NPDES PERMIT NO. TX0134078
STATEMENT OF BASIS

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

APPLICANT:

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CMR Energy Permit 2
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ISSUING OFFICE:

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DATE PREPARED:

April 30, 2019

PERMIT ACTION

It is proposed that the facility be issued an NPDES permit for a 5-year term in accordance with regulations contained in 40 Code of Federal Regulations (CFR) 122.46(a).

40 CFR CITATIONS: Unless otherwise stated, citations to 40 CFR refer to promulgated regulations listed at Title 40, Code of Federal Regulations, revised as of April 25, 2019.

RECEIVING WATER – BASIN

Outfall 001, 002, 003, 004 and 005 discharges into an unnamed tributary 4.6 miles, 4.5 miles, 4.9 miles, 5.4 miles and 3.6 miles west of Comanche Creek respectively. These outfalls are located in Maverick County, TX in the Nueces River Basin and ultimately discharges to the Nueces River Above Holland Dam (classified, perennial segment 2105).

DOCUMENT ABBREVIATIONS

For brevity, Region 6 used acronyms and abbreviated terminology in this Statement of Basis document whenever possible. The following acronyms were used frequently in this document:

BAT	Best Available Technology Economically Achievable)
BOD_5	Biochemical oxygen demand (five-day unless noted otherwise)
BOPD	Barrels of oil per day
BPJ	Best professional judgment
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
ELG	Effluent limitation guidelines
EPA	United States Environmental Protection Agency
ESA	Endangered Species Act
F&WS	United States Fish and Wildlife Service
GPD	Gallon per day
IP	Procedures to Implement the Texas Surface Water Quality Standards
µg/l	Micrograms per litter (one part per billion)
mg/l	Milligrams per liter (one part per million)
Menu 7	Intermittent stream with perennial pools
MGD	Million gallons per day
MSGP	Multi-Sector General Permit
NPDES	National Pollutant Discharge Elimination System
MQL	Minimum quantification level
O&G	Oil and grease
RRC	Railroad Commission of Texas
RP	Reasonable potential
SIC	Standard industrial classification
s.u.	Standard units (for parameter pH)
TAC	Texas Administrative Code
TCEQ	Texas Commission on Environmental Quality
TDS	Total dissolved solids
TMDL	Total maximum daily load
TOC	Total Organic Carbon
TRC	Total residual chlorine
TSS	Total suspended solids
TSWQS	Texas Surface Water Quality Standards
WET	Whole effluent toxicity
WQMP	Water Quality Management Plan
WQS	Water Quality Standards

I. PROPOSED CHANGES FROM PREVIOUS PERMIT

New Discharger

II. APPLICANT LOCATION and ACTIVITY

Under the SIC Code 1311, the applicant is engaged in oil and gas field exploration and production.

As described in the application, the facility is located at 19468 SE Highway 277, Eagle Pass, Maverick County, Texas. Produced water discharges from the facility flows into an unnamed tributary 4.6 miles, 4.5 miles, 4.9 miles, 5.4 miles and 3.6 miles west of Comanche Creek respectively. These outfalls are in Maverick County, TX in the Nueces River Basin and ultimately discharges to the Nueces River Above Holland Dam (classified, perennial segment 2105).

III. DISCHARGE LOCATION

The discharge point 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:

Outfall Reference Number	Discharge Coordinates Latitude Deg° Min' Sec" Longitude Deg° Min' Sec"	Average Flow MGD	Wastewater Discharge	Receiving Water	Segment #
001	28° 36' 15.33" N 100° 12' 21.82" W	0.063	Produced Water	Unnamed Creek into a pond and into another unnamed Creek and then into Comanche Creek	2105
002	28° 36' 2.48" N 100° 12' 11.05" W	0.036	Produced Water	Unnamed Creek into a pond and into another unnamed Creek and then into Comanche Creek	2105
003	28° 35' 36.96" N 100° 12' 31.85" W	0.027	Produced Water	Unnamed Creek and then into Comanche Creek	2105
004	28° 36' 25.08" N 100° 13' 7.93" W	0.015	Produced Water	Unnamed Creek and then into Comanche Creek	2105
005	28° 35' 50.21" N 100° 11' 8.81" W	0.015	Produced Water	Unnamed Creek and then into Comanche Creek	2105

