BASF
We create chemistry

BASF CORPORATION
FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

PERMIT RENEWAL APPLICATION

MAY 2025
REVISION: JUNE 2025

Coterie ENVIRONMENTAL
840 FIRST AVENUE, SUITE 400 • KING OF PRUSSIA, PA 19406
610.945.1777 • WWW.COTERIE-ENV.COM

PART A

Texas Commission on Environmental Quality
Instructions and Procedural Information
for Filing a Permit Application for a
Hazardous Waste Storage, Processing, or Disposal Facility

Part A

[**Form Availability**: This form, as well as other Industrial and Hazardous Waste documents, is available on the Internet World Wide Web, Industrial and Hazardous Waste home page at address https://www.tceq.texas.gov/permitting/waste_permits/ihw_permits]

General Instructions

1. A person (individual, corporation or other legal entity) who stores, processes or disposes of hazardous waste (except where such storage and/or processing is excluded from permit requirements in accordance with 30 Texas Administrative Code (TAC) Section 335.2) must obtain a permit pursuant to the Texas Health and Safety Code. In applying to the Texas Commission on Environmental Quality, hereafter referred to as the Commission, the applicant shall follow the procedures outlined below, on the application and in the Rules of the Commission.

2. The application (one original plus three (3) complete copies[1]) should be mailed to:

   Texas Commission on Environmental Quality
   Attention: Waste Permits Division, MC126
   P. O. Box 13087
   Austin, Texas 78711-3087

3. Signature on Application [30 TAC 305.44]. The application shall be signed by the owner and operator or by a duly authorized agent, employee, officer, or representative of the owner or operator and shall be verified before a notary public. When another person signs on behalf of the owner and operator, this person's title or relationship to the owner or operator should be shown. In all cases, the person signing the form should be authorized to do so by the owner or operator (the Commission may require a person signing on behalf of an owner or operator to provide proof of authorization). An application submitted for a corporation must be signed by (or the signatory must be authorized by) a responsible corporate officer such as a president, secretary, treasurer, vice-president, or designated manager; or for a partnership or sole proprietorship, by a general partner or the proprietor, respectively. In the case of a municipal, state, federal, or other public facility, the application shall be signed by either a principal executive

[1] The third copy may optionally consist of paper copies of all plans and maps and a computer diskette of the remaining document. The document should be formatted in Word processing software up to and including version 6.1 or a 100% compatible format. Files may be compressed using PKZIP Ver. 2 or a 100% compatible program.

officer or ranking elected official.

4. An application will not be processed until all information required to properly evaluate the application has been obtained. When an application is severely lacking in detail and/or the applicant fails to submit additionally requested information in a timely manner, the application will not be considered to be "filed in accordance with the rules and regulations of the Commission."

   Please submit any application revisions with a revised date and page numbers at the bottom of the page(s).

5. Fees and Costs

   a. The fee for filing an application is discussed in Section XII of Part B, form number TCEQ-0376.

   b. The applicant for a permit is required to bear the cost of publication of notice of the application in a newspaper as prescribed by 30 TAC Section 39.405(f).

6. A person may not commence operation of a hazardous waste management facility until the Commission has issued a permit to authorize the storage, processing, or disposal of hazardous waste, except with the approval of the Commission.

7. Designation of Material as Confidential

   The designation of material as confidential is frequently carried to excess. The Commission has a responsibility to provide a copy of each application to other review agencies and to interested persons upon request and to safeguard confidential material from becoming public knowledge. Thus, the Commission requests that the applicant (1) be prudent in the designation of material as confidential and (2) submit such material only when it might be essential to the staff in their development of a recommendation.

   The Commission suggests that the applicant NOT submit confidential information as part of the permit application. However, if this cannot be avoided, the confidential information should be described in non-confidential terms throughout the application, and submitted as a document or binder, and conspicuously marked "CONFIDENTIAL."

   Reasons of confidentiality include the concept of trade secrecy and other related legal concepts which give a business the right to preserve confidentiality of business information to obtain or retain advantages from its right in the information. This includes authorizations under 18 U.S.C. 1905 and special rules cited in 40 CFR Chapter I, Part 2, Subpart B.

   Section 361.037 of the Texas Health and Safety Code does not allow an applicant for an industrial and hazardous waste permit to claim as confidential any record pertaining to the characteristics of the industrial solid waste.

   The applicant may elect to withdraw any confidential material submitted with the application. However, the permit cannot be issued, amended, or modified if the application is incomplete.

Part II

Procedural Information

After the submittal of Parts A and B of the application, the TCEQ will provide public notice of receipt of the application. The Executive Director's staff will review the application for completeness of information submitted. During the review, the applicant may be contacted for clarification or additional information. When all pertinent information is present, the application or a summary of its contents will be forwarded for review by other state agencies and local governmental entities interested in water quality control and solid waste management. After technical evaluation, opportunity for public hearing will be afforded.

Note that for facilities which had "commenced on-site storage, processing, or disposal of hazardous waste" [see 30 TAC Section 335.43(b)] on or before the date such waste is identified or listed as hazardous by EPA, the Texas Health and Safety Code provides in Section 361.082(f) that these facilities may continue to manage hazardous waste until such time as the Commission approves or denies the application, provided that the applicant has filed the permit application in accordance with the rules and regulations of the Commission.

The Commission may act upon an application for a permit, permit amendment, permit modification, or renewal of a permit without the necessity of holding a public hearing:

1. (a) When notice of the application has been mailed to persons possibly affected by the proposed permit; and

   (b) When notice has been published at least once in a newspaper regularly published or circulated within each county where the proposed facility is located; and

   (c) Within forty-five (45) days following publication of the Commission's notice, a Commissioner, the Executive Director or an affected person has not requested a public hearing; or

2. For a Class 1 or a Class 2 permit modification or a minor amendment to a permit. The Commission may, in certain cases, hold a public hearing for a Class 2 permit modification or a minor amendment.

A public hearing may be scheduled on an application for a RCRA hazardous waste permit when requested by a Commissioner, the Executive Director, or an affected person within forty-five (45) days following the newspaper publication.

Requirements of Giving Notice of the Application:

1. By the Applicant: Every applicant for a permit, permit amendment, permit modification, or permit renewal shall publish notice (see note below) of the application at least once in a newspaper regularly published or circulated within each county where the proposed facility is located. Where a public hearing has been requested, notice will be mailed to the applicant in ample time for publication, which shall be not less than thirty (30) days prior to the date set for the hearing. Except in the case of a notice of a permit modification request, the Commission will mail the appropriate notice and instructions for publication to the applicant.

   NOTE: Additional publication and direct mail notice to affected persons will result if a public hearing is requested following newspaper publication of the notice of application. The cost of providing this additionally required publication and service of notice to affected persons will be assumed by the applicant.

2. By the Texas Commission on Environmental Quality: The Commission will mail notice of

the application (except for permit modifications) to affected persons and certain governmental entities. The notice will be mailed at the same time instructions for newspaper publications are mailed to the applicant.

3. Bilingual Notice Instructions:

   For certain permit applications, public notice in an alternate language is required. If an elementary school or middle school nearest to the facility offers a bilingual program, notice may be required to be published in an alternative language. The Texas Education Code, upon which the TCEQ alternative language notice requirements are based, requires a bilingual education program for an entire school district should the requisite alternative language speaking student population exist. However, there may not be any bilingual-speaking students at a particular school within a district which is required to offer the bilingual education program. For this reason, the requirement to publish notice in an alternative language is triggered if the nearest elementary or middle school, as part of a larger school district, is required to make a bilingual education program available to qualifying students and either the school has students enrolled at such a program on-site, or has students who attend such a program at another location to satisfy the school's obligation to provide such a program.

   If it is determined that a bilingual notice is required, the applicant is responsible for ensuring that the publication in the alternate language is complete and accurate in that language. Electronic versions of the Spanish template examples are available from the TCEQ to help the applicant complete the publication in the alternative language.

Bilingual Notice Application Form:

Bilingual notice confirmation for this application:

1. Is the school district of the elementary or middle school nearest to the facility required by the Texas Education Code to have a bilingual program?

   ☒YES ☐ NO

   (**If NO**, alternative language notice publication not required)

2. **If YES** to question 1, are students enrolled in a bilingual education program at either the elementary school or the middle school nearest to the facility?

   ☒ YES ☐ NO

   (**If YES** to questions 1 and 2, alternative language publication is required; **If NO** to question 2, then consider the next question)

3. **If YES** to question 1, are there students enrolled at either the elementary school or the middle school nearest to the facility who attend a bilingual education program at another location?

   ☐ YES ☐ NO

   (**If Yes** to questions 1 and 3, alternative language publication is required; **If NO** to question 3, then consider the next question)

4. **If YES** to question 1, would either the elementary school or the middle school nearest to the facility be required to provide a bilingual education program but for the fact that it secured a waiver from this requirement, as available under 19 TAC 89.1205(g)?

   ☐ YES ☐ NO

(**If Yes** to questions 1 and 4, alternative language publication is required; **If NO** to question 4, alternative language notice publication not required)

If a bilingual education program(s) is provided by either the elementary school or the middle school nearest to the facility, which language(s) is required by the bilingual program? ___**Spanish**_____

Consideration of the Permit Application by the Commission:

The applicant will be notified by the Commission when the application is set for final consideration. If the Commission issues the permit, the applicant will be mailed a copy of the permit by the TCEQ Office of the Chief Clerk within one (1) month following Commission approval. (NOTE: Only one copy is mailed to the applicant and that copy will be sent to the official mailing address of the applicant as shown on the permit application form.)

Table of Contents

Texas Commission on Environmental Quality
Permit Application for a Hazardous Waste Storage/Processing/Disposal Facility
Part A - Facility Background Information

I. General Information

A. Facility Name: **BASF Freeport Site**
(Individual, Corporation, or Other Legal Entity Name)

TCEQ Solid Waste Registration No: **30024** EPA I.D. No.: **TXD008081697**

Street Address (If Available): **602 Copper Road**

City: **Freeport**, State: **TX** Zip Code: **77541**

County: **Brazoria**

Telephone Number: **979-415-6100** Charter Number: **004205406**

If the application is submitted on behalf of a corporation, please identify the Charter Number as recorded with the Office of the Secretary of State for Texas.

B. Facility Contact

1. List those persons or firms who will act as primary contact for the applicant during the processing of the permit application. Also indicate the capacity in which each person may represent the applicant (engineering, legal, etc.). The person listed first will be the primary recipient of correspondence regarding this application. Include the complete mailing addresses and phone numbers.

Contact – General:
Justin Matthews
Sr. Environmental Specialist
BASF Corporation
602 Copper Road
Freeport, TX 77541
Phone: 979-415-7092
Email: [redacted]

Contact – Application Information:
S. Heather McHale
Principal
Coterie Environmental LLC
840 First Avenue, Suite 400
King of Prussia, PA 19406
Phone: 610-406-2214
Email: [redacted]

2. If the application is submitted by a corporation or by a person residing out of state, the applicant must register an Agent in Service or Agent of Service with the Texas Secretary of State's office and provide a complete mailing address for the agent. The agent must be a Texas resident.

CT Corporation Systems
1999 Bryan Street, Suite 900
Dallas, TX 75201-3136

C. Operator[1]: Identify the entity who will conduct facility operations.

Operator Name: **BASF Corporation**

Address: **602 Copper Road**

City: **Freeport**, State: **TX** Zip Code: **77541**

Telephone Number: **979-415-6100** Charter Number: **004205406**

D. Owner

1. Indicate the ownership status of the facility:

   a. Private ✓

      (1) ✓ Corporation
      (2) _____ Partnership
      (3) _____ Proprietorship
      (4) _____ Non-profit organization

   b. Public _____

      (1) _____ Federal
      (2) _____ Military
      (3) _____ State
      (4) _____ Regional
      (5) _____ County
      (6) _____ Municipal
      (7) _____ Other (specify)

2. Does the operator own the facility units and facility property?

   ☒ Yes ☐ No

   If you checked "no",

   a. Submit as "Attachment A" a copy of the lease for use of or the option to buy said facility units and/or facility property, as appropriate; and

   b. Identify the facility units' owner(s) and/or facility property owner(s). Please note that the owner(s) is/are required to sign the application on page 5.

Owner Name: _____

Address: _____

City: _____, State: _____ Zip Code: _____

Telephone Number: _____

[1] The operator has the duty to submit an application if the facility is owned by one person and operated by another [30 TAC 305.43(b)]. The permit will specify the operator and the owner who is listed on this application [Section 361.087 Texas Health and Safety Code].

Owner Name: _____

Address: _____

City: _____, State: _____ Zip Code: _____

Telephone Number: _____

E. Type of Application Submittal:

Initial _____ or Revision ✓ **(Renewal)**

F. Registration and Permit Information

Indicate (by listing the permit number(s) in the right-hand column below) all existing or pending State and/or Federal permits or construction approvals which pertain to pollution control or industrial solid waste management activities conducted by your plant or at your location. Complete each blank by entering the *permit number*, or the *date of application*, or *"none"*.

	Relevant Program and/or Law	Permit No.	Agency*
1.	Texas Solid Waste Disposal Act	**30024**	**TCEQ**
2.	Wastewater disposal under the Texas Water Code	**None**	
3.	Underground injection under the Texas Water Code	**WDW-051, WDW-099, WDW-408, WDW-409**	**TCEQ**
4.	Texas Clean Air Act	**See next page**	**TCEQ**
5.	Texas Uranium Surface Mining & Reclamation Act	**None**	
6.	Texas Surface Coal Mining & Reclamation Act	**None**	
7.	Hazardous Waste Management program under the Resource Conservation and Recovery Act	**HW-50128**	**TCEQ**
8.	UIC program under the Safe Drinking Water Act	**None**	
9.	TPDES program under the Clean Water Act	**TPDES-03977, TPDES-02656**	**TCEQ**
10.	PSD program under the Clean Air Act	**See next page**	**EPA**
11.	Nonattainment program under the Clean Air Act	**See next page**	**TCEQ**

12. National Emission Standards for Hazardous Pollutants (NESHAP) Pre-construction approval under the Clean Air Act — **None** — _____

13. Ocean dumping permits under the Marine Protection Research and Sanctuaries Act — **None** — _____

14. Dredge or fill permits under section 404 of the Clean Water Act — **None** — _____

15. Other relevant environmental permits — _____ — _____

List of Air Permits		
PSD Permits		
PSD-TX-641	**PSD-TX-193M1**	**PSD-TX-959**
PSD-TX-908		
Nonattainment Program Permits		
735B	**7223A**	**9603A**
1445A	**7595A**	**1733A**
19886	**8074A**	**9513A**
55239	**9329A**	**40799**
118239		
Title V Permits		
O-1536	**O-1927**	**O-2907**
O-1925	**O-1928**	**O-3826**
O-1926	**O-2158**	

*Use the following acronyms for each agency as shown below:

TCEQ = Texas Commission on Environmental Quality
TRC = Texas Railroad Commission
TDH = Texas Department of Health
TDA = Texas Department of Agriculture
EPA = U.S. Environmental Protection Agency
CORPS = U.S. Army Corps of Engineers

G. Give a brief description of the nature of your business.

Chemical manufacturing.

H. TCEQ Core Data Form

The TCEQ requires that a Core Data Form (Form 10400) be submitted on all incoming applications. For more information regarding the Core Data Form, call (512) 239-1575 or go to the TCEQ website at http://www.tceq.texas.gov/permitting/central_registry/guidance.html.

The Core Data Form is provided as Attachment F.

Signature Page

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

Operator Signature: _____ Date: 06-17-25

Name and Official Title ~~(type~~ or print): **Bradley R. Morrison, Senior Vice President**

Operator Signature: _____ Date: _____

Name and Official Title (type or print): _____

Operator Signature: _____ Date: _____

Name and Official Title (type or print): _____

Owner Signature: _____ Date: _____

Name and Official Title (type or print): _____

To be completed by the operator if the application is signed by an authorized representative for the operator

I, _____ hereby designate _____
(operator) (authorized representative)
as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

_____
Printed or Typed Name of Operator or Principal Executive Officer

_____
Signature

(Note: Application Must Bear Signature & Seal of Notary Public)

Subscribed and sworn to before me by the said Bradley Morrison on this 17th day of June, 2025.

My commission expires of the 5th day of June, 2027

Karen Schulze
Notary Public in and for Brazoria County, Texas

KAREN SCHULZE
Notary Public, State of Texas
Comm. Expires 06-05-2027
Notary ID 134391326

BASF Corporation Leadership

- Meet Chairman Anup Kothari
- Meet President & CEO Heather Remley
- Meet the BASF Corporation Executive Team
- Meet the North American Leadership Team

Also see:
BASF SE Global Management

- Management Overview
- Board of Executive Directors
- Supervisory Board

BASF Corporation Executive Team Profiles

Heather Remley

President & CEO,
BASF Corporation

Read more

Karen Killeen

General Counsel & Chief Compliance Officer, North America and Senior Vice President, BASF Corporation

Read more

Krisanne Poók

Chief Human Resources Officer, BASF Corporation
Vice President, People Services Americas

Read more

Guillermo Malara

Vice President, Finance, Americas

North American Leadership Team

In addition to the North American Executive Committee, the North American Leadership Team leads BASF's business and organizational priorities in the region.

Parthiv Amin

SVP, Care Chemicals, North America
Florham Park, NJ

Luciana Aquino

Digitalization Americas
Florham Park, NJ

Fransis Chadikun

SVP, Chemical Intermediates
Florham Park, NJ

Stefan Doerr

SVP, Monomers
Wyandotte, MI

Tejuana Edmond

VP, Plastic Additives
Houston, TX

Denise Hartmann

SVP, Dispersions & Resins
Charlotte, NC

Jeffrey Jones

VP, Automotive Coatings North America
Southfield, MI

Jerold Lebold

SVP, Geismar Site
Geismar, LA

Thomas Manderbach

SVP, Global Engineering Services
Houston, TX

Jason McAlpine

SVP, Performance Materials
Wyandotte, MI

Andres Monroy

President & General Management, BASF Mexico, CA&C
DF, Mexico

Brad Morrison

SVP, Freeport Site
Freeport, TX

Apala Mukherjee

VP and Managing Director, BASF Canada
Missisauga, ON

Alexander Neumann-Loreck

SVP, Regional Service Delivery, North & South America
Florham Park, NJ

Paul Rea

SVP, Agriculture Solutions
Research Triangle Park, NC

Gulay Serhatkulu

SVP, Petrochemicals
Houston, TX

Toprak Serhatkulu

VP, Direct Procurement Americas
Florham Park, NJ

From:
https://www.basf.com/us/en/who-we-are/organization/executive-profiles#text164667405

II. Facility Background Information

A. Location of Facility for which the application is submitted

1. Give a description of the location of the facility site with respect to known or easily identifiable landmarks.

The BASF Corporation Freeport Site is located south of Lake Jackson, Texas, and north of Freeport, Texas, on the southwest corner of the intersection of Highway 332 and Highway 288.

2. Detail the access routes from the nearest U.S. or State Highway to the facility.

From Southbound Highway 288, take the Main Street exit toward Contractor Road/Copper Road. Take the first right onto S Main Street. Take the first left onto Cooper Road.

3. Enter the geographical coordinates of the facility:

Latitude: **29 N** deg **00** min **10** sec

Longitude: **95 W** deg **23** min **35** sec

4. Is the facility located on Indian lands?

☐ Yes ☒ No

B. Legal Description of Facility

Submit as "Attachment B" a legal description(s) of the tract or tracts of land upon which the waste management operations referred to in this permit application occur or will occur. Although a legal description is required, a metes and bounds description is not necessary for urban sites with appropriate "lot" description(s). A survey plat or facility plan drawing which shows the specific points referenced in the survey should also be included in Attachment B.

See Attachment B for the legal description of facility.

C. SIC Codes

List, in descending order of significance, the four digit standard industrial classification (SIC) codes which best describe your facility in terms of the principal products or services you produce or provide. Also, specify each classification in words. These classifications may differ from the SIC codes describing the operation generating the hazardous wastes.

4-digit SIC Code	Description
2869	Industrial organic chemicals
2821	Plastic materials and resins

SIC code numbers are descriptions which may be found in the Standard Industrial Classification Manual prepared by the Executive Officer of the President, Office of Management and Budget, which is available from the Government Printing Office, Washington, D.C. Use the current edition of the manual.

III. Wastes and Waste Management

A. Waste Generation and Management Activities

Is any hazardous waste [see Title 40, Code of Federal Regulations (CFR), Part 261] presently or proposed to be generated or received at your facility?

☒ Yes ☐ No

If no, skip to question Number 2 below.

If yes, answer the following question.

1. Are you presently registered with TCEQ as a solid waste generator?

   ☒ Yes ☐ No ☐ Pending

   If no, contact the Industrial and Hazardous Waste Division of TCEQ in Austin, Texas to obtain registration information. Also, continue with the application form (go to Number 2 below).

   If yes, go to Section I of your TCEQ Notice of Registration, determine which of your wastes are hazardous, and list these wastes (and mixtures) in Table III-1 (see Number 2 below).

2. Complete Table III-1, Hazardous Wastes and Management Activities, below, listing all hazardous wastes, all mixtures containing any hazardous wastes, and hazardous debris which were, are presently, or are proposed to be handled at your facility in interim status or permitted units. See 40 CFR 261 and 268.2, attaching additional copies as necessary.

   Guidelines for the Classification & Coding of Industrial Wastes and Hazardous Wastes, TCEQ publication RG-22, contains guidance on how to properly classify and code industrial waste and hazardous waste in accordance with 30 TAC 335.501-335.515 (Subchapter R).

   If you are not registered with TCEQ, enter "NA" for TCEQ Waste Code Number.

   For the EPA Hazardous Waste Numbers, see 40 CFR 261.20-33. For annual quantity, provide the amount in units of pounds (as generated and/or received) for each waste and/or waste mixture.

B. Waste Management Units Summary

1. For each waste and waste mixture listed in Table III-1 that is stored, processed, and/or disposed on-site (except where such storage and/or processing is excluded from permit requirements in accordance with Texas Administrative Code (TAC) Section 335), complete Table III-2, Hazardous Waste Management Unit Checklist, and enter the name of each hazardous waste management unit (Note: Please make copies of Table III-2 if necessary).

Give the design capacity of each hazardous waste management unit in any of the units of measure shown. In the case of inactive or closed units for which design details are unavailable, an estimate of the design capacity is sufficient.

Please provide a description for each waste management unit described in your own words on the line provided for "Waste Management Unit."

2. Has the applicant at any time conducted the on-site disposal of industrial solid waste now identified or listed as hazardous waste?

   ☒ Yes ☐ No

   If yes, complete Table III-2 indicating the hazardous waste management units which were once utilized at your plant site but are no longer in service (i.e., inactive or closed facility units).

   If no, and if no hazardous waste is presently or proposed to be stored [for longer than 90 days (see 30 TAC Section 335.53)], processed, or disposed of at your facility, then you need not file this permit application. Otherwise proceed with the application form.

3. Provide an estimate of the total weight (lbs) of hazardous waste material that has been disposed of and/or stored within your site boundaries and not removed to another site.

   Zero pounds of hazardous waste are estimated to have been disposed of and/or presently stored onsite in RCRA-permitted units. According to TCEQ guidance, this question does not pertain to waste stored prior to onsite treatment.

C. Location of Waste Management Units

1. Submit as "Attachment C" a drawn-to-scale topographic map (or other map if a topographic map is unavailable) extending one mile beyond the facility boundaries, depicting the following:

   See Attachment C.

   a. The approximate boundaries of the facility (described in Section II.B) and within these boundaries, the location and boundaries of the areas occupied by each active, inactive, and proposed hazardous waste management unit (see Table III-2). Each depicted area should be labeled to identify the unit(s), unit status (i.e., active, inactive, or proposed), and areal size in acres.

   b. The overall facility and all surface intake and discharge structures;

   c. All on-site injection wells where liquids are injected underground;

   d. All known monitor wells and boreholes within the property boundaries of the facility; and

   e. All wells, springs, other surface water bodies, and drinking water wells listed in public records or otherwise known to the applicant within the map area and the purpose for which each water well is used (e.g., domestic, livestock, agricultural, industrial, etc.).

2. Submit as "Attachment D" photographs which clearly delineate all hazardous waste management storage, processing, and disposal units, as well as sites of future storage, processing and disposal units.

   See Attachment D.

D. Flow Diagram/Description

Show as "Attachment E" process flow diagrams and step-by-step word descriptions of the process flow, depicting the handling, collection, storage, processing, and/or disposal of each of the hazardous wastes previously listed in this application.

See Attachment E for the required information.

The flow diagrams or descriptions should include the following information:

1. Originating point of each waste and waste classification code;

2. Means of conveyance utilized in every step of the process flow;

3. Name and function of each facility component through which the waste passes;

4. The ultimate disposition of all wastes (if off-site, specify "off-site") and waste residues.

IV. Index Of Attachments

List and index below all attachments to this application and indicate if included or not included:

Item	Attachments	Attachment	Included	Not Included
I.D.2.a	**Lease/Option to buy**	**A**		✓
II.B	**Site legal description**	**B**	✓	
III.C.1	**Facility boundaries and adjacent waters map**	**C**	✓	
III.C.2	**Photographs**	**D**	✓	
III.D	**Process flow diagram/description**	**E**	✓	
I.H	**Core Data Form**	**F**	✓	

Table III-1 – Hazardous Wastes and Management Activities

Verbal Description of Waste	TCEQ Waste for Code and Classification Code	EPA Hazardous Waste Number	Storage[1] of Wastes Received from Off-Site	Processing[2] of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage[1] of Wastes Generated On-Site	Processing2[2] of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
Acrylic acid water	**105H**	**D002, D018**	**No**	**No**	**No**	**No**	**Yes**	**No**	**76,195,400 lb**
D-1450 blended waste	**219H**	**D001, D018**	**No**	**No**	**No**	**No**	**Yes**	**No**	**25,488,600 lb**
D-2850 blended waste [3]	**219H**	**D007**	**No**	**No**	**No**	**No**	**Yes**	**No**	**16,403,200 lb**
Acrylate residue	**219H**	**D001, D002**	**No**	**No**	**No**	**No**	**Yes**	**No**	**10,403,700 lb**
Glacial acrylic acid (GAA) crystallization residue	**219H**	**D001**	**No**	**No**	**No**	**No**	**Yes**	**No**	**1,262,000 lb**

[1] "Storage" means the holding of solid waste for a temporary period, at the end of which the waste is processed, disposed of, or stored elsewhere.

[2] "Processing" means the extraction of materials, transfer, volume reduction, conversion to energy, or other separation and preparation of solid waste for reuse or disposal, including the treatment or neutralization of hazardous waste, designed to change the physical, chemical, or biological character or composition of any hazardous waste so as to neutralize such waste, or so as to recover energy or material from the waste or so as to render such waste non-hazardous or less hazardous; safer for transport, store or dispose of; or amenable for recovery, amenable for storage, or reduced in volume. The "transfer" of solid waste for reuse or disposal as used above, does not include the actions of a transporter in conveying or transporting solid waste by truck, ship, pipeline, or other means. Unless the Executive Director determines that regulation of such activity is necessary to protect human health or the environment, the definition of "processing" does not include activities relating to those materials exempted by the Resource Conservation and Recovery Act, 42 U.S.C. 6901 et seq., as amended.

[3] **This waste is currently sent offsite for disposal. It is included in the permit in case it will need to be burned in the incinerator again in the future.**

Table III-2 – Hazardous Waste Management Unit Checklist

Waste Management Unit	TCEQ N.O.R. Unit #	Status[1]	Design Capacity[2]	Number of Years Utilized	Date in Service
Incinerator IN-701	**019**	**Active**	**100 MMBtu/hr**	**39**	**08/1986**
Incinerator IN-5100	**089**	**Active**	**216 MMBtu/hr**	**24**	**05/2001**
Incinerator IN-4702	**004**	**Active**	**100 MMBtu/hr**	**10**	**03/2015**
Incinerator IN-5500	**080**	**Proposed**	**100 MMBtu/hr**	**0**	**To be determined**
Boiler B-20A/Utilities	**022**	**Closed**	**213 MMBtu/hr**	**23**	**1968**
Boiler B-20B/Utilities	**014**	**Closed**	**213 MMBtu/hr**	**23**	**1968**
Boiler WB-900/NEOL®	**013**	**Closed**	**49.8 MMBtu/hr**	**21**	**12/1980**
Incinerator IN-800	**020**	**Closed**	**24 MMBtu/hr**	**6**	**12/1989**
Incinerator BR-3 Cyclohexanone I	**002**	**Closed**	**40,600 lb/hr**	**5**	**1975**
Incinerator BR-400 Cyclohexanone II	**010**	**Closed**	**Unknown**	**15**	**1972**
Incinerator BR-410 Cyclohexanone II	**011**	**Closed**	**Unknown**	**15**	**1972**
Tank D-7841	**015**	**Closed**	**15,000 gal**	**6**	**12/1989**

[1] Indicate only one of the following: Active, Inactive, Closed, or Proposed
[2] Cubic yards, gallons, pounds, gallons/minute, pounds/hour, BTUs/hour, etc.

Attachment B
Site Legal Description

SITE LEGAL DESCRIPTION

The following land and premises situated in Brazos Coast Investment Company's Subdivision Number 14 in the Alexander Calvit League, Abstract No. 49 Brazoria County, Texas being described by metes and bounds; in values which refer to the coordinate System, Lambert, South Central Zone in which x and y values are the coordinates of the corners of precise position and Azimuths are the directions of lines, bearings, where Texas Lambert North equals Azimuth 180_. Distances or linear magnitudes of lines are exceptions and are the geodetic ground level lengths, as follows:

Beginning at the precise position x = 3,153,634.446 feet and y = 440,284.75 feet, at center punch mark in a 4" square monel plate cast in a concrete monument projecting approximately 1-inch above natural ground and set for the south or southeast corner and stamped "S.E.C."

THENCE, the southwest or southerly line of this tract, Azimuth 114_ 07' 34", at 143.41 feet past the point of intersection of said line with the common line between Tracts No. 192 and 191 of said Subdivision No. 14 from which the common west corner of said tracts and also a point on a common line between above mentioned composite tracts D.P.C. Nos. 243 and 505 bears Azimuth 87_ 08' 00" a distance of 73.40 feet, at 225.77 feet past the point of intersection of said line with the west line of said Tract No. 191 also the common line between composite tracts D.P.C. Nos. 243 And 505 from which the northwest corner of said Tract No. 191 And the most eastern northeast corner of composite tract D.P.C. No. 505 bears Azimuth 177_ 08' 00" a distance of 292.61 feet, at 259.44 feet past the point of intersection of said line with the case line of Tract No. 218 in said subdivision from which the southeast corner of said Tract No. 216 bears Azimuth 357_ 08' 00" a distance of 52.67 feet, at 825.00 feet past the center punch mark in a 4" square monel plate cast in a concrete monument similar to other monuments, set for a line marker and stamped "S.L.", at 870.47 feet past the point of intersection of said line with the common line between Tracts No. 218 and 219 in said subdivision and also the most eastern north line of above mentioned composite tract D.P.C. No. 505 from which the common west corner of said tracts No. 218 and 219 and also the most eastern northeasterly interior corner in said composite tract D.P.C. No. 505 bears Azimuth 87_ 08' 00" a distance of 115.54 feet, at 1,000.13 feet past the point of intersection of said line with the common line between Tracts No. 219 and 239 and the identical corner last above reference bears Azimuth 357_ 08' 00" a distance of 58.85 feet and in all a distance of 1,575.00 feet to the point x = 3,152,197.21 feet and y = 440,928.45 feet, a center punch mark in a 4" monel plate cast in a concrete monument and stamped "S.W.C." which is situated in the northwesterly portion of Tract No. 239 of Brazos Coast Investment Company's Subdivision No. 14.

THENCE, with the southwest or southerly line of this tract, Azimuth 114_ 07' 34", at 22.54 feet past the common line between Tract Nos. 239 and 238 in said Subdivision from which the common west corner of said Tract Nos. 239 and 238 bears Azimuth 87_ 08' 00" a distance of 127.68 feet, at 165.83 feet past the west line of Tract No. 238 and the east right-of-way line of an unimproved subdivision roadway, at 199.50 feet past the west right-of-way line of said roadway and the east line of Tract No. 269, at 560.00 feet past the centerline of right-of-way of an improved roadway known as "North Cooper Road", at 749.62 feet past the common line between Tract Nos. 269 and 270, at 940.19 feet past the common line between Tract No. 270 and 329, at 1476.69 feet past the common line between Tract Nos. 329 and 329 from which the common west corner of said Tracts bears Azimuth 87_ 08' 00" a distance of 181.94 feet, and in all a distance of 1500.00 feet to the precise position x = 3,150,828.40 feet and y = 441,541.50 feet for the west or southwest corner of this tract, which is a point situated within the southwesterly portion of Tract No. 328 in said Subdivision No. 14.

THENCE, Azimuth 114_ 07' 34", past the west line of said Tract No. 328, past an unimproved subdivision roadway which is 30 feet in width, and in all a distance of 313.00 feet to the precise position x = 3,150,542.78 and y = 441,669.42, a point situated in the central easterly portion of Tract No. 361, for the west or southwest corner.

THENCE, Azimuth 114_ 07' 34", at 150.000 feet to the position x = 3,150,450.90 and y = 441,730.72 which is the point of beginning of the centerline of an easement 300.0 feet in width, past said point and continue Azimuth 114_ 07' 34", at 1033.193 feet to the position x = 3,148,599.95 and y = 442,091.58 which is the point of beginning of the reference line for a river water canal easement, past said position and continue Azimuth 114_ 07' 34", in all a distance of 1176.08 feet, to the position x = 3,149,496.56 and y = 442,150.09 which is a point in said southerly line.

THENCE, with and along a curve to the right, southwesterly, which curve has its radius point fixed at the position x = 3,149,161.73 and y = 442,357.20 and a radius of 371.059 feet, in all a distance of 344,641 feet, arc length, to the position x = 3,149,180.28 and y = 441,986.65 and the point of tangency of said curve;

THENCE, Azimuth 87_ 08' 00" in all a distance of 759.633 feet to the position x = 3,148,421.69 and y = 441,948.66.

THENCE, Azimuth 114_ 07' 34", at a distance of 569.585 past the common line between said A. Calvit League and S. F. Austin 5 Leagues, in all a distance of 2056.966 feet to the position x = 3,146,550.104 and y = 442,786.888, for the southwesterly corner, which is the point of intersection with the east right-of-way line of Sim Hodge Road;

THENCE, with said east right-of-way line, Azimuth 177_ 08' 00" in all a distance of 1816.406 feet to the position x = 3,146,459.273 and y = 444,6700.804 for the northwest corner;

THENCE, Azimuth 267_ 07' 58".78, at a distance of 1320.006 feet past common line between said S. F. Austin 5 Leagues and A. Calvit League, in all a distance of 1852.2671 feet to the position x = 3,148,308.998 and y = 444,693.439 which is the point of a curve to the right and southeasterly;

THENCE, with and along said curve, which curve has a central angle of 26_ 39' 09" and a radius of 673.414 feet, in all a distance of 313.255 feet, arc length, to the position x = 3,148,614.241 and y = 444,637.090 which is the point of tangency of said curve;

THENCE, Azimuth 293_ 47' 07".78 in all a distance of 923.186' to point x = 3,149,459.87 and y = 444,266.59.

THENCE, Azimuth 204_ 07' 34" to point x = 3,149,582.43 and y = 444,540.35 in all a distance of 300.005'.

THENCE, Azimuth 293_ 47' 07".78 in all a distance of 2511.358 feet to the position x = 3,152,523.28 and y = 443,188.23 which is a point on a curve.

THENCE, Azimuth 305_ 15' 30".2 in all a distance of 870.268 feet to the position x = 3,153,250.91 and y = 442,719.02.

THENCE, Azimuth 311_ 43' 46".1 in all a distance of 1489.114 feet to the position x = 3,154,362.10 and y = 441,719.95, which is the point of intersection with a curve for the most easterly corner.

THENCE, Along said curve, the radius point of which is fixed at the position x = 3,154,890.34 and y = 441,104.42, with a radius of 811.229 feet, in all a distance of 357.234 feet arc length, to the position x = 3,154,150.06 and y - 441,435.96 and the point of tangency of said curve;

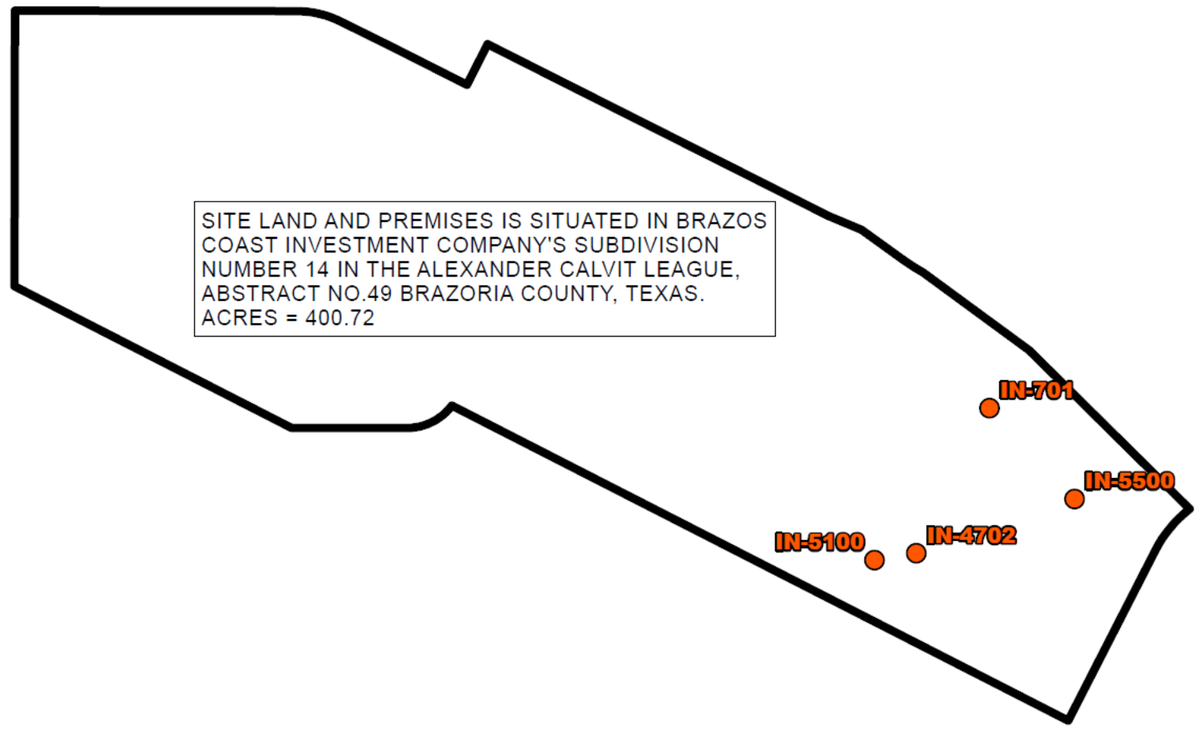
THENCE, Azimuth 24" 07' 34" in all a distance of 1261.399 feet to the position x = 3,153,634.46 and y - 440,284.75 and the point of beginning.

The above described property includes a total of 400.72278 acres.

Legend

- BASF Freeport Facility
- Incinerator Locations (4)

SITE LAND AND PREMISES IS SITUATED IN BRAZOS COAST INVESTMENT COMPANY'S SUBDIVISION NUMBER 14 IN THE ALEXANDER CALVIT LEAGUE, ABSTRACT NO.49 BRAZORIA COUNTY, TEXAS.
ACRES = 400.72



N

0 500 1,000
FEET

1" = 1,000 FEET
1:12,000

BASF CORPORATION
FREEPORT, TEXAS

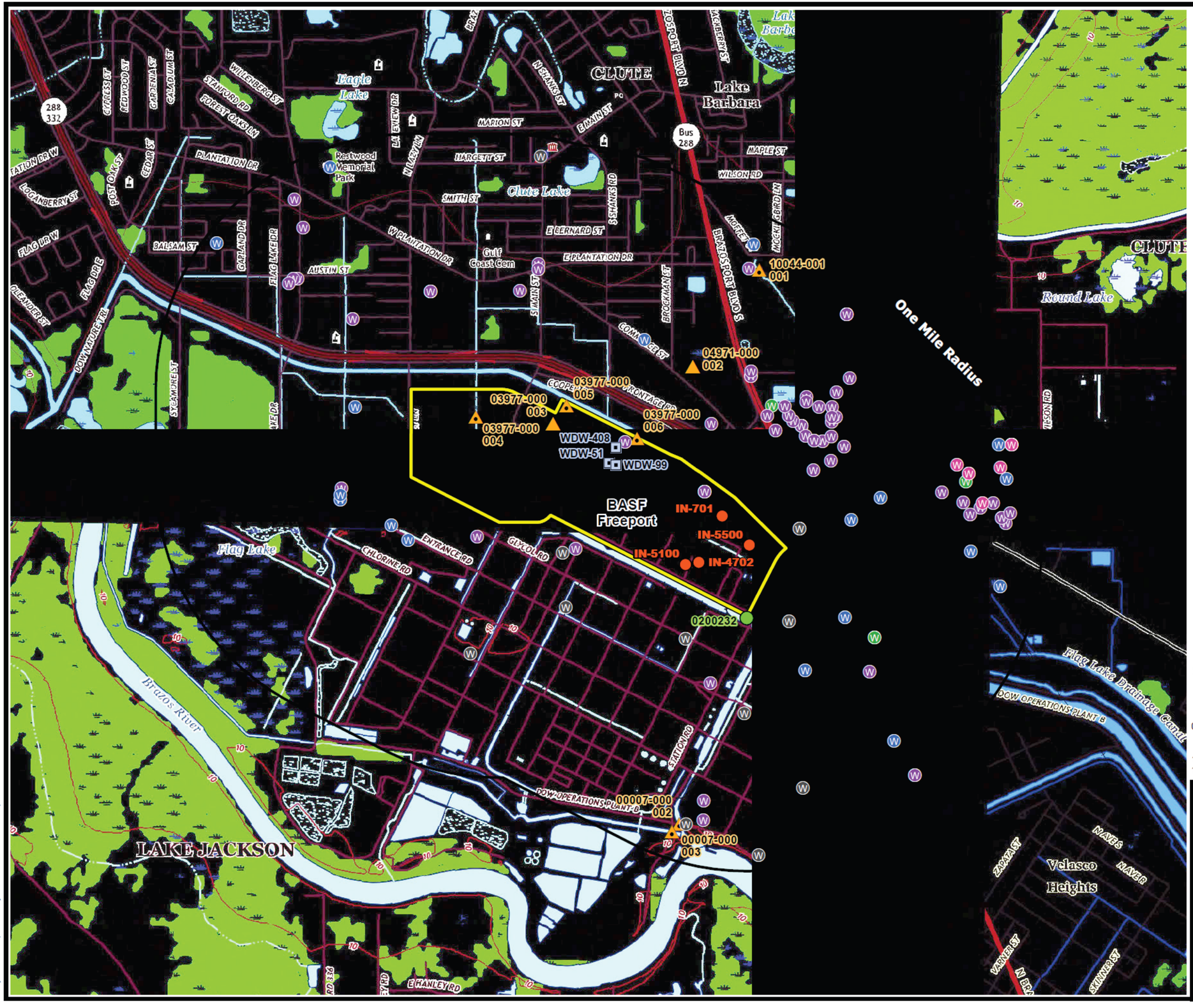
PARCEL AND LEGAL DESCRIPTION

DRAWN BY:	L WILSON	SCALE:		PROJ. NO.	047-23-06
CHECKED BY:	H MCHALE		AS NOTED	FILE NO.	Legal Description
APPROVED BY:	H MCHALE	DATE PRINTED:		**ATTACHMENT B**	
DATE:	March 2025	*3/27/2025*			

Coterie ENVIRONMENTAL
840 First Ave., Suite 400
King of Prussia, PA 19406

J:\Prj\BASF\Freeport Facility\RCRA 2025\BASF GIS.aprx

Attachment C
Facility Boundaries and Adjacent Waters Map



Legend

- BASF Freeport Facility
- One Mile Radius
- Incinerator Locations (4)
- Public Water System Surface Water Intakes
- Wastewater Outfalls (Permit Number and Outfall Name)
- Deepwell Location

TWDB Wells

- Domestic / Public Supply
- Environmental Soil Boring
- Industrial / Monitor
- Plugged or Destroyed / Unused
- Test Well

Data Sources:

1. Surface Water Intake - TCEQ GIS Database (July 27, 2022)
2. Wastewater Outfalls - TCEQ GIS Database (March 27, 2025)
3. Deepwell Locations - Pilko and Associates, LP - Attachment C-3, Permitted Facilities
4. TWDB Wells - Texas Water Development Board GIS Database (February 2025)
5. USGS Topographic Quadrangles 7.5 Minute Series: Lake Jackson, TX 2022 / Oyster Creek, TX 2022 Jones Creek, TX 2022 / Freeport, TX 2025

N

0 1,000 2,000 FEET

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

BASF CORPORATION
FREEPORT, TEXAS

USGS 7.5 MINUTE TOPOGRAPHIC QUADRANGLE MAP AND WELL LOCATIONS

DRAWN BY:	L WILSON	SCALE:	PROJ. NO. 047-23-06
CHECKED BY:	H MCHALE	AS NOTED	FILE NO.USGS Topo and Well Locations
APPROVED BY:	H MCHALE	DATE PRINTED:	**ATTACHMENT C**
DATE:	March 2025	*3/28/2025*	

Coterie ENVIRONMENTAL
840 First Ave., Suite 400
King of Prussia, PA 19406

J:\Prj\BASF\Freeport Facility\RCRA 2025\BASF GIS.aprx

Attachment D
Photographs

Attachment D
Photographs

INCINERATOR IN-701

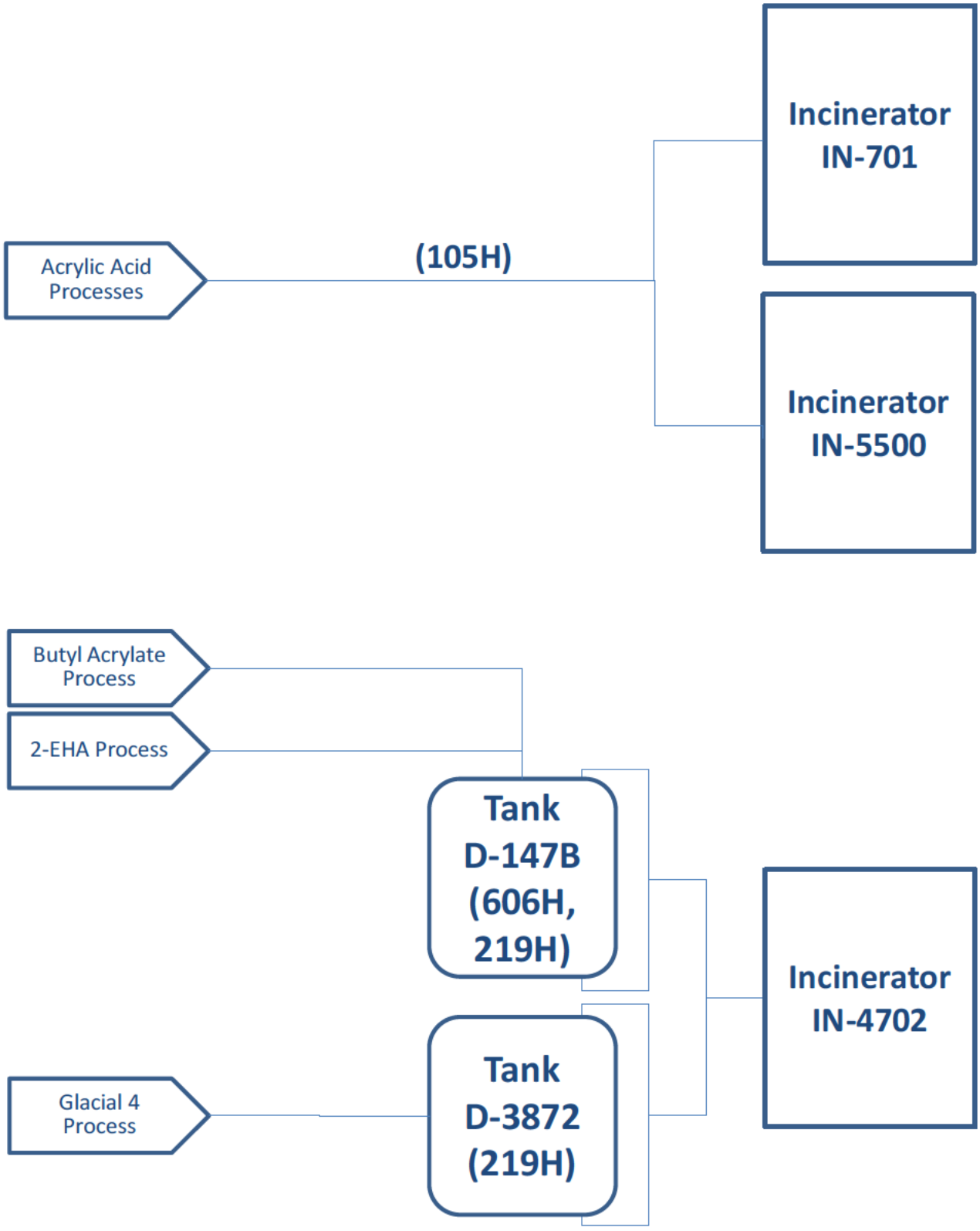
INCINERATOR IN-4702

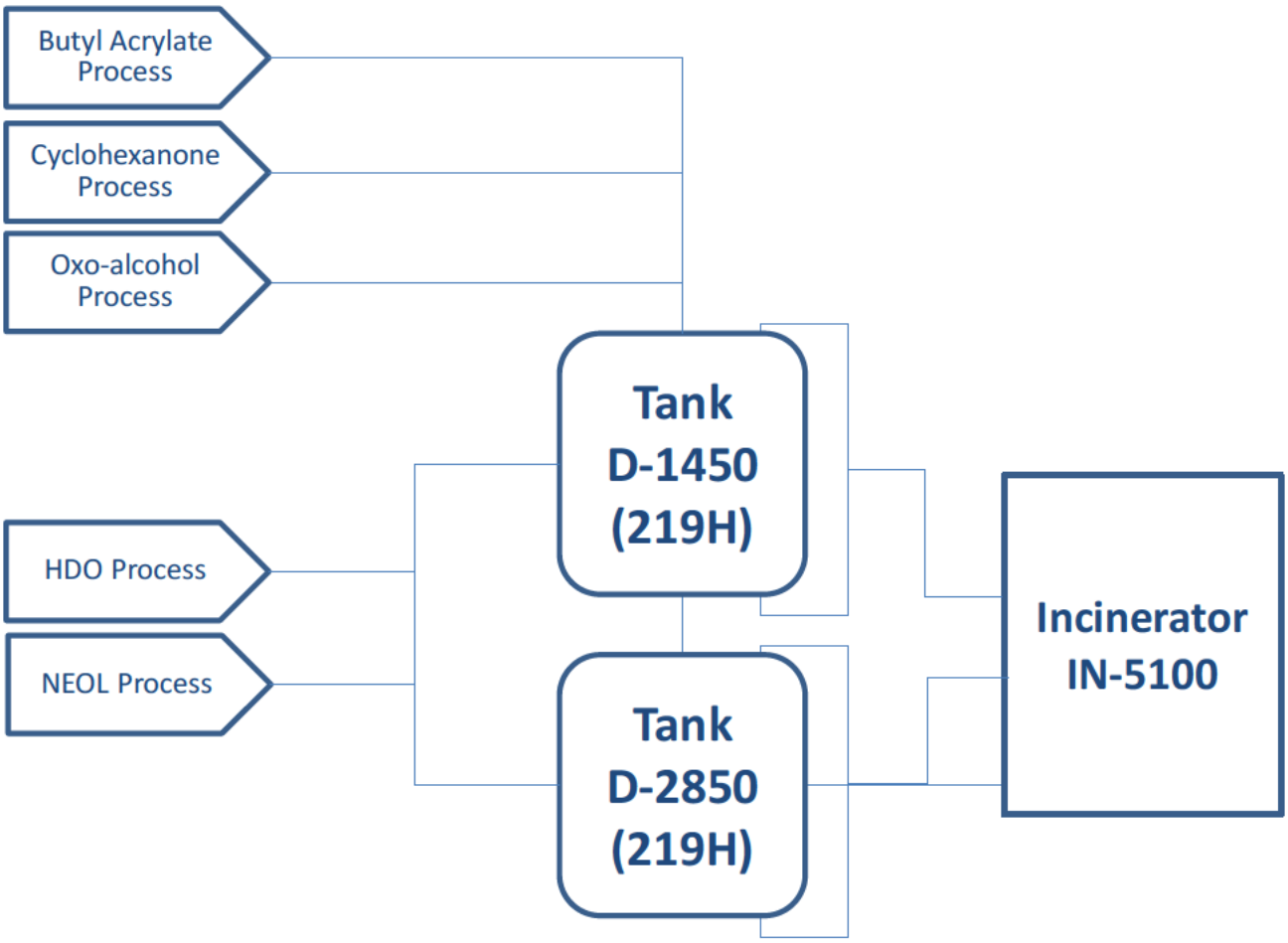
INCINERATOR IN-5100

INCINERATOR IN-5500

Attachment E
Process Flow Diagram

Attachment E
Process Flow Diagram




Butyl Acrylate Process
Cyclohexanone Process
Oxo-alcohol Process
HDO Process
NEOL Process
Tank D-1450 (219H)
Tank D-2850 (219H)
Incinerator IN-5100

Attachment E
Process Flow Description

Waste stream:	**Acrylic acid water**
TCEQ waste code:	**105H**
USEPA waste code(s):	**D002, D018**
Waste origination point:	**Generated in the Acrylic Acid production areas**
Means of waste conveyance:	**Piped from process to incinerators**
Storage:	**No accumulation**
Ultimate waste disposition:	**Destroyed in Incinerators IN-701 and IN-5500**

Waste stream:	**Acrylate residue**
TCEQ waste code:	**219H**
USEPA waste code(s):	**D001, D002**
Waste origination point:	**Generated in the BA and 2-EHA production areas**
Means of waste conveyance:	**Piped from process to storage tank**
Storage:	**Tank D-147B**
Ultimate waste disposition:	**Destroyed in Incinerator IN-4702**

Waste stream:	**Glacial acrylic acid (GAA) crystallization residue**
TCEQ waste code:	**219H**
USEPA waste code(s):	**D001**
Waste origination point:	**Generated in the Glacial 4 production area**
Means of waste conveyance:	**Piped from process to storage tank**
Storage:	**Tank D-3872**
Ultimate waste disposition:	**Destroyed in Incinerator IN-4702**

Waste stream:	**D-1450 blended waste**
TCEQ waste code:	**219H**
USEPA waste code(s):	**D001, D018**
Waste origination point:	**Generated in the 1,6-Hexanediol (HDO®), Neopentyl Glycol (NEOL®), Oxo-Alcohols, Butyl Acrylate, and Cyclohexanone process units**
Means of waste conveyance:	**Piped from process to storage tank**
Storage:	**Tank D-1450**
Ultimate waste disposition:	**Destroyed in Incinerator IN-5100**

Waste stream:	**D-2850 blended waste**
TCEQ waste code:	**219H**
USEPA waste code(s):	**D007**
Waste origination point:	**Generated in the HDO® and NEOL® process units**
Means of waste conveyance:	**Piped from process to storage tank**
Storage:	**Tank D-2850**
Ultimate waste disposition:	**Destroyed in Incinerator IN-5100 (when not shipped offsite for disposal)**

Attachment F
Core Data Form

TCEQ Use Only

TCEQ CORE DATA FORM

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

1.1 SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided.)*

☐ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application.)*

☒ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 600124895		RN 100218049

1.2 SECTION II: Customer Information

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

☐ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)*	*If new Customer, enter previous Customer below:*
BASF Corporation	

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
4205406	11610908094	161090809	008081697

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

12. Number of Employees
☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher

13. Independently Owned and Operated?
☒ Yes ☐ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☒ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:	602 Copper Road						
	City	Freeport	State	TX	ZIP	77541	ZIP + 4

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
	[redacted]

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(979) 415-6111		(0) -

1.3 SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

BASF Freeport Site							
23. Street Address of the Regulated Entity: ***(No PO Boxes)***	602 Copper Road						
	City	Freeport	**State**	TX	**ZIP**	77541	**ZIP + 4**
24. County	Brazoria						

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

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

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:	29.002778		**28. Longitude (W) In Decimal:**	95.393056	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	00	10	95	23	35

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
2869	2821	325199	325211

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

Chemical & raw material manufacturing

34. Mailing Address:	**602 Copper Road**						
	City	**Freeport**	**State**	**TX**	**ZIP**	**77541**	**ZIP + 4**
35. E-Mail Address:	[redacted]						

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(979) 415-6111		( ) -

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

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☒ Emissions Inventory Air	☒ Industrial Hazardous Waste
			BL-00210	SWR30024;Permit #50128
☐ Municipal Solid Waste	☒ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☒ PWS
	Multiple			PWS0200501
☐ Sludge	☐ Storm Water	☒ Title V Air	☐ Tires	☐ Used Oil
		Multiple		
☐ Voluntary Cleanup	☒ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☒ Other:
	WQ0003977000			WDW-051, WDW-099, WDW-408, WDW-409

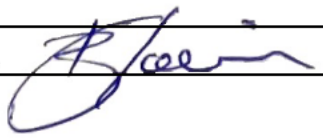
SECTION IV: Preparer Information

40. Name:	Yasuko Dodd	**41. Title:**	Sr. Environmental Specialist

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(979) 415-6952		( ) -	[redacted]

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:	BASF Corporation	**Job Title:**	Senior Vice President – General Manager Freeport Site		
Name *(In Print):*	Bradley Morrison			**Phone:**	(979) 415- **6111**
Signature:				**Date:**	6-18-25

PART B

TABLE OF CONTENTS

LIST OF APPENDICES

Appendix V.A: General (Table V.A and General Engineering Report)
Appendix V.H: Incinerators (Tables V.H.1, V.H.2, and V.H.4, Incinerator IN-701 Engineering Report, Incinerator IN-4702 Engineering Report, Incinerator IN-5100 Engineering Report, and Incinerator IN-5500 Engineering Report)

Appendix VI.A: Geology and Topography (Geology Report)

Appendix VII.A: Closure (Table VII.A and Closure Plan)
Appendix VII.B: Closure Cost Estimate (including contingent closure) (Table VII.B)
Appendix VII.E: Closure and Post-Closure Cost Summary (Table VII.E.1)

Appendix VIII.A: Financial Assurance Information Requirements for all Applicants
Appendix VIII.B: Applicant Financial Disclosure Statements for a new permit, permit amendment, or permit modification, or permit renewal

Appendix IX.A: Preliminary Review Checklists

Appendix X: Air Emissions Report

Appendix XII.A: Hazardous Waste Units (Table XII.A)
Appendix XII.B: Hazardous Waste Permit Application Fee (Table XII.B)

Appendix XIII.A: Confidential Material
Appendix XIII.B: Confidential Material
Appendix XIII.C: Confidential Material
Appendix XIII.D: Confidential Material

I. GENERAL INFORMATION

Texas Commission on Environmental Quality
Industrial & Hazardous Waste Part B Permit Application

I. General Information

Provide all Part B responsive information in Appendix I. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

Provide responsive information in Appendix I.

a. Complete Table I - General Information

b. For all incoming New, Renewal, Class 3 Permit Modification, and Major Amendment applications, the TCEQ requires that a Core Data Form (CDF) be submitted whether or not a change has occurred in the previously submitted form.
For Minor Amendment, Class 1, Class 1[1] , and Class 2 Permit Modification applications, the TCEQ requires that the CDF be only submitted if a change in any information in the previously submitted form has occurred at the time of the application submittal.
For more information regarding the Core Data Form, call (512) 239 1575 or go to the TCEQ Web site at https://www.tceq.texas.gov/permitting/central_registry/guidance.html

c. Signature on Application
It is the duty of the operator to submit an application for a permit. The person who signs the application form will often be the operator himself; when another person signs on behalf of the applicant, his title or relationship to the applicant will be shown. In all cases, the person signing the form must be authorized to do so by the applicant. An application submitted by a corporation must be signed by a responsible corporate officer such as a president, secretary, treasurer, vice president, or by his duly authorized representative, if such representative is responsible for the overall operation of the facility from which the activity described in the form originates. In the case of a partnership or a sole proprietorship, the application must be signed by a general partner or the proprietor, respectively. In the case of a municipal, state, federal, or other public facility, the application must be signed by a principal executive officer, a ranking elected official, or another duly authorized employee. A person signing an application on behalf of an applicant must provide notarized proof of authorization.

d. Complete Interim Status Land Disposal Unit(s) Certification, as applicable

e. Submit List and Map of Adjacent Landowners List, as applicable.

TABLE OF APPENDICES

APPENDIX	TITLE
I.A	Table I and Table I.1
I.B	TCEQ Core Data Form (Form 10400)
I.C	Signature Page
I.D	Interim Status Land Disposal Unit(s) Certification (Not Applicable)
I.E	List and Map of Adjacent Landowners Table I.E and Figure I.E

Appendix I.A:
TABLE I AND TABLE I.1

A. Applicant: Facility Operator

Name [1]	BASF Corporation
Address [2]	602 Copper Road
City, State [2]	Freeport, TX
Zip Code [2]	77541
Telephone Number	979-415-6100
Alternate Telephone Number	None
TCEQ Solid Waste Registration No.	30024
EPA I.D. No.	TXD008081697
Permit No.	50128
County	Brazoria
Regulated Entity Name	BASF Freeport Site
Regulated Entity Reference Number (RN)	RN 100218049
Customer Name [2]	BASF Corporation
Customer Reference Number:	CN 600124895
Charter Number [3]	004205406
Previous or Former Names of the Facility (if applicable)	Not applicable

B. Facility Owner: Identify the Facility Owner if different than the Facility Operator [4]

☑ Same as Facility Operator?

Name	
Address	
City, State	
Zip Code	
Telephone Number	
Alternate Telephone Number	

C. Facility Contact

1. Persons or firms who will act as primary contact:

Name, Title:	Justin Matthews, Sr. Environmental Specialist
Address	602 Copper Road
City, State	Freeport, TX
Zip Code	77541
Telephone Number	979-415-7092
Alternate Telephone Number	None
E-mail	[redacted]

Persons or firms who will act as primary contact (if more than one):

Name, Title:	S. Heather McHale, Principal, Coterie Environmental LLC
Address	840 First Avenue, Suite 400
City, State	King of Prussia, PA
Zip Code	19406
Telephone Number	610-406-2214
Alternate Telephone Number	None
E-mail	[redacted]

2. Agent in Service or Agent of Service (if you are an out-of-state company) [5]:

Name, Title:	CT Corporation Systems
Address	1999 Bryan Street, Suite 900
City, State	Dallas, TX
Zip Code	75201-3166

3. Individual responsible for causing notice to be published:

Name, Title:	Justin Matthews, Sr. Environmental Specialist
Address	602 Copper Road
City, State	Freeport, TX
Zip Code	77541
Telephone Number	979-415-7092
Alternate Telephone Number	None
E-mail	[redacted]

4. Public place in county where application will be made available [6]:

Name, Title:	Brazoria County Library System - Lake Jackson
Address	250 Circle Way
City, State	Lake Jackson, TX
Zip Code	77566

D. Application Type and Facility Status

1. Application Type

☑ **Permit**	☑ **Amendment**	☐ **Modification**
☐ New	☑ Major	☐ Class 3
☑ Renewal	☑ Minor	☐ Class 2
☐ Interim Status		☐ Class 1[1]
☐ Compliance Plan		☐ Class 1
☐ RD&D		

2. Part of a Consolidated Permit Processing request? [30 TAC Chapter 33] No

3. Does the application contain confidential material? [7] Yes

4. Facility Status. Check all that apply

☐ Proposed	☑ On-site
☑ Existing	☐ Off-site
	☐ Commercial
	☐ Recycle
	☐ Commercial
	☐ Land Disposal
	☐ Areal or capacity expansion
	☐ Compliance plan

5. Is the facility within the Coastal Management Program boundary? Yes

6. Description of Application Changes
Complete Table I.1 - Description of Proposed Application Changes
Note: List all changes requested in Table. Unlisted requests risk remaining unaddressed or possibly denied if brought to the permit application reviewer's attention at a later time.

7. Total acreage of the facility being permitted: 401

8. Identify the name of the drainage basin and segment where the facility is located [8]

River Segment	Brazos River Tidal
River Basin	Brazos River Basin

E. Facility Siting Summary:

Is the facility located or proposed to be located:

1. Within a 100-year floodplain?	No
2. in wetlands?	No
3. In the critical habitat of an endangered species of plant or animal?	No
4. On the recharge zone of a sole-source aquifer?	No
5. In an area overlying a regional aquifer?	No
6. Withing 0.5 mile (2,640 feet) of an established residence, church, school, day care center, surface water body used for public drinking water supply, or dedicated public park?9 [30 TAC 335.202] If Yes: the TCEQ shall not issue a permit for this facility.	No
7. In an area in which the governing body of the country or municipality has prohibited the processing or disposal of municipal hazardous waste or industrial solid waste? If yes: provide a copy of the ordinance or order.	No

F. Wastewater and Stormwater Disposition

1. Is the disposal of any waste to be accomplished by a waste disposal well at this facility?	Yes
If Yes: List WDW Permit No(s)	WDW-051, 099, 408, 409
2. Will any point source discharge of effluent or rainfall runoff occur as a result of the proposed activities?	Yes

3. If Yes, is this discharge regulated by a TPDES or TCEQ permit?

☑ Yes

TCEQ Permit No.

