



Administrative Package Cover Page

This file contains the following documents:

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



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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

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

INDUSTRIAL WASTEWATER/STORMWATER: PERMIT NO. 3927000 RENEWAL

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.

Diamond Shamrock Refining Company, L.P. (CN600124861) operates the Valero McKee Refinery (RN100210517), a petroleum refinery. The facility is located at 6701 FM 119, in Sunray, Moore County, Texas 79086. This application is for a renewal to discharge stormwater, utility wastewater, treated wastewater, and hydrostatic testing water from 14 outfalls as follows: Outfall 001 – treated process wastewater, treated utility wastewater, treated domestic wastewater, and stormwater; Outfalls 002, 003, 008, and 014 – stormwater; Outfalls 004, 005, 007 – stormwater and utility wastewater; Outfalls 009, 010, 011, 012, and 013 – stormwater, utility wastewater, and hydrostatic test water. Outfall 001 is not constructed and therefore discharge of treated process / domestic wastewater is not expected. Stormwater, utility wastewater, and hydrostatic testing water are discharged on an intermittent and flow-variable basis from the remaining outfalls.

Discharges from the facility are expected to contain Total Organic Carbon (TOC) and Oil and Grease. Additional potential pollutants are included in the Industrial Wastewater Application Technical Report, Worksheet 2.0 in the permit application package. Stormwater and utility wastewater is treated by settlement in outfall-specific stormwater ponds; hydrostatic testing water is sampled prior to discharge.

AGUAS RESIDUALES INDUSTRIALES /AGUAS PLUVIALES: RENOVACION DE LICENSIA NO. 3927000

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.

Diamond Shamrock Refining Company, L.P. (CN60014861) opera el Valero McKee Refinery RN100210517, una refinería de petróleo. La instalación está ubicada en 6701 FM 119, en Sunray, Condado de Moore, Texas 79086. Esta solicitud es para la renovación del permiso para descargar aguas pluviales, aguas residuales de servicios, aguas residuales tratadas y agua de prueba hidrostática de 14 puntos de descarga de la siguiente manera: Descarga 001: aguas residuales de proceso tratadas, aguas residuales de servicios tratadas, aguas residuales domésticas tratadas y aguas pluviales; Descargas 002, 003, 008 y 014: aguas pluviales; Descargas 004, 005, 007: aguas pluviales y aguas residuales de servicios públicos; Descargas 009, 010, 011, 012 y 013: aguas pluviales, aguas residuales de servicios públicos y agua de prueba hidrostática. El punto de descarga 001 no está construido y, por lo tanto, no se espera la descarga de aguas residuales de proceso/domésticas tratadas. Las aguas pluviales, las aguas residuales de servicios públicos y el agua de prueba hidrostática se descargan de forma intermitente y con caudal variable desde las descargas restantes.

Se espera que las descargas de la instalación contengan carbono orgánico total (COT) y aceites y grasas. Se incluyen otros contaminantes potenciales en el Informe Técnico de Aplicación de Aguas Residuales Industriales, Hoja de Trabajo 2.0, del paquete de solicitud de permiso. Aguas pluviales y aguas residuales de servicios públicos están tratado por sedimentación en estanques de aguas pluviales específicos para cada punto de descarga; el agua de pruebas hidrostáticas se muestrea antes de su descarga.

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



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

PERMIT NO. WQ0003927000

APPLICATION. Diamond Shamrock Refining Company, L.P., 6701 Farm-to-Market Road 119, Sunray, Texas 79086, which owns an oil refining factory, has applied to the Texas Commission on Environmental Quality (TCEQ) to renew Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0003927000 (EPA I.D. No. TX0115851) to authorize the discharge of treated wastewater and stormwater at a volume not to exceed a daily maximum flow of 140,000 gallons per day via Outfall 001; the discharge of stormwater at an intermittent and flow variable rate via Outfalls 002, 003, 008 and 014; and the discharge of treated wastewater and stormwater at an intermittent and flow variable rate via Outfalls 004, 005, 007, 009, 010, 011, 012 and 013. The facility is located at 6701 Farm-to-Market Road 119, near the city of Sunray, in Moore County, Texas 79086. The discharge route is from the plant site via Outfalls 001, 002, 003, 004, 005, 007, 008, 009, 010, 011, 012, and 014 to South Palo Duro Creek, thence to Palo Duro Creek, thence to Palo Duro Reservoir, thence to Palo Duro Creek; and via Outfall 013 to an unnamed ditch, thence to South Palo Duro Creek, thence to Palo Duro Creek, thence to Palo Duro Reservoir, thence to Palo Duro Creek; all thence to the Canadian River Basin in the State of Oklahoma. TCEQ received this application on October 9, 2025. The permit application will be available for viewing and copying at Killgore Memorial Library, 124 South Bliss Avenue, Dumas, 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=-101.87388,35.951944&level=18>

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 Diamond Shamrock Refining Company, L.P. at the address stated above or by calling Mr. Chris Cromeens, Environmental Engineer, at 806-935-1353.

Issuance Date: November 7, 2025



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION CHECKLIST

Complete and submit this checklist with the industrial wastewater permit application.

APPLICANT NAME: Diamond Shamrock Refining Company, L.P.

PERMIT NUMBER (If new, leave blank): WQ000 3927000

Indicate if each of the following items is included in your application.

	Y	N		Y	N
Administrative Report 1.0	☒	☐	Worksheet 8.0	☐	☒
Administrative Report 1.1	☒	☐	Worksheet 9.0	☐	☒
SPIF	☒	☐	Worksheet 10.0	☐	☒
Core Data Form	☒	☐	Worksheet 11.0	☐	☒
Summary of Application (PLS)	☐	☐	Worksheet 11.1	☐	☒
Public Involvement Plan Form	☐	☒	Worksheet 11.2	☐	☒
Technical Report 1.0	☒	☐	Worksheet 11.3	☐	☒
Worksheet 1.0	☒	☐	Original USGS Map	☒	☐
Worksheet 2.0	☐	☒	Affected Landowners Map	☒	☐
Worksheet 3.0	☐	☒	Landowner Disk or Labels	☒	☐
Worksheet 3.1	☐	☒	Flow Diagram	☒	☐
Worksheet 3.2	☐	☒	Site Drawing	☒	☐
Worksheet 3.3	☐	☒	Original Photographs	☒	☒
Worksheet 4.0	☒	☐	Design Calculations	☐	☒
Worksheet 4.1	☐	☒	Solids Management Plan	☐	☒
Worksheet 5.0	☐	☒	Water Balance	☐	☒
Worksheet 6.0	☐	☒			
Worksheet 7.0	☒	☐			

For TCEQ Use Only

Segment Number _____ County _____
Expiration Date _____ Region _____

Permit Number _____



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION

ADMINISTRATIVE REPORT 1.0

This report is required for all applications for TPDES permits and TLAPs, except applications for oil and gas extraction operations subject to 40 CFR Part 435. Contact the Applications Review and Processing Team at 512-239-4671 with any questions about completing this report.

Applications for oil and gas extraction operations subject to 40 CFR Part 435 must use Oil and Gas Exploration and Production Administrative Report ([TCEQ Form-20893 and 20893-inst¹](#)).

Item 1. Application Information and Fees (Instructions, Page 26)

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

Applicant Name: Diamond Shamrock Refining Company, L.P.

Permit No.: WQ0003927000

EPA ID No.: TX0115851

Expiration Date: October 9, 2025

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

☒ Industrial Wastewater (wastewater and stormwater)

☐ Industrial Stormwater (stormwater only)

☐ Reverse Osmosis Water Treatment (reverse osmosis water treatment wastewaters only)

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

☒ Active

☐ Inactive

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

☒ TPDES Permit

☐ TLAP

☐ TPDES with TLAP component

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

☐ New

☐ Renewal with changes

☒ Renewal without changes

☐ Major amendment with renewal

☐ Major amendment without renewal

☐ Minor amendment without renewal

☐ Minor modification without renewal

- f. If applying for an amendment or modification, describe the request: [Click to enter text.](#)

For TCEQ Use Only

Segment Number _____ County _____

Expiration Date _____ Region _____

Permit Number _____

¹ https://www.tceq.texas.gov/publications/search_forms.html

g. Application Fee

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

h. Payment Information

Mailed

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

Check or money order amt.: [Click to enter text.](#)

Named printed on check or money order: Diamond shamrock Ref. Co

Epay

Voucher number: 787122

Copy of voucher attachment: AR-1

Item 2. Applicant Information (Instructions, Pages 26)

a. Customer Number, if applicant is an existing customer: CN600124861

Note: Locate the customer number using the [TCEQ's Central Registry Customer Search](#)³.

b. Legal name of the entity (applicant) applying for this permit: Diamond Shamrock Refining Company, L.P.

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

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

Prefix: Mr. Full Name (Last/First Name): Wilhelm Shawn

Title: Vice President & General Manager Credential: [Click to enter text.](#)

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

☒ Yes ☐ No

² All facilities are designated as minors until formally classified as a major by EPA.

³ <https://www15.tceq.texas.gov/crpub/index.cfm?fuseaction=cust.CustSearch>

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

Item 3. Co-applicant Information (Instructions, Page 27)

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

a. Legal name of the entity (co-applicant) applying for this permit: Click to enter text.

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

b. Customer Number (if applicant is an existing customer): CNClick to enter text.

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

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

Prefix: Click to enter text.

Full Name (Last/First Name): Click to enter text.

Title: Click to enter text.

Credential: Click to enter text.

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

☐ Yes ☐ No

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

Item 4. Core Data Form (Instructions, Pages 27)

a. Complete and attach one Core Data Form (TCEQ Form 10400) for each customer (applicant and co-applicant(s)). If the customer type selected on the Core Data Form is Individual, complete Attachment 1 of the Administrative Report. Attachment: AR-2

Item 5. Application Contact Information (Instructions, Page 27)

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

a. ☒ Administrative Contact ☒ Technical Contact

Prefix: Mr. Full Name (Last/First Name): Hamilton, Kenneth

Title: Environmental Engineer Credential: Click to enter text.

Organization Name: Diamond Shamrock Refining Company, L.P.

Mailing Address: 6701 FM 119

City/State/Zip: Sunray, TX 79086

Phone No: (806) 935-1453

Email: Kenny.Hamilton@valero.com

b. ☐ Administrative Contact ☒ Technical Contact

Prefix: Mr. Full Name (Last/First Name): Nathaniel Poulter

Title: Consultant

Credential: PE

Organization Name: Rule Engineering

Mailing Address: 1055 Kipling St.
80215

City/State/Zip: Lakewood, Colorado

Phone No: 3034318500

Email: npoulter@ruleeng.com

Attachment: Click to enter text.

Item 6. Permit Contact Information (Instructions, Page 28)

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

a. Prefix: Mr. Full Name (Last/First Name): Hamilton, Kenneth

Title: Environmental Engineer Credential: Click to enter text.

Organization Name: Diamond Shamrock Refining Company, L.P.

Mailing Address: 6701 FM 119

City/State/Zip: Sunray, TX 79086

Phone No: (806)-935-1453

Email: Kenny.Hamilton@valero.com

b. Prefix: Mr. Full Name (Last/First Name): Cromeens, Chris

Title: Environmental Manager Credential: Click to enter text.

Organization Name: Diamond Shamrock Refining Company, L.P.

Mailing Address: 6701 FM 119

City/State/Zip: Sunray, TX 79086

Phone No: (806)-935-1353

Email: Chris.Cromeens@valero.com

Attachment: Click to enter text.

Item 7. Billing Contact Information (Instructions, Page 28)

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

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

Prefix: Mr. Full Name (Last/First Name): Cromeens, Chris

Title: Environmental Manager Credential: Click to enter text.

Organization Name: Diamond Shamrock Refining Company, L.P.

Mailing Address: 6701 FM 119

City/State/Zip: Sunray, TX 79086

Phone No: (806)-935-1353

Email: Chris.Cromeens@valero.com

Item 8. DMR/MER Contact Information (Instructions, Page 28)

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

Prefix: Mr. Full Name (Last/First Name): Hamilton, Kenneth

Title: Environmental Engineer Credential: Click to enter text.

Organization Name: Diamond Shamrock Refining Company, L.P.

Mailing Address: 6701 FM 119

City/State/Zip: Sunray, TX 79086

Phone No: Click to enter text. Email: Click to enter text.

Item 9. Notice Information (Instructions, Pages 28)

a. Individual Publishing the Notices

Prefix: Mr. Full Name (Last/First Name): Hamilton, Kenneth

Title: Environmental Engineer Credential: Click to enter text.

Organization Name: Diamond Shamrock Refining Company, L.P.

Mailing Address: 6701 FM 119

City/State/Zip: Sunray, TX 79086

Phone No: (806)-935-1453 Email: Kenny.Hamilton@valero.com

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

☒ E-mail: Kenny.Hamilton@valero.com

☐ Fax: Click to enter text.

☒ Regular Mail (USPS)

Mailing Address: 6701 FM 119

City/State/Zip Code: Sunray, TX 79086

c. Contact in the Notice

Prefix: Mr. Full Name (Last/First Name): Cromeens, Chris

Title: Environmental Manager Credential: Click to enter text.

Organization Name: Diamond Shamrock Refining Company, L.P.

Phone No: (806)-935-1353 Email: Chris.Cromeens@valero.com

d. Public Viewing Location Information

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

Public building name: Kilgore Memorial Library Location within the building: Click to enter text.

Physical Address of Building: 124 S. Bliss Ave.

City: Dumas County: Moore

e. Bilingual Notice Requirements

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

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

Call the bilingual/ESL coordinator at the nearest elementary and middle schools and obtain the following information to determine if an alternative language notice(s) is required.

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

☐ Yes ☒ No

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

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

☐ Yes ☐ No ☐ N/A

5. If the answer is yes to question 1, 2, 3, or 4, public notices in an alternative language are required. Which language is required by the bilingual program? [Click to enter text.](#)

- f. Summary of Application in Plain Language Template – Complete and attach the Summary of Application in Plain Language Template (TCEQ Form 20972), also known as the plain language summary or PLS. Attachment: [Click to enter text.](#)

- g. Complete and attach one Public Involvement Plan (PIP) Form (TCEQ Form 20960) for each application for a new permit or major amendment. Attachment: [Click to enter text.](#)

Item 10. Regulated Entity and Permitted Site Information (Instructions Page 29)

- a. TCEQ issued Regulated Entity Number (RN), if available: RN100210517

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

- b. Name of project or site (name known by the community where located): Valero McKee Refinery

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

☒ Yes ☐ No ☐ N/A (new permit)

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

- d. Owner of treatment facility:

Prefix: [Click to enter text.](#) Full Name (Last/First Name): [Click to enter text.](#)

or Organization Name: Diamond Shamrock Refining Company, L.P.

Mailing Address: 6701 FM 119

City/State/Zip: Sunray, TX 79086

Phone No: [Click to enter text.](#) Email: [Click to enter text.](#)

- e. Ownership of facility: ☐ Public ☒ Private ☐ Both ☐ Federal
- f. Owner of land where treatment facility is or will be: Diamond Shamrock Refining Company, L.P.
Prefix: [Click to enter text.](#) Full Name (Last/First Name): [Click to enter text.](#)
or Organization Name: Diamond Shamrock Refining Company, L.P.
Mailing Address: 6701 FM119 City/State/Zip: Sunray, TX 79086
Phone No: 8069352141 Email: Kenny.Hamilton@valero.com
Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years (In some cases, a lease may not suffice - see instructions). Attachment: [Click to enter text.](#)

- g. Owner of effluent TLAP disposal site (if applicable): [Click to enter text.](#)
Prefix: [Click to enter text.](#) Full Name (Last/First Name): [Click to enter text.](#)
or Organization Name: [Click to enter text.](#)
Mailing Address: [Click to enter text.](#) City/State/Zip: [Click to enter text.](#)
Phone No: [Click to enter text.](#) Email: [Click to enter text.](#)
Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years. Attachment: [Click to enter text.](#)
- h. Owner of sewage sludge disposal site (if applicable):
Prefix: [Click to enter text.](#) Full Name (Last/First Name): [Click to enter text.](#)
or Organization Name: [Click to enter text.](#)
Mailing Address: [Click to enter text.](#) City/State/Zip: [Click to enter text.](#)
Phone No: [Click to enter text.](#) Email: [Click to enter text.](#)
Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years. Attachment: [Click to enter text.](#)

Item 11. TDPES Discharge/TLAP Disposal Information (Instructions, Page 31)

- a. Is the facility located on or does the treated effluent cross Native American Land?
☐ Yes ☒ No
- b. Attach an original full size USGS Topographic Map (or an 8.5"×11" reproduced portion for renewal or amendment applications) with all required information. Check the box next to each item below to confirm it has been included on the map.
- | | |
|---|---|
| ☒ One-mile radius | ☐ Three-miles downstream information |
| ☒ Applicant's property boundaries | ☒ Treatment facility boundaries |
| ☒ Labeled point(s) of discharge | ☐ Highlighted discharge route(s) |
| ☐ Effluent disposal site boundaries | ☒ All wastewater ponds |

☐ Sewage sludge disposal site

☐ New and future construction

Attachment: AR-3

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

☐ Yes ☐ No or New Permit

If no, or a new application, provide an accurate location description: [Click to enter text.](#)

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

☒ Yes ☐ No or New Permit

If no, or a new application, provide an accurate location description: [Click to enter text.](#)

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

☒ Yes ☐ No or New Permit

If no, or a new permit, provide an accurate description of the discharge route: [Click to enter text.](#)

- f. City nearest the outfall(s): Sunray

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

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

☐ Yes ☒ No

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

For new and amendment applications, attach copies of letters that show proof of contact and provide the approval letter upon receipt. Attachment: [Click to enter text.](#)

For all applications involving an average daily discharge of 5 MGD or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge: [Click to enter text.](#)

- i. For TLAPs, is the location of the effluent disposal site in the existing permit accurate?

☐ Yes ☐ No or New Permit ☐ [Click to enter text.](#)

If no, or a new application, provide an accurate location description: [Click to enter text.](#)

- j. City nearest the disposal site: [Click to enter text.](#)

- k. County in which the disposal site is located: [Click to enter text.](#)

- l. For TLAPs, describe how effluent is/will be routed from the treatment facility to the disposal site: [Click to enter text.](#)

- m. For TLAPs, identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: [Click to enter text.](#)

Item 12. Miscellaneous Information (Instructions, Page 33)

- a. Did any person formerly employed by the TCEQ represent your company and get paid for service regarding this application?

☐ Yes ☒ No

If yes, list each person: [Click to enter text.](#)

- b. Do you owe any fees to the TCEQ?

☐ Yes ☒ No

If yes, provide the following information:

Account no.: [Click to enter text.](#)

Total amount due: [Click to enter text.](#)

- c. Do you owe any penalties to the TCEQ?

☐ Yes ☒ No

If yes, provide the following information:

Enforcement order no.: [Click to enter text.](#)

Amount due: [Click to enter text.](#)

Item 13. Signature Page (Instructions, Page 33)

Permit No: WQ0003927000

Applicant Name: Diamond Shamrock Refining Company, L.P.

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

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

Signatory name (typed or printed): Shawn Wilhelm

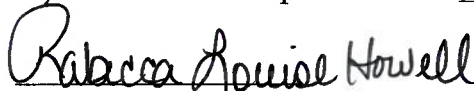
Signatory title: Vice President & General Manager

Signature: 
(Use blue ink)

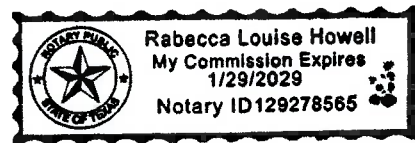
Date: 10/9/2025

Subscribed and Sworn to before me by the said SHAWN R Wilhelm
on this OCTOBER day of 9, 20 25.

My commission expires on the JANUARY day of 29, 20 29.


Notary Public

[SEAL]



MOORE
County, Texas

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

INDUSTRIAL WASTEWATER PERMIT APPLICATION

ADMINISTRATIVE REPORT 1.1

The following information is required for new and amendment applications.

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

- a. Attach a landowner map or drawing, with scale, as applicable. Check the box next to each item to confirm it has been provided.
- ☒ The applicant's property boundaries.
 - ☒ The facility site boundaries within the applicant's property boundaries.
 - ☐ The distance the buffer zone falls into adjacent properties and the property boundaries of the landowners located within the buffer zone.
 - ☒ The property boundaries of all landowners surrounding the applicant's property. (Note: if the application is a major amendment for a lignite mine, the map must include the property boundaries of all landowners adjacent to the new facility (ponds).)
 - ☒ The point(s) of discharge and highlighted discharge route(s) clearly shown for one mile downstream.
 - ☒ The property boundaries of the landowners located on both sides of the discharge route for one full stream mile downstream of the point of discharge.
 - ☐ The property boundaries of the landowners along the watercourse for a one-half mile radius from the point of discharge if the point of discharge is into a lake, bay, estuary, or affected by tides.
 - ☒ The boundaries of the effluent disposal site (e.g., irrigation area or subsurface drainfield site) and all evaporation/holding ponds within the applicant's property.
 - ☐ The property boundaries of all landowners surrounding the applicant's property boundaries where the effluent disposal site is located.
 - ☐ The boundaries of the sludge land application site (for land application of sewage sludge for beneficial use) and the property boundaries of landowners within one-quarter mile of the applicant's property boundaries where the sewage sludge land application site is located.
 - ☐ The property boundaries of landowners within one-half mile in all directions from the applicant's property boundaries where the sewage sludge disposal site (e.g., sludge surface disposal site or sludge monofil) is located.
- Attachment: [Click to enter text.](#)
- b. ☒ that the landowners list has also been provided as mailing labels in electronic format (Avery 5160).
- c. Check this box to confirm a separate list with the landowners' names and mailing addresses cross-referenced to the landowner's map has been provided. Provide the source of the landowners' names and mailing addresses: Moore County Tax Appraisal

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

☐ Yes ☒ No

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

Item 2. Original Photographs (Instructions, Page 37)

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

- ☐ At least one original photograph of the new or expanded treatment unit location.
- ☒ At least two photographs of the existing/proposed point of discharge and as much area downstream (photo 1) and upstream (photo 2) as can be captured. If the discharge is to an open water body (e.g., lake, bay), the point of discharge should be in the right or left edge of each photograph showing the open water and with as much area on each respective side of the discharge as can be captured.
- ☐ At least one photograph of the existing/proposed effluent disposal site.
- ☒ A plot plan or map showing the location and direction of each photograph.

Attachment: [AR-5](#)

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: Diamond Shamrock Refining Company, L.P.

Permit No. WQ00 3927000

EPA ID No. TX 0115851

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

6701 FM119 Sunray, TX 79086, Moore County

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

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

First and Last Name: Kenneth Hamilton

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

Title: Environmental Engineer

Mailing Address: 6701 FM 119

City, State, Zip Code: Sunray, TX, 79086

Phone No.: 8069351453 Ext.:

Fax No.:

E-mail Address: Kenny.Hamilton@valero.com

2. List the county in which the facility is located: Moore
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

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.

Discharge flows to the South Palo Duro Creek, thence to Palo Duro Creek, thence to Palo Duro Reservoir, thence to Palo Duro Creek, thence to the Canadian River Basin in the State of Oklahoma

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:

Developed refinery; industrial land use. See Attachment AR-6

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:

[REDACTED]

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

[REDACTED]

ATTACHMENT 1

INDIVIDUAL INFORMATION

Item 1. Individual information (Instructions, Page 38)

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

Prefix (Mr., Ms., or Miss): [Click to enter text.](#)

Full legal name (first, middle, and last): [Click to enter text.](#)

Driver's License or State Identification Number: [Click to enter text.](#)

Date of Birth: [Click to enter text.](#)

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

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

Phone No.: [Click to enter text.](#)

Fax No.: [Click to enter text.](#)

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

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

INDUSTRIAL WASTEWATER PERMIT APPLICATION CHECKLIST OF COMMON DEFICIENCIES

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

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

Things to Know:

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

- ☒ N/A ☐ Landowners Labels and Cross Reference List
(See instructions for landowner requirements.)
- ☒ Electronic Application Submittal
(See application submittal requirements on page 23 of the instructions.)
- ☒ Original signature per 30 TAC § 305.44 – Blue Ink Preferred
*(If signature page is not signed by an elected official or principle executive officer,
a copy of signature authority/delegation letter must be attached.)*

☒ Summary of Application (in Plain Language)



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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](https://www.tceq.texas.gov/permitting/wastewater/industrial/TPDES_industrial_wastewater_steps.html)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 Diamond Shamrock Refining Company, L.P., Valero McKee Refinery, processes crude oil and other feedstock into products including, but not limited to, gasoline, jet fuel, diesel fuel, and asphalt. The units at the Valero McKee Refinery generally include: crude units, gas oil fractionators, propane de-asphalting units, naphtha fractionators, hydrocracking and fluidized catalytic cracking units, diesel desulfurization units, reformers, alkylation units, and asphalt processing units. SIC Code is 2911.

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

See Attachment TR-1.

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

Attachment: TR-2

- 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: TR-3

- 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: [Area-specific calculation by Environeering, Inc.; September 1998 General Engineering Report](#)

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

Attachment: [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 TR-4.

- 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: TR-5

Item 3. Impoundments (Instructions, Page 40)

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

☒ Yes ☐ No

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

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

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

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

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

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

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

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

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

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

Impoundment Information

Parameter	Pond # 1	Pond # 3	Pond # 4	Pond # 5
Use Designation: (T) (D) (C) or (E)	E	E	E	E
Associated Outfall Number	002	003	004	005
Liner Type (C) (I) (S) or (A)	C	C	S	S
Alt. Liner Attachment Reference	N/A	N/A	N/A	N/A
Leak Detection System, Y/N	N	N	Y	Y
Groundwater Monitoring Wells, Y/N	N	N	N	N
Groundwater Monitoring Data Attachment	N	N	N	N
Pond Bottom Located Above The Seasonal High-Water Table, Y/N	Y	Y	Y	Y
Length (ft)	200	165	140	360
Width (ft)	100	135	80	125
Max Depth From Water Surface (ft), Not Including Freeboard	4	5	5	8
Freeboard (ft)	2 (est)	2	2	2
Surface Area (acres)	0.5	0.81	0.57	2.6
Storage Capacity (gallons)	1.1 million	1.1 million	0.93 million	3.2 million
40 CFR Part 257, Subpart D, Y/N	N	N	N	N

Parameter	Pond # 1	Pond # 3	Pond # 4	Pond # 5
Date of Construction	Prior to 1979	Prior to 1979	Prior to 1979	Prior to 1979

Impoundment Information

Parameter	Pond # 7	Pond # 8	Pond #	Pond #
Use Designation: (T) (D) (C) or (E)	E	E		
Associated Outfall Number	007	008		
Liner Type (C) (I) (S) or (A)	S	C		
Alt. Liner Attachment Reference	N/A	N/A		
Leak Detection System, Y/N	Y	N		
Groundwater Monitoring Wells, Y/N	N	N		
Groundwater Monitoring Data Attachment	N	N		
Pond Bottom Located Above The Seasonal High-Water Table, Y/N	Y	Y		
Length (ft)	212	90		
Width (ft)	75	35		
Max Depth From Water Surface (ft), Not Including Freeboard	8	3		
Freeboard (ft)	2	2		
Surface Area (acres)	0.52	0.1		
Storage Capacity (gallons)	1.5 million	78,000		
40 CFR Part 257, Subpart D, Y/N	N	N		
Date of Construction	12/1/2016	Prior to 1979		

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/or numbered accordingly (i.e., page 6a, 6b, etc.) may be used to provide information on the additional outfalls.

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

Outfall Longitude and Latitude

Outfall No.	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)

Outfall Location Description

Outfall No.	Location Description

Outfall No.	Location Description

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

Outfall No.	Description of sampling point

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)

Outfall Discharge – Method and Measurement

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

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)

Outfall Wastestream Contributions

Outfall No. [Click to enter text.](#)

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

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

Outfall No. [Click to enter text.](#)

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

Outfall No. [Click to enter text.](#)

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

Attachment: TR-6

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: TR-7

c. Cooling Towers and Boilers

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

Cooling Towers and Boilers

Type of Unit	Number of Units	Daily Avg Blowdown (gallons/day)	Daily Max Blowdown (gallons/day)
Cooling Towers	2	350,400	864,000
Boilers	8	57,600	115,000

Item 6. Stormwater Management (Instructions, Page 44)

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

☒ Yes ☐ No

If **yes**, briefly describe the industrial processes and activities that occur outdoors or in a manner which may result in exposure of the activities or materials to stormwater: See Attachment TR-8

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.

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: The existing TPDES permit contains biomonitoring requirements for Outfall 001, which has not yet been constructed. Wastewater is deep well injected.

