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, el Aviso de Recepción de Solicitud e Intención de Obtener un Permiso)
   - Inglés
   - Idioma alternativo (español)
3. Solicitud original

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 blanks 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.

South Texas Electric Cooperative, Inc. (CN600131254) operates South Texas Electric Cooperative (RN10222652), a natural gas electric generating facility. The facility is located at 2849 FM 447, in Victoria, Victoria County, Texas 77976. South Texas Electric Cooperative, Inc. requests to renew TPDES Permit No. WQ0001521000 to authorize the discharge of previously monitored effluent and stormwater at a daily average flow not to exceed 0.264 MGD.

Discharges from the facility are expected to contain low levels of E.coli, ammonia as nitrogen, a standard pH, and little to no chlorine. Cooling tower blowdown, low volume waste sources, and stormwater are treated by no additional means.

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.

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.

South Texas Electric Cooperative, Inc. (CN600131254) opera South Texas Electric Cooperative, Inc. (RN10222652), una planta generadora de electricidad a gas natural. La instalación está ubicada en 2849 FM 447, en Victoria, Condado de Victoria, Texas 77976. South Texas Electric Cooperative, Inc solicita la renovacion del Permiso TPDES No. WQ0001521000 para autorizar el efluente previamente monitoreado y las aguas pluviales a un caudal promedio diario que no exceda de 0.264 MGD.

Se espera que las descargas de la instalación contengan bajos niveles de E.coli, amoniaco como nitrogeno, un pH estandar y poco o nada de cloro. El agua de enfriamiento, las fuentes de desechos de bajo volume y las aguas pluviales. están tratado por sin medios adicionales.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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

PERMIT NO. WQ0001521000

APPLICATION. South Texas Electric Cooperative, Inc., P.O. Box 119, Nursery, Texas 77976, which owns a combined-cycle steam electric power generation facility, has applied to the Texas Commission on Environmental Quality (TCEQ) to renew Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0001521000 (EPA I.D. No. TX0005118) to authorize the discharge of treated wastewater at a volume not to exceed a daily average flow of 264,000 gallons per day. The facility is located at 2849 Farm-to-Market Road 447, near the city of Nursery, in Victoria County, Texas 77976. The discharge route is from the plant site to via Outfall 001 directly to the Guadalupe River Below San Marcos River. TCEQ received this application on October 9, 2024. The permit application will be available for viewing and copying at Victoria Public Library, information desk, 302 North Main Street, Victoria, 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=-97.136111,28.896666&level=18

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

ADDITIONAL NOTICE. TCEQ's Executive Director has determined the application is administratively complete and will conduct a technical review of the application. After technical review of the application is complete, the Executive Director may prepare a draft permit and will issue a preliminary decision on the application. **Notice of the Application and Preliminary Decision will be published and mailed to those who are on the county-wide mailing list and to those who are on the mailing list for this application. That notice will contain the deadline for submitting public comments.**

PUBLIC COMMENT / PUBLIC MEETING. You may submit public comments or request a public meeting on this application. The purpose of a public meeting is to provide the opportunity to submit comments or to ask questions about the application. TCEQ will hold a public meeting if the Executive Director determines that there is a significant degree of public

interest in the application or if requested by a local legislator. A public meeting is not a contested case hearing.

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

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

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

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

TCEQ may act on an application to renew a permit for discharge of wastewater without providing an opportunity for a contested case hearing if certain criteria are met.

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 South Texas Electric Cooperative, Inc. at the address stated above or by calling Ms. Mellinda Brzozowski, Environmental Coordinator, at 361-485-6409.

Issuance Date: November 8, 2024

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
RENOVACION

PERMISO NO. WQ0001521000

SOLICITUD. South Texas Electric Cooperative, Inc., P.O. Box 119, Nursery, Texas 77976, que posee una instalación de generación de energía eléctrica de vapor de ciclo combinado, ha solicitado a la Comisión de Calidad Ambiental del Estado de Texas (TCEQ) para renovar el Permiso No. WQ0001521000 (EPA I.D. No. TX0005118) 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 264,000 galones por día. La planta está ubicada por el camino 2849 Farm-to-Market Road 447, cerca de la ciudad de Nursery en el Condado de Victoria, Texas 77976. La ruta de descarga es del sitio de la planta a través de la salida Outfall 001 directamente al Rio Guadalupe por debajo del Rio San Marcos. La TCEQ recibió esta solicitud el día 9 de octubre del año 2024. La solicitud para el permiso está disponible para leerla y copiarla en la biblioteca pública de Victoria por la calle 302 North Main Street, en la ciudad de Victoria, Texas. 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=-97.136111,28.896666&level=18

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. Si ciertos criterios se cumplen, la TCEQ puede actuar sobre una solicitud para renovar un permiso sin proveer una oportunidad de una audiencia administrativa de lo contencioso.

LISTA DE CORREO. Si somete comentarios públicos, un pedido para una audiencia administrativa de lo contencioso o una reconsideración de la decisión del Director Ejecutivo, la Oficina del Secretario Principal enviará por correo los avisos públicos en relación con la solicitud. Ademas, puede pedir que la TCEQ ponga su nombre en una or mas de las listas correos siguientes (1) la lista de correo permanente para recibir los avisos de el solicitante indicado por nombre y número del permiso específico y/o (2) la lista de correo de todas las solicitudes en un condado especifico. Si desea que se agrega su nombre en una de las listas designe cual lista(s) y envia por correo su pedido a la Oficina del Secretario Principal de la TCEQ.

CONTACTOS E INFORMACIÓN DE LA TCEQ. Todos los comentarios escritos del público y los para pedidos una reunión deben ser presentados a la Oficina del Secretario Principal, MC 105, TCEQ, P.O. Box 13087, Austin, TX 78711-3087 o por el internet at www.tceq.texas.gov/about/comments.html. 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. Si necesita más información en Español sobre esta solicitud para un permiso o el proceso del permiso, por favor llame a El Programa de Educación Pública de la TCEQ, sin cobro, al 1-800-687-4040. La información general sobre la TCEQ puede ser encontrada en nuestro sitio de la red: www.tceq.texas.gov.

También se puede obtener información adicional del South Texas Electric Cooperative, Inc. a la dirección indicada arriba o llamando a Senora Mellinda Brzozowski, Environmental Coordinator, al 361-485-6409.

Fecha de emisión 8 de noviembre de 2024

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

Protecting Texas by Reducing and Preventing Pollution

October 9, 2024

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

Dear Applicant:

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

ER Account Number: ER086491
Application Reference Number: 686878
Authorization Number: WQ0001521000
Site Name: Sam Rayburn Power Plant
Regulated Entity: RN100222652 - South Texas Electric Cooperative
Customer(s): CN600131254 - South Texas Electric Cooperative, Inc.

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

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

Sincerely,
Applications Review and Processing Team
Water Quality Division

Texas Commission on Environmental Quality

Update Domestic or Industrial Individual Permit

WQ0001521000

Site Information (Regulated Entity)

What is the name of the site to be authorized?	SAM RAYBURN POWER PLANT
Does the site have a physical address?	Yes
Physical Address	
Number and Street	2849 FM 447
City	NURSERY
State	TX
ZIP	77976
County	VICTORIA
Latitude (N) (##.######)	28.896666
Longitude (W) (-###.######)	-97.136111
Primary SIC Code	4911
Secondary SIC Code	
Primary NAICS Code	221119
Secondary NAICS Code	
Regulated Entity Site Information	
What is the Regulated Entity's Number (RN)?	RN100222652
What is the name of the Regulated Entity (RE)?	SOUTH TEXAS ELECTRIC COOPERATIVE
Does the RE site have a physical address?	Yes
Physical Address	
Number and Street	2849 FM 447
City	NURSERY
State	TX
ZIP	77976
County	VICTORIA
Latitude (N) (##.######)	28.898611
Longitude (W) (-###.######)	-97.138888
Facility NAICS Code	
What is the primary business of this entity?	STEAM ELECTRIC STATION

South T-Customer (Applicant) Information (Owner)

How is this applicant associated with this site?	Owner
What is the applicant's Customer Number (CN)?	CN600131254
Type of Customer	Corporation
Full legal name of the applicant:	
Legal Name	South Texas Electric Cooperative, Inc.
Texas SOS Filing Number	8314701
Federal Tax ID	741393760
State Franchise Tax ID	17413937602
State Sales Tax ID	
Local Tax ID	
DUNS Number	3866332
Number of Employees	
Independently Owned and Operated?	
I certify that the full legal name of the entity applying for this permit has been provided and is legally authorized to do business in Texas.	Yes
Responsible Authority Contact	
Organization Name	South Texas Electric Cooperative, Inc.
Prefix	MR
First	Clif
Middle	
Last	Lange
Suffix	
Credentials	
Title	GENERAL MANAGER
Responsible Authority Mailing Address	
Enter new address or copy one from list:	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 119
Routing (such as Mail Code, Dept., or Attn:)	
City	NURSERY
State	TX
ZIP	77976
Phone (###-###-####)	3615756491
Extension	
Alternate Phone (###-###-####)	3614856206

Fax (###-###-####)	3614856329
E-mail	clif@stec.org

Billing Contact

Responsible contact for receiving billing statements:

Select the permittee that is responsible for payment of the annual fee.	CN600131254, South Texas Electric Cooperative, Inc.
Organization Name	SOUTH TEXAS ELECTRIC COOPERATIVE INC
Prefix	MS
First	Mellinda
Middle	
Last	Brzozowski
Suffix	
Credentials	
Title	ENVIRONMENTAL COORDINATOR
Enter new address or copy one from list:	CN600131254, South Texas Electric Cooperative, Inc.

Mailing Address

Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 119
Routing (such as Mail Code, Dept., or Attn:)	
City	NURSERY
State	TX
ZIP	77976
Phone (###-###-####)	3614856409
Extension	
Alternate Phone (###-###-####)	3618270305
Fax (###-###-####)	3614856329
E-mail	mbrzozowski@stec.org

Application Contact

Person TCEQ should contact for questions about this application:

Same as another contact?	Billing Contact
Organization Name	SOUTH TEXAS ELECTRIC COOPERATIVE INC
Prefix	MS

First	Mellinda
Middle	
Last	Brzozowski
Suffix	
Credentials	
Title	ENVIRONMENTAL COORDINATOR
Enter new address or copy one from list:	
Mailing Address	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 119
Routing (such as Mail Code, Dept., or Attn:)	
City	NURSERY
State	TX
ZIP	77976
Phone (###-###-####)	3614856409
Extension	
Alternate Phone (###-###-####)	3618270305
Fax (###-###-####)	3614856329
E-mail	mbrzozowski@stec.org

Technical Contact

Person TCEQ should contact for questions about this application:	
Same as another contact?	Application Contact
Organization Name	SOUTH TEXAS ELECTRIC COOPERATIVE INC
Prefix	MS
First	Mellinda
Middle	
Last	Brzozowski
Suffix	
Credentials	
Title	ENVIRONMENTAL COORDINATOR
Enter new address or copy one from list:	
Mailing Address	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 119
Routing (such as Mail Code, Dept., or Attn:)	

City	NURSERY
State	TX
ZIP	77976
Phone (###-###-####)	3614856409
Extension	
Alternate Phone (###-###-####)	3618270305
Fax (###-###-####)	3614856329
E-mail	mbrzozowski@stec.org

DMR Contact

Person responsible for submitting Discharge Monitoring Report Forms:	
Same as another contact?	Application Contact
Organization Name	SOUTH TEXAS ELECTRIC COOPERATIVE INC
Prefix	MS
First	Mellinda
Middle	
Last	Brzozowski
Suffix	
Credentials	
Title	ENVIRONMENTAL COORDINATOR
Enter new address or copy one from list:	
Mailing Address:	
Address Type	Domestic
Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 119
Routing (such as Mail Code, Dept., or Attn:)	
City	NURSERY
State	TX
ZIP	77976
Phone (###-###-####)	3614856409
Extension	
Alternate Phone (###-###-####)	3618270305
Fax (###-###-####)	3614856329
E-mail	mbrzozowski@stec.org

Section 1# Permit Contact

Permit Contact#: 1

Person TCEQ should contact throughout the permit term.

1) Same as another contact?	Application Contact
2) Organization Name	SOUTH TEXAS ELECTRIC COOPERATIVE INC
3) Prefix	MS
4) First	Mellinda
5) Middle	
6) Last	Brzozowski
7) Suffix	
8) Credentials	
9) Title	ENVIRONMENTAL COORDINATOR

Mailing Address

10) Enter new address or copy one from list	
11) Address Type	Domestic
11.1) Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 119
11.2) Routing (such as Mail Code, Dept., or Attn:)	
11.3) City	NURSERY
11.4) State	TX
11.5) ZIP	77976
12) Phone (###-###-####)	3614856409
13) Extension	
14) Alternate Phone (###-###-####)	3618270305
15) Fax (###-###-####)	
16) E-mail	mbrzozowski@stec.org

Section 2# Permit Contact

Permit Contact#: 2

Person TCEQ should contact throughout the permit term.

1) Same as another contact?	
2) Organization Name	South Texas Electric Cooperative
3) Prefix	
4) First	John
5) Middle	
6) Last	Packard
7) Suffix	

8) Credentials	
9) Title	Manager of Power Supply
Mailing Address	
10) Enter new address or copy one from list	Billing Contact
11) Address Type	Domestic
11.1) Mailing Address (include Suite or Bldg. here, if applicable)	PO BOX 119
11.2) Routing (such as Mail Code, Dept., or Attn:)	
11.3) City	NURSERY
11.4) State	TX
11.5) ZIP	77976
12) Phone (###-###-####)	3614856320
13) Extension	
14) Alternate Phone (###-###-####)	3615711312
15) Fax (###-###-####)	
16) E-mail	japackard@stec.org

Owner Information

Owner of Treatment Facility	
1) Prefix	
2) First and Last Name	
3) Organization Name	South Texas Electric Cooperative Inc
4) Mailing Address	P.O. Box 119
5) City	Nursery
6) State	TX
7) Zip Code	77976
8) Phone (###-###-####)	3615756491
9) Extension	
10) Email	mbrzozowski@stec.org
11) What is ownership of the treatment facility?	Private
Owner of Land (where treatment facility is or will be)	
12) Prefix	
13) First and Last Name	
14) Organization Name	South Texas Electric Cooperative Inc
15) Mailing Address	P.O. Box 119
16) City	Nursery
17) State	TX

18) Zip Code	77976
19) Phone (###-###-####)	3615756491
20) Extension	
21) Email	mbrzozowski@stec.org
22) Is the landowner the same person as the facility owner or co-applicant?	Yes

General Information Renewal-Amendment

1) Current authorization expiration date:	04/14/2025
2) Current Facility operational status:	Active
3) Is the facility located on or does the treated effluent cross American Indian Land?	No
4) What is the application type that you are seeking?	Renewal without changes
5) Current Authorization type:	Industrial Wastewater
5.1) What is your EPA facility classification?	Minor
5.1.1) Are the discharges at your facility subjected to federal effluent limitation guidelines (ELG) 40 CFR Part 400-471?	Yes
5.1.1.1) Select the applicable fee for the Minor facility that is subjected to 40 CFR 400-471:	Renewal - $1,215
6) What is the classification for your authorization?	TPDES
6.1) What is the EPA Identification Number?	TX0005118
6.2) Is the wastewater treatment facility location in the existing permit accurate?	Yes
6.3) Are the point(s) of discharge and the discharge route(s) in the existing permit correct?	Yes
6.4) City nearest the outfall(s):	Nursery
6.5) County where the outfalls are located:	VICTORIA
6.6) Is or will the treated wastewater discharge to a city, county, or state highway right-of-way, or a flood control district drainage ditch?	No
6.7) Is the daily average discharge at your facility of 5 MGD or more?	No
7) Did any person formerly employed by the TCEQ represent your company and get paid for service regarding this application?	No

Public Notice Information

Individual Publishing the Notices

1) Prefix	
2) First and Last Name	Mellinda Brzozowski
3) Credential	
4) Title	Environmental Coordinator
5) Organization Name	South Texas Electric Cooperative Inc
6) Mailing Address	PO BOX 119

7) Address Line 2	
8) City	NURSERY
9) State	TX
10) Zip Code	77976
11) Phone (###-###-####)	3614856409
12) Extension	
13) Fax (###-###-####)	
14) Email	mbrzozowski@stec.org
Contact person to be listed in the Notices	
15) Prefix	
16) First and Last Name	Mellinda Brzozowski
17) Credential	
18) Title	Environmental Coordinator
19) Organization Name	South Texas Electric Cooperative Inc
20) Phone (###-###-####)	3614856409
21) Fax (###-###-####)	
22) Email	mbrzozowski@stec.org
Bilingual Notice Requirements	
23) Is a bilingual education program required by the Texas Education Code at the elementary or middle school nearest to the facility or proposed facility?	Yes
23.1) Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?	Yes
23.2) Do the students at these schools attend a bilingual education program at another location?	Yes
23.3) Would the school be required to provide a bilingual education program but the school has waived out of this requirement under 19 TAC 89.1205(g)?	No
23.4) Which language is required by the bilingual program?	Spanish

Section 1# Public Viewing Information

County#: 1

1) County	VICTORIA
2) Public building name	Victoria Public Library
3) Location within the building	Information Desk
4) Physical Address of Building	302 N. Main St.
5) City	Victoria
6) Contact Name	
7) Phone (###-###-####)	3614853301

8) Extension	
9) Is the location open to the public?	Yes

Plain Language

1) Plain Language	
[File Properties]	
File Name	LANG_TCEQ-20972 Plain Language Summary.docx
Hash	FDC9B3002EE686432B7B47E861C95EAE81C26E0E6B704D53F11ECA469AA5D2EA
MIME-Type	application/vnd.openxmlformats-officedocument.wordprocessingml.document

Supplemental Permit Information Form

1) Supplemental Permit Information Form (SPIF)	
[File Properties]	
File Name	SPIF_Attachment G - SPIF.pdf
Hash	B3DC03DF0957A05F36AB07F7C7DAF30272F3AFC8E104B1E2C8251BBB269F8CAB
MIME-Type	application/pdf

Industrial Attachments

1) Attach an 8.5"x11", reproduced portion of the most current and original USGS Topographic Quadrangle Map(s) that meets the 1:24,000 scale.	
[File Properties]	
File Name	MAP_Attachment D - USGS Map.pdf
Hash	6E9C781DCD381B5981EBEAEAD5145C184BC53AA48F5BF8DB2CD2F3606AB8C67F
MIME-Type	application/pdf
2) I confirm that all required sections of Technical Report 1.0 are complete and will be included in the Technical Attachment.	Yes
2.1) I confirm that Worksheet 1.0 (EPA Categorical Effluent Guidelines) is complete and included in the Technical Attachment.	Yes
2.2) I confirm that Worksheet 2.0 (Pollutant Analyses Requirements) is complete and included in the Technical Attachment.	Yes
2.3) I confirm that Worksheet 4.0 (Receiving Waters) is complete and included in the Technical Attachment.	Yes

2.4) Are you planning to include Worksheet 4.1 (Waterbody Physical Characteristics) in the Technical Attachment?	No
2.5) Are you planning to include Worksheet 6.0 (Industrial Waste Contribution) in the Technical Attachment?	No
2.6) Are you planning to include Worksheet 7.0 (Stormwater Discharges Associated with Industrial Activities) to the Technical Attachment?	Yes
2.7) Are you planning to include Worksheet 8.0 (Aquaculture) in the Technical Attachment?	No
2.8) Are you planning to include Worksheet 9.0 (Class V Injection Well Inventory/Authorization) in the Technical Attachment?	No
2.9) Are you planning to include Worksheet 10.0 (Quarries in the John Graves Scenic Riverway) in the Technical Attachment?	No
2.10) Are you planning to include Worksheet 11.0 (Cooling Water System Information) in the Technical Attachment?	No
2.11) Are you planning to include Worksheet 11.1 (Impingement Mortality) in the Technical Attachment?	No
2.12) Are you planning to include Worksheet 11.2 (Source Water Biological Data) in the Technical Attachment?	No
2.13) Are you planning to include Worksheet 11.3 (Entrainment) in the Technical Attachment?	No
2.14) Technical Attachment	
[File Properties]	
File Name	TECH_TCEQ-10055 Technical Report.pdf
Hash	CE61EBFFACAD52492D0AF623F978DE2DB7069AE279EE08C6D2D0D2D4043D070F
MIME-Type	application/pdf
3) Flow Diagram	
[File Properties]	
File Name	FLDIA_Attachment J - Flow Schematic.pdf
Hash	6FB7FA132CFF5331075F0AF7114C395822E076D3C481A5B0382BCA0BBAD8756E
MIME-Type	application/pdf
4) Site Drawing	
[File Properties]	
File Name	SITEDR_Attachment I - Facility Map.pdf
Hash	C991C409C241ACBF502BC1F2BF28631FA182CCC47D2DF99AC077271981F2C122
MIME-Type	application/pdf
5) Design Calculations	
[File Properties]	
File Name	DES_CAL_Design Calculations.pdf
Hash	FEC3B914780752845FDF6B8FBDE6B0CB05B4D2FC42D1C5CAC3E65399A01DB2D3

MIME-Type	application/pdf

6) Solids Management Plan

7) Water Balance

[File Properties]

File Name	WB_Attachment J - Flow Schematic.pdf
Hash	6FB7FA132CFF5331075F0AF7114C395822E076D3C481A5B0382BCA0BBAD8756E
MIME-Type	application/pdf

8) Other Attachments

[File Properties]

File Name	OTHER_TCEQ-10400 Core Data Form Signed.pdf
Hash	CAA0E53D06277A92D831FA7EFD50DED6EA5C524B129676497B6973B178ED0C4B
MIME-Type	application/pdf

Certification

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

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

1. I am Mellinda K Brzozowski, the owner of the STEERS account ER086491.
2. I have the authority to sign this data on behalf of the applicant named above.
3. I have personally examined the foregoing and am familiar with its content and the content of any attachments, and based upon my personal knowledge and/or inquiry of any individual responsible for information contained herein, that this information is true, accurate, and complete.
4. I further certify that I have not violated any term in my TCEQ STEERS participation agreement and that I have no reason to believe that the confidentiality or use of my password has been compromised at any time.
5. I understand that use of my password constitutes an electronic signature legally equivalent to my written signature.
6. I also understand that the attestations of fact contained herein pertain to the implementation, oversight and enforcement of a state and/or federal environmental program and must be true and complete to the best of my knowledge.
7. I am aware that criminal penalties may be imposed for statements or omissions that I know or have reason to believe are untrue or misleading.
8. I am knowingly and intentionally signing Update Domestic or Industrial Individual Permit WQ0001521000.
9. My signature indicates that I am in agreement with the information on this form, and authorize its submittal to the TCEQ.

OWNER Signature: Mellinda K Brzozowski OWNER

Customer Number:	CN600131254
Legal Name:	South Texas Electric Cooperative, Inc.
Account Number:	ER086491
Signature IP Address:	12.217.6.2
Signature Date:	2024-10-09

Signature Hash:	0DA3E88577E015817172D8845DAFFD9DC4D66CAD33ED9709D82D68216C3256AE
Form Hash Code at time of Signature:	0A796AE65A481B69B86F1F78B9C8704B8DE5C9D668DC65D0281786F4A6CA310D

Fee Payment

Transaction by:	The application fee payment transaction was made by ER086491/Mellinda K Brzozowski
Paid by:	The application fee was paid by MELLINDA BRZOZOWSKI
Fee Amount:	$1200.00
Paid Date:	The application fee was paid on 2024-10-09
Transaction/Voucher number:	The transaction number is 582EA000628724 and the voucher number is 724905

Submission

Reference Number:	The application reference number is 686878
Submitted by:	The application was submitted by ER086491/Mellinda K Brzozowski
Submitted Timestamp:	The application was submitted on 2024-10-09 at 15:24:29 CDT
Submitted From:	The application was submitted from IP address 173.219.168.194
Confirmation Number:	The confirmation number is 570196
Steers Version:	The STEERS version is 6.82
Permit Number:	The permit number is WQ0001521000

Additional Information

Application Creator: This account was created by Mellinda K Brzozowski

TCEQ Use Only

TCEQ Core Data Form

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

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)*	Follow this link to search for CN or RN numbers in Central Registry**	**3. Regulated Entity Reference Number** *(if issued)*
CN 600131254		**RN 100222652**

SECTION II: Customer Information

4. General Customer Information | **5. Effective Date for Customer Information Updates** (mm/dd/yyyy)

☐ 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)* — *If new Customer, enter previous Customer below:*

South Texas Cooperative, Inc.

7. TX SOS/CPA Filing Number	**8. TX State Tax ID** (11 digits)	**9. Federal Tax ID** (9 digits)	**10. DUNS Number** *(if applicable)*
08314701	17413937602	741393760	

11. Type of Customer: ☒ Corporation ☐ Individual Partnership: ☐ General ☐ Limited
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other ☐ Sole Proprietorship ☐ Other:

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:	P.O. Box 119						
	City	Nursery	**State**	TX	**ZIP**	77976	**ZIP + 4**

16. Country Mailing Information *(if outside USA)*	**17. E-Mail Address** *(if applicable)*
	mbrzozowski@stec.org

18. Telephone Number	**19. Extension or Code**	**20. Fax Number** *(if applicable)*

(361) 485-6409		( ) -

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.)*

South Texas Electric Cooperative

23. Street Address of the Regulated Entity: ***(No PO Boxes)***	2849 FM 447							
	City	Victoria	**State**	TX	**ZIP**	77905	**ZIP + 4**	
24. County	Victoria							

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

25. Description to Physical Location:					
26. Nearest City			**State**		**Nearest ZIP Code**

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).

27. Latitude (N) In Decimal:	28.896735		**28. Longitude (W) In Decimal:**	-97.136372	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
28	53	48.3	97	08	10.9

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)
4911		221122	

33. What is the Primary Business of this entity? *(Do not repeat the SIC or NAICS description.)*

Natural Gas Electricity Generation

34. Mailing Address:	**P.O. Box 119**							
	City	**Nursery**	**State**	**TX**	**ZIP**	**77976**	**ZIP + 4**	
35. E-Mail Address:	**mbrzozowski@stec.org**							

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(361) 485-6409		( ) -

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
☐ Sludge	☒ Storm Water	☒ Title V Air	☐ Tires	☐ Used Oil
☐ Voluntary Cleanup	☐ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:

SECTION IV: Preparer Information

40. Name:	Mellinda Brzozowski	**41. Title:**	Environmental Coordinator

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(361 **)** 485-6409		**( )** -	mbrzozowski@stec.org

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:	South Texas Electric Cooperative, Inc.	**Job Title:**	Environmental Coordinator
Name *(In Print):*	Mellinda Brzozowski	**Phone:**	**(** 361 **)** 485- **6409**
Signature:	Mellinda Brzozowski	**Date:**	10/09/2024

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

PLAIN LANGUAGE SUMMARY FOR TPDES OR TLAP PERMIT APPLICATIONS

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

Applicants should use this template to develop a plain language summary as required by Title 30, Texas Administrative Code (30 TAC), Chapter 39, Subchapter H. Applicants 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 TAC Section 39.426, **you must provide a translated copy of the completed plain language summary in the appropriate alternative language as part of your application package**. For your convenience, a Spanish template has been provided below.

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS 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 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

South Texas Electric Cooperative, Inc. (CN600131254) operates South Texas Electric Cooperative (RN10222652), a natural gas electric generating facility. The facility is located at 2849 FM 447, in Victoria, Victoria County, Texas 77905. South Texas Electric Cooperative, Inc. requests to renew TPDES Permit No. WQ0001521000 to authorize the discharge of previously monitored effluent and stormwater at a daily average flow not to exceed 0.264 MGD.

Discharges from the facility are expected to contain low levels of E.coli, ammonia as nitrogen, a standard pH, and little to no chlorine. Cooling tower blowdown, low volume waste sources, and stormwater are treated by no additional means.

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

AGUAS RESIDUALES INDUSTRIALES /AGUAS PLUVIALES

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

South Texas Electric Cooperative, Inc. (CN600131254) opera South Texas Electric Cooperative, Inc. (RN10222652), una planta generadora de electricidad a gas natural. La instalación está ubicada en 2849 FM 447, en Victoria, Condado de Victoria, Texas 77905. South Texas Electric Cooperative, Inc solicita la renovacion del Permiso TPDES No. WQ0001521000 para autorizar el efluente previamente monitoreado y las aguas pluviales a un caudal promedio diario que no exceda de 0.264 MGD.

Se espera que las descargas de la instalación contengan bajos niveles de E.coli, amoniaco como nitrogeno, un pH estandar y poco o nada de cloro. El agua de enfriamiento, las fuentes de desechos de bajo volume y las aguas pluviales. están tratado por sin medios adicionales.

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.

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.

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 TAC 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 to 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.

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: South Texas Electric Cooperative, Inc.

   Permit No. WQ00 01521000 EPA ID No. TX 0005118

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

   2849 Farm-to-Market Road 447, on the east bank of the Guadalupe River, approximately 3.0 miles southwest of the community of Nursery, Victoria County, Texas.

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): Mrs.

First and Last Name: Mellinda Brzozowski

Credential (P.E, P.G., Ph.D., etc.): Click here to enter text.

Title: Environmental Coordinator

Mailing Address: P.O. Box 119

City, State, Zip Code: Nursery, TX 77976

Phone No.: 361-485-6409 Ext.: Click here to enter text. Fax No.: Click here to enter text.

E-mail Address: mbrzozowski@stec.org

2. List the county in which the facility is located: Victoria
3. If the property is publicly owned and the owner is different than the permittee/applicant, please list the owner of the property.

N/A – the property is privately owned.

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 is discharged directly to the Guadalupe River Below San Marcos River in Segment No. 1803 of the Guadalupe River Basin.

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):

None.

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

The existing surfaces are dirt and gravel with areas of vegetation for erosion control.

