



INDORAMA VENTURES OXIDES LLC
PORT NECHES, TEXAS

**INDUSTRIAL AND HAZARDOUS WASTE
STORAGE/PROCESSING/DISPOSAL FACILITY
PERMIT No. 50055
SOLID WASTE REGISTRATION No. 30029
EPA ID No. TX008076846**

PERMIT RENEWAL APPLICATION

**AUGUST 2025
REVISED: OCTOBER 2025**

Coterie ENVIRONMENTAL

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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 copies¹) 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.)

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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: **Port Neches Operations**

(Individual, Corporation, or Other Legal Entity Name)

TCEQ Solid Waste Registration No: **30029** EPA I.D. No.: **TX008076846**

Street Address (If Available): **2701 Spur 136**

City: **Port Neches**, State: **TX** Zip Code: **77651**

County: **Jefferson**

Telephone Number: **409-722-8381** Charter Number: **803449630**

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:

Tory Wingate
Environmental Specialist
Indorama Ventures Oxides LLC
2701 Spur 136
Port Neches, TX 77651
Phone: 409-723-4072
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.

Corporation Service Company dba CSC-Lawyers Incorporating Service Company
211 East 7th Street, Suite 620
Austin, TX 78701-3218

C. Operator¹: Identify the entity who will conduct facility operations.

Operator Name: **Indorama Ventures Oxides LLC**

Address: **2701 Spur 136**

City: **Port Neches**, State: **TX** Zip Code: **77651**

Telephone Number: **409-722-8381** Charter Number: **803449630**

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	<u>30029</u>	<u>TCEQ</u>
2. Wastewater disposal under the Texas Water Code	<u>None</u>	<u></u>
3. Underground injection under the Texas Water Code	<u>None</u>	<u></u>
4. Texas Clean Air Act	<u>See below</u>	<u>See below</u>
5. Texas Uranium Surface Mining & Reclamation Act	<u>None</u>	<u></u>
6. Texas Surface Coal Mining & Reclamation Act	<u>None</u>	<u></u>
7. Hazardous Waste Management program under the Resource Conservation and Recovery Act	<u>50055</u>	<u>TCEQ</u>
8. UIC program under the Safe Drinking Water Act	<u>None</u>	<u></u>
9. TPDES program under the Clean Water Act	<u>WQ000511000</u>	<u>TCEQ</u>
(stormwater)	<u>None</u>	<u></u>
10. PSD program under the Clean Air Act	<u>PSDTX780</u>	<u>EPA</u>
11. Nonattainment program under the Clean Air Act	<u>None</u>	<u></u>
12. National Emission Standards for Hazardous Pollutants (NESHAP) Pre-construction approval under the Clean Air Act	<u>None</u>	<u></u>

13. Ocean dumping permits under the Marine Protection Research and Sanctuaries Act
14. Dredge or fill permits under section 404 of the Clean Water Act
15. Other relevant environmental permits

None

None

None

List of Air Permits		
Permit/ Authorization Number	Subject Facility	Date of Issuance/ Renewal
NSR Permits		
647B	E7 Morpholine/Diglycolamine Unit	06/29/2018
5807A	E4 Ethanolamines Unit	05/22/2017
5952A	F6 Ethylene Oxide Unit	11/08/2019
5972A	F4 Ethylene Oxide Unit	11/08/2017
16909	Utilities (NSRIPSD)	06/10/2024
19823	A3 Ethylene Unit	02/17/2017
20134	E3/E6	03/13/2018
20160	PO/MTBE	03/15/2024
29516	R&S Receiving & Shipping	05/31/2018
36646	G1/G6 Glycol Units	02/28/2020
49247	Joint Wastewater Treatment Plant	06/13/2025
56390	Railcar Cleaning Facility	02/15/2024
79802	CHX (Docks)	06/27/2017
83816	Maintenance, Startup, and Shutdown	11/30/2020
106169	F8	12/29/2023
Title V Permits		
O-1320	F&G Units	11/22/2019
O-2286	E3/E6 Surfactants Unit	12/20/2023
O-2287	E2,E4, E7 Units	07/15/2020
O-2288	A3,R&S,Utilities	06/10/2021
O-3056	PO/MTBE	09/06/2019

*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.

Indorama is engaged in the manufacturing of petrochemicals.

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: Kimberly Hoyt Date: 10/2/25

Name and Official Title (type or print): Kimberly Hoyt, Manufacturing Transformation Office Lead

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.

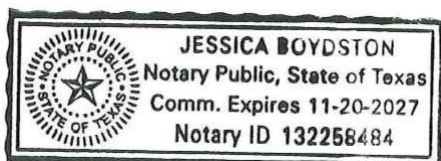
Printed or Typed Name of Operator or Principal Executive Officer

Signature

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

Subscribed and sworn to before me by the said Kimberly Hoyt on this
2 day of October, 2025.

My commission expires of the 20 day of November, 2027



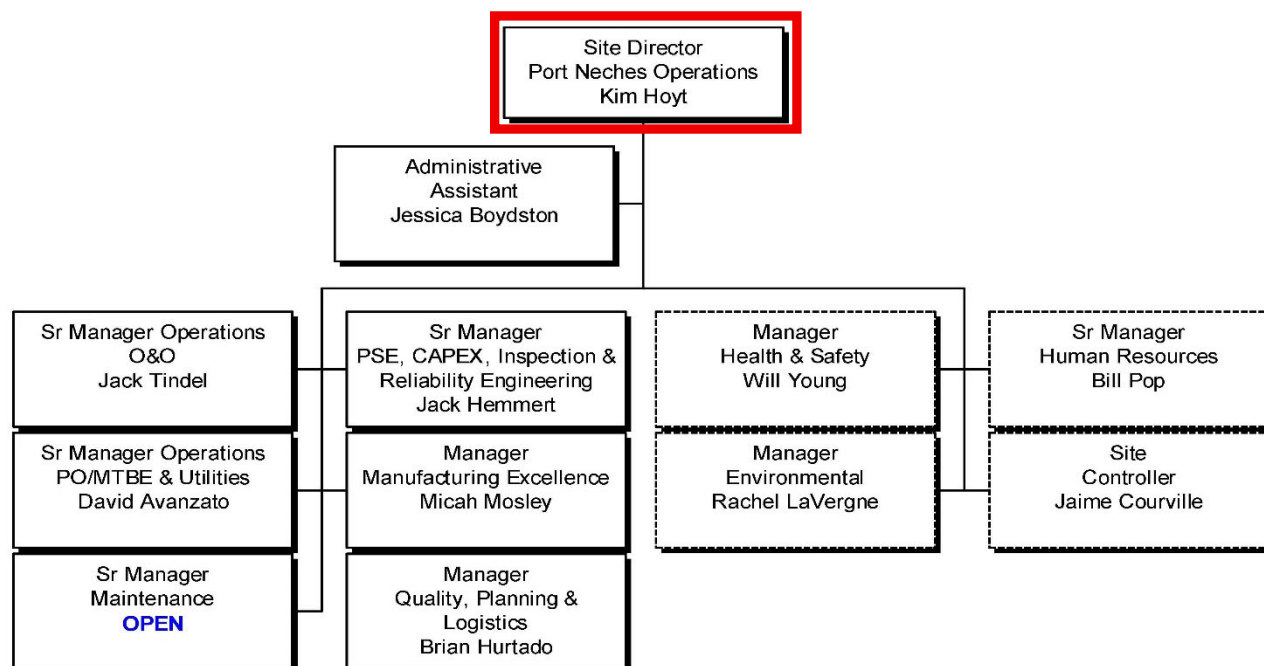
Jess' Boydston
Notary Public in and for Jefferson County, Texas



Indovina – Port Neches Operations

September 2024

PNO Senior Management Team



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 Indorama Port Neches Operations is located east of Port Neches, Texas, on the corner of FM-366 and Spur 136.

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

Take Spur 136 north from its intersection with Texas 347 between Port Arthur and Port Neches. Travel north on Spur 136 to its intersection with FM-366. Access can be made through facility gates.

3. Enter the geographical coordinates of the facility:

Latitude: 29 N deg 57 min 52 sec

Longitude: 93 W deg 55 min 48 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

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	Storage¹ of Wastes Received from Off-Site	Processing² of Wastes Received from Off-Site	Disposal of Wastes Received from Off-Site	Storage¹ of Wastes Generated On-Site	Processing² of Wastes Generated On-Site	Disposal of Wastes Generated On-Site	Annual Quantity Generated and/or Received
Process Liquid Fuel	219H	D001	No	No	No	No	Yes	No	70,000 ton

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.

Table III-2 – Hazardous Waste Management Unit Checklist

Waste Management Unit	TCEQ N.O.R. Unit #	Status¹	Design Capacity²	Number of Years Utilized	Date in Service
Steam Generator No. 1 (H-K2-001)	507	Active	225 MMBtu/hr	31	1994
Steam Generator No. 2 (H-K2-002)	508	Active	225 MMBtu/hr	31	1994
Boiler H-K2-003	528	Active	285 MMBtu/hr	5	2020

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 materials regarding the "Site Legal Description" for the Indorama Ventures Oxides LLC facility located in Port Neches, Texas, that are included herein are identified below:

- All those certain parcels of land, together with all improvements, fixtures, and personally, lying and being situated in Jefferson County, Texas, are more particularly described herein.
- For completeness, a metes and bounds description of the property tracts owned by the Indorama Port Neches facility is provided, which includes:
 - Exhibit A (PO/MTBE Site, Flares, Truck & Tank Car Unloading Area – Parcel 1). It is noted that the hazardous waste management activities identified in Permit HW-50055 are conducted only within the "PO/MTBE Site".
 - Exhibit B (Lab Site).
- A plot plan map that depicts the "PO/MTBE Unit" (within which all hazardous waste management activities are conducted) is provided.

EXHIBIT A

PO/MTBE SITE, FLARES, TRUCK AND TANK UNLOADING AREA (PARCEL 1)

Field notes describing a 191.462-acre tract of land out of the Thomas F. McKinney League, Abstract 41, Jefferson County, Texas. Said 191.462 acres being out of and a part of Lots 5 & 6, Block 11, Range C of the Port Arthur Land Company Subdivision recorded in Volume I, Page 22 of the Jefferson County Plat Records and being also out of and a part of a 319-acre tract recorded in Volume 158, Page 546 and a part of a 179.4-acre tract recorded in Volume 163, Page 479 of the Jefferson County Deed Records. Said 191.462-acre tract being more particularly described below with all bearings, distances, and coordinates referenced to the Texas Plane Coordinate System, South Central Zone, Lambert Projection, NAD 83, hereinafter referred to as T.S.C. All acreages shown are grid. The theta correction at the PLACE OF BEGINNING is 02° 28' 49" and the scale factor is 0.9999230.

BEGINNING at a 5/8" iron bolt found at an ell corner at a 531.94-acre tract more particularly described in Volume 1150, Page 619 of said Jefferson County Deed Records from which a gate post bears N 11° 07' 13" W 7.33 feet and a gate post bears N 69° 07' 15" W 24.43 feet. Said 5/8" iron bolt having T.S.C. coordinates of y=13932108.550 feet and x = 3571173.769 feet.

THENCE N 84° 31' 44" W along and with the most southerly north line of said 531.94 acre tract a distance of 249.21 feet to a 4" sq. concrete monument with a brass disk stamped "T.C.C." found at the southeast corner of a G.S.U. tract more particularly described in Volume 1212, page 106 of said Jefferson County Deed Records from which a fence corner bears N 69° 12' 01" W 3.14 feet.

THENCE N 05° 26' 12" E along with the east line of said G.S.U. tract a distance of 600.00 feet to a 5/8" rebar found at its northeast corner from which a fence corner bears N 86° 59' 25" W 2.32 feet.

THENCE N 84° 31' 44" W along and with the north line of said G.S.U. tract a distance of 600.00 feet to a 5/8" rebar found at its northwest corner from which a fence corner bears S 86° 22' 29" W 2.21 feet.

THENCE S 05° 26' 12" W along and with the west line of said G.S.U. tract a distance of 600.00 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C." found at its southwest corner and in the most southerly north line of said 531.94-acre tract from which a fence corner bears N 74° 15' 59" W 3.62 feet.

THENCE N 84° 31' 44" W along and with the most southerly northline of said 531.94-acre tract a distance of 2115.03 feet to a 12" sq. concrete monument with a brass disc found at the most southerly northwest corner of said 531.94-acre tract, same being the northeast corner of a Star Enterprise tract (83 ft. wide strip) recorded in Volume 516, page 395 of the Jefferson County Deed Records and also being the southeast corner of a Star Enterprise easement (83 ft. wide strip) recorded in Film Code #102 65 1694 of the Jefferson County Deed Records.

THENCE N 05° 52' 37" E along and with the east line of said Star Enterprise easement (83 ft. wide strip) a distance of 255.97 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C. R.P.L.S. No. 4474" set.

THENCE S 83° 18' 54" E a distance of 591.74 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C. R.P.L.S. No. 4474" set.

THENCE S 05° 52' 50" E a distance of 744.94 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C. R.P.L.S. No. 4474" set.

THENCE N 83° 18' 54" W a distance of 591.78 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C. R.P.L.S. No. 4474" set in the east line of said Star Enterprise easement (83 ft. wide strip).

THENCE N 05° 52' 37" E along and with the east line of said Star Enterprise easement (83 ft. wide strip) a distance of 564.50 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C. R.P.L.S. No. 4474" set.

THENCE S 83° 11' 18" E a distance of 591.86 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C. R.P.L.S. No. 4474" set.

THENCE N 05° 52' 32" E a distance of 732.33 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C. R.P.L.S. No. 4474" set.

THENCE N 83° 11' 18" W a distance of 591.85 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C. R.P.L.S. No. 4474" set in the east line of said Star Enterprise easement (83 ft. wide strip).

THENCE N 05° 52' 37" E along and with the east line of said Star Enterprise easement (83 ft. wide strip) a distance of 604.05 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C. R.P.L.S. No. 4474" set.

THENCE S 84° 34' 53" E a distance of 559.22 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C. R.P.L.S. No. 4474" set.

THENCE N 04° 57' 03" E a distance of 735.50 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C. R.P.L.S. No. 4474" set.

THENCE N 85° 02' 57" W a distance of 547.39 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C. R.P.L.S. No. 4474" set in the east line of said Star Enterprise easement (83 ft. wide strip).

THENCE N 05° 52' 37" E along and with the east line of said Star Enterprise easement (83 ft. wide strip) a distance of 35.81 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C. R.P.L.S. No. 4474" set in a curve in the southeasterly line of the Kansas City Southern Railroad Spur 50-foot right-of-way more particularly described in Volume 240, Page 490 of said Jefferson County Deed Records. Said curve having a radius of 751.14 feet and a central angle of 34° 53' 07".

THENCE along and with the southeasterly line of said Kansas City Southern Railroad Spur 50-foot right-of-way an arc distance of 457.34 feet to a 4" pipe filled with concrete and set in concrete with a brass disc found in the south line of the F.M. Highway 366 right-of-way more particularly described in Volume 826, Page 23 of said Jefferson County Deed Records.

THENCE S 78° 56' 50" E along and with the south line of said F.M. Highway 366 right of way a distance of 362.78 feet to a 4" pipe filled with concrete and set in concrete with a brass disc found.

THENCE S 84° 34' 22" E continuing along and with the south line of said F.M. Highway 366 right-of-way a distance of 1154.81 feet to a point for corner at the northwest corner of a 37.879-acre tract from which a 5/8" rebar found bears N 22° 24' 01" E 2.25 feet and a fence post set in concrete bears N 11° 53' 08" W 0.52 feet. Said 37.879-acre tract being originally described in Film Code #102 54 1362 of said Jefferson County Deed Records.

THENCE S 05° 24' 59" W along and with the west line of said 37.879-acre tract a distance of 1500.00 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C." found at this southwest corner from which a 5/8" rebar found bears N 49° 43' 40" E 3.18 feet.

THENCE S 84° 34' 22" E along and with the south line of said 37.879-acre tract a distance of 1100.00 feet to a 4" sq. concrete monument with a brass disc stamped "T.C.C." found at this southeast corner and in the most easterly west line of said 531.94-acre tract from which a 5/8" rebar found bears S 76° 48' 43" E 2.27 feet.

THENCE S 05° 24' 59" W along and with the most easterly west line of said 531.94-acre tract a distance of 2453.21 feet to the PLACE OF BEGINNING, containing 191.462 acres of land.

EXHIBIT B
LAB SITE

Field notes describing a 4.495-acre tract of land out of a 531.94-acre tract of land out of the Thomas F. McKinney League, Abstract 41, Jefferson County, Texas. Said 531.94-acre tract is more fully described as Tract G and recorded in Volume 1150, Page 619 of the Jefferson County deed records. All bearings, distances and coordinates are referenced to the Texas Plane Coordinate System, South Central Zone, Lambert Projection, NAD 83, hereinafter referred to as T.S.C. The theta correction at the PLACE OF COMMENCEMENT is 03 deg. 28 min. 45 sec. and the scale factor is 0.9999231.

COMMENCING at a concrete monument found at the southwest corner of a G.S.U. tract more fully described in Volume 1212, Page 106 of the Jefferson County deed records, same being the southeast corner of a 176.228-acre tract more fully described in Film Code #104 34 0272 of said Jefferson County deed records and being in the north line of said 531.94-acre tract. Said concrete monument having T.S.C. coordinates of Y=13,932,189.517 feet and X=3,570,328.431 feet.

THENCE S 84 deg. 31 min. 47 sec. E along and with the south line of said G.S.U. tract, same being the north line of said 531.94-acre tract a distance of 17.60 feet to a 5/8" rebar set at the PLACE OF BEGINNING of the tract therein described.

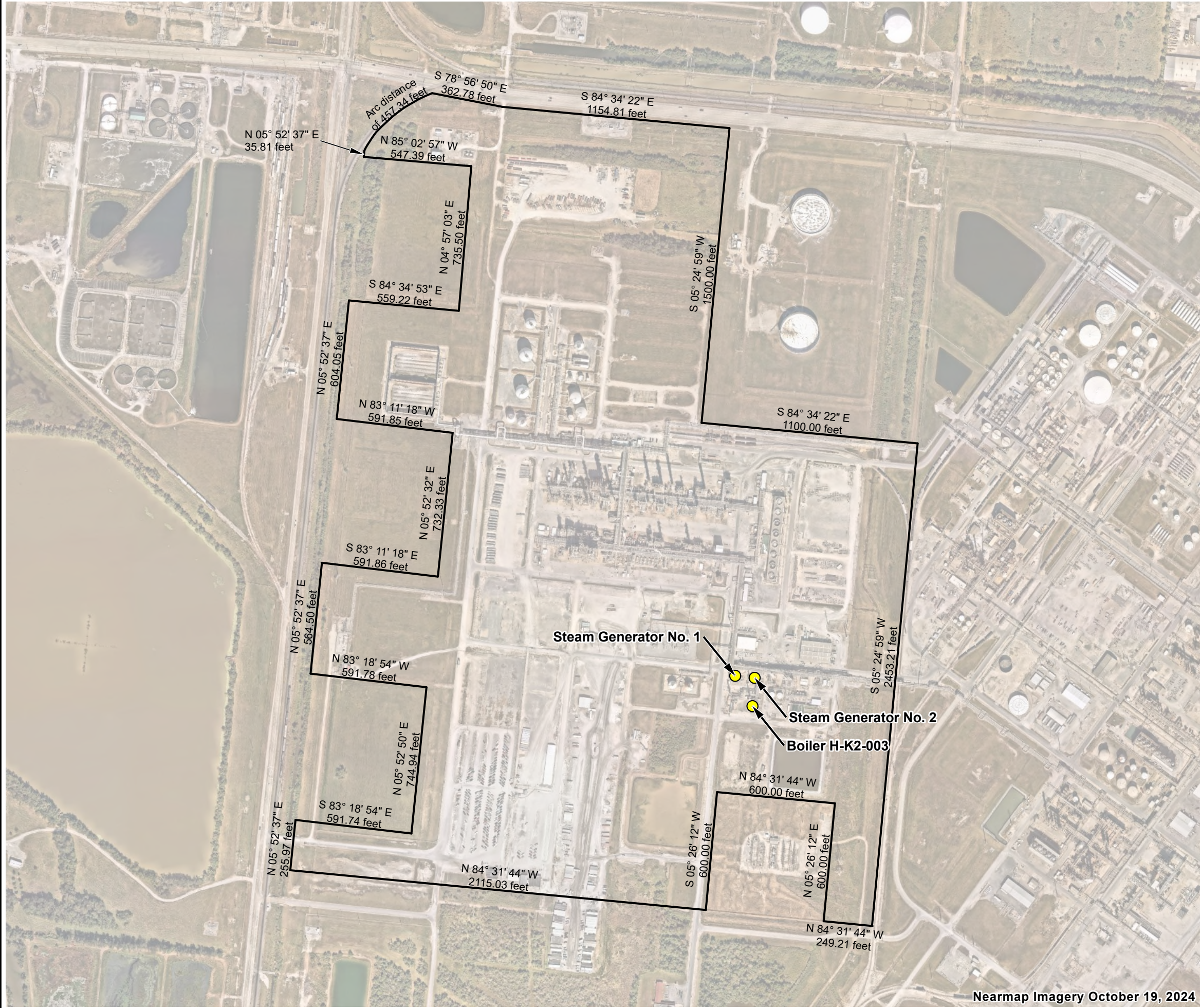
THENCE S 05 deg. 53 min. 50 sec. W a distance of 622.66 feet to a 5/8" rebar set.

THENCE N 84 deg. 07 min. 13 sec. W a distance of 314.99 feet to a 5/8" rebar set.

THENCE N 05 deg. 52 min. 47 sec. E a distance of 620.41 feet to a 5/8" rebar set in the north line of said 531.94-acre tract, same being the south line of said 176.228-acre tract.

THENCE S 84 deg. 31 min. 47 sec. E along and with the north line of said 531.94-acre tract, same being the south line of said 176.228-acre tract a distance of 315.01 feet to the PLACE OF BEGINNING, containing 4.495 acres of land.

J:\Prj\Indorama Ventures\RCRA 2025\Unit Maps.aprx



Legend

- PO/MTBE Unit Boundary
- Hazardous Waste Units

Legal Description
Beginning at an X,Y coordinate recognized as X=3571173.769 Feet, Y=13932108.550 Feet;
Thence North 84° 31' 44" West 249.21 Feet;
Thence North 05° 26' 12" East 600.00 Feet;
Thence North 84° 31' 44" West 600.00 Feet;
Thence South 05° 26' 12" West 600.00 Feet;
Thence North 84° 31' 44" West 2115.03 Feet;
Thence North 05° 52' 37" East 255.97 Feet;
Thence South 83° 18' 54" East 591.74 Feet;
Thence North 05° 52' 50" East 744.94 Feet;
Thence North 83° 18' 54" West 591.78 Feet;
Thence North 05° 52' 37" East 564.50 Feet;
Thence South 83° 11' 18" East 591.86 Feet;
Thence North 05° 52' 32" East 732.33 Feet;
Thence North 83° 11' 18" West 591.85 Feet;
Thence North 05° 52' 37" East 604.05 Feet;
Thence South 84° 34' 53" East 559.22 Feet;
Thence North 04° 57' 03" East 735.50 Feet;
Thence North 85° 02' 57" West 547.39 Feet;
Thence North 05° 52' 37" East 35.81 Feet,
set in a curve having a radius of 751.14 Feet
and a central angle of 34° 53' 07":
Thence along an arc distance of 457.34 Feet;
Thence South 78° 56' 50" East 362.78 Feet;
Thence South 84° 34' 22" East 1154.81 Feet;
Thence South 05° 24' 59" West 1500.00 Feet;
Thence South 84° 34' 22" East 1100.00 Feet;
Thence South 05° 24' 59" West 2453.21 Feet;
to the Place of Beginning, containing 191.462
acres of land.

Bearings, distances, and coordinates referenced
to the Texas State Plane Coordinate System,
South Central Zone, NAD 83



0 250 500
FEET

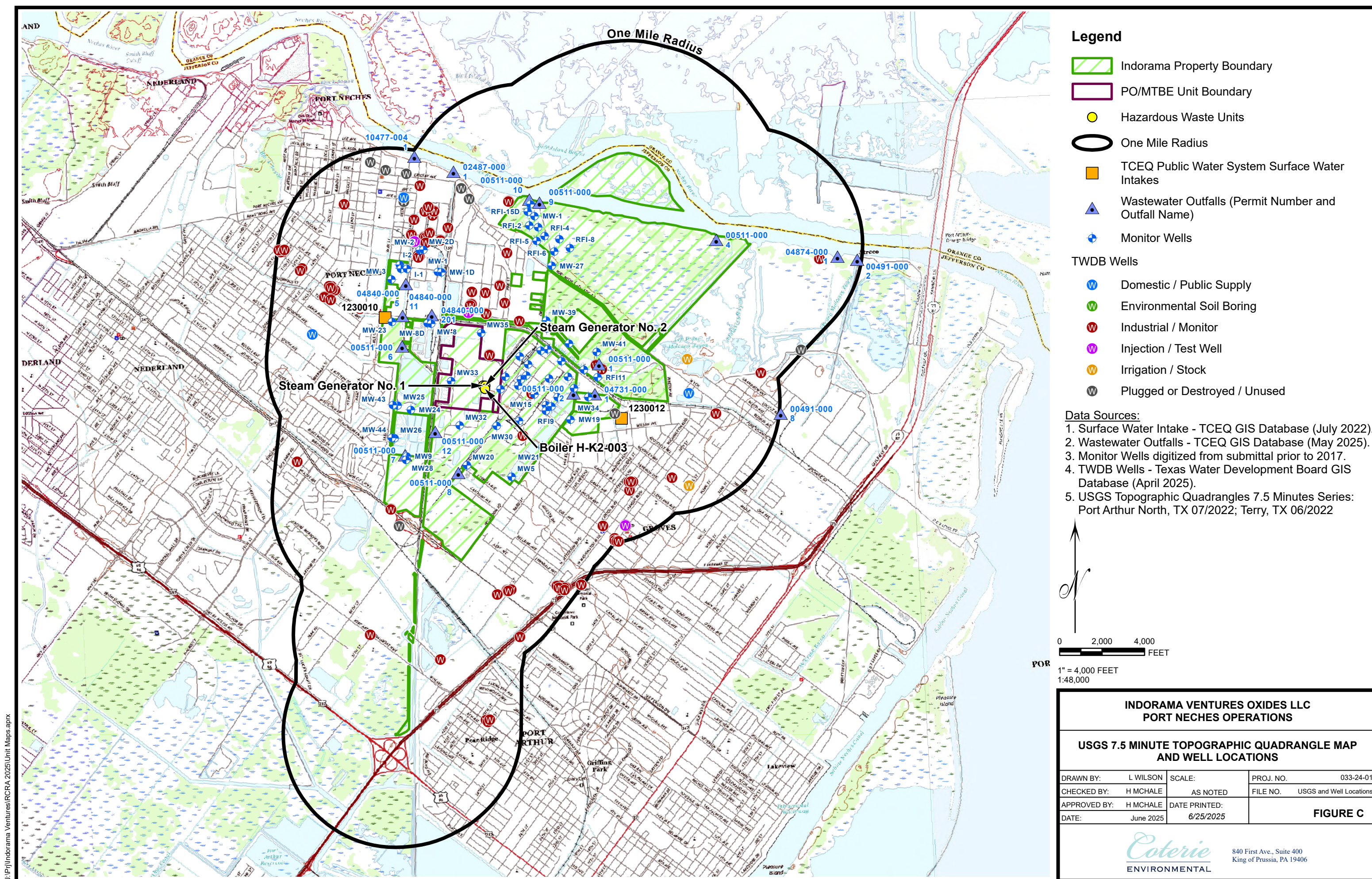
1" = 500 FEET
1:6,000

INDORAMA VENTURES OXIDES LLC PORT NECHES OPERATIONS		
LEGAL DESCRIPTION MAP		
DRAWN BY:	L WILSON	SCALE: 033-24-01
CHECKED BY:	H MCHALE	AS NOTED
APPROVED BY:	H MCHALE	DATE PRINTED: 6/25/2025
DATE:	June 2025	6/25/2025
ATTACHMENT B		
Coterie ENVIRONMENTAL 840 First Ave., Suite 400 King of Prussia, PA 19406		

Attachment C

Facility Boundaries and Adjacent Waters Map

J:\P\Indorama Ventures\RCRA 2025\Unit Maps.aprx



Attachment D

Photographs

Attachment D Photographs

**STEAM GENERATOR NO. 1
ELEVATION VIEW**



**STEAM GENERATOR NO. 1
INJECTION AREA**



**STEAM GENERATOR NO. 2
ELEVATION VIEW**



**STEAM GENERATOR NO. 2
INJECTION AREA**



BOILER H-K2-003

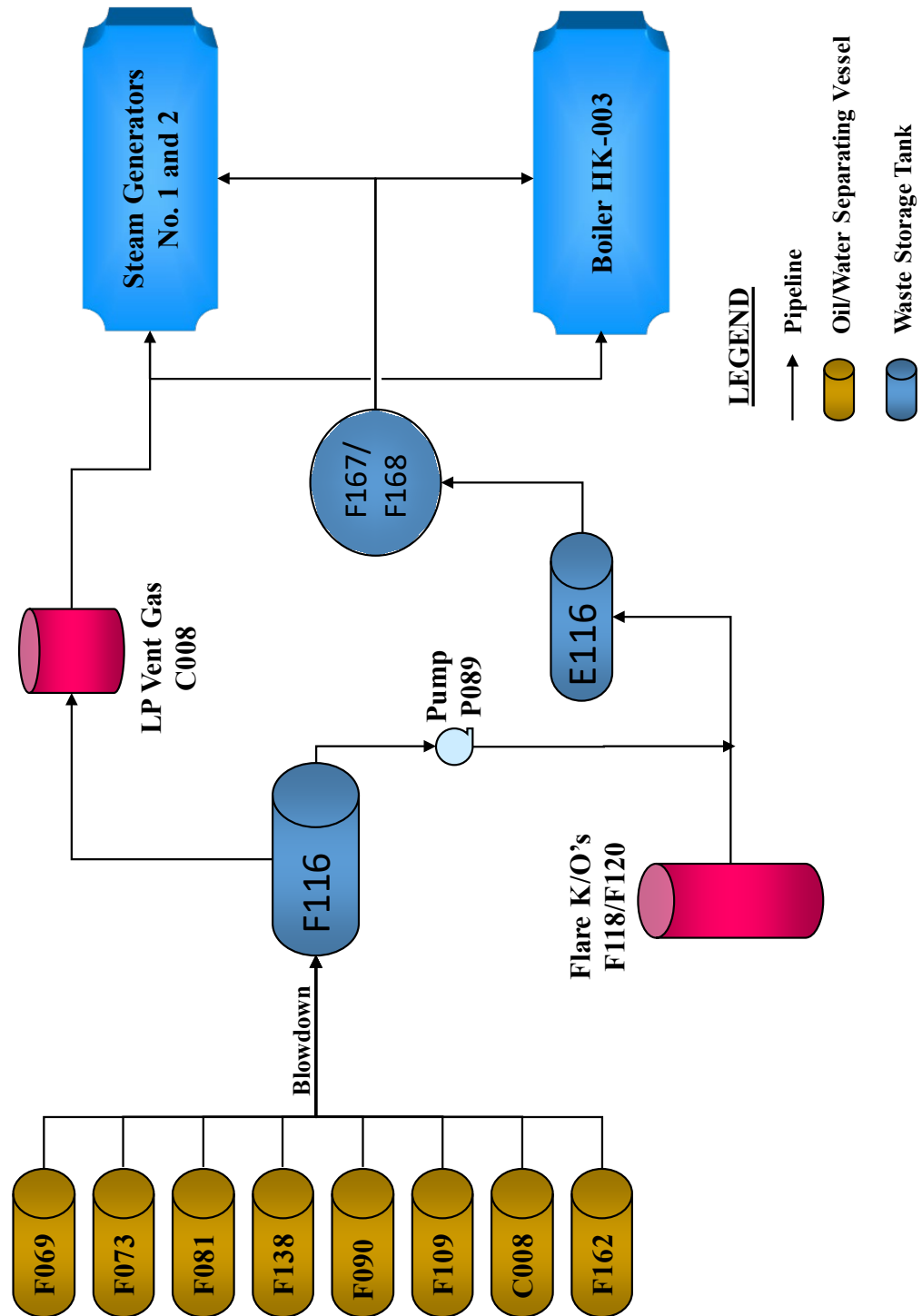


Attachment E

Process Flow Diagram and Description

Attachment E Process Flow Diagram

Process Liquid Fuel Waste Flow Diagram



Attachment E

Process Flow Description

Waste stream:	Process Liquid Fuel
TCEQ waste code:	2102219H
USEPA waste code(s):	D001
Waste origination point:	Generated in the PO/MTBE Unit Process vessels (F069, F073, F081, F138, F090, F109, F162), tanks (E116, F116), LP vent (C008), knockouts (F118/F120), pump (P089)
Means of waste conveyance:	Pipes, trucks
Storage:	Tanks T-F5-167 and T-F5-168 (permit-exempt)
Ultimate waste disposition:	Destroyed in Steam Generators and Boiler H-K2-003 and/or disposed offsite

Attachment F

Core Data Form



TCEQ CORE DATA FORM

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

1.1 SECTION I: GENERAL INFORMATION

1. Reason for Submission (If other is checked please describe in space provided.)		
☐ New Permit, Registration or Authorization (Core Data Form should be submitted with the program application.)		
☒ Renewal (Core Data Form should be submitted with the renewal form)	☐ Other	
2. Customer Reference Number (if issued)	Follow this link to search for CN or RN numbers in Central Registry**	3. Regulated Entity Reference Number (if issued)
CN 605743038		RN 100219252

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)					
<i>The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).</i>					
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)				<i>If new Customer, enter previous Customer below:</i>	
Indorama Ventures Oxides LLC					
7. TX SOS/CPA Filing Number		8. TX State Tax ID (11 digits)		9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
803449630		32072289781		843151997	Not applicable
11. Type of Customer:		☒ Corporation		☐ Individual	
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other		☐ Sole Proprietorship		Partnership: ☐ General ☐ Limited	
12. Number of Employees				13. Independently Owned and Operated?	
☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher				☒ Yes ☐ No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following					
☐ Owner ☐ Operator ☒ Owner & Operator ☐ Other: ☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant					
15. Mailing		2701 Spur 136			
Address:		City	Port Neches	State	TX
		ZIP	77651	ZIP + 4	
16. Country Mailing Information (if outside USA)				17. E-Mail Address (if applicable)	
18. Telephone Number		19. Extension or Code		20. Fax Number (if applicable)	
(409) 723- 3261				() -	

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								
<i>The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).</i>								
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)								
Port Neches Operations								
23. Street Address of the Regulated Entity: (No PO Boxes)	2701 Spur 136							
	City	Port Neches	State	TX	ZIP	77651	ZIP + 4	
24. County	Jefferson							

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

25. Description to Physical Location:							
26. Nearest City				State		Nearest ZIP Code	
<i>Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).</i>							
27. Latitude (N) In Decimal:		29.9615421		28. Longitude (W) In Decimal:		-93.947161	
Degrees	Minutes	Seconds		Degrees	Minutes	Seconds	
29	57	41.551		-93	56	49.779	
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				325110			
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)							
Petrochemical manufacturing							
34. Mailing Address:	2701 Spur 136						
	City	Port Neches	State	TX	ZIP	77651	ZIP + 4
35. E-Mail Address:		[REDACTED]					
36. Telephone Number (409) 723- 3261			37. Extension or Code			38. Fax Number (if applicable)) () -	

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.

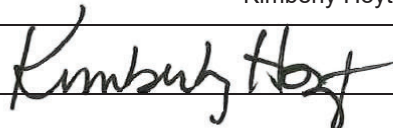
☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☒ Industrial Hazardous Waste
				30029, 50055
☐ Municipal Solid Waste	☒ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
	647B, 5807A, 5952A, 5972A, 16909, 19823, 20134, 20160, 29516, 36646, 49247, 56390, 79802, 83816, 106169			
☐ Sludge	☐ Storm Water	☒ Title V Air	☐ Tires	☐ Used Oil
		O-1320, O-2286, O-2287, O-2288, O-3056		
☐ Voluntary Cleanup	☒ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:
	WQ000511000			

1.4 SECTION IV: PREPARER INFORMATION

40. Name:	Tory Wingate		41. Title:	Environmental Specialist
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address	
(409) 723 - 4072		() -	[REDACTED]	

1.5 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:	Indorama Ventures Oxides LLC	Job Title:	Manufacturing Transformation Office Lead	
Name (In Print):	Kimberly Hoyt		Phone:	(409) 723 - 3261
Signature:			Date:	10/2/25

PART B

TABLE OF CONTENTS

I.	General Information	Section I
II.	Facility Siting Criteria	Section II
III.	Facility Management	Section III
IV.	Wastes and Waste Analysis	Section IV
V.	Engineering Reports.....	Section V
VI.	Geology Report	Section VI
VII.	Closure and Post-Closure Plans	Section VII
VIII.	Financial Assurance	Section VIII
IX.	Releases from Solid Waste Units and Corrective Action	Section IX
X.	Air Emission Standards	Section X
XI.	Compliance Plan	Not Applicable
XII.	Hazardous Waste Permit Application Fee	Section XII
XIII.	Confidential Material	Not Applicable

LIST OF APPENDICES

Appendix I.A:	Table I and Table I.1
Appendix I.B:	TCEQ Core Data Form (Form 10400)
Appendix I.C:	Signature Page
Appendix I.E:	List and Map of Adjacent Landowner Table 1.E and Figure 1.E
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)
Appendix II.F:	Flooding (Flooding Report)
Appendix III.A:	Compliance History and Applicant Experience
Appendix III.B:	Personnel Training Plan
Appendix III.C:	Security
Appendix III.D:	Inspection Schedule (Table III.D and Inspection Plan)
Appendix III.E:	Contingency Plan (Tables III.E.1, III.E.2, and III.E.3 and Contingency Plan)
Appendix IV.B:	Waste Managed in Permitted Units (Table IV.B)
Appendix IV.C:	Sampling and Analytical Methods (Table IV.C)
Appendix IV.D:	Waste Analysis Plan
Appendix V.A:	General (Table V.A and General Engineering Report)

Appendix V.I: Boilers and Industrial Furnaces (Table V.I.1, Steam Generators No. 1 and No. 2 Engineering Report, and Boiler H-K2-003 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 X.B: Equipment Leaks (Table X.B)

Appendix XII.A: Hazardous Waste Units (Table XII.A)

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

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 1¹, 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

Permit No. 50055
Permittee: Indorama Ventures Oxides LLC

Page 1 of 6

A. Applicant: Facility Operator

Name ¹	Indorama Ventures Oxides LLC
Address ²	2701 Spur 136
City, State ²	Port Neches, TX
Zip Code ²	77651
Telephone Number	409-722-8381
Alternate Telephone Number	None
TCEQ Solid Waste Registration No.	30029
EPA I.D. No.	TX008076846
Permit No.	50055
County	Jefferson
Regulated Entity Name	Port Neches Operations
Regulated Entity Reference Number (RN)	RN100219252
Customer Name ²	Indorama Ventures Oxides LLC
Customer Reference Number:	CN605743038
Charter Number ³	803449630
Previous or Former Names of the Facility (if applicable)	Huntsman Petrochemical LLC

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:	Tory Wingate, Environmental Specialist
Address	2701 Spur 136
City, State	Port Neches, TX
Zip Code	77651
Telephone Number	409-723-4072
Alternate Telephone Number	409-553-9121
E-mail	

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	
E-mail	

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

Name, Title:	Corporation Service Company dba CSC-Lawyers Incorporating Service Company
Address	211 East 7th Street, Suite 620
City, State	Austin, TX
Zip Code	78701-3218

3. Individual responsible for causing notice to be published:

Name, Title:	Tory Wingate, Environmental Specialist
Address	2701 Spur 136
City, State	Port Neches, TX
Zip Code	77651
Telephone Number	409-723-4072
Alternate Telephone Number	409-553-9121
E-mail	

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

Name, Title:	Effie & Wilton Herbert Public Library
Address	2025 Merriman Street
City, State	Port Neches, TX
Zip Code	77651

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

No

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:

195

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

River Segment	Neches River, Segment No. 0601
River Basin	Neches 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?	Yes
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?	No
If Yes: List WDW Permit No(s)	
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.
	TDDES Permit No. WQ0000511000
	☐ No
	Date TCEQ discharge permit application filed:
	Date TPDES discharge application filed:

G. Information Required to Provide Notice

H. State Officials List [30 TAC 39]

I. State Senator

Name:	Robert Nichols
Address	P.O. Box 12068 Capitol Station
City, State	Austin, TX
Zip Code	78711-2068
Email	

J. State Representative

Name:	Christian Manuel
Address	Room E2.412, P.O. Box 2910
City, State	Austin, TX
Zip Code	78711-2910
Email	

K. Local Officials List [30 TAC 39]

L. Mayor

Name:	Glenn Johnson
Address	P.O. Box 758
City, State	Port Neches, TX
Zip Code	77651
Email	

M. Local Health Authority

Name:	Holly Alexander, City Secretary
Address	P.O. Box 758
City, State	Port Neches, TX
Zip Code	77651
Email	

N. County Judge

Name:	Jeff Branick
Address	1149 Pearl Street
City, State	Beaumont, TX
Zip Code	77701
Email	

O. County Health Authority

Name:	Ezea D. Ede
Address	1295 Pearl Street
City, State	Beaumont, TX
Zip Code	77701
Email	

Permit No. 50055
Permittee: Indorama Ventures Oxides LLC

Page 6 of 6

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?

Yes

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 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 - Appendix III.D - Inspections Table III.D	Added eyewash/safety showers, spill control equipment	Minor	40 CFR § 270.42 Appendix I.A.1
Application - Appendix III.E - Table III.E.1	Updated information on local arrangements	Minor	40 CFR § 270.42 Appendix I.B.6.d
Application - Table III.E.2	Updated emergency coordinators list	Minor	40 CFR § 270.42 Appendix I.B.6.d
Application - Appendix III.E - Table III.E.3	Added eyewash/safety showers, spill control equipment	Minor	40 CFR § 270.42 Appendix I.A.1
Application - Appendix III.E - Contingency plan	Developed stand-alone contingency plan instead of using facility's Emergency Response Action Plan. Updated emergency equipment as described above. Information was also added to comply with 40 CFR Part 262 Subpart M (for Large Quantity Generators).	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	Updated facility figures and maps.	Minor	40 CFR § 270.42 Appendix I.A.1
Application - Appendix V.I boiler engineering reports	Modified engineering reports for boilers to address application table applicability after HWC NESHA, special waste considerations, and startup, shutdown, and malfunctions.	Minor	40 CFR § 270.42 Appendix I.A.1

Permit No. 50055
Permittee: Indorama Ventures Oxides LLC

Page 2 of 2

Permit/Compliance Plan Application Appendix/Section	Brief Description of Proposed Change	Modification or Amendment Type	Supporting Regulatory Citation
Application - Appendix VII.A and VII.B - Closure Plan and Costs	Updated closure costs, closure procedures did not change	Minor	40 CFR § 270.42 Appendix I.A.1
Application - Appendix X.B - Table X.B	Provided updated component list	Minor	40 CFR § 270.42 Appendix I.A.1

Appendix I.B: TCEQ CORE DATA FORM (FORM 10400)



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 605743038		RN 100219252

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)					
<i>The Customer Name submitted here may be updated automatically based on what is current and active with the Texas Secretary of State (SOS) or Texas Comptroller of Public Accounts (CPA).</i>					
6. Customer Legal Name (If an individual, print last name first: eg: Doe, John)				<i>If new Customer, enter previous Customer below:</i>	
Indorama Ventures Oxides LLC					
7. TX SOS/CPA Filing Number		8. TX State Tax ID (11 digits)		9. Federal Tax ID (9 digits)	10. DUNS Number (if applicable)
803449630		32072289781		843151997	Not applicable
11. Type of Customer:		☒ Corporation		☐ Individual	
Government: ☐ City ☐ County ☐ Federal ☐ Local ☐ State ☐ Other		☐ Sole Proprietorship		Partnership: ☐ General ☐ Limited	
12. Number of Employees				13. Independently Owned and Operated?	
☐ 0-20 ☐ 21-100 ☐ 101-250 ☐ 251-500 ☒ 501 and higher				☒ Yes ☐ No	
14. Customer Role (Proposed or Actual) – as it relates to the Regulated Entity listed on this form. Please check one of the following					
☐ Owner ☐ Operator ☒ Owner & Operator ☐ Other: ☐ Occupational Licensee ☐ Responsible Party ☐ VCP/BSA Applicant					
15. Mailing		2701 Spur 136			
Address:		City	Port Neches	State	TX
		ZIP	77651	ZIP + 4	
16. Country Mailing Information (if outside USA)				17. E-Mail Address (if applicable)	
18. Telephone Number		19. Extension or Code		20. Fax Number (if applicable)	
(409) 723- 3261				() -	

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								
<i>The Regulated Entity Name submitted may be updated, in order to meet TCEQ Core Data Standards (removal of organizational endings such as Inc, LP, or LLC).</i>								
22. Regulated Entity Name (Enter name of the site where the regulated action is taking place.)								
Port Neches Operations								
23. Street Address of the Regulated Entity: (No PO Boxes)	2701 Spur 136							
	City	Port Neches	State	TX	ZIP	77651	ZIP + 4	
24. County	Jefferson							

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

25. Description to Physical Location:							
26. Nearest City				State		Nearest ZIP Code	
<i>Latitude/Longitude are required and may be added/updated to meet TCEQ Core Data Standards. (Geocoding of the Physical Address may be used to supply coordinates where none have been provided or to gain accuracy).</i>							
27. Latitude (N) In Decimal:		29.9615421		28. Longitude (W) In Decimal:		-93.947161	
Degrees	Minutes	Seconds	Degrees	Minutes	Seconds		
29	57	41.551	-93	56	49.779		
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				325110			
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)							
Petrochemical manufacturing							
34. Mailing Address:	2701 Spur 136						
	City	Port Neches	State	TX	ZIP	77651	ZIP + 4
35. E-Mail Address:		[REDACTED]					
36. Telephone Number (409) 723- 3261			37. Extension or Code			38. Fax Number (if applicable)) () -	

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.

