



PORT CORPUS CHRISTI®

March 31, 2025

Applications Review and Processing Team MC-148
Texas Commission on Environmental Quality
12100 Park 35 Circle
Austin, TX, 78753

VIA FED EX

**Subject: Industrial Wastewater Permit
Proposed Harbor Island Desalination Facility
Port of Corpus Christi Authority of Nueces County
CN: 600885248**

Dear Ladies and Gentlemen,

The Port of Corpus Christi Authority of Nueces County (PCCA) formally submits this Industrial Wastewater application for a proposed desalination facility on Harbor Island with a discharge in the Gulf of America (Gulf) near Port Aransas, Texas.

The purpose of this project is to develop a sustainable water supply in an area reliant entirely on surface water which is vulnerable to persistent drought. To meet this purpose, PCCA proposes to discharge 191.2 mgd to the Gulf to support production of 100 mgd of desalinated product water.

This application requests authorization of an offshore location for the discharge of wastewater (brine) from the Harbor Island Facility.

If you have any questions feel free to contact me by phone at (361) 885-6163 or by email at sarah@pocca.com.

Sincerely,
PORT OF CORPUS CHRISTI AUTHORITY

Yvonne Luis Gomez
for

Sarah L. Garza
Director of Environmental
Planning and Compliance



Enclosure

cc: Kent Britton, Chief Executive Officer, Port of Corpus Christi Authority Clark
Jeffrey Pollack, Chief Strategy and Sustainability Officer, Port of Corpus Christi Authority
Yvonne Dives-Gomez, Environmental Permitting Specialist, Port of Corpus Christi Authority

Administrative Report 1.0



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION CHECKLIST

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

APPLICANT NAME: Port of Corpus Christi Authority of Nueces County

PERMIT NUMBER (If new, leave blank): WQ00

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

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

For TCEQ Use Only

Segment Number _____ County _____
Expiration Date _____ Region _____
Permit Number _____



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION

ADMINISTRATIVE REPORT 1.0

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

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

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

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

Applicant Name: Port of Corpus Christi Authority of Nueces County

Permit No.: WQ000 new permit application

EPA ID No.: TX0 N/A

Expiration Date: N/A

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

☐ Industrial Wastewater (wastewater and stormwater)

☐ Industrial Stormwater (stormwater only)

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

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

☐ Active

☒ Inactive

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

☒ TPDES Permit

☐ TLAP

☐ TPDES with TLAP component

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

☒ New

☐ Renewal with changes

☐ Renewal without changes

☐ Major amendment with renewal

☐ Major amendment without renewal

☐ Minor amendment without renewal

☐ Minor modification without renewal

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

For TCEQ Use Only

Segment Number _____ County _____

Expiration Date _____ Region _____

Permit Number _____

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

g. Application Fee

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

h. Payment Information

Mailed

Check or money order No.: N/A

Check or money order amt.: N/A

Named printed on check or money order: N/A

Epay

Voucher number: 759774 and 759775

Copy of voucher attachment: A-1

Item 2. Applicant Information (Instructions, Pages 26)

a. Customer Number, if applicant is an existing customer: CN600885248

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

b. Legal name of the entity (applicant) applying for this permit: Port of Corpus Christi
Authority of Nueces County

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

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

Prefix: Mr. Full Name (Last/First Name): Britton/Kent

Title: Chief Executive Officer Credential: N/A

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

☒ Yes ☐ No

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

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

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

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

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

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

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

b. Customer Number (if applicant is an existing customer): CN N/A

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

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

Prefix: N/A Full Name (Last/First Name): N/A

Title: N/A Credential: N/A

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

☐ Yes ☐ No

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

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

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

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

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

a. ☒ Administrative Contact ☒ Technical Contact

Prefix: Ms. Full Name (Last/First Name): Garza/Sarah

Title: Director of Environmental Planning & Compliance Credential: N/A

Organization Name: Port of Corpus Christi Authority of Nueces County

Mailing Address: 400 Charles Zahn, Jr. Drive City/State/Zip: Corpus Christi/TX/78401

Phone No: 361-885-6163 Email: sarah@pocca.com

b. ☐ Administrative Contact ☒ Technical Contact

Prefix: Ms. Full Name (Last/First Name): Dives-Gomez/Yvonne

Title: Environmental Permitting Coordinator Credential: N/A

Organization Name: Port of Corpus Christi Authority of Nueces County

Mailing Address: 400 Charles Zahn, Jr. Drive City/State/Zip: Corpus Christi/TX/78401

Phone No: 361-885-6606

Email: ydives-gomez@pocca.com

Attachment: N/A

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

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

- a. Prefix: Ms. Full Name (Last/First Name): Garza, Sarah
Title: Director of Environmental Planning & Compliance Credential: N/A
Organization Name: Port of Corpus Christi Authority of Nueces County
Mailing Address: 400 Charles Zahn, Jr. Drive City/State/Zip: Corpus Christi/TX/78401
Phone No: 361-885-6163 Email: sarah@pocca.com
- b. Prefix: Ms. Full Name (Last/First Name): Dives-Gomez/Yvonne
Title: Environmental Permitting Coordinator Credential: N/A
Organization Name: Port of Corpus Christi Authority of Nueces County
Mailing Address: 400 Charles Zahn, Jr. Drive City/State/Zip: Corpus Christi/TX/78401
Phone No: 361-885-6606 Email: ydives-gomez@pocca.com
- Attachment: N/A

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

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

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

Prefix: Ms. Full Name (Last/First Name): Garza, Sarah
Title: Director of Environmental Planning & Compliance Credential: N/A
Organization Name: Port of Corpus Christi Authority of Nueces County
Mailing Address: 400 Charles Zahn, Jr. Drive City/State/Zip: Corpus Christi/TX/78401
Phone No: 361-885-6163 Email: sarah@pocca.com

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

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

Prefix: Ms. Full Name (Last/First Name): Garza, Sarah
Title: Director of Environmental Planning & Compliance Credential: N/A
Organization Name: Port of Corpus Christi Authority of Nueces County
Mailing Address: 400 Charles Zahn, Jr. Drive City/State/Zip: Corpus Christi/TX/78401
Phone No: 361-885-6163 Email: sarah@pocca.com

Item 9. Notice Information (Instructions, Pages 28)

a. Individual Publishing the Notices

Prefix: Ms. Full Name (Last/First Name): Garza, Sarah

Title: Director of Environmental Planning & Compliance Credential: N/A

Organization Name: Port of Corpus Christi Authority of Nueces County

Mailing Address: 400 Charles Zahn, Jr. Drive City/State/Zip: Corpus Christi/TX/78401

Phone No: 361-885-6163 Email: sarah@pocca.com

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

☒ E-mail: sarah@pocca.com

☐ Fax: N/A

☐ Regular Mail (USPS)

Mailing Address: N/A

City/State/Zip Code: N/A

c. Contact in the Notice

Prefix: Ms. Full Name (Last/First Name): Garza, Sarah

Title: Director of Environmental Planning & Compliance Credential: N/A

Organization Name: Port of Corpus Christi Authority of Nueces County

Phone No: 361-885-6163 Email: sarah@pocca.com

d. Public Viewing Location Information

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

Public building name: La Retama Central Library Location within the building: First floor, front desk

Physical Address of Building: 805 Comanche Street

City: Corpus Christi County: Nueces

e. Bilingual Notice Requirements

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

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

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

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

☒ Yes ☐ No

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

2. Are the students who attend either the elementary school or the middle school enrolled in a bilingual education program at that school?
☒ Yes ☐ No
3. Do the students at these schools attend a bilingual education program at another location?
☐ Yes ☒ No
4. Would the school be required to provide a bilingual education program, but the school has waived out of this requirement under 19 TAC §89.1205(g)?
☐ Yes ☐ No ☒ N/A
5. If the answer is yes to question 1, 2, 3, or 4, public notices in an alternative language are required. Which language is required by the bilingual program? Spanish
- f. Summary of Application in Plain Language Template - Complete and attach the Summary of Application in Plain Language Template (TCEQ Form 20972), also known as the plain language summary or PLS. Attachment: A-3
- g. Complete and attach one Public Involvement Plan (PIP) Form (TCEQ Form 20960) for each application for a new permit or major amendment. Attachment: Attachment PIP

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

- a. TCEQ issued Regulated Entity Number (RN), if available: RN105622112

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

- b. Name of project or site (name known by the community where located): Harbor Island Desalination Facility

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

☐ Yes ☐ No ☒ N/A (new permit)

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

- d. Owner of treatment facility:

Prefix: N/A Full Name (Last/First Name): N/A

or Organization Name: Port of Corpus Christi Authority of Nueces County

Mailing Address: 400 Charles Zahn, Jr. Drive City/State/Zip: Corpus Christi/TX/78401

Phone No: 361-885-6163 Email: sarah@pocca.com

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

- f. Owner of land where treatment facility is or will be: N/A
 Prefix: N/A Full Name (Last/First Name): N/A
 or Organization Name: Port of Corpus Christi Authority of Nueces County
 Mailing Address: 400 Charles Zahn, Jr. Drive City/State/Zip: Corpus Christi, TX, 78401
 Phone No: 361-885-6163 Email: sarah@pocca.com
Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years (In some cases, a lease may not suffice - see instructions). Attachment: N/A
- g. Owner of effluent TLAP disposal site (if applicable): N/A
 Prefix: N/A Full Name (Last/First Name): N/A
 or Organization Name: N/A
 Mailing Address: N/A City/State/Zip: N/A
 Phone No: N/A Email: N/A
Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years. Attachment: N/A
- h. Owner of sewage sludge disposal site (if applicable):
 Prefix: N/A Full Name (Last/First Name): N/A
 or Organization Name: N/A
 Mailing Address: N/A City/State/Zip: N/A
 Phone No: N/A Email: N/A
Note: If not the same as the facility owner, attach a long-term lease agreement in effect for at least six years. Attachment: N/A

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

- a. Is the facility located on or does the treated effluent cross Native American Land?
☐ Yes ☒ No
- b. Attach an original full size USGS Topographic Map (or an 8.5"×11" reproduced portion for renewal or amendment applications) with all required information. Check the box next to each item below to confirm it has been included on the map.
- | | |
|---|--|
| ☒ One-mile radius | ☐ Three-miles downstream information |
| ☒ Applicant's property boundaries | ☒ Treatment facility boundaries |
| ☒ Labeled point(s) of discharge | ☒ Highlighted discharge route(s) |
| ☐ Effluent disposal site boundaries | ☐ All wastewater ponds |
| ☐ Sewage sludge disposal site | ☐ New and future construction |
- Attachment: A-4
- c. Is the location of the sewage sludge disposal site in the existing permit accurate?
☐ Yes ☒ No or New Permit

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

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

☐ Yes ☒ No or New Permit

If no, or a new application, provide an accurate location description: 27.848836°N, 97.009531°W

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

☐ Yes ☒ No or New Permit

If no, or a new permit, provide an accurate description of the discharge route: From the Northeast of Harbor Island, tunneled approximately 65 feet under the seabed out to the Gulf of Mexico/America (Gulf) and approximately 1.8 miles offshore from San Jose Island.

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

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

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

☐ Yes ☒ No

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

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

For all applications involving an average daily discharge of 5 MGD or more, provide the names of all counties located within 100 statute miles downstream of the point(s) of discharge: N/A

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

☐ Yes ☐ No or New Permit ☐ N/A

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

- j. City nearest the disposal site: N/A

- k. County in which the disposal site is located: N/A

- l. For TLAPs, describe how effluent is/will be routed from the treatment facility to the disposal site: N/A

- m. For TLAPs, identify the nearest watercourse to the disposal site to which rainfall runoff might flow if not contained: N/A

Item 12. Miscellaneous Information (Instructions, Page 33)

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

☒ Yes ☐ No

If yes, list each person: Stephanie Bergeron Perdue

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

☐ Yes ☒ No

If yes, provide the following information:

Account no.: N/A

Total amount due: N/A

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

☐ Yes ☒ No

If yes, provide the following information:

Enforcement order no.: N/A

Amount due: N/A

Item 13. Signature Page (Instructions, Page 33)

Permit No: WQ000 N/A

Applicant Name: Port of Corpus Christi Authority of Nueces County

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

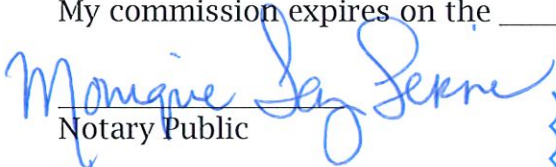
I further certify that I am authorized under 30 Texas Administrative Code §305.44 to sign and submit this document and can provide documentation in proof of such authorization upon request.

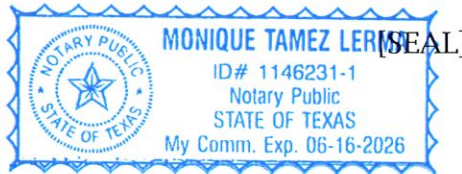
Signatory name (typed or printed): Kent Britton

Signatory title: Chief Executive Officer

Signature:  Date: 3/31/25
(Use blue ink)

Subscribed and Sworn to before me by the said Kent A. Britton
on this 31st day of March, 2025.
My commission expires on the 16th day of June, 2026.


Notary Public
Nueces
County, Texas



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

INDUSTRIAL WASTEWATER PERMIT APPLICATION

ADMINISTRATIVE REPORT 1.1

The following information is required for new and amendment applications.

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

- a. Attach a landowner map or drawing, with scale, as applicable. Check the box next to each item to confirm it has been provided.
- ☒ The applicant's property boundaries.
 - ☒ The facility site boundaries within the applicant's property boundaries.
 - ☒ The distance the buffer zone falls into adjacent properties and the property boundaries of the landowners located within the buffer zone.
 - ☐ The property boundaries of all landowners surrounding the applicant's property. (Note: if the application is a major amendment for a lignite mine, the map must include the property boundaries of all landowners adjacent to the new facility (ponds).)
 - ☒ The point(s) of discharge and highlighted discharge route(s) clearly shown for one mile downstream.
 - ☒ The property boundaries of the landowners located on both sides of the discharge route for one full stream mile downstream of the point of discharge.
 - ☒ The property boundaries of the landowners along the watercourse for a one-half mile radius from the point of discharge if the point of discharge is into a lake, bay, estuary, or affected by tides.
 - ☐ The boundaries of the effluent disposal site (e.g., irrigation area or subsurface drainfield site) and all evaporation/holding ponds within the applicant's property.
 - ☐ The property boundaries of all landowners surrounding the applicant's property boundaries where the effluent disposal site is located.
 - ☐ The boundaries of the sludge land application site (for land application of sewage sludge for beneficial use) and the property boundaries of landowners within one-quarter mile of the applicant's property boundaries where the sewage sludge land application site is located.
 - ☐ The property boundaries of landowners within one-half mile in all directions from the applicant's property boundaries where the sewage sludge disposal site (e.g., sludge surface disposal site or sludge monofil) is located.
- Attachment: A-4
- b. ☒ that the landowners list has also been provided as mailing labels in electronic format (Avery 5160). A-5 -2, A-5-3
- c. Check this box to confirm a separate list with the landowners' names and mailing addresses cross-referenced to the landowner's map has been provided. Provide the source of the landowners' names and mailing addresses: Source of landowners' cross-referenced map: Nueces County and PCCA real estate department.

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

☐ Yes ☒ No

If yes, provide the location and foreseeable impacts and effects this application has on the land(s): N/A

Item 2. Original Photographs (Instructions, Page 37)

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

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

Attachment: N/A - Peter Schaefer, TCEQ, advised that PCCA did not need to submit photos of open water in the Gulf.

**Supplemental Permit Information Page
(SPIF)**

INDUSTRIAL WASTEWATER PERMIT APPLICATION

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

This form applies to TPDES permit applications only. Complete and attach the Supplemental Permit information Form (SPIF) (TCEQ Form 20971).

Attachment: SPIF

WATER QUALITY PERMIT

PAYMENT SUBMITTAL FORM

Use this form to submit the Application Fee, if mailing the payment. (Instructions, Page 36-37)

- Complete items 1 through 5 below.
- Staple the check or money order in the space provided at the bottom of this document.
- Do not mail this form with the application form.
- Do not mail this form to the same address as the application.
- Do not submit a copy of the application with this form as it could cause duplicate permit entries.

Mail this form and the check or money order to:

BY REGULAR U.S. MAIL

Texas Commission on Environmental Quality
Financial Administration Division
Cashier's Office, MC-214
P.O. Box 13088
Austin, Texas 78711-3088

BY OVERNIGHT/EXPRESS MAIL

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

Fee Code: WQP **Permit No:** WQ000N/A - new application

1. Check or Money Order Number: N/A Electronic Payment
2. Check or Money Order Amount: N/A Electronic Payment
3. Date of Check or Money Order: N/A Electronic Payment
4. Name on Check or Money Order: N/A Electronic Payment
5. APPLICATION INFORMATION

Name of Project or Site: Harbor Island Desalination Facility

Physical Address of Project or Site: 225 Hwy 361 - The proposed desalination facility is located on Harbor Island, east of HWY 361 in Port Aransas, Nueces County, Texas. From the intersection of HWY 361 and Harbor Island Drive, head south approximately 0.8 miles, the facility is to the east of the highway.

If the check is for more than one application, attach a list which includes the name of each Project or Site (RE) and Physical Address, exactly as provided on the application.

Attachment: N/A

Staple Check or Money Order in This Space

ATTACHMENT 1

INDIVIDUAL INFORMATION

Item 1. Individual information (Instructions, Page 38)

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

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

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

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

Date of Birth: N/A

Mailing Address: N/A

City, State, and Zip Code: N/A

Phone No.: N/A

Fax No.: N/A

E-mail Address: N/A

CN: N/A

INDUSTRIAL WASTEWATER PERMIT APPLICATION CHECKLIST OF COMMON DEFICIENCIES

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

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

Things to Know:

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

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

Technical Report 1.0

Worksheet 2 Pollutant Characterization

Worksheet 4 Receiving Waters



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

INDUSTRIAL WASTEWATER PERMIT APPLICATION TECHNICAL REPORT 1.0

The following information **is required** for all applications for a TLAP or an individual TPDES discharge permit.

For **additional information** or clarification on the requested information, please refer to the [Instructions for Completing the Industrial Wastewater Permit Application](https://www.tceq.texas.gov/permitting/wastewater/industrial/TPDES_industrial_wastewater_steps.html)¹ available on the TCEQ website. Please contact the Industrial Permits Team at 512-239-4671 with any questions about this form.

If more than one outfall is included in the application, provide applicable information for each individual outfall. **If an item does not apply to the facility, enter N/A** to indicate that the item has been considered. Include separate reports or additional sheets as **clearly cross-referenced attachments** and provide the attachment number in the space provided for the item the attachment addresses.

NOTE: This application is for an industrial wastewater permit only. Additional authorizations from the TCEQ Waste Permits Division or the TCEQ Air Permits Division may be needed.

Item 1. Facility/Site Information (Instructions, Page 39)

- a. Describe the general nature of the business and type(s) of industrial and commercial activities. Include all applicable SIC codes (up to 4).

The Port of Corpus Christi Authority of Nueces County proposes to construct a 100-million gallon per day marine seawater desalination facility and associated infrastructure to produce a reliable, drought-resilient water supply for the Coastal Bend region. This will include construction of a seawater intake pipe, a discharge outfall pipe with diffuser infrastructure, and a finished water distribution pipeline that will run from the facility north to Aransas Pass. It will require seawater collection and will return effluent water to Gulf of Mexico/America (Gulf).

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

Pre-treatment of the seawater will include removing suspended sediment (total suspended solids – TSS) using several clarification and filtration pretreatment processes, each successively removing smaller particles. The pretreated seawater, which will have essentially all particulate solids removed, will be desalinated using reverse osmosis. Reverse osmosis concentrates the salts (total dissolved solids – TDS) in the seawater in a brine reject stream and produces low TDS in the permeate (product water). The permeate will then be treated to reduce corrosiveness, chlorinated, and distributed to users in the coastal bend counties. The suspended solids will be concentrated into a dried sludge for offsite disposal. The dewatering filtrate, thickener supernatant and the brine reject stream are combined and will be discharged to the Gulf through a high-rate effluent diffuser. See Attachment: T-1.

¹

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

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

Materials List

Raw Materials	Intermediate Products	Final Products
Sea water from the Gulf	None	Potable Use Water

Attachment: T-1

- d. Attach a facility map (drawn to scale) with the following information:

- Production areas, maintenance areas, materials-handling areas, waste-disposal areas, and water intake structures.
- The location of each unit of the WWTP including the location of wastewater collection sumps, impoundments, outfalls, and sampling points, if significantly different from outfall locations.

Attachment: T-2

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

☐ Yes ☒ No

If **yes**, provide background discussion: N/A

- f. Is/will the treatment facility/disposal site be located above the 100-year frequency flood level.

☒ Yes ☐ No

List source(s) used to determine 100-year frequency flood plain: FEMA Flood Insurance Rate Map Panel number 485498 0001 F dated September 30, 1992. The facility is located in Zone X outside the 500 year flood plain.

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

Attachment: N/A

- g. For **new** or **major amendment** permit applications, will any construction operations result in a discharge of fill material into a water in the state?

☒ Yes ☐ No ☐ N/A (renewal only)

- h. If **yes** to Item 1.g, has the applicant applied for a USACE CWA Chapter 404 Dredge and Fill permit?

☒ Yes ☐ No

If **yes**, provide the permit number: SWG-2025-00112

If **no**, provide an approximate date of application submittal to the USACE: N/A

Item 2. Treatment System (Instructions, Page 40)

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

See Attachment T-1

- b. Attach a flow schematic **with a water balance** showing all sources of water and wastewater flow into the facility, wastewater flow into and from each treatment unit, and wastewater flow to each outfall/point of disposal.