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

☐ Decommissioned: [Click to enter text.](#)

☐ To Be Decommissioned: [Click to enter text.](#)

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

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

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

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

☒ Yes ☐ No

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

- c. Cooling Water Supplier

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

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

CWIS ID				
Owner				
Operator				

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

☐ No ☐ Yes; PWS No.: [Click to enter text.](#)

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

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

☐ No ☐ Yes; Auth No.: [Click to enter text.](#)

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

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

☐ No ☐ Yes; AIF: [Click to enter text.](#)

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

d. 316(b) General Criteria

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

☐ Yes ☐ No. Explanation: [Click to enter text.](#)

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

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

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

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

☐ Yes ☐ No

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

f. Oil and Gas Exploration and Production

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

☐ Yes ☐ No

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

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

☐ Yes ☐ No

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

g. Compliance Phase and Track Selection

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

☐ Yes ☐ No

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

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

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

☐ Track I – AIF greater than 10 MGD

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

☐ Track II

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

Attachment: [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: Kenneth Hamilton

Title: Environmental Engineer

Signature: Kenneth Hamilton

Date: 10/08/2025

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
Petroleum Refining	419

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
See Attachment TR-9			

Subcategory	Actual Quantity/Day	Design Quantity/Day	Units

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

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

Percentage of Total Production

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

c. Refineries (40 CFR Part 419)

Provide the applicable subcategory and a brief justification.

Cracking, Subcategory B. The Valero McKee Refinery processes crude oil and other feedstock into products including, but not limited to, gasoline, jet fuel, diesel fuel, and asphalt. Facility operations include hydrocracking and fluidized catalytic cracking but do not include petrochemical operations or lube oil manufacturing processes.

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 TR-10.

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
Petroleum Refining	419	B	1930

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)

- 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.](#)
- ☐ Check the box to confirm all samples were collected no more than 12 months prior to the date of application submittal.
- Read the general testing requirements in the instructions for important information about sampling, test methods, and MALs. If a contact laboratory was used, attach a list which includes the name, contact information, and pollutants analyzed for each laboratory/firm.
Attachment: [Click to enter text.](#)

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

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

TABLE 1 and TABLE 2 (Instructions, Page 58)

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

Table 1 for Outfall No.: **see Attachment TR-11 for summary of DMR Data**
(check one): ☐ Composite ☐ Grab

Samples are

Pollutant	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)
BOD (5-day)				
CBOD (5-day)				
Chemical oxygen demand				
Total organic carbon				
Dissolved oxygen				
Ammonia nitrogen				
Total suspended solids				
Nitrate nitrogen				
Total organic nitrogen				
Total phosphorus				
Oil and grease				
Total residual chlorine				

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

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

Samples are (check one): ☐ Composite ☐ Grab

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

TABLE 3 (Instructions, Page 58)

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

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

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

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
Acrylonitrile					50
Anthracene					10
Benzene					10
Benzdine					50
Benzo(a)anthracene					5
Benzo(a)pyrene					5
Bis(2-chloroethyl)ether					10
Bis(2-ethylhexyl)phthalate					10
Bromodichloromethane [Dichlorobromomethane]					10
Bromoform					10
Carbon tetrachloride					2
Chlorobenzene					10
Chlorodibromomethane [Dibromochloromethane]					10
Chloroform					10
Chrysene					5
m-Cresol [3-Methylphenol]					10
o-Cresol [2-Methylphenol]					10
p-Cresol [4-Methylphenol]					10
1,2-Dibromoethane					10
m-Dichlorobenzene [1,3-Dichlorobenzene]					10
o-Dichlorobenzene [1,2-Dichlorobenzene]					10
p-Dichlorobenzene [1,4-Dichlorobenzene]					10
3,3'-Dichlorobenzidine					5
1,2-Dichloroethane					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]					10
Dichloromethane [Methylene chloride]					20
1,2-Dichloropropane					10
1,3-Dichloropropene [1,3-Dichloropropylene]					10
2,4-Dimethylphenol					10
Di-n-Butyl phthalate					10
Epichlorohydrin (1-Chloro-2,3-epoxypropane)					---
Ethylbenzene					10
Ethylene Glycol					---
Fluoride					500
Hexachlorobenzene					5
Hexachlorobutadiene					10
Hexachlorocyclopentadiene					10
Hexachloroethane					20
4,4'-Isopropylidenediphenol (bisphenol A)					1
Methyl ethyl ketone					50
Methyl tert-butyl ether (MTBE)					---
Nitrobenzene					10
N-Nitrosodiethylamine					20
N-Nitroso-di-n-butylamine					20
Nonylphenol					333
Pentachlorobenzene					20
Pentachlorophenol					5
Phenanthrene					10
Polychlorinated biphenyls (PCBs) (**)					0.2
Pyridine					20
1,2,4,5-Tetrachlorobenzene					20
1,1,2,2-Tetrachloroethane					10
Tetrachloroethene [Tetrachloroethylene]					10

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
Toluene					10
1,1,1-Trichloroethane					10
1,1,2-Trichloroethane					10
Trichloroethene [Trichloroethylene]					10
2,4,5-Trichlorophenol					50
TTHM (Total trihalomethanes)					10
Vinyl chloride					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
<i>E. coli</i> (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

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
Dicofol [Kelthane]					1
Dieldrin					0.02
Diuron					0.090
Endosulfan I (<i>alpha</i>)					0.01
Endosulfan II (<i>beta</i>)					0.02
Endosulfan sulfate					0.1
Endrin					0.02
Guthion [Azinphos methyl]					0.1
Heptachlor					0.01
Heptachlor epoxide					0.01
Hexachlorocyclohexane (<i>alpha</i>)					0.05
Hexachlorocyclohexane (<i>beta</i>)					0.05
Hexachlorocyclohexane (<i>gamma</i>) [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.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

Pollutants	Believed Present	Believed Absent	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)	MAL (µg/L)*
Bromide	☐	☐					400
Color (PCU)	☐	☐					—
Nitrate-Nitrite (as N)	☐	☐					—
Sulfide (as S)	☐	☐					—
Sulfite (as SO ₃)	☐	☐					—
Surfactants	☐	☐					—
Boron, total	☐	☐					20
Cobalt, total	☐	☐					0.3
Iron, total	☐	☐					7
Magnesium, total	☐	☐					20
Manganese, total	☐	☐					0.5
Molybdenum, total	☐	☐					1
Tin, total	☐	☐					5
Titanium, total	☐	☐					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.: [Click to enter text.](#) Samples are (check one): ☐ Composite ☐ Grab

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

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

* Indicate units if different from µg/L.

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

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

* Indicate units if different from µg/L.

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

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

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

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

* Indicate units if different from µg/L.

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

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

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

* Indicate units if different from µg/L.

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

TABLE 12 (DIOXINS/FURAN COMPOUNDS)

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

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

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

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

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

- ☐ Yes ☒ No

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

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

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

Compound	Toxicity Equivalent Factors	Wastewater Concentration (ppq)	Wastewater Toxicity Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Toxicity Equivalents (ppt)	MAL (ppq)
2,3,7,8-TCDD	1					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: South Palo Duro Creek

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: None

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: Dry creek bed, no flow.

Date and time of observation: September 15, 2025.

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

☐ Yes ☒ No

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

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

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

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

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

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

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

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

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

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

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

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
002	☐	☒
003	☐	☒
008	☐	☒
009	☐	☒
010	☐	☒
011	☐	☒
012	☐	☒
013	☐	☒
014	☐	☒

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: TR-12, TR-3

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)
002	0 ft ²	208,767 ft ²
003	0 ft ²	110,011 ft ²
008	0 ft ²	26,085 ft ²

Outfall	Area of Impervious Surface (include units)	Total Area Drained (include units)
009	0 ft ²	747,558 ft ²
010	0 ft ²	1,473,247 ft ²
011	0 ft ²	506,052 ft ²
012	0 ft ²	1,091,610 ft ²
013	0 ft ²	112,432 ft ²
014	112,432 ft ²	112,432 ft ²

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

Wettest month: July

Average rainfall for wettest month (total inches): 2.81

25-year, 24-hour rainfall (inches): 4.41

Source: Texas Water Development Board (Wettest month, Average rainfall for wettest month); NOAA Atlas 14 Point Precipitation Frequency Estimates: TX (25-year, 24-hour rainfall).

- c. Attach an inventory, or list, of materials currently handled at the facility that may be exposed to precipitation. **Attachment:** TR-2
- 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:** TR-8
- e. Describe any BMPs and controls the facility uses/proposes to prevent or effectively reduce pollution in stormwater discharges from the facility: see Attachment TR-8

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 17 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						—

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)
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
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 18 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

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.](#)

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

Attachment AR-1
Copy of Voucher Attachment TPDES
Permit No. WQ000392700
Administrative Report 1.0, Item 1.g



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

Transaction Information

Voucher Number: 787122
Trace Number: 582EA000688490
Date: 10/09/2025 12:22 PM
Payment Method: CC - Authorization 0000033440
Voucher Amount: \$1,200.00
Fee Type: WW PERMIT - MINOR FACILITY SUBJECT TO 40 CFR 400-471 - RENEWAL
ePay Actor: KENNETH HAMILTON
Actor Email: kenny.hamilton@valero.com
IP: 170.111.3.212

Payment Contact Information

Name: KENNETH HAMILTON
Company: DIAMOND SHAMROCK REFINING CO
Address: 6709 FM119, SUNRAY, TX 79086
Phone: 806-935-1453

Site Information

RN: RN100210517
Site Name: VALERO MCKEE REFINERY
Site Address: 6701 FM 119, SUNRAY, TX 79086
Site Location: 6701 FM 119 SUNRAY TX 79086

Customer Information

CN: CN600124861
Customer Name: DIAMOND SHAMROCK REFINING COMPANY
Customer Address: 6701 FM 119, SUNRAY, TX 79086
State Franchise Tax ID: 17426911677

Other Information

Program Area ID: 0003927000

[Close](#)

Attachment AR-2
Core Data Form
TPDES Permit No. WQ000392700
Administrative Report 1.0, Item 3.c



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 600124861		RN 100210517

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)					
<i>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).</i>					
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)				<i>If new Customer, enter previous Customer below:</i>	
Diamond Shamrock Refining Company, L.P.					
7. TX SOS/CPA Filing Number		8. TX State Tax ID (11 digits)		9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
0007190711		17426911677		90-1006559	963555222
11. Type of Customer:		☐ Corporation		☐ Individual	Partnership: ☐ General ☒ Limited
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other		☐ Sole Proprietorship		☐ Other:	
12. Number of Employees				13. Independently Owned and Operated?	
☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher				☐ 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 ☐ Other: ☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant					
15. Mailing Address:	6701 FM 119				
	City	Sunray	State	TX	ZIP 79086 ZIP + 4
16. Country Mailing Information (if outside USA)				17. E-Mail Address (if applicable)	
				Kenny.Hamilton@valero.com	

18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)
(806) 935-2141	1453	(806) 936-1216

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								
<i>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).</i>								
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)								
Valero McKee Refinery								
23. Street Address of the Regulated Entity: (No PO Boxes)	6701 FM 119							
	City	Sunray	State	TX	ZIP	79086	ZIP + 4	
24. County								

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

25. Description to Physical Location:									
26. Nearest City					State				Nearest ZIP Code
<i>Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).</i>									
27. Latitude (N) In Decimal:		35.951944			28. Longitude (W) In Decimal:		-101.873889		
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds				
35	57	07.0	101	52	26.0				
29. Primary SIC Code		30. Secondary SIC Code		31. Primary NAICS Code		32. Secondary NAICS Code			
(4 digits)		(4 digits)		(5 or 6 digits)		(5 or 6 digits)			
2911				324110					
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)									
Refining of crude oil.									
34. Mailing Address:	6701 FM 119								
	City	Sunray	State	TX	ZIP	79086	ZIP + 4		
35. E-Mail Address:		Kenny.Hamilton@valero.com							
36. Telephone Number			37. Extension or Code			38. Fax Number (if applicable)			
(806) 935-2141			1453			(806) 935-1216			

☐ 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:
	WQ0003927000			

SECTION IV: Preparer Information

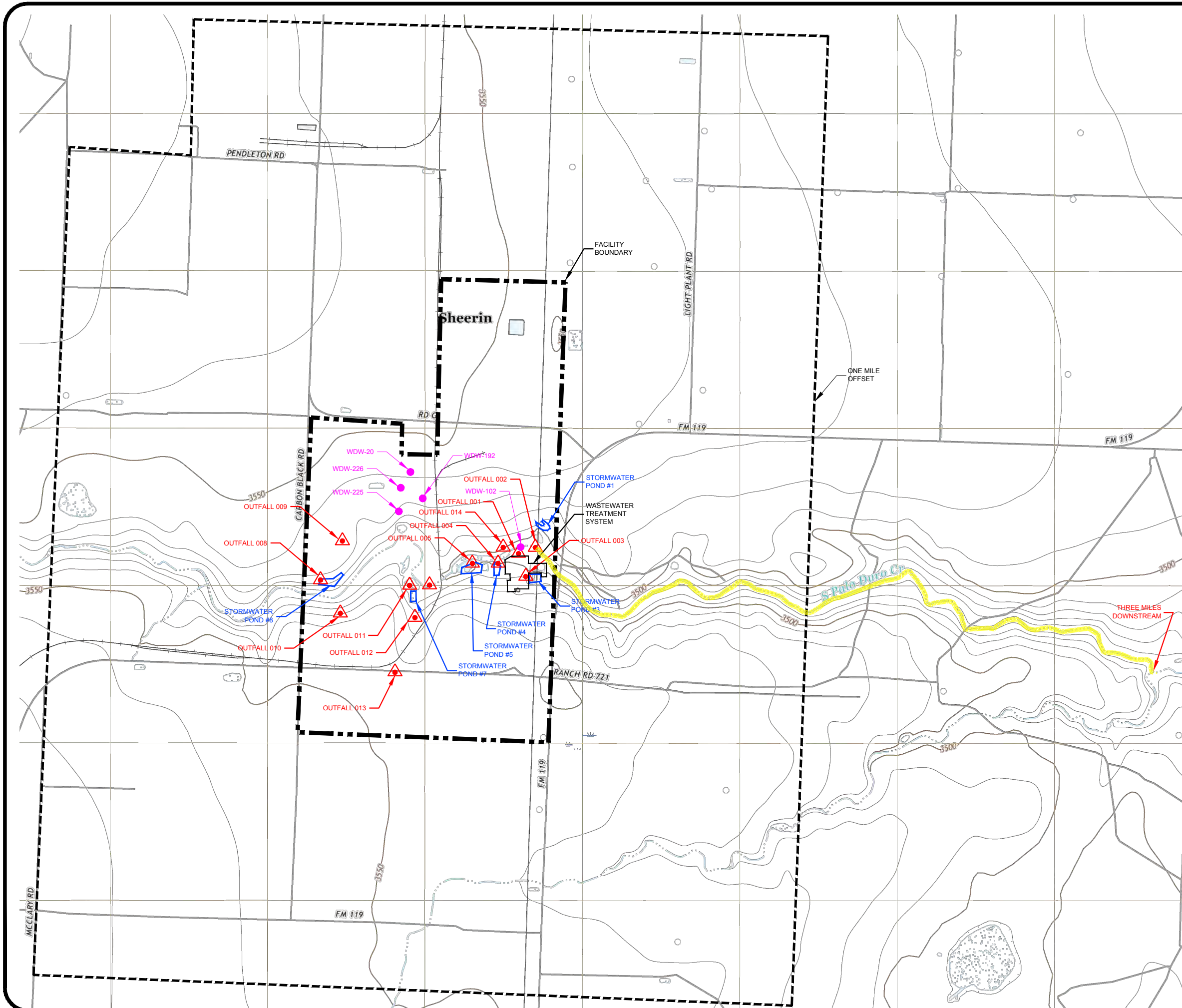
40. Name:	Kenneth Hamilton	41. Title:	Environmental Engineer
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address
(806) 935-1453		() -	Kenny.Hamilton@valero.com

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:	Diamond Shamrock Refining Company, L.P.	Job Title:	Vice President and General Manager
Name (In Print):	Shawn Wilhelm	Phone:	(806) 935- 1209
Signature:		Date:	10/9/2025

Attachment AR-3
USGS Map
TPDES Permit No. WQ000392700
Administrative Report 1.0, Item 9.b



LEGEND

HIGHLIGHTED DISCHARGE ROUTE, EXTENDING 3 MILES FROM OUTFALL

APPROXIMATE FACILITY BOUNDARY

1 MILE APPLICANT'S BOUNDARY OFFSET

DISCHARGE POINT (OUTFALL)

WASTEWATER DISPOSAL WELL

N

0

1000

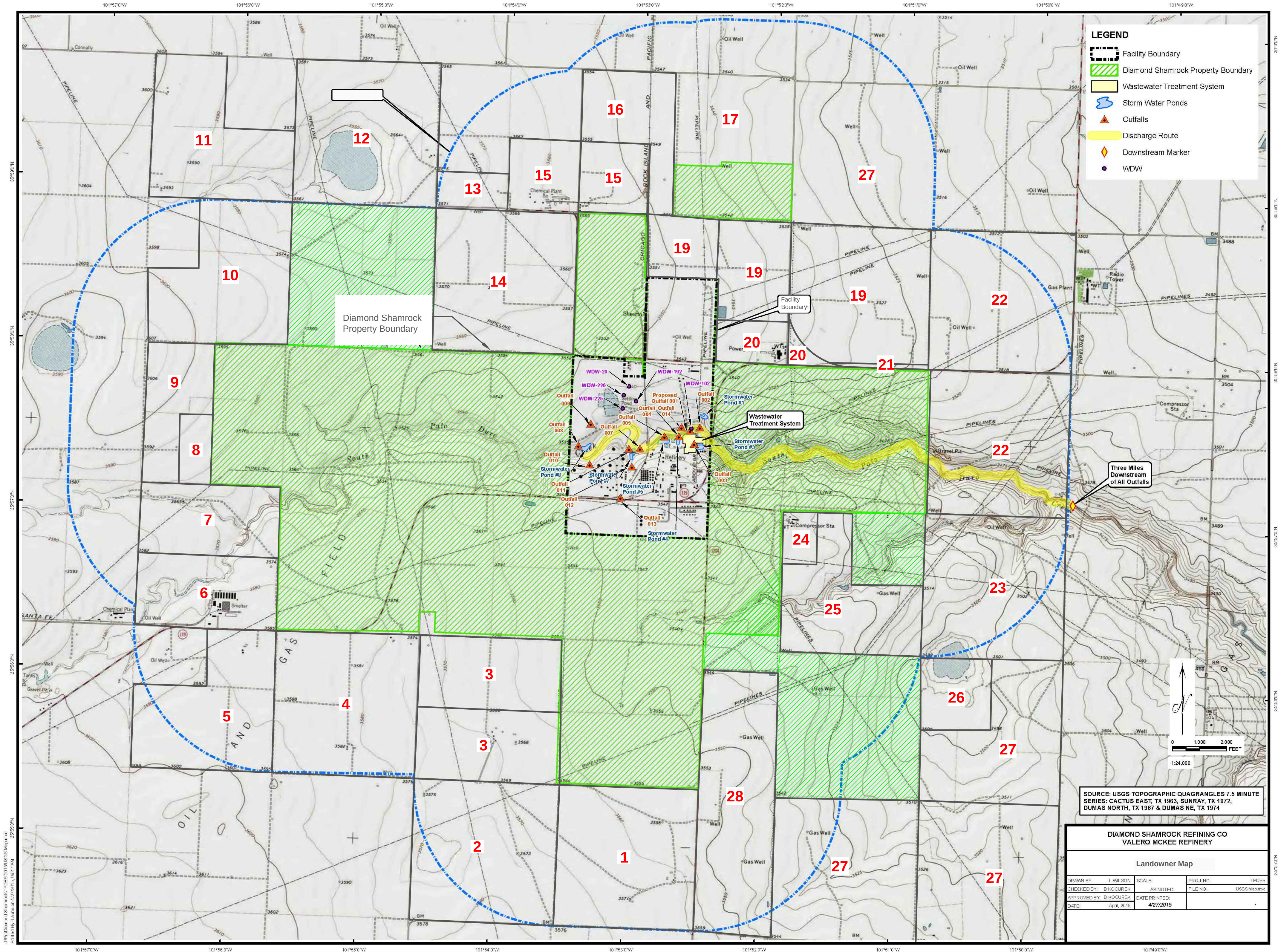
2000

4000

SCALE: 1" = 2000'

PROJECT NO.	DESIGNED BY:	JAMES MIERTSCHIN & ASSOCIATES, INC ENVIRONMENTAL ENGINEERING TX REG. # F-2458 P.O. Box 162305 Austin, Texas 78716-2305 Phone (512) 327-2708
	FILE NO:	
	DATE: 30 OCTOBER 2019	
	SCALE: AS NOTED	
VALERO MCKEE REFINERY PERMIT APPLICATION		
DIAMOND SHAMROCK USGS QUADRANGLE MAP DUMAS NE, TX DUMAS NORTH, TX		

Attachment AR-4
Landowner Map and Table
TPDES Permit No. WQ000392700
Administrative Report 1.1, Item 1.a



LEGEND

- Facility Boundary
- Diamond Shamrock Property Boundary
- Wastewater Treatment System
- Storm Water Ponds
- Outfalls
- Discharge Route
- Downstream Marker
- WDW

SOURCE: USGS TOPOGRAPHIC QUADRANGLES 7.5 MINUTE
SERIES: CACTUS EAST, TX 1963, SUNRAY, TX 1972,
DUMAS NORTH, TX 1967 & DUMAS NE, TX 1974

DIAMOND SHAMROCK REFINING CO VALERO MCKEE REFINERY			
Landowner Map			
DRAWN BY: L WILSON	SCALE:	PROJ. NO.	TPDES
CHECKED BY: D KOCUREK	AS NOTED	FILE NO.	USGS Map.mxd
APPROVED BY: D KOCUREK	DATE PRINTED:		
DATE: April, 2015	4/27/2015		

LANDOWNER ADDRESSES

MAP ID	OWNER	ADDRESS	CITY	STATE	ZIP
1	BURNETT RICHARD KEITH	P O BOX 796	DUMAS	TX	79029
2	CHISM NANCY BETH & WAYNE WAD CHISM SUPPLEMENTAL NEEDS	21 COUNTRY VIEW CI	NEW BRAUNFELS	TX	78132
3	DOS AMIGOS CATTLE LLC	5973 FM 281	DUMAS	TX	79029
4	MIDNIGHT SUN INC	2515 MCKINNEY AVE, STE 800	DALLAS	TX	75201-1980
5	DIEDRICHSN JOHN H	305 CARSON	DUMAS	TX	79029
6	PENDLETON FAMILY LTD	3805 NAVASOTA	AMARILLO	TX	79109
7	MENDOZA HUMBERTO - HILDA	622 POWELL	DUMAS	TX	79029
8	ROBERTA DAVIS, CAROLE CLARK KLIMESCH - VIKKI CLARK & JAY CLARK				
9	REZNIK & SONS INC	P O BOX 1263	DUMAS	TX	79029-1263
10	VYN LAND & CATTLE A TEXAS GENERAL PARTNERSHIP	P O BOX 1567	DALHART	TX	79022
11	KELLY W - NADINE S WATKINS, LESLIE WATKINS, GEORGE ALAN WATKINS, JAN WATKINS HARPER				
12	PENDLETON CHARLES R - BETTY J	916 N MADDOX	DUMAS	TX	79029-7815
13	NAGEL LOUIS M	8423 BURWOOD PARK	SPRING	TX	77379
14	MY PARTNERS LP	5636 BUCKLEY DR	EL PASO	TX	79912
15	CONTINENTAL CARBON COMPANY	16850 PARK ROW	HOUSTON	TX	77084-5023
16	SPAIN J STANLEY - LORENDA JAYNE	11648 STARKEY ROAD	DUMAS	TX	79029
17	KIMBRELL SHAWN	P O BOX 877	SUNRAY	TX	79086
18	MINTER FAMILY TRUST	6920 SW 62ND PLACE	PORTLAND	OR	97219
19	KEISLING FARMS INC	P O BOX 1163	DUMAS	TX	97029-1163
20	SOUTHWESTERN PUBLIC SERVICE COMPANY	P O BOX 1979	DENVER	CO	80201-1979
21	STATE OF TEXAS % COMMISSIONER OFFICE				
22	JONES RAYMOND & CHARLES JONES	1200 EAST 2ND	DUMAS	TX	79029
23	VTD PROPERTIES COMPANY	ONE VALERO WAY	SAN ANTONIO	TX	78249-1616
24	PANHANDLE EASTERN PIPE LINE CO	P O BOX 4967	HOUSTON	TX	77210-4967
25	GOLDEN SPREAD ELECTRIC	P O BOX 9898	AMARILLO	TX	79105
26	HISE ANTHONY M	1109 PHILLIPS DR	DUMAS	TX	79029-5333
27	JONES RAGER AND GENEVA FAMILY FARMS LLC	P O BOX 474	DUMAS	TX	79029
28	STOKES J CRAIG	11152 FM 1284	DUMAS	TX	79029

Attachment AR-5
Photographs
TPDES Permit No. WQ000392700
Administrative Report 1.1, Item 2