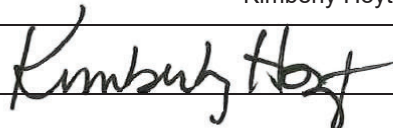
☐ Dam Safety	☐ Districts	☐ Edwards Aquifer	☐ Emissions Inventory Air	☒ Industrial Hazardous Waste
				30029, 50055
☐ Municipal Solid Waste	☒ New Source Review Air	☐ OSSF	☐ Petroleum Storage Tank	☐ PWS
	647B, 5807A, 5952A, 5972A, 16909, 19823, 20134, 20160, 29516, 36646, 49247, 56390, 79802, 83816, 106169			
☐ Sludge	☐ Storm Water	☒ Title V Air	☐ Tires	☐ Used Oil
		O-1320, O-2286, O-2287, O-2288, O-3056		
☐ Voluntary Cleanup	☒ Wastewater	☐ Wastewater Agriculture	☐ Water Rights	☐ Other:
	WQ000511000			

1.4 SECTION IV: PREPARER INFORMATION

40. Name:	Tory Wingate		41. Title:	Environmental Specialist
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address	
(409) 723 - 4072		() -	[REDACTED]	

1.5 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:	Indorama Ventures Oxides LLC	Job Title:	Manufacturing Transformation Office Lead	
Name (In Print):	Kimberly Hoyt		Phone:	(409) 723 - 3261
Signature:			Date:	10/2/25

Appendix I.C: SIGNATURE PAGE

Signature Page

I, Kimberly Hoyt Manufacturing Transformation Office Lead,
(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: Kimberly Hoyt Date: 10/2/25

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

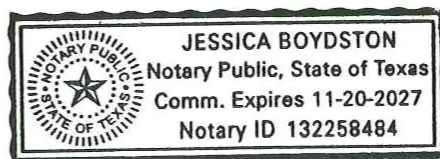
SUBSCRIBED AND SWORN to before me by the said Kimberly Hoyt

On this 2 day of October, 2025

My commission expires on the 20 day of November, 2027

Notary Public in and for Jefferson County, Texas
[Note: Application Must Bear Signature & Seal of Notary Public]

Jess Boydston

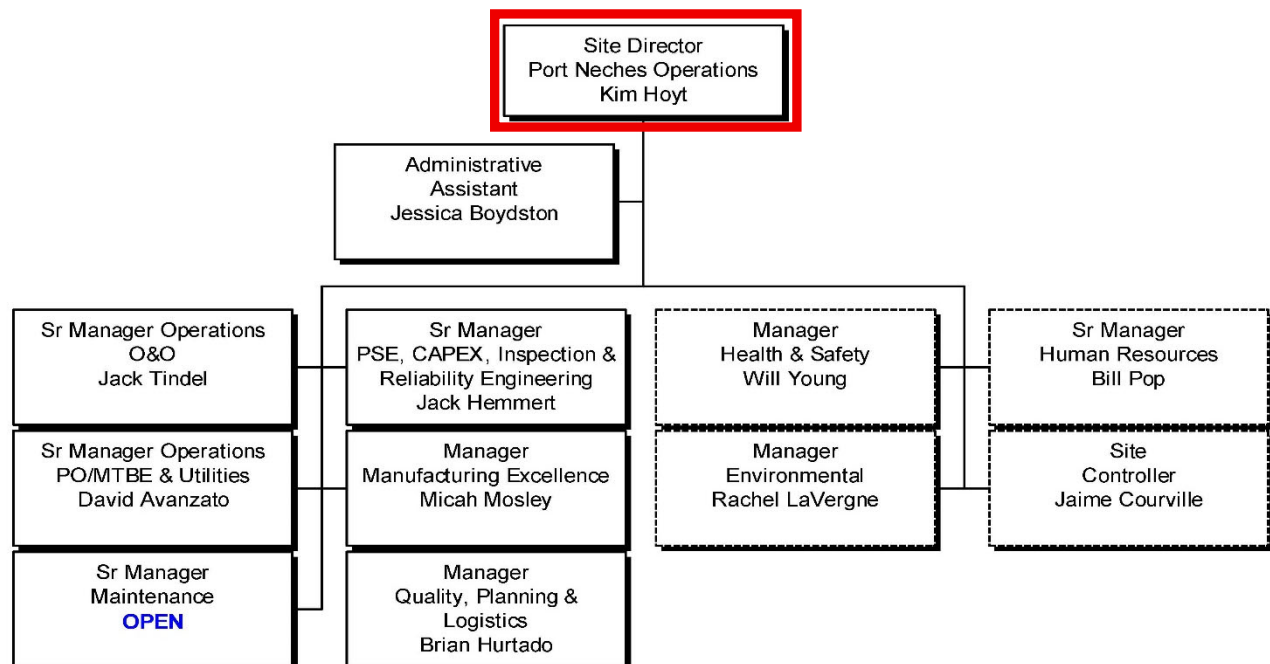




Indovina – Port Neches Operations

September 2024

PNO Senior Management Team



**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
Map Page 1 of 4	
3	AMERIPOL SYNPOL CORPORATION 210 SUMMIT AVE STE A6 MONTVALE NJ 07645-1571
20	CAYUSE PIPELINE CO DOW CHEMICAL CO TAX DEPT APB BLD FLOOR 4A LAKE JACKSON TX 77566
22	CENTANA INTRASTATE P/L LLC 6900 E LAYTON AVAE STE 900 DENVER CO 80237-3658
27	CITY OF PORT ARTHUR PO BOX 1089 PORT ARTHUR TX 77641-1089
28	CITY OF PORT NECHES PO BOX 758 PORT NECHES TX 77651-0758
32	CRC ENTERPRISES LLC 218 N 1ST ST NEDERLAND TX 77627-8600
35	DANIELS GLORIA (LIFE ESTATE) WILLIAM DANIELS ESTATE 101 ORCHARD AVE PORT NECHES TX 77651
39	DIE DAVID SR 1132 PORT NECHES E AVE PORT NECHES TX 77651
40	DOMINGUE DAVID & CINDY 1007 E PORT NECHES AVE PORT NECHES TX 77651-3135
44	DUNN PALLET CO 516 ORCHARD AVE PORT NECHES TX 77651-3144
50	ELKINS PATRICK R 201 ORCHARD AVE PORT NECHES TX 77651-3175
52	ENTERGY TEXAS INC PO BOX 61000 NEW ORLEANS LA 70161-1000
62	FRUSHA MARK A & TIFFANY P 504 E PORT NECHES AVE PORT NECHES TX 77651-3126
89	HORN AARON OLIVER 602 E PORT NECHES AVE PORT NECHES TX 77651-3128

**TABLE I.E
ADJACENT LANDOWNERS**

MAP ID	LANDOWNER/ADDRESS
96	JMAC'S RENTALS LLC PO BOX 86 PORT NECHES TX 77651-0086
100	KINDER MORGAN TEXAS PIPELINE PO BOX 4372 HOUSTON TX 77210-4372
109	LEMOINE PAUL J & SHARON S 910 E PORT NECHES AVE PORT NECHES TX 77651-3134
110	LOWER NECHES VALLEY AUTHORITY PO BOX 5117 BEAUMONT TX 77726-5117
116	MENDOZA JAMES & JAMIE 820 E PORT NECHES AVE PORT NECHES TX 77651-3132
122	MOORE JAMES W 1008 E PORT NECHES AVE PORT NECHES TX 77651-3136
126	MOTIVA ENTERPRISES LLC PO BOX 2727 HOUSTON TX 77252-2727
145	SAVANT STEPHEN & AMY 2299 N TWIN CITY HWY NEDERLAND TX 77627-3619
148	SE VENTURES LLC 3440 EASTEX FWY BEAUMONT TX 77703
149	SHELL PIPELINE CO LP PO BOX 4369 HOUSTON TX 77210-4369
158	TANT THOMAS DARRIN 6301 DIAMOND AVE PORT ARTHUR TX 77640
161	TEXACO DOWNSTREAM PROP INC PO BOX 285 HOUSTON TX 77001-0285
162	TEXAS COMMUNITY INVESTMENT LLC 504 E PORT NECHES AVENUE PORT NECHES TX 77651-3126
163	TEXAS PETROCHEMICAL LP PO BOX 1422 HOUSTON TX 77251-1422
166	TIME WARNER CABLE TEXAS LLC PO BOX 7467 CHARLOTTE NC 28241-7467

**TABLE I.E
ADJACENT LANDOWNERS**

MAP ID	LANDOWNER/ADDRESS
180	DONNER PROPERTIES PO BOX 1410 RUSTON LA 71273-1410
182	MOORE-ODOM WILDLIFE FOUNDATION, INC. PO BOX 458 ORANGE TX 77631-0458
184	AIR PRODUCTS & CHEMICALS INC 1940 AIR PRODUCTS BLVD ALLENTOWN PA 18106
185	DAVID DARREN J 2916 AVENUE D NEDERLAND TX 77627-7528
187	EUTON DERREK RAY 335 PINE ST PORT NECHES TX 77651-3145
188	LABURE MICHAEL JR 409 E 2ND ST PORT NECHES TX 77651-3113
190	LITTLE RICKY & GLENDA 426 E 2ND ST PORT NECHES TX 77651-3114
191	REEVES MATTHEW J & KIMBERLY 709 E 1ST ST PORT NECHES TX 77651
192	VINCENT ESTHER PO BOX 1204 NEDERLAND TX 77627-1204
Map Page 2 of 4	
5	BAILEY JOE H PO BOX 446 GROVES TX 77619-0446
7	BEAUMONT GARY LYNN & SHARON B ENGMAN & GARY LYNN BEAUMONT 7000 PINE TOP RD PORT ARTHUR TX 77642-0142
13	BOURG CARL J JR & CATHY 7060 PINE TOP RD PORT ARTHUR TX 77642-0142
49	E & J BENOIT FAMILY PARTNERS 7941 TOM DR PORT ARTHUR TX 77642-6629
51	ENGMAN SHARON B 7050 PINE TOP RD PORT ARTHUR TX 77642-0142

TABLE I.E
ADJACENT LANDOWNERS

MAP ID	LANDOWNER/ADDRESS
52	ENTERGY TEXAS INC PO BOX 61000 NEW ORLEANS LA 70161-1000
66	GASPARD KIM & HOWELL SCOTT 6920 PINE TOP ROAD PORT ARTHUR TX 77642
74	GRADO JOSEPH MARC & DONNA MONROE 4906 ATLANTIC RD PORT ARTHUR TX 77642-0165
83	HEBERT NORBERT JR (LIFE ESTATE) 6926 PINE TOP PORT ARTHUR TX 77642-0177
93	JEFFERSON CO DRAINAGE DIST 7 PO BOX 3244 PORT ARTHUR TX 77643-3244
94	JHBIII PROPERTIES LLC 732 AVENUE C PORT NECHES TX 77651
110	LOWER NECHES VALLEY AUTHORITY PO BOX 5117 BEAUMONT TX 77726-5117
113	MACCALLUM PETER S III PO BOX D GROVES TX 77619
128	PEDIGO KEVIN K 7150 PINE TOP PORT ARTHUR TX 77642-0144
139	ROY-MENDOZA EUGENIA KAYE & HERMAN H 4745 ATLANTIC RD PORT ARTHUR TX 77642-0122
141	SANDERS BARRY NEIL & JULIE D 4900 ATLANTIC RD PORT ARTHUR TX 77642
150	SIMPSON CHAD PATRICK 4914 ATLANTIC ROAD PORT ARTHUR TX 77642-0165
155	STUTES BRIAN CRAIG & LEE ANN 6900 PINE TOP RD PORT ARTHUR TX 77642
156	STUTES RODNEY C & SANDRA K 6910 PINE TOP RD PORT ARTHUR TX 77642-0177
167	TOTALENERGIES PETROCHEMICALS & REFINING USA INC 1201 LOUISIANA ST STE 1800 HOUSTON TX 77002-5605

**TABLE I.E
ADJACENT LANDOWNERS**

MAP ID	LANDOWNER/ADDRESS
168	TRANS GLOBAL SOLUTIONS INC 15814 CHAMPION FOREST DR #92 SPRING TX 77379
178	WOODRUFF DONALD R EST WILLIAM D & ROBERT F JR 185 TIGER LILY ST BRIDGE CITY TX 77611-2223
181	EMG RESOURCES LLC PO BOX 27035 HOUSTON TX 77227-7035
183	PDG RESOURCES LLC PO BOX 6804 HOUSTON TX 77265-6804
Map Page 3 of 4	
1	2750 IH 10 E LLC PO BOX 1031 BEAUMONT TX 77704-1031
2	5500 DEVELOPMENT LLC 5215 N TWIN CITY HWY PORT ARTHUR TX 77642-6013
4	ANGLIN DONALD H ET UX 3101 SABA LN PORT NECHES TX 77651-5421
6	BANIK JAN C 6249 DAVE ST GROVES TX 77619
8	BERGERON AUSTIN S & KAYLEE 2783 SABA LN PORT NECHES TX 77651-5030
9	BLACKWELL JAN MARIE 5901 ALABAMA AVE GROVES TX 77619-3904
10	BLACKWELL KIM N 5849 ALABAMA AVE GROVES TX 77619-3903
11	BLANCHARD RICKY & TRUDY 5911 CAROLINA AVE GROVES TX 77619-3909
12	BOLYARD ARCHIE E 2861 SABA LN PORT NECHES TX 77651-5436
14	BOUTTE WILLIAM J & PHYLLIS R 2831 SABA LN PORT NECHES TX 77651-5436

**TABLE I.E
ADJACENT LANDOWNERS**

MAP ID	LANDOWNER/ADDRESS
15	BROUSSARD-SOUTH CHARLOTTE ANN 2805 SABA LN PORT NECHES TX 77651-5415
16	BROWN PAUL RICHARD 4510 SUNRISE RD BAYTOWN TX 77523-3527
17	BUSH ALLEN G JR 5548 GRANT AVE GROVES TX 77619
18	BUSH SCOTT F 5700 ALABAMA AVE GROVES TX 77619-3936
19	CALABRIAN CORPORATION 5500 HIGHWAY 366 PORT NECHES TX 77651-6300
21	CEJA NEREIDA 5711 CAROLINA AVE GROVES TX 77619-4902
23	CHILDRESS IDA CHARLANE 5290 HOGABOOM RD GROVES TX 77619-3232
24	CHRIS A ROMERO & ASSOCIATES LLC 11610 SPRING VILLA DR HOUSTON TX 77070-1265
25	CHUNG JUAN & BARRAGAIN MARTHA MENDOZA 3104 CARLSEN ST OAKLAND CA 94602
26	CITY OF GROVES PO BOX 846 GROVES TX 77619-0846
27	CITY OF PORT ARTHUR PO BOX 1089 PORT ARTHUR TX 77641-1089
28	CITY OF PORT NECHES PO BOX 758 PORT NECHES TX 77651-0758
29	CLEMMONS TODD J & TANYA M 203 CASTLE CIR PORT NECHES TX 77651-5459
30	CLOPTON TIMOTHY SCOTT & CARLA 5820 GEORGIA AVE GROVES TX 77619-3923
31	COFFEY GLENN 5890 HOGABOOM RD GROVES TX 77619-3929

TABLE I.E
ADJACENT LANDOWNERS

MAP ID	LANDOWNER/ADDRESS
33	CROCHET COY & FRAN 6640 TAYLOR STREET GROVES TX 77619-5669
34	CROCHET TROY D ET UX 202 CASTLE CIR PORT NECHES TX 77651-5459
36	DEHART DOUGLAS PATRICK & ANDERSON LINDSEY MARIE 2839 SABA LANE PORT NECHES TX 77651-5436
37	DEVILLIER CAROLYN RENAE 5900 HOGABOOM RD GROVES TX 77619-4805
38	DIAZ STEPHEN 5410 MARION AVENUE GROVES TX 77619-6044
41	DOORNBOS JACOB & PETE M H & FAMILY LTD PARTNERSHIP PO BOX 17 NEDERLAND TX 77627-0017
42	DRODDY JERRY J & JEAN POYDENCE 5500 MARION AVE GROVES TX 77619-6046
43	DUMESNIL MARIA 3700 SKYLINE DR NEDERLAND TX 77627-8303
45	DUPUIS STORMY 6648 TAYLOR ST GROVES TX 77619-5669
46	DUVALL JOYCE M 5931 ALABAMA AVE GROVES TX 77619-3904
47	DUVALL WILLIAM ALLEN JR 5835 ALABAMA AVE GROVES TX 77619-3903
48	DUVALL WM A 5931 ALABAMA AVE GROVES TX 77619-3904
52	ENTERGY TEXAS INC PO BOX 61000 NEW ORLEANS LA 70161-1000
53	FAGAPA LLC 433 N LOOP W FRWY HOUSTON TX 77008
54	FIVE M INC 6048 CAROLINA AVE GROVES TX 77619-3912

TABLE I.E
ADJACENT LANDOWNERS

MAP ID	LANDOWNER/ADDRESS
55	FOREMAN DIANE BAKER MYERS LEE FOREMAN ESTATE 5541 GARFIELD AVE GROVES TX 77619-5614
56	FOUNTAIN TISHA YVETE 5221 DELILAH COURT GROVES TX 77619-3258
57	FRASIER PATRICIA JANE 2797 SABA LN PORT NECHES TX 77651
58	FRAZIER ROBERT & DONEANE ROBERTSON 2773 SABA LN PORT NECHES TX 77651-5030
59	FREY LESLIE T & LIANA D 5599 WHITAKER ST GROVES TX 77619-3246
60	FRIEND J L FAMILY TRUST ESTATE PO BOX 755 GROVES TX 77619-0755
61	FRIoux LONDON & KELLEY 2841 SABA LN PORT NECHES TX 77651
63	FULLER CHRISTI RENEE 2763 SABA LN PORT NECHES TX 77651
64	GALVAN JORGE 3420 CLEVELAND AVE GROVES TX 77619-5113
65	GARZA ARMANDO JR & STACEY L 5440 MARION AVE GROVES TX 77619-6044
67	GIBLIN MICHAEL J 2823 SABA LN PORT NECHES TX 77651-5436
68	GIBLIN RONALD J SR & SUZANNE 2857 SABA LN PORT NECHES TX 77651-5436
69	GLAZE JOHN CHARLES 1010 CLYDE DR ALVIN TX 77511-6304
70	GODLEY MARK & NANCY 2743 SABA LN PORT NECHES TX 77651-5030
71	GODWIN KAY F & TERRY L GODWIN ESTATE 6049 CAROLINA AVE GROVES TX 77619-3911

TABLE I.E
ADJACENT LANDOWNERS

MAP ID	LANDOWNER/ADDRESS
72	GOEBEL DAVID LYNN & CODIA MARIE 5404 HOGABOOM RD GROVES TX 77619-3235
73	GONZALEZ ROLANDO 5749 MOCKINGBIRD LN GROVES TX 77619
75	GRANGER WALTER S III & ANGELA D 5548 GARFIELD AVE GROVES TX 77619-5615
76	GRASS CARELL L & GRASS MILDRED CAROLYN 5839 CAROLINA AVE GROVES TX 77619-3907
77	GROVES ASSEMBLY OF GOD CHURCH 5548 BEAUMONT AVE GROVES TX 77619-5606
78	GUERRERO DORIS S (LIFE ESTATE) 3124 NALL NECHES TX 77651
79	GUIDRY TOBY & TISA 2723 SABA LN PORT NECHES TX 77651-5030
80	HALL JAMES JOSEPH & MELISSA DAWN 5300 HOGABOOM RD GROVES TX 77619-3233
81	HARRINGTON WILTON J ESTATE 5839 ALABAMA AVE GROVES TX 77619-3903
82	HARRISON PEGGY LYNN 5545 BEAUMONT AVE GROVES TX 77619-5605
84	HEIDNER TIMOTHY W 6120 HOGABOOM RD GROVES TX 77619-4807
85	HENRY MATTHEW JOSEPH 10 BOWERS PINE CT SPRING TX 77389-1621
86	HERNANDEZ DANIEL E & TRICIA A 5211 DELILAH CT GROVES TX 77619-3258
87	HINDS A R 5150 HOGABOOM RD PORT ARTHUR TX 77642-5855
88	HINDS QUALITY FENCES PO BOX 335 GROVES TX 77619-0335

TABLE I.E
ADJACENT LANDOWNERS

MAP ID	LANDOWNER/ADDRESS
90	HUNT HIRAM L ET UX 2793 SABA LN PORT NECHES TX 77651-5030
91	HUVAL BETTY T 2801 SABA LN PORT NECHES TX 77651-5415
92	JAMJO LLC JOLAINE HAVARD 309 KING ARTHUR DR PORT NECHES TX 77651
93	JEFFERSON CO DRAINAGE DIST 7 PO BOX 3244 PORT ARTHUR TX 77643-3244
95	JIVANI ASLAM 6048 MONROE ST GROVES TX 77619-4720
97	KEITH EST INC-SABA-GIST-LANDRY-LOFTON-HAMPTON- MAZUR UNKNOWN
98	KEITH GUY H & DICK L KEITH & JANE KEITH COLLIER UNKNOWN
99	KENNEDY MAXINE 6000 HOGABOOM RD GROVES TX 77619
101	KING MAYDELL 5849 CAROLINA AVE GROVES TX 77619-3907
102	KNAUS SCOTT 5940 GEORGIA AVE GROVES TX 77619-3925
103	LAGRONE TRACY LYNN 5549 GRANT AVE GROVES TX 77619-5625
104	LANDRY MOLLY 2845 SABA LANE PORT NECHES TX 77651-5436
105	LEACH TROY 5501 PORT NECHES RD GROVES TX 77619-4820
106	LEBLANC MADALINE MCPHERSON 6140 HOGABOOM RD GROVES TX 77619-4807
107	LEBLANC TREY & MICHELLE 5201 DELILAH CT GROVES TX 77619-3258

TABLE I.E
ADJACENT LANDOWNERS

MAP ID	LANDOWNER/ADDRESS
108	LEE LARA NICKLEBUR 2827 SABA LN PORT NECHES TX 77651-5436
110	LOWER NECHES VALLEY AUTHORITY PO BOX 5117 BEAUMONT TX 77726-5117
111	LOYACANO LAURIE & MARK 5429 MOCKINGBIRD LN GROVES TX 77619-3930
112	LUXE POINT HOMES LLC 3318 HWY 365 #272 NEDERLAND TX 77627-7832
114	MARSHALL JANIECE C 2819 SABA LN PORT NECHES TX 77651-5436
115	MAY HOLLY O'NEAL 5521 ANSELMO GROVES TX 77619-4858
117	MILES SHERRIE 6110 HOGABOOM RD GROVES TX 77619-4807
118	MOAK FRED L 6048 CAROLINA AVE GROVES TX 77619-3912
119	MOAK LOUIS TODD 9598 FM 1943 RD E WARREN TX 77664-8744
120	MONTANO CINDY (LIFE ESTATE) & JUAN JOSE MONTANO ESTATE 6669 32ND ST GROVES TX 77619-5105
121	MOORE DOROTHY MRS 1561 COUNTY RD 297 JASPER TX 75951-6841
123	MOREIN JAMES DUSTIN 5241 DELILAH CT GROVES TX 77619
124	MORGAN DENISE LYNN 2809 SABA LN PORT NECHES TX 77651-5415
125	MOTIVA CHEMICALS LLC PO BOX 2727 HOUSTON TX 77252-2727

**TABLE I.E
ADJACENT LANDOWNERS**

MAP ID	LANDOWNER/ADDRESS
126	MOTIVA ENTERPRISES LLC PO BOX 2727 HOUSTON TX 77252-2727
127	NGUYEN LISA N 8470 ANASTASIA BEAUMONT TX 77705-9423
129	PEREZ JOSE MANUEL SR 5530 ANSELMO AVE GROVES TX 77619-4857
130	PORT NECHES-GROVES ISD 776 MAGNOLIA AVE PORT NECHES TX 77651
131	POWERS LISA 5510 MANION AVE GROVES TX 77619
132	PRITCHETT RICK D & LANA R 5998 HOGABOOM RD GROVES TX 77619-4805
133	PULIDO ANTONIO & JUANA CEJA 2753 SABA LANE PORT NECHES TX 77651-5030
134	REYNOLDS INVESTMENTS NATHAN L REYNOLDS JR 3152 CANTERBURY LN PORT NECHES TX 77651-6217
135	REYNOLDS INVESTMENTS 3500 MEMORIAL BLVD PORT ARTHUR TX 77642
136	RICHARDSON AMY ELIZABETH 6124 HOGABOOM RD GROVES TX 77619-4807
137	RIFE RONALD R & DORTHA F 5420 MOCKINGBIRD LN GROVES TX 77619-3931
138	ROCCAFORTE JULIA 2849 SABA LN PORT NECHES TX 77651-5436
140	SABA E L ESTATE PO BOX 477 GROVES TX 77619-0477
142	SANDIFER RICHARD D 5531 KENT AVE GROVES TX 77619
143	SANDOVAL ELITE CUSTOM BUILDERS LLC 1419 N 20TH ST NEDERLAND TX 77627-4815

TABLE I.E
ADJACENT LANDOWNERS

MAP ID	LANDOWNER/ADDRESS
144	SANDOVAL SERGIO 9573 FM 365 RD BEAUMONT TX 77705-8084
146	SCHUFF MICAH W 5749 CAROLINA AVE GROVES TX 77619-3905
147	SCOTT JOSEPH MELVIN 2808 MEMPHIS AVE NEDERLAND TX 77627-6732
149	SHELL PIPELINE CO LP PO BOX 4369 HOUSTON TX 77210-4369
151	SMITH BRETT W 3230 TYRRELL DR PORT ARTHUR TX 77642-2027
152	SOILEAU DIANA LYNN 6020 HOGABOOM RD GROVES TX 77619-4806
153	SONNIER EUGENE R JR 5540 MARION AVENUE GROVES TX 77619
154	STATE OF TEXAS TEXDOT PO BOX 5075 AUSTIN TX 78763-5075
157	SULLIVAN DONALD LEE JR 5801 CAROLINA AVE GROVES TX 77619-3907
159	TEAGUE CLARK E JR 5895 HOGABOOM RD GROVES TX 77619-3959
160	TERRELL JEFFREY L & ELIZABETH 5431 HOGABOOM RD GROVES TX 77619-3234
161	TEXACO DOWNSTREAM PROP INC PO BOX 285 HOUSTON TX 77001-0285
163	TEXAS PETROCHEMICAL LP PO BOX 1422 HOUSTON TX 77251-1422
164	THIRD COAST EQUITY LLC 8937 5TH ST BEAUMONT TX 77705-7841
165	THOMPSON MELISSA 5525 PORT NECHES RD GROVES TX 77619-4820

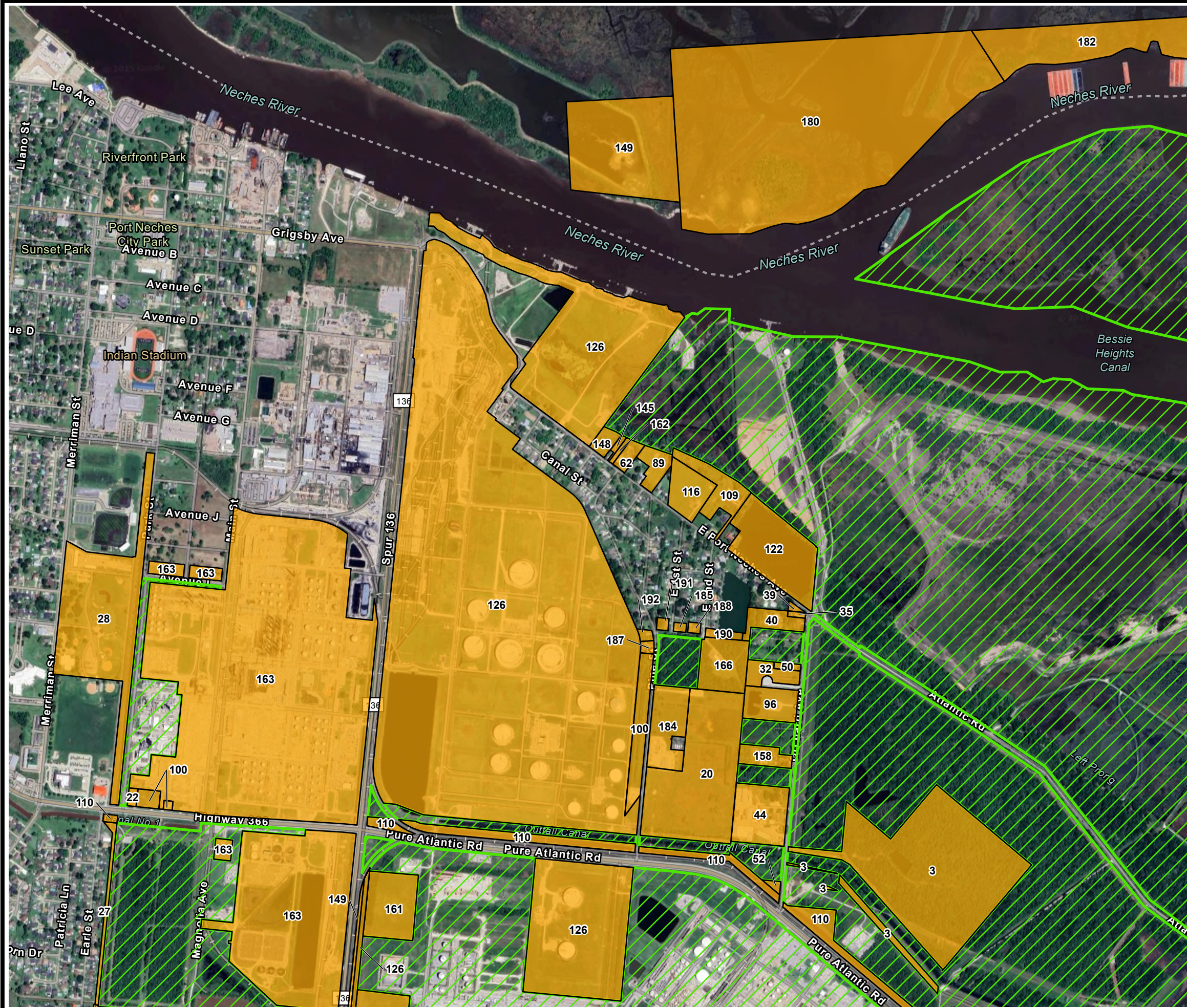
TABLE I.E
ADJACENT LANDOWNERS

MAP ID	LANDOWNER/ADDRESS
167	TOTALENERGIES PETROCHEMICALS & REFINING USA INC 1201 LOUISIANA ST STE 1800 HOUSTON TX 77002-5605
169	USA RAIL TERMINALS BEAUMONT LLC 1255 BLACKSMITH RD PORT ALLEN LA 70767
170	VALLEY VIEW PAHOC, LLC 920 DEQUEEN BOULEVARD PORT ARTHUR TX 77640-5603
171	VARGAS JORGE ALBERTO 6010 HOGABOOM RD GROVES TX 77619-4806
172	WALDEN ROAD PROPERTIES LLC 6711 N TWIN CITY HWY PORT ARTHUR TX 77642-6423
173	WALKER CHARLES A & LATRETTA 5431 HOGABOOM RD GROVES TX 77619-3234
174	WEEKS LEONARD JAY 5333 N TWIN CITY HWY PORT ARTHUR TX 77642-6005
175	WEST GROVES CHURCH OF CHRIST 5510 HOGABOOM RD GROVES TX 77619-3237
176	WIGGINS MARY ANN (LIFE ESTATE) 5420 MARION AVE GROVES TX 77619-6044
177	WILCOX ROBERT 761 BAKER Ave PORT NECHES TX 77651-4300
179	WREN ELVIS J JR & ELIZABETH CYNTHIA SULLIVAN 840 CAROLINA BRIDGE CITY TX 77611-2310
186	DOORNBOS BROTHERS LP 1148 HELENA AVE NEDERLAND TX 77627-3953
189	LANDRY STANLEY 5724 BAIRD GROVES TX 77619-3804
193	KANSAS CITY SOUTHERN RAILROAD PO BOX 219335 KANSAS CITY MO 64121

TABLE I.E
ADJACENT LANDOWNERS

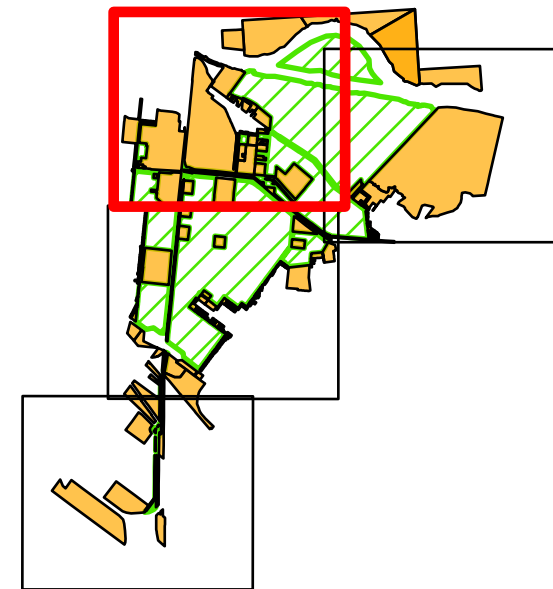
MAP ID	LANDOWNER/ADDRESS
Map Page 4 of 4	
93	JEFFERSON CO DRAINAGE DIST 7 PO BOX 3244 PORT ARTHUR TX 77643-3244
126	MOTIVA ENTERPRISES LLC PO BOX 2727 HOUSTON TX 77252-2727
169	USA RAIL TERMINALS BEAUMONT LLC 1255 BLACKSMITH RD PORT ALLEN LA 70767
186	DOORNBOS BROTHERS LP 1148 HELENA AVE NEDERLAND TX 77627-3953

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- Legend**
-  Indorama Property Boundary
 -  Adjacent Landowner

MAP INDEX



Parcel Source:
Jefferson and Orange County Appraisal Districts
GIS Data, April 2025

0 550 1,100
FEET

1" = 1,100 FEET
1:13,200

**INDORAMA VENTURES OXIDES LLC
PORT NECHES OPERATIONS**

**ADJACENT LANDOWNER MAP
PAGE 1 OF 4**

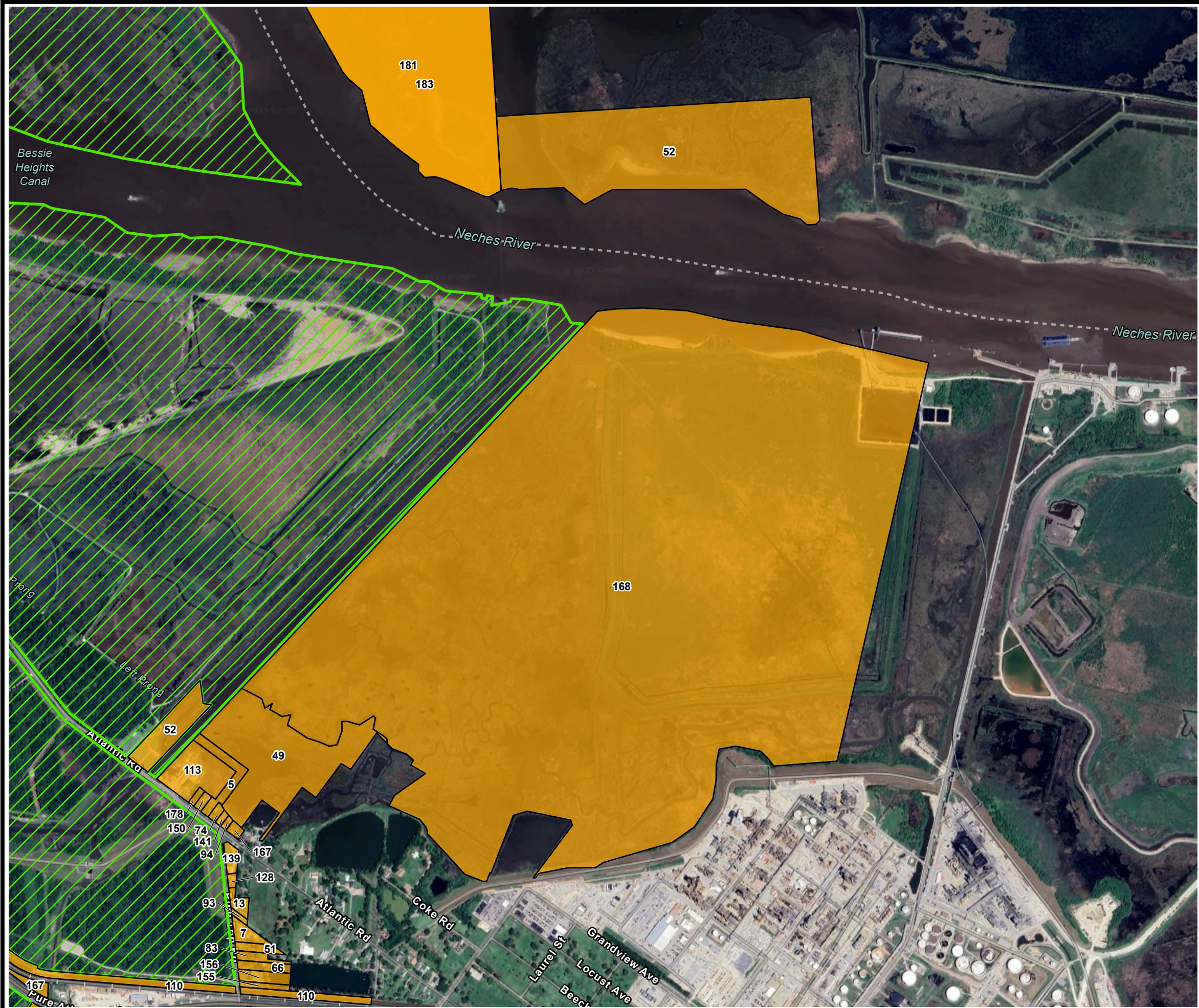
DRAWN BY:	L WILSON	SCALE:	AS NOTED	PROJ. NO.	033-24-01
CHECKED BY:	H MCHALE	DATE PRINTED:	7/1/2025	FILE NO.	Adjacent Landowners
APPROVED BY:	H MCHALE				
DATE:	July 2025				

FIGURE 1.E.

Coterie
ENVIRONMENTAL

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

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Legend

- Indorama Property Boundary
- Adjacent Landowner

MAP INDEX

Parcel Source:
Jefferson and Orange County Appraisal Districts
GIS Data, April 2025

0 550 1,100
FEET

1" = 1,100 FEET
1:13,200

INDORAMA VENTURES OXIDES LLC PORT NECHES OPERATIONS		
ADJACENT LANDOWNER MAP PAGE 2 OF 4		
DRAWN BY: L WILSON	SCALE: AS NOTED	PROJ. NO. 033-24-01
CHECKED BY: H MCHALE	DATE PRINTED: 7/1/2025	FILE NO. Adjacent Landowners
APPROVED BY: H MCHALE	DATE: July 2025	
FIGURE 1.E.		

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

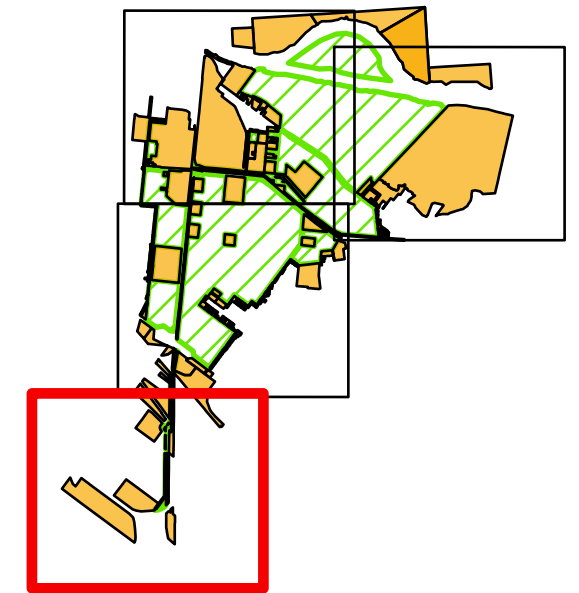
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Legend

-  Indorama Property Boundary
-  Adjacent Landowner

MAP INDEX



Parcel Source:
Jefferson and Orange County Appraisal Districts
GIS Data, April 2025

0 550 1,100
FEET

1" = 1,100 FEET
1:13,200

**INDORAMA VENTURES OXIDES LLC
PORT NECHES OPERATIONS**

**ADJACENT LANDOWNER MAP
PAGE 4 OF 4**

DRAWN BY:	L WILSON	SCALE:	AS NOTED	PROJ. NO.	033-24-01
CHECKED BY:	H MCHALE	DATE PRINTED:	9/15/2025	FILE NO.	Adjacent Landowners
APPROVED BY:	H MCHALE				
DATE:	September 2025				

FIGURE 1.E.

Coterie
ENVIRONMENTAL

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

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 located¹:

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)]	No
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?	

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)]



INDORAMA VENTURES OXIDES LLC
PORT NECHES, TEXAS

**INDUSTRIAL AND HAZARDOUS WASTE
STORAGE/PROCESSING/DISPOSAL FACILITY
PERMIT No. 50055
SOLID WASTE REGISTRATION No. 30029
EPA ID No. TX008076846**

SITE SELECTION REPORT

AUGUST 2025

1.0 INTRODUCTION

Indorama Ventures Oxides LLC (Indorama) operates three hazardous waste fired boilers at the Port Neches Operations. These units are identified as Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. These boilers are the only permitted hazardous waste units at the facility. The boilers 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, 266, and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The boilers 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. Figure 1 in Attachment A shows the United States Fish and Wildlife Service National Wetlands Inventory and the location of the Indorama Port Neches Operations. The figure shows that the area of the hazardous waste management units is not located in wetlands.