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

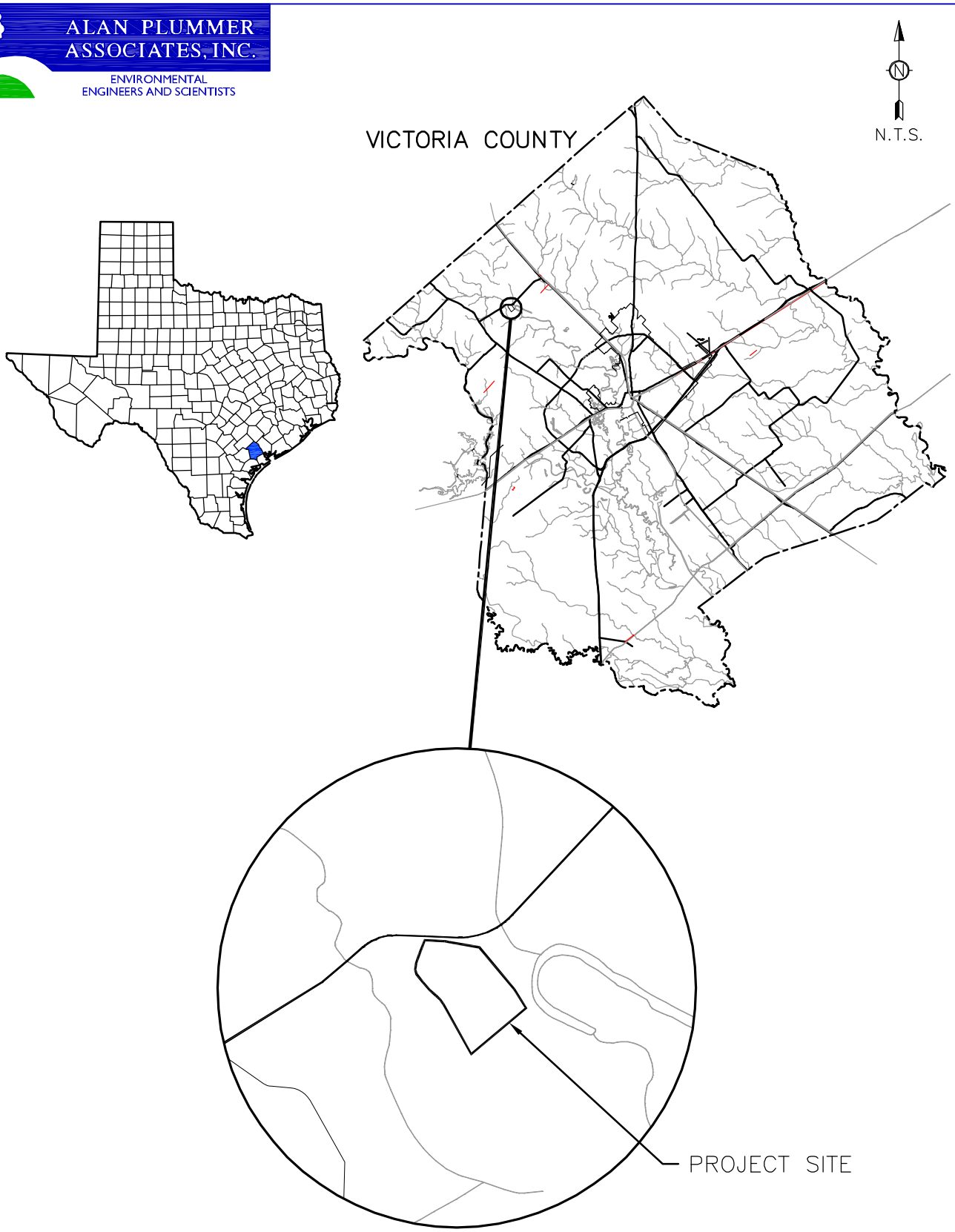
3. List construction dates of all buildings and structures on the property:

See SPIF-4

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

See attachment H

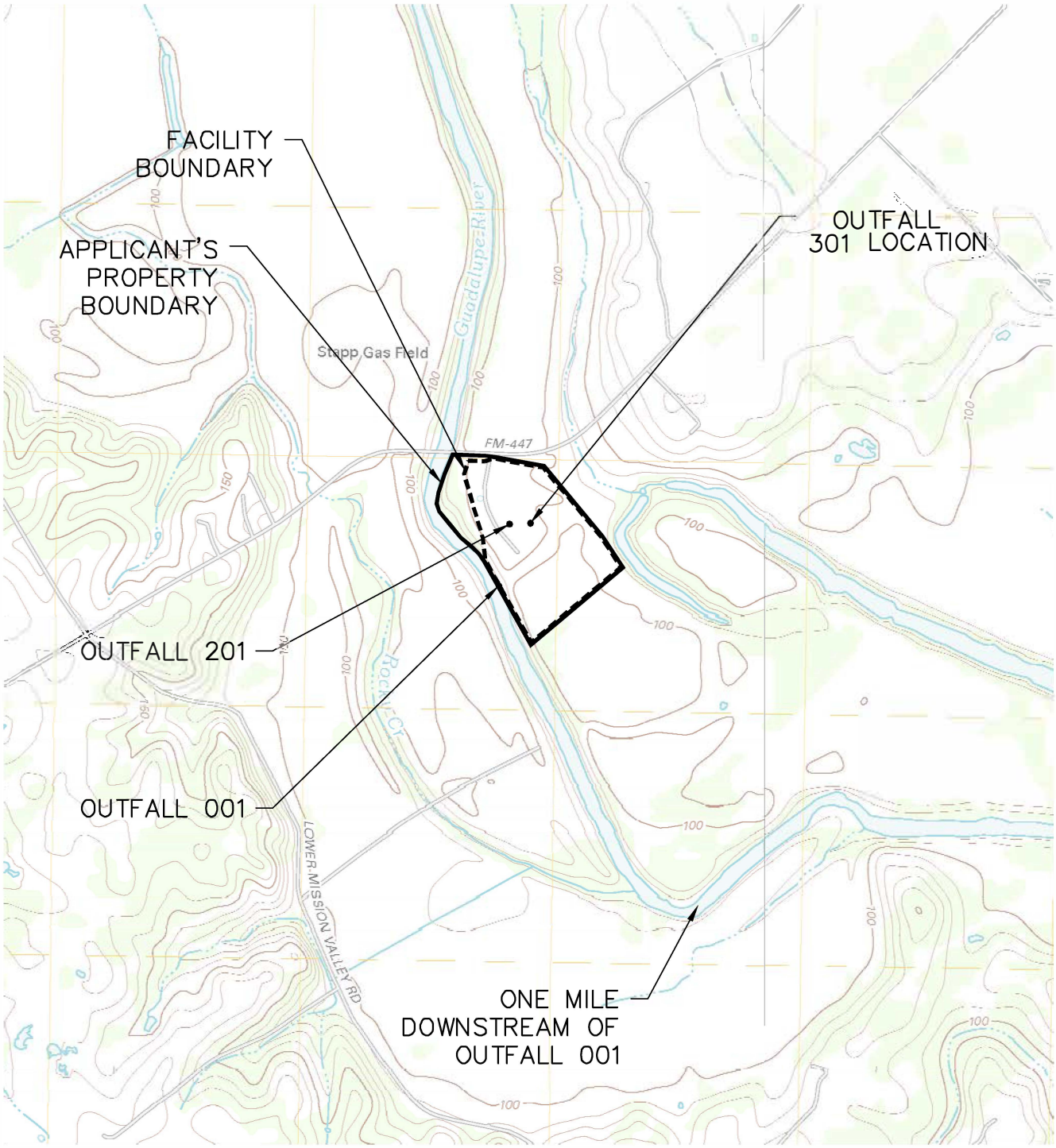
ALAN PLUMMER ASSOCIATES, INC.
ENVIRONMENTAL
ENGINEERS AND SCIENTISTS



SPIF–1
SOUTH TEXAS ELECTRIC COOPERATIVE, INC.
SAM RAYBURN POWER PLANT
TPDES PERMIT AMENDMENT
GENERAL LOCATION MAP

ALAN PLUMMER ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERS AND SCIENTISTS

FEET
0 2000



SPIF–2
SOUTH TEXAS ELECTRIC COOPERATIVE, INC.
SAM RAYBURN POWER PLANT
TPDES PERMIT RENEWAL
USGS MAP

TEXAS REGISTERED ENGINEERING FIRM F-13
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SPIF-3

SOUTH TEXAS ELECTRIC COOPERATIVE, INC.
SAM RAYBURN POWER PLANT
TPDES PERMIT RENEWAL APPLICATION

PHOTOGRAPHS OF BUILDINGS 50 YEARS OLD OR OLDER

Photograph 1: 69 kV Control House Built in October 1963

Photograph 2: 138 kV Control House Built in October 1963

Photograph 3: Gen 3 Powerhouse built in December 1966

SPIF-4

SOUTH TEXAS ELECTRIC COOPERATIVE, INC.
SAM RAYBURN POWER PLANT
TPDES PERMIT RENEWAL APPLICATION

CONSTRUCTION DATES OF BUILDINGS AND STRUCTURES

Building Name	Construction Date	Remodel Date
138kv Control House	October 1963	
69kv Control House	October 1963	
Gen 3 Powerhouse	December 1966	March 2019
Front Office	December 1980	September 2005
Warehouse	December 80	August 2005
Com1	March 1983	
Tech Services	May 2000	
Com2	Mar 2001	May 2015
Com3	Mar 2001	May 2015
Guard Shack	December 2002	
Sysop Engineering	August 2003	
Chemical Control House	December 2003	
Equipment Stall	December 2003	
GSU Control House	December 2003	
Water Treatment	December 2003	
Truck Stalls	October 2005	
Tech Services Battery Building	December 2010	
New Control House	2015	
New Warehouse Building	2018	

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).

The facility produces electricity.

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

See Attachment H.

[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	Steam	Electricity
Water		

Attachment: Click to enter text.

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: I

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: FEMA Flood Insurance Rate Map No. 4806370050B.

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: FEMA Flood Insurance Map No. 4806370050B shows the facility to be within the 100-year frequency flood plain with flood elevations between 100 to 102 feet msl; however, the paved portion of the facility (i.e. the location of the power plant) is at 110.9 feet msl. Therefore, the facility is not subject to flooding during a 100-year flood event.

Attachment: Click to enter text.

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: Click to enter text.

If **no**, provide an approximate date of application submittal to the USACE: Click to enter text.

Item 2. Treatment System (Instructions, Page 40)

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

See Attachment H.

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: J

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

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

Attachment: Click to enter text.

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: Click to enter text.

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: Click to enter text.

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: Click to enter text.

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: Click to enter text.

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

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

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

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

Outfall Longitude and Latitude

Outfall No.	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
001	28.533252	-97.8942
201	28.534094	-97.8774
301	28.534070	-97.8463
001A	28.53380	-97.8370

Outfall Location Description

Outfall No.	Location Description
001	Discharge is directly to the Guadalupe River in Segment No. 1803
201	At a ¾ inch tubing tap off of the cooling tower blowdown line, approx.. 15 ft. upstream of the storm sewer system prior to co-mingling with 301 effluent
301	At a sump where low volume wastes are monitored upstream of 001
001A	Alternative sampling location for 001 when it is inaccessible

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

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

Outfall Flow Information – Permitted and Proposed

Outfall No.	Permitted Daily Avg Flow (MGD)	Permitted Daily Max Flow (MGD)	Proposed Daily Avg Flow (MGD)	Proposed Daily Max Flow (MGD)	Anticipated Discharge Date (mm/dd/yy)
001	0.264	0.528	0.264	0.528	
201	0.19	0.25	0.19	0.25	
301	0.264	0.528	0.264	0.528	
001A	0.264	0.528	0.264	0.528	

Outfall Discharge – Method and Measurement

Outfall No.	Pumped Discharge? Y/N	Gravity Discharge? Y/N	Type of Flow Measurement Device Used
001	No	Yes	Sum of 201 and 301
201	Yes	No	Meter
301	Yes	No	Sum of 201 and RO Logbook
001A	No	Yes	Sum of 201 and 301

Outfall Discharge – Flow Characteristics

Outfall No.	Intermittent Discharge? Y/N	Continuous Discharge? Y/N	Seasonal Discharge? Y/N	Discharge Duration (hrs/day)	Discharge Duration (days/mo)	Discharge Duration (mo/yr)
001	No	No	Yes	24	28-31	12
201	No	No	Yes	24	28-31	12
301	No	No	Yes	24	28-31	12
001A	No	No	Yes	24	28-31	12

Outfall Wastestream Contributions

Outfall No. 001/001A

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow
Cooling Tower Blowdown	0.19	72
Low Volume Wastes	0.0737	28

Outfall No. 201

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow
Cooling Tower Blowdown	0.19	100

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

Outfall No. 301

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow
Low Volume Wastes	0.0737	100

Attachment: Click to enter text.

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: K

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	1	190,000	250,000
Boilers	0	N/A	N/A

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: Moving, repairing, and transporting equipment with oil inside. This could result in spills, which are promptly addressed.

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

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

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

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

☐ Domestic sewage disposed of by an on-site septic tank and drainfield system. Complete Item 7.b.

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

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

☐ Facility is a POTW. Complete Worksheet 5.0.

☒ Domestic sewage is not generated on-site.

☐ Other (e.g., portable toilets), specify and Complete Item 7.b: Click to enter text.

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

Domestic Sewage Plant/Hauler Name

Plant/Hauler Name	Permit/Registration No.
Victoria City – County Health Department	OSSF Permit No. 2015-147
Septage Haulter: Contracted as needed to pump out septic system	

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)

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

☐ Yes ☒ No

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

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

b. Attach the following information to the application:

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

Attachment: Click to enter text.

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

☐ Yes ☐ No

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

Attachment: Click to enter text.

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

☐ Yes ☐ No

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

Item 11. Radioactive Materials (Instructions, Page 46)

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

☐ Yes ☒ No

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

Radioactive Materials Mined, Used, Stored, or Processed

Radioactive Material Name	Concentration (pCi/L)

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				
Owner				
Operator				

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*: Click to enter text.

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: Click to enter text.

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: Click to enter text.

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:
  - periodically inspected by the TCEQ; or
  - located in another state and is accredited or inspected by that state; or
  - performing work for another company with a unit located in the same site; or
  - 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: Clif Lange

Title: General Manager

Signature: _____

Date: 10/9/2024

INDUSTRIAL WASTEWATER PERMIT APPLICATION WORKSHEET 1.0: EPA CATEGORICAL EFFLUENT GUIDELINES

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

Item 1. Categorical Industries (Instructions, Page 53)

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

☒ Yes ☐ No

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

40 CFR Effluent Guideline

Industry	40 CFR Part
Steam Electric Power Generating	423

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

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

a. Production Data

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

Production Data

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

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

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

Percentage of Total Production

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

c. Refineries (40 CFR Part 419)

Provide the applicable subcategory and a brief justification.

N/A

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

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

See Attachment H

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
Floor Drains	423.12	3	1963, 2001
Cooling Tower Blowdown	423.12	7	2001

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): 05/28/2024-06/18/2024

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:** L

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.: 001 **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)	2.03	2.51	<2.00	2.89
CBOD (5-day)	2.05	<2.00	<2.00	<2.00
Chemical oxygen demand	<20.0	97.5	<20.0	<20.0
Total organic carbon	1.80	2.04	7.439	3.65
Dissolved oxygen	7.7	7.3	7.0	8.2
Ammonia nitrogen	4.00	0.591	<0.020	0.520
Total suspended solids	2.10	6.80	<2.00	<2.00
Nitrate nitrogen	<0.1	<0.1	<0.1	<0.1
Total organic nitrogen	<0.100	<0.050	0.882	0.610
Total phosphorus	0.0764	0.338	3.03	3.62
Oil and grease	<4.94	<6.06	<5.24	<4.86
Total residual chlorine	0.00	0.00	0.00	0.00

Pollutant	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)
Total dissolved solids	1790	1070	520	900
Sulfate	124	276	44.9	48.1
Chloride	420	258	152	167
Fluoride	2.79	5.8	1.32	0.95
Total alkalinity (mg/L as CaCO3)	874	325	337	339
Temperature (˚F)	87.1	86.0	88.7	86.9
pH (standard units)	8.3	8.1	8.2	8.2

Table 2 for Outfall No.: 001 **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	9.48	14.4	17.5	10.1	2.5
Antimony, total	<3	<3	<3	<3	5
Arsenic, total	1.65	2.03	0.923	2.27	0.5
Barium, total	533	259	384	228	3
Beryllium, total	<0.5	<0.139	<0.162	<0.162	0.5
Cadmium, total	<0.5	<1	<1	<1	1
Chromium, total	<1	<1	3.68	1.55	3
Chromium, hexavalent	<3.00	<3.00	<15.0	<3.00	3
Chromium, trivalent	<3.00	<3.00	<15.0	<3.00	N/A
Copper, total	10.2	16.6	34.9	9.13	2
Cyanide, available	<5	<5	<5	<5	2/10
Lead, total	<0.244	<0.244	<0.5	<0.5	0.5
Mercury, total	<0.005	0.0197	0.0482	0.723	0.005/0.0005
Nickel, total	1.1	2.05	6.34	<1	2
Selenium, total	<2	<2	<5	<5	5
Silver, total	<0.2	<0.226	<0.276	<0.276	0.5
Thallium, total	<0.106	<0.106	<0.5	<0.966	0.5
Zinc, total	25.9	19.9	53.4	8.51	5.0

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.: 001 **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	<1.00	<2.00	<2.00	<1.00	50
Anthracene	<0.988	<1.13	<1.06	<1.06	10
Benzene	<1.00	<1.00	<1.00	<1.00	10
Benzidine	<19.8	<1.70	<1.59	<1.59	50
Benzo(a)anthracene	<0.988	<1.13	<1.06	<1.06	5
Benzo(a)pyrene	<0.988	<1.13	<1.06	<1.06	5
Bis(2-chloroethyl)ether	<0.988	<1.13	<1.06	<1.06	10
Bis(2-ethylhexyl)phthalate	<7.41	<8.50	<7.96	<7.94	10
Bromodichloromethane [Dichlorobromomethane]	<1.00	<1.00	<1.00	<1.00	10
Bromoform	1.70	<1.00	<2.00	1.56	10
Carbon tetrachloride	<1.00	<1.00	<1.00	<1.00	2
Chlorobenzene	<1.00	<1.00	<1.00	<1.00	10
Chlorodibromomethane [Dibromochloromethane]	<1.00	<1.00	<1.00	1.04	10
Chloroform	<1.00	<1.00	<1.00	<1.00	10
Chrysene	<0.988	<1.13	<1.06	<1.06	5
m-Cresol [3-Methylphenol]	<6.13	<9.07	<8.49	<8.47	10
o-Cresol [2-Methylphenol]	<5.14	<10.0	<10.0	<10.0	10
p-Cresol [4-Methylphenol]	<6.13	<9.07	<8.49	<8.47	10
1,2-Dibromoethane	<1.00	<1.00	<1.00	<1.00	10
m-Dichlorobenzene [1,3-Dichlorobenzene]	<1.00	<1.00	<5.31	<5.29	10
o-Dichlorobenzene [1,2-Dichlorobenzene]	<1.00	<1.00	<5.31	<5.29	10
p-Dichlorobenzene [1,4-Dichlorobenzene]	<1.00	<1.00	<5.31	<5.29	10
3,3'-Dichlorobenzidine	<4.94	<2.27	<2.12	<2.12	5
1,2-Dichloroethane	<1.00	<1.00	<1.00	<1.00	10

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]	<1.00	<1.00	<1.00	<1.00	10
Dichloromethane [Methylene chloride]	<1.02	<1.02	<2.00	<1.02	20
1,2-Dichloropropane	<1.00	<1.00	<1.01	<1.00	10
1,3-Dichloropropene [1,3-Dichloropropylene]	<1.00	<1.00	<1.00	<1.00	10
2,4-Dimethylphenol	<2.37	<1.13	<1.06	<1.06	10
Di-n-Butyl phthalate	<7.41	<8.50	<7.96	<7.94	10
Ethylbenzene	<1.00	<1.00	<1.00	<1.00	10
Fluoride	2790	5800	1320	950	500
Hexachlorobenzene	<0.988	<1.13	<1.06	<1.06	5
Hexachlorobutadiene	<0.988	<1.17	<1.09	<1.09	10
Hexachlorocyclopentadiene	<8.89	<1.13	<1.06	<1.06	10
Hexachloroethane	<0.988	<2.27	<2.12	<2.12	20
Methyl ethyl ketone	<1.00	<1.00	<10.0	<1.00	50
Nitrobenzene	<0.988	<1.13	<1.06	<1.06	10
N-Nitrosodiethylamine	<0.988	<1.13	<1.06	<1.06	20
N-Nitroso-di-n-butylamine	<0.988	<1.13	<1.06	<1.06	20
Nonylphenol	<37.1	<41.4	<35.8	<40.8	333
Pentachlorobenzene	<0.988	<1.13	<1.06	<1.06	20
Pentachlorophenol	<0.988	<5.00	<5.00	<5.00	5
Phenanthrene	<0.988	<1.13	<1.06	<1.06	10
Polychlorinated biphenyls (PCBs) (**)	<0.286	<0.200	<0.200	<0.204	0.2
Pyridine	<5.34	<1.53	<1.43	<1.43	20
1,2,4,5-Tetrachlorobenzene	<0.988	<1.17	<1.09	<1.09	20
1,1,2,2-Tetrachloroethane	<1.00	<1.00	<2.00	<1.00	10
Tetrachloroethene [Tetrachloroethylene]	<1.00	<1.00	<1.00	<1.00	10
Toluene	<1.00	<1.00	<1.00	<1.00	10
1,1,1-Trichloroethane	<1.00	<1.00	<1.00	<1.00	10
1,1,2-Trichloroethane	<1.00	<1.00	<2.00	<1.00	10
Trichloroethene [Trichloroethylene]	<1.00	<1.00	<1.00	<1.00	10

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
2,4,5-Trichlorophenol	<0.988	<5.67	<5.31	<5.29	50
TTHM (Total trihalomethanes)	1.7	<1	<2	2.6	10
Vinyl chloride	<1.00	<1.00	<1.04	<1.00	10

(*) Indicate units if different from µg/L.

(**) Total of detects for PCB-1242, PCB-1254, PCB-1221, PCB-1232, PCB-1248, PCB-1260, and PCB-1016. If all non-detects, enter the highest non-detect preceded by a "<".

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)					0.010
Enterococci (cfu or MPN/100 mL)					N/A
E. coli (cfu or MPN/100 mL)					N/A

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					0.01
Carbaryl					5
Chlordane					0.2
Chlorpyrifos					0.05
4,4'-DDD					0.1
4,4'-DDE					0.1
4,4'-DDT					0.02
2,4-D					0.7
Danitol [Fenpropathrin]					—
Demeton					0.20
Diazinon					0.5/0.1
Dicofol [Kelthane]					1
Dieldrin					0.02
Diuron					0.090

Pollutant	**Sample 1 (µg/L)***	**Sample 2 (µg/L)***	**Sample 3 (µg/L)***	**Sample 4 (µg/L)***	**MAL (µg/L)***
Endosulfan I (*alpha*)					0.01
Endosulfan II (*beta*)					0.02
Endosulfan sulfate					0.1
Endrin					0.02
Guthion [Azinphos methyl]					0.1
Heptachlor					0.01
Heptachlor epoxide					0.01
Hexachlorocyclohexane (*alpha*)					0.05
Hexachlorocyclohexane (*beta*)					0.05
Hexachlorocyclohexane (*gamma*) [Lindane]					0.05
Hexachlorophene					10
Malathion					0.1
Methoxychlor					2.0
Mirex					0.02
Parathion (ethyl)					0.1
Toxaphene					0.3
2,4,5-TP [Silvex]					0.3

* 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.: 001 **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	☐	☐	1.19				400
Color (PCU)	☐	☐	<5				—
Nitrate-Nitrite (as N)	☐	☐	<0.53				—
Sulfide (as S)	☐	☐	<0.02				—
Sulfite (as SO3)	☐	☐	<2.00				—
Surfactants	☐	☐	<0.2				—
Boron, total	☐	☐	2.23				20
Cobalt, total	☐	☐	<0.00026				0.3
Iron, total	☐	☐	0.0283				7
Magnesium, total	☐	☐	18.5				20
Manganese, total	☐	☐	0.00396				0.5
Molybdenum, total	☐	☐	0.0233				1
Tin, total	☐	☐	<0.001				5
Titanium, total	☐	☐	<0.0284				30

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.: 001 **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	<4.00				50
Acrylonitrile	<1.00				50
Benzene	<1.00				10
Bromoform	1.70				10
Carbon tetrachloride	<1.00				2
Chlorobenzene	<1.00				10
Chlorodibromomethane	<1.00				10
Chloroethane	<1.12				50
2-Chloroethylvinyl ether	<1.00				10
Chloroform	<1.00				10
Dichlorobromomethane [Bromodichloromethane]	<1.00				10
1,1-Dichloroethane	<1.00				10
1,2-Dichloroethane	<1.00				10
1,1-Dichloroethylene [1,1-Dichloroethene]	<1.00				10
1,2-Dichloropropane	<1.00				10
1,3-Dichloropropylene [1,3-Dichloropropene]	<1.00				10
Ethylbenzene	<1.00				10
Methyl bromide [Bromomethane]	<1.00				50
Methyl chloride [Chloromethane]	<1.00				50
Methylene chloride [Dichloromethane]	<1.02				20
1,1,2,2-Tetrachloroethane	<1.00				10
Tetrachloroethylene [Tetrachloroethene]	<1.00				10
Toluene	<1.00				10
1,2-Trans-dichloroethylene [1,2-Trans-dichloroethene]	<1.00				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	<1.00				10
1,1,2-Trichloroethane	<1.00				10
Trichloroethylene [Trichloroethene]	<1.00				10
Vinyl chloride	<1.00				10

* Indicate units if different from µg/L.

Table 9 for Outfall No.: 001 **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	<0.988				10
2,4-Dichlorophenol	<0.988				10
2,4-Dimethylphenol	<2.37				10
4,6-Dinitro-o-cresol	<7.91				50
2,4-Dinitrophenol	<8.89				50
2-Nitrophenol	<0.988				20
4-Nitrophenol	<0.988				50
p-Chloro-m-cresol	<2.37				10
Pentachlorophenol	<0.988				5
Phenol	<1.48				10
2,4,6-Trichlorophenol	<0.988				10

* Indicate units if different from µg/L.

Table 10 for Outfall No.: N/A **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.: N/A **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 (Ronnel) 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					10
1,2,3,7,8-PeCDD	1.0					50
2,3,7,8-HxCDDs	0.1					50
1,2,3,4,6,7,8-HpCDD	0.01					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					10
1,2,3,7,8-PeCDF	0.03					50
2,3,4,7,8-PeCDF	0.3					50
2,3,7,8-HxCDFs	0.1					50
2,3,4,7,8-HpCDFs	0.01					50
OCDD	0.0003					100
OCDF	0.0003					100
PCB 77	0.0001					500
PCB 81	0.0003					500
PCB 126	0.1					500
PCB 169	0.03					500
Total						

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

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

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: Click to enter text.

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

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

☐ livestock watering
☐ non-contact recreation
☐ domestic water supply
☐ contact recreation
☐ fishing
☐ industrial water supply
☐ irrigation withdrawal
☐ navigation
☐ picnic/park activities
☐ 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

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
501	☒	☐
502	☒	☐
503	☒	☐
504	☒	☐
505	☒	☐
	☐	☐
	☐	☐
	☐	☐

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: Click to enter text.

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)

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

Wettest month: Click to enter text.

Average rainfall for wettest month (total inches): Click to enter text.

25-year, 24-hour rainfall (inches): Click to enter text.

Source: Click to enter text.

c. Attach an inventory, or list, of materials currently handled at the facility that may be exposed to precipitation. **Attachment:** Click to enter text.

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:** Click to enter text.

e. Describe any BMPs and controls the facility uses/proposes to prevent or effectively reduce pollution in stormwater discharges from the facility: Click to enter text.

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): 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 Table 17 as directed on page 92 of the Instructions.

Table 14 for Outfall No.: Click to enter text.

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)	(max)	—	(min)	—		—
Total suspended solids						—
Chemical oxygen demand						—
Total organic carbon						—
Oil and grease						—
Arsenic, total						0.0005
Barium, total						0.003
Cadmium, total						0.001
Chromium, total						0.003
Chromium, trivalent						—
Chromium, hexavalent						0.003
Copper, total						0.002

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)
Lead, total						0.0005
Mercury, total						0.000005
Nickel, total						0.002
Selenium, total						0.005
Silver, total						0.0005
Zinc, total						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 15 for Outfall No.: Click to enter text.

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

* Taken during first 30 minutes of storm event

** Flow-weighted composite sample

Attachment: Click to enter text.

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: Click to enter text.

Duration of storm event (minutes): Click to enter text.

Total rainfall during storm event (inches): Click to enter text.

Number of hours the between beginning of the storm measured and the end of the previous measurable storm event (hours): Click to enter text.

Maximum flow rate during rain event (gallons/minute): Click to enter text.

Total stormwater flow from rain event (gallons): Click to enter text.

ATTACHMENT H

SOUTH TEXAS ELECTRIC COOPERATIVE, INC.
SAM RAYBURN POWER PLANT

WASTEWATER GENERATING PROCESSES

The Sam Rayburn Power Plant site is located at 2849 Farm-to-Market Road 447, on the east bank of the Guadalupe River, approximately 3.0 miles southwest of the community of Nursery, in Victoria County, Texas. The site serves as the corporate headquarters for South Texas Electric Cooperative, Inc., as well as a power generating station. The plant was established in 1963 with the commissioning of two dual-fuel 11.25 megawatt (MW) combustion turbines (i.e., Units #1 and #2). In 1965, a dual-fuel fired boiler and associated steam turbine (i.e., Unit #3) were added. Three combustion turbines and a steam turbine in combined cycle were added to the facility in 2003 as part of a 177 MW expansion. The plant also includes auxiliaries for the combined cycle system, three electrical substations, and several smaller diesel reciprocating engines.

Unit #3 was retired in June 2012. This retirement removed a low volume wastewater stream from Outfall 101, leaving only storm water flows at this discharge point. The retirement also removed the once-through cooling water flow that formed the majority of the permitted wastewater flows at the site prior to 2012. The combined cycle system and storm water drainage system now serve as the primary sources of wastewater after the retirement of Unit #3. The processes associated with the combined cycle system are described in greater detail below.

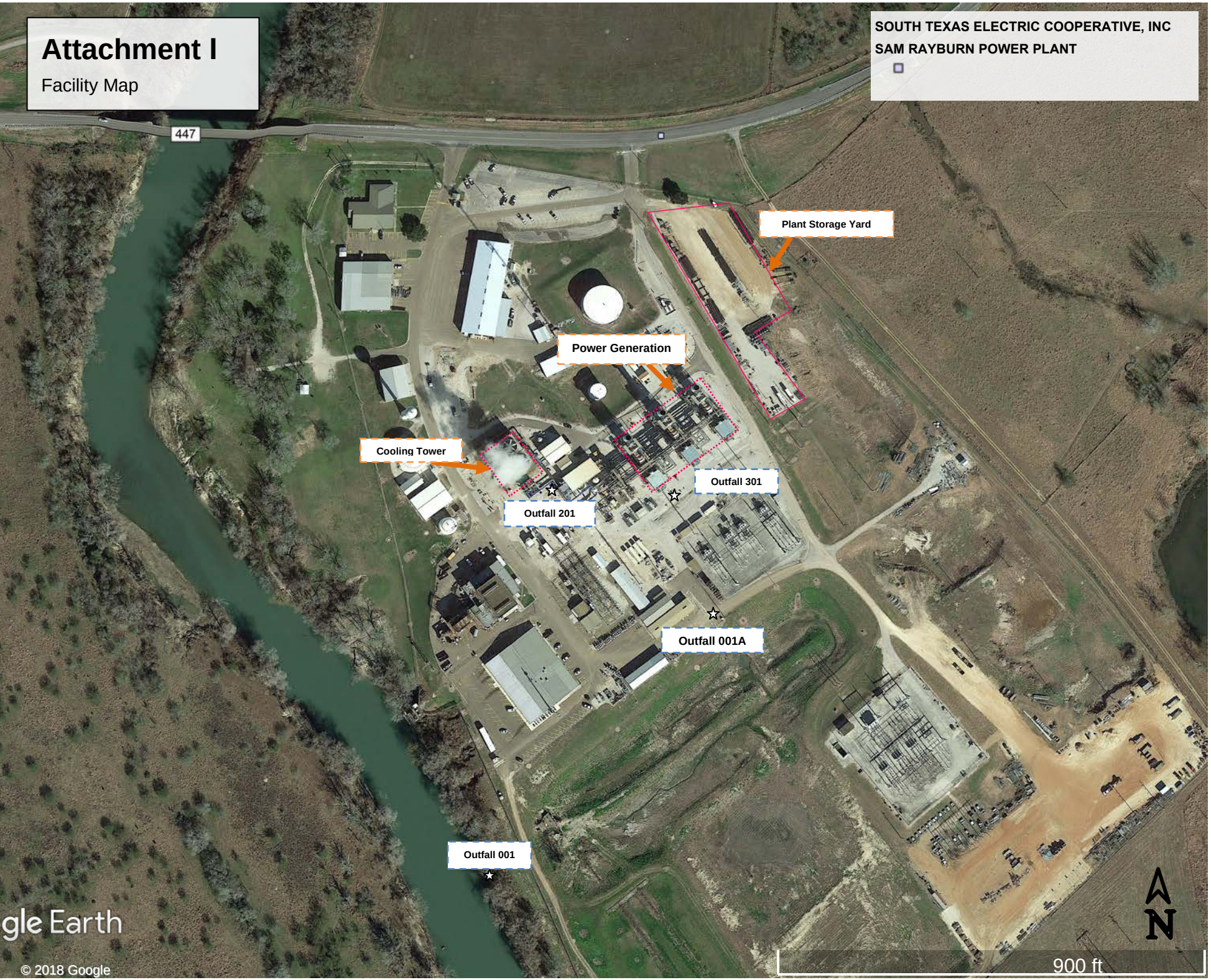
Purified water is required for use as steam cycle make-up water and for injection into the gas turbines to augment turbine output and control emissions. To provide purified water for these applications, well water is processed through a multi-step greensand pretreatment, micro-filtration, reverse osmosis, and ion exchange system on a daily basis. The reverse osmosis system reject water is collected in a basin and forwarded to a lift station by pump. The purified water is used as make-up for water heat recovery steam generators (HRSG) 7, 8, and 9. This water is further treated with chemicals to reduce oxygen content, inhibit corrosion, and control pH. Blowdown from HRSG 7, 8, and 9 is collected in two below-grade blowdown sumps and pumped to the cooling tower.

The cooling tower is supplied with make-up water pumped from two wells (i.e., Wells #3 and #4) on site. This water is treated with chemicals to control biological growth, scaling, and pH. Blowdown from the cooling tower is discharged via internal outfall 201 into drop inlet #9 (DI-9).

