

STATEMENT OF BASIS/TECHNICAL SUMMARY AND
EXECUTIVE DIRECTOR'S PRELIMINARY DECISION

DESCRIPTION OF APPLICATION

Applicant: Port of Corpus Christi Authority of Nueces County; Texas Pollutant Discharge Elimination System (TPDES) Permit No. WQ0005253000 (EPA I.D. No. TX0138347)

Regulated Activity: Industrial wastewater permit

Type of Application: New permit

Request: New permit

Authority: Federal Clean Water Act (CWA) §402; Texas Water Code (TWC) §26.027; 30 Texas Administrative Code (TAC) Chapter 305, Subchapters C-F, and Chapters 307 and 319; commission policies; and Environmental Protection Agency (EPA) guidelines

EXECUTIVE DIRECTOR RECOMMENDATION

The executive director has made a preliminary decision that this permit, if issued, meets all statutory and regulatory requirements. The draft permit will expire at midnight, five years from the date of permit issuance according to the requirements of 30 TAC §305.127(1)(C)(i).

REASON FOR PROJECT PROPOSED

The applicant has applied to the Texas Commission on Environmental Quality (TCEQ) for a new permit.

PROJECT DESCRIPTION AND LOCATION

The applicant currently proposes to operate Harbor Island Property - Former FINA Tank Farm, a seawater desalination facility.

Seawater will be drawn into the plant from a channel adjacent to Harbor Island through coarse screens that will keep large material from entering the pretreatment processes. The screen will reject captured solids as industrial solid waste into a dumpster and will be sent off-site for disposal. Sodium hypochlorite (NaOCl) will be added as needed to clear marine growth from the screens. The water will enter a rapid mixing unit where flocculant is added. It will then flow into the main clarifier tank, where suspended solids will settle. The settled solids will be removed periodically as underflow to the Sludge Thickener (ST). The clarifier effluent will flow to the Settled Water Clearwell (SWC), where NaOCl may be added as needed for the oxidation of manganese and partial disinfection.

From the SWC, the water will pass into the strainer, where solids and debris will be removed as necessary to protect the Ultrafiltration (UF) membranes. The strainers will be backwashed to the ST. NaOCl may be added as needed to the strainers. Particles exceeding a diameter greater than 0.001 µm will then be removed by passing the water under high pressure through the UF membranes. This process will be semi-continuous, with some UF units in forward flow and others in backwash or cleaning mode. Backwash flows will be sent to the UF Reject Tank and then stored for processing in the ST. UF permeate will be sent to a Clearwell, where NaOCl will be added, if needed.

From the Clearwell, water will be pumped through cartridge filters, the last unit to protect the desalination reverse osmosis (RO) skids. The RO units will remove particles larger than 0.1 nm. Pumps taking water from the Clearwell will apply high pressure to force the seawater through the RO

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membranes, leaving the total dissolved solids (TDS) behind. The process will be semi-continuous, with some units in forward mode and others in reject or cleaning mode. RO permeate will be passed through a calcite filter to add alkalinity and reduce corrosivity of the product water. The water will then be chlorinated and placed into one of two permeate storage tanks for distribution as potable water. The RO reject will be discharged to a brine tank and then pumped to Outfall 001.

Solids and sludge from the clarifiers, strainers, and UF reject tank will be passed into a mix tank where coagulant may be added as needed to increase the diameter of the solids and then routed into the ST. A flocculant may be added to the center of the well of the thickener to enhance solids separation. The supernate overflow will pass over the thickener weirs to the outfall stormwater tank. Underflow from the thickener will be pumped into a belt filter press (BFP) for dewatering. Solids generated during the water treatment process will be taken off site via truck for disposal. BFP filtrate will be routed to an outfall storage tank where it will commingle with thickener supernate prior to discharge via Outfall 001.

This permit does not authorize the discharge of domestic wastewater. All domestic wastewater must be disposed of in an approved manner, such as routing to an approved on-site septic tank and drainfield system or to an authorized third party for treatment and disposal.