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 and surrounding states. The closest to the Indorama Port Neches Operations is the Chicot Aquifer System located in south-western Louisiana. The recharge zone for this aquifer is located directly north of it. The Indorama Port Neches Operations is located approximately nine miles west of the Chicot Aquifer System and is therefore not located in the 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 Board's

designation and location of the major aquifers of Texas. The closest aquifer to the Indorama Port Neches Operations is the Gulf Coast Aquifer located in south-east Texas. The recharge zone for this aquifer is located directly north of it. The Indorama Port Neches Operations is not located in the recharge zone.

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 Indorama Port Neches Operations. The soil units are predominantly classified by the Unified Soil Classifications CH and CL.

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 surface water intakes. These locations were determined from information on the website <http://dww.tceq.state.tx.us/DWW/>. The nearest surface water intake is approximately 1.1 miles from the hazardous waste management units.

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. Figures 6 (Earthquake Probability) and 7 (U.S. 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 Indorama Port Neches Operations. 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

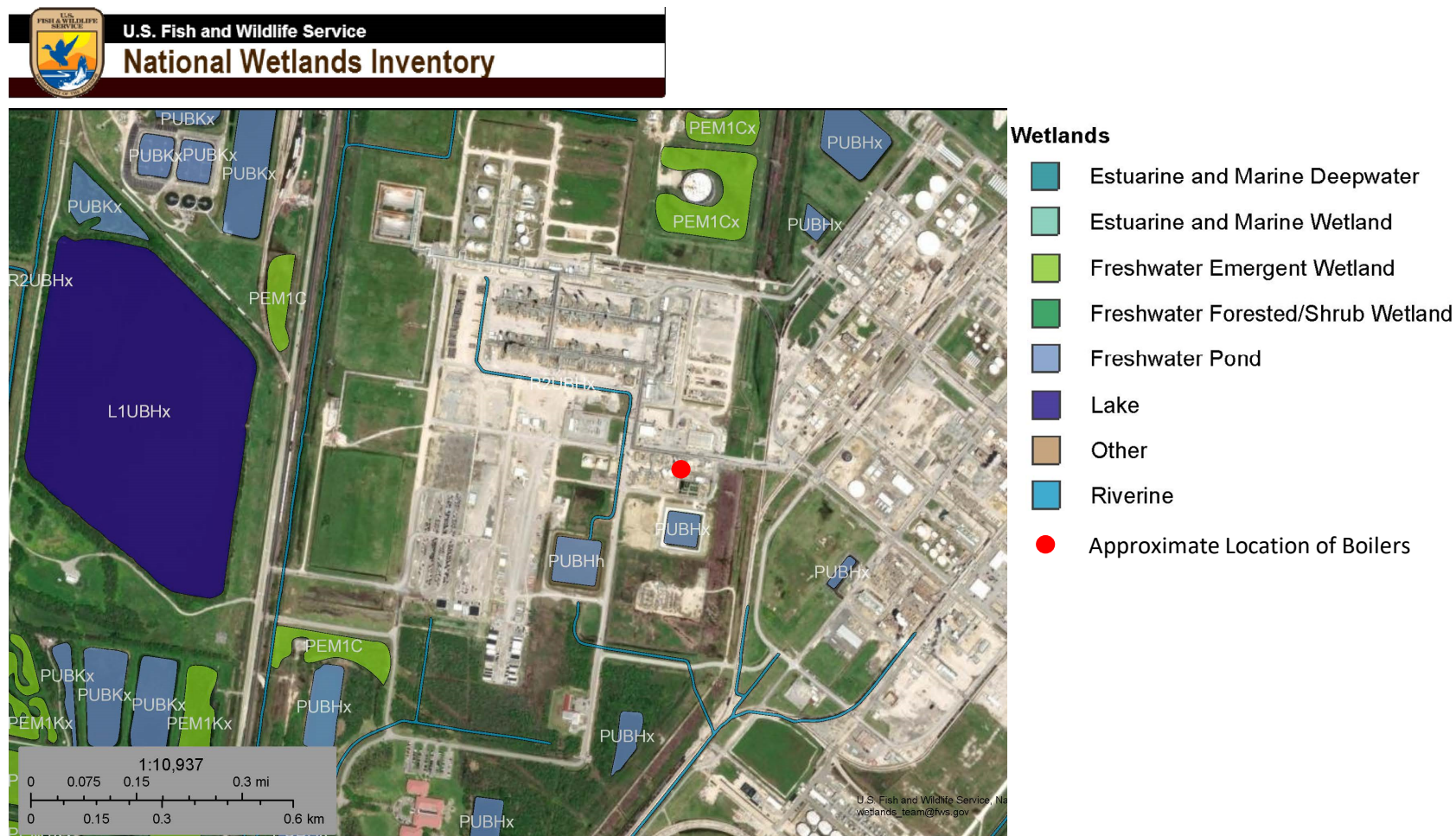
critical habitats lie approximately 15 miles northwest and approximately 19 miles southeast of the Indorama Port Neches Operations.

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 <http://earthquake.usgs.gov> was reviewed to determine the presence of any faults near the Indorama Port Neches Operations. 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.

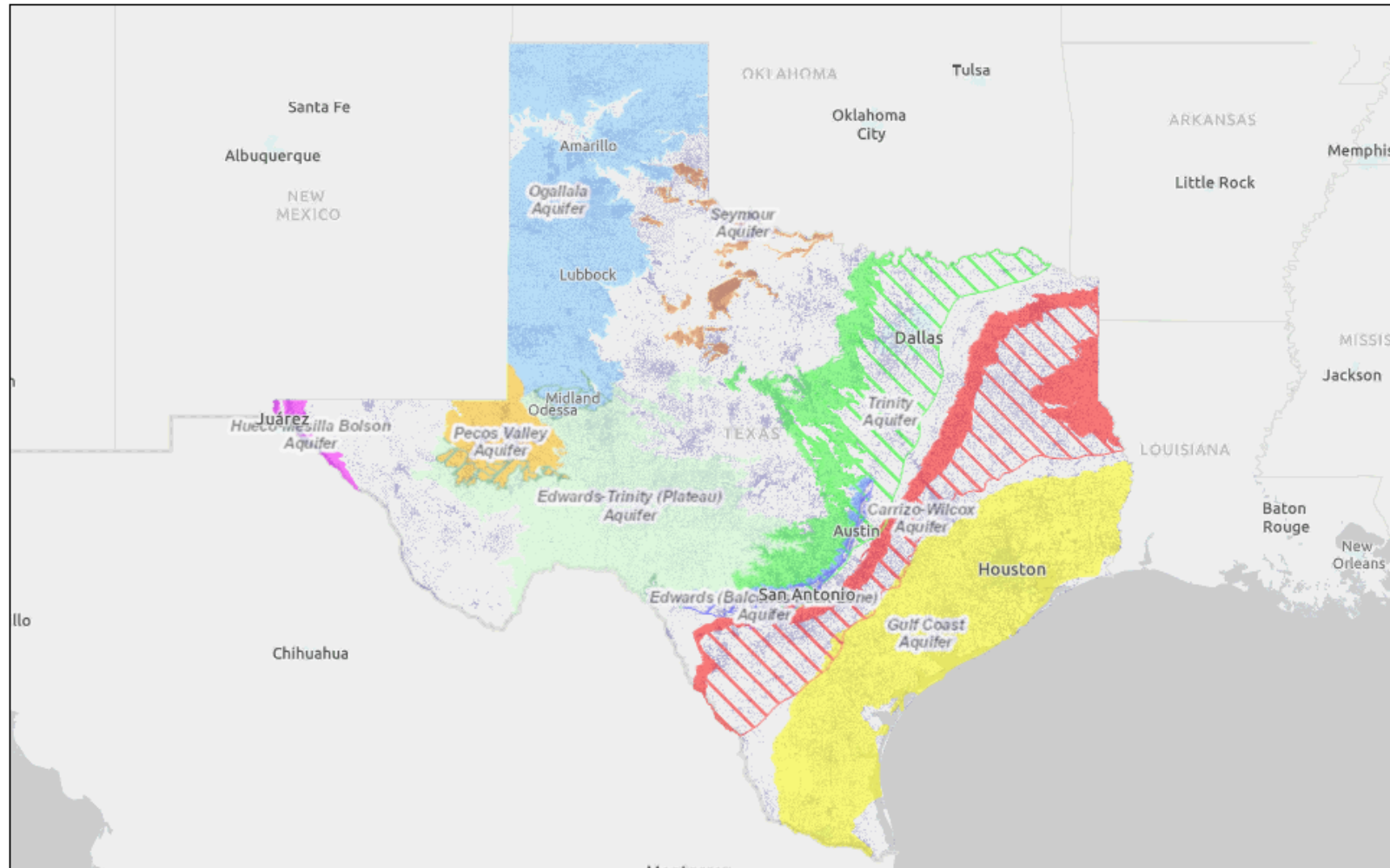
National Wetlands Inventory (NWI)
This page was produced by the NWI mapper

FIGURE 2
SOLE SOURCE AQUIFERS



Source: USEPA Region 6, Sole Source Aquifer Program

FIGURE 3
MAJOR AQUIFERS OF TEXAS

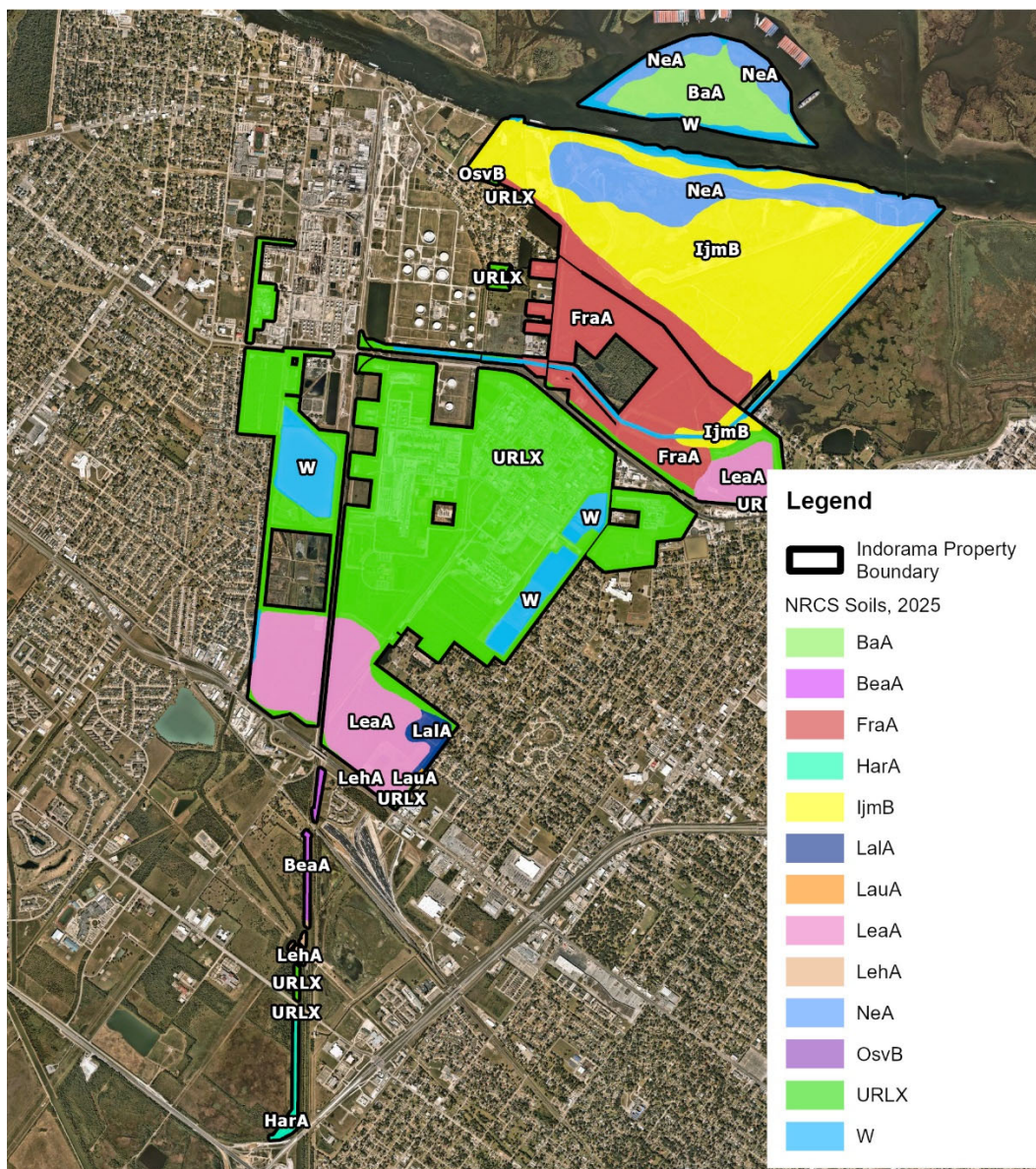


Texas Water
Development Board

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.

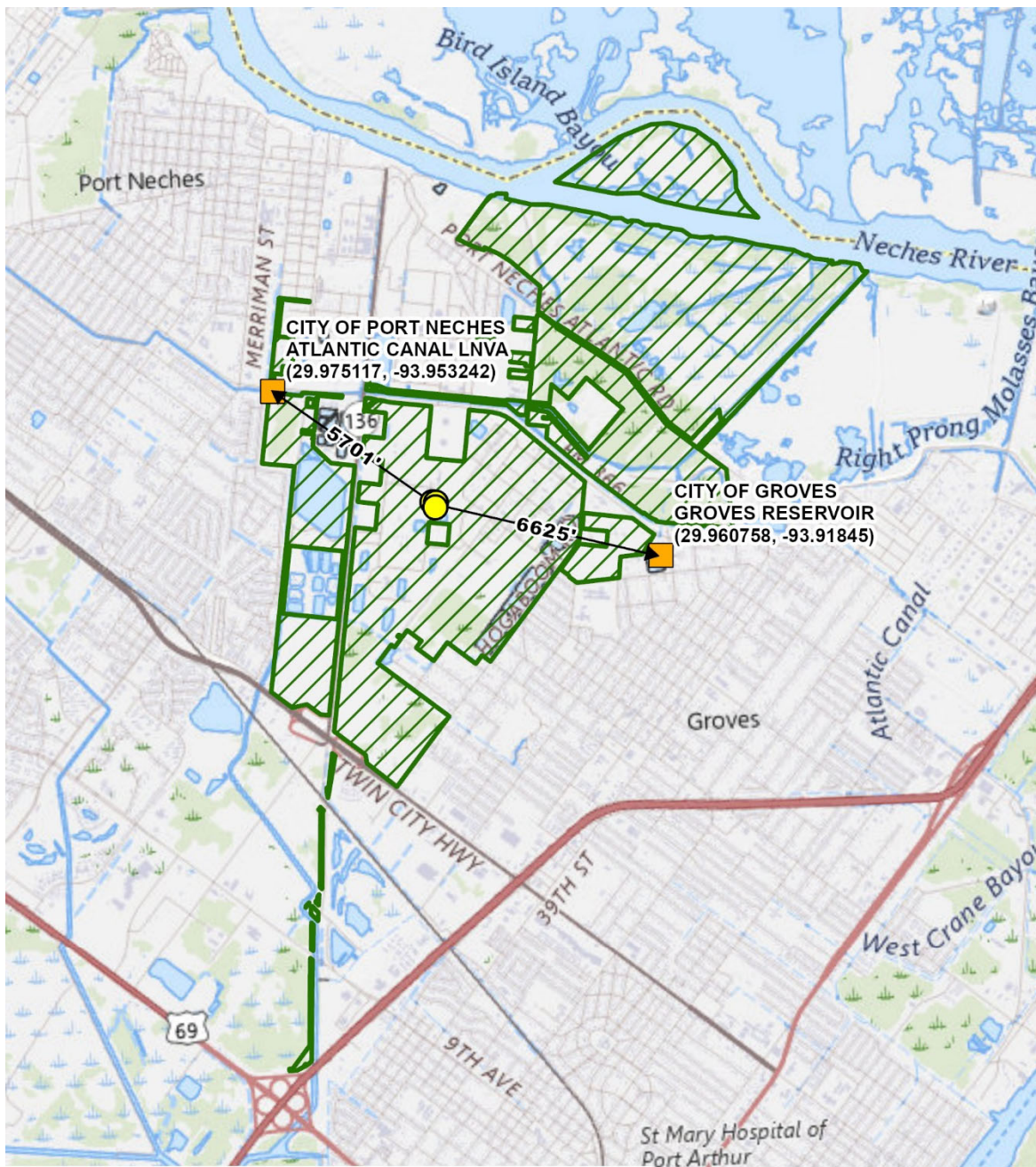
0 80 160 320 mi
0 125 250 500 km
1:9,244,649

FIGURE 4
SOIL MAP



Map Unit Symbol	Map Unit Name	Rating	Acres in AOI	Percent of AOI
BaA	Bancker mucky peat, 0 to 1 percent slopes, frequently flooded, tidal	PT	123.1	4.3%
BeaA	Beaumont clay, 0 to 1 percent slopes	CH	5.1	0.2%
FraA	Franeau clay, 0 to 1 percent slopes, occasionally flooded	CH	325.5	11.4%
HarA	Harris clay, 0 to 1 percent slopes, frequently flooded	MH	7.5	0.3%
IjmB	Ijam clay, 0 to 2 percent slopes, frequently flooded, tidal	CH	634.9	22.1%
LaIA	Labelle-Levac complex, 0 to 1 percent slopes	CL	19.3	0.7%
LauA	Labelle-Urban land complex, 0 to 1 percent slopes	CL	0.8	0.0%
LeaA	League clay, 0 to 1 percent slopes	CH	305.5	10.7%
LeHA	League-Urban land complex, 0 to 1 percent slopes	CH	1.9	0.1%
NeA	Neel clay, 2 to 5 percent slopes, occasionally flooded, tidal	CH	227.8	7.9%
OsvB	Orcadia-Urban land complex, 0 to 2 percent slopes, rarely flooded	CL	2.1	0.1%
URLX	Urban land		1012.6	35.3%
W	Water		201.7	7.0%
Totals for Area of Interest			2867.7	100%

FIGURE 5
DRINKING WATER LOCATION – SURFACE WATER INTAKE



Legend

-  Indorama Property Boundary
-  Hazardous Waste Units
-  TCEQ Public Water System Surface Water Intakes
-  Distance (Feet)

FIGURE 6
EARTHQUAKE PROBABILITY



Legend



Indorama Ventures Oxides LLC

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

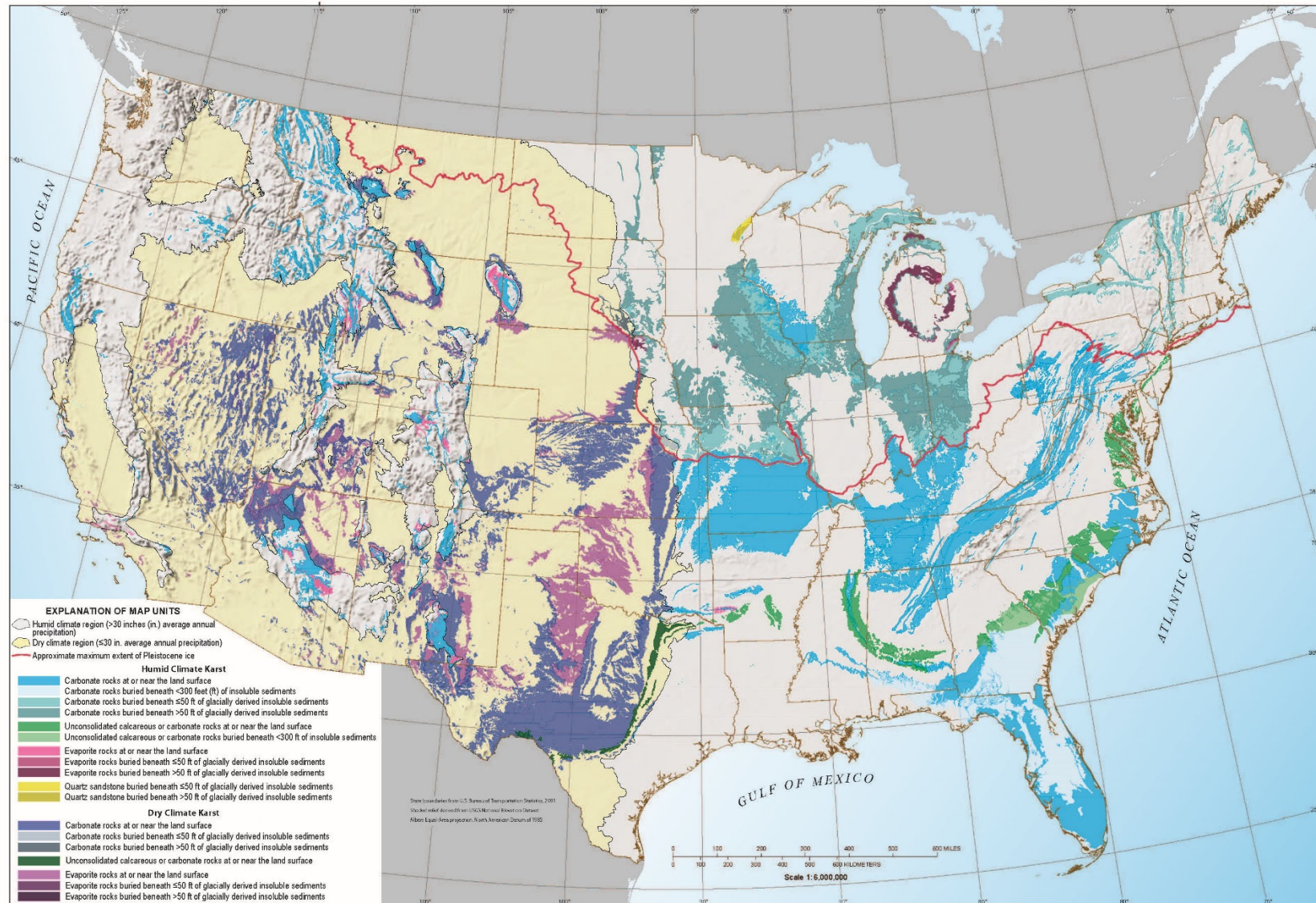
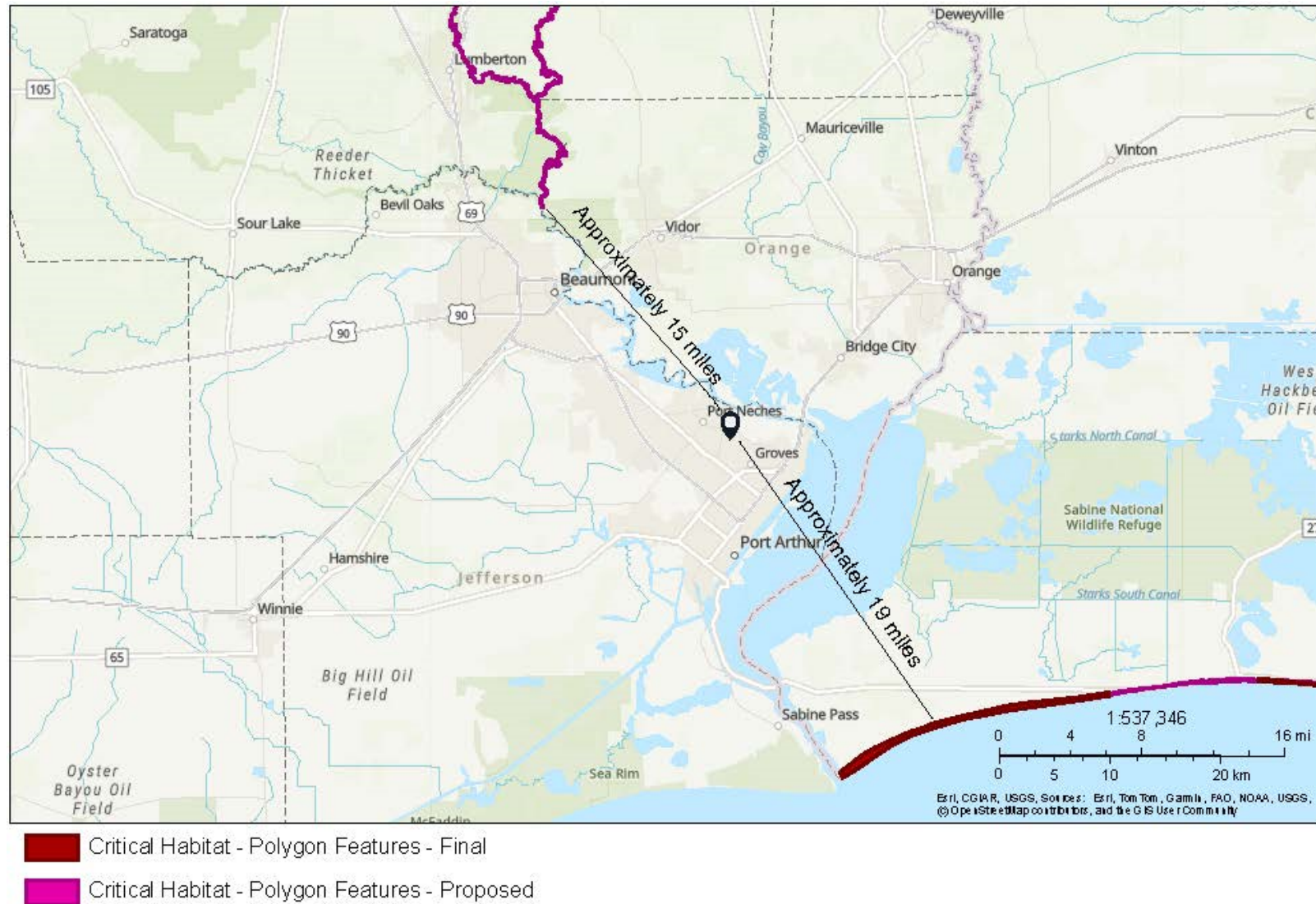


FIGURE 8
CRITICAL HABITATS



U.S. Fish and Wildlife Service – Critical Habitat Map Viewer (<https://www.arcgis.com/apps/mapviewer>)

Appendix II.F: FLOODING (FLOODING REPORT)



INDORAMA VENTURES OXIDES LLC
PORT NECHES, TEXAS

**INDUSTRIAL AND HAZARDOUS WASTE
STORAGE/PROCESSING/DISPOSAL FACILITY
PERMIT No. 50055
SOLID WASTE REGISTRATION No. 30029
EPA ID No. TX008076846**

FLOODING REPORT

AUGUST 2025

1.0 INTRODUCTION

Indorama Ventures Oxides LLC (Indorama) operates three hazardous waste fired boilers at the Port Neches Operations. These units are identified as Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. These boilers are the only permitted hazardous waste units at the facility. The boilers 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, 266, and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The boilers 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 Map 4803850305B;
- Figure II.F.2 - FEMA Map 4803850310B;
- Figure II.F.3 - FEMA Flood Map.

FEMA flood maps 4803850305B and 4803850310B have not been updated since their original release in 1983. The digital data used to create Figure II.F.3 also used the 1983 data. The maps show that the active portions of the Indorama Port Neches Operations are not located within a 100-year flood plain.

3.0 FLOOD IMPACTS

The active portions of the Indorama Port Neches Operations are not located within a 100-year flood plain. Therefore, this section is not applicable.

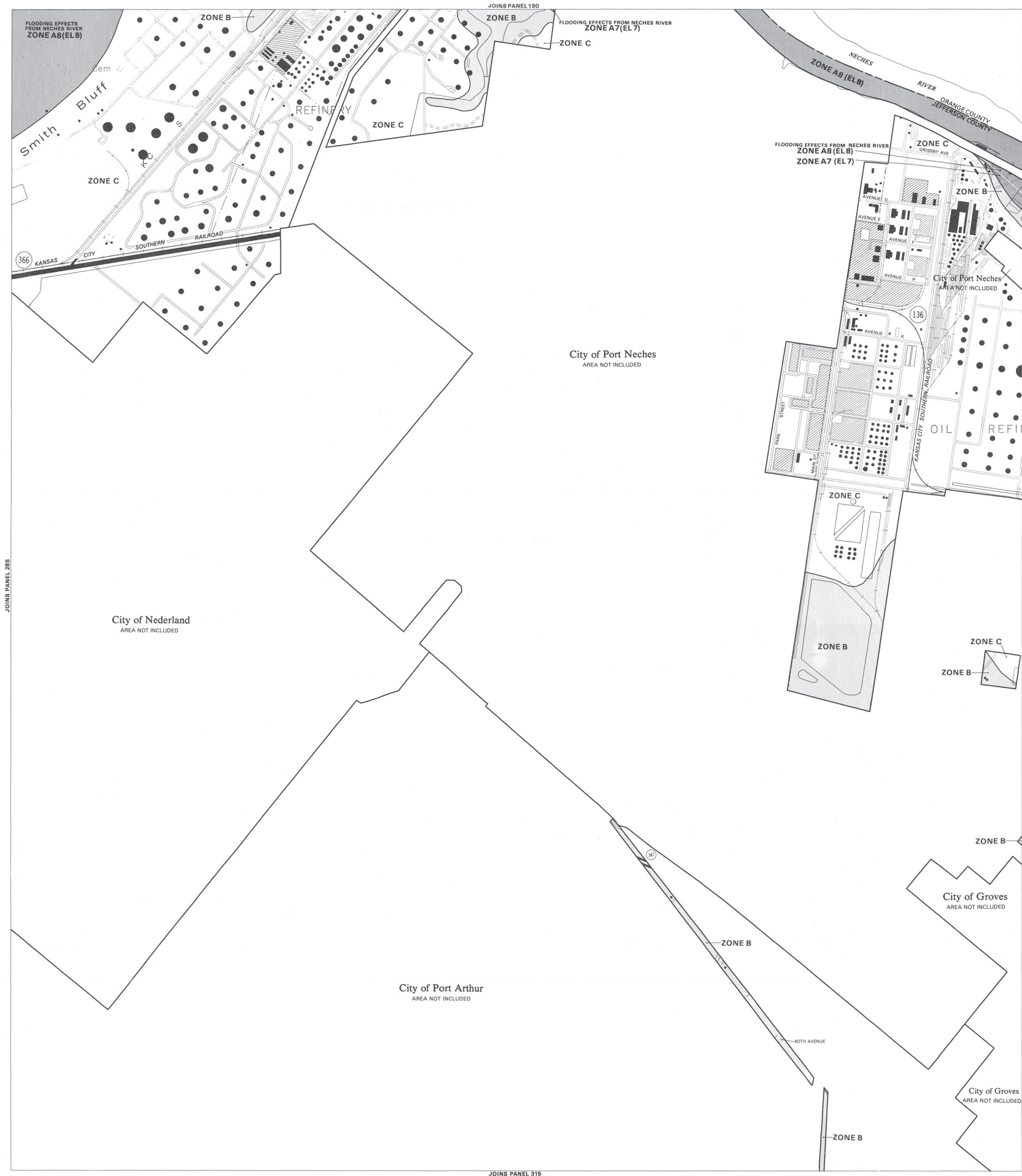
4.0 FLOOD PROTECTION DEVICES

The active portions of the Indorama Port Neches Operations are not located within a 100-year flood plain. Therefore, this section is not applicable.

5.0 PROCEDURES FOR FLOOD EVENTS

The active portions of the Indorama Port Neches Operations are not located within a 100-year flood plain. Therefore, this section is not applicable.

Attachment A: FLOOD MAPS



KEY TO MAP

500-Year Flood Boundary

100-Year Flood Boundary

Zone Designations*

100-Year Flood Boundary

500-Year Flood Boundary

Base Flood Elevation Line With Elevation In Feet**

Base Flood Elevation in Feet Where Uniform Within Zone**

Elevation Reference Mark

Zone D Boundary

River Mile

**Referenced to the National Geodetic Vertical Datum of 1929

ZONE B

ZONE A1

ZONE A5

ZONE B

513

(EL 987)

RM7x

•M1.5

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:
AUGUST 30, 1977

FLOOD INSURANCE RATE MAP EFFECTIVE:
JUNE 1, 1983

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

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

N

APPROXIMATE SCALE

1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM

FLOOD INSURANCE RATE MAP

JEFFERSON COUNTY,
TEXAS

(UNINCORPORATED AREAS)

PANEL 305 OF 600

(SEE MAP INDEX FOR PANELS NOT PRINTED)

Figure II.F.1

COMMUNITY-PANEL NUMBER
480385 0305 B

EFFECTIVE DATE:
JUNE 1, 1983

Federal Emergency Management Agency



500-Year Flood Boundary

100-Year Flood Boundary

Zone Designations*

100-Year Flood Boundary

500-Year Flood Boundary

Base Flood Elevation Line
With Elevation in Feet**

Base Flood Elevation in Feet
Where Uniform Within Zone**

Elevation Reference Mark

Zone D Boundary

River Mile

**Referenced to the National Geodetic Vertical Datum of 1929

ZONE B

ZONE A1

ZONE A5

ZONE B

513

(EL 987)

RM7x

*M1.5

*EXPLANATION OF ZONE DESIGNATIONS

ZONE	EXPLANATION
A	Areas of 100-year flood; base flood elevations and flood hazard factors not determined.
A0	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; average depths of inundation are shown, but no flood hazard factors are determined.
AH	Areas of 100-year shallow flooding where depths are between one (1) and three (3) feet; base flood elevations are shown, but no flood hazard factors are determined.
A1-A30	Areas of 100-year flood; base flood elevations and flood hazard factors determined.
A99	Areas of 100-year flood to be protected by flood protection system under construction; base flood elevations and flood hazard factors not determined.
B	Areas between limits of the 100-year flood and 500-year flood; or certain areas subject to 100-year flooding with average depths less than one (1) foot or where the contributing drainage area is less than one square mile; or areas protected by levees from the base flood. (Medium shading)
C	Areas of minimal flooding. (No shading)
D	Areas of undetermined, but possible, flood hazards.
V	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors not determined.
V1-V30	Areas of 100-year coastal flood with velocity (wave action); base flood elevations and flood hazard factors determined.

NOTES TO USER

Certain areas not in the special flood hazard areas (zones A and V) may be protected by flood control structures.

This map is for flood insurance purposes only; it does not necessarily show all areas subject to flooding in the community or all planimetric features outside special flood hazard areas.

For adjoining map panels, see separately printed Index To Map Panels.

INITIAL IDENTIFICATION:
AUGUST 30, 1977

FLOOD INSURANCE RATE MAP EFFECTIVE:
JUNE 1, 1983

Refer to the FLOOD INSURANCE RATE MAP EFFECTIVE date shown on this map to determine when actuarial rates apply to structures in the zones where elevations or depths have been established.

To determine if flood insurance is available in this community, contact your insurance agent, or call the National Flood Insurance Program at (800) 638-6629.

N

APPROXIMATE SCALE

1000 0 1000 FEET

NATIONAL FLOOD INSURANCE PROGRAM

FIRM
FLOOD INSURANCE RATE MAP

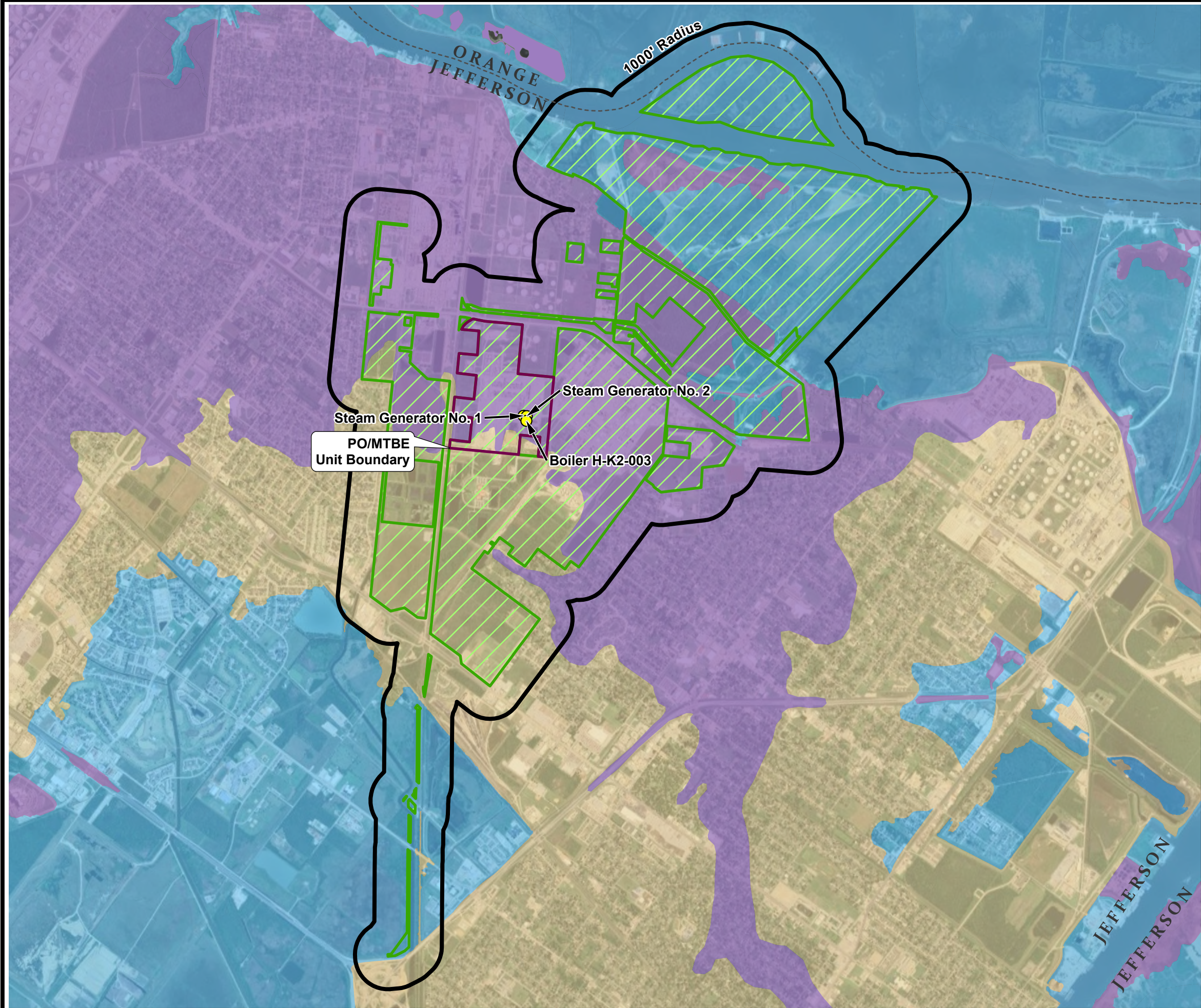
JEFFERSON COUNTY,
TEXAS
(UNINCORPORATED AREAS)

PANEL 310 OF 600
(SEE MAP INDEX FOR PANELS NOT PRINTED)

Figure II.F.2
COMMUNITY-PANEL NUMBER
480385 0310 B
EFFECTIVE DATE:
JUNE 1, 1983

Federal Emergency Management Agency

J:\Prj\Indorama Ventures\RCRA 2025\Unit Maps.aprx



Legend

- Indorama Property Boundary
- PO/MTBE Unit Boundary
- Hazardous Waste Units
- 1000' Radius
- USA Flood Hazard Areas
 - Areas Inundated by 100-Year Flood
 - 0.2% Annual Chance Flood Hazard
 - Area with Reduced Risk Due to Levee

Flood Zone Data Source:

1. Orange County: USA Flood Hazard Areas from the Flood Insurance Rate Map created by the Federal Emergency Management Agency (FEMA). Data streamed through GIS Rest Service, July 2025.
2. Jefferson County: FEMA Jefferson Preliminary Flood Zones. Data streamed through GIS Rest Service, July 2025.



0 1,500 3,000
FEET

1" = 3,000 FEET
1:36,000

INDORAMA VENTURES OXIDES LLC PORT NECHES OPERATIONS

FEMA FLOOD MAP

DRAWN BY:	L WILSON	SCALE:	AS NOTED	PROJ. NO.	033-24-01
CHECKED BY:	H MCHALE			FILE NO.	FEMA Flood
APPROVED BY:	H MCHALE	DATE PRINTED:	7/2/2025	FIGURE 11.F.3	
DATE:	July 2025				

Coterie
ENVIRONMENTAL

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

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



INDORAMA VENTURES OXIDES LLC
PORT NECHES, TEXAS

**INDUSTRIAL AND HAZARDOUS WASTE
STORAGE/PROCESSING/DISPOSAL FACILITY
PERMIT No. 50055
SOLID WASTE REGISTRATION No. 30029
EPA ID No. TX008076846**

**COMPLIANCE HISTORY AND
APPLICANT EXPERIENCE**

AUGUST 2025

1.0 INTRODUCTION

Indorama Ventures Oxides LLC (Indorama) operates three hazardous waste fired boilers at the Port Neches Operations. These units are identified as Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. These boilers are the only permitted hazardous waste units at the facility. The boilers 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, 266, and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The boilers 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 Indorama Port Neches Operations possesses significant experience operating Steam Generator No. 1, Steam Generator No. 2, and Boiler H K2-003 for which this Part B permit renewal application is being submitted. The following other facilities are owned and/or operated within the State of Texas by Indorama or a parent company:

- Indorama Ventures Dayton Facility (CN605743038, RN100225721);
- Woodlands R&D Facility (CN605743038, RN111294716); and
- Clear Lake Plant (CN604259184, RN111909503).

2.0 COMPLIANCE HISTORY

Compliance history information for the Indorama Port Neches Operations is presented in Table 1.

TABLE 1
COMPLIANCE HISTORY

RATING	CLASSIFICATION	DATE RATE
9.09	SATISFACTORY	09/01/2024

Indorama 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 the facilities to the State of Texas.

Appendix III.B:

PERSONNEL TRAINING PLAN



INDORAMA VENTURES OXIDES LLC
PORT NECHES, TEXAS

**INDUSTRIAL AND HAZARDOUS WASTE
STORAGE/PROCESSING/DISPOSAL FACILITY
PERMIT No. 50055
SOLID WASTE REGISTRATION No. 30029
EPA ID No. TX008076846**

PERSONNEL TRAINING PLAN

AUGUST 2025

1.0 INTRODUCTION

Indorama Ventures Oxides LLC (Indorama) operates three hazardous waste fired boilers at the Port Neches Operations. These units are identified as Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. These boilers are the only permitted hazardous waste units at the facility. The boilers 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, 266, and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The boilers 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 training plan constitutes a written description of the type and amount of training conducted for Indorama personnel in accordance with 40 CFR § 264.16. In addition to this training, boiler control room operators are required to maintain certification to comply with HWC NESHAP requirements. A separate training program for HWC NESHAP is implemented at the Indorama facility. This training program includes initial training for all personnel that could reasonably be expected to directly affect emissions from the boilers. Initial training and annual refresher training are required for all HWC NESHAP-certified boiler control room operators. Information on the HWC NESHAP training program is provided in the HWC NESHAP Operator Training and Certification Program documents.

2.0 OUTLINE OF PERSONNEL TRAINING PROGRAM

Indorama 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 boilers:

- 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 TITLE/JOB DESCRIPTION

40 CFR §264.16(d) requires Indorama 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 Indorama Port Neches Operations records.

4.0 TRAINING CONTENT AND FREQUENCY

Indorama employees that are routinely involved in the day-to-day operation of RCRA-permitted units receive training. Training consists of initial orientation, on-the-job training, and annual refresher training. 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 program.

TABLE 1
TRAINING TOPICS

TOPIC	DESCRIPTION
Contingency plan	Review of emergency response procedures
Emergency equipment	Review of fire extinguisher, fixed fire suppression systems
Communication and alarm systems	Review of emergency alarm 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
Shutdown of operations	Review of operating procedures for normal and emergency shutdowns

Formal classroom training is an important part of the overall training program and supplements the knowledge learned during the on-the-job training programs. All classroom training is administered by qualified Indorama plant trainers. These trainers attend annual outside seminars and/or conferences to remain up-to-date on waste management and safety requirements.

Formal classroom training is supplemented with on-the-job training. This type of training provides the advantage of hands-on experience pertinent to normal daily operations of a unit. On-the-job training with appropriate supervision provides for effective explanation of concepts of the systems operations and affords visual illustration of those concepts. The focus of on-the-job training is to familiarize the personnel with equipment, procedures, and systems to ensure that they are adequately trained to perform their duties in a safe and appropriate manner.