**Outfall 1 (photo 1) downstream
View Facing Northwest**



**Outfall 1 (photo 2) upstream
View facing Northwest**



Outfall 2 (photo 1) downstream
View facing south



Outfall 2 (photo 2) upstream
View facing south



Outfall 3 (photo 1) downstream
View facing northwest



Outfall 3 (photo 2) upstream
View facing west



Outfall 8 (photo 1) downstream
View facing south



Outfall 8 (photo 2) upstream
View facing south

Outfall 009 (photo 1) upstream view facing north



Outfall 009 (photo 2) downstream view facing south



Outfall 010 (photo 1) downstream view facing north



Outfall 010 (photo 2) upstream view facing south



Outfall 011 (photo 1) downstream view facing north



Outfall 011 (photo 2) upstream view facing south



Outfall 012 (photo 1) upstream view photo facing northeast



Outfall 012 (photo 2) downstream view photo facing northwest



Outfall 013 (photo 1) upstream view facing south



Outfall 013 (photo 2) downstream view facing north



Outfall 014 (photo 1) upstream view facing north



Outfall 014 (photo 2) downstream view facing south



Outfall 004 (photo 1) downstream view facing north



Outfall 004 (photo 2) upstream view facing south



Outfall 005 (photo 1) upstream view facing northwest



Outfall 005 (photo 2) downstream view facing northwest

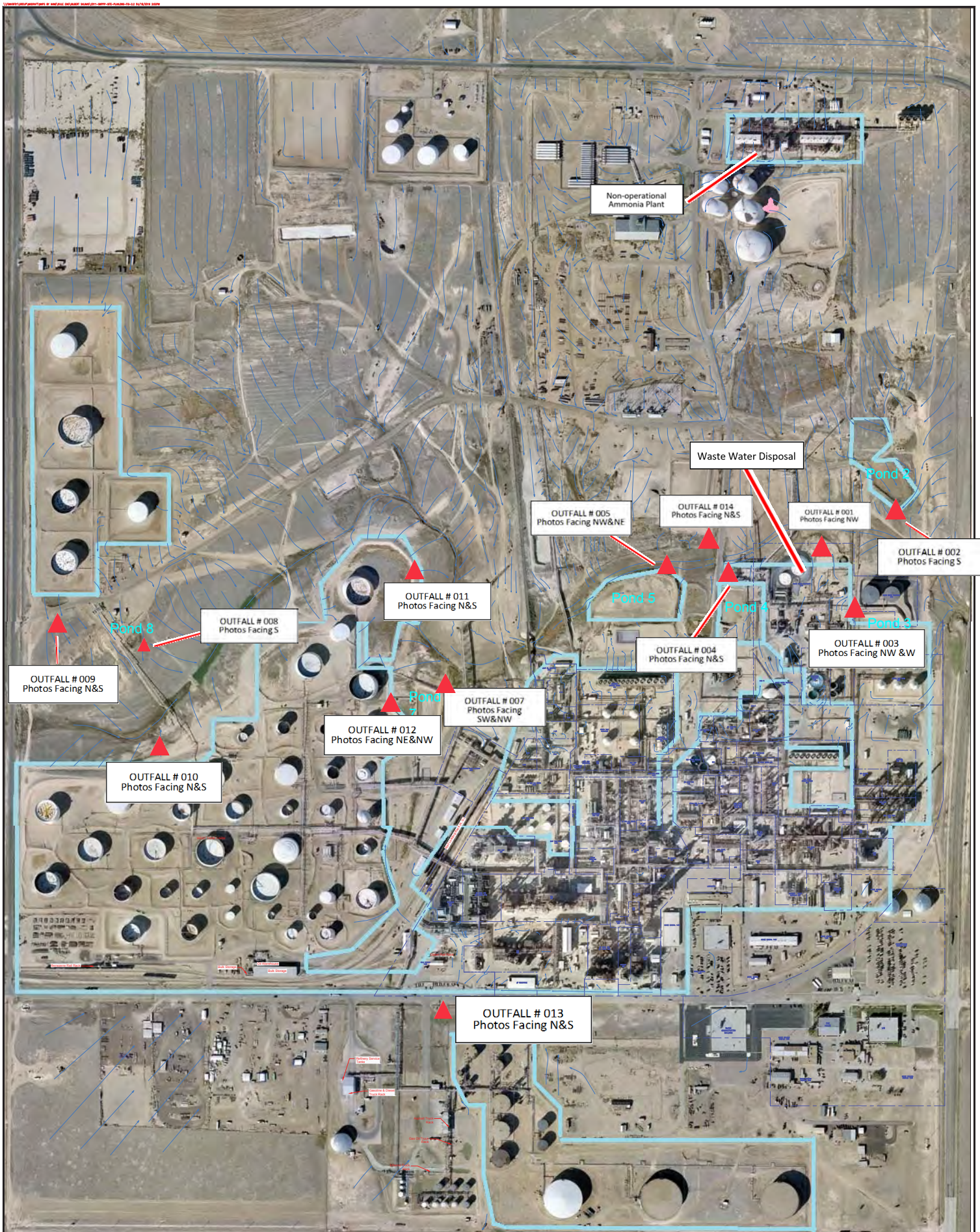


Outfall 007 (photo 1) upstream view facing southwest



Outfall 007 (photo 2) downstream view facing northwest

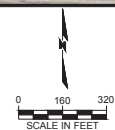




Legend

▲ Outfall

□ Drainage area

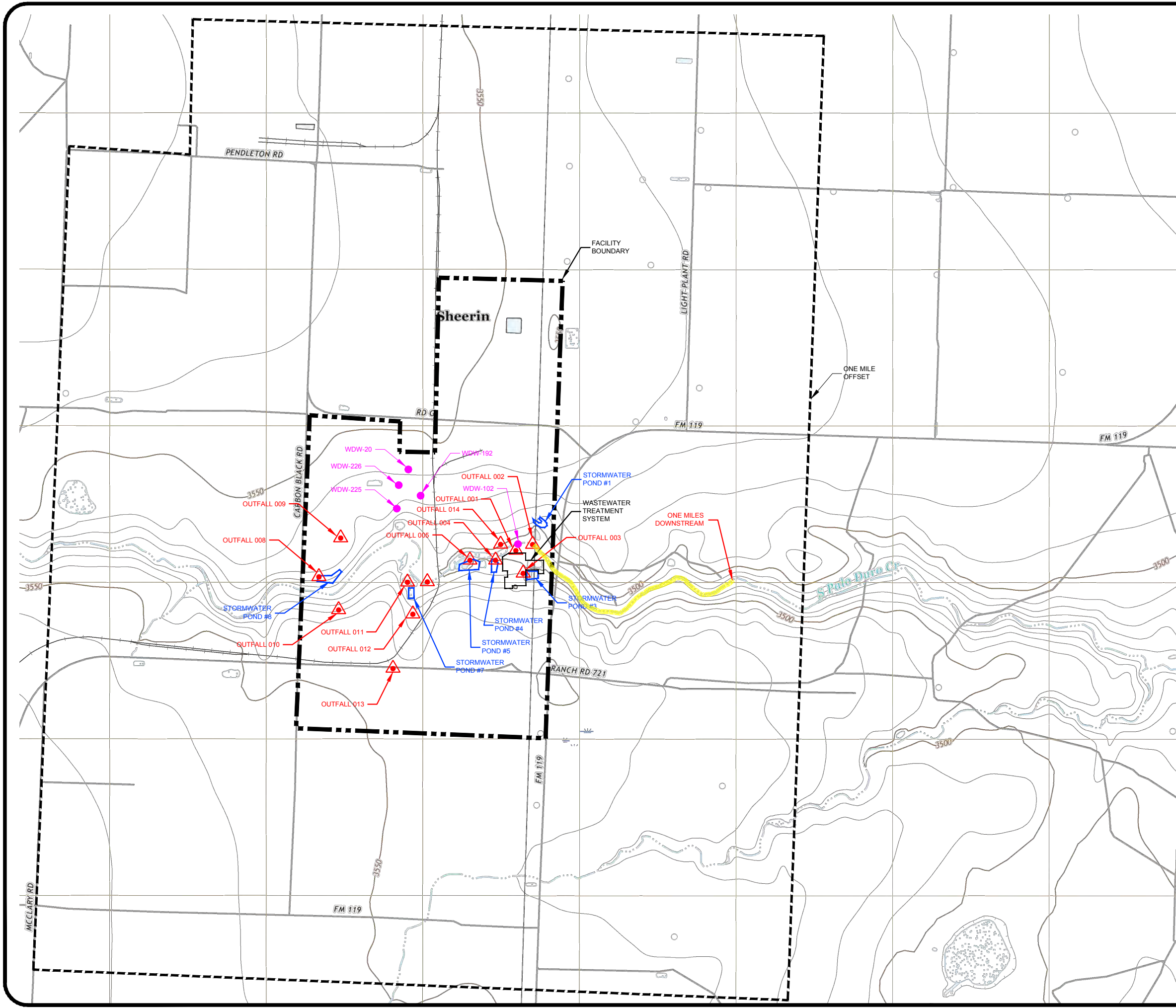


Issue	Date
Drawn	09/07/11
Checked	09/07/11
Approved	09/07/11
Revised	01/12/17
Revised	03/27/20

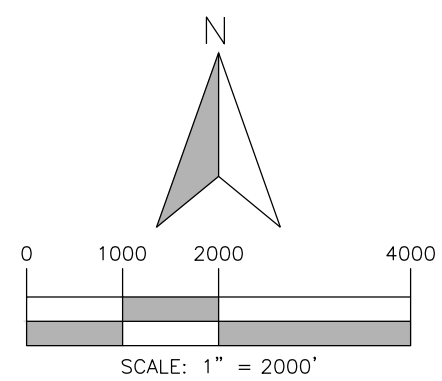
Valero

Figure 8.2
Site Drainage Detail-WS 7.0
Valero - McKee Refinery Sunray, TX

Attachment AR-6
USGS Map for SPIF
TPDES Permit No. WQ000392700
Administrative Report—SPIF, Item 8

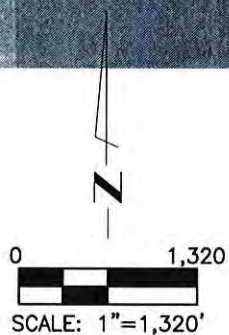


- LEGEND
- HIGHLIGHTED DISCHARGE ROUTE, EXTENDING 3 MILES FROM OUTFALL
 - APPROXIMATE FACILITY BOUNDARY
 - 1 MILE APPLICANT'S BOUNDARY OFFSET
 - DISCHARGE POINT (OUTFALL)
 - WASTEWATER DISPOSAL WELL



SPIF MAP		VALERO MCKEE REFINERY PERMIT APPLICATION		PROJECT NO.	DESIGNED BY:
				FILE NO:	DRAWN BY:
				DATE: 30 OCTOBER 2019	CHECKED BY:
				SCALE: AS NOTED	
				JAMES MIERTSCHIN & ASSOCIATES, INC ENVIRONMENTAL ENGINEERING TX REG. # F-2458 P.O. Box 162305 Austin, Texas 78716-2305 Phone (512) 327-2708	

Attachment AR-7
Aerial Photograph of Refinery Development circa 1954
TPDES Permit No. WQ000392700
Administrative Report—SPIF, Item 9



Source of aerial: Agricultural Stabilization and Conservation Service

 **VALERO
McKEE REFINERY**

Figure 2.3
Refinery Development, circa 1954
Admin. Report 1.0 - Industrial - SPIF
Valero McKee Refinery
Sunray, TX
April 2010

Attachment TR-1
Wastewater Generating Process
TPDES Permit No. WQ0003927000
Technical Report 1.0, Item 1.c

Wastewaters generated at the Valero McKee Refinery include refining process wastewater, utility wastewater¹, sanitary (domestic) wastewater, and stormwater. There are 13 outfalls authorized under TPDES Permit WQ0003927000. Currently, the facility treats process wastewater, utility wastewater, domestic wastewater, and process area stormwater and then deep well injects these treated wastewaters. The facility has the option in the TPDES permit to discharge these wastewaters to South Palo Duro Creek through Outfall 001, a proposed outfall that may be constructed in the future. Outfalls 002, 003, 008, and 014 are authorized to discharge stormwater. Outfalls 004, 005, and 007 are authorized to discharge stormwater and utility wastewater. Outfalls 009, 010, 011, 012, and 013 are authorized to discharge utility wastewater, hydrostatic test water, and stormwater. No new outfalls are being proposed as part of this permit renewal.

¹ Utility wastewater, as defined in Other Requirement No. 7.D. of the existing permit, includes, but is not limited to: hydrostatic test water (new and clean equipment), cooling tower blowdown, boiler blowdown, boiler feed water, ultra-filtration backwash, reverse osmosis concentrate wastewaters, and water softener regeneration water.

Attachment TR-2
List of Raw Materials
TPDES Permit No. WQ0003927000
Technical Report 1.0, Item 1.d

Raw Materials	Intermediate Products	Final Products
Crude Oil	Gas oils (petroleum), light vacuum	Naphtha (petroleum), aromatic-containing
Biodiesel	Residues (petroleum), vacuum	Sulfur
Ethanol	Distillates (petroleum), light hydrocracked	Hydrocarbons, C3
	Hydrocarbons, C3-11, catalytic cracker distillates	Naphtha (petroleum), full-range alkylate
	Hydrocarbons, C3	Sulfuric acid
	Gases (petroleum), alkylation feed	Naphtha (petroleum), heavy hydrocracked
	Wastes, petroleum	Naphtha (petroleum), full-range alkylate
	Sulfuric acid	Residues (petroleum), vacuum
	Hydrocarbons, C3-11, catalytic cracker distillates	Naphtha (petroleum), heavy catalytic cracked
	Distillates (petroleum), light catalytic cracked	Distillates (petroleum), light hydrocracked
	Hydrocarbons, C5-rich	Propane
	Naphtha (petroleum), hydrotreated heavy	Naphtha (petroleum), hydrotreated light
	11-Pentene, 2,4,4-trimethyl-	Butane
	Butane	Naphtha (petroleum), light catalytic reformed, aromatic-free
	Naphtha (petroleum), full-range straight-run	Distillates (petroleum), hydrotreated middle
	Propane, 2-methyl-	Naphtha (petroleum), heavy catalytic reformed
	Clarified oils (petroleum), catalytic cracked	Kerosene (petroleum), hydrodesulfurized
	Distillates (petroleum), heavy hydrocracked	Naphtha (petroleum), light catalytic cracked
	Gases (petroleum), catalytic cracked overheads	Biodiesel B-100
	Distillates (petroleum), straight-run middle	
	Gas oils (petroleum), heavy vacuum	

Attachment TR-3
Facility Map
TPDES Permit No. WQ0003927000
Technical Report 1.0, Item 1.c



Attachment TR-4
Wastewater Treatment Processes
TPDES Permit No. WQ0003927000
Technical Report 1.0, Item 2.a

The refinery process wastewater and process area stormwater is generated from the following units/areas: crude unit desalters, fluid catalytic cracking unit, gasoline desulfurization unit, treating plant, low temperature gas plant, feed preparation, boiler house, gas oil fractionator, acid plant, hydrocracking unit, #2 reformer, sulfur plant, alkylation, propane de-asphalting, #1 reformer, hydrogen plant, isom, merox, #2 hydrotreater, #1 Hydrotreater, flare gas recovery and the unifiner. These wastewaters are routed to the onsite wastewater treatment system.

Cooling tower blowdown is conveyed via piping to a common holding tank and ultimately disposed of in the onsite nonhazardous UIC injection wells. Noncontact stormwater drains to onsite stormwater ponds, where it is allowed to evaporate. Occasionally, when rainfall is high enough, these ponds discharge via stormwater Outfalls 002, 003, 004, 005, 007, or 008 to South Palo Duro Creek.

Domestic wastewater is routed to onsite septic tanks with the treated liquid effluent discharged to onsite leach fields. Periodically the septic tanks are cleaned and the contents (mainly sludge) are removed via vacuum truck and transported to the onsite wastewater treatment system for treatment. The treated, commingled effluent is piped for disposal in onsite permitted hazardous UIC injection wells. The treated, commingled solids from the wastewater system are transported by licensed transporters to permitted, offsite facilities for energy recovery.

A wastewater treatment flow schematic and water balance are shown in Attachment TR-5. At the wastewater treatment facility, the process wastewaters pass through a trash collection box, neutralization tank, and API separators. At the API separators, oil is removed and particulates are settled out. Recovered oil is routed to recovered oil tanks. Oily sludge is processed in an oily sludge thickener tank and centrifuge and then shipped offsite for energy recovery. Wastewater effluent from the API separators is sent to equalization tanks. Wastewater from the equalization tanks is routed to dissolved gas flotation (DGF), which removes additional oil. The oily float from DGF is processed in the oily sludge thickener tank. Effluent from DGF flows to an effluent tank. Wastewater from the effluent tank is routed to a filtration media bed and cartridge filters and the filtered effluent is disposed of in three onsite hazardous Class I UIC injection wells. Cooling tower blowdown is not treated and is disposed of in three onsite nonhazardous UIC injection wells.

Outfall 001, which is authorized to discharge treated wastewater to South Palo Duro Creek, is a future option, but there are no immediate plans to activate this outfall. Consequently, all treated wastewaters continue to be disposed of in injection wells. Conceptual plans for Outfall 001 include additional, biological treatment of the wastewater (activated sludge). Attachment TR-5 shows the wastewater flow schematic and water balance with the additional treatment units and with the final wastewater effluent to be discharged through Outfall 001. The effluent limits in the current permit for Outfall 001 were developed by the TCEQ based on national effluent limitation guidelines for petroleum refining wastewaters and state water quality standards for South Palo Duro Creek in a previously submitted conceptual treatment

design report.² TCEQ establishes effluent limits rather than specifying treatment units or approving the treatment system design. The facility is required to give notice to TCEQ prior to startup of and discharge from the Outfall 001 treatment system.

² "Wastewater Treatment Conceptual Design for Diamond Shamrock Refining Co., Sunray, TX," Tischler/Kocurek, 1996.

Attachment TR-5
Flow Schematic
TPDES Permit No. WQ0003927000
Technical Report 1.0, Item 2.b

Refinery process wastewaters (898,841 gpd)
Desalter, FCCU, treating plant, low temp gas plant,
feed preparation, boiler house, gas oil fract,
acid plant, hydrocracking, laboratory, reforming (#1,#2),
sulfur plant, alky/PDA, Isom, Merax, hydrotreating (#1,#2),
platform area, unfiner, hydrogen plant, flare gas recovery,
alky acid-blowdown, Lab waste (liquids only at times), Heat Exchanger Solids

Storm water from process areas
Utility waters

Refinery cooling tower blowdown (509,760 gpd)
Gas plant cooling tower blowdown (354,240 gpd)

Boiler blowdown (115,000 gpd)

Spent Caustic
Tank, T-318
NOR# 038

Spent Acid
Tank, T-319
NOR# 039

Trash
Collection
Box

Neutralization
Tank

12ft dia
x 85ft

API
Separators

2 units
Each 12ft x
55ft x 5ft

Equalization
Tanks

2 units
Each 315,000
gal

Wastewater collection system also includes
various sumps and junction boxes

To oily sludge
thickener tank

Sludge

Oil

2 units Each
8ft dia x 5ft

Recovered
Oil Tanks

Storm Water
Tanks 109 and 115

87ft x 48ft
and
100ft x 50ft

Dissolved Gas
Flotation (DGF)

12ft x 71ft
245gpm/ft²

Effluent
Tank

16ft dia.
x 18ft

Media Bed
Filters

3 units
Each 9ft Dia.,
860 gpm

Cartridge
Filters

5 units
20 µm, each
600 gpm

Hazardous Class I
UIC Injection Wells
2,160,000 gpd

Slop Oil Emulsion Solids
(from cleaning)
0150205H to Off-site
management (*)

Froth,
Sludge

DGF
Froth Tank

14ft dia
x 15ft

Oily Sludge
Thickening Tank

50ft dia
x 12ft

Centerfuge
Feed Tank

21.5ft dia. x
13.75ft

Centerfuge

Avg. 1,000
lbs/d sludge

Wastewater Filters
0112310H to Off-site
management (*)

Off-site Sludge
Disposal (energy recovery)

Separated Liquids
to API Separator

Separated Oil to
Recovered Oil
Tanks

Non-Hazardous Class I
UIC Injection Wells
864,000 gpd

864,000 gpd

168,000 gal

2- Cooling tower
blowdown tanks

Reactivator
Tank

Cooling water system



Figure 5.1
Wastewater Treatment System
Flow Schematic and Water Balance
Valero McKee Refinery
Sunray, TX
March 2020

MG = million gallons

Note: Flow rates at Design Production Level (180,000 bbl/d crude through put)

Source: Wastewater Treatment Conceptual Design Tischler/Kowreck (10/23/96) edited 2015

Refinery process wastewaters (898,841 gpd)
Desalter, FCCU, treating plant, low temp gas plant,
feed preparation, boiler house, gas oil fract,
acid plant, hydrocracking, laboratory, reforming (#1,#2),
sulfur plant, alky/PDA, Isom, Merox, hydrotreating (#1,#2),
platformer area, unfiner

Sanitary wastewater (included in other wastewater flows)
Storm water from process areas (included in process flows)

Wastewater collection system also includes
various sumps and junction boxes

Refinery cooling tower blowdown (185,362 gpd)
Gas plant cooling tower blowdown (125,114 gpd)

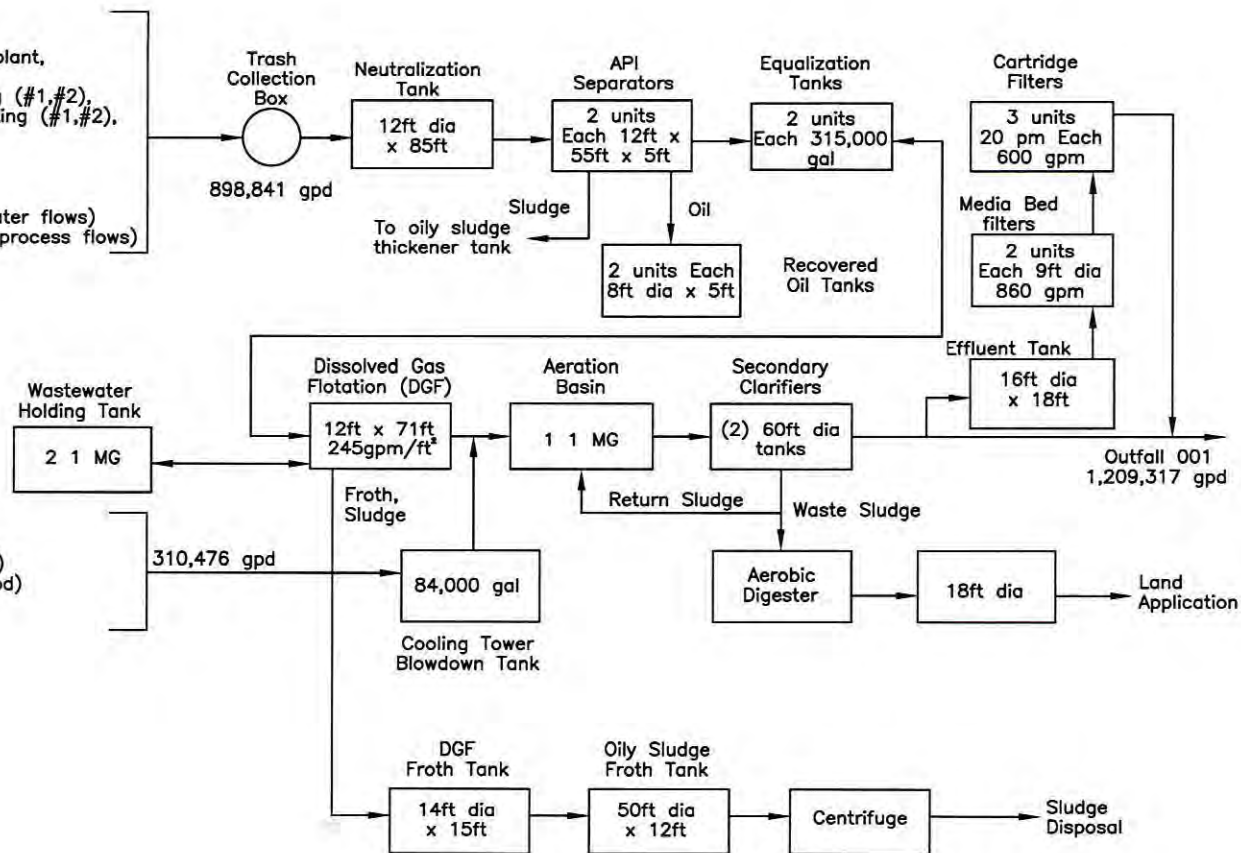


Figure 5.2
Planned Wastewater Treatment System
Flow Schematic and Water Balance
Valero McKee Refinery
Sunray, TX
April 2010

MG = million gallons

Note: Flow rates at Design Production Level (175,000 bbl/d crude through put)

Source: Wastewater Treatment Conceptual Design Tischler/Kowreck (10/23/96)

Attachment TR-6
Outfalls
TPDES Permit No. WQ0003927000
Technical Report 1.0, Item 4

Outfall Latitude and Longitude

Outfall Number	Latitude-decimal degrees	Longitude-decimal degrees
001	35.958933	-101.876612
002	35.959176	-101.875512
003	35.958844	-101.875621
004	35.958256	-101.878076
005	35.958340	-101.879649
007	35.956869	-101.882978
008	35.956462	-101.889720
009	35.957997	-101.890858
010	35.955366	-101.889995
011	35.958501	-101.883858
012	35.955954	-101.884067
013	35.951548	-101.883328
014	35.959052	-101.878240

Outfall Location Description

Outfall Number	Location Description
001	At the exit of the wastewater treatment plant and prior to discharging to South Palo Duro Creek
002	At the discharge point from Pond No. 1
003	At the discharge point from Pond No. 3
004	At the discharge point from Pond No. 4
005	At the discharge point from Pond No. 5
007	At the discharge point from Pond No. 7
008	At the discharge point from Pond No. 8
009	At the pump discharge or pipe outlet at the south side of the Crude Tank Farm
010	At the pump discharge or pipe outlet at the northwest side of the West Tank Farm
011	At the pump discharge or pipe outlet at the northeast side of the West Tank Farm
012	At the pump discharge or pipe outlet at the east side of the West Tank Farm
013	At the pump discharge or pipe outlet at the north side of the South Tank Farm
014	At the pipe outlet on the southwest side of the non-operational ammonia plant

Description of Sampling Points (if different from Outfall location)

Outfall Number	Description of Sampling Point
001	Not different
002	Not different
003	Not different
004	Not different
005	Not different
007	Not different
008	Not different
009	Not different
010	Not different
011	Not different
012	Not different
013	Not different
014	Not different

Outfall Flow Information – Permitted and Proposed

Outfall Number	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	Report	0.14	Report	0.14	-
002	Report	Report	Report	Report	-
003	Report	Report	Report	Report	-
004	Report	Report	Report	Report	Active
005	Report	Report	Report	Report	Active
007	Report	Report	Report	Report	Active
008	Report	Report	Report	Report	-
009	Report	Report	Report	Report	-
010	Report	Report	Report	Report	-
011	Report	Report	Report	Report	-
012	Report	Report	Report	Report	-
013	N/A	N/A	Report	Report	-
014	N/A	N/A	Report	Report	-

Outfall Discharge – Method and Measurement

Outfall Number	Pumped Discharge? Y/N	Gravity Discharge? Y/N	Type of Flow Measurement Device Used
001	Not yet constructed	Not yet constructed	Estimate
002	N	Y	Estimate
003	N	Y	Estimate
004	N	Y	Estimate
005	N	Y	Estimate
007	N	Y	Estimate
008	N	Y	Estimate
009	Y	N	Estimate
010	Y	N	Estimate
011	Y	N	Estimate
012	Y	N	Estimate
013	Y	N	Estimate
014	N	Y	Estimate

Outfall Discharge – Flow Characteristics

Outfall Number	Intermittent Discharge? Y/N	Continuous Discharge? Y/N	Seasonal Discharge? Y/N	Discharge Duration (hrs/day)	Discharge Duration (days/mo)	Discharge Duration (mo/yr)
001	N	Y	N	24	31	12
002	Y	N	N			
003	Y	N	N			
004	Y	N	N			
005	Y	N	N			
007	Y	N	N			
008	Y	N	N			
009	Y	N	N			
010	Y	N	N			
011	Y	N	N			
012	Y	N	N			
013	Y	N	N			
014	Y	N	N			

Wastestream Contributions

Outfall No.: 001

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Process wastewater, including process area stormwater	2.160	66.8
Refinery cooling tower blowdown	0.50976	15.8
Gas plant cooling tower blowdown	0.35424	10.9
Boiler blowdown	0.115	3.6
Domestic wastewater	0.095	2.9
Total =	3.234	100.0

Outfall No.: 002

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Stormwater	Intermittent and flow variable	100

Outfall No.: 003

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Stormwater	Intermittent and flow variable	100

Outfall No.: 004

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Stormwater	Intermittent and flow variable	
Utility wastewater	Intermittent and flow variable	

Outfall No.: 005

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Stormwater	Intermittent and flow variable	
Utility wastewater	Intermittent and flow variable	

Outfall No.: 007

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Stormwater	Intermittent and flow variable	
Utility wastewater	Intermittent and flow variable	

Outfall No.: 008

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Stormwater	Intermittent and flow variable	100

Outfall No.: 009

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Stormwater	Intermittent and flow variable	95
Hydrostatic test water	Intermittent and flow variable	5

Outfall No.: 010

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Stormwater	Intermittent and flow variable	95
Hydrostatic test water	Intermittent and flow variable	5

Outfall No.: 011

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Stormwater	Intermittent and flow variable	95
Hydrostatic test water	Intermittent and flow variable	5

Outfall No.: 012

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Stormwater	Intermittent and flow variable	95
Hydrostatic test water	Intermittent and flow variable	5

Outfall No.: 013

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Stormwater	Intermittent and flow variable	95
Hydrostatic test water	Intermittent and flow variable	5

Outfall No.: 014

Contributing Wastestreams	Volume (MGD)	% of Total Flow
Stormwater	Intermittent and flow variable	100

Attachment TR-7
Safety Data Sheets
TPDES Permit No. WQ0003927000
Technical Report 1.0, Item 5.d

Chemical Additives *

Product Name	Manufacturer	Hazardous Ingredients		Use
		Chemical Name	CAS #	
Cotrol IS105	SUEZ WTS USA	Sodium Bisulphate	7631-90-5	Boiler feedwater oxygen scavenger
COTROL IS3000	GE BETZ	Sodium Bisulphate	7631-90-5	Water based dissolved oxygen scavenger
Flowguard Ms622	SUEZ WTS USA	Phosphoric Acid	7664-38-2	Water-based corrosion inhibitor
Flowguard Ms6207	SUEZ WTS USA	Zinc Sulphate	7733-02-0	Water-based corrosion inhibitor
Genguard 7004	GE BETZ			Dispersant
Genguard 8020	SUEZ WTS USA	Maleic Acid	110-16-7	Deposit control agent
Inhibitor AZ8104	GE BETZ	Carboxylic Acid Polymer	TSRN 125438 - 5052P	
		Chlorotolyltriazole sodium salt	202430-04-0	
		Dichlorotolyltriazole	NA	
		Sodium Chloride	7647-14-5	
		Sodium 4(or 5)-methyl-1H-benzotriazole	64665-57-2	
Optisperse ADJ5019	SUEZ WTS USA	Sodium Hydroxide	1310-73-2	Water-based corrosion inhibitor
		Oxirane, methyl-, polymer with oxirane, monobutyl ether	9038-95-3	Internal boiler water treatment
Optisperse ADJ575	GE BETZ			
Solus AP24	GE BETZ			Internal boiler water treatment
Spectrus BD1501	GE BETZ	Nonylphenoxypoly (Ethyleneoxy) Ethanol	9016-45-9	Water-based deposit control agent
Spectrus BD1501E	SUEZ WTS USA	Alcohols, C10, alkoxylated	166736-08-9	Biodispersant
Spectrus NX1100	GE BETZ	2-Bromo-2-nitropropane-1,3-diol (Bronopol)	52-51-7	Biocide
		Magnesium nitrate	10377-60-3	
		Magnesium Chloride	7786-30-3	
		Sulphuric acid	7664-93-9	
		Mixture of: 5-chloro-2-methyl-4-isothiazolin-3-one and 2-methyl-4-isothiazoline-3-one	55965-84-9	
Spectrus NX1102	SUEZ WTS USA	2,2-dibromo-3-nitrilopropionamide	10222-01-2	Solvent-based microbial control agent
		Sodium Bromide	7647-15-6	
Spectrus NX1104	GE BETZ	Alkyl (C12-C16) Dimethylbenzylammonium Chloride	68424-85-1	Water-based microbial control agent
		Dodecylguanidine Hydrochloride (DGH)	13590-97-1	
		2-Propanol	67-63	
		Ethanol	64-17-5	
Steamate LSA1793	SUEZ WTS USA	Dimethylaminoethanol (DMAE)	108-01-0	Steam condensate agent
		Cyclohexylamine	108-91-8	
		Alkyl diaminopropane	7173-62-8	
Steamate NA0660	GE BETZ	Methoxypropylamine	5332-73-0	Neutralizing Amine
		Cyclohexylamine	108-91-8	

*Obtained from available MSDS information

James Miertschin & Associates, Inc.