TDPES Permit No. 3977000

☐ No

Date TCEQ discharge permit application filed:

Date TPDES discharge application filed:

G. Information Required to Provide Notice

State Officials List [30 TAC 39]

State Senator

Name:	Senator Joan Huffman
Address	PO Box 12068
City, State	Austin, TX
Zip Code	78711-2068
Email	joan.huffman@senate.texas.gov

State Representative

Name:	Representative Cody Vasut
Address	PO Box 2910
City, State	Austin, TX
Zip Code	78768-2910
Email	cody.vasut@house.texas.gov

Local Officials List [30 TAC 39]

Mayor

Name:	Jerry Cain
Address	1201 North Ave. H
City, State	Freeport, TX
Zip Code	77541
Email	jcain@freeporttx.gov

Local Health Authority

Name:	Hope Bullman
Address	430 N Brazosport Blvd
City, State	Freeport, TX
Zip Code	77541
Email	hbullman@freeport.tx.us

County Judge

Name:	L. M. Sebesta, Jr.
Address	111 East Locust Street, Suite 102A
City, State	Angleton, TX
Zip Code	77515
Email	MattS@brazoriacountytx.gov

County Health Authority

Name:	Anthony S. Rogers, MD
Address	111 East Locust Street, Suite 102A
City, State	Angleton, TX
Zip Code	77515
Email	

Based on the questions in the Bilingual Notice Instructions for this form, are you required to make alternate (Bilingual) notice for this application?	Yes
Bilingual Language(s):	Spanish
TCEQ Core Data Form Submitted?(Required)	Yes
Has any information changed on the TCEQ Core Data Form since the last submittal?	No
Signature on Application Submitted? (see Section I Instructions, Item c)	Yes

1. Individual, Corporation, or Other Legal Entity Name on the Permit - must match the Secretary of State's database records for the Facility).
2. The legal name and address must match the Core Data Form.
3. If the application is submitted on behalf of a corporation, please identify the Charter Number as recorded with the Office of the Secretary of State for Texas.
4. The operator has the duty to submit an application if the facility is owned by one person and operated by another [30 TAC 305.43(b)]. The permit will specify the operator and the owner who is listed on Part A of this application [Section 361.087, Texas Health and Safety Code].
5. If the application is submitted by a corporation or by a person residing out of state, the applicant register an Agent in Service or Agent of Service with the Texas Secretary of State's office and provide a complete mailing address for the agent. The agent must be a Texas resident.
6. For applications for new permits, renewals, major amendments and Class 3 modifications a copy of the administratively complete application must be made available at a public place in the county where the facility is, or will be, located for review and copying by the public. Identify the public place in the county (e.g., public library, county court house, city hall), including the address, where the application will be made available for review and copying by the public.
7. For confidential information cross-reference the confidential material throughout the application to Section XIII: Confidential Material, and submit as a separate Section XIII document or binder conspicuously marked "CONFIDENTIAL".
8. Use the segments line map created by **TCEQ GIS Team** to find the Segment Name and Basin Name.
9. Use only for a new commercial hazardous waste management facility or areal expansion of an existing hazardous waste management facility or unit of that facility as defined in 30 TAC 335.202.

Table I.1-Description of Proposed Application Changes

Permit/Compliance Plan Application Appendix/Section	Brief Description of Proposed Change	Modification or Amendment Type	Supporting Regulatory Citation
Entire Permit Application	Permit Renewal includes general updates to plans and programs.	Minor	Not applicable
Application – Part A	General updates to facility information	Minor	40 CFR § 270.42 Appendix I.A.1
Application – Part A Table III-1 and Attachment E	Clarified waste streams to agree with Notice of Registration, updated annua quantities	Minor	40 CFR § 270.42 Appendix I.A.1
Application – Part A Table III-2	Added Incinerator IN-5500 as proposed unit	Major	40 CFR § 270.42 Appendix I.L
Application – Appendix III.D – Inspections Table III.D and Inspection Plan	Added inspections for Incinerator IN-5500	Major	40 CFR § 270.42 Appendix I.L
Application – Table III.E.2	Updated emergency coordinators list	Minor	40 CFR § 270.42 Appendix I.B.6.d
Application – Appendix III.E – Contingency plan	Added Incinerator IN-5500 and updated waste descriptions	Major	40 CFR § 270.42 Appendix I.L
Application – Appendix IV.B – Table IV.B	Clarified waste streams to agree with Notice of Registration	Minor	40 CFR § 270.42 Appendix I.A.1
Application – Appendix IV.D – Waste Analysis Plan	Added section that addresses ignitable, reactive, or incompatible wastes, Land Disposal Restriction Rules, and RCRA air emission standards	Minor	40 CFR § 270.42 Appendix I.A.1
Application – Appendix V.A – General Engineering Report	Added general engineering report to address 40 CFR §§ 270.14(b)(8) and (b)(10). Updated facility figures and maps.	Minor	40 CFR § 270.42 Appendix I.A.1
Application – Appendix V.H	Added engineering report for Incinerator IN-5500	Major	40 CFR § 270.42 Appendix I.L

Permit/Compliance Plan Application Appendix/Section	Brief Description of Proposed Change	Modification or Amendment Type	Supporting Regulatory Citation
Application – Appendix V.H incinerator engineering reports	Modified engineering reports for exiting incinerators to address application table applicability after HWC NESHAP, special waste considerations, and startup, shutdown, and malfunctions.	Minor	40 CFR § 270.42 Appendix I.A.1
Application – Appendix VII.A and VII.B – Closure Plan and Costs	Added Incinerator IN-5500 and updated closure costs, closure procedures did not change	Minor	40 CFR § 270.42 Appendix I.A.1

Appendix I.B:
TCEQ Core Data Form (Form 10400)

TCEQ Use Only

TCEQ CORE DATA FORM

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

1.1 SECTION I: General Information

1. Reason for Submission *(If other is checked please describe in space provided.)*

☐ New Permit, Registration or Authorization *(Core Data Form should be submitted with the program application.)*

☒ Renewal *(Core Data Form should be submitted with the renewal form)* ☐ Other

2. Customer Reference Number *(if issued)*	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number *(if issued)*
CN 600124895		RN 100218049

1.2 SECTION II: Customer Information

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

☐ New Customer ☐ Update to Customer Information ☐ Change in Regulated Entity Ownership
☐ Change in Legal Name (Verifiable with the Texas Secretary of State or Texas Comptroller of Public Accounts)

The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).

6. Customer Legal Name *(If an individual, print last name first: eg: Doe, John)*	*If new Customer, enter previous Customer below:*
BASF Corporation	

7. TX SOS/CPA Filing Number	8. TX State Tax ID (11 digits)	9. Federal Tax ID (9 digits)	10. DUNS Number *(if applicable)*
4205406	11610908094	161090809	008081697

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

12. Number of Employees
☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher

13. Independently Owned and Operated?
☒ Yes ☐ No

14. Customer Role (Proposed or Actual) – *as it relates to the Regulated Entity listed on this form. Please check one of the following*

☐ Owner ☐ Operator ☒ Owner & Operator
☐ Occupational Licensee ☒ Responsible Party ☐ VCP/BSA Applicant ☐ Other:

15. Mailing Address:	602 Copper Road						
	City	Freeport	State	TX	ZIP	77541	ZIP + 4

16. Country Mailing Information *(if outside USA)*	17. E-Mail Address *(if applicable)*
	[redacted]

18. Telephone Number	19. Extension or Code	20. Fax Number *(if applicable)*
(979) 415-6111		(0) -

1.3 SECTION III: Regulated Entity Information

21. General Regulated Entity Information *(If 'New Regulated Entity" is selected, a new permit application is also required.)*

☐ New Regulated Entity ☐ Update to Regulated Entity Name ☐ Update to Regulated Entity Information

The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).

22. Regulated Entity Name *(Enter name of the site where the regulated action is taking place.)*

BASF Freeport Site							
23. Street Address of the Regulated Entity: ***(No PO Boxes)***	602 Copper Road						
	City	Freeport	**State**	TX	**ZIP**	77541	**ZIP + 4**
24. County	Brazoria						

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

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

Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).

27. Latitude (N) In Decimal:	29.002778		**28. Longitude (W) In Decimal:**	95.393056	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds
29	00	10	95	23	35

29. Primary SIC Code (4 digits)	**30. Secondary SIC Code** (4 digits)	**31. Primary NAICS Code** (5 or 6 digits)	**32. Secondary NAICS Code** (5 or 6 digits)
2869	2821	325199	325211

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

Chemical & raw material manufacturing

34. Mailing Address:	**602 Copper Road**						
	City	**Freeport**	**State**	**TX**	**ZIP**	**77541**	**ZIP + 4**
35. E-Mail Address:	[redacted]						

36. Telephone Number	**37. Extension or Code**	**38. Fax Number** *(if applicable)*
(979) 415-6111		( ) -

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

☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☒ Emissions Inventory Air	☒ Industrial Hazardous Waste
			BL-00210	SWR30024;Permit #50128
☐ Municipal Solid Waste	☒ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☒ PWS
	Multiple			PWS0200501
☐ Sludge	☐ Storm Water	☒ Title V Air	☐ Tires	☐ Used Oil
		Multiple		
☐ Voluntary Cleanup	☒ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☒ Other:
	WQ0003977000			WDW-051, WDW-099, WDW-408, WDW-409

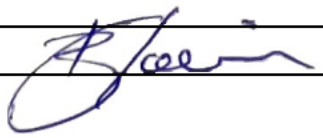
SECTION IV: Preparer Information

40. Name:	Yasuko Dodd	**41. Title:**	Sr. Environmental Specialist

42. Telephone Number	**43. Ext./Code**	**44. Fax Number**	**45. E-Mail Address**
(979) 415-6952		( ) -	[redacted]

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:	BASF Corporation	**Job Title:**	Senior Vice President – General Manager Freeport Site		
Name *(In Print):*	Bradley Morrison			**Phone:**	(979) 415- **6111**
Signature:				**Date:**	6-18-25

Appendix I.C:
SIGNATURE PAGE

Signature Page

I, **Bradley R. Morrison,** **Senior Vice President – General Manager Freeport Site**,

(Operator) *(Title)*

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.

Signature: _____ Date: 06-17-25

To be completed by the Operator if the application is signed by an Authorized Representative for the Operator

I, _____, hereby designate _____

[Print or Type Name] *[Print or Type Name]*

as my representative and hereby authorize said representative to sign any application, submit additional information as may be requested by the Commission; and/or appear for me at any hearing or before the Texas Commission on Environmental Quality in conjunction with this request for a Texas Water Code or Texas Solid Waste Disposal Act permit. I further understand that I am responsible for the contents of this application, for oral statements given by my authorized representative in support of the application, and for compliance with the terms and conditions of any permit which might be issued based upon this application.

_____

Printed or Typed Name of Operator or Principal Executive Officer

_____

Signature

SUBSCRIBED AND SWORN to before me by the said Bradley Morrison

On this 17th day of June, 2025

My commission expires on the 5th day of June, 2027

Notary Public in and for Brazoria County, Texas

*[**Note**: Application Must Bear Signature & Seal of Notary Public]*

KAREN SCHULZE
Notary Public, State of Texas
Comm. Expires 06-05-2027
Notary ID 134391326

Karen Schulze

BASF Corporation Leadership

- Meet Chairman Anup Kothari
- Meet President & CEO Heather Remley
- Meet the BASF Corporation Executive Team
- Meet the North American Leadership Team

Also see:
BASF SE Global Management

- Management Overview
- Board of Executive Directors
- Supervisory Board

BASF Corporation Executive Team Profiles

Heather Remley

President & CEO,
BASF Corporation

Read more

Karen Killeen

General Counsel & Chief Compliance Officer, North America and Senior Vice President, BASF Corporation

Read more

Krisanne Poók

Chief Human Resources Officer, BASF Corporation
Vice President, People Services Americas

Read more

Guillermo Malara

Vice President, Finance, Americas

North American Leadership Team

In addition to the North American Executive Committee, the North American Leadership Team leads BASF's business and organizational priorities in the region.

Parthiv Amin

SVP, Care Chemicals, North America
Florham Park, NJ

Luciana Aquino

Digitalization Americas
Florham Park, NJ

Fransis Chadikun

SVP, Chemical Intermediates
Florham Park, NJ

Stefan Doerr

SVP, Monomers
Wyandotte, MI

Tejuana Edmond

VP, Plastic Additives
Houston, TX

Denise Hartmann

SVP, Dispersions & Resins
Charlotte, NC

Jeffrey Jones

VP, Automotive Coatings North America
Southfield, MI

Jerold Lebold

SVP, Geismar Site
Geismar, LA

Thomas Manderbach

SVP, Global Engineering Services
Houston, TX

Jason McAlpine

SVP, Performance Materials
Wyandotte, MI

Andres Monroy

President & General Management, BASF Mexico, CA&C
DF, Mexico

Brad Morrison

SVP, Freeport Site
Freeport, TX

Apala Mukherjee

VP and Managing Director, BASF Canada
Missisauga, ON

Alexander Neumann-Loreck

SVP, Regional Service Delivery, North & South America
Florham Park, NJ

Paul Rea

SVP, Agriculture Solutions
Research Triangle Park, NC

Gulay Serhatkulu

SVP, Petrochemicals
Houston, TX

Toprak Serhatkulu

VP, Direct Procurement Americas
Florham Park, NJ

From:
https://www.basf.com/us/en/who-we-are/organization/executive-profiles#text164667405

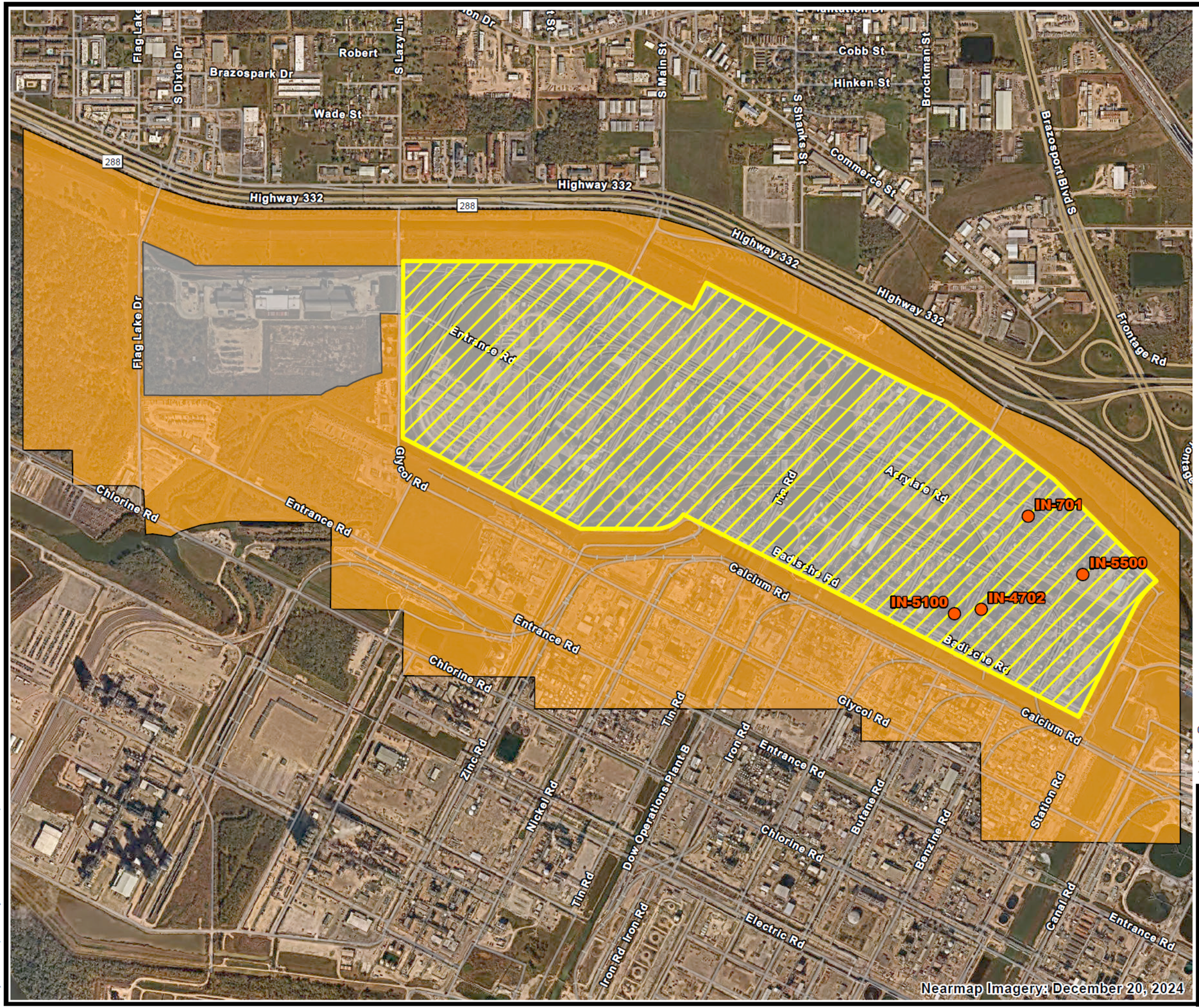
Appendix I.E:

List and Map of Adjacent Landowner

Table I.E and Figure I.E

TABLE I.E
ADJACENT LANDOWNERS

MAP ID	LANDOWNER/ADDRESS
1	DOW CHEMICAL COMPANY 2301 N BRAZOSPORT BLVD FREEPORT TX 77541



Legend

- BASF Freeport Facility
- BASF Corporation
- DOW Chemical Company
  2301 N Brazosport Blvd
  Freeport, Texas 77541
- Incinerator Locations (4)

Parcel Source:
Brazoria County Appraisal District, January 2025

N

0 500 1,000 FEET

1" = 1,000 FEET
1:12,000

BASF CORPORATION
FREEPORT, TEXAS

ADJACENT LANDOWNER MAP

DRAWN BY:	L WILSON	SCALE:		PROJ. NO.	047-23-06
CHECKED BY:	H MCHALE		AS NOTED	FILE NO.	Adjacent Landowner
APPROVED BY:	H MCHALE	DATE PRINTED:		**FIGURE I.E**	
DATE:	March 2025		*3/27/2025*		

Coterie ENVIRONMENTAL
840 First Ave., Suite 400
King of Prussia, PA 19406

J:\Prj\BASF\Freeport Facility\RCRA 2025\BASF GIS.aprx

II. FACILITY SITING CRITERIA

II. Facility Siting Criteria

Provide all Part B responsive information in Appendix II. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

For all new hazardous waste management facilities or areal expansions of existing hazardous waste management facilities provide a report which includes all applicable information regarding Unsuitable Site Characteristics found in 30 TAC Chapter 335, Subchapter G. The report must address each requirement applicable to the type of activity submitted in the application. Reference specific rule numbers whenever possible. Supporting information may be cross-referenced to other parts of this application such as Section V - Engineering Report or Section VI - Geology Report, but information submitted in previous applications must be fully reproduced herein. In addition, provide the information in Table II, as applicable.

For permit renewals provide a report which includes all applicable information regarding Unsuitable Site Characteristics found in 30 TAC Chapter 335, Subchapter G. In addition, provide the information in Table II, as applicable. The applicant may resubmit the information submitted with the original permit application provided this information has not changed. For a renewal this information is necessary to ensure a complete application is received.

For capacity expansions of existing facilities, please provide information in Table II, as applicable. Please note however, that additional technical information may be requested to address any facility siting characteristics noted in Table I, under Facility Siting Summary.

> **NOTE:** The standards contained in §335.204(a)(6) - (9), (b)(7) - (12), (c)(6) - (11), (d)(6) - (11), and (e) (8) - (13) are not applicable to facilities that have submitted a notice of intent to file a permit application pursuant to §335.391 of this title (relating to Pre-Application Review) prior to May 3, 1988, or to facilities that have filed permit applications pursuant to §335.2(a) of this title which were submitted in accordance with Chapter 305 of this title and that were declared to be administratively complete pursuant to §281.3 of this title (relating to Initial Review) prior to May 3, 1988.[30 TAC 335.201(b)]

A. Requirements for Storage or Processing Facilities, Land Treatment Facilities, Waste Piles, Storage Surface Impoundments, and Landfills.

   Complete Table II.A-Requirements for Storage or Processing Facilities, Land Treatment Facilities, Waste Piles, Storage Surface Impoundments, and Landfills.

B. Additional Requirements for Land Treatment Facilities [30 TAC 335.204(b)]

   Complete Table II.B.-Additional Requirements for Land Treatment Facilities [30 TAC 335.204(b)

C. Additional Requirements for Waste Piles [30 TAC 335.204(c)]

   Complete Table II.C.-Additional Requirements for Waste Piles [30 TAC 335.204(c)]

D. Additional Requirements for Storage Surface Impoundments [30 TAC 335.204(d)]

   Complete Table II.D.- Additional Requirements for Storage Surface Impoundments [30 TAC 335.204(d)]

E. Additional Requirements for Landfills (and Surface Impoundments Closed as Landfills with

wastes in place)

Complete Table II.E. - Additional Requirements for Landfills (and Surface Impoundments Closed as Landfills with wastes in place)

F. Flooding

1. Identify whether the facility is located within a 100-year flood plain [40 CFR 270.14(b)(11)(iii)]. This identification must indicate the source of data for such determination and include a copy of relevant documentation (e.g., flood maps, if used and/or calculations). The boundaries of the hazardous waste management facility must be shown on the flood plain map. If the facility is not subject to inundation as a result of a 100-year flood event, indicate that the facility is not within the 100-year flood plain, and do not complete the remainder of the Flooding section in Table II. An applicant for a proposed hazardous waste landfill, areal expansion of a hazardous waste landfill, or a commercial hazardous waste land disposal unit may not rely solely on flood plain maps prepared by the Federal Emergency Management Agency (FEMA) or a successor agency for this determination.

2. If the facility is located within the 100-year flood plain the applicant must provide information detailing the specific flooding levels and other events (e.g., Design Hurricane projected by Corps of Engineers) which impact the flood protection of the facility. Information shall also be provided identifying the 100-year flood level and any other special flooding factors (e.g., wave action) which must be considered in designing, construction, operating, or maintaining the facility to withstand washout from a 100-year flood.

3. State whether any flood protection devices exist at the facility (e.g., flood walls, dikes, etc.), designed to prevent washout from the 100-year flood.

   a. If Yes: provide in Section V an engineering analysis to indicate the various hydrodynamic and hydrostatic forces expected to result at the facility as a consequence of a 100-year flood. [40 CFR 270.14(b)(11)(iv)(A)]

   Include structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., flood walls, dikes) at the facility and how these will prevent washout. [40 CFR 270.14(b)(11)(iv)(B)]

   b. If No: the applicant shall provide in Section V a plan for constructing flood protection devices and a schedule including specific time frames for completion. Provide engineering analyses to indicate the various hydrodynamic and hydrostatic forces expected to result at the facility as a consequence of a 100-year flood. [40 CFR 270.14(b)(11)(iv)(A)]

   Include structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., flood walls, dikes) at the facility and how these will prevent washout. [40 CFR 270.14(b)(11)(iv)(B)]

4. If applicable, and in lieu of the flood protection devices from above, provide a detailed description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded. [40 CFR 270.14(b)(11)(iv)(c)] The

procedures should include:

a. Timing of such movement relative of flood levels, including estimated time to move the waste, to show that such movement can be completed before flood waters reach the facility. Indicate which specific events shall be use to begin waste movement (e.g., Hurricane warning, Flash Flood watch, etc.);

b. A description of the location(s) to which the waste will be moved and a demonstration that these facilities will be eligible to receive hazardous waste in accordance with appropriate regulations (i.e., a permitted facility);

c. The planned procedures, equipment, and personnel to be used and the means to ensure that such resources will be available in time for use; and

d. The potential for accidental discharges of the waste during movement and precautions taken to preclude accidental discharges.

G. Additional Information Requirements

1. For a new hazardous waste management facility, include a map of relevant local land-use plans and descriptions of the major routes of travel in the vicinity of the facility to be used for the transportation of hazardous waste to and from the facility covering at least a five (5)-mile radius from the boundaries of the facility. [30 TAC 305.50(a)(10)(A)&(D)]

2. For a new commercial hazardous waste management facility as defined in 30 TAC 335.202 or the subsequent areal expansion of such a facility or unit of that facility, indicate on the map the nearest established residence, church, school, day care center, surface water body used for a public drinking water supply, and dedicated public park.

3. For new commercial hazardous waste management facilities, submit the following: [30 TAC 305.50(a)(12)(A)]

   a. the average number, gross weight, type, and size of vehicles used to transport hazardous waste;

   b. the major highways nearest the facility irrespective of distance; and

   c. the public roadways used by vehicles traveling to and from the facility within a minimum radius of 2.5 miles from the facility.

4. Include the names and locations of industrial and other waste-generating facilities within 0.5 miles for a new on-site hazardous waste management facility and the approximate quantity of hazardous waste generated or received annually at those facilities. [30 TAC 305.50(a)(10)(B)&(C)]

5. Include the names and locations of industrial and other waste-generating facilities within 1.0 miles for a new commercial hazardous waste management facility and the approximate quantity of hazardous waste generated or received annually at those facilities. [30 TAC 305.50(a)(10)(B)&(C)]

6. For existing land disposal facility units provide documentation that the information required by 30 TAC 335.5 has been placed in the county deed records. If previously submitted, please reference the submittal by date and registration number.

7. If a surface impoundment or landfill (including post-closure) is to be permitted, provide exposure information to accompany this application and in accordance

with 30 TAC 305.50(a)(8) and 40 CFR 270.10(j). This information will be considered separately from the TCEQ application completeness determination.

8. For a hazardous waste management facility requesting a capacity expansion of an existing hazardous waste management facility, please provide in Section VI.A.1.a the requested fault delineation information. [30 TAC 305.50(a)(4)(D)]

TABLE OF APPENDICES

APPENDIX	TITLE
II.A	Requirements for Storage or Processing Facilities, Land Treatment Facilities, Waste Piles, Storage Surface Impoundments, and Landfills (Table II and Site Selection Report)
II.B	Additional Requirements for Land Treatment Facilities (Not Applicable)
II.C	Additional Requirements for Waste Piles (Not Applicable)
II.D	Additional Requirements for Storage Surface Impoundments (Not Applicable)
II.E	Additional Requirements for Landfills (and Surface Impoundments Closed as Landfills with wastes in place) (Not Applicable)
II.F	Flooding (Flooding Report)
II.G	Additional Information Requirements (Not Applicable)

Appendix II.A:

Requirements for Storage or Processing Facilities, Land Treatment Facilities, Waste Piles, Storage Surface Impoundments, and Landfills (Table II and Site Selection Report)

Table II

Table II contains the following: Table II.A, Table II.B, Table II.C, Table II.D, Table II.E and Flooding from Section II. F of the Part B Application

Table II.A - Requirements for Storage or Processing Facilities, Land Treatment Facilities, Waste Piles, Storage Surface Impoundments, and Landfills

Is the facility located or proposed to be located[1]:

In wetlands? [as applicable: 30 TAC 335.204(a)(2), (b)(2), (c)(2), (d)(2), and/or (e)(2)	No
If Yes: the TCEQ shall not issue a permit for a new hazardous waste management facility or areal expansion of an existing facility into wetlands, pursuant to 30 TAC 335.205(a)(1).	
In the critical habitat of an endangered species of plant or animal?[6] [as applicable: 30 TAC 335.204(a)(8), (b)(10), (c)(9), (d)(9), and/or (e)(11)]	No
If Yes: submit in Section V information demonstrating that design, construction, and operational features will prevent adverse effects on such critical habitat.	
On the recharge zone of a sole-source aquifer?2 [30 TAC 335.204(a)(3), (b)(3), (c)(3), (d)(3), and/or (e)(3)]	No
If Yes: then for storage and processing facilities (excluding storage surface impoundments), submit in Section V information demonstrating that secondary containment is provided to preclude migration to groundwater from spills, leaks, or discharges.	
In an area overlying a regional aquifer? [as applicable: 30 TAC 335.204(a)(4), (b)(4), (c)(4), (d)(4), and/or (e)(4)]	Yes, see below
If Yes: submit site-specific information in Section V and/or Section VI demonstrating compliance with 30 TAC 335.205(a)(1).	
In areas where soil unit(s) are within five feet of the containment structure, or treatment zone, as applicable, that have a Unified Soil Classification of GW, GP, GM, GC, SW, SP, or SM, or a hydraulic conductivity greater than 10-5 cm/sec? [as applicable: 30 TAC 335.204(a)(5), (b)(5), (c)(5), (d)(5), and/or (e)(5)]	No
If Yes: provide additional information in Sections V and/or Section VI demonstrating compliance with 30 TAC 335.205(a)(1)	
In areas of direct drainage within one mile of a lake at its maximum conservation pool level, if the lake is used to supply public drinking water through a public water system?[6] [as applicable: 30 TAC 335.204 (a)(6), (b)(7), (c)(6), and/or (e)(8)].	No
If Yes: provide information in Section V demonstrating compliance with 30 TAC 335.205(a)(1).	

In areas of active geologic processes, including but not limited to erosion, submergence, subsidence, faulting, karst formation, flooding in alluvial flood wash zones, meandering river bank cuttings, or earthquakes?[6] [as applicable: 30 TAC 335.204(a)(7), (b)(8) ,(c)(7), (d)(7), and/ or (e)(9)]	No
Within 30 feet of the upthrown side or 50 feet of the downthrown side of the actual or inferred surface expression of a fault that has reasonably been shown to have caused displacement of shallow Quaternary sediments or of man-made structures?[6] [as applicable: 30 TAC 335.204(a)(9), (b)(12) ,(c)(11), (d)(11), and/or (e)(13)]	No

If Yes: specify in Section V the design, construction, and operational features that will prevent adverse effects resulting from any fault movement.

If a fault is found to be present, the width and location of the actual or inferred surface expression of the fault, including both the identified zone of deformation and the combined uncertainties in locating a fault trace, must be determined by a qualified geologist or geotechnical engineer and reported in Section VI.

Table II.B. - Additional Requirements for Land Treatment Facilities [30 TAC 335.204(b)]:

Is the land treatment facility located or proposed to be located:

Within 1000 feet of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park which is in use at the time the notice of intent to file a permit application is filed with the commission, or which is in use at the time the permit application is filed with the commission?	
If Yes: the TCEQ shall not issue a permit for a new hazardous waste land treatment unit or an areal expansion of an existing land treatment unit, pursuant to 30 TAC 335.204(b)(6) and 335.205(a).	
Within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?	
If Yes: submit in Section V.F design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.	
If Yes: submit Section V.F design, construction and operational features, which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
On a barrier island or peninsula?	
If Yes: the TCEQ shall not issue a permit for a new hazardous waste land treatment unit or an areal expansion of an existing land treatment unit, pursuant to 30 TAC 335.204(b)(11) and 335.205(a)(1).	

Table II.C. - Additional Requirements for Waste Piles [30 TAC 335.204(c)]

Is the waste pile located or proposed to be located:

Within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?	
If Yes: submit in Section V.E design, construction, and operational features on the facility which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.	
If Yes: submit Section V.E design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
On a barrier island or peninsula?[6]	
If Yes: the TCEQ shall not issue a permit for a new hazardous waste pile or an areal expansion of an existing waste pile, pursuant to 30 TAC 335.204(c)(10) and 335.205(a)(1).	

Table II.D. - Additional Requirements for Storage Surface Impoundments [30 TAC 335.204(d)]

Is the land treatment facility located or proposed to be located:

Within 1000 feet of an area of active coastal shoreline erosion even though the area is protected by a barrier island or peninsula	
If Yes: submit in Section V.D design, construction, and operational features of the facility which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barrier island or peninsula.	
If Yes: then submit in Section V.D design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
On a barrier island or peninsula?[6]	
If Yes: the TCEQ shall not issue a permit for a new hazardous waste storage surface impoundment or an areal expansion of an existing storage surface impoundment, pursuant to 30 TAC 335.204(d)(10) and 335.205(a)(1).	

Table II.E. - Additional Requirements for Landfills (and Surface Impoundments Closed as Landfills with wastes in place)

Is the landfill located or proposed to be located:

Within 1000 feet of an established residence, church, school, day care center, surface water body used for a public drinking water supply, or dedicated public park which is in use at the time the notice of intent to file a permit application is filed with the commission, or which is in use at the time the permit application is filed with the commission?	
If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(6) and 335.205(a)(1).	
(For commercial hazardous waste landfills) in the 100-year flood plain of a perennial stream that is delineated on a flood map adopted by the Federal Emergency Management Agency after September 1, 1985, as zone A1-99, VO, or V1-30?	
If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(7) and 335.205(a)(1).	
Within 1000 feet of an area subject to active coastal shoreline erosion even though the area is protected by a barrier island or peninsula?	
If Yes: then submit in Section V.G design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
Within 5000 feet of a coastal shoreline subject to active shoreline erosion and which is unprotected by a barriers island or peninsula.	
If Yes: then submit in Section V.G design, construction, and operational features which will prevent adverse effects resulting from storm surge and erosion or scouring by water.	
On a barrier island or peninsula?	
If Yes: the TCEQ shall not issue a permit for a new hazardous waste landfill or an areal expansion of an existing landfill, pursuant to 30 TAC 335.204(e)(12) and 335.205(a)(1).	

Flooding (see Section II Instructions, Item F)

Is the facility within a 100-year flood plain?	No
Has a flood plain map been provided?	Yes
Has information about flooding levels and events, and other special flooding factors, been provided?[3]	No
Do any flood protection devices exist at the facility (e.g., flood walls, dikes, etc.) designed to prevent washout from the 100-year flood?[3]	Not Applicable

If Yes: provide in Section V an engineering analysis to indicate the various hydrodynamic and hydrostatic forces expected to result at the facility as a consequence of a 100-year flood. [40 CFR 270.14(b)(11)(iv)(A)][4]

If No: the applicant shall provide in Section V a plan for constructing flood protection devices and a schedule including specific time frames for completion. Provide engineering analyses to indicate the various hydrodynamic and hydrostatic forces expected to result at the facility as a consequence of a 100-year flood. [40 CFR 270.14(b)(11)(iv)(A)][5]

If applicable, and in lieu of the flood protection devices from above, was a detailed description of the procedures to be followed to remove hazardous waste to safety before the facility is flooded provided?[3, 6]	Not Applicable
Additional Information Requirements (see Section II instructions, Item G): Submitted?	No

1. Provide the source of information for all questions in the appendix.
2. Note: Land treatment facilities, waste piles, storage surface impoundments, and landfills may not be located on the recharge zone of a sole-source aquifer.
3. Only required to be submitted if the facility is subject to inundation as a result of a 100-year flood event.
4. Include structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., flood walls, dikes) at the facility and how these will prevent washout. [40 CFR 270.14(b)(11)(iv)(B)]
5. Include structural or other engineering studies showing the design of operational units (e.g., tanks, incinerators) and flood protection devices (e.g., flood walls, dikes) at the facility and how these will prevent washout. [40 CFR 270.14(b)(11)(iv)(B)]
6. The standards contained in §335.204(a)(6) - (9), (b)(7) - (12), (c)(6) - (11), (d)(6) - (11), and (e) (8) - (13) are not applicable to facilities that have submitted a notice of intent to file a permit application pursuant to §335.391 of this title (relating to Pre-Application Review) prior to May 3, 1988, or to facilities that have filed permit applications pursuant to §335.2(a) of this title which were submitted in accordance with Chapter 305 of this title and that were declared to be administratively complete pursuant to §281.3 of this title (relating to Initial Review) prior to May 3, 1988.[30 TAC 335.201(b)]

BASF

We create chemistry

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

SITE SELECTION REPORT

MAY 2025

1.0 INTRODUCTION

BASF Corporation (BASF) operates four liquid hazardous waste incinerators at its facility in Freeport, Texas. These units are designated as Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500. These incinerators are the only permitted hazardous waste units at the facility. The incinerators are subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Parts 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerators are also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE.

This report provides supporting information to demonstrate compliance with 30 TAC Chapter 335 Subchapter G.

2.0 WETLANDS

30 TAC § 335.204(a)(2) requires that a processing facility may not be located in wetlands. The BASF Freeport Site is not located in any wetlands. Figure 1 in Attachment A shows the United States Fish and Wildlife Service, National Wetlands Inventory and the location of the BASF Freeport Site. As shown in the figure, the closest wetlands are to the east of the facility, across Highway 288.

3.0 SOLE-SOURCE AQUIFERS

30 TAC § 335.204(a)(3) requires that a processing facility may not be located on the recharge zone of a sole-source aquifer unless secondary containment is provided to preclude migration to groundwater from spills, leaks or discharges. Figure 2 in Attachment A shows the United States Environmental Protection Agency (USEPA) Region 6 sole-source aquifers in Texas. The two closest to the BASF Freeport Site are the Edwards Aquifer System and the Chicot Aquifer System. The recharge zones for these aquifers are located directly north of each aquifer. The BASF Freeport Site is located south of both aquifers and is therefore not located in either recharge zone.

4.0 OVERLYING REGIONAL AQUIFERS

30 TAC § 335.204(a)(4) requires that a processing facility may not be located in areas overlying regional aquifers unless the regional aquifer is separated from the facility by a minimum of ten feet of material with a hydraulic conductivity toward the aquifer not greater than 10^{-7} centimeters per second (cm/sec), or a thicker interval of more permeable material which provides equivalent or greater retardation to pollutant migration or secondary containment is provided to preclude migration to groundwater from spills, leaks or discharges. Figure 3 in Attachment A shows the Texas Water Development Boards designation and location of the major aquifers of Texas. The BASF Freeport Site overlies the Gulf Coast

Aquifer System. However, in accordance with 30 TAC § 335.204(a)(4), the incinerators have adequate secondary containment, as described in Attachment V.I.

5.0 Unified Soil Classification or Hydraulic Conductivity

30 TAC § 335.204(a)(5) requires that a processing facility may not be located in areas where soil unit(s) within five feet of the containment structure have a Unified Soil Classification of GW, GP, GM, GC, SW, SP, or SM, or a hydraulic conductivity greater than 10^{-5} cm/sec unless secondary containment is provided or the soil unit is not sufficiently thick and laterally continuous to provide a significant pathway for waste migration. Figure 4 in Attachment A presents the United States Department of Agriculture, Natural Resources Conservation Service soil designations at the BASF Freeport Site. The soil unit is predominantly classified by the Unified Soil Classification of CH (clay, high liquid limit).

6.0 Public Drinking Water Locations

30 TAC § 335.204(a)(6) requires that a processing facility may not be located in areas of direct drainage within one mile of a lake at its maximum conservation pool level, if the lake is used to supply public drinking water through a public water system, unless the design, construction, and operational features of the facility will prevent adverse effects resulting from a release in such areas. Figure 5 in Attachment A provides information on the nearest public drinking water surface intake. This location was determined from surface water quality information on the TCEQ website. The nearest surface public drinking water intake is 5.15 miles from the incinerators.

7.0 Active Geologic Processes

30 TAC § 335.204(a)(7) requires that a processing facility may not be located in areas of active geologic processes unless the design, construction, and operational features of the facility will prevent adverse effects resulting from the geologic processes. Figure 6 (Earthquake Probability) and Figure 7 (Karst Map) in Attachment A, as designated by the United States Geological Survey, show that there are no active geological processes in the area of the BASF Freeport Site. Additionally, there are no abrupt changes in land surface elevation, and there are no major fluvial environments in the immediate area. Therefore, there are no areas that would be prone to anomalous erosion or land subsidence.

8.0 Critical Habitats

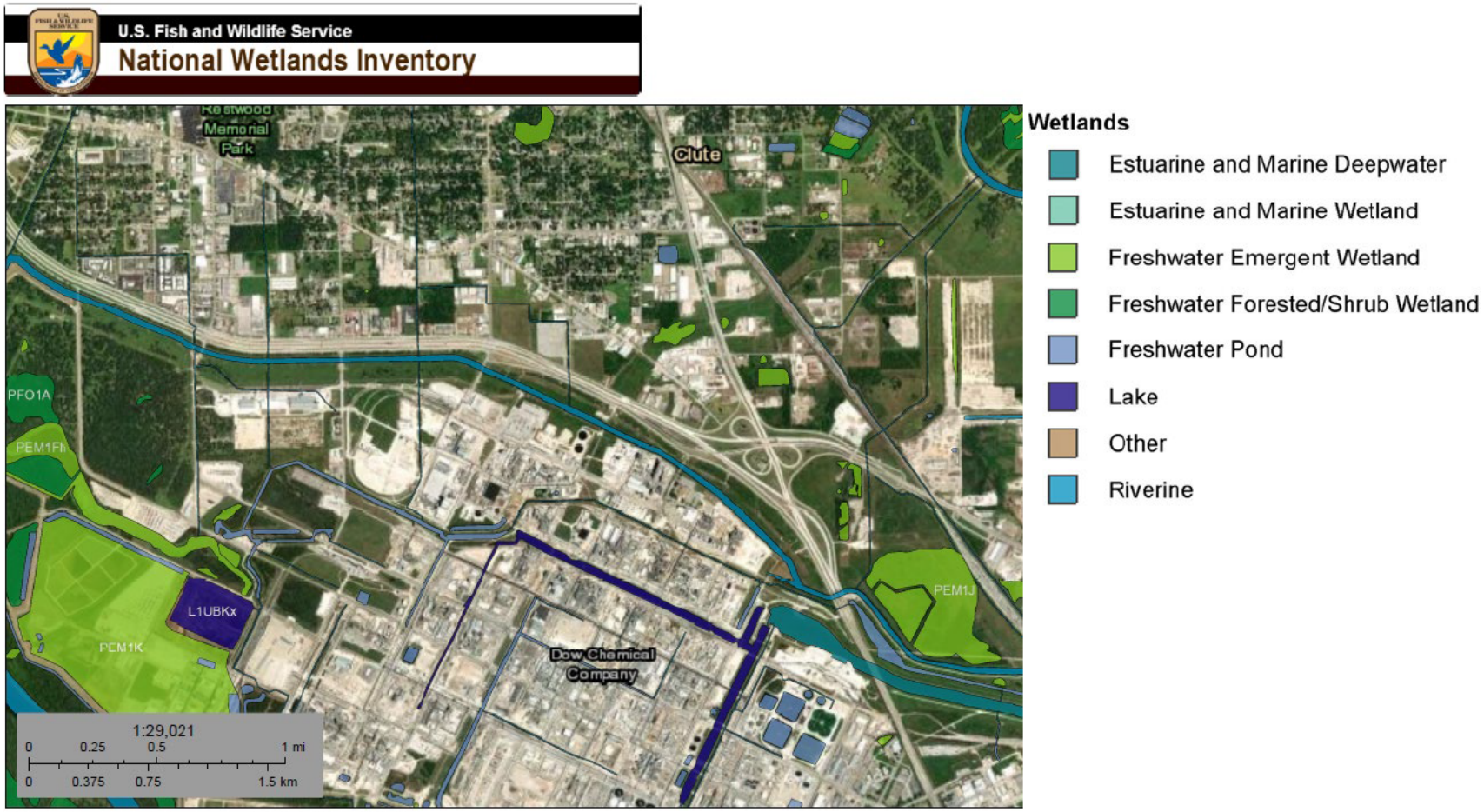
30 TAC § 335.204(a)(8) requires that a processing facility may not be located in the critical habitat of an endangered species of plant or animal unless the design, construction, and operational features of the facility will prevent adverse effects on the critical habitat of the endangered species. Figure 8 in Attachment A presents the United States Fish and Wildlife Service critical habitat locations. The nearest critical habitats lie approximately 17 miles southeast and seven miles southwest of the BASF Freeport Site.

9.0 FAULTS

30 TAC § 335.204(a)(9) requires that a processing facility may not be located within 30 feet of the upthrown side or 50 feet of the downthrown side of the actual or inferred surface expression of a fault that has reasonably been shown to have caused displacement of shallow Quaternary sediments or of man-made structures, unless the design, construction, and operational features of the facility will prevent adverse effects resulting from fault movement. The website https://earthquake.usgs.gov/ was reviewed to determine the presence of any faults near the BASF Freeport Site. None were found.

Attachment A:
FIGURES

FIGURE 1
WETLAND DELINEATION



This map is for general reference only. The US Fish and Wildlife Service is not responsible for the accuracy or currentness of the base data shown on this map. All wetlands related data should be used in accordance with the layer metadata found on the Wetlands Mapper web site.

National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

FIGURE 2
SOLE SOURCE AQUIFERS

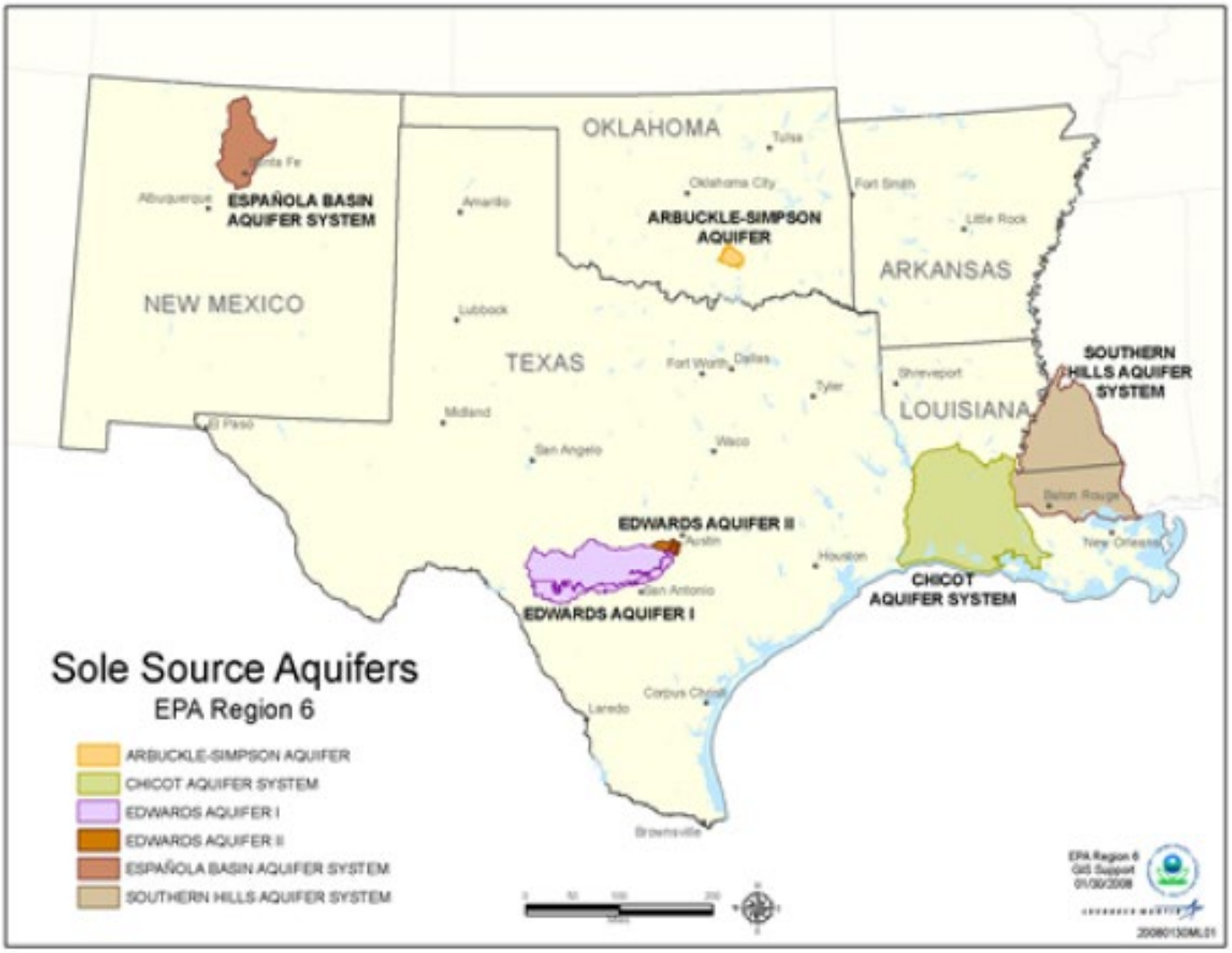
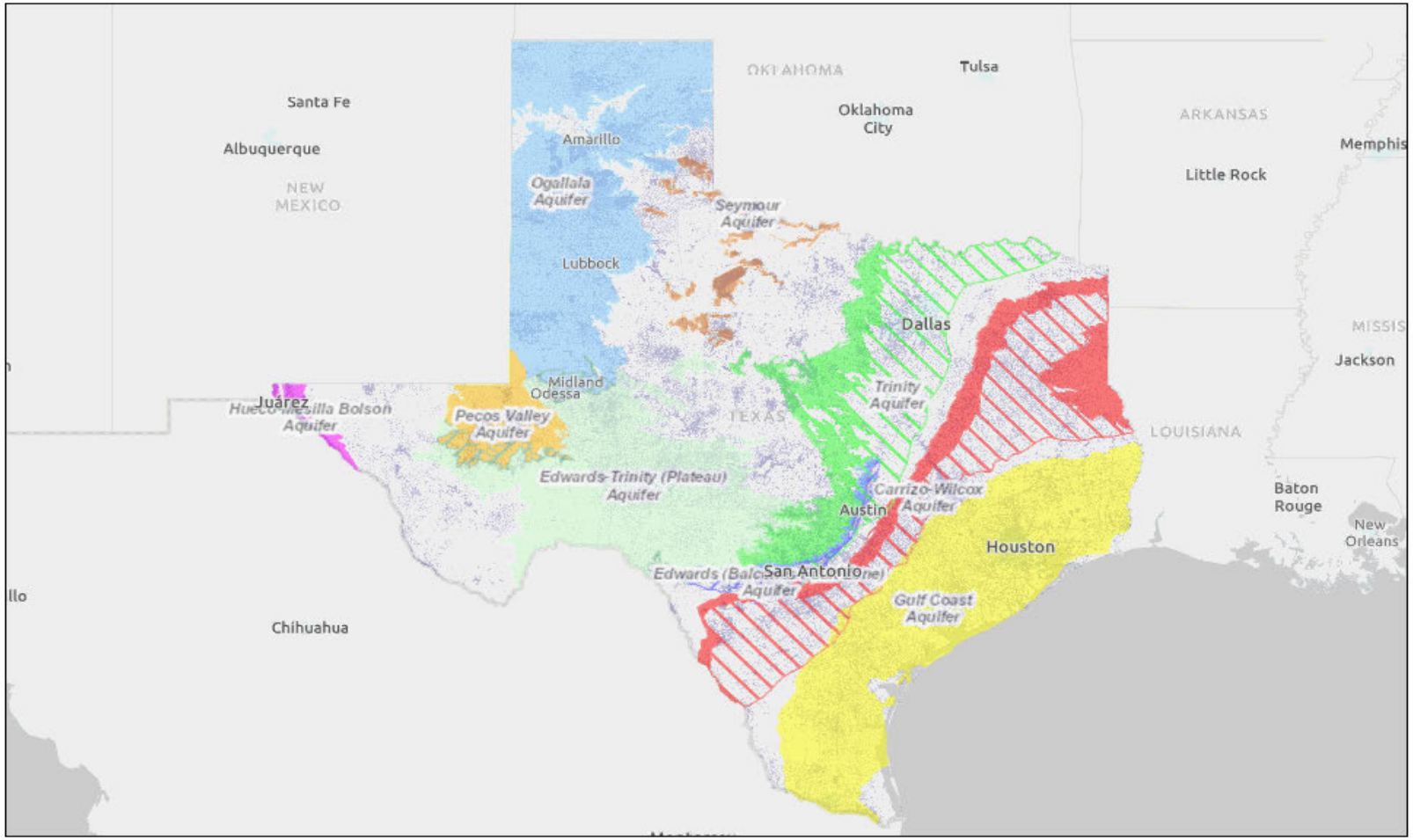


FIGURE 3
MAJOR AQUIFERS OF TEXAS

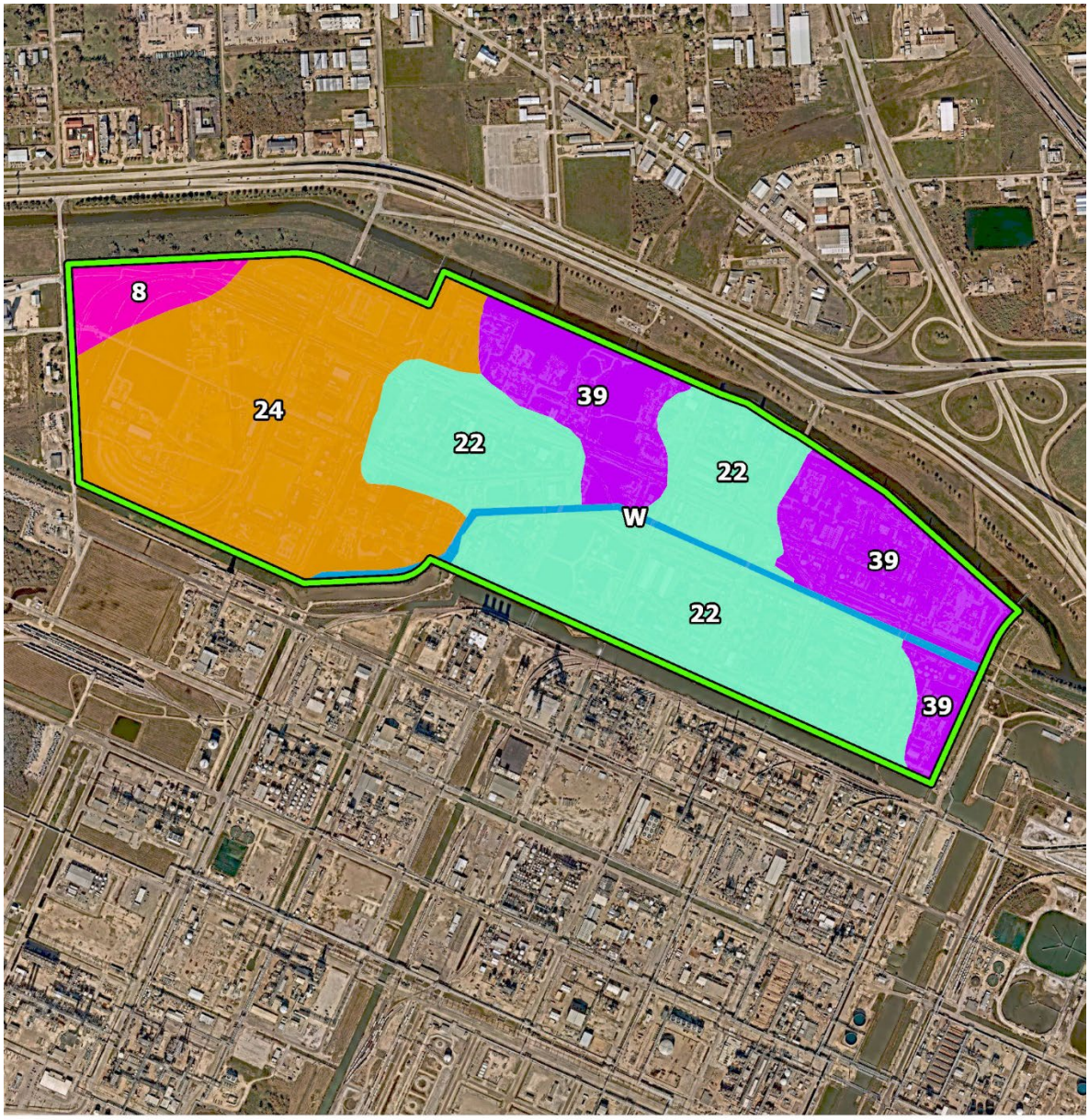


Texas Water Development Board

The data in Water Data Interactive represents the best available information provided by the TWDB and third-party cooperators of the TWDB. The TWDB provides information via this website as a public service. Neither the State of Texas nor the TWDB assumes any legal liability or responsibility or makes any guarantees or warranties as to the accuracy, completeness or suitability of the information for any particular purpose. The TWDB systematically revises or removes data discovered to be incorrect. If you find inaccurate information or have questions, please contact WDI-Support@twdb.texas.gov.

0 80 160 320 mi
0 125 250 500 km
1:9,244,649

FIGURE 4
SOIL MAP



Legend

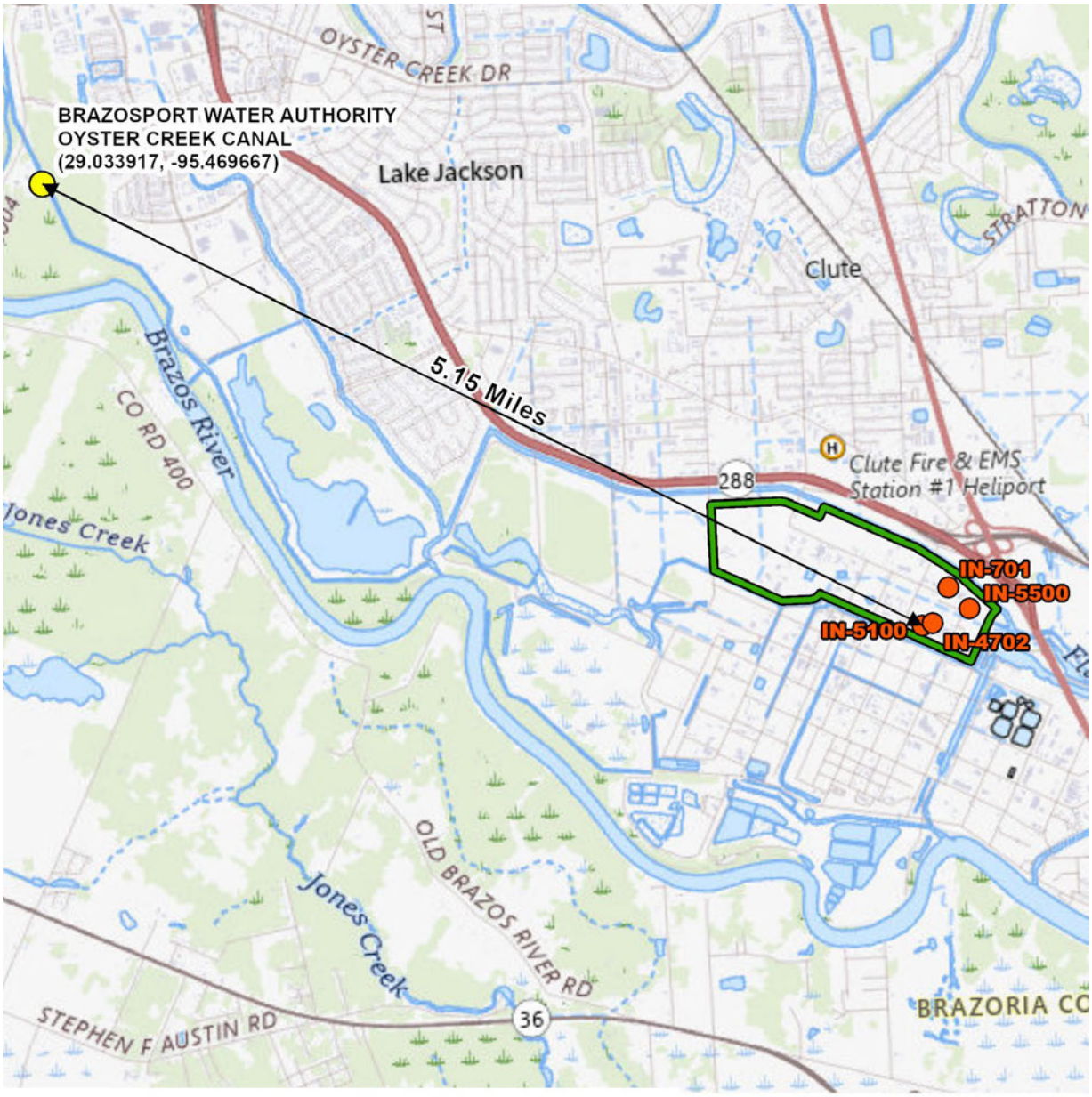
BASF Freeport Facility

NRCS Soils, 2023

- 8
- 22
- 24
- 39
- W

Map Unit Symbol	Map Unit Name	Rating	Acres in AOI	Percent of AOI
8	Bernard-Edna complex, 0 to 1 percent slopes	CL	15.7	3.9
22	Ijam-Urban land complex, rarely flooded	CH	153.9	37.9
24	Lake Charles clay, 0 to 1 percent slopes	CH	141.0	34.7
39	Surfside clay, 0 to 1 percent slopes, occassionally flooded	CH	86.9	21.4
W	Water		8.9	2.2
Totals for Area of Interest			**406.4**	**100.0**

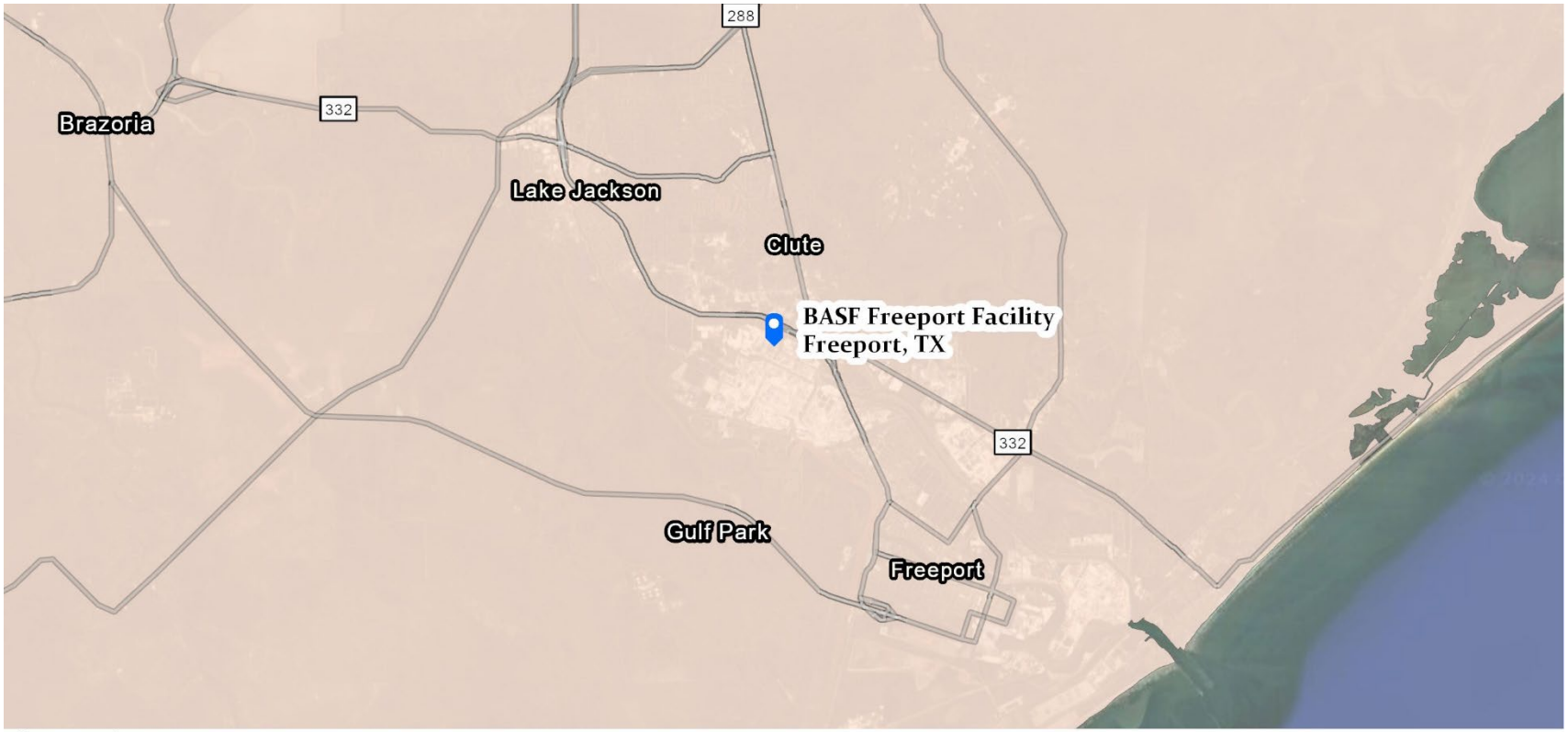
FIGURE 5
DRINKING WATER LOCATION – SURFACE WATER INTAKE



Legend

- BASF Freeport Facility
- Incinerator Locations (4)
- TCEQ Public Water System Surface Water Intakes

FIGURE 6
EARTHQUAKE PROBABILITY



Legend

BASF Freeport Facility

Earthquake - Annualized Frequency

- 0 – 0.00064
- > 0.00064 – 0.00177
- > 0.00177 – 0.0035
- > 0.0035 – 0.0063
- > 0.0063 – 0.0099 | Events per year

FIGURE 7
KARST MAP

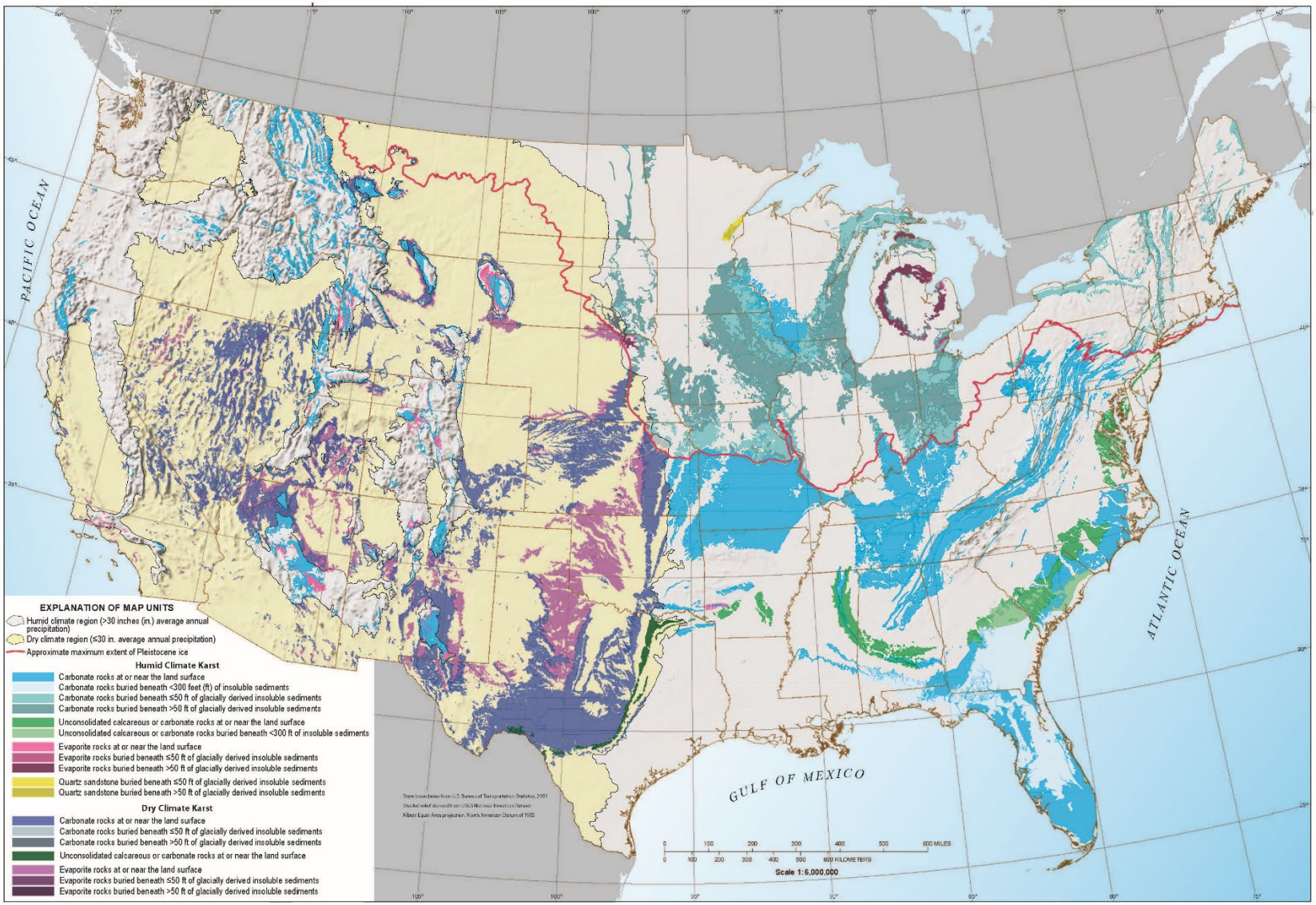
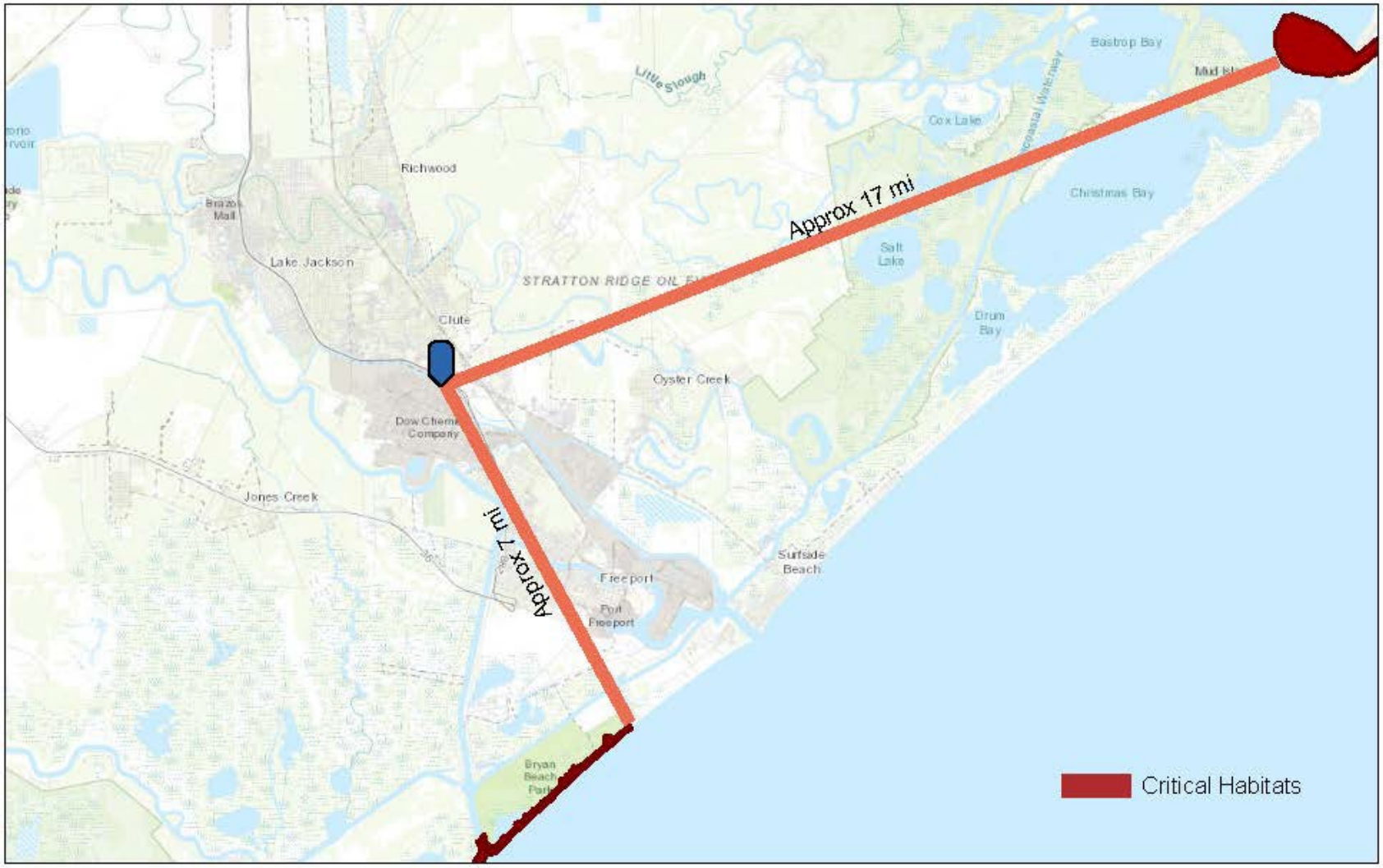


FIGURE 8
CRITICAL HABITATS



U.S. Fish and Wildlife Service | Esri, CGIAR, USGS | Texas Parks & Wildlife, CONANP, Esri, HERE, Garmin, Foursquare, SafeGraph, FAO, METI/NASA, USGS, EPA, NPS
https://fws.maps.arcgis.com/home/webmap

Appendix II.F:
FLOODING
(FLOODING REPORT)

BASF

We create chemistry

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

FLOODING REPORT

MAY 2025

1.0 INTRODUCTION

BASF Corporation (BASF) operates four liquid hazardous waste incinerators at its facility in Freeport, Texas. These units are designated as Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500. These incinerators are the only permitted hazardous waste units at the facility. The incinerators are subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Parts 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerators are also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE.