III. PROCESS AND DISCHARGE DESCRIPTION

The facility produces from the Glen Rose limestone formation. Oil and water are pumped to a 750- or 500-barrel tank depending on the location/water volumes, where oil is separated to a 400-barrel tank. Water is pumped to a 400-barrel storage/settling tank from the gun barrel. A water clarifier is injected in the flowline near the wellhead as required to meet oil & grease discharge parameters. Upon leaving the settling tank, the water will pass through a bank of 50 Micron Polypropylene Canister (bag) filter and then flows to an open top 200-barrel tank. Outfall 3 does not have the 200-barrel open top tank. A charcoal unit may be installed between the filter

canisters and 200- barrel open top tank as required for treating to meet Benzene specs. The water is then routed, via poly line, to the discharge monitoring area and released at the discharge point to the respective Outfalls.

Each Outfall discharge flows into an unnamed creek, then into a pond and into another unnamed creek, which may eventually flow into the Comanche Creek, except during the mostly dry conditions of South Texas when this discharge typically evaporates or is consumed by the wildlife and never reaches Comanche Creek. Flow into Comanche creek can then eventually flow to the Nueces River Segment above Holland Dam.

Table 1: Discharge Characteristics for Outfall 001

The table below shows facility's pollutant concentrations contained in the NPDES application.

Parameter	**Max Concentration, mg/L unless noted**	**Average Concentration, mg/L unless noted**
Flow, MGD	0.063	0.063
pH, su	7.6	7.6
TSS	<2.5	<2.5
Dissolved Oxygen	8.4	8.4
COD	29.8	29.8
TOC	11.5	9.8
Ammonia (as N)	0.023	0.023
BOD5	11	11
Oil & Grease	6.27	5.04
Temperature, winter, ^{o}C	15.60 ^{o} C	15.60 ^{o} C
Temperature, summer, ^{o}C	32.20 ^{o} C	32.20 ^{o} C
TRC	N/A	N/A
Chloride	65.6	65.6
Sulfate	638	638
Sulfide	<0.02	<0.02
Total Dissolved Solids	1220	1220
Aluminum	0.027	0.027
Barium	0.029	0.029
Iron	<0.02	<0.02
Magnesium	26.6	26.6
Manganese	0.007	0.007
Zinc	0.0085	0.0085
Total Phenols	0.00701	0.00701
Total Naphthalene	1.3	1.3

Table 2: Discharge Characteristics for Outfall 002

The table below shows facility's pollutant concentrations contained in the NPDES application.

Parameter	**Max Concentration, mg/L unless noted**	**Average Concentration, mg/L unless noted**
Flow, MGD	0.036	0.036
pH, su	7.6	7.6

Parameter	Max Concentration, mg/L unless noted	Average Concentration, mg/L unless noted
TSS	3.2	<2.5
Dissolved Oxygen	4	4
COD	65	65
TOC	5.6	5.6
Ammonia (as N)	1.448	1.178
BOD5	22	22
Oil & Grease	6.01	4.94
Temperature, winter, °C	15.60 ° C	15.60 ° C
Temperature, summer, °C	32.20 ° C	32.20 ° C
TRC	N/A	N/A
Chloride	592	408
Sulfate	722	695
Sulfide	8.14	3.306
Total Dissolved Solids	1890	1890
Aluminum	0.0144	0.026
Barium	0.0917	0.0897
Boron	1.73	1.73
Iron	0.0558	0.0356
Magnesium	30.2	27.8
Manganese	0.0124	0.0097
Zinc	0.00521	0.00521
Total Phenols	0.0454	0.035
Total Naphthalene	0.00293	0.0021
Benzene	0.0137	0.0116

Table 3: Discharge Characteristics for Outfall 003

The table below shows facility's pollutant concentrations contained in the NPDES application.

Parameter	Max Concentration, mg/L unless noted	Average Concentration, mg/L unless noted
Flow, MGD	0.027	0.027
pH, su	6.9	6.9
TSS	<2.5	<2.5
Dissolved Oxygen		6.6
COD	13	12.8
TOC	10.3	6.2
Ammonia (as N)	1.178	1.178
BOD5	7.7	7.7
Oil & Grease	5.4	4.26
Temperature, winter, °C	15.60 ° C	15.60 ° C
Temperature, summer, °C	32.20 ° C	32.20 ° C
TRC	N/A	N/A
Chloride	60.2	62.25
Sulfate	604	592
Sulfide	2.17	1.39

Parameter	Max Concentration, mg/L unless noted	Average Concentration, mg/L unless noted
Total Dissolved Solids	1140	1140
Aluminum	0.0552	0.0398
Barium		0.0856
Boron	0.23	0.23
Iron	0.0308	0.0268
Magnesium	26.3	25.2
Manganese	0.0127	0.0122
Zinc	0.00768	0.00768
Total Phenols	0.0186	0.012
Total Naphthalene	0.0018	0.018
Benzene	0.0103	0.01

Table 4: Discharge Characteristics for Outfall 004

The table below shows facility's pollutant concentrations contained in the NPDES application.