Attachment: Attachment T-1

Item 3. Impoundments (Instructions, Page 40)

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

☐ Yes ☒ No

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

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

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

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

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

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

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

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

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

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

Impoundment Information

Parameter	Pond #	Pond #	Pond #	Pond #
Use Designation: (T) (D) (C) or (E)	<u>N/A</u>			
Associated Outfall Number				
Liner Type (C) (I) (S) or (A)				
Alt. Liner Attachment Reference				
Leak Detection System, Y/N				
Groundwater Monitoring Wells, Y/N				
Groundwater Monitoring Data Attachment				
Pond Bottom Located Above The Seasonal High-Water Table, Y/N				
Length (ft)				
Width (ft)				
Max Depth From Water Surface (ft), Not Including Freeboard				
Freeboard (ft)				
Surface Area (acres)				
Storage Capacity (gallons)				
40 CFR Part 257, Subpart D, Y/N				
Date of Construction				

Attachment: N/A

The following information (**Items 3.b – 3.e**) is required only for **new or proposed** impoundments.

- b. For new or proposed impoundments, attach any available information on the following items. If attached, check **yes** in the appropriate box. Otherwise, check **no** or **not yet designed**.

1. Liner data

☐ Yes ☐ No ☐ Not yet designed

2. Leak detection system or groundwater monitoring data

☐ Yes ☐ No ☐ Not yet designed

3. Groundwater impacts

☐ Yes ☐ No ☐ Not yet designed

NOTE: Item b.3 is required if the bottom of the pond is not above the seasonal high-water table in the shallowest water-bearing zone.

Attachment: N/A

For TLAP applications: Items 3.c – 3.e are not required, continue to Item 4.

- c. Attach a USGS map or a color copy of original quality and scale which accurately locates and identifies all known water supply wells and monitor wells within ½-mile of the impoundments.

Attachment: N/A

- d. Attach copies of State Water Well Reports (e.g., driller's logs, completion data, etc.), and data on depths to groundwater for all known water supply wells including a description of how the depths to groundwater were obtained.

Attachment: N/A

- e. Attach information pertaining to the groundwater, soils, geology, pond liner, etc. used to assess the potential for migration of wastes from the impoundments or the potential for contamination of groundwater or surface water.

Attachment: N/A

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

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

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

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

Outfall Longitude and Latitude

Outfall No.	Latitude (Decimal Degrees)	Longitude (Decimal Degrees)
001	27.848836°	97.009531°W

Outfall Location Description

Outfall No.	Location Description
001	Outfall will consist of a buried/submerged pipe and diffuser into the Gulf.

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

Outfall No.	Description of sampling point
001	The sampling point will be on land following comingling of all wastewaters and prior to discharging into the Gulf.

Outfall Flow Information - Permitted and Proposed

Outfall No.	Permitted Daily Avg Flow (MGD)	Permitted Daily Max Flow (MGD)	Proposed Daily Avg Flow (MGD)	Proposed Daily Max Flow (MGD)	Anticipated Discharge Date (mm/dd/yy)
001	N/A	N/A	191.2	191.2	

Outfall Discharge - Method and Measurement

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

Outfall Discharge - Flow Characteristics

Outfall No.	Intermittent Discharge? Y/N	Continuous Discharge? Y/N	Seasonal Discharge? Y/N	Discharge Duration (hrs/day)	Discharge Duration (days/mo)	Discharge Duration (mo/yr)
001	N	Y	N	24	30.417	12

Outfall Wastestream Contributions

Outfall No. 001

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow
Reverse Osmosis Reject	150	78.5
Pre-Treatment System Reject	41.2	21.5

Outfall No. N/A

Contributing Wastestream	Volume (MGD)	Percent (%) of Total Flow
Click to enter text.		

Outfall No. N/A

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

Attachment: N/A

Item 5. Blowdown and Once-Through Cooling Water Discharges (Instructions, Page 43)

a. Indicate if the facility currently or proposes to:

- ☐ Yes ☒ No Use cooling towers that discharge blowdown or other wastestreams
- ☐ Yes ☒ No Use boilers that discharge blowdown or other wastestreams
- ☐ Yes ☒ No Discharge once-through cooling water

NOTE: If the facility uses or plans to use cooling towers or once-through cooling water, Item 12 **is required**.

b. If **yes** to any of the above, attach an SDS with the following information for each chemical additive.

- Manufacturers Product Identification Number
- Product use (e.g., biocide, fungicide, corrosion inhibitor, etc.)
- Chemical composition including CASRN for each ingredient
- Classify product as non-persistent, persistent, or bioaccumulative
- Product or active ingredient half-life
- Frequency of product use (e.g., 2 hours/day once every two weeks)
- Product toxicity data specific to fish and aquatic invertebrate organisms
- Concentration of whole product or active ingredient, as appropriate, in wastestream.

In addition to each SDS, attach a summary of the above information for each specific wastestream and the associated chemical additives. Specify which outfalls are affected.

Attachment: N/A

c. Cooling Towers and Boilers

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

Cooling Towers and Boilers

Type of Unit	Number of Units	Daily Avg Blowdown (gallons/day)	Daily Max Blowdown (gallons/day)
Cooling Towers	<u>N/A</u>		
Boilers			

Item 6. Stormwater Management (Instructions, Page 44)

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

- ☐ Yes ☒ No

If **yes**, briefly describe the industrial processes and activities that occur outdoors or in a manner which may result in exposure of the activities or materials to stormwater: N/A

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

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

- a. Check the box next to the appropriate method of domestic sewage and domestic sewage sludge treatment or disposal. Complete Worksheet 5.0 or Item 7.b if directed to do so.
- ☐ Domestic sewage is routed (i.e., connected to or transported to) to a WWTP permitted to receive domestic sewage for treatment, disposal, or both. Complete Item 7.b.
 - ☒ Domestic sewage disposed of by an on-site septic tank and drainfield system. Complete Item 7.b.
 - ☐ Domestic and industrial treatment sludge ARE commingled prior to use or disposal.
 - ☐ Industrial wastewater and domestic sewage are treated separately, and the respective sludge IS NOT commingled prior to sludge use or disposal. Complete Worksheet 5.0.
 - ☐ Facility is a POTW. Complete Worksheet 5.0.
 - ☐ Domestic sewage is not generated on-site.
 - ☐ Other (e.g., portable toilets), specify and Complete Item 7.b: N/A
- b. Provide the name and TCEQ, NPDES, or TPDES Permit No. of the waste-disposal facility which receives the domestic sewage/septage. If hauled by motorized vehicle, provide the name and TCEQ Registration No. of the hauler.

Domestic Sewage Plant/Hauler Name

Plant/Hauler Name	Permit/Registration No.
TBD during design	TBD during design

Item 8. Improvements or Compliance/Enforcement Requirements (Instructions, Page 45)

- a. Is the permittee currently required to meet any implementation schedule for compliance or enforcement?
- ☐ Yes ☒ No
- b. Has the permittee completed or planned for any improvements or construction projects?
- ☐ Yes ☒ No
- c. If **yes** to either 8.a or 8.b, provide a brief summary of the requirements and a status update: N/A

Item 9. Toxicity Testing (Instructions, Page 45)

Have any biological tests for acute or chronic toxicity been made on any of the discharges or on a receiving water in relation to the discharge within the last three years?

☐ Yes ☒ No

If **yes**, identify the tests and describe their purposes: Salinity toxicity in synthetic seawater

Additionally, attach a copy of all tests performed which **have not** been submitted to the TCEQ or EPA. **Attachment:** N/A

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

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

☐ Yes ☒ No

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

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

b. Attach the following information to the application:

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

Attachment: N/A

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

☐ Yes ☐ No

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

Attachment: N/A

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

☐ Yes ☐ No

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

Item 11. Radioactive Materials (Instructions, Page 46)

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

☐ Yes ☒ No

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

Radioactive Materials Mined, Used, Stored, or Processed

Radioactive Material Name	Concentration (pCi/L)
N/A	

- b. Does the applicant or anyone at the facility have any knowledge or reason to believe that radioactive materials may be present in the discharge, including naturally occurring radioactive materials in the source waters or on the facility property?

☐ Yes ☒ No

If **yes**, use the following table to provide the results of one analysis of the effluent for all radioactive materials that may be present. Provide results in pCi/L. Do not include information provided in response to Item 11.a.

Radioactive Materials Present in the Discharge

Radioactive Material Name	Concentration (pCi/L)
N/A	

Item 12. Cooling Water (Instructions, Page 46)

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

- ☐ Yes
☒ No
☐ Decommissioned: N/A
☐ To Be Decommissioned: N/A

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

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

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

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

☐ Yes ☐ No

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

c. Cooling Water Supplier

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

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

CWIS ID	<u>N/A</u>			
Owner				
Operator				

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

☐ No ☐ Yes; PWS No.: N/A

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

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

☐ No ☐ Yes; Auth No.: N/A

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

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

☐ No ☐ Yes; AIF: N/A

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

d. 316(b) General Criteria

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

☐ Yes ☐ No

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

☐ Yes ☐ No

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

☐ Yes ☐ No. Explanation: N/A

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

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

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

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

☐ Yes ☐ No

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

f. Oil and Gas Exploration and Production

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

☐ Yes ☐ No

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

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

☐ Yes ☐ No

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

g. Compliance Phase and Track Selection

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

☐ Yes ☐ No

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

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

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

☐ Track I – AIF greater than 10 MGD

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

☐ Track II

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

Attachment: N/A

2. Phase II – Existing facility subject to 40 CFR Part 125, Subpart J

☐ Yes ☐ No

If **yes**, complete Worksheets 11.0 through 11.3, as applicable.

3. Phase III – New facility subject to 40 CFR Part 125, Subpart N

☐ Yes ☐ No

If **yes**, check the box next to the compliance track selection and provide the requested information.

☐ Track I – Fixed facility

- Attach information required by 40 CFR § 125.136(b) and complete Worksheet 11.0, Items 2 and 3, and Worksheet 11.2.

- ☐ Track I - Not a fixed facility
 - Attach information required by 40 CFR § 125.136(b) and complete Worksheet 11.0, Item 2 (except CWIS latitude/longitude under Item 2.a).
- ☐ Track II - Fixed facility
 - Attach information required by 40 CFR § 125.136(c) and complete Worksheet 11.0, Items 2 and 3.

Attachment: N/A

Item 13. Permit Change Requests (Instructions, Page 48)

This item is only applicable to existing permitted facilities.

a. Is the facility requesting a **major amendment** of an existing permit?

☐ Yes ☒ No

If **yes**, list each request individually and provide the following information: 1) detailed information regarding the scope of each request and 2) a justification for each request. Attach any supplemental information or additional data to support each request.

N/A

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

☐ Yes ☒ No

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

N/A

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

☐ Yes ☒ No

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

N/A

Item 14. Laboratory Accreditation (Instructions, Page 49)

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

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

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

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

CERTIFICATION:

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

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

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

Signature: _____

Date: _____

INDUSTRIAL WASTEWATER PERMIT APPLICATION

WORKSHEET 1.0: EPA CATEGORICAL EFFLUENT GUIDELINES

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

Item 1. Categorical Industries (Instructions, Page 53)

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

☐ Yes ☒ No

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

40 CFR Effluent Guideline

Industry	40 CFR Part
N/A	

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

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

a. Production Data

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

Production Data

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

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

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

Percentage of Total Production

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

c. Refineries (40 CFR Part 419)

Provide the applicable subcategory and a brief justification.

N/A

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

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

N/A

Item 4. New Source Determination (Instructions, Page 54)

Provide a list of all wastewater-generating processes subject to EPA categorical ELGs, identify the appropriate guideline Part and Subpart, and provide the date the process/construction commenced.

Wastewater Generating Processes Subject to Effluent Guidelines

Process	EPA Guideline Part	EPA Guideline Subpart	Date Process/ Construction Commenced
N/A			

INDUSTRIAL WASTEWATER PERMIT APPLICATION

WORKSHEET 2.0: POLLUTANT ANALYSIS

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

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

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

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

Attach correspondence from TCEQ approving submittal of less than the required number of samples, if applicable. **Attachment:** N/A

TABLE 1 and TABLE 2 (Instructions, Page 58)

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

Table 1 for Outfall No.: Estimated average concentration is based upon 4 samples at Gulf intake location and 40% recovery in the desalination facility. Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)
BOD (5-day)	<2			
CBOD (5-day)	<2			
Chemical oxygen demand				
Total organic carbon	<5			
Dissolved oxygen				
Ammonia nitrogen	<0.08			
Total suspended solids	<30			
Nitrate nitrogen	<10.0			
Total organic nitrogen	<0.5			
Total phosphorus	<0.05			
Oil and grease	<5.0			
Total residual chlorine				

Pollutant	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)
Total dissolved solids	53,400			
Sulfate	2,300			
Chloride	3,500			
Fluoride	<10.0			
Total alkalinity (mg/L as CaCO3)	180			
Temperature (°F)				
pH (standard units)	8.2			

Table 2 for Outfall No.: Estimated average concentration is based upon 4 samples at Gulf intake location and 40% recovery in the desalination facility. Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1 (µg/L)	Sample 2 (µg/L)	Sample 3 (µg/L)	Sample 4 (µg/L)	MAL (µg/L)
Aluminum, total	74.6 J				2.5
Antimony, total	<5.30				5
Arsenic, total	3.01J				0.5
Barium, total	19.9 J				3
Beryllium, total	<0.91				0.5
Cadmium, total	<0.77				1
Chromium, total	<2.51				3
Chromium, hexavalent	<2.51				3
Chromium, trivalent	<2.51				N/A
Copper, total	<2.5				2
Cyanide, available	<2.0				2/10
Lead, total	<1.20				0.5
Mercury, total	<0.0006				0.005/0.0005
Nickel, total	2.5				2
Selenium, total	<8.60				5
Silver, total	<0.44				0.5
Thallium, total	<2.50				0.5
Zinc, total	<10.0				5.0

TABLE 3 (Instructions, Page 58)

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

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

Table 3 for Outfall No.: Estimated average concentration is based upon 4 samples at Gulf intake location and 40% recovery in the desalination facility. Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
Acrylonitrile	<10.0				50
Anthracene	<5.00				10
Benzene	<5.00				10
Benzidine	<5.00				50
Benzo(a)anthracene	<5.00				5
Benzo(a)pyrene	<5.00				5
Bis(2-chloroethyl)ether	<5.00				10
Bis(2-ethylhexyl)phthalate	<5.00				10
Bromodichloromethane [Dichlorobromomethane]	<5.00				10
Bromoform	<5.00				10
Carbon tetrachloride	<5.00				2
Chlorobenzene	<5.00				10
Chlorodibromomethane [Dibromochloromethane]	<5.00				10
Chloroform	<5.00				10
Chrysene	<5.00				5
m-Cresol [3-Methylphenol]	<5.00				10
o-Cresol [2-Methylphenol]	<5.00				10
p-Cresol [4-Methylphenol]	<5.00				10
1,2-Dibromoethane	<5.00				10
m-Dichlorobenzene [1,3-Dichlorobenzene]	<5.00				10
o-Dichlorobenzene [1,2-Dichlorobenzene]	<5.00				10
p-Dichlorobenzene [1,4-Dichlorobenzene]	<5.00				10
3,3'-Dichlorobenzidine	<5.00				5

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
1,2-Dichloroethane	<5.00				10
1,1-Dichloroethene [1,1-Dichloroethylene]	<5.00				10
Dichloromethane [Methylene chloride]	<5.00				20
1,2-Dichloropropane	<5.00				10
1,3-Dichloropropene [1,3-Dichloropropylene]	<5.00				10
2,4-Dimethylphenol	<5.00				10
Di-n-Butyl phthalate	<5.00				10
Epichlorohydrin (1-Chloro-2,3-epoxypropane)					---
Ethylbenzene	<5.00				10
Ethylene Glycol					---
Fluoride	<10,000				500
Hexachlorobenzene	<5.00				5
Hexachlorobutadiene	<5.00				10
Hexachlorocyclopentadiene	<5.00				10
Hexachloroethane	<5.00				20
4,4'-Isopropylidenediphenol (bisphenol A)					1
Methyl ethyl ketone	<10.0				50
Methyl tert-butyl ether (MTBE)					---
Nitrobenzene	<5.00				10
N-Nitrosodiethylamine	<5.00				20
N-Nitroso-di-n-butylamine	<5.00				20
Nonylphenol	<5.00				333
Pentachlorobenzene	<5.00				20
Pentachlorophenol	<5.00				5
Phenanthrene	<5.00				10
Polychlorinated biphenyls (PCBs) (**)	<0.0125				0.2
Pyridine	<5.00				20
1,2,4,5-Tetrachlorobenzene	<5.00				20
1,1,2,2-Tetrachloroethane	<5.00				10
Tetrachloroethene	<5.00				10

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
[Tetrachloroethylene]					
Toluene	<5.00				10
1,1,1-Trichloroethane	<5.00				10
1,1,2-Trichloroethane	<5.00				10
Trichloroethene [Trichloroethylene]	<5.00				10
2,4,5-Trichlorophenol	<5.00				50
TTHM (Total trihalomethanes)	<5.00				10
Vinyl chloride	<2.00				10

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

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

TABLE 4 (Instructions, Pages 58-59)

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

a. Tributyltin

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

☐ Yes ☒ No

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

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

b. Enterococci (discharge to saltwater)

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

☐ Yes ☒ No

Domestic wastewater is/will be discharged.

☐ Yes ☒ No

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

c. E. coli (discharge to freshwater)

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

☐ Yes ☒ No

Domestic wastewater is/will be discharged.

☐ Yes ☒ No

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

Table 4 for Outfall No.: N/A

Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1	Sample 2	Sample 3	Sample 4	MAL
Tributyltin (µg/L)					0.010
Enterococci (cfu or MPN/100 mL)					N/A
<i>E. coli</i> (cfu or MPN/100 mL)					N/A

TABLE 5 (Instructions, Page 59)

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

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

☒ N/A

Table 5 for Outfall No.: N/A

Samples are (check one): ☐ Composite ☐ Grab

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
Aldrin					0.01
Carbaryl					5
Chlordane					0.2
Chlorpyrifos					0.05
4,4'-DDD					0.1
4,4'-DDE					0.1
4,4'-DDT					0.02
2,4-D					0.7
Danitol [Fenpropathrin]					—
Demeton					0.20
Diazinon					0.5/0.1

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)*
Dicofol [Kelthane]					1
Dieldrin					0.02
Diuron					0.090
Endosulfan I (<i>alpha</i>)					0.01
Endosulfan II (<i>beta</i>)					0.02
Endosulfan sulfate					0.1
Endrin					0.02
Guthion [Azinphos methyl]					0.1
Heptachlor					0.01
Heptachlor epoxide					0.01
Hexachlorocyclohexane (<i>alpha</i>)					0.05
Hexachlorocyclohexane (<i>beta</i>)					0.05
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]					0.05
Hexachlorophene					10
Malathion					0.1
Methoxychlor					2.0
Mirex					0.02
Parathion (ethyl)					0.1
Toxaphene					0.3
2,4,5-TP [Silvex]					0.3

* Indicate units if different from µg/L.

TABLE 6 (Instructions, Page 59)

Completion of Table 6 is required for all external outfalls.

Table 6 for Outfall No.: **Estimated average concentration is based upon 4 samples at Gulf intake location and 40% recovery in the desalination facility.** Samples are (check one):

☐ Composite

☒ Grab

Pollutants	Believed Present	Believed Absent	Sample 1 (mg/L)	Sample 2 (mg/L)	Sample 3 (mg/L)	Sample 4 (mg/L)	MAL (µg/L)*
Bromide	☒	☐	75				400
Color (PCU)	☒	☐	5				—
Nitrate-Nitrite (as N)	☐	☒	<10.0				—
Sulfide (as S)	☐	☒	<0.05				—
Sulfite (as SO ₃)	☐	☒					—
Surfactants	☐	☒	<0.087				—
Boron, total	☒	☐	6.1				20
Cobalt, total	☐	☒	<0.4				0.3
Iron, total	☐	☒	<0.5				7
Magnesium, total	☒	☐	1,600				20
Manganese, total	☒	☐	6				0.5
Molybdenum, total	☒	☐	14				1
Tin, total	☐	☒	<0.58				5
Titanium, total	☒	☐	<3.9				30

TABLE 7 (Instructions, Page 60)

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

☒ N/A

Table 7 for Applicable Industrial Categories

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

* Test if believed present.

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

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

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

Table 8 for Outfall No.: N/A: Volatile Compounds

Samples are (check one):

☐ Composite

☐ Grab

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

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

* Indicate units if different from µg/L.

Table 9 for Outfall No.: **N/A: Acid Compounds**

Samples are (check one):

☐ Composite

☐ Grab

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

* Indicate units if different from µg/L.

Table 10 for Outfall No.: **N/A: Base/Neutral Compounds**

Samples are (check one):

☐ Composite

☐ Grab

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

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

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
Nitrobenzene					10
N-Nitrosodimethylamine					50
N-Nitrosodi-n-propylamine					20
N-Nitrosodiphenylamine					20
Phenanthrene					10
Pyrene					10
1,2,4-Trichlorobenzene					10

* Indicate units if different from µg/L.

Table 11 for Outfall No.: **N/A: Pesticides** Samples are (check one): ☐ Composite ☐ Grab

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

Pollutant	Sample 1 (µg/L)*	Sample 2 (µg/L)*	Sample 3 (µg/L)*	Sample 4 (µg/L)*	MAL (µg/L)
PCB 1232					0.2
PCB 1248					0.2
PCB 1260					0.2
PCB 1016					0.2
Toxaphene					0.3

* Indicate units if different from µg/L.

Attachment: N/A

TABLE 12 (DIOXINS/FURAN COMPOUNDS)

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

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

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

Description: N/A

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

- ☐ Yes ☒ No

Description: N/A

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

Table 12 for Outfall No.: N/A

Samples are (check one): ☐ Composite ☐ Grab

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

Compound	Toxicity Equivalent Factors	Wastewater Concentration (ppq)	Wastewater Toxicity Equivalents (ppq)	Sludge Concentration (ppt)	Sludge Toxicity Equivalents (ppt)	MAL (ppq)
1,2,3,4,6,7,8-HpCDD	0.01					50
2,3,7,8-TCDF	0.1					10
1,2,3,7,8-PeCDF	0.03					50
2,3,4,7,8-PeCDF	0.3					50
2,3,7,8-HxCDFs	0.1					50
2,3,4,7,8-HpCDFs	0.01					50
OCDD	0.0003					100
OCDF	0.0003					100
PCB 77	0.0001					500
PCB 81	0.0003					500
PCB 126	0.1					500
PCB 169	0.03					500
Total						

TABLE 13 (HAZARDOUS SUBSTANCES)

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

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

☐ Yes ☒ No

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

☐ Yes ☒ No

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

Table 13 for Outfall No.: N/A

Samples are (check one): ☐ Composite ☒ Grab

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

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

INDUSTRIAL WASTEWATER PERMIT APPLICATION

WORKSHEET 4.0: RECEIVING WATERS

This worksheet **is required** for all TPDES permit applications.