SAFETY DATA SHEET

CORTROL* IS105

1. Identification

Product identifier	CORTROL IS105
Other means of identification	None.
Recommended use	Boiler feedwater oxygen scavenger
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	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.
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	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 Wash off with soap and water. Get medical attention if irritation develops and persists.

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 Do not feed anything by mouth to an unconscious or convulsive victim. Do NOT induce vomiting! Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed Irritation of eyes. Exposed individuals may experience eye tearing, redness, and discomfort. May cause respiratory 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 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. Keep people away from and upwind of spill/leak. Wear appropriate protective equipment and clothing during clean-up. Avoid breathing 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.

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.

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

7. Handling and storage

Precautions for safe handling 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. Protect from freezing.

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 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.

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 Pink

Physical state Liquid

Odor Strong

Odor threshold Not available.

pH (concentrated product) 6.2

Melting point/freezing point 25 °F (-4 °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 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	1.28
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	10 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Pour point	30 °F (-1 °C)
Specific gravity	1.281
VOC	0 % (Calculated)

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	Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Sulfur oxides. Oxides of phosphorus. Oxides of carbon 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	Prolonged or repeated contact may cause irritation.
Eye contact	Causes eye irritation.
Ingestion	May cause gastrointestinal irritation.

Symptoms related to the physical, chemical and toxicological characteristics	Irritation of eyes. Exposed individuals may experience eye tearing, redness, and discomfort. May cause respiratory irritation.
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Information on toxicological effects

Acute toxicity	May cause respiratory irritation.
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Product	Species	Test Results
CORTROL IS105 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
<i>Inhalation</i>		
LC50	Rat	> 5.5 mg/l, 4 Hours, (Calculated according to GHS additivity formula)
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)

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

ACGIH Carcinogens

Cobalt sulphate (CAS 10124-43-3) A3 Confirmed animal carcinogen with unknown relevance to humans.

Sodium bisulphite (CAS 7631-90-5) A4 Not classifiable as a human carcinogen.

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 1910.1001-1052)

Not regulated.

US. National Toxicology Program (NTP) Report on Carcinogens

Cobalt sulphate (CAS 10124-43-3) Reasonably Anticipated to be a Human Carcinogen.

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
CORTROL IS105 (CAS Mixture)			
Aquatic			
Crustacea	0% Mortality	Daphnia magna	62.5 mg/L, Static Renewal Bioassay, 48 hour
	LC50	Daphnia magna	354 mg/L, Static Renewal Bioassay, 48 hour
Fish	LC50	Fathead Minnow	379 mg/L, Static Renewal Bioassay, 96 hour
	NOEL	Fathead Minnow	250 mg/L, Static Renewal Bioassay, 96 hour

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects Not available.

Persistence and degradability

- COD (mgO2/g) 41 (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	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN3082
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (SODIUM BISULFITE), RQ(SODIUM BISULFITE, NICKEL SULFATE)
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Packing group	III
Special precautions for user	Not available.
ERG number	171
Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.	

IATA

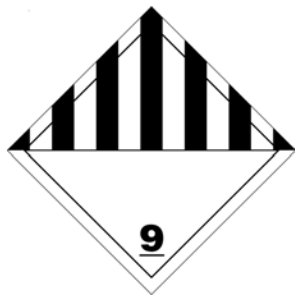
Not regulated as dangerous goods.

IMDG

UN number	UN3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (SODIUM BISULFITE), RQ(SODIUM BISULFITE)
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	F-A, S-F
Special precautions for user	Not available.

DOT





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)

Cobalt sulphate (CAS 10124-43-3)

Listed.

Sodium bisulphite (CAS 7631-90-5)

Listed.

SARA 304 Emergency release notification

Not regulated.

OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical

Yes

Classified hazard categories

Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

SARA 313 (TRI reporting)

Not regulated.

Other federal regulations

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

Cobalt sulphate (CAS 10124-43-3)

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).

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 No. – 157179

G5 Cooling and retort water treatment products

G6 Boiler treatment products, steam line products – food contact

US state regulations

US. California Proposition 65

WARNING: This product can expose you to Cobalt sulphate, which is known to the State of California to cause cancer. For more information go to www.P65Warnings.ca.gov.

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

Cobalt sulphate (CAS 10124-43-3)

Listed: May 20, 2005

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-03-2014

Revision date Apr-24-2019

Version # 5.0

NFPA ratings Health: 2
Flammability: 0
Instability: 0

NFPA ratings



List of abbreviations

CAS: Chemical Abstract Service Registration Number
TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.
ACGIH: American Conference of Governmental Industrial Hygienists
NOEL: No Observed Effect Level
STEL: Short Term Exposure Limit
LC50: Lethal Concentration, 50%
LD50: Lethal Dose, 50%
TWA: Time Weighted Average
BOD: Biochemical Oxygen Demand
COD: Chemical 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: Response
Composition/information on ingredients: Component information
Exposure controls/personal protection: Eye/face protection
Stability and reactivity: Hazardous decomposition products
Toxicological information: Ingestion
Toxicological information: Skin contact
Regulatory information: California Prop 65

Prepared by This SDS has been prepared by SUEZ Regulatory Department (1-215-355-3300).

* Trademark of SUEZ. May be registered in one or more countries.



Material Safety Data Sheet

Issue Date: 07-DEC-2012
Supersedes: 15-SEP-2011

CORTROL IS3000

1 Identification

Identification of substance or preparation

CORTROL IS3000

Product Application Area

Water based dissolved oxygen scavenger.

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: 07-DEC-2012

2 Hazard(s) identification

EMERGENCY OVERVIEW

WARNING

May cause slight irritation to the skin. Skin sensitizer. Severe irritant to the eyes. May cause irritation to mucous membranes. Repeated exposure may result in respiratory sensitization.

DOT hazard: Environmentally hazardous substance: RQ
Odor: Strong; Appearance: Pink, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media: dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; May cause slight irritation to the skin. Skin sensitizer.

ACUTE EYE EFFECTS:

Severe irritant to the eyes.

ACUTE RESPIRATORY EFFECTS:

May cause irritation to mucous membranes. Repeated exposure may

result in respiratory sensitization.

INGESTION EFFECTS:

May cause gastrointestinal irritation. Very large doses may cause diarrhea, depression, colic and death. May also cause severe allergic reactions in sensitive individuals.

TARGET ORGANS:

Prolonged or repeated exposures may cause primary irritant dermatitis, skin sensitization, and/or allergic respiratory reactions.

MEDICAL CONDITIONS AGGRAVATED:

Asthma.

SYMPTOMS OF EXPOSURE:

May cause local irritation or a sensitization reaction upon direct contact with skin or respiratory tract.

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%)
7631-90-5	SODIUM BISULFITE IARC=3 (carcinogen status not classifiable)	30-60

4 First-aid measures

SKIN CONTACT:

Wash thoroughly with soap and water. Remove contaminated clothing. Thoroughly wash clothing before reuse. Get medical attention if irritation develops or persists.

EYE CONTACT:

Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get immediate medical attention.

INHALATION:

Remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get immediate 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:

No special instructions

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, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

elemental oxides

FLASH POINT:

> 200F > 93C P-M(CC)

MISCELLANEOUS:

Environmentally hazardous substance: RQ
UN3082;Emergency Response Guide #171

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:

Vent carefully before opening. Sulfur dioxide can be formed during the normal use and handling of this product.

STORAGE:

Keep containers closed when not in use. Protect from freezing. If frozen, thaw and mix completely prior to use. Shelf life 180 days.

8 Exposure controls / personal protection

EXPOSURE LIMITS**CHEMICAL NAME****SODIUM BISULFITE**

PEL (OSHA): LIMITS HAVE NOT BEEN ESTABLISHED BY US OSHA.

TLV (ACGIH): TWA = 5 MG/M3; A4

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 a respirator with acid gas cartridges and dust/mist prefilters.

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)	1.261	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	18	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-8		
Viscosity(cps 70F,21C)	7	% Solubility (water)	100.0

Odor	Strong
Appearance	Pink
Physical State	Liquid
Flash Point	P-M(CC) > 200F > 93C
pH As Is (approx.)	3.2
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:

No known hazardous reactions.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

elemental oxides

11 Toxicological information

Oral LD50 RAT: 3030 mg/kg
 NOTE - Calculated according to GHS additivity formula (Category 5)
 Skin Irritation Score RABBIT: 0-2.95
 NOTE - Repeated studies indicate little or no irritation; not DOT corrosive
 Eye Irritation Score RABBIT: 2.0
 NOTE - Maximum score at 1 hour; completely reversible by 48 hours

12 Ecological information

AQUATIC TOXICOLOGY

Daphnia magna 48 Hour Acute Toxicity (Estimated)
 LC50= 204; No Effect Level= 150 mg/L
 Daphnia magna 48 Hour Static Screen
 100% Mortality= 500; 0% Mortality= 100 mg/L
 Fathead Minnow 96 Hour Acute Toxicity (Estimated)

LC50= 210; No Effect Level= 150 mg/L
Rainbow Trout 48 Hour Static Screen
100% Mortality= 1000; 0% Mortality= 500 mg/L

BIODEGRADATION

No Data Available.

13 Disposal considerations

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

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: Environmentally hazardous substance: RQ
DOT: ENVIRONMENTALLY HAZARDOUS SUBSTANCES, LIQUID, N.O.S.(SODIUM BISULFITE SOLUTION)
9, UN3082, PG III, RQ
DOT EMERGENCY RESPONSE GUIDE #: 171
Note: Some containers may be DOT exempt, please check BOL for exact container classification
IATA: Not Regulated

IMDG: Not Regulated

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):

1,443 gallons due to SODIUM BISULFITE;

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: 141465

Category Code(s):

- G8 Cooling and retort water treatment products - all food processing areas except meat and poultry
- G9 Boiler treatment products - all food processing areas except meat and poultry/food contact

SARA SECTION 312 HAZARD CLASS:

Immediate(acute);Delayed(Chronic)

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	2	Moderate Hazard
Fire	0	Minimal Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(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:	28-JAN-1997		** NEW **
	18-MAR-1997	15	28-JAN-1997
	25-SEP-1997	15	18-MAR-1997
	15-JUN-2000	4	25-SEP-1997
	22-JUN-2004	16	15-JUN-2000
	16-JUN-2006	7, 16	22-JUN-2004
	13-JUN-2008	2, 5, 14	16-JUN-2006
	17-JUN-2009	10, 15	13-JUN-2008
	19-JUN-2009	8	17-JUN-2009
	15-SEP-2011	11	19-JUN-2009
	07-DEC-2012	12	15-SEP-2011



SAFETY DATA SHEET

FLOGARD* MS6222

1. Identification

Product identifier	FLOGARD MS6222
Other means of identification	None.
Recommended use	Water-based corrosion inhibitor
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	Corrosive to metals	Category 1
Health hazards	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 May be corrosive to metals. Causes severe skin burns and eye damage. Causes serious eye damage. May cause respiratory irritation. May cause damage to organs.

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. 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. 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

Components	CAS #	Percent
Phosphoric Acid	7664-38-2	60 - 80

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. 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.

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 Self-contained breathing apparatus and full protective clothing must be worn in case of fire.

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. 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.

7. Handling and storage

Precautions for safe handling

Acidic. Do not mix with alkaline material. Do not breathe mist or vapor. Do not get in eyes, on skin, or on clothing. Avoid prolonged exposure. When using, do not eat, drink or smoke. 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

Do not freeze. If frozen, thaw completely and mix thoroughly prior to use. Contact with metals may release flammable hydrogen gas. 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

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

Components	Type	Value
Phosphoric Acid (CAS 7664-38-2)	PEL	1 mg/m3

US. ACGIH Threshold Limit Values

Components	Type	Value
Phosphoric Acid (CAS 7664-38-2)	STEL	3 mg/m3
	TWA	1 mg/m3

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Phosphoric Acid (CAS 7664-38-2)	STEL	3 mg/m3
	TWA	1 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

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

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. 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. Not applicable.

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

Mild

pH (concentrated product)

< 1 Neat

pH in aqueous solution

1.2 (5% Solution)

Initial boiling point and boiling range

Not available.

Flash point

> 199 °F (> 93 °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	15 mmHg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	> 1
Relative density	1.58
Relative density temperature	70 °F (21 °C)
Solubility(ies)	
Solubility (water)	100 %
Viscosity	44 mPa.s
Viscosity temperature	70 °F (21 °C)
Other information	
Percent volatile	25
Pour point	< -25 °F (< -32 °C)
Specific gravity	1.579
VOC	0 % ESTIMATED

10. Stability and reactivity

Reactivity	May be corrosive to metals. 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. Contact with water reactive compounds may cause fire or explosion.
Conditions to avoid	Protect from freezing. Contact with metals may release flammable hydrogen gas.
Incompatible materials	Strong oxidizing agents. Metals. Avoid contact with strong bases.
Hazardous decomposition products	Oxides of carbon and phosphorus evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	May cause damage to organs by inhalation. May cause irritation to the respiratory system. Prolonged inhalation may be harmful.
Skin contact	Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns.

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

Acute toxicity	May cause respiratory irritation.
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Product	Species	Test Results
FLOGARD MS6222 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	3650 mg/kg, (Calculated according to GHS additivity formula)
<i>Oral</i>		
LD50	Rat	400 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
Phosphoric Acid (CAS 7664-38-2)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	2740 mg/kg
<i>Oral</i>		
LD50	Rat	300 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.

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 damage to organs. May cause respiratory irritation.

Specific target organ toxicity - repeated exposure Not available.

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

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
FLOGARD MS6222 (CAS Mixture)		
IC25	Ceriodaphnia	416.7 mg/l, Chronic Bioassay, 7 day, (pH adjusted)
	LC50	1387 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)
	Fathead Minnow	4200 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)
	NOEL	625 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)
		125 mg/l, Chronic Bioassay, 7 day, (pH adjusted)
	Fathead Minnow	2100 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)
Aquatic		
Crustacea	LC50	3540 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)
	NOEL	2100 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)

Product	Species	Test Results
Fish	LC50	Rainbow Trout
		7382 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)
	NOEL	Rainbow Trout
		5000 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)
Bioaccumulative potential	No information 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	Product contains only inorganics that are not subject to typical biological degradation. Assimilation by microbes may occur in waste treatment or the environment. This product, being inorganic, has no TOC, BOD.	

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). Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT

UN number	UN1805
UN proper shipping name	Phosphoric acid solution, RQ(Phosphoric acid)
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	UN1805
UN proper shipping name	PHOSPHORIC ACID, SOLUTION
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	UN1805
UN proper shipping name	PHOSPHORIC ACID SOLUTION, RQ(Phosphoric acid)
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.

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

Not regulated.

CERCLA Hazardous Substance List (40 CFR 302.4)

Phosphoric Acid (CAS 7664-38-2)

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.

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).

US state regulations

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.

US - Massachusetts RTK - Substance List

Phosphoric Acid (CAS 7664-38-2)

US - Pennsylvania RTK - Hazardous Substances

Phosphoric Acid (CAS 7664-38-2) Listed.

US - Rhode Island RTK

Phosphoric Acid (CAS 7664-38-2)

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

Phosphoric Acid (CAS 7664-38-2) Listed.

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.

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

Issue date Jun-15-2015

Revision date Dec-20-2017

Version # 2.4

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
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods Code
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 in the sheet was written based on the best knowledge and experience currently available. 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

Prepared by This SDS has been prepared by SUEZ Regulatory Department (1-215-355-3300).

* Trademark of SUEZ. May be registered in one or more countries.



SAFETY DATA SHEET

FLOGARD* MS6207

1. Identification

Product identifier FLOGARD MS6207
Other means of identification None.
Recommended use Water-based corrosion inhibitor
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 Serious eye damage/eye irritation Category 1
Germ cell mutagenicity Category 2
OSHA defined hazards Not classified.

Label elements



Signal word Danger

Hazard statement Causes serious eye damage. Suspected of causing genetic defects.

Precautionary statement

Prevention Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Wear eye protection/face protection.
Response 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.
Storage Store locked up.
Disposal Dispose of contents/container in accordance with local/regional/national/international regulations.

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

Supplemental information None.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
Zinc sulphate	7733-02-0	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	Move to fresh air. Call a physician if symptoms develop or persist.
Skin contact	Wash off with soap and water. Get medical attention if irritation develops and persists.
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 immediately.
Ingestion	Do not feed anything by mouth to an unconscious or convulsive victim. Do NOT induce vomiting! Rinse mouth. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Severe eye irritation. 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. 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 (CO ₂).
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. 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. Stop the flow of material, if this is without risk. Following product recovery, flush area with water.
Environmental precautions	Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground.

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 get this material in contact with eyes. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices. Avoid prolonged exposure. Should be handled in closed systems, if possible.
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). Do not freeze.

8. Exposure controls/personal protection

Biological limit values	No biological exposure limits noted for the ingredient(s).
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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. Adequate ventilation to maintain air contaminants below exposure limits.
Individual protection measures, such as personal protective equipment	
Eye/face protection	Splash proof chemical 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. Glove selection must take into account any solvents and other hazards present.
Other	Wear suitable protective clothing. Use of an impervious apron is recommended. Wash off after each use. Replace as necessary.
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. 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	None
Odor threshold	Not available.
pH (concentrated product)	3.9
pH in aqueous solution	4.9 (5% SOL.)
Melting point/freezing point	28 °F (-2 °C)
Initial boiling point and boiling range	220 °F (104 °C)
Flash point	> 200 °F (> 93 °C) P-M(CC)
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	1.38
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	24 cps

Viscosity temperature	70 °F (21 °C)
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Pour point	33 °F (1 °C)
Specific gravity	1.381
VOC	0 % (Calculated)

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	Avoid temperatures exceeding the flash point. Contact with incompatible materials.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Sulfur oxides.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Mists/aerosols may cause irritation to upper respiratory tract.
Skin contact	Prolonged or repeated contact may cause irritation.
Eye contact	Causes serious eye damage.
Ingestion	May cause slight gastrointestinal irritation with possible nausea, vomiting, abdominal discomfort and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics	Severe eye irritation. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.
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Information on toxicological effects

Acute toxicity

Product	Species	Test Results
FLOGARD MS6207 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
Zinc sulphate (CAS 7733-02-0)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg
<i>Oral</i>		
LD50	Rat	1710 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	This product is not expected to cause respiratory sensitization.
Skin sensitization	This product is not expected to cause skin sensitization.

Germ cell mutagenicity	Suspected of causing genetic defects.
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Material name: FLOGARD* MS6207

Version number: 2.1

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 Not classified.

Specific target organ toxicity - repeated exposure Not classified.

Aspiration hazard Not available.

Chronic effects Prolonged inhalation may be harmful.

12. Ecological information

Ecotoxicity

Product		Species	Test Results	
FLOGARD MS6207 (CAS Mixture)				
Aquatic	LC50	Ceriodaphnia	0.64 mg/L, Static Renewal Bioassay, 48 hour	
		Fathead Minnow	10.6 mg/L, Static Renewal Bioassay, 96 hour	
	NOEL	Ceriodaphnia	0.18 mg/L, Static Renewal Bioassay, 48 hour	
		Fathead Minnow	3.9 mg/L, Static Renewal Bioassay, 96 hour	
	Crustacea	LC50	Daphnia magna	10.6 mg/L, Static Renewal Bioassay, 48 hour
		NOEL	Daphnia magna	0.94 mg/L, Static Renewal Bioassay, 48 hour
	Fish	LC50	Rainbow Trout	11.6 mg/L, Static Acute Bioassay, 96 hour
		NOEL	Rainbow Trout	4.2 mg/L, Static Acute Bioassay, 96 hour

Bioaccumulative potential

Mobility in soil No data available.

Other adverse effects Not available.

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 D006: Waste Cadmium
D008: Waste Lead
The waste code should be assigned in discussion between the user, the producer and the waste disposal company.

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

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

14. Transport information

DOT

UN number	UN3082
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (ZINC SULFATE), RQ(ZINC SULFATE)
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

UN number	UN3082
UN proper shipping name	Environmentally hazardous substance, liquid, n.o.s. (ZINC SULFATE)
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Packing group	III
Environmental hazards	Yes
ERG Code	171
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

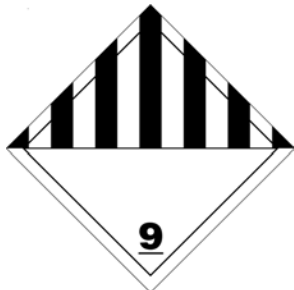
IMDG

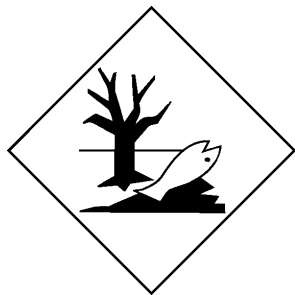
UN number	UN3082
UN proper shipping name	ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. (ZINC SULFATE), RQ(ZINC SULFATE), MARINE POLLUTANT
Transport hazard class(es)	
Class	9
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	Yes
EmS	F-A, S-F
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.

DOT



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)

Zinc sulphate (CAS 7733-02-0) 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 - 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.
Zinc sulphate	7733-02-0	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).

Food and drug administration 21 CFR 176.170 (components of paper and paperboard in contact with aqueous and fatty foods)

US state regulations

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

Cadmium (CAS 7440-43-9) Listed: October 1, 1987
LEAD (CAS 7439-92-1) Listed: October 1, 1992

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

Cadmium (CAS 7440-43-9) Listed: May 1, 1997
LEAD (CAS 7439-92-1) Listed: February 27, 1987

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
Cadmium (CAS 7440-43-9) Listed: May 1, 1997
LEAD (CAS 7439-92-1) Listed: February 27, 1987

US - Massachusetts RTK - Substance List
Zinc sulphate (CAS 7733-02-0)
US - Pennsylvania RTK - Hazardous Substances
Zinc sulphate (CAS 7733-02-0) Listed.

US - Rhode Island RTK
Not regulated.
US. New Jersey Worker and Community Right-to-Know Act
Zinc sulphate (CAS 7733-02-0) Listed.
US. Pennsylvania Worker and Community Right-to-Know Law
Zinc sulphate (CAS 7733-02-0) 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.

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

Issue date Dec-02-2014
Revision date Dec-16-2017
Version # 2.1
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
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 SUEZ Regulatory Department (1-215-355-3300).

* Trademark of SUEZ. May be registered in one or more countries.



Material Safety Data Sheet

Issue Date: 03-APR-2013
Supersedes: 26-SEP-2012

GENGARD GN7004

1 Identification

Identification of substance or preparation

GENGARD GN7004

Product Application Area

Dispersant.

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: 03-APR-2013

2 Hazard(s) identification

EMERGENCY OVERVIEW

CAUTION

May cause slight irritation to the skin. May cause slight irritation to the eyes. Not expected to cause respiratory tract irritation.

DOT hazard is not applicable
Odor: Mild; Appearance: Amber, Liquid

Fire fighters should wear positive pressure self-contained breathing apparatus(full face-piece type). Proper fire-extinguishing media:
dry chemical, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; May cause slight irritation to the skin.

ACUTE EYE EFFECTS:

May cause slight irritation to the eyes.

ACUTE RESPIRATORY EFFECTS:

Not expected to cause respiratory tract irritation.

INGESTION EFFECTS:

May cause gastrointestinal irritation with possible nausea, vomiting, abdominal discomfort and diarrhea.

TARGET ORGANS:

Repeated skin contact may cause sensitization.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

May cause redness or itching of skin.

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:

This product is not hazardous as defined by OSHA regulations.

No component is considered to be a carcinogen by the National Toxicology Program, the International Agency for Research on Cancer, or the Occupational Safety and Health Administration at OSHA thresholds for carcinogens.

4 First-aid measures

SKIN CONTACT:

Wash thoroughly with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists.

EYE CONTACT:

Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. Get medical attention if irritation persists after flushing.

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:

No special instructions

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, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

oxides of carbon

FLASH POINT:

> 213F > 101C P-M(CC)

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:

Normal chemical handling.

STORAGE:

Keep containers closed when not in use. Store in cool ventilated location. Store away from oxidizers. Shelf life 360 days.

8 Exposure controls / personal protection

EXPOSURE LIMITS

This product is not hazardous as defined by OSHA regulations.

ENGINEERING CONTROLS:

adequate ventilation

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:

rubber, butyl, viton or neoprene gloves -- Wash off after each use. Replace as necessary.

EYE PROTECTION:

splash proof chemical goggles

9 Physical and chemical properties

Spec. Grav.(70F,21C)	1.134	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	25	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-4		
Viscosity(cps 70F,21C)	44	% Solubility (water)	100.0

Odor	Mild
Appearance	Amber
Physical State	Liquid
Flash Point	P-M(CC) > 213F > 101C
pH As Is (approx.)	5.0
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:

Contact with water reactive compounds may cause fire or explosion.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

oxides of carbon

11 Toxicological information

Oral LD50 RAT:	>5000 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

Ceriodaphnia 48 Hour Static Acute Bioassay
LC50= 1707.6; No Effect Level= 1250 mg/L
Ceriodaphnia 7 Day Chronic Bioassay
Reproduction NOEL= 500; Reproduction LOEC= 1000 mg/L
Daphnia magna 48 Hour Static Acute Bioassay
LC50= 3677; No Effect Level= 2500 mg/L
Fathead Minnow 7 Day Chronic Bioassay
Growth NOEL= 1000; Growth LOEL= 2000 mg/L
Fathead Minnow 96 Hour Static Acute Bioassay
LC50= 2367; No Effect Level= 1250 mg/L
Rainbow Trout 96 Hour Static Acute Bioassay
LC50= 1894; No Effect Level= 1250 mg/L

BIODEGRADATION

BOD-28 (mg/g): 24
BOD-5 (mg/g): 0
COD (mg/g): 385
TOC (mg/g): 109

13 Disposal considerations

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

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: Not Applicable
DOT: Not Regulated

DOT EMERGENCY RESPONSE GUIDE #: Not applicable
Note: Some containers may be DOT exempt, please check BOL for exact container classification
IATA: Not Regulated

IMDG: Not Regulated

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):

No regulated constituent present at OSHA thresholds

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

Registration number: 141931

Category Code(s):

G5 Cooling and retort water treatment products - all food processing areas

G7 Boiler treatment products - all food processing areas/nonfood contact

SARA SECTION 312 HAZARD CLASS:

Delayed(Chronic)

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):

This product contains one or more ingredients at trace levels known to the state of California to cause cancer.

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 Other information

HMIS VII

CODE TRANSLATION

Health	1	Slight Hazard
Fire	1	Slight Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	B	Goggles,Gloves

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

	EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
	-----	-----	-----
MSDS status:	20-APR-2007		** NEW **
	06-JUN-2007	8,15	20-APR-2007
	09-NOV-2007	2,3,4,7,8	06-JUN-2007
	28-APR-2008	12	09-NOV-2007
	20-JAN-2009	12	28-APR-2008
	05-JUN-2009	12	20-JAN-2009
	15-JUN-2009	10,15	05-JUN-2009
	01-FEB-2011	8	15-JUN-2009
	01-APR-2011	10,11	01-FEB-2011
	09-JUN-2011	3,8	01-APR-2011
	30-MAR-2012	2,4,16	09-JUN-2011
	26-SEP-2012	12	30-MAR-2012
	03-APR-2013	12	26-SEP-2012



SAFETY DATA SHEET

GENGARD* GN8020

1. Identification

Product identifier	GENGARD GN8020
Other means of identification	None.
Recommended use	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
	Sensitization, skin	Category 1A
OSHA defined hazards	Not classified.	