This report provides information on flooding required by 40 CFR § 270.14(b)(11)(iii).

2.0 FLOOD MAP

Maps and digital information from the Federal Emergency Management Agency (FEMA) were used to determine the location(s) of the 100-year flood plain. The following three flood maps are provided in Attachment A:

- Figure II.F.1 - FEMA Maps 48039C0785K;
- Figure II.F.2 - FEMA Maps 48039C0620K;
- Figure II.F.3 - FEMA Flood Map.

FEMA flood maps 48039C0785K and 48039C0620K were updated in 2020. The digital data used to create Figure II.F.3 was updated in 2024. The maps show that the BASF Freeport Site is not located within a 100-year flood plain.

3.0 FLOOD IMPACTS

The BASF Freeport Site is not located within a 100-year flood plain. Therefore, this section is not applicable.

4.0 FLOOD PROTECTION DEVICES

The BASF Freeport Site is not located within a 100-year flood plain. Therefore, this section is not applicable.

5.0 PROCEDURES FOR FLOOD EVENTS

The BASF Freeport Site is not located within a 100-year flood plain. Therefore, this section is not applicable.

Attachment A:
FLOOD MAPS

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Texas State Plane South Central Zone (FIPS zone 4204). The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to North American **Vertical Datum** of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, NINGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from multiple sources. Base map files were provided in digital format by Texas Natural Resources Information Systems (TNRIS) StratMap, National Oceanic and Atmospheric Administration (NOAA), National Geodetic Survey (NGS), Velasco Drainage District, and the Brazoria County Appraisal District.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

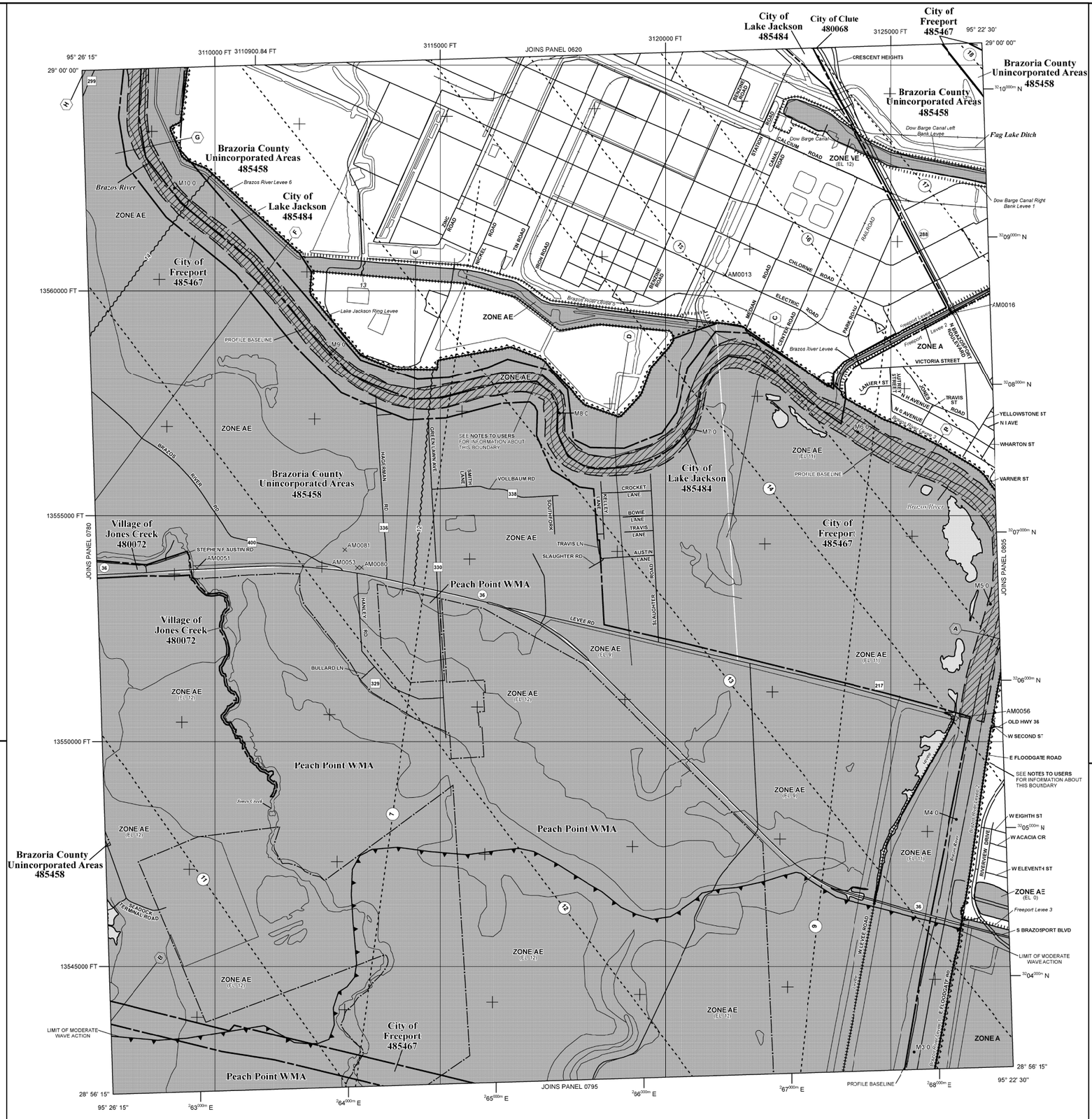
For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products or the National Flood Insurance Program in general, please call the Flood Mapping and Insurance eXchange (FMIX) at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at https://www.fema.gov/business/nfip.

LIMIT OF MODERATE WAVE ACTION: The AE Zone category has been divided by a **Limit of Moderate Wave Action (LiMWA).** The LiMWA represents the approximate landward limit of the 1.5-foot breaking wave. Base flood conditions between the VE Zone and the LiMWA will be similar to, but less severe than those in the VE Zone.

ATTENTION: The levee, dike, or other structure that impacts flood hazard areas inside this boundary has not been shown to comply with Section 65.10 of the NFIP Regulations. As such, this FIRM panel will be revised at a later date to update the flood hazard information associated with this structure.

The flood hazard data inside the boundary on the FIRM panel has been republished from the previous effective (historic) FIRM for this area, after being converted from NGVD 29 to NAVD 88.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area suject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

ZONE A	No Base Flood Elevations determined.
ZONE AE	Base flood Elevations determined.
ZONE AH	Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
ZONE AO	Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
ZONE AR	Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provice protection from the 1% annual chance or greater flood.
ZONE A99	Area to be protected from 1% annual chance flood by a Federal flood protection system unde construction; no Base Flood Elevations determined.
ZONE V	Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
ZONE VE	Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

ZONE X	Areas of 0.2% annual chance flood; areas of 1% annual chance floor with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

ZONE X	Areas determined to be outside the 0.2% annual chance floodplain.
ZONE D	Areas in which flood hazards are undetermined, but possible.

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Limit of Moderate Wave Action
- 513 (EL 987) — Base Flood Elevation line and value; elevation in feet*
- Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- Cross section line
- Transect line
- Culvert, Flume, Penstock or Aqueduct
- Road or Railroad Bridge
- Footbridge
- 87°07'45", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 3278000mN — 1000-meter Universal Transverse Mercator grid values, zone 15N
- 600000 FT — 5000-foot grid values: Texas State Plane coordinate system, South Central zone (FIPS ZONE 4204), Lambert Conformal Conic projection
- DX5510 × — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- ● M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index.

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP PANEL
JUNE 5, 1989

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
MAY 4, 1992
NOVEMBER 17, 1993
SEPTEMBER 22, 1999
DECEMBER 30, 2020

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0785K

FIRM

FLOOD INSURANCE RATE MAP

BRAZORIA COUNTY, TEXAS
AND INCORPORATED AREAS

PANEL 785 OF 925

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

COMMUNITY	NUMBER	PANEL	SUFFIX
BRAZORIA COUNTY	485458	0785	K
CLUTE, CITY OF	480068	0785	K
FREEPORT, CITY OF	485467	0785	K
JONES CREEK, VILLAGE OF	480072	0785	K
LAKE JACKSON, CITY OF	485484	0785	K

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

Figure II.F.1

MAP NUMBER
48039C0785K

MAP REVISED
DECEMBER 30, 2020

Federal Emergency Management Agency

NOTES TO USERS

This map is for use in administering the National Flood Insurance Program. It does not necessarily identify all areas subject to flooding, particularly from local drainage sources of small size. The **community map repository** should be consulted for possible updated or additional flood hazard information.

To obtain more detailed information in areas where **Base Flood Elevations** (BFEs) and/or **floodways** have been determined, users are encouraged to consult the Flood Profiles and Floodway Data and/or Summary of Stillwater Elevations tables contained within the Flood Insurance Study (FIS) report that accompanies this FIRM. Users should be aware that BFEs shown on the FIRM represent rounded whole-foot elevations. These BFEs are intended for flood insurance rating purposes only and should not be used as the sole source of flood elevation information. Accordingly, flood elevation data presented in the FIS report should be utilized in conjunction with the FIRM for purposes of construction and/or floodplain management.

Coastal Base Flood Elevations shown on this map apply only landward of 0.0' North American Vertical Datum of 1988 (NAVD 88). Users of this FIRM should be aware that coastal flood elevations are also provided in the Summary of Stillwater Elevations tables in the Flood Insurance Study report for this jurisdiction. Elevations shown in the Summary of Stillwater Elevations tables should be used for construction and/or floodplain management purposes when they are higher than the elevations shown on this FIRM.

Boundaries of the **floodways** were computed at cross sections and interpolated between cross sections. The floodways were based on hydraulic considerations with regard to requirements of the National Flood Insurance Program. Floodway widths and other pertinent floodway data are provided in the Flood Insurance Study report for this jurisdiction.

Certain areas not in Special Flood Hazard Areas may be protected by **flood control structures**. Refer to Section 2.4 "Flood Protection Measures" of the Flood Insurance Study report for information on flood control structures for this jurisdiction.

The **projection** used in the preparation of this map was Texas State Plane South Central Zone (FIPS zone 4204). The **horizontal datum** was NAD 83, GRS 1980 spheroid. Differences in datum, spheroid, projection or State Plane zones used in the production of FIRMs for adjacent jurisdictions may result in slight positional differences in map features across jurisdiction boundaries. These differences do not affect the accuracy of this FIRM.

Flood elevations on this map are referenced to North American **Vertical Datum** of 1988. These flood elevations must be compared to structure and ground elevations referenced to the same vertical datum. For information regarding conversion between the National Geodetic Vertical Datum of 1929 and the North American Vertical Datum of 1988, visit the National Geodetic Survey website at http://www.ngs.noaa.gov or contact the National Geodetic Survey at the following address:

NGS Information Services
NOAA, N/NGS12
National Geodetic Survey
SSMC-3, #9202
1315 East-West Highway
Silver Spring, Maryland 20910-3282
(301) 713-3242

To obtain current elevation, description, and/or location information for **bench marks** shown on this map, please contact the Information Services Branch of the National Geodetic Survey at **(301) 713-3242**, or visit its website at http://www.ngs.noaa.gov.

Base map information shown on this FIRM was derived from multiple sources. Base map files were provided in digital format by Texas Natural Resources information Systems (TNRIS) StratMap, National Oceanic and Atmospheric Administration (NOAA), National Geodetic Survey (NGS), Velasco Drainage District, and the Brazoria County Appraisal District.

This map reflects more detailed and up-to-date **stream channel configurations** than those shown on the previous FIRM for this jurisdiction. The floodplains and floodways that were transferred from the previous FIRM may have been adjusted to conform to these new stream channel configurations. As a result, the Flood Profiles and Floodway Data tables for multiple streams in the Flood Insurance Study Report (which contains authoritative hydraulic data) may reflect stream channel distances that differ from what is shown on this map.

Corporate limits shown on this map are based on the best data available at the time of publication. Because changes due to annexations or de-annexations may have occurred after this map was published, map users should contact appropriate community officials to verify current corporate limit locations.

Please refer to the separately printed **Map Index** for an overview map of the county showing the layout of map panels; community map repository addresses; and a Listing of Communities table containing National Flood Insurance Program dates for each community as well as a listing of the panels on which each community is located.

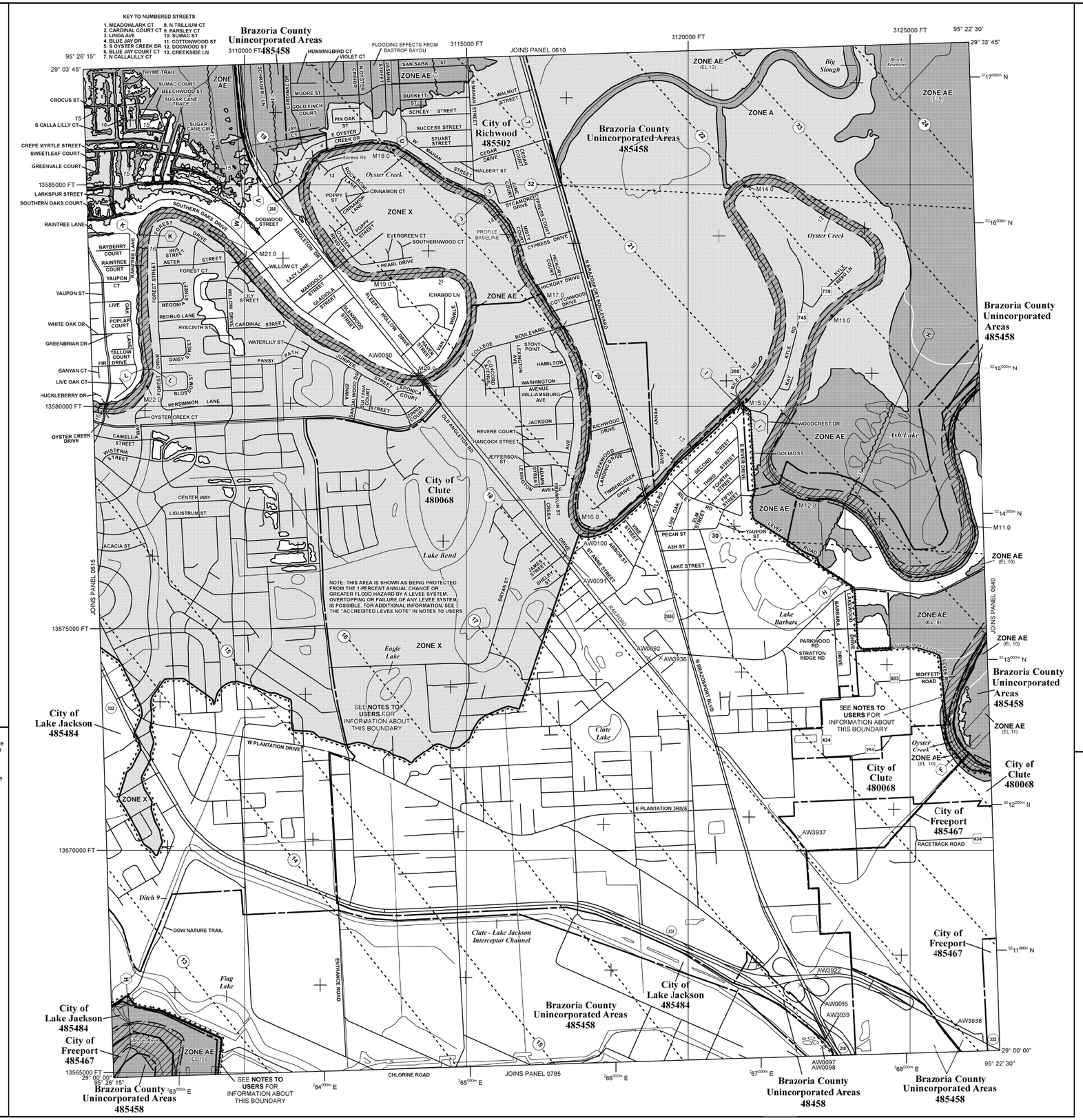
For information on available products associated with this FIRM visit the **Map Service Center (MSC)** website at http://msc.fema.gov. Available products may include previously issued Letters of Map Change, a Flood Insurance Study Report, and/or digital versions of this map. Many of these products can be ordered or obtained directly from the MSC website.

If you have **questions about this map**, how to order products or the National Flood Insurance Program in general, please call the Flood Mapping and Insurance eXchange (FMIX) at **1-877-FEMA-MAP** (1-877-336-2627) or visit the FEMA website at https://www.fema.gov/business/nfip.

Accredited Levee Notes to Users: Check with your local community to obtain more information, such as the estimated level of protection provided (which may exceed the 1-percent-annual-chance level) and Emergency Action Plan, on the levee system(s) shown as providing protection for areas on this panel. To mitigate flood risk in residual risk areas, property owners and residents are encouraged to consider flood insurance and floodproofing or other protective measures. For more information on flood insurance, interested parties should visit https://www.fema.gov/national-flood-insurance-program

ATTENTION: The levee, dike, or other structure that impacts flood hazard areas inside this boundary has not been shown to comply with Section 65.10 of the NFIP Regulations. As such, this FIRM panel will be revised at a later date to update the flood hazard information associated with this structure.

The flood hazard data inside the boundary on the FIRM panel has been republished from the previous effective (historic) FIRM for this area, after being converted from NGVD 29 to NAVD 88.



LEGEND

SPECIAL FLOOD HAZARD AREAS SUBJECT TO INUNDATION BY THE 1% ANNUAL CHANCE FLOOD

The 1% annual flood (100-year flood), also known as the base flood, is the flood that has a 1% chance of being equaled or exceeded in any given year. The Special Flood Hazard Area is the area suject to flooding by the 1% annual chance flood. Areas of Special Flood Hazard include Zones A, AE, AH, AO, AR, A99, V, and VE. The Base Flood Elevation is the water-surface elevation of the 1% annual chance flood.

- **ZONE A** — No Base Flood Elevations determined.
- **ZONE AE** — Base Flood Elevations determined.
- **ZONE AH** — Flood depths of 1 to 3 feet (usually areas of ponding); Base Flood Elevations determined.
- **ZONE AO** — Flood depths of 1 to 3 feet (usually sheet flow on sloping terrain); average depths determined. For areas of alluvial fan flooding, velocities also determined.
- **ZONE AR** — Special Flood Hazard Area formerly protected from the 1% annual chance flood by a flood control system that was subsequently decertified. Zone AR indicates that the former flood control system is being restored to provide protection from the 1% annual chance or greater flood.
- **ZONE A99** — Area to be protected from 1% annual chance flood by a Federal flood protection system under construction; no Base Flood Elevations determined.
- **ZONE V** — Coastal flood zone with velocity hazard (wave action); no Base Flood Elevations determined.
- **ZONE VE** — Coastal flood zone with velocity hazard (wave action); Base Flood Elevations determined.

FLOODWAY AREAS IN ZONE AE

The floodway is the channel of a stream plus any adjacent floodplain areas that must be kept free of encroachment so that the 1% annual chance flood can be carried without substantial increases in flood heights.

OTHER FLOOD AREAS

- **ZONE X** — Areas of 0.2% annual chance flood; areas of 1% annual chance flood with average depths of less than 1 foot or with drainage areas less than 1 square mile; and areas protected by levees from 1% annual chance flood.

OTHER AREAS

- **ZONE X** — Areas determined to be outside the 0.2% annual chance floodplain.
- **ZONE D** — Areas in which flood hazards are undetermined, but possible.

- Floodplain boundary
- Floodway boundary
- Zone D boundary
- Boundary dividing Special Flood Hazard Area Zones and boundary dividing Special Flood Hazard Areas of different Base Flood Elevations, flood depths or flood velocities.
- Limit of Moderate Wave Action
- 513 — Base Flood Elevation line and value; elevation in feet*
- (EL 987) — Base Flood Elevation value where uniform within zone; elevation in feet*

* Referenced to the North American Vertical Datum of 1988

- Cross section line
- Transect line
- Culvert, Flume, Penstock or Aqueduct
- Road or Railroad Bridge
- Footbridge
- 87°07'45", 32°22'30" — Geographic coordinates referenced to the North American Datum of 1983 (NAD 83), Western Hemisphere
- 3276000mN — 1000-meter Universal Transverse Mercator grid values, zone 15N
- 600000 FT — 5000-foot grid values: Texas State Plane coordinate system, South Central zone (FIPS ZONE 4204), Lambert Conformal Conic projection
- DX5510 × — Bench mark (see explanation in Notes to Users section of this FIRM panel)
- ● M1.5 — River Mile

MAP REPOSITORIES
Refer to Map Repositories list on Map Index.

EFFECTIVE DATE OF COUNTYWIDE FLOOD INSURANCE RATE MAP PANEL
JUNE 5, 1989

EFFECTIVE DATE(S) OF REVISION(S) TO THIS PANEL
MAY 4, 1992
NOVEMBER 17, 1993
SEPTEMBER 22, 1999
DECEMBER 30, 2020

For community map revision history prior to countywide mapping, refer to the Community Map History table located in the Flood Insurance Study report for this jurisdiction.

To determine if flood insurance is available in this community, contact your insurance agent or call the National Flood Insurance Program at 1-800-638-6620.

MAP SCALE 1" = 1000'
500 0 1000 2000 FEET
300 0 300 600 METERS

NFIP
NATIONAL FLOOD INSURANCE PROGRAM

PANEL 0620K

FIRM
FLOOD INSURANCE RATE MAP

BRAZORIA COUNTY, TEXAS
AND INCORPORATED AREAS

PANEL 620 OF 925

(SEE MAP INDEX FOR FIRM PANEL LAYOUT)

CONTAINS:

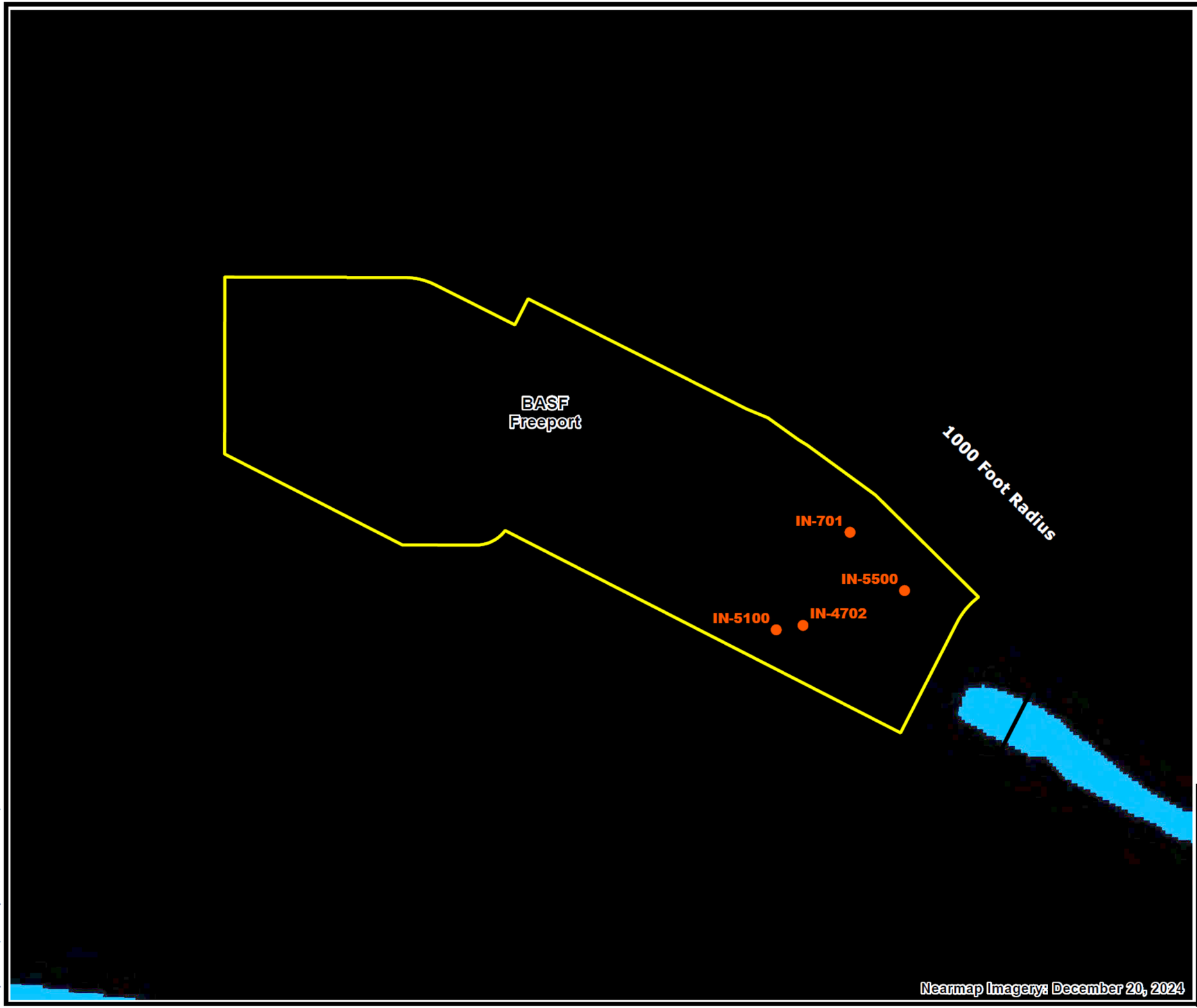
COMMUNITY	NUMBER	PANEL	SUFFIX
BRAZORIA COUNTY	485458	0620	K
CLUTE, CITY OF	480068	0620	K
FREEPORT, CITY OF	485467	0620	K
LAKE JACKSON, CITY OF	485484	0620	K
RICHWOOD, CITY OF	485502	0620	K

Notice to User: The **Map Number** shown below should be used when placing map orders; the **Community Number** shown above should be used on insurance applications for the subject community.

Figure II.F.2
MAP NUMBER
48039C0620K

MAP REVISED
DECEMBER 30, 2020

Federal Emergency Management Agency



Legend

- BASF Freeport Facility
- 1000 Foot Radius
- Incinerator Locations (4)
- 1% Annual Chance Flood Hazard

Flood Zone Data Source:
USA Flood Hazard Areas, derived from
Flood Insurance Rate Map (December 18, 2024)

N

0 500 1,000
FEET

1" = 1,000 FEET
1:12,000

BASF CORPORATION
FREEPORT, TEXAS

FEMA FLOOD MAP

DRAWN BY:	L WILSON	SCALE:		PROJ. NO.	047-23-06
CHECKED BY:	H MCHALE		AS NOTED	FILE NO.	FEMA Flood
APPROVED BY:	H MCHALE	DATE PRINTED:		**FIGURE II.F.3**	
DATE:	March 2025	*3/28/2025*			

Coterie ENVIRONMENTAL
840 First Ave., Suite 400
King of Prussia, PA 19406

J:\Prj\BASF\Freeport Facility\RCRA 2025\BASF GIS.aprx

III. FACILITY MANAGEMENT

III. Facility Management

Provide all Part B responsive information in Appendix III. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

A. Compliance History and Applicant Experience

1. Provide listings of all solid waste management sites in Texas owned, operated, or controlled by the applicant as required by 30 TAC 305.50(a)(2).

2. For a new commercial hazardous waste management facility, provide a summary of the applicant's experience in hazardous waste management as required by 30 TAC 305.50(a)(12)(F).

B. Personnel Training Plan

Provide an outline of the facility training plan which includes all the information required by 40 CFR 264.16. Indicate which training will be repeated annually.

C. Security

Describe how the facility complies with the security requirements of 40 CFR 264.14 or submit a justification demonstrating the reasons for requesting a waiver of these requirements.

D. Inspection Schedule

Describe summary of inspection schedule and Table III.D in Appendix III.D in accordance with instructions below.

Provide an inspection schedule summary for the facility which reflects the requirements of 40 CFR 264.15(b), 264.33 and, where applicable, the specific requirements in 40 CFR 264.174, 264.193(i), 264.195, 264.226, 264.254, 264.273, 264.303, 264.347, 264.552, 264.574, 264.602, 264.1033(f), 264.1034, 264.1052, 264.1053(e), 264.1057, 264.1058, 264.1063, 264.1084, 264.1085, 264.1086, 264.1088, 264.1101(c)(4) and 270.14(b)(5). The inspection schedule should reflect the requirements described below. The schedule should encompass each type of hazardous waste management (HWM) unit (i.e., facility component) and its inspection requirements. For incorporation into a permit, complete Table III.D. - Inspection Schedule for all units to be permitted.

The owner or operator must inspect the facility for malfunctions and deterioration, operator errors, and discharges which may be causing or may lead to the release of hazardous waste constituents to the environment or which may pose a threat to human health. The owner or operator must conduct these inspections often enough to identify problems in time to correct them before they harm human health or the environment.

The owner or operator must develop and follow a written schedule for inspecting other basic elements such as monitoring equipment, safety and emergency equipment, security devices, the presence of liquids in leak detection systems, where installed, and operating and structural equipment (such as dikes and sump pumps) that are important to preventing, detecting, or responding to environmental or human health hazards.

If the owner or operator of a facility which contains a waste pile wishes to pursue an exemption from the groundwater monitoring requirements for that waste management unit, the inspection schedule must include examination of the base for cracking,

deterioration, or other conditions that may result in leaks. The frequency of inspection must be based on the potential for the liner (base) to crack or otherwise deteriorate under the conditions of operation (e.g., waste type, rainfall, loading rates, and subsurface stability).

E. Contingency Plan (Not Applicable to Permits for Post-Closure Care Only)

If the owner or operator has already prepared a Spill Prevention, Control, and Countermeasures (SPCC) Plan or some other emergency or contingency plan, he need only amend that plan to incorporate hazardous waste management provisions that are sufficient to comply with the requirements of this section. Provide a Contingency Plan which includes all the information required by 40 CFR Part 264 Subparts C and D, except for 40 CFR 264.56(d)(1) and 30 TAC 335.153(2). This plan must also include a drawing of the facility which shows the location of all emergency equipment. In addition, complete the following tables to summarize information expressed in more detail in the plan.

1. Arrangements with Local Authorities
   Complete Table III.E.1. - Arrangements With Local Authorities to indicate arrangements (if made) with local authorities to familiarize local fire and police departments, local hospitals, equipment suppliers, and local and State emergency response teams with the layout of the facility, properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes. Provide documentation of the attempts and any arrangements made with local authorities and emergency response teams.

2. Emergency Coordinator's List
   For inclusion into a permit, list in Table III.E.2. - Emergency Coordinators the persons qualified to act as emergency coordinator. List the alternates in the order in which they will assume responsibility.

3. Emergency Equipment List
   For inclusion into a permit, list in Table III.E.3. - Emergency Equipment all types of emergency equipment at the facility [such as fire-extinguishing systems, spill-control equipment, communications and alarm systems (internal and external), and decontamination equipment], if this equipment is required. Briefly outline the equipment capabilities.

4. Waiver from Preparedness and Prevention Requirements
   If the owner or operator wishes to request a waiver from any of the preparedness and prevention requirements, he must submit a justification demonstrating the reasons for requesting the waiver, as discussed below.

F. Emergency Response Plan

For a new commercial hazardous waste management facility, the application shall contain evidence sufficient to demonstrate that emergency response capabilities are available or will be available before the facility first receives waste. An emergency response plan must be provided which satisfies the requirements of 30 TAC 305.50(a)(12)(C) and (D). This plan must show that the proposed facility has sufficient emergency response capabilities for managing a reasonable worst-case emergency condition associated with the operation of the facility. (For financial assurance requirements associated with the emergency response activities, please see Section

VIII.C.3.)

1. Practice Drills

   In addition to the contingency plan required under 40 Code of Federal Regulations Part 270.14(b)(7), provisions specifying procedures and timing of practice facility evacuation drills are required. Provide a description and a frequency for facility evacuation drills.

2. If a private corporation, municipality or county group will provide emergency response actions at the proposed facility, include a copy of the contract for this type of agreement with this application or state that documentation will be submitted before the facility accepts wastes.

3. Historical weather data for the area should be documented and submitted. Information regarding how emergency response operations may be affected by weather conditions should be included. (Local rainfall extremes, average rainfall amounts, average wind speeds and directions, potential for major weather events such as hurricanes, tornados, icy conditions, flash flooding etc., should be addressed.)

4. A definition of a worst-case emergency for the proposed facility should be described in the application. This worst-case emergency should take into account the possible complications involved with a facility emergency compounded by adverse weather conditions. It should also detail spills, fires, explosions, etc. This worst case scenario should be developed with the help of local governmental entities where possible. Emergency planning should include both unexpected emergencies and emergencies occurring as a result of a predictable event such as a flood or hurricane. For areas which are prone to hurricanes and flash flooding, the worst case which allows for a realistic situation should be used. For example, response teams should be well versed in reacting to events such as a 100-year flood.

5. A training program for personnel who will respond to these types of emergencies must be provided and must include the requirements described in OSHA Federal Register 1910 and EPA Federal Register 311, the Texas Hazard Communication Act, SARA Title III 302, 304, 311, 312, and 313. If emergency response actions are contracted out, the contracted employees must be properly trained and documentation of this training must be maintained on-site. All responders to emergencies at the proposed facility must be involved in training and drills at the facility in order to be thoroughly familiar with the facility and its operations.

6. The application must include a description and identification of first-responders (i.e. all pertinent facility personnel, local responders, and contractors). The duties of the facility employee who is to be the on-scene coordinator (OSC) must be described. Additional information must be provided detailing the OSC's role in the emergency response activities. This person must have the authority to commit the resources needed to carry out the Emergency Response Plan. His duties must be thoroughly described so that it is clear whether he will remain in control once the emergency response team arrives or whether he will relinquish control to another incident commander upon that person's arrival on the scene. Additionally, there must be a qualified OSC on-site or on call 24 hours a day. The name, address and phone numbers (home and work) of the OSC(s) must be listed in the Emergency Response Plan. Where more than one person is listed, one must be named as the primary OSC and others must be listed in the order

in which they will assume responsibility as alternates.

7. Local or regional emergency medical services or hospitals which have experience in hazardous materials training must be identified in the application. The names, addresses and phone numbers of the hospitals or medical centers should be listed here and updated as necessary. Additionally, maps showing the quickest routes to the medical services must be provided. A description of decontamination procedures for injured personnel prior to transport to medical services must also be provided. The decontamination and transport of injured people to appropriate medical centers must be included in the emergency evacuation training and drills.

8. A pre-disaster plan which includes training drills must be included in the application. This plan should include a schedule for staging evacuations of the facility and for emergency response training drills. At least two evacuations and two emergency response drills should occur annually. The plan should also include additional drills for responding to "predictable" emergencies such as floods and hurricanes. The plan must include the following (or must reference applicable sections of the Contingency Plan): a description of arrangements already in place with local authorities; emergency phone numbers; internal communication or alarm systems and proper alarm codes; a list of all types of emergency equipment at the facility, including a physical description and the capabilities of each item on the list, and the location of each item (a map would be useful here); a description of decontamination equipment; an evacuation plan including signals, evacuation routes and alternate evacuation routes; listing of pertinent first responder emergency phone numbers, and codes for other types of communication devices; and a description of actions that will be performed in the event that a "predictable" emergency occurs.

9. Describe the mechanism which will be used to notify first responders and appropriate local governmental entities that an emergency has occurred. Also describe the mechanism which will be used to notify all applicable governmental agencies when an incident occurs (i.e., TCEQ, Texas Parks and Wildlife, General Land Office, TCEQ Office of Air Quality, Texas Department of Health, and the Texas Railroad Commission).

10. Evidence must be provided that shows coordination with the Local Emergency Planning Committee (LEPC) and any local comprehensive emergency management plan. The applicants should be able to show compliance with SARA Title III.

11. Any medical response capabilities proposed for the facility property must be detailed in the application.

TABLE OF APPENDICES

APPENDIX	TITLE
III.A	Compliance History and Applicant Experience
III.B	Personnel Training Plan
III.C	Security
III.D	Inspection Schedule (Table III.D and Inspection Plan)
III.E	Contingency Plan (Tables III.E.1, III.E.2, and III.E.3 and Contingency Plan)
III.F	Emergency Response Plan (Not Applicable)

Appendix III.A:

COMPLIANCE HISTORY AND APPLICANT EXPERIENCE

BASF

We create chemistry

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

COMPLIANCE HISTORY AND APPLICANT EXPERIENCE

MAY 2025

1.0 INTRODUCTION

BASF Corporation (BASF) operates four liquid hazardous waste incinerators at its facility in Freeport, Texas. These units are designated as Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500. These incinerators are the only permitted hazardous waste units at the facility. The incinerators are subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Parts 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerators are also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE.

The BASF Freeport Site possesses significant experience operating the incinerators for which this Part B permit renewal application is being submitted.

Table 1 identifies all of the solid waste management sites in Texas owned, operated, or controlled by BASF.

TABLE 1
TEXAS SOLID WASTE MANAGEMENT SITES

SITE NAME	ADDRESS	INDUSTRIAL SOLID WASTE REGISTRATION NO.	EPA ID NO.	WASTE PERMIT NO.
Pasadena CP	4403 LaPorte Highway 225 Pasadena, TX 77501	33849	TXD980808778	50385
Pasadena Catalyst	10001 Chemical Road Pasadena, TX 77507	31081	TXD077874634	Not applicable
Pasadena EN	12502 Bay Area Boulevard Pasadena, TX 77507	86126	TXR000031807	Not applicable
Houston EBN	7100 Wright Road Houston, TX 77041	32534	TXD084966548	Not applicable
Houston Urethanes	1703 Crosspointe Avenue Houston, TX 77054	37541	TXR000080040	Not applicable
Freeport Harbor Terminal	Located East of FM 1495 and approximately 100 feet South of intersection FM 1495 and SH 288	82566	TXD000195966	Not applicable
Beaumont Agro Plant	14385 W. Port Arthur Road Beaumont, TX 77705	30053	TXD067261412	50219
BASF TOTAL Petrochemicals, LLC [1]	State Highway 366 Gate 99 & Hwy 73 Port Arthur, TX 77643	86596	TXR000039909	Not applicable
Lake Creek Ranch	4278 W Lake Creek Road, Riesel, TX 76682	32561	TXD000751099	Not applicable

[1] Joint venture between BASF and TOTAL.

2.0 COMPLIANCE HISTORIES

Compliance histories are summaries of evidences of non-compliance with solid waste management regulations. Such evidences of non-compliance normally arise from facility inspections conducted by the Texas Commission on Environmental Quality (TCEQ) and/or United States Environmental Protection Agency (USEPA).

Compliance history for the BASF Freeport Site compiled for the last five years is presented in Table 2. A review of the compliance history indicates that most non-compliances identified during an inspection are minor in degree. Most of these are administrative items remedied by updating documentation.

BASF endeavors to operate all its facilities in continuous compliance with the variety of complex solid waste regulations. Furthermore, at the time of submittal of this Part B permit application, there were no instances of indebtedness (*e.g.*, outstanding penalty payments) of any of these facilities to the State of Texas.

TABLE 2
SOLID WASTE COMPLIANCE HISTORY – FIVE YEAR PERIOD
(MAY 2020 – MAY 2025)

INSPECTION DATE	INSPECTING AGENCY	NON-COMPLIANCE ISSUE	RESOLUTION
10/10/2023	TCEQ	Alleged Violation: The facility failed to update the Notice of Registration (NOR)	Updated regulatory status of hazardous waste management tank, NOR No. 124. Alleged Violation Status: Resolved
05/29/2020	TCEQ	Notice of Violation: The facility failed to ensure that tables listing authorized wastes or permitted units for inspections were correct or complete.	Updated table. Violation Status: Resolved
05/29/2020	TCEQ	Notice of Violation: The facility failed to ensure that the secondary containment systems are free of cracks or gaps.	Repaired secondary containment. Violation Status: Resolved
05/29/2020	TCEQ	Notice of Violation: The facility failed to document in the operating record required daily inspections of a hazardous waste tank.	Completed inspection records. Violation Status: Resolved

Appendix III.B:
PERSONNEL TRAINING PLAN

BASF

We create chemistry

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

PERSONNEL TRAINING PLAN

MAY 2025

1.0 INTRODUCTION

BASF Corporation (BASF) operates four liquid hazardous waste incinerators at its facility in Freeport, Texas. These units are designated as Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500. These incinerators are the only permitted hazardous waste units at the facility. The incinerators are subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Part 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerators are also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE.

This RCRA personnel training plan constitutes a written description of the type and amount of training conducted for BASF personnel in accordance with 40 CFR § 264.16. In addition to this training, incinerator control room operators are required to maintain certification to comply with HWC NESHAP requirements. A separate training program for the HWC NESHAP is implemented at the BASF Freeport Site. This training program includes initial training for all personnel that could reasonably be expected to directly affect emissions from the incinerators. Initial training and annual refresher training are required for all HWC NESHAP-certified incinerator control room operators.

2.0 OUTLINE OF PERSONNEL TRAINING PROGRAM

BASF has established a personnel training program designed to provide employees with the information necessary to perform their job function in a safe and effective manner. The training program will be updated and revised as necessary to comply with the established guidelines of 40 CFR § 264.16.

The training program is designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems. 40 CFR § 264.16 specifies the following training topics that are applicable to the incinerators:

- Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;
- Communications or alarm systems;
- Response to fires or explosions;
- Response to groundwater contamination incidents; and
- Shutdown of operations.

3.0 JOB TITLES AND JOB DESCRIPTIONS

40 CFR §264.16(d) requires BASF to maintain the job title for each position at the facility related to hazardous waste management and the name of the employee filling each job. Job titles, job

descriptions, and names of those employees designated as these positions are maintained in the BASF Freeport Site records.

4.0 Training Content and Frequency

Training consists of initial orientation, on-the-job training, and annual refresher training. Orientation consists of computer-based and/or classroom training, which may include lectures, discussions, audiovisual presentations, and question and answer sessions. On-the-job training consists of classroom as well as hands-on training. Once the orientation and on-the-job training is completed, the personnel work in a supervised situation until the skills needed are mastered.

All new employees are given the initial training within the first six months of employment, regardless of whether or not they are directly involved with hazardous waste management. The initial training consists of an overview of the law, regulations, and definitions of the hazardous waste program.

Facility personnel must take part in an annual review of the hazardous waste material handling training. Annual training is provided via computer-based or classroom training. For those personnel working in plants with hazardous waste management units, unit-specific training is also conducted.

Table 1 summarizes the content of the RCRA training. In accordance with 40 CFR § 264.16(a)(3), only topics relevant to the proper performance of the job are included in the training of each job category.

Table 1
Training Topics

Topic	Description
Emergency equipment	Review of fire extinguisher, fixed fire suppression systems
Communication and alarm systems	Review of emergency alarm systems, emergency radio and telephone systems
Response to fire and explosion	Review of emergency procedures
Response to groundwater contamination incidents	Review of procedures for containing, controlling, and mitigating spills
Monitoring equipment use and inspection	Review of continuous emissions monitoring systems and process monitors

5.0 Training Director

The Training Coordinator oversees all training programs at the BASF Freeport Site. For the RCRA training program, supervisory personnel in the unit areas are responsible for providing the required on-the-job training. These persons are trained in hazardous waste management procedures. Portions of the training may be computer-based or a video presentation.

6.0 TRAINING RECORDS

The following training records are maintained at the BASF Freeport Site:

- Job title for each position at the facility related to hazardous waste management;
- Written job description including the requisite skill, education, or other qualifications and duties of employees assigned to each position;
- Name of the employee filling each job;
- Written description of the type and amount of both introductory and continuing training required for each position; and
- Records that document the training or job experience given to and completed by facility personnel.

Training records on current personnel will be kept until closure of the incinerators. Training records on former employees are kept at least three years from the date the employee last worked at the facility.

Appendix III.C:
SECURITY

BASF

We create chemistry

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

SECURITY

MAY 2025

1.0 INTRODUCTION

BASF Corporation (BASF) operates four liquid hazardous waste incinerators at its facility in Freeport, Texas. These units are designated as Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500. These incinerators are the only permitted hazardous waste units at the facility. The incinerators are subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Parts 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerators are also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE.

The security provisions established by BASF prevent the unknowing entry and minimize the possibility for unauthorized entry of persons or livestock onto the active hazardous waste management areas. The provisions have several features, in addition to the general security provisions, which contribute to the safety and security of the hazardous waste management facilities. The BASF Freeport Site security plan is approved and audited yearly by the United States Coast Guard.

2.0 ENTRY CONTROL

The site is completely surrounded by natural and man-made barriers. A fresh-water canal and a saltwater canal limit access to the facility on the north and south sides respectively. A six-foot high chain-link fence topped with three strands of barbed wire prevent unknowing and unauthorized entry of persons or livestock in the plant from all sides except the south side. The salt-water canal separates the BASF Freeport Site from The Dow Chemical Company (Dow) Freeport facility.

Trained members of the facility's security force operate the employee entrance at the Main Gate, located on the north side of the plant, from a centrally located guardhouse. As employees enter the site, they are required to show proper identification when reporting to work. Visitors entering the site must have an authorized pass signed by a BASF employee, must sign a log sheet, and must be escorted by a BASF employee.

The West Gate is for contractor access and is located on the west side of the site. Employees can also enter and exit this gate. This gate is manned 24 hours per day by trained members of the security force. The gate has a key card system for vehicle entrance onto the site. Key cards are assigned to contractor personnel through the Contractor Safety Orientation.

The rail entrance into BASF is through the Dow process area south of BASF via a bridge over the saltwater canal and via the 200 block.

3.0 SURVEILLANCE

Security at the BASF Freeport Site is maintained 24 hours per day, 365 days of the year by a staff of security guards who monitor entry and exit from the plant and provide security measures within the plant premises.

Ample lighting is provided throughout the site, and both the Main Gate and the West Gate are equipped with two-way radios and the plant telephone system, which enables the security guards to be in contact with any moving guards or plant personnel.

4.0 WARNING SIGNS

Warning signs are posted around the active portion of the site, which read “Danger - Unauthorized Personnel Keep Out.” The signs are legible from a distance of over 25 feet.

Appendix III.D:
INSPECTION SCHEDULE
(TABLE III.D AND INSPECTION PLAN)

Table III.D- Inspection Schedule

Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500 – Combustion chamber and associated equipment	Corrosion, cracks, leaks, signs of tampering	Daily
Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500 – Curbs, foundation	Cracks, gaps, erosion, uneven settlement, wet spots, damage	Daily
Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500 – Loading and unloading areas	Spills, leaking equipment, inoperative sump pumps	Daily (when in use)
Incinerator IN-4702 – Automatic waste feed cutoff (AWFCO) system	Signal failure, operability	Weekly (when burning hazardous waste)
Safety and emergency equipment – Fire extinguishers	Inadequate pressure, broken seal, access blocked, inspection out of date, bad hose/nozzle	Monthly
Safety and emergency equipment – Fire hoses and monitor nozzles	Holes/leaks, improper operation	Monthly
Safety and emergency equipment – Fire hydrants and truck	Improper operation	Annual
Safety and emergency equipment – Emergency shower/eyewash	Inadequate pressure, access blocked, plugged lines	Monthly
Safety and emergency equipment – Spill control equipment	Low supplies, improper operation	Monthly
Safety and emergency equipment – Alarm system	Audible alarm inoperative, visual alarms inoperative	Weekly

BASF
We create chemistry

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

INSPECTION PLAN

MAY 2025

1.0 INTRODUCTION

BASF Corporation (BASF) operates four liquid hazardous waste incinerators at its facility in Freeport, Texas. These units are designated as Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500. These incinerators are the only permitted hazardous waste units at the facility. The incinerators are subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Parts 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerators are also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE.

40 CFR § 264.15(a) requires BASF to inspect the hazardous waste operations for malfunctions and deterioration, operator errors, and discharges which may be causing, or may lead to, release of hazardous waste constituents to the environment or a threat to human health. These inspections must be conducted often enough to identify problems in time to correct them before they harm human health or the environment. This RCRA inspection plan describes the inspections for the incinerators and ancillary equipment, as well as safety and emergency equipment.

2.0 INSPECTIONS FOR INCINERATORS IN-701, IN-5100, AND IN-5500

There are two types of inspections performed for Incinerators IN-701, IN-5100, and IN-5500. These include:

- General visual inspections; and
- Inspections pertaining to monitoring and operating the incinerators.

Pursuant to 40 CFR §§ 264.340 and 270.19(e), detailed information on inspections for incinerator monitoring equipment is no longer required in the Part B permit application. Specifically, Incinerators IN-701, IN-5100, and IN-5500 are not subject to the performance standards and operating limits of Subpart O, such as the requirement for a waste feed cut-off system and associated alarms. Requirements for an automatic waste feed cutoff (AWFCO) system are included in the HWC NESHAP. This plan does not address any inspections of the monitoring and AWFCO systems for these incinerators.

Incinerators IN-701, IN-5100, and IN-5500 and their associated equipment are visually inspected daily for fugitive emissions, leaks, spills, structural deterioration, and signs of tampering. In addition, the secondary containment area is visually inspected daily for cracks, gaps, erosion, uneven settlement, and wet spots. The inspections are performed by incinerator Operating Technicians and are documented on an inspection form.

The specific inspections and their frequencies for the incinerators are listed in Table III.D in Section III of the Part B Permit Application.

3.0 INSPECTIONS FOR INCINERATOR IN-4702

Incinerator IN-4702 remains subject to the particulate matter (PM) performance standard of Subpart O. There are three types of inspections performed for Incinerator IN-4702. These include:

- General visual inspections;
- Inspections pertaining to monitoring and operating the incinerators; and
- Inspection of the AWFCO system for the PM performance standard.

Incinerator IN-4702 and its associated equipment are visually inspected daily for fugitive emissions, leaks, spills, structural deterioration, and signs of tampering. In addition, the secondary containment area is visually inspected daily for cracks, gaps, erosion, uneven settlement, and wet spots. The inspections are performed by incinerator Operating Technicians and are documented on an inspection form.

To ensure proper function and reliability of the AWFCO system, BASF conducts periodic testing of the AWFCO system's operability. This testing is conducted weekly. The AWFCO test procedure evaluates all components of the AWFCO system, including the cutoff valves, actuators, sensors, data manager, and other components and electrical circuitry. The facility conducts weekly testing by placing the AWFCO system in bypass ("AWFCO Testing Mode"). Upon placing the AWFCO system in bypass, one signal is increased or decreased to the point that trips the AWFCO. A different signal is used every week until all AWFCO trips have been verified, then the test rotates back to the first trip signal used. At conclusion of each test, all hazardous waste feed valves are determined to be closed. After verification and documentation, the weekly test is complete, and process operations are allowed to reestablish the waste feed flows.

The AWFCO testing is also performed to satisfy the requirements of the HWC NESHAP, 40 CFR § 63.1206(c)(3)(vii).

The specific inspections and their frequencies for Incinerator IN-4702 are listed in Table III.D in Section III of the Part B Permit Application.

4.0 SAFETY AND EMERGENCY EQUIPMENT INSPECTIONS

Safety and emergency equipment items are strategically located across the plant. Many of these locations are in proximity to ancillary equipment or the incinerators. The equipment in these areas is inspected periodically in accordance with 40 CFR § 264.15(b).

The equipment items subject to inspection under this RCRA inspection plan includes fire-fighting equipment, eye washes, safety showers, spill control equipment, and alarm systems. These items may be inspected by qualified contractors or by plant personnel. Only equipment in proximity to hazardous waste ancillary equipment or the incinerators are subject to inspection under this RCRA inspection plan.

Table III.D in Section III of the Part B Permit Application summarizes the safety and emergency equipment inspections and their frequencies. All documentation regarding these inspections is maintained by the Environmental, Health, and Safety (EHS) Department.

5.0 Loading and Unloading Areas

BASF also inspects the loading and unloading areas associated with the incinerators. These areas are inspected for spills, inoperative sump pumps, and leaking hoses and fittings. These visual inspections are conducted once per day when the areas are in use.

6.0 Corrective Actions

BASF will promptly remedy any defects/malfunctions found by routine inspections. The corrective action will be dependent on the problem, but, if a hazard is imminent or has already occurred, remedial action will be taken immediately.

7.0 Record Retention

Inspection records are maintained by Operations. As required by 40 CFR § 264.15(d), records are retained for at least three years following the date of inspection. These records include the date and time of the inspection, the name of the inspector (identified by initials), a notation of the observations made, and the date and nature of any repairs or other remedial actions.

Appendix III.E:

CONTINGENCY PLAN

(TABLES III.E.1, III.E.2, AND III.E.3 AND CONTINGENCY PLAN)

Table III.E.1- Arrangements with Local Authorities

Police

Address	Brazoria County Sheriff's Department Brazoria County Courthouse, Angleton, Texas 77515
Person Contacted	Sheriff Representatives
Phone Number	800-392-4321
Agreed Arrangements	The Sheriff's Department is the central contact for the Local Emergency Planning Committee (LEPC) and a member of the Brazosport Community Awareness and Emergency Response (CAER) Group. The Sheriff's Department will respond to all emergencies to assist in the control of traffic and evacuations.

Fire

Address	Onsite fire department, no arrangement with local authority.
Person Contacted	
Phone Number	
Agreed Arrangements	

Hospital

Address	US Health Works 1102 Brazosport Blvd., Freeport, Texas 77591
Person Contacted	Medical Center Representatives
Phone Number	979-233-6571
Agreed Arrangements	Contract for responding with medical assistance upon request.

Other

Organization Name	Coastal Physicians
Address	120 Flag Lake Drive, Lake Jackson, Texas 77566
Person Contacted	Facility Representatives
Phone Number	979-297-3960
Agreed Arrangements	Contract for responding with medical assistance upon request.

Table III.E.2 - Emergency Coordinators (Primary)

Name	Home Address	Office Phone(s) and/or Pager	Home/Cell Phone(s)
Bradley R. Morrison	86 Piper's Walk Sugar Land, TX 77479	979-415-6111	409-730-6158

Alternate Emergency Coordinators

Name	Home Address	Office Phone(s) and/or Pager	Home/Cell Phone(s)
Adebayo Adekola	25522 Skye Springs Ln Katy, TX 77494	973-865-5946	973-865-5946
Deborah Dalley	23 Denoa Ln Missouri City, TX 77459	979-415-8103	409-730-6639

Table III.E.3- Emergency Equipment

Equipment	Location	Physical Description	Capability
Fire extinguishers	Incinerator areas and central accumulation areas	Handheld extinguishers with chemical agents	Fire suppression
Fire hoses	Incinerator areas and central accumulation areas	Flexible hosing for connection to hydrants/fire truck	Fire suppression
Monitor nozzles	Incinerator areas and central accumulation areas	Nozzles for hoses for use against major fires	Fire suppression
Fire hydrants	Incinerator areas and central accumulation areas	115 psig hydrants with a 1,000,000-gallon water supply	Fire suppression
Fire truck	Fire Station located in southwest corner of facility	Fire truck equipped with firefighting equipment	Fire suppression
Emergency shower/eyewash	Incinerator areas and central accumulation areas	Combination body shower and eyewash water deluge station	Chemical decontamination
Spill control equipment	Incinerator areas and central accumulation areas	Containment booms, absorbent booms, and absorbent material	Control spills in incinerator containment areas
Alarm system	Facility-wide	Emergency horn notification system	Emergency communication
Two-way radios	Facility-wide	Portable communication receivers/transmitters with base station	Emergency communication

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

CONTINGENCY PLAN

MAY 2025

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ATTACHMENTS

1.0 INTRODUCTION

BASF Corporation (BASF) operates four liquid hazardous waste incinerators at its facility in Freeport, Texas. These units are designated as Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500. These incinerators are the only permitted hazardous waste units at the facility. The incinerators are subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Parts 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerators are also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE. In addition, BASF operates central accumulation (less than 90-day) hazardous waste storage tanks and container storage areas and satellite accumulation areas that are subject to the requirements of 40 CFR Part 262 and 30 TAC Chapter 335 Subchapter C.

This RCRA contingency plan describes emergency preparedness measures taken to prevent or minimize the possibility of fire, explosion, or a sudden or non-sudden release of hazardous waste or hazardous waste constituents to air or soil from occurring at BASF's incineration facilities, which threaten human health or the environment. This plan also applies to the hazardous waste central accumulation areas and satellite accumulation areas located throughout the facility. This plan is intended to satisfy the requirements of 40 CFR Part 262 Subpart M and Part 264 Subpart D and 30 TAC §§ 335.61 and 152(a)(3).

This plan is to be activated in the event of fire, explosion, or a sudden or non-sudden release of hazardous waste or hazardous waste constituents that substantially threatens human health or the environment. Such emergencies would typically require discontinuation of unit operations. Small releases that do not substantially threaten human health or the environment (*e.g.*, equipment leaks typically handled within BASF's leak detection and repair program) do not activate this RCRA contingency plan.

The remaining sections of this plan provide the following information:

- Section 2.0 provides an overview of the facility;
- Section 3.0 provides information on the hazardous waste operations;
- Section 4.0 discusses implementation of this plan;
- Section 5.0 describes the emergency response organization;
- Section 6.0 describes the emergency response procedures;
- Section 7.0 describes the emergency equipment;
- Section 8.0 discusses arrangements with local authorities;
- Section 9.0 presents the evacuation plan;
- Section 10.0 discusses notifications;

- Section 11.0 discusses location and distribution of this plan;
- Section 12.0 addresses amendments to the plan;
- Attachment A contains a plot plan showing the locations of hazardous waste management units; and
- Attachment B contains the evacuation routes figure.

2.0 FACILITY OVERVIEW

The BASF Freeport Site produces organic and inorganic chemicals for use in various commercial industries. The street address and mailing address of the BASF Freeport Site is:

BASF Corporation – Freeport Site
602 Copper Road
Freeport, Texas 77541

3.0 HAZARDOUS WASTE OPERATIONS

The BASF Freeport Site operates four liquid hazardous waste incinerators. These units are designated as Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500. BASF also manages waste in permit-exempt central accumulation container storage areas, permit-exempt central accumulation storage tanks, and several satellite accumulation areas. The locations of the hazardous waste management units are shown on the map in Attachment A.