Item 1. Domestic Drinking Water Supply (Instructions, Page 80)

- a. There is a surface water intake for domestic drinking water supply located within 5 (five) miles downstream from the point/proposed point of discharge.

☐ Yes ☒ No

If **no**, stop here and proceed to Item 2. If **yes**, provide the following information:

1. The legal name of the owner of the drinking water supply intake: N/A
2. The distance and direction from the outfall to the drinking water supply intake: N/A

- b. Locate and identify the intake on the USGS 7.5-minute topographic map provided for Administrative Report 1.0.

☐ Check this box to confirm the above requested information is provided.

Item 2. Discharge Into Tidally Influenced Waters (Instructions, Page 80)

If the discharge is to tidally influenced waters, complete this section. Otherwise, proceed to Item 3.

- a. Width of the receiving water at the outfall: 4.9213E+06 feet

- b. Are there oyster reefs in the vicinity of the discharge?

☐ Yes ☒ No

If **yes**, provide the distance and direction from the outfall(s) to the oyster reefs: N/A

- c. Are there sea grasses within the vicinity of the point of discharge?

☐ Yes ☒ No

If **yes**, provide the distance and direction from the outfall(s) to the grasses: N/A

Item 3. Classified Segment (Instructions, Page 80)

The discharge is/will be directly into (or within 300 feet of) a classified segment.

☒ Yes ☐ No

If **yes**, stop here and do not complete Items 4 and 5 of this worksheet or Worksheet 4.1.

If **no**, complete Items 4 and 5 and Worksheet 4.1 may be required.

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

a. Name of the immediate receiving waters: N/A

b. Check the appropriate description of the immediate receiving waters:

☐ Lake or Pond

• Surface area (acres): Click to enter text.

• Average depth of the entire water body (feet): Click to enter text.

• Average depth of water body within a 500-foot radius of the discharge point (feet):
Click to enter text.

☐ Man-Made Channel or Ditch

☐ Stream or Creek

☐ Freshwater Swamp or Marsh

☐ Tidal Stream, Bayou, or Marsh

☐ Open Bay

☐ Other, specify:

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

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

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

☐ Intermittent (dry for at least one week during most years)

☐ Intermittent with Perennial Pools (enduring pools containing habitat to maintain aquatic life uses)

☐ Perennial (normally flowing)

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

☐ USGS flow records

☐ personal observation

☐ historical observation by adjacent landowner(s)

☐ other, specify: N/A

d. List the names of all perennial streams that join the receiving water within three miles downstream of the discharge point: N/A

e. The receiving water characteristics change within three miles downstream of the discharge (e.g., natural or man-made dams, ponds, reservoirs, etc.).

☐ Yes

☐ No

If **yes**, describe how: N/A

- f. General observations of the water body during normal dry weather conditions: N/A

Date and time of observation: N/A

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

☐ Yes ☐ No

If **yes**, describe how: N/A

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

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

☐ oil field activities	☐ urban runoff
☐ agricultural runoff	☐ septic tanks
☐ upstream discharges	☐ other, specify: <u>N/A</u>

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

☐ livestock watering	☐ industrial water supply
☐ non-contact recreation	☐ irrigation withdrawal
☐ domestic water supply	☐ navigation
☐ contact recreation	☐ picnic/park activities
☐ fishing	☐ other, specify: <u>N/A</u>

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

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

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

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

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

INDUSTRIAL WASTEWATER PERMIT APPLICATION

WORKSHEET 4.1: WATERBODY PHYSICAL CHARACTERISTICS

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

Complete the transects downstream of the existing or proposed discharges.

Item 1. Data Collection (Instructions, Page 82)

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

Stream Transect Data

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

* riffle, run, glide, or pool
 ** channel bed to water surface

Item 2. Summarize Measurements (Instructions, Page 83)

Provide the following information regarding the transect measurements:

Streambed slope of entire reach (from USGS map in ft. /ft.): N/A

Approximate drainage area above the most downstream transect from USGS map or county highway map (square miles): N/A

Length of stream evaluated (ft): N/A

Number of lateral transects made: N/A

Average stream width (ft): N/A

Average stream depth (ft): N/A

Average stream velocity (ft/sec): N/A

Instantaneous stream flow (ft³/sec): N/A

Indicate flow measurement method (VERY IMPORTANT – type of meter, floating chip timed over a fixed distance, etc.): N/A

Flow fluctuations (i.e., minor, moderate, or severe): N/A

Size of pools (i.e., large, small, moderate, or none): N/A

Maximum pool depth (ft): N/A

Total number of stream bends: N/A

Number well defined: N/A

Number moderately defined: N/A

Number poorly defined: N/A

Total number of riffles: N/A

Attachment
SPIF

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

SUPPLEMENTAL PERMIT INFORMATION FORM (SPIF)

FOR AGENCIES REVIEWING DOMESTIC OR INDUSTRIAL TPDES WASTEWATER PERMIT APPLICATIONS

TCEQ USE ONLY:

Application type: ____Renewal ____Major Amendment ____Minor Amendment ____New

County: _____ Segment Number: _____

Admin Complete Date: _____

Agency Receiving SPIF:

____ Texas Historical Commission

____ U.S. Fish and Wildlife

____ Texas Parks and Wildlife Department

____ U.S. Army Corps of Engineers

This form applies to TPDES permit applications only. (Instructions, Page 53)

Complete this form as a separate document. TCEQ will mail a copy to each agency as required by our agreement with EPA. If any of the items are not completely addressed or further information is needed, we will contact you to provide the information before issuing the permit. Address each item completely.

Do not refer to your response to any item in the permit application form. Provide each attachment for this form separately from the Administrative Report of the application. The application will not be declared administratively complete without this SPIF form being completed in its entirety including all attachments. Questions or comments concerning this form may be directed to the Water Quality Division's Application Review and Processing Team by email at WQ-ARPTeam@tceq.texas.gov or by phone at (512) 239-4671.

The following applies to all applications:

1. Permittee: Port of Corpus Christi Authority of Nueces County

Permit No. WQ00 N/A

EPA ID No. TX N/A

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

225 Hwy 361 - The proposed desalination facility is located on Harbor Island, east of HWY 361 in Port Aransas, Nueces County, Texas. From the intersection of HWY 361 and Harbor Island Drive, head south approximately 0.8 miles, the facility is to the east of the highway.

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

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

First and Last Name: Sarah Garza

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

Title: Director of Environmental Planning & Compliance

Mailing Address: 400 Charles Zahn, Jr. Dr.

City, State, Zip Code: Corpus Christi, TX, 78401

Phone No.: (361) 885-6163 Ext.: N/A Fax No.: N/A

E-mail Address: sarah@pocca.com

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

N/A

4. Provide a description of the effluent discharge route. The discharge route must follow the flow of effluent from the point of discharge to the nearest major watercourse (from the point of discharge to a classified segment as defined in 30 TAC Chapter 307). If known, please identify the classified segment number.

The effluent discharge route begins at the effluent pump station at the Harbor Island (HI) desalination facility (facility). From this point, it will travel through an 84" discharge pipe to the northeast side of HI where it will transition into a 12' diameter effluent pipe, tunneled underneath the Aransas Pass Channel, Lydia Ann Channel, and San Jose Island at an approximate depth of -65' mean lower low water (MLLW). The effluent will travel approximately 1.8 miles offshore into the Gulf and resurface at approximately 27.848836°N, -97.009531°W, and above the seabed at -37' MLLW.

5. Please provide a separate 7.5-minute USGS quadrangle map with the project boundaries plotted and a general location map showing the project area. Please highlight the discharge route from the point of discharge for a distance of one mile downstream. (This map is required in addition to the map in the administrative report).

Provide original photographs of any structures 50 years or older on the property.

Does your project involve any of the following? Check all that apply.

- ☐ Proposed access roads, utility lines, construction easements
- ☐ Visual effects that could damage or detract from a historic property's integrity
- ☐ Vibration effects during construction or as a result of project design

- ☒ Additional phases of development that are planned for the future
- ☐ Sealing caves, fractures, sinkholes, other karst features
- ☒ Disturbance of vegetation or wetlands

1. List proposed construction impact (surface acres to be impacted, depth of excavation, sealing of caves, or other karst features):

The Project is designed to avoid and minimize impacts by using trenchless tunneling to construct the effluent pipe. A 12 foot tunnel will be constructed approximately -65 feet mean lower low water (MLLW) below the Aransas and Lydia Ann Channels, San Jose Island, and the Gulf seafloor. The Project will result in unavoidable impacts to the Gulf seafloor from construction of the outfall diffuser, which will impact approximately 55,000 square feet of seafloor through the placement of approximately 500 cubic yards of stone.

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

The property is the former site of a petroleum tank farm. Currently, the site is vacant and covered with intermittent natural vegetation.

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

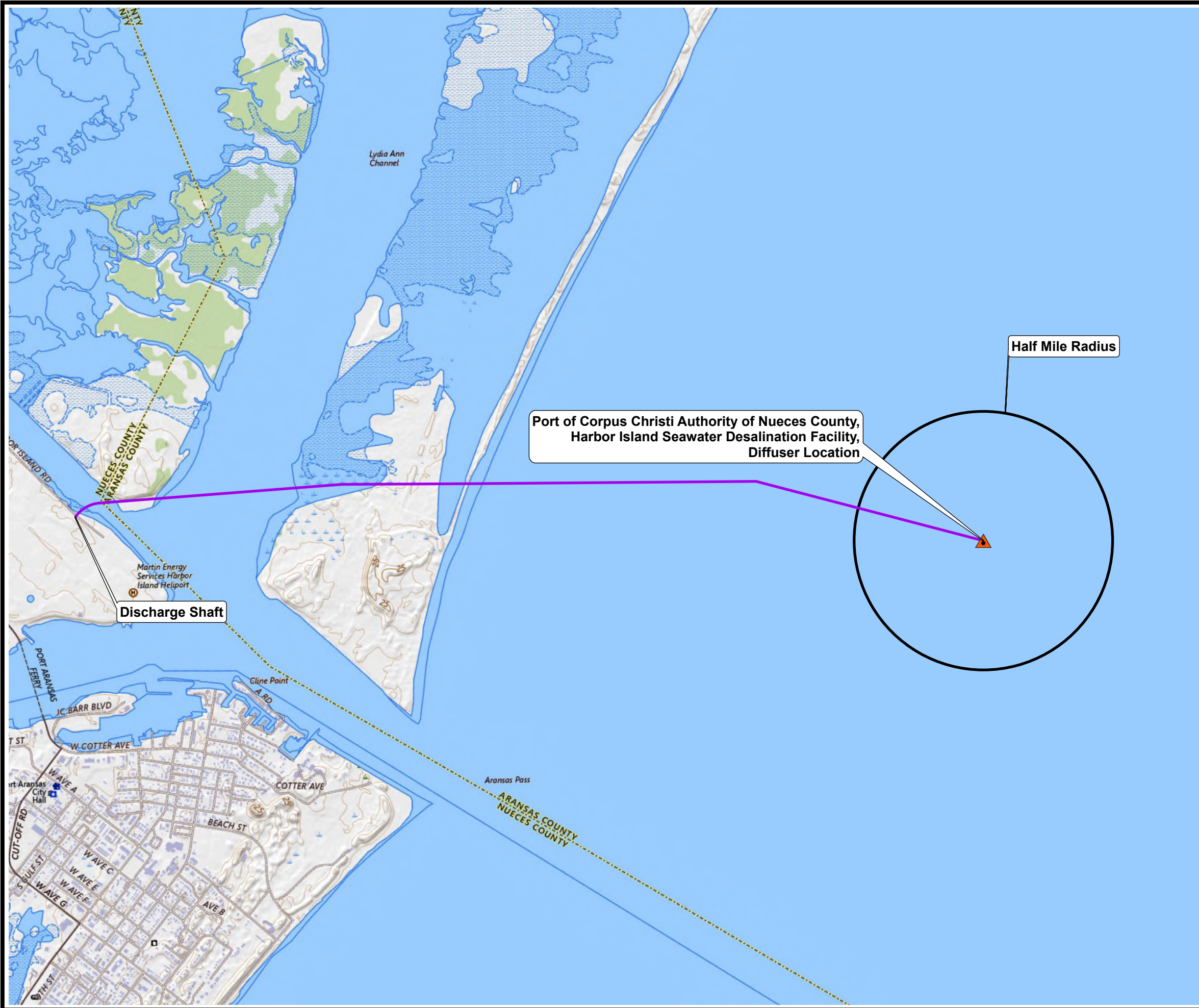
3. List construction dates of all buildings and structures on the property:

N/A - There are no buildings on the upland Harbor Island property or in the Gulf.

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

The property is the location of the former Atofina and Exxon Pipeline Tank Terminals. The tank farms were removed many years ago, and now the property is vacant with no current development.

J:\Prj\Port of Corpus Christi\Harbor Island Seawater Desalination Facility\TPDES 2025\GIS.aprx



LEGEND

-  Diffuser Location, Located within Texas State Waters (≤ 9 Nautical Miles Offshore)
-  Half Mile Radius from Diffuser Location
-  Desalination Wastewater Effluent Pipe (Underground)



Source:
USGS Topographic Quadrangles 7.5 Minute Series:
Port Aransas, TX

0 1,000 2,000
FEET
1" = 2,000 FEET
1:24,000

PORT OF CORPUS CHRISTI AUTHORITY OF NUECES COUNTY HARBOR ISLAND SEAWATER DESALINATION FACILITY DIFFUSER LOCATION

USGS MAP			
DRAWN BY:	S WILSON	SCALE:	PROJ. NO. TPDES 2025
CHECKED BY:	L TISCHLER	AS NOTED	USGS Map
APPROVED BY:	L TISCHLER	DATE PRINTED:	
DATE:	March 2025	3/20/2025	



www.SiteMapLLC.com
Ph. 409-998-1834
Ph. 409-738-2133

Attachment A – 1
Copy of Application Fee Payment

From: steers@tceq.texas.gov
To: [Dives-Gomez, Yvonne](#)
Subject: TCEQ ePay Receipt for 582EA000661467
Date: Friday, March 28, 2025 11:17:55 AM

[EXTERNAL EMAIL] CAUTION: This email originated from outside Port of Corpus. Exercise caution when opening attachments or clicking links.
Please forward any suspicious content to IT Helpdesk.

This is an automated message from the TCEQ ePay system. Please do not reply.

Trace Number: 582EA000661467

Date: 03/28/2025 11:17 AM

Payment Method: CC - Authorization 0000029642

TCEQ Amount: \$350.00

Texas.gov Price: \$358.13*

* This service is provided by Texas.gov, the official website of Texas. The price of this service includes funds that support the ongoing operations and enhancements of Texas.gov, which is provided by a third party in partnership with the State.

Actor: YVONNE DIVES-GOMEZ

Email: ydives-gomez@pocca.com

Payment Contact: YVONNE DIVES-GOMEZ

Phone: 361-885-6606

Company: PORT OF CORPUS CHRISTI AUTHORITY

Address: 400 CHARLES ZAHN JR DRIVE, CORPUS CHRISTI, TX 78401

Fees Paid:

Fee Description AR Number Amount

WW PERMIT - MINOR FACILITY NOT SUBJECT TO 40 CFR 400-471 - NEW \$300.00

30 TAC 305.53B WQ NOTIFICATION FEE \$50.00

TCEQ Amount: \$350.00

=====

Voucher: 759774

Trace Number: 582EA000661467

Date: 03/28/2025 11:17 AM

Payment Method: CC - Authorization 0000029642

Voucher Amount: \$300.00

Fee Paid: WW PERMIT - MINOR FACILITY NOT SUBJECT TO 40 CFR 400-471 - NEW

Site Name: HARBOR ISLAND DESALINATION FACILITY

Site Location: THE PROPOSED DESALINATION FACILITY IS LOCATED ON HARBOR ISLAND EAST OF HWY 361 I

CN Number: CN600885248

Customer Name: PORT OF CORPUS CHRISTI AUTHORITY OF NUECES COUNTY

Customer Address: 400 CHARLES ZAHN JR DRIVE, CORPUS CHRISTI, TX 78401

Voucher: 759775

Trace Number: 582EA000661467

Date: 03/28/2025 11:17 AM

Payment Method: CC - Authorization 0000029642

Voucher Amount: \$50.00

Fee Paid: 30 TAC 305.53B WQ NOTIFICATION FEE

=====

To print out a copy of the receipt and vouchers for this transaction
either click on or copy and paste the following url into your browser:
https://www3.tceq.texas.gov/epay/index.cfm?fuseaction=cor.search&trace_num_txt=582EA000661467.

This e-mail transmission and any attachments are believed to have been sent free of any virus or other defect that might affect any computer system into which it is received and opened. It is, however, the recipient's responsibility to ensure that the e-mail transmission and any attachments are virus free, and the sender accepts no responsibility for any damage that may in any way arise from their use.

Transaction Information

Voucher Number: 759774
Trace Number: 582EA000661467
Date: 03/28/2025 11:17 AM
Payment Method: CC - Authorization 0000029642
Voucher Amount: \$300.00
Fee Type: WW PERMIT - MINOR FACILITY NOT SUBJECT TO 40 CFR 400-471 - NEW
ePay Actor: YVONNE DIVES-GOMEZ
Actor Email: ydives-gomez@pocca.com
IP: 64.183.208.115

Payment Contact Information

Name: YVONNE DIVES-GOMEZ
Company: PORT OF CORPUS CHRISTI AUTHORITY
Address: 400 CHARLES ZAHN JR DRIVE, CORPUS CHRISTI, TX 78401
Phone: 361-885-6606

Site Information

Site Name: HARBOR ISLAND DESALINATION FACILITY
Site Location: THE PROPOSED DESALINATION FACILITY IS LOCATED ON HARBOR ISLAND EAST OF HWY 361

I

Customer Information

CN: CN600885248
Customer Name: PORT OF CORPUS CHRISTI AUTHORITY OF NUECES COUNTY
Customer Address: 400 CHARLES ZAHN JR DRIVE, CORPUS CHRISTI, TX 78401

Transaction Information

Voucher Number: 759775
Trace Number: 582EA000661467
Date: 03/28/2025 11:17 AM
Payment Method: CC - Authorization 0000029642
Voucher Amount: \$50.00
Fee Type: 30 TAC 305.53B WQ NOTIFICATION FEE
ePay Actor: YVONNE DIVES-GOMEZ
Actor Email: ydives-gomez@pocca.com
IP: 64.183.208.115

Payment Contact Information

Name: YVONNE DIVES-GOMEZ
Company: PORT OF CORPUS CHRISTI AUTHORITY
Address: 400 CHARLES ZAHN JR DRIVE, CORPUS CHRISTI, TX 78401
Phone: 361-885-6606

Attachments A – 2
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.

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 600885248		RN 105622112

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>	
Port of Corpus Christi Authority of Nueces County					
7. TX SOS/CPA Filing Number		8. TX State Tax ID (11 digits)		9. Federal Tax ID (9 digits)	
N/A		746000609		N/A	
10. DUNS Number (if applicable)		063069835			
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 Address:		Port of Corpus Christi Authority of Nueces County			
		400 Charles Zahn, Jr. Drive			
City		Corpus Christi	State	TX	ZIP
				78401	ZIP + 4
16. Country Mailing Information (if outside USA)				17. E-Mail Address (if applicable)	
N/A				sarah@pocca.com	

18. Telephone Number	19. Extension or Code	20. Fax Number (if applicable)
(361) 885-6163		() -

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.)								
Harbor Island Desalination Facility								
23. Street Address of the Regulated Entity: (No PO Boxes)	225 Hwy 361							
	City	Port Aransas	State	TX	ZIP	78373	ZIP + 4	
24. County	Nueces							

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

25. Description to Physical Location:	The proposed desalination facility is located on Harbor Island, east of HWY 361 in Port Aransas, Nueces County, Texas. From the intersection of HWY 361 and Harbor Island Drive, head south approximately 0.8 miles, the facility is to the east of the highway.							
26. Nearest City					State	Nearest ZIP Code		
Port Aransas				TX		78373		
<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:		27.848611			28. Longitude (W) In Decimal:		-97.072778	
Degrees	Minutes	Seconds		Degrees	Minutes	Seconds		
27	50	55		97	04	22		
29. Primary SIC Code	30. Secondary SIC Code		31. Primary NAICS Code		32. Secondary NAICS Code			
(4 digits)	(4 digits)		(5 or 6 digits)		(5 or 6 digits)			
4491								
33. What is the Primary Business of this entity? (Do not repeat the SIC or NAICS description.)								
loading/unloading cargo to\from vessels								
34. Mailing Address:	400 Charles Zahn, Jr. Dr.							
	City	Corpus Christi	State	TX	ZIP	78401	ZIP + 4	
35. E-Mail Address:	sarah@pocca.com							
36. Telephone Number	37. Extension or Code		38. Fax Number (if applicable)					
(361) 885-6163			() -					

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

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

SECTION IV: Preparer Information

40. Name:	Sarah Garza			41. Title:	Dir. Env. Planning & Compliance
42. Telephone Number	43. Ext./Code	44. Fax Number	45. E-Mail Address		
(361) 885-6163		() -	sarah@pocca.com		

SECTION V: Authorized Signature

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

Company:	Port of Corpus Christi Authority of Nueces County		Job Title:	Director of Environmental Planning & Compliance	
Name (In Print):	Sarah Garza			Phone:	(361) 885- 6163
Signature:				Date:	3/31/2025

Attachment A – 3
Plain Language Summary



TEXAS COMMISSION ON ENVIRONMENTAL QUALITY

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

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

Applicants should use this template to develop a plain language summary of your facility and application as required by Title 30, Texas Administrative Code (30 TAC), Chapter 39, Subchapter H. You may modify the template as necessary to accurately describe your facility as long as the summary includes the following information: (1) the function of the proposed plant or facility; (2) the expected output of the proposed plant or facility; (3) the expected pollutants that may be emitted or discharged by the proposed plant or facility; and (4) how you will control those pollutants, so that the proposed plant will not have an adverse impact on human health or the environment.

