

**NPDES PERMIT NO. TX0127566**  
**STATEMENT OF BASIS**

FOR THE DRAFT NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM  
(NPDES) PERMIT TO DISCHARGE TO WATERS OF THE UNITED STATES

**APPLICANT**

Freeport LNG Terminal and Liquefaction Facility  
1500 Lamar Street  
Quintana TX 77541

**ISSUING OFFICE**

U.S. Environmental Protection Agency  
Region 6  
1445 Ross Avenue  
Dallas, Texas 75202-2733

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**DATE PREPARED**

January 16, 2018

**PERMIT ACTION**

Proposed reissuance of a permit that was issued June 28, 2013, effective on August 1, 2013, and expires July 31, 2018.

**RECEIVING WATER – BASIN**

Gulf of Mexico – Gulf of Mexico, Texas Waterbody Segment 2501

## DOCUMENT ABBREVIATIONS

In the document that follows, various abbreviations are used. They are as follows:

AVT	Air Vaporization Tower
BAT	Best available technology economically achievable
BCT	Best conventional pollutant control technology
BOD	Biochemical oxygen demand (5-day)
BPT	Best practicable control technology currently available
BMP	Best management plan
BPJ	Best professional judgment
° C	Celsius, degrees
CFR	Code of Federal Regulations
cfs	Cubic feet per second
COD	Chemical oxygen demand
COE	United States Corp of Engineers
CWA	Clean Water Act
DMR	Discharge monitoring report
EA	Environmental Assessment
EIS	Environmental Impact Statement
ELG	Effluent limitation guidelines
EFH	Essential fish habitat
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
° F	Fahrenheit, degrees
FCB	Fecal coliform bacteria
GIWW	Gulf Intercoastal Waterway
GOM	Gulf of Mexico
gpm	Gallons per minute
LNG	Liquefied natural gas
mg/l	Milligrams per liter (part per million)
ug/l	Micrograms per liter (part per billion)
MARAD	United States Maritime Administration
MTPA	million tonnes per annum
MGD	Million gallons per day
MQL	Minimum quantification level
NEPA	National Environmental Policy Act
NMFS	National Marine Fisheries Service
NOAA	National Oceanographic and Atmospheric Administration
NPDES	National Pollutant Discharge Elimination System
ODC	Ocean Discharge Criteria
O&G	Oil and grease
RP	Reasonable potential
SIC	Standard industrial classification
s.u.	Standard units (for parameter pH)
TDS	Total dissolved solids
TMDL	Total maximum daily load
TOC	Total organic carbon
TRC	Total residual chlorine
TSS	Total suspended solids
USCG	U.S. Coast Guard
USFWS	United States Fish & Wildlife Service
USGS	United States Geological Service
WLA	Wasteload allocation
WET	Whole effluent toxicity
WQMP	Water Quality Management Plan

## I. PROPOSED CHANGES FROM CURRENT PERMIT

1. Addition of LNG Liquefaction plant and a third tank at the LNG Regasification Terminal.
2. Five additional Outfalls have been added to the proposed permit, Outfalls 005 through 009.
3. The receiving stream segment is changed from Texas Waterbody Segment No. 1201, Brazos River Tidal to Texas Waterbody Segment No. 2501, Gulf of Mexico.
4. Biomonitoring requirements is changed from 48-hour acute test, once per permit term to 7- day chronic, once per quarter when discharging for Outfall 001.
5. A7-day chronic biomonitoring requirements, with quarterly frequency when discharging have been established for Outfalls 005, 007, 008, & 009.
6. The frequency for toxic pollutants in Outfall 001 has been changed from once per permit term to daily, when discharging.
7. Limitations and monitoring requirements for TRC has been established at Outfalls 002, 004 and 007.
8. Electronic DMR requirements have been established in the draft permit.
9. MQL language in Part II of the permit has been updated to include sufficiently sensitive test method.
10. Limitation and monitoring requirements have been established for total copper and total zinc at Outfall 006.
11. A 12- month compliance schedule has been established for total copper and total zinc at Outfall 006.

## II. APPLICANT LOCATION and ACTIVITY

Under the Standard Industrial Classification (SIC) Code No. 4922, the applicant engages in the transmission of natural gas. As described in the application, the facility is located at No. 1500 Lamar Street, Quintana, Brazoria County, Texas.

The facility imports and exports Liquefied Natural Gas (LNG). The facility plans to add and operate Freeport LNG's Liquefaction plant as well as a third tank at the Liquefied Natural Gas Regasification Terminal. The Liquefaction Plant will consist of three propane, pre-cooled, mixed refrigerant trains, each capable of producing a nominal 5.1 million tons per annum of LNG for a total of 15.3 mtpa for all three trains and associated ancillary facilities. With the addition of the Liquefaction Plant, pre-treated natural gas will be liquefied on-site with the three (3) LNG trains and then stored in either of the three (3) LNG storage tanks. The LNG will be exported from the Quintana Island terminal by LNG vessels via marine transit through the port Freeport Channel.

The proposed permit also includes the addition of a third LNG storage tank adjacent and to the west of the existing LNG storage tanks and improvements related to the Liquefaction Plant at the existing LNG Regasification Terminal. Stormwater discharges associated with Tank 3 would potentially be released through the existing permitted Outfall 004. There are five proposed NPDES Outfalls – Outfalls 005 through 009.

### III. DISCHARGE LOCATION

The discharge points showing Outfall number, discharge coordinates: latitude and longitude, county, average flow rate in millions gallons per day (MGD), receiving water, and the waterbody identification numbers are shown in the following table:

Table 1 – Discharge Location for Outfalls 001 – 009

Outfall Reference Number	Discharge Coordinates Latitude Deg° Min' Sec" Longitude Deg° Min' Sec"	County	Average Flow MGD	Receiving Water	Segment #
001	28°55' 56" N 95°18' 47" W	Brazoria	0.7575	Created Wetland thence to GIWW, thence to Gulf of Mexico	Segment No. 2501
002	28°56' 5" N 95° 18' 56" W	Brazoria	0.001400	GIWW thence to Gulf of Mexico	Segment No. 2501
003	28° 55'54" N 95°18'48" W	Brazoria	0.001350	Created wetland thence to GIWW, thence to Gulf of Mexico	Segment No. 2501
004	28° 55'46" N 95°18'58" W	Brazoria	0.001400	Created Wetland thence to GIWW, thence to Gulf of Mexico	Segment No. 2501
005	28° 56'2" N 95°19'4" W	Brazoria	0.008370	GIWW thence to Gulf of Mexico	Segment No. 2501
006	28° 55'46" N 95°19'6" W	Brazoria	0.001595	W Velasco Ditch thence to GIWW thence to Gulf of Mexico	Segment No. 2501
007	28° 55'48" N 95°19'19" W	Brazoria	0.026700	GIWW thence to Gulf of Mexico	Segment No. 2501
008	28° 55'45" N 95°19'25" W	Brazoria	0.054550	GIWW thence to Gulf of Mexico	Segment No. 2501
009	28° 55'41" N 95°19'33" W	Brazoria	0.053350	GIWW thence to Gulf of Mexico	Segment No. 2501

The previous NPDES permit authorized discharges from four outfalls; 001 thru 004. The proposed permit authorizes discharges from nine outfalls; Outfalls 001 to 009. The discharges from all the outfalls are described below.

Outfall 001 is permitted for discharges of wastewater from the existing Air Vaporization Tower. The facility will use gasification technology that is referred to as an Air Vaporization Tower (AVT) system to change the LNG to NG. Ambient air is pulled through the tower by fans to warm up circulating cold water used in the plant's LNG vaporization process. As the warm, moist ambient air contacts the chilled water lines inside the AVT, the drop in temperature generates condensation and this is the discharge from the process area. The condensate water generates a discharge of approximately 1.2 MGD depending on the LNG vaporization rate, the air temperature and relative humidity. The excess water will be collected in a basin that is

drained on level control and discharged through Outfall 001. The warm water circulates back to the LNG Vaporizer. The facility has not had any discharges from Outfall 001.