On-the-job training is utilized for employee orientation as well as for new operational personnel and transferred employees. The amount of training is based on the job functions of each employee. The area training supervisor is responsible for conducting this phase of training.

Indorama contractors routinely working at the RCRA-permitted units are also required to meet the RCRA training requirements.

Completion of this RCRA training occurs within six months of employment. This also applies to employees who are promoted or transferred into positions of hazardous waste management and who have not completed the necessary training as part of their previously held positions. Employees are not permitted to work in unsupervised positions until they have completed these training requirements. Upon completion of this training, individual training records are updated to reflect the satisfactory completion of this training.

Annual refresher training consists of an annual review of all waste management activities and contingency plan implementation procedures. This annual refresher follows the same basic content as the initial training.

5.0 TRAINING DIRECTOR

Training is under the direction of the Indorama Training and Development Department, which coordinate their specific training programs into a comprehensive schedule of instruction. The Training and Development Department monitors training requirements for personnel involved in waste management, including the type, frequency, and schedules for training.

6.0 TRAINING RECORDS

The following training records are maintained at the Indorama facility:

- 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.

Records are maintained by the Training and Development Department. Training records on current personnel will be kept until closure of the boilers. 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



INDORAMA VENTURES OXIDES LLC
PORT NECHES, TEXAS

**INDUSTRIAL AND HAZARDOUS WASTE
STORAGE/PROCESSING/DISPOSAL FACILITY
PERMIT No. 50055
SOLID WASTE REGISTRATION No. 30029
EPA ID No. TX008076846**

SECURITY

AUGUST 2025

1.0 INTRODUCTION

Indorama Ventures Oxides LLC (Indorama) operates three hazardous waste fired boilers at the Port Neches Operations. These units are identified as Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. These boilers are the only permitted hazardous waste units at the facility. The boilers 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, 266, and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The boilers 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 Indorama prevent unknowing entry and minimize the possibility for unauthorized entry of persons or livestock onto the active hazardous waste management area. This security plan documents the provisions that contribute to the safety and security of the hazardous waste management facilities.

2.0 PERIMETER CONTROL

The active portion of the plant is surrounded by a six-foot chain-link perimeter fence. This perimeter fence is topped with barbed wire to minimize unauthorized entry. All fence gates not continuously attended by security personnel are maintained locked. The perimeter fence is patrolled periodically by security personnel.

Steam Generator No. 1, Steam Generator No. 2, and Boiler H K2-003 are within the confines of the facility perimeter, which is isolated by security fencing. Plant personnel, as well as site security personnel, regularly patrol these areas. Any irregularities will be reported. All hazardous waste facility areas are surrounded by clear, lighted, constructed roads to permit access by operations, maintenance, safety, and security personnel.

3.0 ENTRY CONTROL

Access into the plant is possible from several gates. The active gates are designated as the Main Gate, the Propylene Oxide (PO) Lab Gate, Gate 30, and the Docks Gate. Other gates are maintained locked unless opened by plant personnel for special circumstance entrance or egress. The keys for these locks are maintained by security personnel.

Indorama employees may enter through the Main Gate, the PO Lab Gate, or the Docks Gate. Contractors access the facility through Gate 30. Visitors access the facility through the Main Gate. Each gate is manned 24 hours per day by trained members of the security staff. The entry gates are lit to ensure safety and security at night.

Employees and resident contractors who enter the facility are required to use electronic identification cards. Visitors and temporary contractors entering the plant must be issued a badge and/or pass.

4.0 SURVEILLANCE

Security at the Indorama Port Neches Operations is maintained 24 hours per day, 365 days of the year by staff who monitor entry and exit from the plant and provide security measures within the plant premises.

A 24-hour surveillance system is maintained at the facility. A closed-circuit television surveillance system, located in the Main Gate guard building, provides continuous monitoring of the facility's primary gates and aids in identifying unauthorized entry or emergency conditions.

A clear, lighted path is maintained inside the perimeter barrier to facilitate patrol by vehicle.

The hazardous waste management areas are manned and/or patrolled on a 24-hour basis by plant personnel. Surveillance cameras with area scanning capabilities assist the plant personnel in observing the exterior areas. Ample lighting is provided throughout the site.

Security, operations, and safety personnel are equipped with handheld, two-way radios to report abnormal conditions immediately.

5.0 WARNING SIGNS

Warning signs that have the legend "Danger-Unauthorized Personnel Keep Out" are located at strategic locations. These signs warn that entry can be dangerous and that only authorized personnel are allowed to enter. 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
Steam Generators No. 1 and No. 2 and Boiler H-K2-003 - Combustion chamber and associated equipment	Operation error and/or equipment malfunction	Once per day and immediately upon triggering of automatic waste feed cutoff system
Steam Generators No. 1 and No. 2 and Boiler H-K2-003 - Combustion chamber and associated equipment	Olfactory-visual-audible fugitive emissions, structural deterioration (excessive rust, visible cracks), and piping/equipment leaks	Once per day
Steam Generators No. 1 and No. 2 and Boiler H-K2-003 - Waste flow meters	Structural deterioration (excessive rust, visible cracks), olfactory-visual-audible fugitive emissions, equipment leaks	Once per day
Steam Generators No. 1 and No. 2 and Boiler H-K2-003 - Filters	Structural deterioration (excessive rust, visible cracks), olfactory-visual-audible fugitive emissions, equipment leaks, differential pressure	Once per day
Safety and emergency equipment near steam generators and boiler – Fire extinguishers	Low charge, expired inspection	Once per month, after each use
Safety and emergency equipment near steam generators and boiler – Fire monitor nozzles	Low pressure, structural deterioration (excessive rust, visible cracks)	Once per year
Safety and emergency equipment near steam generators and boiler – Fire hydrants	Low pressure, structural deterioration (excessive rust, visible cracks)	Once per year
Safety and emergency equipment near steam generators and boiler – Fire hoses and hose trailer	Structural deterioration (excessive rust, visible cracks)	Annually
Safety and emergency equipment near steam generators and boiler – Emergency shower/eyewash	Inadequate pressure, access blocked, plugged lines	Monthly
Safety and emergency equipment near steam generators and boiler – Spill control equipment	Low supplies, improper operation	Monthly
Safety and emergency equipment near steam generators and boiler – Self-contained breathing apparatuses	Low pressure, structural deterioration (excessive rust, visible cracks)	Monthly

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Facility Unit(s) and Basic Elements	Possible Error, Malfunction, or Deterioration	Frequency of Inspection
Security and alarms - PO/MTBE facility boundary fencing/gates	Broken/tampered locks, broken/tampered fencing	Once per day
Security and alarms - O&O gate surveillance	Signal loss	Continuous
Security and alarms - Emergency alarm	Signal loss	Weekly



INDORAMA VENTURES OXIDES LLC
PORT NECHES, TEXAS

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STORAGE/PROCESSING/DISPOSAL FACILITY
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INSPECTION PLAN

AUGUST 2025

1.0 INTRODUCTION

Indorama Ventures Oxides LLC (Indorama) operates three hazardous waste fired boilers at the Port Neches Operations. These units are identified as Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. These boilers are the only permitted hazardous waste units at the facility. The boilers 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, 266, and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The boilers 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 inspection plan describes the inspections for the boilers, as well as emergency equipment and security and alarm systems.

2.0 BOILER INSPECTIONS

There are two types of inspections performed for the boilers. These include:

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

Pursuant to 40 CFR §§ 266.100 and 270.22, detailed information on inspections for boiler monitoring equipment is no longer required in the Part B permit application. Specifically, Steam Generator No. 1, Steam Generator No. 2, and Boiler H K2-003 are not subject to the performance standards and operating limits of 40 CFR Part 266 Subpart H, such as the requirement for a waste feed cutoff 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 the boilers.

The specific inspections for the boilers are listed in Table III.D in Section III of the Part B Permit Application. Each inspection is described in more detail below. During periods when no hazardous waste is being fed, the RCRA requirements do not apply. However, Indorama will typically perform RCRA inspections regardless of feed status in order to simplify the inspection process.

Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003 will be inspected in accordance with the appropriate inspection log sheet(s). Specific inspection items will include the Process Liquid Fuel system and all associated piping and equipment to the steam generators and boiler. All unit equipment will be inspected for operation error, equipment malfunction, fugitive emissions, structural deterioration, and piping/equipment leaks daily. Any items requiring action will be noted on the inspection log sheet and rectified immediately

3.0 EMERGENCY EQUIPMENT INSPECTIONS

Emergency equipment is strategically located across the facility. Many of these locations are in proximity to the boilers. The equipment in the boilers area is inspected periodically in accordance with 40 CFR § 264.15(b). The specific inspections are listed in Table III.D in Section III of the Part B Permit Application.

4.0 SECURITY AND ALARM SYSTEMS INSPECTIONS

Security systems, such as fences/gates and surveillance equipment, and alarm systems are inspected periodically in accordance with 40 CFR § 264.15(b). The specific inspections are listed in Table III.D in Section III of the Part B Permit Application.

5.0 CORRECTIVE ACTIONS

Remedial actions will be scheduled for any deterioration or malfunctions documented on the inspection log sheet in a timely manner to ensure that these problems do not lead to environmental or human hazards. If a hazard is imminent or has already occurred, remedial action will be initiated immediately. The date of the remedial action and the repairs or remedial action performed will be recorded on the inspection log sheets.

6.0 RECORDS

Inspection records are maintained by the Operations Department. 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	1201 Merriman St Port Neches, Texas 77651
Person Contacted	Police Chief
Phone Number	911 (Emergency) 409-722-1424
Agreed Arrangements	Provide emergency response support services. Contact is through the Sabine-Neches Chiefs' Association (SNCA).

Fire

Address	606 Magnolia Avenue Port Neches, Texas 77651
Person Contacted	Fire Chief
Phone Number	911 (Emergency) 409-722-5885
Agreed Arrangements	Provide emergency response support services. Contact is through the SNCA.

Hospital

Address	The Medical Center of Southeast Texas 2555 Jimmy Johnson Blvd. Port Arthur, Texas 77640
Person Contacted	Medical Center Representatives
Phone Number	409-724-7389
Agreed Arrangements	Provide medical services for seriously injured employees.

Other

Organization Name	Jefferson County Sheriff
Address	1001 Pearl Street Beaumont, Texas 77701
Person Contacted	Sheriff
Phone Number	409-835-8411
Agreed Arrangements	Provide emergency response support services. Contact is through the SNCA.

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

Name	Home Address	Office Phone(s) and/or Pager	Home/Cell Phone(s)
Craig King	225 Oakgrove St. Vidor, TX 77662	(O) 409-723-3424 (M) 979-482-2667	(M) 979-482-2667

Alternate Emergency Coordinators

Name	Home Address	Office Phone(s) and/or Pager	Home/Cell Phone(s)
Jamie Merriman	8105 W. Ashford Park Orangefield, TX 77630	(O) 409-723-3242 (M) 409-365-8194	(M) 409-365-8194

Table III.E.3- Emergency Equipment

Equipment	Location	Physical Description	Capability
Fire extinguishers	Near Steam Generators and Boiler H-K2-003	Handheld extinguishers with chemical agents	Firefighting/suppression
Fire monitor nozzles	Near Steam Generators and Boiler H-K2-003	Permanent nozzles connected to water supply with backup system (diesel pump system)	Firefighting/suppression
Fire hydrants	Near Steam Generators and Boiler H-K2-003	100-psig hydrants with a 500-gpm water supply, 5-inch hose	Firefighting/suppression
Fire hose trailer	O&O firehouse	5,000 feet of 5-inch fire hoses	Firefighting/suppression
Emergency shower/eyewash	Near Steam Generators and Boiler H-K2-003	Combination body shower and eyewash water deluge station	Chemical decontamination
Spill control equipment	Near Steam Generators and Boiler H-K2-003	Containment booms, absorbent booms, and absorbent material	Control spills in boiler areas
Self-contained breathing apparatus	Near Steam Generators and Boiler H-K2-003	Escape breathing systems, 30-minute and 5-minute escape bottles	Emergency response and escape
Emergency alarm system	Facility-wide	Annunciators located throughout the plant, 100 decibels at 100 feet	Emergency communication



INDORAMA VENTURES OXIDES LLC
PORT NECHES, TEXAS

**INDUSTRIAL AND HAZARDOUS WASTE
STORAGE/PROCESSING/DISPOSAL FACILITY
PERMIT No. 50055
SOLID WASTE REGISTRATION No. 30029
EPA ID No. TX008076846**

CONTINGENCY PLAN

**AUGUST 2025
REVISED: OCTOBER 2025**

**INDORAMA VENTURES OXIDES, LLC
2701 SPUR 136
PORT NECHES, TEXAS 77651**

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Attachment A: Hazardous Waste Unit Locations

Attachment B: Facility Evacuation Route Map

1.0 INTRODUCTION

Indorama Ventures Oxides LLC (Indorama) operates three hazardous waste fired boilers at the Port Neches Operations. These units are identified as Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. These boilers are the only permitted hazardous waste units at the facility. The boilers 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, 266, and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The boilers 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, Indorama operates several permit-exempt central accumulation (less than 90-day) hazardous waste container storage areas, permit-exempt central accumulation (less than 90-day) hazardous waste storage tanks, 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 and/or soil from occurring at Indorama's hazardous waste management units, 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 designed 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 boiler operations. Small releases that do not substantially threaten human health or the environment (*e.g.*, equipment leaks typically handled within Indorama'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 Indorama Port Neches Operation is located on approximately 800 acres in Jefferson County, Port Neches, Texas. The facility consists of two distinct operating units: Oxides and Olefins (O&O) and propylene oxide (PO)/methyl tertiary butyl ether (MTBE). The facility manufactures a wide variety of chemical products. The facility is a Large Quantity Generator (LQG) of hazardous waste.

The street and mailing address of the Indorama Port Neches Operation is:

Indorama Ventures Oxides, LLC
2701 Spur 136
Port Neches, Texas 77651

3.0 HAZARDOUS WASTE OPERATIONS

The Indorama Port Neches Operations manages hazardous waste in three permitted units, Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. Indorama also manages waste in permit-exempt central accumulation container storage areas, central accumulation storage tanks, and satellite accumulation areas.

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:

- Indorama's Standard Operating Procedures (SOPs) regarding operating procedure that include provisions to prevent or minimize hazards;
- Indorama's RCRA training plan specifies measures taken to ensure the facility operators are able to perform so as to prevent or minimize hazards; and
- Indorama's RCRA inspection plan specifies inspections intended to prevent or minimize hazards.

3.1 STEAM GENERATORS NO. 1 AND NO. 2

Steam Generators No. 1 and No. 2 provide energy recovery as steam while destroying hazardous waste streams generated in the production units. The steam generators are nearly identical in design and construction. The main components of each steam generator are a firebox, a superheater, a convection section, an economizer, and a forced draft fan. The steam generators have no air pollution control devices. They are fired on a mixture of natural gas, Process Vent Gas, and a hazardous liquid waste identified as Process Liquid Fuel.

3.2 BOILER H-K2-003

Boiler H-K2-003 provides energy recovery as steam while destroying hazardous waste streams generated in the production units. The main components of the boiler are a firebox, a boiler, an economizer, a flue gas recirculation (FGR) system, a forced draft fan, and a stack. Boiler H-K2-003 uses the FGR system and a low-nitrogen oxides (NO_x) burner for control of NO_x emissions. No other air pollution control equipment is installed on the unit. Boiler H-K2-003 is fired on a mixture of natural gas, Process Vent Gas, and a hazardous liquid waste identified as Process Liquid Fuel.

3.3 CENTRAL ACCUMULATION AREAS

Indorama operates permit-exempt central accumulation container storage areas and permit-exempt storage tanks. The locations of the central accumulation units are shown on the map in Attachment A.

3.4 SATELLITE ACCUMULATION AREAS

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

3.5 HAZARDOUS WASTE STREAMS

The boilers and accumulation tanks manage a liquid hazardous waste stream identified as Process Liquid Fuel. Process Liquid Fuel is generated as a by-product of the PO/MTBE manufacturing processes. Process Liquid Fuel is characteristically hazardous and carries the 40 CFR Part 261 hazardous waste number of D001 (ignitability). Process Liquid Fuel has been assigned TCEQ waste classification code 2102219H. This liquid is comprised primarily of oxygenated hydrocarbons arising from the oxidation of isobutane and the reaction products of PO with itself or alcohols.

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) and 30 TAC §§ 335.61 and 152(a)(3), the provisions of this plan will be carried out immediately whenever there is an emergency situation at the boilers, central accumulation storage areas, central accumulation storage tanks, or 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 Incident Commander. Small releases that do not substantially threaten human health or the environment (*e.g.*, equipment leaks typically handled within Indorama's leak detection and repair program) do not activate this RCRA contingency plan.

5.0 EMERGENCY RESPONSE ORGANIZATION

Indorama has implemented a plant-wide Emergency Response Action Plan (ERAP). Indorama's onsite Emergency Response Team (ERT) is trained and equipped to minimize most emergencies that may arise. The Emergency Response Team is comprised of employees from all areas of the plant. The Emergency Response Team is available for response twenty-four hours per day.

The responsible person for responding to any emergency is the Incident Commander. This satisfies the RCRA regulatory requirement for an emergency coordinator. The Incident Commander is thoroughly familiar with all aspects of the RCRA contingency plan, all operations and activities at the Port Neches Operations, the location and characteristics of waste handled, the location of all records, and the layout of the facility. The Incident Commander has the authority to commit the resources necessary to effectively manage the emergency situation. The list of Incident Commanders is provided in Table III.E.2 in Section III of the Part B Permit Application.

6.0 EMERGENCY RESPONSE PROCEDURES

The actions that will be conducted in case of an emergency situation in the identified hazardous waste management areas (boilers, central accumulation storage areas, central accumulation storage tanks, or satellite accumulation areas) are detailed herein. Emergency procedures will be conducted in accordance with 40 CFR §§ 262.265 and 264.56 and 30 TAC §§ 335.61 and 152(a)(3).

6.1 NOTIFICATION

Whenever there is an imminent or actual emergency situation in the hazardous waste management areas, immediate notification should be made to the Incident Commander. The Incident Commander (or his/her designee) will activate the appropriate internal alarms and will communicate the necessary information to facility personnel. The Incident Commander 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 in the identified hazardous waste management areas, the Incident Commander 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 Incident Commander 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.

Finally, the Incident Commander will also activate the ERAP as appropriate given the nature of the emergency to protect the health, safety and environment of associates and neighbors.

6.4 EXTERNAL NOTIFICATIONS

In accordance with 40 § CFR.265(d) and 264.56(d) and 30 TAC §§ 335.61 and 153, if the Incident Commander determines that an identified hazardous waste management area has had a release, fire, or explosion that could threaten human health or the environment outside the facility, the Incident

Commander or his/her designee will immediately notify the Local Emergency Planning Committee (LEPC) and other authorities as appropriate. These notifications will be made in accordance with the ERAP and are described in Section 10.0.

6.5 CONTROL PROCEDURES

The Incident Commander will take action during an emergency situation to ensure that releases, fires, and explosions 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).

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 Incident Commander will take all reasonable measures necessary to ensure that releases, fires, and/or explosions 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 release, fire, or explosion, the Incident Commander will ensure monitoring for leaks, pressure buildup, gas generation, or ruptures in valves, pipes, or other equipment.

6.8 STORAGE, TREATMENT, AND DISPOSAL OF RELEASED MATERIAL

Immediately after an emergency in an identified hazardous waste management area, the Incident Commander 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 Incident Commander will contact the Environmental Department. Any waste materials generated from an emergency response will be managed at the direction of the Environmental Department. The waste will be temporarily stored in one of the central accumulation units 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 Incident Commander 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 Incident Commander will also ensure that, in the hazardous waste management areas:

- No waste that may be incompatible with the released material is treated, stored, or disposed of until cleanup procedures are completed.
- 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 Indorama Port Neches Operations. The emergency equipment provided at the facility satisfies the requirements of 40 CFR §§ 262.252, 262.261, 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. Table 1 lists hazardous waste management facilities emergency equipment and their location.

TABLE 1
EMERGENCY EQUIPMENT

EQUIPMENT	LOCATION	DESCRIPTION
Fire extinguishers	Steam Generators and Boiler H-K2-003 area, central accumulation areas, and satellite accumulation areas	Handheld extinguishers with chemical agents
Fire monitor nozzles	Steam Generators and Boiler H-K2-003 area, central accumulation areas, and satellite accumulation areas	Permanent nozzles connected to water supply with backup system (diesel pump system)
Fire hydrants	Steam Generators and Boiler H-K2-003 area, central accumulation areas, and satellite accumulation areas	100-psig hydrants with a 500-gpm water supply, 5-inch hose
Fire hose trailer	O&O firehouse	5,000 feet of 5-inch fire hoses
Eyewash/safety showers	Steam Generators and Boiler H-K2-003 area, central accumulation areas, and satellite accumulation areas	Combination body shower and eyewash water deluge station
Spill control equipment	Steam Generators and Boiler H-K2-003 area, central accumulation areas, and satellite accumulation areas	Containment booms, absorbent booms, and absorbent material

TABLE 1 (CONTINUED)
EMERGENCY EQUIPMENT

EQUIPMENT	LOCATION	DESCRIPTION
Self-contained breathing apparatus	Steam Generators and Boiler H-K2-003 area, central accumulation areas, and satellite accumulation areas	Escape breathing systems, 30-minute and 5-minute escape bottles
Emergency alarm system	Throughout facility	Annunciators located throughout the plant, 100 decibels at 100 feet

8.0 ARRANGEMENTS WITH LOCAL AUTHORITIES

In accordance with 40 CFR §§ 262.256 and 264.37 and 30 TAC §§ 335.61 and 152(a)(2), Indorama has made arrangements with local authorities to provide assistance during emergencies. Indorama is a member of the Sabine-Neches Chiefs Association (SNCA). This association was founded in 1949 as a mutual aid organization serving the Golden Triangle. Members of the SNCA have agreed to provide emergency aid to any other member company upon request under the terms the SNCA Operating Procedures and Constitution & Bylaws. All members of SNCA agree to provide mutual aid to Indorama upon request by virtue of Indorama's membership in this association.

The SNCA consists of approximately 100 memberships, which includes industrial plants, municipal fire departments, municipal law enforcement agencies, as well as the Texas Department of Public Safety, the U.S. Coast Guard, the American Red Cross, and ambulance service providers and emergency equipment vendors. By being a member of this mutual aid organization, Indorama has available to it any of the ample man-power or equipment of its many members.

The SNCA is made familiar with Indorama's facility layout, hazards, work areas, access and egress routes through monthly meetings. In addition, semi-annual drills or onsite tours with SNCA members are conducted at the Indorama plant. Local hospitals are made familiar with hazardous properties of chemicals and hazardous waste at Indorama as well as the type of injuries and illnesses that could result. While area hospitals are not members of the SNCA, the hospitals normally attend these onsite tours.

9.0 EVACUATION PLAN FOR FACILITY PERSONNEL

If the Incident Commander 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 Indorama 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 sites; 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 Incident Commander.

The evacuation may include all or part of the plant, depending on the nature of the emergency. The evacuation routes and assembly points 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 Incident Commander 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 Incident Commander determines that Indorama 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 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 Incident Commander 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 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, Indorama 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, Indorama 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 Railroad Commission, the Texas General Land Office, and the United States Fish and Wildlife Department.

11.0 LOCATION AND DISTRIBUTION OF CONTINGENCY PLAN

In accordance with 40 CFR §§ 262.262 and 264.53 and 30 TAC §§ 335.61 and 152(a)(3), copies of this plan are made available to Port Neches Operations personnel and local authorities. A hard copy of the RCRA contingency plan and all revisions to the plan are available from the Environmental Department. The plan is also available via electronic media. These copies will be kept on file in accordance with Indorama's Corporate Record Retention Policy.

12.0 AMENDMENT OF CONTINGENCY PLAN

In accordance with 40 CFR §§ 262.263 and 264.54 and 30 TAC §§ 335.61 and 152(a)(3), 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.

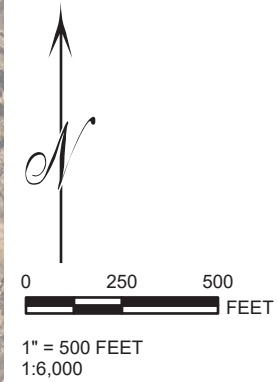
Attachment A:
HAZARDOUS WASTE UNIT LOCATIONS

J:\Prj\Indorama Ventures\RCRA 2025\Unit Maps.aprx



Legend

- PO/MTBE Unit Boundary
- Hazardous Waste Units
- Central Accumulation Units



**INDORAMA VENTURES OXIDES LLC
PORT NECHES OPERATIONS**

HAZARDOUS WASTE LOCATIONS

DRAWN BY:	L WILSON	SCALE:	AS NOTED	PROJ. NO.	033-24-01
CHECKED BY:	H MCHALE			FILE NO.	Hazardous Waste Locations
APPROVED BY:	H MCHALE	DATE PRINTED:	8/20/2025	ATTACHMENT A	
DATE:	August 2025				

Coterie
ENVIRONMENTAL

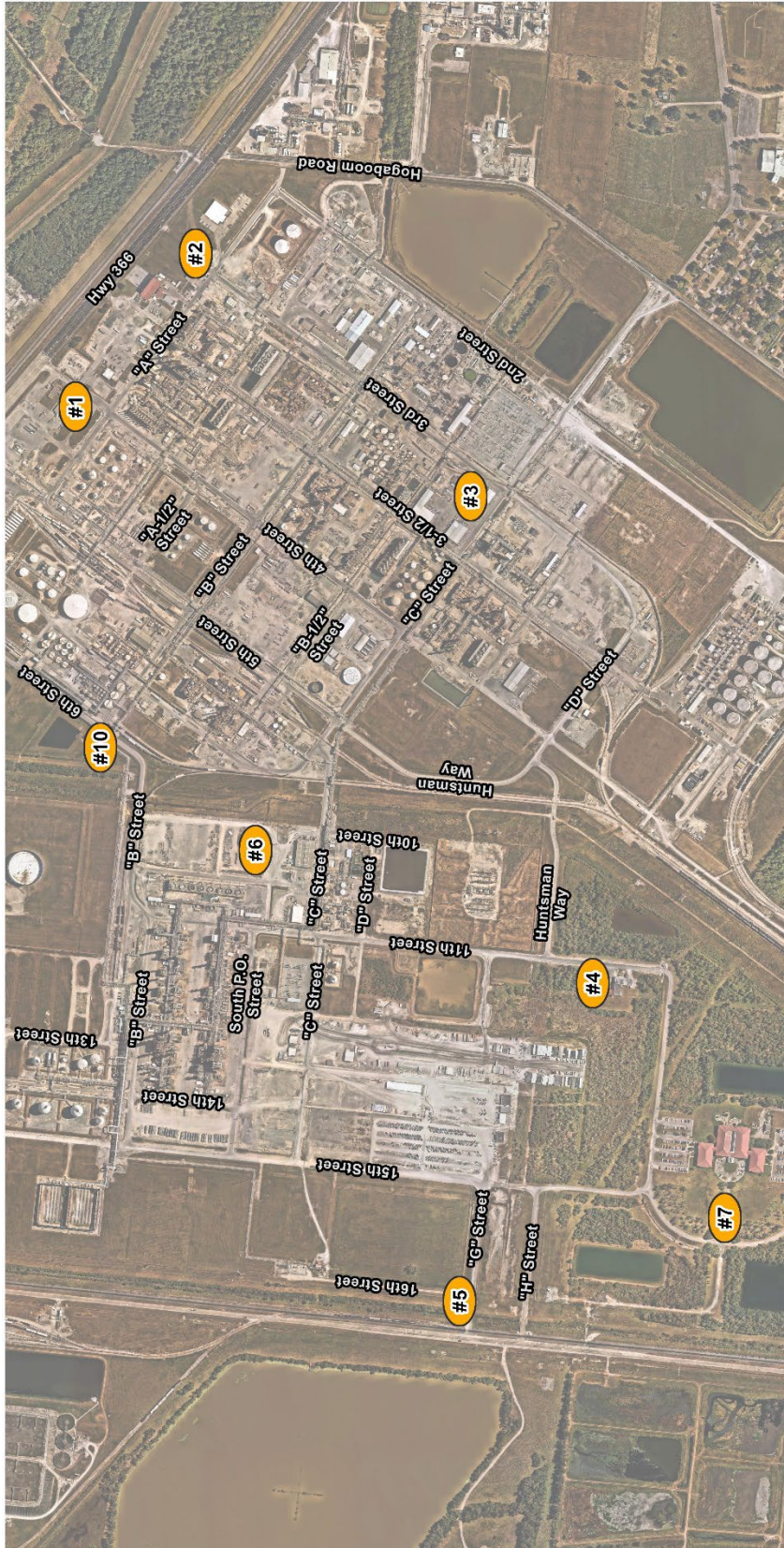
840 First Ave., Suite 400
King of Prussia, PA 19406

Nearmap Imagery October 19, 2024

Attachment B:

FACILITY EVACUATION ROUTE MAP

EVACUATION AND ASSEMBLY POINTS MAP



STAGING AREA LOCATIONS

- 1 - MAIN GATE AREA
- 2 - EAST OF THE OLD FIRE HOUSE
- 3 - SOUTHEAST CIRBER IF LDAR BUILDING
- 4 - PO/MTBE LAB
- 5 - CONSTRUCTION GATE 44 OFF SPUR 136
- 6 - WEST OF PO MAINT. BUILDING
- 7 - FRONT OF ADMIN BUILDING
- 8 - JWWTP (NOT SHOWN ON THIS DRAWING)
- 9 - DOCK AREA (NOT SHOWN ON THIS DRAWING)
- 10 - SOUTHEAST CORNER OF 6TH ST AND B ST

Legend

- #1 Staging Areas

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	Process Liquid Fuel	D001	2102219H

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	Tanks T-F5-167 and TF5-168 discharge valves	Closed-loop bomb sampler	Annually and if the process generating waste changes	Ignitability	SW-846 Method 1010A or 1020B	MDL for selected method
1	Tanks T-F5-167 and TF5-168 discharge valves	Closed-loop bomb sampler	Annually and if the process generating 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	Tanks T-F5-167 and TF5-168 discharge valves	Closed-loop bomb sampler	Annually and if the process generating waste changes	Volatile organics (including benzene)	SW-846 Method 1311 and 8240 or 8260, EPA Method 602 (40 CFR Part 136 Appendix A)	MDL for selected method
1	Tanks T-F5-167 and TF5-168 discharge valves	Closed-loop bomb sampler	Annually and if the process generating waste changes	Semivolatile organics	SW-846 Method 1311 and 8250 or 8270	MDL for selected method
1	Tanks T-F5-167 and TF5-168 discharge valves	Closed-loop bomb sampler	Annually and if the process generating waste changes	Total organic content	ASTM Methods E168 or E260, or SW846 Method 9060, 8240, or 8260	MDL for selected method

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



INDORAMA VENTURES OXIDES LLC
PORT NECHES, TEXAS

**INDUSTRIAL AND HAZARDOUS WASTE
STORAGE/PROCESSING/DISPOSAL FACILITY
PERMIT No. 50055
SOLID WASTE REGISTRATION No. 30029
EPA ID No. TX008076846**

WASTE ANALYSIS PLAN

AUGUST 2025

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1.0 INTRODUCTION

Indorama Ventures Oxides LLC (Indorama) operates three hazardous waste fired boilers at the Port Neches Operations. These units are identified as Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. These boilers are the only permitted hazardous waste units at the facility. The boilers 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, 266, and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The boilers 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 Indorama 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. This plan has been developed in accordance with 40 CFR § 264.13(b). 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).

This WAP does not address compliance with the HWC NESHAP established pollutant feed rate limitations for the boilers, 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 their rationale;
- Section 4.0 presents information on the sampling methods;
- Section 5.0 presents information on the analytical methods;
- Section 6.0 presents a discussion on the frequency of sampling and analysis;
- Section 7.0 addresses sampling and analysis for specific waste management methods; and
- Section 8.0 presents the QA/QC procedures.

2.0 WASTE DESCRIPTION

Process Liquid Fuel is generated as a by-product of the propylene oxide and methyl tertiary butyl ether (PO/MTBE) manufacturing processes. Process Liquid Fuel is characteristically hazardous and carries the 40 CFR Part 261 hazardous waste number of D001 (ignitability). Process Liquid Fuel has been assigned TCEQ waste classification code 2102219H. This liquid is comprised primarily of oxygenated hydrocarbons arising from the oxidation of isobutane and the reaction products of PO with itself or alcohols.

The PO process contributes liquid by-products from the solvent stripper reflux drum, the solvent stripper column bottoms, and the heavies removal column bottoms. The MTBE process contributes acetone and other light organic fractions. These liquid by-products are accumulated in the Process Liquid Fuel Accumulation Tanks designated as T-F5-167 and T-F5-168 to be burned in the boilers.

3.0 PARAMETERS AND RATIONALE

Indorama must obtain a chemical and physical analysis of the Process Liquid Fuel to determine its classification as a hazardous waste. The following three types of analyses are performed for the wastes:

- Waste characterization parameters – Analyses are performed to determine the proper waste classifications and codes;
- 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.

4.0 SAMPLING

Specific sampling procedures are employed to ensure representative samples.

4.1 SAMPLING LOCATION

Table IV.C in Section IV of the Part B Permit Application lists the sampling location and methods for the Process Liquid Fuel. Samples are obtained directly from taps on the discharge side of the pumps from Accumulation Tanks T-F5-167 and T-F5-168.

4.2 SAMPLING METHOD

Indorama personnel collect the liquid waste samples using a closed-loop system. Samples are collected in metal canisters. A valve is opened, and the canister is purged. The canister is then filled completely (to minimize head space) with a representative sample from the tank, and the valve is closed.

Samples are handled in accordance with internal practices for ensuring representative samples and preventing sample contamination.

During the handling of Process Liquid Fuel, 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. Gloves resistant to chemicals and petroleum distillates are required. If the potential for vapor, mist, or dust generation exists, a properly fitted Mine Health and Safety Administration (MSHA) approved or National Institute of Occupational Safety and Health (NIOSH) approved respirator with appropriate cartridges must be worn.

4.3 CHAIN-OF-CUSTODY

Indorama 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. A sample is considered to be under custody if the sample is (1) in a person's physical possession, (2) in view of the person after he has taken possession, (3) secured by that person so that no one can tamper with the sample, or (4) secured by that person in an area restricted to authorized personnel.

The components of chain-of-custody (*i.e.*, sample labels and forms) and the procedures for their use are detailed below.

4.3.1 SAMPLE LABELS

Sample labels are used to prevent misidentification of samples. At a minimum, the following information will be recorded on each sample label:

- Sample description/number;
- Name of collector; and
- Date, time, and place of collection.

Sample information will be recorded on the labels at the time of collection using an indelible pen or marker. Labels will be affixed to sample containers prior to or at the time of sampling.

4.3.2 SAMPLE FORMS

To establish the documentation necessary to trace sample possession from the time of collection, a chain-of-custody form is completed and accompanies every sample. The form contains the following information:

- Sample identification number (includes waste type and description);
- Sample preservation method;
- Sample temperature;
- Analyses to be performed;
- Condition of samples upon receipt;
- Signature of collector;
- Date and time of collection;
- Place and address of collection;
- Signature of persons involved in the chain-of-custody; and
- Inclusive dates of custody.

5.0 ANALYSIS

40 CFR § 264.13(b)(2) requires that the WAP indicate the procedures that will be used to determine the parameters. Table IV.C in Section IV of the Part B Permit Application specifies the primary analytical methods that are used for the 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 that follow procedures specified in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition* (SW-846), ASTM International (ASTM), or an equivalent method. 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 ANALYSIS

Pursuant to 40 CFR § 264.13(b)(4), Indorama 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 wastes managed in the permitted units.

The Process Liquid Fuel will be analyzed annually for waste characterization parameters, UHC parameters, and LDAR parameters. If Indorama 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. Indorama'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.

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

Indorama 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.

Indorama generates ignitable waste that is collected in Accumulation Tanks T-F5-167 and T-F5-168 prior to onsite combustion in the boilers. Indorama takes precautions to prevent accidental ignition of the waste and protects the ignitable waste from sources of ignition in accordance with 40 CFR § 264.17. Reactive wastes are not handled in the boilers. All components of the Process Liquid Fuel that is managed in the boilers are chemically compatible.

7.2 LAND DISPOSAL RESTRICTIONS

Indorama maintains compliance with land disposal restrictions for wastes generated at the facility, and records demonstrating compliance (*e.g.*, analytical data, 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

Indorama 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

Indorama 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 Indorama facility 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.

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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 (Not Applicable)
V.I	Boilers and Industrial Furnaces (Table V.I.1, Steam Generators No. 1 and No. 2 Engineering Report, and Boiler H-K2-003 Engineering Report)
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)

Permit No. 50055
Permittee: Indorama Ventures Oxides, LLC

Page 1 of 1

Table V.A. - Facility Waste Management Handling Units

TCEQ Permit Unit No. ¹	Unit Name	NOR No. ¹	Unit Description ³	Capacity	Unit Status ²
3	Steam Generator No. 1 (H-K2-001)	507	Liquid-fired boiler	225 MMBtu/hr	Active
4	Steam Generator No. 2 (H-K2-002)	508	Liquid-fired boiler	225 MMBtu/hr	Active
5	Boiler H-K2-003	528	Liquid-fired boiler	285 MMBtu/hr	Active

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.



INDORAMA VENTURES OXIDES LLC
PORT NECHES, TEXAS

**INDUSTRIAL AND HAZARDOUS WASTE
STORAGE/PROCESSING/DISPOSAL FACILITY
PERMIT No. 50055
SOLID WASTE REGISTRATION No. 30029
EPA ID No. TX008076846**

GENERAL ENGINEERING REPORT

AUGUST 2025

1.0 INTRODUCTION

Indorama Ventures Oxides LLC (Indorama) operates three hazardous waste fired boilers at the Port Neches Operations. These units are identified as Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. These boilers are the only permitted hazardous waste units at the facility. The boilers 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, 266, and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The boilers 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 Indorama Port Neches Operations. Indorama will use the appropriate procedures, structures, or equipment to prevent adverse conditions in the hazardous waste management areas.

2.1 UNLOADING PROCEDURES

There are no unloading procedures associated with the permitted hazardous waste management units. The Process Liquid Fuel is collected in Process Liquid Fuel Accumulation Tanks T-F5-167 and T-F5-168 and is pumped directly to Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003.

2.2 RUN-OFF

General surface runoff from both the process and non-process areas of the plant site is contained within the Indorama property boundaries, processed within the facility wastewater treatment system (WWTS), and ultimately discharged through a permitted outfall to the Neches River.

Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003 are located in process areas with concrete bases and trenches that collect liquid and convey it to the process WWTS. Any precipitation or run-on into these units is transported to the WWTS via these trenches. If a spill occurs in any of these units, the trenches can be blocked, and the spilled material removed by pumps or vacuum trucks and either stored in the trucks or temporary containers. Liquid blowdowns are installed on vessels, exchangers, and pumps to provide closed capture of spills. Routine closed-loop sampling is provided to eliminate chemical exposures and prevent release of wastes to the environment.

Separate sewer systems provide containment of contaminated process waters and storm water runoff.

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. There are no wells used for public water supply within a one-mile radius of the facility. The off-site migration of wastes (which could potentially contaminate water supplies) is greatly minimized through the containment provided from the process wastewater collection and WWTS described above. During extremely heavy rainfall events (greater than the 25 year, 24-hour storm), untreated wastewater could potentially migrate offsite by bypassing the WWTS. If such a bypass occurs, the wastewater and/or waste would eventually flow to the Neches River and/or into the Drainage District 7 ditches (which ultimately discharge to Alligator Bayou). Area water supply is obtained from the Lower Neches Valley Authority (LNVA) canal, which is upstream of the Indorama facility on the Neches River. There are no public surface-water supplies downstream of the Indorama facility.

2.4 EQUIPMENT AND POWER FAILURE

Any power outages or equipment failure in the waste feed system for Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003 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 waste release from these units.

2.5 PERSONAL PROTECTION EQUIPMENT

During the handling of Process Liquid Fuel, 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. Gloves resistant to chemicals and petroleum distillates 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 is worn. For large spills, tank cleaning, or other confined-space entry, a supplied-air respiratory system is required.

Process Liquid Fuel is managed as a flammable liquid. All sources of ignition are excluded when activities that could release flammable vapors are undertaken. Smoking is not permitted within the Indorama facility except in designated areas. "No Smoking" signs are posted at all entries to the facility.

2.6 PROCEDURES TO MINIMIZE RELEASES TO THE ATMOSPHERE

Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003 are operated in accordance with good engineering practices to minimize releases to the atmosphere. The Process Liquid Fuel is piped

directly from the accumulation tanks to the steam generators and boiler, 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 Indorama Port Neches Operations. Vehicles are restricted from the area of the Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. Traffic around the perimeter of the area is restricted to five 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 – Water Well Location Map;
- Figure V.A.7 – Fences and Gates; and
- Figure V.A.8 – Drainage and Sewer Systems.

40 CFR § 270.14(b)(19) requires that the application include maps showing a distance of 1,000 feet around the facility at a scale of one inch equals no more than 200 feet. Due to the size of the Port Neches Operations, using the required scale would necessitate seven 36-inch by 48-inch figures. Therefore, Indorama is requesting a variance from 40 CFR § 270.14(b)(19) to allow for the use of one inch equals 1,400 feet scale, which is printed as a standard-size 24-inch by 36-inch figure. This scale is sufficient to clearly show contours and the pattern of surface water flow in the vicinity of and from each operational unit of the facility. This scale has been used for the required U.S. Geological Survey (USGS) map (Figure V.A.2).