The facility will be located adjacent to State Highway 361 just northeast of the Ferry Landing, Nueces County, Texas 78336.

Discharge Route and Designated Uses

The effluent will be discharged via pipe directly to Corpus Christi Bay in Segment No. 2481 of the Bays and Estuaries. The designated uses for Segment No. 2481 are primary contact recreation, exceptional aquatic life use, and oyster waters. The effluent limits in the draft permit will maintain and protect the existing instream uses. All determinations are preliminary and subject to additional review and revisions.

Antidegradation Review

In accordance with 30 TAC § 307.5 and TCEQ's *Procedures to Implement the Texas Surface Water Quality Standards* (June 2010), an antidegradation review of the receiving waters was performed. A Tier 1 antidegradation review has preliminarily determined that existing water quality uses will not be impaired by this permit action. Numerical and narrative criteria to protect existing uses will be maintained. A Tier 2 review has preliminarily determined that no significant degradation of water quality is expected in Corpus Christi Bay, which has been identified as having exceptional aquatic life use. Existing uses will be maintained and protected. The preliminary determination can be reexamined and may be modified if new information is received.

Endangered Species Review

A priority watershed of critical concern has been identified in Segment No. 2481 in Nueces County. The piping plover, *Charadrius melodus* Ord, a threatened aquatic-dependent species, has been determined to occur in the watershed of Segment No. 2481; however, the facility is not a petroleum facility and its discharge is not expected to have an effect on the piping plover. To make this determination for TPDES permits, TCEQ and the U.S. Environmental Protection Agency (EPA) only considered aquatic or aquatic-dependent species occurring in watersheds of critical concern or high priority as listed in Appendix A of the United States Fish and Wildlife Service's biological opinion on the State of Texas assumption of the TPDES (September 14, 1998; October 21, 1988 update). The determination is subject to reevaluation due to subsequent updates or amendments to the biological opinion. The permit does not require EPA review with respect to the presence of endangered or threatened species.

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Impaired Water Bodies

Segment No. 2481 is currently listed on the state's inventory of impaired and threatened waters, the 2014 CWA §303(d) list, for some of the segment's recreational beaches. The listing is specifically for elevated bacteria levels at Cole Park (AU 2481CB_03), Ropes Park (AU 2481CB_04), and Poenisch Park (AU 2481CB_06).

This permit will not authorize the discharge of any domestic wastewater, and the facility has no other potential sources of bacteria from the proposed processes. The proposed discharge from this facility is not expected to cause or contribute to the listed impairment for bacteria.

Completed Total Maximum Daily Loads (TMDLs)

There are no completed TMDLs for Segment No. 2481.

Dissolved Oxygen

Due to the low levels of oxygen-demanding constituents expected from this type of discharge, no significant dissolved oxygen depletion is anticipated in the receiving waters as a result of this discharge.

Diffuser Analysis

Outfall 001 will consist of a submerged multi-port diffuser, located approximately 300 feet from the shoreline. A mixing analysis of the proposed discharge via Outfall 001 into the Corpus Christi Bay was conducted using the CORMIX Version 11 GTD modeling system. Based on the mixing analysis, the critical effluent percentages are:

Chronic Aquatic Life Effluent %: 1.34

Acute Aquatic Life Effluent %: 1.95

Human Health Effluent %: 1.2

SUMMARY OF EFFLUENT DATA

Self-reporting data is not available because the facility has not been constructed.

DRAFT PERMIT CONDITIONS

The draft permit authorizes the discharge of water treatment wastes at a daily average flow not to exceed 95.6 million gallons per day (MGD) via Outfall 001.