Parameter	Max Concentration, mg/L unless noted	Average Concentration, mg/L unless noted
Flow, MGD	0.015	0.015
pH, su	7.1	7.1
TSS	<2.5	<2.5
Dissolved Oxygen	8.3	8.3
COD	29	29
TOC	4.6	4.6
Ammonia (as N)	0.746	0.617
BOD5	16	16
Oil & Grease	6.06	6.06
Temperature, winter, ºC	15.60 º C	15.60 º C
Temperature, summer, ºC	32.20 º C	32.20 º C
TRC	N/A	N/A
Chloride	82.5	73
Sulfate	656	612
Sulfide	0.0554	0.0554
Total Dissolved Solids	1290	1290
Aluminum	0.0238	0.0238
Barium	0.032	0.032
Boron		
Iron	0.0306	0.0296
Magnesium	25	24.4
Manganese	0.0078	0.0078
Zinc	0.0133	<0.005
Total Phenols	0.0245	0.021
Total Naphthalene	0.0017	<0.001
Benzene	0.0099	0.0099

Table 5: Discharge Characteristics for Outfall 005

The table below shows facility's pollutant concentrations contained in the NPDES application.

Parameter	Max Concentration, mg/L unless noted	Average Concentration, mg/L unless noted
Flow, MGD	0.015	0.015
pH, su	7.2	7.2
TSS	<2.5	<2.5
Dissolved Oxygen		6.6
COD	37.7	34.2
TOC	14.3	7.4
Ammonia (as N)	1.125	0.767
BOD5	23	23
Oil & Grease	8.98	8.64
Temperature, winter, ºC	15.60 º C	15.60 º C
Temperature, summer, ºC	32.20 º C	32.20 º C
TRC	N/A	N/A
Chloride	207	207
Sulfate	654	633
Sulfide	12.9	11.2
Total Dissolved Solids	1500	1500
Aluminum	0.0541	0.0313
Barium	0.0375	0.036
Boron	0.668	0.668
Iron	0.0277	0.0228
Magnesium	27.2	26.1
Manganese	0.00877	0.0068
Zinc	0.0098	0.0066
Total Phenols	0.0621	0.033
Total Naphthalene	0.00616	0.0029
Benzene	0.017	0.016

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 first-time permit issuance. An NPDES Application for a Permit to Discharge (Form 1) and Form 2E was received on November 20, 2018. Additional permit application information was received on April 10, 2019. Application was deemed administratively complete on April 25, 2019.

V. DRAFT PERMIT RATIONALE AND PROPOSED PERMIT CONDITIONS

A. OVERVIEW of TECHNOLOGY-BASED VERSUS WATER QUALITY STANDARDS-BASED EFFLUENT LIMITATIONS AND CONDITION FOR PERMIT ISSUANCE

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 Oil and grease. Water quality-based effluent limitations are established in the proposed draft permit for pH and total sulfate.

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.

Effluent Limitations

Produced Water discharges are covered under the effluent guideline for onshore oil and gas operations. These activities are subject to the Oil and Gas Extraction Point Source Category (40 CFR Part 435). CMR Energy Permit 2 falls under Subpart E - Agricultural and Wildlife Water Use Subcategory, which allows the discharge of produced water from facilities west of the 98th meridian for use in agricultural and wildlife propagation. The effluent guideline further requires ". . . that the produced water is of good enough quality to be used for wildlife or livestock

watering or other agricultural uses and that the produced water is actually put to such use during periods of discharge." The technology base limit for oil and grease is 35 mg/l.

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 2018 EPA-approved Texas Water Quality Standards, Texas Administrative Code (TAC), 30 TAC Sections 307.1 - 307.9, effective November 2, 2018.

The designated uses of Nueces River Above Holland Dam, Segment 2105 are primary contact recreation, high quality aquatic life, and public water supply.