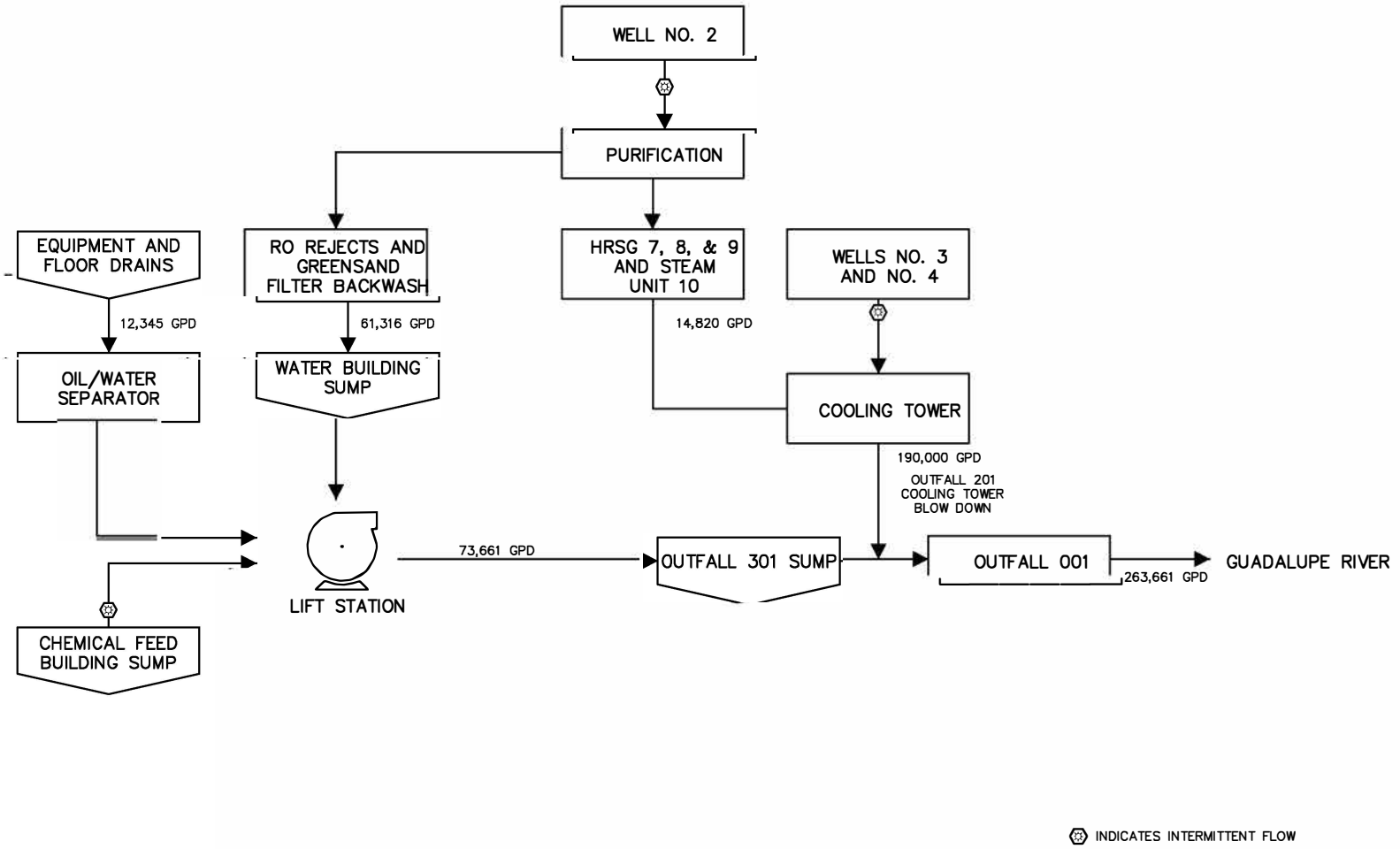
Domestic wastewater is treated separately from industrial wastewater, and there is no discharge of domestic wastewater effluent from the site. The facility treats and disposes of domestic wastewater via three aerobic septic systems with an onsite spray field. Potable water is supplied by an onsite well (i.e., Well #2).

Attachment I

Facility Map



ALAN PLUMMER ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERS AND SCIENTISTS



ATTACHMENT J
SOUTH TEXAS ELECTRIC COOPERATIVE, INC.
SAM RAYBURN POWER PLANT
PROCESS FLOW SCHEMATIC

ATTACHMENT K

SOUTH TEXAS ELECTRIC COOPERATIVE, INC.
SAM RAYBURN POWER PLANT
APPLICATION FOR INDUSTRIAL TPDES PERMIT AMENDMENT
MSDS INFORMATION

The Sam Rayburn Power Plant (Plant) does not monitor effluent specifically for chemicals added to the cooling tower and other units. Presented below are the amount of each chemical used and the corresponding concentration of whole product for Outfall 001 given measured discharge flow. Many of the chemicals are neutralized or otherwise consumed in Plant processes; thus, this attachment does not present discharge concentrations. The concentrations presented below are the result of the average amount of chemical consumed (lbs.) per year (2022-2023) divided by the average amount of effluent (lbs.) during the same period. Material Safety Data Sheets for each chemical are attached hereto.

Chemical Name	Average Amount Consumed/yr (lbs.)	Frequency of Product Use	Concentration (ppm)	Whole Product	Active Ingredient
Sodium Bisulfite (Suez DCL-30)	6,720	5 hours/daily	23.0	X	
Anti-Scalant/dispersant (phosphoric acid) (Suez Hypersperse MDC772)	1,080	5 hours/daily	3.6	X	
Biocide MBC 2881[1]	Varies	As Needed		X	
Biocide MBC781	2,093	5 hours/daily	7.0	X	
Sodium Hydroxide (Caustic Soda Beads)	2,250	5 hours/daily	8.1	X	
Acidic Membrane Cleaner (Suez MCT 103)[1]	Varies	As Needed		X	
Alkaline Membrane Cleaner (Suez MCT 411)[1]	Varies	As Needed		X	
Sodium Hypochlorite (10% Chlorine)	73,117	9 hours/daily	252.6	X	
Molybdate (MoO_4) (Suez Corrshield MD 4100)	464	24 hours/annually	1.6	X	
Sodium Hydroxide / Phosphate blend (Suez Optisperse 54675)	Varies	As Needed		X	
Carbonic Diahydrazide (Suez Cortrol OS5607)	12,595	9 hours/daily	44.2	X	

Chemical Name	Average Amount Consumed/yr (lbs.)	Frequency of Product Use	Concentration (ppm)	Whole Product	Active Ingredient
Monothanolamine / ammonium hydroxide (Suez Steamate NA 1324)	8,918	9 hours/daily	30.2	X	
Sulfuric Acid	256,805	9 hours/daily	888.3	X	
Dispersant (Nalco 3DT120)	12,305	9 hours/daily	42.4	X	
Phosphate / Phosphoric (Nalco 3DT175)	11,118	9 hours/daily	37.9	X	
Yellow Metal Corrosion Inhibiter (Nalco 3DT398)	4,197	9 hours/daily	14.6	X	

1. These chemicals are used for one-time batch processes with the reverse osmosis system needs cleaning and may be used once per year.

GE Power & Water
Water & Process Technologies

SAFETY DATA SHEET

BETZ*DEARBORN DCL30

1. Identification

Product identifier **BETZDEARBORN DCL30**

Other means of identification None.

Recommended use Dechlorination agent

Recommended restrictions None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Serious eye damage/eye irritation	Category 2B
Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation

OSHA defined hazards Not classified.

Label elements

Signal word Warning

Hazard statement Causes eye irritation. May cause respiratory irritation.

Precautionary statement

Prevention Avoid breathing mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area.

Response 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. Call a poison center/doctor// if you feel unwell. If eye irritation persists: Get medical advice/attention.

Storage Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations. Dispose of contents/container to .

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
Sodium bisulphite	7631-90-5	20 - 40

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Rinse skin with water/shower.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention if irritation develops and persists.

Ingestion Rinse mouth. If ingestion of a large amount does occur, call a poison control center immediately.

Most important symptoms/effects, acute and delayed Exposed individuals may experience eye tearing, redness, and discomfort. Irritation of eyes and mucous membranes. May cause respiratory irritation. Skin irritation.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Water. Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors or mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid discharge into drains, water courses or onto the ground. Water contaminated with this product may be sent to a sanitary sewer treatment facility, or a permitted waste treatment facility, in accordance with any local agreements.

7. Handling and storage

Precautions for safe handling Vent carefully before opening. Sulfur dioxide can be formed during the normal use and handling of this product. Avoid breathing mist or vapor. Avoid contact with eyes. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Use care in handling/storage.

Conditions for safe storage, including any incompatibilities Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Store in accordance with local/regional/national/international regulation. Avoid freezing. If frozen, thaw completely and mix thoroughly prior to use.

8. Exposure controls/personal protection

Occupational exposure limits

US. ACGIH Threshold Limit Values

Components	Type	Value
Sodium bisulphite (CAS 7631-90-5)	TWA	5 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Sodium bisulphite (CAS 7631-90-5)	TWA	5 mg/m3

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.

Individual protection measures, such as personal protective equipment

Eye/face protection Chemical goggles are recommended.

Skin protection

Hand protection Chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection Chemical respirator with organic vapor cartridge and full facepiece. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance

Color Colorless to light yellow

Physical state Liquid

Odor Strong

Odor threshold Not available.

pH (concentrated product) 4.5

pH in aqueous solution 4.9 (5% SOL.)

Melting point/freezing point 18 °F (-8 °C)

Initial boiling point and boiling range 220 °F (104 °C)

Flash point Not applicable.

Evaporation rate < 1 (Ether = 1)

Flammability (solid, gas) Not available.

Upper/lower flammability or explosive limits

Flammability limit - lower (%) Not available.

Flammability limit - upper (%) Not available.

Explosive limit - lower (%) Not available.

Explosive limit - upper (%) Not available.

Vapor pressure 18 mm Hg

Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	1.27
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	6 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Percent volatile	0 (Calculated)
Pour point	23 °F (-5 °C)
Specific gravity	1.27

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Contact with incompatible materials. None under normal conditions.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Oxides of sulphur evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Causes eye irritation.
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	Irritation of eyes and mucous membranes. Exposed individuals may experience eye tearing, redness, and discomfort. May cause respiratory irritation. Skin irritation.

Information on toxicological effects

Acute toxicity May cause respiratory irritation.

Product	Species	Test Results
BETZDEARBORN DCL30 (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
Inhalation		
LC50	Rat	> 5 mg/l, 4 hours, (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	3320 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
Sodium bisulphite (CAS 7631-90-5)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Inhalation		
LC50	Rat	> 5.5 mg/l, 4 Hour
Oral		
LD50	Rat	1420 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Causes eye irritation.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Sodium bisulphite (CAS 7631-90-5) 3 Not classifiable as to carcinogenicity to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not available.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not available.

Aspiration hazard Not available.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity

Product		Species	Test Results
BETZDEARBORN DCL30 (CAS Mixture)			
	LC50	Fathead Minnow	225 mg/L, Static Renewal Bioassay, 96 hour
		Menidia beryllina (Silversides)	930 mg/L, Static Acute Bioassay, 96 hour, (pH adjusted)
		Mysid Shrimp	370 mg/L, Static Acute Bioassay, 48 hour, (pH adjusted)
	NOEL	Fathead Minnow	160 mg/L, Static Renewal Bioassay, 96 hour
		Menidia beryllina (Silversides)	156 mg/L, Static Acute Bioassay, 96 hour, (pH adjusted)
		Mysid Shrimp	156 mg/L, Static Acute Bioassay, 48 hour, (pH adjusted)
Aquatic			
Crustacea	LC50	Daphnia magna	225 mg/L, Static Renewal Bioassay, 48 hour
	NOEL	Daphnia magna	160 mg/L, Static Renewal Bioassay, 48 hour

Product		Species	Test Results
Fish	0% Mortality	Rainbow Trout	100 mg/L, Static Screen, 48 hour
	100% Mortality	Rainbow Trout	500 mg/L, Static Screen, 48 hour

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects Not available.

Persistence and degradability

- COD (mgO2/g) 49 (calculated data)

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number UN3082

UN proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (SODIUM BISULFITE SOLUTION), RQ

Transport hazard class(es)

Class 9

Subsidiary risk -

Packing group III

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

ERG number 171

Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IATA

Not regulated as dangerous goods.

IMDG

UN number UN3082

UN proper shipping name ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S. (SODIUM BISULFITE SOLUTION), RQ

Transport hazard class(es)

Class 8

Subsidiary risk -

Packing group III

Environmental hazards

Marine pollutant No.

EmS Not available.

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

DOT

IMDG

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sodium bisulphite (CAS 7631-90-5) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No

Country(s) or region	Inventory name	On inventory (yes/no)*
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

NSF Registered and/or meets USDA (according to 1998 guidelines):

Registration No. – 147820
Category Code(s):
G5 Cooling and retort water treatment products
G6 Boiler treatment products, steam line products – food contact

US state regulations

US - Massachusetts RTK - Substance List

Sodium bisulphite (CAS 7631-90-5)

US - Pennsylvania RTK - Hazardous Substances

Sodium bisulphite (CAS 7631-90-5)

US - Rhode Island RTK

Sodium bisulphite (CAS 7631-90-5)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Sodium bisulphite (CAS 7631-90-5)

US. Pennsylvania Worker and Community Right-to-Know Law

Sodium bisulphite (CAS 7631-90-5)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date Oct-16-2014

Revision date Aug-03-2015

Version # 1.0

List of abbreviations

CAS: Chemical Abstract Service Registration Number
TWA: Time Weighted Average
STEL: Short Term Exposure Limit
LD50: Lethal Dose, 50%
LC50: Lethal Concentration, 50%
EC50: Effect Concentration, 50%
NOEL: No Observed Effect Level
COD: Chemical Oxygen Demand
BOD: Biochemical Oxygen Demand
TOC: Total Organic Carbon
CEN: European Committee for Standardisation
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods Code
NFPA: National Fire Protection Association
ACGIH: American Conference of Governmental Industrial Hygienists
TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.

References: No data available

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.
Revision Information	Hazard(s) identification: Hazard statement Hazard(s) identification: Prevention Composition/information on ingredients: Composition comments First-aid measures: Skin contact First-aid measures: Most important symptoms/effects, acute and delayed Handling and storage: Precautions for safe handling Physical & Chemical Properties: Multiple Properties Toxicological Information: Toxicological Data Toxicological information: Reproductive toxicity Toxicological information: Inhalation Toxicological information: Symptoms related to the physical, chemical and toxicological characteristics Other information, including date of preparation or last revision: Prepared by GHS: Classification
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

SAFETY DATA SHEET
HYPERSPERSE* MDC772

1. Identification

Product identifier	**HYPERSPERSE MDC772**
Other means of identification	None.
Recommended use	Membrane Deposit Control Agent
Recommended restrictions	None known.

Company/undertaking identification

SUEZ WTS USA, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Skin corrosion/irritation	Category 2
	Serious eye damage/eye irritation	Category 2
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
OSHA defined hazards	Not classified.	

Label elements

Signal word	Warning
Hazard statement	Causes skin irritation. Causes serious eye irritation. May cause respiratory irritation.
Precautionary statement	
Prevention	Avoid breathing mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear eye protection/face protection. Wear protective gloves.
Response	If on skin: Wash with plenty of water. 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. Call a poison center/doctor if you feel unwell. Specific treatment (see on this label). If skin irritation occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of waste and residues in accordance with local authority requirements.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
Phosphonic acid, (1-hydroxyethylidene)bis-, sodium salt	29329-71-3	10 - 20

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Wash with plenty of soap and water. If skin irritation occurs: Get medical advice/attention.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. If eye irritation persists: Get medical advice/attention.

Ingestion Call a physician immediately. Rinse mouth. Do not induce vomiting.

Most important symptoms/effects, acute and delayed Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.

General information If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist or vapor. Do not touch or walk through spilled material. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid discharge into drains, water courses or onto the ground. Water contaminated with this product may be sent to a sanitary sewer treatment facility, or a permitted waste treatment facility, in accordance with any local agreements.

7. Handling and storage

Precautions for safe handling Avoid breathing mist or vapor. Avoid contact with eyes, skin, and clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities	Store locked up. Keep container tightly closed. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product. Adequate ventilation to maintain air contaminants below exposure limits.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles).
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Suitable gloves can be recommended by the glove supplier. Glove selection must take into account any solvents and other hazards present.
Other	Wear appropriate chemical resistant clothing.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Color	Amber
Physical state	Liquid
Odor	Slight
pH (concentrated product)	2.5 Neat
pH in aqueous solution	2.9 (5% Solution)
Initial boiling point and boiling range	219 °F (104 °C)
Flash point	> 214 °F (> 101 °C) P-M(CC)
Evaporation rate	Slower than Ether
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	18 mmHg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1
Relative density	1.2
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Viscosity	12 mPa.s
Viscosity temperature	70 °F (21 °C)
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.

Pour point	24 °F (-4 °C)
Specific gravity	1.202
VOC	0 % ESTIMATED

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials.
Incompatible materials	Contact with strong bases may cause a violent reaction releasing heat.
Hazardous decomposition products	Oxides of carbon, nitrogen and phosphorus evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system.
Skin contact	Causes skin irritation.
Eye contact	Causes serious eye irritation.
Ingestion	Expected to be a low ingestion hazard.
Symptoms related to the physical, chemical and toxicological characteristics	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. May cause respiratory irritation. Skin irritation. May cause redness and pain.

Information on toxicological effects

Acute toxicity May cause respiratory irritation.

Product	Species	Test Results
HYPERSPERSE MDC772 (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
Phosphonic acid, (1-hydroxyethylidene)bis-, sodium salt (CAS 29329-71-3)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg
Oral		
LD50	Rat	1340 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Causes skin irritation.
Serious eye damage/eye irritation	Causes serious eye irritation.

Respiratory or skin sensitization

Respiratory sensitization	This product is not expected to cause respiratory sensitization.
Skin sensitization	This product is not expected to cause skin sensitization.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not listed.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Not listed.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	May cause respiratory irritation.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Based on available data, the classification criteria are not met.
Chronic effects	Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity

Product		Species	Test Results
HYPERSPERSE MDC772 (CAS Mixture)			
	LC50	Fathead Minnow	5944 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
	NOEL	Fathead Minnow	4000 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
Aquatic			
Crustacea	LC50	Daphnia magna	2205 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
	NOEL	Daphnia magna	1000 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
Fish	LC50	Rainbow Trout	5656 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
	NOEL	Rainbow Trout	4000 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)

Bioaccumulative potential

Mobility in soil	No data available.
Other adverse effects	Not available.

Persistence and degradability

No data available

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

Not regulated as dangerous goods.

Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory information

US federal regulations This product is not known to be a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

US state regulations

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Formaldehyde (CAS 50-00-0) Listed: January 1, 1988

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

US - Massachusetts RTK - Substance List

Not regulated.

US - Pennsylvania RTK - Hazardous Substances

Not regulated.

US - Rhode Island RTK

Not regulated.

US. California Proposition 65

Not Listed.

16. Other information, including date of preparation or last revision

Issue date	Dec-03-2014
Revision date	Dec-20-2017
Version #	2.2
List of abbreviations	IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code CAS: Chemical Abstract Service Registration Number ACGIH: American Conference of Governmental Industrial Hygienists TWA: Time Weighted Average STEL: Short Term Exposure Limit LD50: Lethal Dose, 50% LC50: Lethal Concentration, 50% NOEL: No Observed Effect Level COD: Chemical Oxygen Demand BOD: Biochemical Oxygen Demand TOC: Total Organic Carbon TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.
References:	No data available
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.
Revision information	Physical & Chemical Properties: Multiple Properties GHS: Classification
Prepared by	This SDS has been prepared by SUEZ Regulatory Department (1-215-355-3300).

GE Power
Water & Process Technologies

SAFETY DATA SHEET

BIOMATE* MBC2881

1. Identification

Product identifier **BIOMATE MBC2881**

Other means of identification None.

Recommended use Biocide

Recommended restrictions None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
	Sensitization, skin	Category 1

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement May be corrosive to metals. Harmful if swallowed. Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. Harmful if inhaled.

Precautionary statement

Prevention Keep only in original container. Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear eye protection/face protection. Wear protective gloves.

Response If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/physician. If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.

Storage Store locked up. Store in corrosive resistant container with a resistant inner liner.

Disposal	Dispose of contents/container to an approved facility.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
2,2-dibromo-3-nitrilopropionamide	10222-01-2	20 - 40
Dibromoacetonitrile	3252-43-5	2.5 - 10
Sodium bromide	7647-15-6	2.5 - 10

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Get medical advice/attention if you feel unwell.

Most important symptoms/effects, acute and delayed Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Carbon dioxide, dry chemicals, foam, water spray (fog).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up

Prevent entry into waterways, sewer, basements or confined areas.

Large Spills: Stop the flow of material, if this is without risk. Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Neutralize the spilled material before disposal. Neutralize with approximately 17.2 grams sodium bisulfite or 15.7 grams sodium metabisulfite for every 100 grams biocide product.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions

Avoid discharge into drains, water courses or onto the ground. Water contaminated with this product may be sent to a sanitary sewer treatment facility, or a permitted waste treatment facility, in accordance with any local agreements.

7. Handling and storage

Precautions for safe handling

Do not breathe mist or vapor. Do not taste or swallow. Do not mix with alkaline material. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Use care in handling/storage.

Conditions for safe storage, including any incompatibilities

Store locked up. Store in a cool, dry place out of direct sunlight. Store in corrosive resistant container with a resistant inner liner. Keep only in the original container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Store in accordance with local/regional/national/international regulation.

8. Exposure controls/personal protection

Occupational exposure limits

US. Workplace Environmental Exposure Level (WEEL) Guides

Components	Type	Value	Form
Poly(oxy-1,2-ethanediyl),α-hydro-ω-hydroxy-Ethane-1,2-diol, ethoxylated (CAS 25322-68-3)	TWA	10 mg/m3	Particulate.

Biological limit values

No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls

Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.
Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection

Wear safety glasses with side shields (or goggles) and a face shield.

Skin protection

Hand protection

For prolonged or repeated skin contact use suitable protective gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Suitable gloves can be recommended by the glove supplier. Glove selection must take into account any solvents and other hazards present.

Other

Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection

If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.

Thermal hazards

Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations

Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Color

Colorless,yellow,amber

Physical state	Liquid
Odor	Slight
Odor threshold	Not available.
pH (concentrated product)	1.9
pH in aqueous solution	3.3 (5% SOL.)
Melting point/freezing point	0 °F (-18 °C)
Initial boiling point and boiling range	Not available.
Flash point	Not applicable.
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 0.1 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	> 1 (Air = 1)
Relative density	1.27
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	64 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Percent volatile	0 (Calculated)
Pour point	5 °F (-15 °C)
Specific gravity	1.27

10. Stability and reactivity

Reactivity	May be corrosive to metals.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Keep away from heat. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents. Metals. Contact with strong bases may cause a violent reaction releasing heat.
Hazardous decomposition products	Carbon dioxide, bromine, cyanogen bromide, dibromoacetonitrile

11. Toxicological information

Information on likely routes of exposure

Inhalation	Harmful if inhaled.
Skin contact	Causes severe skin burns. May cause an allergic skin reaction.
Eye contact	Causes serious eye damage.

Ingestion Causes digestive tract burns. Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity Harmful if swallowed. May cause an allergic skin reaction.

Product	Species	Test Results
BIOMATE MBC2881 (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
Inhalation		
LC50	Rat	1.3 mg/l, 4 hours, (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	510 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
2,2-dibromo-3-nitrilopropionamide (CAS 10222-01-2)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Inhalation		
LC50	Rat	0.32 mg/l, 4 Hour
Oral		
LD50	Rat	206 mg/kg
Dibromoacetonitrile (CAS 3252-43-5)		
Acute		
Oral		
LD50	Rat	245 mg/kg
Sodium bromide (CAS 7647-15-6)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Oral		
LD50	Rat	4200 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin burns.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Carcinogenic effects are not expected as a result of occupational exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Dibromoacetonitrile (CAS 3252-43-5) 2B Possibly carcinogenic to humans.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not available.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not classified.
Specific target organ toxicity - repeated exposure	Not classified.
Aspiration hazard	Based on available data, the classification criteria are not met. May be harmful if swallowed and enters airways.
Chronic effects	Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity

Product		Species	Test Results
BIOMATE MBC2881 (CAS Mixture)			
	LC50	Bluegill Sunfish	6.5 mg/L, Static Acute Bioassay, 96 hour
		Fathead Minnow	8.7 mg/L, Static Renewal Bioassay, 96 hour
		Marine Copepod (Acartia tonsa)	1.78 mg/L, Static Acute Bioassay, 48 hour
		Sheepshead Minnow	7 mg/L, Static Acute Bioassay, 96 hour
	NOEL	Fathead Minnow	3.1 mg/L, Static Renewal Bioassay, 96 hour
Aquatic			
Crustacea	EC50, reproduction	Daphnia magna	0.65 mg/L, Flow-Thru Life-Cycle Chronic Bioassay, 21 day
	LC50	Daphnia magna	3.3 mg/L, Static Renewal Bioassay, 48 hour
	NOEL	Daphnia magna	2.15 mg/L, Static Renewal Bioassay, 48 hour
	Reproduction NOEL	Daphnia magna	0.35 mg/L, Flow-Thru Life-Cycle Chronic Bioassay, 21 day
Fish	LC50	Rainbow Trout	2.3 mg/L, Static Acute Bioassay, 96 hour
	NOEL	Rainbow Trout	1.8 mg/L, Static Acute Bioassay, 96 hour

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)	
2,2-dibromo-3-nitrilopropionamide	0.79
Bioconcentration factor (BCF)	
2,2-dibromo-3-nitrilopropionamide	13 Estimated Species: Fish

Mobility in soil	No data available.
Other adverse effects	Not available.
Persistence and degradability	
	78 % degradation in 28 days CO2 Evolution (Modified Sturm Test) (OECD 301B) (Refers to active component: 2,2-dibromo-3-nitrilopropionamide)
- COD (mgO2/g)	1090 (calculated data)
- BOD 5 (mgO2/g)	0 (calculated data)
- BOD 28 (mgO2/g)	0 (calculated data)
- Closed Bottle Test (% Degradation in 28 days)	0
- Zahn-Wellens Test (% Degradation in 28 days)	0
- TOC (mg C/g)	300 (calculated data)
- CO2 evolution (modified Sturm test)	78

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of in approved pesticide facility or according to label instructions. Incinerate the material under controlled conditions in an approved incinerator.
Hazardous waste code	D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel] The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN3265
UN proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (2,2,DIBROMO-3-NITRILOPROPIONAMIDE)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
ERG number	153

Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IATA

UN number	UN3265
UN proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (2,2,DIBROMO-3-NITRILOPROPIONAMIDE)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN3265
UN proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (2,2 DIBROMO-3-NITRILOPROPIONAMIDE)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
This is an EPA registered biocide and is exempt from TSCA inventory requirements. See FIFRA registry number.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)

Hazardous substance

Safe Drinking Water Act (SDWA)

Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

FIFRA registration number

3876-95

TSCA

This is an EPA registered biocide and is exempt from TSCA inventory requirements.

FIFRA hazard statement

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

DANGER
Corrosive
Causes irreversible eye damage
Harmful if inhaled, swallowed, or absorbed through the skin
Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals
This pesticide is toxic to fish and aquatic organisms

Food and drug administration

The ingredients in this product are approved by FDA under 21 CFR 176.300.

US state regulations

US - Massachusetts RTK - Substance List

Not regulated.

US - Pennsylvania RTK - Hazardous Substances

Not regulated.

US - Rhode Island RTK

2,2-dibromo-3-nitrilopropionamide (CAS 10222-01-2)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. California. Candidate Chemicals List. Safer Consumer Products Regulations (Cal. Code Regs, tit. 22, 69502.3, subd. (a))

Dibromoacetonitrile (CAS 3252-43-5)

US. New Jersey Worker and Community Right-to-Know Act

2,2-dibromo-3-nitrilopropionamide (CAS 10222-01-2)

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Dibromoacetonitrile (CAS 3252-43-5) Listed: May 3, 2011

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date Oct-17-2014

Revision date Feb-09-2016

Version # 5.1

List of abbreviations

CAS: Chemical Abstract Service Registration Number
TWA: Time Weighted Average
STEL: Short Term Exposure Limit
LD50: Lethal Dose, 50%
LC50: Lethal Concentration, 50%
EC50: Effect Concentration, 50%
NOEL: No Observed Effect Level
COD: Chemical Oxygen Demand
BOD: Biochemical Oxygen Demand
TOC: Total Organic Carbon
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods Code
NFPA: National Fire Protection Association
ACGIH: American Conference of Governmental Industrial Hygienists
TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.

References: No data available

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.
Revision information	Hazard(s) identification: Supplemental information Composition / Information on Ingredients: Disclosure Overrides Toxicological information: Carcinogenicity
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

* Trademark of General Electric Company. May be registered in one or more countries.

GE Power & Water
Water & Process Technologies

SAFETY DATA SHEET

BIOMATE* MBC781

1. Identification

Product identifier **BIOMATE MBC781**

Other means of identification None.

Recommended use Biocide

Recommended restrictions None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards

Skin corrosion/irritation	Category 1
Serious eye damage/eye irritation	Category 1
Sensitization, skin	Category 1
Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement Causes severe skin burns and eye damage. May cause an allergic skin reaction. Causes serious eye damage. May cause respiratory irritation.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves/protective clothing/eye protection/face protection.

Response If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor/. Specific treatment (see this label). If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Storage Store in a well-ventilated place. Keep container tightly closed. Store locked up.

Disposal Dispose of contents/container to an approved facility.

Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
Magnesium nitrate	10377-60-3	1 - 2.5
Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-4-isothiazolin-3-one [EC no. 220-239-6] (3:1)	55965-84-9	1 - 2.5

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation If breathing is difficult, remove to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Remove contaminated clothing immediately and wash skin with soap and water. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact Rinse immediately with plenty of water for at least 20 minutes Remove contact lenses, if present and easy to do. Keep eyelids apart. Continue rinsing. Call a physician or poison control center immediately.

Ingestion If ingestion of a large amount does occur, call a poison control center immediately. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed. Corrosive material Possible mucosal damage may contraindicate the use of gastric lavage. It may not be advisable to induce vomiting.

General information IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed. Corrosive liquid.

Special protective equipment and precautions for firefighters Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Absorb the spill with spill pillows or inert solids such as clay or vermiculite. Transfer contaminated materials to suitable containers for disposal. Deactivate spill area with freshly prepared solution of 5% sodium bicarbonate and 5% sodium hypochlorite in water. Apply solution to the spill area at a ratio of 10 volumes deactivation solution per estimated volume of residual spill to deactivate any residual active ingredient. Let stand for 30 minutes. Flush the spill area with copious amounts of water to chemical sewer in accordance with local procedures, permits and regulations. DO NOT add deactivation solution to the waste pail to deactivate the adsorbed material. For waste disposal, see section 13 of the SDS.

Environmental precautions	Avoid discharge into drains, water courses or onto the ground. Water contaminated with this product may be sent to a sanitary sewer treatment facility, or a permitted waste treatment facility, in accordance with any local agreements.

7. Handling and storage

Precautions for safe handling	Avoid all contact with reducing agents, oils, greases, organics and acids. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not get this material on clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store locked up. Store upright in original vented container. Product evolves carbon dioxide gas slowly. Store samples in plastic bottles only. Store away from incompatible materials (see Section 10 of the SDS). Store in accordance with local/regional/national/international regulation.

8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles) and a face shield.
Skin protection	
Hand protection	Chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.
Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
Respiratory protection	Chemical respirator with organic vapor cartridge and full facepiece. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance	
Color	Yellow to blue green
Physical state	Liquid
Odor	Slight
Odor threshold	Not available.
pH (concentrated product)	3
pH in aqueous solution	4 (5% SOL.)
Melting point/freezing point	28 °F (-2 °C)
Initial boiling point and boiling range	220 °F (104 °C)
Flash point	Not applicable.
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.

Explosive limit - upper (%)	Not available.
Vapor pressure	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	1.03
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	8 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Percent volatile	0 (Calculated)
Pour point	33 °F (1 °C)
Specific gravity	1.03

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Contact with incompatible materials. None under normal conditions.
Incompatible materials	Strong oxidizing agents. Reducing agents. Amines. mercaptans
Hazardous decomposition products	Oxides of carbon, nitrogen, and sulphur evolved in fire. Hydrogen chloride.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to the respiratory system.
Skin contact	Causes severe skin burns. May cause an allergic skin reaction.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

Information on toxicological effects

Acute toxicity Causes severe skin burns and eye damage. May cause an allergic skin reaction. May cause respiratory irritation.