Effluent limitations are established in the draft permit as follows:

Outfall	Pollutant	Daily Average		Daily Maximum	
		mg/L	lbs/day	mg/L	lbs/day
001	Flow	95.6 MGD		110 MGD	
	Total Suspended Solids	Report	Report	Report	Report
	Total Dissolved Solids	Report	Report	Report	Report
	Chloride	Report	Report	Report	Report
	Sulfate	Report	Report	Report	Report
	pH (Standard Units, SU)	6.0 SU, min		9.0 SU	

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Technology-Based Effluent Limitations

Regulations in Title 40 of the Code of Federal Regulations (40 CFR) require that technology-based limitations be placed in wastewater discharge permits based on federal effluent limitations guidelines (ELGs), where applicable, or on best professional judgment (BPJ) in the absence of guidelines.

The discharge of water treatment wastes resulting from desalination processes is not subject to any ELGs. Monitoring and reporting requirements for total suspended solids have been included in the draft permit at Outfall 001 based upon BPJ due to the potential for suspended solids to be present in the discharge.

Water Quality-Based Effluent Limitations

Calculations of water quality-based effluent limitations for the protection of aquatic life and human health are presented in Appendix A. Aquatic life criteria established in Table 1 and human health criteria established in Table 2 of 30 TAC Chapter 307 are incorporated into the calculations, as are recommendations in the Water Quality Assessment Team's memorandum dated August 13, 2018. TCEQ practice for determining significant potential is to compare the reported analytical data from the facility against percentages of the calculated daily average water quality-based effluent limitation. Permit limitations are required when analytical data reported in the application exceeds 85 percent of the calculated daily average water quality-based effluent limitation. Monitoring and reporting is required when analytical data reported in the application exceeds 70 percent of the calculated daily average water quality-based effluent limitation.

No analytical data was submitted with the application because the facility has not been constructed. Other Requirement No. 8 has been added to the draft permit requiring sampling and analysis of the effluent upon commencement of discharge. Based on a review of the data, the permit may be reopened to add limitations or monitoring requirements, if needed.

Total Dissolved Solids (TDS), Chloride, and Sulfate Screening

Segment No. 2481, which will receive the proposed discharge from this facility, does not have criteria established for TDS, chloride, or sulfate in 30 TAC Chapter 307; therefore, no screening was performed for TDS, chloride, or sulfate in the effluent. However, monitoring and reporting requirements for TDS, chloride, and sulfate have been included in the draft permit at Outfall 001 based on the presence of water treatment wastes in the proposed discharge.

pH Screening

The draft permit includes pH limits of 6.0 – 9.0 SU at Outfall 001, which will discharge directly into Corpus Christi Bay, Segment No. 2481. A pH screening was performed to ensure that the proposed pH limits would not cause a violation of the pH criteria in Corpus Christi Bay of 6.5 – 9.0 SU (see Appendix B). The proposed effluent limits of 6.0 – 9.0 SU are adequate to ensure that the discharge will not violate the pH criteria in Corpus Christi Bay and have been placed in the draft permit at Outfall 001.

Whole Effluent Toxicity Testing (Biomonitoring)

Biomonitoring requirements are not included in the draft permit.

SUMMARY OF CHANGES FROM APPLICATION

No changes were made from the application.

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SUMMARY OF CHANGES FROM EXISTING PERMIT

N/A – New Permit.

BASIS FOR DRAFT PERMIT

The following items were considered in developing the draft permit:

1. Application received on March 7, 2018, and additional information received on May 9, 2018, June 20, 2018, June 21, 2018, and June 29, 2018.
2. TCEQ Rules, including but not limited to, 30 TAC Chapters 305 and 312.
3. *Texas Surface Water Quality Standards* – 30 TAC §§307.1-307.10, effective March 6, 2014, as approved by EPA Region 6.
4. *Texas Surface Water Quality Standards* – 30 TAC §§307.1-307.10, effective July 22, 2010, as approved by EPA Region 6, for portions of the 2014 standards not approved by EPA Region 6.
5. *Texas Surface Water Quality Standards* – 30 TAC §§307.1-307.10, effective August 17, 2000, and Appendix E, effective February 27, 2002, for portions of the 2010 standards not approved by EPA Region 6.
6. *Procedures to Implement the Texas Surface Water Quality Standards* (IPs), Texas Commission on Environmental Quality, June 2010, as approved by EPA Region 6.
7. *Procedures to Implement the Texas Surface Water Quality Standards*, Texas Commission on Environmental Quality, January 2003, for portions of the 2010 IPs not approved by EPA Region 6.
8. Memos from the Standards Implementation Team and Water Quality Assessment Team of the Water Quality Assessment Section of the TCEQ.
9. *Guidance Document for Establishing Monitoring Frequencies for Domestic and Industrial Wastewater Discharge Permits*, TCEQ Document No. 98-001.000-OWR-WQ, May 1998.
10. EPA Effluent Guidelines: N/A.
11. Consistency with the Coastal Management Plan: The executive director has reviewed this action for consistency with the goals and policies of the Texas Coastal Management Program (CMP) in accordance with the regulations of the General Land Office and has determined that the action is consistent with the applicable CMP goals and policies.
12. Letter dated May 28, 2014, from L'Oreal W. Stepney, P.E., Deputy Director, Office of Water, TCEQ, to Bill Honker, Director, Water Quality Protection Division, EPA (TCEQ proposed development strategy for pH evaluation procedures).
13. Letter dated June 2, 2014, from William K. Honker, P.E., Director, Water Quality Protection Division, EPA, to L'Oreal W. Stepney, P.E., Deputy Director, Office of Water, TCEQ (Approval of TCEQ proposed development strategy for pH evaluation procedures).

PROCEDURES FOR FINAL DECISION

When an application is declared administratively complete, the chief clerk sends a letter to the applicant advising the applicant to publish the Notice of Receipt of Application and Intent to Obtain Permit in the newspaper. In addition, the chief clerk instructs the applicant to place a copy of the application in a public place for reviewing and copying in the county where the facility is or will be located. This application will be in a public place throughout the comment period. The chief clerk also mails this notice to any interested persons and, if required, to landowners identified in the permit application. This notice informs the public about the application and provides that an interested person may file comments on the application or request a contested case hearing or a public meeting.

Once a draft permit is completed, it is sent to the chief clerk, along with the executive director's preliminary decision contained in the technical summary or fact sheet. At that time, the Notice of

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Application and Preliminary Decision will be mailed to the same people and published in the same newspaper as the prior notice. This notice sets a deadline for making public comments. The applicant must place a copy of the executive director's preliminary decision and draft permit in the public place with the application.

Any interested person may request a public meeting on the application until the deadline for filing public comments. A public meeting is intended for the taking of public comment and is not a contested case hearing.

After the public comment deadline, the executive director prepares a response to all significant public comments on the application or the draft permit raised during the public comment period. The chief clerk then mails the executive director's response to comments and final decision to people who have filed comments, requested a contested case hearing, or requested to be on the mailing list. This notice provides that if a person is not satisfied with the executive director's response and decision, they can request a contested case hearing or file a request to reconsider the executive director's decision within 30 days after the notice is mailed.

The executive director will issue the permit unless a written hearing request or request for reconsideration is filed within 30 days after the executive director's response to comments and final decision is mailed. If a hearing request or request for reconsideration is filed, the executive director will not issue the permit and will forward the application and request to the TCEQ commissioners for their consideration at a scheduled commission meeting. If a contested case hearing is held, it will be a legal proceeding similar to a civil trial in state district court.

If the executive director calls a public meeting or the commission grants a contested case hearing as described above, the commission will give notice of the date, time, and place of the meeting or hearing. If a hearing request or request for reconsideration is made, the commission will consider all public comments in making its decision and shall either adopt the executive director's response to public comments or prepare its own response.

For additional information about this application, contact Shannon Gibson at (512) 239-4284.

Shannon Gibson

Shannon Gibson

August 20, 2018

Date