

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY
AGENDA ITEM REQUEST
for General Permit Adoption

AGENDA REQUESTED: November 29, 2023

DATE OF REQUEST: November 10, 2023

INDIVIDUAL TO CONTACT REGARDING CHANGES TO THIS REQUEST, IF NEEDED: Gwen Ricco, Texas Register/Agenda Coordinator, (512) 239-2678

CAPTION: Docket No. 2023-0502-MIS. Consideration of the adoption of new Texas Commission on Environmental Quality state-only Oil and Gas Extraction Activities General Permit, WQG280000, which authorizes the discharge into the Gulf of Mexico (between 3.0 and 10.2 statute miles from the Texas coastline) of various waste streams associated with oil and gas extraction activities from new and existing Outer Continental Shelf facilities. Public notice of the proposed general permit was published in the May 5, 2023, issue of the *Texas Register* (48 TexReg 2407). (Chris Linendoll, Harrison “Cole” Malley) (Non-Rule Project No. 2023-007-OTH-NR)

Cari-Michel La Caille
Director

Robert Sadlier
Deputy Director

Gwen Ricco
Agenda Coordinator

Texas Commission on Environmental Quality

Interoffice Memorandum

To: Commissioners

Date: November 10, 2023

Thru: Laurie Gharis, Chief Clerk
Kelly Keel, Interim Executive Director

From: *CML* Cari-Michel La Caille, Director
Office of Water

Docket No.: 2023-0526-MIS

Subject: General Permit: Commission Approval for Adoption
Oil and Gas Extraction Activities - New TCEQ General Permit No.
WQG280000
Project No. 2023-007-OTH-NR

Summary and background:

A new Texas Commission on Environmental Quality (TCEQ) state-only discharge general permit has been drafted to authorize the discharge into the Gulf of Mexico (located between 3.0 and 10.2 statute miles from the Texas coastline) of various waste streams associated with oil and gas extraction activities from new and existing Outer Continental Shelf (OCS) Facilities.

The purpose of this new TCEQ general permit is to implement House Bill (HB) 2771, 86th Legislative Session which transfers permitting authority for discharges into water in the state of certain waste streams generated by crude oil and natural gas facilities from the Railroad Commission of Texas (RRC) to TCEQ. All discharges associated with oil and gas extraction activities adjacent to water in the state (i.e., evaporation and land application) and other activities not related to discharge to water in the state remain under the jurisdiction of the RRC.

Upon issuance of this TCEQ general permit, WQG280000, oil and gas extraction activities that discharge to the Gulf of Mexico (between 3.0 and 10.2 statute miles from the Texas coastline) will be eligible to obtain coverage via TCEQ's streamlined general permitting process. Oil and gas extraction facilities located greater than 3.0 statute miles from the Texas coastline will continue to require separate authorization under the National Pollutant Discharge Elimination System (NPDES) program from the United States Environmental Protection Agency (EPA) as EPA does not delegate NPDES authority to regulate discharges to states further than three miles from the state coastline. Whereas oil and gas extraction facilities located greater than 10.2 statute miles from the Texas coastline are not required to obtain TCEQ discharge authorization, as the State of Texas does not have legal authority to regulate such discharges. Such discharges are only required to obtain authorization to discharge from EPA.

To fully implement HB 2771, a second general permit, Texas Pollutant Discharge Elimination System (TPDES) General Permit No. TXG310000 has been developed to regulate oil and gas extraction activity discharges under the TPDES program. The TPDES general permit authorizes discharges from onshore stripper well facilities, coastal facilities, and territorial seas facilities (within 3.0 statute miles from the Texas coastline in the Gulf of Mexico).

Project No. 2023-007-OTH-NR

Both WQG280000 and TXG310000 are being proposed to proceed on a parallel path to Commission agenda for consideration of issuance.

Basic requirements:

A. Applicability:

The draft TCEQ general permit proposes to authorize the discharge of and/or prohibition of discharge for the following waste streams: produced wastewater; well treatment, completion, and workover fluids; water based drilling fluids and associated drill cuttings; non-aqueous based drilling fluids and associated drill cuttings; produced sand; dewatering effluent; formation test fluids; hydrate control fluids; domestic waste; sanitary waste; contaminated miscellaneous discharges; uncontaminated miscellaneous discharges; and deck drainage.

Discharges of any waste stream generated from oil and gas extraction activities adjacent to water in the state (e.g., land application and evaporation) via transport onshore will remain under the jurisdiction of the RRC as this disposal method was not transferred to TCEQ for regulation via HB 2771. The TCEQ general permit is drafted to be issued for a five-year term.

B. Permit Requirements:

Applicants will submit a Notice of Intent (NOI) to TCEQ to obtain authorization to discharge under the TCEQ general permit. Facilities currently authorized to discharge by RRC individual authorizations, will have 90 days from the effective date of the TCEQ general permit to submit an NOI.

All waste streams authorized for discharge under the draft TCEQ general permit are subject to numeric effluent limitations (or no discharge of the identified pollutant based on visual observation) for varying pollutants with monitoring and reporting requirements. The draft TCEQ general permit also establishes prohibitions on discharges of various waste streams based on EPA regulations. These effluent limitations and prohibitions on discharges are largely based on EPA's existing NPDES General Permit No. GMG290000 and conditions in EPA's effluent limitation guidelines established in 40 Code of Federal Regulations Part 435 - Oil and Gas Extraction Point Source Category, Subpart A - Offshore Subcategory. Additional effluent limitations in the general permit are based on TCEQ regulations and conditions established in the Texas Surface Water Quality Standards.

C. Fees:

An \$800 NOI application fee and a \$100 annual general permit wastewater fee. The \$800 NOI application fee is based on application fees currently charged by RRC, to keep transfer of permitting authority to TCEQ from RRC revenue neutral. The annual fee is the minimum fee assessed to TCEQ general permit holders.

Project No. 2023-007-OTH-NR

Number of current/expected authorizations:

The number of authorizations expected under this TCEQ general permit is difficult to estimate.

The RRC permitting program only issued authorizations to OCS facilities that discharge produced wastewater; however, this general permit will cover additional waste streams. Additionally, EPA's NPDES General Permit No. GMG290000 applies to OCS facilities located both in Texas and Louisiana Gulf of Mexico waters and extends well beyond the 10.2 statutory mile jurisdiction under TCEQ authority. EPA does not track specific discharge locations in existing database systems.

TCEQ consulted with the Offshore Operators Committee (OOC), a trade organization which represents offshore oil and gas operations in the Gulf of Mexico to attempt to identify the potential number of authorizations which may be issued under this TCEQ general permit. Less than 100 entities are expected to seek authorization under the new TCEQ general permit.

Changes from the EPA current general permit.

TCEQ has attempted to identify significant changes from conditions established in EPA's existing NPDES General Permit No. GMG290000 effective October 1, 2017 (expired September 30, 2022) and discussed these changes throughout the fact sheet. EPA is in the process of reissuance of GMG290000, and conditions established in that general permit are subject to change.

Stakeholder involvement:

The TCEQ general permit is discussed at the quarterly Water Quality Advisory Work Group meetings hosted by TCEQ. The Water Quality Advisory Work Group has been expanded to include the former HB 2771 Oil and Gas Stakeholder Work Group. The draft TCEQ general permit's status has also been posted on the TCEQ General Permits website.

During the development of the draft TCEQ general permit, the Water Quality Division (WQD) has conducted numerous discussions with the Texas Oil and Gas Association, OOC, the Environmental Defense Fund, U.S. EPA Region 6, environmental consultants, and other entities. An update on the status of this general permit was presented at the 2022 and 2023 annual TCEQ Trade Fair events.

TCEQ shared the draft TCEQ general permit package with stakeholders for an informal 30-day review period via TCEQ's Water Quality Advisory Work Group webpage prior to proceeding to statewide public notice. The informal comment period ended on January 18, 2023, and one informal comment was received from an offshore oil and gas consultant. The commenter requested a reduction in produced wastewater flows from 7,000 barrels/day to 6,000 barrels/day that may result in removal or relaxation of water quality-based effluent limitations proposed in the draft general permit and allowance for compliance schedules for whole effluent toxicity (WET) limitations. The Water

Project No. 2023-007-OTH-NR

Quality Division included these issues in the public notice to specifically seek comment on this proposal.

Public comment:

Public notice of the draft general permit was published in the *Texas Register* on May 5, 2023, and the *Houston Chronicle* and *Dallas Morning News* on May 12, 2023. The public comment period ended on June 12, 2023. Public comments were received from J. Connor Consulting, Inc. and W&T Offshore, Inc. Both commenters requested a three-year interim compliance schedule be allowed in the general permit for 24-hour acute and 7-day chronic WET limitations for the discharge of produced wastewater as well as requested a reduction in produced wastewater flows from 7,000 barrels/day (0.294 MGD) to 6,000 barrels/day (0.252 MGD) and revisions to water quality-based effluent limitation/monitoring requirements for individual toxics (metals).

The commenters included justification to support the WET compliance schedule comment and potential general permit revisions based on EPA suspending 24-hour acute WET testing for such discharges in its existing NPDES TXG260000 general permit and that EPA did not include such 24-hour acute WET limitations in its existing NPDES GMG290000 general permit, as well as impacts that could potentially be realized by oil and gas extraction operations located in offshore Texas Gulf of Mexico waters, and economic impacts on the State of Texas should such compliance schedules and revisions to water quality-based effluent limitations not be supported.

The Executive Director (ED) supports both comments and has revised the general permit to allow WET limitations compliance schedules. Furthermore, the general permit has been revised to reduce permitted produced wastewater daily average flows to 6,000 barrels/day (0.252 MGD) and revise associated water quality-based effluent limitations/monitoring requirements. See discussion and rationale outlined in the response to comments (RTC) for supporting revisions to the draft general permit.

Potential controversial concerns and legislative interest:

State legislators, the regulated community, and environmental organizations have been interested in the implementation of HB 2771, including this draft TCEQ general permit. Specifically, produced wastewater discharges from oil and gas extraction activities which are proposed to be authorized under this draft TCEQ general permit continue to be a controversial topic.

Effect on the:

A) Regulated community:

Oil and gas extraction facilities will gain the benefit of obtaining authorization via a streamlined NOI process under the TCEQ's general permitting program versus submitting individual permit applications as currently established by RRC, which includes costly sample collection and laboratory analysis for a multitude of

Project No. 2023-007-OTH-NR

pollutants. The TCEQ general permit establishes additional water quality-based effluent limitations not established in EPA's general permit, GMG290000.

B) Public:

This draft TCEQ general permit is more protective of public health and the environment than existing state and federal permitting programs.

C) Agency programs:

Regulation of oil and gas discharges into water in the state is a new program for TCEQ. Through HB 2771, WQD received three new full-time equivalents (FTEs) to implement this program, which includes processing of NOIs. WQD is also completing information technology (IT) projects required to implement the general permit. Funds to implement these IT projects have been encumbered and WQD is working with the Office of Administrative Services on this project. The Office of Compliance and Enforcement (OCE) will see an increase in workload, as this new universe of regulated activities will require routine inspections, complaint investigations, and potential resulting enforcement actions. OCE received six FTEs via HB 2771 to implement this new program.

Key dates in the general permit schedule:

Published notice in *Texas Register* on May 5, 2023, and newspapers on May 12, 2023

Public comment period ended: June 12, 2023

Scheduled Commission Agenda Date: November 29, 2023

Statutory authority:

- Texas Water Code (TWC), §26.121, which makes it unlawful to discharge waste or pollutants into water in the state except as authorized by a rule, permit, or order issued by the commission;
- TWC, §26.027, which authorizes the commission to issue permits and amendments to permits for the discharge of waste or pollutants into water in the state;
- TWC, §26.040, which provides the commission with authority to amend rules to authorize waste discharges into waters of the state by general permit; and
- TWC, §26.131, which transfers RRC's responsibilities to TCEQ relating to regulation of discharges into water in the state of produced water, hydrostatic test water, and gas plant effluent resulting from the exploration, production and development of oil, natural gas, or geothermal resources.

Agency Contacts:

Chris Linendoll, E.I.T., Project Manager, Water Quality Division, 254-761-3025
Harrison "Cole" Malley, Staff Attorney, Environmental Law Division, 512-239-1439
Gwen Ricco, Texas Register/Agenda Coordinator, General Law Division, 512-239-2678

Commissioners

Page 6

November 10, 2023

Project No. 2023-007-OTH-NR

Attachments: Draft TCEQ General Permit, Fact Sheet, and Response to Comments

cc: Chief Clerk, 7 copies

Texas Commission on Environmental Quality

P.O. Box 13087 Austin, Texas 78711-3087



GENERAL PERMIT TO DISCHARGE WASTES ASSOCIATED WITH OIL AND GAS EXTRACTION ACTIVITIES

under provisions of Chapter 26 of the Texas Water Code

This general permit is a state-only discharge general permit developed to authorize discharges under the State of Texas regulatory authority.

Separate U.S. Environmental Protection Agency (EPA) authorization is required to be obtained under National Pollutant Discharge Elimination System (NPDES) General Permit No. GMG290000 or an individual NPDES permit.

Wastes associated with oil and gas extraction activities located in the State of Texas, may be discharged into the Gulf of Mexico greater than three statute miles and within 10.2 statute miles from the Texas coastline as designated in the *Texas Surface Water Quality Standards*, only according to effluent and stock limitations, monitoring requirements, and other conditions set forth in this general permit, as well as the rules of the Texas Commission on Environmental Quality (TCEQ or Commission), the laws of the State of Texas, and other orders of the TCEQ. The issuance of this general permit does not grant the permittee the right for any violation of federal, state, or local laws or regulations.

This state-only discharge general permit and the authorization contained herein shall expire at midnight five years from the effective date.

EFFECTIVE DATE:

ISSUED DATE:

For the Commission

TCEQ GENERAL PERMIT NUMBER WQG280000 RELATING TO DISCHARGES
OF WASTES ASSOCIATED WITH OIL AND GAS EXTRACTION ACTIVITIES

Table of Contents

Part I. Definitions	3
Part II. Permit Applicability and Authorization.....	15
Section A. Discharges Authorized.....	15
Section B. Limitations on Authorization.....	15
Section C. Application for Authorization	17
Section D. Termination of Authorization.....	19
Section E. Authorization Under a TCEQ State-Only Discharge Individual Permit	19
Section F. Permit Expiration.....	19
Part III. Permit Requirements	20
Section A. Effluent Limitations and Monitoring Requirements	20
Section B. General Requirements	31
Part IV. Standard Permit Conditions	37
Part V. Fees.....	42
Appendix A: Cooling Water Intake Structure (CWIS) Requirements	43
Section I. Applicability and Limitations on Authorization.....	43
Section II. Specialized Definitions for Terms Used in this Appendix...	44
Section III. CWIS Requirements.....	45
Section IV. NOI Materials.....	47
Appendix B: 7-Day Chronic Marine WET Testing Requirements	51
Appendix C: 24-Hour Acute Marine WET Testing Requirements.....	63

Part I. Definitions

The following words and terms, for the purposes of this general permit, shall have the following meanings.

Analytical methods for the oil and gas extraction point source category – The EPA document “Analytical Methods for the Oil and Gas Extraction Point Source Category”, December 2011, EPA-821-R-11-004, that compiles analytical methods for Offshore Oil and Gas Extraction point source discharges.

Areas of biological concern – A portion of the Outer Continental Shelf in the Gulf of Mexico identified by EPA, in consultation with the U.S. Department of Interior as containing potentially productive or unique biological communities or as being potentially sensitive to discharges associated with oil and gas activities.

Bacteria concentration (Enterococci, or Fecal Coliform) – Colony Forming Units (CFU) or Most Probable Number (MPN) of bacteria per 100 milliliters effluent. The daily average bacteria concentration is a geometric mean of the values for the effluent samples collected in a calendar month. The geometric mean shall be determined by calculating the nth root of the product of all measurements made in a calendar month, where n equals the number of measurements made; or, computed as the antilogarithm of the arithmetic mean of the logarithms of all measurements made in a calendar month. For any measurement of bacteria equaling zero, a substituted value of one shall be made for input into either computation method.

Ballast/bilge water – Seawater added or removed to maintain proper draft (ballast water) or water from a variety of sources that accumulates in the lowest part of the vessel/facility (bilge water).

Base fluid – The continuous phase or suspending medium of a drilling fluid formulation.

Base fluid retained on cuttings – The “Determination of the Amount of Non-Aqueous Drilling Fluid (NAF) Base Fluid from Drill Cuttings by a Retort Chamber (Derived from API Recommended Practice 13B-2)”, EPA Method 1674, which is published as in Appendix 7 to 40 Code of Federal Regulation (CFR) Part 435, Subpart A and in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 8.

Biodegradation rate – As applied to effluent limitations established in this state-only discharge general permit for drilling fluids and drill cuttings refers to the “Protocol for Determination of Degradation of Non-

Aqueous Base Fluids in a Marine Closed Bottle Biodegradation Test System: Modified ISO 11734:1995”, EPA Method 1647, supplemented with “Procedures for Mixing Base Fluids Sediments”, EPA Method 1646. Both EPA Methods 1646 and 1647 are published in Appendix 3 (EPA Method 1646) and Appendix 4 (EPA Method 1647) to 40 CFR Part 435, Subpart A and in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA 821-R-11-004, December 2011, Section 4 (EPA Method 1646) and Section 5 (EPA Method 1647).

Blow-out preventer control fluid – Fluid used to actuate the hydraulic equipment on the blow-out preventer. This includes fluid from the subsea wireline “grease-head”.

Boiler blowdown – Discharges from boilers necessary to minimize solids build-up in the boilers, including vents from boilers and other heating systems.

C₁₂ – C₁₄ ester and C₈ ester – The fatty acid/2-ethylhexyl esters with carbon chain lengths ranging from 8 to 16 and represented by the Chemical Abstracts Service (CAS) No. 135800-37-2.

C₁₆ – C₁₈ internal olefin – A 65/35 blend, proportioned by mass, of hexadecene and octadecene, respectively. Hexadecene is an unsaturated hydrocarbon with a carbon chain length of 16, an internal double carbon bond, and is represented by the Chemical Abstracts Service (CAS) No. 26952-14-7. Octadecene is an unsaturated hydrocarbon with a carbon chain length of 18, an internal double carbon bond, and is represented by the Chemical Abstracts Service (CAS) No. 27070-58-2.

C₁₆ – C₁₈ internal olefin drilling fluid – A C₁₆ – C₁₈ internal olefin drilling fluid formulated as specified in Appendix 8 of 40 CFR Part 435, Subpart A and in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA 821-R-11-004, December 2011, Section 10.

Contaminated miscellaneous discharges – Diatomaceous earth filter media; blowout preventer control fluid; ballast water; bilge water; freshwater discharge; sea water discharge; desalination unit discharge; boiler blowdown; source water and sand; excess cement slurry; and unused cement slurry which receive treatment via the use of treatment chemicals or come into contact with oil or petroleum waste.

Daily average flow – The arithmetic average of all determinations of the daily flow within a period of one calendar month. The daily average flow determination shall consist of determinations made on at least four separate days. If instantaneous measurements are used to determine the daily flow, the determination shall be the arithmetic average of all

instantaneous measurements taken during that month. Daily average flow determination for intermittent discharges shall consist of a minimum of three flow determinations on days of discharge.

Daily average limitations – The arithmetic average of results of analyses for a parameter from a minimum of four samples of the discharges that occur in a single calendar month. When results of analyses of four samples are not available in a single calendar month, the arithmetic average of the most recent results, not to exceed four, must be reported as the daily average.