Label elements



Signal word	Warning
Hazard statement	Causes skin irritation. Causes serious eye irritation. May cause an allergic skin reaction.
Precautionary statement	
Prevention	Avoid breathing mist/vapor. Wash thoroughly after handling. Contaminated work clothing should not be allowed out of the workplace. Wear eye protection/face protection. Wear protective gloves.
Response	If skin irritation or rash occurs: Get medical advice/attention. If eye irritation persists: Get medical advice/attention. Take off contaminated clothing and wash before reuse. If on skin: Wash with plenty of water. If in eyes: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.
Storage	Store away from incompatible materials.
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
Maleic acid	110-16-7	0.1 - 1
CARBOXYLIC ACID POLYMER	TSRN 125438 - 5052P	

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. Wash contaminated clothing before reuse.

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

Ingestion Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed Severe eye irritation. Skin irritation. May cause an allergic skin reaction. Dermatitis. Rash.

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. Carbon dioxide (CO₂). Dry chemical powder.

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. Move containers from fire area if you can do so without risk. Cool containers / tanks with water spray. Use standard firefighting procedures and consider the hazards of other involved materials.

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. Keep people away from and upwind of spill/leak. Do not touch damaged containers or spilled material unless wearing appropriate protective clothing. Avoid contact with spilled material. Ensure adequate ventilation. Avoid breathing mist/vapor. For personal protection, see section 8 of the SDS.

Methods and materials for containment and cleaning up Small Spills: Place in waste disposal container. Wet area may be slippery. Spread sand/grit. Following product recovery, flush area with water. Wipe up with absorbent material (e.g. cloth, fleece). Clean surface thoroughly to remove residual contamination.

Large Spills: Cover with plastic sheet to prevent spreading. Stop the flow of material, if this is without risk. Dike the spilled material, where this is possible. Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. Ventilate the area.

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 Observe good industrial hygiene practices. Do not get in eyes, on skin, on clothing. Provide adequate ventilation. Wear appropriate personal protective equipment. Avoid contact with eyes, skin, and clothing. Wash hands thoroughly after handling.

Conditions for safe storage, including any incompatibilities

Store in tightly closed container. Store away from incompatible materials (see Section 10 of the SDS). Store in cool, well ventilated area. Store containers closed when not in use. Avoid high temperatures. Protect from freezing. If frozen, thaw completely and mix thoroughly prior to use.

8. Exposure controls/personal protection

Biological limit values

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

Appropriate engineering controls

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

Individual protection measures, such as personal protective equipment

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. 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. Wash off after each use. Replace as necessary.

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. Contaminated work clothing should not be allowed out of the workplace.

9. Physical and chemical properties

Appearance

Color

Amber to brown

Physical state

Liquid

Odor

Slight sweet

Odor threshold

Not available.

pH (concentrated product)

2.6

pH in aqueous solution

3 (5% SOL.)

Melting point/freezing point

27 °F (-3 °C)

Initial boiling point and boiling range

212 °F (100 °C)

Flash point

Not applicable.

Evaporation rate

< 1 (Water = 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

1.17

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	17 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Pour point	32 °F (0 °C)
Specific gravity	1.166
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. Keep away from heat, hot surfaces, sparks, open flames and other ignition sources.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Oxides of carbon, nitrogen, and sulphur evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Prolonged inhalation may be harmful.
Skin contact	Causes skin irritation. May cause an allergic skin reaction.
Eye contact	Causes serious eye irritation.
Ingestion	Ingestion of large amounts may produce gastrointestinal disturbances including irritation, nausea, and diarrhea.

Symptoms related to the physical, chemical and toxicological characteristics	Severe eye irritation. Skin irritation. May cause redness and pain. May cause an allergic skin reaction. Dermatitis. Rash.
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Information on toxicological effects

Acute toxicity

Product	Species	Test Results
GENGARD GN8020 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)
Components	Species	Test Results
CARBOXYLIC ACID POLYMER (CAS TSNR 125438 - 5052P)		
Acute		
<i>Oral</i>		
LD50	Rat	4563 mg/kg

Components	Species	Test Results
Maleic acid (CAS 110-16-7)		
Acute		
Dermal		
LD50	Rabbit	1560 mg/kg
Inhalation		
LC50	Rat	> 2.88 mg/L, 4 Hour
Oral		
LD50	Rat	708 mg/kg
Skin corrosion/irritation	Causes skin irritation.	
Serious eye damage/eye irritation	Causes eye irritation.	
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.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Not listed.		
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)		
Not regulated.		
US. National Toxicology Program (NTP) Report on Carcinogens		
Not listed.		
Reproductive toxicity	Not classified.	
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.	

12. Ecological information

Ecotoxicity

Product		Species	Test Results
GENGARD GN8020 (CAS Mixture)			
	IC50	Selenastrum (algae)	3872 mg/l, Growth Inhibition, 96 hour, (pH adjusted)
	LC50	Fathead Minnow	5814 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)
	NOEL	Fathead Minnow	5000 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)
		Selenastrum (algae)	2000 mg/l, Growth Inhibition, 96 hour, (pH adjusted)
Aquatic			
Crustacea	LC50	Daphnia magna	3628 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)
	NOEL	Daphnia magna	1250 mg/l, Static Renewal Bioassay, 48 hour, (pH adjusted)
Fish	LC50	Rainbow Trout	7071 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)
	NOEL	Rainbow Trout	5000 mg/l, Static Renewal Bioassay, 96 hour, (pH adjusted)

Persistence and degradability Not available.

Bioaccumulative potential

Partition coefficient n-octanol / water (log Kow)		-0.48
Maleic acid		
Mobility in soil	No data available.	
Other adverse effects	Not available.	
Persistence and degradability		
- COD (mgO2/g)	359	
- BOD 5 (mgO2/g)	21	
- BOD 28 (mgO2/g)	3	
- Closed Bottle Test (%)	1 OECD 301D	
Degradation in 28 days)		
- TOC (mg C/g)	142 (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.	
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. 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. 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.
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)		
Maleic acid (CAS 110-16-7)	Listed.	
SARA 304 Emergency release notification		
Not regulated.		
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)		
Not regulated.		
Superfund Amendments and Reauthorization Act of 1986 (SARA)		
SARA 302 Extremely hazardous substance		
Not listed.		
SARA 311/312 Hazardous chemical	Yes	
Classified hazard categories	Skin corrosion or irritation Serious eye damage or eye irritation Respiratory or skin sensitization	
SARA 313 (TRI reporting)		
Not regulated.		

Other federal regulations

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

Acrylic acid (CAS 79-10-7)

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).

NSF Registered and/or meets

Registration No. – 144523

USDA (according to 1998

Category Code(s):

guidelines):

G5 Cooling and retort water treatment products

G7 Boiler, steam line treatment products – nonfood contact

US state regulations

US. California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

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 Sep-26-2014

Revision date Feb-19-2019

Version # 5.0

NFPA ratings Health: 2
Flammability: 0
Instability: 0

NFPA ratings



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:

No data available

Material name: GENGARD* GN8020

Version number: 5.0

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
Accidental release measures: Methods and materials for containment and cleaning up
Accidental release measures: Personal precautions, protective equipment and emergency procedures
Handling and storage: Conditions for safe storage, including any incompatibilities
Exposure controls/personal protection: Appropriate engineering controls
Physical & Chemical Properties: Multiple Properties
Stability and reactivity: Conditions to avoid
Regulatory information: California Prop 65
Other information, including date of preparation or last revision: Bibliography
HazReg Data: Europe - EU
GHS: Classification

Prepared by

This SDS has been prepared by SUEZ Regulatory Department (1-215-355-3300).

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SAFETY DATA SHEET

INHIBITOR AZ8104

1. Product and Company Identification

Material name	INHIBITOR AZ8104
Version #	2.0
Revision date	Jul-08-2014
Supersedes date	Jan-10-2013
Chemical description	Aqueous alkaline solution of organic heterocyclic compounds
CAS #	Mixture
Product application	Water-based corrosion inhibitor

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. Hazards Identification

Emergency overview	May cause moderate irritation to the skin. Severe irritant to the eyes. Mists/aerosols may cause irritation to upper respiratory tract.
Potential health effects	
Eyes	Severe irritant to the eyes.
Skin	Primary route of exposure May cause moderate irritation to the skin.
Inhalation	Mists/aerosols cause irritation to the upper respiratory tract
Ingestion	May cause gastrointestinal irritation with possible nausea, vomiting, abdominal discomfort and diarrhea.
Target organs	Prolonged or repeated exposures may cause primary irritant dermatitis.
Signs and symptoms	Causes irritation of the skin, eyes and/or respiratory system.

3. Composition / Information on Ingredients

Hazardous components	CAS #	Percent
Chlorotolyltriazole sodium salt	202420-04-0	10 - 20
DICHLOROTOLYLTRIAZOLE	NOT ASSIGNED	2.5 - 10
Sodium chloride	7647-14-5	2.5 - 10
Sodium 4(or 5)-methyl-1H-benzotriazolide	64665-57-2	1 - 2.5
Sodium hydroxide	1310-73-2	1 - 2.5
Non-hazardous components	CAS #	
Water	7732-18-5	

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 MSDS for our assessment of the potential hazards of this formulation.

4. First Aid Measures

First aid procedures

Eye contact

Immediately flush eyes with plenty of low-pressure water for at least 30 minutes while removing contact lenses. Keep eyelids apart. Seek medical attention.

Skin contact

Remove contaminated clothing.
Wash immediately with plenty of water.
Seek medical attention.
Thoroughly wash clothing before reuse. Wash thoroughly with soap and water.

Inhalation

Move to fresh air. For breathing difficulties, oxygen may be necessary. If breathing stops, provide artificial respiration. Call a physician or poison control center immediately.

Ingestion

Rinse mouth with water. Do not feed anything by mouth to an unconscious or convulsive victim. Do NOT induce vomiting! Immediately contact a physician. Dilute contents of stomach using 2-8 fluid ounces (60-240ml) of milk or water.

Notes to physician

No specific antidotes are recommended.

5. Fire Fighting Measures

Extinguishing media

Suitable extinguishing media

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

Unsuitable extinguishing media

None.

Protection of firefighters

Specific hazards arising from the chemical

Hydrogen chloride, oxides of carbon and nitrogen evolved in fire.

Protective equipment and precautions for firefighters

Fire fighters should wear positive pressure self-contained breathing apparatus.

Fire fighting equipment/instructions

Not available.

General fire hazards

Non flammable liquid

6. Accidental Release Measures

Personal precautions

See Section 8 of the MSDS for Personal Protective Equipment.

Environmental precautions

Prevent from entering sewers or the immediate environment.
Accidental release of large quantities into the aquatic environment may harm aquatic organisms.

Methods for 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.

7. Handling and Storage

Handling

Avoid contact with skin and eyes.
Alkaline.
Do not mix with acidic material.

Storage

Store containers closed when not in use. Store in a cool, well-ventilated area. Store away from oxidizers.

8. Exposure Controls / Personal Protection

Occupational exposure limits

US. ACGIH Threshold Limit Values		
Components	Type	Value
Sodium hydroxide (CAS 1310-73-2)	Ceiling	2 mg/m3
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

Biological limit values

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

Engineering controls

Provide adequate ventilation.

Personal protective equipment	
Eye / face protection	Splash proof chemical goggles. Face shield.
Skin protection	Impervious gloves. Chemical resistant apron.
Respiratory protection	If air-purifying respirator use is appropriate, use any of the following particulate respirators: N95, N99, N100, R95, R99, R100, P95, P99 or P100. 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.
General hygiene considerations	Wash hands after handling.

9. Physical & Chemical Properties

Appearance	
Physical state	Liquid
Color	Yellow to amber
Odor	Slight
Odor threshold	Not available.
pH (concentrated product)	12.7
pH in aqueous solution	11.6 (5% SOL.)
Vapor pressure	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Boiling point	210 °F (99 °C)
Melting point/Freezing point	12 °F (-11 °C)
Solubility (water)	100 %
Specific gravity (70°F, 21°C)	1.13
Flash point	Not applicable.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not available.
Evaporation rate	< 1 (Ether = 1)
Viscosity	13 cps
Viscosity temperature	70 °F (21 °C)
Percent volatile	0 (Estimated)
Pour point	17 °F (-8 °C)

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	No special requirement.
Incompatible materials	Avoid contact with strong acids and oxidisers.
Hazardous decomposition products	Hydrogen chloride, oxides of carbon and nitrogen evolved in fire.

11. Toxicological Information

Toxicological data		
Product	Species	Test Results
INHIBITOR AZ8104 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)

Product	Species	Test Results
<i>Oral</i> LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)
Components	Species	Test Results
Chlorotolyltriazole sodium salt (CAS 202420-04-0)		
Acute		
<i>Dermal</i> LD50	Rat	> 5000 mg/kg
<i>Oral</i> LD50	Rat	3100 mg/kg
DICHLOROTOLYLTRIAZOLE (CAS NOT ASSIGNED)		
Acute		
<i>Dermal</i> LD50	Rat	> 5000 mg/kg
<i>Oral</i> LD50	Rat	3100 mg/kg
Sodium 4(or 5)-methyl-1H-benzotriazolide (CAS 64665-57-2)		
Acute		
<i>Dermal</i> LD50	Rabbit	> 2000 mg/kg
<i>Oral</i> LD50	Rat	735 mg/kg
Sodium hydroxide (CAS 1310-73-2)		
Acute		
<i>Dermal</i> LD50	Rabbit	1350 mg/kg
<i>Oral</i> LD50	Rabbit	> 500 mg/kg
Chronic effects	Repeated skin contact may cause sensitization.	
Carcinogenicity	OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050) Not listed.	
Skin corrosion/irritation	Causes severe skin burns and eye damage.	

12. Ecological Information

Ecotoxicity

Product	Species	Test Results
INHIBITOR AZ8104 (CAS Mixture) LC50	Annelida(Lumbriculus variegatus)	138 mg/L, Static Acute Bioassay, 96 hour
	Benthic Crustacean(Gammarus pseudolimnaeus)	42.1 mg/L, Static Acute Bioassay, 96 hour
	Bluegill Sunfish	36.6 mg/L, Static Acute Bioassay, 96 hour
	Ceriodaphnia	124 mg/L, Static Renewal Bioassay, 48 hour
	Fathead Minnow	135 mg/L, Static Acute Bioassay, 96 hour, (pH adjusted) 50.7 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
	Freshwater Snail(Physa sp.)	47.4 mg/L, Static Acute Bioassay, 96 hour

Product		Species	Test Results
		Menidia beryllina (Silversides)	41 mg/L, Static Acute Bioassay, 96 hour
		Midge larvae (Chironomus tentans)	95.8 mg/L, Static Acute Bioassay, 96 hour
		Mysid Shrimp	53 mg/L, Static Acute Bioassay, 48 hour, (pH adjusted)
		Sheepshead Minnow	132 mg/L, Static Acute Bioassay, 96 hour, (pH adjusted)
		LOEL Ceriodaphnia	40 mg/L, Chronic Bioassay, 7 day
		Fathead Minnow	8.3 mg/L, Chronic Flow-Thru Bioassay, 28 day, (pH adjusted)
		NOEL Annelida(Lumbriculus variegatus)	62.5 mg/L, Static Acute Bioassay, 96 hour
		Benthic Crustacean(Gammarus pseudolimnaeus)	25 mg/L, Static Acute Bioassay, 96 hour
		Bluegill Sunfish	25 mg/L, Static Acute Bioassay, 96 hour
		Ceriodaphnia	75 mg/L, Static Renewal Bioassay, 48 hour
	Crustacea		20 mg/L, Chronic Bioassay, 7 day
		Fathead Minnow	21.8 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
			15 mg/L, Static Acute Bioassay, 96 hour, (pH adjusted)
			4.2 mg/L, Chronic Flow-Thru Bioassay, 28 day, (pH adjusted)
		Freshwater Snail(Physa sp.)	25 mg/L, Static Acute Bioassay, 96 hour
		Menidia beryllina (Silversides)	25 mg/L, Static Acute Bioassay, 96 hour
		Midge larvae (Chironomus tentans)	62.5 mg/L, Static Acute Bioassay, 96 hour
		Mysid Shrimp	25 mg/L, Static Acute Bioassay, 48 hour, (pH adjusted)
		Sheepshead Minnow	100 mg/L, Static Acute Bioassay, 96 hour, (pH adjusted)
		EC0 Daphnia magna	155 mg/L, Static Acute Bioassay, 48 hour, (pH adjusted)
		EC50 Daphnia magna	210 mg/L, Static Acute Bioassay, 48 hour, (pH adjusted)
			50 mg/L, Chronic Bioassay, 21 day, (pH adjusted)
		LC50 Daphnia magna	217 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
		NOEL Daphnia magna	148 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
			27 mg/L, Chronic Bioassay, 21 day, (pH adjusted)
	Other	LC50 Rainbow Trout	15.4 mg/L, Static Renewal Bioassay, 96 hour
		NOEL Rainbow Trout	6.3 mg/L, Static Renewal Bioassay, 96 hour
Components		Species	Test Results
Chlorotolyltriazole sodium salt (CAS 202420-04-0)			
Algae	EbC50	Algae	6.84 mg/l
	ErC50	Algae	18.6 mg/l

Persistence and degradability

Testing has shown product not to be readily biodegradable.

- COD (mgO ₂ /g)	300
- BOD 5 (mgO ₂ /g)	15
- BOD 28 (mgO ₂ /g)	15
- Closed Bottle Test (% Degradation in 28 days)	6
- Zahn-Wellens Test (% Degradation in 28 days)	0
- TOC (mg C/g)	100

13. Disposal Considerations

Disposal instructions

According to Hazardous Waste Regulations.

Via an authorized waste disposal contractor to an approved waste disposal site, observing all local and national regulations.

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.

Contaminated packaging

According to Hazardous Waste Regulations.

Via an authorized waste disposal contractor to an approved waste disposal site, observing all local and national regulations.

14. Transport Information

DOT

Not regulated as dangerous goods.

IATA

UN number	UN1824
UN proper shipping name	SODIUM HYDROXIDE SOLUTION
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	No.
ERG Code	154
Special precautions for user	Not available.

IMDG

UN number	UN1824
UN proper shipping name	SODIUM HYDROXIDE SOLUTION
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Environmental hazards	
Marine pollutant	No.
EmS	Not available.
Special precautions for user	Not available.

TDG

UN number	UN1824
UN proper shipping name	SODIUM HYDROXIDE SOLUTION
Hazard class	8
Packing group	III
ERG code	154

IATA; IMDG; TDG



15. Regulatory Information

US federal regulations

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

None listed.

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

Not regulated.

CERCLA (Superfund) reportable quantity, lbs

Sodium hydroxide: 1000 lbs

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 No

Clean Water Act (CWA) Hazardous substance

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).

NSF Registered and/or meets Registration No. – 141530
USDA (according to 1998 Category Code(s):
guidelines): G5 Cooling and retort water treatment products
G7 Boiler, steam line treatment products – nonfood contact

State regulations

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.

US - Massachusetts RTK - Substance List

Sodium hydroxide (CAS 1310-73-2)

US - New Jersey RTK - Substances: Listed substance

Sodium hydroxide (CAS 1310-73-2) Listed.

US - Pennsylvania RTK - Hazardous Substances

Sodium hydroxide (CAS 1310-73-2) Listed.

US - Rhode Island RTK

Sodium hydroxide (CAS 1310-73-2)

16. Other Information

List of abbreviations Not available.

HMIS® ratings
Health: 2
Flammability: 1
Physical hazard: 0
Personal protection: B

NFPA ratings

Health: 2
Flammability: 1
Instability: 0
Special hazards: ALK

**This data sheet contains changes
from the previous version in
section(s):**

Product and Company Identification: Product and Company Identification
Physical & Chemical Properties: Multiple Properties
Transport Information: Material Transportation Information
GHS: Classification



SAFETY DATA SHEET

OPTISPERSE* ADJ5019

1. Identification

Product identifier OPTISPERSE ADJ5019
Other means of identification None.
Recommended use Internal boiler water treatment
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 Acute toxicity, inhalation Category 4
OSHA defined hazards Not classified.

Label elements



Signal word Warning

Hazard statement Harmful if inhaled.

Precautionary statement

Prevention Avoid breathing mist. Use only outdoors or in a well-ventilated area.

Response If inhaled: Remove person to fresh air and keep comfortable for breathing. Call a poison center/doctor if you feel unwell.

Storage Store away from incompatible materials.

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
Oxirane, methyl-, polymer with oxirane, monobutyl ether	9038-95-3	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 physician if symptoms develop or persist.

Skin contact

Rinse skin with water/shower. Get medical attention if irritation develops and persists.

Eye contact

Rinse with water. Get medical attention if irritation develops and persists.

Ingestion

Rinse mouth. Get medical attention if symptoms occur.

Most important symptoms/effects, acute and delayed

Direct contact with eyes may cause temporary irritation.

Indication of immediate medical attention and special treatment needed

Provide general supportive measures and treat symptomatically. 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.

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. Wear appropriate protective equipment and clothing during clean-up. Avoid breathing mist. 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.

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

Environmental precautions

Never return spills to original containers for re-use. For waste disposal, see section 13 of the SDS. Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Avoid breathing mist. Avoid prolonged exposure. Use only outdoors or in a well-ventilated area. Wear appropriate personal protective equipment. Use care in handling/storage.

Conditions for safe storage, including any incompatibilities

Store in original tightly closed 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

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

If contact is likely, safety glasses with side shields are recommended.

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. Glove selection must take into account any solvents and other hazards present.
Other	Wear suitable protective clothing.
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. 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.
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
Physical state	Liquid
Odor	None
Odor threshold	Not available.
pH (concentrated product)	12.1
pH in aqueous solution	10.8 (5% SOL.)
Melting point/freezing point	32 °F (0 °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	18 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	< 1 (Air = 1)
Relative density	1.01
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	10 cps
Viscosity temperature	70 °F (21 °C)

Other information

Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Pour point	37 °F (3 °C)

Specific gravity	1.007
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. None under normal conditions.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	No hazardous decomposition products are known.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Harmful if inhaled.
Skin contact	No adverse effects due to skin contact are expected.
Eye contact	Direct contact with eyes may cause temporary irritation.
Ingestion	Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics	Direct contact with eyes may cause temporary irritation.
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Information on toxicological effects

Acute toxicity	Not known.
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Product	Species	Test Results
OPTISPERSE ADJ5019 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
<i>Inhalation</i>		
LC50	Rat	3 mg/l, 4 hours, (Calculated according to GHS additivity formula)
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)

Components	Species	Test Results
Oxirane, methyl-, polymer with oxirane, monobutyl ether (CAS 9038-95-3)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 20000 mg/kg
<i>Inhalation</i>		
LC50	Rat	146.8 mg/m3, 4 Hour
<i>Oral</i>		
LD50	Rat	48700 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	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.
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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 Not classified.

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
OPTISPERSE ADJ5019 (CAS Mixture)			
	LC50	Fathead Minnow	> 5000 mg/l, Acute Toxicity, 96 hour, (Estimated)
Aquatic			
Crustacea	EC50	Daphnia magna	> 5000 mg/l, Acute Toxicity, 48 hour, (Estimated)

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.

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 a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.

Refer to Section 2 for the revised SARA 311/312 hazard categories which align with OSHA HCS (2012)/GHS.

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).

NSF Registered and/or meets

Registration No. – 157799

USDA (according to 1998

G5 Cooling and retort water treatment products

guidelines):

G6 Boiler treatment products, steam line products – food contact

US state regulations

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

Ethylene oxide (oxirane) (CAS 75-21-8) Listed: July 1, 1987

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

Ethylene oxide (oxirane) (CAS 75-21-8) Listed: August 7, 2009

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

Ethylene oxide (oxirane) (CAS 75-21-8) Listed: February 27, 1987

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

Ethylene oxide (oxirane) (CAS 75-21-8) Listed: August 7, 2009

US - Massachusetts RTK - Substance List

Not regulated.

US - Pennsylvania RTK - Hazardous Substances

Not regulated.

US - Rhode Island RTK

Not regulated.

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.

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

Issue date Jul-17-2018

Revision date Aug-07-2018

Version # 2.0

List of abbreviations

ACGIH: American Conference of Governmental Industrial Hygienists
BOD: Biochemical Oxygen Demand
CAS: Chemical Abstract Service Registration Number
DOT: Department of Transportation (49 CFR 172.101).
GHS: Globally Harmonized System of Classification and Labeling of Chemicals.
IARC: International Agency for Research on Cancer.
IMDG: International Maritime Dangerous Goods Code
LC50: Lethal Concentration, 50%
LD50: Lethal Dose, 50%
NOEL: No Observed Effect Level
OSHA: Occupational Safety & Health Administration.
STEL: Short Term Exposure Limit
TDG: Transportation of Dangerous Goods Regulations, Canada
TOC: Total Organic Carbon
TWA: Time Weighted Average
WHMIS: Workplace Hazardous Materials Information System.

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 Product and Company Identification: Commercial Names

Prepared by This SDS has been prepared by SUEZ Regulatory Department (1-215-355-3300).

* Trademark of SUEZ. May be registered in one or more countries.



SAFETY DATA SHEET

OPTISPERSE* ADJ575

1. Product and Company Identification

Material name OPTISPERSE ADJ575
Version # 2.0
Revision date 03/01/2014
Supersedes date 18/08/2011
Chemical description Polyalkylene glycol based antifoam
CAS # Mixture

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. Hazards Identification

Emergency overview May cause slight irritation to the skin. Mists/aerosols may cause irritation to upper respiratory tract.
May cause moderate irritation to the eyes.

Potential health effects

Skin Primary route of exposure May cause slight irritation to the skin.

Inhalation Primary route of exposure Highly Toxic Vapor, aerosol, or mist, and thermal degradation products can be irritating and harmful if inhaled.

Ingestion May cause slight gastrointestinal irritation.

Signs and symptoms May cause nasal, respiratory and mucous membrane irritation, possibly leading to abdominal cramps, nausea and vomiting.
May cause redness or itching of skin.

Medical conditions aggravated by exposure None known.

3. Composition / Information on Ingredients

The manufacturer lists no ingredients as hazardous according to OSHA 29 CFR 1910.1200.

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 MSDS for our assessment of the potential hazards of this formulation.

4. First Aid Measures

First aid procedures

Eye contact Remove contact lenses. Keep eyelids apart.
Immediately flush eyes with plenty of low-pressure water for at least 15 minutes.
Seek medical attention.

Skin contact Wash thoroughly with soap and water. Remove contaminated clothing. If irritation persists, seek medical advice.

Inhalation	Remove victim to fresh air and allow to rest. Give oxygen if necessary. In case of loss of consciousness, give artificial respiration. Seek medical attention.
Ingestion	Rinse mouth with water. Do not feed anything by mouth to an unconscious or convulsive victim. Do NOT induce vomiting! Immediately contact a physician. If the victim is fully conscious dilute contents of stomach using 3-4 glasses of water.

5. Fire Fighting Measures

Extinguishing media

Suitable extinguishing media Carbon dioxide, dry chemicals, foam, water spray (fog).
Foam or water create a slippery condition.
Spread sand or grit.

Unsuitable extinguishing media None.

Protection of firefighters

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

Fire fighting equipment/instructions Fire fighters should wear positive pressure self-contained breathing apparatus (full face-piece type).

6. Accidental Release Measures

Personal precautions Wear protective clothing, gloves and safety goggles.

Methods for cleaning up Ventilate the area. Wear appropriate protective equipment and clothing during clean-up. Soak up with inert absorbent material. Place in waste disposal container. Flush area with water. Wet area may be slippery.

7. Handling and Storage

Handling Alkaline.
Do not mix with acidic material.
Do not breathe vapours.

Storage Store containers closed when not in use. Protect from freezing. If frozen, thaw completely and mix thoroughly prior to use.
Store away from acids.

8. Exposure Controls / Personal Protection

Engineering controls Adequate ventilation to maintain air contaminants below exposure limits.
Avoid producing or diffusing an aerosol into the air.

Personal protective equipment

Eye / face protection Splash proof chemical goggles.

Skin protection Rubber, butyl, viton or neoprene gloves. Wash off after each use. Replace as necessary.

Respiratory protection If air-purifying respirator use is appropriate, use any of the following particulate respirators: N95, N99, N100, R95, R99, R100, P95, P99 or P100.

General hygiene considerations Wash hands after handling.

9. Physical & Chemical Properties

Appearance

Physical state Liquid
Color Colorless to light yellow

Odor None

Odor threshold Not available.

pH (concentrated product) 12.8

pH in aqueous solution 10.8 (5% SOL.)