Outfall 002 is associated with storm water runoff from a 3-acre, curbed LNG process area to a valved sump where visual observation for oil sheen can be conducted prior to release. The quantity of discharge through Outfall 002 is rainfall-dependent.

Outfall 003 is associated with storm water runoff from the Air Tower area, LNG Tank 1, and process areas to a valved discharge outlet where visual inspections for oil sheen can be conducted prior to discharge. The quantity of discharge through Outfall 003 is rainfall-dependent.

Outfall 004 is associated with storm water runoff from the LNG Tank 2, LNG Tank 3, the utility area and the remainder of the process area, which is discharged through an oil/water/sediment separator (Stormceptor®), prior to going to the Tank 2 area. The quantity of discharge through Outfall 004 is rainfall-dependent.

Outfalls 001, 002, 003, and 004 are existing outfalls that discharge through an earthen levee surrounding the existing Freeport LNG Terminal. The outfalls are continuously valved closed to prevent unauthorized discharges. When stormwater accumulates at Outfalls 002, 003, and 004, the stormwater is inspected and tested for pollutants prior to opening the outfall to release the stormwater runoff. If the stormwater runoff is found to contain pollutants, the polluted water is pumped into a vacuum truck and disposed of properly. In addition to the earthen levee, areas that contain above ground storage tanks, pumps, and emergency engines for the facility have concrete containment encompassing the area to contain potential spills. Discharges from Outfalls 001, 003, and 004 are directed to a constructed wetland on the south side of the existing Freeport LNG Terminal and then to the Intracoastal Waterway. Discharge from Outfall 002, 005, 007, 008, and 009 are routed to the Intracoastal Waterway, while discharges from Outfall 006 are routed to West Velasco ditch then to Intracoastal Waterway. Discharges from all the Outfalls are finally routed to the Gulf of Mexico.

Outfalls 005, 007, 008, and 009 will discharge stormwater exposed to industrial operations through oily water collection systems that are designed to collect stormwater effluents that might be contaminated with oil or heavy hydrocarbons. Effluents flow directly to sumps or pass through oily stormceptors then to sumps. Contaminated water is removed by vacuum trucks for proper disposal offsite. Diesel fuel is a potential contaminant from appurtenant piping and storage tanks required for standby generators. Curbed areas collect potential spills and contaminants, which are removed with vacuum trucks. The Liquefaction facility operates with hydrocarbon that typically have normal boiling points above ambient temperatures. Unplanned releases of light hydrocarbons are directed to the flare system or are collected and diverted away from process areas where the light hydrocarbons are allowed to vaporize and disperse.

Outfall 006 will discharge stormwater and washwater from a washrack used to clean light utility vehicles.

The facility noted that discharges of firewater will not contain chlorine. Discharges of eyewash and safety shower discharges will be through routine testing/flushing activities. Eyewash and

safety shower discharges will be through Outfall 007 and stormwater outlets 13 and 15. Eyewash and safety shower discharges will be from the municipal water supply and will not be hyperchlorinated. Discharges of eyewash and safety shower water will be considered an allowable non-stormwater discharge and addressed in the required storm water pollution prevention plan.

Effluent Characteristics

During the last permit cycle, discharge has not occurred from Outfall 001 - Air Vaporization Tower (AVT), as a result its' flows are estimated.

The results of the data contained in the permit application are:

OUTFALL 002 – Glycol Water Heaters, Process Area, Firewater System, Eyewash/Safety Shower		
POLLUTANT	Max mg/l, unless noted	Mass lbs. /d unless noted
pH, s.u	6.2 – 8.34	
TOC	14	24.53
O & G	0	0
Flow, MGD	0.42	N/A
TRC	4	0.0017

OUTFALL 003 – LNG Storage Tank, Firewater System		
POLLUTANT	Max mg/l, unless noted	Mass lbs. /d unless noted
pH, s.u	6.34 - 8.88	
TOC	19.20	240.78
O & G	0	0
Flow, MGD	2.89	N/A

OUTFALL 004 – LNG Storage Tanks, Firewater System, Eyewash/Safety Shower		
POLLUTANT	Max mg/l, unless noted	Mass lbs. /d unless noted
pH, s.u	6.58 – 8.66	
TOC	27.2	234.30
O & G	0	0
TRC	4	0.0017
Flow, MGD	2.4	N/A

OUTFALL 005 – BOG Compressor, Firewater System, Stormwater		
POLLUTANT	Max mg/l, unless noted	Average, mg/L unless noted
pH, s.u	6 - 9	6 - 9
TOC	30	20
TSS	45	45
O&G	15	10
Flow, MGD	0.00135	0.000015

OUTFALL 006 – Vehicle Washwater, Firewater System, Stormwater		
POLLUTANT	Max mg/l, unless noted	Average, mg/L unless noted
pH, s.u	6 - 9	6 - 9
BOD	61	22
COD	490	460
TOC	30	20
TSS	58	26
Flow, MGD	0.001510	0.000175
Copper	0.235	0.17
Nickel	0.03	0.03
O&G	15	10
Zinc	0.68	0.45

OUTFALL 007 – Train 1 Compressors, Coolers, Firewater System, Stormwater, Eyewash/Safety Shower		
POLLUTANT	Max mg/l, unless noted	Average, mg/L unless noted
pH, s.u	6 - 9	6 - 9
TOC	30	20
TSS	45	45
Flow, MGD	0.0014	0.000016
O&G	15	10
TRC	4	0.0017

OUTFALL 008 – Train 2 Compressors, Coolers, Firewater, Stormwater		
POLLUTANT	Max mg/l, unless noted	Average, mg/L unless noted
pH, s.u	6 - 9	6 - 9
TOC	30	20
TSS	45	45
Flow, MGD	0.001350	0.000015
Oil & Grease	15	10

OUTFALL 009 – Train 3 Compressors, Coolers, Firewater System, Stormwater		
POLLUTANT	Max mg/l, unless noted	Average, mg/L unless noted
pH, s.u	6 - 9	6 - 9
TOC	30	20
TSS	45	45
Flow, MGD	0.001350	0.000015
Oil and Grease	15	10

IV. REGULATORY AUTHORITY/PERMIT ACTION

In November 1972, Congress passed the Federal Water Pollution Control Act establishing the NPDES permit program to control water pollution. These amendments established technology-based or end-of-pipe control mechanisms and an interim goal to achieve “water quality which provides for the protection and propagation of fish, shellfish, and wildlife and provides for recreation in and on the water,” more commonly known as the “swimmable, fishable” goal. Further amendments in 1977 of the CWA gave EPA the authority to implement pollution control programs such as setting wastewater standards for industry and established the basic structure for regulating pollutants discharges into the waters of the United States. In addition, it made it unlawful for any person to discharge any pollutant from a point source into navigable waters, unless a permit was obtained under its provisions. Regulations governing the EPA administered NPDES permit program are generally found at 40 CFR §122 (program requirements & permit conditions), §124 (procedures for decision making), §125 (technology-based standards) and §136 (analytical procedures). Other parts of 40 CFR provide guidance for specific activities and may be used in this document as required.

It is proposed that the permit be issued for a 5-year term following regulations promulgated at 40 CFR 122.46(a). This is a revoke and reissue of an existing permit issued June 28, 2013, with an



expiration date of July 31, 2018. An NPDES Application for a Permit to Discharge (Form 1, Form 2C, and Form 2D) was received on September 18, 2017. Additional permit application information was received via email on October 16, 2017, and was deemed administratively complete on November 15, 2017.