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 flow into an unnamed tributary 4.6 miles, 4.5 miles, 4.9 miles, 5.4 miles and 3.6 miles west of Comanche Creek respectively. These outfalls are in Maverick County, TX in the Nueces River Basin and ultimately discharges to the Nueces River Above Holland Dam (classified, perennial segment 2105). pH shall be limited to the standards for the Nueces River Above Holland Dam in Water Body Segment No. 2105 of the Nueces River Basin to the range of 6.5 to 9.0 s.u.

b. Oil and Grease

To ensure that this discharge is of sufficient quality for livestock and wildlife water use, and therefore meets the requirements of Subpart E, the proposed permit establishes a more stringent Oil and Grease limit of 10 mg/L monthly average, with a daily maximum limit of 15 mg/l. This limit is based on BPJ in accordance with 40 CFR 125.3(h)(1) and is consistent with other produced water permits issued by our Region and other EPA Regions.

c. 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 Outfall 001:

“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.”

d. Oxygen Demand and Total Petroleum Hydrocarbons

In order to protect water quality from impacts to DO in the receiving water, a Chemical Oxygen Demand limit of 100 mg/l, daily maximum is established in the draft permit based on BPJ. The COD limit is consistent with other permits issued in Region 6.

Produced wastewater discharges may contain various organic chemicals, inorganic chemicals, metals, and naturally occurring radioactive materials (NORM). Monitoring and reporting requirements for Total Petroleum Hydrocarbons will be proposed based on Best Professional Judgment, BPJ. The data reported for these pollutants will be evaluated during the next permit cycle to see if a discharge limit is required.

e. 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 criteria, the permit must contain an effluent limit for that pollutant.

The critical low flow, 7Q2 for the receiving stream is 0 cfs, while the harmonic mean is 0.03 cfs. The facility discharges into an unnamed tributary 4.6 miles, 4.5 miles, 4.9 miles, 5.4 miles and 3.6 miles west of Comanche Creek respectively. These outfalls are in Maverick County, TX in the Nueces River Basin and ultimately discharges to the Nueces River Above Holland Dam (classified, perennial segment 2105). TCEQ'S TEXTOX Menu 7 (intermittent stream with perennial pools) is appropriate for evaluating the discharge.

The reasonable potential calculations were performed based on data obtained from the permit application. Segment specific values for pH, TSS, total hardness, TDS, chloride, and sulfate values were obtained from table D-21 of the IP. These values were also used in Menu 7 to calculate reasonable potential. The result of the Menu 7 model run revealed that none of the toxic pollutants showed reasonable potential to violate TWQS.

TDS, sulfate and chloride are present in the discharge and were screened using the procedures found on pages 175/176 of the ITWQS. Based on the screening procedure, effluent sulfate concentration demonstrates reasonable potential to exceed TWQS. As a result, the draft permit established limitations and monitoring requirements for sulfate in all the five Outfalls. See attached spreadsheet for TDS, chloride and sulfate screening calculation.

Solids and Foam

The prohibition of the discharge of floating solids or visible foam in other than trace amounts is established 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

Regulations require permits to establish 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). The monitoring frequencies are based on BPJ, taking into account the nature of the facility, the previous permit, and past compliance history.

Flow shall be measured weekly. pH, oil & grease, COD, DO, TDS, sulfate, chloride, and dissolved oxygen shall be monitored twice a month, using grab sample. For any monitoring event, the first sample of any event shall be collected at least seven (7) days from the first sample of the previous monitoring event.

Total Petroleum Hydrocarbon, Benzene, BETX (sum of benzene, ethyl benzene, toluene and xylene), radium 226, radium 228, radium 226 + radium 228 and adjusted gross alpha shall be monitored once per three months using grab sample.

E. WHOLE EFFLUENT TOXICITY TESTING

Biomonioring is the most direct measure of potential toxicity which incorporates both the effects of synergism of effluent components and receiving stream water quality characteristics. Biomonitoring of the effluent is, therefore, required as a condition of this permit to assess potential toxicity.

Based on the IP, discharges into intermittent streams with perennial pools will conduct chronic testing with a critical dilution of 100% effluent. Accordingly, the proposed permit requires that discharge to outfall 001 be monitored by a 7-day chronic toxicity test, with quarterly monitoring according to the provisions indicated in Parts I and II of this permit.