Vapor pressure 20 mm Hg

Vapor pressure temp. 70 °F (21 °C)

Vapor density	< 1 (Air = 1)
Boiling point	220 °F (104 °C)
Melting point/Freezing point	27 °F (-3 °C)
Solubility (water)	100 %
Specific gravity (70°F, 21°C)	1.039
Flash point	> 200 °F (> 93 °C) SETA(CC)
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not available.
Evaporation rate	< 1 (Ether = 1)
Viscosity	54 cps
Viscosity temperature	70 °F (21 °C)
Percent volatile	0 (Calculated)
Pour point	32 °F (0 °C)

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Protect from freezing.
Incompatible materials	Avoid contact with strong acids and oxidisers.
Hazardous decomposition products	Oxides of carbon evolved in fire.
Possibility of hazardous reactions	Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	Species	Test Results
OPTISPERSE ADJ575 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg, (Calculated according to GHS additivity formula)

Acute effects	Very toxic by inhalation.
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12. Ecological Information

Ecotoxicity

Product	Species		Test Results
OPTISPERSE ADJ575 (CAS Mixture)			
Crustacea	0% Mortality	Fathead Minnow	5000 mg/L, Static Renewal Bioassay, 96 hour, (pH adjusted)
	LC50	Mysid Shrimp	> 20000 mg/L, Acute Toxicity, 96 hour, (Estimated)
		Sheepshead Minnow	> 20000 mg/L, Acute Toxicity, 96 hour, (Estimated)
	NOEL	Mysid Shrimp	10000 mg/L, Acute Toxicity, 96 hour, (Estimated)
		Sheepshead Minnow	10000 mg/L, Acute Toxicity, 96 hour, (Estimated)
	0% Mortality	Daphnia magna	1250 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)

Product	Species	Test Results
	10% Mortality Daphnia magna	5000 mg/L, Static Renewal Bioassay, 48 hour, (pH adjusted)
Bioaccumulation / Accumulation	Not bioaccumulating	
Persistence and degradability		
- COD (mgO2/g)	627 (calculated data)	
- BOD 5 (mgO2/g)	3 (calculated data)	
- BOD 28 (mgO2/g)	11 (calculated data)	
- Closed Bottle Test (% Degradation in 28 days)	1 (calculated data)	
- Zahn-Wellens Test (% Degradation in 28 days)	3 (calculated data)	
- TOC (mg C/g)	159 (calculated data)	

13. Disposal Considerations

Waste codes	Hazardous Waste
Disposal instructions	According to Hazardous Waste Regulations. Via an authorized waste disposal contractor to an approved waste disposal site, observing all local and national regulations.
Contaminated packaging	According to Hazardous Waste Regulations. Via an authorized waste disposal contractor to an approved waste disposal site, observing all local and national regulations.

14. Transport Information

DOT	Not regulated as dangerous goods.
TDG	Not regulated as a dangerous good.
IATA	Not regulated as dangerous goods.
IMDG	Not regulated as dangerous goods.

15. Regulatory Information

US federal regulations	
US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance	None listed.
TSCA Section 12(b) Export Notification (40 CFR 707, Subpt. D)	Not regulated.
CERCLA (Superfund) reportable quantity	None 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	No
SARA 311/312 Hazardous chemical	No

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)

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 No. – 141035
Category Code(s):
G5 Cooling and retort water treatment products
G6 Boiler treatment products, steam line products – food contact

State regulations

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.

US - Massachusetts RTK - Substance List

Not regulated.

US - Pennsylvania RTK - Hazardous Substances

Not regulated.

US - Rhode Island RTK

Not regulated.

16. Other Information

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
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.

HMIS® ratings

Health: 3
Flammability: 1
Physical hazard: 0
Personal protection: B

NFPA ratings

Health: 3
Flammability: 1
Instability: 0
Special hazards: ALK

This data sheet contains changes from the previous version in section(s):

Product and Company Identification: Product and Company Identification
Composition / Information on Ingredients: Disclosure Overrides
Physical & Chemical Properties: Multiple Properties
Toxicological Information: Toxicological Data
Ecological Information: Ecotoxicity
Transport Information: Material Transportation Information
Regulatory Information: Risk Phrases - Class.

Prepared by

This MSDS 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.



SAFETY DATA SHEET

SOLUS AP24

1. Product and Company Identification

Material name SOLUS AP24
Version # 5.1
Revision date 06/03/2014
Supersedes date 06/03/2014
CAS # Mixture
Product application Internal boiler water treatment

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. Hazards Identification

Emergency overview CAUTION

May cause slight irritation to the eyes. Mists/aerosols may cause irritation to upper respiratory tract.
Non-hazardous to skin.

Potential health effects

Eyes May cause slight irritation to the eyes.
Skin Primary route of exposure Non-hazardous to skin.
Inhalation Mists/aerosols may cause irritation to upper respiratory tract.
Ingestion May cause slight gastrointestinal irritation with possible nausea, vomiting, abdominal discomfort and diarrhea.

Target organs No evidence of potential chronic effects.

Signs and symptoms Inhalation may cause irritation of respiratory tract. May cause redness or itching of skin.

Medical conditions aggravated by exposure None known.

3. Composition / Information on Ingredients

Non-hazardous components	CAS #
Water	7732-18-5
2-Propenoic acid, polymer with 2-hydroxy-3-(2-propenyloxy)- 1-propanesulfonic acid monosodium salt and a-sulfo-w-(2-propenyloxy)poly (oxy-1,2-ethanediyl) ammonium salt, sodium salt	903573-39-7

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 MSDS for our assessment of the potential hazards of this formulation.

4. First Aid Measures

First aid procedures

Eye contact	Rinse immediately with plenty of water for at least 15 minutes. If easy to do remove contact lenses. Hold eyelids apart. Get medical attention immediately.
Skin contact	Wash thoroughly with soap and water. Remove contaminated clothing. Get medical attention if irritation develops and persists. Wash clothing separately before reuse.
Inhalation	Remove to fresh air. Get medical attention if symptoms occur.
Ingestion	Do not feed anything by mouth to an unconscious or convulsive victim. Do NOT induce vomiting! Immediately contact a physician. If vomiting occurs naturally have victim lean forward to reduce risk of aspiration.

Notes to physician No other instruction than the ones already informed.

5. Fire Fighting Measures

Extinguishing media

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

Protection of firefighters

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 Not available.

Hazardous combustion products Oxides of carbon Oxides of nitrogen. Oxides of sulphur. Oxides of phosphorus

6. Accidental Release Measures

Personal precautions Avoid inhalation of vapors and spray mists. Please refer also to section no. 8 'Exposure controls' for further information.

Methods for containment Stop the flow of material, if this is without risk. Absorb spillage to prevent material damage. Scoop up used absorbent into drums or other appropriate container. If sweeping of a contaminated area is necessary use a dust suppressant agent which does not react with the product.

Methods for cleaning up Contain and recover by physical means. Absorb onto inert material and dispose of according to Hazardous Waste Regulations. Clean with water. Spread sand/grit.

7. Handling and Storage

Handling Normal chemical handling.

Storage Store in tightly closed original container in a dry, cool and well-ventilated place. Store away from strong oxidizers.

8. Exposure Controls / Personal Protection

Engineering controls Adequate ventilation to maintain air contaminants below exposure limits.

Personal protective equipment

Eye / face protection Splash proof chemical goggles.

Skin protection Rubber, butyl, viton or neoprene gloves. Wash off after each use. Replace as necessary.

Respiratory protection If air-purifying respirator use is appropriate, use any of the following particulate respirators: N95, N99, N100, R95, R99, R100, P95, P99 or P100.

9. Physical & Chemical Properties

Appearance

Physical state Liquid

Color Amber

Odor Slight ammonia

Odor threshold Not available.

pH (concentrated product) 12.3

pH in aqueous solution 11 (5% SOL.)

Vapor pressure 18 mm Hg

Vapor pressure temp. 70 °F (21 °C)

Vapor density < 1 (Air = 1)

Boiling point 220 °F (104 °C)

Material name: SOLUS AP24

Version number: 5.1

Melting point/Freezing point	28 °F (-2 °C)
Solubility (water)	100 %
Specific gravity (70°F, 21°C)	1.087
Flash point	Not available.
Flammability limits in air, upper, % by volume	Not available.
Flammability limits in air, lower, % by volume	Not available.
Auto-ignition temperature	Not available.
Evaporation rate	< 1 (Ether = 1)
Viscosity	22 cps
Viscosity temperature	70 °F (21 °C)
Percent volatile	0 (Estimated)
Pour point	33 °F (1 °C)

10. Chemical Stability & Reactivity Information

Chemical stability	Material is stable under normal conditions.
Conditions to avoid	Not available.
Incompatible materials	Strong oxidizing substances.
Hazardous decomposition products	Oxides of carbon, nitrogen, phosphorus, and sulphur evolved in fire.

11. Toxicological Information

Acute effects	This product contains no known ingredients that exhibit hazards that are required by the U.S. OSHA HAZARD COMMUNICATION STANDARD or WHMIS to be listed. Refer to additional sections of this MSDS for our assessment of the potential hazards of this formulation.
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12. Ecological Information

Ecotoxicity		Species	Test Results
Product			
SOLUS AP24 (CAS Mixture)	LC50	Fathead Minnow	> 5000 mg/l, Static Bioassay with 48-Hour Renewal, 96 hour, (pH adjusted)
	NOEL	Fathead Minnow	5000 mg/l, Static Bioassay with 48-Hour Renewal, 96 hour, (pH adjusted)
	LC50	Daphnia magna	3674 mg/l, Static Acute Bioassay, 48 hour, (pH adjusted)
	NOEL	Daphnia magna	2500 mg/l, Static Acute Bioassay, 48 hour, (pH adjusted)
Crustacea	LC50	Daphnia magna	3674 mg/l, Static Acute Bioassay, 48 hour, (pH adjusted)
	NOEL	Daphnia magna	2500 mg/l, Static Acute Bioassay, 48 hour, (pH adjusted)
Other	LC50	Rainbow Trout	> 5000 mg/l, Static Bioassay with 48-Hour Renewal, 96 hour, (pH adjusted)
	NOEL	Rainbow Trout	5000 mg/l, Static Bioassay with 48-Hour Renewal, 96 hour, (pH adjusted)

13. Disposal Considerations

Disposal instructions	Via an authorized waste disposal contractor to an approved waste disposal site, observing all local and national regulations.
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14. Transport Information

DOT	Not regulated as dangerous goods. Some containers may be DOT exempt, please check BOL for exact container classification.
TDG	Not regulated as a dangerous good.

IATA

Not regulated as dangerous goods.

IMDG

Not regulated as dangerous goods.

15. Regulatory Information**US federal regulations****US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance**

None listed.

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

Not regulated.

CERCLA (Superfund) reportable quantity

None listed.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

Hazard categories	Immediate Hazard - No Delayed Hazard - No Fire Hazard - No Pressure Hazard - No Reactivity Hazard - No
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SARA 302 Extremely hazardous substance	No
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SARA 311/312 Hazardous chemical	No
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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)

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

1,4-DIOXANE (CAS 123-91-1)	Listed: January 1, 1988 Carcinogenic.
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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.

16. Other Information

List of abbreviations	CAS: Chemical Abstract Service Registration Number TSRN indicates a Trade Secret Registry Number is used in place of the CAS number. ACGIH: American Conference of Governmental Industrial Hygienists NOEL: No Observed Effect Level STEL: Short Term Exposure Limit LC50: Lethal Concentration, 50% TWA: Time Weighted Average BOD: Biochemical Oxygen Demand COD: Chemical Oxygen Demand TOC: Total Organic Carbon IATA: International Air Transport Association IMDG: International Maritime Dangerous Goods Code LD50: Lethal Dose, 50% NFPA: National Fire Protection Association
HMIS® ratings	Health: 1 Flammability: 1 Physical hazard: 0 Personal protection: B
NFPA ratings	Health: 1 Flammability: 1 Instability: 0 Special hazards: NONE
This data sheet contains changes from the previous version in section(s):	Handling and Storage: Handling Chemical Stability & Reactivity Information: Conditions to avoid
Prepared by	This MSDS has been prepared by GE Water & Process Technologies Regulatory Department (1-215-355-3300).



Material Safety Data Sheet

Issue Date: 04-JAN-2011
Supersedes: 14-JUN-2001

SPECTRUS BD1501

1 Identification

Identification of substance or preparation

SPECTRUS BD1501

Product Application Area

Water-based deposit control agent.

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: 04-JAN-2011

2 Hazard(s) identification

EMERGENCY OVERVIEW

CAUTION

May cause slight irritation to the skin. May cause moderate irritation to the eyes. Mists/aerosols may cause irritation to upper respiratory tract.

DOT hazard is not applicable
Odor: Mild; Appearance: Colorless, 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; May cause slight irritation to the skin.

ACUTE EYE EFFECTS:

May cause moderate irritation to the eyes.

ACUTE RESPIRATORY EFFECTS:

Mists/aerosols may cause irritation to upper respiratory tract.

INGESTION EFFECTS:

May cause slight gastrointestinal irritation.

TARGET ORGANS:

Prolonged or repeated exposures may cause primary irritant dermatitis.

MEDICAL CONDITIONS AGGRAVATED:

Not known.

SYMPTOMS OF EXPOSURE:

May cause redness or itching of skin.

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%)
9016-45-9	NONYLPHENOXYPOLY(ETHYLENEOXY)ETHANOL Irritant (eyes and skin)	10-20

4 First-aid measures

SKIN CONTACT:

Wash thoroughly with soap and water. Remove contaminated clothing. Get medical attention if irritation develops or persists.

EYE CONTACT:

Remove contact lenses. Hold eyelids apart. Immediately flush eyes with plenty of low-pressure water for at least 15 minutes. 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:

No special instructions

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

FLASH POINT:

> 200F > 93C SETA(CC)

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:

Normal chemical handling.

STORAGE:

Keep containers closed when not in use. Protect from freezing. If frozen, thaw completely and mix thoroughly prior to use.

8 Exposure controls / personal protection

EXPOSURE LIMITS**CHEMICAL NAME**

NONYLPHENOXYPOLY(ETHYLENEOXY)ETHANOL

PEL (OSHA): NOT DETERMINED

TLV (ACGIH): NOT DETERMINED

ENGINEERING CONTROLS:

adequate ventilation

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:

rubber, butyl or viton gloves -- Wash off after each use.

Replace as necessary.
EYE PROTECTION:
splash proof chemical goggles

9 Physical and chemical properties

Spec. Grav.(70F,21C)	1.029	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	31	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-1		
Viscosity(cps 70F,21C)	110	% Solubility (water)	100.0
Odor		Mild	
Appearance		Colorless	
Physical State		Liquid	
Flash Point	SETA(CC)	> 200F > 93C	
pH As Is (approx.)		6.7	
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:

Contact with water reactive compounds may cause fire or explosion.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

oxides of carbon

11 Toxicological information

Oral LD50 RAT:	>5,000 mg/kg
NOTE - Estimated value	
Dermal LD50 RABBIT:	>5,000 mg/kg
NOTE - Estimated value	

12 Ecological information

AQUATIC TOXICOLOGY

Daphnia magna 48 Hour Static Acute Bioassay

LC50= 21.8 mg/L

Fathead Minnow 96 Hour Static Acute Bioassay

LC50= 34.8; No Effect Level= 15.5 mg/L

BIODEGRADATION

BOD-28 (mg/g): 74

BOD-5 (mg/g): 10

COD (mg/g): 460

TOC (mg/g): 158

13 Disposal considerations

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

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: Not Applicable

DOT: Not Regulated

DOT EMERGENCY RESPONSE GUIDE #: Not applicable

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

IATA: Not Regulated

IMDG: Not Regulated

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):

No regulated constituent present at OSHA thresholds

FOOD AND DRUG ADMINISTRATION:

21 CFR 176.170 (components of paper and paperboard in contact with aqueous and fatty foods)

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

Registration number: Not Registered

This product contains ingredients that have been determined as safe for use in systems for cooking or cooling containers of meat and/or poultry and in systems with no food contact. (G5, G7)

SARA SECTION 312 HAZARD CLASS:

Immediate(acute);Delayed(Chronic)

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):

This product contains one or more ingredients at trace levels known to the state of California to cause cancer and reproductive toxicity.

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 Other information

HMIS VII

Health	1	Slight Hazard
Fire	1	Slight Hazard
Reactivity	0	Minimal Hazard
Special	NONE	No special Hazard
(1) Protective Equipment	B	Goggles, Gloves

CODE TRANSLATION

(1) refer to section 8 of MSDS for additional protective equipment recommendations.

CHANGE LOG

EFFECTIVE DATE	REVISIONS TO SECTION:	SUPERCEDES
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MSDS status: 04-JAN-2011		** NEW **



SAFETY DATA SHEET

SPECTRUS* BD1501E

1. Identification

Product identifier	SPECTRUS BD1501E
Other means of identification	None.
Recommended use	Biodispersant
Recommended restrictions	Industrial use only.

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 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 skin irritation. Causes serious eye damage. May cause respiratory irritation.
Precautionary statement	
Prevention	Wear eye/face protection. Avoid breathing mist or vapor. Wash thoroughly after handling. Use only outdoors or in a well-ventilated area. Wear protective gloves.
Response	IF ON SKIN: Wash with plenty of soap and 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. Immediately call a POISON CENTER or doctor/physician. If skin irritation occurs: Get medical advice/attention. Take off contaminated clothing and wash it 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
Alcohols, C10, alkoxylated	166736-08-9	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. If breathing stops, provide artificial respiration. For breathing difficulties, oxygen may be necessary. Call a POISON CENTER or doctor/physician if you feel unwell. If nasal, throat or lung irritation develops - remove to fresh air and get medical attention.
Skin contact	Wash with plenty of soap and water. Take off contaminated clothing and wash before reuse. 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. Get medical attention immediately.
Ingestion	Rinse mouth. Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting. Get medical attention if symptoms occur.
Most important symptoms/effects, acute and delayed	Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory 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	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 (CO ₂).
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	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. See Section 8 of the SDS for Personal Protective Equipment.
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 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. Ventilate area, use specified protective equipment. Flush area with water. Wet area may be slippery.
Environmental precautions	Avoid discharge into drains, water courses or onto the ground.

7. Handling and storage

Precautions for safe handling

Do not get this material in contact with eyes. Avoid contact with skin. Avoid contact with clothing. Avoid prolonged exposure. Provide adequate ventilation. Wear appropriate personal protective equipment. Observe good industrial hygiene practices.

Conditions for safe storage, including any incompatibilities

Store in original tightly closed container. Store in cool, well ventilated area. Store away from oxidizers.

8. Exposure controls/personal protection

Biological limit values

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

Appropriate engineering controls

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

Individual protection measures, such as personal protective equipment

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. Impervious gloves. Wash off after each use. Replace as necessary.

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. Not applicable.

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

Physical state

Liquid

Odor

Mild

Odor threshold

Not available.

pH (concentrated product)

6.7

pH in aqueous solution

Not available.

Melting point/freezing point

31 °F (-1 °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	1.02
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	110 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Pour point	36 °F (2 °C)
Specific gravity	1.019
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	No dangerous reaction known under conditions of normal use. Hazardous polymerization does not occur.
Conditions to avoid	Avoid contact with strong oxidizers. Protect from freezing.
Incompatible materials	Strong oxidizing agents.
Hazardous decomposition products	Oxides of carbon 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 damage.
Ingestion	Expected to be a low ingestion hazard.

Symptoms related to the physical, chemical and toxicological characteristics	Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result. May cause respiratory irritation. May cause redness and pain.
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Information on toxicological effects

Acute toxicity	May cause respiratory irritation.
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Product	Species	Test Results
SPECTRUS BD1501E (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg, (Calculated according to GHS additivity formula)
<i>Oral</i>		
LD50	Rat	3570 mg/kg, (Calculated according to GHS additivity formula (Category 5))
Components	Species	Test Results
Alcohols, C10, alkoxylated (CAS 166736-08-9)		
Acute		
<i>Oral</i>		
LD50	Rat	500 - 2000 mg/kg

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

Skin corrosion/irritation	Prolonged skin contact may cause temporary irritation.
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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	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 1910.1001-1052)	
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
SPECTRUS BD1501E (CAS Mixture)			
Aquatic			
Crustacea	IC25	Ceriodaphnia	39.9 mg/l, Chronic Bioassay, 7 day
		Ceriodaphnia	200 mg/l, Static Renewal Bioassay, 48 hour
		Daphnia magna	38.2 mg/l, Static Renewal Bioassay, 48 hour
	NOEL	Ceriodaphnia	100 mg/l, Static Renewal Bioassay, 48 hour
		Daphnia magna	25 mg/l, Chronic Bioassay, 7 day
		Daphnia magna	12.5 mg/l, Static Renewal Bioassay, 48 hour
Fish	LC50	Fathead Minnow	82.5 mg/l, Static Renewal Bioassay, 96 hour
		Rainbow Trout	141.4 mg/l, Static Renewal Bioassay, 96 hour
	NOEL	Fathead Minnow	31.3 mg/l, Static Renewal Bioassay, 96 hour
		Rainbow Trout	100 mg/l, Static Renewal Bioassay, 96 hour

Bioaccumulative potential No data available.

Mobility in soil No data available.

Other adverse effects Not available.

Persistence and degradability

- COD (mgO ₂ /g)	647 (calculated data)
- BOD 5 (mgO ₂ /g)	0 (calculated data)
- BOD 28 (mgO ₂ /g)	0 (calculated data)
- TOC (mg C/g)	0 (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). Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.
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 a "Hazardous Chemical" as defined by the OSHA Hazard Communication Standard, 29 CFR 1910.1200.
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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 1910.1001-1052)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical	Yes
--	-----

Classified hazard categories

Skin corrosion or irritation
Serious eye damage or eye irritation
Specific target organ toxicity (single or repeated exposure)

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
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Safe Drinking Water Act (SDWA)	Not regulated.
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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).

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

Registration No. – 141060
Category Code(s):
G5 Cooling and retort water treatment products
G7 Boiler, steam line treatment products – nonfood contact

US state regulations

California Proposition 65

California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

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-27-2014
Revision date Feb-24-2020
Version # 3.0
NFPA ratings Health: 3
Flammability: 0
Instability: 0

NFPA ratings



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
IATA: International Air Transport Association
IMDG: International Maritime Dangerous Goods Code
NFPA: National Fire Protection Association
ACGIH: American Conference of Governmental Industrial Hygienists
GHS: Globally Harmonized System of Classification and Labeling of Chemicals.
DOT: Department of Transportation (49 CFR 172.101).
IARC: International Agency for Research on Cancer.
OSHA: Occupational Safety & Health Administration.
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 SUEZ Regulatory Department (1-215-355-3300).

* Trademark of SUEZ. May be registered in one or more countries.



GE Power & Water
Water & Process Technologies

Version: 5.0
Previous Date: Nov-03-2014

SAFETY DATA SHEET

SPECTRUS* NX1100

1. Product and Company Identification

Material name SPECTRUS NX1100
Version # 5.0
Revision date Feb-19-2015
Supersedes date Nov-03-2014
Chemical description Blend of biocidal agents
CAS # Mixture
Product application Biocide

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. Hazards Identification

Emergency overview DANGER

Corrosive to skin. Corrosive to the eyes. Mists/aerosols may cause irritation to upper respiratory tract.
May cause an allergic skin reaction.

Potential health effects

Eyes Corrosive to eyes

Skin Corrosive to skin

Inhalation May cause irritation of respiratory tract.

Ingestion May cause severe irritation or burning of the gastrointestinal tract.

Target organs Prolonged or repeated exposures may cause tissue necrosis. Repeated skin contact may cause sensitization.

Signs and symptoms Direct contact with skin will cause severe delayed skin reactions or burns if not washed off immediately.

Medical conditions aggravated by exposure None known.

3. Composition / Information on Ingredients

Hazardous components	CAS #	Percent
2-Bromo-2-nitropropane-1,3-diol (Bronopol)	52-51-7	2.5 - 10
Magnesium nitrate	10377-60-3	2.5 - 10
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	2.5 - 10
Magnesium chloride	7786-30-3	1 - 2.5

Hazardous components	CAS #	Percent
Sulphuric acid	7664-93-9	0.1 - 1
Non-hazardous components	CAS #	
Water	7732-18-5	

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 MSDS for our assessment of the potential hazards of this formulation.

4. First Aid Measures

First aid procedures

Inhalation	Remove to fresh air. If breathing is difficult, trained personnel should give oxygen. If not breathing, give artificial respiration. Get medical attention immediately.
Skin contact	Wash thoroughly with soap and water. Take off contaminated clothing and wash before reuse. Get medical attention immediately. Thoroughly wash clothing before reuse.
Eye contact	Get medical attention immediately. Remove contact lenses, if present and easy to do.
Ingestion	Do NOT induce vomiting! 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. Get immediate medical attention.

Notes to physician 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

Extinguishing media

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

Protection of firefighters

Specific hazards arising from the chemical Corrosive liquid.

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 Not available.

Hazardous combustion products Oxides of carbon and hydrogen bromide hydrogen chloride Oxides of nitrogen. Oxides of sulphur.

General fire hazards No unusual fire or explosion hazards noted.

6. Accidental Release Measures

Personal precautions Wear appropriate protective equipment and clothing during clean-up. Avoid inhalation of vapors and spray mists. See Section 8 of the MSDS for Personal Protective Equipment.

Environmental precautions Prevent from entering sewers or the immediate environment.
Do not empty into drains, dispose of this material and its container to hazardous or special waste collection point.

Methods for cleaning up Keep spills and clean-up residuals out of municipal sewers and open bodies of water. 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 pile to deactivate the adsorbed material. 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

Handling Corrosive liquid.
Avoid contact with skin and eyes.
Do not breathe vapors or spray mist.

Storage

Keep container tightly closed in a dry and well-ventilated place.

Do not store in contact with incompatible materials.

Use approved containers only.

Protect from 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	Form
Sulphuric acid (CAS 7664-93-9)	TWA	0.2 mg/m ³	Thoracic fraction.

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

Components	Type	Value
Sulphuric acid (CAS 7664-93-9)	PEL	1 mg/m ³

Biological limit values

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

Engineering controls

Adequate ventilation to maintain air contaminants below exposure limits.

Personal protective equipment

Eye / face protection

Splash proof chemical goggles.
Face shield.

Skin protection

Gauntlet-type rubber, butyl or neoprene gloves.
Chemical resistant apron.
Rubber boots.
Wash off after each use. Replace as necessary.

Respiratory protection

If air-purifying respirator use is appropriate, use organic vapor cartridges and any of the following particulate respirators: N95, N99, N100, R95, R99, R100, P95, P99 or P100. 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.

Hand protection

Gauntlet type butyl gloves (Protection against unintentional short-term contact)

General hygiene considerations

Handle in accordance with good industrial hygiene and safety practice.

9. Physical & Chemical Properties

Appearance

Physical state

Liquid

Color

Colorless to yellow green

Odor

None

Odor threshold

Not available.

pH (concentrated product)

3

pH in aqueous solution

3.7 (5% SOL.)

Vapor pressure

18 mm Hg

Vapor pressure temp.

70 °F (21 °C)

Vapor density

< 1 (Air = 1)

Boiling point

220 °F (104 °C)

Melting point/Freezing point

24 °F (-4 °C)

Solubility (water)

100 %

Specific gravity (70°F, 21°C)

1.11

Flash point

Not applicable.

Flammability limits in air, upper, % by volume

Not available.

Flammability limits in air, lower, % by volume

Not available.

Auto-ignition temperature

Not available.

Evaporation rate

< 1 (Ether = 1)

Viscosity

10 cps

Material name: SPECTRUS* NX1100

Version number: 5.0

Minimum temperature 70 °F (21 °C)
 Percent volatile 0
 Pour point 29 °F (-2 °C)

Stable at temperatures below 300 °F (150 °C)
 Viscosity 1.0 cP (25 °C)

10. Chemical Stability & Reactivity Information

Chemical stability Material is stable under normal conditions.
Conditions to avoid Protect from freezing. Avoid contact with strong oxidizers.
Incompatible materials Avoid contact with strong oxidizers. Avoid contact with strong reducing agents.
Hazardous decomposition products Hydrogen bromide, bromine gas, hydrogen chloride, chlorine gas, oxides of carbon and nitrogen evolved in fire. Sulfur oxides.
Possibility of hazardous reactions Hazardous polymerization does not occur.