The units are designed, constructed, maintained, and operated to prevent or minimize hazards associated with managing hazardous waste. Specific information regarding operation and maintenance are maintained as follows:

- BASF's standard operating procedures regarding operating and maintaining units that include provisions to prevent or minimize hazards;
- BASF's RCRA personnel training plan that specifies measures taken to ensure the Operating Technicians are able to perform so as to prevent or minimize hazards; and
- BASF's RCRA inspection plan that specifies inspections intended to prevent or minimize hazards.

3.1 INCINERATOR IN-701

Incinerator IN-701 is a liquid injection incinerator. The incinerator is a horizontal, cylindrical, self-supporting unit designed for forced draft operation. The incinerator is equipped with heat recovery for steam production. There is no air pollution control equipment installed on the unit because control is not necessary to comply with the applicable performance standards. The unit has been designed to process non-hazardous and hazardous liquid waste and process vent gas up to a capacity of 100 million British thermal units per hour (MMBtu/hr).

3.2 INCINERATOR IN-4702

Incinerator IN-4702 is a liquid injection incinerator. The incinerator is a horizontal, cylindrical, self-supporting unit designed for forced draft operation. The incinerator is equipped with heat recovery for steam production. There is no air pollution control equipment installed on the unit because control is not necessary to comply with the applicable performance standards. The unit has been designed to process non-hazardous and hazardous liquid waste and process vent gas up to a capacity of 100 MMBtu/hr.

3.3 INCINERATOR IN-5100

Incinerator IN-5100 is a liquid injection incinerator. The incinerator is a custom designed vertical, cylindrical, down-fired, self-supporting unit designed for forced draft operation. The incinerator is equipped with heat recovery for steam production. There is no air pollution control equipment installed

on the unit because control is not necessary to comply with the applicable performance standards. The unit has been designed to process non-hazardous and hazardous liquid waste and process vent gas up to a capacity of 216 MMBtu/hr.

3.4 INCINERATOR IN-5500

Incinerator IN-5500 is a liquid injection incinerator. The incinerator is a vertical, cylindrical, down-fired, self-supporting unit designed for forced draft operation. The incinerator is equipped with heat recovery for steam production and combustion air/process vent gas preheating. There is no air pollution control equipment installed on the unit because control is not necessary to comply with the applicable performance standards. The unit has been designed to process non-hazardous and hazardous liquid waste and process vent gas up to a capacity of 100 MMBtu/hr.

3.5 CENTRAL ACCUMULATION AREAS

BASF operates permit-exempt central accumulation container storage areas and permit-exempt storage tanks.

3.6 SATELLITE ACCUMULATION AREAS

BASF also operates satellite accumulation areas for hazardous wastes at locations throughout the plant. The number and location of satellite accumulation areas may change in the future based on facility needs.

3.7 HAZARDOUS WASTE STREAMS

There are five hazardous waste streams treated in the incinerators. The hazardous waste streams are identified as acrylic acid water, acrylate residue, glacial acrylic acid (GAA) crystallization residue, D-1450 blended waste, and D-2850 blended waste.

Acrylic acid water (TCEQ No. 1503-105H) carries the 40 CFR Part 261 hazardous waste numbers of D002 (corrosivity) and D018 (benzene). This waste is produced within the Acrylic Acid production areas. This waste is fed to Incinerators IN-701 and IN-5500 in on-line configurations and is not allowed to accumulate.

Acrylate residue (TCEQ No. 5175-219H) is a mixture of hazardous waste streams generated within the butyl acrylate (BA) and 2-ethylhexyl acrylate (2-EHA) production areas. Acrylate residue carries the 40 CFR Part 261 hazardous waste numbers of D001 (ignitability) and D002 (corrosivity). This waste mixture is stored in Tank D-147B prior to being burned in Incinerator IN-4702.

GAA crystallization residue (TCEQ No. 1706-219H) carries the 40 CFR Part 261 hazardous waste number of D001 (ignitability). This waste is generated in the Glacial 4 production area. The GAA crystallization is stored in Tank D-3872 prior to being burned in Incinerator IN-4702.

D-1450 blended waste (TCEQ No. 1820-219H) carries the 40 CFR Part 261 hazardous waste numbers of D001 (ignitability) and D018 (benzene). This waste is a blend of several different waste streams generated in the 1,6-Hexanediol (HDO®), Neopentyl Glycol (NEOL®), Oxo-Alcohols, Butyl Acrylate, and Cyclohexanone process units. The separate waste streams are mixed into Tank D-1450 to be burned in Incinerator IN-5100.

D-2850 blended waste (TCEQ No. 1832-219H) carries the 40 CFR Part 261 hazardous waste number of D007 (chromium). This waste is a blend of several different waste streams generated in the HDO® and NEOL® process units. The separate waste streams are mixed into Tank D-2850 to be burned in Incinerator IN-5100. This waste may also be shipped offsite for disposal.

Various bulk liquids are stored in permit-exempt central accumulation tanks. Various containerized wastes are stored in the permit-exempt central accumulation areas. These wastes may include aqueous and organic liquid wastes, contaminated soils, solids, semisolids, packaged laboratory wastes, *etc*. These wastes are transferred directly from a process or from the satellite accumulation areas.

4.0 IMPLEMENTATION OF THE CONTINGENCY PLAN

As required by 40 CFR §§ 262.260(b) and 264.51(b), the provisions of this plan will be carried out immediately whenever there is an emergency situation in the incinerator areas or central and satellite accumulation areas, such as a fire, explosion, or release of hazardous waste or hazardous waste constituents, that could threaten human health or the environment. The decision of whether to implement this plan shall rest on the acting emergency coordinator. Small releases that do not substantially threaten human health or the environment (*e.g.*, equipment leaks typically handled within BASF's leak detection and repair program) do not activate this RCRA contingency plan.

5.0 EMERGENCY RESPONSE ORGANIZATION

BASF's onsite Emergency Response Team (ERT) members are trained and equipped to minimize most emergencies that may arise. The ERT is led by the acting emergency coordinator. The emergency coordinator is thoroughly familiar with all aspects of the facility's hazardous waste operations and activities at the facility and the location and characteristics of hazardous waste handled. This person has the authority to commit the resources needed to carry out the RCRA contingency plan. At least one management representative trained to act as emergency coordinator will be on call at all times.

Additional assistance may be required in the case of a release into any of the environmental media. Contracts are in place with one or more outside contractors that can provide assistance in case of a release. Operating Technicians are trained to the Hazmat Technician Level and can provide active measures to contain and stop a release of hazardous waste.

6.0 EMERGENCY RESPONSE PROCEDURES

The actions that will be conducted in case of an emergency situation in the identified hazardous waste management areas (incinerator areas, central accumulation areas, and satellite accumulation areas) are detailed herein.

6.1 INTERNAL NOTIFICATION

When there is an imminent or actual emergency situation, the emergency coordinator (or his designee) will immediately activate internal facility alarms or communication systems where applicable, to notify all facility personnel. The emergency coordinator will also determine if facility personnel should be evacuated. If so determined, evacuation instructions will be communicated by plant radio system and the plant emergency alarm system.

6.2 IDENTIFICATION OF HAZARDOUS MATERIALS

Whenever there is a release, fire, or explosion that could threaten human health or the environment the identified hazardous waste management areas, the emergency coordinator will be responsible for ensuring that the character, exact source, amount, and extent of any released material is immediately identified. This task is accomplished by observation, review of facility records, review of facility manifests, or chemical analysis.

6.3 ASSESSMENT

Whenever there is a release, fire, explosion, or a need for evacuation in the identified hazardous waste management areas, the emergency coordinator will immediately assess possible hazards to human health and the environment that may result from the release, fire, or explosion. This assessment considers both direct and indirect effects of the release, fire, or explosion and includes consideration of any effects of any toxic, irritating or asphyxiating gases that are generated, and the effects of any hazardous surface water runoffs from water or chemical agents used to control fire and heat induced explosions.

6.4 EXTERNAL NOTIFICATIONS

In accordance with 40 §§ 262.265(d) and 264.56(d) and 30 TAC §§ 335.61 and 153, if the emergency coordinator determines that the identified hazardous waste management area has had a release, fire, explosion that could threaten human health or the environment outside the facility, he or his designate will immediately notify the Local Emergency Planning Committee (LEPC) and other authorities as appropriate. He or his designee will also be available to help appropriate officials decide whether local areas should be evacuated. The notifications are described in Section 10.0.

6.5 Control Procedures

The emergency coordinator will take action during an emergency situation to ensure that fires, explosions, and releases do not occur, reoccur, or spread to other areas of the facility. These actions may include stopping processes or collecting and containing released waste or other hazardous materials (*e.g.*, fuel gas).

6.6 Prevention of Recurrence or Spread of Fires, Explosions, or Releases

Whenever there is a release, fire, or explosion in the identified hazardous waste management areas, the emergency coordinator will take all reasonable measures necessary to ensure that fires, explosions, and releases do not occur, recur, or spread to other areas of the facility and will monitor for appropriate equipment that may have been affected by the emergency situation.

6.7 Interruption of Operations

If an identified hazardous waste management area stops operations in response to a fire, explosion or release, the emergency coordinator will ensure monitoring for leaks, pressure build up, or gas generation and guard for ruptures in valves or pipes.

6.8 Storage, Treatment, and Disposal of Released Material

Immediately after an emergency in an identified hazardous waste management area, the emergency coordinator will provide for the proper management of recovered waste, contaminated soil or surface water, or any other material that results from a release, fire, or explosion. The emergency coordinator will contact the Environmental, Health, and Safety (EHS) Department. The waste will be temporarily stored in one of the waste storage areas until it can be properly disposed of offsite. Routine operating procedures at these facilities will prevent simultaneous storage of any incompatible wastes.

6.9 Post-Emergency Management

After an incident, the emergency coordinator will direct cleanup and restoration activities. These will include, but are not limited to, treating, storing, and disposing of recovered waste, contaminated soil, surface water, or any other material that results from a release, fire, or explosion at the facility.

The emergency coordinator will also ensure that, in the hazardous waste management areas:

1. No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed.
2. All emergency equipment is cleaned and fit for its intended use before operations at the facility are resumed.

7.0 EMERGENCY EQUIPMENT

Emergency equipment is strategically located throughout the BASF Freeport Site. The emergency equipment provided at the facility satisfies the requirements of 40 CFR §§ 264.32 and 264.52. All emergency response equipment is appropriately maintained. Inspections are performed to ensure the equipment is in good working order. The RCRA inspection plan presents the nature and frequency of these inspections.

All emergency equipment used in a response that results in activation of this RCRA contingency plan will be cleaned or otherwise made fit for use before the affected hazardous waste management unit(s) operations are resumed.

Emergency equipment includes communication systems, centralized emergency equipment, plant-wide fire water supply system, and local area emergency equipment. BASF has onsite emergency service equipment including a fire truck and firefighting equipment. Table 1 lists hazardous waste management facilities emergency equipment and their location.

TABLE 1
HAZARDOUS WASTE MANAGEMENT FACILITIES EMERGENCY EQUIPMENT

EQUIPMENT	LOCATION	DESCRIPTION
Fire extinguishers	Incinerator areas and central/satellite accumulation areas	Portable (handheld, wheeled) extinguishers with chemical agents. Extinguisher sizes are variable (*e.g.*, 5, 10, 20, 30 pounds).
Fire hoses	Incinerator areas and central/satellite accumulation areas	Flexible hosing for connection to hydrants/fire truck
Monitor nozzles	Incinerator areas and central/satellite accumulation areas	Nozzles for hoses for use against major fires
Fire hydrants	Incinerator areas and central/satellite accumulation areas	115 psig hydrants with a 1,000,000-gallon water supply
Fire truck	Fire Station located in southwest corner of facility	Fire truck equipped with firefighting equipment
Emergency shower/eyewash	Incinerator areas and central/satellite accumulation areas	Combination body shower and eyewash water deluge station
Spill control equipment	Incinerator areas and central/satellite accumulation areas	Containment booms, absorbent booms, and absorbent material
Alarm system	Facility-wide	Emergency horn notification system
Two-way radios	Facility-wide	Portable communication receivers/transmitters with base station

8.0 ARRANGEMENTS WITH LOCAL AUTHORITIES

In accordance with 40 CFR §§ 262.256 and 264.37, BASF has made arrangements with local authorities to provide assistance during emergencies. Should an emergency develop beyond the resources of the plant, the Brazoria County Sheriff's Department will be called in for assistance. The Sheriff's Department is the central contact for the LEPC and a member of the Brazosport Community Awareness and Emergency Response (CAER) Group. The Sheriff's Department will respond to all emergencies to assist in the control of traffic and evacuations. In those cases where outside medical care is needed, it will be provided by US Health Works or Coastal Physicians. If a fire or emergency condition develops that might affect the surrounding community, the emergency coordinator or his designated representative shall notify the appropriate authorities.

BASF has made arrangements to familiarize local and state emergency response teams (through the LEPC) with the layout of the facility, properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, entrances to and roads inside the facility, and possible evacuation routes. Arrangements have been made with the LEPC and spill response contractors to provide assistance during emergency situations. Arrangements have been made to familiarize a local hospital with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the facility.

9.0 EVACUATION PLAN FOR FACILITY PERSONNEL

If the emergency coordinator determines that an evacuation of facility personnel is necessary, the following evacuation procedures will be followed:

- Notification to evacuate will be provided by the plant radio system and the plant emergency alarm system;
- All visitors will be escorted or otherwise directed by their BASF contact;
- Plant personnel who must remain to operate critical plant operations before they evacuate will follow their specific emergency procedures;
- All evacuated personnel will gather at the designated site; and
- Supervisors will ensure that all are accounted for and that any injuries are cared for, and missing persons will be immediately reported to the emergency coordinator.

The evacuation may include all or part of the plant, depending on the nature of the emergency. The evacuation routes for the facility are shown on the map provided in Attachment B.

10.0 NOTIFICATIONS

Notifications and reports must be made during and following emergency situations involving a hazardous waste management unit that require implementation of this RCRA contingency plan. The emergency coordinator or his/her designee will confirm whether or not any of the notifications must be made.

In accordance with 40 CFR §§ 262.265(d) and 264.56(d) and 30 TAC §§ 335.61 and 153, if the emergency coordinator determines that BASF has had a release, fire, or explosion that could threaten human health or the environment outside the facility, he will immediately provide notice to the LEPC, the regional TCEQ office, the TCEQ Emergency Response Hotline (at 800-832-8224 or 512-463-7727), and/or the National Response Center (at 800-424-8802). The report must include:

- Name and telephone number of reporter;
- Name and address of facility;
- Time and type of incident;
- Name and quantity of material(s) involved, to the extent known;
- The extent of injuries, if any; and
- The possible hazards to human health, or the environment, outside the facility.

If the emergency coordinator determines that evacuation of local areas may be advisable, he will immediately notify appropriate local authorities.

Any releases of material at greater than a reportable quantity (RQ) amount listed in 40 CFR § 302.4 must be reported within 24 hours of discovery. Whenever a release notification is made in accordance with hazardous waste regulations, a follow-up written report of the event must be submitted to the TCEQ within 30 days.

In accordance with 40 CFR §§ 262.265(i) and 264.56(i) and 30 TAC §§ 335.61 and 153, BASF will note in the operating record the time, date, and details of any incident that requires implementation of this RCRA contingency plan. Within 15 days after the incident, BASF will submit a written report on the incident to the TCEQ Industrial and Hazardous Waste Permits Section (Mail Code 130, 12100 Park 35 Circle, Austin, TX 78753, ihwper@tceq.texas.gov) and the TCEQ District Office. The report will include:

- Name, address, and telephone number of the owner or operator;
- Name, address, and telephone number of the facility;
- Date, time, and type of incident (*e.g.*, fire, explosion);
- Name and quantity of material(s) involved;
- The extent of injuries, if any;

- An assessment of actual or potential hazards to human health or the environment, where this is applicable; and
- Estimated quantity and disposition of recovered material that resulted from the incident.

Additional authorities that may be notified include the United States Environmental Protection Agency (USEPA) Region VI offices, the United States Coast Guard Emergency Response Center, the Texas Department of Public Safety, the Texas Natural Resource Conservation Commission Region 12, the Texas General Land Office, and the Texas Parks and Wildlife Department Region IV.

11.0 LOCATION AND DISTRIBUTION OF CONTINGENCY PLAN

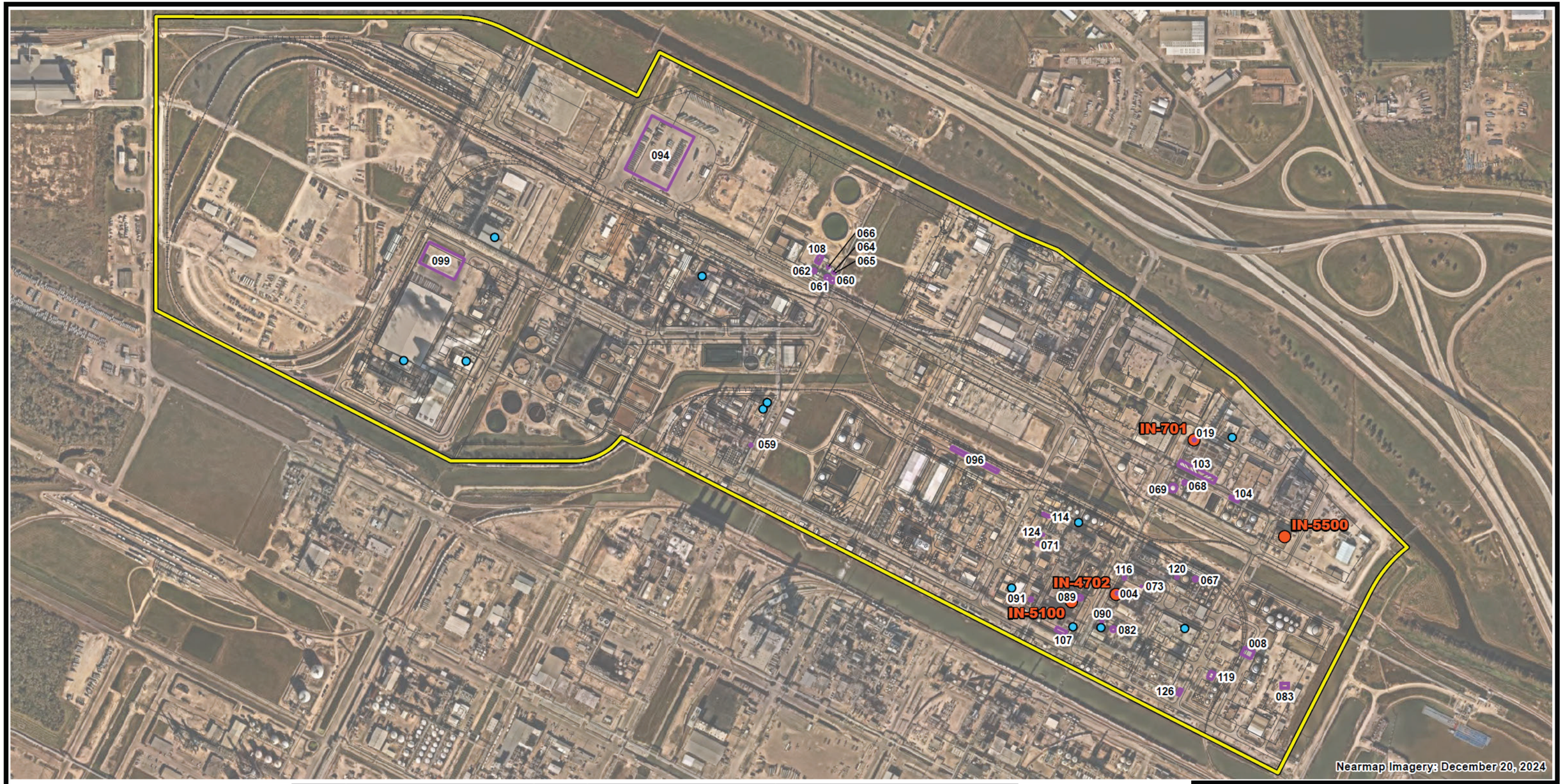
Copies of this plan are made available to Freeport Site personnel and the LEPC. A hard copy of the RCRA contingency plan and all revisions to the plan are available in BASF Freeport Site's EHS Department. The plan is also available via electronic media. These copies will be kept on file in accordance with BASF's Corporate Record Retention Policy. This plan and any subsequent amendments will be submitted to the appropriate local authorities.

12.0 AMENDMENT OF CONTINGENCY PLAN

In accordance with 40 CFR §§ 262.263 and 264.54, the RCRA contingency plan will be reviewed regularly and will be immediately amended, if necessary, whenever the following conditions apply:

- Applicable regulations are revised;
- The facility permit is revised;
- The plan fails in an emergency;
- The facility changes in its design, construction, operation, maintenance, or other circumstances in a way that materially increases the potential for fires, explosions, or releases of hazardous waste or hazardous waste constituents, or that changes the response necessary in an emergency;
- The list of emergency coordinators changes; or
- The list of emergency equipment changes.

Attachment A:
HAZARDOUS WASTE UNIT LOCATIONS



Legend

- BASF Freeport Facility
- Incinerator Locations (4)
- Hazardous Waste Locations
- Satellite Accumulation Areas

NOR #	Name	NOR #	Name	NOR #	Name
004	Incinerator IN-4702	068	Tank D-806	099	1500 Block container storage
008	Main container storage	069	Tank D-840	103	400 Block container storage
019	Incinerator IN-701	071	Tank D-499	104	400 Block tanker storage
059	Tank D-403A	073	Tank D-2668A	107	Miscellaneous container storage
060	Tank D-1401	082	Tank D-7840	108	1250 Block container storage
061	Tank D-1402	083	100 Block container storage	114	Miscellaneous container storage
062	Tank D-1403	089	Incinerator IN-5100	116	Tank D-147B
064	Tank D-1422	090	Tank D-1450	119	Dispersions Unit container storage
065	Tank D-1423	091	Tank D-2850	120	Tank D-3872
066	Tank D-1424	094	1450 Block container storage	124	Tank D-491A
067	Tank D-3806	096	700 Block container storage	126	100 Block container storage

0 300 600
FEET
1" = 600 FEET
1:7,200

BASF CORPORATION
FREEPORT, TEXAS

HAZARDOUS WASTE LOCATIONS

DRAWN BY:	L WILSON	SCALE: AS NOTED	PROJ. NO. 047-23-06
CHECKED BY:	H MCHALE		FILE NO. Haz Waste Locations
APPROVED BY:	H MCHALE	DATE PRINTED: 3/31/2025	**ATTACHMENT A**
DATE:	March 2025		

Coterie ENVIRONMENTAL
840 First Ave., Suite 400
King of Prussia, PA 19406

J:\Prj\BASF\Freeport Facility\RCRA 2025\BASF GIS.aprx

Attachment B:
FACILITY EVACUATION ROUTE MAP

IN CASE OF EMERGENCY

BASF
The Chemical Company

TO REPORT AN EMERGENCY

1. Dial 6222 on any BASF telephone.
2. Give name and location.
3. Report the nature of emergency.
4. Request fire truck, ambulance, or other need.
5. Stay on the line until Security relieves you.
6. Stay out of the affected area, direct emergency response personnel as needed.

EMERGENCY SIGNALS

BLOCK EMERGENCY ———————

Safe Work Permits are IMMEDIATELY cancelled. Everyone (unless designated) leave the block crosswind or upwind to the Unit emergency plan assembly points.

EVACUATE – – – – – – – – – – – –

All personnel in the block area evacuate to the designated assembly areas.

PLANT NORTH

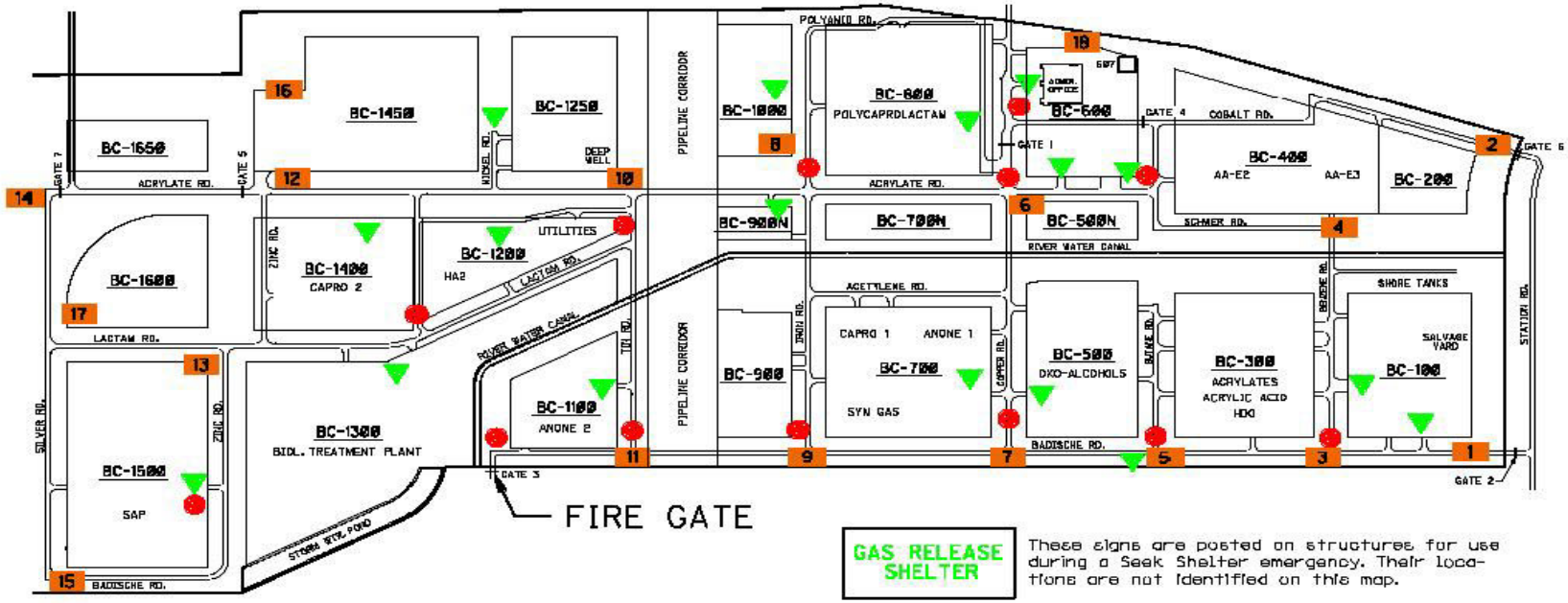
SEEK SHELTER – – – – – – – – – – – – –

Safe Work Permits are IMMEDIATELY cancelled. All personnel in the block of signal Seek Shelter as designated by unit work is performed in.

ALL CLEAR SIGNAL —— —— —— —— ——

Return to the block area. All safe work permits must be re-approved by production before resuming work.

● SYMBOL FOR FIRE STATIONS ■ SYMBOL FOR ASSEMBLY POINT ▼ SYMBOL FOR AMBULANCE STATION



GAS RELEASE SHELTER

These signs are posted on structures for use during a Seek Shelter emergency. Their locations are not identified on this map.

IV. WASTES AND WASTE ANALYSIS

IV. Wastes and Waste Analysis

Provide all Part B responsive information in Appendix IV. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

A. Waste Management Information

For a new hazardous waste management facility or for a facility hazardous waste management capacity expansion, complete Table IV.A. - Waste Management Information for each waste, source, and volume of waste to be stored, processed, or disposed of in the facility units to be permitted as required by 30 TAC 305.50(a)(9). For on-site facilities, list "on-site" for the waste source. For off-site facilities, list the source of the waste. If unknown, identify potential sources (e.g., industries/processes to be serviced).

B. Waste Managed In Permitted Units

For all hazardous waste management facilities and for inclusion into a permit, complete Table IV.B. - Wastes Managed In Permitted Units for each waste and debris to be managed in a permitted unit. Provide a description, EPA waste codes, and TCEQ waste form codes and classification codes. Guidelines for the Classification & Coding of Industrial Wastes and Hazardous Wastes, TCEQ publication RG-22, contains guidance for how to properly classify and code industrial waste and hazardous waste in accordance with 30 TAC 335.501-335.515 (Subchapter R).

Applicants need not specify the complete 8-digit waste code formulas for their wastes but must include the 3-digit form codes and 1-digit classification codes. This allows the applicant to specify major categories of wastes in an overall manner without having to list all the specific waste streams as generated.

C. Sampling and Analytical Methods

For inclusion into a permit, complete Table IV.C. - Sampling and Analytical Methods for each waste and debris proposed to be sampled and analyzed and include sampling location, sampling method, sample frequency, analytical method, and desired accuracy level for each waste and debris to be managed in a permitted, storage, processing, or disposal unit at the facility.

D. Waste Analysis Plan

The Waste Analysis Plan must address the requirements of 40 CFR §264.13 and §268.7. The Plan should include supplemental and coordinating information on how the facility will analyze wastes and debris (as listed in Table IV.B) to be managed in permitted units. The plan must address the determination of land disposal restrictions. Generators must determine and certify with the manifest the land disposal restriction status of a waste, even if the waste or debris is not intended for land disposal. Land disposal treatment facilities must identify the treatment process and analytical procedures to be used, and include them in the waste analysis plan. Land disposal restriction records must be maintained at the facility until closure of the facility [40 CFR §264.73(b)]. Landfill facilities must determine through the Paint Filter Liquids Test (SW-846 Method 9095) if there is free liquid in a bulk or containerized waste to be landfilled. If so, it must be stabilized; adding adsorbents alone is not acceptable, even for containerized waste.

For off-site facilities the waste analysis plan must specify procedures which will be used to inspect and, if necessary, analyze each movement of industrial and hazardous waste or hazardous debris received at the facility to ensure it matches the identity of

the waste designated on the accompanying shipping ticket. The plan must describe methods which will be used to determine the identity of each movement of waste and debris managed at the facility and sampling method used if the identification method includes sampling in order to store, process, or dispose of the wastes and debris in accordance with 40 CFR Parts 264 and 268 and any abnormal characteristics which may upset further treatment or processing operations. Include rejection criteria for shipments of waste and debris received at the facility

For on-site facilities the waste analysis plan must specify the normal characteristics of the waste (including EPA hazardous waste codes, EPA hazard codes, and 40 CFR Part 261, Appendix VIII Hazardous Constituents) which must be known to store, process, or dispose of the wastes and debris in accordance with 40 CFR Parts 264 and 268 and any abnormal characteristics which may upset further treatment or processing operations.

The methods and equipment used for sampling waste materials will vary with the form and consistency of the waste materials to be sampled. Those sampling methods listed in 40 CFR Part 261 Appendix I, for sampling waste with properties similar to the indicated materials, or equivalent sampling methods approved by EPA under 40 CFR §260.20 and §260.21, will be considered by the TCEQ to be acceptable.

TABLE OF APPENDICES

APPENDIX	TITLE
IV.A	Waste Management Information (Table IV.A) (Not applicable)
IV.B	Waste Managed in Permitted Units (Table IV.B)
IV.C	Sampling and Analytical Methods (Table IV.C)
IV.D	Waste Analysis Plan

Appendix IV.B:
WASTE MANAGED IN PERMITTED UNITS (TABLE IV.B)

Table IV.B. - Wastes Managed In Permitted Units

No.	Waste	EPA Hazardous Waste Numbers	TCEQ Waste Form Codes and Classification Codes
1	Acrylic acid water	D002, D018	105H
2	Acrylate residue	D001	219H
3	Glacial acrylic acid crystallization residue	D001	219H
4	D-1450 blended waste	D001, D018	219H
5	D-2850 blended waste	D007	219H
6	AA-E residue	- - -	2191
7	Glacial acrylic acid distillation residue	- - -	2191
8	Dispersions condensate	- - -	1191
9	1,6-Hexanediol® aqueous waste	- - -	1191
10	D-1451 non-hazardous aqueous waste	- - -	1191

Appendix IV.C:
SAMPLING AND ANALYTICAL METHODS (TABLE IV.C)

Table IV.C. - Sampling and Analytical Methods

Waste No.[1]	Sampling Location	Sampling Method[2]	Frequency	Parameter	Test Method[2]	Desired Accuracy Level[3]
1	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Ignitability	SW-846 Method 1010A or 1020B	MDL for selected method
1	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Corrosivity	SW-846 Method 1110 or 9040	MDL for selected method
1	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Arsenic, antimony, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium, or zinc	SW-846 Method 6010, 6020, or 7000 series	MDL for selected method
1	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Volatile organics	SW-846 Method 8240 or 8260	MDL for selected method
1	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Semivolatile organics	SW-846 Method 8250 or 8270	MDL for selected method
2	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Ignitability	SW-846 Method 1010A or 1020B	MDL for selected method
2	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Corrosivity	SW-846 Method 1110 or 9040	MDL for selected method
2	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Arsenic, antimony, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium, or zinc	SW-846 Method 6010, 6020, or 7000 series	MDL for selected method

Waste No.[1]	Sampling Location	Sampling Method[2]	Frequency	Parameter	Test Method[2]	Desired Accuracy Level[3]
2	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Volatile organics	SW-846 Method 8240 or 8260	MDL for selected method
2	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Semivolatile organics	SW-846 Method 8250 or 8270	MDL for selected method
2	Sampling port on piping downstream of the feed pump	Tap sampling into glass jars	Annually	Ash	ASTM Method D482	MDL for selected method
3	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Ignitability	SW-846 Method 1010A or 1020B	MDL for selected method
3	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Corrosivity	SW-846 Method 1110 or 9040	MDL for selected method
3	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Arsenic, antimony, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium, or zinc	SW-846 Method 6010, 6020, or 7000 series	MDL for selected method
3	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Volatile organics	SW-846 Method 8240 or 8260	MDL for selected method
3	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Semivolatile organics	SW-846 Method 8250 or 8270	MDL for selected method
3	Sampling port on piping downstream of the feed pump	Tap sampling into glass jars	Annually	Ash	ASTM Method D482	MDL for selected method

Waste No.[1]	Sampling Location	Sampling Method[2]	Frequency	Parameter	Test Method[2]	Desired Accuracy Level[3]
4	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Ignitability	SW-846 Method 1010A or 1020B	MDL for selected method
4	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Corrosivity	SW-846 Method 1110 or 9040	MDL for selected method
4	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Arsenic, antimony, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium, or zinc	SW-846 Method 6010, 6020, or 7000 series	MDL for selected method
4	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Volatile organics	SW-846 Method 8240 or 8260	MDL for selected method
4	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Semivolatile organics	SW-846 Method 8250 or 8270	MDL for selected method
5	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Ignitability	SW-846 Method 1010A or 1020B	MDL for selected method
5	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Corrosivity	SW-846 Method 1110 or 9040	MDL for selected method
5	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Arsenic, antimony, barium, beryllium, cadmium, chromium, lead, mercury, nickel, selenium, silver, thallium, or zinc	SW-846 Method 6010, 6020, or 7000 series	MDL for selected method
5	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Volatile organics	SW-846 Method 8240 or 8260	MDL for selected method

Waste No.[1]	Sampling Location	Sampling Method[2]	Frequency	Parameter	Test Method[2]	Desired Accuracy Level[3]
5	Sampling port on piping at point of generation	Tap sampling into glass jars	Initially and if the process generating the waste changes	Semivolatile organics	SW-846 Method 8250 or 8270	MDL for selected method
6	None (Non-hazardous waste, only sampled for HWC NESHAP compliance)	- - -	- - -	- - -	- - -	- - -
7	Sampling port on piping downstream of the feed pump	Tap sampling into glass jars	Annually	Ash	ASTM Method D482	MDL for selected method
8	Sampling port on piping downstream of the feed pump	Tap sampling into glass jars	Annually	Ash	ASTM Method D482	MDL for selected method
9	Sampling port on piping downstream of the feed pump	Tap sampling into glass jars	Annually	Ash	ASTM Method D482	MDL for selected method
10	None (Non-hazardous waste, only sampled for HWC NESHAP compliance)	- - -	- - -	- - -	- - -	- - -

[1] from Table IV.B, first column
[2] Sampling and Test/Analysis methods should be specified in enough detail to allow determination of whether they are suitable and correct for the purpose indicated while allowing flexibility in selection and future updates to the specified method. Standard methods, such as those from SW-846, will generally require no further submittal. Non-standard and proprietary methods may require additional information to determine suitability. ASTM methods may require submittal of a copy of the specified method.
[3] Desired Accuracy Level should provide a specified numeric minimum performance level (maximum acceptable reporting limit) for method detection and quantitation limits that will be accepted from the laboratory performing the analysis and must ensure that reported data will allow determinations of compliance with regulatory limits for the parameter tested.

Appendix IV.D:
WASTE ANALYSIS PLAN

BASF
We create chemistry

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

WASTE ANALYSIS PLAN

MAY 2025

TABLE OF CONTENTS

1.0 INTRODUCTION

BASF Corporation (BASF) operates four liquid hazardous waste incinerators at its facility in Freeport, Texas. These units are designated as Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500. These incinerators are the only permitted hazardous waste units at the facility. The incinerators are subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Parts 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerators are also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE.

This RCRA waste analysis plan (WAP) specifies the procedures that BASF uses to obtain the required chemical and physical analyses of the hazardous waste managed in the permitted units. These procedures ensure that the hazardous wastes that are treated onsite are managed in accordance with all applicable Federal and Texas RCRA requirements. The plan also includes the parameters for which each waste will be analyzed, the methods that will be used to sample and test for the parameters, and the frequency of analyses. This plan has been developed in accordance with 40 CFR §§ 264.13(b) and (c). It includes the following required components:

- The parameters for which each hazardous waste will be analyzed and the rationale for the selection of these parameters;
- The sampling method that will be used to obtain a representative sample of the hazardous waste;
- The test methods that will be used;
- The frequency of sampling and analysis;
- The quality assurance (QA)/quality control (QC) procedures that will be used to ensure that the sampling and analysis procedures are satisfactory; and
- The methods that will be used to meet the additional waste analysis requirements for specific waste management methods as specified in 40 CFR § 264.13(b)(6).

All sampling and analysis performed in accordance with this WAP will follow procedures specified in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition* (SW-846), ASTM International (ASTM), or an equivalent method.

This WAP does not address compliance with the HWC NESHAP established pollutant feed rate limitations for the incinerators, as they are controlled by the facility's HWC NESHAP Feedstream Analysis Plan.

The remaining sections of the WAP provide the following information:

- Section 2.0 presents a description of the hazardous waste streams;

- Section 3.0 presents information on the waste analytical parameters and the rationale for these parameters;
- Section 4.0 presents information on the sampling methods;
- Section 5.0 presents information on the analytical methods;
- Section 6.0 addresses sampling and analysis for specific waste management methods;
- Section 7.0 presents a discussion on the frequency of sampling and analysis; and
- Section 8.0 presents the QA/QC procedures.

2.0 WASTE DESCRIPTIONS

There are five hazardous waste streams and five non-hazardous waste streams treated in the incinerators. The hazardous waste streams are identified as acrylic acid water, D-1450 blended waste, D-2850 blended waste, acrylate residue, and glacial acrylic acid (GAA) crystallization residue. The non-hazardous waste streams are identified as AA-E residue, GAA distillation residue, D-1451 non-hazardous aqueous waste, dispersions condensate, and 1,6-Hexanediol (HDO®) aqueous waste.

2.1 ACRYLIC ACID WATER

Acrylic acid water (TCEQ No. 1503-105H) carries the 40 CFR Part 261 hazardous waste numbers of D002 (corrosivity) and D018 (benzene). This waste is produced within the Acrylic Acid production areas. This waste is fed to Incinerators IN-701 and IN-5500 in on-line configurations and is not allowed to accumulate.

2.2 ACRYLATE RESIDUE

Acrylate residue (TCEQ No. 5175-219H) is a mixture of hazardous waste streams generated within the butyl acrylate (BA) and 2-ethylhexyl acrylate (2-EHA) production areas. Acrylate residue carries the 40 CFR Part 261 hazardous waste numbers of D001 (ignitability) and D002 (corrosivity). This waste mixture is stored in Tank D-147B prior to being burned in Incinerator IN-4702.

2.3 GLACIAL ACRYLIC ACID CRYSTALLIZATION RESIDUE

GAA crystallization residue (TCEQ No. 1706-219H) carries the 40 CFR Part 261 hazardous waste number of D001 (ignitability). This waste is generated in the Glacial 4 production area. The GAA crystallization is stored in Tank D-3872 prior to being burned in Incinerator IN-4702.

2.4 D-1450 BLENDED WASTE

D-1450 blended waste (TCEQ No. 1820-219H) carries the 40 CFR Part 261 hazardous waste numbers of D001 (ignitability) and D018 (benzene). This waste is a blend of several different waste streams generated in the 1,6-Hexanediol (HDO®), Neopentyl Glycol (NEOL®), Oxo-Alcohols, Butyl Acrylate, and Cyclohexanone process units. The separate waste streams are mixed into Tank D-1450 to be burned in Incinerator IN-5100.

2.5 D-2850 BLENDED WASTE

D-2850 blended waste (TCEQ No. 1832-219H) carries the 40 CFR Part 261 hazardous waste number of D007 (chromium). This waste is a blend of several different waste streams generated in the HDO® and

NEOL® process units. The separate waste streams are mixed into Tank D-2850 to be burned in Incinerator IN-5100. This waste may also be shipped offsite for disposal.

2.6 AA-E Residue

AA-E residue is a non-hazardous liquid waste stream that is generated within the Acrylic Acid production areas. The waste stream is stored in Tanks D-412 and D-3450 and is fed to Incinerators IN-701 and IN-5500 in a batch mode.

2.7 Glacial Acrylic Acid Distillation Residue

GAA distillation residue is a non-hazardous waste that is generated within the Glacial 2 and 3 production areas. The GAA distillation residue is stored in Tank D-463 prior to being burned in Incinerator IN-4702.

2.8 Dispersions Condensate

Dispersions condensate is a non-hazardous aqueous waste that is generated within the Dispersions production area. This waste is stored in Tank D-5151 prior to being burned in Incinerator IN-4702.

2.9 1,6-Hexanediol® Aqueous Waste

HDO® aqueous waste is a non-hazardous aqueous waste that is generated within the HDO® production area. This waste is typically a component of the D-1451 non-hazardous aqueous waste that is burned in Incinerator IN-5100. It is stored in Tank D-950 before being blended into Tank D-1451. Occasionally, the HDO® aqueous waste may be fed directly to Incinerator IN-4702 from Tank D-950.

2.10 D-1451 Non-Hazardous Aqueous Waste

D-1451 non-hazardous aqueous waste is a blend of several different waste streams generated in the HDO®, NEOL®, and Oxo-Alcohols process units. The separate waste streams are mixed into Tank D-1451 to be burned in Incinerator IN-5100.

3.0 PARAMETERS AND RATIONALE

BASF must obtain a chemical and physical analysis of the wastes to determine their classification as a hazardous waste and to ensure that they comply with RCRA risk-based limits. The following four types of analyses are performed for the wastes:

- Waste characterization parameters – Analyses are performed to determine the proper waste classifications and codes;
- RCRA compliance parameters – Analyses are performed to demonstrate compliance with risk-based limits;
- Underlying Hazardous Constituent (UHC) parameters – Analyses are performed to enable assessment of the waste composition for UHCs in accordance with 40 CFR Part 268, Land Disposal Restriction Rules; and
- Leak Detection and Repair (LDAR) parameters – Analyses are performed to determine applicability of LDAR requirements of 40 CFR Part 264 Subpart BB.

Waste characterization parameters, UHC parameters, and LDAR parameters are analyzed for each hazardous waste stream at the point of generation. RCRA compliance parameters are analyzed for Incinerator IN-4702 hazardous and non-hazardous waste streams (acrylate residue, GAA crystallization residue, GAA distillation residue, dispersions condensate, and HDO® aqueous waste).

4.0 SAMPLING METHODS

Table IV.C in Section IV of the Part B Permit Application lists the sampling locations and methods for the waste streams. For waste characterization parameters, UHC parameters, and LDAR parameters, samples of each hazardous waste stream are obtained directly from taps on the process lines near the points of generation (*e.g.*, a sample tap off a discharge pump). For the Incinerator IN-4702 RCRA compliance parameters, samples of the hazardous and non-hazardous waste streams (acrylate residue, GAA crystallization residue, GAA distillation residue, dispersions condensate, and HDO® aqueous waste) are obtained from taps in the waste feed lines immediately downstream of the feed pumps.

BASF personnel collect liquid waste samples using a tap sampling procedure. Tap sampling is the appropriate method for sampling liquid wastes in pipes or ducts. For liquids in motion, a single tap allows collection of a representative sample.

Samples are handled in accordance with internal practices for ensuring representative samples and preventing sample contamination. Samples are collected, transported, and stored in new, unused containers, such as glass jars, that are constructed of materials inert to the analytical matrix.

All sample holding times are consistent with the requirements of the method(s). BASF utilizes appropriate chain of custody procedures to ensure the integrity of the samples by tracking possession from the time of collection to delivery at the laboratory.

5.0 ANALYTICAL METHODS

40 CFR § 264.13(b)(2) requires that the WAP indicate the procedures that will be used to determine the parameter. Table IV.C in Section IV of the Part B Permit Application specifies the primary analytical methods that are used for the hazardous and non-hazardous wastes managed in the permitted units. The analytical methods listed in Table IV.C are all United States Environmental Protection Agency (USEPA) approved methods. Other widely accepted methods are used as warranted or necessitated by unforeseeable regulatory developments. In all cases, the most recent version of each test method will be used for the analysis.

In addition to the analytical methods listed in Table IV.C, generator knowledge may be used to assess the waste streams. For example, in lieu of analyses, generator knowledge is applied to characterize the wastes with respect to corrosivity and reactivity.

6.0 FREQUENCY OF ANALYSES

Pursuant to 40 CFR § 264.13(b)(4), BASF has established a frequency with which the initial analysis of the waste will be reviewed or repeated to ensure that the analysis is accurate and up to date. Table IV.C in Section IV of the Part B Permit Application specifies the frequencies of analysis used for the hazardous and non-hazardous wastes managed in the permitted units.

All wastes will be analyzed upon their initial generation for waste characterization parameters, UHC parameters, and LDAR parameters. If BASF believes that the process generating the waste may have changed such that there may be a change in the results of the analytical parameters, sampling and analysis will be conducted. BASF's management of change (MOC) program provides a means to monitor plant changes for engineering, raw material, or operational change that would reasonably be expected to impact the nature of the waste.

For compliance parameters for Incinerator IN-4702, BASF will analyze the hazardous and non-hazardous waste streams annually.

7.0 SPECIAL WASTE HANDLING

40 CFR § 264.13(b)(6) requires that the WAP address methods that will be used to meet the additional waste analysis requirements for specific waste management methods. This section addresses ignitable, reactive, or incompatible wastes, Land Disposal Restriction Rules, and RCRA air emission standards.

7.1 IGNITABLE, REACTIVE, OR INCOMPATIBLE WASTES

BASF complies with the additional requirements in 40 CFR § 264.13(b)(6) for facilities managing ignitable, reactive, or incompatible wastes, as applicable. Accordingly, this WAP provides a description of any additional waste analyses that are required to ensure compliance with RCRA provisions addressing handling of ignitable, reactive, or incompatible wastes.

BASF generates ignitable wastes prior to onsite combustion in the incinerators. BASF takes precautions to prevent accidental ignition of the wastes and protects the ignitable wastes from sources of ignition in accordance with 40 CFR § 264.17. Reactive wastes are not handled in the incinerators. All liquid wastes that are managed in the incinerators are chemically compatible.

7.2 LAND DISPOSAL RESTRICTIONS

BASF maintains compliance with land disposal restrictions for wastes generated at the facility, and records demonstrating compliance (*e.g.*, analytical date, notices, *etc*.) are maintained onsite for a minimum of three years. As shown in Table IV.C in Section IV of the Part B Permit Application, analyses are performed to enable assessment of the waste composition for UHCs in accordance with 40 CFR Part 268, Land Disposal Restriction Rules.

7.3 AIR EMISSION STANDARDS

BASF complies with the RCRA air emission standards of 40 CFR 264 Subparts BB. As shown in Table IV.C in Section IV of the Part B Permit Application, analyses are performed to determine, for each piece of equipment, whether the equipment contains or contacts a hazardous waste with organic concentration that equals or exceeds 10 percent by weight and to determine the volatile organic (VO) concentration of a hazardous waste.

8.0 QUALITY ASSURANCE AND QUALITY CONTROL

BASF is committed to ensuring that the analytical data generated in accordance with this WAP are scientifically valid, defensible, complete, and of known precision and accuracy. These objectives can be best achieved by applying the requirements of USEPA accepted methodology. To ensure data quality, guidance from Chapter One of SW-846 has been integrated into the approaches and philosophies of this WAP.

Records of specific analytical methods utilized from SW-846 and appropriate QA/QC documentation will be maintained at the BASF Freeport Site with the results of all analyses. Data quality will be assessed for all analyses. Data quality indicators include parameters such as sample contamination, accuracy, and precision. These parameters are evaluated as needed by the conduct of field and/or trip blank analysis, internal standard spiking and analysis, and duplicate sample analysis.

V. ENGINEERING REPORTS

V. Engineering Reports

Provide all Part B responsive information in Appendix V. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

For multiple units provide an include all Part B responsive information in a separate Appendix for each unit.

The engineering report represents the conceptual basis for the storage, processing, or disposal units at the hazardous waste management (HWM) facility. It should include calculations and other such engineering information as may be necessary to follow the logical development of the facility design. Plans and specifications are an integral part of the report. They should include construction procedures, materials specifications, dimensions, design capacities relative to the volume of wastes (as appropriate), and the information required by 40 CFR 270.14(b)(8), 270.14(b)(10). Since these reports may be incorporated into any issued permit, the report should not include trade names, manufacturers, or vendors of specific materials, equipment, or services unless such information is critical to the technical adequacy of the material. Technical specifications and required performance standards are sufficient to conduct a technical review. For landfills, surface impoundments, and waste piles, a Construction Quality Assurance Plan, which considers the guidance in EPA publication 530-SW-85-014, Minimum Technology Guidance on Double Liner Systems for Landfills and Surface Impoundments; Design, Construction, and Operation, and/or EPA/600/R-93/182, Quality Assurance And Quality Control For Waste Containment Facilities, should be submitted.

For facilities which will receive wastes from off-site sources, the engineering report must also contain information on the units which will manage these off-site wastes in accordance with 30 TAC 335.45(a).

Certain ancillary components or appurtenant devices must be addressed in the Part B application. These include but are not limited to sumps, pipelines, ditches, and canals. The technical information and the level of detail required will vary with the nature, scope, and location of the ancillary component. At a minimum they should be included in descriptions of piping and process flow. More information may be required. A single area containing a large number of ancillary components or a remote appurtenant device in an unusually sensitive location may warrant some specific permit requirements. All ancillary components must be included in calculating closure cost estimates.

In each of the unit-specific sections, describe precautions taken to prevent accidental commingling of incompatible wastes. If reactive or ignitable wastes are to be managed, or if incompatible wastes are deliberately commingled, provide information to ensure that precautions are taken to avoid danger due to:

- generation of extreme heat or pressure, fire, explosion, or violent reaction;
- production of uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health;
- production of uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosion;
- damaging the structural integrity of the device or facility containing the waste; or
- threatening human health or the environment by any other means.

Comprehensive consideration should be given to ensure that the facility is designed in accordance with good public health and hazardous waste management practices. The application will be evaluated primarily for the aspects of design covered by the regulations. Nothing in any approval is intended to relieve the facility owner or operator of any liabilities or responsibilities with respect to the design, construction, or operation of the project.

A. General Engineering Reports

1. General Information

Complete Table V.A. - Facility Waste Management Handling Units listing all past, current or proposed units. *[Indicate units' status as* Active, Closed, Inactive *(built but not yet managing waste)*, Proposed *(not yet built)*, Never Built, Transferred, or Post-Closure. *Indicate appropriate units for Capacity information.]* **Note for renewals and modifications involving adding or dropping units from the permit:** List all TCEQ Permit Unit Numbers that have been assigned previously as in a current permit Attachment D -Authorized Facility Units table and do not reuse or reassign permit numbers for units that have been replaced, closed, removed from the permit, or transferred to other ownership. All Notice of Registration (NOR) Numbers must match the State of Texas Environmental Electronic Reporting System (STEERS) and may not be reused for replacement units.

Provide an overall plan view of the entire facility. Identify each hazardous or industrial solid waste management unit (container storage area, tank, incinerator, etc.) to be permitted in relation to its location and the type of waste managed in that unit. Also provide a plan view at an appropriate scale to clearly show the location of all hazardous waste management units to be permitted on one or more 8 1/2" x 14" sheets. Indicate on this plan view how the design or operation provides for buffer zones or waste segregation as appropriate for incompatible, ignitable, or reactive wastes.

Submit a topographic map or maps of the facility which clearly shows the information specified in 40 CFR 270.14(b)(19), 270.14(c)(3), and 270.14(d)(1)(i) (for large HWM facilities, the TCEQ will allow the use of other scales on a case-by-case basis). Please note that the term "facility" includes all contiguous land, structures, other appurtenances, and improvements on the land for storing, processing, or disposing of hazardous and industrial solid waste.

2. Features to Mitigate Unsuitable Site Characteristics

For all new hazardous waste management storage and/or processing facilities or areal expansions of existing hazardous waste management storage and/or processing facilities, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(a)(1) and (a)(3) through (9).

3. Construction Schedules

a. In order to meet the required design standards, extensive retrofitting of some facilities may be required. In the worst case, the applicant may elect to close certain operations rather than comply with the RCRA standards. Thus, the permit may specify a schedule of compliance requiring the accomplishment of given tasks within specific time frames. As required, indicate an appropriate schedule(s) of compliance in this application. The schedule should provide for facility compliance as soon as possible and in accordance with 40 CFR 270.33(a)(2) and 270.33(b).

b. For commercial hazardous waste management facilities, permit applications (new, renewal, or interim status applications), major amendments, and Class 3 modifications must include a construction schedule. A construction schedule must be submitted even if the application does not include an addition of units or a revision to permitted units. This schedule should comply with the requirements of 30 TAC 305.149.

4. Provide detailed plans and specifications which when, accompanied by the engineering report, will be sufficiently detailed and complete to allow the Executive Director to ascertain whether the facility will be constructed and operated in compliance with all pertinent permitting requirements. Engineering plans and specifications must be prepared under the supervision of and sealed by a licensed Professional Engineer, with current license, along with the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act. For some facilities, plans in the form of a standard piping and instrumentation diagram will be sufficient. Overall dimensions and materials of construction must be shown.

B. Container Storage Areas

1. Provide an engineering report which includes all of the information specified in 40 CFR 264.170-264.173, 264.175-264.177, and 270.15.
Complete Table V.B - Container Storage Areas and list the container storage areas covered by this application to be permitted. List the N.O.R. unit number, the rated capacity or size of each unit (including the maximum number of each type of container to be stored at each unit and total maximum capacity of all types wastes stored in the unit), the areal dimensions, containment volume, aisle space requirements, whether ignitable, reactive, or incompatible waste will be stored in each unit, and whether processing will occur within the unit.

2. Container storage areas must have a containment system that is capable of collecting and holding spills, leaks, and precipitation. In addition to the requirements of 40 CFR 270.15, the design report should include the following:

a. Capacity of the containment relative to the number and volume of containers to be stored; in addition, for unenclosed areas, the amount of rainfall collected prior to removal. The TCEQ recommends using a 25-year, 24-hour rainfall event for this extra capacity; and

b. Run-on into the containment system must be prevented, or a collection system with sufficient excess capacity must be provided. If run-on is collected within the containment system, delineate the area(s) from which run-on is collected. The 25-year, 24-hour rainfall event should be used to calculate the excess capacity.

3. Wastes Containing No Free Liquids
With the exception of 40 CFR 264.175(d), storage areas that hold only wastes that do not contain free liquids need not have a containment system, provided that compliance with 40 CFR 264.175(c) is demonstrated. This demonstration must be submitted as part of the application and must include:

a. test procedures and results or other documentation or information to show that the wastes do not contain free liquids; and

b. a description of how the storage area is designed or operated to drain and remove liquids or how containers are kept from contact with standing

liquids.

4. Managing Ignitable or Reactive Wastes

   If a container storage area will manage ignitable or reactive waste, as indicated on Table V.B, provide in the engineering report drawings demonstrating compliance with the buffer zone requirement of 40 CFR 264.17 and 264.176.

5. Managing Incompatible Wastes

   If a container storage area will manage incompatible waste, as indicated on Table V.B, provide in the engineering report a description of the procedures used to ensure compliance with 40 CFR 264.17 and 264.177.

6. Managing Nonhazardous Wastes and/or Universal Wastes

   If a container storage area will manage nonhazardous wastes, and/or universal wastes in addition to hazardous waste, provide a description of all types of wastes managed in the engineering report and procedures used to ensure compliance with 40 CFR 264 Subpart I.

C. Tanks and Tank Systems

Provide an engineering report which includes all of the information specified in 40 CFR 264.190-264.194, 264.196, 264.198-264.199, and 270.16.

1. For inclusion into a permit, complete Table V.C - Tanks and Tank Systems and list the tanks covered by this application to be permitted. List the N.O.R. unit number, whether the unit is for storage and/or processing, the waste managed in each unit, the rated capacity of each unit, overall dimensions of each unit, containment volume, and whether ignitable, reactive, or incompatible waste will be stored in each unit.

2. For inclusion into a permit, complete Table V.C - Tanks and Tank Systems and list the tanks covered by this application to be permitted. List the N.O.R. unit number, whether the unit is for storage and/or processing, the waste managed in each unit, the rated capacity of each unit, overall dimensions of each unit, containment volume, and whether ignitable, reactive, or incompatible waste will be stored in each unit.

3. If a tank will manage incompatible waste, as indicated on Table V.C, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.199.

4. Submit written assessments that were reviewed and certified by an independent, qualified licensed Professional Engineer that attests to the structural integrity and suitability of handling the hazardous waste for each tank system, as required under 40 CFR 264.191-264.192 for existing tanks which do not have secondary containment meeting the standards of 40 CFR 264.193. The engineer signing the written assessment must make the certification specified in 40 CFR 270.11(d). The certification must be sealed by a licensed Professional Engineer, with current license, along with the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act.

5. If a tank has been de-rated or if the permitted capacity is otherwise different from the design capacity, specify any such change(s) in the engineering report.

Provide in the report any additional information for tanks and tank systems as specified in the above regulatory citations including: specifics of leak, spill, and unfit for use systems responses; assessments of tank systems; new tank systems or components; overfill control and prevention; special requirements for ignitable and/or reactive wastes; incompatible wastes; air emissions control; detection of leaks into secondary containment; ancillary equipment; and plans and specifications individually sealed by a licensed professional engineer with current Texas registration with the Registered Engineering Firm's name and Registration number.

D. Surface Impoundments

For Surface Impoundments Closed as a Landfill

1. Provide as-built plans and specifications for the final cover system, individually for each unit that is sealed, signed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number would satisfy this requirement; Other as-built plans and specifications for the unit may be submitted upon request.

2. Complete Table V.D.1 - Surface Impoundments and list the surface impoundments, covered by this application, to be permitted. List the waste(s) managed in each unit and the rated capacity or size of each unit.

3. Complete Table V.D. 6. - Surface Impoundment Liner System for each surface impoundment to be permitted.

For Proposed or Active Surface Impoundments

Provide an engineering report which includes all of the information specified in 30 TAC 305.50(a)(6), 335.168, 335.169, and 40 CFR 264.19, 264.220, 264.221, 264.222, 264.223, 264.226(a) and (c), 264.227, 264.229-264.231, and 270.17.

For storage surface impoundments at a new hazardous waste management facility or which are part of an areal expansion of an existing hazardous waste management facility, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(d). For any surface impoundment to be closed as a landfill (where wastes will remain after closure of the impoundment) at a new hazardous waste management facility or which are part of an areal expansion of an existing hazardous waste management facility, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(e).

For all impoundments, include in the report the following information.

1. Complete Table V.D.1 - Surface Impoundments and list the surface impoundments, covered by this application, to be permitted. List the waste(s) managed in each unit and the rated capacity or size of each unit.

2. If a surface impoundment will manage ignitable or reactive waste, as indicated on Table V.D.1., describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.229.

3. If a surface impoundment will manage incompatible waste, as indicated on Table V.D.1., describe in the engineering report the procedures used to ensure

compliance with 40 CFR 264.17 and 264.230.

4. If a surface impoundment will manage F020, F021, F022, F023, F026, and F027 waste, as indicated on Table V.D.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.231.

5. Describe the surface impoundment. Detailed plan view and cross-sectional drawings of the surface impoundment should be included with the engineering report.

6. Freeboard
Specify the minimum freeboard to be maintained and the basis of the design to prevent overtopping resulting from normal or abnormal operations; overfilling; wind and wave action; rainfall; run-on; malfunctions of level controllers, alarms, and other equipment; and human error. Show that adequate freeboard will be available to prevent overtopping from a 100-year, 24-hour storm. [40 CFR 264.221(g)]
If the impoundment is inflow sensitive, it should be equipped with a high-level alarm based on a different level sensor than that used for automatic control.

7. Waste Flow
Describe the means that will be used to immediately shut off the flow of waste to the impoundment to prevent overtopping or in the event of liner failure, and include appropriate detailed drawings.
If the surface impoundment is a flow-through facility describe the flow of waste, including a hydraulic profile.

8. Dike Construction

   a. If dikes are used, download the dike design and materials of construction engineering certification from the attachments list the following certification as part of the engineering report:

   b. The structural integrity of the dike system must be certified by a qualified Professional Engineer before a permit is issued. If the impoundment is not being used, the dike licensed system must be certified before it can be put into use. The certification must be sealed by a licensed Professional Engineer, with current license, along with the Registered Engineering Firm's name and Registration Number as required by the Texas Engineering Practice Act.

   c. A report shall accompany the dike certification which summarizes the activities, calculations, and laboratory and field analyses performed in support of the dike certification. Describe the design basis used in construction of the dikes. Provide the following analyses as attachments to the engineering report (A Quality Assurance Project Plan <QAPP> should be included in the report to ensure that each analysis is performed appropriately):

      (1) Slope Stability Analysis
      (2) Hydrostatic and Hydrodynamic Analysis
      (3) Storm Loading
      (4) Rapid Drawdown

   d. Earthen dikes should have a protective cover to minimize wind and water erosion and to preserve the structural integrity of the dike. Describe the

protective cover used and describe its installation and maintenance.

9. Containment System

We suggest that the applicant use available recognized guidance documents, such as EPA publication 530-SW-85-014, which provide design guidance for liner systems. The applicant is strongly encouraged to test each synthetic liner after installation by an electrical leak location test, such as the electric field method described in EPA Technical Guidance Document EPA/600/R-93/182, Quality Assurance and Quality Control for Waste Containment Facilities, or an equivalent method, such as those found in ASTM publications, and approved by the Executive Director. Construction above the liner may not proceed until any detected leaks are sealed.

a. Complete Table V.D. 6. - Surface Impoundment Liner System for each surface impoundment to be permitted.

b. In the engineering report, describe the design, installation and operation of liner and leak detection components. The description must demonstrate that the liner and leak detection system will prevent discharge to the land, and ground and surface water. Include the following analyses as attachments to the engineering report (A QAPP should be included in the report to ensure that each analysis is performed appropriately):

For artificial liners:

(1) Seaming method
(2) Surface preparation method
(3) Tensile Strength
(4) Impact Resistance
(5) Compatibility Demonstration
(6) Foundation Design (including Settlement Potential, Bearing Capacity and Stability, and Potential for Bottom Heave Blow-out)

For soil liners:

(1) Waste Migration Analysis (based on head, porosity, and permeability) for the most mobile and least attenuated waste constituents
(2) Atterberg Limits, % passing a #200 sieve, and Permeability
(3) Moisture Content
(4) Standard Proctor Density, Compaction Data

For leachate collection systems:

(1) Pipe Material and Strength
(2) Pipe Network Spacing and Grading
(3) Collection Sump(s) Material and Strength
(4) Drainage Media Specifications and Performance
(5) Analyses showing that pipe and pipe perforation size will prevent clogging and allow free liquid access to the pipe.
(6) Compatibility Demonstration
(7) Capacity of System
    (a) rate of leachate removal
    (b) capacity of sumps
    (c) thickness of mounding and maximum hydraulic head

c. Specify the liner system installation date and expected lifetime of liner system (years).

d. Specify whether the liner is chemically resistant to the waste and how this resistance was determined. Attach any tests or documentation to the engineering report.

e. Submit a quality assurance/quality control plan for all components to demonstrate that all components will be properly installed and will perform to design specifications.

f. Submit a Response Action Plan that proposes actions to be taken if the Action Leakage Rate for the surface impoundment exceeds. At a minimum the Response Action Plan must include the requirements of 40 CFR 264.223.