OUTFALLs 001 through 005

The 2010 TCEQ Implementation Plan directs the WET test to be a 7 day chronic test using *Ceriodaphnia dubia* and *Pimephales promelas* at a once per 3 months frequency for the first year of the permit. If all WET tests pass during the first year, the permittee may request a monitoring frequency reduction for the either or both test species for the following 2-5 years of the permit. The vertebrate species (*Pimephales promelas*) may be reduced to once per year. The invertebrate species (*Ceriodaphnia dubia*) may be reduced to twice per year. If any tests fail during that time the frequency will revert back to the once per three months frequency for the remainder of the permit term. Both species shall resume quarterly monitoring at a once per three months frequency on the last day of the permit.

Since the facility is a new discharger, there is no WET data; as a result, EPA will not perform reasonable potential analysis. The draft permit proposes biomonitoring requirements.
The proposed permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests based on a 0.75 dilution series. These additional effluent concentrations shall be 32%, 42%, 56%, 75%, and 100%. The low-flow effluent concentration (critical low-flow dilution) is defined as 100% effluent.

During the period beginning the effective date of the permit and lasting through the expiration date of the permit, the permittee is authorized to discharge from Outfalls **001** through 005- the discharges to an unnamed intermittent stream, thence to Comanche Creek, then to Nueces River Above Holland Dam, Texas Segment No. 2105 of the Nueces River Basin. Discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE MONITORING	MONITORING REQUIREMENTS	
Whole Effluent Toxicity Testing (7-Day Chronic Static Renewal NOEC) (*1)	VALUE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Ceriodaphnia dubia	Report	Once/Quarter	24-Hr Composite
Pimephales promelas	Report	Once/Quarter	24-Hr 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.

In addition to conducting the 7-day chronic test, the facility is required to conduct 24-hour acute tests using 100% effluent. This end-of pipe test measures compliance with 30 TAC §307.6(e)(2)(B) of the TSWQS, which requires that greater than 50% of the test organisms

survive exposure to 100% effluent for 24 hours. This provision is designed to ensure that water in the state will not be acutely toxic to aquatic life.

The test shall be a 24-Hour, LC-50 at 100% critical dilution. This test shall be protective of the direct end-of-pipe discharge. The frequency for this test shall be once/six months when discharging.

During the period beginning the effective date of the permit and lasting through the expiration date of the permit, the permittee is authorized to discharge from Outfalls 001 through 005. Discharges shall be limited and monitored by the permittee as specified below:

EFFLUENT CHARACTERISTICS	DISCHARGE MONITORING	MONITORING REQUIREMENTS	
Whole Effluent Toxicity Testing (*1) (TX 24-Hr. LC50)	VALUE	MEASUREMENT FREQUENCY	SAMPLE TYPE
Ceriodaphnia dubia	Report	Once/6 Months	Grab
Pimephales promelas	Report	Once/6 Months	Grab

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

Wastewater discharges from the facility flow into an unnamed intermittent stream, thence to Comanche Creek, then to Nueces River Above Holland Dam, Texas Segment No. 2105 of the Nueces River Basin

The receiving stream is listed as impaired for depressed dissolved oxygen in the 2014 State of Texas 303(d) List for Assessed River/Stream Reaches Requiring Total Maximum Daily Loads (TMDLs). All the impaired parameters are under TCEQ's Category 5c. Category 5c implies that additional data or information will be collected and/or evaluated for one or more parameters before a management strategy is selected.

However, since the receiving stream has high aquatic life use, is impaired and is depressed dissolved oxygen, the proposed permit establishes an end-of-pipe DO limit of 3.0 mg/l minimum to prevent the discharge from contributing to the impairment of the receiving water. The proposed permit also establishes a mean DO of 5.0 mg/l. The draft permit also establishes an end-of-pipe DO limit in spring of 4.5 mg/l minimum and a mean DO of 5.5 mg/l. 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. This facility is currently authorized by the Texas Railroad Commission to discharge produced water.

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. Since this is a first time NPDES Permit for this discharge, antibacksliding does not apply.