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

If you are subject to the alternative language notice requirements in 30 TAC Section 39.426, **you must provide a translated copy of the completed plain language summary in the appropriate alternative language as part of your application package.** For your convenience, a Spanish template has been provided below.

ENGLISH TEMPLATE FOR TPDES or TLAP NEW/RENEWAL/AMENDMENT APPLICATIONS INDUSTRIAL WASTEWATER/STORMWATER

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and is not a federal enforceable representation of the permit application.

Port of Corpus Christi Authority of Nueces County (CN600885248) proposes to operate the Harbor Island Desalination Facility (RN105622112), a Seawater Desalination Facility. The facility will be located at 225 Hwy 361, in Port Aransas, Nueces County, Texas 78373. This is an application to authorize the discharge of water from seawater pretreatment and reverse osmosis reject water (brine) to the Gulf of Mexico/America. Discharges from the facility are expected to contain suspended solids and seawater salts – primarily salts of sodium, calcium, magnesium, potassium, chloride, and sulfate. The influent seawater will be treated by clarification and filtration pretreatment followed by reverse osmosis treatment that produces freshwater for sale to customers.

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

AGUAS RESIDUALES INDUSTRIALES /AGUAS PLUVIALES

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

La Autoridad del Puerto de Corpus Christi del condado de Nueces (CN600885248) propone operar Harbor Island Instalación de desalinización (RN105622112), una Instalación de desalinización de agua de mar. La instalación estará ubicada en 225 Hwy 361, en Port Aransas, Condado de Nueces, Texas 78373. Esta es una solicitud para autorizar la descarga de agua de mar pretratada y agua de rechazo de ósmosis inversa (salmuera) al Golfo de México/América. Se espera que las descargas de la instalación contengan sólidos en suspensión y sales de agua de mar, principalmente sales de sodio, calcio, magnesio, potasio, cloruro y sulfato. Salmuera de agua de mar . estará tratado por pretratamientos de clarificación y filtración, y ósmosis inversa que produce agua dulce para la venta a los clientes.

INSTRUCTIONS

1. Enter the name of applicant in this section. The applicant name should match the name associated with the customer number.
2. Enter the Customer Number in this section. Each Individual or Organization is issued a unique 11-digit identification number called a CN (e.g. CN123456789).
3. Choose “operates” in this section for existing facility applications or choose “proposes to operate” for new facility applications.
4. Enter the name of the facility in this section. The facility name should match the name associated with the regulated entity number.
5. Enter the Regulated Entity number in this section. Each site location is issued a unique 11-digit identification number called an RN (e.g. RN123456789).
6. Choose the appropriate article (a or an) to complete the sentence.
7. Enter a description of the facility in this section. For example: steam electric generating facility, nitrogenous fertilizer manufacturing facility, etc.
8. Choose “is” for an existing facility or “will be” for a new facility.
9. Enter the location of the facility in this section.
10. Enter the City nearest the facility in this section.
11. Enter the County nearest the facility in this section.
12. Enter the zip code for the facility address in this section.
13. Enter a summary of the application request in this section. For example: renewal to discharge 25,000 gallons per day of treated domestic wastewater, new application to discharge process wastewater and stormwater on an intermittent and flow-variable basis, or major amendment to reduce monitoring frequency for pH, etc. If more than one outfall is included in the application, provide applicable information for each individual outfall.
14. List all pollutants expected in the discharge from this facility in this section. If applicable, refer to the pollutants from any federal numeric effluent limitations that apply to your facility.
15. Enter the discharge types from your facility in this section (e.g., stormwater, process wastewater, once through cooling water, etc.)
16. Choose the appropriate verb tense to complete the sentence.
17. Enter a description of the wastewater treatment used at your facility. Include a description of each process, starting with initial treatment and finishing with the outfall/point of disposal. Use additional lines for individual discharge types if necessary.

Questions or comments concerning this form may be directed to the Water Quality Division's Application Review and Processing Team by email at WQ-ARPTeam@tceq.texas.gov or by phone at (512) 239-4671.

Example 1: Industrial Wastewater TPDES Application (ENGLISH)

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 TAC Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations of the permit application.

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

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

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

Cooling water and boiler make-up water are supplied by Lake Starr Reservoir. The City of Austin municipal water plant (CN600000000, PWS 00000) supplies the facility’s potable water and serves as an alternate source of boiler make-up water. Water from the Lake Starr Reservoir is withdrawn at the intake structure and treated with sodium hypochlorite to prevent biofouling and sodium bromide as a chlorine enhancer to improve efficacy and then passed through condensers and auxiliary equipment on a once-through basis to cool equipment and condense exhaust steam.

Low-volume wastewater from blowdown of boiler Units 1 and 2 and metal-cleaning wastes receive no treatment prior to discharge via Outfall 101. Plant floor and equipment drains and stormwater runoff from diked oil storage areas, yards, and storm drains are routed through an oil and water separator prior to discharge via Outfall 101. Domestic wastewater, blowdown, and backwash water from the service water filter, clarifier, and sand filter are routed to the Starr Creek Domestic Sewage Treatment Plant, TPDES Permit No. WQ0010000001, for treatment and disposal. Metal-cleaning waste from equipment cleaning is generally disposed of off-site.

Example 2: Domestic Wastewater TPDES Renewal application

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 Texas Administrative Code Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations of the permit application.

The City of Texas (CN000000000) operates the City of Texas wastewater treatment plant (RN000000000), an activated sludge process plant operated in the complete mix mode. The facility is located at 123 Texas Street, near the City of More Texas, Texas County, Texas 71234.

This application is for a renewal to discharge at an annual average flow of 1,200,000 gallons per day of treated domestic wastewater via Outfalls 001 and 002.

Discharges from the facility are expected to contain five-day carbonaceous biochemical oxygen demand (CBOD₅), total suspended solids (TSS), ammonia nitrogen (NH₃-N), and *Escherichia coli*. Additional potential pollutants are included in the Domestic Technical Report 1.0, Section 7. Pollutant Analysis of Treated Effluent and Domestic Worksheet 4.0 in the permit application package. Domestic wastewater is treated by an activated sludge process plant and the treatment units include a bar screen, a grit chamber, aeration basins, final clarifiers, sludge digesters, a belt filter press, chlorine contact chambers and a dechlorination chamber.

Example 3: Domestic Wastewater TPDES New Application

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 Texas Administrative Code Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations of the permit application.

The City of Texas (CN000000000) proposes to operate the City of Texas wastewater treatment plant (RN000000000), an activated sludge process plant operated in the extended aeration mode. The facility will be located at 123 Texas Street, in the City of More Texas, Texas County, Texas 71234.

This application is for a new application to discharge at a daily average flow of 200,000 gallons per day of treated domestic wastewater.

Discharges from the facility are expected to contain five-day carbonaceous biochemical oxygen demand (CBOD₅), total suspended solids (TSS), ammonia nitrogen (NH₃-N), and *Escherichia coli*. Additional potential pollutants are included in the Domestic Technical Report 1.0, Section 7. Pollutant Analysis of Treated Effluent in the permit application package. Domestic wastewater will be treated by an activated sludge process plant and the treatment units will include a bar screen, a grit chamber, aeration basins, final clarifiers, sludge digesters, a belt filter press, chlorine contact chambers and a dechlorination chamber.

Example 4: Domestic Wastewater TLAP Renewal application

The following summary is provided for this pending water quality permit application being reviewed by the Texas Commission on Environmental Quality as required by 30 Texas Administrative Code Chapter 39. The information provided in this summary may change during the technical review of the application and are not federal enforceable representations

of the permit application.

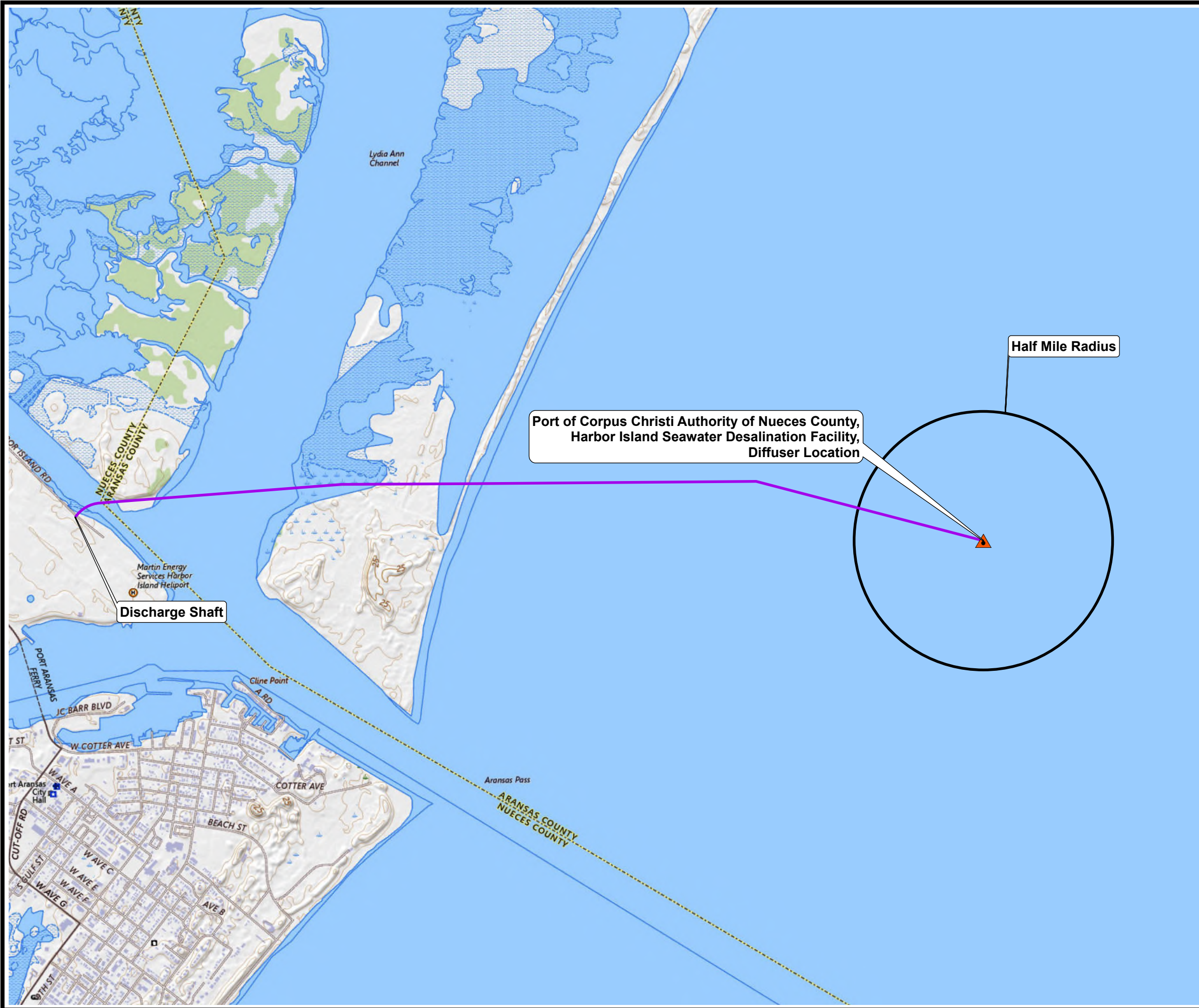
The City of Texas (CN000000000) operates the City of Texas wastewater treatment plant (RN000000000), an activated sludge process plant operated in the complete mix mode. The facility is located at 123 Texas Street, near the City of More Texas, Texas County, Texas 71234.

This application is for a renewal to dispose a daily average flow not to exceed 76,500 gallons per day of treated domestic wastewater via public access subsurface drip irrigation system with a minimum area of 32 acres. This permit will not authorize a discharge of pollutants into water in the state.

Land application of domestic wastewater from the facility are expected to contain five-day biochemical oxygen demand (BOD₅), total suspended solids (TSS), and *Escherichia coli*. Additional potential pollutants are included in the Domestic Technical Report 1.0, Section 7. Pollutant Analysis of Treated Effluent in the permit application package. Domestic wastewater is treated by an activated sludge process plant and the treatment units include a bar screen, an equalization basin, an aeration basin, a final clarifier, an aerobic sludge digester, tertiary filters, and a chlorine contact chamber. In addition, the facility includes a temporary storage that equals to at least three days of the daily average flow.

Attachment A – 4
USGS Map

J:\Prj\Port of Corpus Christi\Harbor Island Seawater Desalination Facility\TPDES 2025\GIS.aprx



LEGEND

-  Diffuser Location, Located within Texas State Waters (≤ 9 Nautical Miles Offshore)
-  Half Mile Radius from Diffuser Location
-  Desalination Wastewater Effluent Pipe (Underground)



Source:
USGS Topographic Quadrangles 7.5 Minute Series:
Port Aransas, TX

0 1,000 2,000
FEET
1" = 2,000 FEET
1:24,000

PORT OF CORPUS CHRISTI AUTHORITY OF NUECES COUNTY HARBOR ISLAND SEAWATER DESALINATION FACILITY DIFFUSER LOCATION

USGS MAP			
DRAWN BY:	S WILSON	SCALE:	TPDES 2025
CHECKED BY:	L TISCHLER	AS NOTED	USGS Map
APPROVED BY:	L TISCHLER	DATE PRINTED:	
DATE:	March 2025	3/20/2025	



www.SiteMapLLC.com
Ph. 409-998-1834
Ph. 409-738-2133

Attachment A – 5
Adjacent Landowner Map

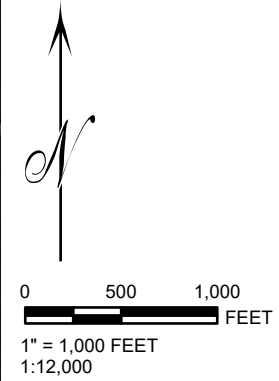
J:\Prj\Port of Corpus Christi\Harbor Island Seawater Desalination Facility\TPDES 2025\GIS.aprx



LEGEND

-  Facility Boundary
-  1 Adjacent Landowners

Adjacent Landowner Source:
Nueces County Appraisal District GIS Data
and Port of Corpus Christi Authority Provided Data



**PORT OF CORPUS CHRISTI AUTHORITY OF NUECES COUNTY
HARBOR ISLAND SEAWATER DESALINATION FACILITY**

ADJACENT LANDOWNER MAP

DRAWN BY:	S WILSON	SCALE:	AS NOTED	PROJ. NO.	TPDES 2025
CHECKED BY:	L TISCHLER			Adjacent Landowner Map	
APPROVED BY:	L TISCHLER	DATE PRINTED:	3/28/2025		
DATE:	March 2025				



www.SiteMapLLC.com
Ph. 409-998-1834
Ph. 409-738-2133

Attachment A – 5-1
Adjacent Landowner List

MAP ID	OWNER NAME	ADDRESS	CITY	STATE	ZIP CODE
1	ERF PORT ARANSAS INC	555 N Carancahua St #700	CORPUS CHRISTI	TX	78401
2	MARTIN OPERATING PARTNERSHIP LP	4900 STONE RD	KILGORE	TX	75662
3	PORT OF CORPUS CHRISTI AUTH	P O BOX 1541	CORPUS CHRISTI	TX	78403
4	STATE OF TEXAS	PO Box 12608	AUSTIN	TX	78711
5	TEXAS DEPARTMENT OF TRANSPORTATION	1701 S PADRE ISLAND DR	CORPUS CHRISTI	TX	78403
6	TEXAS GENERAL LAND OFFICE	1700 CONGRESS AVE	AUSTIN	TX	78701

Attachment A – 5-2

Adjacent Landowner Mailing Labels (on CD)

ERF PORT ARANSAS INC
555 N CARANCAHUA ST #700
CORPUS CHRISTI TX 78401

MARTIN OPERATING PARTNERSHIP
LP
4900 STONE RD
KILGORE TX 75662

TEXAS DEPARTMENT OF
TRANSPORTATION
1701 S PADRE ISLAND DR
CORPUS CHRISTI TX 78403

PORT OF CORPUS CHRISTI AUTH
PO BOX 1541
CORPUS CHRISTI TX 78403

STATE OF TEXAS
PO BOX 12608
AUSTIN TX 78711

TEXAS GENERAL LAND OFFICE
1700 CONGRESS AVE
AUSTIN TX 78701

Attachment
Public Involvement Plan Form



Texas Commission on Environmental Quality

Public Involvement Plan Form for Permit and Registration Applications

The Public Involvement Plan is intended to provide applicants and the agency with information about how public outreach will be accomplished for certain types of applications in certain geographical areas of the state. It is intended to apply to new activities; major changes at existing plants, facilities, and processes; and to activities which are likely to have significant interest from the public. This preliminary screening is designed to identify applications that will benefit from an initial assessment of the need for enhanced public outreach.

All applicable sections of this form should be completed and submitted with the permit or registration application. For instructions on how to complete this form, see TCEQ-20960-inst.

Section 1. Preliminary Screening

New Permit or Registration Application

New Activity - modification, registration, amendment, facility, etc. (see instructions)

If neither of the above boxes are checked, completion of the form is not required and does not need to be submitted.

Section 2. Secondary Screening

Requires public notice,

Considered to have significant public interest, and

Located within any of the following geographical locations:

- Austin
- Dallas
- Fort Worth
- Houston
- San Antonio
- West Texas
- Texas Panhandle
- Along the Texas/Mexico Border
- Other geographical locations should be decided on a case-by-case basis

**If all the above boxes are not checked, a Public Involvement Plan is not necessary.
Stop after Section 2 and submit the form.**

Public Involvement Plan not applicable to this application. Provide **brief** explanation.

The Port of Corpus Christi Authority's application and proposed discharge is located 1.8 miles offshore in the Gulf of Mexico/America (Gulf) and does not fall within one of the specific geographic locations listed above. Additionally, because of the distance of the proposed discharge in the Gulf, a case-by-case review of the location supported a conclusion under the Secondary Screening that a Public Involvement Plan is not applicable to this application.

Section 3. Application Information

Type of Application (check all that apply):

Air	Initial	Federal	Amendment	Standard Permit	Title V
Waste	Municipal Solid Waste	Industrial and Hazardous Waste			Scrap Tire
	Radioactive Material Licensing			Underground Injection Control	

Water Quality

Texas Pollutant Discharge Elimination System (TPDES)
Texas Land Application Permit (TLAP)
State Only Concentrated Animal Feeding Operation (CAFO)
Water Treatment Plant Residuals Disposal Permit
Class B Biosolids Land Application Permit
Domestic Septage Land Application Registration

Water Rights New Permit

New Appropriation of Water	
New or existing reservoir	

Amendment to an Existing Water Right

Add a New Appropriation of Water
Add a New or Existing Reservoir
Major Amendment that could affect other water rights or the environment

Section 4. Plain Language Summary

Provide a brief description of planned activities.

Section 5. Community and Demographic Information

Community information can be found using EPA's EJ Screen, U.S. Census Bureau information, or generally available demographic tools.

Information gathered in this section can assist with the determination of whether alternative language notice is necessary. Please provide the following information.

(City)

(County)

(Census Tract)

Please indicate which of these three is the level used for gathering the following information.

City

County

Census Tract

- (a) Percent of people over 25 years of age who at least graduated from high school
- (b) Per capita income for population near the specified location
- (c) Percent of minority population and percent of population by race within the specified location
- (d) Percent of Linguistically Isolated Households by language within the specified location
- (e) Languages commonly spoken in area by percentage
- (f) Community and/or Stakeholder Groups
- (g) Historic public interest or involvement

Section 6. Planned Public Outreach Activities

(a) Is this application subject to the public participation requirements of Title 30 Texas Administrative Code (30 TAC) Chapter 39?

Yes No

(b) If yes, do you intend at this time to provide public outreach other than what is required by rule?

Yes No

If Yes, please describe.

If you answered "yes" that this application is subject to 30 TAC Chapter 39, answering the remaining questions in Section 6 is not required.

(c) Will you provide notice of this application in alternative languages?

Yes No

Please refer to Section 5. If more than 5% of the population potentially affected by your application is Limited English Proficient, then you are required to provide notice in the alternative language.

If yes, how will you provide notice in alternative languages?

Publish in alternative language newspaper

Posted on Commissioner's Integrated Database Website

Mailed by TCEQ's Office of the Chief Clerk

Other (specify)

(d) Is there an opportunity for some type of public meeting, including after notice?

Yes No

(e) If a public meeting is held, will a translator be provided if requested?

Yes No

(f) Hard copies of the application will be available at the following (check all that apply):

TCEQ Regional Office

TCEQ Central Office

Public Place (specify)

Section 7. Voluntary Submittal

For applicants voluntarily providing this Public Involvement Plan, who are not subject to formal public participation requirements.

Will you provide notice of this application, including notice in alternative languages?

Yes No

What types of notice will be provided?

Publish in alternative language newspaper

Posted on Commissioner's Integrated Database Website

Mailed by TCEQ's Office of the Chief Clerk

Other (specify)

Attachment T-1
Technical Report

ATTACHMENT T-1 TECHNICAL REPORT

The Port of Corpus Christi Authority of Nueces County, Texas (PCCA) intends to construct a desalination facility (the “Facility”) on Harbor Island to produce reliable wholesale water for the Coastal Bend region beyond its current freshwater sources. Lake Corpus Christi, Choke Canyon Reservoir, Lake Texana and the Colorado River currently provide raw water to the region. Recent droughts with increased water demand have emphasized the continued need to find additional drought-proof water sources for the Coastal Bend region. PCCA has requested authorization to divert up to 350,000 acre-ft/year (maximum diversion rate of 217,000 gallons/minute (gpm)) of State Water from the Gulf of Mexico (“State Water”) to the Facility to produce 100 million gallons per day (MGD) (112,000 acre-ft/year) of desalinated product water. Product water will be distributed on a wholesale basis to municipal and industrial entities.