Daily maximum flow – The highest total flow for any 24-hour period in a calendar month.

Daily maximum limitations – The maximum value measured on a single day within a single calendar month as established by the unit of measurement. pH daily maximum limitations are established as a minimum and maximum range.

De-minimis discharge – A small unmeasurable amount of non-aqueous based drilling fluid allowed to be discharged by this state-only discharge general permit.

Deck drainage – Any waste resulting from deck washings, spillage, rainwater, and runoff from gutters and drains including drip pans and work areas within facilities subject to 40 CFR Part 435, Subpart A (Oil and Gas Extraction Point Source Category – Offshore Subcategory).

Desalination unit discharge – Wastewater associated with the process of creating freshwater from seawater.

Development facility – Any fixed or mobile structure that is engaged in the drilling of productive wells.

Dewatering effluent – Wastewater from drilling fluids and drill cuttings dewatering activities (including but not limited to reserve pits or other tanks or vessels, and chemical or mechanical treatment occurring during the drilling solids separation/recycle/disposal process).

Diatomaceous earth filter media – Filter media used to filter seawater or other authorized completion fluids and subsequently washed from the filter.

Diesel oil – The grade of distillate fuel oil, as specified in the American Society for Testing and Materials (ASTM) Standard Specification for Diesel Fuel Oils D975-91, that is typically used as the continuous phase in conventional oil-based drilling fluids.

Discharge – Deposit, conduct, drain, emit, throw, run, allow to seep, or otherwise release or dispose of, or to allow, permit, or suffer any of these acts or omissions.

Domestic waste – The materials discharged from sinks, showers, laundries, safety showers, eye-wash stations, hand-wash stations, fish cleaning stations, and galleys located within facilities subject to 40 CFR Part 435, Subpart A (Oil and Gas Extraction Point Source Category – Offshore Subcategory).

Drill cuttings – The particles generated by drilling into subsurface geologic formations including cured cement and carried out from the wellbore with the drilling fluid. Examples of drill cuttings include small pieces of rock varying in size and texture from fine silt to gravel. Drill cuttings are generally generated from solids control equipment and settle out and accumulate in quiescent areas in the solids control equipment or other equipment processing drilling fluid (i.e., accumulated solids).

Drilling fluid – The circulating fluid (mud) used in the rotary drilling of wells to clean and condition the hole and to counterbalance formation pressure.

Dry drill cuttings – The residue remaining in the retort vessel after completing the retort procedure specified in EPA Method 1674, which is published in Appendix 7 to 40 CFR Part 435, Subpart A and in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA 821-R-11-004, December 2011, Section 8.

Enhanced mineral oil – As applied to enhanced mineral oil-based drilling fluid means a petroleum distillate which has been highly purified and is distinguished from diesel oil and conventional mineral oil in having a lower polycyclic aromatic hydrocarbon (PAH) content. Typically, conventional mineral oils have a PAH content on the order of 0.35 weight percent expressed as phenanthrene, whereas enhanced mineral oils typically have a PAH content of 0.001 or lower of weight percent PAH expressed as phenanthrene.

Enhanced mineral oil-based – The continuous phase of the drilling fluid is enhanced mineral oil.

End of well sample – The sample taken after the final log run is completed and prior to bulk discharge.

Excess cement slurry – The excess mixed cement, including additives and wastes from equipment washdown, after a cementing operation.

Exploratory facility – Any fixed or mobile structure subject to 40 CFR Part 435, Subpart A (Oil and Gas Extraction Point Source Category - Offshore Subcategory) that is engaged in the drilling of wells to determine the nature of potential hydrocarbon reservoirs.

Facility – For the purposes of this state-only discharge general permit, a facility includes a Development Facility, an Exploratory Facility, or a Production Facility located in the Gulf of Mexico between 3.0 and 10.2 statute miles from the Texas coastline.

Formation oil – The oil from a hydrocarbon bearing formation and other oil which might enter the drilling fluid which is detected in the drilling fluid, as determined by the gas chromatography mass spectrometry (GC/MS) compliance assurance method, EPA Method 1655, when the drilling fluid is analyzed before being shipped offshore, and determined by the RPE method, EPA Method 1670, when the drilling fluid is analyzed at the offshore point of discharge. The GC/MS compliance assurance method and the RPE method approved for use with this state-only discharge general permit are published in Appendix 5 (EPA Method 1655) and Appendix 6 (EPA Method 1670) of 40 CFR Part 435, Subpart A, and in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 6 (EPA Method 1655) and Section 7 (EPA Method 1670). Detection of formation oil by the RPE method may be confirmed by the GC/MS compliance assurance method, and the results of the GC/MS compliance assurance method shall supersede the RPE method.

Formation test fluids – The discharge that would occur if hydrocarbons are located during exploratory drilling and tested for formation pressure and content.

Freshwater discharge – Freshwater which is discharged. Included are (1) discharges of excess freshwater that permit the continuous operation of fire control and utility lift pumps, (2) excess freshwater from pressure maintenance and secondary recovery projects, and (3) water released during training and testing of personnel in fire protection, potable water and off-specification potable water.

General permit – A permit issued under the provisions of Title 30 Texas Administrative Code (TAC) Chapter 205, authorizing the discharge of waste into water in the state for one or more categories of waste discharge within a geographical area of the state or the entire state as provided by Texas Water Code (TWC), § 26.040.

Grab sample – An individual sample collected in less than 15 minutes.

Hydrate control fluids or “Hydrate Inhibitors” – Fluids used to prevent, retard, or mitigate the formation of hydrates in and on drilling equipment, process equipment, and piping.

Hydrostatic test water – Water resulting from testing the hydraulic and structural integrity of a vessel by either introducing water into the vessel or submerging the empty vessel in water.

Inverse emulsion drilling fluid – An oil-based drilling fluid which also contains a large amount of raw water.

Land application – The spraying or spreading of wastewater onto the land surface or the incorporation of wastewater into the soil in a way that causes no nuisance conditions and that uses the wastewater to either condition the soil or fertilize crops or vegetation grown in the soil.

Live bottom areas – Those areas which contain biological assemblages consisting of such sessile invertebrates as sea fans, sea whips, hydroids, anemones, ascidians sponges, bryozoans, seagrasses, or corals living upon and attached to naturally occurring hard or rocky formations with fishes and other fauna.

M9IM – An Outer Continental Shelf facility continuously manned by nine (9) or fewer persons or only intermittently manned by any number of persons.

M10 – An Outer Continental Shelf facility continuously manned by ten (10) or more persons.

Maximum – As applied to drilling fluids and drill cuttings effluent/stock limitations established in this state-only discharge general permit means the maximum concentration allowed as measured in any single sample of the barite for determination of cadmium and mercury content.

Maximum weighted mass ratio averaged over all NAF well sections – For effluent limitations established in this state-only discharge general permit for base fluid retained on cuttings means the weighted average base fluid retention for all NAF well sections as determined by the modified API Recommended Practice 13B-2, using methods and averaging calculations presented in Appendix 7 of 40 CFR Part 435, Subpart A, EPA Method 1674, and in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 8.

Method 1654A – Refers to the method “PAH Content of Oil by High Performance Liquid Chromatography with a UV Detector”, which was published in “Methods for the Determination of Diesel. Mineral and Crude Oils in Offshore Oil and Gas Industry Discharges”, EPA-821-R-92,

EPA Method 1654, Revision A, entitled “PAH Content of Oil by HPLC/UV”, December 1992, and in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 9.

Minimum – As applied to drilling fluids and drill cuttings effluent limitations established in this state-only discharge general permit means the minimum 96-hour LC₅₀ allowed as measured in any single sample of the discharged waste stream. Minimum as applied to sanitary waste and domestic waste effluent limitations established in this state-only discharge general permit means the minimum concentration value allowed as measured in any single sample of the discharged waste stream.

Muds, cuttings, and cement at the seafloor – Discharges that occur at the seafloor prior to installation of the marine riser and during marine riser disconnect, well abandonment and plugging operations. Also included are discharges of drilling fluid and cuttings associated with the operation of a subsea drilling fluid pump.

Non-aqueous drilling fluid (NAF) – The continuous phase and suspending medium for solids is a water-immiscible fluid, such as oleaginous materials (e.g., mineral oil, enhanced mineral oil, paraffinic oil, C₁₆ – C₁₈ internal olefins, and C₈ – C₁₆ fatty acid/2-ethylhexyl esters).

No discharge of free oil – That waste streams may not be discharged that contain free oil as evidenced by the monitoring method for that particular waste stream, e.g., deck drainage or miscellaneous discharges cannot be discharged when they would cause a film or sheen upon or discoloration of the surface of the receiving water; drilling fluids or drill cuttings, and well treatment, completion, and workover fluids may not be discharged when they fail the static sheen test defined in Appendix 1 of 40 CFR Part 435, Subpart A, EPA Method 1617 (Static Sheen Test), and in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 2.

Notice of change (NOC) – A written submission to the Executive Director from a permittee authorized under a general permit, providing information on changes to information previously provided to the Commission, or any changes with respect to the nature or operations of the regulated entity or the characteristics of the discharge.

Notice of intent (NOI) – A written submission to the Executive Director from an applicant requesting authorization under the terms of a general permit.

Notice of termination (NOT) – A written submission to the Executive Director from a permittee authorized under a general permit requesting termination of authorization.

Oil-based – The continuous phase of the drilling fluid consists of diesel oil, mineral oil, or some other oil, but contains no synthetic material or enhanced mineral oil.

Operator – The person responsible for the overall operation of a facility.

Outer Continental Shelf Facility – For the purpose of this general permit, an oil and gas extraction facility subject to 40 CFR Part 435, Subpart A and is located in the Gulf of Mexico between 3.0 and 10.2 statute miles from the Texas coastline.

Owner – The person who owns a facility or part of a facility.

Packer fluids – Low solids fluids between the packer, production string and well casing. They are considered to be workover fluids.

PAH (as phenanthrene) – Polynuclear aromatic hydrocarbons reported as phenanthrene with approved methods of analysis in Table 1B at 40 CFR § 136.3.

Permittee – Any person issued an individual permit, order, or is authorized by a general permit.

Produced sand – The slurried particles used in hydraulic fracturing, the accumulated formation sands and scales particles generated during production. Produced sand also includes desander discharge from the produced wastewater stream, and blowdown of the water phase from the produced wastewater treating system.

Produced wastewater – The water (brine) brought up from the hydrocarbon-bearing strata during the extraction of oil and gas, and can include formation water, injection water, and any chemicals added downhole or during the oil/water separation process.

Production facility – Any fixed or mobile structure subject to 40 CFR Part 435, Subpart A (Oil and Gas Extraction Point Source Category – Offshore Subcategory) that is either engaged in well completion or used for active recovery of hydrocarbons from producing formations. This includes facilities that are engaged in hydrocarbon fluids separation even if located separately from wellheads.

Sanitary waste – The human body waste discharged from toilets and urinals located within facilities subject to 40 CFR Part 435, Subpart A (Oil and Gas Extraction Point Source Category – Offshore Subcategory).

Seawater discharge – Seawater which is returned to the sea. Included are (1) discharges of excess seawater which permit the continuous operation of fire control and utility lift pumps, (2) excess seawater from pressure maintenance and secondary recovery projects, (3) water released during the training and testing of personnel in fire protection, and (4) once through non-contact cooling water.

Sediment toxicity – As applied to effluent limitations established in this state-only discharge general permit for drilling fluids and drill cuttings refers to EPA Method 1644: “Method for Conducting a Sediment Toxicity Test with *Leptocheirus plumulosus* and Non-Aqueous Drilling Fluids or Synthetic-Based Drilling Muds” and sediment preparation procedures specified in EPA Method 1646. EPA Method 1644 is published in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 10; and EPA Method 1646 is published in Appendix 3 to 40 CFR Part 435, Subpart A, and Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 4.

Sheen – A silvery or metallic sheen, gloss, or increased reflectivity, visual color or iridescence on the water surface.

Site – For the purposes of this state-only discharge general permit, the water area where any facility or activity is physically located or conducted.

Solids control equipment – Shale shakers, centrifuges, mud cleaners, and other equipment used to separate drill cuttings and/or stock barite solids from drilling fluid recovered from the wellbore.

Source water and sand – Water from non-hydrocarbon bearing formations for the purpose of pressure maintenance or secondary recovery including entrained solids.

Suspended Particulate Phase (SPP) toxicity – As applied to effluent limitations established in this state-only discharge general permit for drilling fluids and drill cuttings refers to the bioassay test procedure, “Suspended Particulate Phase (SPP) Toxicity Test”, presented in EPA Method 1619, which is published in Appendix 2 to 40 CFR Part 435, Subpart A and in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA 821-R-11-004, December 2011, Section 3.

Static sheen test – The standard test procedure that has been developed for Offshore Oil and Gas Extraction Point Source Category facilities for the purpose of demonstrating compliance with the requirement of no discharge of free oil. The methodology for performing the static sheen test, EPA Method 1617 is presented in Appendix 1 of 40 CFR Part 435, Subpart A, and in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA 821-R-11-004, December 2011, Section 2.

Stock barite – The barite that was used to formulate a drilling fluid.

Stock base fluid – The base fluid that was used to formulate a drilling fluid.

Synthetic-based – The continuous phase of the drilling fluid is a synthetic material or a combination of synthetic materials.

Synthetic material – As applied to synthetic-based drilling fluid means material produced by the reaction of specific purified chemical feedstock, as opposed to the traditional base fluids such as diesel and mineral oil which are derived from crude oil solely through physical separation processes. Physical separation processes include fractionation and distillation and/or minor chemical reactions such as cracking and hydro processing. Since they are synthesized by the reaction of purified compounds, synthetic materials suitable for use in drilling fluids are typically free of polycyclic aromatic hydrocarbons (PAH's) but are sometimes found to contain levels of PAH up to 0.001 weight percent PAH expressed as phenanthrene. Internal olefins and vegetable esters are two examples of synthetic materials suitable for use by the oil and gas extraction industry in formulating drilling fluids. Internal olefins are synthesized from the isomerization of purified straight chain (linear) hydrocarbons such as C₁₆ – C₁₈ linear alpha olefins. C₁₆ – C₁₈ linear alpha olefins are unsaturated hydrocarbons with the carbon-to-carbon double bond in the terminal position. Internal olefins are typically formed from heating linear alpha olefins with a catalyst. The feed material for synthetic linear alpha olefins is typically purified ethylene. Vegetable esters are synthesized from the acid-catalyzed esterification of vegetable fatty acids with various alcohols. These two branches of synthetic based materials are provided as examples, and the state-only discharge general permit does not exclude other synthetic materials that are either in current use or may be used in the future. A synthetic-based drilling fluid may include a combination of synthetic materials.

Territorial seas – The belt of seas measured from the line of ordinary low water along that portion of the coast which is in direct contact with the open sea and the line marking the seaward limit of inland waters and extending seaward a distance of three miles.

Texas Pollutant Discharge Elimination System (TPDES) – The state program for issuing, amending, terminating, monitoring, and enforcing permits, and imposing and enforcing pretreatment requirements, under the Clean Water Act (CWA) §§ 307, 402, 318, and 405, the Texas Water Code, and Title 30 of the TAC regulations. This state-only discharge general permit is not under authority of the TPDES program.

Treatment chemicals – Biocides, corrosion inhibitors, or other chemicals which are used to treat wastewater. Non-toxic scale inhibitors, dyes, and chlorine/bromine used for disinfection or biological growth control are not considered treatment chemicals for the purpose of this state-only discharge general permit.

Uncontaminated miscellaneous discharges – Diatomaceous earth filter media; blowout preventer control fluid; ballast water; bilge water; muds, cuttings, and cement at the sea floor; freshwater discharge; sea water discharge; desalination unit discharge; boiler blowdown; source water and sand; excess cement slurry; and unused cement slurry which do not receive treatment via the use of treatment chemicals or come into contact with oil or petroleum waste.

Unused cement slurry – Cement slurry used for testing of equipment or resulting from cement specification changes or equipment failure during the cementing job.

Water area – The water area and Gulf of Mexico floor beneath any exploratory, development, or production facility where such facility is conducting its exploratory, development, or production activities.

Water in the State – Groundwater, percolating or otherwise, lakes, bays, ponds, impounding reservoirs, springs, rivers, streams, creeks, estuaries, wetlands, marshes, inlets, canals, the Gulf of Mexico inside the territorial limits of the state, and all other bodies of surface water, natural or artificial, inland or coastal, fresh or salt, navigable or non-navigable, and including the beds and banks of all watercourses and bodies of surface water, that are wholly or partially inside or bordering the state or inside the jurisdiction of the state. For the purposes of this state-only discharge general permit, discharges to water in the state are only authorized to the Gulf of Mexico in Texas waters located between 3.0 and 10.2 statute miles from the Texas coastline.

Water-based drilling fluid – The continuous phase and suspending medium for solids is a water-miscible fluid, regardless of the presence of oil.

Well completion fluids – Salt solutions, weighted brines, polymers, and various additives used to prevent damage to the well bore during operations which prepare the drilled well for hydrocarbon production. These fluids move into the formation and return to the surface as a slug with the produced wastewater. Drilling muds remaining in the wellbore during logging, casing, and cementing operations or during temporary abandonment of the well are not considered well completion fluids and are regulated by drilling fluids requirements.

Well treatment fluids – Any fluid used to restore or improve productivity by chemically or physically altering hydrocarbon-bearing strata after a well has been drilled. These fluids move into the formation and return to the surface as a slug with the produced wastewater.

Wet drill cuttings – The unaltered drill cuttings and adhering drilling fluid and formation oil carried out from the wellbore with the drilling fluid.

Workover fluids – Salt solutions, weighted brines, polymers, or other specialty additives used in a producing well to allow safe repair and for maintenance, repair, or abandonment procedures. High solids drilling fluids used during workover operations are not considered workover fluids by definition and therefore must meet drilling fluids effluent limitations before discharge may occur. Packer fluids, low solids fluids between the packer, production string and well casing, are considered to be workover fluids and must meet only the effluent requirements imposed on workover fluids.

4-day LC₅₀ – As applied to sediment toxicity limitations established in this state-only discharge general permit means the concentration (milligrams /kilogram dry sediment) of the drilling fluid in sediment that is lethal to 50 percent of the *Leptocheirus plumulosus* test organisms exposed to that concentration of the drilling fluids after four days of constant exposure.

10-day LC₅₀ – As applied to the sediment toxicity limitations established in this state-only discharge general permit means the concentration (milligrams/kilogram dry sediment) of the base fluid in sediment that is lethal to 50 percent of the *Leptocheirus plumulosus* test organisms exposed to that concentration of the base fluids after ten days of constant exposure.

96-hour LC₅₀ – The concentration (parts per million) or percent of the suspended particulate phase (SPP) from a sample that is lethal to 50 percent of the test organisms exposed to that concentration of the SPP after 96 hours of constant exposure.

Part II. Permit Applicability and Authorization

Section A. Discharges Authorized

This state-only discharge general permit authorizes the discharge of wastes associated with oil and gas extraction activities into the Gulf of Mexico from Outer Continental Shelf (OCS) Facilities.