X. ENDANGERED SPECIES

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,

Five species are listed as endangered or threatened in Maverick County. The listed species are least tern (*Sterna antillarum*), Red Knot (*Calidris canutus*), Piping Plover (*Charadrius melodus),* Gulf Coast Jaguarundi (*Herpailurus Yagouaroundi Cacomitli*), and Ocelot (*Leopardus Pardalis*). A description of the species and its effects to the proposed permit follows:

LEAST TERN (Sterna Antillarum)

The Least Tern populations have declined due to habitat destruction by permanent inundation, destruction by reservoir releases, channelization projects, alterations of Natural River or lake dynamics resulting in vegetational succession of potential nesting sites, and recreational use of potential nesting sites. Issuance of this permit is found to have no impact on the habitat of this species, as none of the aforementioned listed activities is authorized by this permitting action.

RED KNOT (Calidris canutus)

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).

PIPING PLOVER (Charadrius melodus)

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 nonbreeding plovers lose the dark bands. In Laguna Madre, Texas, non-breeding home ranges were larger in winter than in fall or spring. 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. Strong threats related primarily to human activity; disturbance by humans, predation, and development pressure are pervasive threats along the Atlantic coast.

JAGUARUNDI, GULF COAST (*Herpailurus Yagouaroundi Cacomitli*)

The Jaguarundi is a small weasel-like wild cat with short rounded ears. It is also called Otter cats because of their shot legs, slender elongated bodies, and small flattened heads, giving them an otter-like appearance. They prefer lowland brush areas close to water or dense tropical areas as their habitat. They are good tree climbers and swimmers. Jaguarundis eat fish that they catch from streams and rivers. Mating occurs from September to November. The cat is suffering decline due to loss of habitat.

EPA has determined that the issuance of the permit will have "no effect" on the Gulf Coast Jaguarundi based on the limited information available on the species which indicates that in Texas, any current presence of jaguarundi apparently is confined to the southernmost four counties of Cameron, Willacy, Hidalgo and Starr.

OCELOT (*Leopardus Pardalis*)

The ocelot is a small cat, ranging from 15 to 30 pounds and measuring an average 3 feet 9 inches in length. Its coat has black spots, bars, and stripes on a rich tan to gray background, with irregular black dots on a white underside and dark bars on the tail. The ocelot is listed endangered due to habitat alteration and loss (primarily due to brush clearing), and predator control activities. EPA has determined that the issuance of the permit will have "no effect" on the Ocelot.

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 issuance 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:

> The proposed permit establishes limits to meet the current state water quality standards for the area of discharge. The limits established in the proposed permit are protective and will have no impact on the habitats of this species. The permit includes limitations and/or monitoring requirements for pH, oil & grease, TDS, sulfate, chloride, dissolved oxygen, aluminum, total Petroleum Hydrocarbon, benzene, BETX (sum of benzene, ethyl benzene, toluene and xylene), radium 226, radium 228, radium 226 + radium 228 and adjusted gross alpha. The proposed permit also includes biomonitoring requirements for *Ceriodaphnia dubia* and *Pimephales promelas* (7-day static renewal). It also includes biomonitoring requirements for *Ceriodaphnia dubia* and *Pimephales promelas* (24-hr LC50). These requirements are also consistent with the State of Texas implementation guidance.

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 Maverick 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.

XI. HISTORICAL AND ARCHEOLOGICAL PRESERVATION CONSIDERATIONS

The permit application contained a concurrence from the State Historic Preservation Office (SHPO), stamped on June 29, 2018, stating that no historic properties are present or affected and the project may proceed.

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

None

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 & 2E, received on November 19, 2019. Additional permit application information was received on April 10, 2019.

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, September 23, 2014.

C. http://ecos.fws.gov/ipac/wizard/chooseLocation!prepare.action

D. 40 CFR CITATIONS

Sections 122, 124, 125, 133, and 136

E. MISCELLANEOUS CORRESPONDENCE

Letter from Mr. Brent Larsen, EPA, to Mr. Gary L. Arrington, PE, Operations Manager, CMR Energy, dated April 25, 2019, informing the applicant that its' NPDES application received November 20, 2018, is administratively complete.

Letter from Gary L. Arrington, PE, Operations Manager, CMR Energy, to Brent Larsen and Maria Okpala, dated on April 4, 2019 and received on April 10, 2019, on additional permit application information.

Letter from Dorothy Brown, EPA, to Mr. Gary Arrington, PE, Operations Manager, CMR Energy, L.P. dated March 20, 2019 informing the applicant that its' NPDES application received November 20, 2018, is administratively incomplete.

Email from Quang Nguyen, EPA, to Maria Okpala, EPA, dated April 29, 2019, on critical conditions information.