Facility Description

The proposed desalination facility will be located on Harbor Island. The seawater intake will be located in the Gulf of America (Gulf), approximately 1.5 miles from the nearest shoreline.

Pre-treatment of the seawater will include removing suspended sediment (total suspended solids – TSS) using several clarification and filtration pretreatment processes, each successively removing smaller particles. The pretreated seawater, which will have essentially all particulate solids removed, will be desalinated using reverse osmosis. Reverse osmosis concentrates the salts (total dissolved solids – TDS) in the seawater in a brine reject stream and produces low TDS in the permeate (product water). The permeate will then be treated to reduce corrosiveness, chlorinated, and distributed to users in the coastal bend counties. The suspended solids will be concentrated into a dried sludge for offsite disposal. The dewatering filtrate, thickener supernatant and the brine reject stream are combined and will be discharged to the Gulf through a high-rate effluent diffuser.

The principal unit processes in the desalination facility are:

- Intake screens to remove large particulates from seawater
- Intake clarification with chemical coagulation to remove algae and suspended solids
- Strainers to remove fine debris
- Ultrafiltration to remove fine TSS
- Reverse Osmosis to remove TDS
- Calcite filters to add alkalinity to the permeate to reduce its corrosiveness
- Chlorination
- Distribution pumping

- Energy recovery
- Discharge of the membrane brine or reject under a TPDES permit
- Thickening of the clarifier underflow
- Consolidation of the ultrafiltration membrane backwash solids with thickened clarifier underflow
- Dewatering of consolidated sludge streams
- Discharge of the RO brine reject, thickener supernatant, and dewatering filtrate through a high-rate diffuser located in the Gulf.

Figure 1 is the desalination facility process flow diagram.

The proposed desalination facility is expected to operate with a desalination recovery rate from 40 to 50%, meaning that 40% to 50% of the pre-treated seawater that enters the reverse osmosis (RO) units becomes desalinated product water, with the balance of the water (called RO retentate or RO reject) as a higher salinity brine wastewater. Other wastewater flows are generated as reject from the pre-treatment system; they are combined with the RO retentate to produce the expected total of 191.2 MGD of wastewater at 40% recovery, or 132.9 MGD at 50% recovery. The salt content of the other wastewater flows is essentially the same as the source seawater; water treatment chemicals are dosed at concentrations in the low milligram per liter (mg/L) range and will not significantly impact salinity. The water balances for the facility operating at 40% and 50% recovery are shown in Table 1 and 2, respectively.

Effluent Diffuser

PCCA seeks authorization for an offshore location for the discharge of wastewater (brine) from the Harbor Island Facility. Locating the outfall in the Gulf will require routing the effluent pipeline under the Aransas Pass Channel, the Lydia Ann Channel, and San Jose Island. Siting the outfall in the Gulf will be a substantial cost; however, PCCA recognizes that for discharge of the large volume of wastewater associated with production of 100 MGD of desalinated water, an outfall in the open Gulf life enables flexibility and adaptability in managing brine discharge. The location selected is outside of areas designated for navigation and anchorage. The center of the diffuser will be approximately 9,800 ft (2,987 meters [m]) from shore at its nearest point, and approximately one-half mile (810 m) from the Harbor Island Desalination Facility intake to avoid entrainment of the diluted brine plume. The anticipated latitude/longitude of the diffuser is 27.848836°N, 97.009531°W. The coordinates could shift slightly during the detailed design phase based on a more detailed bathymetric survey and geotechnical study.

The effluent will be discharged through a high-rate diffuser that has a minimum exit velocity at each port ≥ 3 m/sec that will generate sufficient energy and momentum to assure rapid mixing of the effluent with the surrounding seawater. The diffuser will have 25 risers with two ports/riser for a total of 50 ports. Risers are located at 6.25-m intervals on the diffuser barrel resulting in a total diffuser length of 150 m. The diffuser conceptual design is provided in Attachment T-4.

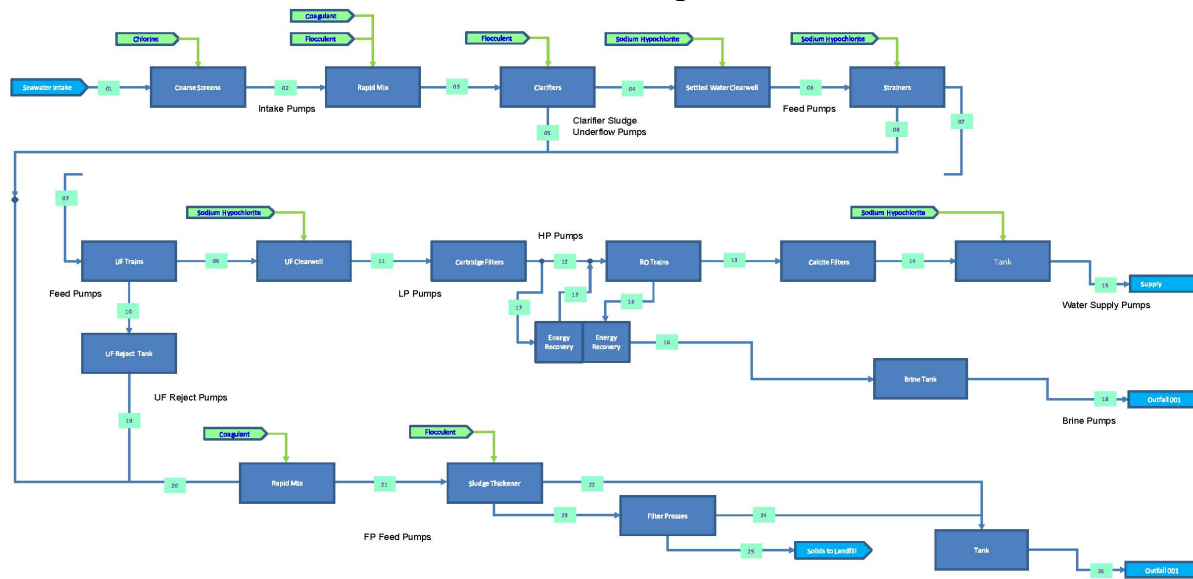
Table 1. Water balance for the proposed 100 MGD desalination facility operating at a 40% recovery rate.

Characteristics	Desalination Plant Intake	Desalination Production	Desalination Plant Effluent	Units
Total required intake flowrate:	301.4			MGD
Marine life screening and return	10.6			MGD
Total intake tunnel flowrate	312			MGD
Production flowrate (desalinated water):		100.0		MGD
Recovery rate of desalination process:		40		%
RO retentate flowrate:			150.0	MGD
Other waste flows:			41.2	MGD
Permitted Outfall flowrate:			191.2	MGD

Table 2. Water balance for the proposed 100 MGD desalination facility operating at a 50% recovery rate.

Characteristics	Desalination Plant Intake	Desalination Production	Desalination Plant Effluent	Units
Total required intake flowrate:	241.2			MGD
Marine life screening and return	10.6			MGD
Total intake tunnel flowrate	251.8			MGD
Production flowrate (desalinated water):		100.0		MGD
Recovery rate of desalination process:		50		%
RO Retentate flowrate:			100.0	MGD
Other waste flows:			32.9	MGD
Permitted Outfall flowrate:			132.9	MGD

Process Flow Diagram



Port of Corpus Christi
Proposed Desalination Plant
Harbor Island Site
Corpus Christi, Texas

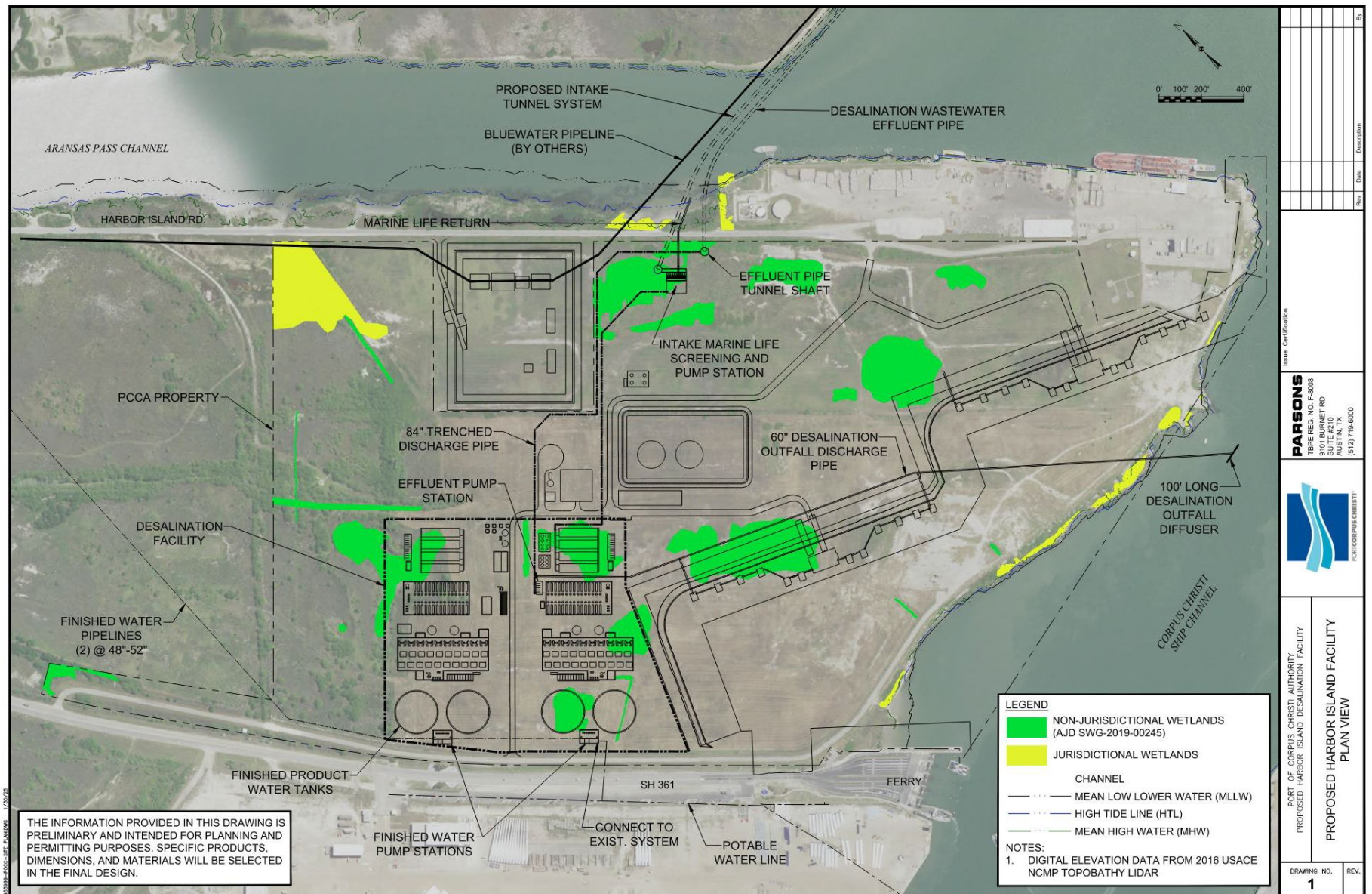
PROCESS FLOW DIAGRAM

amec foster wheeler

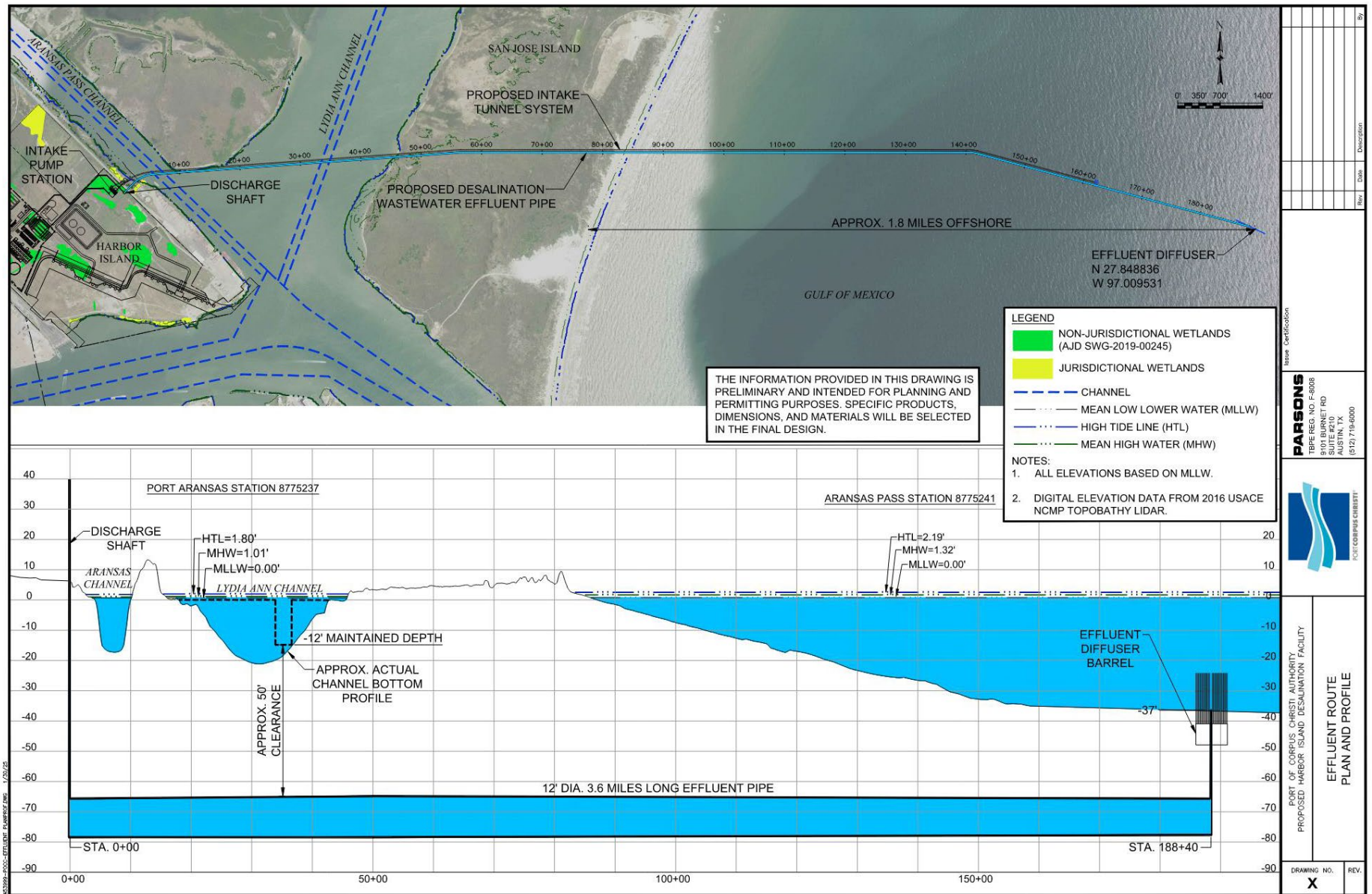
Application 00133

FIGURE
1

Attachment T-2
Facility Plot Plan



Harbor Island Seawater Desalination Facility



Harbor Island Seawater Desalination Facility Effluent Diffuser

Attachment T-3
Treatment Chemicals

Chemical Name	CAS	Use	Estimated Dosage	Concentration in Discharge
Sodium hydroxide	1310-73-2	pH Control	As needed	~0 (pH 6-9)
Sulfuric acid	7664-93-9	pH Control	As needed	~0 (pH 6-9)
Sodium hypochlorite	7681-52-9.	Algae control	As needed	TBD
Coagulant chemical	TBD*	Coagulate particulates	TBD	TBD
Flocculant chemical	TBD	Enhance Settling	TBD	TBD

*TBD – to be determined. TCEQ will be notified and provided with dosage data and SDS' when available.
All chemicals used will be classified as acceptable for drinking water treatment.

Attachment T-4

Conceptual Design – Effluent Diffuser



High-Rate Diffuser Conceptual Design Harbor Island Desalination Facility

Prepared for

Port of Corpus Christi Authority
Corpus Christi, Texas

Under Contract to
Parsons Environment & Infrastructure Group, Inc.

by

Lial F. Tischler, P.E. No. 32768
Tischler/Kocurek
Round Rock, Texas

965

January 2025

Table of Contents

1. INTRODUCTION	1
Water Quality Standards.....	1
2. DIFFUSER DESIGN	3
Diffuser Location	3
Diffuser Configuration.....	3
Effluent Characteristics	4
3. DILUTION ANALYSIS.....	8
Ambient Conditions.....	9
Modeling Results	10
4. CONCLUSIONS	15

Appendix

CORMIX Output File for Critical Case
CORMIX Plume Graphic for Critical Case

List of Tables

Table 1. HIDF Design Effluent Flow	4
Table 2. HIDF Outfall Temperatures, Salinities and Densities	4
Table 3. GOM Physical/Hydrologic Parameters	9
Table 4. GOM Ambient Water Quality*	9
Table 5. Predicted Effluent Dilution.....	11
Table 6. Predicted Salinity Increases at 100 m from Diffuser.....	12

List of Figures

Figure 1. Proposed HIDF Intake and Diffuser Locations	2
Figure 2. Port and Riser Configuration.....	6
Figure 3. Diffuser Orientation.....	7

Units	
°C	degrees Celsius
cm	centimeter
°F	degrees Fahrenheit
ft	feet
ft/s	feet per second
in	inch
kg/m ³	kilogram per cubic meter
MGD	million gallons per day
mg/L	milligram per liter
m/s	meters per second
m ³ /s	cubic meters per second
ppt	parts per thousand

1. Introduction

The Port of Corpus Christi Authority (POCCA) is planning to construct a marine seawater desalination facility with a design capacity of 100 million gallons/day (MGD) of finished desalted product water to provide a drought proof, sustainable water supply for the region. The Harbor Island Desalination Facility (HIDF) includes options for an intake structure and a high-rate diffuser for the HIDF effluent to be constructed in the Gulf of Mexico (GOM). The proposed locations of the GOM intake and diffuser and the pipes connecting them to the HIDF are shown in Figure 1.

This report presents the conceptual design of the proposed high-rate effluent diffuser proposed for the GOM. The design is based on a modeling evaluation performed by Tischler/Kocurek (T/K) to assure that the effluent discharge has no adverse effects on the Gulf of Mexico water quality, aquatic biota, and other designated uses.

Water Quality Standards

The Gulf of Mexico (GOM) is identified as Segment 2501 in the Surface Water Quality Standards adopted by the Texas Commission on Environmental Quality (TCEQ) at 30 Texas Administrative Code Chapter 307 (30 TAC 307). Segment 2501 has numeric water quality standards (WQS) for dissolved oxygen, pH, indicator bacteria, and temperature. There are no numeric criteria for salinity or total dissolved solids (TDS) because the GOM is seawater with naturally elevated concentrations of sea salts. The applicable Chapter 307 General Criteria narrative WQS for salinity is at 30 TAC 307.4(g)(1) and states that: “Concentrations and the relative ratios of dissolved minerals such as chloride, sulfate, and total dissolved solids must be maintained such that existing, designated, presumed, and attainable uses are not impaired.”

Water Quality Standards adopted by TCEQ for toxic pollutants at 30 TAC 307.6 are applicable to the HIDF discharge and are used to develop WQBELs, as necessary, based on evaluation of the constituents of a discharge, using three mixing zone categories:

1. Zone of initial dilution (ZID) where standards to protect aquatic life from acute toxicity are applied.
2. Mixing zone (MZ) where standards to protect aquatic life from chronic toxicity are applied.
3. Human health mixing zone (HHMZ) where standards to protect human health through the fish/shellfish tissue consumption pathway are applied.

The WQS specify maximum allowable ambient temperatures (30 TAC 307.10, Appendix A) in designated stream segments. The maximum allowable ambient temperature standard for Segment No. 2501 is 95 °F (35.0 °C)¹ (30 TAC 307.10, Appendix A). The temperature standards also specify allowable increases over ambient temperatures for discharges to water in the state. In

¹ Because the output of the mixing model used in this study is in SI (metric) units, SI units will be used in the report with English units shown as needed for interpretation.

Segment 2501 the maximum allowable temperature rise is 1.5 °F (0.83 °C) in summer (June, July, and August) and 4 °F (2.22 °C) during the spring, fall, and winter (30 TAC 307.4(f)(3)).

The Texas surface water quality standards apply at the boundary of an authorized thermal mixing zone. The standards do not establish a maximum size for such mixing zones, but state that the temperature shall be maintained so as not to interfere with reasonable uses of such waters (30 TAC 307.4(f)).