Attachment A: MAPS AND FIGURES

J:\Prj\Indorama Ventures\RCRA 2025\Unit Maps.aprx



Legend

-  PO/MTBE Unit Boundary
-  Hazardous Waste Units



0 250 500
FEET

1" = 500 FEET
1:6,000

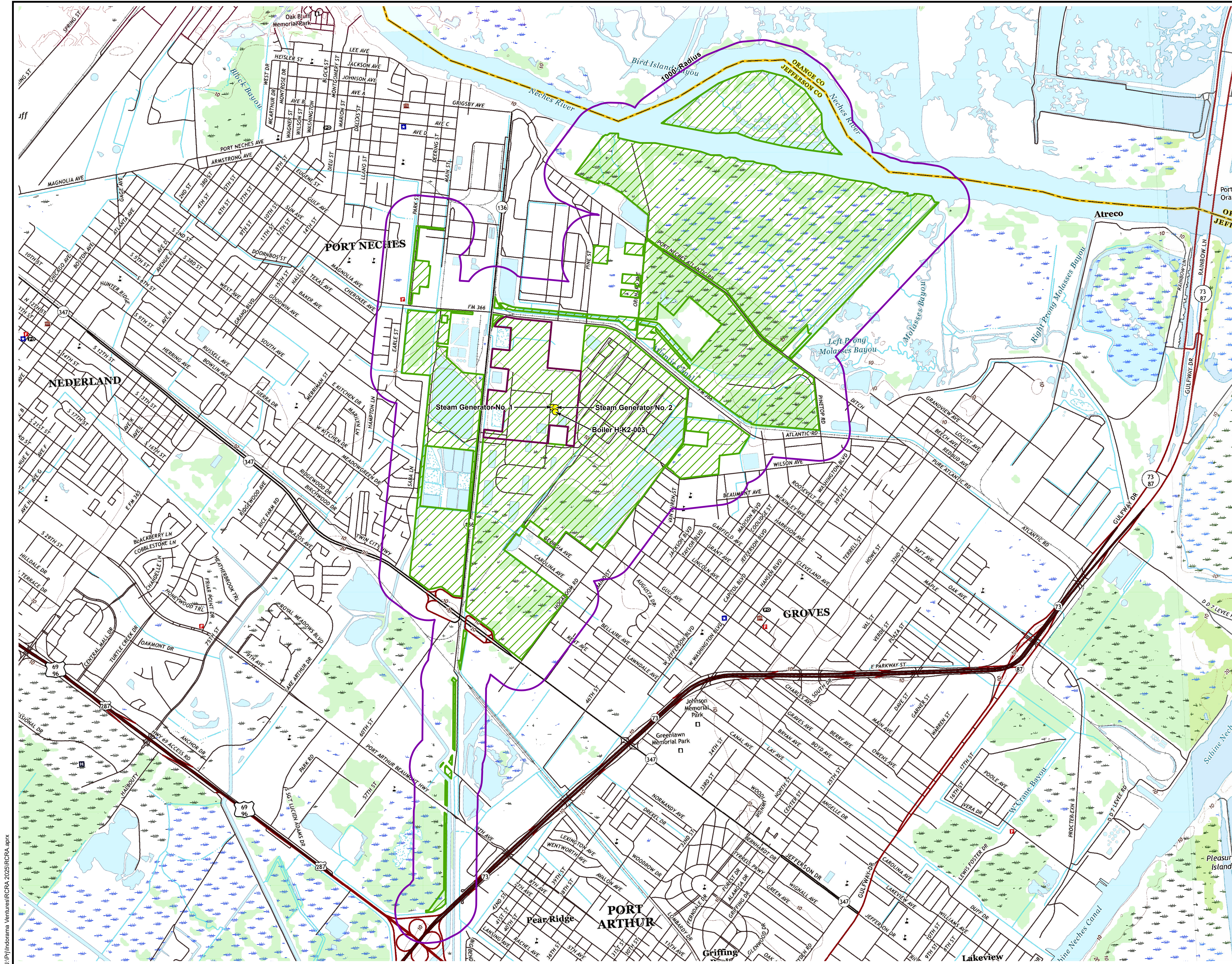
INDORAMA VENTURES OXIDES LLC
PORT NECHES OPERATIONS

FACILITY PLOT PLAN

DRAWN BY:	L WILSON	SCALE:	AS NOTED	PROJ. NO.	033-24-01
CHECKED BY:	H MCHALE			FILE NO.	Facility Plot Plan
APPROVED BY:	H MCHALE	DATE PRINTED:	6/25/2025	FIGURE V.A.1	
DATE:	June 2025				

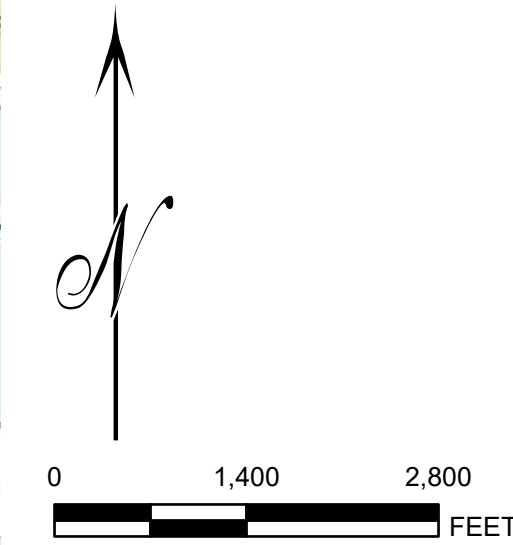
Coterie
ENVIRONMENTAL

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



- Legend**
- Indorama Property Boundary
 - PO/MTBE Unit Boundary
 - Hazardous Waste Units
 - 1000' Radius

Source:
USGS Topographic Quadrangles 7.5 Minutes Series:
Port Arthur North, TX 2022



**INDORAMA VENTURES OXIDES LLC
PORT NECHES OPERATIONS**

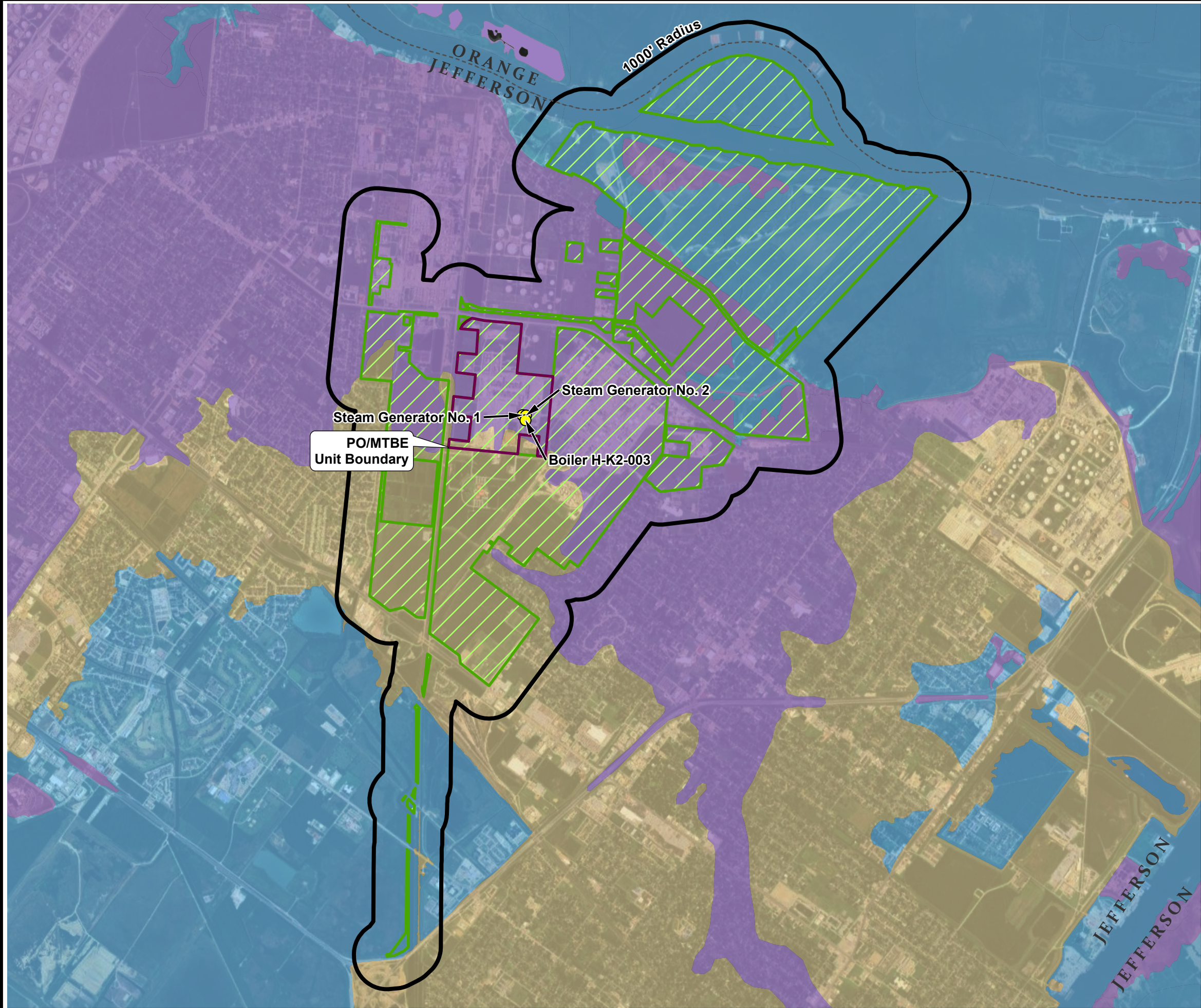
USGS 7.5 MINUTE TOPOGRAPHIC MAP

DRAWN BY:	L WILSON	SCALE:	AS NOTED	PROJ. NO.	033-24-01
CHECKED BY:	H MCHALE	DATE PRINTED:	7/30/2025	FILE NO.	Topo Map
APPROVED BY:	H MCHALE	DATE:	July 2025	FIGURE V.A.2	

Coterie
ENVIRONMENTAL

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

J:\Prj\Indorama Ventures\RCRA 2025\Unit Maps.aprx



Legend

- Indorama Property Boundary
- PO/MTBE Unit Boundary
- Hazardous Waste Units
- 1000' Radius

USA Flood Hazard Areas

- Areas Inundated by 100-Year Flood
- 0.2% Annual Chance Flood Hazard
- Area with Reduced Risk Due to Levee

Flood Zone Data Source:

1. Orange County: USA Flood Hazard Areas from the Flood Insurance Rate Map created by the Federal Emergency Management Agency (FEMA). Data streamed through GIS Rest Service, July 2025.
2. Jefferson County: FEMA Jefferson Preliminary Flood Zones. Data streamed through GIS Rest Service, July 2025.

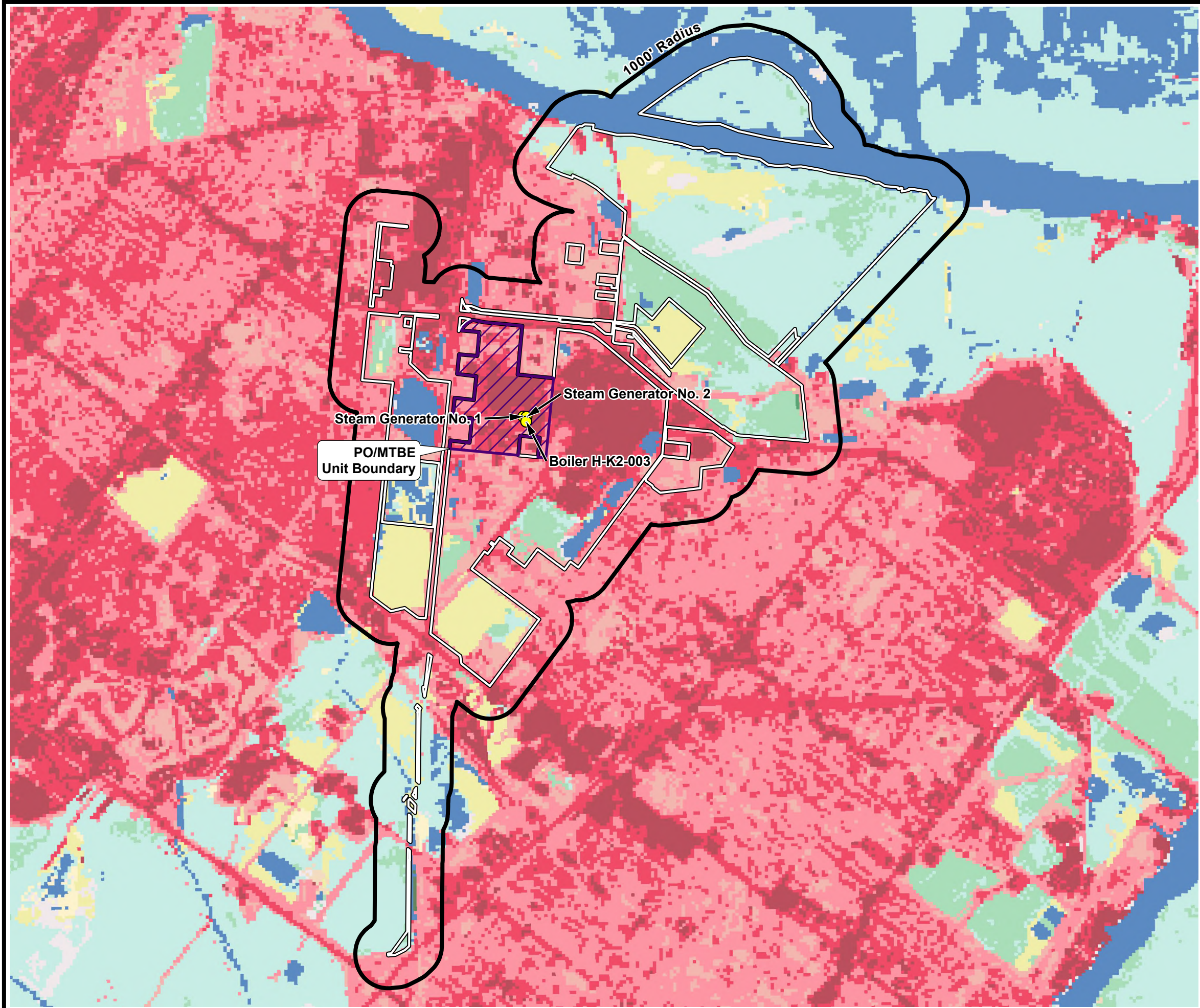
North arrow pointing up.

Scale bar: 0, 1,500, 3,000 FEET

1" = 3,000 FEET
1:36,000

INDORAMA VENTURES OXIDES LLC PORT NECHES OPERATIONS		
FEMA FLOOD MAP		
DRAWN BY: L WILSON	SCALE: AS NOTED	PROJ. NO. 033-24-01
CHECKED BY: H MCHALE	DATE PRINTED: 7/30/2025	FILE NO. FEMA Flood
APPROVED BY: H MCHALE	FIGURE V.A.3	
DATE: July 2025		
840 First Ave., Suite 400 King of Prussia, PA 19406		

J:\Prj\Indorama Ventures\RCRA 2025\Unit Maps.aprx



Legend

 Indorama Property Boundary

 PO/MTBE Unit Boundary

 Hazardous Waste Units

 1000' Radius

USA NLCD Land Cover

-  Open Water
-  Developed Open Space
-  Developed Low Intensity
-  Developed Medium Intensity
-  Developed High Intensity
-  Barren Land
-  Evergreen Forest
-  Mixed Forest
-  Shrub/Scrub
-  Grassland/Herbaceous
-  Pasture/Hay
-  Woody Wetlands
-  Emergent Herbaceous Wetlands

Data Source:
National Land Cover Database (NLCD), updated
April 11, 2025.



0 1,500 3,000
FEET

1" = 3,000 FEET
1:36,000

INDORAMA VENTURES OXIDES LLC PORT NECHES OPERATIONS

GENERAL LAND USE MAP

DRAWN BY:	L WILSON	SCALE:	AS NOTED	PROJ. NO.	033-24-01
CHECKED BY:	H MCHALE			FILE NO.	General Land Use
APPROVED BY:	H MCHALE	DATE PRINTED:	6/25/2025	FIGURE V.A.4	
DATE:	June 2025				

Coterie
ENVIRONMENTAL

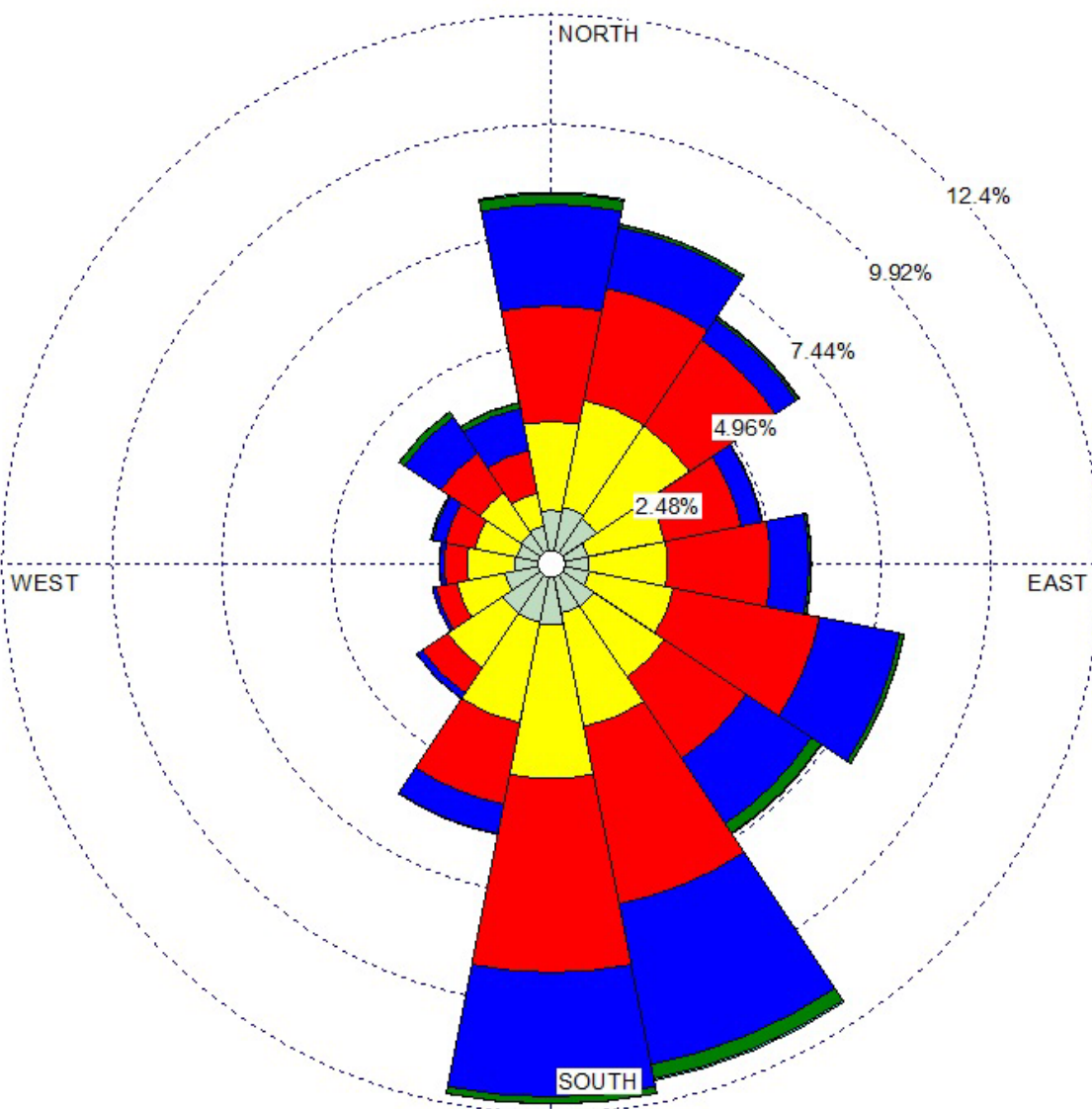
840 First Ave., Suite 400
King of Prussia, PA 19406

WIND ROSE PLOT:

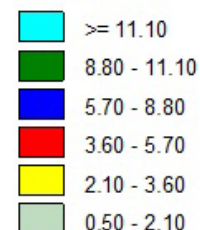
Station #12917 - PORT ARTHUR/JEFFERSON COUNTY, TX

DISPLAY:

Wind Speed
Direction (blowing from)



WIND SPEED
(m/s)



Calms: 0.46%

DATA PERIOD:

Start Date: 01/01/2017 – 00:00

End Date: 12/31/2021 – 23:59

CALM WINDS:

0.46%

AVG. WIND SPEED:

4.04 m/s

TOTAL COUNT:

43507 hrs.

INDORAMA VENTURES OXIDES LLC
PORT NECHES OPERATIONS

WIND ROSE

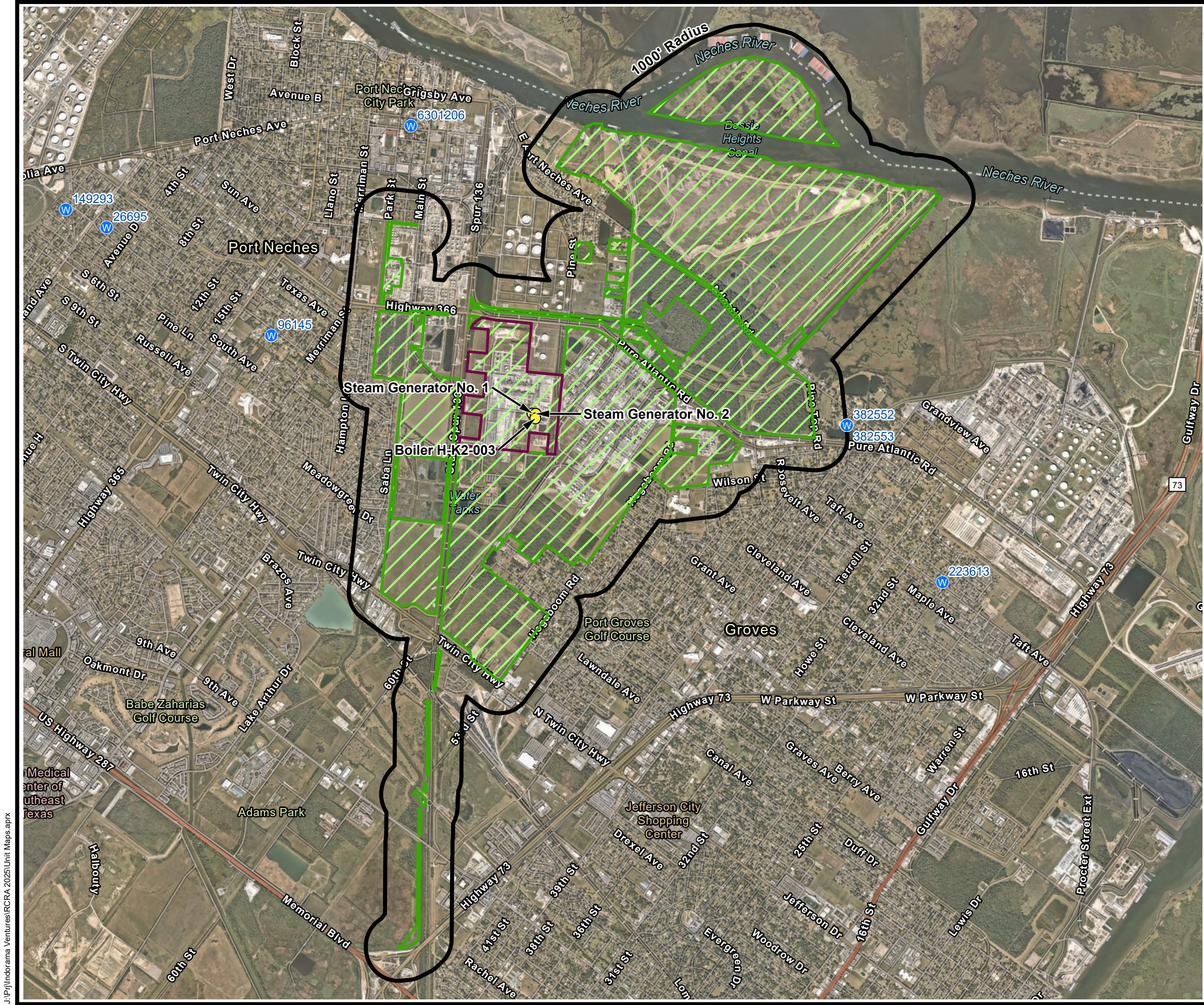
NOTES:

WRPLOT View –
Lakes Environmental Software

FIGURE V.A.1.5

Coterie
ENVIRONMENTAL

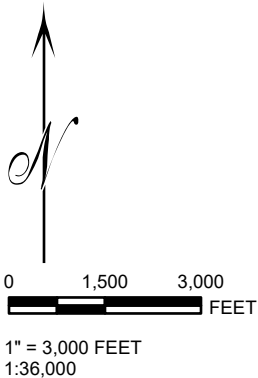
840 First Ave., Suite 400
King of Prussia, PA 19406



Legend

-  Indorama Property Boundary
-  PO/MTBE Unit Boundary
-  Hazardous Waste Units
-  1000' Radius
-  TWDB Water Well ID#
-  Domestic / Public Supply

Data Source:
TWDB Wells - Texas Water Development Board GIS
Database (April 2025)



INDORAMA VENTURES OXIDES LLC PORT NECHES OPERATIONS		
WATER WELL LOCATION MAP		
DRAWN BY:	L WILSON	SCALE: 033-24-01
CHECKED BY:	H MCHALE	AS NOTED
APPROVED BY:	H MCHALE	DATE PRINTED: 6/25/2025
DATE:	June 2025	FILE NO. Water Well Location Map
FIGURE V.A.6		
 840 First Ave., Suite 400 King of Prussia, PA 19406		



Legend

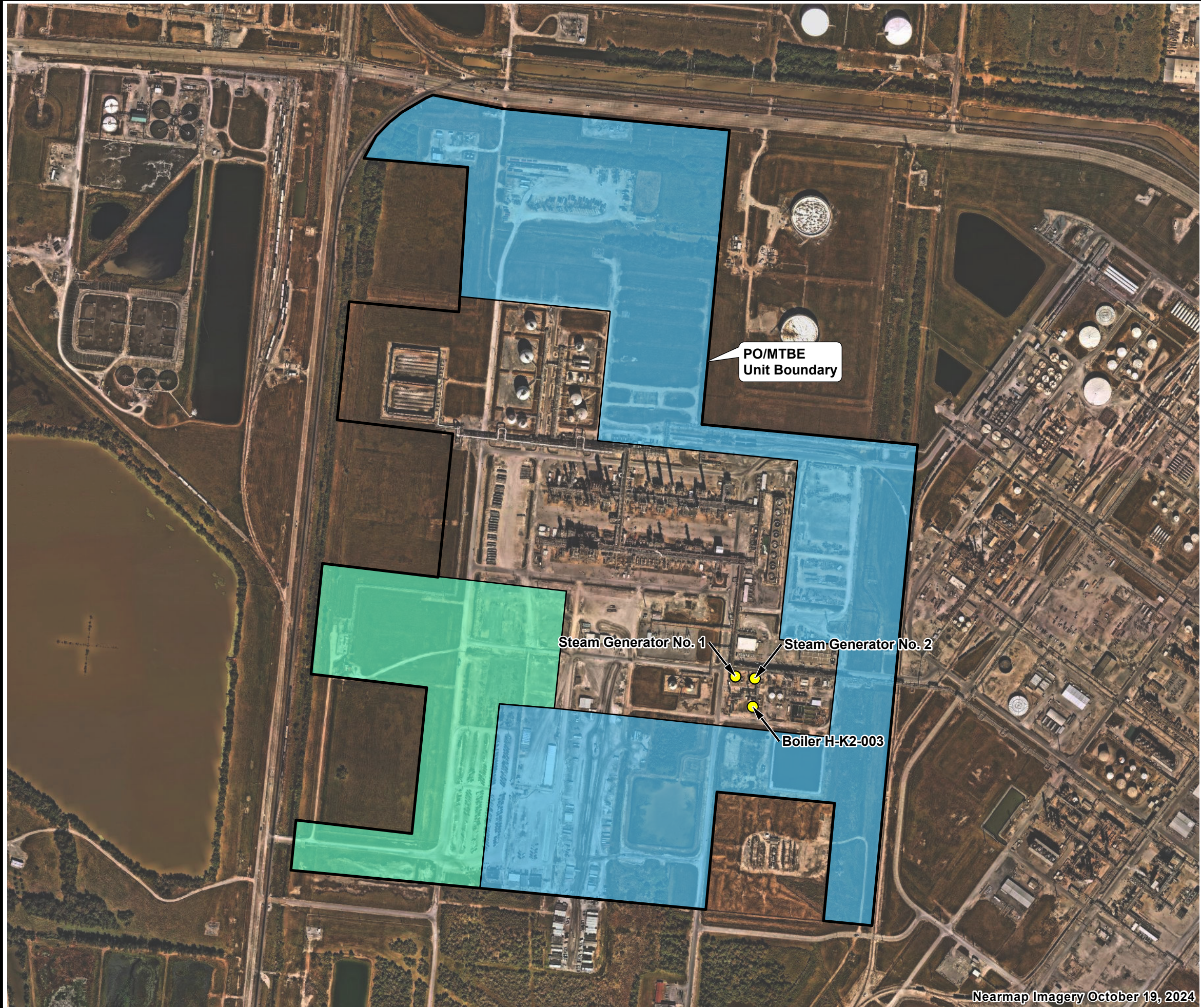
- Indorama Property Boundary
- PO/MTBE Unit Boundary
- Hazardous Waste Units
- Gate
- Fence

Data Source:
Fence and Gate digitized from Indorama
provided Restricted Area and Access Point images

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

INDORAMA VENTURES OXIDES LLC PORT NECHES OPERATIONS		
FENCE AND GATE MAP		
DRAWN BY: L WILSON	SCALE: AS NOTED	PROJ. NO. 033-24-01
CHECKED BY: H MCHALE	DATE PRINTED: 7/30/2025	FILE NO. Fences and Gates
APPROVED BY: H MCHALE	DATE: July 2025	
FIGURE V.A.7		
 840 First Ave., Suite 400 King of Prussia, PA 19406		

J:\Prj\Indorama Ventures\RCRA 2025\Unit Maps.aprx



Legend

-  PO/MTBE Unit Boundary
-  Hazardous Waste Units

Drainage Areas

-  Outfall 007
-  Outfall 008



0 250 500
FEET

1" = 500 FEET
1:6,000

INDORAMA VENTURES OXIDES LLC PORT NECHES OPERATIONS

STORMWATER DRAINAGE SYSTEMS

DRAWN BY:	L WILSON	SCALE:	AS NOTED	PROJ. NO.	033-24-01
CHECKED BY:	H MCHALE	DATE PRINTED:	7/30/2025	FILE NO.	Drainage and Sewer Systems
APPROVED BY:	H MCHALE				
DATE:	July 2025				

FIGURE V.A.8

Coterie
ENVIRONMENTAL

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

Nearmap Imagery October 19, 2024

Appendix V.I:
BOILERS AND INDUSTRIAL FURNACES
(TABLE V.I.1, STEAM GENERATORS No. 1 AND No. 2
ENGINEERING REPORT, AND BOILER H-K2-003 ENGINEERING
REPORT)

Permit No. 50055
Permittee: Indorama Ventures Oxides, LLC

Page 1 of 1

Table V.I.1. - Boilers/Industrial Furnaces

Permit Unit No. *	Boilers/Industrial Furnaces	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
3	Steam Generator No. 1	507	1	Pumpable	No	Active
4	Steam Generator No. 2	508	1	Pumpable	No	Active
5	Boiler H-K2-003	528	1	Pumpable	No	Active

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.

TCEQ Part B Application

TCEQ-00376

Revision No. 0

Revision Date August 29, 2025



INDORAMA VENTURES OXIDES LLC
PORT NECHES, TEXAS

**INDUSTRIAL AND HAZARDOUS WASTE
STORAGE/PROCESSING/DISPOSAL FACILITY
PERMIT No. 50055
SOLID WASTE REGISTRATION No. 30029
EPA ID No. TX008076846**

**STEAM GENERATORS No. 1 AND No. 2
ENGINEERING REPORT**

**AUGUST 2025
REVISED: OCTOBER 2025**

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1.0 INTRODUCTION

Indorama Ventures Oxides LLC (Indorama) operates three hazardous waste fired boilers at the Port Neches Operations. These units are identified as Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. These boilers are the only permitted hazardous waste units at the facility. The boilers 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, 266, and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The boilers 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 engineering report provides general information for Steam Generator No. 1 and Steam Generator No. 2. 40 CFR § 270.22 requires that Indorama submit information about the steam generators with this permit application to demonstrate compliance with the standards contained in 40 CFR Part 266 Subpart H. However, pursuant to 40 CFR §§ 266.100(b) and 270.66, all waste analysis, performance standards, operating requirements, monitoring requirements, and inspection requirements for the steam generators no longer apply once Indorama demonstrates compliance with the HWC NESHAP and submits their Notification of Compliance. Indorama completed this process in 2011. A Finding of Compliance was issued in 2016. Accordingly, most of the information specified by 40 CFR § 270.22 is no longer applicable. Details related to operation and design of the steam generators 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 steam generators' equipment;
- Section 3.0 discusses the continuous monitoring systems (CMS);
- Section 4.0 presents the similar unit demonstration;
- Section 5.0 discusses the Part B Section V application tables;
- Section 6.0 discusses special waste considerations; and
- Section 7.0 addresses startup, shutdown, and malfunction requirements.

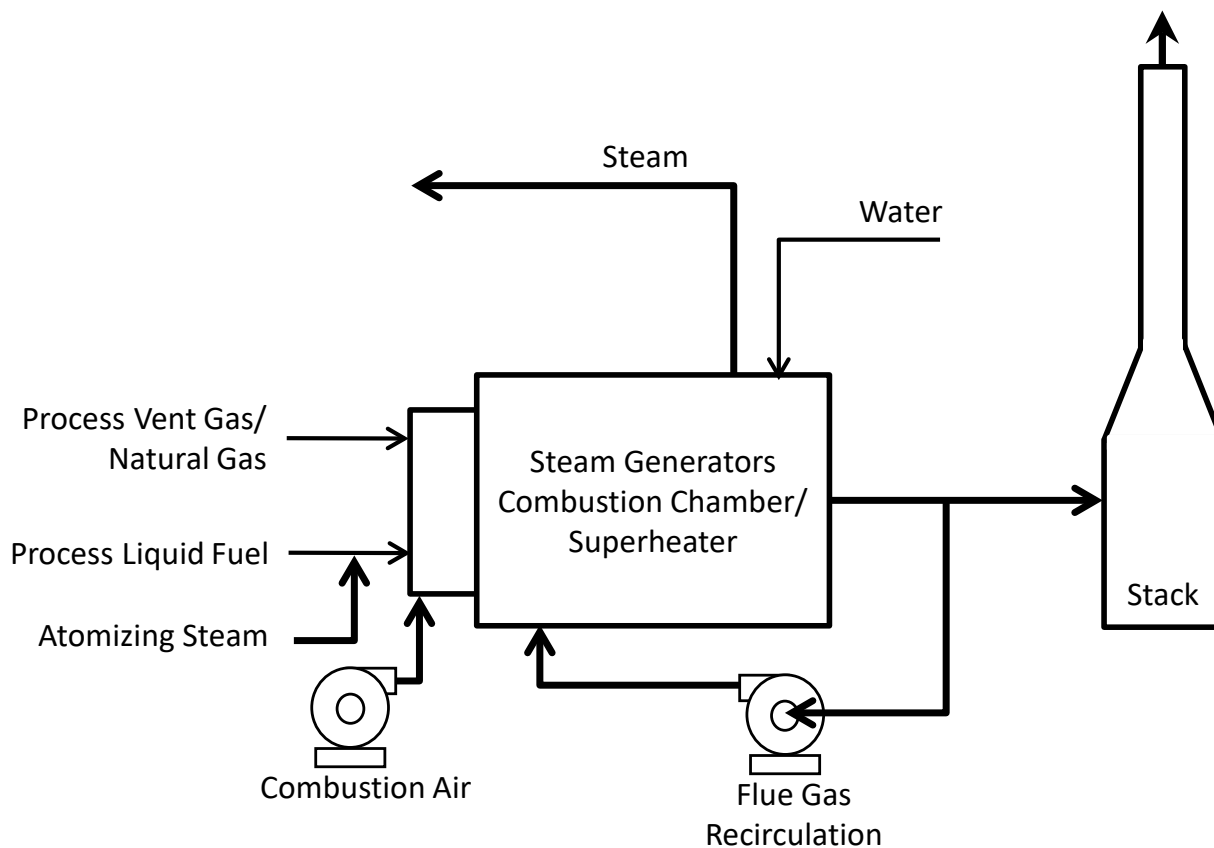
2.0 EQUIPMENT DESCRIPTION

The Port Neches Operations operates the steam generators to provide energy recovery as steam while destroying hazardous waste streams generated in the production units. Steam Generators No. 1 and No. 2 were manufactured by Foster Wheeler and were installed in 1991 and began burning hazardous waste in 1994.

The steam generators are fired on a mixture of Process Liquid Fuel, Process Vent Gas, and natural gas. The steam generators are not equipped with any downstream air pollution control equipment; after passing through the heat recovery sections, the flue gases are discharged to the atmosphere via separate stacks.

Figure 1 provides a general process schematic diagram of the steam generators. Process and instrumentation diagrams (P&IDs) are provided in Attachment A.

**FIGURE 1
PROCESS SCHEMATIC**



2.1 WASTE STORAGE SYSTEM

The Process Liquid Fuel is collected in two permit-exempt accumulation tanks. The tanks provide a total storage capacity of 580,000 gallons. Table 1 provides a description of the tanks.

TABLE 1
ACCUMULATION TANK SYSTEM

TANK	CAPACITY	TYPE	DIAMETER	CONSTRUCTION
T-F5-167	290,000 gallons	Sphere	42 feet	Carbon steel
T-F5-168	290,000 gallons	Sphere	42 feet	Carbon steel

2.2 WASTE AND FUEL DELIVERY SYSTEMS

Process Liquid Fuel, Process Vent Gas, and natural gas are fed to the steam generators. The following sections provide detail on each delivery system.

2.2.1 LIQUID WASTE DELIVERY SYSTEM

The Process Liquid Fuel is fed from the propylene oxide and methyl tertiary butyl ether (PO/MTBE) manufacturing processes to two accumulation tanks prior to being fed to the steam generators. From the accumulation tanks, the waste is fed directly to the steam generators through dedicated waste feed lines. The liquid is filtered, metered, and fed through fuel oil guns into each steam generator's combustion chamber.

Motive force for the Process Liquid Fuel is provided by two redundant waste feed pumps, which are each rated for 138 gallons per minute (gpm) at 206 pounds per square inch gauge (psig). These pumps also serve as recirculation pumps for the accumulation tanks. In fact, most of the pump capacity is utilized for the recirculation flow; only a small percentage of the total pump capacity is directed to the steam generators.

2.2.2 PROCESS VENT GAS AND NATURAL GAS DELIVERY SYSTEM

Process Vent Gas from facility production activities and several other locations is utilized in combination with natural gas to supplement the combustion of the Process Liquid Fuel in the steam generators. A common vent header collects the vent streams from multiple plant processes. The Process Vent Gas is then mixed with natural gas in a mixing drum prior to combustion. The combined gas stream is fed to the two combination burners. The combined Process Vent Gas/natural gas stream flow is controlled with a control valve and block valves.

2.3 STEAM GENERATORS

The steam generators are forced draft units manufactured by Foster Wheeler. The nearly identical Model AG-5175-XMRW steam generators are watertube type boilers and are each rated for a maximum

steam production rate of 175,000 pounds per hour (lb/hr) of 600-pounds per square inch gauge (psig), 750 degrees Fahrenheit (°F) superheated steam. The design total heat input of each steam generator is 225 million British thermal units per hour (MMBtu/hr). Steam is generated using various boiler tubes (“D” tubes, furnace rearwall tubes, division wall tubes, boiler back tubes and boiler sidewall tubes) using the heat from the combustion process.

The Process Liquid Fuel and the Process Vent Gas/natural gas are injected through two burners into the combustion zone. The burners are John Zink Model HPS-SA-18 combination gas and liquid fuel burners. Each burner is rated for 112.5 MMBtu/hr and utilizes steam for atomization of the liquid waste.

Combustion air is supplied to each steam generator through a forced draft fan, a flue gas recirculation fan, and a windbox. Each forced draft fan was manufactured by Buffalo Forge Fan Company and is rated for 36,986 cubic feet per minute (cfm) of air flow at 90°F. These forced draft fans provide the primary motive force for flue gases through the system. The flue gas recirculation fan provides up to another 11,000 cfm of flue gas flow, resulting in a total fan capacity of nearly 48,000 cfm.

The flue gas generated from combustion of the waste and fuel follows a tortuous path through the combustion chamber, making several turns before entering the main boiler tube section and then exiting to the downstream economizer. After the flue gas exits the combustion chamber, it passes through a steam super-heater coil section, where superheated steam is produced for use in the plant, and enters a refractory lined retention or adiabatic chamber. Following this section, the flue gas passes through the primary boiler tube area and then the economizer before being discharged to the atmosphere via the stack.

2.4 AIR POLLUTION CONTROL

The steam generators are not equipped with any air pollution control devices.

2.5 STACK

The flue gas from each steam generator is discharged through an individual stack to the atmosphere. Each stack is 100 feet high with an internal diameter of five feet. The stacks are fitted with six-inch sampling ports and stack sampling platforms.

3.0 CONTINUOUS MONITORING SYSTEMS

Each steam generator is equipped with CMS, including continuous process monitoring systems (CPMS) and continuous emissions monitoring systems (CEMS). These CMS enable the facility to maintain safe operation of the steam generators 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 PROCESS MONITORING SYSTEMS

Various CPMS are required for the steam generators to document compliance with the applicable HWC NESHAP OPLs. Table 2 presents a summary of the CPMS for the steam generators.

TABLE 2
CONTINUOUS PROCESS MONITORING SYSTEMS

TAG NO.	MEASURED PARAMETER	INSTRUMENT DESCRIPTION
F5TE0719EA F5TE0719FA F5TE0719GA	Steam Generator No. 1 combustion chamber temperature	Type K thermocouples
F5TE0729EA F5TE0729FA F5TE0729GA	Steam Generator No. 2 combustion chamber temperature	Type K thermocouples
F5FI0718AD	Steam Generator No. 1 stack gas flow rate	Insertion flow meter
F5FI0728AD	Steam Generator No. 2 stack gas flow rate	Insertion flow meter
F5CA0707AA	Steam Generator No. 1 total hazardous waste feed rate	Coriolis mass flow meters and transmitters
F5CA0707BA	Steam Generator No. 2 total hazardous waste feed rate	Coriolis mass flow meters and transmitters
F5PALL0715	Steam Generator No. 1 atomizing fluid pressure	Pressure transmitter
F5PALL0725	Steam Generator No. 2 atomizing fluid pressure	Pressure transmitter

3.2 CONTINUOUS EMISSIONS MONITORING SYSTEMS

Indorama monitors the concentrations of carbon monoxide (CO) and oxygen in the stack gas of each steam generator to comply with the HWC NESHAP. Indorama utilizes non-dispersive infrared (NDIR)

analyzers to continuously monitor CO concentration in the stack gas. Each 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 analyzers that are used to correct CO emission concentrations to seven percent oxygen are paramagnetic analyzers. Each analyzer has a span of zero to 25 percent oxygen by volume on a dry basis.

3.3 AUTOMATIC WASTE FEED CUTOFF SYSTEMS

Indorama operates the steam generators with automatic waste feed cutoff (AWFCO) systems that immediately and automatically cut off the hazardous waste feed to the affected unit 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. The following conditions will trigger a complete shutdown of the steam generators:

- High instrument air pressure;
- High fuel gas pressure;
- Low fuel gas pressure;
- High steam drum level;
- Low steam drum level;
- Low fan speed;
- High steam drum pressure;
- High steam temperature; and
- High furnace pressure.

4.0 SIMILAR UNITS DEMONSTRATION

Steam Generators No. 1 and No. 2 are similar in design and operation. Indorama has always received approval to test one steam generator and use those test results as data in lieu of testing for the other steam generator.

The similarity determination is based on the following criteria:

- The steam generators are similar in design, construction, and operation;
- The same hazardous waste feed is fed to both steam generators;
- The maximum total hazardous waste feed rate is the same for both steam generators;
- Data in lieu of testing has been approved for all previous compliance tests; and
- In the Conditional Approval letter for the initial comprehensive performance test (CPT) plan issued on December 3, 2009, United States Environmental Protection Agency (USEPA) Region 6 determined that the steam generators “can be considered similar for CPT purposes.”

5.0 APPLICATION TABLES

Section V of the Part B application includes several tables intended to define the operating conditions of hazardous waste fired boilers. The following tables are included in Section V for Steam Generators No. 1 and No. 2:

- Table V.I.1., *Boilers/Industrial Furnaces* – This table lists the boilers included in the permit. This table is applicable to the Indorama Port Neches Operations and has been included in the permit application.
- Table V.I.2., *Boiler/Industrial Furnace Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems* – This table establishes operating conditions for a boiler. This table is not applicable to Steam Generators No. 1 and No. 2 and is therefore not included in the permit application. Operating limits are no longer applicable to the steam generators because the HWC NESHAP Finding of Compliance has been issued.
- Table V.I.3., *Maximum Constituent Feed Rates* – This table establishes constituent feed rate limits for a boiler. This table is not applicable to Steam Generators No. 1 and No. 2 and is therefore not included in the permit application. Feed rate limits are no longer applicable to the steam generators because the HWC NESHAP Finding of Compliance has been issued.
- Table V.I.4., *Maximum Allowable Emission Rates* - This table establishes emission rate limits for a boiler. This table is not applicable to Steam Generators No. 1 and No. 2 and is therefore not included in the permit application. Emission rate limits are no longer applicable to the steam generators because the HWC NESHAP Finding of Compliance has been issued.
- Table V.I.5., *Boiler/Industrial Furnace 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 boiler. Steam Generators No. 1 and No. 2 are existing boilers. This table is not applicable and is therefore not included in the permit application.
- 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. This table is not applicable to Steam Generators No. 1 and No. 2 and is therefore not included in the permit application. Trial burns are no longer applicable to the steam generators because HCW NESHAP CPTs are performed and the HWC NESHAP Finding of Compliance has been issued.