11. Toxicological Information

Toxicological data

Product	Species	Test Results
SPECTRUS NX1100 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg
<i>Inhalation</i>		
LC50	Rat	> 1 mg/l, 4 Hour
<i>Oral</i>		
LD50	Rat	1030 mg/kg
Components	Species	Test Results
2-Bromo-2-nitropropane-1,3-diol (Bronopol) (CAS 52-51-7)		
Acute		
<i>Dermal</i>		
LD50	Rat	64 mg/kg
<i>Inhalation</i>		
LC50	Rat	> 0.59 mg/l, 4 Hour, (Aerosol toxicity)
<i>Oral</i>		
LD50	Rat	324 mg/kg
Magnesium chloride (CAS 7786-30-3)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 2000 mg/kg
<i>Oral</i>		
LD50	Rat	> 5000 mg/kg
Magnesium nitrate (CAS 10377-60-3)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	> 5000 mg/kg
<i>Oral</i>		
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		
<i>Dermal</i>		
LD50	Rabbit	90 mg/kg
<i>Inhalation</i>		
LC50	Rat	0.33 mg/l, 4 Hour

Components	Species	Test Results
Oral LD50	Rat	67 mg/kg
Sulphuric acid (CAS 7664-93-9)		
Acute		
Inhalation LC50	Rat	0.375 mg/l, 4 Hour
Oral LD50	Rat	2140 mg/kg
Acute effects	Harmful in contact with skin. Harmful if swallowed. Harmful if inhaled.	
Carcinogenicity	Not classified.	
ACGIH Carcinogens		
Sulphuric acid (CAS 7664-93-9)	A2 Suspected human carcinogen.	
IARC Monographs. Overall Evaluation of Carcinogenicity		
Sulphuric acid (CAS 7664-93-9)	1 Carcinogenic to humans.	
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1050)		
Not listed.		
US NTP Report on Carcinogens: Known carcinogen		
Sulphuric acid (CAS 7664-93-9)	Known To Be Human Carcinogen.	
Skin corrosion/irritation	Causes severe skin burns and eye damage.	
Mutagenicity	Not classified.	
Reproductive effects	Not classified.	
Symptoms and target organs	Burning pain and severe corrosive skin damage. Symptoms may include stinging, tearing, redness, swelling, and blurred vision. Permanent eye damage including blindness could result.	

12. Ecological Information

Ecotoxicity

Product		Species	Test Results
SPECTRUS NX1100 (CAS Mixture)			
	LC50	Ceriodaphnia	4.7 mg/l, Static Renewal Bioassay, 48 hour
		Fathead Minnow	3.5 mg/l, Static Renewal Bioassay, 96 hour
		Menidia beryllina (Silversides)	15.9 mg/l, Static Renewal Bioassay, 96 hour
		Mysid Shrimp	40.5 mg/l, Static Renewal Bioassay, 48 hour
		Sheepshead Minnow	26.7 mg/l, Static Renewal Bioassay, 96 hour
	NOEL	Ceriodaphnia	0.63 mg/l, Static Renewal Bioassay, 48 hour
		Fathead Minnow	1.8 mg/l, Static Renewal Bioassay, 96 hour
		Menidia beryllina (Silversides)	12.5 mg/l, Static Renewal Bioassay, 96 hour
		Mysid Shrimp	18 mg/l, Static Renewal Bioassay, 48 hour
		Sheepshead Minnow	15.5 mg/l, Static Renewal Bioassay, 96 hour
Aquatic			
Crustacea	LC50	Daphnia magna	5 mg/l, Static Renewal Bioassay, 48 hour
	NOEL	Daphnia magna	2.5 mg/l, Static Renewal Bioassay, 48 hour
Fish	LC50	Rainbow Trout	7.2 mg/l, Static Renewal Bioassay, 96 hour

Product		Species	Test Results
	NOEL	Rainbow Trout	3.1 mg/l, Static Renewal Bioassay, 96 hour
Components		Species	Test Results
2-Bromo-2-nitropropane-1,3-diol (Bronopol) (CAS 52-51-7)			
	EC50	Daphnia Magna	14 mg/l, 48 hour
Aquatic Fish	LC50	Rainbow Trout	41 mg/l, 96 hour

Bioaccumulation / accumulation Not bioaccumulating (Refers to active component) 2-Bromo-2-nitropropane-1,3-diol

Partition coefficient

2-Bromo-2-nitropropane-1,3-diol (Bronopol)	-0.6
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)	0.5

Persistence and degradability

- COD (mgO2/g)	78 (calculated data)
- BOD 5 (mgO2/g)	2 (calculated data)
- BOD 28 (mgO2/g)	4 (calculated data)
- Closed Bottle Test (% Degradation in 28 days)	2 (calculated data)
- Zahn-Wellens Test (% Degradation in 28 days)	8 (calculated data)
- TOC (mg C/g)	29 (calculated data)

13. Disposal Considerations

Disposal instructions	Dispose of contents/container in accordance with local/regional/national/international regulations.
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.
Contaminated packaging	Dispose of in approved pesticide facility or according to label instructions. 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. (MIXTURE OF 5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE AND 2-METHYL-4-ISOTHIAZOLIN-3-ONE, 2-BROMO-2-NITROPROPANE-1,3-DIOL)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Special precautions for user	Not available.
ERG number	154

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

IATA

UN number	UN3265
UN proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (MIXTURE OF 5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE AND 2-METHYL-4-ISOTHIAZOLIN-3-ONE, 2-BROMO-2-NITROPROPANE-1,3-DIOL)
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Environmental hazards	No.
ERG Code	153

Special precautions for user	Not available.
IMDG	
UN number	UN3265
UN proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (MIXTURE OF 5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE AND 2-METHYL-4-ISOTHIAZOLIN-3-ONE, 2-BROMO-2-NITROPROPANE-1,3-DIOL), MARINE POLLUTANT
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	II
Environmental hazards	
Marine pollutant	Yes
EmS	Not available.
Special precautions for user	Not available.

TDG	
UN number	UN3265
UN proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (MIXTURE OF 5-CHLORO-2-METHYL-4-ISOTHIAZOLIN-3-ONE AND 2-METHYL-4-ISOTHIAZOLIN-3-ONE, 2-BROMO-2-NITROPROPANE-1,3-DIOL)
Hazard class	8
Packing group	II
ERG code	153

DOT



IATA; IMDG; TDG



Marine pollutant



15. Regulatory Information

US federal regulations	This is an EPA registered biocide and is exempt from TSCA inventory requirements. See FIFRA registry number.
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US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Substance: Reportable quantity

Sulphuric acid (CAS 7664-93-9) 1000 LBS

US EPCRA (SARA Title III) Section 302 - Extremely Hazardous Substance: Threshold Planning Quantity

Sulphuric acid (CAS 7664-93-9) 1000 LBS

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: De minimis concentration

Magnesium nitrate (CAS 10377-60-3) 1.0 % N511

Sulphuric acid (CAS 7664-93-9) 1.0 %

US EPCRA (SARA Title III) Section 313 - Toxic Chemical: Listed substance

Magnesium nitrate (CAS 10377-60-3) Listed, N511

Sulphuric acid (CAS 7664-93-9) Listed.

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

Not regulated.

CERCLA (Superfund) reportable quantity, lbs

Sulphuric acid: 1000 lbs

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

Chemical name	CAS number	Reportable quantity	Threshold planning quantity	Threshold planning quantity, lower value	Threshold planning quantity, upper value
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Sulphuric acid	7664-93-9	1000	1000 lbs		
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SARA 311/312 Hazardous chemical	No
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Clean Water Act (CWA) Hazardous substance**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 3876-151**TSCA** This is an EPA registered biocide and is exempt from TSCA inventory requirements.**Food and drug administration** 21 CFR 176.300 & 176.170 (slimicides and as a preservative)**NSF Registered and/or meets** Registration No. - 141064**USDA (according to 1998** Category Code(s):**guidelines):** G5 Cooling and retort water treatment products

G7 Boiler, steam line treatment products - nonfood contact

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

Sulphuric acid (CAS 7664-93-9) Listed: March 14, 2003 Carcinogenic.

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

Magnesium nitrate (CAS 10377-60-3)

Sulphuric acid (CAS 7664-93-9)

US - Pennsylvania RTK - Hazardous Substances

Magnesium nitrate (CAS 10377-60-3) Listed.

Sulphuric acid (CAS 7664-93-9) Listed.

US - Rhode Island RTK

Magnesium nitrate (CAS 10377-60-3)

Sulphuric acid (CAS 7664-93-9)

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

Magnesium nitrate (CAS 10377-60-3)

Listed.

Sulphuric acid (CAS 7664-93-9)

Listed.

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

Not listed.

16. Other Information

List of abbreviations

Not available.

HMIS® ratings

Health: 3

Flammability: 0

Physical hazard: 0

Personal protection: D

NFPA ratings

Health: 3

Flammability: 0

Instability: 0

Special hazards: CORR

This data sheet contains changes from the previous version in section(s):

This document has undergone significant changes and should be reviewed in its entirety.

Prepared by

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

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SAFETY DATA SHEET

SPECTRUS* NX1102

1. Identification

Product identifier	SPECTRUS NX1102
Other means of identification	None.
Recommended use	Solvent-based microbial 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	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
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.

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.

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 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/m ³	Aerosol.

Biological limit values

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

Appropriate engineering controls

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**

USERS OF A PESTICIDAL PRODUCT SHOULD REFER TO THE PRODUCT LABEL FOR PERSONAL PROTECTIVE EQUIPMENT REQUIREMENTS.

Wear appropriate chemical resistant gloves. 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. Wash off after each use. Replace as necessary.

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.

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**

Yellow to amber

Physical state

Liquid

Odor

Slight

Odor threshold

Not available.

pH (concentrated product)

1.9 Neat

pH in aqueous solution

3.3 (5% Solution)

Melting point/freezing point	-0.04 °F (-18 °C)
Initial boiling point and boiling range	Not available.
Flash point	Not applicable.
Evaporation rate	Slower than Ether
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 mmHg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	> 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 mPa.s

Viscosity temperature 70 °F (21 °C)

Other information

Explosive properties	Not explosive.
Oxidizing properties	Not oxidizing.
Pour point	5 °F (-15 °C)
Specific gravity	1.269
VOC	0 % CALCULATED

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

Material name: SPECTRUS* NX1102

Version number: 4.0

Harmful if swallowed. May cause an allergic skin reaction.		
Product	Species	Test Results
SPECTRUS NX1102 (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
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	This product is not expected to cause respiratory sensitization.	
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		
Not listed.		
OSHA Specifically Regulated Substances (29 CFR 1910.1001-1052)		
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	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
SPECTRUS NX1102 (CAS Mixture)			
Aquatic			
Algae	ErC50	Algae	1.5 mg/l, Growth Inhibition, 72 hours
Crustacea	EC50	Daphnia magna	2.5 mg/l, Static Acute Bioassay, 48 hours
Fish	LC50	Rainbow Trout	3.6 mg/l, Static Acute Bioassay, 96 hours

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
Species: Fish	

Mobility in soil No data available.

Other adverse effects Not available.

Persistence and degradability

Readily biodegradable.	
78 % degradation in 28 days	
CO2 Evolution (Modified Sturm Test) (OECD 301B)	
(Refers to active component: 2,2-dibromo-3-nitrilopropionamide)	
- COD (mgO2/g)	959
- TOC (mg C/g)	732
- 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. (DBNPA (2,2-DIBROMO-3-NITRILOPROPIONAMIDE))
Transport hazard class(es)	
Class	8
Subsidiary risk	-
Packing group	III
Special precautions for user	Not available.
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. (DBNPA (2,2-DIBROMO-3-NITRILOPROPIONAMIDE))
Transport hazard class(es)	
Class	8
Subsidiary risk	-

Packing group	III
Environmental hazards	No.
ERG Code	153
Special precautions for user	Not available.

IMDG

UN number	UN3265
UN proper shipping name	CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S. (DBNPA (2,2-DIBROMO-3-NITRILOPROPIONAMIDE))
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	Not available.

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 1910.1001-1052)

Not regulated.

Superfund Amendments and Reauthorization Act of 1986 (SARA)

SARA 302 Extremely hazardous substance

Not listed.

SARA 311/312 Hazardous chemical Yes

Classified hazard categories

Corrosive to metal
Acute toxicity (any route of exposure)
Skin corrosion or irritation
Serious eye damage or eye irritation
Respiratory or skin sensitization

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.

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

Registration No. – 140725

Category Code(s):

G7 Boiler, steam line treatment products – nonfood contact

US state regulations**US. California Proposition 65**

California Safe Drinking Water and Toxic Enforcement Act of 2016 (Proposition 65): This material is not known to contain any chemicals currently listed as carcinogens or reproductive toxins. For more information go to www.P65Warnings.ca.gov.

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-17-2014

Revision date

Aug-06-2019

Version #

4.0

Material name: SPECTRUS* NX1102

Version number: 4.0

NFPA ratings

Health: 3
Flammability: 0
Instability: 0

NFPA ratings**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
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

Product and Company Identification: Alternate Name/Document Information
Handling and storage: Precautions for safe handling
Exposure controls/personal protection: Hand protection
Physical & Chemical Properties: Multiple Properties
Ecological information: Persistence / degradability
Ecological information: Other adverse effects
HazReg Data: Europe - EU
GHS: Classification

Prepared by

This SDS has been prepared by SUEZ Regulatory Department (1-215-355-3300).

* Trademark of SUEZ. May be registered in one or more countries.



Material Safety Data Sheet

Issue Date: 04-NOV-2011
Supersedes: 03-OCT-2011

SPECTRUS NX1104

1 Identification

Identification of substance or preparation
SPECTRUS NX1104

Product Application Area
Water-based microbial control agent.

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: 04-NOV-2011

2 Hazard(s) identification

EMERGENCY OVERVIEW

DANGER

Corrosive to skin. Corrosive to the eyes. Vapors, gases, mists and/or aerosols cause irritation to the upper respiratory tract.

DOT hazard: Corrosive to skin, Combustible
Odor: Mild; 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, carbon dioxide, foam or water

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; Corrosive to skin.

ACUTE EYE EFFECTS:

Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:

Vapors, gases, mists and/or aerosols cause irritation to the upper respiratory tract.

INGESTION EFFECTS:

May cause severe irritation or burning of mouth, throat, and gastrointestinal tract with severe chest and abdominal pain, nausea, vomiting, diarrhea, lethargy and collapse. Possible death when ingested in very large doses.

TARGET ORGANS:

Prolonged or repeated exposures may cause CNS depression, primary irritant dermatitis, skin sensitization, tissue necrosis, and/or toxicity to the liver and kidney.

MEDICAL CONDITIONS AGGRAVATED:

Pre-existing skin disorders.

SYMPTOMS OF EXPOSURE:

Inhalation of vapors/mists/aerosols may cause eye, nose, throat and lung irritation. Skin contact may cause severe irritation or burns.

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%)
68424-85-1	ALKYL(C12-C16) DIMETHYLBENZYLAMMONIUM CHLORIDE Corrosive (eyes and skin); toxic (by ingestion)	7-13
13590-97-1	DODECYLGUANIDINE HYDROCHLORIDE (DGH) Corrosive	3-7
67-63-0	2-PROPANOL Flammable liquid; eye and respiratory irritant; CNS depressant; IARC=3 (carcinogen status not classifiable); chronic overexposure may cause liver and kidney toxicity; fetotoxic and developmental toxin in laboratory animals	1-5
64-17-5	ETHANOL Flammable liquid; irritant (eyes); may cause CNS depression; potential liver, kidney, brain, heart and male reproductive toxin; produced mutagenic effects in germ cells and somatic cells (in vivo)	1-5

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. Rinse mouth with plenty of water. Dilute contents of stomach using 4-10 fluid ounces (120-300 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, carbon dioxide, foam or water

HAZARDOUS DECOMPOSITION PRODUCTS:

oxides of carbon and nitrogen, hydrogen chloride, ammonia and volatile amines

FLASH POINT:

150F 66C P-M(CC)

MISCELLANEOUS:

Corrosive to skin, Combustible
UN 3265;Emergency Response Guide #153

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. Remove ignition sources. Flush area with water. 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 - Dispose of in approved pesticide facility or according to label instructions.

7 Handling and storage

HANDLING:

Combustible. Do not use around sparks or flames. Bond containers during filling or discharge when performed at temperatures at or above the product flash point.

STORAGE:

Keep containers closed when not in use. Keep away from flames or sparks. Bond containers during filling or discharge when performed at temperatures at or above the product flash point. Shelf life 270 days.

8 Exposure controls / personal protection

EXPOSURE LIMITS

CHEMICAL NAME

ALKYL(C12-C16) DIMETHYLBENZYLAMMONIUM CHLORIDE

PEL (OSHA): LIMITS HAVE NOT BEEN ESTABLISHED BY US OSHA.

TLV (ACGIH): LIMITS HAVE NOT BEEN ESTABLISHED BY ACGIH.

DODECYLGUANIDINE HYDROCHLORIDE (DGH)

PEL (OSHA): LIMITS HAVE NOT BEEN ESTABLISHED BY US OSHA.

TLV (ACGIH): LIMITS HAVE NOT BEEN ESTABLISHED BY ACGIH.

2-PROPANOL

PEL (OSHA): 400 PPM

TLV (ACGIH): TWA = 200 PPM; STEL = 400 PPM; A4

ETHANOL

PEL (OSHA): 1000 PPM (1900 MG/M3)

TLV (ACGIH): STEL = 1,000 PPM; A3

MISC: NIOSH REL = 1000 PPM (1900 MG/M3); NIOSH IDLH = 3300 PPM

8) EXPOSURE CONTROLS/PERSONAL PROTECTION (continued)

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 organic vapor cartridges and 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)	0.989	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	28	Vapor Density (air=1)	< 1.00
Freeze Point (C)	-2		
Viscosity(cps 70F,21C)	25	% Solubility (water)	100.0

Odor	Mild
Appearance	Colorless To Yellow
Physical State	Liquid
Flash Point	P-M(CC) 150F 66C
pH As Is (approx.)	3.4
Evaporation Rate (Ether=1)	< 1.00

Percent VOC: 4.3

NA = not applicable ND = not determined

10 Stability and reactivity

CHEMICAL STABILITY:

Stable under normal storage conditions.

POSSIBILITY OF HAZARDOUS REACTIONS:

Friction, heat or other sources of ignition may cause a reaction releasing heat and toxic fumes. Contact with oxidizers may cause fire.

INCOMPATIBILITIES:

May react with strong oxidizers.

DECOMPOSITION PRODUCTS:

oxides of carbon and nitrogen, hydrogen chloride, ammonia and volatile amines

11 Toxicological information

Oral LD50 RAT: >5000 mg/kg

NOTE - Calculated value according to GHS additivity formula

Dermal LD50 RABBIT: >5000 mg/kg

NOTE - Estimated value based on chemical structure consideration

12 Ecological information

AQUATIC TOXICOLOGY

Daphnia magna 48 Hour Static Renewal Bioassay

LC50= .16; No Effect Level= .1 mg/L

Fathead Minnow 96 Hour Static Renewal Bioassay

LC50= 2.9; No Effect Level= 1 mg/L

BIODEGRADATION

BOD-28 (mg/g): 24

BOD-5 (mg/g): 9

COD (mg/g): 482

TOC (mg/g): 103

13 Disposal considerations

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
Not applicable.

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, Combustible
 DOT: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(DODECYLGUANIDINE HYDROCHLORIDE)
 8, UN3265, PG II
 DOT EMERGENCY RESPONSE GUIDE #: 153
 Note: Some containers may be DOT exempt, please check BOL for exact container classification
 IATA: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(DODECYLGUANIDINE HYDROCHLORIDE)
 8, UN 3265, PG II
 IMDG: CORROSIVE LIQUID, ACIDIC, ORGANIC, N.O.S.(DODECYLGUANIDINE HYDROCHLORIDE)
 8, UN3265, PG II, MARINE POLLUTANT

15 Regulatory information

TSCA:

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

CERCLA AND/OR SARA REPORTABLE QUANTITY (RQ):

No regulated constituent present at OSHA thresholds

FIFRA REGISTRATION NUMBER:

3876- 145

FOOD AND DRUG ADMINISTRATION:

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

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

Registration number: 141061

Category Code(s):

- G5 Cooling and retort water treatment products - all food processing areas
- G7 Boiler treatment products - all food processing areas/nonfood contact

SARA SECTION 312 HAZARD CLASS:

Immediate(acute);Delayed(Chronic);Fire

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):

This product contains one or more ingredients at trace levels known to the state of California to cause cancer and reproductive toxicity.

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 Other information

HMIS VII		CODE TRANSLATION
Health	3	Serious Hazard
Fire	2	Moderate 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:	16-OCT-1997		** NEW **
	02-DEC-1997	15	16-OCT-1997
	15-MAY-1998		02-DEC-1997
	19-MAY-1998	15	15-MAY-1998
	05-APR-2007	2	19-MAY-1998
	01-MAY-2007	4, 5, 7, 8, 10, 15	05-APR-2007
	29-APR-2009	3, 4, 8, 10	01-MAY-2007
	24-JUN-2009	10, 15	29-APR-2009
	09-JUL-2009	8	24-JUN-2009
	03-OCT-2011	11	09-JUL-2009
	04-NOV-2011	14	03-OCT-2011



SAFETY DATA SHEET

STEAMATE* LSA1793

1. Identification

Product identifier STEAMATE LSA1793
Other means of identification None.
Recommended use Steam condensate treatment.
Recommended restrictions None known.

Company/undertaking identification

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

Emergency telephone

(800) 877 1940

2. Hazard(s) identification

Physical hazards	Flammable liquids	Category 3
Health hazards	Acute toxicity, oral	Category 4
	Acute toxicity, dermal	Category 3
	Acute toxicity, inhalation	Category 3
	Skin corrosion/irritation	Category 1B
	Serious eye damage/eye irritation	Category 1
	Reproductive toxicity (fertility)	Category 2
	Specific target organ toxicity, single exposure	Category 3 respiratory tract irritation
	Specific target organ toxicity, repeated exposure (oral)	Category 1 (kidney, liver)
OSHA defined hazards	Not classified.	

Label elements



Signal word

Danger

Hazard statement

Flammable liquid and vapor. Harmful if swallowed. Toxic in contact with skin. Causes severe skin burns and eye damage. Causes serious eye damage. Toxic if inhaled. May cause respiratory irritation. Suspected of damaging fertility. Causes damage to organs (kidney, liver) through prolonged or repeated exposure by ingestion.

Precautionary statement	
Prevention	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Keep away from heat/sparks/open flames/hot surfaces. - No smoking. Keep container tightly closed. Ground/bond container and receiving equipment. Use explosion-proof electrical/ventilating/lighting// equipment. Use only non-sparking tools. Take precautionary measures against static discharge. 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/. Specific treatment (see on this label). Take off immediately all contaminated clothing and wash it before reuse. In case of fire: Use to extinguish. In case of fire: Use appropriate media to extinguish.
Storage	Store in a well-ventilated place. Keep container tightly closed. Store in a well-ventilated place. Keep cool. Store locked up.
Disposal	Dispose of contents/container to approved local facility.
Hazard(s) not otherwise classified (HNOC)	None known.
Supplemental information	5.19% of the mixture consists of component(s) of unknown acute oral toxicity. 8.19% of the mixture consists of component(s) of unknown acute dermal toxicity. 8.19% of the mixture consists of component(s) of unknown acute inhalation toxicity.

3. Composition/information on ingredients

Mixtures

Components	CAS #	Percent
Dimethylaminoethanol (DMAE)	108-01-0	60 - 80
Cyclohexylamine	108-91-8	10 - 20
Alkyl diaminopropane	7173-62-8	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.
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4. First-aid measures

Inhalation	Remove victim to fresh air and keep at rest in a position comfortable for breathing. If breathing stops, provide artificial respiration. Oxygen or artificial respiration if needed. Do not use mouth-to-mouth method if victim inhaled the substance. Induce artificial respiration with the aid of a pocket mask equipped with a one-way valve or other proper respiratory medical device. Call a POISON CENTER or doctor/physician.
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	Never give anything by mouth to a victim who is unconscious or is having convulsions. Do not induce vomiting. Dilute contents of stomach using 3-4 glasses milk or water. If vomiting occurs, keep head low so that stomach content doesn't get into the lungs. Call a physician or poison control center immediately.
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. Edema. Jaundice. Prolonged exposure may cause chronic effects.
Indication of immediate medical attention and special treatment needed	Provide general supportive measures and treat symptomatically. Thermal 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	Take off immediately all contaminated clothing. 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. Show this safety data sheet to the doctor in attendance. Wash contaminated clothing before reuse.

5. Fire-fighting measures

Suitable extinguishing media	Water fog. Alcohol resistant foam. Dry chemical powder. Carbon dioxide (CO ₂).
Unsuitable extinguishing media	Do not use water jet as an extinguisher, as this will spread the fire.
Specific hazards arising from the chemical	Vapors may form explosive mixtures with air. Vapors may travel considerable distance to a source of ignition and flash back. 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	Flammable liquid and vapor.

6. Accidental release measures

Personal precautions, protective equipment and emergency procedures	Keep unnecessary personnel away. Keep people away from and upwind of spill/leak. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). 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. Ventilate closed spaces before entering them. Local authorities should be advised if significant spillages cannot be contained. See Section 8 of the SDS for Personal Protective Equipment. For personal protection, see section 8 of the SDS.
Methods and materials for containment and cleaning up	Use water spray to reduce vapors or divert vapor cloud drift. Eliminate all ignition sources (no smoking, flares, sparks, or flames in immediate area). Keep combustibles (wood, paper, oil, etc.) away from spilled material. Take precautionary measures against static discharge. Use only non-sparking tools. 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. 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: Absorb with earth, sand or other non-combustible material and transfer to containers for later disposal. 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	Obtain special instructions before use. Do not handle until all safety precautions have been read and understood. Do not handle, store or open near an open flame, sources of heat or sources of ignition. Protect material from direct sunlight. Explosion-proof general and local exhaust ventilation. Take precautionary measures against static discharges. All equipment used when handling the product must be grounded. Use non-sparking tools and explosion-proof equipment. 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. Pregnant or breastfeeding women must not handle this product. Should be handled in closed systems, if possible. Wear appropriate personal protective equipment. Wash hands thoroughly after handling. Wash contaminated clothing before reuse. Observe good industrial hygiene practices.
Conditions for safe storage, including any incompatibilities	Store locked up. Keep away from strong bases. Keep away from heat, sparks and open flame. Do not use, pour or store near heat or open flames. Prevent electrostatic charge build-up by using common bonding and grounding techniques. Store in a cool, dry place out of direct sunlight. Store in original tightly closed container. Store in a well-ventilated place. Keep in an area equipped with sprinklers. Store away from incompatible materials (see Section 10 of the SDS). Do not freeze. 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
Cyclohexylamine (CAS 108-91-8)	TWA	10 ppm

US. NIOSH: Pocket Guide to Chemical Hazards

Components	Type	Value
Cyclohexylamine (CAS 108-91-8)	TWA	40 mg/m3 10 ppm
Biological limit values	No biological exposure limits noted for the ingredient(s).	
Appropriate engineering controls	Explosion-proof general and local exhaust 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. Eye wash facilities and emergency shower must be available when handling this product.	
Individual protection measures, such as personal protective equipment		
Eye/face protection	Splash proof chemical goggles. Face shield.	
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. Glove selection must take into account any solvents and other hazards present.	
Other	Wear suitable protective clothing.	
Respiratory protection	Chemical respirator with organic vapor cartridge and full facepiece. 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	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 light yellow
Physical state	Liquid
Odor	Strong amine
Odor threshold	Not available.
pH (concentrated product)	12.9
pH in aqueous solution	11.9 (5% SOL.)
Melting point/freezing point	< -22 °F (< -30 °C)
Initial boiling point and boiling range	Not available.
Flash point	115 °F (46 °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	< 11 mm Hg
Vapor pressure temp.	70 °F (21 °C)
Vapor density	> 1 (Air = 1)
Relative density	0.9
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	17 cps
Viscosity temperature	70 °F (21 °C)
Other information	
Pour point	< -22 °F (< -30 °C)
Specific gravity	0.899
VOC	92 % (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. Contact with strong acids may cause a violent reaction releasing heat. Friction, heat or other sources of ignition may cause a reaction releasing heat and toxic fumes. Contact with oxidizers may cause fire or explosion.
Conditions to avoid	Protect from freezing. Avoid heat, sparks, open flames and other ignition sources. Avoid temperatures exceeding the flash point.
Incompatible materials	Avoid contact with strong acids and oxidisers.
Hazardous decomposition products	Oxides of carbon evolved in fire.