## V. DRAFT PERMIT RATIONALE AND PROPOSED PERMIT CONDITIONS – TECHNOLOGY BASED LIMITATIONS

### A. OVERVIEW of TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITIONS

Regulations contained in 40 CFR §122.44 NPDES permit limits are developed that meet the more stringent of either technology-based effluent limitation guidelines, numerical and/or narrative water quality standard-based effluent limits, on best professional judgment (BPJ) in the absence of guidelines, and/or requirements pursuant to 40 CFR 122.44(d), whichever are more stringent. Technology-based effluent limitations are established in the proposed draft permit for TSS, Oil and grease, and TOC. Water quality-based effluent limitations are established in the proposed draft permit for pH, and TRC, visible oil sheen, Zinc and Copper.

#### TECHNOLOGY-BASED EFFLUENT LIMITATIONS/CONDITIONS

Regulations promulgated at 40 CFR §122.44 (a) require technology-based effluent limitations to be placed in NPDES permits based on ELGs where applicable, on BPJ in the absence of guidelines, or on a combination of the two. In the absence of promulgated guidelines for the discharge, permit conditions may be established using BPJ procedures. EPA establishes limitations based on the following technology-based controls: BPT, BCT, and BAT. These levels of treatment are:

**BPT** - The first level of technology-based standards generally based on the average of the best existing performance facilities within an industrial category or subcategory.

**BCT** - Technology-based standard for the discharge from existing industrial point sources of conventional pollutants including BOD, TSS, fecal coliform, pH, and O&G.

**BAT** - The most appropriate means available on a national basis for controlling the direct discharge of toxic and non-conventional pollutants to navigable waters. BAT effluent limits represent the best existing performance of treatment technologies that are economically achievable within an industrial point source category or subcategory.

Regulations contained in 40 CFR §122.44 require that NPDES permit limits are developed that meet the more stringent of either technology-based effluent limitation guidelines, numerical and/or narrative water quality standard-based effluent limits, or the previous permit.

The discharge from Outfall 001 is condensate wastewater from the Air Vaporization Tower as described under discharge location section above. Since the facility have not had any discharges, there does not appear to be any pollutant of concern except for pH. EPA proposes to limit pH in discharges from Outfall 001. Technology based limits for pH is within the range 6-9 su.

Outfall 002 is all the stormwater from the firewater system, eyewash/safety shower of facility. Outfall 003 is the stormwater from LNG Tank #1 containment area and firewater system. Outfall 004 is the stormwater from LNG Tanks #'s 2 and 3 containment area, firewater system and eyewash/safety shower. Pollutants of concern for these outfalls are oil and grease (O&G), total organic carbon (TOC), total suspended solids (TSS) and free oil (sheen). Outfalls 005, 007, 008, and 009 is stormwater exposed to industrial operations through oily water collection systems that are designed to collect stormwater effluents that might be contaminated with oil or heavy hydrocarbons. Outfall 006 is stormwater and washwater from a washrack used to clean light utility vehicles. Outfall 006 is stormwater and washwater from a washrack used to clean light utility vehicles.

Limitations for O&G, daily maximum 15 mg/l, monthly average 10 mg/l, for Outfalls 002 through 009 based on American Petroleum Institute (API) Oil and Water Separator Code 421, using Coalescing Separator Design and BPJ of the permit writer. The pollutant pH shall be limited to the range of the respective water quality standards of the respective receiving stream. This is because the technology based limits of 6-9 s.u is less stringent than the respective WQS. Flow shall be an "estimate" and shall not be subject to the accuracy provisions established at Part III.C.6. Flow may be estimated using best engineering judgment.

The proposed permit establishes a TOC daily maximum limitation of 50 mg/L since uncontaminated or low potential contaminated stormwater which includes stormwater runoff from non-process areas discharges from Outfalls 002 through 009. The previous permit established a reporting requirement for TOC. TOC limit is established based on the DMR data results, information contained in the permit application and the BPJ of the permit writer.

The proposed permit prohibits the discharge of free oil (no visible sheen) from Outfalls 002 through 009. The associated process discharges must not cause a film or sheen or discoloration on the surface of the receiving water. This limit was derived from the BCT/BAT effluent limitations guidelines for the offshore oil and gas industry which prohibit free oil (no visible sheen) in discharges as contained in 40 CFR Part 435.14, Oil and Gas Extraction Point Source Category using BPJ. The technology basis for this limitation is segregation of materials and best management practices to control the inadvertent release of hydraulic oils and other lubricating materials. Visual observations of the discharge would be required to determine compliance with this limit. The permit limit shall be zero (0) days, and the operator shall count the number of days, when discharging, that the discharge has a visible sheen, and report the monthly total on the discharge monitoring form.

Outfall 004, 005, 006, 007,008 and 009 uses a Stormceptor® (trade name) oil/water/sediment separator, and limitations for TSS at Outfall 004, 005, 006, 007,008 and 009 are established at 45 mg/l daily maximum based on design specifications and the BPJ of the permit writer.

The permit will not at this time establish mass loading limits from any of the outfalls. The flow rate is dependent on shipment deliveries and the concentration limits will be protective of the environment.

## B. STORM WATER POLLUTION PREVENTION PLAN (SWP3)

A requirement to develop a SWP3 is proposed in the draft permit. The SWP3, together with the additional documentation requirements is intended to document the selection, design, installation, and implementation (including inspection, maintenance, monitoring, and corrective action) of control measures being used to comply with the effluent limits set forth in the proposed permit.

The SWP3 must include documentation that all unauthorized discharges have been eliminated. The documentation must include the date of any evaluation, and describe any test or evaluation conducted to detect such discharges, the results of those evaluations. Acceptable test or evaluation techniques include dye testing, television surveillance, visual observation of outfall or other appropriate locations during dry weather, water balance calculations, and analysis of piping and drainage schematics. A combination of these mechanisms may be necessary to complete a thorough evaluation.

It is proposed that the facility conduct an annual inspection of the facility to identify areas contributing to the storm water discharge and identify potential sources of pollution which may affect the quality of storm water discharges from the facility.

This permit requires the permittee to identify potential sources of pollutants in stormwater resulting from exposure of industrial activities to stormwater. The operator must document the associated pollutants or pollutant constituents (e.g., biochemical oxygen demand, suspended solids). The pollutant list must include all significant materials that have been handled, treated, stored or disposed, and that have been exposed to stormwater in the three (3) years prior to the date the permittee prepares or amends its SWP3 as well as any additional significant materials that the permittee plans to use during the life of the permit.

EPA defines "significant materials" at 122.26(b)(12) as including but not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under section 101(14) of CERCLA; any chemical the permittee is required to report pursuant to section 313 of title III or SARA; fertilizers; pesticides; and waste products such as ashes, slag and sludge that have the potential to be released with stormwater discharges.

The proposed permit also requires the permittee to develop a site map. The site map shall include all areas where storm water may contact potential pollutants or substances which can cause pollution.

It is also proposed that all spilled product and other spilled wastes be immediately cleaned up and properly disposed. The SWP3 must include a list of any significant spills and leaks of pollutants that occurred in the 3 years prior to the date the SWP3 was developed or amended. The permittee should, to the extent practicable, identify any significant spills or leaks attributable to the old permittee. Significant spills include, but are not limited to, releases of oil or hazardous substances in excess of quantities that are reportable under section 311 of the CWA (see 40 CFR 110.10 and 40 CFR 117.21) or section 102 of CERCLA (see 40 CFR 302.4). Significant spills may also include releases of materials that are not classified as oil or hazardous substances. The list of significant spills and leaks should include a description of the causes of each spill or leak, the actions taken to respond to each release, and the actions taken to prevent similar spills or

leaks in the future. These efforts will aid the permittee in developing spill prevention and response procedures. Any spills or leaks that occur while covered under this permit must be documented.

Documenting spills does not relieve the permittee of any reporting requirements established in 40 CFR 110, 40 CFR 117, and 40 CFR 302, or any other statutory requirements relating to spills or other releases of oils or hazardous substances.