6.0 SPECIAL WASTE CONSIDERATIONS

This section addresses special considerations for wastes managed in Steam Generators No. 1 and No. 2.

6.1 REACTIVE OR INCOMPATIBLE WASTE

Steam Generators No. 1 and No. 2 do not manage reactive or incompatible wastes.

6.2 DIOXIN WASTES

Steam Generators No. 1 and No. 2 do not manage F020, F021, F022, F023, F026, and F027 wastes

6.3 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. Only one hazardous waste is fed to the steam generators. This waste is hard-piped directly from accumulation tanks to each steam generator's burners. There is no exposure to the atmosphere and therefore no potential for ignition or reaction.

7.0 STARTUP, SHUTDOWN, AND MALFUNCTION

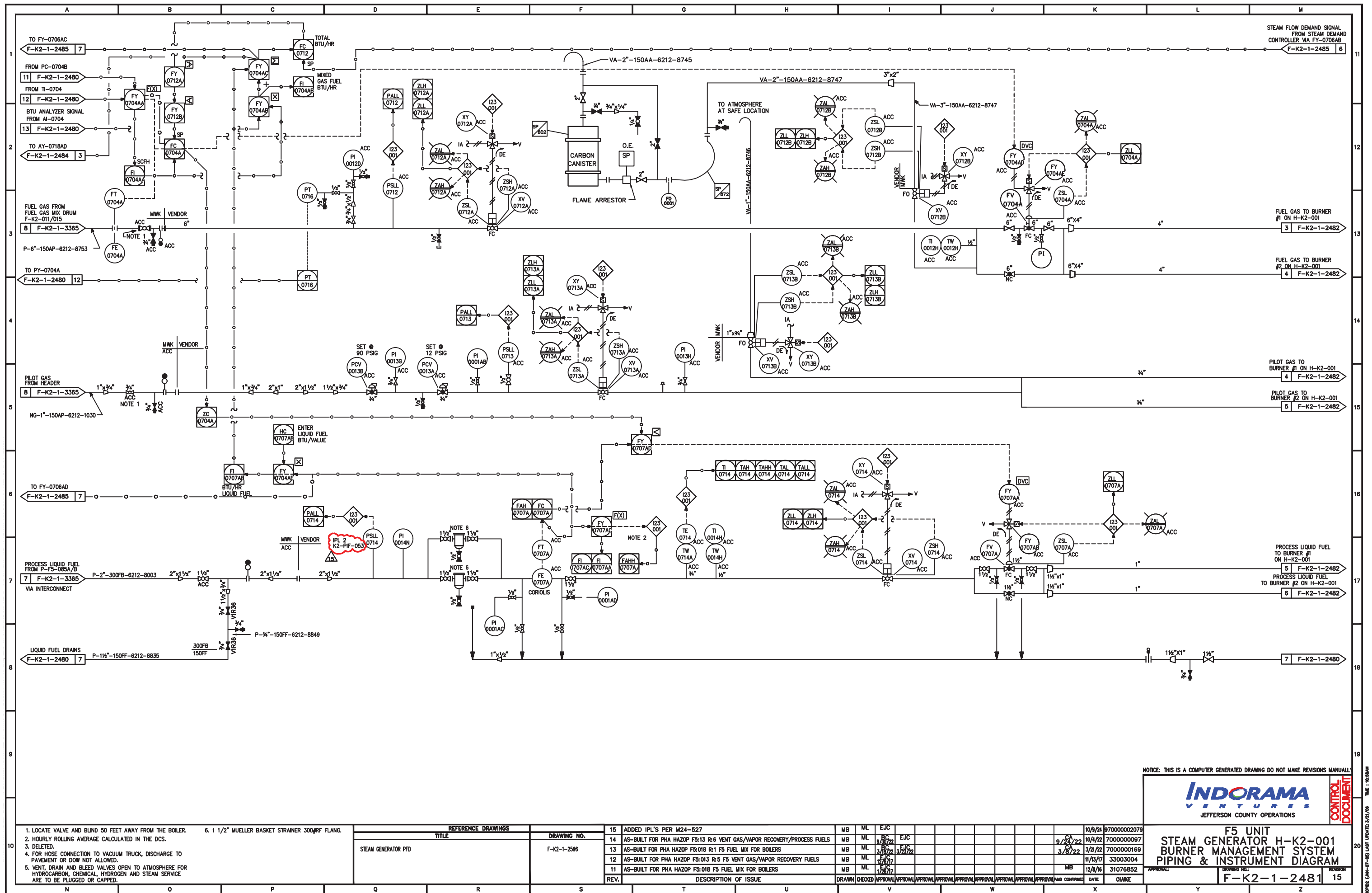
Indorama maintains and operates in accordance with an HWC NESHAP startup, shutdown, and malfunction plan for Steam Generators No. 1 and No. 2. The plan states that Indorama intends to utilize the option under 40 CFR § 270.235(a)(1)(iii) to not include permit conditions that address startup, shutdown, and malfunction events in the RCRA permit. As such, the HWC NESHAP startup, shutdown, and malfunction plan for the steam generators 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, Indorama 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 steam generators during startup, shutdown, or malfunction event. During a malfunction event, if an exceedance of any HWC NESHAP OPLs occurs, hazardous waste feed to the affected steam generator must be ceased immediately by activating the AFWCO system. When a malfunction is not associated with an OPL and related AFWCO system, the hazardous waste feed to the affected steam generator shall be ceased as quickly as possible.

Indorama believes that these waste feed restrictions adequately address emissions from startup, shutdown, and malfunction events.

Attachment A:

PIPING AND INSTRUMENTATION DIAGRAMS



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JEFFERSON COUNTY OPERATIONS

F5 UNIT
STEAM GENERATOR H-K2-001
BURNER MANAGEMENT SYSTEM
PIPING & INSTRUMENT DIAGRAM

REV.	DESCRIPTION OF ISSUE	DRAWN	CHECKED	APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL	DATE	CHARGE
15	ADDED IPL'S PER M24-527	MB	ML	EJC								10/9/24	970000002079
14	AS-BUILT FOR PHA HAZOP F5:13 R:6 VENT GAS/VAPOR RECOVERY/PROCESS FUELS	MB	ML	EJC								9/22/22	70000000097
13	AS-BUILT FOR PHA HAZOP F5:018 R:1 F5 FUEL MIX FOR BOILERS	MB	ML	EJC								3/21/22	70000000169
12	AS-BUILT FOR PHA HAZOP F5:013 R:5 F5 VENT GAS/VAPOR RECOVERY FUELS	MB	ML	EJC								11/13/17	33003004
11	AS-BUILT FOR PHA HAZOP F5:018 F5 FUEL MIX FOR BOILERS	MB	ML	EJC								12/8/16	31076852

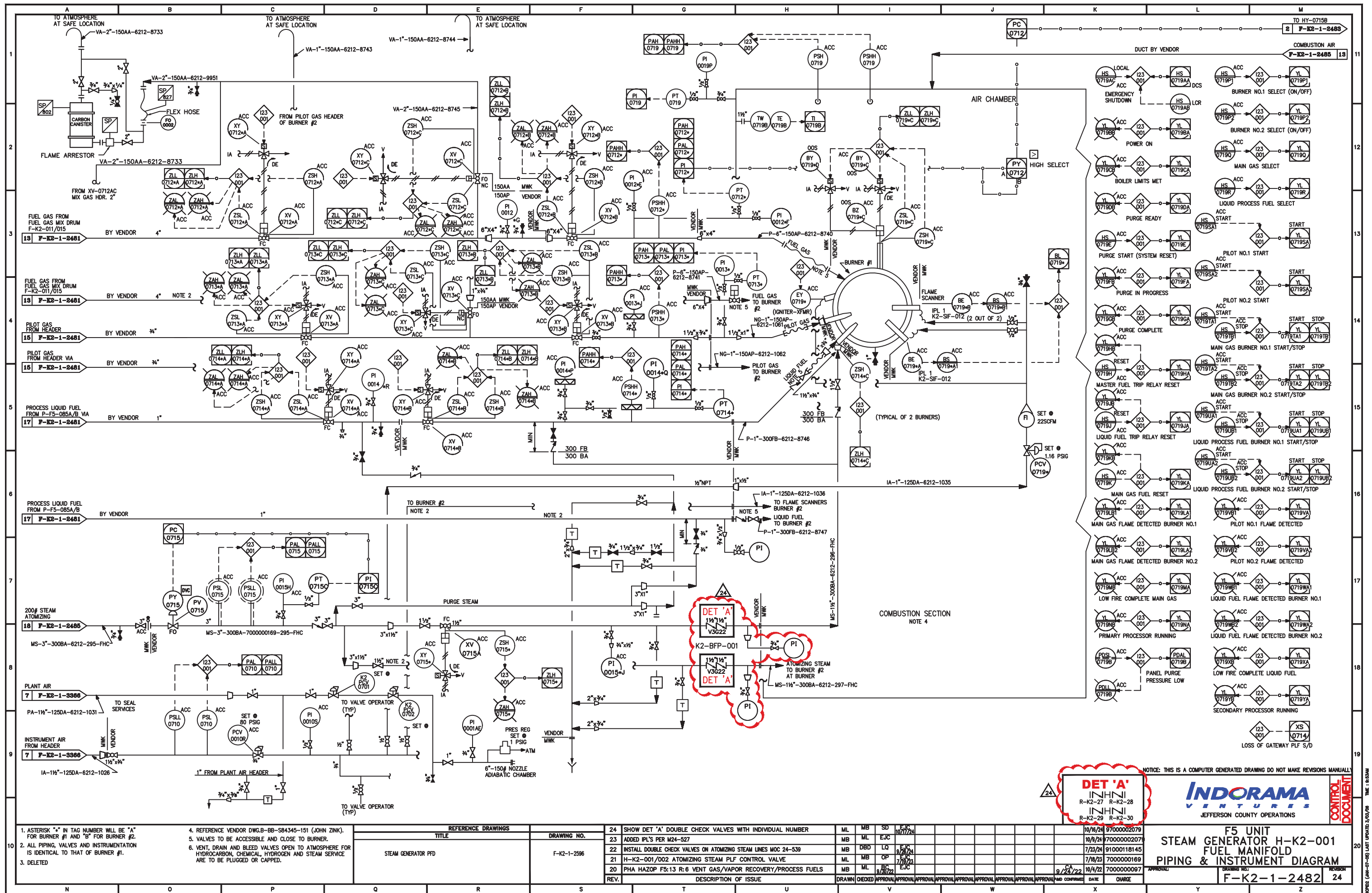
REV.	DESCRIPTION OF ISSUE	DRAWN	CHECKED	APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL	DATE	CHARGE
15													

- LOCATE VALVE AND BLIND 50 FEET AWAY FROM THE BOILER.
- HOURLY ROLLING AVERAGE CALCULATED IN THE DCS.
- DELETED.
- FOR HOSE CONNECTION TO VACUUM TRUCK, DISCHARGE TO PAVEMENT OR DOW NOT ALLOWED.
- VENT, DRAIN AND BLEED VALVES OPEN TO ATMOSPHERE FOR HYDROCARBON, CHEMICAL, HYDROGEN AND STEAM SERVICE ARE TO BE PLUGGED OR CAPPED.
- 1 1/2" MUELLER BASKET STRAINER 300#RF FLANG.

REFERENCE DRAWINGS	DRAWING NO.
STEAM GENERATOR PFD	F-K2-1-2596

CONTROL DOCUMENT

TIME: 1:10:58PM



DET 'A'
R-K2-27 R-K2-28
R-K2-29 R-K2-30

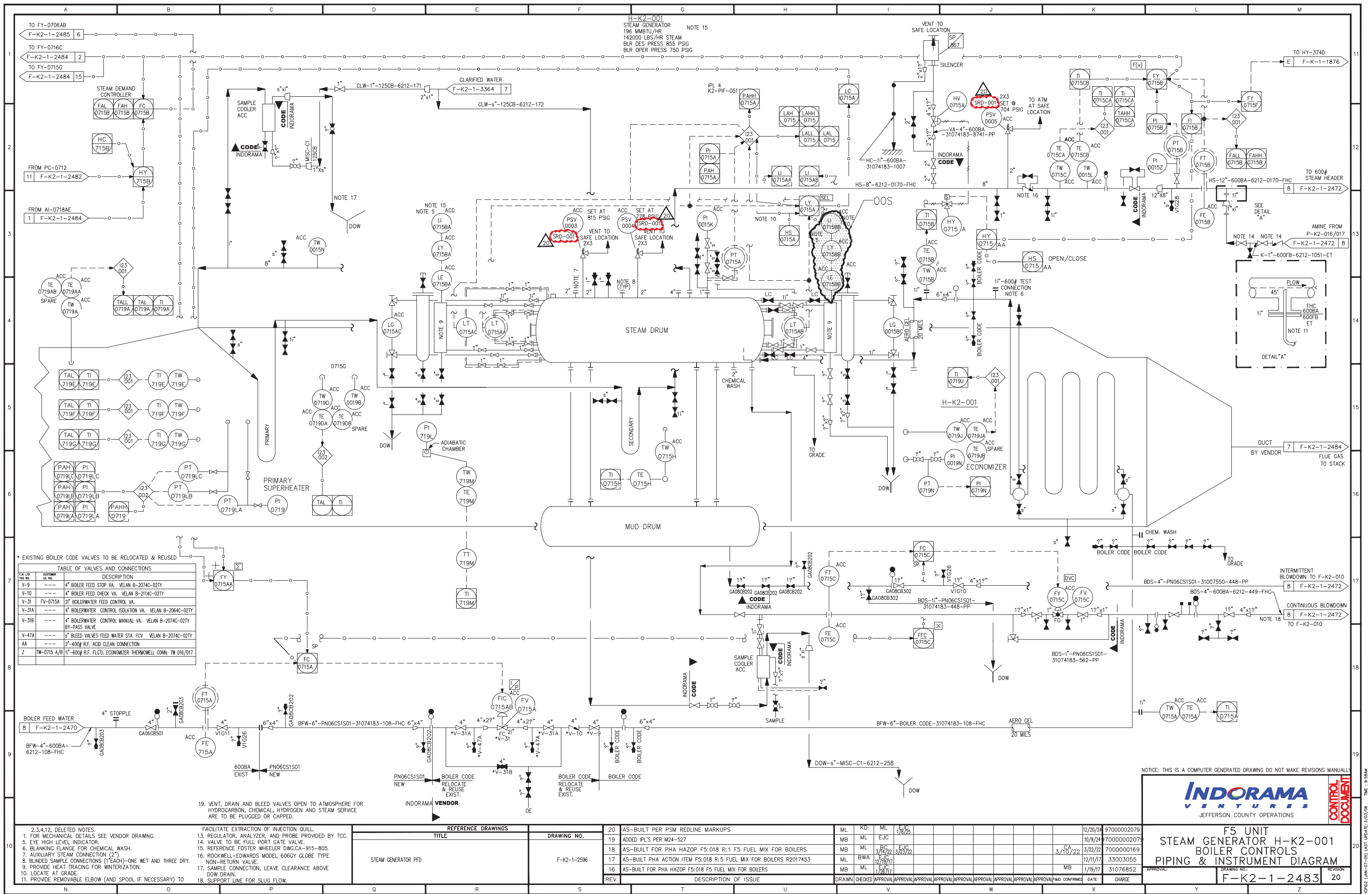
INDORAMA
JEFFERSON COUNTY OPERATIONS

**F5 UNIT
STEAM GENERATOR H-K2-001
FUEL MANIFOLD
PIPING & INSTRUMENTATION
F-K2-1-2482**

- 1. ASTERISK "*" IN TAG NUMBER WILL BE "A" FOR BURNER #1 AND "B" FOR BURNER #2.
- 2. ALL PIPING, VALVES AND INSTRUMENTATION IS IDENTICAL TO THAT OF BURNER #1.
- 3. DELETED
- 4. REFERENCE VENDOR DWG. B-BB-SB4345-151 (JOHN ZINK).
- 5. VALVES TO BE ACCESSIBLE AND CLOSE TO BURNER.
- 6. VENT, DRAIN AND BLEED VALVES OPEN TO ATMOSPHERE FOR HYDROCARBON, CHEMICAL, HYDROGEN AND STEAM SERVICE ARE TO BE PLUGGED OR CAPPED.

REFERENCE DRAWINGS	
TITLE	DRAWING NO.
STEAM GENERATOR PFD	F-K2-1-2596

REV.	DESCRIPTION OF ISSUE	ML	MB	SD	EJC	DATE	APPROVAL	DATE	CHARGE
24	SHOW DET 'A' DOUBLE CHECK VALVES WITH INDIVIDUAL NUMBER					10/16/24		97000002079	
23	ADDED IPL'S PER M24-527					10/9/24		97000002079	
22	INSTALL DOUBLE CHECK VALVES ON ATOMIZING STEAM LINES MOC 24-539					7/23/24		91000118145	
21	H-K2-001/002 ATOMIZING STEAM PLF CONTROL VALVE					7/18/23		7000000169	
20	PHA HAZOP F5:13 R:6 VENT GAS/VAPOR RECOVERY/PROCESS FUELS					9/26/22		7000000097	



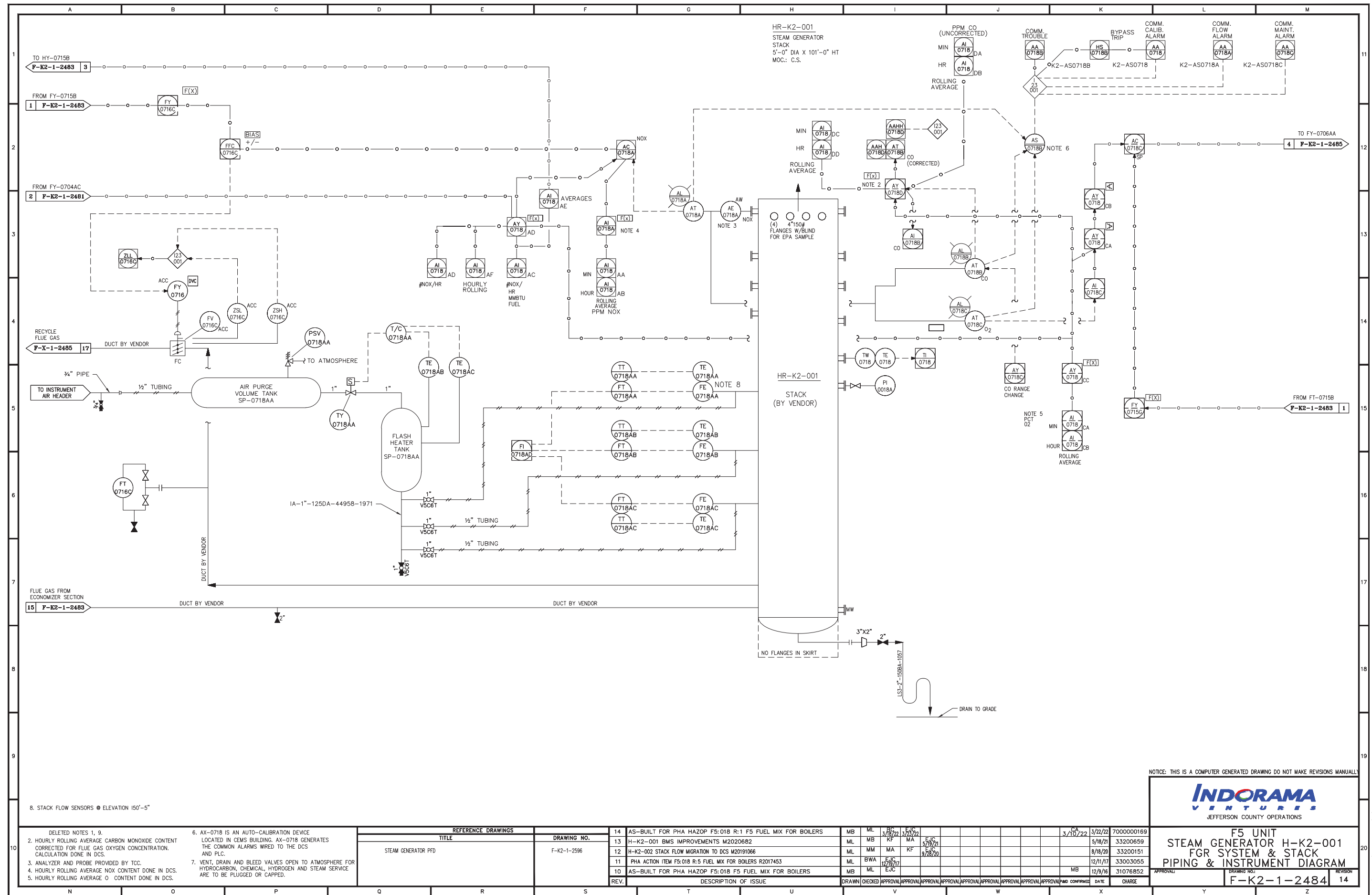
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F5 UNIT
STEAM GENERATOR H-K2-001
PIPING & INSTRUMENT DIAGRAM
F-K2-1-2483

CONTROL DOCUMENT

TIME : 8:58AM
DATE : 3/10/22
LAST UPDATE: 3/10/22



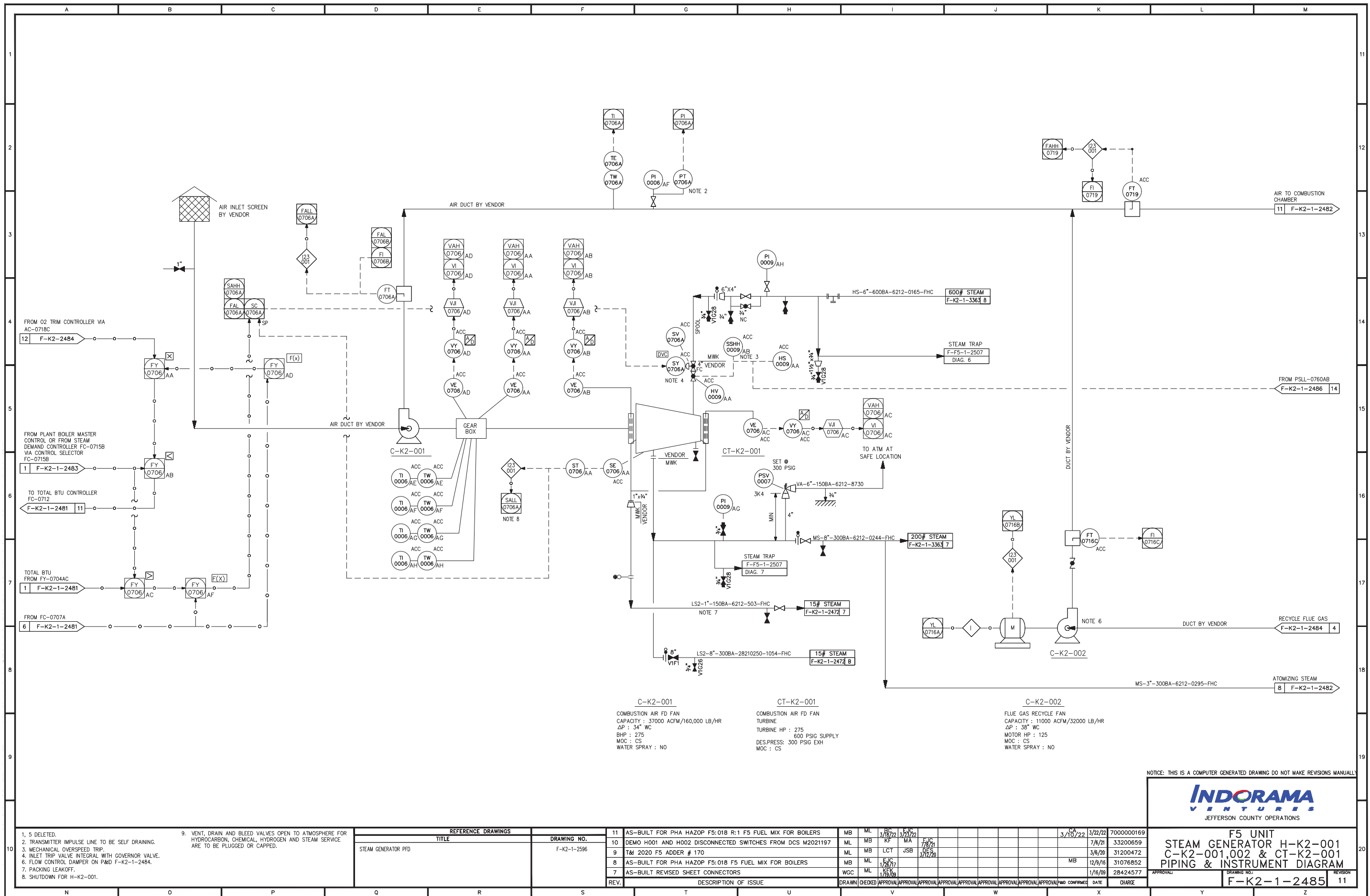
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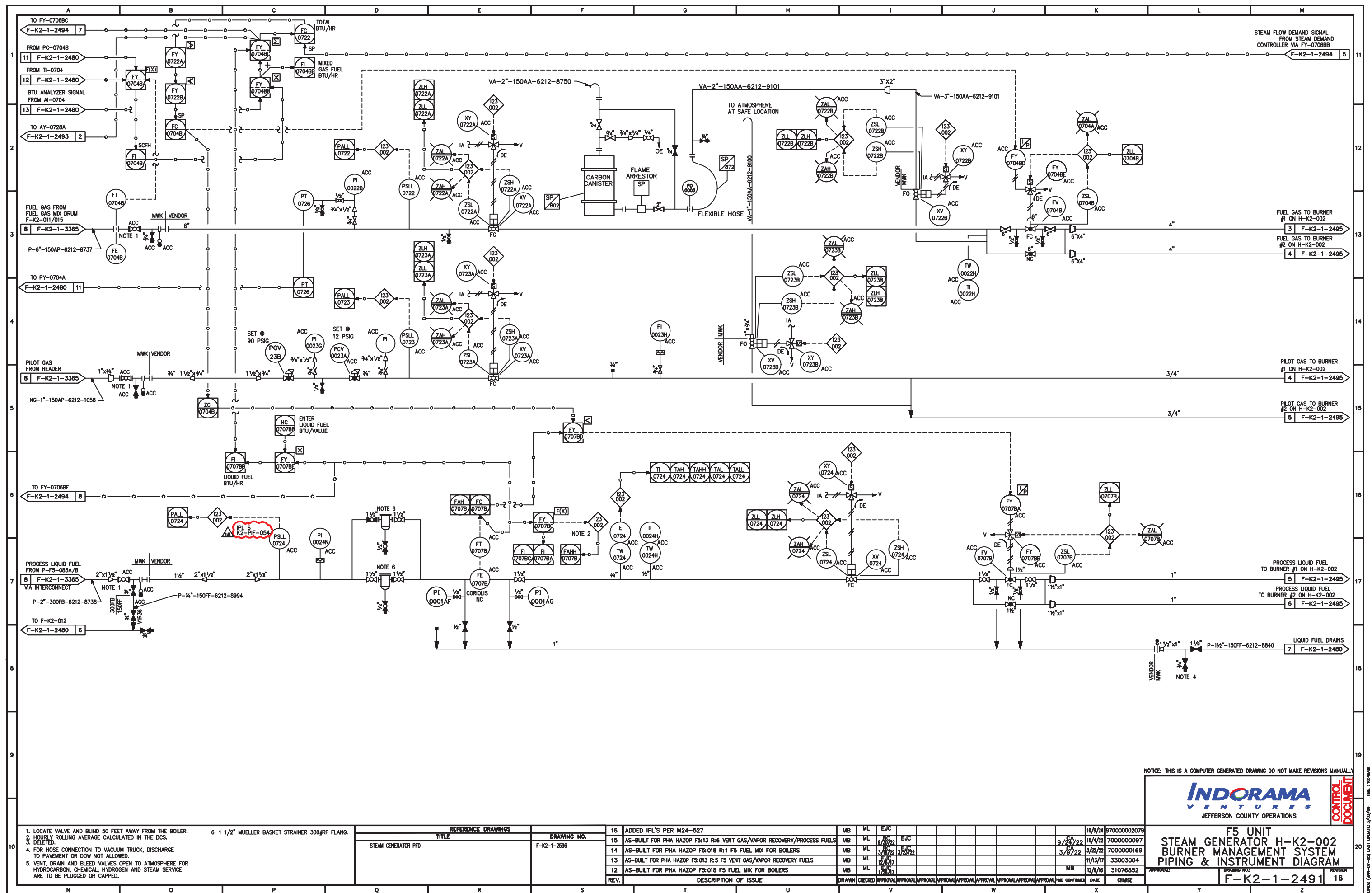


F5 UNIT
STEAM GENERATOR H-K2-001
FGR SYSTEM & STACK
PIPING & INSTRUMENT DIAGRAM

APPROVAL:	DRAWING NO:	REVISION
	F-K2-1-2484	14

HCPCD2 (JAN-07-05) LAST UPDATE: 3/03/06
TIME : 9:59AM





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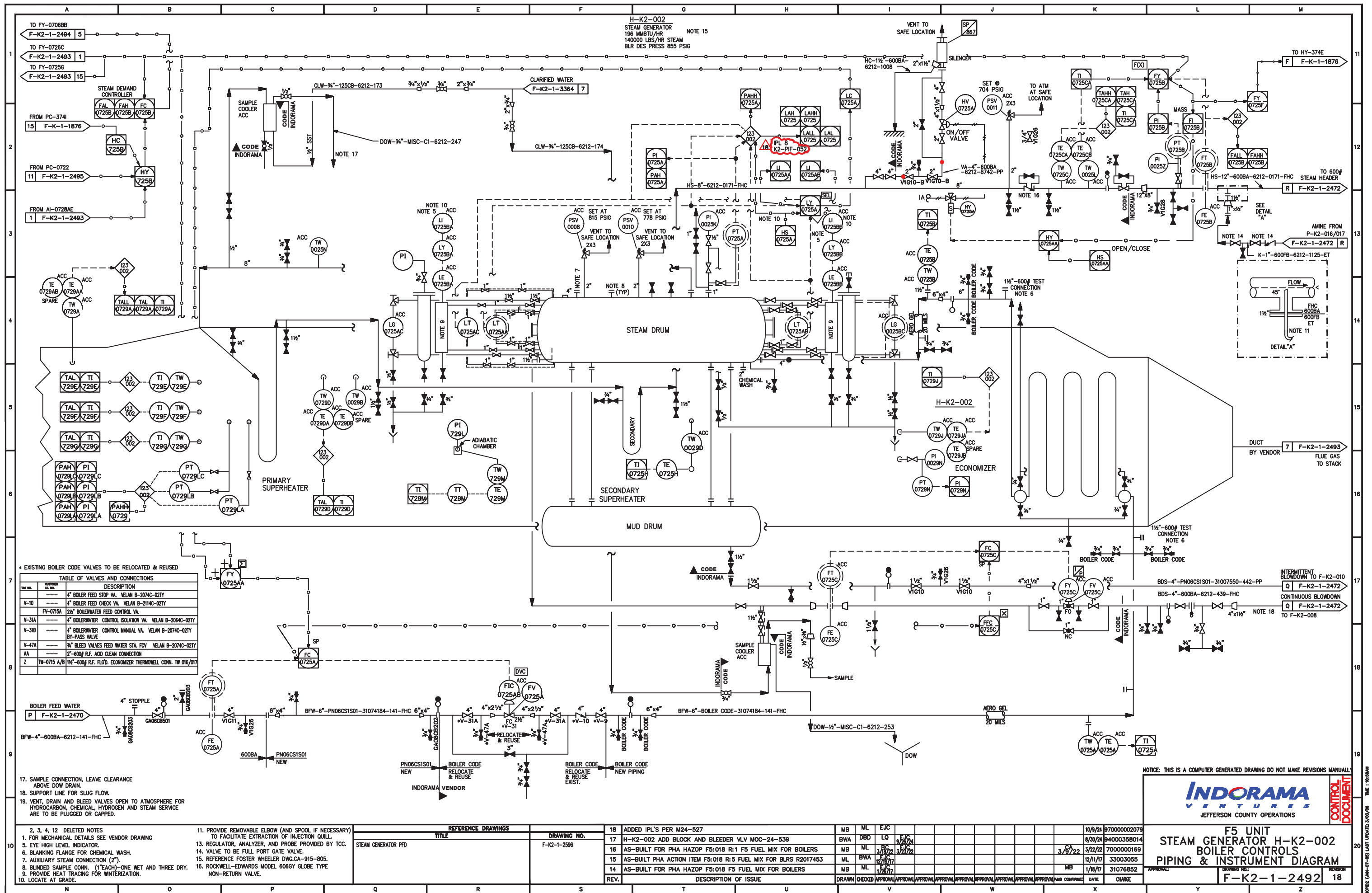


JEFFERSON COUNTY OPERATION

F5 UNIT
STEAM GENERATOR H-K2-002
BURNER MANAGEMENT SYSTEM
PIPING & INSTRUMENT DIAGRAM

DRAWING NO.:
F-K2-1-2491

[illegible]



* EXISTING BOILER CODE VALVES TO BE RELOCATED & REUSED

VALVE NO.	DESCRIPTION
V-10	4" BOILER FEED STOP VAL. VELAN B-2074C-02TY
FY-0715A	2 1/2" BOILER FEED CONTROL VAL. VELAN B-2074C-02TY
V-31A	4" BOILER FEED CONTROL VAL. VELAN B-2074C-02TY
V-31B	4" BOILER FEED CONTROL VAL. VELAN B-2074C-02TY
V-47A	3/4" BLEED VALVES FEED WATER STA. FCV VELAN B-2074C-02TY
AA	2"-600# R.F. ACID CLEAN CONNECTION
Z	TW-0715 A/B 1 1/2"-600# R.F. FLGD. ECONOMIZER THERMOWELL CONN. TW 016/017

- 17. SAMPLE CONNECTION, LEAVE CLEARANCE ABOVE DOW DRAIN.
- 18. SUPPORT LINE FOR SLUG FLOW.
- 19. VENT, DRAIN AND BLEED VALVES OPEN TO ATMOSPHERE FOR HYDROCARBON, CHEMICAL, HYDROGEN AND STEAM SERVICE ARE TO BE PLUGGED OR CAPPED.

- 2, 3, 4, 12 DELETED NOTES
- 1. FOR MECHANICAL DETAILS SEE VENDOR DRAWING
- 5. EYE HIGH LEVEL INDICATOR
- 6. BLANKING FLANGE FOR CHEMICAL WASH.
- 7. AUXILIARY STEAM CONNECTION (2")
- 8. BLINDED SAMPLE CONN. (1"EACH)-ONE WET AND THREE DRY.
- 9. PROVIDE HEAT TRACING FOR WINTERIZATION.
- 10. LOCATE AT GRADE.
- 11. PROVIDE REMOVABLE ELBOW (AND SPOOL IF NECESSARY) TO FACILITATE EXTRACTION OF INJECTION QUILL.
- 13. REGULATOR, ANALYZER, AND PROBE PROVIDED BY TCC.
- 14. VALVE TO BE FULL PORT GATE VALVE.
- 15. REFERENCE FOSTER WHEELER DWG.CA-915-805.
- 16. ROCKWELL-EDWARDS MODEL 606GY GLOBE TYPE NON-RETURN VALVE.

REFERENCE DRAWINGS	DRAWING NO.
STEAM GENERATOR PFD	F-K2-1-2596

REV.	DESCRIPTION OF ISSUE	DATE	BY	CHKD	APP'D
18	ADDED IPL'S PER M24-527	10/9/24	MB	ML	EJC
17	H-K2-002 ADD BLOCK AND BLEEDER VLV MOC-24-539	8/30/24	BWA	DBD	LQ
16	AS-BUILT FOR PHA HAZOP F5:018 R:1 F5 FUEL MIX FOR BOILERS	3/22/22	MB	ML	RC
15	AS-BUILT PHA ACTION ITEM F5:018 R:5 FUEL MIX FOR BLRS R2017453	3/23/22	ML	BWA	RC
14	AS-BUILT FOR PHA HAZOP F5:018 F5 FUEL MIX FOR BOILERS	12/11/17	MB	ML	RC

DATE	BY	CHKD	APP'D	REVISION
10/9/24	970000002079			
8/30/24	94000358014			
3/22/22	700000010169			
12/11/17	3300303055			
1/18/17	31076852			

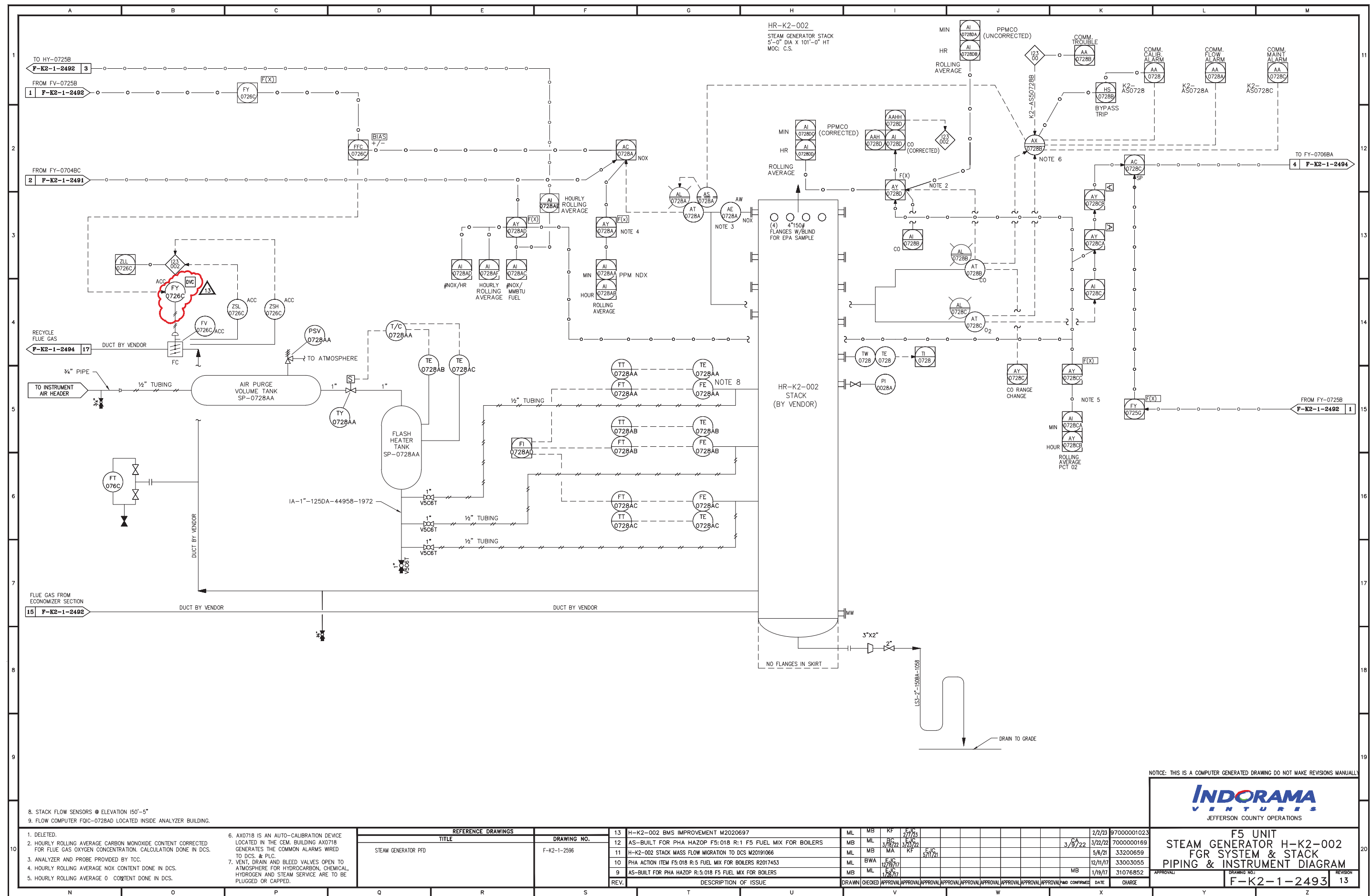
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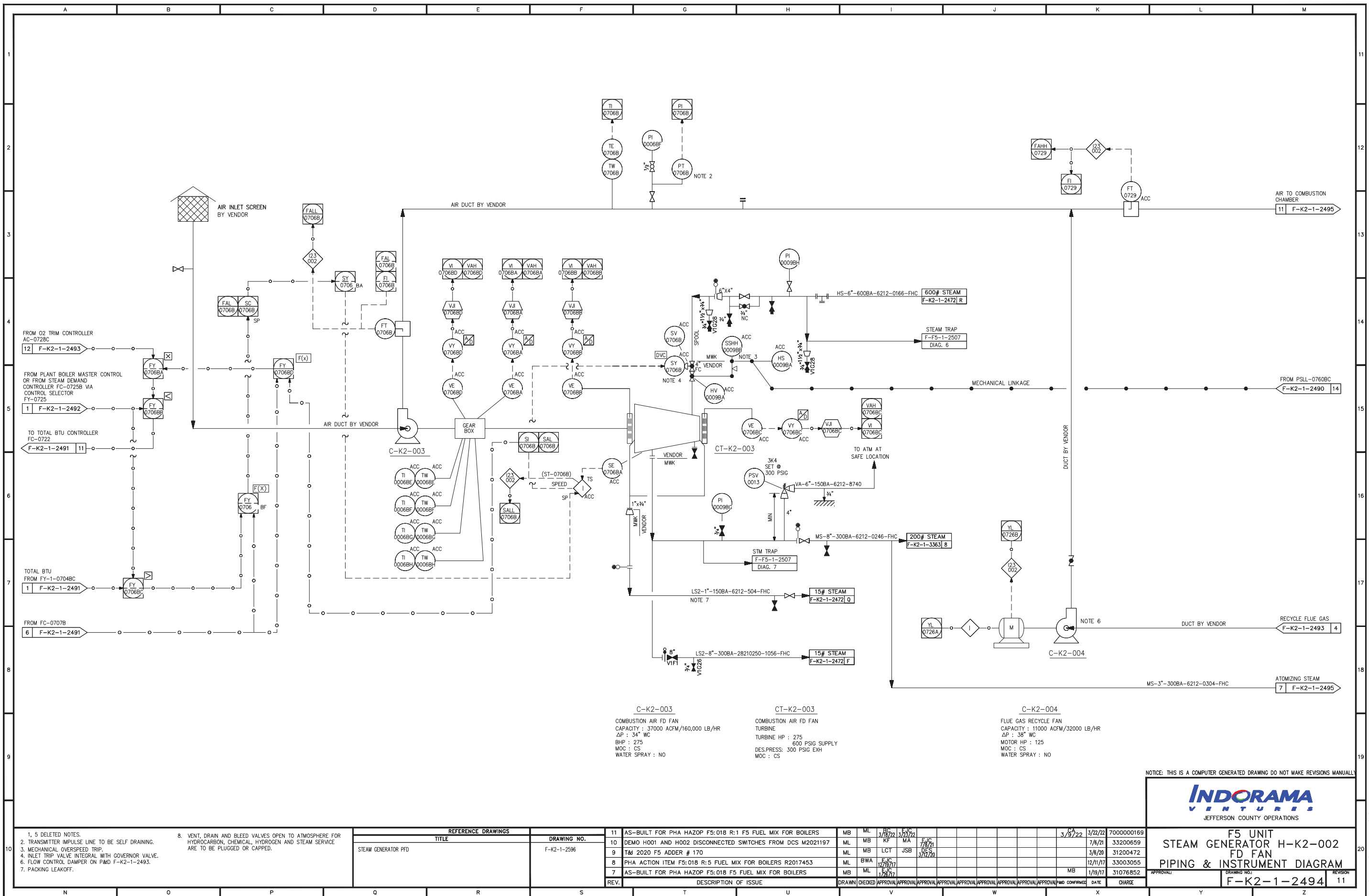
INDORAMA
JEFFERSON COUNTY OPERATIONS

**F5 UNIT
STEAM GENERATOR H-K2-002
PIPING & INSTRUMENT DIAGRAM**

F-K2-1-2492

18





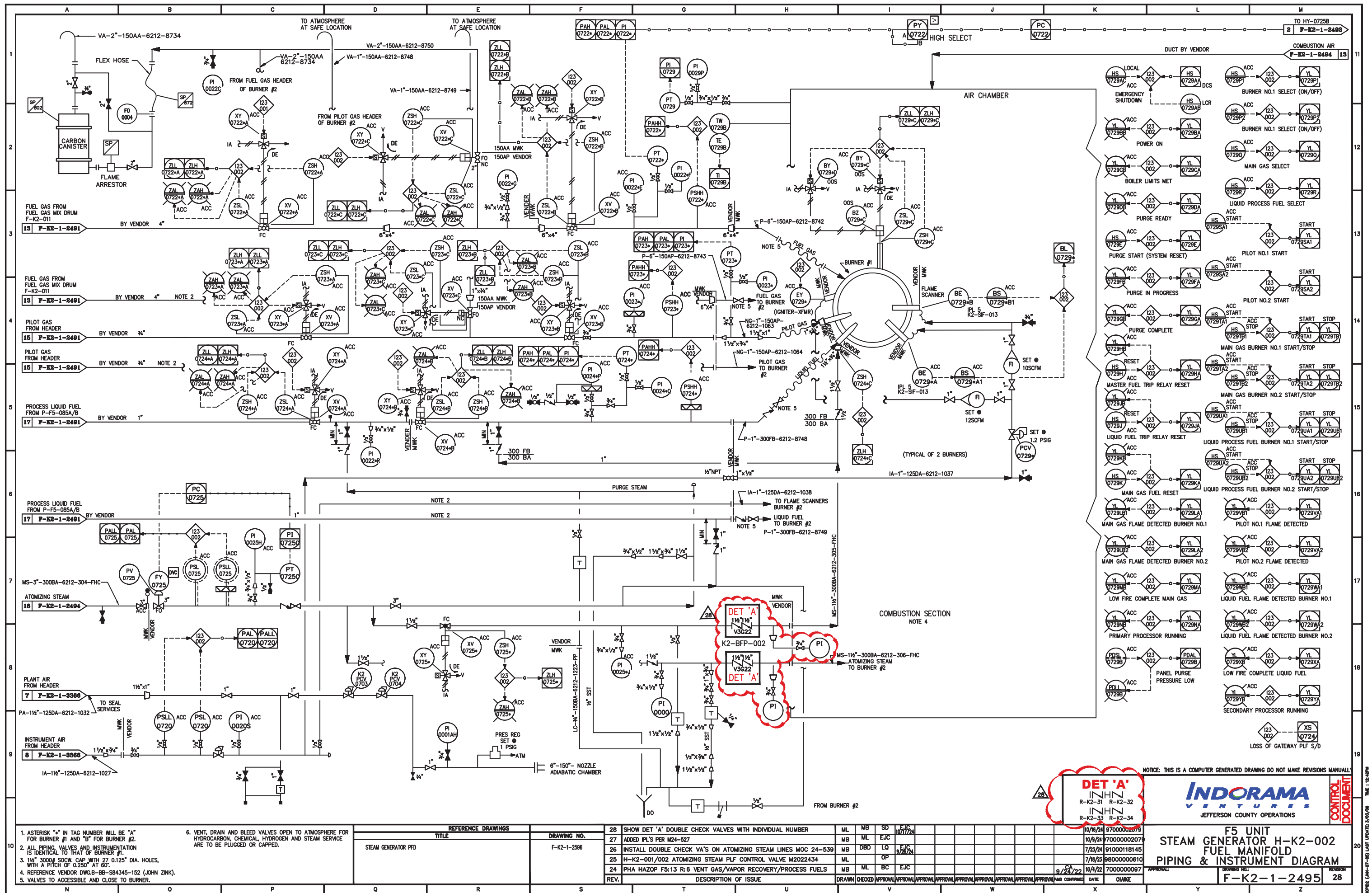
NOTICE: THIS IS A COMPUTER GENERATED DRAWING DO NOT MAKE REVISIONS MANUALLY



F5 UNIT
STEAM GENERATOR H-K2-002
FD FAN
PIPING & INSTRUMENT DIAGRAM

APPROVAL:	DRAWING NO:	REVISION
	F-K2-1-2494	11

HCPCD2 (JAN-07-05) LAST UPDATE: 3/03/08
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INDORAMA VENTURES OXIDES LLC
PORT NECHES, TEXAS

**INDUSTRIAL AND HAZARDOUS WASTE
STORAGE/PROCESSING/DISPOSAL FACILITY
PERMIT No. 50055
SOLID WASTE REGISTRATION No. 30029
EPA ID No. TX008076846**

**BOILER H-K2-003
ENGINEERING REPORT**

**AUGUST 2025
REVISED: OCTOBER 2025**

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1.0 INTRODUCTION

Indorama Ventures Oxides LLC (Indorama) operates three hazardous waste fired boilers at the Port Neches Operations. These units are identified as Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. These boilers are the only permitted hazardous waste units at the facility. The boilers 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, 266, and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The boilers 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 engineering report provides general information for Boiler H-K2-003. 40 CFR § 270.22 requires that Indorama submit information about the boiler with this permit application to demonstrate compliance with the standards contained in 40 CFR Part 266 Subpart H. However, pursuant to 40 CFR §§ 266.100(b) and 270.66, all waste analysis, performance standards, operating requirements, monitoring requirements, and inspection requirements do not apply to a hazardous waste boiler that becomes subject to RCRA permit requirements after October 12, 2005. Boiler H-K2-003 began burning hazardous waste in 2020. Accordingly, most of the information specified by 40 CFR § 270.22 is not applicable. Details related to operation and design of the boiler 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 boiler's 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.