10. Surface impoundments that receive waste on or after May 8, 1985 (or for newly-regulated units, the effective date of the new RCRA regulation) into new units and/or lateral expansions or replacements of existing units must meet the minimum technological requirements of the Hazardous and Solid Waste Amendments of 1984, unless an appropriate waiver is granted by the Commission. The owner or operator of each new surface impoundment unit for which the construction commences after January 29, 1992, or each lateral expansion of an existing surface impoundment unit where construction commences after July 29, 1992, or replacement of an existing surface impoundment unit that commence reuse after July 29, 1992 must install two or more liners and leachate collection and removal system unless commission approves alternate design or operating practices. Plans and specifications for both new and existing surface impoundments must demonstrate conformity with 30 TAC 335.168 and 40 CFR 264.221

11. Run-on Diversion

    Describe in detail how the surface impoundment system will manage stormwater run-on away from the surface impoundment. Stormwater run-on must be diverted away from a surface impoundment. Use at least a 100-year, 24-hour rainfall event in the design and analysis of diversion structures. Where dikes are used to divert run-on, they must be protected from erosion. Include all analyses used to calculate run-on volumes.

12. The Commission may approve an alternate design or operating practice for a surface impoundment if the owner or operator demonstrates that such design or operating practices, together with location characteristics [40 CFR 264.221(d)]:

    a. Will prevent the migration of hazardous constituents into the groundwater or surface water at least as effectively as the liners and leachate collection and removal system required by 40 CFR 264.221; and

    b. Will allow detection leaks of hazardous constituents through the top liner at least as effectively.

13. Exemption from Double-Liner Requirements for Monofills [264.221(e)]

    Owners or operators of hazardous waste surface impoundment monofills will be exempted from the double-liner requirements if the Commission finds, based on a demonstration by the owner or operator, that alternative design and

operating practices, together with location characteristics are at least as effective as a double liner in preventing migration of hazardous constituents to the groundwater or surface water. If an exemption is sought, submit detailed plans and engineering and hydrogeologic reports, as appropriate, describing alternate design and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous constituents into the groundwater or surface water at any future time.

E. Waste Piles

This section applies to owners or operators of industrial solid waste facilities that store or process hazardous waste in piles. A hazardous waste pile that will be closed with wastes left in place must be managed as a landfill. Existing portions of waste piles are those areas that were listed on the original Part A and on which wastes have been lawfully placed.

For Waste Piles Closed as a Landfill

1. Provide as-built plans and specifications for the final cover system, individually for each unit that is sealed, signed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number would satisfy this requirement; Other as-built plans and specifications for the unit may be submitted upon request.
2. Complete Table V.E.1 - Waste Piles and list the waste piles covered by this application. List the waste managed in each unit and the rated capacity or size of the unit.
3. Complete Table V.E. 3 - Waste Pile Liner System and specify the type of containment/ liner system.

   Provide an engineering report which includes all of the information specified in 30 TAC 335.170 and 40 CFR 264.19, 264.250, 264.251, 264.252-264.253, 264.254(a) and (c), 264.256, 264.257, 264.259, and 270.18.

   For waste piles at a new hazardous waste management facility or which are part of any areal expansion of an existing hazardous waste management facility, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(c).

   For all waste piles, include in the report the following information.

   1. For inclusion into a permit, complete Table V.E.1 - Waste Piles and list the waste piles covered by this application. List the waste managed in each unit and the rated capacity or size of the unit.
   2. If a waste pile will manage ignitable or reactive waste, as indicated on Table V.E.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.256.
   3. If a waste pile will manage incompatible waste, as indicated on Table V.E.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.257.
   4. If a waste pile will manage F020, F021, F022, F023, F026, and F027 waste, as indicated on Table V.E.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.259.

5. Describe the waste pile, including any structure surrounding or enclosing the waste pile.

6. Containment System
We suggest that the applicant use available recognized guidance documents, such as EPA publication 530-SW-85-014, which provide design guidance for liner systems. The applicant is strongly encouraged to test each synthetic liner after installation by an electrical leak location test, such as the electric field method described in EPA Technical Guidance Document EPA/600/R-93/182, Quality Assurance and Quality Control for Waste Containment Facilities, or an equivalent method, such as those found in ASTM publications, and approved by the Executive Director. Construction above the liner may not proceed until any detected leaks are sealed.

   a. For inclusion into a permit, complete Table V.E. 3 - Waste Pile Liner System and specify the type of containment/liner system.

   b. In the engineering report, describe the design, installation, construction, and operation of the liner and leachate collection system. The description must demonstrate that containment systems will prevent discharge to the land, surface water, or groundwater. Include the following analyses as attachments to the engineering report, when applicable to the containment system being described (A QAPP should be included in the report to ensure that each analysis is performed appropriately):

For artificial liners:

(1) Seaming method
(2) Surface preparation method
(3) Tensile Strength
(4) Impact Resistance
(5) Compatibility Demonstration
(6) Foundation Design (including Settlement Potential, Bearing Capacity and Stability, and Potential for Bottom Heave Blow-out)

For soil liners:

(7) Waste Migration Analysis (based on head, porosity, and permeability) for the most mobile and least attenuated constituents.
(8) Atterberg Limits, % passing a #200 sieve, and Permeability
(9) Moisture Content
(10) Standard Proctor Density, Compaction Data

For leachate detection, collection, and removal system:

(11) Capacity of system
   (a) rate of leachate removal
   (b) capacity of sumps
   (c) thickness of mounding and maximum hydraulic head
(12) Pipe Material and Strength
(13) Pipe Network Spacing and Grading
(14) Collection Sump(s) Material and Strength
(15) Drainage Media Specifications and Performance

(16) Analysis showing that pipe and perforation size will prevent clogging and allow free liquid access to the pipe.
(17) Compatibility Demonstration

c. Containment/liner system installation date and expected lifetime of liner system (years).

d. Specify whether the containment/liner system is chemically resistant to the waste and how this resistance was determined. Attach any tests or documentation to the engineering report.

e. Submit a quality assurance/quality control plan for all components to demonstrate that all components will be properly installed and will perform to design specifications.

f. Submit a Response Action Plan that proposes actions to be taken if the Action Leakage Rate for the waste pile exceeds. At a minimum the Response Action Plan must include the requirements of 40 CFR 264.253.

7. Wind Dispersal [30 TAC 335.170(j)]

Waste piles containing hazardous waste which could be subject to dispersal by wind must be covered or otherwise managed so that wind dispersal is minimized. Describe practices to control wind dispersal (e.g., cover or frequent wetting) of the hazardous waste.

8. Run-on Diversion [30 TAC 335.170(g)]

Describe in detail the measures used to control and divert run-on from the unit. The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the pile during peak discharge from at least a 100-year, 24-hour storm.

Include all analyses used to calculate: flow rates; run-on volume and depth; and back-water calculations for the ditches on plant property.

Any tanks or basins associated with the run-on control systems must be emptied or otherwise managed expeditiously after a storm to maintain the design capacity of the system. [30 TAC 335.170(i)]

9. Run-off Control [30 TAC 335.170(h)]

Describe in detail the measures used to control run-off from the unit. Include all analyses used to calculate the run-off volumes.

The owner or operator must design, construct, operate, and maintain a run-off management system to collect and control at least the water volume resulting from a 100-year, 24-hour storm.

Collection and holding facilities (e.g., tanks or basins) associated with the run-off control systems must be emptied or otherwise managed expeditiously after storms to maintain the design capacity of the system. [30 TAC 335.170(i)]

10. Give a description of design and operating procedures to properly manage and/or dispose of any residuals (e.g., leachate) that may be generated during waste management. Describe the management process and any equipment used.

11. Provide a description and list of all equipment and procedures used to place the

waste in or on the waste pile, and how the liner surface will be exposed for inspection, if necessary. A containment system must be protected from plant growth which could puncture any component of the system.

12. Exemption from Liner and Leachate Collection Requirements

The Commission may approve an alternate design or operating practice for a waste pile if the owner or operator demonstrates that such design or operating practices, together with location characteristics [40 CFR 264.251(d)]:

a. Will prevent the migration of hazardous constituents into the groundwater or surface water at least as effectively as the liners and leachate collection and removal system; and

b. Will allow detection leaks of hazardous constituents through the top liner at least as effectively.

13. Exemption from Groundwater Monitoring under 40 CFR 264.250(c)

A waste pile may be exempt from groundwater monitoring if the following standards are met:

a. The waste pile (including its underlying liners) must be located entirely above the seasonal high water table; and

b. The waste pile is inside or under a structure that provides protection from precipitation so that neither run-off nor leachate is generated, provided that:

(1) Liquids or materials containing free liquids are not placed in the pile;

(2) The waste pile is protected from surface water run-on by the structure or in some other manner;

(3) The waste pile is designed and operated to control dispersal of the waste by wind, where necessary, by means other than wetting; and

(4) The waste pile will not generate leachate through decomposition or other reactions; or

c. The waste pile must have a leachate collection and removal system above the top liner; and

d. Underlayment:

(1) either:

(a) The waste pile must be underlain by two liners, which are designed and constructed in a manner that prevents the migration of liquids into or out of the space between the liners and a leak detection system which must be designed, constructed, maintained, and operated between the liners to detect any migration of liquids into the space between the liners; and

(b) A demonstration must be made that there is a low potential for migration of liquid from the waste pile to the uppermost aquifer during the life of the waste pile (including the closure period). The owner or operator must base any predictions made on assumptions that maximize the rate of liquid migration;

(2) or:

(a) The waste pile must be underlain by a liner (base) that is designed, constructed, and installed in a manner that prevents the migration of liquids or waste beyond the liner; and

(b) The wastes in the waste pile must be removed periodically, and the liner must be inspected for deterioration, cracks, or other conditions that may result in leaks. The frequency of inspection will be specified in the inspection plan and must be based on the potential for the liner (base) to crack or otherwise deteriorate under the conditions of operation (e.g., waste type, rainfall, loading rates and subsurface stability).

The liner(s) used to satisfy V.D.13.d. must be of sufficient strength and thickness to prevent failure due to puncture, cracking, tearing, or other physical damage from equipment used to place waste in or on the pile or to clean and expose the liner surface for inspection.

F. Land Treatment Units

Provide an engineering report which includes all of the information specified in 30 TAC 305.50(a)(6), 335.171, 335.172, 40 CFR 264.270-264.272, 264.273, 264.276, 264.278, 264.279, 264.281-264.283, and 270.20 for each land treatment unit.

For land treatment units at a new hazardous waste management facility or which are part of an areal expansion of an existing hazardous waste management facility, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(b).

For all land treatment units, include in the report the following information.

1. Complete Tables V.F.1 - Land Treatment Units and V.F.2 - Land Treatment Unit Capacity and list the land treatment units covered by this application. List the waste(s) managed in each unit and the rated capacity or size of the unit. If different wastes are placed on separate portions of the land treatment area, each portion is considered a land treatment unit, and requires a separate summary form and engineering report.

   The treatment zone is defined as the soil area of the unsaturated zone of a land treatment unit within which hazardous constituents are degraded, transformed, or immobilized. In this section, specify the depth of the treatment zone. The maximum depth of the treatment zone for new land treatment units must be [40 CFR 264.271(c)]:

   a. No more than 1.5 meters (5 feet) from the surface; and

   b. More than 1 meter (3 feet) above the seasonal high water table.

2. If a land treatment unit will manage ignitable or reactive waste, as indicated on Table V.F.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.281.

3. If a land treatment unit will manage incompatible waste, as indicated on Table V.F.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.282.

4. If a land treatment unit will manage F020, F021, F022, F023, F026 and F027 waste, as indicated on Table V.F.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.283.

5. Describe the land treatment unit. The report shall include all the information requested in this section including drawings. At a minimum, a plan view and cross-section of the unit should be included with the engineering report.

6. Complete Table V.F.3. - Land Treatment Principal Hazardous Constituents and list the wastes for which the treatment demonstration will be made and the principal hazardous constituents in each waste. Specify in the report the data sources to be used to make the demonstration such as laboratory data, field data, operating data, literature, or other.

7. Run-on Diversion
Describe in detail the measures used to control run-on and divert run-on from the unit. Include all the analyses used to calculate the run-on volumes.
The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the land treatment unit during peak discharge from a 100-year, 24-hour storm. [30 TAC 335.171(3)]
Collection holding facilities (e.g., tanks or basins) associated with the run-on control system must be emptied or otherwise managed expeditiously after storms to maintain the design capacity of the system. [30 TAC 335.171(5)].

8. Run-off Control
Describe in detail the measures used to control the run-off from the unit, and minimize hazardous constituents in the run-off, include all the analyses used to calculate the run-off volumes.
The owner or operator must design, construct, operate and maintain a run-off management system to collect and control at least the water volume resulting from a 100-year, 24-hour storm. [30 TAC 335.171(4)]
Collection and holding facilities (e.g., tanks or basins) associated with run-off control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system. [30 TAC 335.171(5)]

9. Wind Dispersal
The owner or operator of a land treatment unit containing hazardous waste which could be subject to dispersal by wind must cover or otherwise manage the land treatment unit so that wind dispersal is minimized. Describe practices to control wind dispersal (e.g., cover or frequent wetting) of the hazardous waste. [30 TAC 335.171(6)]

10. Treatment Demonstration
A description of the treatment demonstration required under 40 CFR 264.272 and 270.20(a) shall be included with the engineering report. If the owner or operator intends to conduct field tests or laboratory analyses in order to make the demonstration, he must obtain a treatment or disposal permit.

11. The owner or operator must establish an unsaturated zone monitoring program in accordance with 40 CFR 264.278 and a detailed monitoring program must be included in the application.

12. Food Chain Crops [40 CFR 264.276]

Several conditions must be satisfied if food-chain crops are to be grown in or on the treatment zone. A demonstration must be prepared similar to the one described in the Treatment Demonstration and submitted at least 90 days prior to the planting of crops. The demonstration need not be submitted with this application. However, a description of the demonstration must be included as part of the engineering report. This demonstration may be combined with the Treatment Demonstration description, as some of the information required is identical.

G. Landfills

For Closed Landfills

1. Provide as-built plans and specifications for the final cover system, individually for each unit that is sealed, signed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and Registration Number would satisfy this requirement; Other as-built plans and specifications for the unit may be submitted upon request.

2. Complete Table V.G.1 - Landfills and list the landfills (and number of cells, if applicable) covered by this application. List the waste(s) managed in each unit and the rated capacity or size of the unit. If wastes are segregated in some manner, list the cell number in which wastes are placed next to each waste type.

3. Complete Table V.G.3. - Landfill Liner System and specify the type of liner used for the landfill.

4. Complete Table V.G.4. - Landfill Leachate Collection System used for the landfill.

Provide an engineering report which includes all of the information specified in 30 TAC 305.50(a)(5), (6), (9), (10), and (12), 335.173, 40 CFR 264.19, 264.300, 264.301, 264.302, 264.303(a), 264.304, 264.309, 264.312, 264.313, 264.315-264.317, and applicable requirements of 270.21. The text of the report should be written to supplement engineering plans, specifications, and test results necessary to provide a detailed description of how the landfill will comply with these standards.

For landfills at a new hazardous waste management facility or which are part of an areal expansion of an existing hazardous waste management facility, include in the engineering report design, construction, and operational information specified in 30 TAC 335.204(e).

For all landfills, include in the report the following information.

1. Complete Table V.G.1 - Landfills and list the landfills (and number of cells, if applicable) covered by this application. List the waste(s) managed in each unit and the rated capacity or size of the unit. If wastes are segregated in some manner, list the cell number in which wastes are placed next to each waste type.

2. If a landfill will manage ignitable or reactive waste, as indicated on Table V.G.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.312.

3. If a landfill will manage incompatible waste, as indicated on Table V.G.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17 and 264.313.

4. If a landfill will manage F020, F021, F022, F023, F026, and F027 waste, as indicated on Table V.G.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.317.

5. Describe the landfill. A plan view and cross-section of the landfill should be included with the engineering report. As appropriate, detailed plan, elevation, cross-section of landfill containment facilities shall be included with the report.

6. Containment System
We suggest that the applicant use available recognized guidance documents, such as EPA publication 530-SW-85-014, which provide design guidance for liner systems. The applicant is strongly encouraged to test each synthetic liner after installation by an electrical leak location test, such as the electric field method described in EPA Technical Guidance Document EPA/600/R-93/182, Quality Assurance and Quality Control for Waste Containment Facilities, or an equivalent method, such as those found in ASTM publications, and approved by the Executive Director. Construction above the liner may not proceed until any detected leaks are sealed.

   a. Complete Table V.G.3. - Landfill Liner System and specify the type of liner used for the landfill.

   b. In the engineering report, describe the design, installation, construction, and operation of the liner and leachate collection system. The description must demonstrate that the liner system will prevent discharge to the land, groundwater, and surface water. The following analyses should be included as attachments to the engineering report (A QAPP should be included in the report to ensure that each analysis is performed appropriately):

For artificial liners:

(1) Seaming method
(2) Surface preparation method
(3) Tensile Strength
(4) Impact Resistance
(5) Compatibility Demonstration
(6) Foundation Design (including Settlement Potential, Bearing Capacity and Stability, and Potential for Bottom Heave Blow-out)

For soil liners:

(7) Waste Migration Analysis (based on head, porosity, and permeability) for the most mobile and least attenuated waste constituents
(8) Atterberg Limits, % passing a #200 sieve, and Permeability
(9) Moisture Content
(10) Standard Proctor Density, Compaction Data

For Leachate Collection System

For incorporation into the permit, complete Table V.G.4. - Landfill Leachate Collection System and Table V.G.5 - Landfill Soil Specifications used for the

landfill.

(11) Capacity of the system:

(a) rate of leachate removal

(b) capacity of sumps

(c) thickness of mounding and maximum hydraulic head

(12) Pipe Material and Strength
(13) Pipe Network Spacing and Grading
(14) Collection Sump(s) Material and Strength
(15) Drainage Media Specifications and Performance
(16) Analyses showing that pipe and pipe perforation size will prevent clogging and allow free liquid access to the pipe.
(17) Compatibility Demonstration

c. State whether the liner system components are chemically resistant to the waste and how this resistance was determined. Attach any tests or documentation to the engineering report.

d. Provide a quality assurance/quality control plan for all components to demonstrate that all components will be properly installed and will perform to design specifications.

e. Whether the leachate collection components are chemically resistant to the waste and how this resistance was determined. Attach any tests or documentation to the engineering report.

f. Provide a Response Action Plan that proposes actions to be taken in the case of exceedance of the landfill Action Leakage Rate. At a minimum the Response Action Plan must include the requirements of 40 CFR 264.304.

7. For Dikes:

a. Slope Stability Analysis;
b. Hydrostatic and Hydrodynamic Analyses
c. Ability to withstand scouring from leaking liner.

8. Landfills that receive waste on or after May 8, 1985 (or for newly-regulated units, the effective date of the new RCRA regulation) into new units and/or lateral expansions or replacements of existing units must meet the minimum technological requirements of the Hazardous and Solid Waste Amendments of 1984, unless an appropriate waiver is granted by the Commission. The owner or operator of each new landfill unit for which the construction commences after January 29, 1992, or each lateral expansion of an existing landfill unit where construction commences after July 29, 1992, or replacement of an existing landfill unit that commence reuse after July 29, 1992 must install two or more liners and leachate collection and removal system unless commission approves alternate design or operating practices. Plans and specifications for both new and existing landfills must demonstrate conformity with 30 TAC 335.173 and 40 CFR 264.301(c).

9. Site Development Plan

Describe the methods used to deposit waste in the landfill. This description should include rate of waste deposition, waste segregation, average lift size, maximum lift, average cell or trench size, maximum cell or trench size, and other information necessary to depict how the landfill will be developed. Do not

include liner or leachate collection system information, closure information, or handling of special wastes. This will be included elsewhere in the report.

10. Run-on Control [30 TAC 335.173(g)]

The owner or operator must design, construct, operate, and maintain a run-on control system capable of preventing flow onto the active portion of the landfill during peak discharge from at least a 100-year, 24-hour storm.

In the engineering report, include the following analyses:

a. Run-on volume and depth calculations from the peak discharge of the 100-year, 24-hour storm; and

b. For ditches on the plant property, back-water calculations.

Collection and holding facilities (e.g., tanks or basins) associated with the run-on control system must be emptied or otherwise managed expeditiously. [30 TAC 335.173(i)]

11. Run-off Control [30 TAC 335.173(h)]

The owner or operator must design, construct, operate, and maintain a run-off management system to collect and control the water volume resulting from a 100-year, 24-hour storm.

Include all analyses used to calculate run-off volumes.

Collection and holding facilities (e.g., tanks or basins) associated with run-off control systems must be emptied or otherwise managed expeditiously after storms to maintain design capacity of the system. [30 TAC 335.173(i)]

12. Wind Dispersal [30 TAC 335.173(j)]

If the landfill contains any particulate matter which may be subject to wind dispersal, the owner or operator must cover or otherwise manage the landfill to minimize wind dispersal. Based upon the characteristics of the material to be landfilled describe the likelihood of wind dispersal occurring. Describe in detail any method and/or control mechanism used to prevent wind dispersal.

13. Liquid Waste

If liquid waste or waste containing free liquids is to be stabilized and then placed in the landfill, the procedures used to stabilize the waste must be described in the engineering report. The waste must be treated prior to landfilling using a treatment technology that does not solely involve the use of a material that functions primarily as a sorbent. Provide supporting documentation to verify that an appropriate stabilization procedure is used to comply with 30 TAC 335.175.

14. The Commission may approve an alternate design or operating practice for a landfill if the owner or operator demonstrates that such design or operating practices, together with location characteristics [40 CFR 264.301(d)]:

a. Will prevent the migration of hazardous constituents into the groundwater or surface water at least as effectively as the liners and leachate collection and removal system; and

b. Will allow detection leaks of hazardous constituents through the top liner at

least as effectively.

15. Exemption from Double-Liner Requirements for Monofills [264.301(e)]

Owners or operators of hazardous waste monofills will be exempted from the double-liner requirements if the Commission finds, based on a demonstration by the owner or operator, that alternative design and operating practices, together with location characteristics are at least as effective as a double liner in preventing migration of hazardous constituents to the groundwater or surface water. If an exemption is sought, submit detailed plans and engineering and hydrogeologic reports, as appropriate, describing alternate design and operating practices that will, in conjunction with location aspects, prevent the migration of any hazardous constituents into the groundwater or surface water at any future time.

16. Above-grade Benefits

The engineering report must evaluate the benefits, if any, associated with the construction of the landfill above existing grade at the proposed site, the costs associated with the above-grade construction, and the potential adverse effects, if any, which would be associated with the above-grade construction. [TX. Health and Safety Code 361.108]

17. Feasibility Study - Applicable to New Hazardous Waste Landfills or Areal Expansions of Existing Hazardous Waste Landfill

In accordance with the Health and Safety Code Section 361.106 and 30 TAC Section 335.205(a)(2), provide a feasibility study demonstrating that there is no practical, economic, and feasible alternative that is reasonably available to manage the types and classes of hazardous wastes to be disposed of at a proposed new hazardous waste landfill or the areal expansion of an existing hazardous waste landfill.

H. Incinerators

Engineering Report for Combustion Units

For hazardous waste combustion unit which are subject to regulation by 40 CFR Part 63, Subpart EEE, the requirements 30 TAC Chapter 305 and Subchapters I and Q do not apply when the unit becomes subject to Resource Conservation and Recovery Act (RCRA) permit requirements after October 12, 2005 (i.e., new unit), or no longer apply when an owner or operator of an existing hazardous waste management unit demonstrates compliance with the air emission standards and limitations in 40 Code of Federal Regulations (CFR) Part 63, Subpart EEE, except for the following:

1. Those provisions the Executive Director determines are necessary to comply with 40 CFR §264.345(a) and 40 CFR §264.345(c) for Phase I sources or 40 CFR §266.102(e)(1) and (2)(iii) for Phase II sources if the permittee or applicant elects to comply with any of the options listed in 40 CFR §270.235(a) to minimize emissions of toxic compounds from startup, shutdown, and malfunction events;

2. Those standards and associated requirements for particulate matter, hydrogen chloride and chlorine gas, and non-mercury metals that a Phase II area source elects to comply with in 40 CFR §§266.105, 266.106, and 266.107;

3. Those standards for particulate matter in 40 CFR 264.343(c) remain in effect for a Phase I source incinerator that elects to comply with the alternative to the

particulate matter standard under 40 CFR 63.1206(b)(14) and 63.1219(e); and

4. Those provisions that the Executive Director may apply in 30 TAC Chapter 305, Subchapters I and Q, on a case-by-case basis. The Executive Director may require a permittee or an applicant to submit information in order to establish permit conditions under §305.50(a)(15) or (16) and §305.127(1)(B)(iii) or (4)(A) (i.e., risk-based permit conditions).

For hazardous waste combustion units subject to regulation by 40 CFR Part 63, Subpart EEE, some of the information requested in Sections V.H and V.I. will not be applicable for new units or existing units which have submitted a Notification of Compliance in accordance with 40 CFR 63.1207(j) and 63.1210(d), received a Finding of Compliance pursuant to 40 CFR 63.1206(b)(3), and have the associated RCRA permit conditions removed from the permit. Information which is not applicable or no longer applicable should not be included in the Part B application. *[Please note that the TCEQ will require a Finding of Compliance be made prior to modifying the permit by deleting redundant operating parameter limits and standards for the combustion units. Until such time as the permit is modified to delete the redundant RCRA-based operating parameter limits and standards in the permit or the permit is terminated or revoked, the permittee must comply with the RCRA-based conditions specified in the permit. More stringent risk-based permit conditions will remain in the RCRA permit.]*

For the exceptions listed in Items 1.-4., the owner and operator must provide the applicable information requested in the Part B permit application and any additional information required by the Executive Director to establish permit conditions.

As applicable, provide an engineering report which includes all of the information specified in 30 TAC 305.171-305.176, 40 CFR 264.340, 264.342-264.346, 264.347(a), and 270.19. In addition, the Executive Director may require additional information to address the requirements in 30 TAC 305.50(a)(15).

Note: Please review the information provided in the section above entitled "Engineering Report for Combustion Units" and 40 CFR 270.19(e) to determine applicability of standards and associated requirements in 40 CFR Part 264, Subpart O. If the permit contains risk-based permit conditions, please ensure that all applicable supporting information is included in the engineering report.

1. Complete Table V.H.1 - Incinerators and list the incinerators covered by this application and list the waste managed in each unit.

2. Complete Table V.H.2 - Incinerator Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff Systems for each Incinerator.

3. Complete Table V.H.3 - Maximum Constituents Feed Rate for each Incinerator.

4. Complete Table V.H.4 - Maximum Allowable Emission Rates for each Incinerator.

5. For use during the shakedown period, the trial burn period and the period after completion of the initial trial burn, complete Table V.H.5 - Incinerator Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff-Short-Term Operation for each new or modified Incinerator.

6. If an incinerator will manage reactive or incompatible waste, as indicated on Table V.H.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17.

7. If an incinerator will manage F020, F021, F022, F023, F026, and F027 waste, as

indicated on Table V.H.1, the DRE requirement is 99.9999%.

8. If a trial burn for a modified unit and Comprehensive Performance Test under 40 CFR Part 63, Subpart EEE (HWC MACT) (for all new and modified units) will be performed, designate one or more of the 40 CFR 261 Appendix VIII organic compounds present in the wastes to be incinerated as Principal Organic Hazardous Constituents (POHCs). Selection will be based upon the degree of difficulty of incineration of these compounds and upon their concentration or mass in the waste feed. These POHCs will be used to determine the destruction and removal efficiency (DRE) specified in the performance standards of 40 CFR 264.343 and HWC MACT. In addition, complete Table V.H.8 - Principal Organic Hazardous Constituents.

9. Submit a Quality Control/Quality Assurance Plan for all sampling, analysis, and monitoring activities which will occur in conjunction with the trial burn.

10. As applicable, facilities with existing permits may request that the Executive Director to address permit conditions that minimize emissions from startup, shutdown, and malfunction events in accordance with the options under 40 CFR 270.235 when requesting the removal of permit conditions that are no longer applicable according to 30 TAC 305.175. Please provide the relevant information needed to process the requested option to minimize emissions identified in 40 CFR 270.235(1)(a)(i)-(iii). (30 TAC 305.176)

I. Boilers and Industrial Furnaces

Engineering Report for Combustion Units

For hazardous waste combustion unit which are subject to regulation by 40 CFR Part 63, Subpart EEE, the requirements 30 TAC Chapter 305 and Subchapters I and Q do not apply when the unit becomes subject to Resource Conservation and Recovery Act (RCRA) permit requirements after October 12, 2005 (i.e., new unit), or no longer apply when an owner or operator of an existing hazardous waste management unit demonstrates compliance with the air emission standards and limitations in 40 Code of Federal Regulations (CFR) Part 63, Subpart EEE, except for the following:

1. Those provisions the Executive Director determines are necessary to comply with 40 CFR §264.345(a) and 40 CFR §264.345(c) for Phase I sources or 40 CFR §266.102(e)(1) and (2)(iii) for Phase II sources if the permittee or applicant elects to comply with any of the options listed in 40 CFR §270.235(a) to minimize emissions of toxic compounds from startup, shutdown, and malfunction events;

2. Those standards and associated requirements for particulate matter, hydrogen chloride and chlorine gas, and non-mercury metals that a Phase II area source elects to comply with in 40 CFR §§266.105, 266.106, and 266.107;

3. Those standards for particulate matter in 40 CFR 264.343(c) remain in effect for a Phase I source incinerator that elects to comply with the alternative to the particulate matter standard under 40 CFR 63.1206(b)(14) and 63.1219(e); and

4. Those provisions that the Executive Director may apply in 30 TAC Chapter 305, Subchapters I and Q, on a case-by-case basis. The Executive Director may require a permittee or an applicant to submit information in order to establish permit conditions under §305.50(a)(15) or (16) and §305.127(1)(B)(iii) or (4)(A) (i.e., risk-based permit conditions).

For hazardous waste combustion units subject to regulation by 40 CFR Part 63, Subpart EEE, some of the information requested in Sections V.H and V.I. will not be applicable for new units or existing units which have submitted a Notification of Compliance in accordance with 40 CFR 63.1207(j) and 63.1210(d), received a Finding of Compliance pursuant to 40 CFR 63.1206(b)(3), and have the associated RCRA permit conditions removed from the permit. Information which is not applicable or no longer applicable should not be included in the Part B application. *[Please note that the TCEQ will require a Finding of Compliance be made prior to modifying the permit by deleting redundant operating parameter limits and standards for the combustion units. Until such time as the permit is modified to delete the redundant RCRA-based operating parameter limits and standards in the permit or the permit is terminated or revoked, the permittee must comply with the RCRA-based conditions specified in the permit. More stringent risk-based permit conditions will remain in the RCRA permit.]*

For the exceptions listed in Items 1.-4., the owner and operator must provide the applicable information requested in the Part B permit application and any additional information required by the Executive Director to establish permit conditions.

As applicable, provide an engineering report which includes all of the information specified in 30 TAC 305.50(a)(13), 305.571-573, 40 CFR 266.100 and 266.102 (as incorporated by reference in 30 TAC 335.221 through 335.225), 266.104-266.112, and 270.22. In addition, the Executive Director may require additional information to address the requirements in 30 TAC 305.50(a)(15).

Note: Please review the information provided in the section above entitled "Engineering Report for Combustion Units" and 40 CFR 270.22 to determine applicability of standards and associated requirements in 40 CFR Part 266, Subpart H. Area sources that elect to comply with the standards and associated requirements of 40 CFR 266.105, 266.106, and 266.107 should address those elected standards and requirements in the engineering report. If the permit contains risk-based permit conditions, please ensure that all applicable supporting information is included in the engineering report.

1. Complete Table V.I.1 - Boilers and Industrial Furnaces and list the boilers and/or industrial furnaces covered by this application to be permitted and list the waste managed in each unit.
2. Complete Table V.I.2 - Boiler and Industrial Furnace Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff Systems for each unit.
3. Complete Table V.I.3 - Maximum Constituent Feed Rate for each unit.
4. Complete Table V.I.4 - Maximum Allowable Emission Rates for each unit.
5. For use during the shakedown period, trial burn period and the period after completion of the initial trial burn, complete Table V.I.5 - Boiler and Industrial Furnace Permit Conditions, Monitoring, and Automatic Waste Feed Cutoff Systems-Short-Term Operation for each new or modified unit.
6. If a boiler or industrial furnace will manage reactive or incompatible waste, as indicated on Table V.I.1, describe in the engineering report the procedures used to ensure compliance with 40 CFR 264.17.
7. If a boiler and industrial furnace will manage F020, F021, F022, F023, F026, and F027 waste, as indicated on Table V.I.1, the DRE requirement is 99.9999%.
8. If a trial burn for modified units and Comprehensive Performance Test under 40 CFR Part 63, Subpart EEE (HWC MACT) (for all new and modified units) will be performed, designate one or more of the 40 CFR 261 Appendix VIII organic compounds present in the wastes to be incinerated as Principal Organic Hazardous Constituents (POHCs). Selection will be based upon the degree of difficulty of incineration of these compounds and upon their concentration or mass in the waste feed. These POHCs will be used to determine the destruction and removal efficiency (DRE) specified in the performance standards of 40 CFR 266.104 and HWC MACT. In addition, complete Table V.I.8 - Principal Organic Hazardous Constituents.
9. Submit a Quality Control/Quality Assurance Plan for all sampling, analysis, and monitoring activities.
10. As applicable, facilities with existing permits may request that the Executive Director to address permit conditions that minimize emissions from startup, shutdown, and malfunction events in accordance with the options under 40 CFR 270.235 when requesting the removal of permit conditions that are no longer applicable according to 30 TAC 305.571(b). Please provide the relevant information needed to process the requested option to minimize emissions identified in 40 CFR 270.235(1)(a)(i)-(iii). [30 TAC 305.572(a)(6)]

J. Drip Pads

Provide an engineering report which includes all of the information specified in 40 CFR 264.570-573 and 270.26

1. Complete Table V.J.1. - Drip Pads and list the drip pads, covered by this application, to be permitted. List the N.O.R. unit number, the waste managed in each unit, the rated capacity of each unit, and the overall dimensions of the unit (including perimeter curb or berm height) that will be in contact with the waste.

2. For either new drip pads or existing drip pads for which the owner/operator elects to comply with the synthetic liner requirement of 40 CFR 264.573(b), please complete Table V.J.2. - Drip Pad Synthetic Liner System.

3. In the engineering report, describe the design, installation, construction, and operation of the liner and leakage collection system. The description must demonstrate that the liner system will prevent discharge to the land, groundwater, and surface water. The following analyses should be included as attachments to the engineering report (A QAPP should be included in the report to ensure that each analysis is performed appropriately):

For artificial liners:

a. Seaming method
b. Surface preparation method
c. Tensile Strength
d. Impact Resistance
e. Compatibility Demonstration
f. Foundation Design (including Settlement Potential, Bearing Capacity and Stability, and Potential for Bottom Heave Blow-out)

For Leakage Collection System

g. Capacity of the system:
    (1) rate of leachate removal
    (2) capacity of sumps
    (3) thickness of mounding and maximum hydraulic head
h. Pipe Material and Strength
i. Pipe Network Spacing and Grading
j. Collection Sump(s) Material and Strength
k. Drainage Media Specifications and Performance
l. Analyses showing that pipe and pipe perforation size will prevent clogging and allow free liquid access to the pipe.
m. Compatibility Demonstration

K. Miscellaneous Units

A miscellaneous unit is a unit other than a container, tank, incinerator, boiler, industrial furnace, landfill, surface impoundment, waste pile, underground injection well, land treatment area, drip pad, or unit eligible for an R, D & D permit that is used to process, store, or dispose of hazardous waste.

For each miscellaneous unit for which an operating permit is sought, provide an engineering report which includes all of the information specified in 40 CFR 264.600-264.602, and 270.23.

1. Complete Table V.K - Miscellaneous Units and list the miscellaneous units covered by this application. List the waste managed in each unit and the rated capacity or size of the unit. If the information requested is not applicable, an explanation must be submitted.

2. Provide any other information which is descriptive of the relationship between the miscellaneous unit and the environment. Application information may include design requirements of 30 TAC 305 and 335, 40 CFR Part 264 Subparts I through O, and Part 270 that are appropriate for the miscellaneous unit or portions of the unit being permitted.

3. For a unit which involves combustion, please provide emissions data or a trial burn plan. Tables V.H.1-5 for incinerators or Tables V.I.1-5 for boilers and industrial furnaces may be adapted as appropriate to provide operation, monitoring, and emission information for a miscellaneous combustion unit.

L. Containment Buildings

Complete Table V.L. - Containment Buildings and list the containment buildings covered by this application to be permitted. List the N.O.R. unit number, whether the unit is for storage and/or processing, the waste or debris managed in each unit, the rated capacity of each unit, and the overall dimensions of the unit (including containment wall height) that will be in contact with the waste or debris.

TABLE OF APPENDICES

APPENDIX	TITLE
V.A	General (Table V.A and General Engineering Report)
V.B	Container Storage Areas (Not Applicable)
V.C	Tanks and Tank Systems (Not Applicable)
V.D	Surface Impoundments (Not Applicable)
V.E	Waste Piles (Not Applicable)
V.F	Land Treatment Units (Not Applicable)
V.G	Landfills (Not Applicable)
V.H	Incinerators (Tables V.H.1, V.H.2, and V.H.4, Incinerator IN-701 Engineering Report, Incinerator IN-4702 Engineering Report, Incinerator IN-5100 Engineering Report, and Incinerator IN-5500 Engineering Report)
V.I	Boilers and Industrial Furnaces (Not Applicable)
V.J	Drip Pads (Not Applicable)
V.K	Miscellaneous Units (Not Applicable)
V.L	Containment Buildings (Not Applicable)

Appendix V.A:
GENERAL
(TABLE V.A AND GENERAL ENGINEERING REPORT)

Table V.A. - Facility Waste Management Handling Units

TCEQ Permit Unit No. [1]	Unit Name	NOR No. [1]	Unit Description [2]	Capacity	Unit Status [3]
1	Incinerator IN-701	019	Horizontal, cylindrical, liquid injection incinerator	100 MMBtu/hr	Active
4	Incinerator IN-4702	004	Vertical, cylindrical, down-fired, liquid injection incinerator	100 MMBtu/hr	Active
5	Incinerator IN-5100	089	Vertical, cylindrical, down-fired, liquid injection incinerator	216 MMBtu/hr	Active
6	Incinerator IN-5500	080	Vertical, cylindrical, down-fired, liquid injection incinerator	100 MMBtu/hr	Proposed

[1] Permitted Unit No. and NOR No. cannot be reassigned to new units or used more than once and all units that were in the Attachment D of a previously issued permit must be listed.
[2] Unit Status options: Active, Closed, Inactive (built but not managing waste), Proposed (not yet built), Never Built, Transferred, Post-Closure.
[3] If a unit has been transferred, the applicant should indicate which facility/permit it has been transferred to in the Unit Description column of Table V.A.

BASF

We create chemistry

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

GENERAL ENGINEERING REPORT

MAY 2025

1.0 INTRODUCTION

BASF Corporation (BASF) operates four liquid hazardous waste incinerators at its facility in Freeport, Texas. These units are designated as Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500. These incinerators are the only permitted hazardous waste units at the facility. The incinerators are subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Parts 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerators are also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE.

This general engineering report provides the information required by 40 CFR §§ 270.14(b)(8) and (b)(10). The following sections address prevention of hazards and traffic patterns.

2.0 PREVENTION OF HAZARDS

In accordance with 40 CFR § 270.14(b)(8), this section provides information on the prevention of hazards from the processing and storage areas of the BASF Freeport Site. BASF will use the appropriate procedures, structures, or equipment to prevent the adverse conditions identified in the following sections for the hazardous waste management areas.

2.1 UNLOADING PROCEDURES

There are no unloading procedures associated with the permitted hazardous waste management units. The liquid wastes are collected in their appropriate tanks and are pumped directly to Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, or Incinerator IN-5500. In some cases, the liquid wastes are piped directly from process equipment to the incinerator.

2.2 RUN-OFF

The incinerators are constructed within concrete areas with sumps that collect any liquid, including rainwater and larger spills. Collected liquid is sent to onsite wastewater treatment before being discharged via permitted discharge points.

2.3 WATER SUPPLIES

The likelihood of groundwater contamination resulting from a waste spill is relatively small due to the concrete surfaces referenced above. Also, the small volume of waste subject to potential spillage and the quick response time for such an accident mitigate against the possibility of groundwater contamination.

2.4 Equipment and Power Failure

Any power outages or equipment failure in the waste feed system for Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500 will automatically shut off the waste at the source, thereby preventing waste transfer to these units. Hence, power outages and equipment failure do not present a risk of hazardous waste release from these units.

2.5 Personnel Protection Equipment

During the handling of the liquid wastes, personal protective equipment is worn (if the potential for exposure exists). Personal protective equipment consists of chemical goggles, coveralls (for minimal exposures), impervious suits, gloves, and rubber boots. Chemical resistant gloves are required. If the potential for vapor, mist, or dust generation exists, a properly fitted Mine Safety and Health Administration (MSHA) approved or National Institute for Occupational Safety and Health (NIOSH) approved respirator with appropriate cartridges must be worn. For large spills, tank cleaning, or other confined-space entry, a supplied-air respiratory system is required.

The liquid wastes are managed as flammable liquids. All sources of ignition are excluded when activities that could release flammable vapors are undertaken. Smoking is not permitted within the BASF Freeport Site except in designated areas. ''No Smoking'' signs are posted at all entries to the facility.

2.6 Procedures to Minimize Releases to the Atmosphere

Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500 are operated in accordance with good engineering practices to minimize releases to the atmosphere. The liquid wastes are piped directly from process equipment or appropriate tanks to the incinerators, which minimizes the potential for spills. The combustion chambers are sealed to minimize fugitive emissions.

3.0 Traffic Patterns

In accordance with 40 CFR § 270.14(b)(10), this section provides information on the traffic patterns in and around the hazardous waste management areas at the BASF Freeport Site. Vehicles are restricted from the area of the incinerators. Traffic around the perimeter of the area is restricted to ten miles per hour.

4.0 Figures

The following general maps and figures are included in Attachment A:

- Figure V.A.1 – Facility Plot Plan;
- Figure V.A.2 – 7.5-Minute Topographical Map;
- Figure V.A.3 – FEMA Flood Map;
- Figure V.A.4 – General Land Use Map;

- Figure V.A.5 – Wind Rose;
- Figure V.A.6 – Well Location Map; and
- Figure V.A.7 – Stormwater Drainage System.

Attachment A:
MAPS AND FIGURES

Legend

- BASF Freeport Facility
- Incinerator Locations (4)

N

0 350 700
FEET

1" = 700 FEET
1:8,400

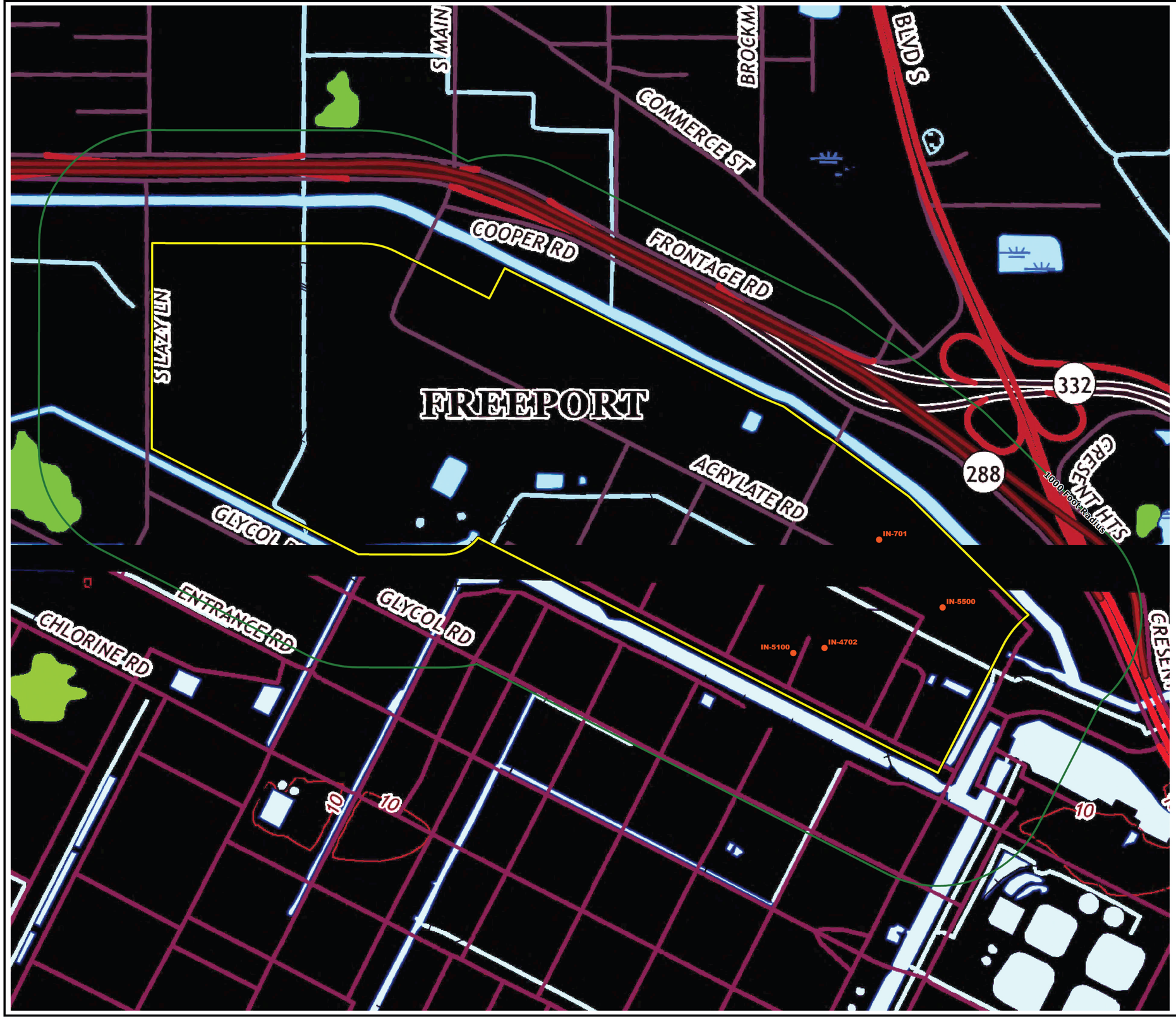
BASF CORPORATION
FREEPORT, TEXAS

FACILITY PLOT PLAN

DRAWN BY:	L WILSON	SCALE:		PROJ. NO.	047-23-06
CHECKED BY:	H MCHALE		AS NOTED	FILE NO.	Plot Plan
APPROVED BY:	H MCHALE	DATE PRINTED:		**FIGURE V.A.1**	
DATE:	March 2025		*3/31/2025*		

Coterie ENVIRONMENTAL
840 First Ave., Suite 400
King of Prussia, PA 19406

J:\Prj\BASF\Freeport Facility\RCRA 2025\BASF GIS.aprx



Legend

- BASF Freeport Facility
- 1000 Foot Radius
- Incinerator Locations (4)

Source:
USGS Topographic Quadrangles 7.5 Minute
Series: Lake Jackson, TX 2022 / Jones Creek, TX 2022

N

0 400 800
FEET

1" = 400 FEET
1:4,800

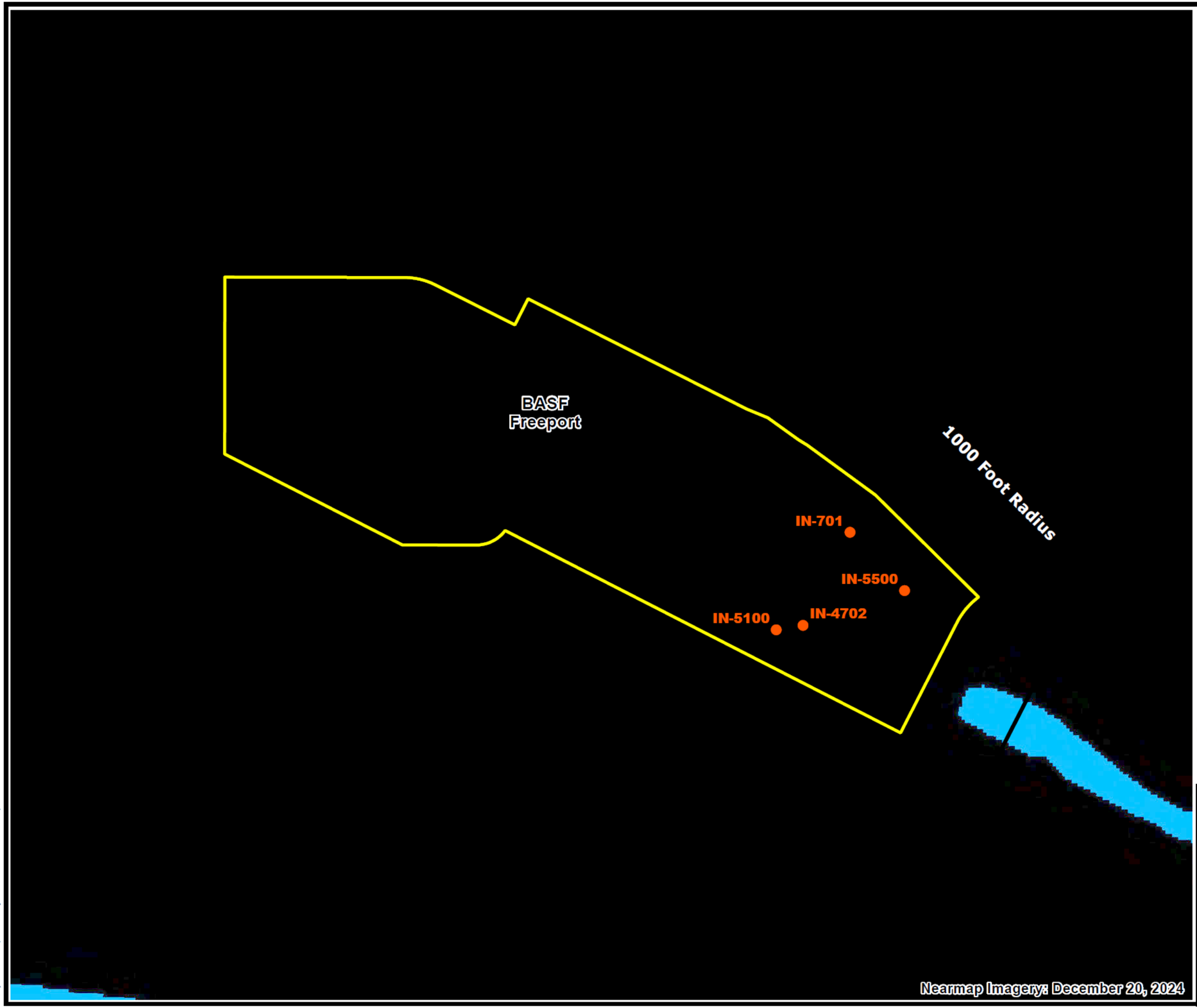
BASF CORPORATION
FREEPORT, TEXAS

USGS 7.5 MINUTE TOPOGRAPHIC MAP

DRAWN BY:	L WILSON	SCALE:		PROJ. NO.	047-23-06
CHECKED BY:	H MCHALE		AS NOTED	FILE NO.	Topo Map
APPROVED BY:	H MCHALE	DATE PRINTED:		**FIGURE V.A.2**	
DATE:	March 2025		*3/31/2025*		

Coterie ENVIRONMENTAL
840 First Ave., Suite 400
King of Prussia, PA 19406

J:\Prj\BASF\Freeport Facility\RCRA 2025\BASF GIS.aprx



Legend

- BASF Freeport Facility
- 1000 Foot Radius
- Incinerator Locations (4)
- 1% Annual Chance Flood Hazard

Flood Zone Data Source:
USA Flood Hazard Areas, derived from
Flood Insurance Rate Map (December 18, 2024)

N

0 500 1,000
FEET

1" = 1,000 FEET
1:12,000

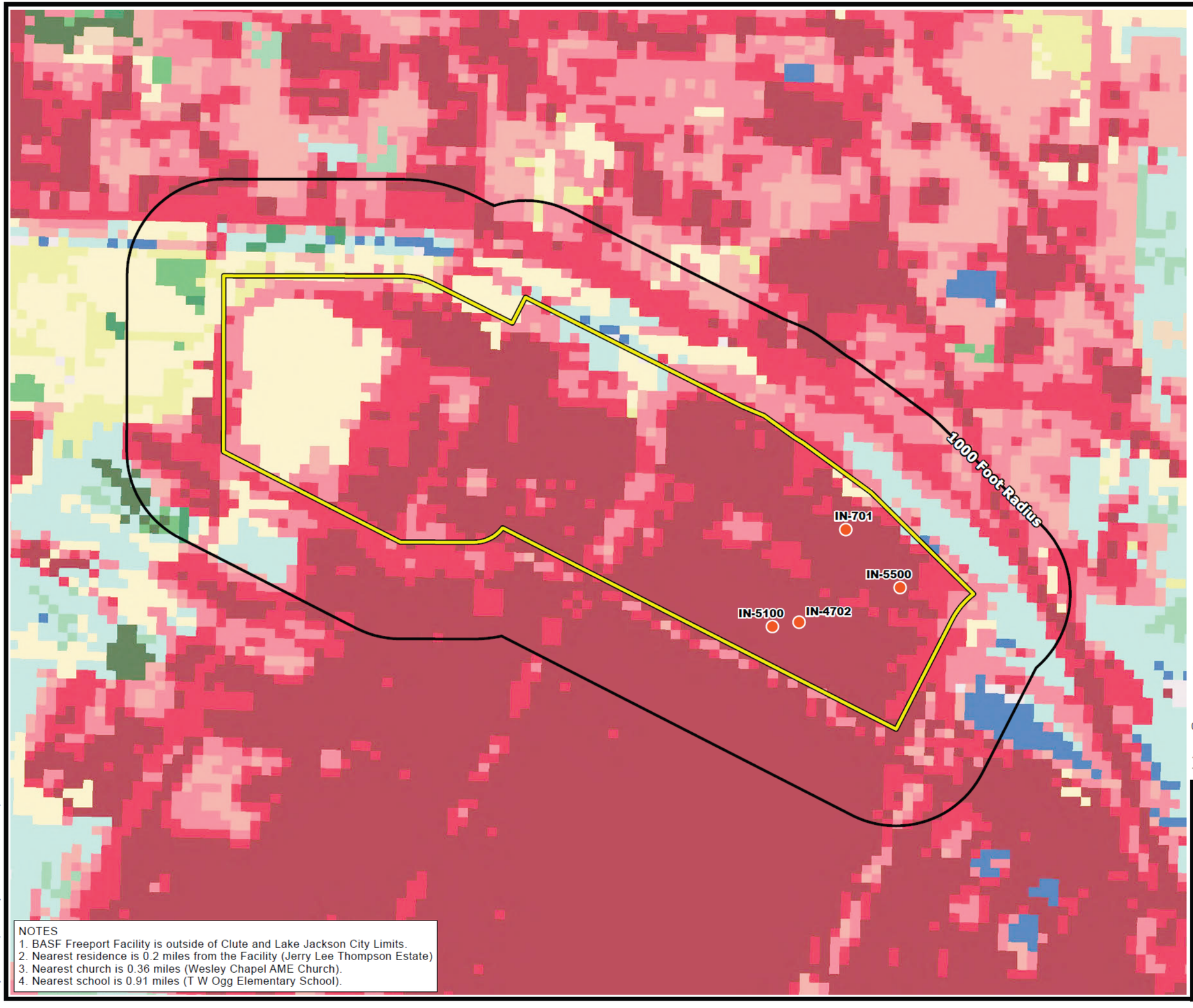
BASF CORPORATION
FREEPORT, TEXAS

FEMA FLOOD MAP

DRAWN BY:	L WILSON	SCALE:		PROJ. NO.	047-23-06
CHECKED BY:	H MCHALE		AS NOTED	FILE NO.	FEMA Flood
APPROVED BY:	H MCHALE	DATE PRINTED:		**FIGURE V.A.3**	
DATE:	March 2025	*3/28/2025*			

Coterie ENVIRONMENTAL
840 First Ave., Suite 400
King of Prussia, PA 19406

J:\Prj\BASF\Freeport Facility\RCRA 2025\BASF GIS.aprx



NOTES
1. BASF Freeport Facility is outside of Clute and Lake Jackson City Limits.
2. Nearest residence is 0.2 miles from the Facility (Jerry Lee Thompson Estate)
3. Nearest church is 0.36 miles (Wesley Chapel AME Church).
4. Nearest school is 0.91 miles (T W Ogg Elementary School).

Legend

- BASF Freeport Facility
- 1000 Foot Radius
- Incinerator Locations (4)

USA NLCD Land Cover

- Barren Land
- Deciduous Forest
- Developed High Intensity
- Developed Low Intensity
- Developed Medium Intensity
- Developed Open Space
- Emergent Herbaceous Wetlands
- Evergreen Forest
- Grassland/Herbaceous
- Mixed Forest
- Open Water
- Pasture/Hay
- Shrub/Scrub
- Woody Wetlands

Data Source:

National Land Cover Database (NLCD) updated November 15, 2023

0 500 1,000 FEET

1" = 1,000 FEET
1:12,000

BASF CORPORATION
FREEPORT, TEXAS

GENERAL LAND USE MAP

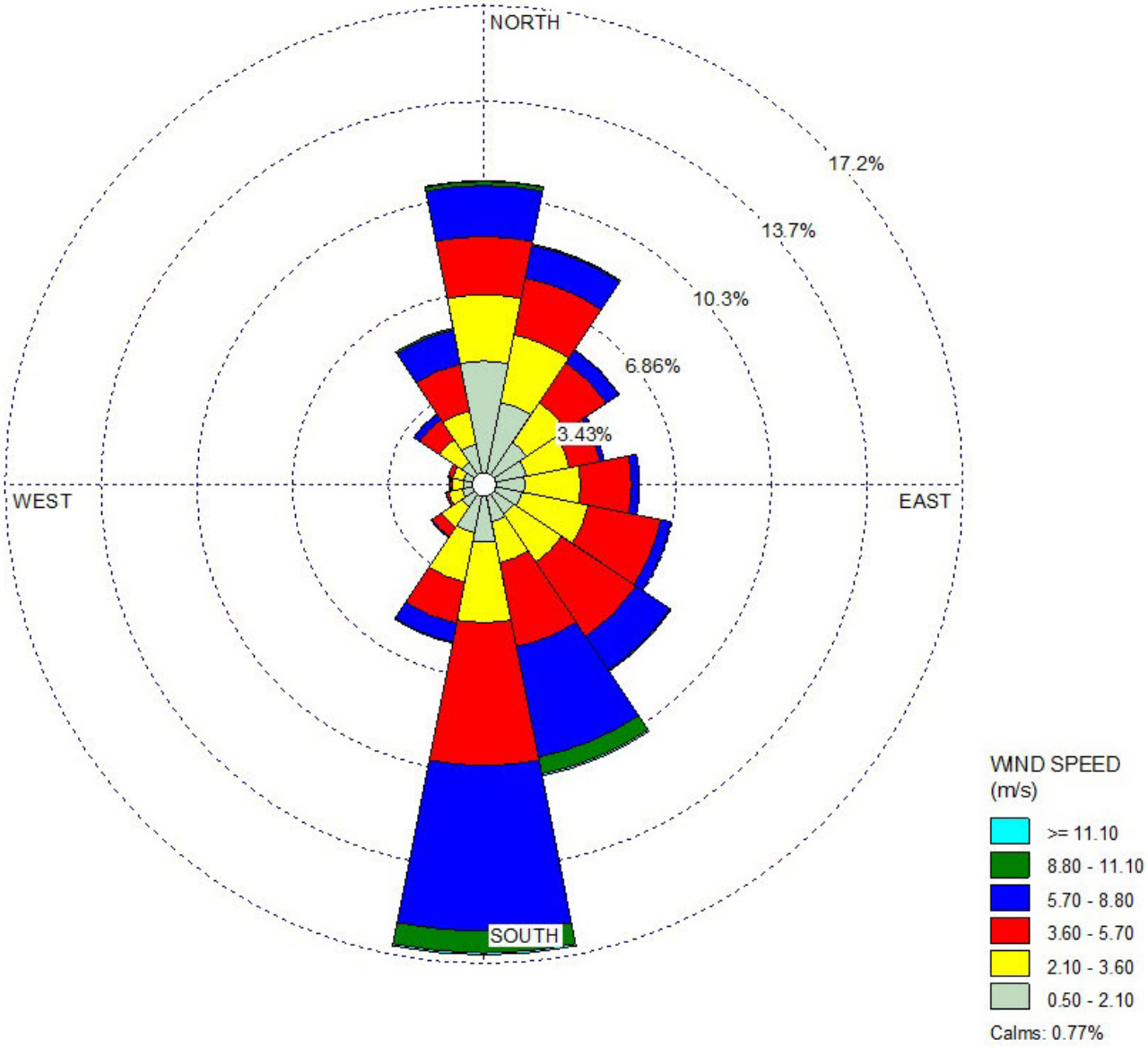
DRAWN BY:	L WILSON	SCALE:	PROJ. NO. 047-23-06
CHECKED BY:	H MCHALE	AS NOTED	FILE NO. General Land Use
APPROVED BY:	H MCHALE	DATE PRINTED: 3/31/2025	**FIGURE V.A.4**
DATE:	March 2025		

Coterie ENVIRONMENTAL
840 First Ave., Suite 400
King of Prussia, PA 19406

J:\Prj\BASF\Freeport Facility\RCRA 2025\BASF GIS aprx

WIND ROSE PLOT:
Station #12976

DISPLAY:
Wind Speed
Direction (blowing from)



DATA PERIOD:
Start Date: 1/1/2027 – 00:00
End Date: 12/31/2021 – 23:59

CALM WINDS:
0.77%

AVG. WIND SPEED:
3.78 m/s

TOTAL COUNT:
43449 hrs.