Product	Species	Test Results
BIOMATE MBC781 (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg
Inhalation		
LC50	Rat	> 5 mg/l, 4 Hours
Oral		
LD50	Rat	4468 mg/kg

Components	Species	Test Results
Magnesium nitrate (CAS 10377-60-3)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg
Oral		
LD50	Rat	5400 mg/kg
Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-4-isothiazolin-3-one [EC no. 220-239-6] (3:1) (CAS 55965-84-9)		
Acute		
Dermal		
LD50	Rabbit	90 mg/kg
Inhalation		
LC50	Rat	0.33 mg/l, 4 Hour
Oral		
LD50	Rat	67 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin burns.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization This product is not expected to cause respiratory sensitization.

Skin sensitization May cause an allergic skin reaction.

Germ cell mutagenicity Not classified.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Based on available data, the classification criteria are not met.

12. Ecological information

Ecotoxicity

Product		Species	Test Results
BIOMATE MBC781 (CAS Mixture)			
	LC50	Bluegill Sunfish	12.1 mg/L, Static Acute Bioassay, 96 hour
		Fathead Minnow	6.6 mg/L, Flow-Thru Bioassay, 96 hour
		Sheepshead Minnow	20 mg/L, Static Acute Bioassay, 96 hour
	LOEC	Fathead Minnow	4 mg/L, Early Life Stage Test, 36 day
	NOEL	Bluegill Sunfish	6.5 mg/L, Static Acute Bioassay, 96 hour
		Fathead Minnow	2.5 mg/L, Flow-Thru Bioassay, 96 hour
			1.3 mg/L, Early Life Stage Test, 36 day
		Sheepshead Minnow	12 mg/L, Static Acute Bioassay, 96 hour
Aquatic			
Crustacea	10% Mortality	Daphnia magna	0.6 mg/L, Flow-Thru Bioassay, 48 hour
	LC50	Daphnia magna	2.9 mg/L, Flow-Thru Bioassay, 48 hour
Fish	LC50	Rainbow Trout	8.7 mg/L, Static Acute Bioassay, 96 hour
			4.6 mg/L, Chronic Bioassay, 14 day

Product		Species	Test Results
	NOEL	Rainbow Trout	6.5 mg/L, Static Acute Bioassay, 96 hour
			3.3 mg/L, Chronic Bioassay, 14 day

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential No information available.

Partition coefficient n-octanol / water (log Kow)

Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one [EC no. 247-500-7] and 2-methyl-4-isothiazolin-3-one [EC no. 220-239-6] (3:1) 0.49

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

Persistence and degradability

- **COD (mgO2/g)** 17 (calculated data)
- **BOD 5 (mgO2/g)** 0 (calculated data)
- **BOD 28 (mgO2/g)** 0 (calculated data)
- **Closed Bottle Test (% Degradation in 28 days)** 0 (calculated data)
- **Zahn-Wellens Test (% Degradation in 28 days)** 0 (calculated data)
- **TOC (mg C/g)** 6 (calculated data)

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Dispose of contents/container in accordance with local/regional/national/international regulations. Dispose of in approved pesticide facility or according to label instructions.

Hazardous waste code The waste code should be assigned in discussion between the user, the producer and the waste disposal company. D002= Corrosive

Waste from residues / unused products Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number UN3265
UN proper shipping name CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE)
Transport hazard class(es)
Class 8
Subsidiary risk -
Packing group II
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
ERG number 153

Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IATA

UN number UN3265
UN proper shipping name CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE)
Transport hazard class(es)
Class 8
Subsidiary risk -
Packing group II
Environmental hazards Yes

Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN3265
UN proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE), MARINE POLLUTANT
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	Yes
EmS	F - A, S - B
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

DOT

IATA; IMDG

Marine pollutant

General information	IMDG Regulated Marine Pollutant.

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
This is an EPA registered biocide and is exempt from TSCA inventory requirements. See FIFRA registry number.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Magnesium nitrate	10377-60-3	1 - 2.5

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)

Hazardous substance

Safe Drinking Water Act (SDWA)

Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

FIFRA registration number

3876-143

TSCA

This is an EPA registered biocide and is exempt from TSCA inventory requirements.

FIFRA hazard statement

This chemical is a pesticide product registered by the Environmental Protection Agency and is subject to certain labeling requirements under federal pesticide law. These requirements differ from the classification criteria and hazard information required for safety data sheets, and for workplace labels of non-pesticide chemicals. Following is the hazard information as required on the pesticide label:

DANGER
Corrosive
Causes irreversible eye damage and skin burns
May be fatal if absorbed through skin
Harmful if swallowed
Prolonged or frequently repeated skin contact may cause allergic reaction in some individuals
This chemical is toxic to terrestrial and aquatic plants, fish and aquatic invertebrates

Food and drug administration

21 CFR 176.300 & 176.170 (slimicides and as a preservative)

US state regulations

US - Massachusetts RTK - Substance List

Magnesium nitrate (CAS 10377-60-3)

US - Pennsylvania RTK - Hazardous Substances

Magnesium nitrate (CAS 10377-60-3)

US - Rhode Island RTK

Magnesium nitrate (CAS 10377-60-3)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Magnesium nitrate (CAS 10377-60-3)

US. Pennsylvania Worker and Community Right-to-Know Law

Magnesium nitrate (CAS 10377-60-3)

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date	Dec-12-2014
Revision date	Jun-18-2015
Version #	3.0
List of abbreviations	CAS: Chemical Abstract Service Registration Number ACGIH: American Conference of Governmental Industrial Hygienists TWA: Time Weighted Average STEL: Short Term Exposure Limit LD50: Lethal Dose, 50% LC50: Lethal Concentration, 50% NOEL: No Observed Effect Level COD: Chemical Oxygen Demand BOD: Biochemical Oxygen Demand TOC: Total Organic Carbon IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code NFPA: National Fire Protection Association TLV: Threshold Limit Value TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.
References:	No data available
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.
Revision Information	Physical & Chemical Properties: Multiple Properties Transport Information: Material Transportation Information
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

* Trademark of General Electric Company. May be registered in one or more countries.

OxyChem.

Certificate of Analysis

500940

CAUSTIC SODA-BEADS - 50# BAG

UNIVAR USA INC
DIVISION OF UNIVAR
777 BRISBANE ST
HOUSTON TX 77061-5044

Detailed Order Information

Date
11/07/2002
Purchase order item/date
XD-HS-543683
Delivery item/date
80911795 900001 / 11/07/2002
Order item/date
477440 000060 / 11/06/2002
Customer Number
100818
Container Number

Attention: Quality Department

Batch 543X29632 / Quantity 540 BAG

Characteristic	Unit	Value	Specifications Min.	Max.
Total Alkalinity as Na2O	Wt.%	76.50	75.80	-
Hydroxide Alkalinity as NaOH	Wt.%	98.4	97.1	-
Na2CO3	Wt.%	0.50	-	1.00
NaCl by Wt. Percent	Wt.%	0.97	-	1.20
Fe	Wt.ppm	5.8	-	15.0

ISSUED BY: _____

Results may be based on batch and/or typical analysis

Occidental Chemical Corporation
Deer Park Chlor-Alkali
1000 Tidal Road
DEER PARK, TX 77536
Tel: 281/476-2350 FAX: 281/476-2226

UC: CAUSTIC SODA ANHYDROUS (ALL GRADES)

ORDER NO: 226774
PROD NO : 500940

SOUTH TEXAS
ELECTRIC CO-OP
SAM RAYBURN PLT
FM 447
NURSERY ,TX 77976

UVAR USA INC. (425)889-3400
0 CARILLON POINT , KIRKLAND , WA 98033

---------- EMERGENCY ASSISTANCE ----------

FOR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL - CHEMTREC
(800)424-9300

RODUCT NAME: CAUSTIC SODA ANHYDROUS (ALL GRADES)

SDS NUMBER: OC32413

FFECTIVE DATE: 7/30/2001

UPERSEDES: 10/6/1998

SSUED BY: 008730

1. CHEMICAL PRODUCT AND COMPANY IDENTIFICATION
MSDS NUMBER : M32413 ISSUE DATE : 07-30-01
PRODUCT NAME : CAUSTIC SODA ANHYDROUS (ALL GRADES)

Manufacturer's Name and Address :
Occidental Chemical Corporation, Occidental Tower
5005 LBJ Freeway, P.O. Box
809050 Dallas, TX 75380 (972) 404-3800

24 HR EMERGENCY TELEPHONE : 1-800-733-3665 OR 972-404-3228
TO REQUEST AN MSDS : 1-800-699-4970
CUSTOMER SERVICE : 1-800-752-5151

PRODUCT USE : Metal finishing, industrial cleaners, drum cleaners, petroleum industry, chemical processing
CHEMICAL NAME : Sodium hydroxide

REPORT NUMBER: 703 UNIVAR USA INC.
MSDS NO: 0C32413 MATERIAL SAFETY DATA SHEET VERSION: 006
MF ME UPLOAD DATE: 09/21/01

PRODU CAUSTIC SODA ANHYDROUS (ALL GRADES)

ORDER NO: 226774
PROD NO : 500940

CHEMICAL FORMULA : NaOH
SYNONYMS/COMMON NAMES : Sodium hydroxide-dry

2. COMPOSITION/INFORMATION ON INGREDIENTS

CAS NUMBER / NAME
1310-73-2 Sodium hydroxide (Na(OH))

PERCENTAGE	
VOL	ND
WT	97-98.2

EXPOSURE LIMITS
PEL: 2 MG/M3 CEIL
TLV: 2 MG/M3 CEIL
PELZ2: Not Established
COMMON NAMES:
CAUSTIC SODA (MW 40.00)
Listed On (List Legend Below):
00 12 13 21 22 51 56 57

7 7-14-5 Sodium chloride (NaCl)

PERCENTAGE	
VOL	ND
WT	0-1.2

SURE LIMITS
PEL: N Established
TLV: N stablished
PELZ2: Not Established
COMMON NAMES:
Salt (MW 58.4)
Listed On (List Legend Below):
00 22 23 51

497-19-8 Carbonic acid disodium salt

PERCENTAGE	
VOL	ND
WT	0.40-1

EXPOSURE LIMITS
PEL: Not Established
TLV: Not Established
PELZ2: Not Established
COMMON NAMES:
SODA ASH
SODIUM CARBONATE
(MW 106)
Listed On(List Legend Below):
00 22 23 51

LIST LEGEND
00 TSCA INVENTORY
12 PA HAZARDOUS SUBSTANCE
13 PA ENVIROMENTAL HAZ SUBSTANCE
21 NJ SPECIAL HEALTH HAZ SUB
22 CANADIAN DOMESTIC SUB LIST
23 NJ REQUIREMENT- 1% OR GREATER
EINECS
56 OSHA PERMISSIBLE EXPOSURE LIM.
ACGIH THRESHOLD LIMIT VALUES

3. HAZ S IDENTIFICATION

********** EMERGENCY OVERVIEW **********

PRODUC[illegible]: CAUSTIC SODA ANHYDROUS (ALL GRADES)

ORDER NO: 226774
PROD NO : 500940

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* MAY CAUSE BURNS TO THE EYES, SKIN, RESPIRATORY AND
* GASTROINTESTINAL TRACT. MAY CAUSE PERMANENT EYE DAMAGE.
*
* White solid with no distinct odor
****

POTENTIAL HEALTH EFFECTS
ROUTES OF ENTRY:
Inhalation, Ingestion.
TARGET ORGANS:
Eyes, Skin, Respiratory Tract, Gastrointestinal Tract..
IRRITANCY:
All routes of exposure, Corrosive.
SENSITIZING CAPABILITY:
None known.
REPRODUCTIVE EFFECTS:
None known.
CA[illegible]ER INFORMATION:
N[illegible]lassified as carcinogenic by NTP, IARC, OSHA, ACGIH, or NIOSH.
SHORT-T[illegible]M EXPOSURE (ACUTE)
INHALA[illegible]:
Exposure can produce burns.
EYES:
Corrosive.
Contact may cause burns and tissue destruction.
The severity of the effects depend on concentration and how soon after exposure the area is washed.
MAY CAUSE PERMANENT EYE DAMAGE.
SKIN:
Corrosive.
Contact may cause burns and tissue destruction.
May cause burns that are not immediately noticed or painful.
INGESTION:
Corrosive.
Contact may cause burns and tissue destruction.
REPEATED EXPOSURE (CHRONIC)
None known.
SYNERGISTIC MATERIALS:
None known.
MEDICAL CONDITIONS AGGRAVATED BY EXPOSURE:
None known..

4. FIRST AID MEASURES

[illegible]ES:
Immedi[illegible]y flush eyes with a directed stream of water for at least 15 minutes, forcibly holding eyelids apart to ensure complete irrigation of all eye and lid tissues. Washing eyes within several seconds is essential to achieve maximum effectiveness. GET MEDICAL ATTENTION

DUC CAUSTIC SODA ANHYDROUS (ALL GRADES)

ORDER NO: 226774
PROD NO : 500940

EDIATELY.
N:
ediately flush contaminated areas with water. Remove contaminated
thing and footwear. Wash contaminated areas with plenty of soap
water. Wash clothing before reuse. Discard footwear which cannot
decontaminated. GET MEDICAL ATTENTION IMMEDIATELY.
HALATION:
ove to fresh air if safe to transport. Otherwise attempt to
vide fresh air by ventilation. If breathing is difficult, have a
ined person administer oxygen. If respiration or pulse has
pped, have a trained person administer Basic Life Support
rdio-Pulmonary Resuscitation/Automatic External Defibrillator) and
L FOR EMERGENCY SERVICES IMMEDIATELY (911 or emergency transport
rvices).
GESTION:
ver give anything by mouth to an unconscious person. If swallowed,
not uce vomiting. Give large quantities of water. (If
ailable, give several glasses of milk.) If vomiting occurs
ntaneously, keep airway clear and give more water. GET MEDICAL
TEN! IMMEDIATELY.
TES TO PHYSICIAN:
specialized procedures. Treat for clinical symptoms.

FIRE FIGHTING MEASURES

ash Point: Not applicable
thod: Not applicable
toignition Temperature: Not applicable
AMMABLE LIMITS IN AIR, BY % VOLUME
per: Not applicable
wer: Not applicable
TINGUISHING MEDIA:
n-flammable / Non-combustible.
not use water.
e agents appropriate for surrounding fire..
RE FIGHTING PROCEDURES:
ar NIOSH/MSHA approved positive pressure self-contained breathing
paratus and full protective clothing.
RE AND EXPLOSION HAZARD:
irect contact with water can cause a violent exothermic reaction.
NSITIVITY TO MECHANICAL IMPACT:
t sensitive.
NSI TY TO STATIC DISCHARGE:
t sensitive.

. ACCIDENTAL RELEASE MEASURES

ERSONAL PRECAUTIONS:

DUC CAUSTIC SODA ANHYDROUS (ALL GRADES)

ORDER NO: 226774
PROD NO : 500940

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low protective measures provided under Personal Protection in
tion 8.
cuate unnecessary personnel and eliminate all sources of ignition.
IRONMENTAL PRECAUTIONS:
not allow entry into sewers and waterways.
tain material and prevent accumulation of dust.
HODS FOR CLEANING UP:
ep or vacuum spills. To minimize dust, vacuum cleaning is
ferred.

HANDLING AND STORAGE

DLING:
e with adequate ventilation.
id breathing dust.
ar personal protective equipment as described in Exposure
ntro ersonal Protection (Section 8) of the MSDS.
CIAL MIXING AND HANDLING INSTRUCTIONS:
nside ble heat is generated when product is mixed with water.
eref ; when making solutions always carefully follow these steps:.
JAYS wear ALL protective clothing described above. NEVER add water
product. ALWAYS add product, with constant stirring, slowly to
rface of lukewarm (80-100 F) water, to assure product is being
mpletely dissolved as it is added.
oduct can react EXPLOSIVELY with acids, aldehydes, and many other
ganic chemicals, add product VERY gradually, while stirring
nstantly. If product is added too rapidly, or without stirring, and
comes concentrated at bottom of mixing vessel, excessive heat may be
nerated, resulting in DANGEROUS boiling and spattering, and a
ssible IMMEDIATE AND VIOLENT ERUPTION of highly caustic solution.
WAYS empty and clean containers of all residues before adding
oduct, to avoid possible EXPLOSIVE reaction between product and
known residue.
turnable containers should be shipped in accordance with supplier's
commendations. Return shipments should comply with all federal,
ate, and DOT regulations. All residue should be removed from
ntainers prior to disposal.
not allow contact with materials as noted in Section 10.
TORAGE:
ep container tightly closed and properly labeled.
not store in aluminum container or use aluminum fittings or
ansf lines, as flammable hydrogen gas can be generated.

EXPOSURE CONTROLS/PERSONAL PROTECTION

NGINEERING CONTROLS:
andle product in a well ventilated area.
f product is handled in an open system, the use of process

losures, local exhaust ventilation, and/or other engineering
trols should be considered to control airborne levels to below
ommended exposure limits, or below acceptable levels where there
no limits.

SONAL PROTECTION

PIRATORY:

IOSH approved respirator with a dust, fume and mist filter may be
missible under certain circumstances where airborne concentrations
expected to exceed exposure limits, or when symptoms have been
erved that are indicative of overexposure.
espiratory protection program that meets 29 CFR 1910.134 and ANSI
.2 requirements must be followed whenever workplace conditions
rant use of a respirator..

E/FACE:

r chemical safety goggles plus full face shield to protect against
ntact when appropriate (ANSI Z87.1).

DY:

r protective clothing to minimize skin contact.
r chemical resistant gloves such as rubber, neoprene or
yl.

HER:

scard leather items that cannot be decontaminated.
ergency shower and eyewash facility should be in close proximity
NSI Z358.1).

PHYSICAL AND CHEMICAL PROPERTIES

pearance and Odor: White solid with no distinct odor
or Threshold: Not determined
ecific Gravity (Water=1): 2.13 @ 20 C
por Pressure: 42mm Hg @ 1000 C
por Density (Air=1): Not applicable
nsity: Not determined
aporation Rate: Not applicable
Volatiles by Wt: 0
iling Point: 1388 C @ 760 mm Hg (2530 F)
eezing Point: 318 C (604 F)
lting Point: 318 C (604 F)
lubility in Water (% by wt.): 100%
: 0.01 moles/liter has pH 12.0
tanol/Water Partition Coefficient: Not applicable
ermal Decomposition Temperature: Not determined
Sher t applicable
OC (% by wt; g/l): Not applicable.

. STABILITY AND REACTIVITY

EMICAL STABILITY:

OLF CAUSTIC SODA ANHYDROUS (ALL GRADES)

ORDER NO: 226774
PROD NO : 500940

TABLE UNSTABLE
CTS WITH:
IR OXIDIZERS X METALS
WATER X ACIDS X OTHER
EAT ALKALIS NONE
ARDOUS POLYMERIZATION:
URS X WILL NOT OCCUR
MENTS:
oid direct contact with water.
oduct is corrosive to tin, aluminum, zinc and alloys containing
ese metals and will react with these metals in powder form. Avoid
ntact with leather, wool, acids, organic halogen compounds, or
ganic nitro compounds. Hazardous carbon monoxide gas can form upon
ntact with reducing sugars, food and beverage products in enclosed
aces and can cause death. Follow appropriate tank entry procedures.
olonged contact with aluminum may produce flammable hydrogen gas.
ZARD DECOMPOSITION PRODUCTS:
ne.

. TO OLOGICAL INFORMATION

10-73-2 Sodium hydroxide (Na(OH))
is substance is alkaline and corrosive. Minimize contact. The
ritating and corrosive properties of this substance depend on its
ncentration. It is toxic by the oral route. It may cause burns and
her effects to the mucous membranes, mouth and digestive tract. Its
rmal toxicity has not been determined. It may cause burns that are
t immediately noticed or painful. Inhalation of dust or vapors can
use airway effects including burns. This substance is irritating
d corrosive to the eyes and skin.
e irritating and corrosive properties of this substance depend on
s concentration. In general, serious injury is associated with
oducts with a pH of 11.5 or higher.
r further information call or write the address shown on page 1 of
e MSDS..

2. ECOLOGICAL INFORMATION

310-73-2 Sodium hydroxide (Na(OH))
XICITY: This material is believed to be slightly toxic to aquatic
ife.
ERSISTENCE: This material is believed to be unlikely to persist in
he environment.
IOACCUMULATION: This material is believed to be unlikely to
ioaccumulate.
or further information call or write the address shown on page 1 of
he MSDS.

IDU CAUSTIC SODA ANHYDROUS (ALL GRADES)

ORDER NO: 226774
PROD NO : 500940

. DISPOSAL CONSIDERATIONS

spose of all waste and contaminated equipment in accordance with all
plicable federal, state and local health and environmental
gulations.

. TRANSPORT INFORMATION

T PROPER SHIPPING NAME: Sodium Hydroxide, Solid
T HAZARD CLASS: 8
T IDENTIFICATION NO: UN1823
T PACKING GROUP: II
T HAZARDOUS SUBSTANCE: RQ 1,000 Lbs. (Sodium Hydroxide)
T MARINE POLLUTANT(S): Not Applicable
DITIONAL DESCRIPTION REQUIREMENT: Not Applicable

. REGULATORY INFORMATION

S. F RAL REGULATIONS:
HA Standard 29 CFR 1910.1200 requires that information be provided
employees regarding the hazards of chemicals by means of a hazard
mmunication program including labeling, material safety data sheets,
aining and access to written records. We request that you, and it
your legal duty to, make all information in this Material Safety
ta Sheet available to your employees.
CA:
l components of this product that are required to be on the TSCA
ventory are listed on the inventory..

RA/TITLE III HAZARD CATEGORIES:
the word "YES" appears next to any category, this product may be
portable by you under the requirements of 40 CFR 370. Please
nsult those regulations for details.
mediate(Acute) Health: YES Reactive Hazard YES
layed(Chronic) Health: NO Sudden Release of Pressure NO
ire Hazard: NO

MIS HAZARD RATINGS:
EALTH HAZARD: 3 FIRE HAZARD: 0 REACTIVITY: 2
TATE REGULATIONS:
ee S on 2. COMPOSITION/INFORMATION ON INGREDIENTS list legend for
ppli e state regulation.
onsult local laws for applicability.
NTERN NAL REGULATIONS:
onsul he regulations of the importing country.
ANADA:
HMIS Hazard Class: D1B, D2B, E

U/ CAUSTIC SODA ANHYDROUS (ALL GRADES)

ORDER NO: 226774
PROD NO : 500940

OTHER INFORMATION

additional non-emergency health, safety or environmental
ormation telephone (972) 404-2076 or write to:
idental Chemical Corporation
duct Stewardship Department
5 LBJ Freeway
, Box 809050
las, Texas 75380.

S LEGEND:
IH = American Conference of Governmental Industrial Hygienists
) = Chemical Abstracts Service Registry Number
LING = Ceiling Limit (15 Minutes)
. = Corporate Exposure Limit
A = upational Safety and Health Administration
. = Permissible Exposure Limit (OSHA)
L = Short Term Exposure Limit (15 Minutes)
) = nsportation of Dangerous Goods (Canada)
/ = Threshold Limit Value (ACGIH)
A = Time Weighted Average (8 Hours)
IIS = Worker Hazardous Materials Information System (Canada)
= See Section 3 Hazards Identification - Repeated Exposure(Chronic)
formation
PORTANT: The information presented herein, while not guaranteed,
s prepared by competent technical personnel and is true and accurate
the best of our knowledge. NO WARRANTY OF MERCHANTABILITY OR
TNESS FOR PURPOSE, OR OF ANY OTHER KIND, EXPRESS OR IMPLIED, IS MADE
GARDING PERFORMANCE, STABILITY OR OTHERWISE. This information is
t intended to be all-inclusive as to the manner and conditions of
e, handling and storage. Other factors may involve other or
ditional safety or performance considerations. While our technical
rsonnel will be happy to respond to questions regarding safe
ndling and use procedures, safe handling and use remains the
sponsibility of the customer. No suggestions for use are intended
, and nothing herein shall be construed as a recommendation to
fringe any existing patents or violate any federal, state or local
ws, rules, regulations or ordinances.
is Material Safety Data Sheet (MSDS) covers the following materials:
CAUSTIC SODA-RAYON
CAU SODA-DIAPHRAGM COMPOUNDER
CAU SODA-RAYON NO. 2 FLAKE
CAUSTIC SODA-RAYON NO. 4 FLAKE
CAU SODA-SOLID
CAUS SODA-DIAPHRAGM NO. 2 FLAKE
CAUSTIC SODA-BEADS
CAUSTIC SODA-DIAPHRAGM NO. 4 FLAKE

U CAUSTIC SODA ANHYDROUS (ALL GRADES)

ORDER NO: 226774
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WARNING LABEL INFORMATION

NAL WORD:
GER.
ARD WARNINGS:
CAUSE BURNS TO THE EYES, SKIN, RESPIRATORY AND GASTROINTESTINAL
CT.
CAUSE PERMANENT EYE DAMAGE.
CAUTIONS:
id contact with eyes, skin and clothing.
id breathing dust, vapors or mist.
with adequate ventilation.
h thoroughly after handling; exposure can cause burns which are not
ediately painful or visible.
p container tightly closed and properly labeled.
ST
S:
ediately flush eyes with a directed stream of water for at least 15
ut forcibly holding eyelids apart to ensure complete irrigation
all eye and lid tissues. Washing eyes within several seconds is
sential to achieve maximum effectiveness. GET MEDICAL ATTENTION
EDIATELY.
N:
mediately flush contaminated areas with water. Remove contaminated
thing and footwear. Wash contaminated areas with plenty of soap
d water. Wash clothing before reuse. Discard footwear which cannot
decontaminated. GET MEDICAL ATTENTION IMMEDIATELY.
HALATION:
move to fresh air if safe to transport. Otherwise attempt to
ovide fresh air by ventilation. If breathing is difficult, have a
ained person administer oxygen. If respiration or pulse has
opped, have a trained person administer Basic Life Support
ardio-Pulmonary Resuscitation/Automatic External Defibrillator) and
LL FOR EMERGENCY SERVICES IMMEDIATELY (911 or emergency transport
rvices).
GESTION:
ver give anything by mouth to an unconscious person. If swallowed,
not induce vomiting. Give large quantities of water. (If
ailable, give several glasses of milk.) If vomiting occurs
ontaneously, keep airway clear and give more water. GET MEDICAL
TENTION IMMEDIATELY.
CA F SPILL OR LEAK:
not allow entry into sewers and waterways.
eep acuum spills. To minimize dust, vacuum cleaning is
refer .
RE:
on-flammable / Non-combustible.

M/ CAUSTIC SODA ANHYDROUS (ALL GRADES)

ORDER NO: 226774
PROD NO : 500940

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not use water.
agents appropriate for surrounding fire.
DLING AND STORAGE:
duct can react violently with water, acids and other substances.
Handling and Storage (Section 7) of the MSDS for instructions
ore using.
POSAL:
pose of all waste and contaminated equipment in accordance with all
licable federal, state and local health and environmental
ulations.
ORMATION REQUIRED BY FEDERAL, STATE OR LOCAL REGULATIONS:
s Product Contains:
NAME
0-73-2 Sodium hydroxide (Na(OH))
7-14-5 Sodium chloride (NaCl)
-19-0 Carbonic acid disodium salt
S R 0: HEALTH 3 FLAMMABILITY 0 REACTIVITY 2
EL NUMBER: 0701M32413
Industrial Use Only

DU[illegible] CAUSTIC SODA ANHYDROUS (ALL GRADES)

ORDER NO: 226774
PROD NO : 500940

FOR ADDITIONAL INFORMATION

ONTACT: MSDS COORDINATOR UNIVAR USA INC.
DURING BUSINESS HOURS, PACIFIC TIME (425)889-3400

02/04/03 13:57 PRODUCT: 500940 CUST NO: 223601 ORDER NO: 226774

NOTICE

****** UNIVAR USA INC("UNIVAR"), EXPRESSLY DISCLAIMS

. EXPRESS OR IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A

[illegible] PURPOSE, WITH RESPECT TO THE PRODUCT OR INFORMATION PROVIDED

[illegible]ND SHALL UNDER NO CIRCUMSTANCES BE LIABLE FOR INCIDENTAL OR

NSEQUENTIAL DAMGAGES. **

DO NOT USE INGREDIENT INFORMATION AND/OR PERCENTAGES IN THIS MSDS AS A ODUCT SPECIFICATION. FOR PRODUCT SPECIFICATION INFORMATION REFER TO A PRODUCT ECIFICATION SHEET AND/OR A CERTIFICATE OF ANALYSIS. THESE CAN BE OBTAINED FROM UR LOCAL UNIVAR SALES OFFICE.

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*** END OF MSDS ***

GE Power & Water
Water & Process Technologies

SAFETY DATA SHEET

KLEEN MCT103

1. Identification

Product identifier	**KLEEN MCT103**
Other means of identification	None.
Recommended use	Reverse Osmosis membrane cleaner
Recommended restrictions	None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
	Carcinogenicity	Category 2
	Reproductive toxicity	Category 1B
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	Causes severe skin burns and eye damage. Causes serious eye damage. May cause respiratory irritation. Suspected of causing cancer. May damage fertility or the unborn child.

Precautionary statement

Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.
Response	If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor/. Specific treatment (see on this label). Wash contaminated clothing before reuse.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container to an approved facility.

Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
N-hydroxyethylenediamine triacetic acid trisodium salt	139-89-9	20 - 40
Hydroxyacetic acid	79-14-1	10 - 20
Sodium glycollate	2836-32-0	1 - 2.5
methoxyacetic acid	625-45-6	0.1 - 1

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Seek medical attention.

Skin contact Wash thoroughly with soap and water. Remove contaminated clothing. Chemical burns must be treated by a physician. Call a physician or poison control center immediately. Thoroughly wash clothing before reuse.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Keep eyelids apart. Continue rinsing. Call a physician or poison control center immediately.

Ingestion Do not feed anything by mouth to an unconscious or convulsive victim. Dilute contents of stomach using 2-8 fluid ounces (60-240ml) of milk or water. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Immediately contact a physician.

Most important symptoms/effects, acute and delayed Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

Indication of immediate medical attention and special treatment needed No special instructions. Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim under observation. Symptoms may be delayed.

General information IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media Dry chemical, CO2, water spray or regular foam. Powder. Foam.

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical Oxides of carbon and sulphur evolved in fire.

Special protective equipment and precautions for firefighters Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

Fire fighting equipment/instructions Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Specific methods Area should be well-ventilated. Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

General fire hazards No unusual fire or explosion hazards noted. Non flammable liquid

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Wear appropriate protective equipment and clothing during clean-up. See Section 8 of the SDS for Personal Protective Equipment. Keep unnecessary personnel away. Do not breathe mist or vapor. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up	Ventilate the area. Soak up with inert absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit. Large Spills: Stop the flow of material, if this is without risk. Use water spray to reduce vapors or divert vapor cloud drift. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground. Prevent from entering sewers or the immediate environment.

7. Handling and storage

Precautions for safe handling	Acidic. Do not mix with alkaline material. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Do not freeze. If frozen, thaw completely and mix thoroughly prior to use. Keep away from strong bases. Store locked up. Store in original tightly closed container. Store in accordance with local/regional/national/international regulation. Keep container tightly closed in a dry and well-ventilated place.

8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Provide adequate ventilation. Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Provide eyewash station.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Splash proof chemical goggles. Face shield.
Skin protection	
Hand protection	Rubber, butyl, viton or neoprene glove. Wash off after each use. Replace as necessary. Wear appropriate chemical resistant gloves.
Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
Thermal hazards	Not applicable. Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Color	Colorless to amber
Physical state	Liquid
Odor	Slight acetic
Odor threshold	Not available.
pH (concentrated product)	3.4
pH in aqueous solution	3.3 (5% SOL.)
Melting point/freezing point	-5 °F (-21 °C)

Initial boiling point and boiling range	210 °F (99 °C)
Flash point	Not applicable.
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	> 1 (Air = 1)
Relative density	1.35
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	28 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Percent volatile	10 (Estimated)
Pour point	0 °F (-18 °C)
Specific gravity	1.35

10. Stability and reactivity

Reactivity	May react violently with alkaline materials.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Protect from freezing.
Incompatible materials	Avoid contact with strong oxidizers. Avoid contact with strong bases.
Hazardous decomposition products	Oxides of carbon and sulphur evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Mists/aerosols may cause irritation to upper respiratory tract.
Skin contact	Causes severe skin burns. Corrosive to skin.
Eye contact	Causes severe eye burns.
Ingestion	Causes digestive tract burns. Ingestion may cause severe irritation of the mouth, the esophagus and the gastrointestinal tract.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

Information on toxicological effects

Acute toxicity	May cause respiratory irritation. Not classified.