### C. WATER QUALITY BASED LIMITATIONS

#### 1. General Comments

Water quality based requirements are necessary where effluent limits more stringent than technology-based limits are necessary to maintain or achieve federal or state water quality limits. Under Section 301(b)(1)(C) of the CWA, discharges are subject to effluent limitations based on federal or state WQS. Effluent limitations and/or conditions established in the draft permit are in compliance with applicable State WQS and applicable State water quality management plans to assure that surface WQS of the receiving waters are protected and maintained, or attained.

#### 2. Implementation

The NPDES permits contain technology-based effluent limitations reflecting the best controls available. Where these technology-based permit limits do not protect water quality or the designated uses, additional water quality-based effluent limitations and/or conditions are included in the NPDES permits. State narrative and numerical water quality standards are used in conjunction with EPA criteria and other available toxicity information to determine the adequacy of technology-based permit limits and the need for additional water quality-based controls.

#### 3. State Water Quality Standards

The Clean Water Act in Section 301 (b) requires that effluent limitations for point sources include any limitations necessary to meet water quality standards. Federal regulations found at 40 CFR 122.44(d) state that if a discharge poses the reasonable potential to cause an in-stream excursion above a water quality criterion, the permit must contain an effluent limit for that pollutant. If the discharge poses the reasonable potential to cause an in-stream violation of narrative standards, the permit must contain prohibitions to protect that standard. Additionally, the TWQS found at 30 TAC Chapter 307 states that "surface waters will not be toxic to man from ingestion of water, consumption of aquatic organisms, or contact with the skin, or to terrestrial or aquatic life." The methodology outlined in the "Procedures to Implement the Texas Surface Water Quality Standards" (IP) is designed to ensure compliance with 30 TAC Chapter 307. Specifically, the methodology is designed to ensure that no source will be allowed to discharge any wastewater which: (1) results in instream aquatic toxicity; (2) causes a violation of an applicable narrative or numerical state water quality standard; (3) results in the endangerment of a drinking water supply; or (4) results in aquatic bioaccumulation which threatens human health.

The IP document is not a state water quality standard, but rather, a non-binding, non-regulatory guidance document. See IP at page 2 stating that "this is a guidance document and should not be interpreted as a replacement to the rules. The TWQS may be found in 30 TAC Sections (§§) 307.1-.10."). EPA does not consider the IP to be a new or revised water quality standard and has never approved it as such. EPA did comment on and conditionally "approve" the IP as part of the Continuing Planning Process (CPP) required under 40 CFR §130.5(c) and the Memorandum of Agreement between TCEQ and EPA, but this does not constitute approval of the IP as a water quality standard under CWA section 303(c). Therefore, EPA is not bound by the IP in establishing limits in this permit – but rather, must ensure that the limits are consistent with the EPA-approved state WQS. However, EPA has made an effort, where we believe the IP procedures are consistent with all applicable State and Federal regulations, to use those procedures.

The general criteria and numerical criteria which make up the stream standards are provided in the 2000 EPA-approved Texas Water Quality Standards, Texas Administrative Code (TAC), 30 TAC Sections 307.1 - 307.9, effective September 23, 2014.

The known uses of the Gulf of Mexico, Segment 2501 are primary contact recreation, exceptional aquatic life use and Oyster waters.

#### 4. Reasonable Potential- Procedures

EPA develops draft permits to comply with State WQS, and for consistency, attempts to follow the IP where appropriate. However, EPA is bound by the State's WQS, not State guidance, including the IP, in determining permit decisions. EPA performs its own technical and legal review for permit issuance, to assure compliance with all applicable State and Federal requirements, including State WQS, and makes its determination based on that review. Waste load allocations (WLA's) are calculated using estimated effluent dilutions, criteria outlined in the TWQS, and partitioning coefficients for metals (when appropriate and designated in the implementation procedures). The WLA is the end-of-pipe effluent concentrations that can be discharged and still meet instream criteria after mixing with the receiving stream. From the WLA, a long term average (LTA) is calculated, for both chronic and acute toxicity, using a log normal probability distribution, a given coefficient of variation (0.6), and either a 90th or a 99th percentile confidence level. The 90th percentile confidence level is for discharges to rivers, freshwater streams and narrow tidal rivers with upstream flow data, and the 99th percentile confidence level is for the remainder of cases. For facilities that discharge into receiving streams that have human health standards, a separate LTA will be calculated. The implementation procedures for determining the human health LTA use a 99th percentile confidence level, along with a given coefficient of variation (0.6). The lowest of the calculated LTA; acute, chronic and/or human health, is used to calculate the daily average and daily maximum permit limits.

Procedures found in the IP for determining significant potential are to compare the reported analytical data either from the DMR history and/or the application information, against percentages of the calculated daily average water quality-based effluent limitation. If the average of the effluent data equals or exceeds 70% but is less than 85% of the calculated daily average limit, monitoring for the toxic pollutant will usually be included as a condition in the permit. If the average of the effluent data is equal to or greater than 85% of the calculated daily

average limit, the permit will generally contain effluent limits for the toxic pollutant. The permit may specify a compliance period to achieve this limit if necessary.

Procedures found in the IP require review of the immediate receiving stream and effected downstream receiving waters. Further, if the discharge reaches a perennial stream or an intermittent stream with perennial pools within three-miles, chronic toxicity criteria apply at that confluence.

#### 5. Permit-Action - Water Quality-Based Limits

Regulations promulgated at 40 CFR §122.44(d) require limits in addition to, or more stringent than effluent limitation guidelines (technology based). State WQS that are more stringent than effluent limitation guidelines are as follows:

##### a. pH

Wastewater discharges from the facility all flow into Intracoastal Waterway, thence to the Gulf of Mexico, Water Body Segment No. 2501, which has Texas WQS of 6.5 – 9.0 s.u. pH shall be limited to 6.5 – 9.0 s.u. for all Outfalls, the criteria listed for Segment 2501.

##### b. Narrative Limitations

Narrative protection for aesthetic standards will propose that surface waters shall be maintained so that oil, grease, or related residue will not produce a visible film or globules of grease on the surface or coat the banks or bottoms of the watercourse; or cause toxicity to man, aquatic life, or terrestrial life. The discharge shall not present a hazard to humans, wildlife, or livestock.

The following narrative limitations in the proposed permit represent protection of water quality for all Outfalls:

“The effluent shall contain no visible film of oil or globules of grease on the surface or coat the banks or bottoms of the watercourse.”

##### c. Total Residual Chlorine

Sample results contained in the application show that Total Residual Chlorine is present in discharges through Outfalls 002, 004 and 007. Eyewash and safety shower discharges will be from the municipal water supply and will not be hyperchlorinated. In an email from Chad E. Richards, dated October 31, 2017, the facility stated that the source of firewater at the facility is from an on-site groundwater well and the firewater is not chlorinated. Eyewash and safety shower discharges will be through Outfall 007 and stormwater outlets 13 and 15. Eyewash and safety shower discharges will be from the municipal water supply and will not be hyperchlorinated. Discharges of eyewash and safety shower discharges will be through Outfalls 002, 004 and 007. Based on information contained in Form 2C, the estimated maximum chlorine concentration in a discharge through Outfalls 002, 004 and 007 is 4 mg/L using the design concentration from the eyewash/safety shower spigot. This does not take into consideration that these discharges will flow overland to valve closed outfalls where the discharge will pool and

likely comingle with stormwater prior to being assessed and released. These discharges are not hyperchlorinated as per the definition utilized by the State of Texas in Part I of TXR050000 (>10 mg/L). As a result, TRC limits are established in the permit limits for Outfalls 002, 004, 007 because the source water is from municipal water supply. 19µg/L is EPA's acute chlorine criteria and 11µg/L is EPA's chronic chlorine criteria. Limits must be protective of WQS per 40 CFR 122.4(d) and 122.44(d). Since the acute conditions do not allow dilution; the limit must be met at end-of-pipe but chronic standards do allow dilution, the permit shall use the most stringent WQS for the permit limit.