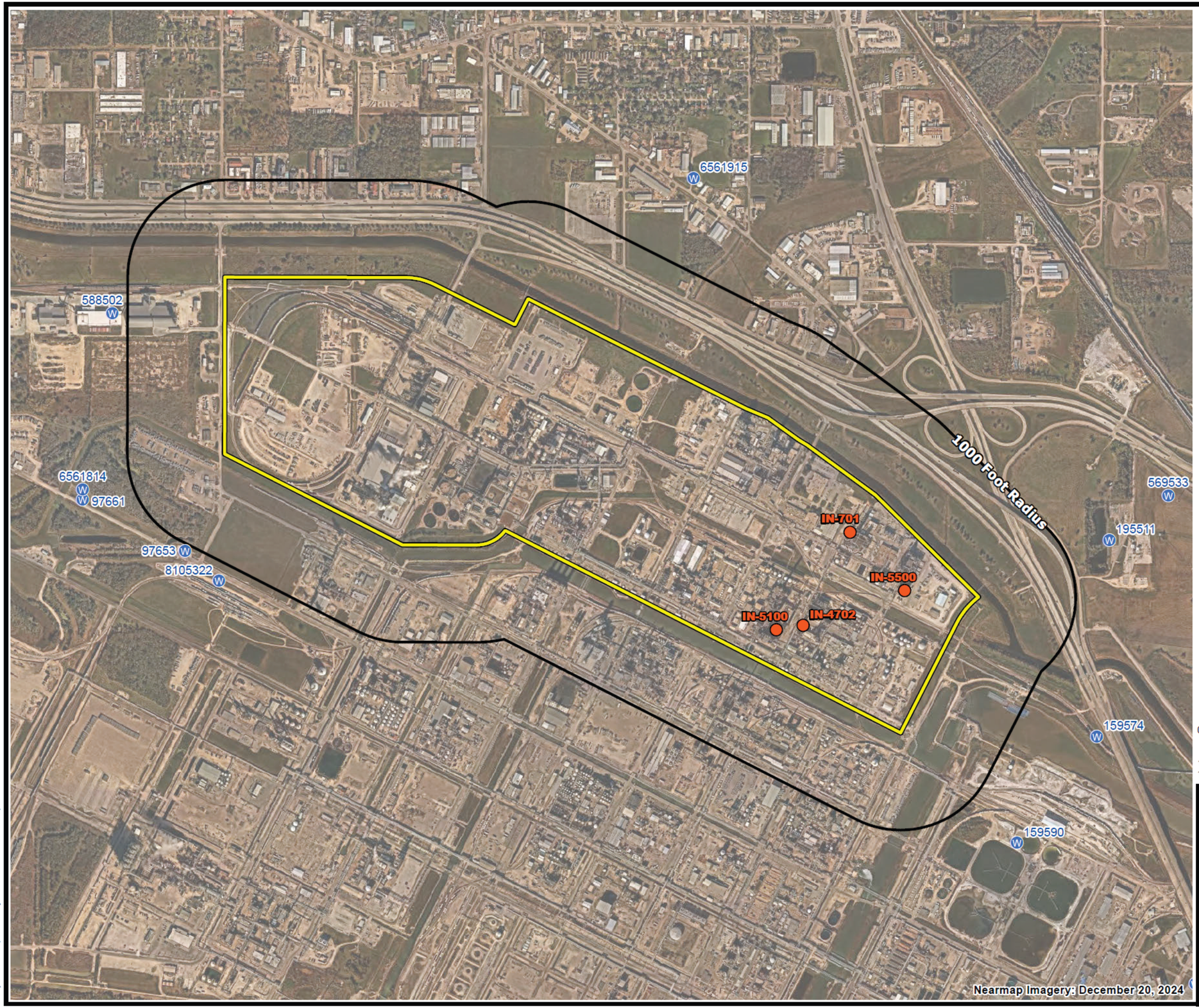
BASF CORPORATION
FREEPORT, TEXAS

WIND ROSE

NOTES:
WRPLOT View –
Lakes Environmental Software

FIGURE V.A.1.5

Coterie ENVIRONMENTAL
840 First Ave., Suite 400
King of Prussia, PA 19406



Legend

- BASF Freeport Facility
- 1000 Foot Radius
- Incinerator Locations (4)

TWDB Water Well ID#

- Domestic / Public Supply

Data Source:

TWDB Wells - Texas Water Development Board GIS Database (February 2025)

0 500 1,000 FEET

1" = 1,000 FEET
1:12,000

BASF CORPORATION
FREEPORT, TEXAS

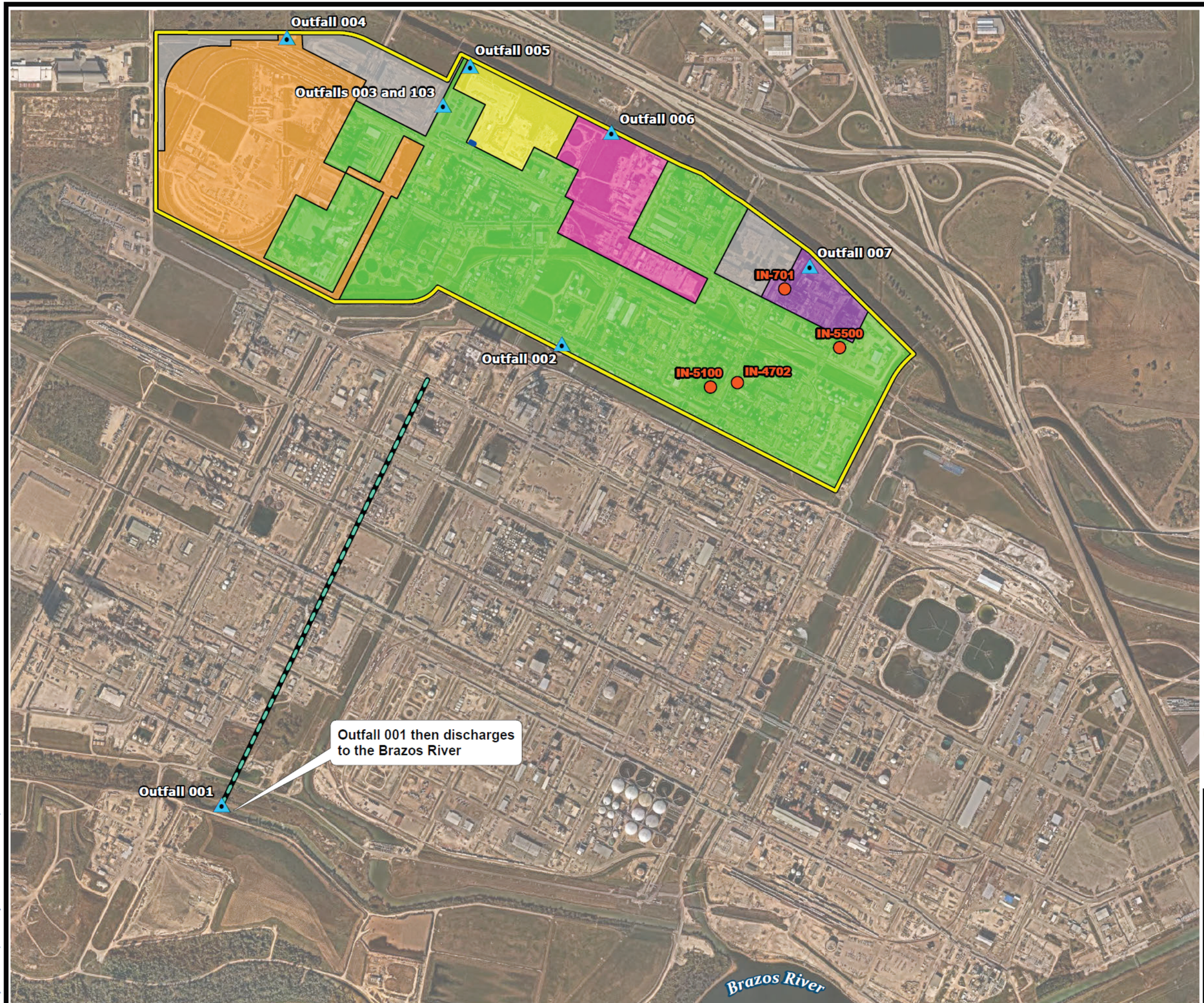
WATER WELL LOCATION MAP

DRAWN BY:	L WILSON	SCALE:		PROJ. NO.	047-23-06
CHECKED BY:	H MCHALE	AS NOTED		FILE NO.	Water Well Location
APPROVED BY:	H MCHALE	DATE PRINTED:		**FIGURE V.A.6**	
DATE:	March 2025	*3/31/2025*			

Coterie ENVIRONMENTAL

840 First Ave., Suite 400
King of Prussia, PA 19406

J:\Prj\BASF\Freeport Facility\RCRA 2025\BASF GIS.aprx



Legend

- BASF Freeport Facility
- Incinerator Locations (4)
- Outfall Locations
- Discharge Pipeline

Drainage Areas

- Sump Pumps to Outfall 003
- Drains to Outfall 003*
- Drains to Outfall 004
- Drains to Outfall 005
- Drains to Outfall 006
- Drains to Outfall 007
- External Parking, Offices, and Undeveloped Areas

*May also drain to Outfalls 002, 006 and 007

Source:
Outfall Locations and Drainage Areas digitized from DOS File W0117FRE:G2FRE003.FRE.pdf, revised 08-17-18

0 500 1,000 FEET

1" = 1,000 FEET
1:12,000

BASF CORPORATION
FREEPORT, TEXAS

STORMWATER DRAINAGE SYSTEM

DRAWN BY:	L WILSON	SCALE:		PROJ. NO.	047-23-06
CHECKED BY:	H MCHALE		AS NOTED	FILE NO.	Stormwater Drainage System
APPROVED BY:	H MCHALE	DATE PRINTED:		**FIGURE V.A.7**	
DATE:	May 2025		*5/12/2025*		

Coterie ENVIRONMENTAL
840 First Ave., Suite 400
King of Prussia, PA 19406

J:\Prj\BASF\Freeport Facility\RCRA 2025\BASF GIS.aprx

Appendix V.H:

INCINERATORS (TABLES V.H.1, V.H.2, AND V.H.4, INCINERATOR IN-701 ENGINEERING REPORT, INCINERATOR IN-4702 ENGINEERING REPORT, INCINERATOR IN-5100 ENGINEERING REPORT, AND INCINERATOR IN-5500 ENGINEERING REPORT)

Table V.H.1. - Incinerators

Permit Unit No. *	Incinerators	N.O.R No.	Waste Nos. [1]	Waste Physical Form (Pumpable or Non-Pumpable)	Reactive, Incompatible, or F020, F021, F022, F023, F026, or F027 Waste	Unit Status
1	Incinerator IN-701	019	1, 6	Pumpable	No	Active
4	Incinerator IN-4702	004	2, 3, 7, 8, 9	Pumpable	No	Active
5	Incinerator IN-5100	089	4, 5, 10	Pumpable	No	Active
6	Incinerator IN-5500	080	1, 6	Pumpable	No	Proposed

[1] From the first column of Table IV.B.

* If the unit is already permitted, use the established "Permit Unit No." If the unit is not yet permitted, the number given here for the unit will become the "Permit Unit No." The numbers should be in an order that will be convenient for the facility operator.

Table V.H.2. - Incinerator Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems

Parameter	Monitoring Basis [1]	Monitoring Device	Device Location	Permit Limit	Primary Combustion Chamber AWFCO Y/N [2]	Secondary Combustion Chamber AWFCO Y/N [2]
Operating Parameters						
Maximum Total Hazardous Waste Feed Rate [*Additional hazardous waste feed limits shall be added as determined necessary based upon feed mechanism and/ or waste-specific needs]*	Not applicable					
Maximum Total Pumpable Hazardous Waste Mass Feed Rate [*Not applicable for Tier I or Tier I adjusted metals control limits*]	Not applicable					
Minimum Primary Combustion Chamber Temperature	Not applicable					
Minimum Secondary Combustion Chamber Temperature	Not applicable					
Maximum Secondary and/or Primary Combustion Chamber Temperature [Include if using Tier II, III metals controls only]	Not applicable					
Maximum Flue Gas Temperature at PM Control Device Inlet [Tier II and Tier III Metals only as applicable]	Not applicable					

Parameter	Monitoring Basis [1]	Monitoring Device	Device Location	Permit Limit	Primary Combustion Chamber AWFCO Y/N [2]	Secondary Combustion Chamber AWFCO Y/N [2]
Maximum Combustion Gas Velocity Indicator [*If condition is something other than "maximum combustion gas velocity", write specific name of condition*]	**For Incinerator IN-4702**: Maximum total combustion air flow rate Continuous, hourly rolling average	Primary: averaging velocity element and differential pressure transmitter Secondary: thermal mass flow meter	Primary and secondary air inlet ducts	23 kscfm	Yes	Not applicable
Atomization parameters [*as necessary]*	Not applicable					
Feed Rates: (Metals, Total Chlorine, and Ash)	**For Incinerator IN-4702**: Maximum ash feed rate Continuous, 12-hour rolling average	Periodic waste analyses and coriolis mass flow meters	Waste feed lines	7.5 lb/hr	Yes	Not applicable
Secondary Combustion Zone Pressure [*or other method for fugitives monitoring*]	Not applicable					
Primary Combustion Zone Pressure [*or other method for fugitives monitoring*]	Not applicable					
Stack Oxygen	Not applicable					
Stack CO	Not applicable					
Stack THC [*If specified in the permit*]	Not applicable					

Parameter	Monitoring Basis [1]	Monitoring Device	Device Location	Permit Limit	Primary Combustion Chamber AWFCO Y/N [2]	Secondary Combustion Chamber AWFCO Y/N [2]
APCD Parameters						
Pressure drop across Baghouse *[or fabric filter]*	Not applicable					
[Wet Scrubbers:]						
Ionizing Wet Scrubber minimum voltage	Not applicable					
Minimum liquid to flue gas ratio (L/G)	Not applicable					
Minimum scrubber blowdown	Not applicable					
Minimum scrubber water pH	Not applicable					
[Venturi Scrubbers:]						
Venturi scrubber minimum liquid to gas ratio (L/G)	Not applicable					
Minimum differential gas pressure across venturi scrubber	Not applicable					
[Dry Scrubbers:]						
Minimum alkaline reagent *[insert name of reagent here, such as lime]* flow to the dry scrubber	Not applicable					
Maximum flue gas flow rate	Not applicable					

Parameter	Monitoring Basis [1]	Monitoring Device	Device Location	Permit Limit	Primary Combustion Chamber AWFCO Y/N [2]	Secondary Combustion Chamber AWFCO Y/N [2]
[Absorbers:]						
Absorber minimum pH of incoming liquid	Not applicable					
Absorber minimum liquid to gas ratio (L/G)	Not applicable					
Other Air Pollution Control Devices permit conditions as necessary	Not applicable					

[1] Instantaneous as defined in 40 CFR 266.102(e)(6)(i)(A) shall mean a value which occurs at any time. A value shall be determined by the monitoring device no less than every 15 seconds. Continuous monitor is one which continuously samples or measures the regulated parameter without interruption, and evaluates the detector response at least once each 15 seconds, and computes and records the average value at least every 60 seconds. Hourly Rolling Average (HRA) as defined in 40 CFR 266.102(e)(6)(i)(B). -For carcinogenic metals and lead feed rates: Instantaneous as defined above or, rolling average as defined in 40 CFR 266.102(e)(6)(ii).
[2] AWFCO: Automatic Waste Feed Cutoff. For AWFCOs indicated by "Y", the Permit Limit in the table triggers an AWFCO.
[3] The respective specific gravity and constituent concentration of each stream associated with a volumetric rate must be known to determine the mass feed rate.

Table V.H.4. - Maximum Allowable Emission Rates
[Use a table for each operating mode as applicable)

Carcinogenic Constituent	Compliance Tier	Maximum Allowable Emission Rate [1]	Units [2]
Arsenic	Not applicable	Not applicable	g/hr
Beryllium	Not applicable	Not applicable	g/hr
Cadmium	Not applicable	Not applicable	g/hr
Chromium, Total	Not applicable	Not applicable	g/hr
Non-Carcinogenic Constituent	Compliance Tier	Maximum Allowable Emission Rate [1]	Units [2]
Antimony	Not applicable	Not applicable	g/hr
Barium	Not applicable	Not applicable	g/hr
Lead	Not applicable	Not applicable	g/hr
Mercury	Not applicable	Not applicable	g/hr
Silver	Not applicable	Not applicable	g/hr
Thallium	Not applicable	Not applicable	g/hr
Hydrogen Chloride	Not applicable	Not applicable	g/hr
Free Chlorine	Not applicable	Not applicable	g/hr
Particulate Matter	Not applicable	**For Incinerator IN-4702**: 0.08	gr/dscf

[1] Not applicable for Tier I or Tier I adjusted feed rate screening limits.
[2] g/hr denotes grams per hour. Grains/dscf denotes grains per dry standard cubic foot (standard conditions: 760 mm Hg, 68 °F) after correction to a stack gas concentration of 7% oxygen.

Note: Site-specific dispersion modeling factor x.xxx [*insert dispersion factor for Tier III as applicable*] micrograms per cubic meter per grams per second emission rate.

BASF

We create chemistry

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

INCINERATOR IN-701 ENGINEERING REPORT

MAY 2025

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

BASF Corporation (BASF) operates a liquid hazardous waste incinerator, designated as Incinerator IN-701, at its facility in Freeport, Texas. Incinerator IN-701 is subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Parts 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerator is also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE.

40 CFR § 270.19 requires that BASF submit information about Incinerator IN-701 with this permit application to demonstrate compliance with the standards contained in 40 CFR §§ 264.340 thru 351. However, pursuant to 40 CFR §§ 264.340(b) and 270.62, all waste analysis, performance standards, operating requirements, monitoring requirements, and inspection requirements do not apply to Incinerator IN-701 once BASF demonstrates compliance with the HWC NESHAP and submits the Notification of Compliance. BASF completed this process in 2005. The Texas Commission on Environmental Quality (TCEQ) issued a Finding of Compliance for the incinerator in 2005. Accordingly, most of the information specified by 40 CFR § 270.19 is no longer applicable. Details related to operation and design of the incinerator and associated equipment are now addressed under the Clean Air Act's HWC NESHAP.

The remaining sections of this report provide the following information:

- Section 2.0 describes the incinerator equipment;
- Section 3.0 discusses the continuous monitoring systems (CMS);
- Section 4.0 discusses the Part B Section V application tables;
- Section 5.0 discusses special waste considerations; and
- Section 6.0 addresses startup, shutdown, and malfunction requirements.

2.0 EQUIPMENT DESCRIPTION

Incinerator IN-701 is a liquid injection incinerator. The incinerator is a horizontal, cylindrical, self-supporting unit designed for forced draft operation. The incinerator is equipped with heat recovery for steam production. There is no air pollution control equipment installed on the unit because control is not necessary to comply with the applicable performance standards. The unit has been designed to process non-hazardous and hazardous liquid waste and process vent gas up to a capacity of 100 million British thermal units per hour (MMBtu/hr).

Table 1 provides information on the Incinerator IN-701 design. Figure 1 provides a general process schematic diagram of Incinerator IN-701. Process and instrumentation diagrams (P&IDs) are provided in Section XIII. These figures have been identified as confidential information.

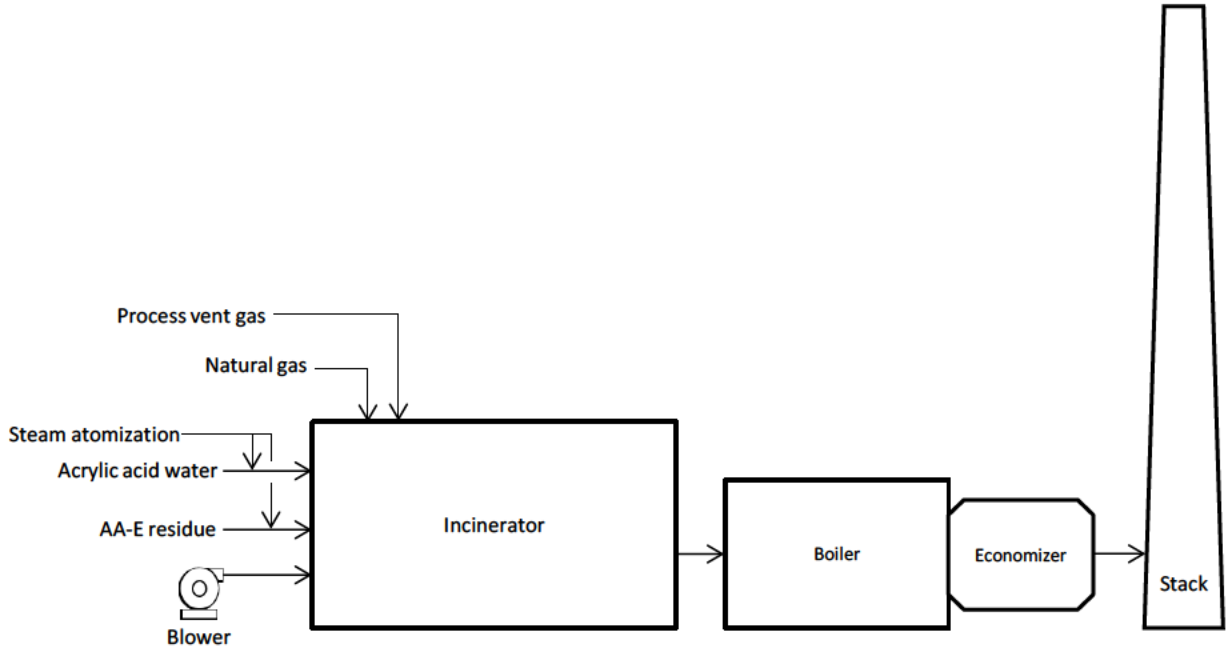
TABLE 1
INCINERATOR IN-701 DESIGN INFORMATION

ITEM	DESCRIPTION
Manufacturer's name and model number of incinerator	The incinerator was designed and was manufactured by the John Zink Company of Tulsa, Oklahoma. The incinerator was custom designed and does not have a model number.
Type of incinerator	The incinerator is a liquid injection type incinerator. It is a horizontal, cylindrical, down-fired, self-supporting unit designed for forced draft operation.
Linear dimension of incinerator unit including cross sectional area of combustion chamber	The incinerator precombustion chamber is approximately 7.5 feet in length, and the main combustion chamber is approximately 35 feet in length. The combustion chamber has a cross-section of approximately 133 square feet at the widest section.
Description of auxiliary fuel system (type/feed)	Natural gas is fired through the burner to heat the system to its design operating temperature and to maintain the combustion zone temperature during normal operations. The burner is designed for a total heat release of 70 MMBtu/hr.
Nozzle and burner design	The burner system is located in a horizontal orientation on the front of the chamber. The burner assembly includes a steam-atomized gun to fire non-hazardous residues. The acrylic acid water is fed to the incinerator through multiple steam-atomized guns located downstream of the burner. Vent gases are introduced immediately downstream of the burner.
Capacity of prime mover	The combustion air fan supplies a maximum of 30,000 actual cubic feet per minute (acfm) at 16 inches water column (in. w.c.). The fan is driven by a 1,780 revolutions per minute (rpm), 150-horsepower (hp) motor.
Description of automatic waste feed cutoff system(s)	The automatic waste feed cutoff system is operated to comply with the HWC NESHAP. There are no cutoffs associated with the RCRA permit.
Stack gas monitoring and pollution control monitoring system	The stack is equipped with a continuous emissions monitoring systems (CEMS) to monitor carbon monoxide (CO) and oxygen. These CEMS are designed and operated to comply with the requirements of the HWC NESHAP. The CEMS are not required for compliance with the RCRA permit.

TABLE 1 (CONTINUED)
INCINERATOR IN-701 DESIGN INFORMATION

ITEM	DESCRIPTION
Construction materials	The incinerator is constructed of carbon steel. The combustion chamber is lined with 18 inches of refractory material.
Location and description of temperature, pressure, and flow indicating devices and control devices	Combustion chamber temperature, stack gas flow rate, total hazardous waste feed rate, and atomizing fluid pressure are monitored to comply with the HWC NESHAP. No process monitors are required for compliance with the RCRA permit. The combustion chamber temperature monitor is located in the transition duct between the combustion chamber and the waste heat boiler. The stack gas flow rate monitor is located in the stack. The hazardous waste feed rate monitor is located in the feed line of the acrylic acid water prior to the steam-atomized guns. The atomizing fluid pressure is monitored in the steam line to the acrylic acid water feed line.

FIGURE 1
INCINERATOR IN-701 PROCESS SCHEMATIC



2.1 FEEDSTREAMS

Acrylic acid water (TCEQ No. 1503-105H) carries the 40 CFR Part 261 hazardous waste numbers of D002 (corrosivity) and D018 (benzene). This waste is produced within the Acrylic Acid production areas. This waste is fed to Incinerators IN-701 and IN-5500 in on-line configurations and is not allowed to accumulate.

AA-E residue is a non-hazardous liquid waste stream that is generated within the Acrylic Acid production areas. The waste stream is stored in Tank D-412 and is fed to Incinerator IN-701 in a batch mode.

In addition to the liquid wastes, BASF feeds process vent gas to Incinerator IN-701. The process vent gas streams are identified as the AA-E2 off-gas, the vacuum vent off-gas, and the nitrogen vent off-gas. The process vent gas is predominantly nitrogen with some organic content.

Natural gas is also used as auxiliary fuel during startup and to control temperatures in the incinerator.

2.2 Air Pollution Control

The incinerator is not equipped with any air pollution control device.

2.3 Stack

The exhaust stack of Incinerator IN-701 is approximately 200 feet above grade. The stack is ten feet in diameter at the base and reduces to seven feet in diameter at the top. The stack is equipped with ports suitable for proper isokinetic sampling.

2.4 Secondary Containment

The incinerator is set on a concrete pad. The concrete paving is sloped to concrete drainage ditches that drain to concrete sumps. The slopes of the concrete are adequate to provide proper drainage. In the event of a spill, the containment area is washed down to the drainage system. The contaminated water is then collected by vacuum truck and disposed of appropriately.

3.0 CONTINUOUS MONITORING SYSTEMS

Incinerator IN-701 is equipped with CMS, including continuous parameter monitoring systems (CPMS) and continuous emissions monitoring systems (CEMS). These CMS enable the facility to maintain safe operation of the incinerators in compliance with the HWC NESHAP operating parameter limits (OPLs).

The data measured by the CMS is recorded in the facility operating records. System operations are monitored with process controllers which then transmit the process conditions to the distributed control system (DCS).

3.1 CONTINUOUS PARAMETER MONITORING SYSTEMS

Various CPMS are required for the incinerator to document compliance with the applicable HWC NESHAP OPLs. Table 2 presents a summary of the CPMS for Incinerator IN-701.

TABLE 2
INCINERATOR IN-701 CONTINUOUS PARAMETER MONITORING SYSTEMS

TAG NO.	MEASURED PARAMETER	INSTRUMENT DESCRIPTION
T-7051, T-7052, T-7053	Combustion chamber temperature	Type K thermocouples
F-7073, F-7074	Stack gas flow rate	Annubar and differential pressure transmitter
F-1105	Acrylic acid water feed rate	Orifice plate and differential pressure transmitter
F-7062	AA-E residue feed rate	Coriolis mass flow meter
P-7055	Atomizing fluid pressure for acrylic acid water	Pressure transmitter

3.2 CONTINUOUS EMISSIONS MONITORING SYSTEMS

BASF monitors the concentrations of carbon monoxide (CO) and oxygen in the stack gas of the incinerator to comply with the HWC NESHAP. BASF utilizes non-dispersive infrared (NDIR) analyzers to continuously monitor CO concentration in the stack gas for the incinerator. The analyzer is a dual range design with a span of zero to 200 parts per million by volume on a dry basis (ppmv dry) for the low range and a span of zero to 3,000 ppmv dry span for the high range. The oxygen analyzer that is used to correct CO emission concentrations to seven percent oxygen is a paramagnetic analyzer. The analyzer has a span of zero to 25 percent oxygen by volume on a dry basis. BASF also utilizes a backup CEMS that consists of the same instruments as the primary unit.

3.3 AUTOMATIC WASTE FEED CUTOFF SYSTEMS

BASF operates the incinerator with an automatic waste feed cutoff (AWFCO) system that immediately and automatically cut off the hazardous waste feed to the incinerator when operating conditions deviate from those established in the HWC NESHAP.

3.4 EMERGENCY SHUTDOWN SYSTEMS

Emergency shutdown features are included to protect the equipment in the event of a malfunction. During an emergency shutdown, all waste feeds and fuel feeds are stopped. The trigger points for an emergency shutdown have been set independent of regulatory test conditions. These limits are based on equipment design and operating specifications and are considered good operating practices. For example, the following conditions will trigger a stop of all feeds to the incinerator:

- Low fuel gas pressure;
- High fuel gas pressure;
- Low combustion air flow rate;
- Low combustion air pressure;
- High combustion chamber temperature;
- Flame failure;
- Forced draft fan failure;
- Steam drum low water level;
- Superheated steam high pressure; and
- Superheated steam high temperature.

4.0 APPLICATION TABLES

Section V of the Part B application includes several tables intended to define the operating conditions of the incinerators. The following tables are included in Section V for Incinerator IN-701:

- Table V.H.1., *Incinerators* – This table lists the incinerators included in the permit. This table is applicable to the BASF Freeport Site and has been included in the permit application.
- Table V.H.2., *Incinerator Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems* – This table establishes operating conditions for an incinerator. This table is not applicable to Incinerator IN-701 because the HWC NESHAP Finding of Compliance has been issued.
- Table V.H.3., *Maximum Constituent Feed Rates* – This table establishes constituent feed rate limits for an incinerator. This table is not applicable to Incinerator IN-701 because the HWC NESHAP Finding of Compliance has been issued.
- Table V.H.4., *Maximum Allowable Emission Rates* – This table establishes emission rate limits for an incinerator. This table is not applicable to IN-701 because the HWC NESHAP Finding of Compliance has been issued.
- Table V.H.5., *Incinerator Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems – Short-Term Operation* – This table establishes operating limits for shakedown and trial burn periods for a new incinerator. Incinerator IN-701 is an existing incinerator. This table is not applicable to Incinerator IN-701.
- Table V.H.8., *Principal Organic Hazardous Constituents* – This table establishes the principal organic hazardous constituent (POHCs) to be used for the destruction and removal efficiency (DRE) demonstration during a trial burn. Trial burns are no longer applicable to the incinerator because HWC NESHAP comprehensive performance tests (CPTs) are performed and the HWC NESHAP Finding of Compliance has been issued. This table is not applicable to Incinerator IN-701.

5.0 SPECIAL WASTE CONSIDERATIONS

This section addresses special considerations for wastes managed in the incinerator.

5.1 REACTIVE OR INCOMPATIBLE WASTE

Incinerator IN-701 does not manage reactive or incompatible wastes.

5.2 DIOXIN WASTES

Incinerator IN-701 does not manage F020, F021, F022, F023, F026, and F027 wastes.

5.3 PRECAUTIONS FOR IGNITION OR REACTION

Precautions to prevent the ignition or reaction of wastes are based on normal plant safety protocol and specific hazardous waste area operations. Hazardous waste is hard-piped directly from the process to the incinerator's combustion chamber. There is no exposure to the atmosphere and therefore no potential for ignition or reaction.

6.0 STARTUP, SHUTDOWN, AND MALFUNCTION

BASF maintains and operates in accordance with an HWC NESHAP startup, shutdown, and malfunction plan for the incinerator. The plan states that BASF intends to utilize the option under 40 CFR § 270.235(a)(1)(iii) to not include permit conditions that address startup, shutdown, and malfunction events in the RCRA permit. As such, the HWC NESHAP startup, shutdown, and malfunction plan for the incinerators has been submitted for review and approval. In the event that the startup, shutdown, and malfunction plan has not been approved prior to issuing this permit renewal, we offer the following alternative for addressing startup, shutdown, and malfunction events in the permit.

As described in the HWC NESHAP startup, shutdown, and malfunction plan, BASF minimizes emissions from startup, shutdown, and malfunction events by not feeding hazardous waste during these time periods. No hazardous waste shall be fed to the incinerator during startup, shutdown, or malfunction event. During a malfunction event, if an exceedance of any HWC NESHAP OPLs occurs, hazardous waste feed to the incinerator must be ceased immediately by activating the AWFCO system. When a malfunction is not associated with an OPL and related AFWCO system, the hazardous waste feed to the incinerator shall be ceased as quickly as possible.

BASF believes that these waste feed restrictions adequately address emissions from startup, shutdown, and malfunction events.

BASF

We create chemistry

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

INCINERATOR IN-4702 ENGINEERING REPORT

MAY 2025

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

BASF Corporation (BASF) operates a liquid hazardous waste incinerator, designated as Incinerator IN-4702, at its facility in Freeport, Texas. Incinerator IN-4702 is subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Parts 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerator is also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE.

40 CFR § 270.19 requires that BASF submit information about Incinerator IN-4702 with this permit application to demonstrate compliance with the standards contained in 40 CFR §§ 264.340 thru 351. However, pursuant to 40 CFR §§ 264.340(b) and 270.62, all waste analysis, performance standards, operating requirements, monitoring requirements, and inspection requirements do not apply to a hazardous waste incineration unit that becomes subject to RCRA permit requirements after October 12, 2005. Incinerator IN-4702 was initially permitted under RCRA in 2016. Accordingly, most of the information specified by 40 CFR § 270.19 is not applicable. Details related to operation and design of the incinerator and associated equipment are addressed under the Clean Air Act's HWC NESHAP.

BASF has chosen to comply with the alternative metals emission control requirements of 40 CFR § 63.1219(e) for Incinerator IN-4702. Therefore, the incinerator is subject to the particulate matter (PM) performance standard of 40 CFR § 264.343(c). Information pertaining to compliance with the PM performance standard is provided in this report.

The remaining sections of this report provide the following information:

- Section 2.0 describes the incinerator equipment;
- Section 3.0 discusses the continuous monitoring systems (CMS);
- Section 4.0 discusses the Part B Section V application tables;
- Section 5.0 discusses special waste considerations; and
- Section 6.0 addresses startup, shutdown, and malfunction requirements.

2.0 EQUIPMENT DESCRIPTION

Incinerator IN-4702 is a liquid injection incinerator. The incinerator is a custom designed vertical, cylindrical, down-fired, self-supporting unit designed for forced draft operation. The incinerator is equipped with heat recovery for steam production. There is no air pollution control equipment installed on the unit because control is not necessary to comply with the applicable performance standards. The unit has been designed to process non-hazardous and hazardous liquid waste and process vent gas up to a capacity of 100 million British thermal units per hour (MMBtu/hr).

Table 1 provides information on the Incinerator IN-4702 design. Figure 1 provides a general process schematic diagram of Incinerator IN-4702. Process and instrumentation diagrams (P&IDs) are provided in Section XIII. These figures have been identified as confidential information.

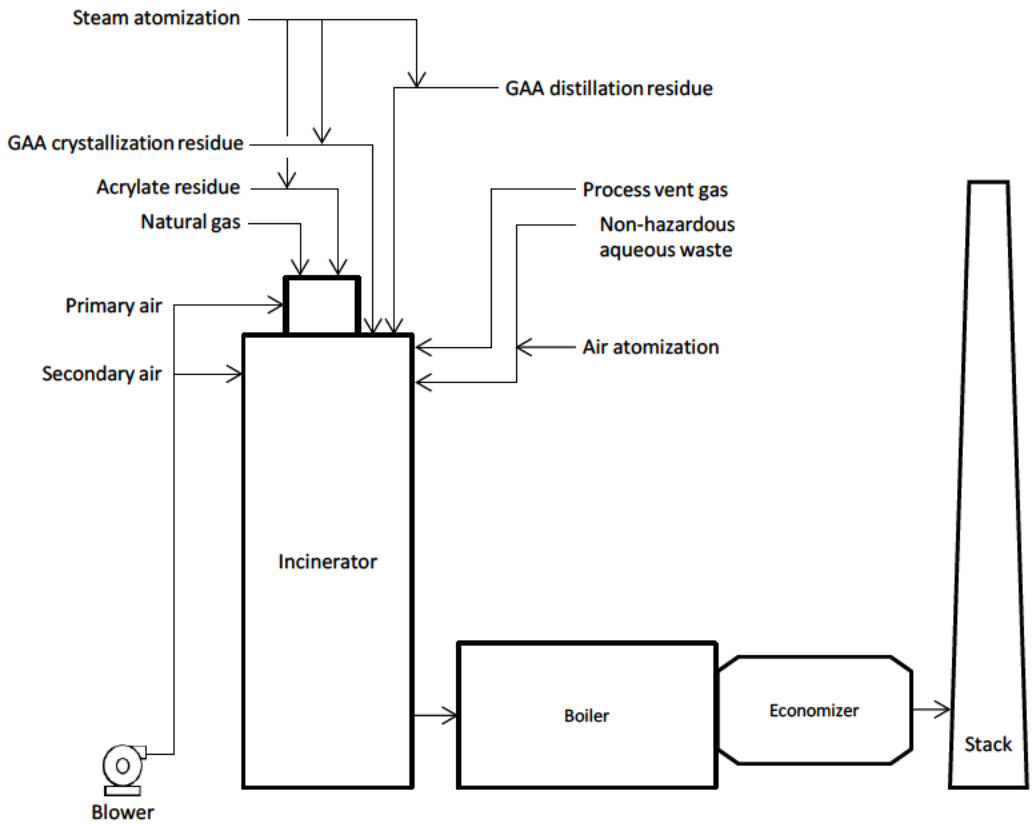
TABLE 1
INCINERATOR IN-4702 DESIGN INFORMATION

ITEM	DESCRIPTION
Manufacturer's name and model number of incinerator	The incinerator was designed by Callidus Technologies, Inc., of Tulsa, Oklahoma. The incinerator was custom designed and does not have a model number.
Type of incinerator	The incinerator is a liquid injection type incinerator. It is a vertical, cylindrical, down-fired, self-supporting unit designed for forced draft operation.
Linear dimension of incinerator unit including cross sectional area of combustion chamber	The combustion chamber is 67 feet tall with a 12.5-foot outer diameter and is lined with 18 inches of refractory brick. It has a total volume of 4,749 cubic feet.
Description of auxiliary fuel system (type/feed)	Natural gas is supplied to the incinerator from the BASF header. Natural gas flows through automatic double block and bleed valves and into the incinerator through the burner. Before entering the incinerator, the natural gas pressure is reduced to approximately 30 pounds per square inch gauge (psig). The amount of natural gas fed to the incinerator is controlled to maintain the combustion temperature.
Nozzle and burner design	A combination gas and liquid burner is mounted at the top of the combustion chamber. The burner has an electric spark ignited premix pilot. The burner assembly consists of a primary fuel gas tip, secondary fuel gas tips, a pilot tip, and one steam-atomized waste liquid gun. The liquid wastes and vent gases are introduced into the combustion chamber in three zones. In the first zone, the hazardous and non-hazardous residues are fed to the incinerator through the four steam atomized waste liquid guns at the top of the combustion chamber. In the second zone, the vent gases are injected into the combustion chamber through six injectors. In the third zone, the aqueous wastes are introduced to the combustion chamber via five air-atomized waste guns located downstream of the burner and process vent gas nozzles.
Capacity of prime mover	The combustion air fan supplies a maximum of 26,610 actual cubic feet per minute (acfm) at 31.7 inches water column (in. w.c.). The fan is driven by a 1,775 revolutions per minute (rpm), 200-horsepower (hp) motor.

TABLE 1 (CONTINUED)
INCINERATOR IN-4702 DESIGN INFORMATION

ITEM	DESCRIPTION
Description of automatic waste feed cutoff system(s)	The automatic waste feed cutoff system is operated to comply with the HWC NESHAP. Only two cutoffs are associated with the RCRA permit: maximum total combustion air flow rate and maximum ash feed rate.
Stack gas monitoring and pollution control monitoring system	The stack is equipped with a continuous emissions monitoring systems (CEMS) to monitor carbon monoxide (CO) and oxygen. These CEMS are designed and operated to comply with the requirements of the HWC NESHAP. The CEMS are not required for compliance with the RCRA permit.
Construction materials	The incinerator is constructed of carbon steel. The combustion chamber is lined with 18 inches of refractory material.
Location and description of temperature, pressure, and flow indicating devices and control devices	Combustion chamber temperature, total combustion air flow rate, total hazardous waste feed rate, and atomizing fluid pressure are monitored to comply with the HWC NESHAP. The combustion chamber temperature monitor is located in the transition duct between the combustion chamber and the waste heat boiler. The combustion air flow rate monitors are located in the air plenums before the combustion chamber. The hazardous waste feed rate monitors are located in the waste feed lines prior to the steam-atomized guns. The atomizing fluid pressure is monitored in the steam lines to the waste feed lines.

FIGURE 1
INCINERATOR IN-4702 PROCESS SCHEMATIC



2.1 FEEDSTREAMS

Acrylate residue (TCEQ No. 5175-219H) is a mixture of hazardous waste streams generated within the butyl acrylate (BA) and 2-ethylhexyl acrylate (2-EHA) production areas. Acrylate residue carries the 40 CFR Part 261 hazardous waste numbers of D001 (ignitability) and D002 (corrosivity). This waste mixture is stored in Tank D-147B prior to being burned in Incinerator IN-4702.

Glacial acrylic acid (GAA) crystallization residue (TCEQ No. 1706-219H) carries the 40 CFR Part 261 hazardous waste number of D001 (ignitability). This waste is generated in the Glacial 4 production area. The GAA crystallization is stored in Tank D-3872 prior to being burned in Incinerator IN-4702.

GAA distillation residue is a non-hazardous waste that is generated within the Glacial 2 and 3 production areas. The GAA distillation residue is stored in Tank D-463 prior to being burned in Incinerator IN-4702.

Dispersions condensate is a non-hazardous aqueous waste that is generated within the Dispersions production area. This waste is stored in Tank D-5151 prior to being burned in Incinerator IN-4702.

1,6-Hexanediol (HDO®) aqueous waste is a non-hazardous aqueous waste that is generated within the HDO® production area. This waste is typically a component of the D-1451 non-hazardous aqueous waste (TCEQ No. 1821-1191) that is burned in Incinerator IN-5100. It is stored in Tank D-950 before being blended into Tank D-1451. Occasionally, the HDO® aqueous waste may be fed directly to Incinerator IN-4702 from Tank D-950.

In addition to the liquid wastes, BASF feeds process vent gas to Incinerator IN-4702. The process vent gas streams are identified as the BA off-gas, the BA tank farm vent, the vacuum vent, the dispersions process vent, the methyl methacrylate (MMA)/ureidomethacrylate (UMA)/styrene storage drum vent, and the acetonitrile (ACN) storage drum vent. The process vent gas is predominantly nitrogen with some organic content.

Natural gas is also used as auxiliary fuel during startup and to control temperatures in the incinerator.

2.2 AIR POLLUTION CONTROL

The incinerator is not equipped with any air pollution control device.

2.3 STACK

The exhaust stack of Incinerator IN-4702 is approximately 125 feet above grade. The stack is nine feet in diameter. The stack is equipped with ports suitable for proper isokinetic sampling.

2.4 SECONDARY CONTAINMENT

The incinerator is set on a concrete pad. The concrete paving is sloped to concrete drainage ditches that drain to concrete sumps. The slopes of the concrete are adequate to provide proper drainage. In the

event of a spill, the containment area is washed down to the drainage system. The contaminated water is then collected by vacuum truck and disposed of appropriately.

3.0 CONTINUOUS MONITORING SYSTEMS

Incinerator IN-4702 is equipped with CMS, including continuous parameter monitoring systems (CPMS) and continuous emissions monitoring systems (CEMS). These CMS enable the facility to maintain safe operation of the incinerators in compliance with the HWC NESHAP operating parameter limits (OPLs).

The data measured by the CMS is recorded in the facility operating records. System operations are monitored with process controllers which then transmit the process conditions to the distributed control system (DCS).

3.1 CONTINUOUS PARAMETER MONITORING SYSTEMS

Various CPMS are required for the incinerator to document compliance with the applicable HWC NESHAP OPLs. Table 2 present a summary of the CPMS for Incinerator IN-4702. Some of the CPMS are also required to demonstrate compliance with the PM performance standard of 40 CFR § 264.343(c).

TABLE 2
INCINERATOR IN-4702 CONTINUOUS PARAMETER MONITORING SYSTEMS

TAG NO.	MEASURED PARAMETER	INSTRUMENT DESCRIPTION
TI-7090A, TI-7090B, TI-7090C	Combustion chamber temperature	Type K thermocouples and temperature transmitters
FI-7068	Primary combustion air flow rate [1]	Averaging velocity element and differential pressure transmitter
FI-7069	Secondary combustion air flow rate [1]	Thermal mass flow meter
FI-7065	Acrylate residue feed rate [1]	Coriolis mass flow meter
FIC-7081	Glacial acrylic acid crystallization residue feed rate [1]	Coriolis mass flow meter
FI-7104	Glacial acrylic acid distillation residue feed rate [1]	Coriolis mass flow meter
FI-7026	Non-hazardous aqueous waste feed rate [1]	Coriolis mass flow meter
PT-7083A, PT-7083B	Atomizing fluid pressure for residues	Pressure transmitter

[1] This parameter is also monitored for RCRA compliance.

3.1.1 TOTAL COMBUSTION AIR FLOW RATE

An indicator of gas residence time is continuously monitored to demonstrate compliance with the RCRA PM standard. The continuous measurements are used to calculate one-minute averages (OMAs) and hourly rolling averages (HRAs). The HRA values are compared to the permit limit to demonstrate compliance. BASF monitors the total combustion air flow rate to comply with this requirement.

The combustion air enters the combustion chamber in two locations, identified as the primary and the secondary combustion air. Each combustion air flow rate is monitored in thousands of standard cubic feet per minute (kscfm) using the instruments described in Table 2.

3.1.2 Ash Feed Rate

The ash feed rate is continuously monitored to demonstrate compliance with the RCRA PM standard for Incinerator IN-4702. The continuous measurements are used to calculate OMAs and 12-hour rolling averages (12-hr RAs). The 12-hr RA values are compared to the permit limit to demonstrate compliance.

BASF calculates the ash feed rate on a mass basis in pounds per hour (lb/hr) using the weight fraction of ash in each feedstream and the continuously monitored feed rate of each feedstream. The feed rate of each feedstream is monitored in lb/hr using the instruments described in Table 2.

3.2 Continuous Emissions Monitoring Systems

BASF monitors the concentrations of carbon monoxide (CO) and oxygen in the stack gas of the incinerator to comply with the HWC NESHAP. BASF utilizes non-dispersive infrared (NDIR) analyzers to continuously monitor CO concentration in the stack gas for the incinerator. The analyzer is a dual range design with a span of zero to 200 parts per million by volume on a dry basis (ppmv dry) for the low range and a span of zero to 3,000 ppmv dry span for the high range. The oxygen analyzer that is used to correct CO emission concentrations to seven percent oxygen is a paramagnetic analyzer. The analyzer has a span of zero to 25 percent oxygen by volume on a dry basis. BASF also utilizes a backup CEMS that consists of the same instruments as the primary unit.

3.3 Automatic Waste Feed Cutoff Systems

BASF operates the incinerator with an automatic waste feed cutoff (AWFCO) system that immediately and automatically cut off the hazardous waste feed to the incinerator when operating conditions deviate from those established in the HWC NESHAP. The following AWFCOs are also required to demonstrate compliance with the PM performance standard of 40 CFR § 264.343(c):

- Maximum total combustion air flow rate; and
- Maximum ash feed rate.

3.4 Emergency Shutdown Systems

Emergency shutdown features are included to protect the equipment in the event of a malfunction. During an emergency shutdown, all waste feeds and fuel feeds are stopped. The trigger points for an emergency shutdown have been set independent of regulatory test conditions. These limits are based on equipment design and operating specifications and are considered good operating practices. For example, the following conditions will trigger a stop of all feeds to the incinerator:

- Low fuel gas pressure;

- High fuel gas pressure;
- High combustion chamber temperature;
- Flame failure;
- Forced draft fan failure; and
- Steam drum low water level.

4.0 APPLICATION TABLES

Section V of the Part B application includes several tables intended to define the operating conditions of the incinerators. The following tables are included in Section V for Incinerator IN-4702:

- Table V.H.1., *Incinerators* – This table lists the incinerators included in the permit. This table is applicable to the BASF Freeport Site and has been included in the permit application.
- Table V.H.2., *Incinerator Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems* – This table establishes operating conditions for an incinerator. The table is included for Incinerator IN-4702 to establish the OPLs for the applicable RCRA performance standard.
- Table V.H.3., *Maximum Constituent Feed Rates* – This table establishes constituent feed rate limits for an incinerator. The table is not applicable to Incinerator IN-4702 because it was initially permitted under RCRA after October 12, 2005, and complies with the HWC NESHAP emission standards for metals and chlorine.
- Table V.H.4., *Maximum Allowable Emission Rates* – This table establishes emission rate limits for an incinerator. The table is included for Incinerator IN-4702 to establish the applicable RCRA performance standard for PM.
- Table V.H.5., *Incinerator Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems – Short-Term Operation* – This table establishes operating limits for shakedown and trial burn periods for a new incinerator. Incinerator IN-4702 is an existing incinerator. This table is not applicable to Incinerator IN-4702.
- Table V.H.8., *Principal Organic Hazardous Constituents* – This table establishes the principal organic hazardous constituent (POHCs) to be used for the destruction and removal efficiency (DRE) demonstration during a trial burn. Trial burns are not applicable to the incinerator because it was initially permitted under RCRA after October 12, 2005, and complies with the HWC NESHAP DRE standard. This table is not applicable to Incinerator IN-4702.

5.0 SPECIAL WASTE CONSIDERATIONS

This section addresses special considerations for wastes managed in the incinerator.

5.1 REACTIVE OR INCOMPATIBLE WASTE

Incinerator IN-4702 does not manage reactive or incompatible wastes.

5.2 DIOXIN WASTES

Incinerator IN-4702 does not manage F020, F021, F022, F023, F026, and F027 wastes.

5.3 PRECAUTIONS FOR IGNITION OR REACTION

Precautions to prevent the ignition or reaction of wastes are based on normal plant safety protocol and specific hazardous waste area operations. Hazardous waste is hard-piped directly from the process to the incinerator's combustion chamber. There is no exposure to the atmosphere and therefore no potential for ignition or reaction.

6.0 STARTUP, SHUTDOWN, AND MALFUNCTION

BASF maintains and operates in accordance with an HWC NESHAP startup, shutdown, and malfunction plan for the incinerator. The plan states that BASF intends to utilize the option under 40 CFR § 270.235(a)(1)(iii) to not include permit conditions that address startup, shutdown, and malfunction events in the RCRA permit. As such, the HWC NESHAP startup, shutdown, and malfunction plan for the incinerators has been submitted for review and approval. In the event that the startup, shutdown, and malfunction plan has not been approved prior to issuing this permit renewal, we offer the following alternative for addressing startup, shutdown, and malfunction events in the permit.

As described in the HWC NESHAP startup, shutdown, and malfunction plan, BASF minimizes emissions from startup, shutdown, and malfunction events by not feeding hazardous waste during these time periods. No hazardous waste shall be fed to the incinerator during startup, shutdown, or malfunction event. During a malfunction event, if an exceedance of any HWC NESHAP OPLs occurs, hazardous waste feed to the incinerator must be ceased immediately by activating the AWFCO system. When a malfunction is not associated with an OPL and related AFWCO system, the hazardous waste feed to the incinerator shall be ceased as quickly as possible.

BASF believes that these waste feed restrictions adequately address emissions from startup, shutdown, and malfunction events.

BASF

We create chemistry

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

INCINERATOR IN-5100 ENGINEERING REPORT

MAY 2025

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

BASF Corporation (BASF) operates a liquid hazardous waste incinerator, designated as Incinerator IN-5100, at its facility in Freeport, Texas. Incinerator IN-5100 is subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Parts 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerator is also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE.

40 CFR § 270.19 requires that BASF submit information about Incinerator IN-5100 with this permit application to demonstrate compliance with the standards contained in 40 CFR §§ 264.340 thru 351. However, pursuant to 40 CFR §§ 264.340(b) and 270.62, all waste analysis, performance standards, operating requirements, monitoring requirements, and inspection requirements do not apply to Incinerator IN-5100 once BASF demonstrates compliance with the HWC NESHAP and submits the Notification of Compliance. BASF completed this process in 2005. The Texas Commission on Environmental Quality (TCEQ) issued a Finding of Compliance for the incinerator in 2005. Accordingly, most of the information specified by 40 CFR § 270.19 is no longer applicable. Details related to operation and design of the incinerator and associated equipment are now addressed under the Clean Air Act's HWC NESHAP.

The remaining sections of this report provide the following information:

- Section 2.0 describes the incinerator equipment;
- Section 3.0 discusses the continuous monitoring systems (CMS);
- Section 4.0 discusses the Part B Section V application tables;
- Section 5.0 discusses special waste considerations; and
- Section 6.0 addresses startup, shutdown, and malfunction requirements.

2.0 EQUIPMENT DESCRIPTION

Incinerator IN-5100 is a liquid injection incinerator. The incinerator is a custom designed vertical, cylindrical, down-fired, self-supporting unit designed for forced draft operation. The incinerator is equipped with heat recovery for steam production. There is no air pollution control equipment installed on the unit because control is not necessary to comply with the applicable performance standards. The unit has been designed to process non-hazardous and hazardous liquid waste and process vent gas up to a capacity of 216 million British thermal units per hour (MMBtu/hr).

Table 1 provides information on the Incinerator IN-5100 design. Figure 1 provides a general process schematic diagram of Incinerator IN-5100. Process and instrumentation diagrams (P&IDs) are provided in Section XIII. These figures have been identified as confidential information.

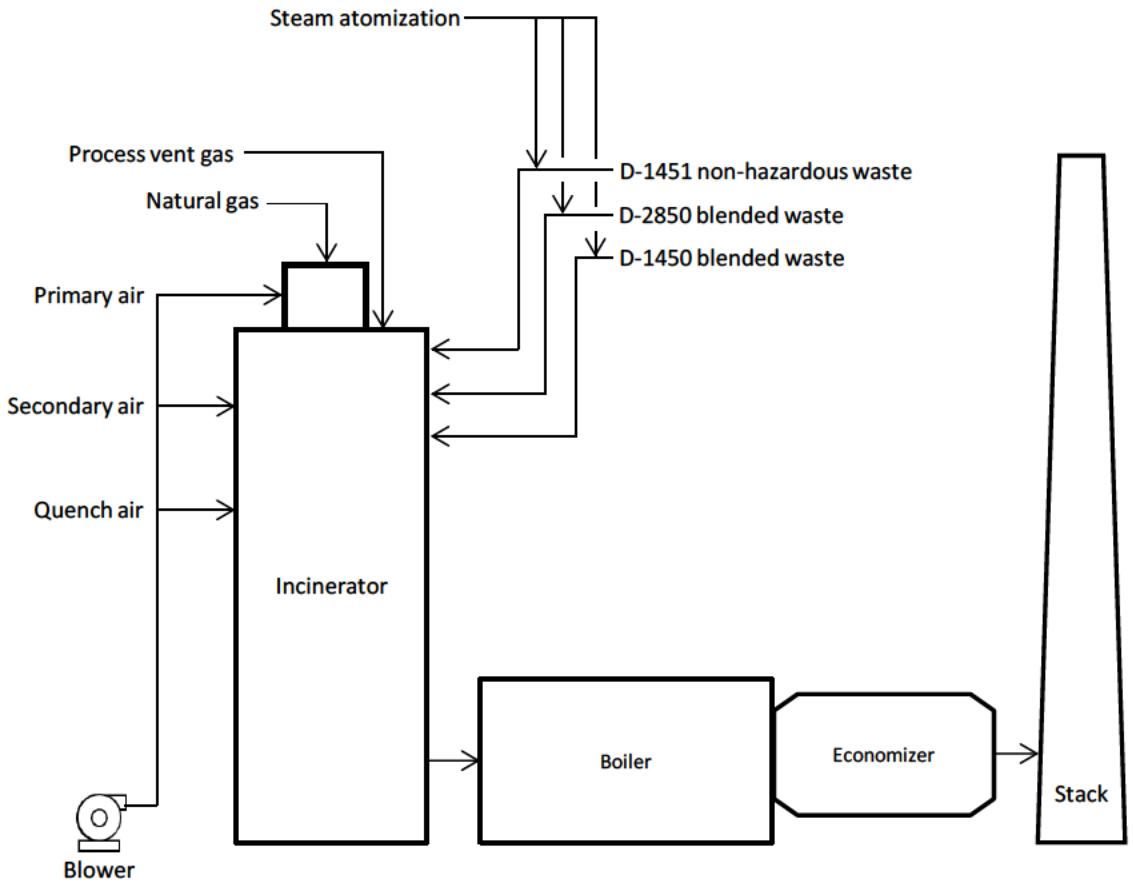
TABLE 1
INCINERATOR IN-5100 DESIGN INFORMATION

ITEM	DESCRIPTION
Manufacturer's name and model number of incinerator	The incinerator was designed by Callidus Technologies, Inc., of Tulsa, Oklahoma. The incinerator was custom designed and does not have a model number.
Type of incinerator	The incinerator is a liquid injection type incinerator. It is a vertical, cylindrical, down-fired, self-supporting unit designed for forced draft operation.
Linear dimension of incinerator unit including cross sectional area of combustion chamber	The incinerator precombustion chamber is approximately 13 feet in height, and the main combustion chamber is approximately 50 feet in height. The combustion chamber has a cross-section of approximately 163 square feet at the widest section.
Description of auxiliary fuel system (type/feed)	Natural gas is fired through the burner to heat the system to its design operating temperature and to maintain the combustion zone temperature during normal operations. The burner is designed for a total heat release of 165 MMBtu/hr.
Nozzle and burner design	A medium intensity low-nitrogen oxides (NO_x) vortex burner is mounted at the top of the combustion chamber. The burner has an electric spark ignited premix pilot. The burner assembly consists of a primary fuel gas tip, secondary fuel gas tips, a pilot tip, and seven steam-atomized waste liquid guns. The liquid wastes and vent gases are introduced into the combustion chamber in four zones. In the first zone, the D-2850 blended waste is fed to the incinerator through the seven steam-atomized waste liquid guns included in the burner assembly. In the second zone, the two vent gases are injected into the combustion chamber through six injectors. In the third zone, the D-1450 blended waste is introduced to the combustion chamber through six steam-atomized waste guns located downstream of the burner. In the fourth zone, the D-1451 non-hazardous aqueous waste is fed to the unit through 15 steam-atomized waste guns.
Capacity of prime mover	The combustion air fan supplies a maximum of 70,000 actual cubic feet per minute (acfm) at 28.8 inches water column (in. w.c.) at 1,780 revolutions per minute (rpm). The fan is driven by a 1800 rpm, 500-horsepower (hp) motor.
Description of automatic waste feed cutoff system(s)	The automatic waste feed cutoff system is operated to comply with the HWC NESHAP. There are no cutoffs associated with the RCRA permit.

TABLE 1 (CONTINUED)
INCINERATOR IN-5100 DESIGN INFORMATION

ITEM	DESCRIPTION
Stack gas monitoring and pollution control monitoring system	The stack is equipped with a continuous emissions monitoring systems (CEMS) to monitor carbon monoxide (CO) and oxygen. These CEMS are designed and operated to comply with the requirements of the HWC NESHAP. The CEMS are not required for compliance with the RCRA permit.
Construction materials	The incinerator is constructed of carbon steel. The combustion chamber is lined with 15 inches of refractory material.
Location and description of temperature, pressure, and flow indicating devices and control devices	Combustion chamber temperature, combustion air flow rate, total hazardous waste feed rate, and atomizing fluid pressure are monitored to comply with the HWC NESHAP. No process monitors are required for compliance with the RCRA permit. The combustion chamber temperature monitor is located in the combustion chamber approximately 6.5 feet above grade, immediately before the waste heat boiler inlet. The combustion air flow rate monitors are located in the air plenums before the combustion chamber. The hazardous waste feed rate monitors are located in the waste feed lines prior to the steam-atomized guns. The atomizing fluid pressure is monitored in the steam lines to the waste feed lines.

FIGURE 1
INCINERATOR IN-5100 PROCESS SCHEMATIC



2.1 FEEDSTREAMS

D-1450 blended waste (TCEQ No. 1820-219H) carries the 40 CFR Part 261 hazardous waste numbers of D001 (ignitability) and D018 (benzene). This waste is a blend of several different waste streams generated in the 1,6-Hexanediol (HDO®), Neopentyl Glycol (NEOL®), Oxo-Alcohols, Butyl Acrylate, and Cyclohexanone process units. The separate waste streams are mixed into Tank D-1450 to be burned in Incinerator IN-5100.

D-2850 blended waste (TCEQ No. 1832-219H) carries the 40 CFR Part 261 hazardous waste number of D007 (chromium). This waste is a blend of several different waste streams generated in the HDO® and NEOL® process units. The separate waste streams are mixed into Tank D-2850 to be burned in Incinerator IN-5100. This waste may also be shipped offsite for disposal.

D-1451 non-hazardous aqueous waste is a blend of several different waste streams generated in the HDO®, NEOL®, and Oxo-Alcohols process units. The separate waste streams are mixed into Tank D-1451 to be burned in Incinerator IN-5100.

In addition to the liquid wastes, BASF feeds process vent gas from the HDO® and NEOL® process units to the Incinerator IN-5100. The main components of the process vent gas are methanol and other alcohols and esters.

Natural gas is also used as auxiliary fuel during startup and to control temperatures in the incinerator.

2.2 AIR POLLUTION CONTROL

The incinerator is not equipped with any air pollution control device.

2.3 STACK

The exhaust stack of Incinerator IN-5100 is approximately 125 feet above grade. The stack is nine feet in diameter. The stack is equipped with ports suitable for proper isokinetic sampling.

2.4 SECONDARY CONTAINMENT

The incinerator is set on a concrete pad. The concrete paving is sloped to concrete drainage ditches that drain to concrete sumps. The slopes of the concrete are adequate to provide proper drainage. In the event of a spill, the containment area is washed down to the drainage system. The contaminated water is then collected by vacuum truck and disposed of appropriately.

3.0 CONTINUOUS MONITORING SYSTEMS

Incinerator IN-5100 is equipped with CMS, including continuous parameter monitoring systems (CPMS) and continuous emissions monitoring systems (CEMS). These CMS enable the facility to maintain safe operation of the incinerators in compliance with the HWC NESHAP operating parameter limits (OPLs).

The data measured by the CMS is recorded in the facility operating records. System operations are monitored with process controllers which then transmit the process conditions to the distributed control system (DCS).

3.1 CONTINUOUS PARAMETER MONITORING SYSTEMS

Various CPMS are required for the incinerator to document compliance with the applicable HWC NESHAP OPLs. Table 2 present a summary of the CPMS for Incinerator IN-5100.

TABLE 2
INCINERATOR IN-5100 CONTINUOUS PARAMETER MONITORING SYSTEMS

TAG NO.	MEASURED PARAMETER	INSTRUMENT DESCRIPTION
TE-5004-4	Combustion chamber temperature	Type K thermocouple and temperature transmitter
FT-5005-1,2,3	Primary combustion air flow rate	Pitot tube and differential pressure transmitters
FT-5005-4,5,6	Secondary combustion air flow rate	Pitot tube and differential pressure transmitters
FT-5005-7,8,9	Quench combustion air flow rate	Pitot tube and differential pressure transmitters
FT-5003-4	D-1450 blended waste feed rate	Coriolis mass flow meter
FT-5003-1	D-2850 blended waste feed rate	Coriolis mass flow meter
FT-5003-2	D-1451 non-hazardous aqueous waste feed rate	Coriolis mass flow meter
PT-5011-9	Atomizing fluid pressure for D-1450 blended waste	Pressure transmitter
PT-5011-3	Atomizing fluid pressure for D-2850 blended waste	Pressure transmitter

3.2 CONTINUOUS EMISSIONS MONITORING SYSTEMS

BASF monitors the concentrations of carbon monoxide (CO) and oxygen in the stack gas of the incinerator to comply with the HWC NESHAP. BASF utilizes non-dispersive infrared (NDIR) analyzers to continuously monitor CO concentration in the stack gas for the incinerator. The analyzer is a dual range design with a span of zero to 200 parts per million by volume on a dry basis (ppmv dry) for the low range

and a span of zero to 3,000 ppmv dry span for the high range. The oxygen analyzer that is used to correct CO emission concentrations to seven percent oxygen is a paramagnetic analyzer. The analyzer has a span of zero to 25 percent oxygen by volume on a dry basis. BASF also utilizes a backup CEMS that consists of the same instruments as the primary unit.

3.3 AUTOMATIC WASTE FEED CUTOFF SYSTEMS

BASF operates the incinerator with an automatic waste feed cutoff (AWFCO) system that immediately and automatically cut off the hazardous waste feed to the incinerator when operating conditions deviate from those established in the HWC NESHAP.

3.4 EMERGENCY SHUTDOWN SYSTEMS

Emergency shutdown features are included to protect the equipment in the event of a malfunction. During an emergency shutdown, all waste feeds and fuel feeds are stopped. The trigger points for an emergency shutdown have been set independent of regulatory test conditions. These limits are based on equipment design and operating specifications and are considered good operating practices. For example, the following conditions will trigger a stop of all feeds to the incinerator:

- Low fuel gas supply pressure;
- High fuel gas pressure to the burner;
- Low combustion air flow rate;
- High combustion chamber temperature;
- Flame failure;
- Forced draft fan failure;
- Steam drum low water level;
- Superheated steam high pressure; and
- Superheated steam high temperature.

4.0 APPLICATION TABLES

Section V of the Part B application includes several tables intended to define the operating conditions of the incinerators. The following tables are included in Section V for Incinerator IN-5100:

- Table V.H.1., *Incinerators* – This table lists the incinerators included in the permit. This table is applicable to the BASF Freeport Site and has been included in the permit application.
- Table V.H.2., *Incinerator Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems* – This table establishes operating conditions for an incinerator. This table is not applicable to Incinerator IN-5100 because the HWC NESHAP Finding of Compliance has been issued.
- Table V.H.3., *Maximum Constituent Feed Rates* – This table establishes constituent feed rate limits for an incinerator. This table is not applicable to Incinerator IN-5100 because the HWC NESHAP Finding of Compliance has been issued.
- Table V.H.4., *Maximum Allowable Emission Rates* – This table establishes emission rate limits for an incinerator. This table is not applicable to IN-5100 because the HWC NESHAP Finding of Compliance has been issued.
- Table V.H.5., *Incinerator Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems – Short-Term Operation* – This table establishes operating limits for shakedown and trial burn periods for a new incinerator. Incinerator IN-5100 is an existing incinerator. This table is not applicable to Incinerator IN-5100.
- Table V.H.8., *Principal Organic Hazardous Constituents* – This table establishes the principal organic hazardous constituent (POHCs) to be used for the destruction and removal efficiency (DRE) demonstration during a trial burn. Trial burns are no longer applicable to the incinerator because HWC NESHAP comprehensive performance tests (CPTs) are performed and the HWC NESHAP Finding of Compliance has been issued. This table is not applicable to Incinerator IN-5100.

5.0 SPECIAL WASTE CONSIDERATIONS

This section addresses special considerations for wastes managed in the incinerator.

5.1 REACTIVE OR INCOMPATIBLE WASTE

Incinerator IN-5100 does not manage reactive or incompatible wastes.

5.2 DIOXIN WASTES

Incinerator IN-5100 does not manage F020, F021, F022, F023, F026, and F027 wastes.

5.3 PRECAUTIONS FOR IGNITION OR REACTION

Precautions to prevent the ignition or reaction of wastes are based on normal plant safety protocol and specific hazardous waste area operations. Hazardous waste is hard-piped directly from the process to the incinerator's combustion chamber. There is no exposure to the atmosphere and therefore no potential for ignition or reaction.

6.0 STARTUP, SHUTDOWN, AND MALFUNCTION

BASF maintains and operates in accordance with an HWC NESHAP startup, shutdown, and malfunction plan for the incinerator. The plan states that BASF intends to utilize the option under 40 CFR § 270.235(a)(1)(iii) to not include permit conditions that address startup, shutdown, and malfunction events in the RCRA permit. As such, the HWC NESHAP startup, shutdown, and malfunction plan for the incinerators has been submitted for review and approval. In the event that the startup, shutdown, and malfunction plan has not been approved prior to issuing this permit renewal, we offer the following alternative for addressing startup, shutdown, and malfunction events in the permit.

As described in the HWC NESHAP startup, shutdown, and malfunction plan, BASF minimizes emissions from startup, shutdown, and malfunction events by not feeding hazardous waste during these time periods. No hazardous waste shall be fed to the incinerator during startup, shutdown, or malfunction event. During a malfunction event, if an exceedance of any HWC NESHAP OPLs occurs, hazardous waste feed to the incinerator must be ceased immediately by activating the AWFCO system. When a malfunction is not associated with an OPL and related AFWCO system, the hazardous waste feed to the incinerator shall be ceased as quickly as possible.

BASF believes that these waste feed restrictions adequately address emissions from startup, shutdown, and malfunction events.