11. Toxicological information

Information on likely routes of exposure

Inhalation	Toxic if inhaled. May cause damage to organs through prolonged or repeated exposure by inhalation. Mists or aerosols cause irritation to upper respiratory tract.
Skin contact	Toxic in contact with skin. Causes severe skin burns.
Eye contact	Causes serious eye damage.
Ingestion	Causes digestive tract burns. Harmful if swallowed. 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. Edema. Jaundice.
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Information on toxicological effects

Acute toxicity	Toxic if inhaled. Toxic in contact with skin. Harmful if swallowed. May cause respiratory irritation.
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Product	Species	Test Results
STEAMATE LSA1793 (CAS Mixture)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	836 mg/kg, (Calculated according to GHS additivity formula (Category 3))
<i>Inhalation</i>		
LC50	Rat	8.04 mg/l, 4 Hours, (Calculated according to GHS additivity formula (Category 3))
<i>Oral</i>		
LD50	Rat	587 mg/kg, (Calculated according to GHS additivity formula (Category 4))

Components	Species	Test Results
Alkyl diaminopropane (CAS 7173-62-8)		
Acute		
<i>Oral</i>		
LD50	Rat	500 mg/kg
Cyclohexylamine (CAS 108-91-8)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	277 mg/kg
<i>Oral</i>		
LD50	Rat	156 mg/kg
Dimethylaminoethanol (DMAE) (CAS 108-01-0)		
Acute		
<i>Dermal</i>		
LD50	Rabbit	1220 mg/kg
<i>Inhalation</i>		
LC50	Rat	6.1 mg/l, 4 Hour
<i>Oral</i>		
LD50	Rat	1210 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 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 Suspected of damaging fertility.

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

Specific target organ toxicity - repeated exposure Causes damage to organs (kidney, liver) through prolonged or repeated exposure by ingestion.

Aspiration hazard May be harmful if swallowed and enters airways. Based on available data, the classification criteria are not met.

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

12. Ecological information

Ecotoxicity

Product	Species	Test Results
STEAMATE LSA1793 (CAS Mixture)		
LC50	Fathead Minnow	5.7 mg/l, Static Renewal Bioassay, 96 hour
NOEL	Fathead Minnow	2.5 mg/l, Static Renewal Bioassay, 96 hour

Product	Species		Test Results
Aquatic Crustacea	LC50	Daphnia magna	4.9 mg/l, Static Renewal Bioassay, 48 hour
	NOEL	Daphnia magna	2.5 mg/l, Static Renewal Bioassay, 48 hour
Bioaccumulative potential	No data available.		
Partition coefficient n-octanol / water (log Kow)			
Cyclohexylamine		1.49	
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.		
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.		

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). Empty containers or liners may retain some product residues. This material and its container must be disposed of in a safe manner.
Contaminated packaging	Since emptied containers may retain product residue, follow label warnings even after container is emptied. Empty containers should be taken to an approved waste handling site for recycling or disposal.

14. Transport information

DOT	
UN number	UN2734
UN proper shipping name	Amines, liquid, corrosive, flammable, n.o.s. (2-DIMETHYLAMINOETHANOL, CYCLOHEXYLAMINE)
Transport hazard class(es)	
Class	8
Subsidiary risk	3
Packing group	II
Special precautions for user	Read safety instructions, SDS and emergency procedures before handling.
ERG number	132
Some containers may be exempt from Dangerous Goods/Hazmat Transport Regulations, please check BOL for exact container classification.	
IATA	
UN number	UN2734
UN proper shipping name	Amines, liquid, corrosive, flammable, n.o.s. (2-DIMETHYLAMINOETHANOL, CYCLOHEXYLAMINE)
Transport hazard class(es)	
Class	8
Subsidiary risk	3
Packing group	II
Environmental hazards	No.

ERG Code 132
Special precautions for user Read safety instructions, SDS and emergency procedures before handling.

IMDG

UN number UN2734
UN proper shipping name AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S. (2-DIMETHYLAMINOETHANOL, CYCLOHEXYLAMINE)
Transport hazard class(es)
Class 8
Subsidiary risk 3
Packing group II
Environmental hazards
Marine pollutant No.
EmS F-E, S-C
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)

Not listed.

SARA 304 Emergency release notification

Cyclohexylamine (CAS 108-91-8) 10000 LBS

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 - Yes
Fire Hazard - Yes
Pressure Hazard - No
Reactivity Hazard - No

SARA 302 Extremely hazardous substance

Chemical name	CAS number	Reportable quantity (pounds)	Threshold planning quantity (pounds)	Threshold planning quantity, lower value (pounds)	Threshold planning quantity, upper value (pounds)
Cyclohexylamine	108-91-8	10000	10000		
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)

Cyclohexylamine (CAS 108-91-8)

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

Aniline (CAS 62-53-3)

Listed: January 1, 1990

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

Cyclohexylamine (CAS 108-91-8)

Dimethylaminoethanol (DMAE) (CAS 108-01-0)

US - Pennsylvania RTK - Hazardous Substances

Cyclohexylamine (CAS 108-91-8)

Listed.

Dimethylaminoethanol (DMAE) (CAS 108-01-0)

Listed.

US - Rhode Island RTK

Cyclohexylamine (CAS 108-91-8)

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

Cyclohexylamine (CAS 108-91-8)

Listed.

Dimethylaminoethanol (DMAE) (CAS 108-01-0)

Listed.

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

Dimethylaminoethanol (DMAE) (CAS 108-01-0)

Hazardous substance

US. California Proposition 65

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

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

Issue date	Feb-13-2015
Revision date	Dec-20-2017
Version #	2.4

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
TSRN indicates a Trade Secret Registry Number is used in place of the CAS number.

References: No data available

Disclaimer
The information in the sheet was written based on the best knowledge and experience currently available. 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 SUEZ Regulatory Department (1-215-355-3300).

* Trademark of SUEZ. May be registered in one or more countries.



Material Safety Data Sheet

Issue Date: 20-OCT-2011
Supersedes: 10-NOV-2008

STEAMATE NA0660

1 Identification

Identification of substance or preparation

STEAMATE NA0660

Product Application Area

Neutralizing amine.

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: 20-OCT-2011

2 Hazard(s) identification

EMERGENCY OVERVIEW

DANGER

Corrosive to skin. Absorbed by skin. Potential skin sensitizer.
Corrosive to the eyes. Vapors, gases, mists and/or aerosols cause irritation to the upper respiratory tract. Prolonged exposure may cause dizziness and headache.

DOT hazard: Corrosive to skin, Flammable
Odor: Amine; 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, carbon dioxide, or foam--Water spray should be used only to cool fire-exposed containers and disperse vapors.

POTENTIAL HEALTH EFFECTS

ACUTE SKIN EFFECTS:

Primary route of exposure; Corrosive to skin. Absorbed by skin.
Potential skin sensitizer.

ACUTE EYE EFFECTS:

Corrosive to the eyes.

ACUTE RESPIRATORY EFFECTS:

Primary route of exposure; Vapors, gases, mists and/or aerosols cause irritation to the upper respiratory tract. Prolonged exposure may cause dizziness and headache.

INGESTION EFFECTS:

May cause severe irritation or burning of mouth, throat, and gastrointestinal tract with severe chest and abdominal pain, nausea, vomiting, diarrhea, lethargy and collapse. Possible death when ingested in very large doses.

TARGET ORGANS:

Prolonged or repeated exposures may cause CNS depression and/or tissue necrosis.

MEDICAL CONDITIONS AGGRAVATED:

Asthma, allergies, skin disorders, and chronic respiratory disease.

SYMPTOMS OF EXPOSURE:

Inhalation may cause lightheadedness, slurred speech, nausea, and/or vomiting (pulmonary edema may result). Skin contact can cause severe irritation or burns.

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%)
5332-73-0	METHOXYPROPYLAMINE, 3- Flammable liquid; corrosive	30-60
108-91-8	CYCLOHEXYLAMINE Flammable; corrosive; toxic (by ingestion and skin absorption); skin sensitizer; CNS depressant; blood toxin (methemoglobinemia)	15-40

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 water for 30 minutes while removing contact lenses. Hold eyelids apart. Get immediate medical attention.

INHALATION:

Remove to fresh air. If breathing is difficult, give oxygen. If breathing has stopped, give artificial respiration. Get immediate 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, carbon dioxide, or foam--Water spray should be used only to cool fire-exposed containers and disperse vapors.

HAZARDOUS DECOMPOSITION PRODUCTS:

elemental oxides

FLASH POINT:

117F 47C P-M(CC)

MISCELLANEOUS:

Corrosive to skin, Flammable

UN 2734;Emergency Response Guide #132

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. Remove ignition sources. Flush area with water. 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:

Flammable. Do not use near sparks, flames or sources of ignition. Alkaline. Corrosive(Skin). Do not mix with acidic material.

STORAGE:

Keep containers closed when not in use. Store in cool ventilated location. Store away from oxidizers. Store away from acids.

8 Exposure controls / personal protection

EXPOSURE LIMITS

CHEMICAL NAME

METHOXYPROPYLAMINE, 3-

PEL (OSHA): LIMITS HAVE NOT BEEN ESTABLISHED BY US OSHA.

TLV (ACGIH): LIMITS HAVE NOT BEEN ESTABLISHED BY ACGIH.

CYCLOHEXYLAMINE

PEL (OSHA): LIMITS HAVE NOT BEEN ESTABLISHED BY US OSHA.

TLV (ACGIH): TWA = 10 PPM; A4

MISC: NIOSH REL = 10 PPM/40 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 a respirator with organic vapor cartridges and dust/mist prefilters.

SKIN PROTECTION:

gauntlet-type 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)	0.960	Vapor Pressure (mmHG)	~ 18.0
Freeze Point (F)	< -30	Vapor Density (air=1)	> 1.00
Freeze Point (C)	< -34		
Viscosity(cps 70F,21C)	17	% Solubility (water)	100.0
Odor	Amine		
Appearance	Colorless To Yellow		
Physical State	Liquid		
Flash Point	P-M(CC)	117F	47C
pH As Is (approx.)	13.0		
Evaporation Rate (Ether=1)	< 1.00		
Percent VOC:	57.0		

NA = not applicable ND = not determined

10 Stability and reactivity

CHEMICAL STABILITY:

Stable under normal storage conditions.

POSSIBILITY OF HAZARDOUS REACTIONS:

Friction, heat or other sources of ignition may cause a violent reaction releasing heat and toxic fumes. Contact with oxidizers may cause fire or explosion.

INCOMPATIBILITIES:

May react with acids.

DECOMPOSITION PRODUCTS:

elemental oxides

11 Toxicological information

Oral LD50 RAT: 560 mg/kg
NOTE - Estimated value
Dermal LD50 RABBIT: 1,150 mg/kg
NOTE - Estimated value
Eye Irritation Score RABBIT: CORROSIVE
NOTE - 15% Cyclohexylamine score:101, +/-rinsing, constant
irritation, nonreversible

12 Ecological information

AQUATIC TOXICOLOGY

Daphnia magna 48 Hour Static Renewal Bioassay
LC50= 600; No Effect Level= 178.5 mg/L
Fathead Minnow 96 Hour Acute Toxicity (Estimated)
LC50= 280; No Effect Level= 130 mg/L

BIODEGRADATION

BOD-28 (mg/g): 45
BOD-5 (mg/g): 1
COD (mg/g): 1279
TOC (mg/g): 316

13 Disposal considerations

If this undiluted product is discarded as a waste, the US RCRA hazardous waste identification number is :
D001=Ignitable;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, Flammable
DOT: AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.(CYCLOHEXYLAMINE,
METHOXYPROPYLAMINE)
8(3), UN2734, PG II
DOT EMERGENCY RESPONSE GUIDE #: 132
Note: Some containers may be DOT exempt, please check BOL for exact container classification
IATA: AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.(CYCLOHEXYLAMINE,
METHOXYPROPYLAMINE)
8(3), UN2734, PG II
IMDG: AMINES, LIQUID, CORROSIVE, FLAMMABLE, N.O.S.(CYCLOHEXYLAMINE,
METHOXYPROPYLAMINE)
8(3), UN2734, PG II

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):

No regulated constituent present at OSHA thresholds

FOOD AND DRUG ADMINISTRATION:

All ingredients in this product are authorized in 21 CFR176.170 for use in boilers where the steam will be used for manufacturing paper or paperboard.

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

Registration number: Not Registered

SARA SECTION 312 HAZARD CLASS:

Immediate(acute);Delayed(Chronic);Fire

SARA SECTION 302 CHEMICALS:

CAS#	CHEMICAL NAME
108-91-8	CYCLOHEXYLAMINE

SARA SECTION 313 CHEMICALS:

No regulated constituent present at OSHA thresholds

CALIFORNIA REGULATORY INFORMATION**CALIFORNIA SAFE DRINKING WATER AND TOXIC****ENFORCEMENT ACT (PROPOSITION 65):**

This product contains one or more ingredients known to the state of California to cause cancer.

MICHIGAN REGULATORY INFORMATION

No regulated constituent present at OSHA thresholds

16 Other information

HMIS VII**CODE TRANSLATION**

Health	3	Serious Hazard
Fire	2	Moderate 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:	29-JAN-1997		** NEW **
	04-JUN-1997	15	29-JAN-1997
	08-MAY-2006	3,4,8,15	04-JUN-1997
	10-NOV-2008	3,8	08-MAY-2006
	20-OCT-2011	4,7,10	10-NOV-2008

Attachment TR-8
Stormwater Activities
TPDES Permit No. WQ0003927000
Technical Report 1.0, Item 6

Most noncontact stormwater is routed to stormwater impoundments, where it is allowed to evaporate, or when rainfall is high enough, discharged via permitted outfalls. Outfall 002 is the discharge point from Pond 1. Outfalls 003, 004, 005, 007, and 008 are the discharge points from Ponds 3, 4, 5, 7, and 8, respectively. Stormwater to be discharged via proposed Outfall 014 will not be routed to any impoundment prior to discharge.

Crude oil, intermediates, and finished product storage, handling, and processing units and associated support areas of the refinery are activities that may result in exposure to precipitation. Typical materials with which precipitation could come into contact are petroleum hydrocarbons, spent lime, metals, rust inhibitors, paint, and asphalt (see Attachment TR-2 for a detailed list of materials associated with the facility).

In addition to other environmental plans, policies and procedures, the refinery operates under a Storm Water Pollution Prevention Plan (SWPPP) and a Spill Control, Prevention, Control and Countermeasures (SPCC) Plan. Measures are in place to prevent the potential for precipitation to become contaminated due to contact with materials stored outdoors. Best Management Practices (BMPs) are implemented per the refinery's SWPPP. The SWPPP and SPCC Plan include detailed discussions of BMPs. Spills and releases are handled per the refinery's SPCC Plan and spill response policies and procedures, which are compliant with applicable regulations.

Employees receive training regarding implementation of the policies and BMPs outlined in the SWPPP and SPCC Plan. Key BMPs in place at the refinery include good housekeeping practices, spill prevention and response measures, and structural controls.

Good housekeeping procedures include, but are not limited to, ensuring that trash and materials are properly disposed of and not allowed to accumulate, ensuring proper storage of materials and equipment, ensuring that maintenance and cleaning of equipment is performed in a compliant manner and in an appropriate area of the facility, performing material transfer in a compliant manner and at an appropriate area of the facility, ensuring all spill prevention and response measures and controls are in place and are being properly implemented, and sealing and storing containers and drums in a proper compliant manner.

If a spill does occur, employees are trained to respond in a manner that is compliant with the refinery's spill response plans, policies, and procedures. Immediate attention is given to spills and releases so as to mitigate adverse impacts. For reportable quantity spills, appropriate regulatory notifications and follow-up communications are made. The refinery has trained onsite staff spill responders and an incident command structure (staffed by trained, authorized, and empowered personnel) that is deployed in the event of a spill.

Structural controls are in place to minimize the potential for stormwater impacts. Areas with a potential for materials exposure (such as process areas and material transfer and storage areas) are bermed and/or roofed and separately drained through collection basins or sumps to prevent runoff. Maintenance and cleaning of equipment only occurs in designated areas and in a manner that is designed to minimize the potential for stormwater impacts.

Attachment TR-9
Production Data
TPDES Permit No. WQ0003927000
Worksheet 1.0, Item 2

Refining Process Production Levels		
Process	Production Levels (BPSD*)	
	Capacity	Actual
Throughput	211,100	175,000
Crude Processes		
Atmospheric Crude Distillation	211,100	175,000
Crude Desalting	211,100	175,000
Vacuum Crude Distillation	54,500	42,400
Cracking and Coking Processes		
Fluid Catalytic Cracking	58,900	46,500
Hydrocracking	30,000	25,900
Asphalt Processes		
Asphalt Production	7,200	2,100

*BPSD — barrels per stream day

Attachment TR-10
Process/Nonprocess Wastewater Flows
TPDES Permit No. WQ0003927000
Worksheet 1.0, Item 3

Outfall 001

Contributing Wastestreams	Volume (MGD)	% of Total Flow
<i>Process Wastewater</i>		
Process wastewater, including process area stormwater	2.160	66.8
Total =	2.160	
<i>Nonprocess Wastewater</i>		
Refinery cooling tower blowdown	0.50976	15.8
Gas plant cooling tower blowdown	0.35424	10.9
Boiler blowdown	0.115	3.6
Domestic wastewater	0.095	2.9
Total =	1.074	33.2
<i>All Wastewater</i>		
Total =	3.234	100.0

Attachment TR-11
DMR Data
TPDES Permit No. WQ0003927000
Worksheet 2.0, Item 3

DMR data is provided for all outfall discharges that have occurred since 2020.

Outfall 005	8/31/2021	5/31/2023	6/30/2023	8/31/2024	5/31/2025
TOC (mg/L)	24.1	24.3	16.9	15.2	367.0
Oil & Grease (mg/L)	2.2	4.44	4.51	4.35	4.55
pH (SU)	8.57	8.34	8.87	7.49	7.58

Outfall 007	7/31/2021	4/30/2022	5/31/2023	6/30/2023	7/31/2023	8/31/2024	5/31/2025
TOC (mg/L)	10.3	20.5	14.5	6.0	7.52	14.1	11.9
Oil & Grease (mg/L)	2.08	4.26	4.44	4.35	2.18	8.6	Not Detected
pH (SU)	8.7	8.1	8.76	8.13	8.21	8.4	7.66

Attachment TR-12
Site Map – Stormwater
TPDES Permit No. WQ0003927000
Technical Report, Worksheet 7.0, Item 3

Site Maps for Individual Stormwater Outfalls

Outfall 002



Outfall 003



Outfall 008



Outfall 009



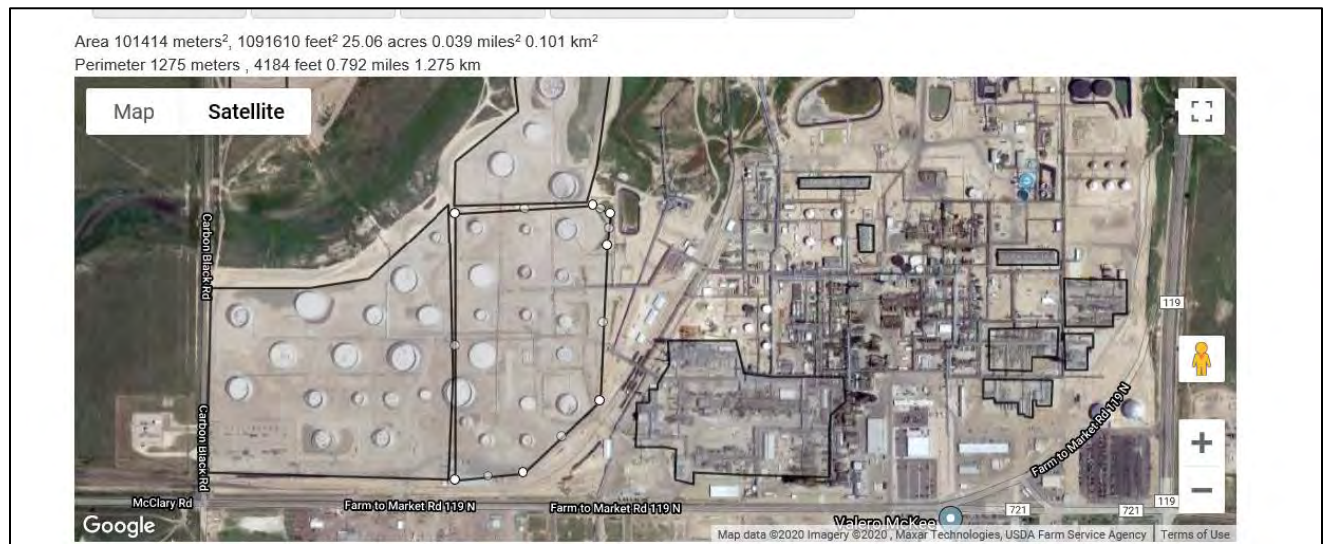
Outfall 010



Outfall 011



Outfall 012



Outfall 013



Outfall 014

Area 10445 meters², 112432 feet² 2.58 acres 0.004 miles² 0.010 km²
Perimeter 297 meters, 975 feet 0.185 miles 0.297 km



[Return to this radius map here, just save this link](#)

▲ - Indicates location of reportable spill



October 31, 2025

Ms. Rachel Ellis
Applications Review and Processing Team (MC148)
Water Quality Division
Texas Commission on Environmental Quality

RE: Application to Renew Permit No.: WQ0003927000 (EPA I.D. No. TX0115851)
Applicant Name: Diamond Shamrock Refining Company, L.P. (CN600124861)
Site Name: Valero McKee Refinery (RN100210517)
Type of Application: Renewal without changes

Dear Ms. Ellis:

In accordance with TCEQ requirements, please find attached the following documents for your review and approval:

1. A Plain Language Summary (PLS) in a Microsoft Word document.
2. A PDF of the NORI with corrections italicized.

This submission pertains to the Application to Renew Permit NO.: WQ0003927000 (EPA I.D. N0. TX0115851) for Valero McKee Diamond Shamrock Refining Company, L.P. (CN600124861).

Should you require additional information or clarification, please contact me at Kenny.Hamilton@valero.com or at (806)-935-1453.

Thank you very much for assistance and attention with this matter.

Sincerely,

A handwritten signature in black ink that reads 'Kenneth Hamilton'.

Kenneth Hamilton
Environmental Engineer
Valero McKee Refinery

Rachel Ellis

From: Hamilton, Kenny <Kenny.Hamilton@valero.com>
Sent: Friday, October 31, 2025 4:03 PM
To: Rachel Ellis
Cc: npoulter@ruleeng.com
Subject: RE: Application for Renewal Permit No. WQ0003927000-Diamond Shamrock Refining Company, L.P.- Notice of Deficiency Letter
Attachments: Signed Cover Letter.pdf; 251027_WQ0003927000_PLS.docx; NORI.pdf

Dear Ms. Ellis:

Thank you for reaching out with the Notice of Deficiency letter. Attached are the additional requested documents. The included documents are:

1. A signed cover letter, addressed to the Water Quality Division of the TCEQ.
2. A Plain Language Summary (PLS) in a Microsoft Word document. The PLS is documented in English and Spanish.
3. The NORI with corrected language italicized.

Thank you very much for your assistance with this matter. Please contact me should you require additional information or clarification.

Sincerely,

Kenneth Hamilton, Phd
Environmental Engineer

Valero McKee Refinery
6701 FM 119, Sunray, TX 79086
Office: (806) 935 1453



From: Rachel Ellis <Rachel.Ellis@tceq.texas.gov>
Sent: Monday, October 20, 2025 1:57 PM
To: Hamilton, Kenny <Kenny.Hamilton@valero.com>
Cc: npoulter@ruleeng.com
Subject: Application for Renewal Permit No. WQ0003927000-Diamond Shamrock Refining Company, L.P.- Notice of Deficiency Letter

Dear Mr. Hamilton,

The attached Notice of Deficiency letter sent on October 20, 2025, requests additional information needed to declare the application administratively complete. Please send the complete response to my attention by **November 3, 2025**.

Thank you,

Rachel Ellis

License & Permit Specialist

Texas Commission on Environmental Quality

ARP Team | Water Quality Division

Rachel.Ellis@tceq.texas.gov





TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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

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

INDUSTRIAL WASTEWATER/STORMWATER: PERMIT NO. 3927000 RENEWAL

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.

Diamond Shamrock Refining Company, L.P. (CN600124861) operates the Valero McKee Refinery (RN100210517), a petroleum refinery. The facility is located at 6701 FM 119, in Sunray, Moore County, Texas 79086. This application is for a renewal to discharge stormwater, utility wastewater, treated wastewater, and hydrostatic testing water from 14 outfalls as follows: Outfall 001 – treated process wastewater, treated utility wastewater, treated domestic wastewater, and stormwater; Outfalls 002, 003, 008, and 014 – stormwater; Outfalls 004, 005, 007 – stormwater and utility wastewater; Outfalls 009, 010, 011, 012, and 013 – stormwater, utility wastewater, and hydrostatic test water. Outfall 001 is not constructed and therefore discharge of treated process / domestic wastewater is not expected. Stormwater, utility wastewater, and hydrostatic testing water are discharged on an intermittent and flow-variable basis from the remaining outfalls.

Discharges from the facility are expected to contain Total Organic Carbon (TOC) and Oil and Grease. Additional potential pollutants are included in the Industrial Wastewater Application Technical Report, Worksheet 2.0 in the permit application package. Stormwater and utility wastewater is treated by settlement in outfall-specific stormwater ponds; hydrostatic testing water is sampled prior to discharge.

AGUAS RESIDUALES INDUSTRIALES /AGUAS PLUVIALES: RENOVACION DE LICENSIA NO. 3927000

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.

Diamond Shamrock Refining Company, L.P. (CN60014861) opera el Valero McKee Refinery RN100210517, una refinería de petróleo. La instalación está ubicada en 6701 FM 119, en Sunray, Condado de Moore, Texas 79086. Esta solicitud es para la renovación del permiso para descargar aguas pluviales, aguas residuales de servicios, aguas residuales tratadas y agua de prueba hidrostática de 14 puntos de descarga de la siguiente manera: Descarga 001: aguas residuales de proceso tratadas, aguas residuales de servicios tratadas, aguas residuales domésticas tratadas y aguas pluviales; Descargas 002, 003, 008 y 014: aguas pluviales; Descargas 004, 005, 007: aguas pluviales y aguas residuales de servicios públicos; Descargas 009, 010, 011, 012 y 013: aguas pluviales, aguas residuales de servicios públicos y agua de prueba hidrostática. El punto de descarga 001 no está construido y, por lo tanto, no se espera la descarga de aguas residuales de proceso/domésticas tratadas. Las aguas pluviales, las aguas residuales de servicios públicos y el agua de prueba hidrostática se descargan de forma intermitente y con caudal variable desde las descargas restantes.

Se espera que las descargas de la instalación contengan carbono orgánico total (COT) y aceites y grasas. Se incluyen otros contaminantes potenciales en el Informe Técnico de Aplicación de Aguas Residuales Industriales, Hoja de Trabajo 2.0, del paquete de solicitud de permiso. Aguas pluviales y aguas residuales de servicios públicos están tratado por sedimentación en estanques de aguas pluviales específicos para cada punto de descarga; el agua de pruebas hidrostáticas se muestrea antes de su descarga.



Rachel Ellis
Applications Review and Processing Team (MC148)
Water Quality Division
Texas Commission of Environmental Quality

APPLICATION. Diamond Shamrock Refining Company, L.P., 6701 Farm-to-Market Road 119, Sunray, Texas 79086, which owns an oil refining factory, has applied to the Texas Commission on Environmental Quality (TCEQ) to renew Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0003927000 (EPA I.D. No. TX0115851) to authorize the discharge of *treated process wastewater, treated utility wastewater, treated domestic wastewater, and stormwater from Outfall 001; the discharge of stormwater at an intermittent and flow-variable rate from Outfalls 002, 003, 008, and 014; the discharge of stormwater and utility wastewater at an intermittent and flow-variable rate from Outfalls 004, 005, and 007; and the discharge of stormwater, utility wastewater, and hydrostatic test water at an intermittent and flow-variable rate from Outfalls 009, 010, 011, 012 and 013* at a volume not to exceed a daily average flow of 140,000 gallons per day. The facility is located at 6701 Farm-to-Market Road 119, near the city of Sunray, in Moore County, Texas 79086. The discharge route is from the plant site via Outfalls 001, 002, 003, 004, 005, 007, 008, 009, 010, 011, 012, and 014 to South Palo Duro Creek, thence to Palo Duro Creek, thence to Palo Duro Reservoir, thence to Palo Duro Creek; and via Outfall 013 to an unnamed ditch, thence to South Palo Duro Creek, thence to Palo Duro Creek, thence to Palo Duro Reservoir, thence to Palo Duro Creek; all thence to the Canadian River Basin in the State of Oklahoma. TCEQ received this application on October 9, 2025. The permit application will be available for viewing and copying at Kilgore Memorial Library, 124 South Bliss Avenue, Dumas, 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=-01.87388,35.951944&level=18>

Further information may also be obtained from Diamond Shamrock Refining Company, L.P. at the address stated above or by calling Mr. Chris Cromeens, Environmental Engineer, at 806-935-1353.