The critical dilution is 8 %. The in-stream TRC concentration after allowing for dilution is:  $11\mu\text{g/L} \div 0.08 = 137.5 \mu\text{g/L}$ . Since this value is more than the 19 µg/L end-of-pipe acute standard, the 19 µg/L is more stringent and will be more protective. The draft permit shall establish the 19µg/L limit. However, TRC is toxic at measurable amounts, so in addition to the 19 µg/L chemical specific limitation, the narrative limit for TRC shall be "No Measurable." Hence, the effluent shall contain NO MEASURABLE TRC at any time. NO MEASURABLE will be defined as no quantifiable level of TRC as determined by any approved method established in 40 CFR 136 that is greater than the established MQL. The effluent limitation for TRC is the instantaneous maximum and cannot be averaged for reporting purposes. TRC shall be measured within fifteen (15) minutes of sampling.

#### d. Toxics

The CWA in Section 301 (b) requires that effluent limitations for point sources include any limitations necessary to meet water quality standards. Federal regulations found at 40 CFR §122.44 (d) state that if a discharge poses the reasonable potential to cause an in-stream excursion above a water quality criterion, the permit must contain an effluent limit for that pollutant.

Discharge at Outfall 001 is 0.7575 MGD and the width of the Gulf Intracoastal Waterway (GIWW) is greater than 400 feet. Chronic toxic criteria apply as follows: Chronic criteria (mixing zone) apply at 8%, acute criteria apply at 30%, and human health criteria apply at 4% (i.e. mixing zone, MZ = 8%; Zone of initial dilution, ZID = 30%; Human health, HH = 4%). Human health criteria apply for Saltwater Fish Tissue.

OUTFALL 001 is MENU 5 (Discharge is directly to a bay, estuary or tidal water body with no upstream flow information.) The outfall is located in Brazoria County, and discharges to a created wetland approximately 1900 feet upstream of West Velasco Ditch (Intermittent, Tidal). The ditch discharges into the Gulf Intracoastal Waterway (GIWW) (Tidal) 1175 feet downstream, which ultimately discharges to the Gulf of Mexico, Texas Segment 2501, 1.9 miles downstream.

With no actual discharge to assess for potential toxics from Outfall 001, there no specific toxics to evaluate from Outfall 001. As a result, no chemical-specific water quality modeling will be performed at this time. However, should any discharge occur, the discharge shall be sampled within one hour of beginning of the discharge for the selected pollutants (See Part I of Permit) listed at 40 CFR 122, Appendix D, Tables III and IV, plus pH, hardness, TDS, and TSS and the results submitted to EPA and RRC. The permittee shall take a single grab sample of the AVT

wastewater from the first discharge, for selected priority toxic pollutants; aluminum, barium, arsenic, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, zinc, cyanide, benzene, trichloroethylene, and vinyl chloride (see Part I. of the permit). Should the discharge continue for more than one day, additional samples and analyses results shall be submitted for each additional day. No more than four complete sets of analytical results are required to be submitted. The reasonable potential calculations shall be performed and the permit re-opened following EPA's receipt of its effluent characteristics.

The facility will be required to submit in writing to both EPA and the RRC, within 90-days of first discharge from Outfall 001- AVT discharges, results of a pollutant scan. The test results shall be submitted to EPA and the Texas Railroad Commission no later than 90-days after the sample date. This permit may be reopened to establish additional effluent limitations or additional monitoring requirements if the test results indicate that the discharges may cause or contribute to an exceedance of applicable State WQS.

Reasonable potential analysis was also performed using TCEQ's Menu 5 using the data provided in permit application for Outfall 006. The results of Menu 5 model ran showed that Copper and Zinc exceed 85% of the calculated daily average limit. As a result, limitations and monitoring requirements are established in the draft permit for total Copper and total Zinc. A 12-month compliance schedule has been established for total zinc and total copper at Outfall 006.

#### Solids and Foam

The prohibition of the discharge of floating solids or visible foam in other than trace amounts is continued in the proposed permit. In addition, there shall be no discharge of visible films of oil, globules of oil, grease or solids in or on the water, or coatings on stream banks.

#### D. MONITORING FREQUENCY FOR LIMITED PARAMETERS

NPDES permits must include monitoring requirements to yield data representative of the monitored activity, 40 CFR §122.48(b), and to assure compliance with permit limitations, 40 CFR §122.44(i)(1). For all the outfalls, monitoring frequency and type shall be the same as the previous permit. The draft permit requires the applicant to monitor the facility's discharge on a regular basis; and report the results quarterly. The monitoring results will be available to the public.

For Outfall 001, flow and pH shall be monitored and reported daily using grab sample. Flow shall be measured by a recording meter.

For Outfalls 002 through 009, the permit shall require a grab sample collection of the first flush taken during the first 30-minutes of stormwater runoff, when discharging. This is due to the fact that the first flush of the stormwater runoff discharge has the potential to contain the greatest amount of contaminants. Due to the intermittent nature of stormwater runoff discharges, instantaneous grab sampling requirements when discharging are established in the permit. Flow shall be an "estimate" and shall not be subject to the accuracy provisions established at Part III.C.6. Flow estimate may be determined using sound engineering practices at a frequency of



once per day when discharging. Free oil; no visible sheen, shall be made daily during daylight hours when discharging, by visual observations of the receiving waters in the vicinity of the discharges from Outfalls 002 through 009. O&G, pH, TOC and TSS shall be sampled and monitored once per week, within the first 30-minutes of discharge by grab sample, when discharging. TRC shall also be once a week by instantaneous grab when discharging. Total zinc and total copper shall be monitored once per two weeks when discharging.

**E. WHOLE EFFLUENT TOXICITY TESTING**

Biomonitoring is the most direct measure of potential toxicity which incorporates both the effects of synergism of effluent components and receiving stream water quality characteristics. The effluent from Outfall 001 involves condensate from the AVT system which could be potentially harmful to the environment, therefore, the draft permit continues a single biomonitoring requirement for Outfall 001. The discharge of Outfall 001 is into a constructed wetland with hydrologic connection to the GIWW. The effluent from Outfalls 005, 007, 008, and 009 discharge stormwater exposed to industrial operations that might be contaminated with oil or heavy hydrocarbons. Data submitted with the permit application indicates oil and grease are present in the effluents. These outfalls will be required to conduct biomonitoring. They discharge into the GIWW, then to the Gulf of Mexico. Data submitted with the permit application, and the nature of the effluent from these outfalls (industrial stormwater), indicate that the outfalls have substantially identical effluents which are discharging to the same receiving stream segment. The permittee is allowed to submit WET data for a flow composite sample from the outfalls that are discharging. Outfall 006 will discharge stormwater and washwater from a washrack used to clean light utility vehicles and it discharges to the West Velasco ditch prior to discharging to the Intracoastal Waterway. Outfalls 002, 003, 004, and 006 do not seem to have a potential for toxicity.

Based on the Texas Implementation procedures, permittees that discharge into bays, estuaries, and wide tidal rivers ( $\geq 400$  feet across) will normally conduct chronic WET tests with a critical dilution of 8% if the effluent flow is less than or equal to 10 MGD. EPA will not perform reasonable potential analysis because no test data are available at this time.

OUTFALLS 001, 005, 007, 008, 009

The potential discharge impacts would be to the aquatic species of the wetland. The permit will propose a 7-day Chronic WET test using freshwater species at 8% effluent. The draft permit proposes the following test:

EFFLUENT CHARACTERISTICS	DISCHARGE MONITORING	MONITORING REQUIREMENTS	
		MEASUREMENT FREQUENCY	SAMPLE TYPE (*2)
Whole Effluent Toxicity Testing (7Day Chronic Static Renewal NOEC) (*1)	VALUE		
Ceriodaphnia dubia	Report	Once/Quarter (*3)	Composite
Pimephales promelas	Report	Once/Quarter (*3)	Composite

## FOOTNOTES

\*1 Monitoring and reporting requirements begin on the effective date of this permit. See Part II, Whole Effluent Toxicity Testing Requirements for additional WET monitoring and reporting conditions.