BASF

We create chemistry

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

INCINERATOR IN-5500 ENGINEERING REPORT

MAY 2025

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

1.0 INTRODUCTION

BASF Corporation (BASF) operates a liquid hazardous waste incinerator, designated as Incinerator IN-5500, at its facility in Freeport, Texas. Incinerator IN-5500 is subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Parts 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerator is also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE.

40 CFR § 270.19 requires that BASF submit information about Incinerator IN-5500 with this permit application to demonstrate compliance with the standards contained in 40 CFR §§ 264.340 thru 351. However, pursuant to 40 CFR §§ 264.340(b) and 270.62, all waste analysis, performance standards, operating requirements, monitoring requirements, and inspection requirements do not apply to a hazardous waste incineration unit that becomes subject to RCRA permit requirements after October 12, 2005. Incinerator IN-5500 is being added to the RCRA permit with this permit renewal application. Accordingly, most of the information specified by 40 CFR § 270.19 is not applicable. Details related to operation and design of the incinerator and associated equipment are addressed under the Clean Air Act's HWC NESHAP.

The remaining sections of this report provide the following information:

- Section 2.0 describes the incinerator equipment;
- Section 3.0 discusses the continuous monitoring systems (CMS);
- Section 4.0 discusses the Part B Section V application tables;
- Section 5.0 discusses special waste considerations; and
- Section 6.0 addresses startup, shutdown, and malfunction requirements.

2.0 EQUIPMENT DESCRIPTION

Incinerator IN-5500 is a liquid injection incinerator. The incinerator is a vertical, cylindrical, down-fired, self-supporting unit designed for forced draft operation. The incinerator is equipped with heat recovery for steam production and combustion air/process vent gas preheating. There is no air pollution control equipment installed on the unit because control is not necessary to comply with the applicable performance standards. The unit has been designed to process non-hazardous and hazardous liquid waste and process vent gas up to a capacity of 100 million British thermal units per hour (MMBtu/hr).

Table 1 provides information on the Incinerator IN-5500 design. Figure 1 provides a general process schematic diagram of Incinerator IN-5500. Process and instrumentation diagrams (P&IDs) are provided in Section XIII. These figures have been identified as confidential information.

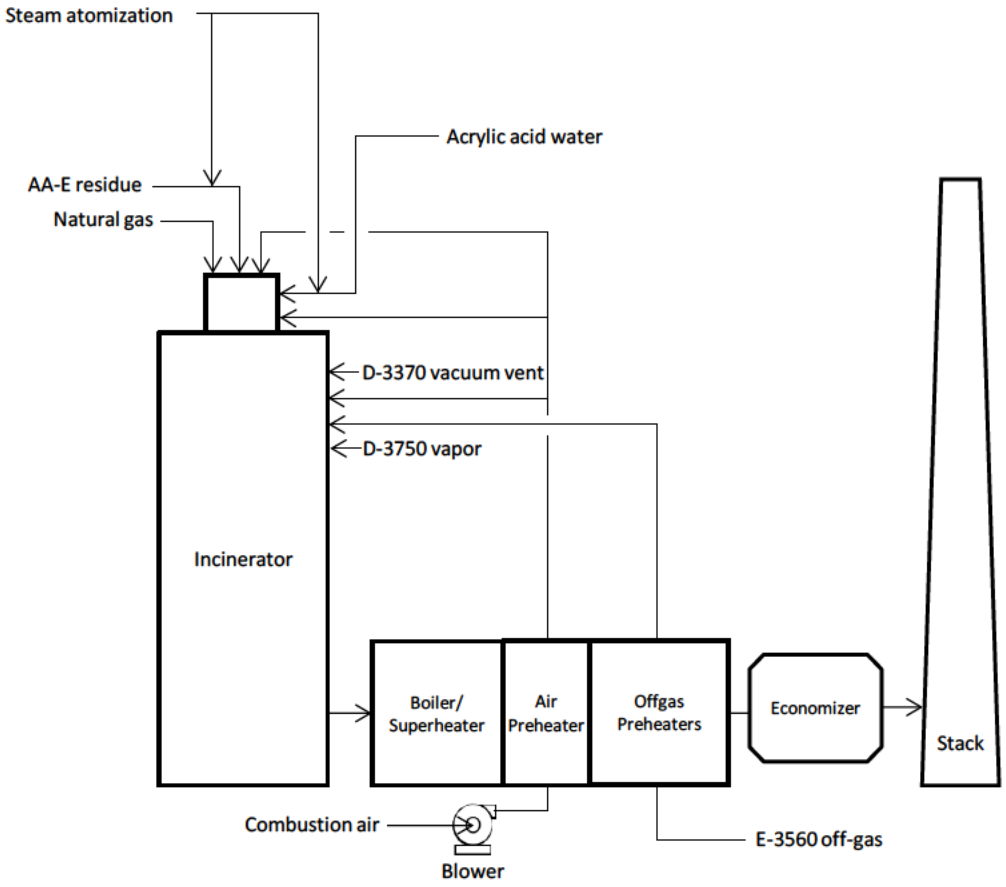
TABLE 1
INCINERATOR IN-5500 DESIGN INFORMATION

ITEM	DESCRIPTION
Manufacturer's name and model number of incinerator	The incinerator was designed and was manufactured by the John Zink Company of Tulsa, Oklahoma. The incinerator was custom designed and does not have a model number.
Type of incinerator	The incinerator is a liquid injection type incinerator. It is a vertical, cylindrical, down-fired, self-supporting unit designed for forced draft operation.
Linear dimension of incinerator unit including cross sectional area of combustion chamber	The combustion chamber is 60 feet tall with a 16-foot outer diameter and is lined with 15 inches of refractory brick. The combustion chamber has a cross-section of approximately 141 square feet.
Description of auxiliary fuel system (type/feed)	Natural gas is supplied to the incinerator from the BASF header. Natural gas flows through self-actuated safety block valves to the burner. Before entering the incinerator, the natural gas pressure is reduced to approximately 30 pounds per square inch gauge (psig). The amount of natural gas fed to the incinerator is controlled to maintain the combustion temperature.
Nozzle and burner design	A combination gas and liquid burner assembly is mounted at the top of the combustion chamber. For the initial lighting of the incinerator flame, there is a pilot fuel gas assembly, and the ignition is via continuous electric ignition electrode. The burner assembly consists of the following nozzles: fuel gas, pilot, and one steam-atomized liquid waste nozzle. The liquid wastes and vent gases are introduced in the burner assembly and combustion chamber inlet section. Residue is fed to the center nozzle of the burner assembly. The acrylic acid water is fed to the incinerator through two steam-atomized guns located downstream of the burner. Process vent gas is introduced downstream of the burner.
Capacity of prime mover	The combustion air fan supplies a maximum of 96,125 actual cubic feet per minute (acfm) at 40 to 50 inches water column (in. w.c.). The fan is driven by a 1,786 revolutions per minute (rpm), 1,000-horsepower (hp) motor.
Description of automatic waste feed cutoff system(s)	The automatic waste feed cutoff system is operated to comply with the HWC NESHAP. There are no cutoffs associated with the RCRA permit.

TABLE 1 (CONTINUED)
INCINERATOR IN-5500 DESIGN INFORMATION

ITEM	DESCRIPTION
Stack gas monitoring and pollution control monitoring system	The stack is equipped with a continuous emissions monitoring systems (CEMS) to monitor carbon monoxide (CO) and oxygen. These CEMS are designed and operated to comply with the requirements of the HWC NESHAP. The CEMS are not required for compliance with the RCRA permit.
Construction materials	The incinerator is constructed of carbon steel. The combustion chamber is lined with 15 inches of refractory material.
Location and description of temperature, pressure, and flow indicating devices and control devices	Combustion chamber temperature, combustion air flow rate, total hazardous waste feed rate, and atomizing fluid pressure are monitored to comply with the HWC NESHAP. No process monitors are required for compliance with the RCRA permit. The combustion chamber temperature monitor is located in the combustion chamber before the waste heat boiler inlet. The combustion air flow rate monitors are located in the air plenums before the combustion chamber. The hazardous waste feed rate monitor is located in the feed line of the acrylic acid water prior to the steam-atomized guns. The atomizing fluid pressure is monitored in the steam line to the acrylic acid water feed line.

FIGURE 1
INCINERATOR IN-5500 PROCESS SCHEMATIC



2.1 FEEDSTREAMS

Acrylic acid water (TCEQ No. 1503-105H) carries the 40 CFR Part 261 hazardous waste numbers of D002 (corrosivity) and D018 (benzene). This waste is produced within the Acrylic Acid production areas. This waste is fed to Incinerators IN-701 and IN-5500 in on-line configurations and is not allowed to accumulate.

AA-E residue is a non-hazardous liquid waste stream that is generated within the Acrylic Acid production areas. The waste stream is stored in Tank D-3450 and is fed to Incinerator IN-5500 in a batch mode.

In addition to the liquid wastes, BASF feeds process vent gas to Incinerator IN-5500. The process vent gas streams are identified as the E-3560 off-gas, the D-3370 vacuum vent off-gas, and the D-3750 vapor. The process vent gas is predominantly nitrogen with some organic content. The E-3560 off-gas is routed through the preheater before entering the combustion chamber.

Natural gas is also used as auxiliary fuel during startup and to control temperatures in the incinerator.

2.2 AIR POLLUTION CONTROL

The incinerator is not equipped with any air pollution control device.

2.3 STACK

The exhaust stack of Incinerator IN-5500 is approximately 220 feet above grade. The stack is ten feet in diameter. The stack is equipped with ports suitable for proper isokinetic sampling.

2.4 SECONDARY CONTAINMENT

The incinerator is set on a concrete pad. The concrete paving is sloped to concrete drainage ditches that drain to concrete sumps. The slopes of the concrete are adequate to provide proper drainage. In the event of a spill, the containment area is washed down to the drainage system. The contaminated water is then collected by vacuum truck and disposed of appropriately.

3.0 CONTINUOUS MONITORING SYSTEMS

Incinerator IN-5500 is equipped with CMS, including continuous parameter monitoring systems (CPMS) and continuous emissions monitoring systems (CEMS). These CMS enable the facility to maintain safe operation of the incinerators in compliance with the HWC NESHAP operating parameter limits (OPLs).

The data measured by the CMS is recorded in the facility operating records. System operations are monitored with process controllers which then transmit the process conditions to the distributed control system (DCS).

3.1 CONTINUOUS PARAMETER MONITORING SYSTEMS

Various CPMS are required for the incinerator to document compliance with the applicable HWC NESHAP OPLs. Table 2 present a summary of the CPMS for Incinerator IN-5500.

TABLE 2
INCINERATOR IN-5500 CONTINUOUS PARAMETER MONITORING SYSTEMS

TAG NO.	MEASURED PARAMETER	INSTRUMENT DESCRIPTION
T-5500, T-5501, T-5502	Combustion chamber temperature	Type K thermocouples
FIC-5301	Primary combustion air flow rate	Pitot tube and differential pressure transmitters
FI-5311	Preheated combustion air flow rate	Pitot tube and differential pressure transmitters
FI-5309	Secondary combustion air flow rate	Pitot tube and differential pressure transmitters
F-5610-1, F-5610-2	Acrylic acid water feed rate	Coriolis mass flow meter
F-5820	AA-E residue feed rate	Orifice plate and differential pressure transmitter
P-5234	Atomizing fluid pressure for acrylic acid water	Pressure transmitter

3.2 CONTINUOUS EMISSIONS MONITORING SYSTEMS

BASF monitors the concentrations of carbon monoxide (CO) and oxygen in the stack gas of the incinerator to comply with the HWC NESHAP. BASF utilizes non-dispersive infrared (NDIR) analyzers to continuously monitor CO concentration in the stack gas for the incinerator. The analyzer is a dual range design with a span of zero to 200 parts per million by volume on a dry basis (ppmv dry) for the low range and a span of zero to 3,000 ppmv dry span for the high range. The oxygen analyzer that is used to correct CO emission concentrations to seven percent oxygen is a paramagnetic analyzer. The analyzer has a span of zero to 25 percent oxygen by volume on a dry basis.

3.3 AUTOMATIC WASTE FEED CUTOFF SYSTEMS

BASF operates the incinerator with an automatic waste feed cutoff (AWFCO) system that immediately and automatically cut off the hazardous waste feed to the incinerator when operating conditions deviate from those established in the HWC NESHAP.

3.4 EMERGENCY SHUTDOWN SYSTEMS

Emergency shutdown features are included to protect the equipment in the event of a malfunction. During an emergency shutdown, all waste feeds and fuel feeds are stopped. The trigger points for an emergency shutdown have been set independent of regulatory test conditions. These limits are based on equipment design and operating specifications and are considered good operating practices. For example, the following conditions will trigger a stop of all feeds to the incinerator:

- Low fuel gas pressure;
- High fuel gas pressure;
- Low combustion air flow rate;
- High combustion chamber temperature;
- Flame failure;
- Forced draft fan failure;
- Steam drum low water level;
- Steam drum high water level;
- Superheated steam high pressure; and
- Superheated steam high temperature.

4.0 APPLICATION TABLES

Section V of the Part B application includes several tables intended to define the operating conditions of the incinerators. The following tables are included in Section V for Incinerator IN-5500:

- Table V.H.1., *Incinerators* – This table lists the incinerators included in the permit. This table is applicable to the BASF Freeport Site and has been included in the permit application.
- Table V.H.2., *Incinerator Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems* – This table establishes operating conditions for an incinerator. This table is not applicable to Incinerator IN-5500 because it was initially permitted under RCRA after October 12, 2005.
- Table V.H.3., *Maximum Constituent Feed Rates* – This table establishes constituent feed rate limits for an incinerator. This table is not applicable to Incinerator IN-5500 because it was initially permitted under RCRA after October 12, 2005.
- Table V.H.4., *Maximum Allowable Emission Rates* – This table establishes emission rate limits for an incinerator. This table is not applicable to Incinerator IN-5500 because it was initially permitted under RCRA after October 12, 2005.
- Table V.H.5., *Incinerator Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems – Short-Term Operation* – This table establishes operating limits for shakedown and trial burn periods for a new incinerator. This table is not applicable to Incinerator IN-5500 because it was initially permitted under RCRA after October 12, 2005.
- Table V.H.8., *Principal Organic Hazardous Constituents* – This table establishes the principal organic hazardous constituent (POHCs) to be used for the destruction and removal efficiency (DRE) demonstration during a trial burn. Trial burns are not applicable to the incinerator because it was initially permitted under RCRA after October 12, 2005, and complies with the HWC NESHAP DRE standard. This table is not applicable to Incinerator IN-5500.

5.0 SPECIAL WASTE CONSIDERATIONS

This section addresses special considerations for wastes managed in the incinerator.

5.1 REACTIVE OR INCOMPATIBLE WASTE

Incinerator IN-5500 does not manage reactive or incompatible wastes.

5.2 DIOXIN WASTES

Incinerator IN-5500 does not manage F020, F021, F022, F023, F026, and F027 wastes.

5.3 PRECAUTIONS FOR IGNITION OR REACTION

Precautions to prevent the ignition or reaction of wastes are based on normal plant safety protocol and specific hazardous waste area operations. Hazardous waste is hard-piped directly from the process to the incinerator's combustion chamber. There is no exposure to the atmosphere and therefore no potential for ignition or reaction.

6.0 STARTUP, SHUTDOWN, AND MALFUNCTION

BASF maintains and operates in accordance with an HWC NESHAP startup, shutdown, and malfunction plan for the incinerator. The plan states that BASF intends to utilize the option under 40 CFR § 270.235(a)(1)(iii) to not include permit conditions that address startup, shutdown, and malfunction events in the RCRA permit. As such, the HWC NESHAP startup, shutdown, and malfunction plan for the incinerators has been submitted for review and approval. In the event that the startup, shutdown, and malfunction plan has not been approved prior to issuing this permit renewal, we offer the following alternative for addressing startup, shutdown, and malfunction events in the permit.

As described in the HWC NESHAP startup, shutdown, and malfunction plan, BASF minimizes emissions from startup, shutdown, and malfunction events by not feeding hazardous waste during these time periods. No hazardous waste shall be fed to the incinerator during startup, shutdown, or malfunction event. During a malfunction event, if an exceedance of any HWC NESHAP OPLs occurs, hazardous waste feed to the incinerator must be ceased immediately by activating the AWFCO system. When a malfunction is not associated with an OPL and related AFWCO system, the hazardous waste feed to the incinerator shall be ceased as quickly as possible.

BASF believes that these waste feed restrictions adequately address emissions from startup, shutdown, and malfunction events.

VI. GEOLOGY REPORT

VI. Geology Report

Provide all Part B responsive information in Appendix VI. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

This portion of the application applies to owners or operators of new hazardous waste management facilities; areal and/or capacity expansions of existing hazardous waste management facilities; and existing industrial solid waste facilities that store, process or dispose of hazardous waste in surface impoundments, landfills, land treatment units, waste piles (except those waste piles that meet the requirements of Section V.E.10.b. of this application), and tanks or drip pads which require a contingent post-closure plan.

For a new Compliance Plan or modification/amendment to an existing Compliance Plan of Section XI of this application, submit a Geology Report which contains updated site geologic information derived from on-going investigations since submittal of the last Permit modification/amendment application.

Submit a Geology Report which includes at a minimum the following information. This report and all specifications, details, calculations/estimates and each original sheet of plans, drawings, maps, cross-sections, other graphics, such as limits of contamination maps, etc. or any other geoscientific work must be signed and sealed by a Professional Geoscientist licensed in the State of Texas under the Professional Geoscientists Practice Act.

A. Geology and Topography

1. Active Geologic Processes

Provide a description and interpretation of the active geologic processes in the vicinity of the facility. This description should include:

a. An identification of any faults (active or otherwise) in the area of the facility. The preparer should determine which Holocene sediments or man-made structures have been displaced. The report should contain a description of the investigation techniques used to identify faults and should assess the degree, if any, to which a particular fault increases the long-term potential for waste migration. The clearance required from active faults to ensure that liner systems will not be disrupted will be based upon site specific factors such as the zone of significant surface deformation, uncertainty in locating the fault, activity of the fault, and a distance to provide a reasonable margin of safety. These issues should be addressed when discussing the offset of an industrial solid waste facility unit from an active fault.

To satisfy the requirements of 30 TAC 305.50(a)(4)(D) and 305.50(a)(10)(E), for a proposed hazardous waste management facility or a modification or amendment of a permit which includes a capacity expansion of an existing hazardous waste management facility, submit the following.

(1) A geologic literature review should be conducted, from which useful information on the possibility of faulting at a given site may be revealed. This includes, but is not limited to, maps of surface faults, subsurface structure, and field investigations by the author(s).

(2) Descriptions and maps of faulting, fracturing, and lineations in the area are necessary. An aerial photo with lineation interpretations is suggested.

(3) The maps and cross-sections are to be constructed using an amount of data necessary to adequately describe the geology of the area. Surface data, including data regarding known surface expressions, such as surface faults, gas seeps, lineations, etc., should be accounted for in the subsurface interpretations. A surface structure map should be prepared, incorporating all of the subsurface data as well as known surface features.

(4) A minimum of two structural cross-sections, utilizing available oil field and/or water well electric log data, shall be made perpendicular to each other, crossing at the proposed surface unit location. These cross-sections should define geologic units, indicating especially Holocene sediments and Underground Sources of Drinking Water (USDWs), as well as lithology. The cross-sections should be constructed from the surface, down through the shallowest major structure or the base of the Holocene, whichever is deeper. These cross-sections need to be on a scale necessary to depict the local geology (3000' radius from the site location minimum). If needed to adequately describe the local geology, then a larger radius or deeper area of review may be necessary.

(5) A minimum of two structural subsurface maps need to be prepared. One map should be made on the shallowest mappable subsurface marker, the other on a deeper horizon that shows the underlying major structure. Additional maps may be necessary.

(6) Field surveillance will be necessary to check the area of the facility for surface features, such as lineations, and to investigate potential surface faults as indicated by, but not limited to, aerial photos, topographic maps, and seismic and subsurface structural maps.

(7) The above requirements do not limit the use of any additional information, such as seismic data, isopach maps, or potentiometric maps, that may help in defining the geology of the area of review.

(8) If faulting exists within 3000 feet of the surface unit, it must be demonstrated that the fault has not had displacement within Holocene time. If such a fault does exist, it cannot pass within 200 feet of the surface unit.

(9) If a fault that has been active within the Holocene is located within 3000 feet of the surface unit, it must be demonstrated that, a.) the fault is not transmissive, i.e., it will not provide for groundwater movement that would result in endangerment to human health or the environment, and b.) there is no actual and/or potential problem of subsidence, which could endanger the stability of the surface unit.

b. A discussion of the extent of land surface subsidence in the vicinity of the facility including total recorded subsidence and past and projected rates of subsidence. For facilities located at low elevations along the coast which have experienced appreciable rates of subsidence, the potential for future submergence beneath Gulf water should be addressed.

c. A discussion of the degree to which the facility is subject to erosion. The potential for erosion due to surface water processes such as overland flow, channeling, gullying, and fluvial processes such as meandering streams and undercut banks should be evaluated. If the facility is located in a low-lying coastal area, historical rates of shoreline erosion should also be provided.

d. Complete Table VI.A.1. - Major Geologic Formations

2. **Applicable to Land Based Units Only.** Regional Physiography and Topography (applicable only to owners or operators of facilities that store, process, or dispose of hazardous waste in surface impoundments, landfills, land treatment units, waste piles, except waste piles exempt from groundwater monitoring requirements, and tanks which require a contingent post-closure plan)

    a. Distance and direction to nearest surface water body
    b. Slope of land surface
    c. Direction of slope
    d. Maximum elevation of facility
    e. Minimum elevation of facility

3. **Applicable to Land Based Units Only.** Regional Geology (applicable only to owners or operators of facilities that store, process, or dispose of hazardous waste in surface impoundments, landfills, land treatment units, waste piles, except waste piles exempt from groundwater monitoring requirements, and tanks which require a contingent post-closure plan)

    Provide a description of the regional geology of the area. This section should include:

    a. A geologic map of the region with text describing the stratigraphic and lithologic properties of the map units. An appropriate section of a published map series such as the Geologic Atlas of Texas prepared by the Bureau of Economic Geology is acceptable.

    b. A description of the generalized stratigraphic column in the facility area from the base of the lowermost aquifer capable of providing usable groundwater to the land surface. At least the uppermost 1,000 feet of section below the facility should be described. The geologic age, lithology, variation in lithology, thickness, depth, geometry, hydraulic conductivity, and depositional history of each geologic unit should be described based upon available geologic information. Regional stratigraphic cross sections should be provided, where available.

4. Subsurface Soils Investigation Report **(Applicable to land based units or units requiring contingent closure and post-closure).**

This section should contain the results of an investigation of subsurface conditions for each land based unit and/or unit which requires contingent closure and post-closure care. If several units are in close proximity, a single investigation for the area will suffice. This report should include:

a. The logs of borings performed at the waste management area. All borings must be conducted in accordance with established field exploration methods. Investigation procedures should be discussed in the report. A sufficient number of borings should be performed to establish subsurface stratigraphy and to identify and allow assessment of potential pathways for pollution migration. Borings must be sufficiently deep to allow identification of the uppermost aquifer and underlying hydraulically interconnected aquifers. Borings should penetrate through the uppermost aquifer and all deeper hydraulically interconnected aquifers, deep enough to identify the aquiclude at the lower boundary. Borings should be completed to a depth at least 30 feet below the deepest excavation planned at the waste management area.

b. A text which describes the investigator's interpretations of the subsurface stratigraphy based upon the field investigation. If appropriate, soils may be assigned to generalized strata to aid in the discussion.

c. A text which describes the investigator's interpretations of the subsurface stratigraphy based upon the field investigation. If appropriate, soils may be assigned to generalized strata to aid in the discussion.

d. Complete Table VI.A.4. - Waste Management Area Subsurface Conditions and provide in the report data which describes the geotechnical properties of the subsurface soil materials. All laboratory and field tests must be performed in accordance with recognized procedures. A brief discussion of test procedures should be included. All major strata encountered during the field investigation phase should be characterized with regard to: Unified Soil Classification, moisture content, percent less than number 200 sieve, Atterberg limits (liquid limit, plastic limit, and plasticity index), and coefficient of permeability. Field permeability tests should be used to determine the coefficient of permeability of sand or silt units and should also be used to supplement laboratory tests for more clay-rich soils. In addition, particle size distribution and relative density based upon penetration resistance should be determined for coarse-grained soils. For fine-grained soils the following parameters should also be determined: cohesive shear strength based upon either penetrometer or unconfined compression tests, dry unit weight, and degree of saturation(s). For the major soil strata encountered, the maximum, minimum, and average for each of these variables should be compiled.

e. For land treatment units, provide a description of the surficial soils at the site which includes:

(1) The name and description of the soil series at the site;
(2) Important physical properties of the series such as depth, permeability, available water capacity, soil pH, and erosion factors;
(3) Engineering properties and classifications such as USDA texture, Unified Soil Classification, size gradation, and Atterberg limits (liquid limit, plastic limit, and plasticity index); and
(4) The cation exchange capacity (CEC) of the soil(s) expressed in units of meq/100g.

Much of this information may be obtained by consulting the county soil survey published by the United States Department of Agriculture, Soil Conservation Service. If available, a copy of an aerial photograph showing soil series units on the land treatment area should be provided.

If an aerial photograph is not available, include a soil series map as an attachment to this subsurface soils investigation report.

B. Facility Groundwater

If past monitoring has shown the presence of hazardous constituents in the groundwater, the owner or operator must submit a Compliance Plan Application with this application. The Compliance Plan Application and instructions can be found in Section XI of this application form.

1. Regional Aquifers

Provide a description of the regional aquifers in the vicinity of the facility based upon available geologic references. The section should provide:

a. Aquifer names and their association with geologic units described in Section VI.A.3.b.;

b. A description of the constituent materials of the aquifer(s);

c. A description of the water-bearing and transmitting properties of the aquifer(s);

d. Whether the aquifers are under water table or artesian conditions;

e. Whether the aquifers are hydraulically connected;

f. A regional water table contour map or potentiometric surface map for each aquifer, if available, from published references;

g. An estimate of the rate of groundwater flow in units of ft/yr;

h. Values for total dissolved solids content of groundwater from the aquifers;

i. Identification of areas of recharge to the aquifers; and

Note: An application for a new hazardous waste surface impoundment, waste pile, land treatment unit, or landfill, which is to be located in the apparent recharge zone of a major or minor aquifer, as designated by the Texas Water Development Board, must include a hydrogeologic report documenting the potential effects, if any, on the regional aquifer in the event of a release from the waste containment system. See the publication entitled Water for Texas, Today and Tomorrow (1990) or subsequent revision (Available at http://www.twdb.texas.gov/waterplanning/swp/1990/index.asp) for more information [30 TAC 305.50(6)]

j. The present use of groundwater withdrawn from aquifers in the vicinity of the facility.

The preparer should update Section III.C.1.e. of the Part A permit application to ensure that all water wells within 1 mile of the property boundaries of the facility have been located. The aquifer(s) yielding water should be identified for each well.

2. Provide groundwater conditions for each land based unit or unit which requires post closure care which includes all the information specified in 30 TAC 335.156-335.167. This discussion should also include:

   a. Records of water level measurements in borings. The boring logs prepared in response to Section VI.A.4.a. should be annotated to note the level at which groundwater is first encountered and the level of groundwater after equilibration. Normally a 24-hour period is adequate for equilibration of groundwater but an extended period may be required for saturated clay deposits. This information should also be presented on the cross-sections required in Section VI.A.4.b. and recorded and retained in the facility groundwater monitoring record.

   b. Records of historical maximum and minimum static water level measurements in monitor wells. Historic water level measurements made during any previous groundwater monitoring should be presented in a table for each well.

   c. Upper and lower limits of the uppermost aquifer and deeper aquifers which are hydraulically interconnected to it beneath the facility boundary. In most cases this identification would include surface contour maps of the top and bottom surfaces. Indicate the typical depth at which groundwater is first encountered.

   d. A site specific water table contour map or potentiometric surface map for the uppermost aquifer, and the basis for such identification (the information obtained from hydrogeologic investigations of the facility area). The predicted groundwater flow direction and rate should be indicated.

   e. A discussion of the variation of hydraulic gradient across the site, including vertical gradient. Calculations for the maximum, minimum, and average groundwater flow velocities for each aquifer identified should also be provided, including pump test data where appropriate.

   f. An analysis of the most likely pathway(s) for pollutant migration in the event that the primary barrier liner system is penetrated.

3. Description of the Detection Monitoring Program

It is important to note that even if the proposed program may use the same well system as the present program, the sampling parameters may be different.

a. Include in the design report a description of the proposed detection monitoring program. This description should contain all requirements of 30 TAC 335.163-335.164.

b. Provide a justification for the selected suite of waste specific parameters specified in Table VI.B.3.c. - Groundwater Sample Analysis based on toxicity, mobility, persistence, and concentrations in light and dense non-aqueous phase components of the waste.

c. (Sampling and Analysis Plan) Describe the proposed sampling and analysis methods, as well as statistical comparison procedures to be utilized in evaluating groundwater monitoring data. Note: Methods listed for use in groundwater programs may provide flexibility allowing for updates of the base method. For methods other than the standard acceptable methods, applicant must provide a demonstration that the proposed methods are appropriate for groundwater analysis per 30 TAC 335.163(5).

d. Specify the statistical method and process for determining whether constituent concentrations in groundwater are above background, in accordance with 30 TAC 335.163. Refer to the EPA guidance document entitled Statistical Analysis of Ground-Water Monitoring Data at RCRA Facilities - Unified Guidance (March 2009) (document # EPA 530-F-09-020) for recommended methods.

   All data submitted to the TCEQ shall be in a manner consistent with the latest version of the "*Quality Assurance Project Plan for Environmental Monitoring and Measurement Activities Relating to the Resource Conservation Recovery Act and Underground Injection Control*" (TCEQ QAPP) which a can be found on the agency's website.

   Monitoring samples and measurements shall be taken at times and in a manner so as to be representative of the monitored activity. The method used to obtain a representative sample of the material to be analyzed shall be the appropriate method from ***Ground Water, Volume II: Methodology***, (document # EPA/625/6-90/016b) or an equivalent method approved by the Executive Director of the TCEQ. Laboratory methods shall be those specified in ***Test Methods for Evaluating Solid Waste: Physical/Chemical Methods, SW-846***, 1987, as revised; ***Standard Methods for the Examination of Water and Wastewater, Fifteenth Edition***, 1980, and 1981 supplement, or current adopted edition; ***RCRA Ground-Water Monitoring: Draft Technical Guidance***, 1992, ***OSWER Directive 9950.1***, or an equivalent method approved in writing prior to use by the Executive Director. [30 TAC Section 305.125(11)(A)]

e. For inclusion into a permit, complete Table VI.B.3.b. - Unit Groundwater Detection Monitoring System to specify the proposed well system for each unit or waste management area which requires groundwater monitoring.

f. For inclusion into a permit, complete Table VI.B.3.c to specify:

(1) the suite of waste specific parameters (indicator parameters, waste constituents, or reaction products) which will be analyzed at each sampling event for each well or group of wells. These parameters must provide a reliable indication of the presence of hazardous constituents in the groundwater;

(2) the sampling frequencies and calendar intervals (e.g., monthly; quarterly within the second 30 days of each quarter; semiannually within the first 30 days of the 2nd and 4th quarters, etc.);

(3) the analytical method and the laboratory predicted detection limit and predicted Practical Quantification Limit (PQL) of the sample preparation and analysis methods for the selected parameters. This detection limit will represent the capability of the sampling and analysis to reliably and accurately determine the presence of the selected parameters in the sample; and

(4) the concentration limit which will be the basis for determining whether a release has occurred from the waste management unit/ area. Concentration limits shall be based on background values for the waste management unit/area, or PQL values developed through laboratory data obtained using practices consistent with the latest version of the TCEQ QAPP. If background values are lower than PQLs, the applicant may choose respective PQLs as concentration limits for hazardous constituents.

g. Submit drawings depicting the monitoring well design, current and proposed.

h. Submit at least one map of the entire facility and additional maps or drawings if necessary on one or more 8.5" x 11" sheets of sufficient scale to show the following in adequate detail:
   (1) Monitoring well locations, current and proposed;
   (2) Soil-pore liquid and core sampling points, current and proposed;
   (3) Waste management unit(s)/area;
   (4) Property boundary;
   (5) Point of compliance;
   (6) Direction of groundwater flow; and
   (7) Extent of any known plume of contamination

i. For the description of site-specific groundwater for inclusion in permit summary documents, please complete the following:

Table VI.A.2. Description of Uppermost Aquifer

C. Exemption from Groundwater Monitoring for an Entire Facility

In accordance with 30 TAC 335.156(b)(4), a waste management facility may be exempt from groundwater monitoring if the owner or operator can demonstrate that there is no potential for migration of liquid from any regulated unit to the uppermost aquifer during the active life of the regulated unit (including the closure period) and post-closure care period. This demonstration must be submitted with the permit application, and must be certified by a qualified geologist or geotechnical engineer.

This exemption does not apply to Unsaturated Zone Monitoring. Owners and operators of Land Treatment Units must monitor the unsaturated zone under all circumstances.

The following areas should be addressed in the demonstration, and any predictions must be made on assumptions that maximize the rate of liquid migration:

1. Thickness of soil between the base of the unit and saturated zone;
2. Thickness of saturated zone;
3. Head pressure of the fluids;
4. Properties of the saturated and unsaturated zone (including permeability, effective porosity, and homogeneity), and
5. Total life of facility

The criteria used for the evaluation of this demonstration are more stringent than those used for evaluations of demonstrations submitted prior to permitting. Thus it is necessary for an owner or operator to submit another demonstration even if one was submitted and approved previously.

This type of exemption differs from the exemptions described in Sections V.D. (Surface Impoundments), V.E. (Waste Piles), and V.G. (Landfills). An owner or operator may pursue a facility-wide exemption as well as an exemption for a particular unit, if the owner or operator wishes.

D. Unsaturated Zone Monitoring

1. List all hazardous constituents that have been or will be monitored.
   a. Current parameters.
   b. Proposed parameters.
2. Number of soil-pore liquid sampling points.
   a. Depth of sampling points.
   b. Equipment used for soil pore liquid monitoring.
3. Number of soil core sampling points.
   a. Depth of soil core sampling points.
   b. Indicate on a facility map locations of all sampling points.

TABLE OF APPENDICES

APPENDIX	TITLE
VI.A	Geology and Topography (Geology Report)
VI.B	Facility Groundwater (Not Applicable)
VI.C	Exemption from Groundwater Monitoring for an Entire Facility (Not Applicable)
VI.D	Unsaturated Zone Monitoring (Not Applicable)

Appendix VI.A:
GEOLOGY AND TOPOGRAPHY (GEOLOGY REPORT)

BASF

We create chemistry

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

GEOLOGY REPORT

MAY 2025

1.0 INTRODUCTION

BASF Corporation (BASF) operates four liquid hazardous waste incinerators at its facility in Freeport, Texas. These units are designated as Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500. These incinerators are the only permitted hazardous waste units at the facility. The incinerators are subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Parts 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerators are also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE.

This document presents the geology report.

2.0 APPLICABILITY

Section VI is not applicable to this renewal application. The facility is not a new hazardous waste management facility and is not undergoing an areal expansion. There are no land based units and no post-closure tanks or drip pads included in this application.

VII. CLOSURE AND POST-CLOSURE PLANS

VII. Closure and Post-Closure Plans

Provide all Part B responsive information in Appendix VII. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

For multiple units provide an include all Part B responsive information in a separate Appendix for each unit.

Submit a full closure plan and post-closure plan, if applicable, which contains all the information required by 30 TAC 335.8, 335.169, 335.172, 335.174, 335.177, 335.178, 335.551-335.569, 30 TAC Chapter 350, 40 CFR 264.112, 264.118, 264.178, 264.197, 264.228, 264.258, 264.280, 264.310, 264.351, 264.575, 264.601, 264.603, 264.1102, 270.14(b)(13), 270.17(f), 270.18(h), 270.20(f), 270.21(e), 270.23(a)(2) & (3), and 270.26(c)(16) where applicable. The owner of property on which an existing disposal facility is located must also submit documentation that a notation has been placed in the deed to the facility that will in perpetuity notify any potential purchasers of the property that the land has been used to manage hazardous wastes and its use is restricted (see 30 TAC 335.5). For hazardous waste disposal units that were closed before submission of the application, the applicant should submit documentation to show that plats and notices required under 40 CFR 264.116 and 264.119 have been filed.

A. Closure

This section applies to the owners and operators of all hazardous waste management facilities to be permitted. The applicant must close the facility in a manner that minimizes need for further maintenance and controls, or eliminates, to the extent necessary to protect human health and the environment, the post-closure release of hazardous waste, hazardous constituents, leachate, contaminated rainfall, or waste decomposition products to the groundwater, surface waters, or to the atmosphere.

The facility type and type of unit to be closed can determine the level of detail sufficient for a closure plan.

For each unit to be permitted, complete Table VII.A. - Unit Closure and list the facility components to be decontaminated, possible methods of decontamination, and possible methods of disposal of wastes and waste residues generated during unit closure. All ancillary components must be included in calculating closure cost estimates.

Additionally, if the applicant plans to close a surface impoundment in accordance with 30 TAC 335.169(a)(1) and the impoundment does not comply with the liner requirements of 30 TAC Section 335.168(a) then the closure plan for the impoundment must include both a plan for complying with 30 TAC 335.169(a)(1) and a contingent plan for complying with 30 TAC 335.169(a)(2).

Guidance on design of a closure cap and final cover for landfills is given in TCEQ Technical Guideline No. 3, and EPA publication 530-SW-85-014 presents guidance on construction quality assurance of liner construction.

If a waste pile does not comply with the liner requirements of 30 TAC Section 335.170(a)(1) then the closure plan for the waste pile must include both a plan for complying with 40 CFR 264.258(a) and a contingent plan for complying with 40 CFR 264.258(b).

The final certification of closure of a land treatment unit may be prepared by an independent licensed Professional Geoscientist in lieu of an independent licensed Professional Engineer. [30 TAC 335.172(b)]

B. Closure Cost Estimate (including contingent closure) [30 TAC 335.178, 40 CFR 264.142]

This section applies to owners or operators of all hazardous waste facilities, except state and federal agencies. A detailed estimate, in current dollars, of the cost of closing the facility should be included in the report. The cost estimate must include the cost of closure at the point in the facilities operating life when the extent and manner of its operation would make closure the most expensive. The TCEQ has published Technical Guideline No. 10, Closure and Post-Closure Cost Estimates, for calculating closure costs which should be consulted. Closure costs should be developed on the basis of abandonment of the site at full capacity and closure activities to be conducted by a third party with no operable on-site equipment. The costs for closing each unit must be detailed.

1. If closure costs are based on contractor bids, the applicant should submit a copy of the bid specification and each contractor's response.

2. If closure costs are based on a detailed analysis, the applicant should submit details of item costs and number of each item, and details of costs for equipment rental, third party labor and supervision, transportation, analytical costs, etc. Provide an itemized cost on Table VII.B. - Unit Closure Cost Estimate for a complete, third party permitted facility closure.
As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

3. The closure plan may propose on-site disposal of wastes, residues, etc. during closure of a unit, and this may be executed if on-site capacity exists in other units during closure of a unit. However, the cost estimate for closure must be based on off-site shipment and disposal during closure of all wastes, waste residues, wastes generated by decontamination, contaminated stormwater, and leachate.

4. For each surface impoundment, waste pile, or tank system required to have a contingent closure plan, the cost for closure under the contingent closure plan should be detailed, as well as the cost of proposed closure. The more expensive of the cost of the proposed closure of a unit versus the cost of the contingent closure of the unit should be used in the total facility closure cost estimate.

C. Post-closure

This section applies to owners or operators of all hazardous waste disposal facilities. This section also applies to certain waste piles, tanks and surface impoundments from which the owner or operator intends to remove wastes at closure but which are required to have contingent post-closure plans.

For Landfills, and Waste Piles, Surface Impoundments, and Tanks Closed as a Landfill

1. Provide as-built plans and specifications for the final cover system, individually for each unit that is sealed, signed and dated by a licensed professional engineer with current Texas registration along with the Registered Engineering Firm's name and

Registration Number would satisfy this requirement; Other as-built plans and specifications for the unit may be submitted upon request.

2. Complete the following tables, as applicable:

   a. Complete Table VII.G - Post Closure Period.

   b. Complete Table V.G.1 - Landfills and list the landfills (and number of cells, if applicable) covered by this application. List the waste(s) managed in each unit and the rated capacity or size of the unit. If wastes are segregated in some manner, list the cell number in which wastes are placed next to each waste type.

   c. Table V.G.3. - Landfill Liner System and specify the type of liner used for the landfill.

   d. Table V.G.4. - Landfill Leachate Collection System used for the landfill.

   e. Table V.E.1 - Waste Piles and list the waste piles covered by this application. List the waste managed in each unit and the rated capacity or size of the unit.

   f. Table V.E. 3 - Waste Pile Liner System and specify the type of containment/liner system.

   g. Table V.D.1 - Surface Impoundments and list the surface impoundments, covered by this application, to be permitted. List the waste(s) managed in each unit and the rated capacity or size of each unit.

   h. Table V.D. 6. - Surface Impoundment Liner System for each surface impoundment to be permitted.

   i. Table V.C. Tanks and Tank Systems.

   Post-closure care of each hazardous waste management unit must continue for 30 years after the date of completing closure of the unit and must consist of monitoring and reporting of the groundwater monitoring systems in addition to the maintenance and monitoring of waste containment systems. Continuation of certain security requirements may be necessary after the date of closure. Post-closure use of property on or in which hazardous waste remains after closure must never be allowed to disrupt the integrity of the containment system. In addition, submit the following information.

   1. The post-closure care plan for a landfill or of a surface impoundment, waste pile, miscellaneous unit, or tank system closed with wastes or waste constituents left in place, or closed under a contingent closure plan, must demonstrate compliance with 30 TAC 335.174(b).

   2. The name, address, and phone number of the person or office to contact about the disposal facility during the post-closure period; and

   3. A discussion of the future use of the land associated with each unit.

   4. For landfills, surface impoundments, waste piles, and land treatment areas closed under interim status, submit the required documentation of 40 CFR 270.14(b)(14).

   5. Landfills, surface impoundments, waste piles and land treatment areas that received hazardous wastes after July 26, 1982 or for which closure was certified after January 26, 1983 must be included in post-closure care plans unless they have been determined to have closed by removal equivalent to the closure standards in 40 CFR 264 Subpart G. If such a demonstration has been made pursuant to 40 CFR 270.1(c)(5), but an equivalency determination has not been

made, please submit a copy of the demonstration documentation. If an equivalency determination has been made pursuant to 40 CFR 270.1(c)(6), applicant should submit a copy of the determination. Complete Table VII.C.5. - Land-Based Units Closed Under Interim Status for all land based units closed under interim status.

D. Post-closure Cost Estimate [40 CFR 264.144]

This section regarding post-closure cost estimate applies to owners or operators of all hazardous waste disposal facilities, except state and federal agencies, and certain waste piles, tank systems, and surface impoundments from which the owner or operator intends to remove wastes at closure, but which are required to have contingent closure and post-closure plans. A detailed estimate, in current dollars, of the annual cost of monitoring and maintenance of the facility in accordance with the applicable post-closure regulations must be included in the report. The TCEQ has published Technical Guideline No. 10 for calculating post-closure costs, which should be consulted. Costs should be developed in detail for 30 years of post-closure care activities to be conducted by a third party, for each applicable unit.

1. The applicant should submit details of item costs and number of each item for off-site disposal of leachate and bailed monitor well water, labor and supervision, monitor well sampling and analyses, inspection and repair of the cap(s), mowing and re-seeding of the vegetative cover, maintaining site security, etc. Provide an itemized cost estimate on Table VII.D. - Unit Post-Closure Cost Estimate for complete, third party permitted facility post-closure care.

2. As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when re-calculating the revised total cost in current dollars.

3. Total annual cost of post-closure care for the facility including costs of contingent post-closure care should be multiplied by 30 years.

E. Closure and Post-Closure Cost Summary

Please Complete Table VII.E.1. - Permitted Unit Closure Cost Summary

Please Complete Table VII.E.2. - Permitted Unit Post-Closure Cost Summary

TABLE OF APPENDICES

APPENDIX	TITLE
VII.A	Closure (Table VII.A and Closure Plan)
VII.B	Closure Cost Estimate (including contingent closure) (Table VII.B)
VII.C	Post-closure (Not Applicable)
VII.D	Post-closure Cost Estimate (Not Applicable)
VII.E	Closure and Post-Closure Cost Summary (Table VII.E.1)

Appendix VII.A:
CLOSURE
(TABLE VII.A AND CLOSURE PLAN)

Table VII.A. - Unit Closure

For each unit to be permitted, list the facility components to be decontaminated, the possible methods of decontamination, and the possible methods of disposal of wastes and waste residues generated during unit closure:

Equipment or HWM Unit	Possible Methods of Decontamination [1]	Possible Methods of Disposal [1]
Incinerator IN-701 associated equipment	Removal of waste, flushing, and rinsing	Onsite treatment, offsite underground injection, offsite stabilization and landfilling, offsite incineration and ash stabilization
Incinerator IN-701 combustion chamber	Operate with fuel and no hazardous waste for at least four hours	Not applicable
Incinerator IN-701 combustion chamber	Removal of refractory material	Offsite landfilling
Incinerator IN-4702 associated equipment	Removal of waste, flushing, and rinsing	Onsite treatment, offsite underground injection, offsite stabilization and landfilling, offsite incineration and ash stabilization
Incinerator IN-4701 combustion chamber	Operate with fuel and no hazardous waste for at least four hours	Not applicable
Incinerator IN-4702 combustion chamber	Removal of refractory material	Offsite landfilling
Incinerator IN-5100 associated equipment	Removal of waste, flushing, and rinsing	Onsite treatment, offsite underground injection, offsite stabilization and landfilling, offsite incineration and ash stabilization
Incinerator IN-5100 combustion chamber	Operate with fuel and no hazardous waste for at least four hours	Not applicable
Incinerator IN-5100 combustion chamber	Removal of refractory material	Offsite landfilling
Incinerator IN-5500 associated equipment	Removal of waste, flushing, and rinsing	Onsite treatment, offsite underground injection, offsite stabilization and landfilling, offsite incineration and ash stabilization
Incinerator IN-5500 combustion chamber	Operate with fuel and no hazardous waste for at least four hours	Not applicable
Incinerator IN-5500 combustion chamber	Removal of refractory material	Offsite landfilling

[1] Applicants may list more than one appropriate method..

BASF

We create chemistry

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

CLOSURE PLAN

MAY 2025

TABLE OF CONTENTS

LIST OF TABLES

LIST OF ATTACHMENTS

1.0 INTRODUCTION

BASF Corporation (BASF) operates four liquid hazardous waste incinerators at its facility in Freeport, Texas. These units are designated as Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500. These incinerators are the only permitted hazardous waste units at the facility. The incinerators are subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Parts 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerators are also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE.

40 CFR §264.112 requires an owner or operator of a hazardous waste management facility to develop a written closure plan. The plan must identify the steps necessary to perform partial and/or final closure of the facility at any point during its active life and must address the items identified in 40 CFR § 264.112(b). The purpose of the closure plan presented herein is to ensure that the incinerators at the BASF Freeport Site will be closed pursuant to 40 CFR Part 264 Subpart G.

This closure plan includes a description of how each incinerator will be closed in accordance with 40 CFR § 264.111. The following information is provided in this plan:

- A description of the methods to be used during partial or final closure;
- An estimate of the maximum inventory of hazardous wastes ever onsite over the active life of the units;
- Methods for removing, transporting, treating, storing, or disposing of all hazardous wastes, and identification of the type(s) of the offsite hazardous waste management units to be used;
- A description of the steps needed to remove or decontaminate any hazardous waste residues and contaminated containment system components, equipment, structures, and soils during partial and final closure, including methods for decontaminating piping and equipment, removing contaminated soils, and sampling and testing surrounding soils, as well as criteria for determining the extent of decontamination required to satisfy the closure performance standard and 40 CFR § 264.112(b)(5);
- A detailed description of other activities necessary during the closure period to ensure that all run on and run-off waters are controlled; and
- An example schedule for closure of a unit, including the total estimated time required to close the unit and the time required for intervening closure activities, which allows tracking of the progress of partial or final closure.

The remaining sections of this plan provide the following information:

- Section 2.0 discusses the closure performance standards;
- Section 3.0 describes the hazardous waste management units;
- Section 4.0 specifies maximum waste inventories;

- Section 5.0 describes the specific closure procedures;
- Section 6.0 presents a schedule for closure;
- Section 7.0 addresses post closure;
- Section 8.0 presents the closure cost estimates;
- Section 9.0 discusses certifications;
- Section 10.0 addresses amendments to the plan; and
- Attachment A contains the closure cost calculations.

2.0 CLOSURE PERFORMANCE STANDARDS

BASF intends to close the incinerators as required by 40 CFR § 264.111. When implemented, the closure plan will achieve the following:

- Minimize the need for further maintenance;
- Eliminate the potential for any post-closure escape of hazardous waste or hazardous constituents to the environment; and
- Comply with 40 CFR Part 264 Subpart G requirements and unit-specific closure standards.

Closure will be accomplished by:

- Physically removing contaminated equipment for offsite treatment/disposal;
- Cleaning the equipment to established background standards;
- Cleaning to risk based standards if cleaning to background standards cannot be accomplished; and/or
- Cleaning by application of the debris standards codified in 40 CFR § 268.48.

3.0 FACILITY DESCRIPTION

The BASF Freeport Site operates four liquid hazardous waste incinerators. These units are designated as Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500.

Incinerator IN-701 is a liquid injection incinerator. The incinerator is a horizontal, cylindrical, self-supporting unit designed for forced draft operation. The incinerator is equipped with heat recovery for steam production. There is no air pollution control equipment installed on the unit because control is not necessary to comply with the applicable performance standards. The unit has been designed to process non-hazardous and hazardous liquid waste and vent gases up to a capacity of 100 million British thermal units per hour (MMBtu/hr).

Incinerator IN-4702 is a liquid injection incinerator. The incinerator is a custom designed vertical, cylindrical, down-fired, self-supporting unit designed for forced draft operation. The incinerator is equipped with heat recovery for steam production. There is no air pollution control equipment installed on the unit because control is not necessary to comply with the applicable performance standards. The unit has been designed to process non-hazardous and hazardous liquid waste and vent gases up to a capacity of 100 MMBtu/hr.

Incinerator IN-5100 is a liquid injection incinerator. The incinerator is a custom designed vertical, cylindrical, down-fired, self-supporting unit designed for forced draft operation. The incinerator is equipped with heat recovery for steam production. There is no air pollution control equipment installed on the unit because control is not necessary to comply with the applicable performance standards. The unit has been designed to process non-hazardous and hazardous liquid waste and vent gases up to a capacity of 216 MMBtu/hr.

Incinerator IN-5500 is a liquid injection incinerator. The incinerator is a vertical, cylindrical, down-fired, self-supporting unit designed for forced draft operation. The incinerator is equipped with heat recovery for steam production and combustion air/process vent gas preheating. There is no air pollution control equipment installed on the unit because control is not necessary to comply with the applicable performance standards. The unit has been designed to process non-hazardous and hazardous liquid waste and vent gases up to a capacity of 100 MMBtu/hr.

4.0 MAXIMUM WASTE INVENTORY

Waste is not stored in the incinerators. Neither ash waste nor any other hazardous waste material or hazardous waste residue is generated from the combustion of the wastes. Therefore, the maximum incinerators waste inventory is zero.

5.0 CLOSURE PROCEDURES

This section describes the procedures that will be used for closure of Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500. The following two closure scenarios may apply to the incinerators:

- Closure without demolition; and
- Closure with demolition.

Closure without demolition involves closure of one or more incinerators with respect to hazardous waste service. This scenario would leave the incinerator(s) intact. This scenario would apply to one or more incinerators that are ceasing hazardous waste service but have not reached the end of their useful life as natural gas-fired steam production units.

Closure with demolition involves closure of one or more incinerators by demolition and complete removal of the unit(s). This scenario would apply if one or more incinerators have reached the end of their useful life as both waste-fired and natural gas-fired steam production units.

The steps for each type of closure are related in that steps can be repeated and/or omitted, as applicable. For example, the steps for closure of one incinerator is repeated four more times to achieve closure of all three incinerators. Also, in the closure without demolition scenario, the demolition step would be omitted.

5.1 WASTE INVENTORY REMOVAL

As discussed previously, there will be no waste inventory in the incinerators at closure. Therefore, there is no need for waste removal.

5.2 DECONTAMINATION

A two-stage decontamination process is applied to each incinerator undergoing closure. These steps include:

- Organic decontamination; and
- Metals decontamination.

5.2.1 ORGANIC DECONTAMINATION

Each incinerator will be subjected to a burn-out period of not less than 12 hours at combustion chamber temperatures of not less than the minimum allowable temperature applicable to waste feed operations. No waste will be fed during the burn-out period.

5.2.2 METALS DECONTAMINATION

Following combustion chamber cooling, and once the combustion chamber can be safely entered, the combustion chamber will be water washed by hydroblasting, hand scrubbing, or any similar method of washing metal contamination from the surface of the refractory. All wash water will be collected, characterized, and disposed of properly. Pre-wash samples of each portion of the wash water will be collected prior to water washing. All samples will be tested for the presence of BIF regulated metals reasonably expected to be present in the waste based on knowledge of the waste (*e.g.*, historical waste analytical data). The pre-wash and post-wash samples will be analyzed using the same procedures as described in the RCRA waste analysis plan (See Appendix IV.D).

Determination that contamination is complete will be based on direct comparison of pre-wash and post-wash sample analytical results. Metals results in the post-wash samples that exceed the pre-wash samples will indicate that decontamination is not complete. Water washing and wash sample collection and analysis will be repeated until decontamination is complete.

The pre-wash and post-wash samples may be analyzed for a single indicator metal instead of all RCRA metals reasonably expected to be present in the waste. This single indicator metal will be a predominant metal in the waste based on historical waste analytical data.

As an alternative to water washing, decontamination of the incinerator may be achieved by complete removal of the refractory. Removed refractory will be characterized in accordance with TCEQ Waste Classification Rules codified in 30 TAC Chapter 335 Subchapter R and disposed of properly.

5.3 DEMOLITION

Demolition of an incinerator involves asbestos removal and general dismantling. Asbestos removal involves construction of a temporary enclosure equipped with air filtration and hand scraping of asbestos by abatement professionals. Asbestos, used Personal Protective Equipment (PPE), and enclosure materials will be bagged for shipment to an offsite disposal facility. The type(s) of offsite disposal facilities to be used include permitted Class 1 non-hazardous waste landfills.

General dismantling methods consist of the following:

- Disconnection of electrical and instrumentation systems;
- Dismantling of fan;
- Dismantling of steam and fuel piping;
- Dismantling of ladders and catwalks;
- Removal of stack;
- Removal of economizer; and
- Removal of incinerator.

In addition, the incinerator concrete foundation may be jack hammered and removed to the onsite landfill. Alternatively, BASF may elect to leave the concrete in place if it is demonstrated to not contain hazardous waste constituents, based on the contamination assessment discussed below.

5.4 Contamination Assessment and Remediation

Contamination assessment will be conducted to determine the extent to which the area around the incinerator may be impacted and therefore subject to remediation. Assessment establishes the rate, extent, and nature of soil impact by hazardous waste constituents. The assessment will be conducted in accordance with the 30 TAC Chapter 350, Texas Risk Reduction Program.

Each incinerator resides on a concrete pad. There is presently no exposed soil in the vicinity of the incinerators. Assessment will be conducted on the soil under the concrete foundation and under the concrete around the incinerators by way of a two-step process.

5.4.1 Step 1 – Assessment via Operating Record Survey

BASF maintains a program to inspect the incinerator areas for spills or releases. If spills or releases are found, they are cleaned up in order to prevent exposure and soil contamination. Upon closure, BASF will survey its historical operating records to determine 1) the occurrence of spills, 2) the effectiveness of clean-up, and 3) if waste constituents from the spills may have permeated the concrete and impacted the soil.

If the operating record survey indicates that spills were effectively cleaned up (*e.g.*, by comparison of the amount spilled with the amount recovered) and that the soil under the concrete has not been impacted, the assessment may end with this step. The results of this survey will be submitted in association with a Closure Report.

5.4.2 Step 2 – Assessment via Sampling and Analysis

If the operating record survey indicates that spills have not been effectively cleaned up and that the soil under the concrete and thus underlying soil may have been impacted, the assessment will continue with sampling and analysis. Sampling locations will be identified around the incinerators where likely spill impact has occurred based upon the operating record survey. Discrete samples from three depths will be obtained at one or more sample locations. These depths are designated as top, middle, and bottom samples as follows:

- Top – 0 to 6 inches below grade;
- Middle – 30 to 36 inches below grade; and
- Bottom – 54 to 60 inches below grade.

Soil samples will be collected by first jackhammering or hydraulic augering the concrete to expose the soil. Soil sampling will follow with the aid of a push-probe-type drilling rig, a hand auger, or trowel. Sampling tools will be decontaminated prior to their first use and between each sampling location.

Decontamination of sample equipment will be conducted by cleaning using a non-phosphate detergent and potable water. The decontamination water will be disposed in the onsite wastewater treatment plant.

The samples will be packed directly into pre-cleaned glass sample jars as to minimize headspace. The resulting boreholes will be plugged using bentonite pellets. Boring logs will be maintained describing the geological conditions encountered during sampling.

A unique sample identification number will be assigned to each sample. The sample containers will be wiped clean, labeled, and packaged for transportation to a third party laboratory. A chain of custody (COC) record will accompany the sample during shipment to the laboratory.

Each sample will be analyzed for 40 CFR Part 261 Appendix VIII constituents that are reasonably believed to be impacting the soil. These waste constituents will be determined by review of historical waste fuel analytical data just prior to closure. Target analytes will analyzed by appropriate methods. Additional sampling and analysis may be conducted based upon the initial analytical results.

Waste constituent impact of the soil will be confirmed if analytical results of the soil samples exceed background concentrations determined from indigenous soil.

5.4.3 REMEDIATION

Soils found impacted will be excavated with a trackhoe, backhoe, or similar equipment, as appropriated, for the 30 TAC Chapter 350 Texas Risk Reduction Program remediation option selected. Removed soils are either transported to the onsite industrial landfill or containerized for offsite shipment to a disposal facility. The type(s) of offsite disposal facilities to be used include permitted hazardous waste incinerators and permitted hazardous waste landfills.

6.0 SCHEDULE FOR CLOSURE

The closure process will begin with notification to the TCEQ of BASF's intent to close and an expected date closure begins (*i.e.*, waste removal begins). Closure will be completed with the submittal of a closure report including professional engineer's certification (final closure only). In the case of final closure of all of the incinerators, this report and certification must be submitted within 60 days of completion of onsite closure activities. Table 1 provides an example schedule for the closure of one of the effected waste management units. This schedule is an example only. Actual closure may differ in schedule but will comply with the applicable scheduling requirements set forth in 40 CFR Part 264.

TABLE 1
EXAMPLE SCHEDULE FOR CLOSURE

ACTIVITY/MILESTONE	DAYS FROM SUBMITTAL OF NOTIFICATION
Submittal of notification of closure	0
Most recent receipt of waste	0
Final receipt of waste	180
Begin closure	180
Complete waste removal	180
Complete decontamination	200
Complete demolition	270
Complete contamination assessment sampling and analysis	300
Complete contamination closure report	330
Submit closure report	360
Certification of closure	420

7.0 POST-CLOSURE

The incinerators are not land-based disposal or treatment units. Therefore, these units are not subject to post-closure plan requirements.

8.0 CLOSURE COST ESTIMATE

The estimated cost of closing Incinerator IN-701 is $621,100, the estimated cost of closing Incinerator IN-4702 is $779,500, the estimated cost of closing Incinerator IN-5100 is $695,900, and the estimated cost of closing Incinerator IN-5500 is $812,900. This estimate is in 2025 dollars. The cost calculations are presented in Attachment A. The attachment contains the unit costs and key assumptions used in the closure cost estimate. The cost estimate was prepared in accordance with 40 CFR § 264.142. The following assumptions were used in the estimate:

- All closure activities and supervision are performed by an independent third party;
- All wastes generated in the closure will be shipped offsite to an authorized storage, processing, or disposal facility;
- All onsite monitoring equipment associated with the waste management are inoperable;
- Unit components have no salvage value;
- Hydroblasting is conducted twice, along with pre-wash and post-wash sampling and analysis;
- Assessment via sampling and analysis is necessary and three discrete sampling locations are identified during the operating record survey; and
- Certification of closure will be obtained by a professional engineer registered in the State of Texas.

A summary of the closure cost estimate is provided in Table 2. Calculation and assumptions supporting this estimate are included in Appendix A.

TABLE 2
CLOSURE COST ESTIMATE

TASK	INCINERATOR IN-701	INCINERATOR IN-4702	INCINERATOR IN-5100	INCINERATOR IN-5500
Waste removal	$ 0	$ 0	$ 0	$ 0
Burn out period	$ 1,800	$ 1,800	$ 3,900	$ 1,800
Refractory removal/disposal	$ 143,800	$ 178,600	$ 143,600	$ 209,000
Associated equipment decontamination/testing/disposal	$ 76,200	$ 185,400	$ 142,300	$ 185,400
Concrete decontamination/testing/disposal	$ 39,800	$ 39,800	$ 39,800	$ 39,800
Soil contamination assessment/removal	$ 58,000	$ 58,000	$ 58,000	$ 58,000
Third party oversight	$ 117,000	$ 117,000	$ 117,000	$ 117,000
Closure certification	$ 64,000	$ 64,000	$ 64,000	$ 64,000
Final closure report	$ 64,000	$ 64,000	$ 64,000	$ 64,000
Subtotal	$ 564,600	$ 708,600	$ 632,600	$ 739,000
Contingency (10 percent)	$ 56,500	$ 70,900	$ 63,300	$ 73,900
Total	$ 621,100	$ 779,500	$ 695,900	$ 812,900

Closure costs estimates subsequent to 2025 will be adjusted once annually for inflation. The adjusted closure cost estimate is obtained using the inflation factor calculated from the annual Implicit Price Deflator (IPD) for Gross National Product. The inflation factor is calculated by dividing the latest IPD by the IPD for the previous year. This inflation factor is then multiplied by the closure cost estimate for the preceding year.

While different types of IPD's are available, the IPD for Gross National Product must be used. The IPD is published by the US Department of Commerce Bureau of Economic Analysis in the Survey of Current Business. The IPD is published quarterly. Annual IPD's are typically published at the end of the first quarter (March) for the previous year.

9.0 CERTIFICATION

An independent professional engineer licensed in Texas is required to certify that closure procedures are performed in accordance with this closure plan. Site inspections will be performed by the independent registered professional engineer to verify the processes and procedures which are being utilized to implement this plan.

Within 60 days of completion of final closure, BASF will submit a certification to the administrative authority, signed by BASF and the independent registered professional engineer, that the hazardous waste management units have been closed in accordance with the specifications of the closure plan.

10.0 AMENDMENT OF CLOSURE PLAN

BASF will amend the closure plan whenever:

- Changes in the operating plan or facility design affect the closure procedures;
- There is a change in the expected year of facility closure; and/or
- Modifications to the plan become necessary due to partial or final closure activities.

Any proposed changes will be promptly submitted to the Texas Commission on Environmental Quality (TCEQ) for approval in accordance with 40 CFR § 264.112(c). A copy of the closure plan and all plan revisions will be maintained at the BASF facility until certification of closure completeness has been submitted to and approved by the TCEQ.