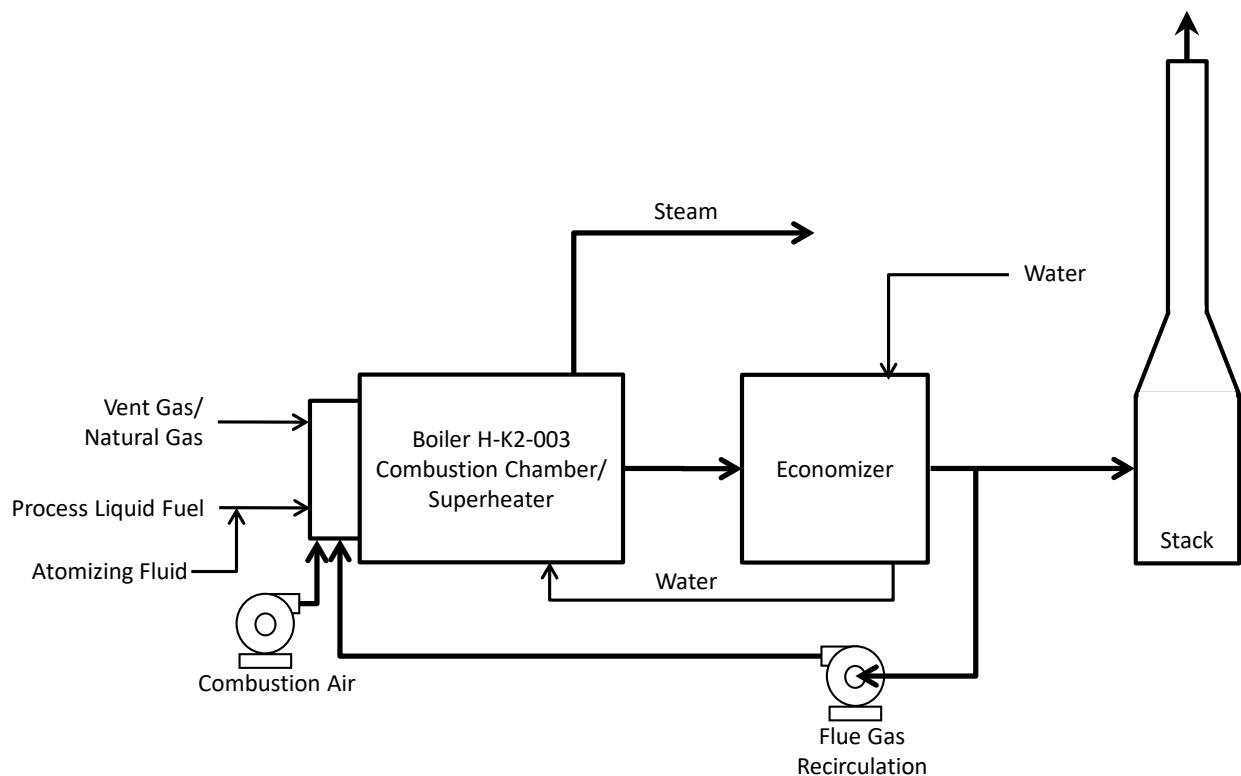
2.0 EQUIPMENT DESCRIPTION

The Port Neches Operations operates Boiler H-K2-003 to provide energy recovery as steam while destroying hazardous waste streams generated in the production units. Boiler H-K2-003 is an Indeck Power Equipment Company “D” type water-tube boiler, installed at the facility in 1999. It began burning hazardous waste in 2020.

Boiler H-K2-003 is fired on a mixture of natural gas, Process Vent Gas, and a hazardous liquid waste identified as Process Liquid Fuel. Boiler H-K2-003 uses a flue gas recirculation (FGR) system and a low-nitrogen oxides (NO_x) burner for control of NO_x emissions. No other air pollution control equipment is installed on the unit.

Figure 1 provides a general process schematic diagram of the boiler. Process and instrumentation diagrams (P&IDs) are provided in Attachment A.

FIGURE 1
PROCESS SCHEMATIC



2.1 WASTE STORAGE SYSTEM

The Process Liquid Fuel is collected in two permit-exempt accumulation tanks. The tanks provide a total storage capacity of 580,000 gallons. Table 1 provides a description of the tanks.

TABLE 1
ACCUMULATION TANK SYSTEM

TANK	CAPACITY	TYPE	DIAMETER	CONSTRUCTION
T-F5-167	290,000 gallons	Sphere	42 feet	Carbon steel
T-F5-168	290,000 gallons	Sphere	42 feet	Carbon steel

2.2 WASTE AND FUEL DELIVERY SYSTEMS

Process Liquid Fuel, Process Vent Gas, and natural gas are fed to Boiler H-K2-003. The following sections provide detail on each delivery system.

2.2.1 LIQUID WASTE DELIVERY SYSTEM

The Process Liquid Fuel is fed from the propylene oxide and methyl tertiary butyl ether (PO/MTBE) manufacturing processes to two accumulation tanks prior to being fed to Boiler H-K2-003. From the accumulation tanks, the waste is fed directly to the boiler through a dedicated waste feed line. The liquid is filtered, metered, and fed through a fuel oil gun into the combustion chamber.

Motive force for the Process Liquid Fuel is provided by two redundant waste feed pumps, which are each rated for 138 gallons per minute (gpm) at 206 pounds per square inch gauge (psig). These pumps also serve as recirculation pumps for the accumulation tanks. In fact, most of the pump capacity is utilized for the recirculation flow; only a small percentage of the total pump capacity is directed to the boiler.

2.2.2 PROCESS VENT GAS AND NATURAL GAS DELIVERY SYSTEM

Process Vent Gas from facility production activities and a number of other locations is utilized in combination with natural gas to supplement the combustion of the Process Liquid Fuel in the boiler. A common vent header collects the vent streams from multiple plant processes. The Process Vent Gas is then mixed with natural gas in a mixing drum prior to combustion. The combined gas stream is fed to the burner. The combined Process Vent Gas/natural gas stream flow is controlled with a control valve and block valves.

2.3 BOILER

Boiler H-K2-003 is an Indeck Power Equipment Company “D” type water-tube boiler. The retrofitted boiler is designed for a nominal heat input of 285 million British thermal units per hour (MMBtu/hr).

The unit produces 200,000 pounds per hour (lb/hr) of steam. The burner is a Variflame-Prime™ low-NO_x burner designed by John Zink Company LLC.

Boiler H-K2-003 is a forced draft unit, and the primary motive force to move the combustion gas through the system is provided by the combustion air fan. The combustion air fan is rated for 77,000 actual cubic feet per minute (acfm) of air flow at 90 degrees Fahrenheit (°F).

The heat from the combustion of the feed materials is transferred to the boiler tubes to facilitate the production of steam from incoming feed water. Heat transfer occurs in two sections of the boiler: the superheater and the economizer. The combustion gas passes through the superheater section of the boiler prior to entering the economizer. Steam is generated in the boiler, and the economizer section of the boiler is used to remove any additional heat from the combustion gas to preheat the incoming boiler feed water.

2.4 AIR POLLUTION CONTROL

The boiler is retrofitted with an FGR system to control NO_x emissions. The FGR system includes ductwork and a dedicated fan to recirculate boiler flue gas from the exit of the economizer back to the burner flame zone. The FGR fan is rated for approximately 41,000 lb/hr of gas flow when burning the Process Liquid Fuel. The boiler is not equipped with any other air pollution control devices.

2.5 STACK

The combustion gas vents to the atmosphere through a stack. The stack discharge is approximately 100 feet above ground level. The stack has a diameter of 6.5 feet and is equipped with isokinetic sampling ports.

3.0 CONTINUOUS MONITORING SYSTEMS

The boiler is equipped with CMS, including continuous process monitoring systems (CPMS) and continuous emissions monitoring systems (CEMS). These CMS enable the facility to maintain safe operation of the boiler 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 PROCESS MONITORING SYSTEMS

Various CPMS are required for the boiler to document compliance with the applicable HWC NESHAP OPLs. Table 2 presents a summary of the CPMS for the boiler.

TABLE 2
CONTINUOUS PROCESS MONITORING SYSTEMS

TAG NO.	MEASURED PARAMETER	INSTRUMENT DESCRIPTION
K2TT0271A K2TT0271B K2TT0271C	Combustion chamber temperature	Thermocouples
K2FT0297	Stack gas flow rate	Differential pressure/ flow transmitter
K2FT0277	Total hazardous waste feed rate	Coriolis flow meter
K2PT0292	Atomizing fluid pressure	Pressure transmitter

3.2 CONTINUOUS EMISSIONS MONITORING SYSTEMS

Indorama monitors the concentrations of carbon monoxide (CO) and oxygen in the stack gas of the boiler to comply with the HWC NESHAP. Indorama utilizes a non-dispersive infrared (NDIR) analyzer to continuously monitor CO concentration in the stack gas. 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 are paramagnetic analyzers. The analyzer has a span of zero to 25 percent oxygen by volume on a dry basis.

3.3 AUTOMATIC WASTE FEED CUTOFF SYSTEMS

Indorama operates the boiler with an automatic waste feed cutoff (AWFCO) system that immediately and automatically cut off the hazardous waste feed to the unit 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. The following conditions will trigger a complete shutdown of the boiler:

- High instrument air pressure;
- High fuel gas pressure;
- Low fuel gas pressure;
- High steam drum level;
- Low steam drum level;
- Low fan speed;
- High steam drum pressure;
- High steam temperature; and
- High furnace pressure.

4.0 APPLICATION TABLES

Section V of the Part B application includes several tables intended to define the operating conditions of hazardous waste fired boilers. The following tables are included in Section V for Boiler H-K2-003:

- Table V.I.1., *Boilers/Industrial Furnaces* – This table lists the boilers included in the permit. This table is applicable to the Indorama Port Neches Operations and has been included in the permit application.
- Table V.I.2., *Boiler/Industrial Furnace Permit Conditions, Monitoring and Automatic Waste Feed Cutoff Systems* – This table establishes operating conditions for a boiler. This table is not applicable to Boiler H-K2-003 and is therefore not included in the permit application. Operating limits are not applicable to the boiler because it was initially permitted under RCRA after October 12, 2005.
- Table V.I.3., *Maximum Constituent Feed Rates* – This table establishes constituent feed rate limits for a boiler. This table is not applicable to Boiler H-K2-003 and is therefore not included in the permit application. Feed rate limits are not applicable to the boiler because it was initially permitted under RCRA after October 12, 2005.
- Table V.I.4., *Maximum Allowable Emission Rates* - This table establishes emission rate limits for a boiler. This table is not applicable to Boiler H-K2-003 and is therefore not included in the permit application. Emission rate limits are not applicable to the boiler because it was initially permitted under RCRA after October 12, 2005.
- Table V.I.5., *Boiler/Industrial Furnace 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 boiler. Boiler H-K2-003 is an existing boiler. This table is not applicable and is therefore not included in the permit application.
- 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. This table is not applicable to Boiler H-K2-003 and is therefore not included in the permit application. Trial burns are not applicable to the boiler because it was initially permitted under RCRA after October 12, 2005, and complies with the HWC NESHAP DRE standard.

5.0 SPECIAL WASTE CONSIDERATIONS

This section addresses special considerations for wastes managed in Boiler H-K2-003.

5.1 REACTIVE OR INCOMPATIBLE WASTE

Boiler H-K2-003 does not manage reactive or incompatible wastes.

5.2 DIOXIN WASTES

Boiler H-K2-003 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. Only one hazardous waste is fed to the boiler. This waste is hard-piped directly from accumulation tanks to the boiler's burner. There is no exposure to the atmosphere and therefore no potential for ignition or reaction.

6.0 STARTUP, SHUTDOWN, AND MALFUNCTION

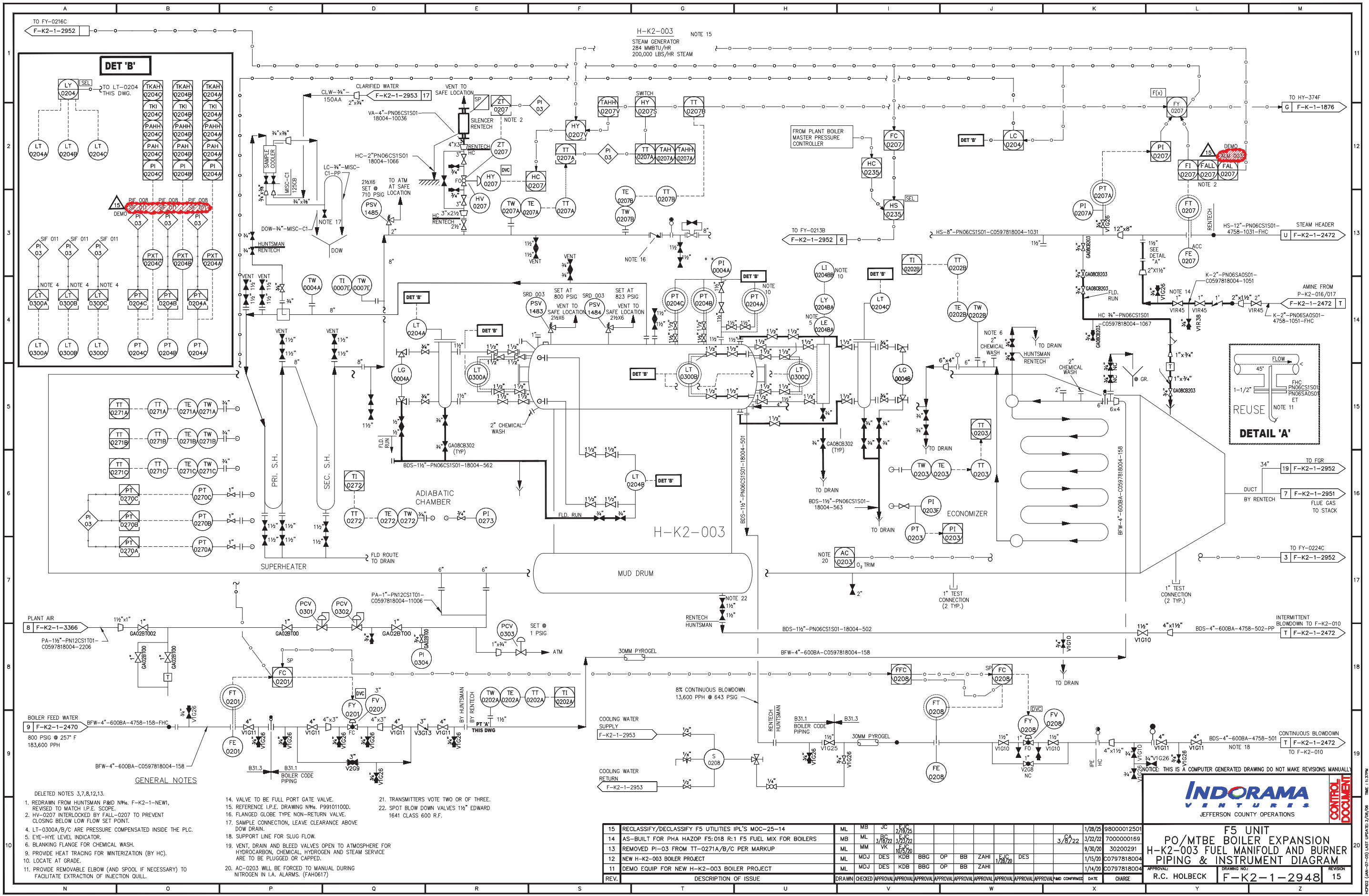
Indorama maintains and operates in accordance with an HWC NESHAP startup, shutdown, and malfunction plan for Boiler H-K2-003. The plan states that Indorama intends to utilize the option under 40 CFR 270.235(iii) to not include permit conditions that address startup, shutdown, and malfunction events in the RCRA permit. As such, the HWC NESHAP startup, shutdown, and malfunction plan for the Boiler H-K2-003 has been submitted for review and approval. In the event that the startup, shutdown, and malfunction plan is not 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, Indorama 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 boiler during startup, shutdown, or malfunction event. During a malfunction event, if an exceedance of any HWC NESHAP operating parameter limits (OPLs) occurs, hazardous waste feed to the boiler must be ceased immediately by activating the AFWCO system. When a malfunction is not associated with an OPL and related AFWCO system, the hazardous waste feed to the boiler shall be ceased as quickly as possible.

Indorama believes that these waste feed restrictions adequately address emissions from startup, shutdown, and malfunction events.

Attachment A:

PIPING AND INSTRUMENTATION DIAGRAMS



- DELETED NOTES 3,7,8,12,13.
1. REDRAWN FROM HUNTSMAN P&ID N%. F-K2-1-NEW1, REVISED TO MATCH I.P.E. SCOPE.
 2. HV-0207 INTERLOCKED BY FALL-0207 TO PREVENT CLOSING BELOW LOW FLOW SET POINT.
 3. LT-0300A/B/C ARE PRESSURE COMPENSATED INSIDE THE PLC.
 4. EYE-HYE LEVEL INDICATOR.
 5. BLANKING FLANGE FOR CHEMICAL WASH.
 6. PROVIDE HEAT TRACING FOR WINTERIZATION (BY HC).
 7. LOCATE AT GRADE.
 8. PROVIDE REMOVABLE ELBOW (AND SPOOL IF NECESSARY) TO FACILITATE EXTRACTION OF INJECTION QUILL.
 9. VALVE TO BE FULL PORT GATE VALVE.
 10. REFERENCE I.P.E. DRAWING N%. P91011000.
 11. FLANGED GLOBE TYPE NON-RETURN VALVE.
 12. SAMPLE CONNECTION, LEAVE CLEARANCE ABOVE DOW DRAIN.
 13. SUPPORT LINE FOR SLUG FLOW.
 14. VENT, DRAIN AND BLEED VALVES OPEN TO ATMOSPHERE FOR HYDROCARBON, CHEMICAL, HYDROGEN AND STEAM SERVICE ARE TO BE PLUGGED OR CAPPED.
 15. AC-0203 WILL BE FORCED TO MANUAL DURING NITROGEN IN I.A. ALARMS. (FAH0617)
 16. TRANSMITTERS VOTE TWO OR OF THREE.
 17. SPOT BLOW DOWN VALVES 1 1/2" EDWARD 1641 CLASS 600 R.F.

15	RECLASSIFY/DECLASSIFY F5 UTILITIES IPL'S MOC-25-14	ML	MB	JC	2/10/25							1/28/25	98000012501
14	AS-BUILT FOR PHA HAZOP F5:018 R:1 F5 FUEL MIX FOR BOILERS	ML	ML	BC	3/18/22	6/1/22						3/22/22	7000000169
13	REMOVED PI-03 FROM TT-0271A/B/C PER MARKUP	ML	MM	VK	3/21/22	5/1/22						9/30/20	30200291
12	NEW H-K2-003 BOILER PROJECT	ML	MDJ	DES	KDB	BBG	OP	BB	ZAH	DES	1/28/20	1/15/20	C0797818004
11	DEMO EQUIP FOR NEW H-K2-003 BOILER PROJECT	ML	MDJ	DES	KDB	BBG	OP	BB	ZAH	DES	1/14/20	1/14/20	C0797818004
REV.	DESCRIPTION OF ISSUE	DRAWN	CHECKED	APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL	APPROVAL	DATE	CHARGE

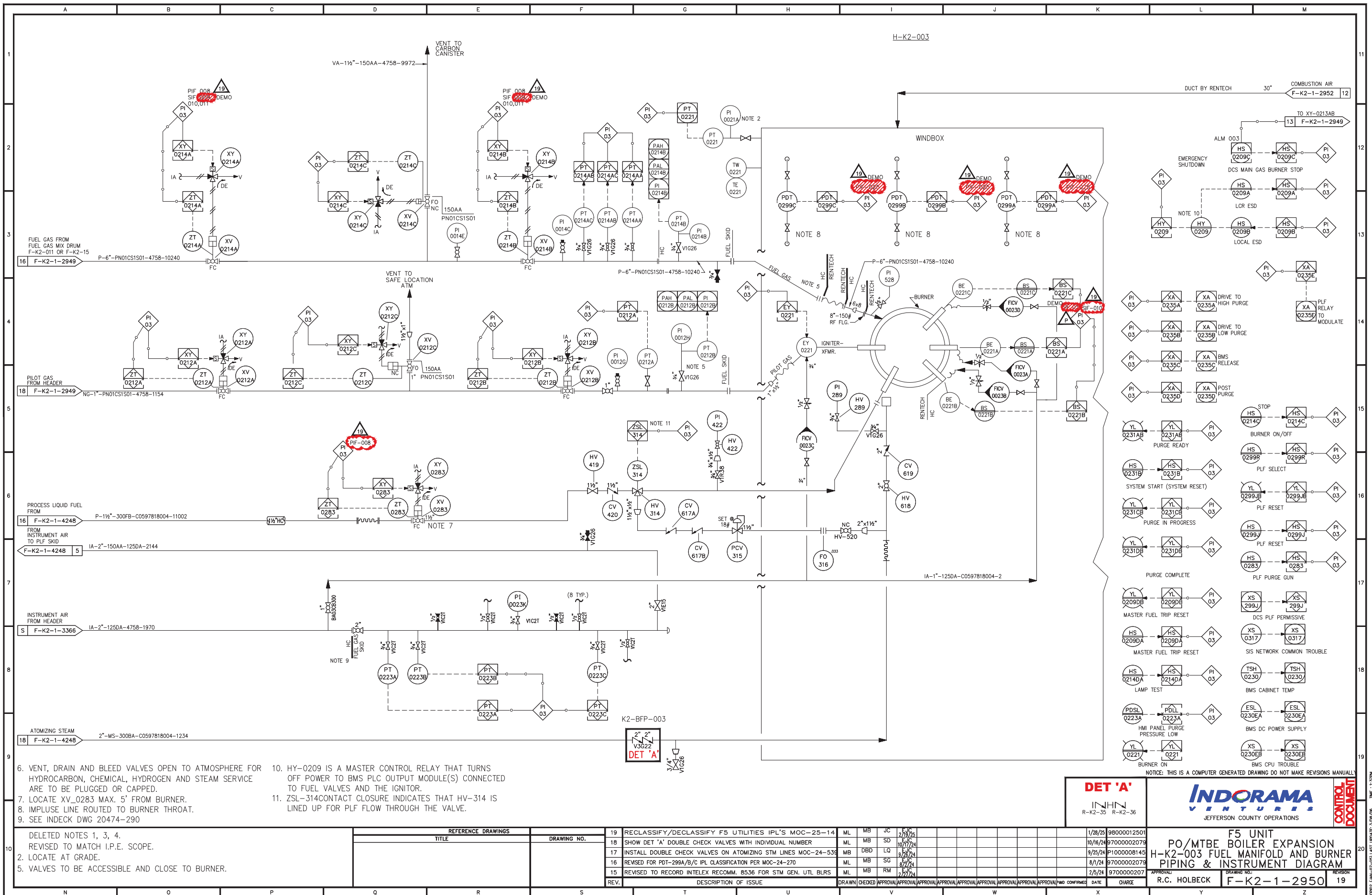
INDORAMA VENTURES

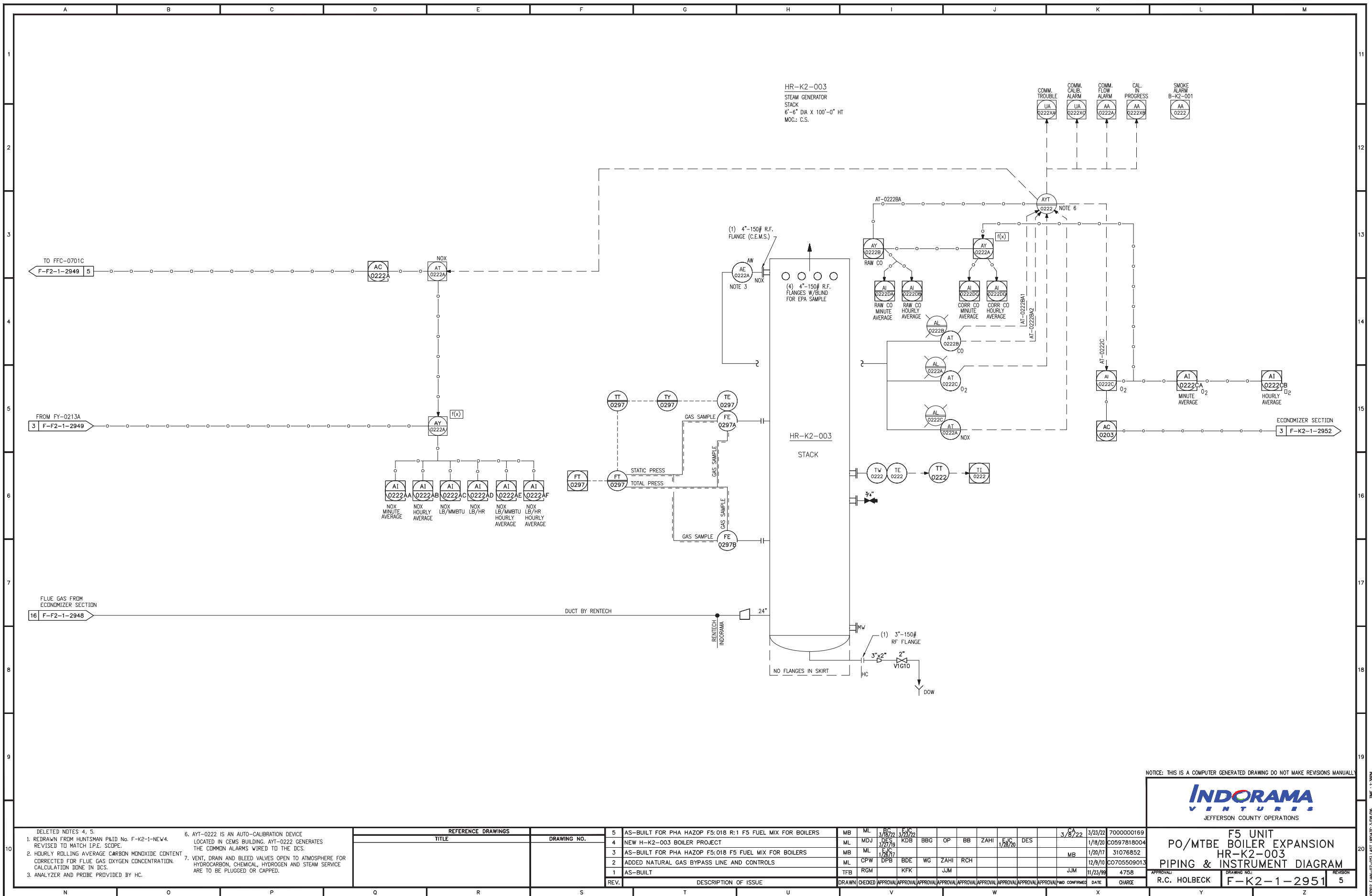
JEFFERSON COUNTY OPERATIONS

F5 UNIT
PO/MTBE BOILER EXPANSION
H-K2-003 FUEL MANIFOLD AND BURNER
PIPING & INSTRUMENT DIAGRAM

APPROVAL: R.C. HOLBECK
DRAWING NO: F-K2-1-2948
REVISION: 15

TIME: 13:37PM
HSE022 (GMS-07-05) LAST UPDATE: 3/26/26





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 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)



INDORAMA VENTURES OXIDES LLC
PORT NECHES, TEXAS

**INDUSTRIAL AND HAZARDOUS WASTE
STORAGE/PROCESSING/DISPOSAL FACILITY
PERMIT No. 50055
SOLID WASTE REGISTRATION No. 30029
EPA ID No. TX008076846**

GEOLOGY REPORT

AUGUST 2025

1.0 INTRODUCTION

Indorama Ventures Oxides LLC (Indorama) operates three hazardous waste fired boilers at the Port Neches Operations. These units are identified as Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. These boilers are the only permitted hazardous waste units at the facility. The boilers 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, 266, and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The boilers 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
Steam Generator No. 1 (NOR Unit No. 507)		
Combustion chamber	Burning natural gas Steam, detergent, or high-pressure rinse	Offsite treatment storage and/or disposal facility (TSDF)
Ancillary equipment	Steam, detergent, or high-pressure rinse	Offsite TSDF
Concrete slab	Steam, detergent, or high-pressure rinse	Offsite TSDF
Steam Generator No. 2 (NOR Unit No. 508)		
Combustion chamber	Burning natural gas Steam, detergent, or high-pressure rinse	Offsite TSDF
Ancillary equipment	Steam, detergent, or high-pressure rinse	Offsite TSDF
Concrete slab	Steam, detergent, or high-pressure rinse	Offsite TSDF
Boiler H-K2-003 (NOR Unit No. 528)		
Combustion chamber	Burning natural gas Steam, detergent, or high-pressure rinse	Offsite TSDF
Ancillary equipment	Steam, detergent, or high-pressure rinse	Offsite TSDF
Concrete slab	Steam, detergent, or high-pressure rinse	Offsite TSDF

¹ Applicants may list more than one appropriate method..



INDORAMA VENTURES OXIDES LLC
PORT NECHES, TEXAS

**INDUSTRIAL AND HAZARDOUS WASTE
STORAGE/PROCESSING/DISPOSAL FACILITY
PERMIT No. 50055
SOLID WASTE REGISTRATION No. 30029
EPA ID No. TX008076846**

CLOSURE PLAN

AUGUST 2025

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Attachment A: Closure Cost Estimate Calculations

1.0 INTRODUCTION

Indorama Ventures Oxides LLC (Indorama) operates three hazardous waste fired boilers at the Port Neches Operations. These units are identified as Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. These boilers are the only permitted hazardous waste units at the facility. The boilers 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, 266, and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The boilers 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 boilers at the Indorama Port Neches Operations will be closed pursuant to 40 CFR Part 264 Subpart G.

This closure plan includes a description of how each boiler 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

Indorama intends to close the boilers 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

Indorama operates three liquid hazardous waste boilers at the Port Neches Operations. These units are identified as Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. The three boilers provide energy recovery as steam while destroying hazardous waste streams generated in the production units. The liquid hazardous waste fired in the boilers is identified as Process Liquid Fuel.

Steam Generator No. 1 and No. 2 are nearly identical in design and construction. The main components of each steam generator are a firebox, a superheater, a convection section, an economizer, and a forced draft fan. The steam generators have no air pollution control devices. The design total heat input of each steam generator is 225 million British thermal units per hour (MMBtu/hr). They are fired on a mixture of natural gas, Process Vent Gas, and Process Liquid Fuel.

The main components of Boiler H-K2-003 are a firebox, a boiler, an economizer, a flue gas recirculation (FGR) system, a forced draft fan, and a stack. Boiler H-K2-003 uses the FGR system and a low-nitrogen oxides (NO_x) burner for control of NO_x emissions. No other air pollution control equipment is installed on the unit. The design total heat input of the boiler is 285 MMBtu/hr. Boiler H-K2-003 is fired on a mixture of natural gas, Process Vent Gas, and Process Liquid Fuel.

4.0 MAXIMUM WASTE INVENTORY

Waste is not stored in Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. Neither ash waste nor any other hazardous waste material or hazardous waste residue is generated from the combustion of the Process Liquid Fuel. Therefore, the maximum boilers waste inventory is zero.

5.0 CLOSURE PROCEDURES

It is anticipated that the boilers will be closed with respect to hazardous waste service, but they would remain in operation to provide needed steam for the Port Neches Operations. The steps for closure of each boiler are detailed below.

5.1 WASTE INVENTORY REMOVAL

As discussed previously, there will be no waste inventory in the boilers at closure. Therefore, there is no need for waste removal.

5.2 DECONTAMINATION

Each boiler will be closed in accordance with the following procedures:

- The hazardous waste feed to the boiler will be shut off. The boiler will be fired with natural gas for a period of at least four hours while maintaining at least the minimum permitted temperature;
- The boiler will be allowed to cool down so that the burners, feed lines, flow meters, and other ancillary equipment associated with the hazardous waste feed lines can be disconnected. This equipment will be isolated and decontaminated with steam, detergent, and/or a high-pressure rinse;
- The combustion chamber of the boiler will be decontaminated utilizing steam, detergent, and/or a high-pressure rinse;
- The concrete floor beneath the boiler will be decontaminated utilizing steam, detergent, and/or a high-pressure rinse;
- After all phases of the decontamination process are assumed to have been completed, final rinsate samples will be collected and sent to an offsite laboratory for verification analyses. The final rinsate samples will be analyzed for the presence of the metal and organic constituents of concern that characterize the Process Liquid Fuel using appropriate methods. Decontamination will be considered complete when the concentrations of the metal and organic constituents of concern in the final rinsate are found to be less than or equal to Tier 1 protective concentration levels (PCLs) for groundwater for residential land use or the method quantitation limits (MQLs) (whichever is higher). If the constituent concentrations are found to exceed PCLs/MQLs, the decontamination/rinsate sample collection and analysis process will be repeated;
- The waste rinsates from the decontamination process will be collected or pumped to a temporary storage container. A representative sample of the collected rinsate will be sent to an offsite laboratory for waste classification purposes. The rinsate will be classified in accordance with the criteria identified in 30 TAC Chapter 335 Subchapter R and then transported for disposal at an authorized offsite facility;
- Subsequent to the completion of the decontamination process, the soils underlying the concrete floor will be sampled to determine if there is any impact resulting from the potential release of hazardous waste from the boiler. Borings will be advanced through the concrete floor, continuous

soil-core sampling will be conducted at discrete depth intervals to the top of saturation, and the soil samples will be analyzed for concentrations of the metal and organic constituents of concern using appropriate methods. Soils exceeding 30 TAC Chapter 350 Texas Risk Reduction Program (TRRP) criteria for Remedy Standard A will be removed; and

- In the event that contaminated soil must be excavated to achieve clean closure, the removed soils will be immediately drummed (or placed into roll-off boxes), characterized for appropriate waste classification pursuant to the criteria identified in 30 TAC Chapter 335 Subchapter R, and transported for disposal at an authorized off-site facility.

5.3 VERIFICATION SAMPLING AND ANALYSIS

Verification rinsate and soil samples that are collected during closure of the boilers will be analyzed in accordance with procedures specified in *Test Methods for Evaluating Solid Waste, Physical/Chemical Methods, Third Edition* (SW-846), ASTM International (ASTM), or an equivalent method. Methods will be consistent with those specified in the RCRA waste analysis plan (Appendix IV.D).

The verification sample analytical parameters and TRRP cleanup levels for verification of decontamination and "clean closure" are identified in Table 1.

TABLE 1
VERIFICATION SAMPLES AND STANDARDS

VERIFICATION SAMPLE	CONSTITUENTS OF CONCERN	CLEANUP STANDARD
Decontamination rinsate	Metals and organics reasonably expected to be present in the waste based on knowledge of the waste	Tier 1 PCLs or MQLs
Soil and groundwater (if release determined)	Metals and organics reasonably expected to be present in the waste based on knowledge of the waste	TRRP 30 TAC Chapter 350 Remedy Standard A

6.0 SCHEDULE FOR CLOSURE

The closure process will begin with notification to the TCEQ of Indorama'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 boilers, this report and certification must be submitted within 60 days of completion of onsite closure activities. Table 2 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 2
EXAMPLE SCHEDULE FOR CLOSURE

ACTIVITY/MILESTONE	DAYS FROM SUBMITTAL OF NOTIFICATION
Submittal of notification of closure	0
Final receipt of waste	0
Waste removal, decontamination, contamination assessment sampling and analysis	0 to 90
Transport of decontamination rinsate	90 to 120
Advance soil borings through concrete floor, collect soil samples, and ship to laboratory for analysis (if necessary)	90 to 120
Contingent time in event that soil removal and additional verification sampling and analysis are deemed necessary Transport of soils (if necessary)	120 to 180
Complete and submit closure certification report	180 to 225

7.0 POST-CLOSURE

The boilers 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 Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003 is \$257,700. 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;
- Assessment via sampling and analysis is necessary; 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 3. Calculation and assumptions supporting this estimate are included in Appendix A.

TABLE 3
CLOSURE COST ESTIMATE

TASK	STEAM GENERATOR No. 1	STEAM GENERATOR No. 2	BOILER H-K2-003
Waste removal	\$ -	\$ -	\$ -
Burn out period	\$ 3,600	\$ 3,600	\$ 4,600
Decontamination of combustion chamber, ancillary equipment, and concrete floor	\$ 13,800	\$ 13,800	\$ 13,000
Verification sampling and analysis of rinsate	\$ 4,000	\$ 4,000	\$ 4,000
Transport and disposal of rinsate	\$ 14,100	\$ 14,100	\$ 13,600
Soil/concrete contamination assessment	\$ 9,100	\$ 9,100	\$ 9,100
Transport and disposal of soil	\$ 6,600	\$ 6,600	\$ 6,600
Third party oversight	\$ 19,500	\$ 19,500	\$ 19,500
Closure certification report	\$ 7,500	\$ 7,500	\$ 7,500
Subtotal	\$ 78,200	\$ 78,200	\$ 77,900
Contingency (10 percent)	\$ 7,800	\$ 7,800	\$ 7,800
Total	\$ 86,000	\$ 86,000	\$ 85,700

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, Indorama will submit a certification to the administrative authority, signed by Indorama 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

Indorama 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 Indorama Port Neches Operations until certification of closure completeness has been submitted to and approved by the TCEQ.