\*2 The permittee shall combine the composite effluent samples from the outfalls in proportion to the flow from the outfalls that are discharging during the monitoring event. The test shall be performed on the flow weighted composite of the outfall samples.

\*3 Frequency shall be once per quarter when discharging.

## F. FINAL EFFLUENT LIMITATIONS

See the draft permit for limitations.

## VI. FACILITY OPERATIONAL PRACTICES

## A. WASTE WATER POLLUTION PREVENTION REQUIREMENTS

The permittee shall institute programs directed towards pollution prevention. The permittee will institute programs to improve the operating efficiency and extend the useful life of the treatment system.

## B. OPERATION AND REPORTING

The permittee must submit Discharge Monitoring Report's (DMR's) quarterly, beginning on the effective date of the permit, lasting through the expiration date of the permit or termination of the permit, to report on all limitations and monitoring requirements in the permit.

## Sufficiently Sensitive Analytical Methods (SSM)

The permittee must use sufficiently sensitive EPA-approved analytical methods (SSM) (under 40 CFR part 136 or required under 40 CFR chapter I, subchapters N or O) when quantifying the presence of pollutants in a discharge for analyses of pollutants or pollutant parameters under the permit. In case the approved methods are not sufficiently sensitive to the limits, the most SSM with the lowest method detection limit (MDL) must be used as defined under 40 CFR 122.44(i)(1)(iv)(A). If no analytical laboratory is able to perform a test satisfying the SSM in the region, the most SSM with the lowest MDL must be used after adequate demonstrations by the permittee and EPA approval.

## VII. IMPAIRED WATER - 303(d) LIST AND TMDL

According to the 2014 State of Texas 303(d) List for Assessed River/Stream Reaches Requiring Total Maximum Daily Loads (TMDLs), the receiving stream, GIWW, Water Body Segment No. 2501, is listed as impaired for bacteria and mercury in edible tissue on the State's currently approved 2014 303(d) list. This listing is under Category 5c which implies that additional data or information will be collected and/or evaluated for one or more parameters before a management strategy is selected.

The facility does not plan to discharge bacteria and mercury. If the waterbody is listed at a later date for additional pollutants, and a total maximum discharge loading determined for the segment, the standard reopener clause would allow the permit to be revised and additional pollutants and/or limits added. No additional requirements beyond the already proposed technology-based and/or water-quality based requirements are needed in the proposed permit.

#### VIII. ANTIDegradation

The Texas Commission on Environmental Quality, Texas Surface Water Quality Standards, Antidegradation, Title 30, Part 1, Chapter 307, Rule §307.5 sets forth the requirements to protect designated uses through implementation of the State WQS. The limitations and monitoring requirements set forth in the proposed permit are developed from the State WQS and are protective of those designated uses. Furthermore, the policy sets forth the intent to protect the existing quality of those waters, whose quality exceeds their designated use. The permit requirements are protective of the assimilative capacity of the receiving waters, which is protective of the designated uses of that water. There are no increases of pollutants being discharged to the receiving waters authorized in the proposed permit.

#### IX. ANTIBACKSLIDING

The proposed permit is consistent with the requirements and exemption to meet Antibacksliding provisions of the Clean Water Act, Section 402(o) and 40 CFR Part 122.44(i)(B), which state in part that interim or final effluent limitations must be as stringent as those in the previous permit, unless information is available which was not available at the time of permit issuance. The proposed permit maintains the limitation requirements of the current permit for pH, Oil and grease, TSS & TOC. Additional effluent limitations established in the draft permit at Outfalls 002, 004, and 007 include TRC. Effluents limitations have also been established for total zinc and total copper at Outfall 006.

#### X. ENDANGERED SPECIES

The effects of EPA's permitting action are considered in the context of the environmental baseline. The environmental baseline is established by the past and present impacts of all Federal, State, or private actions and other human activities in an action area; the anticipated impacts of all proposed Federal projects in an action area that have already undergone formal or early ESA §7 consultation; and the impact of State or private actions that are contemporaneous with the consultation in process (50 CFR §402.02). Wastewater discharges from the natural gas liquefaction plant occur after the plant has been constructed following earth disturbing activities that have had to have received appropriate federal, state, and local authorizations putting the plant itself into the environmental baseline. The scope of the evaluation of the effects of the discharge authorized by this permit was therefore limited to the effects related to the authorized discharge.

According to the most recent county listing available at US Fish and Wildlife Service (USFWS), Southwest Region 2 website, <http://ecos.fws.gov/ipac/wizard/chooseLocation!prepare.action>, nine species of concern are listed in Brazoria County as Endangered or Threatened. The endangered species are the whooping crane (*Grus americana*), hawksbill sea turtle (*Eretmochelys*

imbricata), Kemp's ridley sea turtle (*Lepidochelys kempii*), loggerhead sea turtle (*Caretta caretta*), and the leatherback sea turtle (*Dermochelys coriacea*). The threatened species include the green sea turtle (*Chelonia mydas*), piping Plover (*Charadrius melodus*), Red Knot (*Calidris canutus*), and the West Indian Manatee (*Trichechus manatus*). A description of the species and its effects to the proposed permit follows:

#### WHOOPING CRANE (*Grus americana*)

The tallest bird in North America, the Whooping Crane breeds in the wetlands of Wood Buffalo National Park in northern Canada and spends the winter on the Texas coast at Arkansas National Wildlife Refuge near Rockport. Cranes live in family groups made up of the parents and 1 or 2 offspring. In the spring, Whooping Cranes perform courtship displays (loud calling, wing flapping, and leaps in the air) as they get ready to migrate to their breeding grounds. Whooping Cranes are endangered because much of their wetland habitat has been drained for farmland and pasture. Whooping Cranes are nearly 5 feet tall. They eat Blue crabs, clams, frogs, minnows, rodents, small birds, and berries. They are found in large wetland areas. Cranes are considered sacred in many parts of the world. In China, they are a symbol of long life. Whooping Cranes are endangered because much of their wetland habitat has been drained for farmland and pasture.

#### HAWKSBILL SEA TURTLE (*Eretmochelys imbricata*)

Hawksbill sea turtle is found in Brazoria County. Hawksbill is a small to medium-sized sea turtle averaging approximately 2.8 feet in curved carapace length with a weight of approximately 176 pounds. Hawksbills reenter coastal waters when they reach approximately 20-25 cm carapace length. Coral reefs are widely recognized as the resident foraging habitat of juveniles, sub-adults and adults. This habitat association is undoubtedly related to their diet of sponges, which need solid substrate for attachment. The ledges and caves of the reef provide shelter for resting both during the day and night. Hawksbills are also found around rocky outcrops and high energy shoals, which are also optimum sites for sponge growth. Hawksbills are also known to inhabit mangrove-fringed bays and estuaries, particularly along the eastern shore of continents where coral reefs are absent. In Texas, juvenile hawksbills are associated with stone jetties. Hawksbills utilize both low- and high-energy nesting beaches in tropical oceans of the world. Both insular and mainland nesting sites are known. Hawksbills will nest on small pocket beaches and, because of their small body size and great agility can traverse fringing reefs that limit access by other species. They exhibit a wide tolerance for nesting substrate type. Nests are typically placed under vegetation. Threats to this species include: poaching, oil spills, vessel anchoring and groundings, artificial lighting at nesting sites, mechanical beach cleaning, increased human presence, beach vehicular driving, entanglement at sea, ingestion of marine debris, commercial and recreational fisheries, water craft collisions, sedimentation and siltation, and agricultural and industrial pollution.