Product	Species	Test Results
KLEEN MCT103 (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
Inhalation		
LC50	Rat	> 5 mg/l, 4 Hour, (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	4669 mg/kg, (Calculated according to GHS additivity formula (Category 5))

Components	Species	Test Results
Hydroxyacetic acid (CAS 79-14-1)		
Acute		
Inhalation		
LC50	Rat	3.6 mg/L, 4 Hour
Oral		
LD50	Rat	1938 mg/kg
methoxyacetic acid (CAS 625-45-6)		
Acute		
Oral		
LD50	Rat	1000 mg/kg
N-hydroxyethylenediamine triacetic acid trisodium salt (CAS 139-89-9)		
Acute		
Inhalation		
LC50	Rat	> 10.054 mg/l, 4 Hour
Oral		
LD50	Rat	1780 mg/kg
Sodium glycollate (CAS 2836-32-0)		
Acute		
Oral		
LD50	Rat	7110 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes skin burns.

Serious eye damage/eye irritation Causes burns. possibly corrosive.

Respiratory or skin sensitization

Respiratory sensitization Not classified.

Skin sensitization Not classified.

Germ cell mutagenicity Not classified.

Carcinogenicity Category 2 Risk of cancer cannot be excluded with prolonged exposure.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not available.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not available.

Reproductive toxicity Category 1B / Reproductive Toxicity ANIMALS : Positive May damage fertility or the unborn child.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Based on available data, the classification criteria are not met. Aspiration of this product may cause the same corrosiveness/irritation impacts as if it were ingested.

Chronic effects May increase the risk of cancer based on limited animal data. Prolonged inhalation may be harmful. Prolonged exposure may cause chronic effects.

12. Ecological information

Ecotoxicity

Product		Species	Test Results
KLEEN MCT103 (CAS Mixture)			
	0% Mortality	Fathead Minnow	2000 mg/L, Static Bioassay with 48-Hour Renewal, 96 hour, (pH adjusted)
Aquatic			
Crustacea	LC50	Daphnia magna	1890 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
	NOEL	Daphnia magna	1060 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)

Hydroxyacetic acid	-1.11

Mobility in soil No data available.

Other adverse effects Not available.

Persistence and degradability

No data is available on the degradability of this product.

- COD (mgO2/g)	335 (calculated data)
- BOD 5 (mgO2/g)	70 (calculated data)
- BOD 28 (mgO2/g)	105 (calculated data)
- Closed Bottle Test (% Degradation in 28 days)	23 (calculated data)
- Zahn-Wellens Test (% Degradation in 28 days)	27 (calculated data)
- TOC (mg C/g)	150 (calculated data)

13. Disposal considerations

Disposal instructions Dispose of contents/container in accordance with local/regional/national/international regulations. Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Via an authorized waste disposal contractor to an approved waste disposal site, observing all local and national regulations. Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN3265
UN proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (HYDROXYACETIC ACID)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

ERG number 153

Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IATA

UN number UN3265

UN proper shipping name CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (HYDROXYACETIC ACID)

Transport hazard class(es)

Class 8

Subsidiary risk -

Packing group II

Environmental hazards No.

ERG Code 153

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN3265

UN proper shipping name CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (HYDROXACETIC ACID)

Transport hazard class(es)

Class 8

Subsidiary risk -

Packing group II

Environmental hazards

Marine pollutant No.

EmS Not available.

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories
Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical
Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA)
Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	No
Canada	Non-Domestic Substances List (NDSL)	Yes
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

US state regulations

US - Massachusetts RTK - Substance List

Not regulated.

US - Pennsylvania RTK - Hazardous Substances

Not regulated.

US - Rhode Island RTK

Not regulated.

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Formaldehyde (CAS 50-00-0) Listed: January 1, 1988

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date Jul-03-2014

Revision date Aug-12-2015

Version # 2.0

List of abbreviations

	CAS: Chemical Abstract Service Registration Number NFPA: National Fire Protection Association ACGIH: American Conference of Governmental Industrial Hygienists TWA: Time Weighted Average STEL: Short Term Exposure Limit LD50: Lethal Dose, 50% LC50: Lethal Concentration, 50% EC50: Effect Concentration, 50% NOEL: No Observed Effect Level COD: Chemical Oxygen Demand BOD: Biochemical Oxygen Demand TOC: Total Organic Carbon CEN: European Committee for Standardisation IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.
References:	Safety data sheets of raw materials.
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.
Revision Information	Composition/information on ingredients: Component information Exposure controls/personal protection: Respiratory protection Physical & Chemical Properties: Multiple Properties Transport Information: Material Transportation Information HazReg Data: North America
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

GE Power & Water
Water & Process Technologies

SAFETY DATA SHEET

KLEEN MCT411

1. Identification

Product identifier **KLEEN MCT411**

Other means of identification Not available.

Recommended use Reverse Osmosis membrane cleaner

Recommended restrictions None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Oxidizing solids	Category 3
	Corrosive to metals	Category 1
Health hazards	Acute toxicity, inhalation	Category 4
	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
	Germ cell mutagenicity	Category 2
	Reproductive toxicity	Category 1B
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation

OSHA defined hazards Not classified.

Label elements

Signal word Danger

Hazard statement May intensify fire; oxidizer. May be corrosive to metals. Causes severe skin burns and eye damage. Causes serious eye damage. Harmful if inhaled. May cause respiratory irritation. Suspected of causing genetic defects. May damage fertility or the unborn child.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat. Keep/Store away from clothing//combustible materials. Take any precaution to avoid mixing with combustibles/. Keep only in original container. Avoid breathing dust/fume. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response	If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor/. Specific treatment (see on this label). Wash contaminated clothing before reuse. In case of fire: Use to extinguish. Absorb spillage to prevent material damage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in corrosive resistant/ container with a resistant inner liner.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Chemical name	Common name and synonyms	CAS number	%
Sodium perborate monohydrate		10332-33-9	40 - 60
Sodium tripolyphosphate		7758-29-4	20 - 40
Ethylenediamine tetraacetic acid, tetrasodium salt (EDTA.4Na)		64-02-8	10 - 20
Sodium hydroxide		1310-73-2	2.5 - 10
Tetrasodium pyrophosphate (TSPP)		7722-88-5	1 - 2.5

*Designates that a specific chemical identity and/or percentage of composition has been withheld as a trade secret.

Composition comments	Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Oxygen or artificial respiration if needed. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Take off immediately all contaminated clothing. Wash thoroughly with soap and water for at least 30 minutes. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of low-pressure water for at least 30 minutes while removing contact lenses. Do not rub eyes. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	IF exposed or concerned: Get medical advice/attention. Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	May intensify fire; oxidizer.
Special protective equipment and precautions for firefighters	Firefighters must use standard protective equipment including flame retardant coat, helmet with face shield, gloves, rubber boots, and in enclosed spaces, SCBA.
Fire-fighting equipment/instructions	Move containers from fire area if you can do so without risk. Use water spray to cool unopened containers. For massive fire in cargo area, use unmanned hose holder or monitor nozzles, if possible. If not, withdraw and let fire burn out.
Specific methods	Cool containers exposed to flames with water until well after the fire is out.

General fire hazards May intensify fire; oxidizer.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of dust. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Avoid dispersal of dust in the air (i.e., clearing dust surfaces with compressed air). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Stop the flow of material, if this is without risk. Absorb spillage to prevent material damage.

Large Spills: Wet down with water and dike for later disposal. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Sweep up or vacuum up spillage and collect in suitable container for disposal.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling Corrosive to skin or eyes. Avoid producing or diffusing dust into the air. Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat. Minimize dust generation and accumulation. Take any precaution to avoid mixing with combustibles. Do not get this material in contact with eyes. Do not get this material in contact with skin. Avoid breathing dust. Avoid contact during pregnancy/while nursing. Avoid prolonged exposure. Do not get this material on clothing. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities Store below 100°F (38°C) Self-accelerating decomposition can begin at approximately 140F. Store locked up. Keep away from heat. Store in cool, dry location away from acids and alkalies. Store in original tightly closed container. Store in a well-ventilated place. Store away from incompatible materials (see Section 10 of the SDS). Do not store near combustible materials.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	PEL	2 mg/m3

US. ACGIH Threshold Limit Values

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3
Tetrasodium pyrophosphate (TSPP) (CAS 7722-88-5)	TWA	5 mg/m3

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Airtight chemical goggles.

Skin protection

Hand protection Chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.

Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
Respiratory protection	Chemical respirator with organic vapor cartridge and full facepiece. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Color	White to off-white
Physical state	Powder
Odor	None
Odor threshold	Not available.
pH in aqueous solution	11 (5% SOL.)
Melting point/freezing point	Not available.
Initial boiling point and boiling range	Not available.
Flash point	P-M(CC)
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	< 1 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	Not available.
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	5 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	Not available.
Viscosity temperature	70 °F (21 °C)
Other information	
Percent volatile	0 (Estimated)

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Instability caused by elevated temperatures. Self-accelerating decomposition can begin at approximately 140F.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Store below 100°F (38°C) Avoid contact with strong oxidizers.
Incompatible materials	Avoid contact with strong oxidizers.
Hazardous decomposition products	Oxides of carbon and nitrogen.

11. Toxicological information

Information on likely routes of exposure

Ingestion	Causes digestive tract burns.
Inhalation	Harmful if inhaled.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. May cause respiratory irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.

Information on toxicological effects

Acute toxicity Harmful if inhaled. May cause respiratory irritation.

Product	Species	Test Results
KLEEN MCT411 (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
Inhalation		
LC50	Rat	2.86 mg/l, 4 Hours, (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	2148 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
Ethylenediamine tetraacetic acid, tetrasodium salt (EDTA.4Na) (CAS 64-02-8)		
Acute		
Oral		
LD50	Rat	1658 mg/kg
Sodium hydroxide (CAS 1310-73-2)		
Acute		
Dermal		
LD50	Rabbit	1350 mg/kg
Oral		
LD50	Rabbit	> 500 mg/kg
Sodium tripolyphosphate (CAS 7758-29-4)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg
Oral		
LD50	Rat	4100 mg/kg
Tetrasodium pyrophosphate (TSPP) (CAS 7722-88-5)		
Acute		
Dermal		
LD50	Rabbit	> 7940 mg/kg
Inhalation		
LC50	Rat	> 1.1 mg/l, 4 Hour
Oral		
LD50	Rat	3770 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Corrosive to skin and eyes. Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Corrosive to eyes. Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity Suspected of causing genetic defects.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Not classified.

Specific target organ toxicity - repeated exposure Not available.

Aspiration hazard Not classified. Aspiration of this product may cause the same corrosiveness/irritation impacts as if it were ingested.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Product		Species	Test Results
KLEEN MCT411 (CAS Mixture)			
	0% Mortality	Fathead Minnow	50 mg/L, Acute Toxicity, 96 hour, (Estimated)
	LC50	Fathead Minnow	105 mg/L, Acute Toxicity, 96 hour, (Estimated)
Crustacea	0% Mortality	Daphnia magna	18 mg/L, Acute Toxicity, 48 hour, (Estimated)
	LC50	Daphnia magna	25 mg/L, Acute Toxicity, 48 hour, (Estimated)

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

Environmental fate The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability

No data is available on the degradability of this product.

- COD (mgO2/g) 97 (calculated data)

- BOD 5 (mgO2/g) 1 (calculated data)

- BOD 28 (mgO2/g) 2 (calculated data)

- Closed Bottle Test (% Degradation in 28 days) 10

- Zahn-Wellens Test (% Degradation in 28 days) 3

- TOC (mg C/g) 40 (calculated data)

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Do not incinerate sealed containers. If discarded, this product is considered a RCRA ignitable waste, D001. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code	D001: Waste Flammable material with a flash point <140 F D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel] The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number	UN3085
UN proper shipping name	OXIDIZING SOLID, CORROSIVE, N.O.S. (Sodium perborate monohydrate, Sodium hydroxide RQ = 31546 LBS)
Transport hazard class(es)	
Class	5.1
Subsidiary risk	8
Packing group	III
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
ERG number	140

Some containers may be DOT exempt, please check BOL for exact container classification.

IATA

UN number	UN3085
UN proper shipping name	OXIDIZING SOLID, CORROSIVE, N.O.S. (Sodium perborate monohydrate, Sodium hydroxide)
Transport hazard class(es)	
Class	5.1
Subsidiary risk	8
Packing group	III
Environmental hazards	No.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number	UN3085
UN proper shipping name	OXIDIZING SOLID, CORROSIVE, N.O.S. (Sodium perborate monohydrate, Sodium hydroxide)
Transport hazard class(es)	
Class	5.1
Subsidiary risk	8
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations

This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sodium hydroxide (CAS 1310-73-2)	Listed.
Sodium tripolyphosphate (CAS 7758-29-4)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

No

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)

Hazardous substance

Safe Drinking Water Act (SDWA)

Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

Food and drug administration

The ingredients in this product are affirmed as GRAS (Generally Recognized as Safe) for use in membrane applications.

US state regulations

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - Massachusetts RTK - Substance List

Sodium hydroxide (CAS 1310-73-2)
Sodium tripolyphosphate (CAS 7758-29-4)
Tetrasodium pyrophosphate (TSPP) (CAS 7722-88-5)

US - Pennsylvania RTK - Hazardous Substances

Sodium hydroxide (CAS 1310-73-2)
Sodium tripolyphosphate (CAS 7758-29-4)
Tetrasodium pyrophosphate (TSPP) (CAS 7722-88-5)

US - Rhode Island RTK

Sodium hydroxide (CAS 1310-73-2)
Sodium tripolyphosphate (CAS 7758-29-4)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Not regulated.

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 1986 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date	Nov-04-2014
Revision date	Nov-04-2014
Version #	1.0
List of abbreviations	CAS: Chemical Abstract Service Registration Number TWA: Time Weighted Average STEL: Short Term Exposure Limit LD50: Lethal Dose, 50% LC50: Lethal Concentration, 50% NOEL: No Observed Effect Level COD: Chemical Oxygen Demand BOD: Biochemical Oxygen Demand TOC: Total Organic Carbon TLV: Threshold Limit Value IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code NFPA: National Fire Protection Association ACGIH: American Conference of Governmental Industrial Hygienists TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.
References:	No data available
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.
Revision Information	Composition / Information on Ingredients: Disclosure Overrides Physical & Chemical Properties: Multiple Properties Toxicological Information: Toxicological Data Transport Information: Material Transportation Information Regulatory Information: Risk Phrases - Classification Material Attributes & Uses; Experimental Data: Experimental Data HazReg Data: International Inventories GHS: Classification

Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

UCT: LIQUICHLOR / SODIUM HYPOCHLORITE 7-15%

ORDER NO: 229186
PROD NO : 652909

SOUTH TEXAS
ELECTRIC CO-OP
SAM RAYBURN PLT
FM 447
NURSERY ,TX 77976

USE IN COOLING TOWER

VAR USA INC. (425)889-3400
0 CARILLON POINT , KIRKLAND , WA 98033

---------- EMERGENCY ASSISTANCE ----------

OR EMERGENCY ASSISTANCE INVOLVING CHEMICALS CALL - CHEMTREC
(800)424-9300

DUCT NAME: LIQUICHLOR / SODIUM HYPOCHLORITE 7-15%

S NUMBER: OX622680

ECTIVE DATE: 1/10/1999

ERSEDES: NEW

UED BY: 008740

IS MATERIAL SAFETY DATA SHEET (MSDS) HAS BEEN PREPARED IN COMPLIANCE WITH
E FEDERAL OSHA HAZARD COMMUNICATION STANDARD, 29 CFR 1910.1200. THIS
DUCT MAY BE CONSIDERED TO BE A HAZARDOUS CHEMICAL UNDER THAT STANDARD.
EFER TO THE OSHA CLASSIFICATION IN SEC.I.) THIS INFORMATION IS REQUIRED
BE DISCLOSED FOR SAFETY IN THE WORKPLACE. THE EXPOSURE TO THE COMMUNITY,
ANY, IS QUITE DIFFERENT.

-PRODUCT IDENTIFICATION

oduct Name: Sodium Hypochlorite
nor Sunny Sol 150Liquid chlorine solution, Liquid bleach, Hypochlorite,
& ypo
emical Family: Hypochlorite
rmula: NaOCL in water
e De ption: Swimming pool chlorinator, Microbiocide, textile/laundry
eaching agent, hard surface cleaner, mildecide, water

UCT: LIQUICHLOR / SODIUM HYPOCHLORITE 7-15%

ORDER NO: 229186
PROD NO : 652909

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tment
rd Classification: Oxidizer, unstable (reactive), corrosive, lung toxin

tributed by:
var USA Inc.
) Carillon Point
kland, WA 98033
-889-3400

-COMPONENT DATA

duct Composition
or Chemical Name: Sodium hypochlorite
Number: 7681-52-9
centage Range: 7-15
ardous Per 29 CFR 1910.1200: Yes
osure Standards: None Established for Sodium Hypochlorite, see
arc Decomposition, Section VII.
or Chemical Name: Water
Number: 7732-18-5
ce e Range: 70.5-87.5
ardous Per 29 CFR 1910.1200: No
osure Standards: None Established.

or Chemical Name: Sodium hydroxide
Number: 1310-73-2
centage Range: 0.5 - 2.5
ardous Per 29 CFR 1910.1200: Yes
osure Standards:

	OSHA (PEL) *		ACGIH(TLV)	
	ppm	mg/m 3	ppm	mg/m 3
:	N/A	2	N/A	None
LING:	N/A	None	N/A	2
L:	N/A	None	N/A	None

Federal OSHA PEL. An Agreement
ate OSHA PEL may be different.

3 or Chemical Name: Sodium chloride
3 Number: 7647-14-5
rcentage Range: 5.0 - 12.0
zardous Per 29 CFR 1910.1200: Yes
posure Standards: None Established

I - AUTIONS FOR SAFE HANDLING AND STORAGE

NOT TAKE INTERNALLY. AVOID CONTACT WITH SKIN OR EYES, UPON CONTACT WITH
IN YES, WASH OFF WITH WATER. . AVOID BREATHING MIST OR VAPOR.
ORAL ONDITIONS:
ore in a cool, dry, well-ventilated area. Avoid high temperatures and

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sure to and direct sunlight.
OT STORE AT TEMPERATURES ABOVE: 15-21 Deg. C (60-70 Deg. F)
R: Store in the dark at the lowest possible temperature, but keep from
zing.
UCT STABILITY AND COMPATIBILITY:
F LIFE LIMITATIONS: Up to 6 months at 60 Deg. F. or lower
MPATIBLE MATERIALS FOR PACKAGING: Metal containers.
MPATIBLE MATERIALS FOR STORAGE OR TRANSPORT:
dizers, acids, nitrogen containing materials such
quaternary ammonium salts, metals such as copper,
kel or cobalt..

-PHYSICAL DATA

earance: Greenish-yellow liquid
ezing Point: -20 o C @ 7% NaOCl
ling Point: Decomposes on heating
omp ion Temperature: Decomposition rate increases as heated
cific Gravity: 1.09 - 1.26
k Density: Not Applicable
@ ??C: 12-14
or ressure @ 2?????C: No Data
ubility in Water: Miscible
atiles, Percent by Volume: 87.5-94.5
poration Rate: No Data
or Density: No Data
ecular Weight: 74.5 (active ingredient-NaOCl)
r: Chlorine-like
fficient of Oil/Water Distribution: No Data

-PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS

sonal Protection for Routine Use of Product:
spiratory Protection: Routine: If vapors, mists, or aerosols are not
ntrolled with ventilation to below the TLV wear a
SH approved respirator.
ne breaking/hose connections/samples, etc.: Wear a
SH approved workplace respirator as air
ncentrations above the TLV for chlorine may occur
expectedly.
ntilation: Routine: Local exhaust ventilation is recommended if
pors, mists or aerosols are generated. Otherwise,
e g al exhaust ventilation.
ne king/hose connections/samples, etc.: Use local
haust ventilation
in Eye Protection: Routine: Use chemical safety goggles and impermeable
ove
ne breaking/hose connections/samples, etc.: Wear

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ical safety goggles and face shield, impermeable
es, boots and protective suit.
r: Emergency eye wash and safety showers must be provided
the immediate work area..
ipment Specifications (When Applicable):
pirator Type: NIOSH approved respirator equipped with chemical
tridges for protection against chlorine gas and dust
t pre-filters.
tective Clothing Type: (This includes: gloves, boots, apron, protective
t.): Neoprene

-FIRE AND EXPLOSION HAZARD INFORMATION

mmability Data:
losive: N/A
mmable: No
bust ble: No
oph : No
sh Point: Not Applicable
oignition Temperature: Not Applicable
mm e Limits at Normal Atmospheric Temperature and Pressure
rcent Volume in Air):
. - Not Applicable
. - Not Applicable

A Ratings:
alth: Not Established
mmability: Not Established
activity: Not Established

IS Ratings:
alth: 3
ammability: 0
activity: 2

tinguishing Media: Not applicable
re Fighting Techniques and Comments:
e water to cool containers exposed to fire. On small fire, use dry chemical,
rbon dioxide or water spray. on large fires, use water in flooding
antities as fog. In case of fire, hazardous concentrations of chlorine may
formed. See Section XI for personal protective equipment for fire
ghting..

I - TIVITY INFORMATION

ndi ns Under Which This Product May Be Unstable:
emp ures Above: Decomposition rate increases as it is heated
echanical Shock or Impact: No

ODUCT: LIQUICHLOR / SODIUM HYPOCHLORITE 7-15%

ORDER NO: 229186
PROD NO : 652909

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ctrical (Static) Discharge: No
er: Decomposition will result formation of oxygen from
tact with copper, nickel, cobalt and iron
ardous Polymerization: Will not occur
ompatible Materials: Iron, copper, nickel, cobalt, acids, ammonium or
er nitrogen containing compounds, organics,
er oxidizers
ardous Decomposition: Chlorine gas
er conditions to avoid: High heat, sunlight and ultra-violet light

mary of Reactivity:
losive: N/A
idizer: Yes
ophoric: No
anic Peroxide: No
er Reactive: No
rosive: N/A

CI - FIRST AID

es
mediately flush with large amounts of water for at least 15 minutes,
casionally lifting the upper and lower eyelids. Seek medical attention
once.
in
mediately flush with water for at least 15 minutes. Seek medical
tention. If clothing, shoes and/or jewelry come in contact with the
oduct, they removed immediately and laundered before re-use.
gestion
mediately drink large quantities of water. DO NOT induce vomiting. Seek
dical attention at once. DO NOT give anything by mouth if the person is
conscious or if having convulsions.
halation
person experiences nausea, headache or dizziness, person should stop work
mediately and move to fresh air until these symptoms disappear. If breathing
difficult, administer oxygen, keep the person warm and at rest. Seek
dical attention. In the event that an individual inhales enough vapor to
se consciousness, person should be moved to fresh air at once and seek
dical attention immediately. If breathing has stopped, artificial
spiration should be given immediately. In all cases, ensure adequate
ntilation and provide respiratory protection before he person returns to
rk.

X - TOXICOLOGY AND HEALTH INFORMATION

Routes of Absorption
Inhalation, skin, eye, ingestion

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aing Statements and Warning Properties
ES RESPIRATORY TRACT IRRITATION. . CAUSES EYE AND SKIN BURNS. CAN
E LUNG DAMAGE.

an Threshold Response Data
r Threshold: Approximately 0.9 mg/M 3 (0.3 ppm) based
odor of chlorine.
itation Threshold: No data for Sodium hypochlorite.
ever, decomposition products may be irritating.
ediately Dangerous to Life or Health: No Data. However, Sodium
ochlorite has the potential to be immediately dangerous to life or health.

ns, Symptoms and Effects of Exposure
alation
te: Inhalation of this material is irritating to the nose, mouth, throat
lungs. It may also cause burns to the respiratory tract with the
duc of lung edema, which can result in shortness of breath,
ezing, choking, chest pain, and impairment of lung function.
alation of high concentrations can result in permanent lung damage.
o Repeated inhalation exposure may cause impairment of lung function
permanent lung damage.

in
ite: Dermal exposure can cause severe irritation and/or burns characterized
redness, swelling and scab formation. Prolonged skin exposure may cause
struction of the dermis with impairment of the skin at site of contact
regenerate.
onic: Effects from chronic skin exposure would be similar to those from
gle exposure except for effects secondary to tissue destruction.

e
vere irritation and/or burns can occur following eye exposure. Contact may
use impairment of vision and corneal damage..

gestion
ute: Irritation and/or burns can occur to the entire gastrointestinal tract,
cluding the stomach and intestines, characterized by nausea, vomiting,
arrhea, abdominal pain, bleeding, and/or tissue ulceration.
ronic: There are no know or reported effects from chronic exposure.

dical Conditions Aggravated by Exposure
thm d respiratory and cardiovascular disease

nteractions With Other Chemicals Which Enhance Toxicity
ne own or reported

imal Toxicology

GE Power & Water
Water & Process Technologies

SAFETY DATA SHEET

CORRSHIELD* MD4100

1. Identification

Product identifier	**CORRSHIELD MD4100**
Other means of identification	None.
Recommended use	Water-based corrosion inhibitor
Recommended restrictions	None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Corrosive to metals	Category 1
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 1
	Serious eye damage/eye irritation	Category 1
	Carcinogenicity	Category 2
	Specific target organ toxicity, single exposure (inhalation, oral)	Category 1 (blood)
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, repeated exposure (inhalation, oral)	Category 1 (blood)
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	May be corrosive to metals. Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage. May cause respiratory irritation. Causes damage to organs (blood) by ingestion. Causes damage to organs (blood) by inhalation. Causes damage to organs (blood) through prolonged or repeated exposure by ingestion. Causes damage to organs (blood) through prolonged or repeated exposure by inhalation.
Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep only in original container. Do not breathe mist or vapor. Wash thoroughly after handling. Do not eat, drink or smoke when using this product. Use only outdoors or in a well-ventilated area. Wear protective gloves/protective clothing/eye protection/face protection.

Response	If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor/. Wash contaminated clothing before reuse. Absorb spillage to prevent material damage.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up. Store in corrosive resistant/ container with a resistant inner liner.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations. Dispose of contents/container to an approved facility.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	None.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
Sodium nitrite	7632-00-0	10 - 20

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.
Skin contact	Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.
Eye contact	Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.
Ingestion	Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.
Most important symptoms/effects, acute and delayed	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation. Prolonged exposure may cause chronic effects.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. Keep victim warm. Keep victim under observation. Symptoms may be delayed.
General information	IF exposed or concerned: Get medical advice/attention. If you feel unwell, seek medical advice (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Show this safety data sheet to the doctor in attendance.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.
Fire fighting equipment/instructions	In case of fire and/or explosion do not breathe fumes. Cool containers / tanks with water spray.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up	Prevent entry into waterways, sewer, basements or confined areas. Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb spillage to prevent material damage. Use a non-combustible material like vermiculite, sand or earth to soak up the product and place into a container for later disposal. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground. Water contaminated with this product may be sent to a sanitary sewer treatment facility, or a permitted waste treatment facility, in accordance with any local agreements.

7. Handling and storage

Precautions for safe handling	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Do not taste or swallow. Avoid prolonged exposure. When using, do not eat, drink or smoke. Should be handled in closed systems, if possible. Provide adequate ventilation. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store locked up. Store in a cool, dry place out of direct sunlight. Store in corrosive resistant container with a resistant inner liner. Keep only in the original container. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).
Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection	Wear safety glasses with side shields (or goggles) and a face shield.
Skin protection	
Hand protection	Wear appropriate chemical resistant gloves. Suitable gloves can be recommended by the glove supplier.
Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.
Respiratory protection	If engineering controls do not maintain airborne concentrations below recommended exposure limits (where applicable) or to an acceptable level (in countries where exposure limits have not been established), an approved respirator must be worn. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Observe any medical surveillance requirements. Keep away from food and drink. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Color	Yellow
Physical state	Liquid
Odor	Mild
Odor threshold	Not available.
pH (concentrated product)	12.8
Melting point/freezing point	14 °F (-10 °C)
Initial boiling point and boiling range	220 °F (104 °C)
Flash point	Not applicable.

Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not applicable.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	1.18
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	4 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Percent volatile	0 (Estimated)
Specific gravity	1.18

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Protect from freezing. Do not allow to dry. Avoid contact with strong acids. This product may react with reducing agents.
Incompatible materials	Strong oxidizing agents. Avoid all contact with reducing agents, oils, greases, organics and acids. Contact with strong acids may cause a violent reaction releasing heat. Contact with water reactive compounds may cause fire or explosion.
Hazardous decomposition products	Nitrogen oxides (NOx). Sulfur oxides. Carbon oxides.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Causes damage to organs by inhalation. Causes damage to organs through prolonged or repeated exposure by inhalation. May cause irritation to the respiratory system.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns. Causes damage to organs by ingestion. Causes damage to organs through prolonged or repeated exposure by ingestion.
Symptoms related to the physical, chemical and toxicological characteristics	Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation.

Information on toxicological effects

Acute toxicity	Harmful if swallowed. May cause respiratory irritation.

Product	Species	Test Results
CORRSHIELD MD4100 (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
Inhalation		
LC50	Rat	> 5 mg/l, 4 Hours, (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	1717 mg/kg, (Calculated according to GHS additivity formula (Category 4))

Components	Species	Test Results
Sodium nitrite (CAS 7632-00-0)		
Acute		
Oral		
LD50	Rat	180 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Causes severe skin burns and eye damage.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not a respiratory sensitizer.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity Suspected of causing cancer.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not available.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not available.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure Causes damage to organs (blood) by ingestion. Causes damage to organs (blood) by inhalation. May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Causes damage to organs (blood) through prolonged or repeated exposure by ingestion. Causes damage to organs (blood) through prolonged or repeated exposure by inhalation.

Aspiration hazard Not classified. Aspiration of this product may cause the same corrosiveness/irritation impacts as if it were ingested.

Chronic effects Causes damage to organs through prolonged or repeated exposure. Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity

Product		Species	Test Results
CORRSHIELD MD4100 (CAS Mixture)			
	LC50	Bluegill Sunfish	3258 mg/L, Static Acute Bioassay, 96 hour
		Fathead Minnow	2730 mg/L, Acute Toxicity, 96 hour, (Estimated)
	NOEL	Bluegill Sunfish	1800 mg/L, Static Acute Bioassay, 96 hour
		Fathead Minnow	1850 mg/L, Acute Toxicity, 96 hour, (Estimated)

Product		Species	Test Results
Aquatic			
Crustacea	LC50	Daphnia magna	5997 mg/L, Static Acute Bioassay, 48 hour
	NOEL	Daphnia magna	500 mg/L, Static Acute Bioassay, 48 hour
Fish	0% Mortality	Rainbow Trout	2000 mg/L, Static Screen, 48 hour

Components		Species	Test Results
Sodium nitrite (CAS 7632-00-0)			
Aquatic			
Fish	LC50	Fish	0.56 - 1.78 mg/l, 96 hour

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential

Mobility in soil No data available.

Other adverse effects Not available.

Persistence and degradability

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations. Incinerate the material under controlled conditions in an approved incinerator.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number UN3266

UN proper shipping name CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM NITRITE, SODIUM HYDROXIDE), (SODIUM NITRITE) RQ

Transport hazard class(es)

Class 8

Subsidiary risk -

Packing group III

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

ERG number 154

IATA

UN number UN3266

UN proper shipping name CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM NITRITE, SODIUM HYDROXIDE)

Transport hazard class(es)

Class 8

Subsidiary risk -

Packing group III

Environmental hazards No.

ERG Code 154

Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN3266

UN proper shipping name CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S. (SODIUM NITRITE, SODIUM HYDROXIDE)

Transport hazard class(es)

Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Sodium nitrite (CAS 7632-00-0) 1.0 % One-Time Export Notification only.