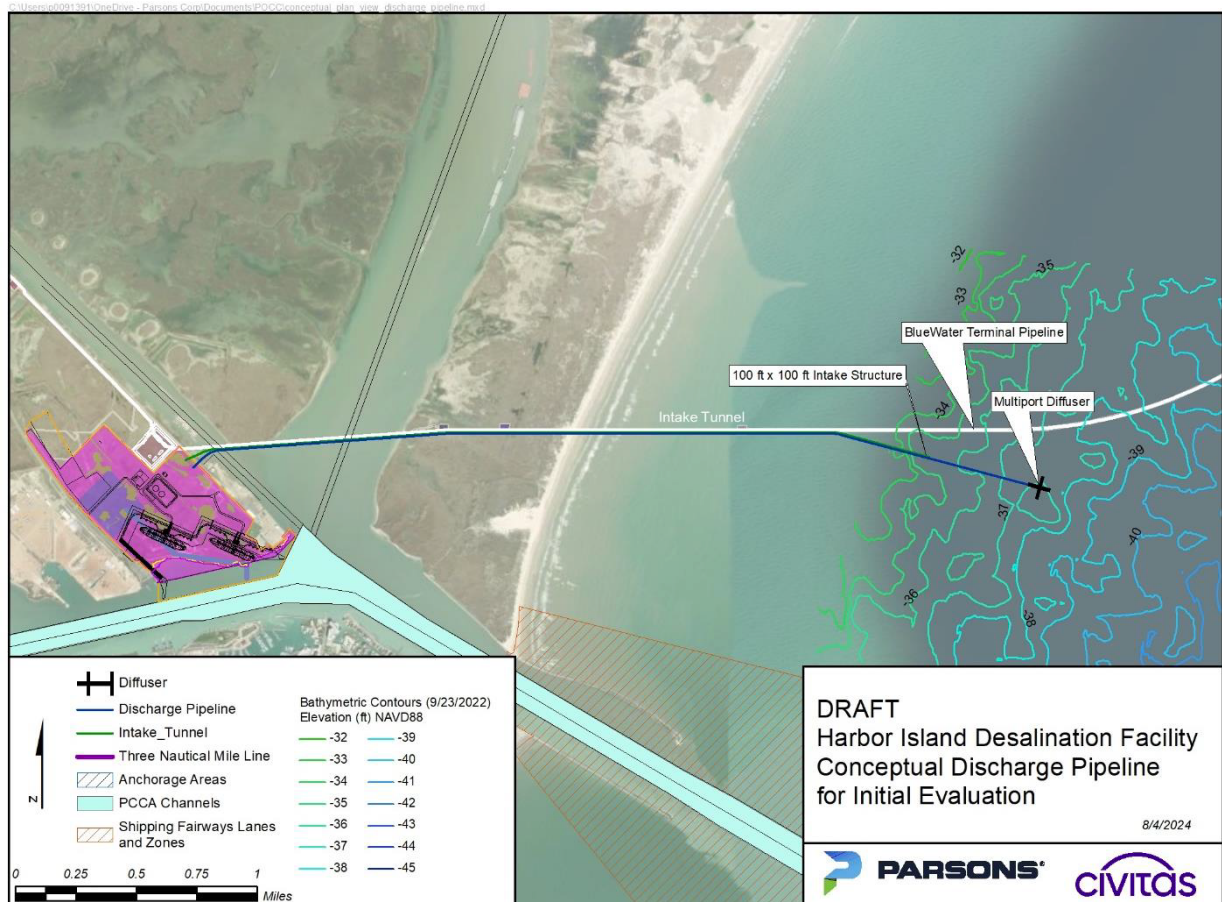


Figure 1. Proposed HIDF Intake and Diffuser Locations

There is no Texas WQS specifying the allowable salinity increase in the receiving water resulting from the discharge of desalination facility brine effluent. This diffuser conceptual design is based on achieving a maximum increase in receiving water salinity less than or equal to 2 parts/thousand (ppt) at a distance of 100 meters (m) from the diffuser ports at the critical hydrologic condition.

2. Diffuser Design

The design is for a high-rate diffuser that will discharge at port exit velocities ≥ 3 meters/second (m/s) at the estimated maximum monthly average effluent flows. Diffuser port exit velocities ≥ 3 m/s generate sufficient momentum and energy in the effluent discharge to assure rapid mixing of the effluent and receiving water.

Diffuser Location

The diffuser is proposed in the GOM at the location shown on Figure 1. The location is outside of areas designated for navigation and anchorage and the diffuser riser/port closest to the shoreline will be approximately 10,000 feet (3,300 m) offshore. The approximate latitude/longitude of the mid-point of the 150 m long diffuser barrel is 27.848836°N and 97.009531°W. This location is approximately one-half mile (805 m) southeast from the HIDE intake and in deeper water to avoid entrainment of the diluted brine plume. The precise latitude/longitude of the diffuser will be determined upon completion of a bathymetric study will be provided to TCEQ when this work is completed.

Diffuser Configuration

The conceptual design is a 50-port diffuser with 160-millimeter (mm) (6.3-inch) diameter ports. The ports will discharge at a minimum centerline depth of -7.5 m at mean low water (MLW). The total water depth at the center of the diffuser barrel will be ≥ 37 feet (~ 11.3 m) NAVD88 (Figure 1).

The diffuser will have 25 risers with 2 ports/riser oriented at 180° to each other.² The ports on each riser will point in the prevailing direction of the ambient current: north-northeast (NNE) and south-southwest (SSW)[TABS Buoy D (1995-2022) @ 2m depth]³. The risers will be spaced at 6.25-m intervals on the diffuser barrel which results in a diffuser length of 150 m (first riser to last riser). The diffuser barrel will have a removable plug (or equivalent opening) at its far end to allow it to be pigged to remove settled solids if necessary. The diffuser ports will discharge at vertical angle of 60° to the water surface (i.e., angled toward the surface). The port and riser configuration is shown schematically in Figure 2. Figure 3 shows the diffuser orientation in the GOM relative to the ambient current as simulated by the CORMIX2 model.

The diffuser ports may be fitted with Tideflex™ or equivalent duckbill valves⁴ to prevent backflow when there is no effluent discharge. The decision to add duckbill valves or use the

² A design alternative with an elevated diffuser barrel with ports drilled on either side at the appropriate horizontal angle, spacing, and minimum depth below the water surface will provide equal dilution.

³ The prevailing longshore current is to the NNE most of the year. During summer months it shifts to the SSW.

⁴ Duckbill valves are made of an elastomer that pinches closed the port opening when there is no flow and prevents backflow of seawater into the diffuser barrel. The valve opens gradually as flows increase due to the increasing pressure of the water and becomes equivalent to a conventional open port at the design flow.

designed open ports will be made when the final design is prepared. The CORMIX2 modeling does not consider these valves to be present – it assumes conventional ports. The addition of duckbill valves will increase the port exit velocities at lower effluent flows (below the design flow) that will increase dilution above the values predicted for this conceptual design.

Effluent Characteristics

The proposed effluent flow rates for the diffuser are shown in Table 1. POCCA has estimated these flows based on the HIDF reverse osmosis membrane process freshwater production capacity for two operating scenarios: (1) 50% recovery; and (2) 40% recovery. The percent recovery is the percentage by volume of produced water (desalinated seawater) recovered from the intake seawater volume. The effluent flow is the volume of water that contains the sea salts that are removed by the reverse osmosis system and water generated during pretreatment of the sea water to prepare it for reverse osmosis.

The effluent flow rates for these two operating conditions are used to design the diffuser and calculate the dilution achieved in the GOM.

Table 1. HIDF Design Effluent Flow

Averaging Period	Flow (MGD)	Flow (m ³ /s)
Max. Monthly Average (50% recovery)	152.9	6.701
Max. Monthly Average (40% recovery)	191.2	8.375

Parsons Environment & Infrastructure Group, Inc. (Parsons) developed thirty-two combinations of HIDF temperatures, densities, and salinity for development of the diffuser design. These combinations include the 5th, 50th, and 95th percentiles of temperature, salinity, and density of the GOM at the discharge location during the spring, summer, fall and winter, and the predicted HIDF effluent values for each of these properties at the two design flows shown in Table 1. Parsons also provided the 5th, 50th, and 95th percentiles of the GOM ambient currents at the proposed diffuser location.

Thirty-six combinations, representing the highest and lowest effluent densities predicted at each of the three ambient currents and at the two effluent flows, were selected to develop the diffuser design. Table 2 shows the predicted effluent temperatures and densities that are used in the diffuser design. The relationship between density, salinity and temperature is:

$$\text{Density} = (1 + (0.001 * ((28.14 - 0.0735 * T - 0.00469 * T^2) + (0.802 - 0.002 * T) * (S - 35)))) * 1000$$

where: S = salinity in parts/thousand (ppt); T = temperature (°C).

Table 2. HIDF Outfall Temperatures, Salinities and Densities

Condition	Temperature (°C)	Salinity (ppt)**	Density (kg/m ³)**
Summer – T5, S95	26.59	63.77/55.46	1044.41/1038.19
Summer – T95, S5	30.41	45.42/39.52	1029.29/1024.92
Fall – T5, S95	25.57	62.62/54.46	1045.9/1039.68
Spring – T5, S5	15.26	42.31/36.81	1031.57/1027.32
Winter – T5, S95	12.02	59.46/51.72	1045.61/1039.59
Spring – T95, S5	26.78	42.31/36.81	1028.28/1024.16

*T5 – 5th percentile temperature; S95 – 95th percentile salinity, etc.

**50% recovery/40% recovery. Salinity in parts per thousand.

The diffuser design evaluates operation at 40% and 50% recovery because of the discharge flow rate and density/salinity differences at the different recovery rates. The resulting conceptual diffuser design will assure that the design effluent dilution at critical hydrologic conditions will be achieved when the HIDF operates at all product water recoveries from 40% to 50%.

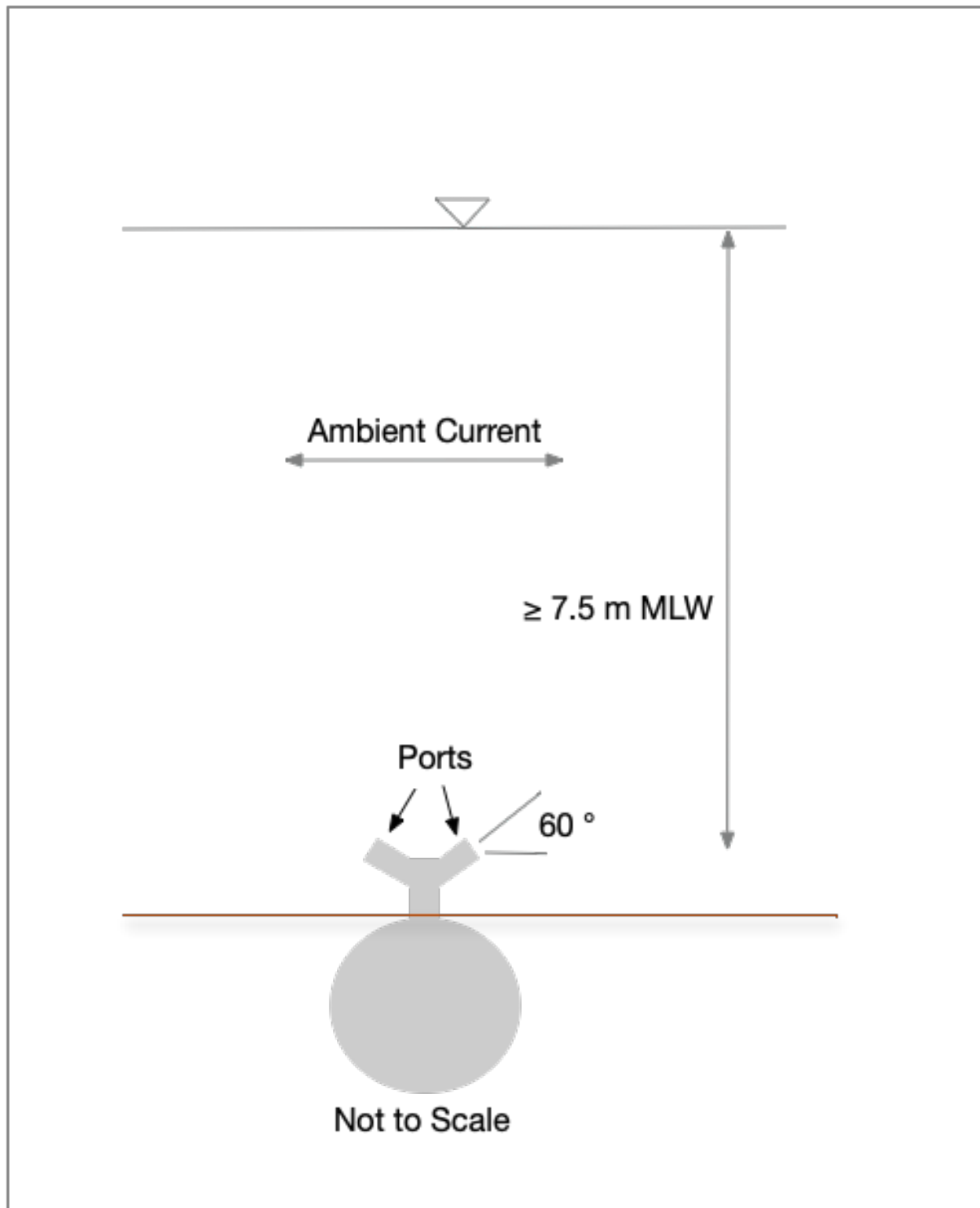


Figure 2. Port and Riser Configuration

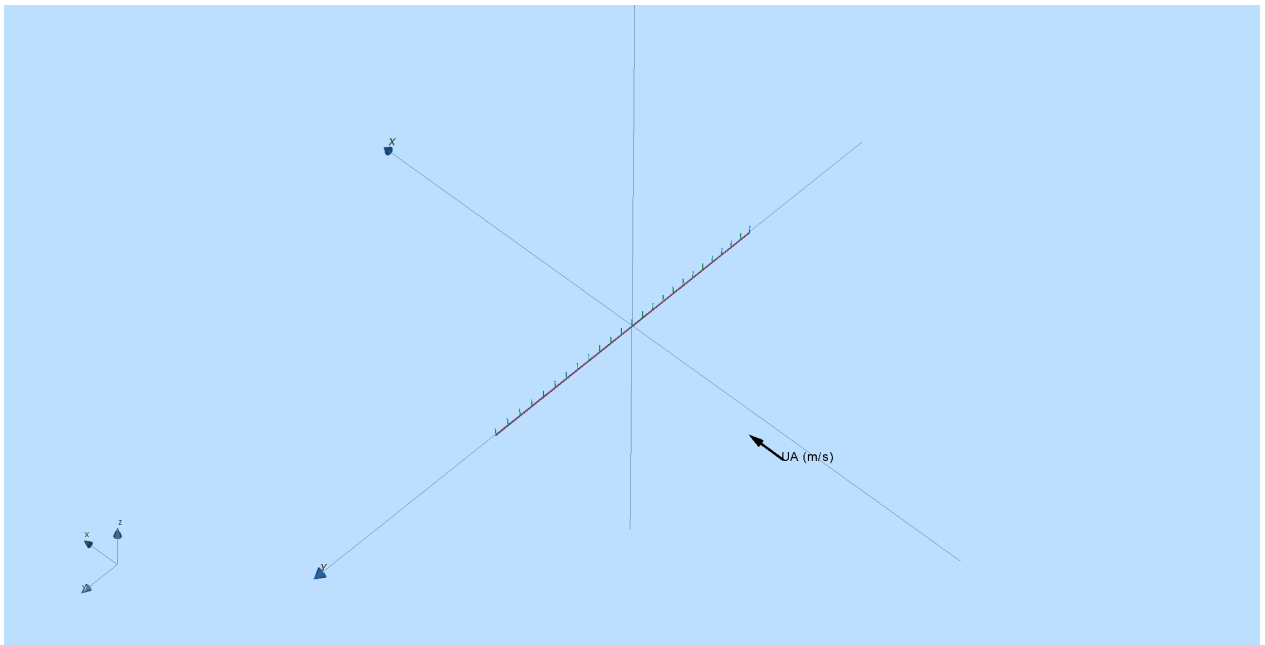


Figure 3. Diffuser Orientation

3. Dilution Analysis

The dilution that is achieved with the 50-port diffuser was simulated using the mixing zone model CORMIX2⁵. CORMIX2 simulates the mixing of a positively or negatively buoyant discharge plume from a multiple port diffuser into a receiving water that may be density stratified or unstratified. The model includes the effect of ambient currents on mixing. The output from CORMIX2 is the centerline dilution factor and plume dimensions as a function of distance from the discharge ports. The highest predicted effluent concentration is at the plume centerline and decreases to background concentrations at the edges of the plume. The model can simulate both near-field⁶ and far-field mixing.

An effluent plume is buoyant when it has a lower salinity and higher temperature than the receiving water; therefore, the worst case for mixing with a positively buoyant plume is usually when the density difference between the effluent and the receiving water is the greatest. Under these conditions, after jet momentum is dissipated the plume rises toward the water surface due to its buoyancy. Additional dilution occurs during this plume rise as it entrains surface water from the surrounding area. Once the plume surfaces, it spreads across the water surface due to its retained momentum and the ambient current velocity.

Negatively buoyant effluents sink to the bottom of the receiving water. Diffusers for negatively buoyant plumes orient the ports toward the water surface. When the initial jet dilution achieved by the port exit velocity dissipates, if the density of the plume exceeds that of the receiving water the plume will sink to the bottom of the waterbody and then flow with the ambient current along the bottom of the water body. Mixing of the plume with the surrounding water continues and dispersion generated by the ambient current results in the continuing decrease of salinity until the plume becomes indistinguishable from the surrounding seawater salinity and temperature.

The effluent from the HIDF diffuser will be negatively buoyant under all ambient conditions because the intake water and the effluent discharge are taken from essentially the same location in the GOM and the salt content of the effluent discharge is increased by the desalination process, resulting in an effluent discharge that is always of a greater density than that of the seawater at the discharge location. Temperature increases during the desalination process, if any, are insufficient to have any measurable effect on the density of the effluent.

⁵ Doneker, R.L. and Jirka, G.H., December 2007 (updated February 2017). CORMIX Users Manual: A Hydrodynamic Mixing Zone Model and Decision Support System for Pollutant Discharges into Surface Waters, EPA-823-K-07-001, U.S. Environmental Protection Agency, Washington, D.C.

⁶ Near-field mixing occurs in the region near the diffuser where the momentum of the plume induced by the high port exit velocity is the dominant force affecting mixing. Far-field mixing is a result of the ambient current speed, plume-receiving water density difference, and natural dispersion (including wind-induced mixing).

Ambient Conditions

The physical dimensions of the GOM at the proposed discharge location are shown in Table 3. This location is in shallow water outside of designated navigation and anchorage areas. The precise geographical coordinates of the diffuser location cannot be identified until the final design is completed.

Table 3. GOM Physical/Hydrologic Parameters

	Physical Parameter		Reference
Distance from shoreline	~10,000 ft	~3,050 m	Google Earth™
Average depth near discharge	~37 ft	~11.3 m	NAVD88 ⁷
Depth at diffuser location	~37 ft	~11.3 m	NAVD88

The ambient temperature, salinity and current data are from the TABS Buoy D of the Texas Automated Buoy System⁸. Records for the monitoring period 1995-2022 (272,990 observations) were analyzed by Parsons to determine the 5th, 50th, and 95th percentile values for each of these parameters.

The relationship between density and salinity and temperature is:

$$\text{Density} = (1 + (0.001 * ((28.14 - 0.0735 * T - 0.00469 * T^2) + (0.802 - 0.002 * T) * (S - 35)))) * 1000$$

where: S = salinity in parts/thousand (ppt); T = temperature (°C).

Table 4 presents the GOM ambient conditions used for the diffuser design.

Table 4. GOM Ambient Water Quality*

Density Condition	Temperature (°C)	Salinity (ppt)	Density (kg/m ³)
Summer – T5, S95	26.59	36.50	1023.99
Summer – T95, S5	30.41	26.03	1014.92
Fall – T5, S95	19.81	35.84	1025.48
Winter – T5, S95	12.02	34.04	1025.83
Spring – T95, S5	26.78	24.25	1014.76
Spring – T5, S5	15.26	24.25	1017.63

*TABS Buoy D (2019-2022)

These densities are based on combinations of the 95th and 5th percentile temperatures (T5, T95) and salinities (S5, S95) in the data for TABS Buoy D and represent the conditions that will maximize the density difference between the effluent discharge and the ambient water. The maximum density difference between effluent and receiving typically water results in the minimum achievable dilution for a buoyant (positive or negative) plume.

Ambient current statistics from 1995-2022 were calculated for TABS Buoy 5. The 50th percentile (median) current of 0.27 m/s, the 5th percentile current of 0.11 m/s, and the 95th percentile current of 0.65 m/s were used to develop the diffuser design. The median current of 0.27 m/s is representative of the 24-hour long-term average current and is the best estimate of the daily average available dilution at the diffuser site.

⁷ <https://geodesy.noaa.gov/datums/vertical/north-american-vertical-datum-1988.shtml>

⁸ Texas Automated Buoy System (TABS), <https://tabs.gerg.tamu.edu/Tglo/>

Modeling Results

The plume centerline dilution factor at the edge of the hydrodynamic mixing zone (near-field region), which is the point at which momentum-induced mixing ceases, is predicted by the CORMIX2 model. The model calculates the plume width and thickness at the distance from the diffuser ports at each output interval where the model generates a predicted centerline dilution factor and percent effluent.

Additional mixing of the diluted effluent with the receiving water outside of the near-field region occurs due to density differences, wind, and ambient currents. This dilution is termed far-field dilution and is also predicted by CORMIX2.

Mixing Zone Definition

TCEQ has a consistent policy for establishing mixing zones for high-rate diffusers. TCEQ designates 3 categories of mixing zone: (1) the zone of initial dilution (ZID), which is the acute aquatic life protection mixing zone; (2) the chronic aquatic life mixing zone that is identified as the mixing zone (MZ); and (3) the human health mixing zone (HHMZ). The mixing zone policy is intended to address the specific language at 30 TAC 307.8(b), which defines the size of the zone of initial dilution (ZID). The regulatory language specifies the size of the ZID and indicates that for diffusers, the ZID will have an area or volume equivalent to the size specified in the regulation.

The TCEQ mixing zone policy for multi-port diffusers is as follows:

- The ZID and mixing zones for the diffuser are based on an equivalent volume representing the following dimensions: ZID = 50 foot radius (15.2 metres); MZ = 200 foot radius (60.5 m); and HHMZ = 400 foot radius (121 m) extending over the local water depth.
- The shape of the equivalent mixing zone for a multi-port diffuser is a rectangular box extending from the channel bottom to water surface.

This diffuser design, with a 150-m distance between the inner and outermost risers, has the following mixing zone dimensions:

MZ: $x = 76.4$ m; $y = 55$ m where x is measured along the diffuser axis ($x=0$ at the center of the diffuser barrel) and y is the distance from the ports measured on either side of the diffuser in the direction (s) of the ambient current.

HHMZ: $x = 130$ m; $y = 130$ m using the same coordinates as the MZ.

The ZID is at $x = 14.1$ m and $y = 6.5$ m using the same coordinates as the MZ.