#### KEMP'S RIDLEY SEA TURTLE (*Lepidochelys kempii*)

Kemp's ridley sea turtle is found in Brazoria County. Kemp's ridley sea turtles are the smallest of all extant sea turtles. Adult Kemp's ridleys' shells are almost as wide as long. Neonatal Kemp's ridleys feed on the available sargassum and associated infauna or other epipelagic species found in the Gulf of Mexico. In post-pelagic stages, the ridley is largely a crab-eater, with a preference

for portunid crabs. Age at sexual maturity is not known, but is believed to be approximately 7-15 years, although other estimates of age at maturity range as high as 35 years. The major nesting beach for Kemp's ridleys is on the northeastern coast of Mexico. This location is near Rancho Nuevo in southern Tamaulipas. The species occurs mainly in coastal areas of the Gulf of Mexico and the northwestern Atlantic Ocean. Hunting of both turtles and eggs contributed to the decline of this species. Existing threats include: development and human encroachment of nesting beaches, erosion of beaches, vehicular traffic on beaches, fisheries, oil spills, floating debris, dredging, and explosive removal of old oil and gas platforms.

#### LOGGERHEAD SEA TURTLE (*Caretta caretta*)

Loggerhead sea turtle is found in Brazoria County. Loggerheads are the most abundant species in U.S. coastal waters, and are often captured incidental to shrimp trawling. Shrimping is thought to have played a significant role in the population declines observed for the loggerhead. Maturity is reached at between 16-40 years. Mating takes place in late March-early June, and eggs are laid throughout the summer.

Loggerheads are circumglobal, inhabiting continental shelves, bays, estuaries, and lagoons in temperate, subtropical, and tropical waters. In the United States, killing of nesting loggerheads is infrequent. However, in a number of areas, egg poaching is common. Erosion of nesting beaches can result in loss of nesting habitat. Loggerhead turtles eat a wide variety of marine debris such as plastic bags, plastic and styrofoam pieces, tar balls, balloons and raw plastic pellets. Effects of consumption include interference in metabolism or gut function, even at low levels of ingestion, as well as absorption of toxic byproducts. Turtles are taken by gillnet fisheries in the Atlantic and Gulf of Mexico. Several thousand vessels are involved in hook and line fishing for various coastal species. Sea turtles are at risk when encountering an oil spill. Respiration, skin, blood chemistry and salt gland functions are affected. Pesticides, heavy metals and PCB's have been detected in turtles and eggs, but the effect on them is unknown. Turtles have been caught in saltwater intake systems of coastal power plants. The mortality rate is estimated at 2%. Underwater explosions can kill or injure turtles, and may destroy or damage habitat. The effects of offshore lights are not known. They may attract hatchlings and interfere with proper offshore orientation, increasing the risk from predators. Turtles get caught in discarded fishing gear. The number affected is unknown, but potentially significant.

#### LEATHERBACK SEA TURTLE (*Dermochelys coriacea*)

Leatherback sea turtle is found in Brazoria County. Leatherback is the largest living turtle, and is so distinctive as to be placed in a separate taxonomic family, Dermochelyidae. The carapace is distinguished by a rubber-like texture, about 4 cm thick, and made primarily of tough, oil-saturated connective tissue. No sharp angle is formed between the carapace and the plastron, resulting in the animal being somewhat barrel-shaped. The front flippers are proportionally longer than in any other sea turtle. Nesting occurs from February - July with sites located from Georgia to the U.S. Virgin Islands. During the summer, leatherbacks tend to be found along the east coast of the U.S. from the Gulf of Maine south to the middle of Florida.

Leatherbacks become entangled in longlines, fish traps, buoy anchor lines and other ropes and cables. This can lead to serious injuries and/or death by drowning. Leatherback turtles eat a wide

variety of marine debris such as plastic bags, plastic and styrofoam pieces, tar balls, balloons and plastic pellets. Effects of consumption include interference in metabolism or gut function, even at low levels of ingestion, as well as absorption of toxic byproducts. Leatherbacks are vulnerable to boat collisions and strikes, particularly when in waters near shore. Marine turtles are at risk when encountering an oil spill. Respiration, skin, blood chemistry and salt gland functions are affected.

#### GREEN SEA TURTLE (*Chelonia mydas*)

Green Sea Turtle is found in Brazoria County. Sea turtles are graceful saltwater reptiles, well adapted to life in their marine world. With streamlined bodies and flipper-like limbs, they are graceful swimmers able to navigate across the oceans. When they are active, sea turtles must swim to the ocean surface to breathe every few minutes. When they are resting, they can remain underwater for much longer periods of time. Although sea turtles live most of their lives in the ocean, adult females must return to land in order to lay their eggs. Sea turtles often travel long distances from their feeding grounds to their nesting beaches. Human threats include: oil spills, live bottom smothering with sediments and drilling fluids, dredging, coastal development, agricultural and industrial pollution, seagrass bed degradation, shrimp trawling and other fisheries, boat collisions, under water explosions, ingestion of marine debris, entanglement in marine debris, and poaching.

#### PIPING PLOVER (*Charadrius melodus*)

Piping Plover is listed in Brazoria County as threatened. A small plover has wings approximately 117 mm; tail 51 mm; weight 46-64 g (average 55 g); length averages about 17-18 cm. Inland birds have more complete breast band than Atlantic coast birds. The non-breeding plovers lose the dark bands. The breeding season begins when the adults reach the breeding grounds in mid- to late April or in mid-May in northern parts of the range. The adult males arrive earliest, select beach habitats, and defend established territories against other males. When adult females arrive at the breeding grounds several weeks later, the males conduct elaborate courtship rituals including aerial displays of circles and figure eights, whistling song, posturing with spread tail and wings, and rapid drumming of feet. The plovers defend territory during breeding season and at some winter sites. Nesting territory may or may not contain the foraging area. Home range during the breeding season generally is confined to the vicinity of the nest. Plovers are usually found in sandy beaches, especially where scattered grass tufts are present, and sparsely vegetated shores and islands of shallow lakes, ponds, rivers, and impoundments.

Food consists of worms, fly larvae, beetles, crustaceans, mollusks, and other invertebrates. The plovers prefer open shoreline areas, and vegetated beaches are avoided. It also eats various small invertebrates. It obtains food from surface of substrate, or occasionally probes into sand or mud.

Destruction of habitat, disturbance and increased predation rates due to elevated predator densities in piping plover habitat are described as the main reasons for this species' endangered status and continue to be the primary threats to its recovery. The remaining populations, whether on the breeding or wintering grounds, mostly inhabit public or undeveloped beaches. These populations are vulnerable to predation and disturbance.

Research of available material finds that the primary cause for the population decreases leading to threatened or endangered status for these species is destruction of habitat. Issuance of the permit will have no effect on this species, in that the discharge is not expected to lead to the destruction of habitat.

#### RED KNOT (*Calidris Canutus rufa*)

Red Knot is a medium-sized shorebird and the largest of the "peeps" in North America, and one of the most colorful. It makes one of the longest yearly migrations of any bird, traveling 15,000 km (9,300 mile) from its Arctic breeding grounds to Tierra del Fuego in southern South America.

Their diet varies according to season; arthropods and larvae are the preferred food items at the breeding grounds, while various hard-shelled molluscs are consumed at other feeding sites at other times.

The Red Knot nests on the ground, near water, and usually inland. The nest is a shallow scrape lined with leaves, lichens and moss. Males construct three to five nest scrapes in their territories prior to the arrival of the females. The female lays three or more usually four eggs, apparently laid over the course of six days. Both parents incubate the eggs, sharing the duties equally. The incubation period last around 22 days.

The birds have become threatened as a result of commercial harvesting of horseshoe crabs in the Delaware Bay which began in the early 1990s. Delaware Bay is a critical stopover point during spring migration; the birds refuel by eating the eggs laid by these crabs (with little else to eat in the Delaware Bay).