Section B. Limitations on Authorization

1. Discharges shall not be authorized by this general permit, where prohibited by applicable rules or laws.
2. This general permit does not authorize discharges adjacent to water in the state (e.g., land application or evaporation) for wastes transported onshore from oil and gas extraction activities that are regulated by the Railroad Commission of Texas (RRC).
3. The Executive Director will deny an application for authorization under this general permit and may require that the applicant apply for an individual TCEQ state-only discharge permit, if the Executive Director determines that discharge activities will not maintain existing uses of the Gulf of Mexico. Additionally, the Executive Director may cancel, revoke, or suspend authorization for discharge under this general permit based on a finding of historical and significant noncompliance with the provisions of this general permit. The Executive Director shall deny or suspend a facility's authorization for discharge under this general permit based on a rating of "unsatisfactory performer" according to Commission rules in 30 TAC § 60.3, *Use of Compliance History*. An applicant who owns or operates a facility classified as an "unsatisfactory performer" is entitled to a hearing before the Commission prior to having its authorization denied or suspended, in accordance with TWC § 26.040(h). Denial of authorization for discharge under this general permit will be done according to Commission rules in 30 TAC Chapter 205, *General Permits for Waste Discharges*.
4. This general permit does not limit the authority of a home-rule municipality as established in Texas statute.
5. New sources or new discharges [as defined in 40 CFR § 122.2, 40 CFR § 435.11(w), and 40 CFR § 435.41(x)] of the constituent(s) of concern to impaired areas of the Gulf of Mexico are not authorized by this general permit, unless otherwise allowable under 30 TAC Chapter 305, *Consolidated Permits*, and applicable state law. Impaired areas of the Gulf of Mexico are those that do not meet applicable water quality standard(s) and are listed as category 4 or

- 5 in the current version of the *Texas Integrated Report of Surface Water Quality* on the CWA § 303(d) list. Constituents of concern are those for which the areas of the Gulf of Mexico are listed as impaired.
6. Discharges of the constituent(s) of concern to impaired areas of the Gulf of Mexico where there is a total maximum daily load (TMDL) implementation plan are not eligible for authorization under this general permit, unless they are consistent with the approved TMDL and the implementation plan. The Executive Director may amend this general permit for discharges to the Gulf of Mexico. For discharges not eligible for authorization under this general permit, the discharger must apply for and receive an individual TCEQ state-only discharge permit prior to discharging.
 7. Discharges that would adversely affect a listed endangered or threatened species or its critical habitat are not authorized by this general permit. Site-specific controls may be required to ensure that protection of endangered or threatened species is achieved.
 8. This general permit does not authorize discharges from oil and gas extraction facilities other than Outer Continental Shelf Facilities located in the Gulf of Mexico between 3.0 and 10.2 statute miles from the Texas coastline. Oil and gas extraction facilities defined in 40 CFR Part 435, Subpart A – Offshore Subcategory (located within three statute miles of the Texas coastline), Subpart C – Onshore Subcategory, Subpart D – Coastal Subcategory, Subpart E – Agricultural and Wildlife Water Use Subcategory, and Subpart F – Stripper Subcategory are not eligible for authorization to discharge under this general permit.
 9. This general permit does not authorize the discharge of hydrostatic test water into the Gulf of Mexico. Oil and gas extraction facilities seeking to discharge hydrostatic test water into the Gulf of Mexico have the option of obtaining coverage under TPDES General Permit No. TXG670000 (under state-only authority) or obtaining an individual TCEQ state-only discharge permit.
 10. This general permit regulates discharges into the Gulf of Mexico (between 3.0 and 10.2 statute miles from the Texas coastline). Activities associated with oil and gas extraction activities not associated with discharges into the Gulf of Mexico are regulated by the RRC. Such activities include, but are not limited to drilling new wells, plugging and abandoning existing wells, blowout prevention control, spill prevention, surface coatings and preparation, and

other activities not associated with discharges into the Gulf of Mexico.

11. This general permit does not authorize discharges into Areas of Biological Concern, including marine sanctuaries and live bottom areas.
12. This general permit does not authorize discharges of radiological substances or materials in excess of the amount regulated by 30 TAC Chapter 336, *Radioactive Substance Rules*, as required by 30 TAC § 307.4(c).
13. This general permit does not authorize discharges from centralized waste treatment (CWT) facilities as defined in 40 CFR Part 437 that receive wastes generated from oil and gas extraction facilities. Such CWT facilities seeking authorization to discharge into water in the state must obtain an individual TPDES permit.
14. This general permit does not authorize the discharge of wastewater generated at a location where that wastewater is prohibited from discharge to waters in the U.S. from a location where that wastewater is authorized for discharge to waters in the U.S., as established in 40 CFR Part 435, Subpart G (One example of what is not allowed under this restriction is drilling fluids and drill cuttings generated at a coastal facility, where drilling fluids and drill cuttings are prohibited from discharge, being transported to, and being discharged from, an Outer Continental Shelf facility, where such discharge is authorized).
15. Discharges authorized under this general permit into the Gulf of Mexico are restricted to oil and gas extraction activities as established in 40 CFR Part 435. Other offshore activities located in the Gulf of Mexico, such as carbon sequestration drilling activities, are not authorized by this general permit and are required to obtain an individual TCEQ state-only discharge permit.

Section C. Application for Authorization

1. Facilities that seek to discharge under authority of this general permit shall submit a completed Notice of Intent (NOI) on a form approved by the Executive Director. Permittees authorized to discharge via an existing RRC authorization are required to submit a new NOI within 90 days of the effective date of this general permit to replace that authorization and to continue authorization to discharge to the Gulf of Mexico. The NOI shall, at a minimum, include: the legal name and address of the owner and operator, the

- facility name and address, specific description(s) of its location in the Gulf of Mexico, type of facility or discharges, and other contents established in the NOI. Each individual discharging facility (e.g., production platform, drilling rig) is required to submit an individual NOI. This general permit does not authorize multiple discharging facilities under a lease to be combined into one NOI. Should a facility contain all waste streams and transport them to another facility for subsequent treatment, management, and discharge, such a facility is not required to submit an NOI provided there are no resulting discharges to the Gulf of Mexico from the facility.
2. Submission of an NOI is an acknowledgment that the conditions of this general permit are applicable to the proposed discharge, and that the applicant agrees to comply with the conditions of this general permit.
 - a. Provisional authorization begins 48 hours after a completed NOI is postmarked for delivery to the TCEQ. The NOI shall be submitted to the address indicated on the NOI form. If the TCEQ provides for electronic submission of NOIs during the term of this general permit, authorization begins immediately after the TCEQ confirms receipt of the electronic NOI. Following review of the NOI, the Executive Director will:
 - (i) determine that the NOI is complete and confirm authorization by providing a written notification and an authorization number;
 - (ii) determine that the NOI is incomplete and request additional information needed to complete the NOI; or
 - (iii) deny authorization in writing. Denial of authorization will be made in accordance with 30 TAC § 205.4, *Authorizations and Notices of Intent*.
 3. Authorization under this general permit is not transferable. If either the owner or operator of the regulated entity changes, then both the present owner and operator must submit a Notice of Termination (NOT) and the new owner and operator must submit an NOI. The NOT and NOI must be submitted no later than 10 days before the change.
 4. If the owner or operator becomes aware that he or she failed to submit any relevant facts, or submitted incorrect information, or if relevant information provided in the NOI changes (for example, phone number, address, outfall information, type of facility or

discharges, movement of a production platform or drilling rig to a new location), the correct information must be provided to the Executive Director in a Notice of Change (NOC) within 14 days after discovery.

Section D. Termination of Authorization

A permittee shall terminate authorization under this general permit through the submittal of an NOT, on a form approved by the Executive Director, when the owner or operator of the facility changes; the discharge becomes authorized under an individual permit; the use of the facility changes and is no longer subject to regulation under this general permit; or the discharge becomes unnecessary, is delayed, or is completed. Authorization to discharge terminates on the day that an NOT is postmarked for delivery to the TCEQ. If electronic submission of the NOT is provided, authorization to discharge under this general permit terminates immediately after TCEQ confirms receipt of the NOT. Compliance with the conditions and requirements of this general permit is required until an NOT is submitted.

Section E. Authorization Under a TCEQ State-Only Discharge Individual Permit

1. Discharges eligible for authorization under this general permit may alternatively be authorized under an individual TCEQ state-only discharge permit according to 30 TAC Chapter 305, *Consolidated Permits*.
2. When an individual TCEQ state-only discharge permit is issued for a discharge that is currently authorized under this general permit, the permittee shall submit an NOT to the Executive Director. Authorization to discharge terminates on the day that an NOT is postmarked for delivery to the TCEQ. If electronic submission of the NOT is provided, authorization to discharge under this general permit terminates immediately after TCEQ confirms receipt of the NOT.

Section F. Permit Expiration

1. This general permit is effective until five years from the effective date. Authorizations for discharge under the provisions of this general permit may be issued until the expiration date of the general permit. This general permit may be amended, revoked, cancelled, or renewed by the Commission after notice and comment as provided by 30 TAC § 205.3 and § 205.5.

2. If the Commission proposes to reissue this general permit before the expiration date, the general permit shall remain in effect after the expiration date for those existing discharges covered by the general permit in accordance with 30 TAC Chapter 205. The general permit shall remain in effect for these discharges until the date on which the Commission takes final action on the proposal to reissue this general permit. However, no new authorizations may be issued under the general permit after the expiration date.
3. Upon issuance of a renewed or amended general permit, all facilities, including those covered under the expired general permit, shall submit an NOI according to the requirements of the new general permit or obtain a TCEQ state-only individual discharge permit for those discharges.
4. If the Commission does not propose to reissue this general permit within 90 days before the expiration date, permittees must apply for authorization under an individual TCEQ state-only discharge permit. If the application for an individual TCEQ state-only discharge permit is submitted before the general permit expiration date, authorization under this expiring general permit remains in effect until the issuance or denial of an individual TCEQ state-only discharge permit.

Part III. Permit Requirements

Section A. Effluent Limitations and Monitoring Requirements

1. Prohibited Discharges: The following waste streams are prohibited from discharge to the Gulf of Mexico under the terms and conditions of this general permit.
 - a. Non- Aqueous Drilling Fluids (NAFs) – including Dewatering Effluent and Formation Test Fluids
 - b. Produced Sand
2. Authorized Discharges: The following waste streams are authorized for discharge to the Gulf of Mexico subject to the following effluent limitations and monitoring requirements:
 - a. Produced Wastewater and Hydrate Control Fluids

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Flow	Report, MGD	0.252 MGD	Estimate	Once/day

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Free Oil ¹	No discharge	N/A	Observation	Once/day
Oil & Grease	42 mg/L	29 mg/L	Grab	Once/month
Carbonaceous Biochemical Oxygen Demand (5-day)	N/A	1144 mg/L	Grab	Once/month
Ammonia (as N)	N/A	112/ mg/L	Grab	Once/month
Temperature	145 °F	N/A	In-Situ	Once/quarter
Total Dissolved Solids	Report mg/L	N/A	Grab	Once/quarter
Total Barium	2258 mg/L	1068 mg/L	Grab	Once/month
Benzene	Report mg/L	N/A	Grab	Once/month
Total Copper	0.194 mg/L	0.092 mg/L	Grab	Once/month
Total Manganese	18.1 mg/L	8.54 mg/L	Grab	Once/month
Total Mercury	Report, mg/L	N/A	Grab	Once/month
Total Nickel	Report, mg/L	N/A	Grab	Once/month
Total Zinc	5.40 mg/L	2.55 mg/L	Grab	Once/month
pH	6.0-9.0 standard units	N/A	Grab	Once/week
Sublethal Whole Effluent Toxicity (WET) limit (Parameter 51712) <i>Menidia beryllina</i> (Chronic NOEC ²)	2.1%	2.1%	Grab	Once/quarter
Sublethal Whole Effluent Toxicity (WET) limit (Parameter 51713) <i>Americamysis bahia</i> (Chronic NOEC ²)	2.1%	2.1%	Grab	Once/quarter
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51712) <i>Menidia beryllina</i> (24-hour acute LC50 ³)	> 100%	> 100%	Grab	Once/six months

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51713) <i>Americamysis bahia</i> (24-hour acute LC50 ³)	> 100%	> 100%	Grab	Once/six months

- ¹ As determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water (visual sheen).
- ² The NOEC is defined as the greatest effluent dilution at which no significant sublethality is demonstrated. Significant sublethality is defined as a statistically significant difference between a specified effluent dilution and the control for the sublethal endpoint. See Appendix B for conditions associated with these effluent limitations. The daily maximum limitation established above is a 7-day minimum limitation.
- ³ The LC50 (Lethal Concentration 50) is defined as the effluent dilution at which 50% of the organisms survive. See Appendix C for conditions associated with these effluent limitations.

b. Well Treatment, Completion, and Workover Fluids

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Flow	Report, MGD	Report, MGD	Estimate	Once/day
Free Oil ¹	No discharge	N/A	Observation	Once/day
Oil & Grease	42 mg/L	29 mg/L	Grab	Once/month
pH	6.0-9.0 standard units	N/A	Grab	Once/week
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51712) <i>Menidia beryllina</i> (24-hour acute LC50 ²)	> 100%	> 100%	Grab	Once/six months ³

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51713) <i>Americamysis bahia</i> (24-hour acute LC50 ²)	> 100%	> 100%	Grab	Once/six months ³

¹ As determined by the static sheen test utilizing EPA Method 1617 established in Appendix 1 to 40 CFR Part 435, Subpart A and in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 2.

² The LC50 (Lethal Concentration 50) is defined as the effluent dilution at which 50% of the organisms survive. See Appendix C for conditions associated with these effluent limitations.

³ Should the planned or actual discharge occur for a duration of 24 hours or greater, the sample type shall be a 24-hour composite.

c. Deck Drainage

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Free Oil ¹	No discharge	N/A	Observation	Once/day

¹ As determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water (visual sheen).

d. Domestic Waste

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Flow	Report, MGD	Report, MGD	Instantaneous	Five/week
Floating Solids, and Foam	No discharge	N/A	Observation	Once/day
Biochemical Oxygen Demand (5-day)	65 mg/L	20 mg/L	Grab	Once/week
Total Suspended Solids	65 mg/L	20 mg/L	Grab	Once/week
Dissolved Oxygen	2.0 mg/L (minimum)	N/A	Grab	Once/week

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Enterococci	130 cfu or MPN/100 mL	35 cfu or MPN/100 mL	Grab	Once/quarter
Fecal Coliform	43 cfu or MPN/100 mL	14 cfu or MPN/100 mL	Grab	Once/quarter
Total Residual Chlorine	1.0 mg/L (minimum) and 4.0 mg/L (maximum)	N/A	Grab	Five/week
pH	6.0 - 9.0 standard units	N/A	Grab	Once/day

e. Sanitary Waste (M10 and M9IM)

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Flow	Report, MGD	Report, MGD	Instantaneous	Five/week
Floating Solids	No discharge	N/A	Observation	Once/day
Biochemical Oxygen Demand (5-day)	65 mg/L	20 mg/L	Grab	Once/week
Total Suspended Solids	65 mg/L	20 mg/L	Grab	Once/week
Dissolved Oxygen	2.0 mg/L (minimum)	N/A	Grab	Once/week
Enterococci	130 cfu or MPN/100 mL	35 cfu or MPN/100 mL	Grab	Once/quarter
Fecal Coliform	43 cfu or MPN/100 mL	14 cfu or MPN/100 mL	Grab	Once/quarter
Total Residual Chlorine	1.0 mg/L (minimum) and 4.0 mg/L (maximum)	N/A	Grab	Five/week
pH	6.0 - 9.0 standard units	N/A	Grab	Once/day

f. Uncontaminated Miscellaneous Discharges

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Free Oil ¹	No discharge	N/A	Observation	Once/day

¹ As determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water (visual sheen).

g. Contaminated Miscellaneous Discharges

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Flow	Report, MGD	N/A	Estimate	Once/month
Free Oil ¹	No discharge	N/A	Observation	Once/day
pH	6.0-9.0 standard units	N/A	Grab	Once/week
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51712) <i>Menidia beryllina</i> (24-hour acute LC50 ²)	> 100%	> 100%	Grab	Once/six months
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51713) <i>Americamysis bahia</i> (24-hour acute LC50 ²)	> 100%	> 100%	Grab	Once/six months

¹ As determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water (visual sheen).

² The LC50 (Lethal Concentration 50) is defined as the effluent dilution at which 50% of the organisms survive. See Appendix C for conditions associated with these effluent limitations.

h. Water-Based Drilling Fluids and Associated Drill Cuttings (including formation test fluids and dewatering effluent)

(i) Effluent Limitations

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Flow ¹	1.008 MGD	N/A	Estimate	Once/day
Free Oil ²	No discharge	N/A	EPA Approved Method ²	Once/week
SPP Toxicity ³	3%	N/A	EPA Approved Method ³	Once/month
Diesel Oil ⁴	No discharge	N/A	Certification	Once/month

¹ Limitation does not apply prior to installation of the marine riser. The Executive Director reserves the ability to establish more restrictive flow limitations based on proximity to areas of biological concern and

will notify individual discharges of such more restrictive conditions or in the alternative require an individual state-only discharge permit.

- ² As determined by the static sheen test utilizing EPA Method 1617 established in Appendix 1 to 40 CFR Part 435, Subpart A and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 2.
- ³ As determined by the Minimum 96-hour LC₅₀ of the SPP Toxicity Test by volume. Bioassay test procedure – “Suspended Particulate Phase (SPP) Toxicity Test”, EPA Method 1619 established in Appendix 2 of 40 CFR Part 435, Subpart A and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 3.
- ⁴ Drilling fluids to which any diesel oil has been added as a lubricant may not be discharged. Monthly effluent reports shall provide certification indicating compliance with this provision.

(ii) Stock Limitations

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Mercury ¹	1 mg/kg	N/A	EPA Approved Method ²	Once/well ⁴
Cadmium ¹	3 mg/kg	N/A	EPA Approved Method ³	Once/well ⁴

- ¹ Dry weight maximum in the stock barite.
- ² Sampling shall be conducted using EPA Method 245.5, Method 7471 A, or more recently EPA approved methods.
- ³ Sampling shall be conducted using EPA Method 200.7, Method 200.8, Method 3050 B followed by 6010B or 6020, or more recently EPA approved methods.
- ⁴ A representative sample of stock barite used once in drilling fluids shall be analyzed and results submitted prior to use in each new well drilled. If more than one well is being drilled at a site, new analyses are not required for subsequent wells, provided that no new supplies of barite have been received since the previous analysis. A new analysis is required when the composition of stock barite is altered from the previous analysis and prior to use. Alternatively, the permittee may provide stock barite analysis provided by the manufacturer/supplier which complies with the sampling methodologies identified above.

i. Drill Cuttings Associated with Non-Aqueous Drilling Fluids

(i) Effluent Limitations

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Free Oil ¹	No discharge	N/A	Observation	Once/week
Diesel Oil ²	No discharge	N/A	Certification	Once/month
SPP Toxicity ³	3%	N/A	Grab	Once/month
Sediment Toxicity ⁴	1.0 ratio	N/A	EPA Approved Method ⁴	Once/month ⁵
Formation Oil ⁶	No discharge	N/A	EPA Approved Method ⁶	Once/week ⁷
Base Fluid Retained on Cuttings ⁸	6.9 g/100 g	N/A	EPA Approved Method ⁸	Once/day ⁹
Base Fluid Retained on Cuttings ¹⁰	9.4 g/100 g	N/A	EPA Approved Method ¹⁰	Once/day ⁹

- ¹ As determined by the static sheen test utilizing EPA Method 1617 established in Appendix 1 to 40 CFR Part 435, Subpart A and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 2.
- ² Drill cuttings associated with drilling fluids to which any diesel oil has been added as a lubricant may not be discharged. Monthly effluent reports shall provide certification indicating compliance with this provision.
- ³ Minimum 96-hour LC₅₀ of the SPP Toxicity Test by volume. Bioassay test procedure – “Suspended Particulate Phase (SPP) Toxicity Test”, EPA Method 1619 established in Appendix 2 of 40 CFR Part 435, Subpart A and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 3.
- ⁴ Drilling Fluid Sediment Toxicity Ratio = 4-day LC₅₀ of C₁₆ – C₁₈ internal olefin drilling fluid divided by 4-day LC₅₀ of drilling fluid removed from drill cuttings at the solids control equipment as determined by EPA Method 1644: “Method for Conducting a Sediment Toxicity Test with *Leptocheirus plumulosus* and Non-Aqueous Drilling Fluids or Synthetic-Based Drilling Muds” after sediment preparation procedures specified in EPA Method 1646 which are established in Appendix 3 (EPA Method 1646) and Appendix 8 (EPA Method 1644) of 40 CFR Part 435, Subpart A, and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 4 (EPA Method 1646) and Section 10 (EPA Method 1644).
- ⁵ Sampling shall be conducted on the drilling fluids removed from cuttings at the solids waste control equipment. The once/month

monitoring frequency is applicable to drilling fluids which meet the stock limitations for a $C_{16} - C_{18}$ internal olefin. For drilling fluids which meet stock limitations for $C_{12} - C_{14}$ ester or C_8 ester, monitoring shall be performed at least once per well at the end of drilling.