Diffuser Dilution Calculations

A total of 36 combinations of effluent and ambient density were examined to determine the critical ambient and effluent conditions in terms of critical initial dilution that are achieved with the diffuser design. Effluent and ambient conditions that represent the maximum density difference were used to screen potential diffuser configurations at the 50% recovery design flow (maximum monthly average, $6.701 \text{ m}^3/\text{s}$) – number of ports, distance between ports, and port exit velocity. The initial configuration choice(s) were then evaluated at the 40% recovery flow rate ($8.375 \text{ m}^3/\text{s}$). The screening analysis results were used to configure the conceptual diffuser design.

The performance of the selected design was then evaluated for 36 representative combinations of effluent flow and density and receiving water density and ambient current.

Table 5 presents the results of the 36 diffuser mixing simulations. Table 6 presents the salinity and the rise (Δ) above ambient salinity at 100 m from the ports.

Table 5. Predicted Effluent Dilution

Effluent Flow (m ³ /s)*	Effluent Density (kg/m ³)	Ambient Density (Percentile)	Ambient Current (m/s)	ZID Percent Effluent	MZ Percent Effluent	100 m Percent Effluent	HHMZ Percent Effluent
6.701	1044.41	1023.99	0.27	13.12	6.95	4.65	3.69
6.701	1029.29	1014.92	0.27	11.65	5.91	3.85	3.01
6.701	1045.9	1025.48	0.27	13.11	6.95	4.64	3.69
6.701	1031.57	1017.63	0.27	11.51	5.84	3.81	2.97
6.701	1045.61	1025.83	0.27	12.87	6.85	4.57	3.63
6.701	1028.28	1014.76	0.27	11.50	5.77	3.76	2.93
6.701	1044.41	1023.99	0.11	12.65	8.47	7.23	6.73
6.701	1029.29	1014.92	0.11	11.36	7.83	6.89	6.34
6.701	1045.9	1025.48	0.11	12.59	8.60	7.42	6.87
6.701	1031.57	1017.63	0.11	10.81	7.66	6.56	6.20
6.701	1045.61	1025.83	0.11	12.47	8.45	7.04	6.74
6.701	1028.28	1014.76	0.11	10.67	7.63	6.71	6.18
6.701	1044.41	1023.99	0.65	11.14	1.84	0.78	0.72
6.701	1029.29	1014.92	0.65	9.01	2.02	1.11	0.70
6.701	1045.9	1025.48	0.65	9.03	1.84	0.78	0.72
6.701	1031.57	1017.63	0.65	9.03	2.04	1.12	0.70
6.701	1045.61	1025.83	0.65	9.47	1.86	0.78	0.72
6.701	1028.28	1014.76	0.65	8.68	2.06	1.13	0.70
8.375	1038.19	1023.99	0.27	10.02	5.72	4.04	3.28
8.375	1024.92	1014.92	0.27	8.81	5.02	3.48	2.81
8.375	1039.68	1025.48	0.27	10.10	5.72	4.03	3.27
8.375	1027.32	1017.63	0.27	8.69	4.95	3.44	2.76
8.375	1039.59	1025.83	0.27	10.00	5.65	3.97	3.22
8.375	1024.16	1014.76	0.27	10.00	4.90	3.39	2.73
8.375	1038.19	1023.99	0.11	100.0**	3.40	3.16	3.07
8.375	1024.92	1014.92	0.11	100.0**	3.26	3.40	3.27
8.375	1039.68	1025.48	0.11	100.0**	3.42	3.15	3.05
8.375	1027.32	1017.63	0.11	100.0**	3.22	3.43	3.29
8.375	1039.59	1025.83	0.11	100.0**	3.40	3.18	3.09
8.375	1024.16	1014.76	0.11	100.0**	3.16	3.45	3.31
8.375	1038.19	1023.99	0.65	10.00	5.27	3.14	2.41
8.375	1024.92	1014.92	0.65	9.08	4.94	3.30	2.73
8.375	1039.68	1025.48	0.65	10.00	5.27	3.14	2.41
8.375	1027.32	1017.63	0.65	4.75	4.91	3.32	2.76
8.375	1039.59	1025.83	0.65	9.92	5.23	3.15	2.44
8.375	1024.16	1014.76	0.65	8.96	2.16	1.24	0.66

*6.701 m³/s = 50% recovery; 8.375 m³/s = 40% recovery

**Near field instability due to low ambient current and high port exit velocity

Table 6. Predicted Salinity Increases at 100 m from Diffuser

Effluent Flow (m ³ /s)*	Effluent Density (kg/m ³)	Ambient Density (Percentile)	Ambient Current (m/s)	Ambient Salinity (ppt)	Effluent Salinity (ppt)	Δ Salinity @ 100 m (ppt)	Salinity @ 100 m (ppt)
6.701	1044.41	1023.99	0.27	36.5	63.77	1.27	37.77
6.701	1029.29	1014.92	0.27	26.03	45.42	0.75	26.78
6.701	1045.9	1025.48	0.27	35.84	62.62	1.24	37.08
6.701	1031.57	1017.63	0.27	24.25	42.31	0.69	24.94
6.701	1045.61	1025.83	0.27	34.04	59.46	1.16	35.20
6.701	1028.28	1014.76	0.27	24.25	42.31	0.68	24.93
6.701	1044.41	1023.99	0.11	36.5	63.77	1.97	38.47
6.701	1029.29	1014.92	0.11	26.03	45.42	1.34	27.37
6.701	1045.9	1025.48	0.11	35.84	62.62	1.99	37.83
6.701	1031.57	1017.63	0.11	24.25	42.31	1.18	25.43
6.701	1045.61	1025.83	0.11	34.04	59.46	1.79	35.83
6.701	1028.28	1014.76	0.11	24.25	42.31	1.21	25.46
6.701	1044.41	1023.99	0.65	36.5	63.77	0.21	36.71
6.701	1029.29	1014.92	0.65	26.03	45.42	0.21	26.24
6.701	1045.9	1025.48	0.65	35.84	62.62	0.21	36.05
6.701	1031.57	1017.63	0.65	24.25	42.31	0.20	24.45
6.701	1045.61	1025.83	0.65	34.04	59.46	0.20	34.24
6.701	1028.28	1014.76	0.65	24.25	42.31	0.20	24.45
8.375	1038.19	1023.99	0.27	36.5	55.46	1.82	38.32
8.375	1024.92	1014.92	0.27	26.03	39.52	1.11	27.14
8.375	1039.68	1025.48	0.27	35.84	54.46	1.78	37.62
8.375	1027.32	1017.63	0.27	24.25	36.81	1.01	25.26
8.375	1039.59	1025.83	0.27	34.04	51.72	1.67	35.71
8.375	1024.16	1014.76	0.27	24.25	36.81	1.00	25.25
8.375	1038.19	1023.99	0.11	36.5	55.46	1.70	38.20
8.375	1024.92	1014.92	0.11	26.03	39.52	1.29	27.32
8.375	1039.68	1025.48	0.11	35.84	54.46	1.66	37.50
8.375	1027.32	1017.63	0.11	24.25	36.81	1.21	25.46
8.375	1039.59	1025.83	0.11	34.04	51.72	1.60	35.64
8.375	1024.16	1014.76	0.11	24.25	36.81	1.22	25.47
8.375	1038.19	1023.99	0.65	36.5	55.46	1.34	37.84
8.375	1024.92	1014.92	0.65	26.03	39.52	1.08	27.11
8.375	1039.68	1025.48	0.65	35.84	54.46	1.31	37.15
8.375	1027.32	1017.63	0.65	24.25	36.81	1.02	25.27
8.375	1039.59	1025.83	0.65	34.04	51.72	1.26	35.30
8.375	1024.16	1014.76	0.65	24.25	36.81	0.24	24.49

*6.701 m³/s = 50% recovery; 8.375 m³/s = 40% recovery

The critical condition with respect to the increase in the ambient (background) salinity at 100 m from the diffuser occurs at the 50% recovery rate and corresponds to the greatest difference between ambient salinity (which is the intake salinity for the HIDF) and the effluent salinity. This occurs at the Fall (T5, S95) ambient condition and the 5th percentile ambient current. The maximum salinity concentration is predicted to be 37.83 ppt at 100 m from the diffuser (1.99 ppt greater than the ambient salinity under these conditions). This predicted concentration is at the centerline of the plume. At this location (100 m from the ports), CORMIX2 predicts that the salinity plume will be attached to the bottom and 2.4 m thick and 337.4 m wide. At the boundaries of the plume the salinity concentration decreases to the ambient salinity. The predicted width of the plume – 337.4 m – assures that it will not interact with the HIDF intake that will be located over 800 m from the closest diffuser port pair (first riser). The joint probability of occurrence of this combination of ambient conditions is 0.000125 (0.05³) assuming that there is no correlation between the three conditions. The CORMIX2 model output and a schematic of the plume for the critical case are provided in the appendix.

As shown in Table 6, at the ambient/effluent conditions associated with the 40% recovery HIDF operation the increases in ambient salinity at the 100 m distance from the diffuser are less than for the 50% recovery operation. There are two reasons for this: (1) the effluent salinity concentrations

are lower at 40% recovery rate so the difference in salinity between the effluent and ambient is lower; and (2) the higher effluent flow rate at 40% recovery results in an increased discharge velocity at the 50 ports which in turn results in more rapid mixing due to the greater momentum and energy of the discharged effluent.

The dilution at the ZID (6.5 m from the ports) is essentially zero (100% effluent) at the 8.375 m³/s flow rate when the ambient current is at the 5th percentile (0.11 m/s). Because the momentum of the discharge is high compared to the ambient current, local instability occurs near the diffuser and the model predicts the area close to the ports to be approximately 100% effluent. Under all other effluent/ambient conditions the dilution at the ZID is $\leq 12.87\%$ effluent.

Alternative Discharge Scenarios

One potential alternative for the discharge design was identified. The diffuser could be located further offshore at a greater distance from the intake structure. This alternative would locate the diffuser in deeper water and provide an additional safety factor with respect to intake entrainment of HIDF effluent.

Extending the pipeline offshore from the proposed location by an additional 1,000 m would increase the average water depth at the center of the diffuser to approximately 45 feet (NAVD88)(13.7 m). Modeling of the critical case scenario [Fall (T5, S95)] at a 13.7 m water depth (at two different riser heights above the bottom) with CORMIX2 did not provide any increase in the predicted effluent dilution or reduce the salinity concentration at the 100 m distance from the diffuser. The additional costs and impacts associated with extending the diffuser to an average water depth of 45 feet will not improve the achievable dilution/salinity or reduce the risk of entrainment at the intake of HIDF effluent.

Another alternative that would locate the diffuser closer to the shore, in shallower water, was rejected because of the lower dilution potential, possible intake entrainment of the plume, and possible interference with recreational activity. The GOM bottom has a downward slope toward the center of the gulf so there will be a tendency for the bottom-attached plume to move downgradient toward the HIDF intake and potentially be entrained. The shallower water decreases the available volume of ambient water flowing across the diffuser thus decreasing the dilution that can be achieved. Locating the diffuser closer to the shoreline at shallower depths near shore may also interfere with recreational activities.

Temperature Analysis

The Texas surface water quality standards apply at the boundary of an authorized thermal mixing zone. The standards do not establish a maximum size for such mixing zones, but state that the temperature shall be maintained so as not to interfere with reasonable uses of such waters [30 TAC 307.4(f)]. The Texas surface water quality standards rule and the TCEQ mixing zone policy do not establish a maximum size for thermal mixing zones so they are determined by a case-by-case TCEQ evaluation. The HIDF is not a thermal discharge⁹ and this analysis is performed only for the purpose of documenting that the GOM water temperature standard will not be exceeded by the effluent discharge.

⁹ Any heating of the seawater during the pretreatment and desalination process is incidental and a result of ambient air temperature, solar radiation, and wind that heats and cools the treatment equipment. There is no thermal “process” that adds heat to the intake water used by the HIDF.

For simplicity, this temperature analysis uses the MZ dimensions described above for toxic pollutants, but this assumption is made only to demonstrate that the surface water quality standards for temperature are achieved rapidly in the GOM. This assumption of the mixing zone dimensions is not T/K's conclusion or recommendation that the MZ dimensions are the appropriate physical dimensions for a thermal mixing zone that achieves the Texas water quality standard for temperature.

The statistical analysis of the ambient data (Table 4) show that the 95th percentile water temperature at the intake/discharge location is 30.41 °C (87 °F) which is 4.59 °C (8.26 °F) below the 35 °C (95 °F) water quality standard for Segment 2501.

A simplified heat budget analysis was performed using the methodology developed by Argaman and Adams for wastewater treatment tanks¹⁰. An approximation of the surface area and perimeter of the tanks/equipment used by the desalination process was estimated from the draft plot plan of the HIDF. Based on Port Aransas meteorologic data a daily high temperature of 95 °F and wind speed of 10 miles/hour were used to calculate the equilibrium temperature in the water treatment system. This calculation indicates that there will be an approximately 0.26 °C maximum temperature rise across the desalination process under these ambient conditions at mid-day. The increase in temperature above intake water temperature will be negligible during the rest of the daylight hours and at night.

The discharge will also be diluted to a concentration of 8.60 percent effluent or less at the edge of the mixing zone (Table 5). This amount of dilution would allow an increase in effluent temperature of 9.65 °C above ambient at the edge of the MZ, based on the water quality standard maximum allowable summer temperature increase above ambient temperature of 0.83 °C (30 TAC 307.4(f)(3)). The predicted maximum temperature increase from the intake to the effluent at the HIDF is ~21.6% of the allowable 0.83 °C. Therefore, the proposed HIDF discharge does not have a reasonable potential to cause or contribute to an exceedance of the applicable temperature standards.

¹⁰ Argaman, Y. and Adams, C. (1977) *Comprehensive temperature model for aerated biological systems*, Prog. Water Technology, V9, pp. 397-409, Pergamon Press. Note: the terms in the heat balance equations for aeration and biological heat generation are removed for this analysis.

4. Conclusions

The CORMIX2 modeling analysis demonstrates that a 50-port high-rate diffuser can be effectively used to enhance mixing of the HIDF effluent with the GOM receiving waters. At the proposed discharge location and with the 50-port design, the maximum increase in ambient GOM salinity at a horizontal distance of 100 m from the diffuser will be < 2 ppt. The plume will be bottom attached at this distance from the diffuser and will be 2.4 m thick and 337 m wide. The appendix provides a schematic of the plume shape and dimensions at this effluent/ambient condition.

The key components of the diffuser design are as follows:

minimum bottom elevation	≥11.3 m MLLW
port depth below surface (center of diffuser)	≥7.5 m MLLW
number of risers	25
distance between risers	6.25 m
total length of diffuser barrel	150 m
number of ports per riser	2
orientation of ports on risers	180° (opposing)
port diameter	160 mm
port angle to horizontal (water surface)	60°
port angle to ambient current	0°-180° (~NNE, SSW)

The detailed engineering design of the diffuser will be prepared following approval of the diffuser critical dilutions by TCEQ and issuance of a TPDES permit based on the dilution achieved by the proposed diffuser.

Appendix
CORMIX Output File and Plume Schematic
Critical Condition

[illegible]

```

REGMZ = 1
REGSPC= 1          XREG = 100.00 WREG = 0.00 AREG = 0.00
XINT = 10000.00   XMAX = 10000.00

```

X-Y-Z COORDINATE SYSTEM:

ORIGIN is located at the bottom and the diffuser mid-point:

2475.00 m from the LEFT bank/shore.

X-axis points downstream, Y-axis points to left, Z-axis points upward.

NSTEP = 100 display intervals per module

BEGIN MOD201: DIFFUSER DISCHARGE MODULE

Due to complex near-field motions: EQUIVALENT SLOT DIFFUSER (2-D) GEOMETRY

Profile definitions:

BV = Gaussian 1/e (37%) width, in vertical plane normal to trajectory

BH = top-hat half-width, in horizontal plane normal to trajectory

S = hydrodynamic centerline dilution

C = centerline concentration (includes reaction effects, if any)

Uc = Local centerline excess velocity (above ambient)

TT = Cumulative travel time

X	Y	Z	S	C	BV	BH	Uc	TT
0.00	0.00	3.50	1.0	0.100E+03	0.01	75.00	6.666	.00000E+00

END OF MOD201: DIFFUSER DISCHARGE MODULE

BEGIN MOD224: NEGATIVELY BUOYANT LINE PLUME

Profile definitions:

BV = top-hat thickness, measured vertically

BH = top-hat half-width, measured horizontally in y-direction

ZU = upper plume boundary (Z-coordinate)

ZL = lower plume boundary (Z-coordinate)

S = hydrodynamic average (bulk) dilution

C = average (bulk) concentration (includes reaction effects, if any)

TT = Cumulative travel time

Control volume inflow:

X	Y	Z	S	C	BV	BH	TT
0.00	0.00	3.50	1.0	0.100E+03	0.01	75.00	.00000E+00

Control volume outflow:

X	Y	Z	S	C	BV	BH	TT
3.00	0.00	0.00	7.5	0.133E+02	0.90	75.90	.11809E+02

Cumulative travel time = 11.8093 sec (0.00 hrs)

END OF MOD224: NEGATIVELY BUOYANT LINE PLUME

BEGIN MOD232: LAYER BOUNDARY IMPINGEMENT/UPSTREAM SPREADING

Vertical angle of layer/boundary impingement = -90.00 deg

Horizontal angle of layer/boundary impingement = 0.00 deg

UPSTREAM INTRUSION PROPERTIES:

Upstream intrusion length = 146.37 m

X-position of upstream stagnation point = -143.37 m

Thickness in intrusion region = 0.70 m

Half-width at downstream end = 168.67 m

Thickness at downstream end = 2.35 m

In this case, the upstream INTRUSION IS VERY LARGE, exceeding 10 times the local water depth.

This may be caused by a very small ambient velocity, perhaps in combination with large discharge buoyancy.

If the ambient conditions are strongly transient (e.g. tidal), then the CORMIX steady-state predictions of upstream intrusion are probably unrealistic.

The plume predictions prior to boundary impingement and wedge formation will be acceptable, however.

Control volume inflow:

X	Y	Z	S	C	BV	BH	TT
---	---	---	---	---	----	----	----

3.00 0.00 0.00 7.5 0.133E+02 0.90 75.90 .11809E+02

Profile definitions:

BV = top-hat thickness, measured vertically
 BH = top-hat half-width, measured horizontally in y-direction
 ZU = upper plume boundary (Z-coordinate)
 ZL = lower plume boundary (Z-coordinate)
 S = hydrodynamic average (bulk) dilution
 C = average (bulk) concentration (includes reaction effects, if any)
 TT = Cumulative travel time

X	Y	Z	S	C	BV	BH	ZU	ZL	TT
-143.37	0.00	0.00	9999.9	0.000E+00	0.00	0.00	0.00	0.00	.13424E+04
-138.76	0.00	0.00	33.8	0.296E+01	0.16	23.85	0.16	0.00	.13005E+04
-116.15	0.00	0.00	14.0	0.714E+01	0.37	57.94	0.37	0.00	.10950E+04
-93.54	0.00	0.00	10.5	0.950E+01	0.50	78.39	0.50	0.00	.88942E+03
-70.93	0.00	0.00	9.0	0.111E+02	0.59	94.52	0.59	0.00	.68388E+03
-48.32	0.00	0.00	8.1	0.123E+02	0.64	108.27	0.64	0.00	.47835E+03
-25.71	0.00	0.00	7.7	0.130E+02	0.68	120.46	0.68	0.00	.27281E+03
-3.10	0.00	0.00	7.5	0.133E+02	0.70	131.52	0.70	0.00	.67270E+02
19.50	0.00	0.00	8.3	0.121E+02	0.93	163.19	0.93	0.00	.16189E+03
42.11	0.00	0.00	10.7	0.935E+01	1.65	165.12	1.65	0.00	.36742E+03
64.72	0.00	0.00	12.4	0.808E+01	2.16	166.95	2.16	0.00	.57296E+03
87.33	0.00	0.00	13.0	0.768E+01	2.35	168.67	2.35	0.00	.77850E+03
Cumulative travel time =			778.4989 sec (0.22 hrs)						

END OF MOD232: LAYER BOUNDARY IMPINGEMENT/UPSTREAM SPREADING

** End of NEAR-FIELD REGION (NFR) **

BEGIN MOD241: BUOYANT AMBIENT SPREADING

Profile definitions:

BV = top-hat thickness, measured vertically
 BH = top-hat half-width, measured horizontally in y-direction
 ZU = upper plume boundary (Z-coordinate)
 ZL = lower plume boundary (Z-coordinate)
 S = hydrodynamic average (bulk) dilution
 C = average (bulk) concentration (includes reaction effects, if any)
 TT = Cumulative travel time

Plume Stage 1 (not bank attached):

X	Y	Z	S	C	BV	BH	ZU	ZL	TT
87.33	0.00	0.00	13.0	0.768E+01	2.35	168.67	2.35	0.00	.77850E+03

** REGULATORY MIXING ZONE BOUNDARY **

In this prediction interval the plume DOWNSTREAM distance meets or exceeds
 the regulatory value = 100.00 m.

This is the extent of the REGULATORY MIXING ZONE.

