

DONALD SCHRIEFER
113 STARLIGHT DR
INGLESIDE TX 78362

MARIETTA GRIMES LIVING TRUST
115 STARLIGHT DR
INGLESIDE TX 78362

BRANDON AND PENNY NIEMTSCHK
155 STARLIGHT DR
INGLESIDE TX 78362

CHRISTOPHER AUSTIN
201 STARLIGHT DR
INGLESIDE TX 78362

TERESA AND CARL MILLER
221 STARLIGHT DR
INGLESIDE TX 78362

WILLIAM AND ISABELL MCKENZIE
301 STARLIGHT DR
INGLESIDE TX 78362

SHERREL AND DOUG STANFORD
307 STARLIGHT DR
INGLESIDE TX 78362

BRYAN TATUM
309 STARLIGHT DR
INGLESIDE TX 78362

CINDIA CAGLE
311 STARLIGHT DR
INGLESIDE TX 78362

JAMES GARRETT AND DEIDRA BLAKELY
313 STARLIGHT DR
INGLESIDE TX 78362

ADRIAN AND DIANA RODRIQUEZ
315 STARLIGHT DR
INGLESIDE TX 78362

PHILLIP AND TOMMIE RENFRO
373 STARLIGHT DR
INGLESIDE TX 78362

JOYCE SPIEGELHOFF
401 STARLIGHT DR
INGLESIDE TX 78362

STEVEN AND GLORIA OLIVAREZ
403 STARLIGHT DR
INGLESIDE TX 78362

ERIC AND DAVID DAWSON
405 STARLIGHT DR
INGLESIDE TX 78362

MICHAEL AND JENNIFER BILLMAN
502 E STARLIGHT DR
INGLESIDE TX 78362

SCOTT FRANKLIN
609 ANACUA RD
INGLESIDE TX 78362

SHANE CHIDDIX
96 BAYSHORE DR
INGLESIDE TX 78362

JAMES AND SHEILA WALTON
108 BAYSHORE DR
INGLESIDE TX 78362

IOB INVESTMENT LLC
1105 BAYSHORE DR
INGLESIDE TX 78362

WILD DUCK CREEK RV PARK LLC
1233 BAYSHORE DR
INGLESIDE TX 78362

WILLIAM AND LINDA MILLER
124 SUNSET DR
INGLESIDE TX 78362

STUART CLYMER
126 SUNSET DR
INGLESIDE TX 78362

JO EHMANN
436 SUNSET DR
INGLESIDE TX 78362

FRANK SMITH
2011 OCEAN DR
INGLESIDE TX 78362

ELMER HARRISON JR
609 WOODCREST DR
INGLESIDE TX 78362

RAYMOND AND ANNE CARROLL
2083 GLENWOOD DR
INGLESIDE TX 78362

BRIAN D AND BRIAN E KIMBELL
505 E WILDWOOD DR
INGLESIDE TX 78362

EDDIE AND CHERYL-ANNE CROW
601 DRIFTWOOD LN
INGLESIDE TX 78362

DAVID HUGHES
601 WILDWOOD DR
INGLESIDE TX 78362

SARAH MAYFIELD
602 TANGLEWOOD DR
INGLESIDE TX 78362

MICHAEL AND CHRISTA WOOD
603 TANGLEWOOD DR
INGLESIDE TX 78362

LIONEL RODRIGUEZ
PO BOX 773
INGLESIDE TX 78362

JIMMY MORGAN
PO BOX 502
INGLESIDE TX 78362

MARY CALLENDER
PO BOX 1115
INGLESIDE TX 78362

CITY OF INGLESIDE ON THE BAY
PO BOX 309
INGLESIDE TX 78362

SOUTH TEXAS GATEWAY TERMINAL
1201 LOUISIANA ST
HOUSTON TX 77002

JAMES HASKIN
PO BOX 302
INGLESIDE TX 78362

WAYNE JONES
748 KIMBERLY DR
PIPE CREEK TX 78063

JESSICA NEYMAN
108 THORNWOOD RD
GEORGETOWN TX 78628

ERF INGLESIDE INC
555 N CARANCAHUA ST
CORPUS CHRISTI TX 78401

CARL AND RUBY GUINN
3122 SAND SHADOW DR
LEAGUE CITY TX 77573

CHALENE BRAUN
12943 WATER RIDGE DR
MCCORDSVILLE IN 46055

FLINT HILLS RESOURCES LLC
PO BOX 2900
WICHITA KS 67201

FLINT HILLS RESOURCES LLC
PO BOX 3755
WICHITA KS 67201

APPLICATION. Ingleside Clean Ammonia Partners, LLC, 915 North Eldridge Parkway, Suite 1100, Houston, Texas 77079, which will operate a blue ammonia production, storage, and marine loading facility, has applied to the Texas Commission on Environmental Quality (TCEQ) for proposed Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0005473000 (EPA I.D. No. TX0147184) to authorize the discharge of treated wastewater and stormwater at a volume not to exceed a daily average flow of 52,130,700 gallons per day. The facility will be located at 1450 Lexington Boulevard, in the city of Ingleside, San Patricio County, Texas 78362. The discharge route will be from the plant site to Corpus Christi Bay (pending RWA). TCEQ received this application on December 27, 2024. The permit application will be available for viewing and copying at Sinton Public Library, 100 North Pirate Boulevard, Sinton, in San Patricio County, Texas and at La Retama Central Library, 805 Comanche, Corpus Christi, in Nueces 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=-97.205277,27.825&level=18>