- 6 As determined before drilling fluids are shipped offshore by the GC/MS compliance assurance method (EPA Method 1655), and as determined prior to discharge by the RPE method (EPA Method 1670) applied to drilling fluid removed from drill cuttings. If the operator wishes to confirm the results of the RPE method (EPA Method 1670), the operator may use the GC/MS compliance assurance method (EPA Method 1655). Results from the GC/MS compliance assurance method (EPA Method 1655) shall supersede the results of the RPE method (EPA Method 1670). EPA Methods 1655 and 1670 are established in Appendix 5 (EPA Method 1655) and Appendix 6 (EPA Method 1670) of 40 CFR Part 435, Subpart A, and "Analytical Methods for the Oil and Gas Extraction Point Source Category", EPA-821-R-11-004, December 2011, Section 6 (EPA Method 1655) and Section 7 (EPA Method 1670).
- 7 Once per week monitoring frequency on the drilling fluid applies during drilling operations. Additionally, monitoring is required once prior to drilling operations.
- 8 For NAFs that meet the stock limitations ($C_{16} - C_{18}$ internal olefin), the maximum weighted mass ratio (NAF base fluid divided by wet drill cuttings) averaged over all NAF well sections. Ratio is grams of non-aqueous base fluid divided by 100 grams of wet drill cuttings. Maximum permissible retention of non-aqueous drilling fluid (NAF) base fluid on wet drill cuttings averaged over drilling intervals using NAFs as determined by EPA Method 1674, which is established in Appendix 7 of 40 CFR Part 435, Subpart A and "Analytical Methods for the Oil and Gas Extraction Point Source Category", EPA-821-R-11-004, December 2011, Section 8. This limitation is applicable for NAF base fluids that meet the base fluid sediment toxicity ratio (see footnote 4 above), biodegradation rate ratio (see footnote 8 in stock limitations table below); and the PAH, mercury, and cadmium stock limitations ($C_{16} - C_{18}$ internal olefin) identified in the stock limitations table below.
- 9 Once per day monitoring frequency applies when generating new drill cuttings. Specific conditions associated with this requirement are established in 40 CFR Part 435, Subpart A, Appendix 7, Addendum A and B.
- 10 For NAFs that meet the $C_{12} - C_{14}$ ester or C_8 ester stock limitations, the maximum weighted mass ratio (NAF base fluid divided by wet drill cuttings) is averaged over all NAF well sections. Ratio is grams of non-aqueous base fluid divided by 100 grams of wet drill cuttings. Maximum permissible retention of NAF base fluid on wet drill cuttings

average over drilling intervals using NAFs as determined by EPA Method 1674, established in Appendix 7 of 40 CFR Part 435, Subpart A, and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 8. This limitation is applicable for NAF base fluids that meet the ester base fluid sediment toxicity ratio and ester biodegradation rate ratio stock limitations, as follows. Ester base fluid sediment toxicity ratio = 10-day LC₅₀ of C₁₂ – C₁₄ ester or C₈ ester divided by 10-day LC₅₀ of stock base fluid as determined by EPA Method 1644: “Method for Conducting a Sediment Toxicity Test with *Leptocheirus plumulosus* and Non-Aqueous Drilling Fluids or Synthetic-Based Drilling Muds” after sediment preparation procedures specified in EPA Method 1646 which are established in Appendix 3 (Method 1646) and Appendix 8 (Method 1644) of 40 CFR Part 435, Subpart A, and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 4 (EPA Method 1646) and Section 10 (EPA Method 1644). Ester Biodegradation Rate Ratio = Cumulative headspace gas production (mL) of C₁₂ – C₁₄ ester or C₈ ester divided by Cumulative headspace gas production (mL) of stock base fluid, both at 275 days as determined by EPA Method 1647 which is established in Appendix 4 of 40 CFR Part 435, Subpart A, and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 5. PAH Mass Ratio, Mercury, and Cadmium stock limitations (C₁₆ - C₁₈ internal olefin) are identified in footnotes above.

(ii) Stock Limitations (C₁₆ – C₁₈ Internal Olefins)

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Mercury ¹	1 mg/kg	N/A	EPA Approved Method ²	Once/well ³
Cadmium ¹	3 mg/kg	N/A	EPA Approved Method ⁴	Once/well ³
PAH ⁵	1.0 x 10 ⁻⁵ ratio	N/A	EPA Approved Method ⁵	Once/year ⁶
Sediment Toxicity ⁷	1.0 ratio	N/A	EPA Approved Method ⁷	Once/year ⁶
Biodegradation Rate ⁸	1.0 ratio	N/A	EPA Approved Method ⁸	Once/year ⁶

- ¹ Dry weight maximum in the stock barite.
- ² Sampling shall be conducted using EPA Method 245.5, Method 7471 A, or more recently EPA approved methods.
- ³ A representative sample of stock barite used once in drilling fluids shall be analyzed and results submitted prior to use in each new well drilled. If more than one well is being drilled at a site, new analyses are not required for subsequent wells, provided that no new supplies of barite have been received since the previous analysis. A new analysis is required when the composition of stock barite is altered from the previous analysis and prior to use. Alternatively, the permittee may provide stock barite analysis provided by the manufacturer/supplier which complies with the sampling methodologies identified above.
- ⁴ Sampling shall be conducted using EPA Method 200.7, Method 200.8, Method 3050 B followed by 6010B or 6020, or more recently EPA approved methods.
- ⁵ PAH Mass Ratio = Mass (grams) of PAH (as phenanthrene) divided by Mass (grams) of stock base fluid as determined by EPA Method 1654, Revision A entitled "PAH Content of Oil by HPLC/UV", December 1992, which is established in "Analytical Methods for the Oil and Gas Extraction Point Source Category", EPA-821-R-11-004, December 2011, Section 9.
- ⁶ Monitoring frequency is on each base fluid blend.
- ⁷ Base Fluid Sediment Toxicity Ratio = 10-day LC₅₀ of C₁₆ - C₁₈ internal olefin divided by 10-day LC₅₀ of stock base fluid as determined by EPA Method 1644: "Method for Conducting a Sediment Toxicity Test with *Leptocheirus plumulosus* and Non-Aqueous Drilling Fluids or Synthetic-Based Drilling Muds" after preparing the sediment according to the procedure specified in EPA Method 1646, which are established in Appendix 8 (EPA Method 1644) and Appendix 3 (EPA Method 1646) of 40 CFR Part 435, Subpart A, and "Analytical Methods for the Oil and Gas Extraction Point Source Category", EPA-821-R-11-004, December 2011, Section 4 (EPA Method 1646) and Section 10 (EPA Method 1644).
- ⁸ Biodegradation Rate Ratio = Cumulative headspace gas production (mL) of C₁₆ - C₁₈ internal olefin divided by cumulative headspace gas production (mL) of stock base fluid, both at 275 days as determined by EPA Method 1647, which is established in Appendix 4 of 40 CFR Part 435, Subpart A, and "Analytical Methods for the Oil and Gas Extraction Point Source Category", EPA-821-R-11-004, December 2011, Section 5.

Section B. General Requirements

1. There shall be no discharge of floating solids or visible foam other than in trace amounts, and no discharge of visible oil.
2. The discharge(s) shall not contain a concentration of taste or odor producing substances that interfere with the production of potable water by conventional water treatment methods, impart unpalatable flavor to food fish including shellfish, result in offensive odors arising from the Gulf of Mexico, or otherwise interfere with designated uses of the Gulf of Mexico.
3. Facilities which generate industrial solid wastes, as defined in 30 TAC § 335.1, shall comply with the provisions of 30 TAC Chapter 335, *Industrial Solid Waste and Municipal Hazardous Waste*. If the requirements of 30 TAC Chapter 335 do not apply, the solid wastes shall be disposed of in accordance with the Texas Health and Safety Code, Chapter 361. Management of industrial solid wastes not under the regulatory jurisdiction of the TCEQ shall be managed in accordance with regulations established by the RRC.
4. The permittee shall take necessary steps to prevent adverse effects to human health, safety, or the environment. The permittee shall immediately cease discharging whenever it is determined that the discharge may endanger human health, safety, or the environment.
5. Disposal of wastes shall be done in such a manner as to prevent nuisance conditions.
6. The permittee shall provide the following noncompliance notifications:
 - a. Any noncompliance that may endanger human health or safety, or the environment shall be reported by the permittee to the TCEQ. Report of such information shall be provided orally, by facsimile (FAX), or by email to the appropriate TCEQ regional office within 24 hours of becoming aware of the noncompliance. A written submission of such information shall also be provided by the permittee to the appropriate TCEQ regional office and the TCEQ Enforcement Division (MC-224) within five working days of becoming aware of the noncompliance. The written report shall contain a description of the noncompliance and its cause; the potential danger to human health or safety, or the environment, the period of noncompliance, including exact dates and times; if the noncompliance has not been

corrected, the anticipated time it is expected to continue; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance and to mitigate its adverse effects.

- b. Any effluent violation that deviates from the permitted effluent or stock limitation by more than 40% shall be reported by the permittee in writing to the appropriate TCEQ regional office and the TCEQ Enforcement Division (MC-224) within five working days of becoming aware of the noncompliance.
 - c. Any noncompliance other than those specified in paragraphs (a) and (b) above, or any required information not submitted or submitted incorrectly, shall be reported to the TCEQ Enforcement Division (MC-224) as promptly as possible. For effluent or stock limitation violations, non-compliances must be reported on the approved Monthly Effluent Report (MER) form.
- 7. Applicants seeking authorization to discharge under this general permit and permittees that are authorized to discharge under this general permit are hereby issued a waiver from the electronic reporting requirements of 40 CFR Part 127 as authority to discharge under this general permit is under state-only authority. Therefore, applicants and permittees may submit NOI, NOT, and NOC forms to TCEQ in paper format. Likewise, electronic reporting requirements for monthly effluent reports (MERs) are not applicable and are required to be submitted in paper format unless TCEQ develops electronic MER submittal conditions.
 - 8. Facilities that generate wastes that are prohibited from discharge under Part III, Section A.1 are required to maintain records of the volumes of these wastes generated and their ultimate disposal location. Records shall be recorded on a monthly basis and shall be maintained on-site or another accessible location for review by TCEQ personnel.
 - 9. There shall be no discharge of halogenated phenolic compounds as part of any waste stream authorized for discharge under the terms and conditions of this general permit.
 - 10. Entities authorized to discharge under this general permit are placed on notice that separate authorization to discharge into the Gulf of Mexico between 3.0 and 10.2 statute miles from the Texas coastline is required from EPA under the NPDES program (via either

authorization under NPDES General Permit No. GMG290000 or an individual NPDES permit). Facilities located in the Gulf of Mexico greater than 10.2 statute miles from the Texas coastline are not eligible for authorization under this state-only general permit and are only required to obtain authorization to discharge from EPA under the NPDES program.

11. Permittees which operate a cooling water intake structure (CWIS) subject to Section 316(b) of the Clean Water Act and 40 CFR Part 125, Subpart N are subject to the requirements established in Appendix A of this general permit.
12. Monitoring requirements for the effluent limitation of no free oil for the discharge of produced wastewater, deck drainage, and contaminated/uncontaminated miscellaneous discharges shall be made when an observation of a visual sheen on the surface of the receiving water is possible in the vicinity of the discharge, and the facility is manned. All other discharges (as well as stock monitoring) must be sampled in accordance with the monitoring frequencies established in Part III, Section A.2 of this general permit, and discharges are prohibited when the facility is unmanned.
13. This general permit does not authorize on-site disposal of sewage sludge, biosolids, or water treatment residuals. The permittee shall ensure that all sewage sludge, biosolids, and water treatment residuals which are not a hazardous waste (as defined in 30 TAC Chapter 335) are handled, transported, and disposed of in compliance with the applicable provisions of 30 TAC Chapter 312. The permittee shall ensure that all sewage sludge, biosolids, and water treatment residuals which are a hazardous waste (as defined in 30 TAC Chapter 335) are handled, transported, and disposed of in compliance with the applicable provisions of 30 TAC Chapter 335. The permittee shall keep records of all sewage sludge, biosolids, and water treatment residuals removed from the facility. Such records will include the following information:
 - a. Volume (dry weight basis) of sewage sludge, biosolids, and water treatment residuals disposed;
 - b. Date of disposal;
 - c. Identity and registration number of hauler/transporter;
 - d. Location and registration or permit number of disposal site; and
 - e. Method of final disposal.

14. Discharges from outfalls that combine multiple waste streams authorized for discharge under Part III, Section A.2 of this general permit are subject to all effluent limitations and associated monitoring requirements for such discharges.
15. The mixing zone for produced wastewater discharges; well treatment, completion, and workover fluids; and contaminated miscellaneous discharges is defined as a volume of water within a radius of 200 feet extending over the receiving water from the point where the discharge enters the Gulf of Mexico. Chronic toxic criteria apply at the edge of the mixing zone.

The zone of initial dilution (ZID) for produced wastewater discharges; well treatment, completion, and workover fluids; and contaminated miscellaneous discharges is defined as a volume of water within a radius of 50 feet extending over the receiving water from the point where the discharge enters the Gulf of Mexico. Acute toxic criteria apply at the edge of the ZID.

16. Adding seawater for the purpose of achieving compliance with whole effluent toxicity (WET) limitations for the discharge of produced wastewater; well treatment, completion, and workover fluids; and contaminated miscellaneous discharges is prohibited.
17. Discharges of domestic waste are subject to U.S. Coast Guard regulations established at 33 CFR Part 151.
18. Hydrate control fluids are authorized for discharge provided they are routed for treatment and discharged with produced wastewater.
19. Permittees which are currently authorized to discharge produced wastewater under NPDES General Permit No. GMG290000 and/or an individual RRC authorization shall comply with the following schedule of activities for the attainment of water quality-based final effluent limitations for total barium, total copper, total manganese, total zinc, 7-day chronic sublethal WET limitations, and 24-hour acute lethal WET limitations at the outfall(s) discharging produced wastewater. Additionally, permittees which are currently authorized to discharge either or both well treatment, completion, and workover fluids; and contaminated miscellaneous discharges under NPDES General Permit Number GMG290000 and/or an individual RRC authorization shall comply with the following schedule of activities for the attainment of water quality-based final effluent limitations for 24-hour acute lethal WET limitations. New permittees are subject to effluent limitations for the discharge

of produced wastewater; well treatment, completion, and workover fluids; and contaminated miscellaneous discharges upon authorization to discharge under the terms and conditions of this general permit:

- a. Determine exceedance cause(s);
- b. Develop control options;
- c. Evaluate and select control mechanisms;
- d. Implement corrective action; and
- e. Attain final effluent limitations no later than three years from the date of acknowledgment to discharge under this general permit.

The permittee shall submit quarterly progress reports in accordance with the following schedule. The requirement to submit quarterly progress reports expires three years from the date of acknowledgment to discharge under this general permit.

PROGRESS REPORT DATE

January 1

April 1

July 1

October 1

The quarterly progress reports must include a discussion of the interim requirements that have been completed at the time of the report and must address the progress towards attaining the water quality-based final effluent limitations for total barium, total copper, total manganese, total zinc, 7-day chronic sublethal WET limitations, and 24-hour acute lethal WET limitations (produced wastewater discharges); and 24-hour acute lethal WET limitations (well treatment, completion, and workover fluids; and contaminated miscellaneous discharges) at the outfall(s) being discharged no later than three years from the date of acknowledgment to discharge under this general permit. Should compliance be obtained, the requirement to submit quarterly progress reports is waived, provided the permittee indicates such compliance in the latest quarterly progress report.

Reports of compliance or noncompliance with, or any progress reports on, interim and final requirements contained in any compliance schedule of this general permit must be submitted no later than 14 days following each schedule date. Any reports of noncompliance shall include the cause of noncompliance, any remedial actions taken, and the probability of meeting the next scheduled requirement.

All reports must be submitted to the appropriate TCEQ Regional Office and to the Compliance Monitoring Team (MC-224).

20. Minimum analytical levels (MALs) for produced wastewater discharges are established for the following parameters. By establishing MALs, TCEQ is not requiring use of a specific analytical test method, nor is TCEQ requiring analytical results to be submitted where the laboratory test was run to achieve the MAL. When an analysis of an effluent sample for a pollutant indicates no detectable levels above the MAL and the test method detection level is as sensitive as the specified MAL, a value of zero shall be used for that measurement. When an analysis of an effluent sample for a pollutant indicates no detectable levels and the test method detection level is not as sensitive as the specified MAL, the level of detection achieved shall be used for that measurement. A zero may not be used.

Pollutant	MAL
Benzene	0.01 mg/L
Total Barium	0.003 mg/L
Total Copper	0.002 mg/L
Total Manganese	0.0005 mg/L
Total Mercury	0.000005 mg/L
Total Nickel	0.002 mg/L
Total Zinc	0.005 mg/L

21. Discharges of produced wastewater are granted an exemption for compliance with hazardous metals effluent limitations established under 30 TAC § 319.23 per 30 TAC § 319.26, except in any case where there is a water quality-based effluent limitation for a metal listed in 30 TAC § 319.23 otherwise imposed in this general permit, in which case such discharges must adhere to the water quality-based effluent limitation.
22. Discharges of produced wastewater are restricted to discharge/outfall configurations of discharge pipe diameter no greater than six inches, and discharge depth to sea floor of no less than five meters.
23. Discharges of non-aqueous based drilling fluids (NAFs) are prohibited from discharge in Part III, Section A.1 in this general permit. Forced or intentional discharges of NAFs collected from drilling operations overboard from drilling rigs or production platforms are subject to this condition. De-minimis discharges of NAFs under the following conditions are not subject to such

prohibitions, however, such NAFs shall be contained to the maximum extent practicable to prevent discharge:

- a. NAFs may be used as a carrier fluid (transport fluid), lubricity additive or pill in water-based drilling fluids and discharged with those drilling fluids provided the discharge meets effluent limitations established in Part III.A.2.h and the pill is removed prior to discharge;
 - b. Wind blown NAFs from the pipe rack;
 - c. Residual NAFs that are adhered to marine risers;
 - d. Diverter systems testing after NAF displacement;
 - e. Blow-out preventers after NAFs displacement; and
 - f. Minor drips and splatters around mud handling and solids control equipment.
24. Discharges of drilling fluids comprised of the following are specifically prohibited by this general permit:
- a. Drilling fluids used for equipment/system test purposes or excess mixed fluids;
 - b. Oil-based drilling fluids and oil-based inverse emulsion drilling fluids;
 - c. Oil contaminated drilling fluids, including, drilling fluids which contain waste engine oil, cooling oil, gear oil, or any lubricants which have been previously used for purposes other than borehole lubrication;
 - d. Diesel oil; and
 - e. Mineral oil, with the exception for use as a carrier fluid (transport fluid), lubricity additive, or pill.
25. The permittee shall maintain a drilling fluids inventory to include a precise chemical inventory of all constituents and their total volume or mass added downhole for each well drilled. Such records shall be provided to the Executive Director upon request.