100.64	0.00	0.00	13.5	0.741E+01	2.41	170.26	2.41	0.00	.89944E+03
113.94	0.00	0.00	14.0	0.716E+01	2.47	171.86	2.47	0.00	.10204E+04
127.24	0.00	0.00	14.4	0.692E+01	2.54	173.46	2.54	0.00	.11413E+04
140.55	0.00	0.00	14.9	0.669E+01	2.60	175.06	2.60	0.00	.12623E+04
153.85	0.00	0.00	15.4	0.647E+01	2.66	176.67	2.66	0.00	.13832E+04
167.16	0.00	0.00	16.0	0.627E+01	2.73	178.29	2.73	0.00	.15042E+04
180.46	0.00	0.00	16.5	0.607E+01	2.79	179.91	2.79	0.00	.16251E+04
193.76	0.00	0.00	17.0	0.588E+01	2.86	181.53	2.86	0.00	.17461E+04
207.07	0.00	0.00	17.6	0.569E+01	2.92	183.16	2.92	0.00	.18670E+04
220.37	0.00	0.00	18.1	0.552E+01	2.99	184.78	2.99	0.00	.19879E+04
233.67	0.00	0.00	18.7	0.535E+01	3.05	186.42	3.05	0.00	.21089E+04
246.98	0.00	0.00	19.2	0.519E+01	3.12	188.05	3.12	0.00	.22298E+04
260.28	0.00	0.00	19.8	0.504E+01	3.18	189.69	3.18	0.00	.23508E+04
273.59	0.00	0.00	20.4	0.490E+01	3.25	191.34	3.25	0.00	.24717E+04
286.89	0.00	0.00	21.0	0.475E+01	3.32	192.98	3.32	0.00	.25927E+04
300.19	0.00	0.00	21.6	0.462E+01	3.39	194.63	3.39	0.00	.27136E+04
313.50	0.00	0.00	22.3	0.449E+01	3.46	196.28	3.46	0.00	.28346E+04
326.80	0.00	0.00	22.9	0.436E+01	3.53	197.93	3.53	0.00	.29555E+04
340.11	0.00	0.00	23.6	0.424E+01	3.60	199.59	3.60	0.00	.30764E+04
353.41	0.00	0.00	24.2	0.413E+01	3.67	201.25	3.67	0.00	.31974E+04
366.71	0.00	0.00	24.9	0.402E+01	3.74	202.91	3.74	0.00	.33183E+04
380.02	0.00	0.00	25.6	0.391E+01	3.81	204.57	3.81	0.00	.34393E+04
393.32	0.00	0.00	26.3	0.381E+01	3.88	206.23	3.88	0.00	.35602E+04
406.63	0.00	0.00	27.0	0.371E+01	3.95	207.90	3.95	0.00	.36812E+04

419.93	0.00	0.00	27.7	0.361E+01	4.02	209.56	4.02	0.00	.38021E+04
433.23	0.00	0.00	28.4	0.352E+01	4.10	211.23	4.10	0.00	.39231E+04
446.54	0.00	0.00	29.1	0.343E+01	4.17	212.90	4.17	0.00	.40440E+04
459.84	0.00	0.00	29.9	0.334E+01	4.24	214.58	4.24	0.00	.41650E+04
473.15	0.00	0.00	30.7	0.326E+01	4.32	216.25	4.32	0.00	.42859E+04
486.45	0.00	0.00	31.4	0.318E+01	4.39	217.92	4.39	0.00	.44068E+04
499.75	0.00	0.00	32.2	0.310E+01	4.47	219.60	4.47	0.00	.45278E+04
513.06	0.00	0.00	33.0	0.303E+01	4.55	221.28	4.55	0.00	.46487E+04
526.36	0.00	0.00	33.8	0.296E+01	4.62	222.96	4.62	0.00	.47697E+04
539.66	0.00	0.00	34.7	0.289E+01	4.70	224.64	4.70	0.00	.48906E+04
552.97	0.00	0.00	35.5	0.282E+01	4.78	226.32	4.78	0.00	.50116E+04
566.27	0.00	0.00	36.3	0.275E+01	4.86	228.00	4.86	0.00	.51325E+04
579.58	0.00	0.00	37.2	0.269E+01	4.93	229.69	4.93	0.00	.52535E+04
592.88	0.00	0.00	38.1	0.263E+01	5.01	231.37	5.01	0.00	.53744E+04
606.18	0.00	0.00	39.0	0.257E+01	5.09	233.06	5.09	0.00	.54953E+04
619.49	0.00	0.00	39.9	0.251E+01	5.17	234.74	5.17	0.00	.56163E+04
632.79	0.00	0.00	40.8	0.245E+01	5.25	236.43	5.25	0.00	.57372E+04
646.10	0.00	0.00	41.7	0.240E+01	5.34	238.12	5.34	0.00	.58582E+04
659.40	0.00	0.00	42.7	0.234E+01	5.42	239.81	5.42	0.00	.59791E+04
672.70	0.00	0.00	43.6	0.229E+01	5.50	241.50	5.50	0.00	.61001E+04
686.01	0.00	0.00	44.6	0.224E+01	5.58	243.19	5.58	0.00	.62210E+04
699.31	0.00	0.00	45.6	0.220E+01	5.67	244.88	5.67	0.00	.63420E+04
712.62	0.00	0.00	46.6	0.215E+01	5.75	246.57	5.75	0.00	.64629E+04
725.92	0.00	0.00	47.6	0.210E+01	5.84	248.27	5.84	0.00	.65838E+04
739.22	0.00	0.00	48.6	0.206E+01	5.92	249.96	5.92	0.00	.67048E+04
752.53	0.00	0.00	49.6	0.202E+01	6.01	251.65	6.01	0.00	.68257E+04
765.83	0.00	0.00	50.7	0.197E+01	6.09	253.35	6.09	0.00	.69467E+04
779.13	0.00	0.00	51.7	0.193E+01	6.18	255.04	6.18	0.00	.70676E+04
792.44	0.00	0.00	52.8	0.189E+01	6.27	256.74	6.27	0.00	.71886E+04
805.74	0.00	0.00	53.9	0.185E+01	6.35	258.44	6.35	0.00	.73095E+04
819.05	0.00	0.00	55.0	0.182E+01	6.44	260.13	6.44	0.00	.74305E+04
832.35	0.00	0.00	56.1	0.178E+01	6.53	261.83	6.53	0.00	.75514E+04
845.65	0.00	0.00	57.3	0.175E+01	6.62	263.53	6.62	0.00	.76723E+04
858.96	0.00	0.00	58.4	0.171E+01	6.71	265.23	6.71	0.00	.77933E+04
872.26	0.00	0.00	59.6	0.168E+01	6.80	266.93	6.80	0.00	.79142E+04
885.57	0.00	0.00	60.8	0.164E+01	6.89	268.63	6.89	0.00	.80352E+04
898.87	0.00	0.00	62.0	0.161E+01	6.98	270.33	6.98	0.00	.81561E+04
912.17	0.00	0.00	63.2	0.158E+01	7.08	272.03	7.08	0.00	.82771E+04
925.48	0.00	0.00	64.4	0.155E+01	7.17	273.73	7.17	0.00	.83980E+04
938.78	0.00	0.00	65.7	0.152E+01	7.26	275.43	7.26	0.00	.85190E+04
952.09	0.00	0.00	66.9	0.149E+01	7.36	277.13	7.36	0.00	.86399E+04
965.39	0.00	0.00	68.2	0.147E+01	7.45	278.83	7.45	0.00	.87608E+04
978.69	0.00	0.00	69.5	0.144E+01	7.55	280.53	7.55	0.00	.88818E+04
992.00	0.00	0.00	70.8	0.141E+01	7.64	282.24	7.64	0.00	.90027E+04
1005.30	0.00	0.00	72.1	0.139E+01	7.74	283.94	7.74	0.00	.91237E+04
1018.60	0.00	0.00	73.5	0.136E+01	7.83	285.64	7.83	0.00	.92446E+04
1031.91	0.00	0.00	74.8	0.134E+01	7.93	287.34	7.93	0.00	.93656E+04
1045.21	0.00	0.00	76.2	0.131E+01	8.03	289.05	8.03	0.00	.94865E+04
1058.52	0.00	0.00	77.6	0.129E+01	8.13	290.75	8.13	0.00	.96075E+04
1071.82	0.00	0.00	79.0	0.127E+01	8.23	292.46	8.23	0.00	.97284E+04
1085.12	0.00	0.00	80.4	0.124E+01	8.33	294.16	8.33	0.00	.98493E+04
1098.43	0.00	0.00	81.9	0.122E+01	8.43	295.86	8.43	0.00	.99703E+04
1111.73	0.00	0.00	83.3	0.120E+01	8.53	297.57	8.53	0.00	.10091E+05
1125.04	0.00	0.00	84.8	0.118E+01	8.63	299.27	8.63	0.00	.10212E+05
1138.34	0.00	0.00	86.3	0.116E+01	8.73	300.98	8.73	0.00	.10333E+05
1151.64	0.00	0.00	87.8	0.114E+01	8.83	302.68	8.83	0.00	.10454E+05
1164.95	0.00	0.00	89.3	0.112E+01	8.94	304.39	8.94	0.00	.10575E+05
1178.25	0.00	0.00	90.8	0.110E+01	9.04	306.10	9.04	0.00	.10696E+05
1191.56	0.00	0.00	92.4	0.108E+01	9.14	307.80	9.14	0.00	.10817E+05
1204.86	0.00	0.00	94.0	0.106E+01	9.25	309.51	9.25	0.00	.10938E+05
1218.16	0.00	0.00	95.6	0.105E+01	9.35	311.21	9.35	0.00	.11059E+05
1231.47	0.00	0.00	97.2	0.103E+01	9.46	312.92	9.46	0.00	.11180E+05
1244.77	0.00	0.00	98.8	0.101E+01	9.56	314.63	9.56	0.00	.11301E+05
1258.08	0.00	0.00	100.4	0.996E+00	9.67	316.33	9.67	0.00	.11422E+05
1271.38	0.00	0.00	102.1	0.979E+00	9.78	318.04	9.78	0.00	.11543E+05
1284.68	0.00	0.00	103.8	0.964E+00	9.89	319.75	9.89	0.00	.11664E+05
1297.99	0.00	0.00	105.5	0.948E+00	9.99	321.45	9.99	0.00	.11784E+05
1311.29	0.00	0.00	107.2	0.933E+00	10.10	323.16	10.10	0.00	.11905E+05
1324.60	0.00	0.00	108.9	0.918E+00	10.21	324.87	10.21	0.00	.12026E+05
1337.90	0.00	0.00	110.7	0.903E+00	10.32	326.58	10.32	0.00	.12147E+05

1351.20	0.00	0.00	112.5	0.889E+00	10.43	328.28	10.43	0.00	.12268E+05
1364.51	0.00	0.00	114.2	0.875E+00	10.55	329.99	10.55	0.00	.12389E+05
1377.81	0.00	0.00	116.1	0.862E+00	10.66	331.70	10.66	0.00	.12510E+05
1391.12	0.00	0.00	117.9	0.848E+00	10.77	333.41	10.77	0.00	.12631E+05
1404.42	0.00	0.00	119.7	0.835E+00	10.88	335.11	10.88	0.00	.12752E+05
1417.72	0.00	0.00	121.6	0.822E+00	11.00	336.82	11.00	0.00	.12873E+05
Cumulative travel time = 12872.9629 sec (3.58 hrs)									

END OF MOD241: BUOYANT AMBIENT SPREADING

BEGIN MOD261: PASSIVE AMBIENT MIXING IN UNIFORM AMBIENT

Vertical diffusivity (initial value) = 0.102E+00 m²/s
Horizontal diffusivity (initial value) = 0.352E+01 m²/s

Profile definitions:

BV = Gaussian s.d.*sqrt(pi/2) (46%) thickness, measured vertically
= or equal to layer depth, if fully mixed
BH = Gaussian s.d.*sqrt(pi/2) (46%) half-width,
measured horizontally in Y-direction
ZU = upper plume boundary (Z-coordinate)
ZL = lower plume boundary (Z-coordinate)
S = hydrodynamic centerline dilution
C = centerline concentration (includes reaction effects, if any)
TT = Cumulative travel time

Plume Stage 1 (not bank attached):

X	Y	Z	S	C	BV	BH	ZU	ZL	TT
1417.72	0.00	0.00	121.6	0.822E+00	11.00	336.82	11.00	0.00	.12873E+05

Plume interacts with SURFACE.

The passive diffusion plume becomes VERTICALLY FULLY MIXED within this prediction interval.

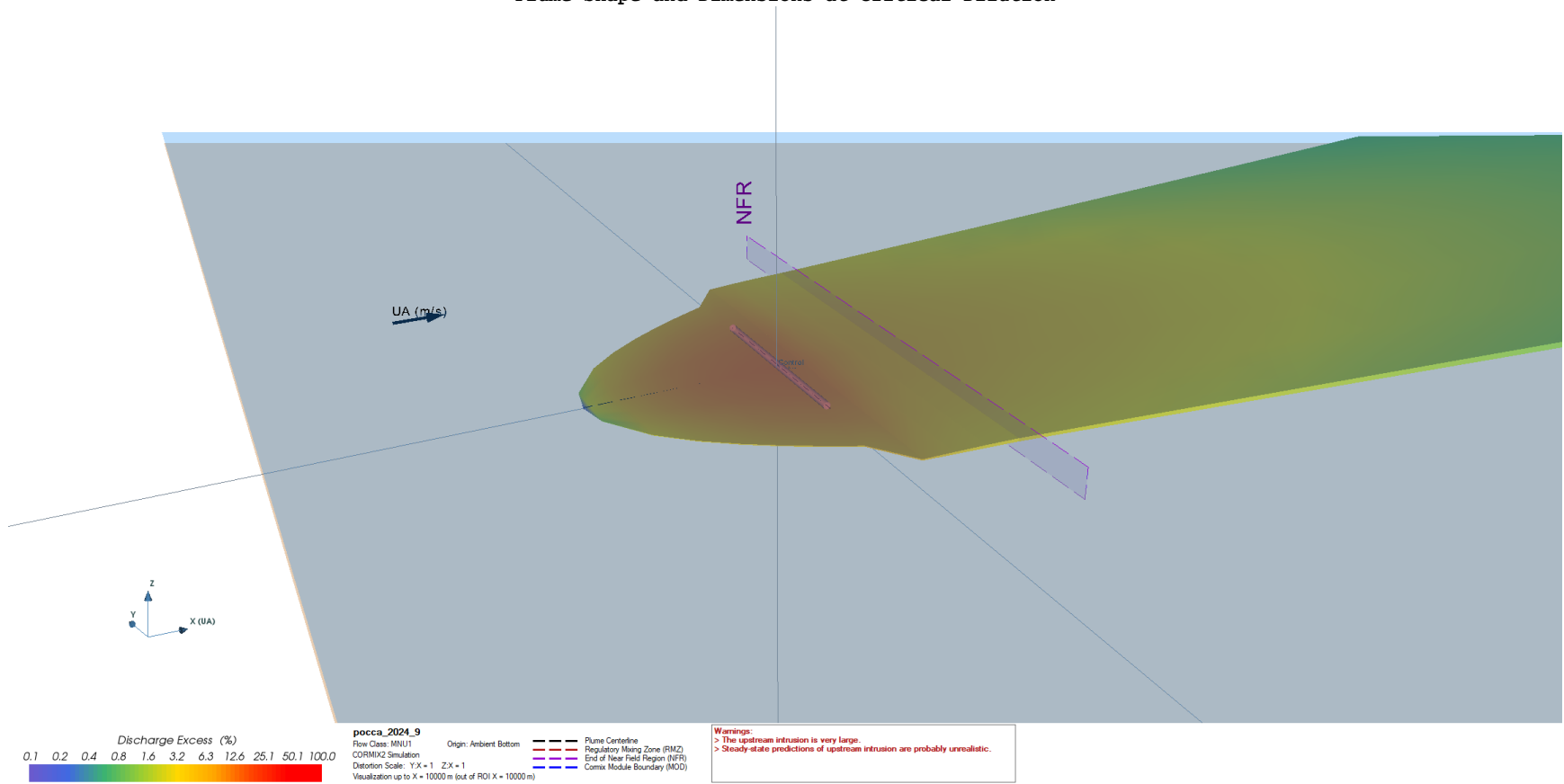
1503.55	0.00	0.00	126.3	0.792E+00	11.00	349.69	11.00	0.00	.13653E+05
1589.37	0.00	0.00	131.0	0.763E+00	11.00	362.72	11.00	0.00	.14433E+05
1675.19	0.00	0.00	135.8	0.737E+00	11.00	375.91	11.00	0.00	.15214E+05
1761.01	0.00	0.00	140.6	0.711E+00	11.00	389.26	11.00	0.00	.15994E+05
1846.84	0.00	0.00	145.5	0.688E+00	11.00	402.76	11.00	0.00	.16774E+05
1932.66	0.00	0.00	150.4	0.665E+00	11.00	416.41	11.00	0.00	.17554E+05
2018.48	0.00	0.00	155.4	0.644E+00	11.00	430.21	11.00	0.00	.18334E+05
2104.30	0.00	0.00	160.4	0.623E+00	11.00	444.16	11.00	0.00	.19115E+05
2190.13	0.00	0.00	165.5	0.604E+00	11.00	458.26	11.00	0.00	.19895E+05
2275.95	0.00	0.00	170.6	0.586E+00	11.00	472.51	11.00	0.00	.20675E+05
2361.77	0.00	0.00	175.8	0.569E+00	11.00	486.90	11.00	0.00	.21455E+05
2447.60	0.00	0.00	181.1	0.552E+00	11.00	501.43	11.00	0.00	.22235E+05
2533.42	0.00	0.00	186.4	0.537E+00	11.00	516.11	11.00	0.00	.23016E+05
2619.24	0.00	0.00	191.7	0.522E+00	11.00	530.92	11.00	0.00	.23796E+05
2705.06	0.00	0.00	197.1	0.507E+00	11.00	545.88	11.00	0.00	.24576E+05
2790.89	0.00	0.00	202.6	0.494E+00	11.00	560.97	11.00	0.00	.25356E+05
2876.71	0.00	0.00	208.1	0.481E+00	11.00	576.20	11.00	0.00	.26136E+05
2962.53	0.00	0.00	213.6	0.468E+00	11.00	591.57	11.00	0.00	.26917E+05
3048.35	0.00	0.00	219.2	0.456E+00	11.00	607.06	11.00	0.00	.27697E+05
3134.18	0.00	0.00	224.9	0.445E+00	11.00	622.70	11.00	0.00	.28477E+05
3220.00	0.00	0.00	230.6	0.434E+00	11.00	638.46	11.00	0.00	.29257E+05
3305.82	0.00	0.00	236.3	0.423E+00	11.00	654.35	11.00	0.00	.30038E+05
3391.65	0.00	0.00	242.1	0.413E+00	11.00	670.38	11.00	0.00	.30818E+05
3477.47	0.00	0.00	247.9	0.403E+00	11.00	686.53	11.00	0.00	.31598E+05
3563.29	0.00	0.00	253.8	0.394E+00	11.00	702.81	11.00	0.00	.32378E+05
3649.11	0.00	0.00	259.7	0.385E+00	11.00	719.22	11.00	0.00	.33158E+05
3734.94	0.00	0.00	265.7	0.376E+00	11.00	735.75	11.00	0.00	.33939E+05
3820.76	0.00	0.00	271.7	0.368E+00	11.00	752.41	11.00	0.00	.34719E+05
3906.58	0.00	0.00	277.8	0.360E+00	11.00	769.19	11.00	0.00	.35499E+05
3992.41	0.00	0.00	283.9	0.352E+00	11.00	786.10	11.00	0.00	.36279E+05
4078.23	0.00	0.00	290.0	0.345E+00	11.00	803.13	11.00	0.00	.37059E+05
4164.05	0.00	0.00	296.2	0.338E+00	11.00	820.27	11.00	0.00	.37840E+05
4249.87	0.00	0.00	302.5	0.331E+00	11.00	837.54	11.00	0.00	.38620E+05
4335.70	0.00	0.00	308.7	0.324E+00	11.00	854.93	11.00	0.00	.39400E+05
4421.52	0.00	0.00	315.1	0.317E+00	11.00	872.44	11.00	0.00	.40180E+05
4507.34	0.00	0.00	321.4	0.311E+00	11.00	890.06	11.00	0.00	.40960E+05
4593.16	0.00	0.00	327.8	0.305E+00	11.00	907.80	11.00	0.00	.41741E+05
4678.99	0.00	0.00	334.3	0.299E+00	11.00	925.66	11.00	0.00	.42521E+05
4764.81	0.00	0.00	340.8	0.293E+00	11.00	943.63	11.00	0.00	.43301E+05

Cumulative travel time = 90893.6641 sec (25.25 hrs)

END OF MOD261: PASSIVE AMBIENT MIXING IN UNIFORM AMBIENT

Port of Corpus Christi Authority
Harbor Island Desalination Facility Diffuser Conceptual Design

Plume Shape and Dimensions at Critical Dilution



FedEx Transaction Record & Tracking Number

Transaction Record



TRACKING NO.:
880222636371

SHIP DATE:
Apr 1, 2025

ESTIMATED SHIPPING CHARGES:
68.90 USD

From address

Paul Ayala
PORT OF CORPUS CHRISTI AUTHORITY
400 Harbor Drive
78401 TX CORPUS CHRISTI
US
Phone: 3618856109

To address

Executive Director
Texas Commission on Environmental
12100 Park 35 Circle
78753 TX AUSTIN
US
Phone: 5122394671

Package Information

Pieces	Weight	Dimensions (LxWxH)	Carriage value	Package options
1 x	2.00 lb			n/a
Packaging type: FedEx Medium Box		Service: FedEx Priority Overnight	Pickup / drop-off type: Schedule a new pickup	

Billing information

Bill transportation cost to:	*****281	P.O. No.:
Bill duties, taxes and fees to:		Invoice No.:
Your reference:	Review and Processing Team	Department No.: Environmental

Please note: This transaction record is neither a statement nor an invoice, and does not confirm shipment tendered to FedEx or payment. FedEx will not be responsible for any claim in excess of \$100 per package, whether the result of loss, damage, delay, non-delivery, misdelivery, or misinformation, unless you declare a higher value, pay an additional charge, document your actual loss and file a timely claim. Limitations found in the current FedEx Service Guide apply. Your right to recover from FedEx for any loss, including intrinsic value of the package, loss of sales, income interest, profit, attorney's fees, costs, and other forms of damage whether direct, incidental, consequential, or special is limited to the greater of \$100 or the authorized declared value. Recovery cannot exceed actual documented loss. Maximum for items of extraordinary value is \$1000, e.g., jewelry, precious metals, negotiable instruments and other items listed in our Service Guide. Written claims must be filed within strict time limits; Consult the applicable FedEx Service Guide for details. The estimated shipping charge may be different than the actual charges for your shipment. Differences may occur based on actual weight, dimensions, and other factors. Consult the applicable FedEx Service Guide or the FedEx Rate Sheets for details on how shipping charges are calculated.