#### WEST INDIAN MANATEE (*Trichechus manatus*)

West Indian manatees are large, gray aquatic mammals with bodies that taper to a flat, paddle-shaped tail. They have two forelimbs, called flippers, with three to four nails on each flipper. Their head and face are wrinkled with whiskers on the snout. The manatee's closest relatives are the elephant and the hyrax. Manatees are believed to have evolved from a wading, plant-eating animal. The average adult manatee is about 10 feet long and weighs between 800 and 1,200 pounds.

Manatees can be found in shallow, slow-moving rivers, estuaries, saltwater bays, canals, and coastal areas — particularly where seagrass beds or freshwater vegetation flourish. Manatees are a migratory species.

Manatees are gentle and slow-moving animals. Most of their time is spent eating, resting, and traveling. Manatee are mostly herbivorous, however small fish and invertebrates can sometimes be ingested along with a manatee's normal vegetation diet.

West Indian manatees have no natural enemies, and it is believed they can live 60 years or more. As with all wild animal populations, a certain percentage of manatee mortality is attributed to natural causes of death such as cold stress, gastrointestinal disease, pneumonia, and other

diseases. A high number of additional fatalities are from human-related causes. Most human-related manatee fatalities occur from collisions with watercraft. Other causes of human-related manatee mortality includes being crushed and/or drowned in canal locks and flood control structures; ingestion of fish hooks, litter, and monofilament line; and entanglement in crab trap lines. Ultimately, loss of habitat is the most serious threat facing manatees in the United States today.

#### Determination

Many of the threats to listed threatened or endangered turtle species are related to poaching of turtles and eggs, development and human encroachment of nesting beaches, erosion of beaches, vehicular traffic on beaches, artificial lighting, mechanical beach cleaning, marina and dock development, coastal development, increased human presence, dredging, non-native vegetation, sea grass bed degradation, and agricultural pollution. Other threats which may occur in the area are entanglement at sea, commercial and recreational fisheries, and shrimp trawling. Threats to turtle species which could be related to the proposed facility covered under this permit include stormwater pollution. The proposed permit contains controls to limit the quantity of pollutants which are discharged and prevent toxic effects in the receiving waters. The proposed permit has limits for O&G, TSS, TRC, pH, total zinc, total copper and a prohibition of visible oil sheen. The permit also has a biomonitoring provision where the discharge is evaluated against marine test species that would be an indicator of synergistic effects of the pollutants in the wastewater.

The threats to the piping plover are mainly due to construction activities. The discharge again has limitations that would address the threats to the food sources of these species.

The Environmental Protection Agency has evaluated the potential effects of issuance of this permit upon listed endangered or threatened species. After review, EPA has determined that the reissuance of this permit will have “*no effect*” on listed threatened and endangered species nor will adversely modify designated critical habitat. EPA makes this determination based on the following:

1. No pollutants are identified by the permittee-submitted application at levels which might affect species habitat or prey species. Issuance of this permit is found to have no impact on the habitats of these species.
2. Based on information described above, EPA Region 6 has determined that discharges proposed to be authorized by the proposed permit will have no effect on the listed species in Brazoria County.

The standard reopener clause in the permit will allow EPA to reopen the permit and impose additional limitations if it is determined that changes in species or knowledge of the discharge would require different permit conditions.

Operators have an independent ESA obligation to ensure that any of their activities do not result in prohibited “take” of listed species. Section 9 of the ESA prohibits any person from “taking” a listed species, e.g., harassing or harming it, with limited exceptions. See ESA Sec 9; 16 U.S.C.



§1538. This prohibition generally applies to “any person,” including private individuals, businesses and government entities. Operators who intend to undertake construction activities in areas that harbor endangered and threatened species may seek protection from potential “take” liability under ESA section 9 either by obtaining an ESA section 10 permit or by requesting coverage under an individual permit and participating in the section 7 consultation process with the appropriate FWS or NMFS office. Operators unsure of what is needed for such liability protection should confer with the appropriate Services.

#### XI. HISTORICAL AND ARCHEOLOGICAL PRESERVATION CONSIDERATIONS

In a letter dated April 20, 2012, the State Historic Preservation Officer certified that the project should have no impact on historical and/or archeological. The previous permit addressed the issues of historical and/or archeological protection during the time when possible disturbances would have been expected. As a result, the issuance of the permit should have no impact on historical and/or archeological sites since no significant archeological deposits are encountered during construction and development of the property.

#### XII. PERMIT REOPENER

The permit may be reopened and modified during the life of the permit if relevant portions of the Texas WQS are revised or remanded. In addition, the permit may be reopened and modified during the life of the permit if relevant procedures implementing the WQS are either revised or promulgated. Should the State adopt a new WQS, and/or develop a TMDL, this permit may be reopened to establish effluent limitations for the parameter(s) to be consistent with that approved State standard and/or water quality management plan, in accordance with 40 CFR §122.44(d). Modification of the permit is subject to the provisions of 40 CFR §124.5.

#### XIII. VARIANCE REQUESTS

No variance requests have been received.

#### XIV. COMPLIANCE HISTORY

A review of the DMR conducted for the last permit cycle revealed that there were TSS limit non-exceedances for Outfall 004. Causes of the TSS non-compliance include low rainfall rates, high wind that occurred during discharge and result of on-site construction ending with newly laid limestone material within the drainage area of Outfall 004, numerous sloped areas of bare soil where grass seed had not germinated due to drought conditions. The facility took several steps to reduce, eliminate, and prevent recurrence of the noncomplying discharge by applying BMPs to reduce TSS from Outfall 004. These include short-term BMPs such as cleaning silt out of conveyances, grasses planted on banks have germinated and are further stabilizing the areas to reduce runoff of limestone fines and other sources of TSS from these areas. Evidence of the effectiveness of these BMPs is in the lower readings of TSS in subsequent DMR quarters.

## XV. CERTIFICATION

This permit is in the process of certification by the State agency following regulations promulgated at 40 CFR 124.53. A draft permit and draft public notice will be sent to the District Engineer, Corps of Engineers; to the Regional Director of the U.S. Fish and Wildlife Service and to the National Marine Fisheries Service prior to the publication of that notice.

## XVI. FINAL DETERMINATION

The public notice describes the procedures for the formulation of final determinations.

## XVII. ADMINISTRATIVE RECORD

The following information was used to develop the proposed permit:

### A. APPLICATION

NPDES Application for Permit to Discharge, Form 1, 2C & 2D, dated September 15, 2017; received on September 18, 2017; and updated October 11, 2017. Additional permit application information was received via email on October 17, 2017; October 31, 2017, November 1, 2017, and November 2, 2017.

### B. State of Texas References

The State of Texas Water Quality Inventory, 13th Edition, Publication No. SFR-50, Texas Commission on Environmental Quality, December 1996.

"Procedures to Implement the Texas Surface Water Quality Standards via Permitting," Texas Commission on Environmental Quality, June 2010.

Texas Surface Water Quality Standards, 30 TAC Sections 307.1 - 307.9, effective September 23, 2014.

[http://www.fws.gov/southwest/es/ES\\_ListSpecies.cfm](http://www.fws.gov/southwest/es/ES_ListSpecies.cfm)

### D. 40 CFR CITATIONS

Sections 122, 124, 125, 133, and 136

### E. MISCELLANEOUS CORRESPONDENCE

Letter from Dorothy Brown, EPA, to Mr. Mark Mallett, Senior VP – Operations & Projects, Freeport LNG, dated November 15, 2017, informing the applicant that its' NPDES application received September 18, 2017, is administratively complete.

Letter from Chad Richards, P.E., Atkins North America, to Mr. William K. Honker, Director Water Division, EPA, dated October 17, 2017, to request that the permit be processed as “Revoke and Reissue” rather than a permit modification.

Email from Robert Kirkland, EPA, to Maria Okpala, EPA, dated November 15, 2017; November 8, 2017; and November 2, 2017, on critical condition information.