Part IV. Standard Permit Conditions

1. The permittee has a duty to comply with all conditions in this general permit. Failure to comply with any condition is a violation of the general permit and the statutes under which the general permit was issued. Any violation may be grounds for enforcement action, for terminating authorization under this general permit, or for requiring a permittee to apply for and obtain a TCEQ state-only discharge individual permit.

2. It is not a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted discharge to maintain compliance with conditions of the general permit.
3. The permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) installed or used by the permittee to achieve compliance with conditions of the general permit. Proper operation and maintenance also include adequate laboratory and process controls, and appropriate quality assurance procedures. This provision requires the operation of back-up or auxiliary facilities or similar systems only when necessary to achieve compliance with conditions of the general permit.
4. The permittee shall furnish any information, at the request of the Executive Director that is necessary to determine whether cause exists for revoking, suspending, or terminating authorization under this general permit. The requested information must be provided within a reasonable time frame and in no case later than 30 days from the date of the request.
5. The permittee shall give notice to the Executive Director before physical alterations or additions to the permitted facility if such alterations would result in a violation of the general permit requirements.
6. Inspection and entry shall be allowed under Chapter 26 of the TWC; Texas Health and Safety Code, §§ 361.032 - 361.033 and 361.037; and Title 40 of the Code of Federal Regulations (CFR) § 122.41(i). The statement in TWC, § 26.014 that Commission entry of a regulated entity shall occur in accordance with an establishment's rules and regulations concerning safety, internal security, and fire protection is not grounds for denial or restriction of entry to any part of the regulated entity, but merely describes the Commission's duty to observe appropriate rules and regulations during an inspection.
7. Standard monitoring and reporting requirements are as follows:
 - a. Samples shall be collected, measurements shall be taken, and visual observations shall be made at times and in a manner so as to be representative of the monitored and/or observed discharge. Specific and unique sampling requirements for effluent and stock limitations associated with the discharge of water-based drilling fluids and associated drill cuttings,

and drill cuttings associated with non-aqueous drilling fluids are established in Part III, Section A, Effluent Limitations and Monitoring Requirements.

- b. All samples must be collected according to the latest edition of "Standard Methods for the Examination of Water and Wastewater" (prepared and published jointly by the American Public Health Association, the American Water Works Association, and the Water Environment Federation), or the EPA's, "Methods for Chemical Analysis of Water and Wastes" (1979), or the EPA's, "Biological Field and Laboratory Methods for Measuring the Quality of Surface Waters and Effluents" (1973). The effluent limitations for the observation of free oil, floating solids, and foam are not subject to this condition. Specific and unique sampling requirements for effluent and stock limitations associated with the discharge of water-based drilling fluids and associated drill cuttings, and drill cuttings associated with non-aqueous drilling fluids are established in Part III, Section A, Effluent Limitations and Monitoring Requirements.
- c. Sample containers, holding times, preservation methods, and analytical methods, shall either follow the requirements in 40 CFR Part 136, or the latest edition of "Standard Methods for the Examination of Water and Wastewater". The effluent limitations for the observation of free oil, floating solids, and foam are not subject to this condition. Specific and unique sampling requirements for effluent and stock limitations associated with the discharge of water-based drilling fluids and associated drill cuttings, and drill cuttings associated with non-aqueous drilling fluids are established in Part III, Section A, Effluent Limitations and Monitoring Requirements.
- d. The permittee shall ensure that properly trained and authorized personnel monitor, sample, and as applicable, observe the discharge. Specific and unique sampling requirements for effluent and stock limitations associated with the discharge of water-based drilling fluids and associated drill cuttings, and drill cuttings associated with non-aqueous drilling fluids are established in Part III, Section A, Effluent Limitations and Monitoring Requirements.
- e. The sampling point and observation point (as applicable) must be downstream of any treatment unit or treatment technique that is used to improve or otherwise alter the quality of the discharge. Specific and unique sampling

requirements for effluent and stock limitations associated with the discharge of water-based drilling fluids and associated drill cuttings, and drill cuttings associated with non-aqueous drilling fluids are established in Part III, Section A, Effluent Limitations and Monitoring Requirements.

- f. Analytical results for determining compliance with effluent and stock limitations shall be submitted to the TCEQ Enforcement Division (MC-224) on an approved form established by the Executive Director. Effluent and stock sampling shall be conducted in accordance with the monitoring frequencies specified in this general permit. The Monthly Effluent Report (MER) for any given month shall be due by the 20th day of the following month. The MER for annual testing shall be due by March 31st of the following year. All MERs shall be signed in accordance with the requirements in Part IV.8 of this general permit. If non-compliance with a discharge limitation occurs, the permittee shall provide notification according to Part III.B.6 of this state-only general permit.
- g. All laboratory tests submitted to demonstrate compliance with this general permit must meet the requirements of 30 TAC Chapter 25, *Environmental Testing Laboratory Accreditation and Certification*. The effluent limitations for the observation of free oil, floating solids, and foam, are not subject to this condition. Specific and unique sampling and analytical testing requirements for effluent and stock limitations associated with the discharge of water-based drilling fluids and associated drill cuttings, and drill cuttings associated with non-aqueous drilling fluids are established in Part III, Section A, Effluent Limitations and Monitoring Requirements which may not be subject to these requirements.
- h. Records of monitoring and observation activities shall include:
 - (i) date, time, and place of sample, measurement, or observation;
 - (ii) identity of individual who collected the sample, made the measurement, or made the observation;
 - (iii) date and time of laboratory analysis (the effluent limitations for the observation of free oil, floating solids, and foam are not subject to this condition);

- (iv) identity of the individual and laboratory that performed the analysis (the effluent limitations for the observation of free oil, floating solids, and foam are not subject to this condition);
 - (v) the technique or method of analysis (the effluent limitations for the observation of free oil, floating solids, and foam are not subject to this condition);
 - (vi) the results of the analysis, measurement, or observation; and
 - (vii) quality assurance/quality control records (the effluent limitations for the observation of free oil, floating solids, and foam are not subject to this condition).
 - i. If the permittee monitors any pollutant in a discharge or stock material more frequently than required by the general permit using approved analytical methods as specified in Part IV.7 of this general permit, all results of such monitoring shall be included in the calculation and recording of the values on the MER. Increased frequency of sampling shall be indicated on the MER.
8. All reports, NOIs, NOTs, NOCs, or other information requested by the Executive Director shall meet the requirements of 30 TAC § 305.44, *Signatories to Applications*.
 9. The permittee shall retain copies of all records required by this general permit, including monitoring and observation records and records related to the application or any certification requirements, for a period of three years from the date of the record. This period may be extended at the request of the Executive Director. The records shall be retained at the facility or be readily available for review by TCEQ personnel upon request.
 10. Authorization under this general permit may be suspended or revoked for the reasons stated in 30 TAC § 205.4. Notifying the TCEQ of planned changes or an anticipated noncompliance does not stay any general permit condition.
 11. This general permit does not convey any property rights of any sort, or any exclusive privilege.
 12. If the permittee becomes aware that it failed to submit any relevant facts in an NOI, or submitted incorrect information in an NOI or in any report to the Executive Director, it shall promptly submit such facts or information.

13. The permittee is subject to administrative, civil, and criminal penalties, as applicable, under TWC Chapter 7 for violations including, but not limited to, the following:
 - a. violating CWA §§ 301, 302, 306, 307, 308, 318, or 405, or any condition or limitation implementing any sections in a general permit issued under CWA § 402, or any requirement imposed in a pretreatment program approved under CWA § 402(a)(3) or (b)(8);
 - b. intentionally or knowingly tampering with, modifying, disabling, or failing to use pollution control or monitoring devices, systems, methods, or practices required under this general permit; and
 - c. intentionally or knowingly makes or causes to be made a false material statement, representation, or certification in, or omits or causes to be omitted material information from, an application, notice, record, report, plan, or other document, including monitoring device data, filed or required to be maintained by this general permit.

Part V. Fees

1. NOI fee: An NOI must include a \$800 application fee. A fee is not required for submission of a NOT or NOC.
2. Annual Water Quality Fee: Facilities with an active authorization on September 1 of each year (i.e., have not submitted a NOT prior to this date) will be billed \$100 for the following fiscal year.

Appendix A: Cooling Water Intake Structure (CWIS) Requirements

Section I. Applicability and Limitations on Authorization

A. General Applicability

This appendix applies to OCS Facilities that use or propose to use a CWIS.

B. Specific Applicability

1. A new facility which meets the following criteria is subject to the requirements of this appendix.
 - i. it is a point source that uses or proposes to use a CWIS either directly or indirectly via an independent supplier;
 - ii. it has at least one CWIS that uses at least 25 percent of the water withdrawn on an average monthly basis for cooling purposes; and
 - iii. it has a design intake flow greater than two million gallons per day (MGD).
2. A new facility which does not meet all criteria established under Section I, paragraph B.1 of this appendix or an existing facility is subject to the requirements of this appendix on a best professional judgment (BPJ) basis.

C. Exemptions

Use of water obtained from the following sources is exempted from the requirements of this appendix.

1. An active public water system; or
2. Treated effluent that would have otherwise been discharged into a Water of the U.S.

D. Limitations on Coverage

Facilities with a CWIS shall not be authorized under this general permit where:

1. Threatened or endangered or otherwise protected federal, state, or tribal species, or critical habitat for these species, are present within the hydraulic zone of influence of the CWIS;

2. Migratory and/or sport or commercial species of impingement concern to the Executive Director pass through the hydraulic zone of influence of the CWIS; or
3. The owner or operator of a new facility intends to comply with the Track II requirements established at 40 CFR § 125.134(c).

Section II. Specialized Definitions for Terms Used in this Appendix

Cooling water - Water used for contact or noncontact cooling, including water used for equipment cooling, evaporative cooling tower makeup, and dilution of effluent heat content. The intended use of the cooling water is to absorb waste heat rejected from the process or processes used, or from auxiliary operations on the facility's premises. Cooling water that is used in another industrial process either before or after it is used for cooling is considered process water rather than cooling water for the purposes of calculating the percentage of a new facility's intake flow that is used for cooling purposes in Section I, paragraph B.1.ii of this Appendix.

Fixed facility - A bottom founded facility permanently attached to the seabed or subsoil of waters in the Gulf of Mexico (e.g., platforms, guyed towers, articulated gravity platforms) or a buoyant facility securely and substantially moored so that it cannot be moved without a special effort (e.g., tension leg platforms, permanently moored semi-submersibles) and which is not intended to be moved during the production life of the well. This definition does not include mobile offshore drilling units (MODUs) (e.g., drill ships, temporarily moored semi-submersibles, jack-ups, submersibles, tender-assisted rigs, and drill barges).

Hydraulic zone of influence - That portion of the Gulf of Mexico hydraulically affected by the CWIS withdrawal of water.

New facility - Any building, structure, facility, or installation that: meets the definition of a “new facility” at 40 CFR § 125.83; is regulated by 40 CFR Part 435 Subpart A; and it commenced construction after July 17, 2006.

Sea chest - The underwater compartment or cavity within the facility or vessel hull or pontoon through which sea water is drawn in (for cooling and other purposes) or discharged.

Waters of the United States or Waters of the U.S. - The term as defined in 40 CFR § 120.2.

Other special definitions can be found at 40 CFR §§ 125.83, 125.92 and 125.133.

Section III. CWIS Requirements.

A. Operational Requirements.

Each CWIS utilized by a new or existing facility which is subject to this appendix based on Section I, paragraph B (of this appendix), must meet the following operational requirements to demonstrate compliance with CWA Section 316(b) under this general permit.

1. Design and construction of each CWIS must have a maximum through-screen design intake velocity of 0.5 feet/second.
2. CWISs authorized under this general permit are restricted to being located in the Gulf of Mexico between 3.0 and 10.2 statute miles from the Texas coastline. CWISs located in an estuary or tidal river or within 3.0 statute miles of the Texas coastline are required to be authorized under the TPDES program and subject to additional operating conditions.
3. A new facility which is a fixed facility *without* sea chests must also select and implement design and construction technologies or operational measures for minimizing entrainment of entrainable life stages of fish and shellfish.

B. Monitoring Requirements

A new facility which meets all criteria under Section I, paragraph B.1 of this appendix, must conduct the following monitoring activities for each CWIS to demonstrate compliance with CWA Section 316(b) under this general permit.

1. Biological monitoring. A new facility which is a fixed facility *without* sea chests must monitor for entrainment. The facility must collect samples to monitor entrainment rates (simple enumeration) for each species over a 24-hour period and no less than biweekly during the primary period of reproduction, larval recruitment, and peak abundance identified during the Source Water Baseline Biological Characterization required by Section IV, paragraph D.1 of this appendix below. Sampling must occur only when the CWIS is in operation.
2. Velocity monitoring. If the facility uses a surface intake screen system, it must monitor head loss across the screens and correlate the measured value with the design intake velocity. The head loss across the intake screen must be measured at the minimum ambient source water surface elevation (BPJ based on available hydrological data). The maximum head loss across the

screen for each CWIS must be used to determine compliance with the velocity requirement in Section III, paragraph A.1 of this appendix. If the facility uses devices other than surface intake screens, it must monitor velocity at the point of entry through the device. The facility must monitor head loss or velocity during initial facility startup, and thereafter, at a frequency of no less than once per quarter.

3. Visual or remote inspections. The facility must either conduct visual inspections or employ remote monitoring devices during the period the CWIS is in operation. The facility must conduct visual inspections at least weekly to ensure that any design and construction technologies required in Section III, paragraph A.3 of this appendix are maintained and operated to ensure that they will continue to function as designed. Alternatively, the facility may inspect via remote monitoring devices to ensure that the entrainment technologies are functioning as designed.

C. Record-Keeping Requirements.

1. A new or existing facility which is subject to this appendix based on Section I, paragraph B, must keep records of the following for a period of at least three (3) years from the date of obtaining authorization to discharge under this general permit: all the data used to complete the NOI and show compliance with the requirements, any supplemental information developed under Section IV of this appendix, and any compliance monitoring data submitted under Section III, paragraph B of this appendix.
2. A new facility which meets all criteria under Section I, paragraph B.1 of this appendix, must also provide the following information to the Executive Director in a yearly status report:
 - i. for fixed facilities *without* sea chests, biological monitoring records for each CWIS as required by paragraph B.1 of this section;
 - ii. velocity and head loss monitoring records for each CWIS as required by paragraph B.2 of this section; and
 - iii. records of visual or remote inspections as required in paragraph B.3 of this section.

Section IV. NOI Materials

The facility must submit the following application materials for each CWIS that is used to obtain water for cooling purposes.

A. Applicability. This section applies to:

1. a new facility which meets all criteria under Section I, paragraph B.1 of this appendix and is:
 - i. a fixed facility which employs or will employ sea chests must submit information required by paragraphs B – F in this section;
 - ii. a fixed facility *without* sea chests must submit information required by paragraphs B – G of this section; or
 - iii. an unfixed facility must submit information required by paragraphs C (except C.2), D.2, E, and F of this section.
2. a new facility which does not meet all the criteria under Section I, paragraph B.1 of this appendix, but is not exempt from requirements for CWISs under Section I, paragraph C of this appendix, must submit information required by Section IV, paragraphs C (except C.2, if unfixed), D.2, E, and F of this appendix.
3. an existing facility that is not exempt from requirements for CWISs under Section I, paragraph C of this appendix must submit information required by Section IV, paragraphs C (except C.2, if unfixed), D.2, E, and F of this appendix.

B. Required Information: Source Water Physical Data

The following source water physical data must be provided:

1. A narrative description and scaled drawings showing the physical configuration of the Gulf of Mexico used by the facility, including areal dimensions, depths, salinity and temperature regimes, and other documentation that supports this determination of the Gulf of Mexico where each CWIS is located;
2. Identification and characterization of the Gulf of Mexico's hydrological and geomorphological features, as well as the methods used to conduct any physical studies to determine the

intake's area of influence within the Gulf of Mexico and the results of such studies; and

3. Locational maps to support the descriptions provide in paragraphs B.1 and B.2 of this section.

C. Required Information: CWIS data

1. A narrative description of the configuration of each CWIS and its location in the Gulf of Mexico and in the water column;
2. Latitude and longitude in degrees, minutes, and seconds for each of the CWISs;
3. A narrative description of the operation of each of the CWISs, including design intake flows, daily hours of operation, number of days of the year in operation, and seasonal changes, if applicable;
4. A flow-distribution and water-balance diagram that includes all sources of water to the facility, recirculating flows, and discharges; and
5. Engineering drawings of the CWIS.

D. Required Biological Information

1. Source water baseline biological characterization data. This information is required to characterize the biological community in the vicinity of the CWISs and to characterize the operation of the CWISs. This supporting information must include existing data (if they are available). However, the facility may choose to supplement the data using newly conducted field studies. The information submitted must include:
 - i. a list of the data in paragraphs D.1.ii through v of this section that are not available, and efforts made to identify sources of the data;
 - ii. a list of species (or relevant taxa) for all life stages and their relative abundance in the vicinity of the CWIS;
 - iii. identification of the species and life stages that would be most susceptible to impingement and entrainment. Species evaluated should include the forage base as well as those most important in terms of significance to commercial and recreational fisheries;

- iv. identification and evaluation of the primary period of reproduction, larval recruitment, and period of peak abundance for relevant taxa;
 - v. data representative of the seasonal and daily activities (e.g., feeding and water column migration) of biological organisms in the vicinity of the CWIS;
 - vi. if supplementing the information requested in paragraph D.1.ii through v of this section with data collected using field studies, supporting documentation for the Source Water Baseline Biological Characterization must include a description of all methods and quality assurance procedures for sampling, and data analysis including a description of the study area; taxonomic identification of sampled and evaluated biological assemblages (including all life stages of fish and shellfish); and sampling and data analysis methods. The sampling and/or data analysis methods used must be appropriate for a quantitative survey and based on consideration of methods used in other biological studies performed within the same area in the Gulf of Mexico. The study area should include, at a minimum, the area of influence of the CWIS.
2. Documentation from any fishery management agency(ies) or other relevant information which demonstrates:
- i. there are no threatened or endangered or otherwise protected federal, state, or tribal species, or critical habitat for these species, within the hydraulic zone of influence of the CWIS; and
 - ii. there are no migratory and/or sport or commercial species of impingement concern to the Executive Director that pass through the hydraulic zone of influence of the CWIS.

E. Required Velocity Information.

Submit the following information to the Executive Director to demonstrate the facility is complying with the requirement at Section III, paragraph A.1 of this appendix to meet a maximum through-screen design intake velocity of no more than 0.5 feet per second at each CWIS:

- 1. a narrative description of the design, structure, equipment, and operation used to meet the velocity requirement; and

2. design calculations showing that the velocity requirement will be met at minimum ambient Gulf of Mexico surface elevations (based on BPJ using available hydrological data) and maximum head loss across the screens or other device.