Further information may also be obtained from Ingleside Clean Ammonia Partners, LLC at the address stated above or by calling Mr. Clayton Curtis, Enbridge U.S. Gulf Coast Terminals, LLC, at 855-385-6645.

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 PROPUESTO NO. WQ00_____

SOLICITUD. Ingleside Clean Ammonia Partners, LLC, 925 North Eldridge Parkway, Suite 1100, Houston, Texas 77079 ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para el propuesto Permiso No. WQ0005473000 (EPA I.D. No. TX0147184) del Sistema de Eliminación de Descargas de Contaminantes de Texas (TPDES) para autorizar la descarga de aguas residuales tratadas en un volumen que no sobrepasa un flujo promedio diario de 52,130,700 galones por día. La planta está ubicada 1450 Lexington Boulevard, en la ciudad de Ingleside en el Condado de San Patricio, Texas, 78362. La ruta de descarga es del sitio de la planta a bahía de Corpus Christi. La TCEQ recibió esta solicitud el 27 de diciembre de 2024. La solicitud para el permiso estará disponible para leerla y copiarla en Sinton Public Library, 100 North Pirate Boulevard, Sinton, en el Condado de San Patricio, Texas y La Retama Central Library, 805 Comanche, Corpus Christi, en el Condado de Nueces, Texas antes de la fecha de publicación de este aviso en el periódico. Este enlace a un mapa electrónico de la ubicación general del sitio o de la instalación es proporcionado como una cortesía y no es parte de la solicitud o del aviso. Para la ubicación exacta, consulte la solicitud.

<https://gisweb.tceq.texas.gov/LocationMapper/?marker=-97.205277,27.825&level=18>

Include the following non-italicized sentence if the facility is located in the Coastal Management Program. 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. El Director Ejecutivo de la TCEQ ha revisado esta medida para ver si está de acuerdo con los objetivos y las regulaciones del Programa de Administración Costero de Texas (CMP) de acuerdo con las regulaciones del Consejo Coordinador de la Costa (CCC) y ha determinado que la acción es conforme con las metas y regulaciones pertinentes del CMP.

AVISO ADICIONAL. El Director Ejecutivo de la TCEQ ha determinado que la solicitud es administrativamente completa y conducirá una revisión técnica de la solicitud. Después de completar la revisión técnica, el Director Ejecutivo puede preparar un borrador del permiso y emitirá una Decisión Preliminar sobre la solicitud. **El aviso**

de la solicitud y la decisión preliminar serán publicados y enviado a los que están en la lista de correo de las personas a lo largo del condado que desean recibir los avisos y los que están en la lista de correo que desean recibir avisos de esta solicitud. El aviso dará la fecha límite para someter comentarios públicos.

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

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

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

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

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

CONTACTOS E INFORMACIÓN A LA AGENCIA. Todos los comentarios públicos y solicitudes deben ser presentados 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 Ingleside Clean Ammonia Partners, LLC a la dirección indicada arriba o llamando a Mr. Clayton Curtis, Enbridge U.S. Gulf Coast Terminals, LLC al 855-385-6645.

Fecha de emisión _____ *[Date notice issued]*