Attachment A:

CLOSURE COST ESTIMATE CALCULATIONS

	Steam Generator No. 1	Steam Generator No. 2	Boiler H-K2-003
Waste removal	\$0	\$0	\$0
Burn out period	\$3,600	\$3,600	\$4,600
Decontamination of combustion chamber, ancillary equipment, and concrete floor	\$13,800	\$13,800	\$13,000
Verification sampling and analysis of rinsate	\$4,000	\$4,000	\$4,000
Transport and disposal of rinsate	\$14,100	\$14,100	\$13,600
Soil/concrete contamination assessment	\$9,100	\$9,100	\$9,100
Transport and disposal of soil	\$6,600	\$6,600	\$6,600
Third party oversight	\$19,500	\$19,500	\$19,500
Closure certification report	\$7,500	\$7,500	\$7,500
Subtotal	\$78,200	\$78,200	\$77,900
Contingency (10% minimum)	\$7,800	\$7,800	\$7,800
Total Closure Cost	\$86,000	\$86,000	\$85,700

\$257,700

CLOSURE OF STEAM GENERATOR

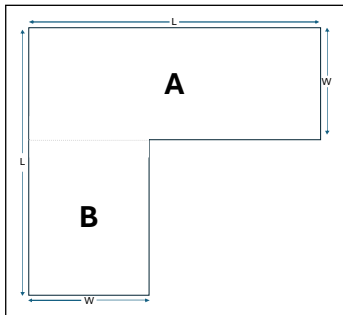
	Unit Cost	Quantity	Unit	Cost	Estimated Cost
Waste removal	\$0.00	0	lb	\$0	\$0
Burn out period (225 MMBtu/hr design, 4 hours)	\$4.00	900	MMBtu	\$3,600	\$3,600
Decontamination of combustion chamber and concrete:					\$13,800
1. Steam, detergent, and/or high-pressure rinsing of combustion chamber	\$1.50	2,223	sq ft	\$3,334	
2. Steam, detergent, and/or high-pressure rinsing of concrete slab	\$1.50	7,000	sq ft	\$10,500	
Verification rinsate sampling/analysis	\$1,000.00	4	sample	\$4,000	\$4,000
Transport and disposal of rinsate (assume 3 gal/sq ft)					\$14,100
1. Transport hazardous waste by tanker trailer (5000 gal/load)	\$1,000.00	4	load	\$4,000	
2. Disposal of bulk liquid by RCRA incineration facility	\$0.55	18,445	gal	\$10,145	
Sampling and analysis of soil (if needed)					\$9,100
1. Boring equipment rental, 2 day rental	\$320.00	1	day	\$320	
2. Boring/soil sampling labor, 4 samples, 2 man crew	\$75.00	10	man-hour	\$750	
3. Analysis of soil samples	\$2,000.00	4	sample	\$8,000	
Soil removal (assume 10 tons)					\$6,600
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	1	rolloff	\$2,825	
4. Disposal of soil at RCRA Subtitle C landfill	\$100.00	10	ton	\$1,000	
Third party oversight	\$1,300.00	15	day	\$19,500	\$19,500
Closure certification report	\$7,500.00	1	lump sum	\$7,500	\$7,500

Subtotal \$78,200

Contingency (10%) \$7,800

Total \$86,000

Surface area calculation:



Section A L = 31.5 feet
 Section A W = 9.3 feet
 Section A H = 12.5 feet
 Section A surface area = 873.1 sq feet
 Section B L = 33.5 feet
 Section B W = 11.6 feet
 Section B H = 12.5 feet
 Section B surface area = 979.0 sq feet
 A + B surface area = 1,852.1 sq feet
 Add 20% for ancillary = 370.4 sq feet
 Total surface area = 2,222.6 sq feet

Concrete slab area = 7,000.0 sq feet

CLOSURE OF BOILER H-K2-003

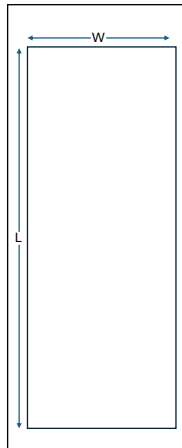
	Unit Cost	Quantity	Unit	Cost	Estimated Cost
Waste removal	\$0.00	0	lb	\$0	\$0
Burn out period (285 MMBtu/hr design, 4 hours)	\$4.00	1,140	MMBtu	\$4,560	\$4,600
Decontamination of combustion chamber and concrete:					\$13,000
1. Steam, detergent, and/or high-pressure rinsing of combustion chamber	\$1.50	1,491	sq ft	\$2,237	
2. Steam, detergent, and/or high-pressure rinsing of concrete slab	\$1.50	7,200	sq ft	\$10,800	
Verification rinsate sampling/analysis	\$1,000.00	4	sample	\$4,000	\$4,000
Transport and disposal of rinsate (assume 2 gal/sq ft)					\$13,600
1. Transport hazardous waste by tanker trailer (5000 gal/load)	\$1,000.00	4	load	\$4,000	
2. Disposal of bulk liquid by RCRA incineration facility	\$0.55	17,382	gal	\$9,560	
Sampling and analysis of soil (if needed)					\$9,100
1. Boring equipment rental, 2 day rental	\$320.00	1	day	\$320	
2. Boring/soil sampling labor, 4 samples, 2 man crew	\$75.00	10	man-hour	\$750	
3. Analysis of soil samples	\$2,000.00	4	sample	\$8,000	
Soil removal (assume 10 tons)					\$6,600
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	1	rolloff	\$2,825	
4. Disposal of soil at RCRA Subtitle C landfill	\$100.00	10	ton	\$1,000	
Third party oversight	\$1,300.00	15	day	\$19,500	\$19,500
Closure certification report	\$7,500.00	1	lump sum	\$7,500	\$7,500

Subtotal \$77,900

Contingency (10%) \$7,800

Total \$85,700

Surface area calculation:



L = 50.0 feet
 W = 9.2 feet
 H = 10.5 feet
 Surface area = 1,242.6 sq feet
 Add 20% for ancillary = 248.5 sq feet
 Total surface area = 1,491.1 sq feet
 Concrete slab area = 7,200.0 sq feet

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
Steam, detergent, and/or high-pressure rinsing	1.50	\$/sq ft	Average vendor quote
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	2,000.00	\$/sample	Average vendor quote
Oversight	1,300.00	\$/day	Inflation adjusted estimate
Certification report	7,500.00	\$/item	Inflation adjusted estimate

Appendix VII.B:
CLOSURE COST ESTIMATE (INCLUDING CONTINGENT
CLOSURE)
(TABLE VII.B)

Table VII.B. - Unit Closure Cost Estimate

Task	Cost
Name: Steam Generator No. 1 (NOR Unit No. 507)	
Waste removal	\$ 0
Burn out period	\$ 3,600
Decontamination of combustion chamber, ancillary equipment, and concrete floor	\$ 13,800
Verification sampling and analysis of rinsate	\$ 4,000
Transport and disposal of rinsate	\$ 14,100
Soil/concrete contamination assessment	\$ 9,100
Transport and disposal of soil	\$ 6,600
Third party oversight	\$ 19,500
Closure certification report	\$ 7,500
Subtotal	\$ 78,200
Contingency (10% minimum)	\$ 7,800
Total Closure Cost Year 2025	\$ 86,000

Table VII.B. - Unit Closure Cost Estimate (continued)

Task	Cost
Name: Steam Generator No. 2 (NOR Unit No. 508)	
Waste removal	\$ 0
Burn out period	\$ 3,600
Decontamination of combustion chamber, ancillary equipment, and concrete floor	\$ 13,800
Verification sampling and analysis of rinsate	\$ 4,000
Transport and disposal of rinsate	\$ 14,100
Soil/concrete contamination assessment	\$ 9,100
Transport and disposal of soil	\$ 6,600
Third party oversight	\$ 19,500
Closure certification report	\$ 7,500
Subtotal	\$ 78,200
Contingency (10% minimum)	\$ 7,800
Total Closure Cost Year 2025	\$ 86,000

Table VII.B. - Unit Closure Cost Estimate (continued)

Task	Cost
Name: Boiler H-K2-003 (NOR Units No. 528)	
Waste removal	\$ 0
Burn out period	\$ 4,600
Decontamination of combustion chamber, ancillary equipment, and concrete floor	\$ 13,000
Verification sampling and analysis of rinsate	\$ 4,000
Transport and disposal of rinsate	\$ 13,600
Soil/concrete contamination assessment	\$ 9,100
Transport and disposal of soil	\$ 6,600
Third party oversight	\$ 19,500
Closure certification report	\$ 7,500
Subtotal	\$ 77,900
Contingency (10% minimum)	\$ 7,800
Total Closure Cost Year 2025	\$ 85,700

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
Steam Generator No. 1 (NOR Unit No. 507)		\$ 86,000
Steam Generator No. 2 (NOR Unit No. 508)		\$ 86,000
Boiler H-K2-003 (NOR Unit No. 528)		\$ 85,700
		\$
		\$
		\$
Total Existing Unit Closure Cost Estimate ¹	Year 2025	\$ 257,700

Proposed Unit Closure Cost Estimate		
Unit		Cost
		\$
		\$
		\$
		\$
		\$
		\$
Total Proposed Unit Closure Cost Estimate ¹	Year 2025	\$

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 TAC 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

PERFORMANCE BOND

Date bond executed: 03/12/2025.

Effective date: 03/12/2025.

Principal: Indorama Ventures Oxides LLC

2701 Spur 136, Port Neches, TX 77651-4320

Type of organization: Limited Liability Company

State of incorporation: Delaware

Surety(ies): (name(s) and business address(es)) United States Fire Insurance Company

305 Madison Avenue, Morristown, NJ 07960

Permit number, name, physical and mailing addresses, and closure, post closure, or corrective action amounts(s) for each facility guaranteed by this bond : Physical Address: 6001 Hwy 366, Port Neches, TX 77651 Mailing Address: 2701 Spur 136, Port Neches, TX 77651-4320 SWR No. 30029 Indorama Ventures Oxides LLC Closure: \$154,895.00

Total penal sum of bond: \$ 158,613.00.

Surety's bond number: 612402654.

Know All Persons By These Presents, That We, the Principal and Surety(ies) hereto are firmly bound to the Texas Commission on Environmental Quality, hereinafter called TCEQ, in the above penal sum for the payment of which we bind ourselves, our heirs, executors, administrators, successors, and assigns jointly and severally; provided that, where the Surety(ies) are corporations acting as co-sureties, we, the Sureties, bind ourselves in such sum "jointly and severally" only for the purpose of allowing a joint action or actions against any or all of us, and for all other purposes each Surety binds itself, jointly and severally with the Principal, for the payment of such sum only as is set forth opposite the name of such Surety, but if no limit of liability is indicated, the limit of liability shall be the full amount of the penal sum.

Whereas said Principal is required, under the appropriate program area, to comply with permit requirements in order to own or operate each facility identified above, and

Whereas said Principal is required to provide financial assurance for closure, post closure, or corrective action as a condition of the permit or other applicable requirements, and

Whereas said Principal shall establish a standby trust fund as is required when a surety bond is used to provide such financial assurance;

Now, therefore, the conditions of this obligation are such that if the Principal shall faithfully perform closure, post closure, or corrective action, whenever required to do so, of each facility for which this bond guarantees closure or post closure in accordance with the closure plan or post closure plan and other applicable requirements of the permit, or perform corrective action in accordance with the permit or other applicable requirements as may be

amended, pursuant to all applicable laws, statutes, rules and regulations, as such laws, statutes, rules, and regulations may be amended,

Or, if the Principal shall provide alternate financial assurance, as specified in 30 Texas Administrative Code, Chapter 37 (relating to Financial Assurance) and obtain the TCEQ executive director's written approval of such assurance, within 90 days after the date of notice of cancellation is received by both the Principal and the TCEQ executive director from the Surety(ies), then this obligation shall be null and void, otherwise it is to remain in full force and effect.

The Surety(ies) shall become liable on this bond obligation only when the Principal has failed to fulfill the conditions described above.

Upon notification by the TCEQ executive director that the Principal has been found in violation of the closure, post closure, or corrective action requirements for a facility for which this bond guarantees performance of closure, post closure, or corrective action, the Surety(ies) shall either perform closure, post closure, or corrective action in accordance with the closure plan or post closure plan and other applicable requirements of the permit, or perform corrective action in accordance with the permit or other applicable requirements, or place the amount guaranteed for the facility in the standby trust fund as directed by the TCEQ executive director.

Upon notification by the TCEQ executive director that the Principal has failed to provide alternate financial assurance, as specified in 30 Texas Administrative Code, Chapter 37, and obtain written approval of such assurance from the TCEQ executive director during the 90 days following receipt by both the Principal and the TCEQ executive director of a notice of cancellation of the bond, the Surety(ies) shall place funds in the amount guaranteed for the facility(ies) into the standby trust fund.

The surety(ies) hereby waive(s) notification of amendments to closure plans or post closure plans and other applicable requirements of the permit, or permits requiring corrective action or other applicable requirements for corrective action, applicable laws, statutes, rules, and regulations and agrees that no such amendment shall in any way alleviate its (their) obligation on this bond.

The liability of the Surety(ies) shall not be discharged by any payment or succession of payments hereunder, unless and until such payment or payments shall amount in the aggregate to the penal sum of the bond, but in no event shall the obligation of the Surety(ies) hereunder exceed the amount of said penal sum.

The Surety(ies) may cancel the bond by sending notice of cancellation by certified mail to the owner and operator and to the TCEQ executive director provided, however, that cancellation shall not occur during the 120 days beginning on the date of receipt of the notice of cancellation by both the Principal and the TCEQ executive director, as evidenced by the return receipts.

The principal may terminate this bond by sending written notice to the Surety(ies), provided, however, that no such notice shall become effective until the Surety(ies) receive(s) written authorization for termination of the bond by the TCEQ executive director.

Principal and Surety(ies) hereby agree to adjust the penal sum of the bond yearly so that it guarantees a new closure, post closure, or corrective action amount, provided that the penal sum does not increase by more than 20 percent in any one year, and no decrease in the penal sum takes place without the written permission of the TCEQ executive director.

In Witness Whereof, The Principal and Surety(ies) have executed this Performance Bond and have affixed their seals on the date set forth above.

The persons whose signatures appear below hereby certify that they are authorized to execute this surety bond on behalf of the Principal and Surety(ies) and that the wording on this surety bond is identical to the wording specified in 30 Texas Administrative Code §37.321 as such regulation was constituted on the date this bond was executed.

(Principal) Indorama Ventures Oxides LLC (Corporate Surety) United States Fire insurance Company

(Signature(s)) [Signature] 305 Madison Avenue, Morristown, NJ 07960

(Name(s)) STEPHEN THALLEMER State of Incorporation: Delaware

(Title(s)) CFO Liability limit: \$ \$188,805,000.00

(Corporate seal)

(Signature(s)) [Signature]

(Name(s) and title: Vanessa Dominguez, Attorney-
in-Fact

(Corporate seal)

Bond premium: \$ 2,379.00

**POWER OF ATTORNEY
UNITED STATES FIRE INSURANCE COMPANY
PRINCIPAL OFFICE - MORRISTOWN, NEW JERSEY**

(PRODUCER CODE)

KNOW ALL MEN BY THESE PRESENTS: That United States Fire Insurance Company, a corporation duly organized and existing under the laws of the state of Delaware, has made, constituted and appointed, and does hereby make, constitute and appoint: **Lupe Tyler; Lisa A. Ward; Donna L. Williams; Vanessa Dominguez; Andrea M. Penaloza; Amanda George; Terri L. Morrison; Gina A. Rodriguez; Misty Wright; Jennifer Moore of Houston, TX** each, its true and lawful Attorney(s)-In-Fact, with full power and authority hereby conferred in its name, place and stead, to execute, acknowledge and deliver: Any and all bonds and undertakings of surety and other documents that the ordinary course of surety business may require, and to bind United States Fire Insurance Company thereby as fully and to the same extent as if such bonds or undertakings had been duly executed and acknowledged by the regularly elected officers of United States Fire Insurance Company at its principal office, in amounts or penalties: **One Hundred Twenty Five Million Eight Hundred Thousand Dollars (\$125,800,000)**

This Power of Attorney limits the act of those named therein to the bonds and undertakings specifically named therein, and they have no authority to bind United States Fire Insurance Company except in the manner and to the extent therein stated.

This Power of Attorney is granted pursuant to Article IV of the By-Laws of United States Fire Insurance Company as now in full force and effect, and consistent with Article III thereof, which Articles provide, in pertinent part:

Article IV, Execution of Instruments - Except as the Board of Directors may authorize by resolution, the Chairman of the Board, President, any Vice-President, any Assistant Vice President, the Secretary, or any Assistant Secretary shall have power on behalf of the Corporation:

- (a) to execute, affix the corporate seal manually or by facsimile to, acknowledge, verify and deliver any contracts, obligations, instruments and documents whatsoever in connection with its business including, without limiting the foregoing, any bonds, guarantees, undertakings, recognizances, powers of attorney or revocations of any powers of attorney, stipulations, policies of insurance, deeds, leases, mortgages, releases, satisfactions and agency agreements;
- (b) to appoint, in writing, one or more persons for any or all of the purposes mentioned in the preceding paragraph (a), including affixing the seal of the Corporation.

Article III, Officers, Section 3.11, Facsimile Signatures. The signature of any officer authorized by the Corporation to sign any bonds, guarantees, undertakings, recognizances, stipulations, powers of attorney or revocations of any powers of attorney and policies of insurance issued by the Corporation may be printed, facsimile, lithographed or otherwise produced. In addition, if and as authorized by the Board of Directors, dividend warrants or checks, or other numerous instruments similar to one another in form, may be signed by the facsimile signature or signatures, lithographed or otherwise produced, of such officer or officers of the Corporation as from time to time may be authorized to sign such instruments on behalf of the Corporation. The Corporation may continue to use for the purposes herein stated the facsimile signature of any person or persons who shall have been such officer or officers of the Corporation, notwithstanding the fact that he may have ceased to be such at the time when such instruments shall be issued.

IN WITNESS WHEREOF, United States Fire Insurance Company has caused these presents to be signed and attested by its appropriate officer and its corporate seal hereunto affixed this 17th day of January, 2025.

UNITED STATES FIRE INSURANCE COMPANY



Matthew E. Lubin, President



State of New Jersey }
County of Morris }

On this 17th day of January, 2025, before me, a Notary public of the State of New Jersey, came the above named officer of United States Fire Insurance Company, to me personally known to be the individual and officer described herein, and acknowledged that he executed the foregoing instrument and affixed the seal of United States Fire Insurance Company thereto by the authority of his office.

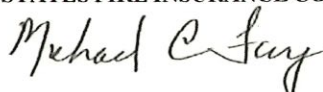


Ethan Schwartz (Notary Public)

I, the undersigned officer of United States Fire Insurance Company, a Delaware corporation, do hereby certify that the original Power of Attorney of which the foregoing is a full, true and correct copy is still in force and effect and has not been revoked.

IN WITNESS WHEREOF, I have hereunto set my hand and affixed the corporate seal of United States Fire Insurance Company on the 12th day of March 20 25

UNITED STATES FIRE INSURANCE COMPANY



Michael C. Fay, Senior Vice President



*For verification of the authenticity of the Power of Attorney, please contact (phone number) or email: [patricia.taber @amtyntagroup.com](mailto:patricia.taber@amtyntagroup.com)

TRAVELERS CASUALTY AND SURETY COMPANY OF AMERICA

HARTFORD, CONNECTICUT 06183

FINANCIAL STATEMENT AS OF JUNE 30, 2024

CAPITAL STOCK \$ 6,480,000

ASSETS		LIABILITIES & SURPLUS	
BONDS	\$ 5,267,015,811	LOSSES	\$ 1,590,424,351
STOCKS	112,711,407	LOSS ADJUSTMENT EXPENSES	149,460,040
CASH AND INVESTED CASH	100,839,391	COMMISSIONS	40,934,764
OTHER INVESTED ASSETS	8,438,458	OTHER EXPENSES	43,004,640
SECURITIES LENDING REINVESTED COLLATERAL ASSETS	6,187,377	TAXES, LICENSES AND FEES	13,292,018
INVESTMENT INCOME DUE AND ACCRUED	43,484,130	UNEARNED PREMIUMS	1,581,422,838
PREMIUM BALANCES	377,822,041	ADVANCE PREMIUM	2,249,301
REINSURANCE RECOVERABLE	80,794,793	POLICYHOLDER DIVIDENDS	24,705,696
NET DEFERRED TAX ASSET	75,333,829	CEDED REINSURANCE NET PREMIUMS PAYABLE	81,537,271
GUARANTY FUNDS RECEIVABLE OR ON DEPOSIT	2,005,930	CURRENT FEDERAL AND FOREIGN INCOME TAXES	3,870,451
RECEIVABLE FROM PARENTS, SUBSIDIARIES AND AFFILIATES	80,016,296	AMOUNTS WITHHELD / RETAINED BY COMPANY FOR OTHERS	18,802,427
OTHER ASSETS	1,442,323	REMITTANCES AND ITEMS NOT ALLOCATED	8,424,672
		PROVISION FOR REINSURANCE	9,891,783
		PAYABLE FOR SECURITIES LENDING	6,187,377
		OTHER ACCRUED EXPENSES AND LIABILITIES	369,797
		TOTAL LIABILITIES	\$ 3,574,577,426
		CAPITAL STOCK	\$ 6,480,000
		PAID IN SURPLUS	433,803,760
		OTHER SURPLUS	2,141,230,599
		TOTAL SURPLUS TO POLICYHOLDERS	\$ 2,581,514,359
TOTAL ASSETS	\$ 6,156,091,785	TOTAL LIABILITIES & SURPLUS	\$ 6,156,091,785

STATE OF CONNECTICUT)
COUNTY OF HARTFORD) SS.
CITY OF HARTFORD)

MICHAEL J. DOODY, BEING DULY SWORN, SAYS THAT HE IS VICE PRESIDENT - FINANCE, OF TRAVELERS CASUALTY AND SURETY COMPANY OF AMERICA,
AND THAT TO THE BEST OF HIS KNOWLEDGE AND BELIEF, THE FOREGOING IS A TRUE AND CORRECT STATEMENT OF THE FINANCIAL CONDITION OF SAID
COMPANY AS OF THE 30TH DAY OF JUNE, 2024.

Michael J. Doody
VICE PRESIDENT - FINANCE

SUBSCRIBED AND SWORN TO BEFORE ME THIS
16TH DAY OF AUGUST, 2024

Susan M. Weissleder
NOTARY PUBLIC

SUSAN M. WEISSLEDER
Notary Public
My Commission Expires November 30, 2027



Appendix VIII.B:
APPLICANT FINANCIAL DISCLOSURE STATEMENTS FOR A NEW
PERMIT, PERMIT AMENDMENT, OR PERMIT MODIFICATION, OR
PERMIT RENEWAL

August 29, 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

Subject: Financial Disclosure Letter for Permit Renewal
Indorama Ventures Oxides, LLC – Port Neches, Texas
Hazardous Waste Permit No. 50055, Industrial Solid Waste Registration No. 30029
EPA ID No. TX008076846, RN100219252/CN605743038

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 Indorama Ventures Oxides, LLC, (Indorama) has sufficient financial resources.

In keeping with the above law and rule requirements, I hereby certify that Indorama is adequately capitalized and has sufficient financial resources to operate, close, provide post closure 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.

Indorama currently provides a surety bond financial assurance mechanism as set out in 30 TAC, Chapter 37, Subchapter C to meet Indorama's financial assurance obligations.

I am authorized to make these statements on behalf of Indorama. I understand that the Texas Commission on Environmental Quality (TCEQ) may request additional information as part of their review.

Sincerely,

Indorama Ventures Oxides, LLC



Kimberly Hoyt
Manufacturing Transformation Office Lead



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 unit². 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.

²For 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 consist 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

Permit No. 50055
Permittee: Indorama Ventures Oxides LLC

Page 1 of 3

Preliminary Review Facility Checklist

Facility	Port Neches Operations	City	Port Neches
ISW Reg. No.:	30029	Date	August 29, 2025
Permit No.	50055	Reviewer:	
EPA ID No.	TX008076846		

A. Waste Management Units:
RCRA Regulated Units:

NOR. No.	Description	Status
507	Steam Generator No. 1	Active
508	Steam Generator No. 2	Active
528	Boiler H-K2-003	Active

Solid Waste Management Units:

NOR. No.	Description	Status
001	Landfill, Tract I	Inactive
003	Landfill, Tract II	Inactive
004	Landfill, Tract III	Inactive
010	Portable container pad	Closed
065	API separator	Inactive
097	Tanks T-0-29, T-0-40, and T-0-75	Inactive
NA	Soil pile assessment area	Closed

B. Reviewed Documents

RCRA:

Part A ☒

Part B ☒

Permit ☒

CERCLA:

Inspection Reports:

Enforcement Actions

Exposure Information

Other Information:

Affected Property Assessment Report for NOR No. 001 Landfill submitted January 6, 2011 (approved November 16, 2016)

Response Action Plan for the NOR No. 1 Landfill dated August 18, 2020 (approved September 20, 2022)

Response Action Plan for Sitewide Groundwater dated August 2, 2021 (approved November 5, 2012)

Response Action Completion Report for Soil Pile Assessment Area dated September 14, 2011 (approved December 14, 2011)

C. Summary:

There are no new SWMUs or AOCs for the facility. No units require further investigations. Therefore, no Preliminary Review Unit Checklists are provided.

NOR No. 001 Landfill:

An Affected Property Assessment Report (APAR) for NOR No. 001 Landfill was submitted in 2011 and approved in 2016.

A Response Action Plan (RAP) for NOR No. 001 Landfill was submitted in 2020 and approved in 2022. Sampling under the new monitoring program was initiated in 2023 as outlined in the approved RAP. In addition, routine inspections are performed for the cap.

NOR No. 001 Landfill, NOR No. 003 Landfill, NOR No. 004 Landfill:

A RAP was submitted and approved in 2021. The RAP implements a plume management zone in which monitored natural attenuation was selected as the remedy. Concentrations of 1,2-dichloroethane, 1,2-dichloropropane, 1,2,3-trichloropropane, vinyl chloride, bis(2-chloroethyl) ether, bis(2-chloroisopropyl) ether, and manganese in groundwater are monitored annually to confirm the attenuation of the chemicals of concern.

In addition, routine inspections are performed for the caps.

A RAP was prepared for the Soil Pile Assessment Area that included covering the soil pile with an engineered cap to prevent exposure and leaching through the material. Following construction of the cap, a Response Action Completion Report was submitted in 2011. Annual inspections are currently conducted on the cap.

No Further Action has been granted for the following SWMUs:

- NOR No. 010, container storage area
- NOR No. 018, bulk storage area
- NOR No. 065, API separator
- NOR No. 097, Tanks T-0-29, T-0-40, and T-0-75

Permit No. 50055

Permittee: Indorama Ventures Oxides LLC

Page 3 of 3

D. Recommended Action:

Sitewide groundwater monitoring will continue. Routine inspections of caps will continue.

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 (Table X.B)
X.C	Tanks, Surface Impoundments, and Containers (Not Applicable)
X.D	"One-Stop" Permits (Not Applicable)

Appendix X:

AIR EMISSIONS REPORT



INDORAMA VENTURES OXIDES LLC
PORT NECHES, TEXAS

**INDUSTRIAL AND HAZARDOUS WASTE
STORAGE/PROCESSING/DISPOSAL FACILITY
PERMIT No. 50055
SOLID WASTE REGISTRATION No. 30029
EPA ID No. TX008076846**

AIR EMISSION REPORT

AUGUST 2025

1.0 INTRODUCTION

Indorama Ventures Oxides LLC (Indorama) operates three hazardous waste fired boilers at the Port Neches Operations. These units are identified as Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. These boilers are the only permitted hazardous waste units at the facility. The boilers 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, 266, and 270 and Title 30 Texas Administrative Code (TAC) Chapter 335 Subchapters F and H. The boilers 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) that are managed in one of the following:

- A unit that is subject to the permitting requirements of 40 CFR Part 270; or
- A unit that is not exempt from permitting due to the short-term accumulation exemption under 40 CFR § 262.17 and that is located at a hazardous waste management facility otherwise subject to the permitting requirements of 40 CFR Part 270; or
- A unit that is exempt from permitting under 40 CFR § 262.17 and that is not a recycling unit under the provisions of 40 CFR § 261.6.

Hazardous waste, identified as Process Liquid Fuel, is transferred from the propylene oxide (PO) and methyl tertiary butyl ether (MTBE) processes to two permit-exempt (less than 90-day) accumulation tanks for storage prior to being fed to Steam Generator No. 1, Steam Generator No. 2, and Boiler H-K2-003. The air emission standards for equipment leaks provided in 40 CFR Part 264 Subpart BB are applicable to the hazardous waste transfer systems used at the Port Neches Operations to transfer liquid waste from the process units to the accumulation tanks and the boilers.

Specific standards are provided for each of the following types of equipment:

- Pumps in light liquid service;
- Compressors;
- Pressure relief devices in gas/vapor service;
- Sampling connection systems;
- Open-ended valves or lines;
- Valves in gas/vapor service or in light liquid service; and
- Pumps and valves in heavy liquid service, pressure relief devices in light or heavy liquid service, and flanges and other connectors.

These standards are applicable to the hazardous waste transfer systems used at the Port Neches Operations to transfer liquid waste to the boilers. The equipment included in the Subpart BB inspection and monitoring program is listed in Table X.B in Section X of the Part B Permit Application. Each of these pieces of equipment has been determined via process knowledge to contain material with a total organic content (TOC) of 10 percent or greater.

As per 40 CFR § 264.1064(m), the owner or operator of a facility with equipment that is subject to Subpart BB and to regulations at 40 CFR Part 60, Part 61 or Part 63 may elect to determine compliance with Subpart BB either by documentation pursuant to 40 CFR § 264.1064 or by documentation of compliance with the regulations at 40 CFR Part 60, Part 61, or Part 63 pursuant to the relevant provisions of the regulations at 40 CFR Part 60, Part 61 or Part 63. Indorama operates the equipment listed in Table X.B in compliance with the applicable 40 CFR Part 63 regulations authorized by Air Permit 20160 and Federal Operating Permit O-3056.

The facility maintains the following operating records for at least three years:

- A log of applicable equipment pursuant to 40 CFR § 264.1064(g);
- Information pertaining to valves pursuant to 40 CFR §§ 264.1064(h) and (i);
- Design criteria information pursuant to 40 CFR § 264.1064(j); and
- Analytical records pursuant to 40 CFR § 264.1064(k).

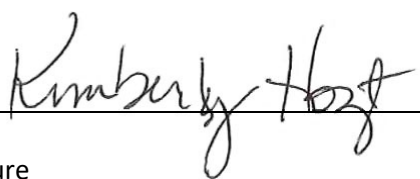
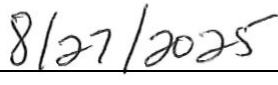
4.0 SUBPART CC

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. Indorama does not operate any permitted hazardous waste tanks, surface impoundment, or containers at the Port Neches Operations. Indorama operates permit-exempt accumulation tanks and containers that are subject to and in compliance with 40 CFR Part 265 Subpart CC.

5.0 CERTIFICATION STATEMENT

The following certification statement is stipulated by the Part B Permit Application instructions and pertains to the information used to classify equipment under the Subpart AA, BB, and CC standards:

I, Kimberly Hoyt, 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

Appendix X.B: EQUIPMENT LEAKS (TABLE X.B)

Table X.B. - Equipment Leaks

List all process vents covered by this application.

Equipment I.D. No.	Equipment Type	Waste Management Unit N.O.R. No.	Waste Management Unit Name	% by Weight Total Organics in Haz. Waste Stream	Waste State (gas, vapor, liquid)	Method of Compliance
9214-S1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9215-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9215-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9215-003	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9215-F1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9215-F2-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9215-S1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9215-S2-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9216-F1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9216-F2-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9217-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9217-F1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9217-F2-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9218-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9218-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9218-003	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9218-004	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9218-005	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9219-F1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9219-F2-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9221-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9221-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9222-F1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9222-F2-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9224-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9224-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9225-F1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9225-F2-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9226-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9226-F1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21

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Equipment I.D. No.	Equipment Type	Waste Management Unit N.O.R. No.	Waste Management Unit Name	% by Weight Total Organics in Haz. Waste Stream	Waste State (gas, vapor, liquid)	Method of Compliance
9226-F2-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9227-F1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9227-F2-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9228-F1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9228-F2-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9229-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9229-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9229-003	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9230-F1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9230-F2-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9231-F1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9231-F2-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9232-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9232-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9232-003	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9232-004	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9233-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9233-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9233-003	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9233-F1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9233-F2-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9235-F1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9235-F2-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9237-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9237-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9237-003	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9237-004	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9240-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9242-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9243-S1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9244-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9245-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9245-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21

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Equipment I.D. No.	Equipment Type	Waste Management Unit N.O.R. No.	Waste Management Unit Name	% by Weight Total Organics in Haz. Waste Stream	Waste State (gas, vapor, liquid)	Method of Compliance
9246-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9246-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9247-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9247-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9248-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9248-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9249A-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9249A-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9249A-003	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9249B-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9249B-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9249C-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9249C-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9249C-003	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9249C-004	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9249E-S1-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9249E-S2-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9250-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9251-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9251-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9251-003	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9252-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9253-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9254-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9254-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9254-003	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9254A-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9254A-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9254E-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9254F-000	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9254H-001	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9254H-002	CONNECTOR	507	Steam Generator No. 1	80	LIGHT LIQUID	Method 21
9255-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21

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Equipment I.D. No.	Equipment Type	Waste Management Unit N.O.R. No.	Waste Management Unit Name	% by Weight Total Organics in Haz. Waste Stream	Waste State (gas, vapor, liquid)	Method of Compliance
9255A-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9255A-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9256-F1-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9256-F2-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9257-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9257-F1-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9257-F2-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9258-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9258-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9259A-F1-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9259B-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9259B-F1-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9259B-F2-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9259C-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9259C-S1-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9259C-S2-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9259D-F1-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9259-F1-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9259-F2-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9261-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9261-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9261A-F1-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9261A-F2-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9263-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9263-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9264-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9264-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9264-F1-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9264-F2-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9265-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9265-F1-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9265-F2-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9266-F1-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21

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 Permittee: Indorama Ventures Oxides, LLC

Equipment I.D. No.	Equipment Type	Waste Management Unit N.O.R. No.	Waste Management Unit Name	% by Weight Total Organics in Haz. Waste Stream	Waste State (gas, vapor, liquid)	Method of Compliance
9266-F2-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9267-F1-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9267-F2-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9268-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9268-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9268-003	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9269-F1-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9269-F2-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9270-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9270-003	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9271-F1-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9271-F2-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9272-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9272-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9274-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9274-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9274-003	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9274-004	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9276-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9276-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9277-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9277-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9279-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9281-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9282-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9284-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9284-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9285-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9285-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9285-003	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9286-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9286-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9287-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21

Permit No. 50055
 Permittee: Indorama Ventures Oxides, LLC

Equipment I.D. No.	Equipment Type	Waste Management Unit N.O.R. No.	Waste Management Unit Name	% by Weight Total Organics in Haz. Waste Stream	Waste State (gas, vapor, liquid)	Method of Compliance
9287-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9287-003	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9288A-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9288A-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9288A-004	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9288B-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9288B-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9288B-003	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9288B-004	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9288B-005	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9289-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9290-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9290-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9290-003	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9291-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9292-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9293-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9293-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9293-003	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9293A-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9293A-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9293B-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9293B-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9293B-003	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9293B-004	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9293E-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9293F-000	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9293G-001	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
9293G-002	CONNECTOR	508	Steam Generator No. 2	80	LIGHT LIQUID	Method 21
7601-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7601-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7602-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7602-F1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21

Permit No. 50055
 Permittee: Indorama Ventures Oxides, LLC

Equipment I.D. No.	Equipment Type	Waste Management Unit N.O.R. No.	Waste Management Unit Name	% by Weight Total Organics in Haz. Waste Stream	Waste State (gas, vapor, liquid)	Method of Compliance
7602-F2-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7603-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7603-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7603-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7604-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7604-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7605-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7606-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7607-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7607-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7607-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7608-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7609-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7609-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7610-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7611-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7611-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7611-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7612-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7613-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7613-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7614-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7615-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7615-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7615-002	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7615-003	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7615-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7616-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7617-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7617-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21

Permit No. 50055
 Permittee: Indorama Ventures Oxides, LLC

Equipment I.D. No.	Equipment Type	Waste Management Unit N.O.R. No.	Waste Management Unit Name	% by Weight Total Organics in Haz. Waste Stream	Waste State (gas, vapor, liquid)	Method of Compliance
7617-F1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7617-F2-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7618-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7619-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7619-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7619-002	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7619-F1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7619-F2-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7620-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7620-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7620-F1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7621-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7622-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7622-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7622-F1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7622-F2-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7623-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7624-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7624-F1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7624-F2-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7625-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7625-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7626-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7626-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7626-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7627-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7628-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7629-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7629-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7630-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21

Permit No. 50055
 Permittee: Indorama Ventures Oxides, LLC

Equipment I.D. No.	Equipment Type	Waste Management Unit N.O.R. No.	Waste Management Unit Name	% by Weight Total Organics in Haz. Waste Stream	Waste State (gas, vapor, liquid)	Method of Compliance
7630-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7630-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7631-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7632-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7632-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7633-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7634-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7634-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7634-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7635-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7636-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7636-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7637-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7638-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7638-F1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7638-F2-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7639-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7639-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7639-002	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7639-003	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7639-004	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7639-005	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7639-006	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7639-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7640-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7641-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7641-F1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7641-F2-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7642-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7642-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21

Permit No. 50055
 Permittee: Indorama Ventures Oxides, LLC

Equipment I.D. No.	Equipment Type	Waste Management Unit N.O.R. No.	Waste Management Unit Name	% by Weight Total Organics in Haz. Waste Stream	Waste State (gas, vapor, liquid)	Method of Compliance
7642-002	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7642-003	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7642-004	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7642-005	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7642-006	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7642-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7643-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7644-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7644-F1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7644-F2-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7645-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7646-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7646-F1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7646-F2-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7647-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7647-F1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7647-F2-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7648-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7649-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7649-F1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7649-F2-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7650-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7650-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7651-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7651-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7651-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7652-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7653-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7653-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7654-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21

Permit No. 50055
 Permittee: Indorama Ventures Oxides, LLC

Equipment I.D. No.	Equipment Type	Waste Management Unit N.O.R. No.	Waste Management Unit Name	% by Weight Total Organics in Haz. Waste Stream	Waste State (gas, vapor, liquid)	Method of Compliance
7654-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7655-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7655-001	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7655-002	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7655-003	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7655-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7656-003	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7656-F1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7656-F2-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7657-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7657-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7658-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7658-F1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7658-F2-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7659-000	VALVE	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
7659-S1-000	CONNECTOR	528	Boiler H-K2-003	80	LIGHT LIQUID	Method 21
9309-F1-000	CONNECTOR	507/508/528	Steam Generators No. 1 and No. 2 and Boiler H-K2-003	80	LIGHT LIQUID	Method 21
9309-F2-000	CONNECTOR	507/508/528	Steam Generators No. 1 and No. 2 and Boiler H-K2-003	80	LIGHT LIQUID	Method 21
9310-001	CONNECTOR	507/508/528	Steam Generators No. 1 and No. 2 and Boiler H-K2-003	80	LIGHT LIQUID	Method 21
9312-F1-000	CONNECTOR	507/508/528	Steam Generators No. 1 and No. 2 and Boiler H-K2-003	80	LIGHT LIQUID	Method 21
9312-F2-000	CONNECTOR	507/508/528	Steam Generators No. 1 and No. 2 and Boiler H-K2-003	80	LIGHT LIQUID	Method 21

XI. COMPLIANCE PLAN (NOT APPLICABLE)

TABLE OF APPENDICES

APPENDIX	TITLE
XI	Compliance Plan (Not Applicable)

XII. HAZARDOUS WASTE PERMIT APPLICATION FEE

XII. Hazardous Waste Permit Application Fee

Provide all Part B responsive information in Appendix XII. When preparing the physical format organize your submittal using the [Format of Hazardous Waste permit Application and Instructions](#).

In accordance with 30 TAC 305.53, complete [Tables XII.A.](#) - Hazardous Waste Units (For Application Fee Calculations) and XII.B. - Hazardous Waste Permit Application Fee Worksheet. Use the following information in calculating your fee. The application fee will be non-refundable once an initial review of the application has been completed. 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 necessary.

- A. The minimum permit application fee for a permit or a permit renewal for each hazardous waste facility to be used for Storage, Processing, Disposal, or Closure/Post-Closure Care (disposal has already occurred) of hazardous waste shall be \$2,000, plus notice fee, and the maximum shall be \$50,000, calculated according to these instructions:
1. Process Analysis - \$1,000.00.
 2. Management/Facility Analysis - \$500.00.
 3. A facility unit(s) analysis of \$500 per unit is charged for the following:
 - a. each cell of a landfill (note that multiple cells that are identical in type and use are subject to a single \$500 fee);
 - b. tanks and container storage areas (note that multiple tanks and container storage areas that are identical in type and use are subject to a single \$500 fee)
 - c. identical in type and use means the following:
 - (1) made of the same material and same design;
 - (2) the same size/capacity within + 10%;
 - (3) store the same waste (as identified by USEPA hazardous waste number - 40 CFR 261 Subparts C & D); and
 - (4) have the same management characteristics (e.g., storage only).
 - d. Each incinerator, boiler/industrial furnace unit, surface impoundment, waste pile, land treatment unit, drip pad, miscellaneous unit, or containment building.
 4. Site Evaluation - \$100 per acre of surface used for hazardous waste management up to 300 acres. No additional fee thereafter. This shall be calculated as any acreage which will be permitted to manage hazardous waste. This shall include, for example, the entire area within the secondary containment of a tank farm, the area within a fence that surrounds individual units (other than the facility fence), or the area defined by the toe of the dike surrounding a landfill or impoundment, etc.
 5. An applicant shall also include with each initial application a fee of \$50 to be applied toward the cost of providing the required notice. An additional notice

fee of \$15 is required with each application for renewal.

- B. The application fee for a major amendment or a Class 2 or 3 modification to a hazardous waste permit for operation, closure, or post-closure care is subject to the fees listed below:
1. A management/facility analysis fee of \$500.
 2. The notice fee is \$50.
 3. If a unit is added or a unit area is expanded for any purpose, \$100 per additional acre is assessed, until the total additional acreage reaches 300 acres.
 4. If one or more of the following reports are added or are significantly revised, the process analysis fee of \$1000 is assessed:
 - a. waste analysis plan;
 - b. site-specific or regional geology report;
 - c. site-specific or regional geohydrology report;
 - d. groundwater and/or unsaturated zone monitoring;
 - e. closure and/or post-closure care plan; or
 - f. RCRA Facility Assessments (RFAs), or corrective action reports;
 - g. Alternate Concentration Limit (ACL) demonstration or Development of Protective Concentration Limits (PCLs);
 - h. Regulated Unit Facility Assessment, Corrective Action (CA) work plans or reports for Regulated Units; and/or
 - i. RCRA Facility Investigation (RFI)/Affected Property Assessment (APA), Remedy Selection, Corrective Measure Implementation (CMI)/Remedial Action Plan for solid waste management units, and/or areas of concern;
 - j. Facility Operations Area (FOA).
 5. A unit analysis fee of \$500 per unit is assessed if any of the following occur:
 - a. if a unit is added (even if identical to units already in place, using the criteria discussed in A.3 above);
 - b. if there are design changes in an existing unit; or
 - c. if a unit status changes from closure to post-closure care;
 - d. Changes in the number, location, depth, or design of wells approved in compliance plan or a permit (unless it is a replacement well);
 - e. Changes in point of compliance and compliance monitoring program;
 - f. Changes in Groundwater Protection Standards, indicator parameters, Alternate Concentration Limits or Protective Concentration Limits; and/or
 - g. Changes in corrective action program.
- C. The application fee for a minor amendment, a Class 1, or a Class 1¹ modification of a

hazardous waste permit is \$100 plus the notice fee of \$50.

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
Steam Generator No. 1	225 MMBtu/hr	0.2	1	
Steam Generator No. 2	225 MMBtu/hr	0.2	0	Same size, design, and fuels
Boiler H-K2-003	285 MMBtu/hr	0.2	1	
		Total ⁴ 0.6	Total ⁴ 2	

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: Indorama Ventures Oxides, LLC

Solid Waste Registration Number: 30029

1. Process Analysis - \$1,000.....	\$	<u>1,000</u>
2. Facility Management Analysis - \$500.....	\$	<u>500</u>
3. Unit Analysis - <u>2</u> units @ \$500 per unit.....	\$	<u>1,000</u>
4. Site Evaluation - <u>0.6</u> acres @ \$100 per acre.....	\$	<u>60</u>
(Maximum of 300 acres)		
5. Minor amendment, Class 1, or Class 1 ¹ modification - \$100.....	\$	<u>0</u>
6. Cost of Providing Notice - \$50 (+ \$15 for a renewal).....	\$	<u>65</u>
Pay This Amount	Total \$	<u>2,625</u>

Pay Online through ePay portal www3.tceq.texas.gov/epay/

Enter ePay Trace Number:

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
ePay (see above)	08/26/2025	\$2,625