F. Required Design and Construction Technology Plan.

To demonstrate compliance with Section III, paragraph A.3 of this appendix if applicable, the facility must submit to the Executive Director the following information in a Design and Construction Technology Plan:

1. A narrative description of the design and operation of the design and construction technologies that you will use to minimize entrainment of those species expected to be the most susceptible to entrainment. Provide species-specific information that demonstrates the efficacy of the technology; and
2. Design calculations, drawings, and estimates to support the descriptions provided in paragraph 1 of this subsection.

Appendix B: 7-Day Chronic Marine WET Testing Requirements**CHRONIC BIOMONITORING REQUIREMENTS: MARINE**

The provisions of this Appendix apply to the outfall being tested for whole effluent toxicity (WET) testing.

1. **Scope, Frequency and Methodology**

- a. The permittee shall test the effluent for toxicity in accordance with the provisions below. Such testing will determine if an appropriately dilute effluent sample adversely affects the survival or growth of the test organisms.
- b. The permittee shall conduct the following toxicity tests using the test organisms, procedures, and quality assurance requirements specified below and in accordance with “Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms,” third edition (EPA-821-R-02-014) or its most recent update:
 - 1) Chronic static renewal 7-day survival and growth test using the mysid shrimp (*Americamysis bahia*) (Method 1007.0). A minimum of eight replicates with five organisms per replicate shall be used in the control and in each dilution. This test shall be conducted once per quarter.
 - 2) Chronic static renewal 7-day larval survival and growth test using the inland silverside (*Menidia beryllina*) (Method 1006.0). A minimum of five replicates with eight organisms per replicate shall be used in the control and in each dilution. This test shall be conducted once per quarter.

The permittee must perform and report a valid test for each test species during the prescribed reporting period. An invalid test must be repeated during the same reporting period. An invalid test is defined as any test failing to satisfy the test acceptability criteria, procedures, and quality assurance requirements specified in the test methods and general permit.

- c. The permittee shall use five effluent dilution concentrations and a control in each toxicity test. These effluent dilution

concentrations are 0.8%, 1.3%, 1.5%, 2.1%, and 2.7% effluent. The critical dilution, defined as 2.1% effluent, is the effluent concentration representative of the proportion of effluent in the Gulf of Mexico during critical mixing conditions.

- d. The sublethal NOEC effluent limitation of not less than 2.1% is effective for both test species (see Part III, Section A.2.a of the general permit). Compliance schedules for existing discharges is established in Part III, Section B.19.
- e. Should a test demonstrate significant toxicity (that is, there is a statistically significant difference in survival or growth at the critical dilution when compared to the survival or growth in the control), the testing frequency for that test species increases to monthly until three consecutive tests pass (do not demonstrate statistically significant toxicity), at which time the testing frequency of once per quarter resumes. A Notice of Change (NOC) as established in Part II, Section C.4 of the general permit is required to be submitted upon a demonstration of significant toxicity that requires an increase in monitoring frequency. Additionally, upon three consecutive tests passing, an NOC is required to be submitted to revert to the once per quarter monitoring frequency.
 - 1) If none of the first four consecutive quarterly tests demonstrates significant toxicity, the permittee may submit this information to the Standards Implementation Team (MC-150) and, upon approval, reduce the testing frequency to once per six months for the invertebrate test species and once per year for the vertebrate test species. A request for a monitoring frequency reduction shall be submitted in an NOC as established in Part II, Section C.4 of the general permit. The NOC shall include written correspondence from the Standards Implementation Team supporting the reduction in monitoring frequency.
 - 2) If one or more of the first four consecutive quarterly tests demonstrates significant toxicity, the permittee shall continue quarterly testing for that species until this general permit is reissued. If a testing frequency reduction had been previously granted and a subsequent test demonstrates significant toxicity, the permittee will resume a quarterly testing frequency for that species until this general permit is reissued.

2. Required Toxicity Testing Conditions

- a. Test Acceptance - The permittee shall repeat any toxicity test, including the control and all effluent dilutions, which fails to meet any of the following criteria:
 - 1) a control mean survival of 80% or greater;
 - 2) a control mean dry weight of surviving mysid shrimp of 0.20 mg or greater;
 - 3) a control mean dry weight for surviving unpreserved inland silverside of 0.50 mg or greater and 0.43 mg or greater for surviving preserved inland silverside.
 - 4) a control coefficient of variation percent (CV%) between replicates of 40 or less in the growth and survival tests;
 - 5) a critical dilution CV% of 40 or less in the growth and survival endpoints for either growth or survival test. However, if statistically significant lethal or nonlethal effects are exhibited at the critical dilution, a CV% greater than 40 shall not invalidate the test;
 - 6) a percent minimum significant difference of 37 or less for mysid shrimp growth; and
 - 7) a percent minimum significant difference of 28 or less for inland silverside growth.
- b. Statistical Interpretation
 - 1) For the mysid shrimp and the inland silverside larval survival and growth tests, the statistical analyses used to determine if there is a significant difference between the control and an effluent dilution shall be in accordance with the manual referenced in Part 1.b of this Appendix.
 - 2) The permittee is responsible for reviewing test concentration-response relationships to ensure that calculated test-results are interpreted and reported correctly. The document entitled "Method Guidance and Recommendation for Whole Effluent Toxicity (WET) Testing (40 CFR Part 136)" (EPA 821-B-00-004)

provides guidance on determining the validity of test results.

- 3) If significant lethality is demonstrated (that is, there is a statistically significant difference in survival at the critical dilution when compared to the survival in the control), the conditions of test acceptability are met, and the survival of the test organisms are equal to or greater than 80% in the critical dilution and all dilutions below that, then the permittee shall report a survival No Observed Effect Concentration (NOEC) of not less than the critical dilution for the reporting requirements.
- 4) The NOEC is defined as the greatest effluent dilution at which no significant effect is demonstrated. The Lowest Observed Effect Concentration (LOEC) is defined as the lowest effluent dilution at which a significant effect is demonstrated. A significant effect is herein defined as a statistically significant difference between the survival, reproduction, or growth of the test organism in a specified effluent dilution compared to the survival, reproduction, or growth of the test organism in the control (0% effluent).
- 5) The use of NOECs and LOECs assumes either a monotonic (continuous) concentration-response relationship or a threshold model of the concentration-response relationship. For any test result that demonstrates a non-monotonic (non-continuous) response, the NOEC should be determined based on the guidance manual referenced in Item 2 of this Appendix.

c. Dilution Water

- 1) Dilution water used in the toxicity tests shall be standard, synthetic reconstituted seawater.
- 2) Upon approval, the permittee may substitute other dilution water with chemical and physical characteristics similar to that of the Gulf of Mexico.

d. Samples

- 1) The permittee shall collect a minimum of three grab samples from the outfall being tested. The second and

third grab samples will be used for the renewal of the dilution concentrations for each toxicity test.

- 2) The permittee shall collect the grab samples such that the samples are representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance being discharged on an intermittent basis.
- 3) The permittee shall initiate the toxicity tests within 36 hours after collection of the first grab sample. The holding time for any subsequent grab sample shall not exceed 72 hours. Samples shall be maintained at a temperature of 0-6 degrees Centigrade during collection, shipping, and storage.
- 4) If the outfall being tested ceases discharging during the collection of effluent samples, the requirements for the minimum number of effluent samples, and the sample holding time are waived during that sampling period. However, the permittee must have collected an effluent grab sample volume sufficient to complete the required toxicity tests with renewal of the effluent. The sample collection duration and the static renewal protocol associated with the abbreviated sample collection must be documented in the full report.

3. Reporting

- a. The permittee shall prepare a full report of the results of all tests conducted in accordance with the manual referenced in Part 1.b. of this Appendix for every test initiated.
- b. The permittee shall routinely report the results of each biomonitoring test in the Table 1 format of this Appendix to the Standards Implementation Team (MC-150).
- c. Enter the following codes for the appropriate parameters for valid tests only:
 - 1) For the mysid shrimp, Parameter TLP3E, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
 - 2) For the mysid shrimp, Parameter TOP3E, report the NOEC for survival.

- 3) For the mysid shrimp, Parameter TXP3E, report the LOEC for survival.
 - 4) For the mysid shrimp, Parameter TWP3E, enter a "1" if the NOEC for growth is less than the critical dilution; otherwise, enter a "0."
 - 5) For the mysid shrimp, Parameter TPP3E, report the NOEC for growth.
 - 6) For the mysid shrimp, Parameter TYP3E, report the LOEC for growth.
 - 7) For the inland silverside, Parameter TLP6J, enter a "1" if the NOEC for survival is less than the critical dilution; otherwise, enter a "0."
 - 8) For the inland silverside, Parameter TOP6J, report the NOEC for survival.
 - 9) For the inland silverside, Parameter TXP6J, report the LOEC for survival.
 - 10) For the inland silverside, Parameter TWP6J, enter a "1" if the NOEC for growth is less than the critical dilution; otherwise, enter a "0."
 - 11) For the inland silverside, Parameter TPP6J, report the NOEC for growth.
 - 12) For the inland silverside, Parameter TYP6J, report the LOEC for growth.
- d. The permittee shall report the sublethal WET values for the 30-day average and the 7-day minimum under Parameter No. 51712 for the inland silverside and Parameter No. 51713 for the mysid shrimp. If more than one valid test was performed during the reporting period, the NOECs will be averaged arithmetically and reported as the daily average NOEC. The data submitted should reflect the lowest sublethal results during the reporting period.

TABLE 1 (SHEET 1 OF 4)

MYSID SHRIMP SURVIVAL AND GROWTH

Date Time Date Time

Dates and Times No. 1 FROM: _____ TO: _____

Samples Collected No. 2 FROM: _____ TO: _____

No. 3 FROM: _____ TO: _____

Test initiated: _____am/pm _____date

Dilution water used: _____ Synthetic dilution water _____ Other (approved)

MYSID SHRIMP SURVIVAL

Percent Survival in Replicate Chambers

Percent Effluent	A	B	C	D	E	F	G	H	CV%*
0%									
0.8%									
1.3%									
1.5%									
2.1%									
2.7%									

Mean Percent Survival

Percent Effluent	24h	48h	7 day	CV% ¹
0%				
0.8%				
1.3%				
1.5%				
2.1%				
2.7%				

¹ Coefficient of Variation = standard deviation x 100/mean

DATA TABLE FOR GROWTH OF MYSID SHRIMP

Mean dry weight in milligrams in replicate chambers

Replicate	0%	0.8%	1.3%	1.5%	2.1%	2.7%
A						
B						
C						
D						
E						

TABLE 1 (SHEET 2 OF 4)

MYSID SHRIMP SURVIVAL AND GROWTH

DATA TABLE FOR GROWTH OF MYSID SHRIMP (Continued)

Mean dry weight in milligrams in replicate chambers

Replicate	0%	0.8%	1.3%	1.5%	2.1%	2.7%
F						
G						
H						
Mean Dry Weight (mg)						
CV%*						
PMSD						

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean survival at 7 days significantly less than the control survival for the % effluent corresponding to lethality?

CRITICAL DILUTION (2.1%): _____ YES _____ NO

2. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean dry weight (growth) at 7 days significantly less than the control's dry weight (growth) for the % effluent corresponding to non-lethal effects?

CRITICAL DILUTION (2.1%): _____ YES _____ NO

3. Enter percent effluent corresponding to each NOEC\LOEC below:

a.) NOEC survival = _____% effluent

b.) LOEC survival = _____% effluent

c.) NOEC growth = _____% effluent

d.) LOEC growth = _____% effluent

TABLE 1 (SHEET 3 OF 4)

INLAND SILVERSIDE MINNOW LARVAL SURVIVAL AND GROWTH TEST

Date Time Date Time

Dates and Times No. 1 FROM: _____ TO: _____

Samples Collected No. 2 FROM: _____ TO: _____

No. 3 FROM: _____ TO: _____

Test initiated: _____am/pm _____date

Dilution water used: _____ Synthetic dilution water _____ Other (approved)

INLAND SILVERSIDE SURVIVAL

Percent Survival in Replicate Chambers

Percent Effluent	A	B	C	D	E	F	G	H	CV%*
0%									
0.8%									
1.3%									
1.5%									
2.1%									
2.7%									

Mean Percent Survival

Percent Effluent	24h	48h	7 day	CV% ¹
0%				
0.8%				
1.3%				
1.5%				
2.1%				
2.7%				

¹ Coefficient of Variation = standard deviation x 100/mean

TABLE 1 (SHEET 4 OF 4)

INLAND SILVERSIDE LARVAL SURVIVAL AND GROWTH TEST

INLAND SILVERSIDE GROWTH

Average Dry Weight in milligrams in replicate

Percent Effluent	A	B	C	D	E	Mean Dry Weight (mg)	CV% ¹
0%							
0.8%							
1.3%							
1.5%							
2.1%							
2.7%							
PMSD							

¹ Weights are for: ___ preserved larvae, or ___ unpreserved larvae

1. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean survival at 7 days significantly less than the control survival for the % effluent corresponding to lethality?

CRITICAL DILUTION (2.1%): _____ YES _____ NO

2. Dunnett's Procedure or Steel's Many-One Rank Test or Wilcoxon Rank Sum Test (with Bonferroni adjustment) or t-test (with Bonferroni adjustment) as appropriate:

Is the mean dry weight (growth) at 7 days significantly less than the control's dry weight (growth) for the % effluent corresponding to non-lethal effects?

CRITICAL DILUTION (2.1%): _____ YES _____ NO

3. Enter percent effluent corresponding to each NOEC/LOEC below:

a.) NOEC survival = _____% effluent

b.) LOEC survival = _____% effluent

- c.) NOEC growth = _____% effluent
- d.) LOEC growth = _____% effluent

Appendix C: 24-Hour Acute Marine WET Testing Requirements

24-HOUR ACUTE BIOMONITORING REQUIREMENTS: MARINE

The provisions of this section apply to the outfall being tested for whole effluent toxicity (WET) testing.

1. Scope, Frequency, and Methodology

- a. The permittee shall test the effluent for lethality in accordance with the provisions in this Appendix. Such testing will determine compliance with *Texas Surface Water Quality Standards* 30 TAC § 307.6(e)(2)(B), which requires greater than 50% survival of the appropriate test organisms in 100% effluent for a 24-hour period.

The permittee may be exempted from complying with 30 TAC § 307.6(e)(2)(B) upon proving that toxicity is caused by an excess, imbalance, or deficiency of dissolved salts. This exemption excludes instances where individually toxic components (e.g., metals) form a salt compound. To obtain this exemption, a permittee is required to submit an individual permit application and obtain an individual TCEQ state-only discharge permit allowing an ion-adjustment protocol, alternate species testing, or single species testing.

- b. The toxicity tests specified shall be conducted once per six months. The permittee shall conduct the following toxicity tests using the test organisms, procedures, and quality assurance requirements specified in this Appendix of the general permit and in accordance with “Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms,” fifth edition (EPA-821-R-02-012) or its most recent update:
 - 1) Acute 24-hour static toxicity test using the mysid shrimp (*Americamysis bahia*). A minimum of five replicates with eight organisms per replicate shall be used in the control and each dilution.
 - 2) Acute 24-hour static toxicity test using the inland silverside (*Menidia beryllina*). A minimum of five replicates with eight organisms per replicate shall be used in the control and each dilution.

The permittee must perform and report a valid test for each test species during the prescribed reporting period. An

invalid test must be repeated during the same reporting period. An invalid test is defined as any test failing to satisfy the test acceptability criteria, procedures, and quality assurance requirements specified in the test methods and general permit.

- c. In addition to an appropriate control, a 100% effluent concentration shall be used in the toxicity tests. The control shall consist of standard, synthetic, reconstituted seawater.
- d. The WET limits of greater than 50% survival in 100% effluent (LC50 of greater than 100%) after 24-hours are effective for both test species (see Part III, Section A.2.a of the general permit). Compliance schedules for existing discharges is established in Part III, Section B.19.
- e. If a test fails to meet an LC50 of greater than 100%, the testing frequency for that test species will increase to monthly until such time compliance with the WET limit is demonstrated for three consecutive months, at which time the permittee may return to the semi-annual testing frequency. A Notice of Change (NOC) as established in Part II, Section C.4 of the general permit is required to be submitted upon a demonstration of lethality that requires an increase in monitoring frequency. Additionally, upon three consecutive tests passing, an NOC is required to be submitted to revert to the semi-annual monitoring frequency.

2. Required Toxicity Testing Conditions

- a. Test Acceptance - The permittee shall repeat any toxicity test, including the control, if the control fails to meet a mean survival equal to or greater than 90%.
- b. Samples
 - 1) The permittee shall collect one grab sample from the outfall being tested.
 - 2) The permittee shall collect the grab sample such that the sample is representative of any periodic episode of chlorination, biocide usage, or other potentially toxic substance being discharged on an intermittent basis.
 - 3) The permittee shall initiate the toxicity tests within 36 hours after collection of the grab sample. The sample

shall be maintained at a temperature of 0-6 degrees Centigrade during collection, shipping, and storage.

3. Reporting

- a. The permittee shall prepare a full report of the results of all tests conducted in accordance with the manual referenced in Part 1.b. of this Appendix for every test initiated.
- b. The permittee shall routinely report the results of each biomonitoring test in the Table 3 format of this Appendix to the Standards Implementation Team (MC-150).
- c. Enter the following codes for the appropriate parameters for valid tests only:
 - 1) For the mysid shrimp, Parameter TIE3E, enter a "0" if the mean survival at 24-hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."
 - 2) For the inland silverside, Parameter TIE6J, enter a "0" if the mean survival at 24-hours is greater than 50% in the 100% effluent dilution; if the mean survival is less than or equal to 50%, enter a "1."
- d. The permittee shall report the LC50 WET values for the 30-day average and the 7-day minimum under Parameter No. 51712 for the inland silverside and Parameter No. 51713 for the mysid shrimp. If more than one valid test was performed during the reporting period, the LC50s will be averaged arithmetically and reported as the daily average LC50. The data submitted should reflect the lowest LC50 results during the reporting period.

TABLE 2 (SHEET 1 OF 2)

MYSID SHRIMP SURVIVAL

GENERAL INFORMATION

	Time	Date
Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Percent	effluent	0%	6%	13%	25%	50%	100%
Time	Rep						
24h	A						
	B						
	C						
	D						
	E						
	MEAN						

Enter percent effluent corresponding to the LC50 below:

24 hour LC50 = _____% effluent

TABLE 2 (SHEET 2 OF 2)
INLAND SILVERSIDE SURVIVAL

	Time	Date
Sample Collected		
Test Initiated		

PERCENT SURVIVAL

Percent	effluent	0%	6%	13%	25%	50%	100%
Time	Rep						
24h	A						
	B						
	C						
	D						
	E						
	MEAN						

Enter percent effluent corresponding to the LC50 below:

24 hour LC50 = _____% effluent

FACT SHEET AND EXECUTIVE DIRECTOR'S FINAL DECISION

For proposed Texas Commission on Environmental Quality (TCEQ) state-only General Permit No. WQG280000 to discharge wastes associated with oil and gas extraction activities into the Gulf of Mexico (between 3.0 and 10.2 statute miles from the Texas coastline).

Issuing Office: Texas Commission on Environmental Quality
P.O. Box 13087
Austin, TX 78711-3087

Prepared By: Chris Linendoll, E.I.T.
Wastewater Permitting Section
Water Quality Division

Date: August 2023

Permit Action: New General Permit to provide state-only authorization to discharge into the Gulf of Mexico (between 3.0 and 10.2 statute miles from the Texas coastline) which is separate to authorization to discharge into the Gulf of Mexico required under U.S. Environmental Protection Agency (EPA) National Pollutant Discharge Elimination System (NPDES) General Permit No. GMG290000 or an individual NPDES permit.