Attachment A:
CLOSURE COST ESTIMATE CALCULATIONS

	IN-701	IN-4702	IN-5100	IN-5500
Waste removal	$0	$0	$0	$0
Combustion chamber: Includes decontamination by fuel gas firing, removal of refractory, transportation and disposal of refractory, and transportation and disposal of shell.	$145,600	$180,400	$147,500	$210,800
Associated equipment: Includes decontamination by rinsing, verification sampling, transportation and disposal of rinsate, and transportation and disposal of equipment.	$76,200	$185,400	$142,300	$185,400
Concrete pad: Includes decontamination by rinsing, verification sampling, and transportation and disposal of rinsate.	$39,800	$39,800	$39,800	$39,800
Soil contamination: Includes assessment and removal.	$58,000	$58,000	$58,000	$58,000
Other tasks: Includes third party oversight, closure certification, and final closure report.	$245,000	$245,000	$245,000	$245,000
Subtotal	$564,600	$708,600	$632,600	$739,000
Contingency (10% minimum)	$56,500	$70,900	$63,300	$73,900
Total Closure Cost	$621,100	$779,500	$695,900	$812,900

$2,909,400

CLOSURE OF INCINERATOR IN-701

	Unit Cost	Quantity	Unit	Cost	Estimated Cost
Waste removal	$0.00	0	lb	$0	$0
Combustion chamber:					
Combustion chamber decon by fuel gas firing (100 MMBtu/hr design, 75% capacity, 6 hours)	$4.00	450	MMBtu	$1,800	$1,800
Remove refractory brick and load into rolloff containers	$75.00	200	man-hour	$15,000	$15,000
Transport and disposal of refractory					$98,700
1. Transport rolloffs to RCRA Subtitle C landfill facility	$2,825.00	26	rolloff	$73,450	
2. Dispose of rolloffs at RCRA Subtitle C landfill facility	$100.00	253	ton	$25,272	
Incinerator shell transportation and disposal					$30,100
1. Wipe test to verify no contamination					
- Wipe test labor	$75.00	10	man-hour	$750	
- Wipe test sampling and analysis	$1,000.00	6	sample	$6,000	
2. Shell dismantling	$6,400.00	1	item	$6,400	
3. Transport steel to smelter	$2,825.00	6	rolloff	$16,950	
Associated equipment:					
Piping/ductwork decontamination					$23,000
1. Equipment rental to perform triple rinsing (trucks, pumps, solvent, etc.)	$8,300.00	2	day	$16,600	
2. Triple-rinse	$3,200.00	2	day	$6,400	
Verification rinsate sampling/analysis	$1,000.00	10	sample	$10,000	$10,000
Transport and disposal of rinsate (assume 3 rinses/line, 1500 gal/rinse = 4,500 gal)					$3,500
1. Transport hazardous waste by tanker trailer (5000 gal/load)	$1,000.00	1	load	$1,000	
2. Disposal of bulk liquid by RCRA incineration facility	$0.55	4,500	gal	$2,475	
Transport and disposal of equipment					$39,700
1. Equipment dismantling	$32.00	1,000	Linear feet	$32,000	
2. Transport debris to RCRA Subtitle C landfill	$2,825.00	2	rolloff	$5,650	
3. Disposal of debris at RCRA Subtitle C landfill	$100.00	20	ton	$2,000	
Concrete pad:					
Concrete pad decontamination					$23,000
1. Equipment rental to perform triple rinsing (trucks, pumps, solvent, etc.)	$8,300.00	2	day	$16,600	
2. Triple-rinse	$3,200.00	2	day	$6,400	
Verification rinsate sampling/analysis	$1,000.00	10	sample	$10,000	$10,000
Transport and disposal of rinsate (assume 3 rinses, 3000 gal/rinse = 9000 gal)					$6,800
1. Transport hazardous waste by tanker trailer (5000 gal/load)	$1,000.00	2	load	$1,800	
2. Disposal of bulk liquid by RCRA incineration facility	$0.55	9,000	gal	$4,950	
Soil contamination:					
Sampling and analysis of soil and concrete (if needed)					$47,600
1. Coring equipment rental and labor, 2 day rental	$320.00	2	day	$640	
2. Coring labor, 8 cores, 2 man crew	$75.00	20	man-hour	$1,500	
3. Analysis of cores	$2,300.00	8	sample	$18,400	
4. Soil drilling/sampling labor, 8 samples, 2 man crew	$75.00	20	man-hour	$1,500	
5. Analysis of soil samples	$3,200.00	8	sample	$25,600	
Soil removal (assume 20 tons)					$10,400
1. Soil removal equipment	$640.00	2	day	$1,280	
2. Soil removal labor	$75.00	20	man-hour	$1,500	
3. Transport soil to RCRA Subtitle C landfill	$2,825.00	2	rolloff	$5,650	
4. Disposal of soil at RCRA Subtitle C landfill	$100.00	20	ton	$2,000	
Third party oversight	$1,300.00	90	day	$117,000	$117,000
Closure certification	$64,000.00	1	lump sum	$64,000	$64,000
Closure report	$64,000.00	1	lump sum	$64,000	$64,000

Subtotal	$564,600
Contingency (10%)	$56,500
Total	$621,100

CLOSURE OF INCINERATOR IN-4702

	Unit Cost	Quantity	Unit	Cost	Estimated Cost
Waste removal	$0.00	0	lb	$0	$0
Combustion chamber:					
Combustion chamber decon by fuel gas firing (100 MMBtu/hr design, 75% capacity, 6 hours)	$4.00	450	MMBtu	$1,800	$1,800
Remove refractory brick and load into rolloff containers	$75.00	200	man-hour	$15,000	$15,000
Transport and disposal of refractory					$133,500
1. Transport rolloffs to RCRA Subtitle C landfill facility	$2,825.00	35	rolloff	$98,875	
2. Dispose of rolloffs at RCRA Subtitle C landfill facility	$100.00	347	ton	$34,671	
Incinerator shell transportation and disposal					$30,100
1. Wipe test to verify no contamination					
- Wipe test labor	$75.00	10	man-hour	$750	
- Wipe test sampling and analysis	$1,000.00	6	sample	$6,000	
2. Shell dismantling	$6,400.00	1	item	$6,400	
3. Transport steel to smelter	$2,825.00	6	rolloff	$16,950	
Associated equipment:					
Piping/ductwork decontamination					$46,000
1. Equipment rental to perform triple rinsing (trucks, pumps, solvent, etc.)	$8,300.00	4	day	$33,200	
2. Triple-rinse	$3,200.00	4	day	$12,800	
Verification rinsate sampling/analysis	$1,000.00	10	sample	$10,000	$10,000
Transport and disposal of rinsate (assume 3 rinses/line, 1500 gal/rinse = 13,500 gal)					$10,400
1. Transport hazardous waste by tanker trailer (5000 gal/load)	$1,000.00	3	load	$3,000	
2. Disposal of bulk liquid by RCRA incineration facility	$0.55	13,500	gal	$7,425	
Transport and disposal of equipment					$119,000
1. Equipment dismantling	$32.00	3,000	Linear feet	$96,000	
2. Transport debris to RCRA Subtitle C landfill	$2,825.00	6	rolloff	$16,950	
3. Disposal of debris at RCRA Subtitle C landfill	$100.00	60	ton	$6,000	
Concrete pad:					
Concrete pad decontamination					$23,000
1. Equipment rental to perform triple rinsing (trucks, pumps, solvent, etc.)	$8,300.00	2	day	$16,600	
2. Triple-rinse	$3,200.00	2	day	$6,400	
Verification rinsate sampling/analysis	$1,000.00	10	sample	$10,000	$10,000
Transport and disposal of rinsate (assume 3 rinses, 3000 gal/rinse = 9000 gal)					$6,800
1. Transport hazardous waste by tanker trailer (5000 gal/load)	$1,000.00	2	load	$1,800	
2. Disposal of bulk liquid by RCRA incineration facility	$0.55	9,000	gal	$4,950	
Soil contamination:					
Sampling and analysis of soil and concrete (if needed)					$47,600
1. Coring equipment rental and labor, 2 day rental	$320.00	2	day	$640	
2. Coring labor, 8 cores, 2 man crew	$75.00	20	man-hour	$1,500	
3. Analysis of cores	$2,300.00	8	sample	$18,400	
4. Soil drilling/sampling labor, 8 samples, 2 man crew	$75.00	20	man-hour	$1,500	
5. Analysis of soil samples	$3,200.00	8	sample	$25,600	
Soil removal (assume 20 tons)					$10,400
1. Soil removal equipment	$640.00	2	day	$1,280	
2. Soil removal labor	$75.00	20	man-hour	$1,500	
3. Transport soil to RCRA Subtitle C landfill	$2,825.00	2	rolloff	$5,650	
4. Disposal of soil at RCRA Subtitle C landfill	$100.00	20	ton	$2,000	
Third party oversight	$1,300.00	90	day	$117,000	$117,000
Closure certification	$64,000.00	1	lump sum	$64,000	$64,000
Closure report	$64,000.00	1	lump sum	$64,000	$64,000

Subtotal	$708,600
Contingency (10%)	$70,900
Total	$779,500

CLOSURE OF INCINERATOR IN-5100

	Unit Cost	Quantity	Unit	Cost	Estimated Cost
Waste removal	$0.00	0	lb	$0	$0
Combustion chamber:					
Combustion chamber decon by fuel gas firing (216 MMBtu/hr design, 75% capacity, 6 hours)	$4.00	972	MMBtu	$3,888	$3,900
Remove refractory brick and load into rolloff containers	$75.00	200	man-hour	$15,000	$15,000
Transport and disposal of refractory					$98,500
1. Transport rolloffs to RCRA Subtitle C landfill facility	$2,825.00	26	rolloff	$73,450	
2. Dispose of rolloffs at RCRA Subtitle C landfill facility	$100.00	251	ton	$25,070	
Incinerator shell transportation and disposal					$30,100
1. Wipe test to verify no contamination					
- Wipe test labor	$75.00	10	man-hour	$750	
- Wipe test sampling and analysis	$1,000.00	6	sample	$6,000	
2. Shell dismantling	$6,400.00	1	item	$6,400	
3. Transport steel to smelter	$2,825.00	6	rolloff	$16,950	
Associated equipment:					
Piping/ductwork decontamination					$46,000
1. Equipment rental to perform triple rinsing (trucks, pumps, solvent, etc.)	$8,300.00	4	day	$33,200	
2. Triple-rinse	$3,200.00	4	day	$12,800	
Verification rinsate sampling/analysis	$1,000.00	10	sample	$10,000	$10,000
Transport and disposal of rinsate (assume 3 rinses/line, 1500 gal/rinse = 9,000 gal)					$7,000
1. Transport hazardous waste by tanker trailer (5000 gal/load)	$1,000.00	2	load	$2,000	
2. Disposal of bulk liquid by RCRA incineration facility	$0.55	9,000	gal	$4,950	
Transport and disposal of equipment					$79,300
1. Equipment dismantling	$32.00	2,000	Linear feet	$64,000	
2. Transport debris to RCRA Subtitle C landfill	$2,825.00	4	rolloff	$11,300	
3. Disposal of debris at RCRA Subtitle C landfill	$100.00	40	ton	$4,000	
Concrete pad:					
Concrete pad decontamination					$23,000
1. Equipment rental to perform triple rinsing (trucks, pumps, solvent, etc.)	$8,300.00	2	day	$16,600	
2. Triple-rinse	$3,200.00	2	day	$6,400	
Verification rinsate sampling/analysis	$1,000.00	10	sample	$10,000	$10,000
Transport and disposal of rinsate (assume 3 rinses, 3000 gal/rinse = 9000 gal)					$6,800
1. Transport hazardous waste by tanker trailer (5000 gal/load)	$1,000.00	2	load	$1,800	
2. Disposal of bulk liquid by RCRA incineration facility	$0.55	9,000	gal	$4,950	
Soil contamination:					
Sampling and analysis of soil and concrete (if needed)					$47,600
1. Coring equipment rental and labor, 2 day rental	$320.00	2	day	$640	
2. Coring labor, 8 cores, 2 man crew	$75.00	20	man-hour	$1,500	
3. Analysis of cores	$2,300.00	8	sample	$18,400	
4. Soil drilling/sampling labor, 8 samples, 2 man crew	$75.00	20	man-hour	$1,500	
5. Analysis of soil samples	$3,200.00	8	sample	$25,600	
Soil removal (assume 20 tons)					$10,400
1. Soil removal equipment	$640.00	2	day	$1,280	
2. Soil removal labor	$75.00	20	man-hour	$1,500	
3. Transport soil to RCRA Subtitle C landfill	$2,825.00	2	rolloff	$5,650	
4. Disposal of soil at RCRA Subtitle C landfill	$100.00	20	ton	$2,000	
Third party oversight	$1,300.00	90	day	$117,000	$117,000
Closure certification	$64,000.00	1	lump sum	$64,000	$64,000
Closure report	$64,000.00	1	lump sum	$64,000	$64,000

Subtotal	$632,600
Contingency (10%)	$63,300
Total	$695,900

CLOSURE OF INCINERATOR IN-5500

	Unit Cost	Quantity	Unit	Cost	Estimated Cost
Waste removal	$0.00	0	lb	$0	$0
Combustion chamber:					
Combustion chamber decon by fuel gas firing (100 MMBtu/hr design, 75% capacity, 6 hours)	$4.00	450	MMBtu	$1,800	$1,800
Remove refractory brick and load into rolloff containers	$75.00	200	man-hour	$15,000	$15,000
Transport and disposal of refractory					$163,900
1. Transport rolloffs to RCRA Subtitle C landfill facility	$2,825.00	43	rolloff	$121,475	
2. Dispose of rolloffs at RCRA Subtitle C landfill facility	$100.00	425	ton	$42,470	
Incinerator shell transportation and disposal					$30,100
1. Wipe test to verify no contamination					
- Wipe test labor	$75.00	10	man-hour	$750	
- Wipe test sampling and analysis	$1,000.00	6	sample	$6,000	
2. Shell dismantling	$6,400.00	1	item	$6,400	
3. Transport steel to smelter	$2,825.00	6	rolloff	$16,950	
Associated equipment:					
Piping/ductwork decontamination					$46,000
1. Equipment rental to perform triple rinsing (trucks, pumps, solvent, etc.)	$8,300.00	4	day	$33,200	
2. Triple-rinse	$3,200.00	4	day	$12,800	
Verification rinsate sampling/analysis	$1,000.00	10	sample	$10,000	$10,000
Transport and disposal of rinsate (assume 3 rinses/line, 1500 gal/rinse = 13,500 gal)					$10,400
1. Transport hazardous waste by tanker trailer (5000 gal/load)	$1,000.00	3	load	$3,000	
2. Disposal of bulk liquid by RCRA incineration facility	$0.55	13,500	gal	$7,425	
Transport and disposal of equipment					$119,000
1. Equipment dismantling	$32.00	3,000	Linear feet	$96,000	
2. Transport debris to RCRA Subtitle C landfill	$2,825.00	6	rolloff	$16,950	
3. Disposal of debris at RCRA Subtitle C landfill	$100.00	60	ton	$6,000	
Concrete pad:					
Concrete pad decontamination					$23,000
1. Equipment rental to perform triple rinsing (trucks, pumps, solvent, etc.)	$8,300.00	2	day	$16,600	
2. Triple-rinse	$3,200.00	2	day	$6,400	
Verification rinsate sampling/analysis	$1,000.00	10	sample	$10,000	$10,000
Transport and disposal of rinsate (assume 3 rinses, 3000 gal/rinse = 9000 gal)					$6,800
1. Transport hazardous waste by tanker trailer (5000 gal/load)	$1,000.00	2	load	$1,800	
2. Disposal of bulk liquid by RCRA incineration facility	$0.55	9,000	gal	$4,950	
Soil contamination:					
Sampling and analysis of soil and concrete (if needed)					$47,600
1. Coring equipment rental and labor, 2 day rental	$320.00	2	day	$640	
2. Coring labor, 8 cores, 2 man crew	$75.00	20	man-hour	$1,500	
3. Analysis of cores	$2,300.00	8	sample	$18,400	
4. Soil drilling/sampling labor, 8 samples, 2 man crew	$75.00	20	man-hour	$1,500	
5. Analysis of soil samples	$3,200.00	8	sample	$25,600	
Soil removal (assume 20 tons)					$10,400
1. Soil removal equipment	$640.00	2	day	$1,280	
2. Soil removal labor	$75.00	20	man-hour	$1,500	
3. Transport soil to RCRA Subtitle C landfill	$2,825.00	2	rolloff	$5,650	
4. Disposal of soil at RCRA Subtitle C landfill	$100.00	20	ton	$2,000	
Third party oversight	$1,300.00	90	day	$117,000	$117,000
Closure certification	$64,000.00	1	lump sum	$64,000	$64,000
Closure report	$64,000.00	1	lump sum	$64,000	$64,000

Subtotal	$739,000
Contingency (10%)	$73,900
Total	$812,900

Assumptions

Natural gas cost	4.00	$/MMBtu	EIA.GOV industry average for Texas 2025
Transport (liquid waste)	1,000.00	$/load	Veolia - Transportation-Bulk-Liquid, 2025 cost
Transport (solid waste)	2,825.00	$/load	Veolia - Transportation-Bulk-Rolloff, 2025 cost
Disposal (aqueous liquid bulk)	0.55	$/gal	Average vendor quote
Disposal - (hazardous solids bulk)	250.00	$/ton	Veolia - Landfill, Haz Solids for Direct Landfill
Disposal - (non-hazardous solids bulk)	100.00	$/ton	Veolia - Nonhaz Solids for Direct Subtitle C Landfill, 2025 cost
Labor	75.00	$/man-hour	Heritage Environmental Services estimate 2025
Shell dismantling	6,400.00	$/item	Inflation adjusted estimate
Equipment rental	8,300.00	$/day	Inflation adjusted estimate
Triple rinse	3,200.00	$/day	Inflation adjusted estimate
Pipe dismantling	32.00	$/LF	Inflation adjusted estimate
Concrete core equipment rental	320.00	$/day	Inflation adjusted estimate
Soil removal equipment	640.00	$/day	Inflation adjusted estimate
Liquid sampling/analysis	1,000.00	$/sample	Average vendor quote
Soil sampling/analysis	3,200.00	$/sample	Average vendor quote
Wipe sampling/analysis	1,000.00	$/sample	Average vendor quote
Concrete core analysis	2,300.00	$/sample	Average vendor quote
Oversight	1,300.00	$/day	Inflation adjusted estimate
Certification	64,000.00	$/item	Inflation adjusted estimate
Report	64,000.00	$/item	Inflation adjusted estimate

Conversions

1 gallon	8.00	lbs
1 hour	60.00	minutes
1 ton	2,000.00	lbs
1 drum	55.00	gallons
1 drum (solid avg)	400.00	lbs
1 load	5,000.00	gallons
1 rolloff	20,000.00	lbs
1 rolloff	10.00	ton

Refractory for IN-5100					
LT WATE 80 CASTABLE				32,000	lb
90 RAM PLASTIC				85,800	lb
2300° IFB				65,170	lb
70% ALUMINA BRICK				289,850	lb
BULL RAM PLASTIC				28,560	lb
Total				501,380	lb
				250.7	tons
Refractory for IN-701					
Precombustion chamber:					
L	0.667	ft			
ID	9	ft			
Korrundal	0.75	ft	27.1	cu ft	190 lb/cu ft
CE 28	0.375	ft	12.7	cu ft	125 lb/cu ft
CE 23	0.375	ft	12.1	cu ft	84 lb/cu ft
			Total	7746	lb
				3.9	ton
Combustion chamber:					
L	35	ft			
ID	13	ft			
Ufala	0.75	ft	2082.3	cu ft	160 lb/cu ft
CE 23	0.75	ft	1958.6	cu ft	84 lb/cu ft
			Total	497687	lb
				248.8	ton
			Total	505433	lb
				252.7	ton
Refractory for IN-4702					
Combustion chamber:					
L	67	ft			
ID	10	ft			
Altex 75B	0.75	ft	2881.0	cu ft	175 lb/cu ft
GL-23IFB	0.38	ft	1351.7	cu ft	140 lb/cu ft
G-20LI	0.38	ft	1351.7	cu ft	140 lb/cu ft
			Total	693422	lb
				346.7	ton
Refractory for IN-5500					
Combustion chamber:					
L	60	ft			
ID	13.5	ft			
Fire brick	1.25	ft	6067.2	cu ft	140 lb/cu ft
			Total	849408	lb
				424.7	ton

Appendix VII.B:

CLOSURE COST ESTIMATE (INCLUDING CONTINGENT CLOSURE)

(TABLE VII.B)

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
Name: **Incinerator IN-701**	
Waste removal	$ 0
Combustion chamber: Includes decontamination by fuel gas firing, removal of refractory, transportation and disposal of refractory, and transportation and disposal of shell.	$ 145,600
Associated equipment: Includes decontamination by rinsing, verification sampling, transportation and disposal of rinsate, and transportation and disposal of equipment.	$ 76,200
Concrete pad: Includes decontamination by rinsing, verification sampling, and transportation and disposal of rinsate.	$ 39,800
Soil contamination: Includes assessment and removal.	$ 58,000
Other tasks: Includes third party oversight, closure certification, and final closure report.	$ 245,000
	$
	$
Subtotal	$ 564,600
Contingency (10% minimum)	$ 56,500
Total Closure Cost Year 2025	$ 621,100

Task	Cost
Name: **Incinerator IN-4702**	
Waste removal	$ 0
Combustion chamber: Includes decontamination by fuel gas firing, removal of refractory, transportation and disposal of refractory, and transportation and disposal of shell.	$ 180,400
Associated equipment: Includes decontamination by rinsing, verification sampling, transportation and disposal of rinsate, and transportation and disposal of equipment.	$ 185,400
Concrete pad: Includes decontamination by rinsing, verification sampling, and transportation and disposal of rinsate.	$ 39,800
Soil contamination: Includes assessment and removal.	$ 58,000
Other tasks: Includes third party oversight, closure certification, and final closure report.	$ 245,000
	$
	$
Subtotal	$ 708,600
Contingency (10% minimum)	$ 70,900
Total Closure Cost Year 2025	$ 779,500

Task	Cost
Name: **Incinerator IN-5100**	
Waste removal	$ 0
Combustion chamber: Includes decontamination by fuel gas firing, removal of refractory, transportation and disposal of refractory, and transportation and disposal of shell.	$ 147,500
Associated equipment: Includes decontamination by rinsing, verification sampling, transportation and disposal of rinsate, and transportation and disposal of equipment.	$ 142,300
Concrete pad: Includes decontamination by rinsing, verification sampling, and transportation and disposal of rinsate.	$ 39,800
Soil contamination: Includes assessment and removal.	$ 58,000
Other tasks: Includes third party oversight, closure certification, and final closure report.	$ 245,000
	$
	$
Subtotal	$ 632,600
Contingency (10% minimum)	$ 63,300
Total Closure Cost Year 2025	$ 695,900

Task	Cost
Name: **Incinerator IN-5500**	
Waste removal	$ 0
Combustion chamber: Includes decontamination by fuel gas firing, removal of refractory, transportation and disposal of refractory, and transportation and disposal of shell.	$ 210,800
Associated equipment: Includes decontamination by rinsing, verification sampling, transportation and disposal of rinsate, and transportation and disposal of equipment.	$ 185,400
Concrete pad: Includes decontamination by rinsing, verification sampling, and transportation and disposal of rinsate.	$ 39,800
Soil contamination: Includes assessment and removal.	$ 58,000
Other tasks: Includes third party oversight, closure certification, and final closure report.	$ 245,000
	$
	$
Subtotal	$ 739,000
Contingency (10% minimum)	$ 73,900
Total Closure Cost Year 2025	$ 812,900

Appendix VII.E:
CLOSURE AND POST-CLOSURE COST SUMMARY (TABLE VII.E.1)

Table VII.E.1. - Permitted Unit Closure Cost Summary

Existing Unit Closure Cost Estimate	
Unit	Cost
Incinerator IN-701	$ 621,100
Incinerator IN-4702	$ 779,500
Incinerator IN-5100	$ 695,900
	$
	$
	$
Total Existing Unit Closure Cost Estimate [1] Year 2025	$ 2,096,500

Proposed Unit Closure Cost Estimate	
Unit	Cost
Incinerator IN-5500	$ 812,900
	$
	$
	$
	$
	$
Total Proposed Unit Closure Cost Estimate [1] Year 2025	$ 812,900

[1] As units are added or deleted from these tables through future permit amendments or modifications, the remaining itemized unit costs should be updated for inflation when recalculating the revised total cost in current dollars.

VIII. FINANCIAL ASSURANCE

VIII. Financial Assurance

Provide all Part B responsive information in Appendix VI. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

A. Financial Assurance Information Requirements for all Applicants (30 TAC Chapter 37, Subchapter P, 305.50(a)(4)(A-E), 335.152(a)(6) and 335.179)

1. Financial Assurance for Closure

   An owner or operator must establish financial assurance for the closure of the facility no later than 60 days prior to the first receipt of waste [30 TAC Section 37.31(a)]. Please refer to 30 TAC Chapter 37, Subchapter P, for the financial assurance requirements for closure and provide a signed statement from an authorized signatory per 30 TAC 305.44 regarding how the owner or operator will comply with this provision.

   If a financial mechanism has been obtained, provide a copy of the mechanism.

   For applications involving a permit transfer, the new owner or operator must provide a financial assurance mechanism (in original form) satisfactory to the TCEQ executive director. Prior to the executive director issuing the permit modification transferring the permit, the new owner or operator must provide proof of financial assurance in compliance with 30 TAC Section 305.64 (g) and Chapter 37, Subchapter P.

2. Financial Assurance for Post-Closure Care (applicable to disposal facilities and contingent post-closure care facilities only)

   An owner or operator subject to post-closure monitoring or maintenance requirements must establish financial assurance for the post-closure care of the facility no later than 60 days prior to the first receipt of waste [30 TAC Section 37.31(a)]. Please refer to 30 TAC Chapter 37, Subchapter P for the financial assurance requirements for post-closure and provide a signed statement from an authorized signatory per 30 TAC 305.44 regarding how the owner or operator will comply with this provision.

   If a financial mechanism has been obtained, provide a copy of the mechanism.

   For applications involving a permit transfer, the new owner or operator must provide a financial assurance mechanism (in original form) satisfactory to the TCEQ executive director. Prior to the executive director issuing the permit modification transferring the permit, the new owner or operator must provide proof of financial assurance in compliance with 30 TAC Section 305.64 (g) and Chapter 37, Subchapter P.

3. Financial Assurance for Corrective Action

   An owner or operator must establish financial assurance for corrective action of the facility no later than 60 days after the permit or order requiring the corrective action financial assurance is signed by the executive director or commission [30 TAC Section 37.31(b)]. Please refer to 30 TAC Chapter 37, Subchapter P, for the financial assurance requirements for closure and provide a signed statement from an authorized signatory per 30 TAC 305.44 regarding how the owner or operator will comply with this provision and indicate below the type of financial assurance mechanism to cover corrective action for the

facility.

If a financial mechanism has been obtained, provide a copy of the mechanism.

For applications involving permit transfers, the new owner or operator must provide a financial assurance mechanism (in original form) satisfactory to the TCEQ executive director. Prior to the executive director issuing the permit modification transferring the permit, the new owner or operator must provide proof of financial assurance in compliance with 30 TAC Section 305.64 (g) and Chapter 37, Subchapter P.

4. Liability Requirements (not required for post-closure care)

All owners or operators must establish financial assurance for third party sudden liability coverage of the facility no later than 60 days prior to the first receipt of waste [30 TAC Section 37.31(a)]. Owners or operators of disposal facilities must establish financial assurance for third party sudden and nonsudden liability coverage of the facility no later than 60 days prior to the first receipt of hazardous waste. Please refer to 30 TAC Chapter 37, Subchapter P, for the financial assurance requirements for liability coverage, and provide a signed statement from an authorized signatory per 30 TAC 305.44 regarding how the owner or operator will comply with this provision.

If a financial mechanism has been obtained, provide a copy of the mechanism.

For applications involving a permit transfer, the new owner or operator must provide a financial assurance mechanism (in original form) satisfactory to the TCEQ executive director. Prior to the executive director issuing the permit modification transferring the permit, the new owner or operator must provide proof of financial assurance in compliance with 30 TAC Section 305.64 (g) and Chapter 37, Subchapter P.

B. Applicant Financial Disclosure Statements for a new permit, permit amendment, or permit modification, or permit renewal (30 TAC 305.50(a)(4))

Refer to the Supplemental Technical Information Guidance for Applicants Subject to Financial Capability Requirements, included in Section VIII.B., and the requirements listed below as you complete this section.

1. Provide information required in 30 TAC 305.50(a)(4), as applicable to the application request.

2. Complete Table VIII.B. if requesting capacity expansion or new construction.

3. For new commercial hazardous waste management facility applications, a written statement signed by an authorized signatory per 30 TAC 305.44 explaining how the applicant intends to provide emergency response financial assurance per 30 TAC 305.50(a)(12)(C) or (D).

4. For renewal applications with no capacity expansion, please complete and submit the attached Financial Disclosure Letter.

Information for Applicants Subject to Financial Capability Requirements

Certain applications involving Hazardous Waste facilities are subject to review of the applicant's financial ability to construct, operate, and/or close the facility, perform post-closure care and corrective action at the facility in accordance with State law as specified in

Section 361.085 of the Texas Health and Safety Code. TCEQ refers to these reviews as financial capability reviews. This document summarizes and clarifies the information required in an application to meet the TCEQ requirements of 30 Texas Administrative Code (TAC) 305.50.

Information requirements vary depending on the type of financial information available to applicants, primarily whether audited financial statements are available as well as the type of application submitted. For each scenario described below, financial information must be provided for the specific applicant.

I. New Facilities, Facility Expansions and Permit Transfers

A. Publicly traded Entities

1. Securities and Exchange Commission (SEC) Form 10-Ks

   This portion of the requirement calls for the two most recent 10-K reports filed.

2. SEC Form 10-Q

   This portion of the requirement calls for a copy of the most recent quarterly report.

3. Explanation statement

   This portion of the requirement calls for a statement signed by an authorized signatory [as described in 30 TAC 305.44(a)] explaining in detail how the applicant demonstrates sufficient financial resources to construct, safely operate, properly close, perform post-closure care, perform corrective action and provide adequate liability coverage for the facility. This statement must also address how the closure, post-closure, corrective action, and liability coverage financial assurance requirements of Chapter 37, Subchapter P will be met. (ie. which financial assurance mechanism is or will be used).

4. Construction capital cost estimates

   This portion of the requirement calls for estimates of capital costs for expansion and/or initial construction if the application encompasses facility expansion, capacity expansion, or new construction.

B. Privately held entities with audited financial statements

1. Audited financial statements

   This portion of the requirement calls for complete copies of the audited financial statements for each of the most recent two fiscal years. If an audit has not been completed for one of the previous two years, a complete copy of the fiscal year end financial statement and federal tax return may be substituted in lieu of the audit not performed. The tax return must be certified by original signature of an authorized signatory as being a "true and correct copy of the return filed with the Internal Revenue Service." Financial statements must be prepared consistent with generally accepted accounting principles and include a balance sheet, income statement, cash flow statement, notes to the financial statement, and an accountant's opinion letter.

2. Quarterly financial statement

   This portion of the requirement calls for a complete copy of the most current quarterly financial statement prepared consistent with generally accepted accounting principles. Internally prepared statements are satisfactory.

3. Supplementary information statement

   This portion of the requirement calls for a written statement detailing the information that would normally be found in SEC's Form 10-K including descriptions of the business and its operations; identification of any affiliated relationships; credit agreements and terms; any legal proceedings involving the applicant; contingent liabilities; and significant accounting policies.

4. Construction capital cost estimates

   This portion of the requirement calls for estimates of capital costs for expansion and/or initial construction if the application encompasses facility expansion, capacity expansion, or new construction.

5. Explanation statement

   This portion of the requirement calls for a statement signed by an authorized signatory [as described in 30 TAC 305.44(a)] explaining in detail how the applicant demonstrates sufficient financial resources to construct, safely operate, properly close, perform post-closure care, perform corrective action and provide adequate liability coverage for the facility. This statement must also address how the closure, post-closure, corrective action, and liability coverage financial assurance requirements of Chapter 37, Subchapter P will be met (ie. which financial assurance mechanism is or will be used).

C. Entities without audited financial statements or entities choosing not to provide the information listed above

1. Financial Plan

   This portion of the requirement calls for a financial plan (including balance sheets listing assets, liabilities and capital accounts) sufficiently detailed to clearly demonstrate that the applicant will be in a position to readily secure financing for construction, operation, and closure, post-closure, and corrective action if the permit is issued. At least 3 balance sheets should be included as of: a) approximately the date of the permit application, b) 12 months after any construction is completed (or assumption of operational control for a permit transfer), and c) 24 months after any construction is completed (or assumption of operational control for a permit transfer).

2. Letters of opinion

   The submitted financial plan must be accompanied by original letters of opinion from two financial experts, not otherwise employed by the applicant, who have the demonstrated ability to either finance the facility or place the required financing. If the permit action sought involves construction of a new facility or expansion of an existing facility, the opinion letters must certify that financing is obtainable within 180 days of permit approval and include the time schedule contingent upon permit finality for securing the financing as well as certify the financial plan is reasonable. Even if the application does not involve a facility or capacity expansion, the opinion letters must certify that the financial plan is reasonable. Only one opinion letter from a financial expert, not otherwise employed by the applicant, is required if the letter renders a firm commitment to provide all the necessary financing.

   Letters of opinion are usually issued by investment or commercial bankers but there could be additional sources. Applicants are encouraged to verify the adequacy of the credentials of their chosen financial expert with TCEQ's financial assurance unit prior to a formal engagement. Financial experts should describe their qualifications and disclose their independence from the applicant and/or any entity or person affiliated with the applicant.

3. Operating and cash flow statement

   This portion of the requirement calls for a written detail of the annual operating costs of the facility and a projected cash flow statement including the period of construction and first two years of operation. The cash flow statement must demonstrate the financial resources to meet operating costs, debt service, and provide financial assurance for closure, post-closure care, and liability coverage requirements. A list of the assumptions made to forecast cash flow must also be provided.

4. Explanation statement

   This portion of the requirement calls for a statement addressing how the closure, post-closure, corrective action, and liability coverage financial assurance requirements of Chapter 37, Subchapter P will be met (ie. which financial assurance mechanism is or will be used).

5. Construction capital cost estimates

   This portion of the requirement calls for estimates of capital costs for expansion and/or initial construction if the application encompasses facility expansion, capacity expansion, or new construction.

D. Entities with a resolution from a governing body approving or agreeing to approve the issuance of bonds to satisfy financial assurance requirements (e.g. a city or county)

1. Explanation statement

   This portion of the requirement calls for a statement signed by an authorized signatory [as described in 30 TAC30 305.44(a)] explaining in detail how the applicant demonstrates sufficient financial resources to construct, safely operate, properly close, perform post-closure, perform corrective action and provide adequate liability coverage for the facility. This statement must also address how the closure, post-closure, corrective action, and liability coverage

financial assurance requirements of Chapter 37, Subchapter P will be met (ie. which financial assurance mechanism is or will be used).

2. Certified copy of the resolution from the governing body.

3. Certification by the governing body of passage of the resolution.

II. Permit Renewals

Complete the **Financial Disclosure Letter** letter with applicable information inserted into the parentheses. *Note that additional information must be provided if requested by TCEQ.*

TABLE OF APPENDICES

APPENDIX	TITLE
VIII.A	Financial Assurance Information Requirements for all Applicants (30 TAC Chapter 37, Subchapter P, 305.50(a)(4)(A-E), 335.152(a)(6) and 335.179)
VIII.B	Applicant Financial Disclosure Statements for a new permit, permit amendment, or permit modification, or permit renewal

Appendix VIII.A:

FINANCIAL ASSURANCE INFORMATION REQUIREMENTS FOR ALL APPLICANTS

INTESA SANPAOLO

AMENDMENT TO STANDBY LETTER OF CREDIT NO. 31261

March 28, 2025

BENEFICIARY:
Texas Commission on Environmental Quality (TCEQ)
Financial Assurance Section (MC-184)
P.O. Box 13087
Austin, Texas 78711-3087
Attention: Executive Director

APPLICANT:
BASF Corporation
100 Park Avenue
Florham Park, NJ 07932

Amendment No. 39

The above mentioned Letter of Credit has been amended as follows:

- **Effective immediately, the Letter of Credit amount is Decreased by US$ 149,452.00 to a new balance of US$ 3,996,715.00 (Three Million Nine Hundred Ninety Six Thousand Seven Hundred Fifteen and 00/100 U.S. Dollars).**
- All other terms and conditions remain the same.
- This amendment is to be considered an integral part of the above-mentioned Letter of Credit and must be attached thereto.
- This amendment is subject to Beneficiary's approval, please confirm your agreement to this amendment by returning duly signed the attached copy.

Intesa Sanpaolo SPA, New York

Louis NG
V.P., Head of Commercial Department

Charles S. Sweeney
Head of Treasury Settlement, Americas

Accepted by:

_____
Texas Commission on Environmental Quality (TCEQ)

IMI | CORPORATE & INVESTMENT BANKING

Appendix VIII.B:

APPLICANT FINANCIAL DISCLOSURE STATEMENTS FOR A NEW PERMIT, PERMIT AMENDMENT, OR PERMIT MODIFICATION, OR PERMIT RENEWAL

BASF
We create chemistry

May 28, 2025

Martin Torres
Manager, Industrial and Hazardous Waste Permits Section
Waste Permits Division
Texas Commission on Environmental Quality
Building F, MC 130
12100 Park 35 Circle
Austin, Texas 78753

Re: Financial Disclosure Letter for BASF Corporation
Permit Renewal
Hazardous Waste Permit No. 50128, Industrial Solid Waste Registration No. 30024
EPA ID No. TXD008081697, RN100218049/CN600124895

Dear Mr. Torres:

This letter is furnished to you in response to financial disclosure requirements as applicable under Texas Health and Safety Code Section 361.085 and Title 30, Texas Administrative Code (30 TAC), Section 305.50 to provide assurance that BASF Corporation has sufficient financial resources.

In keeping with the above law and rule requirements I hereby certify that BASF Corporation is adequately capitalized and has sufficient financial resources to operate, close, provide postclosure care for and perform corrective action for the above-referenced facility in a safe manner, and in compliance with the permit and all applicable rules.

BASF Corporation currently provides, as financial assurance mechanism as set out in 30 TAC, Chapter 37, Subchapter C to meet BASF Corporation's financial assurance obligations the following:

Letter of credit

I am authorized to make these statements on behalf of BASF Corporation. I understand that the Texas Commission on Environmental Quality (TCEQ) may request additional information as part of their review.

Sincerely,
BASF Corporation

Bradley R. Morrison
Sr. Vice President – Freeport Site General Manager

BASF Corporation
602 Copper Road
Freeport, Texas 77541
www.basf.com

IX. RELEASES FROM SOLID WASTE UNITS AND CORRECTIVE ACTION

IX. Releases from Solid Waste Units and Corrective Action

Provide all Part B responsive information in Appendix IX. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

The Texas Solid Waste Disposal Act, 30 TAC 335.167, 40 CFR 270.14(d) and Section 3004(u) of the Hazardous and Solid Waste Amendments of 1984 (HSWA) *require that each hazardous waste management permit application review shall address corrective action for all releases of hazardous waste and hazardous constituents* listed in 40 CFR 261, Appendix VIII, 40 CFR Part 264, Appendix IX, and/or other constituents of concern from any solid waste management unit (SWMU) and/ or Areas of Concern (AOCs) at a facility, regardless of the time at which waste was placed in such unit[2]. For the purposes of HSWA Corrective Action, a SWMU may include, but is not limited to, any landfill, surface impoundment, land treatment unit, waste pile, underground injection well, incinerator, boiler, industrial furnace, tank, container storage area, drip pad, containment building, miscellaneous unit; any units exempt from hazardous waste permitting requirements, such as wastewater treatment units, elementary neutralization units, totally enclosed treatment units, waste recycle/reuse units, and 90-day accumulation time units; or process units or areas which may have routine and/or systematic releases to the environment (e.g., process drainage ditches or product storage tanks). Current EPA interpretation of this requirement has resulted in a Corrective Action process that begins with a RCRA Facility Assessment (RFA) to determine if corrective action is necessary.

[2]For the purposes of HSWA Corrective Action, a SWMU may include, but is not limited to, any landfill, surface impoundment, land treatment unit, waste pile, underground injection well, incinerator, boiler, industrial furnace, tank, container storage area, drip pad, containment building, miscellaneous unit; any units exempt from hazardous waste permitting requirements, such as wastewater treatment units, elementary neutralization units, totally enclosed treatment units, waste recycle/reuse units, and 90-day accumulation time units; or process units or areas which may have routine and/or systematic releases to the environment (e.g., process drainage ditches or product storage tanks).

The first step in the RFA is the development of a Preliminary Review (PR) from all available documentation for a facility (including but not limited to all facility documents, Part A, and Part B of the permit application, TCEQ correspondence files and inspection reports, etc.). The PR compiles available information on every SWMU and/or AOC that has ever existed at the facility. A unit checklist is completed for each SWMU and/ or AOC. On a unit-by-unit basis, the PR may recommend no further action for:

- well-designed and well-managed units
- units that have not managed hazardous wastes or wastes containing hazardous constituents;
- units already under corrective action by enforcement order; or
- units scheduled to be addressed in a compliance plan.

In addition, the unit checklists are summarized in a *Facility Checklist*. If there is a known release or potential for a release of hazardous waste or hazardous constituents from a unit/area, the PR may recommend a *RCRA Facility Investigation* (RFI), or an *Affected Property Assessment* (APA), if 30 TAC Chapter 350, Texas Risk Reduction Program (TRRP) applies, to determine the extent of the release for future corrective action, or stabilization as an appropriate and immediate corrective action.

The second step is a *Visual Site Inspection* (VSI) of the entire facility. The RFA is the combination of the PR and VSI documentation and any sample results. The RFA process should be scheduled so as to be completed during the latter stages of the Technical Review process or no later than one month in advance of the preparation of an initial draft permit for the facility. The RFA includes recommendations for whether further investigation or corrective action is warranted.

The requirements for an RFI or any other corrective action will be included in the permit, in the associated compliance plan which is mandatory for facilities with known groundwater contamination, or pursuant to 40 CFR 270.14(d)(3), the applicant may be required to start the RFI or other corrective action before the permit is issued. The RFI shall comply with all the applicable items contained in the U.S. EPA publication EPA/520-R-94-004, OSWER Directive 9902.3-2A, RCRA Corrective Action Plan (Final), May 1994, unless an alternate investigation approach is approved by the Executive Director. An RFI workplan may typically include a soil boring program, installation of monitoring wells, and sampling and analysis for 40 CFR 261 Appendix VIII and 40 CFR 264 Appendix IX hazardous constituents for surface soils, subsurface strata, surface water, groundwater, and/or air.

The permittee shall perform the RFI or APA and report the results. Corrective Action under 30 TAC Chapter 350 consists of an APA, determination of protective concentration levels, selection of a remedy standard (if necessary), development and implementation of a response action (if necessary), and submittal of required report according to 30 TAC Chapter 350.

If the RFI report indicates releases of hazardous waste or hazardous constituents for SWMUs and/or AOCs that have been grandfathered under 30 TAC Chapter 335 Subchapters A and S, Corrective Action shall consists of, if necessary, Interim Corrective Measures, *Baseline Risk Assessment* (BLRA)/*Corrective Measures Study* (CMS) Report, and *Corrective Measures Implementation* (CMI).

For grandfathered SWMUs and/or AOCs, the permittee may continue to complete the Corrective Action requirements under 30 TAC Chapter 335, Subchapter A and S, provided the permittee complies with the notification and schedule requirements pursuant to 30 TAC 335.8 and 350.(2)(m).

This report shall evaluate the risk, identify and evaluate corrective measure alternatives, and recommend appropriate corrective measure(s) to protect human health and the environment. The BLRA/CMS Report shall address all of the applicable items in 30 TAC 350, 30 TAC 335 Subchapter S, and the U.S. EPA publication EPA/520-R-94-004, OSWER Directive 9902.3-2A, RCRA Corrective Action Plan (Final), May 1994.

Upon approval of the BLRA/CMS Report by the TCEQ, the permittee shall submit a CMI Workplan to address all of the items for CMI Workplan contained in the U.S. EPA publication EPA/520-R-94-004, OSWER Directive 9902.3-2A, RCRA Corrective Action Plan (Final), May 1994. For projects conducted under TRRP, the risk assessment process shall be addressed in the *Affected Property Assessment Report* (APAR), and the evaluation of corrective measures shall be

conducted as part of the remedy standard selection process provided in the *Response Action Plan* (RAP). If the CMI or RAP does not propose a permanent remedy, then a CMI Workplan or RAP shall be submitted as part of a new compliance plan application or as a modification/ amendment application to an existing compliance plan. The workplan or RAP shall contain detailed final engineering design, monitoring plans, and schedules necessary to implement the selected remedy. Implementation of the corrective measures shall be addressed through a new and/or a modified/amended compliance plan. Upon installation of a corrective action system based upon the approved CMI Workplan or RAP, the permittee shall submit a CMI Report or RAP which includes as-built drawings of the corrective action system. To report the progress of the corrective measures, the permittee shall submit periodic CMI Progress Reports or Response Action Effectiveness Reports to the TCEQ in accordance with the schedule specified in the compliance plan. Upon completion of the corrective action requirements, the permittee shall submit CMI Report or Response Action Completion Reports for review and approval.

Please note that the applicant/permittee may perform voluntary corrective action, stabilization, or "interim measures" at any time prior to or during the RFA/RFI/CMS/CMI or the APAR/RAP process without prior TCEQ approval. The TCEQ strongly supports these actions when undertaken to mitigate releases or reduce or minimize exposure and releases to human health and the environment.

A. Preliminary Review Checklists

For Applications for a New Hazardous Waste Permit:

- For all facility Solid Waste Management Units (SWMUs) and/or Areas of Concern (AOCs), complete the accompanying forms entitled "Preliminary Review Facility Checklist" and "Preliminary Review Unit Checklist". Make additional copies as necessary.

For Applications for a Renewal/Amendment/Modification of an Existing Hazardous Waste Permit:

- Update the Preliminary Review Facility Checklist to include any newly identified SWMUs and/or AOCs that were not incorporated into the previous permit issuance (new, amendment, modification, or renewal), and to update the status of all previously identified SWMUs or AOCs which are incorporated into the existing permit under either Section IX - Corrective Action for Solid Waste Management Units, or Section XI - Compliance Plan. Status updates should include notes regarding whether the SWMU or AOC has been incorporated into a compliance plan, has received approval of no further action (NFA), has had changes in its corrective action status, or has had other determinations issued by the TCEQ. Include the date of the status change in the updated checklist;
- Complete the Preliminary Review Unit Checklists for any newly identified SWMUs or AOCs that were not incorporated into the previous permit issuance (new, amendment, modification, or renewal);
- Update the status on the Preliminary Review Unit Checklists for all previously identified SWMUs or AOCs that had not yet received TCEQ approval of NFA at the time of the previous permit issuance;
- Provide copies of the letters from the TCEQ approving NFA or other determinations that were issued since the previous permit issuance;
- For previously identified SWMUs and/or AOCs which are incorporated into the existing permit and are included in Section XI - Compliance Plan of this application, you may forego filling out the Preliminary Review Unit Checklists for these units. Briefly note on the Preliminary Review Facility Checklist that the SWMUs or AOCs are addressed in

Section XI. Provide the location where the SWMU's and addressed in Section XI. ; or

- If all previously identified SWMUs and/or AOCs reached NFA status at or before the last permit issuance you may forego filling out the Preliminary Review Unit Checklists, indicate Not Applicable, and provide a brief explanation of the facts.

Complete Preliminary Review Facility Checklist (located in attachments)

Instructions for Preliminary Review Unit Checklist

Preliminary Review Facility Checklist

Preliminary Review Unit Checklist

TABLE OF APPENDICES

APPENDIX	TITLE
IX.A	Preliminary Review Checklists

Appendix IX.A:
PRELIMINARY REVIEW CHECKLISTS

Preliminary Review Facility Checklist

Facility	BASF Corporation	City	Freeport
ISW Reg. No.:	30024	Date	May 2025
Permit No.	50128	Reviewer:	
EPA ID No.	TXD008081697		

A. Waste Management Units:

RCRA Regulated Units:

NOR. No.	Description	Status
001	Landfill - Class 2 (permit exempt)	Inactive
002	Incinerator BR-3	Closed
003	Wastewater Treatment Plant - Biological Treatment (permit exempt)	Active
004	Incinerator IN-4702	Active
005	WDW-51 Injection Well (UIC permit)	Active
006	WDW-99 Injection Well (UIC permit)	Active
008	Container Storage Area for Hazardous Waste and Labpack (permit exempt)	Active
010	Incinerator BR-400	Closed
011	Incinerator BR-410	Closed
012	Poly Incinerator (permit exempt)	Inactive
013	Boiler – NEOL	Closed
014	Utilities Boiler B20-B	Closed
015	Tank D-7841 in 300 Block	Closed
019	Incinerator IN-701	Active

NOR. No.	Description	Status
020	Incinerator IN-800	Closed
021	Class 2 Landfarm (permit exempt)	Active
022	Utilities Boiler B-20A	Closed
042	Paint Solvent Distillation Unit, 100 Block (permit exempt)	Closed
058	Storage Tank D-400 in 1100 Block (permit exempt)	Closed
059	Storage and Neutralization Tank D-403A in 1100 Block (permit exempt)	Active
060	Storage Tank D-1401 in 1250 Block (permit exempt)	Active
061	Storage Tank D-1402 in 1250 Block (permit exempt)	Active
062	Storage Tank D-1403 in 1250 Block (permit exempt)	Active
063	Storage Tank M-1401A (D-1401A) in 1250 Block (permit exempt)	Closed
064	Storage Tank D-1422 in 1250 Block (permit exempt)	Active
065	Storage Tank D-1423 in 1250 Block (permit exempt)	Active
066	Storage Tank D-1424 in 1250 Block (permit exempt)	Active
067	Storage Tank D-3806 in 300 Block (permit exempt)	Active
068	Storage Tank D-806 in 400 Block (permit exempt)	Active
069	Storage Tank D-840 in 400 Block (permit exempt)	Active
070	Storage Tank D-491 in 500 Block (permit exempt)	Closed
071	Storage Tank D-499 in 500 Block (permit exempt)	Active
072	Storage Tank D-936 in 300 Block (permit exempt)	Closed
073	Storage Tank D-2668A in 300 Block (permit exempt)	Active

NOR. No.	Description	Status
074	Storage Tank D-831C in 500 Block (permit exempt)	Closed
077	Storage Tank D-147 in 300 Block (permit exempt)	Closed
078	Storage Tank D-9840 in 400 Block for Acrylic Acid Caustic Washwater (permit exempt)	Active
082	Storage Tank D-7840 in 300 Block for Acrylics Caustic Washwater (permit exempt)	Active
083	Container storage area, 100 Block (warehouse) (permit exempt)	Active
085	Miscellaneous Container Storage Area - Hazardous Waste Only (permit exempt)	Active
086	Filter Press in 1250 Block for Dewatering Deepwell Filtercake (permit exempt)	Closed
087	Storage tank D-490 in 500 Block for OXO Waste Organics (permit exempt)	Closed
089	Incinerator IN-5100	Active
090	Tank D-1450 in 300 Block (permit exempt)	Active
091	Tank D-2850 in 500 Block (permit exempt)	Active
093	Temporary Plate and Frame Filter (permit exempt)	Closed
094	Container Storage Area in 1450 Block (permit exempt)	Active
096	Container Storage Area in 700 Block (permit exempt)	Active
097	Container Storage Area in 1400 Block (permit exempt)	Closed
098	Temporary Tank for Treatment of Oxime Waste from Plant C (permit exempt)	Closed
099	Container Storage Area in 1500 Block (permit exempt)	Active
101	Universal Waste Storage Area in Investment Recovery 100 Block (permit exempt)	Active
103	Temporary Container Storage Area for Roll-offs in 400 Block (permit exempt)	Active
104	Temporary Container Storage Area for Tank Trucks in 400 Block (permit exempt)	Active

NOR. No.	Description	Status
105	WDW408 Deepwell (UIC permit)	Active
107	Container Storage Area for Butanol Lights (permit exempt)	Active
108	Container Storage Area in 1250 Block (permit exempt)	Active
114	Container Storage Area Located North of D-491 (permit exempt)	Active
115	Tank D-42 (permit exempt)	Closed
116	Tank D-147B (permit exempt)	Active
119	Dispersions Unit Container Storage Area for Monomers (permit exempt)	Active
120	Tank D-3872 (permit exempt)	Active
123	Miscellaneous Container Storage Area – for Turnarounds (permit exempt)	Active
124	Tank D-491A in 500 Block (permit exempt)	Active
126	Container Storage Area in 100 Block (permit exempt)	Active

Solid Waste Management Units:

NOR. No.	Description	Status
A	Sludge Drying Beds	Closed
B	Caprolactam I Pond	Closed
C	Caprolactam II Pond	Closed
D	Polycaprolactam Pond	Closed

B. Reviewed Documents

RCRA:

Part A ☒

Part B ☒

Permit ☒

CERCLA:

Inspection Reports:	Not applicable
Enforcement Actions	Not applicable
Exposure Information	Not applicable
Other Information:	TCEQ “no further action” letter dated October 3, 2002

C. Summary:

RFI conducted for Sludge Drying Beds, Landfill – Class II (001), Caprolactam I Pond, Caprolactam II Pond, and Polycaprolactam Pond. BASF completed all RFI requirements. “No further action” letter received. This information was provided with the previous renewal application.

There have been no new SWMUs, AOCs, or releases identified at the facility.

D. Recommended Action:

None

X. AIR EMISSION STANDARDS

X. Air Emission Standards

Provide all Part B responsive information in Appendix X. When preparing the physical format organize your submittal using the Format of Hazardous Waste permit Application and Instructions.

Section X.D. applies to Permittees with "one- stop" permits applying for an amendment, modification, or renewal of the Air Permits Division portions of their combined "one-stop" permit.

A. Process Vents

Does the facility have process vents and equipment subject to the requirements of 40 CFR Part 264, Subpart AA?

If Yes: please provide a report that includes all of the information required by 40 CFR §270.24. Indicate on a facility plot plan the approximate location of process vents.

1. For incorporation into the permit, complete Table X.A - Process Vents for all vents on waste management units that manage hazardous waste with an annual average total organics concentration of 10 ppmw or greater ("process vents"). Specifically include:

   a. process vents on distillation, fractionation, thin-film evaporation, solvent extraction, air or steam stripping operations, and vents on condensers serving these operations; and

   b. process vents on tanks (e.g., distillate receivers, bottom receivers, surge control tanks, separator tanks, and hot wells) associated with distillation, fractionation, thin-film evaporation, solvent extraction, and air or steam stripping processes if emissions from these process operations are vented through the tanks.
   Emissions caused by natural means such as daily temperature changes or by tank loading and unloading are not subject to control.

2. For process vents, include the following certification as part of the air emissions report:

   I,_____*[owner or operator]*___, certify that the operating parameters used in the design analysis reasonably represent the conditions that exist when the hazardous waste management unit is or would be operating at the highest load or capacity level reasonably expected to occur.

   I further certify that the control device is designed to operate at an efficiency of 95 weight percent or greater.

   OR

   I further certify that the total organic emission limits of 40 CFR §264.1032(a) for affected process vents at the facility can be attained by a control device involving vapor recovery at an efficiency less than 95 weight percent.

   [Signature] _____ *[Date]* _____.

B. Equipment Leaks

Does the facility have equipment subject to the requirements of 40 CFR Part 264, Subpart BB?

If No: please provide the regulatory exclusion/exemption(s):

If Yes: please provide a report that includes all of the information required by 40 CFR §270.25.

1. For incorporation into the permit, complete Table X.B. - Equipment Leaks for all valves, pumps, compressors, pressure relief devices, sampling connection systems, and open-ended valves or lines that contain or contacts hazardous waste streams with organic concentrations of 10% by weight or greater. Equipment in vacuum service is not subject to control if identified in the facility operating record.

2. For equipment, include the following statement as part of the air emissions report:

   I, *[owner or operator]*, certify that the operating parameters used in the design analysis reasonably represent the conditions that exist when the hazardous waste management unit is operating at the highest load or capacity level reasonably expected to occur.

   I further certify that the control device is designed to operate at an efficiency of 95 weight percent or greater.

   [Signature] _____ *[Date]* _____.

C. Tanks, Surface Impoundments, and Containers

Does the facility have tanks subject to the requirements of 40 CFR Part 264, Subpart CC?

☐ Yes ☐ No ☐ Not Applicable (no permitted tanks)

If No: provide the regulatory exception/exemption(s) for each tank subject to regulation under 40 CFR Part 264, Subpart J:

Does the facility have surface impoundments subject to the requirements of 40 CFR Part 264, Subpart CC?

☐ Yes ☐ No ☐ Not Applicable (no permitted surface impoundments)

If No: provide the regulatory exception/exemption(s) for each permitted surface impoundment subject to regulation under 40 CFR Part 264, Subpart K:

Does the facility have containers subject to the requirements of 40 CFR Part 264, Subpart CC?

☐ Yes ☐ No ☐ Not Applicable (no permitted container storage areas)

If No: provide the regulatory exception/exemption(s) applicable to the authorized containers subject to regulation under 40 CFR Part 264, Subpart I:

If the facility contains tanks, surface impoundments, and containers subject to the requirements of 40 CFR Part 264 Subpart CC, please provide a report that includes all of the information required by 40 CFR §270.27.

1. For incorporation into the permit, complete Table X.C.

2. As applicable, include the following floating roof cover certification as part of the air emissions report for tanks:

   I, *[owner or operator]*, certify that the floating roof cover meets the applicable design specifications as listed in 40 CFR §264.1084(e)(1) or 40 CFR §264.1084(f)(1).

   [Signature] _____ *[Date]* _____.

3. As applicable, include the following floating membrane cover certification as part of the air emissions report for surface impoundments:

   I, *[owner or operator]*, certify that the floating membrane cover meets the applicable design specifications listed in 40 CFR §264.1085(c)(1).

   [Signature] _____ *[Date]* _____.

4. As applicable, include the following container certification as part of the air emissions report for containers:

   I, *[owner or operator]*, certify that the requirements of 40 CFR Part §264, Subpart CC, are met for all containers subject to control.

   [Signature] _____ *[Date]* _____.

5. As applicable, include the following control device certification as part of the air emissions report:

   I, *[owner or operator]*, certify that the control device is designed to operate at the performance level documented by a design analysis as specified in 40 CFR 264.1089 (e)(1)(ii) or by performance tests as specified in 40 CFR §264.1089(e)(1)(iii) when the tank, surface impoundment, or container is or would be operating at capacity or the highest level reasonably expected to occur.

   [Signature] _____ *[Date]* _____.

D. "One-Stop" Permits:

Does the facility have a "one-stop" permit?

☐ Yes ■ No

If yes: does this permit application propose to delete the "one-stop" portion of the permit?

☐ Yes ☐ No

Does the facility want the application processed in accordance with 30 TAC Chapter 33

- Consolidated Permit Applications?

☐ Yes ■ No

If yes: please provide a copy of the notification of intent required by 30 TAC 33.43.

Permittees having "one-stop" permits may elect to combine the air and waste management amendment, modification, or renewal of permitted waste management units. The combined amendment, modification, or renewal application will follow the application processing procedures for an industrial solid waste permit. "One-Stop" permit applications shall include the following air quality information, as applicable.

1. Area map (to scale) showing the location of the plant and land use in the vicinity of the facility including buildings, schools, residences, etc. within 3000 feet.
2. Plot plan (to scale) with latitude and longitude showing the plant layout, property boundary and location of all emission points of air contaminants. Emission points are to be numbered.
3. Specific chemical name of each air contaminant and emission rate in maximum pounds per hour, maximum tons per year and calculations used to determine emission rates. Fugitive emissions are to be included. Complete Table 1(a) entitled "Emission Sources."
4. Process description, operating schedule, and flow chart in sufficient detail that will explain the process and operation and a material balance for processes where applicable. The description should include a discussion of disposal methods for any generated residues and associated air emissions.
5. Design specifications about each emission control device using the appropriate OAQ table.
6. Volatile organic compound (VOC) concentrations in water or sludges or soil and volumes or weights of water, sludges or soils to be processed.
7. Exhaust stack or emission point parameters for each emission point including height, diameter, temperature, velocity and flow rate, except ground level fugitive emissions.
8. Best available control technology (BACT) documentation for all new and modified facilities.
9. Documentation of compliance with any applicable Federal New Source Performance Standard (NSPS) and Federal National Emission Standard for Hazardous Air Pollutants (NESHAPS).
10. Documentation as to whether a permit is required under new source review requirements of part C or D or Title I of the Federal Clean Air Act, 42 U.S.C. 7401 et seq., for a major source or major modification.
11. Information that demonstrates reliability of emission control systems including process instrumentation, equipment redundancy and operating procedures.
12. Results of atmospheric dispersion modeling certified to have been conducted in accordance with applicable TCEQ Office of Air Quality (OAQ) procedures. Model results must show maximum off-property 30-minute and annual ground level concentrations of each air contaminant. Dispersion modeling results must indicate compliance with all OAQ Rules and Regulations. Dimensions of buildings/structures that may influence dispersion modeling are to be

furnished. Please consult with OAQ before beginning any modeling study.

13. Storage tank data including capacity in gallons, diameter, height, paint color, composition, density, vapor pressure and molecular weight of liquid stored, maximum hourly and annual throughput and number of turnovers per year. Complete Table 7 entitled "Storage Tank Summary" for each tank.

14. A statement addressing the applicability of each OAQ regulation.

15. All methods of calculating emissions must be properly referenced with justification for selecting and assuming the values used in any equation.

TABLE OF APPENDICES

APPENDIX	TITLE
X	Air Emissions Report
X.A	Process Vents (Not Applicable)
X.B	Equipment Leaks (Not Applicable)
X.C	Tanks, Surface Impoundments, and Containers (Not Applicable)
X.D	"One-Stop" Permits (Not Applicable)

Appendix X:
AIR EMISSIONS REPORT

BASF
We create chemistry

BASF CORPORATION

FREEPORT, TEXAS

INDUSTRIAL AND HAZARDOUS WASTE STORAGE/PROCESSING/DISPOSAL FACILITY PERMIT NO. 50128 SOLID WASTE REGISTRATION NO. 30024 EPA ID NO. TXD008081697

AIR EMISSIONS REPORT

MAY 2025

1.0 INTRODUCTION

BASF Corporation (BASF) operates four liquid hazardous waste incinerators at its facility in Freeport, Texas. These units are designated as Incinerator IN-701, Incinerator IN-4702, Incinerator IN-5100, and Incinerator IN-5500. These incinerators are the only permitted hazardous waste units at the facility. The incinerators are subject to the Resource Conservation and Recovery Act (RCRA) general permitting and operating requirements of Title 40 Code of Federal Regulations (CFR) Parts 264 and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The incinerators are also subject to the Hazardous Waste Combustor National Emission Standards for Hazardous Air Pollutants (HWC NESHAP) codified in 40 CFR Part 63 Subpart EEE.

This report addresses the air emission standards provided in 40 CFR Part 264 Subparts AA, BB, and CC.

2.0 SUBPART AA

The RCRA air emission standards of 40 CFR Part 264 Subpart AA for process vents do not apply to the permitted hazardous waste management units because these units do not meet the applicability requirements specified in 40 CFR § 264.1030.

3.0 SUBPART BB

The RCRA air emission standards of 40 CFR Part 264 Subpart BB apply to equipment that contains or comes in contact with hazardous wastes with organic concentrations of 10 percent by weight (*i.e.*, in light liquid service). 40 CFR Part 264 Subpart BB does not apply to the permitted hazardous waste management units because all pumps, sampling connection systems, valves, and flanges in light liquid service in the area of the hazardous waste management units are associated with the accumulation (less than 90 days) tanks that are subject to, and in compliance with, 40 CFR Part 265 Subpart BB.

4.0 SUBPART CC

The RCRA air emission standards of 40 CFR Part 264 Subpart CC for tanks, surface impoundment, and containers do not apply to the permitted hazardous waste management units. BASF does not operate any permitted hazardous waste tanks, surface impoundment, or containers at the Freeport Site. BASF operates permit-exempt accumulation tanks and containers that are subject to, and in compliance with, 40 CFR Part 265 Subpart CC.

XI. COMPLIANCE PLAN (NOT APPLICABLE)

TABLE OF APPENDICES

APPENDIX	TITLE
XI	Compliance Plan (Not Applicable)

XII. HAZARDOUS WASTE PERMIT APPLICATION FEE

TABLE OF APPENDICES

APPENDIX	TITLE
XII.A	Hazardous Waste Units (Table XII.A)
XII.B	Hazardous Waste Permit Application Fee (Table XII.B)

Appendix XII.A:
HAZARDOUS WASTE UNITS (TABLE XII.A)

Table XII.A. - Hazardous Waste Units (For Application Fee Calculations)

Verbal Description of Unit	Rated Capacity	Surface Acreage[1]	# of Unit Types[2]	Identical Unit Justification[3]
Incinerator IN-701	100 MMBtu/hr	0.5	1	
Incinerator IN-4702	216 MMBtu/hr	0.5	1	
Incinerator IN-5100	100 MMBtu/hr	0.5	1	
Incinerator IN-5500	100 MMBtu/hr	0.5	1	
		Total[4] 2.0	Total[4] 4	

1. Number of calculated acres.
2. Enter number of units except for units identical in type and use which only count toward a single $500.00 fee.
3. Explain justification for any units claimed as identical in type and use.
4. Enter these totals on the worksheet.

Appendix XII.B:
HAZARDOUS WASTE PERMIT APPLICATION FEE (TABLE XII.B)

Table XII.B. - Hazardous Waste Permit Application Fee Worksheet

Name of Facility: BASF Corporation

Solid Waste Registration Number: 30024

1. Process Analysis - $1,000..... $ 1,000
2. Facility Management Analysis - $500..... $ 500
3. Unit Analysis - 4 units @ $500 per unit..... $ 2,000
4. Site Evaluation - 2.0 acres @ $100 per acre..... $ 200

   (Maximum of 300 acres)

5. Minor amendment, Class 1, or Class 1[1] modification - $100..... $ 0
6. Cost of Providing Notice - $50 (+ $15 for a renewal)..... $ 65

Pay This Amount **Total** $ 3,765

Pay Online through ePay portal www3.tceq.texas.gov/epay/

Enter ePay Trace Number: 582EA000669407

For Payment by check, make checks Payable To:

Texas Commission on Environmental Quality - Fund 549
(your canceled check will be your receipt)

Complete And Return With Payment To:

Texas Commission on Environmental Quality
Financial Administration Division - MC 214
P.O. BOX 13088
Austin, Texas 78711-3088

The applicant's fees are subject to evaluation by the technical staff of the Texas Commission on Environmental Quality (TCEQ). However, the TCEQ reserves the right to assess further fees as may be necessitated.

Please do not submit a photocopy of the check (or equivalent transaction submittal) with your application packet but provide only the following account information:

Check No.	Date of Check	Check Amount