CERCLA Hazardous Substance List (40 CFR 302.4)

Sodium nitrite (CAS 7632-00-0) Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - Yes
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Sodium nitrite	7632-00-0	10 - 20

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Clean Water Act (CWA) Section 112(r) (40 CFR 68.130)	Hazardous substance
Safe Drinking Water Act (SDWA)	Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

Food and drug administration	No FDA approval for paper or paperboard having food contact.
NSF Registered and/or meets USDA (according to 1998 guidelines):	Registration No. – 141672 Category Code(s): G5 Cooling and retort water treatment products G7 Boiler, steam line treatment products – nonfood contact

US state regulations

US - Massachusetts RTK - Substance List

Sodium nitrite (CAS 7632-00-0)

US - Pennsylvania RTK - Hazardous Substances

Sodium nitrite (CAS 7632-00-0)

US - Rhode Island RTK

Sodium nitrite (CAS 7632-00-0)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Sodium nitrite (CAS 7632-00-0)

US. Pennsylvania Worker and Community Right-to-Know Law

Sodium nitrite (CAS 7632-00-0)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Formaldehyde (CAS 50-00-0) Listed: January 1, 1988

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date	Oct-29-2014
Revision date	Nov-09-2015
Version #	5.0

List of abbreviations	CAS: Chemical Abstract Service Registration Number NFPA: National Fire Protection Association ACGIH: American Conference of Governmental Industrial Hygienists TWA: Time Weighted Average STEL: Short Term Exposure Limit LD50: Lethal Dose, 50% LC50: Lethal Concentration, 50% EC50: Effect Concentration, 50% NOEL: No Observed Effect Level COD: Chemical Oxygen Demand BOD: Biochemical Oxygen Demand TOC: Total Organic Carbon IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code
References:	No data available
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.
Revision information	Hazard(s) identification: Prevention Composition / Information on Ingredients: Disclosure Overrides Exposure controls/personal protection: General hygiene considerations Physical & Chemical Properties: Multiple Properties Toxicological information: Carcinogenicity GHS: Classification
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

GE
Water & Process Technologies

Material Safety Data Sheet

Issue Date: 18-SEP-2013
Supercedes: 08-FEB-2012

OPTISPERSE HP54675

1 Identification

Identification of substance or preparation
OPTISPERSE HP54675

Product Application Area
Water based internal boiler treatment chemical.

Company/Undertaking Identification
GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355-3300, F 215 953 5524

Emergency Telephone
(800) 877-1940

Prepared by Product Stewardship Group: T 215-355-3300 Prepared on: 18-SEP-2013

2 Hazard(s) identification

****
EMERGENCY OVERVIEW

DANGER

Corrosive to skin. Corrosive to the eyes. Mists/aerosols may cause irritation to upper respiratory tract.

DOT hazard: Corrosive to skin
Odor: Slight; Appearance: Colorless To Yellow, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical/CO2/foam or water--slippery condition; use sand/grit.
****

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:
Primary route of exposure; Corrosive to skin.

ACUTE EYE EFFECTS:
Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:
Mists/aerosols may cause irritation to upper respiratory tract.

INGESTION EFFECTS:

May cause severe irritation or burning of the gastrointestinal tract.

TARGET ORGANS:
No evidence of potential chronic effects.

MEDICAL CONDITIONS AGGRAVATED:
Not known.

SYMPTOMS OF EXPOSURE:
May cause redness or itching of skin, irritation, and/or tearing of eyes (direct contact).

3 Composition / information on ingredients

Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.

HAZARDOUS INGREDIENTS:

Cas#	Chemical Name	Range(w/w%)
1310-73-2	SODIUM HYDROXIDE Corrosive	3-7

4 First-aid measures

SKIN CONTACT:
URGENT! Wash thoroughly with soap and water. Remove contaminated clothing. Get immediate medical attention. Thoroughly wash clothing before reuse.

EYE CONTACT:
URGENT! Immediately flush eyes with plenty of low-pressure water for at least 20 minutes while removing contact lenses. Hold eyelids apart. Get immediate medical attention.

INHALATION:
If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.

INGESTION:
Do not feed anything by mouth to an unconscious or convulsive victim. Do not induce vomiting. Immediately contact physician. Dilute contents of stomach using 2-8 fluid ounces (60-240 mL) of milk or water.

NOTES TO PHYSICIANS:
Material is corrosive. It may not be advisable to induce vomiting. Possible mucosal damage may contraindicate the use of gastric lavage.

5 Fire-fighting measures

FIRE FIGHTING INSTRUCTIONS:
Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

EXTINGUISHING MEDIA:

dry chemical/CO2/foam or water--slippery condition; use sand/grit.

HAZARDOUS DECOMPOSITION PRODUCTS:

oxides of carbon, phosphorus and sulfur; hydrogen chloride

FLASH POINT:

> 200F > 93C P-M(CC)

MISCELLANEOUS:

Corrosive to skin

UN3266 ;Emergency Response Guide #154

6 Accidental release measures

PROTECTION AND SPILL CONTAINMENT:

Ventilate area. Use specified protective equipment. Contain and absorb on absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery. Spread sand/grit.

DISPOSAL INSTRUCTIONS:

Water contaminated with this product may be sent to a sanitary sewer treatment facility,in accordance with any local agreement,a permitted waste treatment facility or discharged under a permit. Product as is - Incinerate or land dispose in an approved landfill.

7 Handling and storage

HANDLING:

Alkaline. Corrosive(Eyes). Do not mix with acidic material.

STORAGE:

Keep containers closed when not in use. Protect from freezing. If frozen, thaw and mix completely prior to use. Store below 100F (38C). Shelf life 90 days.

8 Exposure controls / personal protection

EXPOSURE LIMITS

CHEMICAL NAME

SODIUM HYDROXIDE

PEL (OSHA): 2 MG/M3

TLV (ACGIH): TWA (Ceiling) = 2 MG/M3

ENGINEERING CONTROLS:

Adequate ventilation to maintain air contaminants below exposure limits.

PERSONAL PROTECTIVE EQUIPMENT:

Use protective equipment in accordance with 29CFR 1910 Subpart I

RESPIRATORY PROTECTION:

A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
USE AIR PURIFYING RESPIRATORS WITHIN USE LIMITATIONS ASSOCIATED WITH THE EQUIPMENT OR ELSE USE SUPPLIED AIR-RESPIRATORS.
If air-purifying respirator use is appropriate, use any of the following particulate respirators: N95, N99, N100, R95, R99, R100, P95, P99 or P100.

SKIN PROTECTION:

gauntlet-type rubber, butyl or neoprene gloves, chemical resistant apron -- Wash off after each use. Replace as

necessary.

EYE PROTECTION:

splash proof chemical goggles, face shield

9 Physical and chemical properties

Spec. Grav.(70F,21C)	1.156	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	21	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-6		
Viscosity(cps 70F,21C)	12	% Solubility (water)	100.0

Odor		Slight
Appearance		Colorless To Yellow
Physical State		Liquid
Flash Point	P-M(CC)	> 200F > 93C
pH As Is (approx.)		> 13.0
Evaporation Rate (Ether=1)		< 1.00
Percent VOC:		0.0

NA = not applicable ND = not determined

10 Stability and reactivity

CHEMICAL STABILITY:

Stable under normal storage conditions.

POSSIBILITY OF HAZARDOUS REACTIONS:

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

oxides of carbon, phosphorus and sulfur; hydrogen chloride

11 Toxicological information

Oral LD50 RAT:	3500 mg/kg
NOTE - Calculated according to	GHS additivity formula
Dermal LD50 RABBIT:	>5000 mg/kg
NOTE - Calculated according to	GHS additivity formula

12 Ecological information

AQUATIC TOXICOLOGY

Daphnia magna 48 Hour Acute Toxicity (Estimated)

LC50= 2730; No Effect Level= 1920 mg/L

Fathead Minnow 96 Hour Acute Toxicity (Estimated)

LC50 Greater Than= 5000; No Effect Level= 2420 mg/L

BIODEGRADATION

BOD-28 (mg/g): 0

BOD-5 (mg/g): 0

COD (mg/g): 158

TOC (mg/g): 48

13 Disposal considerations

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
D002=Corrosive(pH).

Please be advised; however, that state and local requirements for waste disposal may be more restrictive or otherwise different from federal regulations. Consult state and local regulations regarding the proper disposal of this material.

14 Transport information

Transportation Hazard: Corrosive to skin
DOT: CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.(SODIUM HYDROXIDE; SODIUM PHOSPHATES)
8, UN3266, PG III
DOT EMERGENCY RESPONSE GUIDE #: 154
Note: Some containers may be DOT exempt, please check BOL for exact container classification
IATA: CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.(SODIUM HYDROXIDE; SODIUM PHOSPHATES)
8, UN3266, PG III
IMDG: CORROSIVE LIQUID, BASIC, INORGANIC, N.O.S.(SODIUM HYDROXIDE; SODIUM PHOSPHATES)
8, UN3266, PG III

15 Regulatory information

TSCA:
All components of this product are included on or are in compliance with the U.S. TSCA regulations.
CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):
2,615 gallons due to SODIUM HYDROXIDE;
FOOD AND DRUG ADMINISTRATION:
ALL ingredients in this product are authorized in 21CFR173.310 for use as boiler water additives where the steam may contact food.
NSF Registered and/or meets USDA (according to 1998 Guidelines):
Registration number: Not Registered
SARA SECTION 312 HAZARD CLASS:
Immediate(acute)
SARA SECTION 302 CHEMICALS:
No regulated constituent present at OSHA thresholds
SARA SECTION 313 CHEMICALS:
No regulated constituent present at OSHA thresholds
CALIFORNIA REGULATORY INFORMATION

CALIFORNIA SAFE DRINKING WATER AND TOXIC ENFORCEMENT ACT (PROPOSITION 65):
No regulated constituents present
MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 Other information

HMIS vII		CODE TRANSLATION
Health	3	Serious Hazard
Fire	0	Minimal Hazard
Reactivity	0	Minimal Hazard
Special	CORR	DOT corrosive
(1) Protective Equipment	D	Goggles,Face Shield,Gloves,Apron

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
MSDS status:	08-DEC-1998		** NEW **
	03-JAN-2001		08-DEC-1998
	06-MAR-2003	4,16	03-JAN-2001
	01-APR-2004	15	06-MAR-2003
	01-FEB-2006	3,5,15	01-APR-2004
	26-MAY-2006	8	01-FEB-2006
	30-OCT-2008	4,5,8,10,15	26-MAY-2006
	17-OCT-2011	11	30-OCT-2008
	08-FEB-2012	2,4,5,8,14,16	17-OCT-2011
	18-SEP-2013	14	08-FEB-2012

GE Power
Water & Process Technologies

SAFETY DATA SHEET

CORTROL* OS5607

1. Identification

Product identifier **CORTROL OS5607**

Other means of identification None.

Recommended use Water based dissolved oxygen scavenger/ metal passivator

Recommended restrictions None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards Not classified.

Health hazards Sensitization, skin Category 1B

OSHA defined hazards Not classified.

Label elements

Signal word Warning

Hazard statement May cause an allergic skin reaction.

Precautionary statement

Prevention Avoid breathing mist or vapor. Contaminated work clothing must not be allowed out of the workplace. Wear protective gloves.

Response If on skin: Wash with plenty of water/. Specific treatment (see on this label). If skin irritation or rash occurs: Get medical advice/attention. Wash contaminated clothing before reuse.

Storage Store away from incompatible materials.

Disposal Dispose of contents/container in accordance with local/regional/national/international regulations. Dispose of contents/container to approved local facility.

Hazard(s) not otherwise classified (HNOC) None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
Carbohydrazide	497-18-7	2.5 - 10

Composition comments	Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Remove contaminated clothing immediately and wash skin with soap and water. In case of eczema or other skin disorders: Seek medical attention and take along these instructions.
Eye contact	Rinse with water.
Ingestion	Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Dermatitis. Rash. May cause an allergic skin reaction.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Keep victim under observation. Symptoms may be delayed.
General information	Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	During fire, gases hazardous to health may be formed.
Special protective equipment and precautions for firefighters	Self-contained breathing apparatus and full protective clothing must be worn in case of fire.
Fire fighting equipment/instructions	Move containers from fire area if you can do so without risk.
Specific methods	Use standard firefighting procedures and consider the hazards of other involved materials.
General fire hazards	No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors or mists. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water. Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination. Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling	Contact with oxidisers, peroxide and metal oxide may result in a violent reaction. Contamination with low pH products and low grade metal accelerate decomposition to hydrazine. Avoid breathing mist or vapor. Avoid contact with skin. Avoid contact with eyes. Avoid prolonged exposure. Avoid contact with clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Shelf life 180 days. Store in a manner that minimizes potential contamination. Store only in vented containers.Protect from freezing. Store away from incompatible materials (see Section 10 of the SDS).

8. Exposure controls/personal protection

Occupational exposure limits	No exposure limits noted for ingredient(s).
Biological limit values	No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls	Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level.

Individual protection measures, such as personal protective equipment

Eye/face protection	Splash proof chemical goggles.
Skin protection	
Hand protection	Chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.
Other	Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended. Chemical resistant gloves.
Respiratory protection	If ventilation is insufficient, suitable respiratory protection must be provided. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.
Thermal hazards	Wear appropriate thermal protective clothing, when necessary.
General hygiene considerations	Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance	
Color	Colorless to light yellow
Physical state	Liquid
Odor	Slight
Odor threshold	Not available.
pH (concentrated product)	8
pH in aqueous solution	7.4 (5% SOL.)
Melting point/freezing point	32 °F (0 °C)
Initial boiling point and boiling range	212 °F (100 °C)
Flash point	> 200 °F (> 93 °C) P-M(CC)
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	1.02
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	9 cps
Viscosity temperature	70 °F (21 °C)

Other information

Percent volatile	0 (Calculated)
Pour point	37 °F (3 °C)
Specific gravity	1.02

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	Hazardous polymerization does not occur.
Conditions to avoid	Protect from freezing. Contact with water reactive compounds may cause fire or explosion. Avoid contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Oxides of carbon and nitrogen evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause irritation to respiratory organs.
Skin contact	May cause an allergic skin reaction.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	May cause gastrointestinal irritation.
Symptoms related to the physical, chemical and toxicological characteristics	Dermatitis. Rash. Prolonged and repetitive exposure, depending on the route(s), may develop transient irritation on skin, eyes, ingestion tract, and/or respiratory tract.

Information on toxicological effects

Acute toxicity May cause an allergic skin reaction.

Product	Species	Test Results
CORTROL OS5607 (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, (Estimated value)
Oral		
LD50	Rat	> 5000 mg/kg, (Estimated value)

Components	Species	Test Results
Carbohydrazide (CAS 497-18-7)		
Acute		
Dermal		
LD50	Rabbit	> 2000 mg/kg
Oral		
LD50	Rat	> 5000 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
Serious eye damage/eye irritation	Direct contact with eyes may cause temporary irritation.
Respiratory or skin sensitization	
Respiratory sensitization	Not available.
Skin sensitization	May cause an allergic skin reaction.
Germ cell mutagenicity	No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.
Carcinogenicity	This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

IARC Monographs. Overall Evaluation of Carcinogenicity

Not available.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

US. National Toxicology Program (NTP) Report on Carcinogens

Not available.

Reproductive toxicity	This product is not expected to cause reproductive or developmental effects.
Specific target organ toxicity - single exposure	Not available.
Specific target organ toxicity - repeated exposure	Not available.
Aspiration hazard	May be harmful if swallowed and enters airways. Based on available data, the classification criteria are not met.
Chronic effects	Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity

Product		Species	Test Results
CORTROL OS5607 (CAS Mixture)			
	10% Mortality	Ceriodaphnia	96 mg/L, Static Renewal Bioassay, 48 hour
	5% Mortality	Fathead Minnow	96 mg/L, Static Renewal Bioassay, 96 hour
	LC50	Ceriodaphnia	160 mg/L, Static Renewal Bioassay, 48 hour
		Fathead Minnow	260 mg/L, Static Renewal Bioassay, 96 hour
Aquatic			
Crustacea	LC50	Daphnia magna	850 mg/L, Static Renewal Bioassay, 48 hour
	NOEL	Daphnia magna	190 mg/L, Static Renewal Bioassay, 48 hour

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential	No data available.
Mobility in soil	No data available.
Other adverse effects	Not available.
Persistence and degradability	No data available

13. Disposal considerations

Disposal instructions	Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Dispose of contents/container in accordance with local/regional/national/international regulations.
Local disposal regulations	Dispose in accordance with all applicable regulations.
Hazardous waste code	The waste code should be assigned in discussion between the user, the producer and the waste disposal company.
Waste from residues / unused products	Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).
Contaminated packaging	Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

Not regulated as dangerous goods.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Not listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

US state regulations WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - Massachusetts RTK - Substance List

Not regulated.

US - Pennsylvania RTK - Hazardous Substances

Not regulated.

US - Rhode Island RTK

Not regulated.

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Not listed.

US. Pennsylvania Worker and Community Right-to-Know Law

Not listed.

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

Hydrazine (CAS 302-01-2) Listed: January 1, 1988

US - California Proposition 65 - CRT: Listed date/Developmental toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

No ingredient listed.

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

No ingredient listed.

16. Other information, including date of preparation or last revision

Issue date	Nov-16-2014
Revision date	Dec-11-2015
Version #	2.0
List of abbreviations	CAS: Chemical Abstract Service Registration Number NFPA: National Fire Protection Association ACGIH: American Conference of Governmental Industrial Hygienists TWA: Time Weighted Average STEL: Short Term Exposure Limit LD50: Lethal Dose, 50% LC50: Lethal Concentration, 50% NOEL: No Observed Effect Level COD: Chemical Oxygen Demand BOD: Biochemical Oxygen Demand TOC: Total Organic Carbon IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.
References:	No data available
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.
Revision information	This document has undergone significant changes and should be reviewed in its entirety.
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

GE Power & Water
Water & Process Technologies

SAFETY DATA SHEET

STEAMATE* NA1324

1. Identification

Product identifier	**STEAMATE NA1324**
Other means of identification	None.
Recommended use	Steam condensate treatment.
Recommended restrictions	None known.

Company/undertaking identification

GE Betz, Inc.
4636 Somerton Road
Trevose, PA 19053
T 215 355 3300, F 215 953 5524

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Not classified.	
Health hazards	Acute toxicity, oral	Category 4
	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
OSHA defined hazards	Not classified.	

Label elements

Signal word	Danger
Hazard statement	Harmful if swallowed. Causes severe skin burns and eye damage. Causes serious eye damage. May cause respiratory irritation.
Precautionary statement	
Prevention	Wear eye/face protection. Do not breathe mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area.
Response	If swallowed: Rinse mouth. Do NOT induce vomiting. If on skin (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. If inhaled: Remove person to fresh air and keep comfortable for breathing. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a poison center/doctor/. Specific treatment (see on this label). Wash contaminated clothing before reuse.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store locked up.
Disposal	Dispose of contents/container in accordance with local/regional/national/international regulations.
Hazard(s) not otherwise classified (HNOC)	None known.

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
Ammonia solution	1336-21-6	20 - 40
Ethanolamine	141-43-5	2.5 - 10

Contains a maximum of 19% ammonia as NH3.

Composition comments Information for specific product ingredients as required by the U.S. OSHA HAZARD COMMUNICATION STANDARD is listed. Refer to additional sections of this SDS for our assessment of the potential hazards of this formulation.

4. First-aid measures

Inhalation Remove victim to fresh air and keep at rest in a position comfortable for breathing. Call a POISON CENTER or doctor/physician if you feel unwell.

Skin contact Take off immediately all contaminated clothing. Rinse skin with water/shower. Call a physician or poison control center immediately. Chemical burns must be treated by a physician. Wash contaminated clothing before reuse.

Eye contact Immediately flush eyes with plenty of water for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Call a physician or poison control center immediately.

Ingestion Call a physician or poison control center immediately. Rinse mouth. Do not induce vomiting. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs.

Most important symptoms/effects, acute and delayed Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Irritation of nose and throat. May cause respiratory irritation.

Indication of immediate medical attention and special treatment needed Provide general supportive measures and treat symptomatically. Chemical burns: Flush with water immediately. While flushing, remove clothes which do not adhere to affected area. Call an ambulance. Continue flushing during transport to hospital. In case of shortness of breath, give oxygen. Keep victim warm. Keep victim under observation. Symptoms may be delayed.

General information In the case of accident or if you feel unwell, seek medical advice immediately (show the label where possible). Ensure that medical personnel are aware of the material(s) involved, and take precautions to protect themselves.

5. Fire-fighting measures

Suitable extinguishing media Water fog. Foam. Dry chemical powder. Carbon dioxide (CO2).

Unsuitable extinguishing media Do not use water jet as an extinguisher, as this will spread the fire.

Specific hazards arising from the chemical During fire, gases hazardous to health may be formed.

Special protective equipment and precautions for firefighters Wear full protective clothing, including helmet, self-contained positive pressure or pressure demand breathing apparatus, protective clothing and face mask.

Fire fighting equipment/instructions In case of fire and/or explosion do not breathe fumes. Use standard firefighting procedures and consider the hazards of other involved materials. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray.

Specific methods Use standard firefighting procedures and consider the hazards of other involved materials.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Keep out of low areas. Wear appropriate protective equipment and clothing during clean-up. Do not breathe mist or vapor. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Ensure adequate ventilation. Local authorities should be advised if significant spillages cannot be contained. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Large Spills: Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Cover with plastic sheet to prevent spreading. Absorb in vermiculite, dry sand or earth and place into containers. Prevent entry into waterways, sewer, basements or confined areas. Following product recovery, flush area with water.

Small Spills: Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS.

Environmental precautions Avoid discharge into drains, water courses or onto the ground. Water contaminated with this product may be sent to a sanitary sewer treatment facility, or a permitted waste treatment facility, in accordance with any local agreements.

7. Handling and storage

Precautions for safe handling Do not breathe mist or vapor. Do not get this material in contact with eyes. Do not get this material in contact with skin. Do not taste or swallow. Avoid prolonged exposure. Do not get this material on clothing. Do not mix with acidic material. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. When using, do not eat, drink or smoke. Wash hands thoroughly after handling. Use care in handling/storage.

Conditions for safe storage, including any incompatibilities Store locked up. Store in original tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Do not freeze. If frozen, thaw completely and mix thoroughly prior to use. Store in accordance with local/regional/national/international regulation.

8. Exposure controls/personal protection

Occupational exposure limits

US. OSHA Table Z-1 Limits for Air Contaminants (29 CFR 1910.1000)

Components	Type	Value
Ammonia solution (CAS 1336-21-6)	PEL	35 mg/m3
		50 ppm
Ethanolamine (CAS 141-43-5)	PEL	6 mg/m3
		3 ppm

US. ACGIH Threshold Limit Values

Components	Type	Value
Ammonia solution (CAS 1336-21-6)	STEL	35 ppm
	TWA	25 ppm
Ethanolamine (CAS 141-43-5)	STEL	6 ppm
	TWA	3 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Ammonia solution (CAS 1336-21-6)	STEL	27 mg/m3
		35 ppm
	TWA	18 mg/m3
		25 ppm
Ethanolamine (CAS 141-43-5)	STEL	15 mg/m3
		6 ppm
	TWA	8 mg/m3
		3 ppm

Biological limit values No biological exposure limits noted for the ingredient(s).

Appropriate engineering controls Good general ventilation (typically 10 air changes per hour) should be used. Ventilation rates should be matched to conditions. If applicable, use process enclosures, local exhaust ventilation, or other engineering controls to maintain airborne levels below recommended exposure limits. If exposure limits have not been established, maintain airborne levels to an acceptable level. Eye wash facilities and emergency shower must be available when handling this product.

Individual protection measures, such as personal protective equipment

Eye/face protection Chemical goggles and face shield are recommended.

Skin protection

Hand protection Chemical resistant gloves. The choice of an appropriate glove does not only depend on its material but also on other quality features and is different from one producer to the other. Glove selection must take into account any solvents and other hazards present.

Other Wear appropriate chemical resistant clothing. Use of an impervious apron is recommended.

Respiratory protection Chemical respirator with organic vapor cartridge and full facepiece. A RESPIRATORY PROTECTION PROGRAM THAT MEETS OSHA'S 29 CFR 1910.134 AND ANSI Z88.2 REQUIREMENTS MUST BE FOLLOWED WHENEVER WORKPLACE CONDITIONS WARRANT A RESPIRATOR'S USE.

Thermal hazards Wear appropriate thermal protective clothing, when necessary.

General hygiene considerations	When using, do not eat, drink or smoke. Always observe good personal hygiene measures, such as washing after handling the material and before eating, drinking, and/or smoking. Routinely wash work clothing and protective equipment to remove contaminants.

9. Physical and chemical properties

Appearance	
Color	Colorless
Physical state	Liquid
Odor	Strong ammonia
Odor threshold	Not available.
pH (concentrated product)	13
pH in aqueous solution	11.4 (5% SOL.)
Melting point/freezing point	-24 °F (-31 °C)
Initial boiling point and boiling range	160 °F (71 °C)
Flash point	> 212 °F (> 100 °C) P-M(CC)
Evaporation rate	< 1 (Ether = 1)
Flammability (solid, gas)	Not available.
Upper/lower flammability or explosive limits	
Flammability limit - lower (%)	Not available.
Flammability limit - upper (%)	Not available.
Explosive limit - lower (%)	Not available.
Explosive limit - upper (%)	Not available.
Vapor pressure	240 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	0.94
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Partition coefficient (n-octanol/water)	Not available.
Auto-ignition temperature	Not available.
Decomposition temperature	Not available.
Viscosity	4 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Percent volatile	4 (Calculated)
Pour point	-19 °F (-28 °C)
Specific gravity	0.94

10. Stability and reactivity

Reactivity	The product is stable and non-reactive under normal conditions of use, storage and transport.
Chemical stability	Material is stable under normal conditions.
Possibility of hazardous reactions	No dangerous reaction known under conditions of normal use.
Conditions to avoid	Avoid temperatures exceeding the flash point. Contact with incompatible materials. None under normal conditions.
Incompatible materials	Strong acids. Strong oxidizing agents.
Hazardous decomposition products	Oxides of carbon and nitrogen evolved in fire. Ammonia evolved in fire. Volatile amines.

11. Toxicological information

Information on likely routes of exposure

Inhalation May cause irritation to the respiratory system. Prolonged inhalation may be harmful.

Skin contact Causes severe skin burns.

Prolonged or repeated exposure may cause liver and kidney damage. These effects have not been observed in humans.

Eye contact Causes serious eye damage.

Ingestion Causes digestive tract burns. Harmful if swallowed.

Symptoms related to the physical, chemical and toxicological characteristics Burning pain and severe corrosive skin damage. Causes serious eye damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. Irritation of nose and throat. May cause respiratory irritation.

Information on toxicological effects

Acute toxicity May cause respiratory irritation.

Product	Species	Test Results
STEAMATE NA1324 (CAS Mixture)		
Acute		
Dermal		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
Oral		
LD50	Rat	960 mg/kg, (Calculated according to GHS additivity formula (Category 4))

Components	Species	Test Results
Ammonia solution (CAS 1336-21-6)		
Acute		
Oral		
LD50	Rat	350 mg/kg
Ethanolamine (CAS 141-43-5)		
Acute		
Dermal		
LD50	Rabbit	1025 mg/kg
Inhalation		
LC50	Rat	> 1.5 mg/l, 4 Hour
Oral		
LD50	Rat	1720 mg/kg

* Estimates for product may be based on additional component data not shown.

Skin corrosion/irritation Prolonged skin contact may cause temporary irritation.

Serious eye damage/eye irritation Causes serious eye damage.

Respiratory or skin sensitization

Respiratory sensitization Not available.

Skin sensitization This product is not expected to cause skin sensitization.

Germ cell mutagenicity No data available to indicate product or any components present at greater than 0.1% are mutagenic or genotoxic.

Carcinogenicity This product is not considered to be a carcinogen by IARC, ACGIH, NTP, or OSHA.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Reproductive toxicity This product is not expected to cause reproductive or developmental effects.

Specific target organ toxicity - single exposure May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not available.

Chronic effects May be harmful if absorbed through skin. Prolonged inhalation may be harmful.

Prolonged or repeated exposure may cause liver and kidney damage. These effects have not been observed in humans.

12. Ecological information

Ecotoxicity No data available

Product		Species	Test Results
STEAMATE NA1324 (CAS Mixture)			
	LC50	Fathead Minnow	120 mg/l, Static Acute Bioassay, 96 hour, (Estimated)
	NOEL	Fathead Minnow	86 mg/l, Static Acute Bioassay, 96 hour, (Estimated)
Aquatic			
Crustacea	LC50	Daphnia magna	277 mg/l, Static Acute Bioassay, 48 hour, (Estimated)
	NOEL	Daphnia magna	165 mg/l, Static Acute Bioassay, 48 hour, (Estimated)

* Estimates for product may be based on additional component data not shown.

Bioaccumulative potential No data available.

Partition coefficient n-octanol / water (log Kow)

Ethanolamine -1.31

Mobility in soil No data available.

Other adverse effects No other adverse environmental effects (e.g. ozone depletion, photochemical ozone creation potential, endocrine disruption, global warming potential) are expected from this component.

Environmental fate The product is not classified as environmentally hazardous. However, this does not exclude the possibility that large or frequent spills can have a harmful or damaging effect on the environment.

Persistence and degradability

No data is available on the degradability of this product.

- **COD (mgO2/g)** 62 (calculated data)
- **BOD 5 (mgO2/g)** 28 (calculated data)
- **BOD 28 (mgO2/g)** 27 (calculated data)
- **TOC (mg C/g)** 17 (calculated data)

13. Disposal considerations

Disposal instructions Collect and reclaim or dispose in sealed containers at licensed waste disposal site. Incinerate the material under controlled conditions in an approved incinerator. Dispose of contents/container in accordance with local/regional/national/international regulations.

Local disposal regulations Dispose in accordance with all applicable regulations.

Hazardous waste code D002: Waste Corrosive material [pH <=2 or =>12.5, or corrosive to steel]
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

Waste from residues / unused products Dispose of in accordance with local regulations. Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner (see: Disposal instructions).

Contaminated packaging Empty containers should be taken to an approved waste handling site for recycling or disposal. Since emptied containers may retain product residue, follow label warnings even after container is emptied.

14. Transport information

DOT

UN number UN2672

UN proper shipping name AMMONIA SOLUTION, RQ(AMMONIUM HYDROXIDE)

Transport hazard class(es)

Class	8
Subsidiary risk	-

Packing group III
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.
ERG number 154

Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.

IATA

UN number UN2672
UN proper shipping name AMMONIA SOLUTION
Transport hazard class(es)

Class	8
Subsidiary risk	-

Packing group III
Environmental hazards No.
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN2672
UN proper shipping name AMMONIA SOLUTION, RQ(AMMONIUM HYDROXIDE)
Transport hazard class(es)

Class	8
Subsidiary risk	-

Packing group III
Environmental hazards

Marine pollutant	No.

EmS F - A, S - B
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

DOT

IATA; IMDG

15. Regulatory information

US federal regulations This product is a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
All components are on the U.S. EPA TSCA Inventory List.

TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Ammonia solution (CAS 1336-21-6)	Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)

Not listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories

Immediate Hazard - Yes
Delayed Hazard - No
Fire Hazard - No
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical No

SARA 313 (TRI reporting)

Chemical name	CAS number	% by wt.
Ammonia solution	1336-21-6	20 - 40

Other federal regulations

Clean Air Act (CAA) Section 112 Hazardous Air Pollutants (HAPs) List

Not regulated.

Clean Air Act (CAA) Section 112(r) Accidental Release Prevention (40 CFR 68.130)

Not regulated.

Safe Drinking Water Act (SDWA) Not regulated.

Inventory status

Country(s) or region	Inventory name	On inventory (yes/no)*
Canada	Domestic Substances List (DSL)	Yes
Canada	Non-Domestic Substances List (NDSL)	No
United States & Puerto Rico	Toxic Substances Control Act (TSCA) Inventory	Yes

*A "Yes" indicates that all components of this product comply with the inventory requirements administered by the governing country(s)
A "No" indicates that one or more components of the product are not listed or exempt from listing on the inventory administered by the governing country(s).

US state regulations WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - Massachusetts RTK - Substance List

Ammonia solution (CAS 1336-21-6)
Ethanolamine (CAS 141-43-5)

US - Pennsylvania RTK - Hazardous Substances

Ammonia solution (CAS 1336-21-6)
Ethanolamine (CAS 141-43-5)

US - Rhode Island RTK

Ammonia solution (CAS 1336-21-6)

US. California Controlled Substances. CA Department of Justice (California Health and Safety Code Section 11100)

Not listed.

US. New Jersey Worker and Community Right-to-Know Act

Ammonia solution (CAS 1336-21-6)
Ethanolamine (CAS 141-43-5)

US. Pennsylvania Worker and Community Right-to-Know Law

Ammonia solution (CAS 1336-21-6)
Ethanolamine (CAS 141-43-5)

US. California Proposition 65

WARNING: This product contains a chemical known to the State of California to cause cancer and birth defects or other reproductive harm.