Table of Contents

I. Summary.....	2
II. Executive Director's Recommendation.....	2
III. Permit Applicability	3
IV. Permit Effluent Limitations and Monitoring Requirements	5
V. Changes from Existing EPA NPDES General Permit No. GMG290000 and Individual RRC Discharge Authorizations.....	14
VI. Addresses.....	14
VII. Legal Basis.....	15
VIII. Regulatory Background.....	16
IX. Permit Coverage.....	16
X. Technology-Based Requirements.....	17
XI. Water Quality-Based Requirements.....	29
XIII. Monitoring and Reporting	50
XIV. Procedures for Final Decision.....	52
XV. Administrative Record	53
Appendix A: Water Quality-Based Effluent Limitations Calculations – Well Treatment, Completion, and Workover Fluids	57
Appendix B: Water Quality-Based Effluent Limitations Calculations – Produced Wastewater Discharges.....	64
Appendix C: Water Quality-Based Effluent Limitations Calculations – Produced Wastewater Discharges (Barium and Manganese)	71

Appendix D: Saltwater pH screening - Produced Wastewater Discharges.....	72
Appendix E: Water Thermal Evaluation Sheet	73

I. Summary

The Texas Commission on Environmental Quality (TCEQ or Commission) is proposing to issue a new state-only discharge general permit under state-only authority [and not under the Texas Pollutant Discharge Elimination System (TPDES) program] authorizing discharges associated with oil and gas extraction activities into the Gulf of Mexico located between 3.0 and 10.2 statute miles from the Texas coastline, and the application of cooling water intake structure (CWIS) requirements. This state-only discharge general permit will replace the need for oil and gas extraction activities located in the Outer Continental Shelf (OCS), i.e., facilities located greater than three miles from the Texas coastline, to obtain individual discharge permits from the Railroad Commission of Texas (RRC). This state-only discharge general permit is proposing to authorize discharges from OCS oil and gas extraction activities. OCS Facilities under TCEQ jurisdiction are oil and gas extraction operations located in the Gulf of Mexico, located between 3.0 and 10.2 statute miles from the Texas coastline. TCEQ does not have the authority to issue TPDES permits greater than three statute miles from the Texas coastline and separate NPDES authorization is required to be obtained from OCS Facilities to discharge into the Gulf of Mexico beyond three statute miles from the Texas coastline from EPA. OCS Facilities located in the Gulf of Mexico greater than 10.2 statute miles from the Texas coastline are only required to obtain authorization to discharge from EPA under the NPDES program, as the State of Texas does not have authority to regulate these discharges. The state-only discharge general permit proposes to authorize discharges of various waste streams described below from OCS Facilities. The state-only discharge general permit also proposes to establish specific prohibitions for the discharge of various waste streams from OCS Facilities proposed for authorization under the state-only discharge general permit; and proposes to establish CWIS operational requirements required under Section 316b of the Clean Water Act (CWA). See discussion in subsequent sections of this fact sheet related to TCEQ applying CWA and NPDES requirements to this state-only discharge general permit.

The purpose of the development of this new state-only discharge general permit is the implementation of House Bill 2771, 86th Legislative Session which transfers permitting authority for discharges of certain waste streams (including discharges from oil and gas extraction activities located in the OCS in Texas) from crude oil and natural gas facilities into water in the state from the RRC to TCEQ. All discharges associated with oil and gas extraction activities adjacent to water in the state (i.e., land application) and other activities not associated with discharge into the Gulf of Mexico remains under the jurisdiction of the RRC. This state-only discharge general permit is for state-only authorization and not subject to EPA oversight under the conditions established for the TPDES program.

II. Executive Director's Recommendation

The Executive Director has made a preliminary decision that this state-only discharge general permit, if issued, meets all statutory and regulatory requirements. It is

proposed that the state-only discharge general permit will expire five years from the effective date.

III. Permit Applicability

This state-only discharge general permit authorizes the discharge of various waste streams described below from OCS Facilities. The state-only discharge general permit also establishes specific prohibitions for the discharge of various waste streams from OCS Facilities proposed for authorization under the state-only discharge general permit; and establishes CWIS operational requirements required under Section 316b of the CWA.

- A. The state-only discharge general permit specifies which facilities may be authorized under this state-only discharge general permit, those that must be authorized by an individual TCEQ state-only discharge permit, and those that are not authorized to discharge under TCEQ regulatory authority.
- B. The following discharges are not eligible for state-only discharge general permit coverage:
 - 1. discharges associated with OCS Facilities adjacent to water in the state (e.g., land application) that are regulated by the RRC, which includes onshore transport of waste streams generated from OCS Facilities disposed of by land application;
 - 2. new sources or new discharges [as defined in 40 CFR § 122.2, 40 CFR § 435.11(w), and 40 CFR § 435.41(x)] of the constituent(s) of concern to impaired areas of the Gulf of Mexico are not authorized by this state-only discharge general permit unless otherwise allowable under 30 TAC Chapter 305, *Consolidated Permits*, and applicable state law. Impaired areas of the Gulf of Mexico are those that do not meet applicable water quality standard(s) and are listed as category 4 or 5 in the current version of the Texas Integrated Report of Surface Water Quality on the CWA, § 303(d) list. Constituents of concern are those for which areas of the Gulf of Mexico are listed as impaired. As a note, the Water Quality Assessment Section interoffice memorandum regarding the dissolved oxygen modeling assessment for discharges of produced wastewater to the Outer Continental Shelf identified the Gulf of Mexico being impaired for mercury. Available data to TCEQ indicates non-detect values for mercury for existing territorial seas produced wastewater discharges (including discharges to the Outer Continental Shelf). Several samples submitted historically to RRC do not meet current TCEQ minimum analytical levels (MALs) thus a monitoring and reporting requirement for total mercury is proposed in the state-only discharge general permit for discharges of produced wastewater;
 - 3. discharges of the constituent(s) of concern to impaired areas of the Gulf of Mexico for which there is a total maximum daily load (TMDL) implementation plan are not eligible for this state-only discharge general permit unless they are consistent with the approved TMDL and the implementation plan. The Executive Director may amend this state-only discharge general permit for discharges to the Gulf of Mexico. For

- discharges not eligible for coverage under this state-only discharge general permit, the discharger must apply for and receive an individual TCEQ state-only discharge permit prior to discharging;
4. discharges that would adversely affect a listed endangered or threatened species or its critical habitat are not authorized by this state-only discharge general permit. Federal requirements related to endangered species which are being applied to this state-only discharge general permit, and site-specific controls may be required to ensure the protection of endangered or threatened species is achieved;
 5. discharges from oil and gas extraction facilities other than those defined in 40 CFR Part 435, Subpart A (Offshore Subcategory) located between 3.0 and 10.2 statute miles from the Texas coastline and which discharge into the Gulf of Mexico. Furthermore, this state-only discharge general permit does not authorize wastes generated from oil and gas extraction facilities as described above from being transported and discharged to water in the state located within 3.0 statute miles of the Texas coastline or at any onshore location. Discharges beyond 10.2 statute miles from the Texas coastline do not require authorization from the State of Texas and are regulated solely by EPA;
 6. discharge of hydrostatic test water. OCS Facilities seeking to discharge hydrostatic test water into the Gulf of Mexico have the option of obtaining coverage under TPDES General Permit No. TXG670000 or obtaining an individual TCEQ state-only discharge permit. Such hydrostatic test water discharges from OCS Facilities authorized under TPDES General Permit No. TXG670000 are under state-only authority and not under the TPDES program and EPA oversight;
 7. activities associated with OCS Facilities which are not associated with discharges into the Gulf of Mexico as described above are regulated by the RRC. Such activities include, but are not limited to drilling new wells, plugging and abandoning existing wells, blowout prevention control, spill prevention, surface coatings and preparation, and other activities not associated with discharges into the Gulf of Mexico;
 8. discharges into Areas of Biological Concern, including marine sanctuaries and live bottom areas;
 9. discharges of radiological substances or materials in excess of the amount regulated by 30 TAC Chapter 336 as required by 30 TAC § 307.4(c);
 10. discharge of waste streams generated at a location where that waste stream is prohibited from discharge to waters in the U.S. from a location where that waste stream is authorized for discharge to waters in the U.S., as established in 40 CFR Part 435, Subpart G (one example of what is not authorized is produced wastewater generated at a Coastal Facility, where produced wastewater is prohibited from discharge being transported and discharged from an OCS Facility where such discharge is authorized);

11. discharges from operations defined as Centralized Waste Treatment (CWT) facilities as established in 40 CFR Part 437; and
 12. discharge of halogenated phenolic compounds as part of any waste stream authorized for discharge.
- C. Facilities that dispose of various waste streams described below from OCS Facilities by any of the following practices are not required to obtain coverage under this state-only discharge general permit nor an individual TCEQ discharge permit:
1. recycling of these waste streams with no resulting discharge into the Gulf of Mexico, including reuse of waste streams in industrial processes, hydraulic fracturing, etc.;
 2. pumping and hauling or otherwise transporting of these waste streams to an authorized disposal facility;
 3. discharge of these waste streams to a publicly owned treatment works (POTW), provided POTW's are authorized to receive such waste streams;
 4. underground injection of these waste streams in accordance with 30 TAC Chapter 331, *Underground Injection Control*; or if alternatively regulated for underground injection by RRC;
 5. discharge of these waste streams to above ground storage tanks with no resulting discharge into the Gulf of Mexico.

IV. Permit Effluent Limitations and Monitoring Requirements

- A. Discharges into the Gulf of Mexico from OCS Facilities are authorized in the draft state-only discharge general permit and subject to the following effluent limitations and monitoring requirements (and stock limitations and monitoring requirements): Effluent limitations are established at the point of discharge into the Gulf of Mexico. Stock limitations are established to materials utilized in drilling operations.

1. Produced Wastewater and Hydrate Control Fluids

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Flow	Report, MGD	0.252 MGD	Estimate	Once/day
Free Oil ¹	No discharge	N/A	Observation	Once/day
Oil & Grease	42 mg/L	29 mg/L	Grab	Once/month
Carbonaceous Biochemical Oxygen Demand (5-day)	N/A	1144 mg/L	Grab	Once/month
Ammonia (as N)	N/A	112/ mg/L	Grab	Once/month
Temperature	145 °F	N/A	In-Situ	Once/quarter
Total Dissolved Solids	Report mg/L	N/A	Grab	Once/quarter

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Total Barium	2258 mg/L	1068 mg/L	Grab	Once/month
Benzene	Report mg/L	N/A	Grab	Once/month
Total Copper	0.194 mg/L	0.092 mg/L	Grab	Once/month
Total Manganese	18.1 mg/L	8.54 mg/L	Grab	Once/month
Total Mercury	Report, mg/L	N/A	Grab	Once/month
Total Nickel	Report, mg/L	N/A	Grab	Once/month
Total Zinc	5.40 mg/L	2.55 mg/L	Grab	Once/month
pH	6.0-9.0 standard units	N/A	Grab	Once/week
Sublethal Whole Effluent Toxicity (WET) limit (Parameter 51712) <i>Menidia beryllina</i> (Chronic NOEC ²)	2.1%	2.1%	Grab	Once/quarter
Sublethal Whole Effluent Toxicity (WET) limit (Parameter 51713) <i>Americamysis bahia</i> (Chronic NOEC ²)	2.1%	2.1%	Grab	Once/quarter
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51712) <i>Menidia beryllina</i> (24-hour acute LC50 ³)	> 100%	> 100%	Grab	Once/six months
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51713) <i>Americamysis bahia</i> (24-hour acute LC50 ³)	> 100%	> 100%	Grab	Once/six months

¹ As determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water (visual sheen).

² The NOEC is defined as the greatest effluent dilution at which no significant sublethality is demonstrated. Significant sublethality is defined as a statistically significant difference between a specified effluent dilution and the control for a sublethal endpoint. The daily maximum limitation established above is a 7-day minimum limitation.

- ³ The LC50 (Lethal Concentration 50) is defined as the effluent dilution at which 50% of the organisms survive.

2. Well Treatment, Completion, and Workover Fluids

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Flow	Report, MGD	Report, MGD	Estimate	Once/day
Free Oil ¹	No discharge	N/A	EPA Approved Method ¹	Once/day
Oil & Grease	42 mg/L	29 mg/L	Grab	Once/month
pH	6.0-9.0 standard units	N/A	Grab	Once/week
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51712) <i>Menidia beryllina</i> (24-hour acute LC50 ²)	> 100%	> 100%	Grab	Once/six months ³
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51713) <i>Americamysis bahia</i> (24-hour acute LC50 ²)	> 100%	> 100%	Grab	Once/six months ³

- ¹ As determined by the static sheen test utilizing EPA Method 1617 established in 40 CFR Part 435, Subpart A, Appendix 1 and in "Analytical Methods for the Oil and Gas Extraction Point Source Category", EPA-821-R-11-004, December 2011, Section 2.

- ² The LC50 (Lethal Concentration 50) is defined as the effluent dilution at which 50% of the organisms survive.

- ³ Should the planned or actual discharge occur for a duration of 24 hours or greater, the sample type shall be a 24-hour composite.

3. Deck Drainage

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Free Oil ¹	No discharge	N/A	Observation	Once/day

- ¹ As determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water (visual sheen).

4. Domestic Waste

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Flow	Report, MGD	Report, MGD	Instantaneous	Five/week

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Floating Solids, and Foam	No discharge	N/A	Observation	Once/day
Biochemical Oxygen Demand (5-day)	65 mg/L	20 mg/L	Grab	Once/week
Total Suspended Solids	65 mg/L	20 mg/L	Grab	Once/week
Dissolved Oxygen	2.0 mg/L (minimum)	N/A	Grab	Once/week
Enterococci	130 cfu or MPN/100 mL	35 cfu or MPN/100 mL	Grab	Once/quarter
Fecal Coliform	43 cfu or MPN/100 mL	14 cfu or MPN/100 mL	Grab	Once/quarter
Total Residual Chlorine	1.0 mg/L (minimum) and 4.0 mg/L (maximum)	N/A	Grab	Five/week
pH	6.0 - 9.0 standard units	N/A	Grab	Once/day

5. Sanitary Waste (M10 and M9IM)

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Flow	Report, MGD	Report, MGD	Instantaneous	Five/week
Floating Solids	No discharge	N/A	Observation	Once/day
Biochemical Oxygen Demand (5-day)	65 mg/L	20 mg/L	Grab	Once/week
Total Suspended Solids	65 mg/L	20 mg/L	Grab	Once/week
Dissolved Oxygen	2.0 mg/L (minimum)	N/A	Grab	Once/week
Enterococci	130 cfu or MPN/100 mL	35 cfu or MPN/100 mL	Grab	Once/quarter
Fecal Coliform	43 cfu or MPN/100 mL	14 cfu or MPN/100 mL	Grab	Once/quarter
Total Residual Chlorine	1.0 mg/L (minimum) and 4.0 mg/L (maximum)	N/A	Grab	Five/week
pH	6.0 - 9.0 standard units	N/A	Grab	Once/day

6. Uncontaminated Miscellaneous Discharges

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Free Oil ¹	No discharge	N/A	Observation	Once/day

¹ As determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water (visual sheen).

7. Contaminated Miscellaneous Discharges

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Flow	Report, MGD	N/A	Estimate	Once/month
Free Oil ¹	No discharge	N/A	Observation	Once/day
pH	6.0-9.0 standard units	N/A	Grab	Once/week
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51712) <i>Menidia beryllina</i> (24-hour acute LC50 ²)	> 100%	> 100%	Grab	Once/six months
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51713) <i>Americamysis bahia</i> (24-hour acute LC50 ²)	> 100%	> 100%	Grab	Once/six months

¹ As determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water (visual sheen).

² The LC50 (Lethal Concentration 50) is defined as the effluent dilution at which 50% of the organisms survive.

8. Water-Based Drilling Fluids and Associated Drill Cuttings (including formation test fluids and dewatering effluent)

a. Effluent Limitations:

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Flow ¹	1.008 MGD	N/A	Estimate	Once/day
Free Oil ²	No discharge	N/A	EPA Approved Method ²	Once/week
SPP Toxicity ³	3%	N/A	EPA Approved Method ³	Once/month
Diesel Oil ⁴	No discharge	N/A	Certification	Once/month

- ¹ Limitation does not apply prior to installation of the marine riser. The Executive Director reserves the ability to establish more restrictive flow limitations based on proximity to areas of biological concern and will notify individual discharges of such more restrictive conditions or in the alternative require an individual state-only discharge permit.
- ² As determined by the static sheen test utilizing EPA Method 1617 established in 40 CFR Part 435, Subpart A, Appendix 1 and in "Analytical Methods for the Oil and Gas Extraction Point Source Category", EPA-821-R-11-004, December 2011, Section 2.
- ³ As determined by the Minimum 96-hour LC₅₀ of the SPP Toxicity Test by volume. Bioassay test procedure - "Suspended Particulate Phase (SPP) Toxicity Test", EPA Method 1619 established in Appendix 2 of 40 CFR Part 435, Subpart A and "Analytical Methods for the Oil and Gas Extraction Point Source Category", EPA-821-R-11-004, December 2011, Section 3.
- ⁴ Drilling fluids to which any diesel oil has been added as a lubricant may not be discharged. Monthly effluent reports shall provide certification indicating compliance with this provision.

b. Stock Limitations:

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Mercury ¹	1 mg/kg	N/A	EPA Approved Method ²	Once/well ⁴
Cadmium ¹	3 mg/kg	N/A	EPA Approved Method ³	Once/well ⁴

- ¹ Dry weight maximum in the stock barite.
- ² Sampling shall be conducted using EPA Method 245.5, Method 7471 A, or more recently EPA approved methods.
- ³ Sampling shall be conducted using EPA Method 200.7, Method 200.8, Method 3050 B followed by 6010B or 6020, or more recently EPA approved methods.
- ⁴ A representative sample of stock barite used once in drilling fluids shall be analyzed and results submitted prior to use in each new well drilled. If more than one well is being drilled at a site, new analyses are not required for subsequent wells, provided that no new supplies of barite have been received since the previous analysis. A new analysis is required when the composition of stock barite is altered from the previous analysis and prior to use. Alternatively, the permittee may provide stock barite analysis provided by the manufacturer/supplier which complies with the sampling methodologies identified above.

9. Drill Cuttings Associated with Non-Aqueous Drilling Fluids

a. Effluent Limitations:

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Free Oil ¹	No discharge	N/A	Observation	Once/week
Diesel Oil ²	No discharge	N/A	Certification	Once/month
SPP Toxicity ³	3%	N/A	Grab	Once/month

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Sediment Toxicity ⁴	1.0 ratio	N/A	EPA Approved Method ⁴	Once/month ⁵
Formation Oil ⁶	No discharge	N/A	EPA Approved Method ⁶	Once/week ⁷
Base Fluid Retained on Cuttings ⁸	6.9 g/100 g	N/A	EPA Approved Method ⁸	Once/day ⁹
Base Fluid Retained on Cuttings ¹⁰	9.4 g/100 g	N/A	EPA Approved Method ¹⁰	Once/day ⁹

¹ As determined by the static sheen test utilizing EPA Method 1617 established in 40 CFR Part 435, Subpart A, Appendix 1 and in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 2.

² Drilling cuttings associated with drilling fluids to which any diesel oil has been added as a lubricant may not be discharged. Monthly effluent reports shall provide certification indicating compliance with this provision.