US - California Proposition 65 - CRT: Listed date/Carcinogenic substance

ARSENIC (CAS 7440-38-2)	Listed: February 27, 1987
Diethanolamine (CAS 111-42-2)	Listed: June 22, 2012
LEAD (CAS 7439-92-1)	Listed: October 1, 1992

US - California Proposition 65 - CRT: Listed date/Developmental toxin

LEAD (CAS 7439-92-1)	Listed: February 27, 1987
MERCURY (CAS 7439-97-6)	Listed: July 1, 1990

US - California Proposition 65 - CRT: Listed date/Female reproductive toxin

LEAD (CAS 7439-92-1)	Listed: February 27, 1987

US - California Proposition 65 - CRT: Listed date/Male reproductive toxin

LEAD (CAS 7439-92-1)	Listed: February 27, 1987

16. Other information, including date of preparation or last revision

Issue date	Oct-15-2014
Revision date	Jun-10-2015
Version #	3.0
List of abbreviations	CAS: Chemical Abstract Service Registration Number TWA: Time Weighted Average STEL: Short Term Exposure Limit LD50: Lethal Dose, 50% LC50: Lethal Concentration, 50% NOEL: No Observed Effect Level COD: Chemical Oxygen Demand BOD: Biochemical Oxygen Demand TOC: Total Organic Carbon TLV: Threshold Limit Value IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code NFPA: National Fire Protection Association ACGIH: American Conference of Governmental Industrial Hygienists TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.
References:	No data available
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.
Revision Information	Composition/information on ingredients: Composition comments Physical & Chemical Properties: Multiple Properties Transport Information: Material Transportation Information Other information, including date of preparation or last revision: Prepared by GHS: Classification
Prepared by	This SDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).

Material Data Safety Sheet (MSDS): SULFURIC ACID

Note: This information sheet has been re-formatted for better clarity by the Department of Earth Sciences.
Some of the data such as information on shipping and weapons treaties were intentionally left out. If you want to look at the complete MSDS, you can either check one of the hardcopy versions in the Department,
contact the manufacturer, or check one of the various Web-based databases such as those compiled by BU's Office of Environmental Health & Safety (www.bu.edu/ehs/msds/index.htm).
Return to MSDS Index

1. Product Identification

MSDS Name: **Sulfuric acid**, reagent acs

Synonyms: Hydrogen Sulfate, Oil of Vitriol, Vitriol Brown Oil, Matting Acid, Battery Acid
Company Identification: Acros Organics N.V.
One Reagent Lane
Fairlawn, NJ 07410
For information in North America, call: 800-ACROS-01
For emergencies in the US, call CHEMTREC: 800-424-9300

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2. Composition/Information on Ingredients

CAS#	Chemical Name	%	EINECS#
7664-93-9	Sulfuric acid	95-98.0%	231-639-5
7732-18-5	Water	Balance	231-791-2

Hazard Symbols: XI C
Risk Phrases: 35 36/38

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3. Hazards Identification

EMERGENCY OVERVIEW
Appearance: colorless to brown.
Danger! Harmful if inhaled. Corrosive. Hygroscopic. Causes digestive and respiratory tract burns. Causes digestive and respiratory tract irritation. Causes severe eye and skin irritation and burns. Target Organs: None known.

Potential Health Effects
Eye:
May cause irreversible eye injury. Causes eye irritation and burns.
Skin:
Causes severe skin irritation and burns.
Ingestion:
Causes gastrointestinal tract burns.
Inhalation:
Harmful if inhaled. May cause severe irritation of the respiratory tract with sore throat, coughing, shortness of breath and delayed lung edema. Causes chemical burns to the respiratory tract.
Chronic:
Prolonged or repeated skin contact may cause dermatitis. Prolonged or repeated inhalation may cause nosebleeds, nasal congestion, erosion of the teeth, perforation of the nasal septum, chest pain and bronchitis. Prolonged or repeated eye contact may cause conjunctivitis.

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4. First Aid Measures

Eyes:
Get medical aid immediately. Do NOT allow victim to rub or keep eyes closed. Extensive irrigation is required (at least 30 minutes).
Skin:

Get medical aid immediately. Flush skin with plenty of soap and water for at least 15 minutes while removing contaminated clothing and shoes. SPEEDY ACTION IS CRITICAL!
Ingestion:
Do NOT induce vomiting. If victim is conscious and alert, give 2-4 cupfuls of milk or water. Never give anything by mouth to an unconscious person. Get medical aid immediately.
Inhalation:
Get medical aid immediately. Remove from exposure to fresh air immediately. If breathing is difficult, give oxygen.
Notes to Physician:
Treat symptomatically and supportively.

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5. Fire Fighting Measures

General Information:
Wear appropriate protective clothing to prevent contact with skin and eyes. Wear a self-contained breathing apparatus (SCBA) to prevent contact with thermal decomposition products. Contact with water can cause violent liberation of heat and splattering of the material.
Extinguishing Media:
Do NOT use water directly on fire. Use water spray to cool fire-exposed containers. Use carbon dioxide or dry chemical.
Autoignition Temperature: Not available.
Flash Point: 340 deg C (644.00 deg F)
NFPA Rating: Not published.
Explosion Limits, Lower: Not available.
Upper: Not available.

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6. Accidental Release Measures

General Information: Use proper personal protective equipment as indicated in Section 8.

Spills/Leaks:
Cover with sand, dry lime or soda ash and place in a closed container for disposal.

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7. Handling and Storage

Handling:
Wash thoroughly after handling. Remove contaminated clothing and wash before reuse. Use only in a well ventilated area. Do not get in eyes, on skin, or on clothing. Keep container tightly closed. Do not ingest or inhale. Do not allow contact with water. Discard contaminated shoes.

Storage:
Keep container closed when not in use. Store in a cool, dry, well-ventilated area away from incompatible substances. Corrosives area.

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8. Exposure Controls/Personal Protection

Engineering Controls:
Use adequate general or local exhaust ventilation to keep airborne concentrations below the permissible exposure limits.

Exposure Limits

Chemical Name	ACGIH	NIOSH	OSHA - Final PELs
Sulfuric acid	1 mg/m3; 3 mg/m3 STEL	1 mg/m3 TWA; 15 mg/m3 IDLH	1 mg/m3 TWA

OSHA Vacated PELs:
Sulfuric acid:1 mg/m3 TWA

Personal Protective Equipment

Eyes:
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.

Skin:
Wear appropriate protective gloves to prevent skin exposure.

Clothing:
Wear appropriate protective clothing to prevent skin exposure.

Respirators:

Follow the OSHA respirator regulations found in 29CFR 1910.134 or European Standard EN 149. Always use a NIOSH or European Standard EN 149 approved respirator when necessary.

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9. Physical and Chemical Properties ()

Appearance:	colorless to brown liquid
Odor:	Odorless
Solubility:	
Density:	1.8400 g/cm3
pH:	Not available
% Volatiles by volume @ 21C (70F):	
Boiling Point:	280 deg C @ 760.00mm Hg
Melting Point:	3 deg C
Vapor Density (Air=1):	1.2 kg/m3
Vapor Pressure (mm Hg):	< 0.00120 mm Hg
Evaporation Rate:	Slower than ether
Viscosity:	Not available

Molecular Formula: H2O4S
Molecular Weight: 98.08

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10. Stability and Reactivity

Chemical Stability:
Stable under normal temperatures and pressures.

Conditions to Avoid:
Contact with water, metals, excess heat, combustible materials, organic materials.

Incompatibilities with Other Materials:
Acids (mineral, oxidizing, e.g. chromic acid, hypochlorous acid, nitric acid, sulfuric acid), alcohols and glycols (e.g. butyl alcohol, ethanol, methanol, ethylene glycol), aldehydes (e.g. acetaldehyde, acrolein, chloral hydrate, formaldehyde), amines (aliphatic and aromatic, e.g. dimethyl amine, propylamine,

pyridine, triethylamine), azo, diazo, and hydrazines (e.g. dimethyl hydrazine, hydrazine, methyl hydrazine), caustics (e.g. ammonia, ammonium hydrozide, calcium hydroxide, potassium hydroxide, sodium hydroxide), cyanides (e.g. potassium cyanide, sodium cyanide), dithiocarbamates (e.g. ferbam, maneb, metham, thiram), fluorides (inorganic, e.g. ammonium fluoride, calcium fluoride, cesium fluoride), isocyanates (e.g. methyl isocyanate), metals (alkali and alkaline, e.g. cesium, potassium, sodium), metals as powders (e.g. hafnium, raney nickel), metals and metal compounds (toxic, e.g. beryllium, lead acetate, nickel carbonyl, tetraethyl lead), nitrides (e.g. potassium nitride, sodium n.

Hazardous Decomposition Products:
Oxides of sulfur.

Hazardous Polymerization: Has not been reported.

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11. Toxicological Information

RTECS#:
CAS# 7664-93-9: WS5600000

LD50/LC50:
CAS# 7664-93-9: Inhalation, mouse: LC50 =320 mg/m3/2H; Inhalation, rat: LC50 =510 mg/m3/2H; Oral, rat: LD50 = 2140 mg/kg.

Carcinogenicity:
Sulfuric acid -
ACGIH: A2 - Suspected Human Carcinogen
OSHA: Select carcinogen
IARC: Group 1 carcinogen
Epidemiology:
Workers exposed to industrial sulfuric acid mist showed a statistical increase in laryngeal cancer. This data suggests a possible relationship between carcinogenisis and inhalation of sulfuric acid mist.
Teratogenicity:
No data available.
Reproductive Effects:
No data available.
Neurotoxicity:
No data available.
Mutagenicity:
No data available.
Other Studies:
No data available.

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12. Ecological Information

Ecotoxicity:
Sulfuric acid is harmful to aquatic life in very low concentrations. It may be dangerous if it enters water intakes. The aquatic toxicity for bluegill in fresh water was 24.5 ppm/24 hr, which was lethal.
Environmental Fate:
Not available.
Physical/Chemical:
Not available.
Other:
Not available.

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13. Disposal Considerations

Dispose of in a manner consistent with federal, state, and local regulations.
RCRA D-Series Maximum Concentration of Contaminants: None listed.
RCRA D-Series Chronic Toxicity Reference Levels: None listed.
RCRA F-Series: None listed.
RCRA P-Series: None listed.
RCRA U-Series: None listed.

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16. Other Information

MSDS Creation Date: 2/01/1996 Revision #3 Date: 10/01/1997

The information above is believed to be accurate and represents the best information currently available to us. However, we make no warranty of merchantability or any other warranty, express or implied, with respect to such information, and we assume no liability resulting from its use. Users should make their own investigations to determine the suitability of the information for their particular purposes. In no way shall Fisher be liable

for any claims, losses, or damages of any third party or for lost profits or any special, indirect, incidental, consequential or exemplary damages, howsoever arising, even if Fisher has been advised of the possibility of such damages.

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NALCO Water
An Ecolab Company

SAFETY DATA SHEET

3D TRASAR™ 3DT120

Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	3D TRASAR™ 3DT120
Other means of identification	:	Not applicable.
Recommended use	:	COOLING WATER TREATMENT
Restrictions on use	:	Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.
Company	:	Nalco Company 1601 W. Diehl Road Naperville, Illinois 60563-1198 USA TEL: (630)305-1000
Emergency telephone number	:	(800) 424-9300 (24 Hours) CHEMTREC
Issuing date	:	06/08/2016

Section: 2. HAZARDS IDENTIFICATION

GHS Classification

Not a hazardous substance or mixture.

GHS Label element

Precautionary Statements : **Prevention:**
Wash hands thoroughly after handling.
Response:
Get medical advice/ attention if you feel unwell.
Storage:
Store in accordance with local regulations.

Other hazards : None known.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

No hazardous ingredients

Section: 4. FIRST AID MEASURES

In case of eye contact	:	Rinse with plenty of water. Get medical attention if symptoms occur.
In case of skin contact	:	Wash off with soap and plenty of water. Get medical attention if symptoms occur.
If swallowed	:	Rinse mouth. Get medical attention if symptoms occur.
If inhaled	:	Get medical attention if symptoms occur.
Protection of first-aiders	:	In event of emergency assess the danger before taking action. Do not put

		yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.
Notes to physician	:	Treat symptomatically.
Most important symptoms and effects, both acute and delayed	:	See Section 11 for more detailed information on health effects and symptoms.

Section: 5. FIREFIGHTING MEASURES

Suitable extinguishing media	:	Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.
Specific hazards during firefighting	:	Not flammable or combustible.
Hazardous combustion products	:	Decomposition products may include the following materials: Carbon oxides nitrogen oxides (NOx) Sulphur oxides Oxides of phosphorus
Special protective equipment for firefighters	:	Use personal protective equipment.
Specific extinguishing methods	:	Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations.

Section: 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	No special environmental precautions required.
Methods and materials for containment and cleaning up	:	Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Flush away traces with water.

Section: 7. HANDLING AND STORAGE

Advice on safe handling	:	For personal protection see section 8. Wash hands after handling.
Conditions for safe storage	:	Keep out of reach of children. Keep container tightly closed. Store in suitable labeled containers.
Suitable material	:	Keep in properly labelled containers.
Unsuitable material	:	The following compatibility data is suggested based on similar product data and/or industry experience: Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures	:	Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Personal protective equipment

Eye protection	:	Safety glasses
Hand protection	:	Wear protective gloves. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Skin protection	:	Wear suitable protective clothing.
Respiratory protection	:	No personal respiratory protective equipment normally required.
Hygiene measures	:	Wash hands before breaks and immediately after handling the product.

Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Liquid
Colour	:	yellow
Odour	:	odourless
Flash point	:	does not flash
pH	:	3.0, 100 %
Odour Threshold	:	no data available
Melting point/freezing point	:	POUR POINT: -2.0 °C
Initial boiling point and boiling range	:	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	:	1.113 - 1.149,
Density	:	no data available
Water solubility	:	completely soluble
Solubility in other solvents	:	no data available
Partition coefficient: n-octanol/water	:	no data available

Auto-ignition temperature	:	no data available
Thermal decomposition temperature	:	no data available
Viscosity, dynamic	:	no data available
Viscosity, kinematic	:	39.93 - 42.69 mm2/s (20 °C)
Molecular weight	:	no data available
VOC	:	no data available

Section: 10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.
Incompatible materials	:	Contact with strong oxidizers (e.g. chlorine, peroxides, chromates, nitric acid, perchlorate, concentrated oxygen, permanganate) may generate heat, fires, explosions and/or toxic vapors. Bases Contact with strong alkalies (e.g. ammonia and its solutions, carbonates, sodium hydroxide (caustic), potassium hydroxide, calcium hydroxide (lime), cyanide, sulfide, hypochlorites, chlorites) may generate heat, splattering or boiling and toxic vapors. SO2 may react with vapors from neutralizing amines and may produce a visible cloud of amine salt particles.
Hazardous decomposition products	:	Decomposition products may include the following materials: Carbon oxides nitrogen oxides (NOx) Sulphur oxides Oxides of phosphorus

Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	:	Inhalation, Eye contact, Skin contact

Potential Health Effects

Eyes	:	Health injuries are not known or expected under normal use.
Skin	:	Health injuries are not known or expected under normal use.
Ingestion	:	Health injuries are not known or expected under normal use.
Inhalation	:	Health injuries are not known or expected under normal use.
Chronic Exposure	:	Health injuries are not known or expected under normal use.

Experience with human exposure

Eye contact	:	No symptoms known or expected.

Skin contact	:	No symptoms known or expected.
Ingestion	:	No symptoms known or expected.
Inhalation	:	No symptoms known or expected.

Toxicity

Product

Acute oral toxicity	:	LD50 rat: 5,000 mg/kg Test substance: Similar Product
Acute inhalation toxicity	:	no data available
Acute dermal toxicity	:	LD50 rabbit: > 2,000 mg/kg Test substance: Similar Product
Skin corrosion/irritation	:	no data available
Serious eye damage/eye irritation	:	no data available
Respiratory or skin sensitization	:	no data available
Carcinogenicity	:	no data available
Reproductive effects	:	no data available
Germ cell mutagenicity	:	no data available
Teratogenicity	:	no data available
STOT - single exposure	:	no data available
STOT - repeated exposure	:	no data available
Aspiration toxicity	:	no data available

Section: 12. ECOLOGICAL INFORMATION

Ecotoxicity

Environmental Effects	:	This product has no known ecotoxicological effects.

Product

Toxicity to fish	:	LC50 Oncorhynchus mykiss (rainbow trout): 1,279 mg/l Exposure time: 96 hrs Test substance: Similar Product Test Type: Static LC50 Oncorhynchus mykiss (rainbow trout): > 8,000 mg/l Exposure time: 96 hrs Test substance: Product Test Type: Static LC50 Lepomis macrochirus (Bluegill sunfish): > 5,000 mg/l Exposure time: 96 hrs Test substance: Similar Product

LC50 Inland Silverside: 3,736 mg/l
Exposure time: 96 hrs
Test substance: Similar Product

NOEC Oncorhynchus mykiss (rainbow trout): 625 mg/l
Exposure time: 96 hrs
Test substance: Similar Product
Test Type: Static

NOEC Oncorhynchus mykiss (rainbow trout): 4,800 mg/l
Exposure time: 96 hrs
Test substance: Product
Test Type: Static

LC50 Fathead Minnow: 3,847 mg/l
Exposure time: 96 hrs
Test substance: Product

NOEC Fathead Minnow: 1,800 mg/l
Exposure time: 96 hrs
Test substance: Product

Toxicity to daphnia and other aquatic invertebrates : LC50 Daphnia magna (Water flea): 1,339 mg/l
Exposure time: 48 hrs
Test substance: Product
Test Type: Static

LC50 Mysid Shrimp (Mysidopsis bahia): 3,750 mg/l
Exposure time: 96 hrs
Test substance: Similar Product

EC50 Daphnia magna (Water flea): 718 mg/l
Exposure time: 48 hrs
Test substance: Similar Product
Test Type: Static

NOEC Daphnia magna (Water flea): 625 mg/l
Exposure time: 48 hrs
Test substance: Similar Product
Test Type: Static

NOEC Daphnia magna (Water flea): 1,037 mg/l
Exposure time: 48 hrs
Test substance: Product
Test Type: Static

EC50 Ceriodaphnia dubia: 979 mg/l
Exposure time: 48 hrs
Test substance: Product

LC50 Ceriodaphnia dubia: 1,005 mg/l
Exposure time: 48 hrs
Test substance: Product

NOEC Ceriodaphnia dubia: 648 mg/l
Exposure time: 48 hrs
Test substance: Product

Persistence and degradability

Total Organic Carbon (TOC) : 120,000 mg/l

Chemical Oxygen Demand (COD): 300,000 mg/l

Biochemical Oxygen Demand (BOD):

Incubation Period	Value	Test Descriptor
5 d	175 mg/l	Product

Mobility

The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	:	<5%
Water	:	10 - 30%
Soil	:	70 - 90%

The portion in water is expected to be soluble or dispersible.

Bioaccumulative potential

This preparation or material is not expected to bioaccumulate.

Other information

no data available

Section: 13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

Disposal methods	:	Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.
Disposal considerations	:	Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Land transport (DOT)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Air transport (IATA)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Sea transport (IMDG/IMO)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Section: 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : No SARA Hazards

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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.

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.

INTERNATIONAL CHEMICAL CONTROL LAWS :

TOXIC SUBSTANCES CONTROL ACT (TSCA)
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

AUSTRALIA
All substances in this product comply with the National Industrial Chemicals Notification & Assessment Scheme (NICNAS).

CHINA
All substances in this product comply with the Provisions on the Environmental Administration of New Chemical Substances and are listed on or exempt from the Inventory of Existing Chemical Substances China (IECSC).

JAPAN
All substances in this product comply with the Law Regulating the Manufacture and Importation Of Chemical Substances and are listed on the Existing and New Chemical Substances list (ENCS).

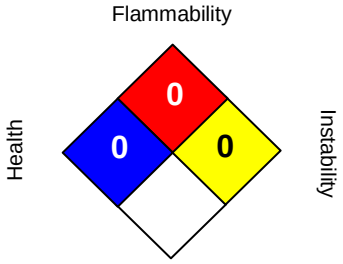
KOREA
All substances in this product comply with the Chemical Control Act (CCA) and are listed on the Existing Chemicals List (ECL)

NEW ZEALAND
All substances in this product comply with the Hazardous Substances and New Organisms (HSNO) Act 1996,and are listed on or are exempt from the New Zealand Inventory of Chemicals.

PHILIPPINES
All substances in this product comply with the Republic Act 6969 (RA 6969) and are listed on the Philippines Inventory of Chemicals & Chemical Substances (PICCS).

Section: 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	1
FLAMMABILITY	0
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date : 06/08/2016
Version Number : 1.3
Prepared By : Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

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

NALCO Water
An Ecolab Company

SAFETY DATA SHEET

3D TRASAR™ 3DT175

Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	3D TRASAR™ 3DT175
Other means of identification	:	Not applicable.
Recommended use	:	COOLING WATER TREATMENT
Restrictions on use	:	Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.
Company	:	Nalco Company 1601 W. Diehl Road Naperville, Illinois 60563-1198 USA TEL: (630)305-1000
Emergency telephone number	:	(800) 424-9300 (24 Hours) CHEMTREC
Issuing date	:	09/09/2016

Section: 2. HAZARDS IDENTIFICATION

GHS Classification

Skin irritation	:	Category 2
Eye irritation	:	Category 2A
Specific target organ toxicity - single exposure	:	Category 3 (Respiratory system)

GHS Label element

Hazard pictograms :

Signal Word : Warning

Hazard Statements : Causes skin irritation.
Causes serious eye irritation.
May cause respiratory irritation.

Precautionary Statements : **Prevention:**
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Wash skin thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves/ eye protection/ face protection.
Response:
IF ON SKIN: Wash with plenty of soap and water.IF INHALED: Remove person to fresh air and keep comfortable for breathing. Call a POISON CENTER or doctor/ physician if you feel unwell.
IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.If skin irritation occurs: Get medical advice/attention.If eye irritation persists: Get medical advice/

attention.Take off contaminated clothing and wash before reuse.

Other hazards : None known.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

Chemical Name	CAS-No.	Concentration: (%)
Inorganic Phosphate	Proprietary	10 - 30
Inorganic Polyphosphate	Proprietary	5 - 10

Section: 4. FIRST AID MEASURES

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention.

In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes. Use a mild soap if available. Get medical attention if irritation develops and persists.

If swallowed : Rinse mouth. Get medical attention if symptoms occur.

If inhaled : Remove to fresh air. Treat symptomatically. Get medical attention if symptoms occur.

Protection of first-aiders : In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.

Notes to physician : Treat symptomatically.

Most important symptoms and effects, both acute and delayed : See Section 11 for more detailed information on health effects and symptoms.

Section: 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : None known.

Specific hazards during firefighting : Not flammable or combustible.

Hazardous combustion products : Decomposition products may include the following materials: Carbon oxides nitrogen oxides (NOx) Sulphur oxides Oxides of phosphorus

Special protective equipment for firefighters : Use personal protective equipment.

Specific extinguishing methods : Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

Section: 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Ensure adequate ventilation. Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Do not allow contact with soil, surface or ground water.
Methods and materials for containment and cleaning up	:	Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Flush away traces with water.

Section: 7. HANDLING AND STORAGE

Advice on safe handling	:	Avoid contact with skin and eyes. Do not breathe dust/fume/gas/mist/vapours/spray. Wash hands thoroughly after handling. Use only with adequate ventilation.
Conditions for safe storage	:	Keep out of reach of children. Keep container tightly closed. Store in suitable labelled containers.
Suitable material	:	The following compatibility data is suggested based on similar product data and/or industry experience: Compatibility with Plastic Materials can vary; we therefore recommend that compatibility is tested prior to use.
Unsuitable material	:	not determined

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Contains no substances with occupational exposure limit values.

Engineering measures	:	Good general ventilation should be sufficient to control worker exposure to airborne contaminants.

Personal protective equipment

Eye protection	:	Safety glasses with side-shields
Hand protection	:	Wear the following personal protective equipment: Standard glove type. Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.
Skin protection	:	Wear suitable protective clothing.
Respiratory protection	:	When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.
Hygiene measures	:	Handle in accordance with good industrial hygiene and safety practice. Remove

and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling.

Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance	:	Liquid
Colour	:	light yellow, dark yellow
Odour	:	odourless
Flash point	:	> 93.3 °C, Estimated
pH	:	11.2
Odour Threshold	:	no data available
Melting point/freezing point	:	FREEZING POINT: , No data available.
Initial boiling point and boiling range	:	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	:	1.37, (15.5 °C),
Density	:	11.4 lb/gal
Water solubility	:	completely soluble
Solubility in other solvents	:	no data available
Partition coefficient: n-octanol/water	:	no data available
Auto-ignition temperature	:	no data available
Thermal decomposition temperature	:	no data available
Viscosity, dynamic	:	no data available
Viscosity, kinematic	:	no data available
Molecular weight	:	no data available
VOC	:	0 %, Calculation method

Section: 10. STABILITY AND REACTIVITY

Chemical stability	:	Stable under normal conditions.
Possibility of hazardous reactions	:	No dangerous reaction known under conditions of normal use.

Conditions to avoid	:	None known.
Incompatible materials	:	Acids Contact with strong acids (e.g. sulfuric, phosphoric, nitric, hydrochloric, chromic, sulfonic) may generate heat, splattering or boiling and toxic vapors.
Hazardous decomposition products	:	Decomposition products may include the following materials: Carbon oxides nitrogen oxides (NOx) Sulphur oxides Oxides of phosphorus

Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	:	Inhalation, Eye contact, Skin contact

Potential Health Effects

Eyes	:	Causes serious eye irritation.
Skin	:	Causes skin irritation.
Ingestion	:	Health injuries are not known or expected under normal use.
Inhalation	:	May cause respiratory tract irritation. May cause nose, throat, and lung irritation.
Chronic Exposure	:	Health injuries are not known or expected under normal use.

Experience with human exposure

Eye contact	:	Redness, Pain, Irritation
Skin contact	:	Redness, Irritation
Ingestion	:	No symptoms known or expected.
Inhalation	:	Respiratory irritation, Cough

Toxicity

Product

Acute oral toxicity	:	Acute toxicity estimate: > 5,000 mg/kg
Acute inhalation toxicity	:	no data available
Acute dermal toxicity	:	Acute toxicity estimate: > 5,000 mg/kg
Skin corrosion/irritation	:	no data available
Serious eye damage/eye irritation	:	no data available
Respiratory or skin sensitization	:	no data available
Carcinogenicity	:	no data available

Reproductive effects	:	no data available
Germ cell mutagenicity	:	no data available
Teratogenicity	:	no data available
STOT - single exposure	:	no data available
STOT - repeated exposure	:	no data available
Aspiration toxicity	:	no data available

Section: 12. ECOLOGICAL INFORMATION

Ecotoxicity

Environmental Effects : This product has no known ecotoxicological effects.

Product

Toxicity to fish : LC50 Fathead Minnow: 1,875 mg/l
Exposure time: 96 hrs
Test substance: Product

NOEC Fathead Minnow: 1,250 mg/l
Exposure time: 96 hrs
Test substance: Product

LC50 Rainbow Trout: 2,152 mg/l
Exposure time: 96 hrs
Test substance: Product

NOEC Rainbow Trout: 1,080 mg/l
Exposure time: 96 hrs
Test substance: Product

Toxicity to daphnia and other aquatic invertebrates : EC50 Ceriodaphnia dubia: 1,875 mg/l
Exposure time: 48 hrs
Test substance: Product

LC50 Ceriodaphnia dubia: 1,875 mg/l
Exposure time: 48 hrs
Test substance: Product

NOEC Ceriodaphnia dubia: 1,250 mg/l
Exposure time: 48 hrs
Test substance: Product

EC50 Daphnia magna: 2,265 mg/l
Exposure time: 48 hrs
Test substance: Product

LC50 Daphnia magna: 2,265 mg/l
Exposure time: 48 hrs
Test substance: Product

NOEC Daphnia magna: 1,800 mg/l

Exposure time: 48 hrs
Test substance: Product

Persistence and degradability

The organic portion of this preparation is expected to be inherently biodegradable.

Total Organic Carbon (TOC) : 41,000 mg/l

Chemical Oxygen Demand (COD): 100,000 mg/l

Biochemical Oxygen Demand (BOD):

Incubation Period	Value	Test Descriptor
5 d	420 mg/l	Product

Mobility

The environmental fate was estimated using a level III fugacity model embedded in the EPI (estimation program interface) Suite TM, provided by the US EPA. The model assumes a steady state condition between the total input and output. The level III model does not require equilibrium between the defined media. The information provided is intended to give the user a general estimate of the environmental fate of this product under the defined conditions of the models.
If released into the environment this material is expected to distribute to the air, water and soil/sediment in the approximate respective percentages;

Air	:	<5%
Water	:	30 - 50%
Soil	:	50 - 70%

The portion in water is expected to be soluble or dispersible.

Bioaccumulative potential

This preparation or material is not expected to bioaccumulate.

Other information

no data available

Section: 13. DISPOSAL CONSIDERATIONS

If this product becomes a waste, it is not a hazardous waste as defined by the Resource Conservation and Recovery Act (RCRA) 40 CFR 261, since it does not have the characteristics of Subpart C, nor is it listed under Subpart D.

Disposal methods	:	Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.
Disposal considerations	:	Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Land transport (DOT)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Air transport (IATA)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Sea transport (IMDG/IMO)

Proper shipping name : PRODUCT IS NOT REGULATED DURING TRANSPORTATION

Section: 15. REGULATORY INFORMATION

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

This material does not contain any components with a CERCLA RQ.

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Acute Health Hazard

SARA 302 : No chemicals in this material are subject to the reporting requirements of SARA Title III, Section 302.

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.

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.

INTERNATIONAL CHEMICAL CONTROL LAWS :

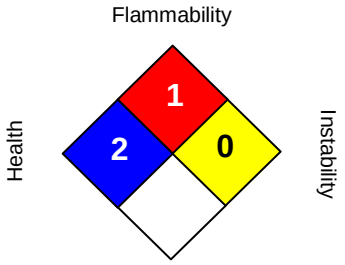
TOXIC SUBSTANCES CONTROL ACT (TSCA)
The substances in this preparation are included on or exempted from the TSCA 8(b) Inventory (40 CFR 710)

CANADIAN ENVIRONMENTAL PROTECTION ACT (CEPA)
The substance(s) in this preparation are included in or exempted from the Domestic Substance List (DSL).

Section: 16. OTHER INFORMATION

3D TRASAR™ 3DT175

NFPA:



Special hazard.

HMIS III:

HEALTH	2
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 =Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date	:	09/09/2016
Version Number	:	1.3
Prepared By	:	Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

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.
For additional copies of an SDS visit www.nalco.com and request access.

NALCO Water
An Ecolab Company

SAFETY DATA SHEET

3D TRASAR™ 3DT398

Section: 1. PRODUCT AND COMPANY IDENTIFICATION

Product name	:	3D TRASAR™ 3DT398
Other means of identification	:	Not applicable.
Recommended use	:	CORROSION INHIBITOR
Restrictions on use	:	Refer to available product literature or ask your local Sales Representative for restrictions on use and dose limits.
Company	:	Nalco Company 1601 W. Diehl Road Naperville, Illinois 60563-1198 USA TEL: (630) 305-1000
Emergency telephone number	:	(800) 424-9300 (24 Hours) CHEMTREC
Issuing date	:	12/07/2020

Section: 2. HAZARDS IDENTIFICATION

GHS Classification

Skin corrosion	:	Category 1
Serious eye damage	:	Category 1
Skin sensitization	:	Category 1
Specific target organ toxicity - single exposure	:	Category 3 (Respiratory system)

GHS Label element

Hazard pictograms :

Signal Word : Danger

Hazard Statements : Causes severe skin burns and eye damage.
May cause an allergic skin reaction.
May cause respiratory irritation.

Precautionary Statements : **Prevention:**
Avoid breathing dust/ fume/ gas/ mist/ vapours/ spray. Wear protective gloves/ protective clothing/ eye protection/ face protection.
Response:
IF SWALLOWED: Rinse mouth. Do NOT induce vomiting. IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/shower. IF INHALED: Remove person to fresh air and keep comfortable for breathing. Immediately call a POISON CENTER/doctor. IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Immediately call a POISON CENTER or doctor/ physician.

Storage:
Store in a well-ventilated place. Keep container tightly closed.
Disposal:
Dispose of contents/ container to an approved waste disposal plant.

Other hazards : Do not mix with bleach or other chlorinated products – will cause chlorine gas.

Section: 3. COMPOSITION/INFORMATION ON INGREDIENTS

Pure substance/mixture : CLP Mixture

Chemical Name	CAS-No.	Concentration: (%)
Modified benzimidazole salt	Proprietary	10 - 30
Organic Sulfonic Acid	Proprietary	10 - 30
Acetic Acid	64-19-7	10 - 30

Section: 4. FIRST AID MEASURES

In case of eye contact : Rinse immediately with plenty of water, also under the eyelids, for at least 15 minutes. Remove contact lenses, if present and easy to do. Continue rinsing. Get medical attention immediately.

In case of skin contact : Wash off immediately with plenty of water for at least 15 minutes. Use a mild soap if available. Wash clothing before reuse. Thoroughly clean shoes before reuse. Get medical attention immediately.

If swallowed : Rinse mouth with water. Do NOT induce vomiting. Never give anything by mouth to an unconscious person. Get medical attention immediately.

If inhaled : Remove to fresh air. Treat symptomatically. Get medical attention if symptoms occur.

Protection of first-aiders : In event of emergency assess the danger before taking action. Do not put yourself at risk of injury. If in doubt, contact emergency responders. Use personal protective equipment as required.

Notes to physician : Treat symptomatically.

Most important symptoms and effects, both acute and delayed : See Section 11 for more detailed information on health effects and symptoms.

Section: 5. FIREFIGHTING MEASURES

Suitable extinguishing media : Use extinguishing measures that are appropriate to local circumstances and the surrounding environment.

Unsuitable extinguishing media : None known.

Specific hazards during firefighting : Not flammable or combustible.

Hazardous combustion products	:	Decomposition products may include the following materials: Carbon oxides nitrogen oxides (NOx) Sulphur oxides
Special protective equipment for firefighters	:	Use personal protective equipment.
Specific extinguishing methods	:	Fire residues and contaminated fire extinguishing water must be disposed of in accordance with local regulations. In the event of fire and/or explosion do not breathe fumes.

Section: 6. ACCIDENTAL RELEASE MEASURES

Personal precautions, protective equipment and emergency procedures	:	Ensure adequate ventilation. Keep people away from and upwind of spill/leak. Avoid inhalation, ingestion and contact with skin and eyes. When workers are facing concentrations above the exposure limit they must use appropriate certified respirators. Ensure clean-up is conducted by trained personnel only. Refer to protective measures listed in sections 7 and 8.
Environmental precautions	:	Do not allow contact with soil, surface or ground water.
Methods and materials for containment and cleaning up	:	Stop leak if safe to do so. Contain spillage, and then collect with non-combustible absorbent material, (e.g. sand, earth, diatomaceous earth, vermiculite) and place in container for disposal according to local / national regulations (see section 13). For large spills, dike spilled material or otherwise contain material to ensure runoff does not reach a waterway. Flush away traces with water.

Section: 7. HANDLING AND STORAGE

Advice on safe handling	:	Do not ingest. Do not breathe dust/fume/gas/mist/vapours/spray. Do not get in eyes, on skin, or on clothing. Wash hands thoroughly after handling. Use only with adequate ventilation. Do not mix with bleach or other chlorinated products – will cause chlorine gas.
Conditions for safe storage	:	Keep away from strong bases. Keep out of reach of children. Keep container tightly closed. Store in suitable labelled containers.
Suitable material	:	Keep in properly labelled containers.
Unsuitable material	:	not determined

Section: 8. EXPOSURE CONTROLS/PERSONAL PROTECTION

Components with workplace control parameters

Components	CAS-No.	Form of exposure	Permissible concentration	Basis
Acetic Acid	64-19-7	TWA	10 ppm	ACGIH
		STEL	15 ppm	ACGIH
		STEL	15 ppm 37 mg/m3	NIOSH REL
		TWA	10 ppm 25 mg/m3	NIOSH REL

		TWA	10 ppm 25 mg/m3	OSHA Z1

Engineering measures : Effective exhaust ventilation system. Maintain air concentrations below occupational exposure standards.

Personal protective equipment

Eye protection : Safety goggles
Face-shield

Hand protection : Wear the following personal protective equipment:
Wear protective gloves.
Impervious gloves, resistant to chemicals.
Neoprene
Nitrile rubber
Gloves should be discarded and replaced if there is any indication of degradation or chemical breakthrough.

Skin protection : Personal protective equipment comprising: suitable protective gloves, safety goggles and protective clothing

Respiratory protection : When workers are facing concentrations above the exposure limit they must use appropriate certified respirators.

Hygiene measures : Handle in accordance with good industrial hygiene and safety practice. Remove and wash contaminated clothing before re-use. Wash face, hands and any exposed skin thoroughly after handling. Provide suitable facilities for quick drenching or flushing of the eyes and body in case of contact or splash hazard.

The Personal Protective Equipment (PPE) recommendations provided above have been made in good faith based on typical expected conditions of use. PPE selection should always be completed in conjunction with a proper risk assessment and in accordance with a PPE management program.

Section: 9. PHYSICAL AND CHEMICAL PROPERTIES

Appearance : liquid

Colour : clear dark brown

Odour : vinegar-like

Flash point : 98.60 °C, Method: ASTM D 93

pH : 0.14, (25 °C), Method: ASTM E 70

Odour Threshold : no data available

Melting point/freezing point : Freezing Point: -16.50 °C, ASTM D-1177

Initial boiling point and boiling range : 1,102.0 °C, Method: ASTM D 1120-72

Evaporation rate : no data available

Flammability (solid, gas) : Not applicable.

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	:	1.108, (25 °C),
Density	:	no data available
Water solubility	:	Miscible
Solubility in other solvents	:	no data available
Partition coefficient: n-octanol/water	:	log Pow: 1.89, Method: OECD Test Guideline 117, GLP: yes, Active Substance
Auto-ignition temperature	:	no data available
Thermal decomposition	:	no data available
Viscosity, dynamic	:	no data available
Viscosity, kinematic	:	3.77 mm2/s (25 °C), Method: ASTM D 445
Molecular weight	:	no data available
VOC	:	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	:	Do not mix with bleach or other chlorinated products – will cause chlorine gas.
Conditions to avoid	:	None known.
Incompatible materials	:	Strong bases
Hazardous decomposition products	:	In case of fire, hazardous decomposition products may be produced such as: Carbon oxides nitrogen oxides (NOx) Sulphur oxides

Section: 11. TOXICOLOGICAL INFORMATION

Information on likely routes of exposure	:	Inhalation, Eye contact, Skin contact

Potential Health Effects

Eyes	:	Causes serious eye damage.
Skin	:	Causes severe skin burns. May cause allergic skin reaction.
Ingestion	:	Causes digestive tract burns.
Inhalation	:	May cause respiratory tract irritation. May cause nose, throat, and lung irritation.

Chronic Exposure	:	Health injuries are not known or expected under normal use.

Experience with human exposure

Eye contact	:	Redness, Pain, Corrosion
Skin contact	:	Redness, Pain, Irritation, Corrosion, Allergic reactions
Ingestion	:	Corrosion, Abdominal pain
Inhalation	:	Respiratory irritation, Cough

Toxicity

Product

Acute oral toxicity	:	Acute toxicity estimate: 4,732 mg/kg
Acute inhalation toxicity	:	no data available
Acute dermal toxicity	:	Acute toxicity estimate: 4,970 mg/kg
Skin corrosion/irritation	:	no data available
Serious eye damage/eye irritation	:	no data available
Respiratory or skin sensitization	:	no data available
Carcinogenicity	:	no data available
Reproductive effects	:	no data available
Germ cell mutagenicity	:	no data available
Teratogenicity	:	no data available
STOT - single exposure	:	no data available
STOT - repeated exposure	:	no data available
Aspiration toxicity	:	no data available

Section: 12. ECOLOGICAL INFORMATION

Ecotoxicity

Environmental Effects	:	This product has no known ecotoxicological effects.

Product

Toxicity to fish	:	LC50 Fathead Minnow: 502 mg/l Exposure time: 96 hrs Test substance: Similar Product NOEC Fathead Minnow: 360 mg/l Exposure time: 96 hrs Test substance: Similar Product LC50 Rainbow Trout: 480 mg/l Exposure time: 96 hrs

Test substance: Similar Product

NOEC Rainbow Trout: 360 mg/l
Exposure time: 96 hrs
Test substance: Similar Product

Toxicity to daphnia and other aquatic invertebrates : EC50 Ceriodaphnia dubia: 301 mg/l
Exposure time: 48 hrs
Test substance: Similar Product

LC50 Ceriodaphnia dubia: 369 mg/l
Exposure time: 48 hrs
Test substance: Similar Product

NOEC Ceriodaphnia dubia: 216 mg/l
Exposure time: 48 hrs
Test substance: Similar Product

Toxicity to algae : NOEC Macrocystis pyrifera (brown algae): 25 mg/l
Exposure time: 48 hrs
Test substance: Similar Product
Test Type: Reproduction

EC50 Macrocystis pyrifera (brown algae): 104 mg/l
Exposure time: 48 hrs
Test substance: Similar Product
Test Type: Reproduction

EC25 / IC25 Macrocystis pyrifera (brown algae): 74.5 mg/l
Exposure time: 48 hrs
Test substance: Similar Product
Test Type: Reproduction

NOEC Macrocystis pyrifera (brown algae): 25 mg/l
Exposure time: 48 hrs
Test substance: Similar Product
Test Type: Growth

EC50 Macrocystis pyrifera (brown algae): 119 mg/l
Exposure time: 48 hrs
Test substance: Similar Product
Test Type: Growth

EC25 / IC25 Macrocystis pyrifera (brown algae): 67.6 mg/l
Exposure time: 48 hrs
Test substance: Similar Product
Test Type: Growth

Toxicity to daphnia and other aquatic invertebrates (Chronic toxicity) : EC25 / IC25: 66 mg/l
Exposure time: 7 d
Species: Ceriodaphnia dubia
Test substance: Similar Product
Test Type: Reproduction

LOEC: 90 mg/l

Exposure time: 7 d
Species: Ceriodaphnia dubia
Test substance: Similar Product
Test Type: Reproduction

NOEC: 45 mg/l
Exposure time: 7 d
Species: Ceriodaphnia dubia
Test substance: Similar Product
Test Type: Reproduction

Persistence and degradability

no data available

Mobility

no data available

Bioaccumulative potential

no data available

Other information

no data available

Section: 13. DISPOSAL CONSIDERATIONS

Disposal methods	:	Where possible recycling is preferred to disposal or incineration. If recycling is not practicable, dispose of in compliance with local regulations. Dispose of wastes in an approved waste disposal facility.
Disposal considerations	:	Dispose of as unused product. Empty containers should be taken to an approved waste handling site for recycling or disposal. Do not re-use empty containers.

Section: 14. TRANSPORT INFORMATION

The shipper/consignor/sender is responsible to ensure that the packaging, labeling, and markings are in compliance with the selected mode of transport.

Land transport (DOT)

Proper shipping name	:	CORROSIVE LIQUID, N.O.S.
Technical name(s)	:	Organic Sulfonic Acid, Acetic Acid
UN/ID No.	:	UN 1760
Transport hazard class(es)	:	8
Packing group	:	III
Reportable Quantity (per package)	:	49,978 lbs
RQ Component	:	Acetic Acid

Air transport (IATA)

Proper shipping name	:	CORROSIVE LIQUID, N.O.S.
Technical name(s)	:	Organic Sulfonic Acid, Acetic Acid
UN/ID No.	:	UN 1760
Transport hazard class(es)	:	8
Packing group	:	III
Reportable Quantity (per package)	:	49,978 lbs
RQ Component	:	Acetic Acid

Sea transport (IMDG/IMO)

Proper shipping name	:	CORROSIVE LIQUID, N.O.S.
Technical name(s)	:	Organic Sulfonic Acid, Acetic Acid
UN/ID No.	:	UN 1760
Transport hazard class(es)	:	8
Packing group	:	III

Section: 15. REGULATORY INFORMATION

TSCA list : The following substance(s) is/are subject to a Significant New Use Rule: Modified benzimidazole salt

The following substance(s) is/are subject to TSCA 12(b) export notification requirements: Modified benzimidazole salt

EPCRA - Emergency Planning and Community Right-to-Know Act

CERCLA Reportable Quantity

Components	CAS-No.	Component RQ (lbs)	Calculated product RQ (lbs)
Acetic Acid	64-19-7	5000	49978

SARA 304 Extremely Hazardous Substances Reportable Quantity

This material does not contain any components with a section 304 EHS RQ.

SARA 311/312 Hazards : Respiratory or skin sensitisation
Skin corrosion or irritation
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

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.

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.

INTERNATIONAL CHEMICAL CONTROL LAWS :

United States TSCA Inventory
On or in compliance with the active portion of the TSCA inventory

Australia. Australian Industrial Chemicals Introduction Scheme (AICIS)
not determined

Japan. ENCS - Existing and New Chemical Substances Inventory
not determined

Korea. Korean Existing Chemicals Inventory (KECI)
not determined

Philippines Inventory of Chemicals and Chemical Substances (PICCS)
not determined

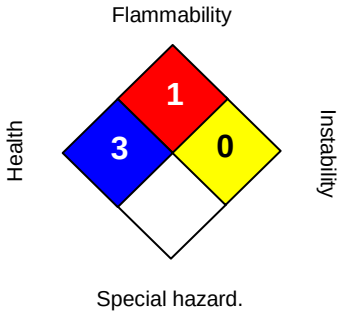
China Inventory of Existing Chemical Substances
not determined

Taiwan Chemical Substance Inventory
not determined

Canadian Domestic Substances List (DSL)
This product contains substance(s) which are not listed on the Domestic Substances List (DSL) or the Non-Domestic Substances List (NDSL).

Section: 16. OTHER INFORMATION

NFPA:



HMIS III:

HEALTH	3*
FLAMMABILITY	1
PHYSICAL HAZARD	0

0 = not significant, 1 = Slight,
2 = Moderate, 3 = High
4 = Extreme, * = Chronic

Revision Date : 12/07/2020
Version Number : 1.2
Prepared By : Regulatory Affairs

REVISED INFORMATION: Significant changes to regulatory or health information for this revision is indicated by a bar in the left-hand margin of the SDS.

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.
For additional copies of an SDS visit www.nalco.com and request access.

Attachment L

Laboratory Information

Name: SPL, Inc. - Kilgore

Location: 2600 Dudley Road, Kilgore, Texas 75663

Phone Number: (903) 984-0551

Contact Information: Joel Manjarrez, Field Services Supervisor (956) 238-0208

Pollutants Analyzed: Tables 1,2,3,6,8,9

SOUTH TEXAS ELECTRIC COOPERATIVE, INC.
SAM RAYBURN POWER PLANT
TPDES PERMIT AMENDMENT APPLICATION

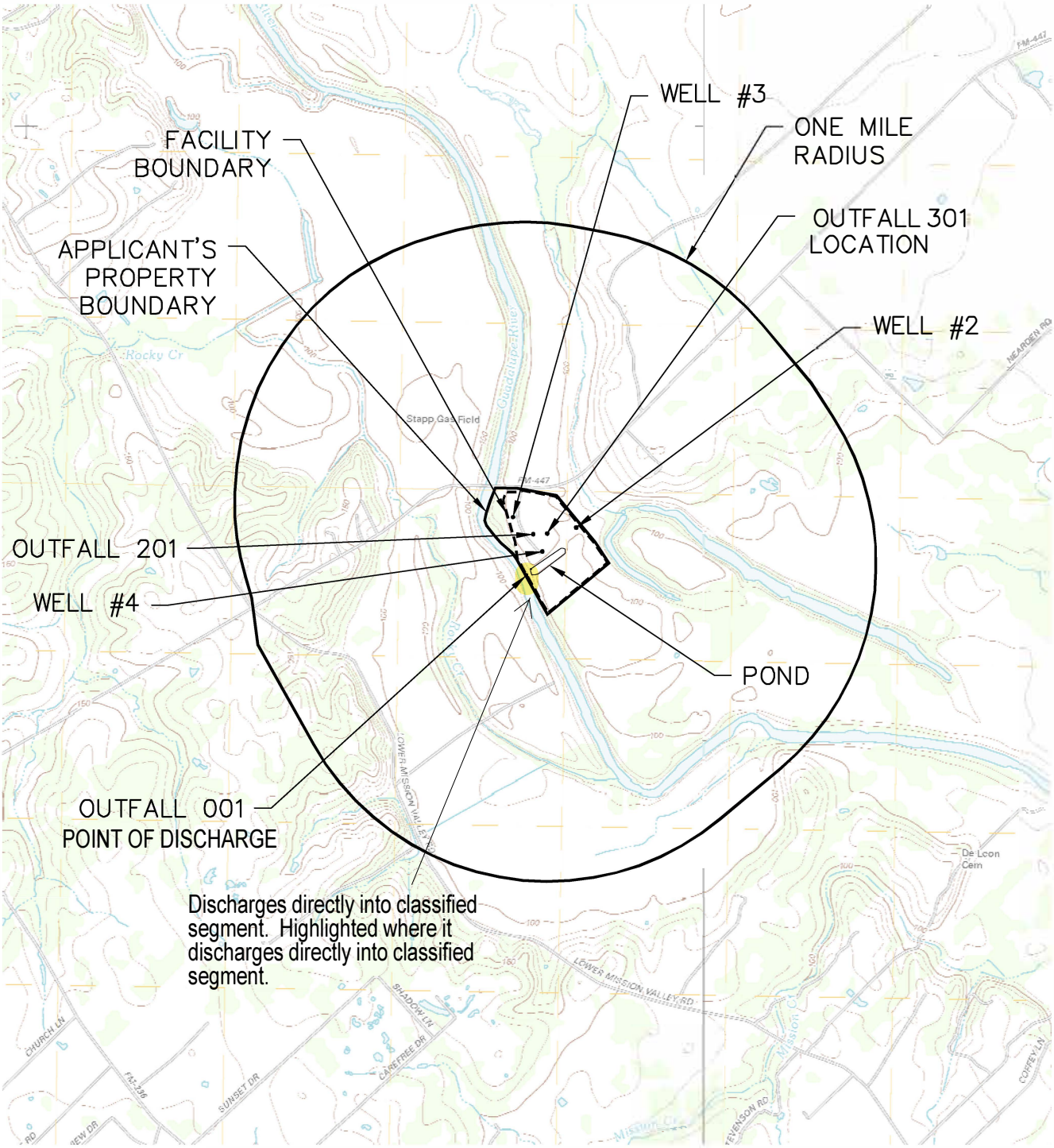
OUTFALL INFORMATION

The Sam Rayburn Power Plant outfalls are all located in Victoria County. The existing Texas Pollutant Discharge Elimination System (TPDES) permit includes three outfalls; one external outfall (i.e., Outfall 001) and two internal outfalls (i.e., Outfalls 201 and 301). Location information is presented in the table below.

Outfall	Latitude	Longitude
001	28.8924°	-97.1360°
201	28.8947°	-97.1355°
301	28.8937°	-97.1346°
001A	28.8939°	-97.1343°

ALAN PLUMMER ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERS AND SCIENTISTS

FEET
0 3000

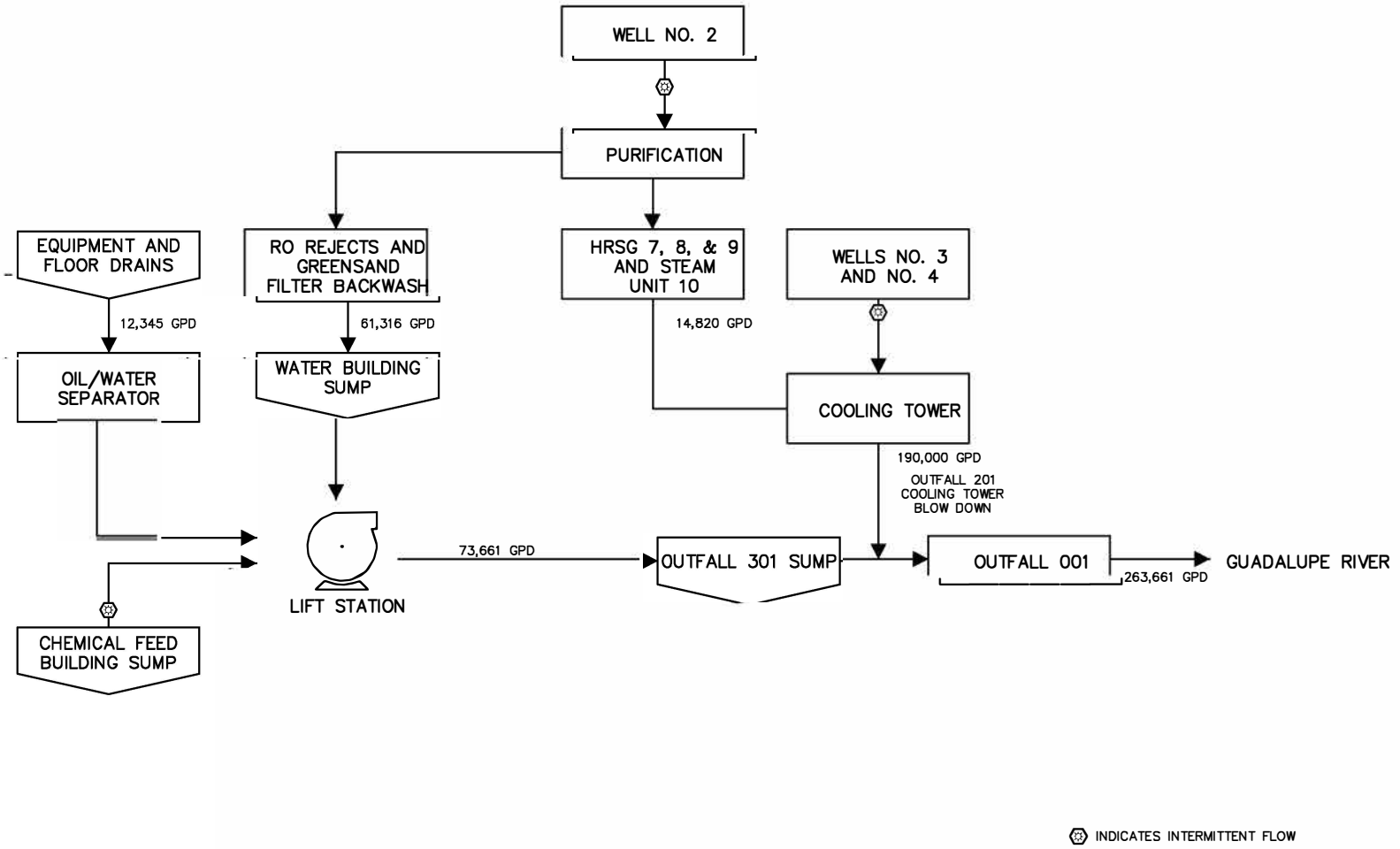


ATTACHMENT D
SOUTH TEXAS ELECTRIC COOPERATIVE, INC.
SAM RAYBURN POWER PLANT
TPDES PERMIT AMENDMENT
USGS MAP

TEXAS REGISTERED ENGINEERING FIRM F-13
3/9/2016 3:40 PM M:\Projects\3099\001-01\2-0 Wrk Prod\2-1 ACAD\FIGURES\ATT-B.dwg Hfrels

Attachment J
Process Flow Schematic with Water Balance
Tech Rpt. 1.0 Item 2.b

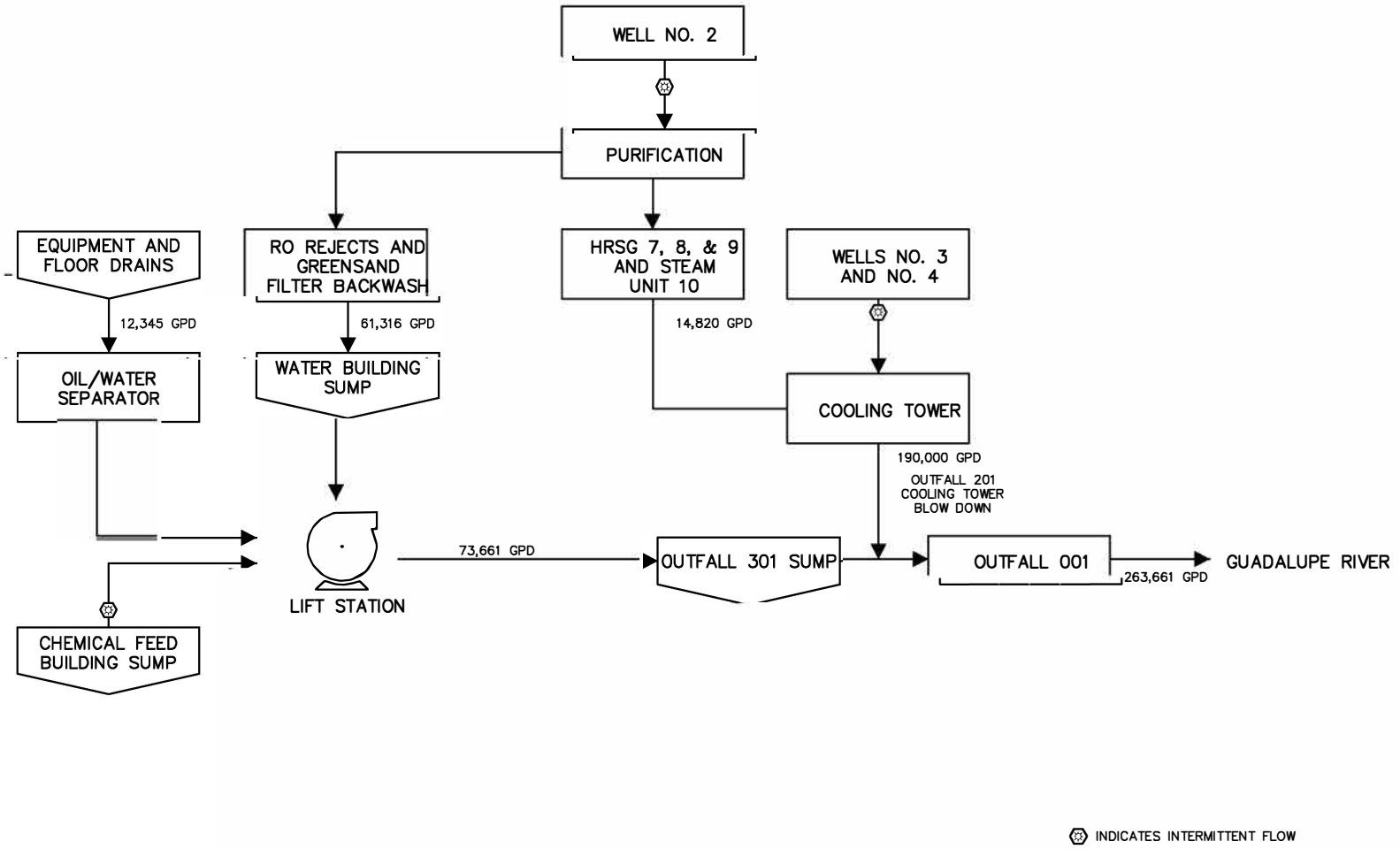
ALAN PLUMMER ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERS AND SCIENTISTS



ATTACHMENT J
SOUTH TEXAS ELECTRIC COOPERATIVE, INC.
SAM RAYBURN POWER PLANT
PROCESS FLOW SCHEMATIC

Attachment J
Process Flow Schematic with Water Balance
Tech Rpt. 1.0 Item 2.b

ALAN PLUMMER ASSOCIATES, INC.
ENVIRONMENTAL ENGINEERS AND SCIENTISTS

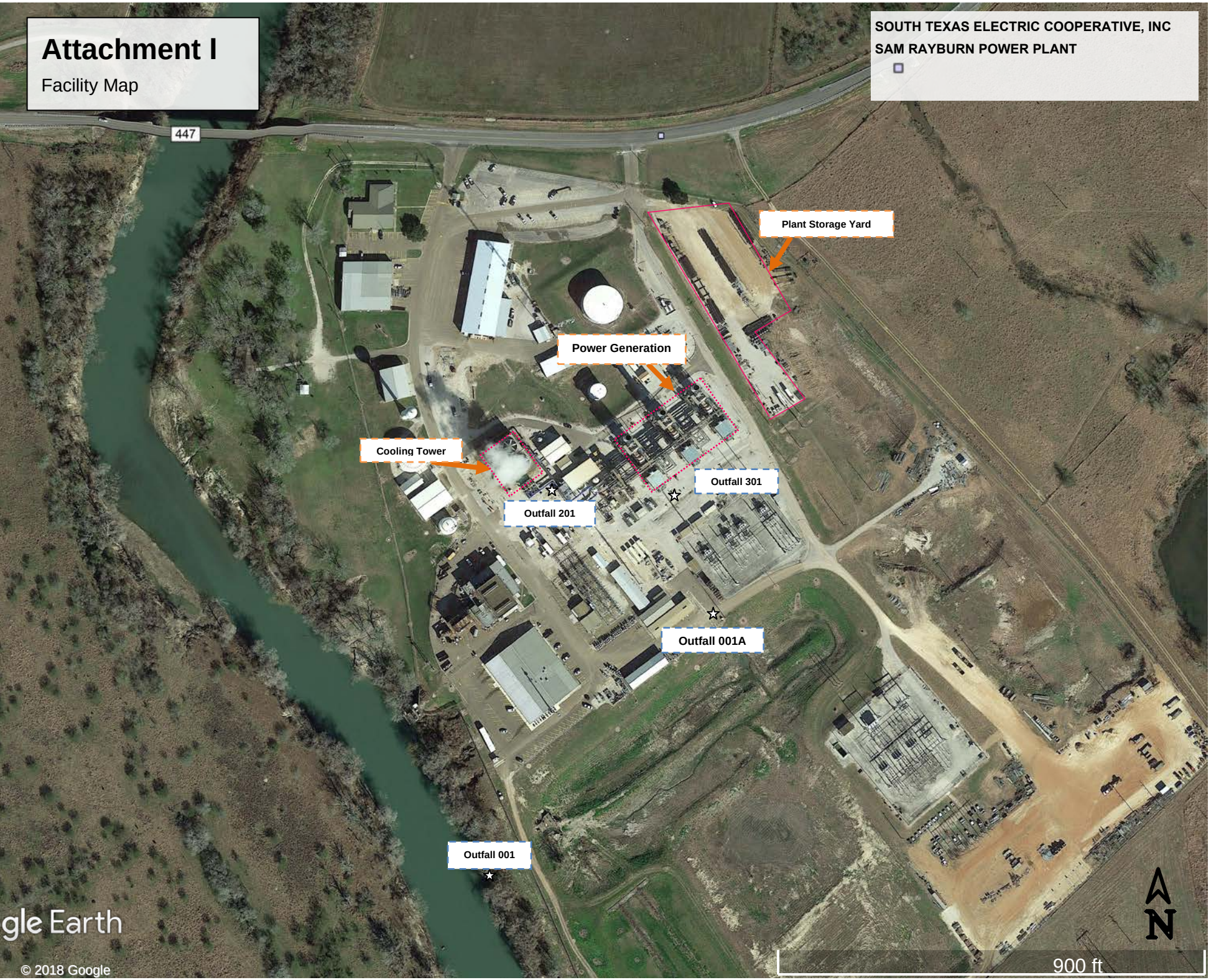


ATTACHMENT J
SOUTH TEXAS ELECTRIC COOPERATIVE, INC.
SAM RAYBURN POWER PLANT
PROCESS FLOW SCHEMATIC

Attachment l Facility Map
Tech Rpt. 1.0 Item 1.d

Attachment I

Facility Map



SOUTH TEXAS ELECTRIC COOPERATIVE, INC.

P.O. Box 119 • Nursery, Texas 77976 • (361) 575-6491 • Fax (361) 576-1433

October 21, 2024

Ms. Rachel Ellis
Applications Review and Processing Team (MC148)
TCEQ – Water Quality Division
P.O. Box 13087
Austin, TX 78711-3087

Re: Application to Renew Permit No.: WQ0001521000
Name: South Texas Electric Cooperative, Inc. (CN600131254)
Site Name: Sam Rayburn Power Plant (RN100222652)
Type of Application: Renewal without changes

Ms. Ellis,

As mentioned in our conversation, 2849 FM 447, Victoria, TX 77905 is the correct address of the physical location. There were no other errors or omissions noticed in the portion of the NORI that you included. I completed the English and Spanish PLS, as well as the Spanish NORI.

If you have any questions or notice any other deficiencies, please give me a call at 361-485-6409 and/or send an email to mbrzozowski@stec.org.

Sincerely,

Mellinda Brzozowski

Mellinda Brzozowski
Environmental Coordinator
South Texas Electric Cooperative, Inc.