³ Minimum 96-hour LC₅₀ of the SPP Toxicity Test by volume. Bioassay test procedure – “Suspended Particulate Phase (SPP) Toxicity Test”, EPA Method 1619 which is published in Appendix 2 of 40 CFR Part 435, Subpart A and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 3.

⁴ Drilling Fluid Sediment Toxicity Ratio = 4-day LC₅₀ of C₁₆ – C₁₈ internal olefin drilling fluid divided by 4-day LC₅₀ of drilling fluid removed from drill cuttings at the solids control equipment as determined by EPA Method 1644: “Method for Conducting a Sediment Toxicity Test with *Leptocheirus plumulosus* and Non-Aqueous Drilling Fluids or Synthetic-Based Drilling Muds” after sediment preparation procedures specified in EPA Method 1646 which are established in Appendix 3 (EPA Method 1646) and Appendix 8 (EPA Method 1644) of 40 CFR Part 435, Subpart A, and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 4 (EPA Method 1646) and Section 10 (EPA Method 1644).

⁵ Sampling shall be conducted on the drilling fluids removed from cuttings at the solids waste control equipment. The once/month monitoring frequency is applicable to drilling fluids which meet the stock limitations for a C₁₆ – C₁₈ internal olefin. For drilling fluids which meet stock limitations for C₁₂ – C₁₄ ester or C₈ ester, monitoring shall be performed at least once per well at the end of drilling.

⁶ As determined before drilling fluids are shipped offshore by the GC/MS compliance assurance method (EPA Method 1655), and as determined prior to discharge by the RPE method (EPA Method 1670) applied to drilling fluid removed from drill cuttings. If the operator wishes to confirm the results of the RPE method (EPA Method 1670), the operator may use the GC/MS compliance assurance method (EPA Method 1655). Results from the GC/MS compliance assurance method (EPA Method 1655) shall supersede the results of the RPE method (EPA Method 1670). EPA Methods 1655 and 1670 are established in Appendix 5 (EPA Method 1655) and Appendix 6 (EPA Method 1670) of 40 CFR Part 435, Subpart A, and “Analytical

Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 6 (EPA Method 1655) and Section 7 (EPA Method 1670).

- ⁷ Once per week monitoring frequency on the drilling fluid applies during drilling operations. Additionally, monitoring is required once prior to drilling operations.
- ⁸ For NAFs that meet the stock limitations ($C_{16} - C_{18}$ internal olefin), the maximum weighted mass ratio (NAF base fluid divided by wet drill cuttings) averaged over all NAF well sections. Ratio is grams of non-aqueous base fluid divided by 100 grams of wet drill cuttings. Maximum permissible retention of non-aqueous drilling fluid (NAF) base fluid on wet drill cuttings averaged over drilling intervals using NAFs as determined by EPA Method 1674, which is established Appendix 7 of 40 CFR Part 435, Subpart A and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 8. This limitation is applicable for NAF base fluids that meet the base fluid sediment toxicity ratio (see footnote 4 above), biodegradation rate ratio (see footnote 8 in stock limitations table below); and the PAH, mercury, and cadmium stock limitations ($C_{16} - C_{18}$ internal olefin) identified in the stock limitations table below.
- ⁹ Once per day monitoring frequency applies when generating new drill cuttings. Specific conditions associated with this requirement are established in 40 CFR Part 435, Subpart A, Appendix 7, Addendum A and B.
- ¹⁰ For NAFs that meet the $C_{12} - C_{14}$ ester or C_8 ester stock limitations, the maximum weighted mass ratio (NAF base fluid divided by wet drill cuttings) averaged over all NAF well sections. Ratio is grams of non-aqueous base fluid divided by 100 grams of wet drill cuttings. Maximum permissible retention of NAF base fluid on wet drill cuttings average over drilling intervals using NAFs as determined by EPA Method 1674, established in Appendix 7 of 40 CFR Part 435, Subpart A, and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 8. This limitation is applicable for NAF base fluids that meet the ester base fluid sediment toxicity ratio and ester biodegradation rate ratio stock limitations, as follows. Ester base fluid sediment toxicity ratio = 10-day LC_{50} of $C_{12} - C_{14}$ ester or C_8 ester divided by 10-day LC_{50} of stock base fluid as determined by EPA Method 1644: “Method for Conducting a Sediment Toxicity Test with *Leptocheirus plumulosus* and Non-Aqueous Drilling Fluids or Synthetic-Based Drilling Muds” after sediment preparation procedures specified in EPA Method 1646 which are established in Appendix 3 (Method 1646) and Appendix 8 (Method 1644) of 40 CFR Part 435, Subpart A, and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 4 (EPA Method 1646) and Section 10 (EPA Method 1644). Ester Biodegradation Rate Ratio = Cumulative headspace gas production (mL) of $C_{12} - C_{14}$ ester or C_8 ester divided by Cumulative headspace gas production (mL) of stock base fluid, both at 275 days as determined by EPA Method 1647 which is established in Appendix 4 of 40 CFR Part 435, Subpart A, and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 5. PAH Mass Ratio, Mercury, and Cadmium stock limitations ($C_{16} - C_{18}$ internal olefin) are identified in footnotes above.

b. Stock Limitations ($C_{16} - C_{18}$ Internal Olefins):

Parameter	Daily Maximum Limitations	Daily Average Limitations	Sample Type	Monitoring Frequency
Mercury ¹	1 mg/kg	N/A	EPA Approved Method ²	Once/well ³
Cadmium ¹	3 mg/kg	N/A	EPA Approved Method ⁴	Once/well ³
PAH ⁵	1.0 x 10 ⁻⁵ ratio	N/A	EPA Approved Method ⁵	Once/year ⁶
Sediment Toxicity ⁷	1.0 ratio	N/A	EPA Approved Method ⁷	Once/year ⁶
Biodegradation Rate ⁸	1.0 ratio	N/A	EPA Approved Method ⁸	Once/year ⁶

¹ Dry weight maximum in the stock barite.

² Sampling shall be conducted using EPA Method 245.5, Method 7471 A, or more recently EPA approved methods.

³ Sampling shall be conducted using EPA Method 200.7, Method 200.8, Method 3050 B followed by 6010B or 6020, or more recently EPA approved methods.

⁴ A representative sample of stock barite used once in drilling fluids shall be analyzed and results submitted prior to use in each new well drilled. If more than one well is being drilled at a site, new analyses are not required for subsequent wells, provided that no new supplies of barite have been received since the previous analysis. A new analysis is required when the composition of stock barite is altered from the previous analysis and prior to use. Alternatively, the permittee may provide stock barite analysis provided by the manufacturer/supplier which complies with the sampling methodologies identified above.

⁵ PAH Mass Ratio = Mass (grams) of PAH (as phenanthrene) divided by Mass (grams) of stock base fluid as determined by EPA Method 1654, Revision A entitled "PAH Content of Oil by HPLC/UV", December 1992, which is established in "Analytical Methods for the Oil and Gas Extraction Point Source Category", EPA-821-R-11-004, December 2011, Section 9.

⁶ Monitoring frequency is on each base fluid blend.

⁷ Base Fluid Sediment Toxicity Ratio = 10-day LC₅₀ of C₁₆ - C₁₈ internal olefin divided by 10-day LC₅₀ of stock base fluid as determined by EPA Method 1644: "Method for Conducting a Sediment Toxicity Test with *Leptocheirus plumulosus* and Non-Aqueous Drilling Fluids or Synthetic-Based Drilling Muds" after preparing the sediment according to the procedure specified in EPA Method 1646, which are established in Appendix 8 (EPA Method 1644) and Appendix 3 (EPA Method 1646) of 40 CFR Part 435, Subpart A, and "Analytical Methods for the Oil and Gas Extraction Point Source Category", EPA-821-R-11-004, December 2011, Section 4 (EPA Method 1646) and Section 10 (EPA Method 1644).

⁸ Biodegradation Rate Ratio = Cumulative headspace gas production (mL) of C₁₆ - C₁₈ internal olefin divided by Cumulative headspace gas production (mL) of stock base fluid, both at 275 days as determined by EPA Method 1647, which is established in Appendix 4 of 40 CFR Part 435, Subpart A, and "Analytical Methods for the Oil and Gas Extraction Point Source Category", EPA-821-R-11-004, December 2011, Section 5.

B. Discharges into the Gulf of Mexico from the following sources from OCS Facilities are prohibited in the draft state-only discharge general permit:

- Non-Aqueous Drilling Fluids (NAFs) including dewatering effluent and formation test fluids associated with NAFs
- Produced Sand

V. Changes from Existing EPA NPDES General Permit No. GMG290000 and individual RRC discharge authorizations:

This is the first-time issuance of this state-only discharge general permit intended to streamline the permitting process and replace the need for OCS Facilities to obtain individual RRC discharge authorizations. Identifying changes proposed in this state-only discharge general permit from conditions established in existing individual authorizations issued by RRC is not possible (as such conditions are applied to each individual RRC issued authorization). This state-only discharge general permit does not replace EPA's existing NPDES General Permit No. GMG290000 and OCS facilities are required to obtain separate TCEQ authorization and NPDES authorization. TCEQ has attempted to identify significant changes TCEQ is proposing in this state-only discharge general permit when compared to conditions established in EPA's existing NPDES General Permit No. GMG290000 effective October 1, 2017. Such changes are discussed in subsequent sections of this fact sheet. Additionally, EPA is in the process of reissuance of NPDES General Permit No. GMG290000 and conditions established in EPA's draft GMG290000 NPDES general permit are subject to change.

VI. Addresses

Comments on this draft state-only discharge general permit should be sent to:

Office of the Chief Clerk (MC-105)
TCEQ
P.O. Box 13087
Austin, TX 78711-3087
(512) 239-3300

Questions concerning this draft state-only discharge general permit should be directed to:

Chris Linendoll, E.I.T.
TCEQ, Water Quality Division
Wastewater Permitting Section (MC-148)
P.O. Box 13087
Austin, TX 78711-3087
(254) 761-3025

Supplementary information on this fact sheet is organized as follows:

- VII. Legal Basis
- VIII. Regulatory Background
- IX. Permit Coverage
- X. Technology-based Requirements
- XI. Water Quality-based Requirements

- XII. Cooling Water Intake Structure Requirements
- XIII. Monitoring
- XIV. Procedures for Final Decision
- XV. Administrative Record

VII. Legal Basis

Texas Water Code (TWC), § 26.121 makes it unlawful to discharge pollutants into water in the state except as authorized by a rule, permit, or order issued by the Commission. TWC § 26.027 authorizes the Commission to issue permits and amendments to permits for the discharge of waste or pollutants into water in the state. TWC, § 26.040 provides the Commission with the authority to amend or adopt, as necessary to implement this section, rules adopted under TWC, § 26.040, and to authorize waste discharges by general permit. TWC § 26.131 transfers permitting authority for discharges into water in the state of certain waste streams (including waste streams proposed for authorization to discharge under this state-only discharge general permit from OCS Facilities) associated with oil and gas extraction activities from the RRC to TCEQ.

Although this is a state-only discharge general permit being proposed for issuance under the TWC and not explicitly subject to conditions under the CWA and associated EPA NPDES program regulations, TCEQ intends to apply CWA and associated NPDES requirements in this state-only discharge general permit. Prior to the State of Texas receiving TPDES permitting authority from EPA in 1998, predecessor agencies to the TCEQ issued state-only discharge permits for the discharge into water in the state and applied CWA and associated EPA NPDES regulations to such state-only discharge permits. TCEQ intends to apply this historical practice in the proposed issuance of this new state-only discharge general permit.

CWA, §§ 301, 304, and 401 (33 United States Code (USC), §§ 1331, 1314, and 1341) include provisions which state that NPDES permits must include effluent limitations requiring authorized discharges to: (1) meet standards reflecting levels of technological capability; (2) comply with EPA-approved state water quality standards; and (3) comply with other state requirements adopted under authority retained by states under CWA, § 510, 33 USC § 1370. CWA Section 316b establishes requirements related to the operation of cooling water intake structures CWISs).

Two types of technology-based effluent limitations are included in the draft state-only discharge general permit. With regard to conventional pollutants, i.e., pH, biochemical oxygen demand (BOD), oil and grease, total suspended solids (TSS), and fecal coliform bacteria, CWA, § 301(b)(1)(E) requires effluent limitations based on “best conventional pollutant control technology” (BCT). With regard to nonconventional and toxic pollutants, CWA, § 301(b)(2)(A), (C), and (D) requires effluent limitations based on “best available technology economically achievable” (BAT), a standard that generally represents the best performing existing technology in an industrial category or subcategory. BAT and BCT effluent limitations may never be less stringent than corresponding effluent limitations based on best practicable control technology (BPT), a standard applicable to similar discharges before March 31, 1989 under CWA, § 301(b)(1)(A). Furthermore, when a category of discharge(s) authorized under a general permit is subject to new source performance standards (NSPS) established in 40 CFR

Chapter I, Subchapter N, general permits must be developed to comply with such NSPS conditions.

Frequently, EPA adopts nationally applicable guidelines identifying the BPT, BCT, BAT, and NSPS standards to which specific industrial categories and subcategories are subject. Until such guidelines are published, however, CWA, § 402(a)(1) includes requirements that appropriate BCT and BAT effluent limitations be included in permitting actions based on best professional judgment (BPJ).

VIII. Regulatory Background

The Commission was given authority to issue general permits in place of authorizations by rule through legislation, House Bill (HB) 1542, passed during the 75th legislative session (1997). Further clarification of this general permit authority was provided in subsequent legislation, HB 1283, passed during the 76th legislative session (1999). Prior to the amendments of TWC § 26.131 via House Bill 2771 in the 86th Legislative Session, discharges of waste streams proposed for authorization to discharge under this draft state-only discharge general permit into water in the state from OCS oil and gas extraction activities were under authority of the RRC. Separate authorization to discharge into waters of the U.S. and operate CWISs was and continues to be required from EPA as the RRC did not have NPDES authority and TCEQ does not have authority to regulate these discharges and operation of CWISs beyond three statute miles from the Texas coastline.

IX. Permit Coverage

The purpose of this draft state-only discharge general permit is to regulate the discharge of and prohibition of discharge of various waste streams described below, and the operation of CWISs associated with oil and gas extraction activities from OCS Facilities.

To obtain authorization to discharge under the draft state-only discharge general permit, an applicant will need to use the following guidelines.

- A. Applicants seeking authorization to discharge under authority of this state-only discharge general permit must submit a completed Notice of Intent (NOI) on a form approved by the Executive Director. Permittees authorized to discharge from OCS Facilities to the Gulf of Mexico via an existing RRC authorization are required to submit a new NOI within 90 days of the effective date of this state-only discharge general permit to continue authorization to discharge to the Gulf of Mexico under the State of Texas authority. Based on information available to TCEQ, RRC only issued discharge permits for the discharge of produced wastewater and did not permit other discharges subject to the requirements in TWC Section 26.121. Thus, OCS oil and gas extraction activities currently holding authorizations issued by EPA under NPDES general permit GMG290000 for discharges other than produced wastewater are also required to submit a new NOI within 90 days of the effective date of this state-only discharge permit to obtain appropriate discharge authority from the State of Texas. The NOI shall, at a minimum, include the legal name and address of the owner and operator, the facility name and address, specific description(s) of its location, type of facility or discharges, and other contents established in the NOI.

- B. Submission of an NOI is an acknowledgment that the conditions of this state-only discharge general permit are applicable to the proposed discharges, and that the applicant agrees to comply with the conditions of this state-only discharge general permit. Provisional authorization to discharge under the terms and conditions of this state-only discharge general permit begins 48 hours after a paper NOI is postmarked for delivery to the TCEQ. If the TCEQ provides for electronic submission of NOIs during the term of this state-only discharge general permit, authorization begins immediately after the TCEQ confirms receipt of the electronic NOI. Following review of the NOI, the Executive Director shall determine that the NOI is complete and confirm authorization by providing a written notification and an authorization number; determine that the NOI is incomplete and request additional information needed to complete the NOI; or deny authorization in writing. Denial of authorization will be made in accordance with 30 TAC § 205.4, *Authorizations and Notices of Intent*.
- C. Authorization under this state-only discharge general permit is not transferable. If either the owner or operator of the regulated entity changes, then both the present owner and operator must submit a Notice of Termination (NOT) and the new owner and operator must submit an NOI. The NOT and NOI must be submitted no later than 10 days before the change.
- D. If the owner or operator becomes aware that he or she failed to submit any relevant facts or submitted incorrect information in an NOI, the correct information must be provided to the Executive Director in a Notice of Change (NOC) within 14 days after discovery. If relevant information provided in the NOI changes (for example, phone number, address, outfall information, or type of facility or discharges, movement of a drilling rig to new location, etc.) an NOC must be submitted within 14 days of the change.

X. Technology-Based Requirements

The limitations and conditions of the draft state-only discharge general permit have been developed to comply with the technology-based standards of the CWA (see discussion above on applying CWA and NPDES requirements to this state-only discharge general permit). Currently there are established nationally applicable effluent limitation guidelines identifying the BPT, BCT, BAT, and NSPS standards for a subset of discharges proposed for authorization to discharge by this draft state-only discharge general permit. The most restrictive of EPA established BPT, BCT, BAT, and NSPS standards are controlling and thus established as conditions in the draft state-only discharge general permit (e.g., when BPT standards allow discharges and establish an effluent limitation and where BAT standards outright prohibit discharge, the BAT standard is controlling). For waste streams proposed to be authorized for discharge under this draft state-only discharge general permit where EPA's nationally applicable effluent limitation guidelines have not developed technology-based standards, the technology-based effluent limitations are based on BPJ. The parameters selected for BCT/BAT limits using BPJ are the primary pollutants of concern for a subset of discharges proposed to be authorized in the draft state-only discharge general permit. Where EPA national effluent limitation guidelines are less restrictive than TCEQ established technology-based standards, TCEQ established technology-based standards are proposed in the draft state-only discharge general permit (e.g., minimum secondary

based treatment requirements for the discharge of sanitary waste and domestic waste established in 30 TAC Chapter 309). TCEQ has established state-wide standards for hazardous metals established in 30 TAC Chapter 319, Subchapter B. TCEQ considered application of these hazardous metal limitations in the draft state-only discharge general permit for the discharge of produced wastewater (see further discussion below in this section of the fact sheet).

EPA has established technology-based effluent limitation guidelines at 40 CFR Part 435, Subpart A (Offshore Subcategory) applicable to discharges to the territorial seas, including discharges to the OCS. 40 CFR § 435.10 establishes this subpart is applicable to those facilities engaged in field exploration, drilling, well production, and well treatment in the oil and gas industry which are located in waters that are seaward of the inner boundary of the territorial seas ("offshore") as defined in section 502(g) of the CWA. 40 CFR Part 435, Subpart A includes different conditions applicable to discharges within three miles of shore and those located greater than three miles from shore. EPA technology-based effluent limitations outlined below are applicable to discharges greater than three miles from shore.

BAT effluent limitations are established at 40 CFR § 435.13 for the following:

- Produced Wastewater:
 - Oil & Grease: 29 mg/L daily average and 42 mg/L daily maximum
- Water-Based Drilling Fluids and Associated Drill Cuttings:
 - SPP Toxicity: Minimum 96-hour LC_{50} of the SPP Toxicity Test shall be 3% by Volume
 - Free oil: No discharge as determined by the static sheen test
 - Diesel Oil: No discharge
 - Mercury: 1 mg/kg dry weight maximum in the stock barite
 - Cadmium: 3 mg/kg dry weight maximum in the stock barite
- Non-Aqueous Drilling Fluids (NAFs):
 - No discharge
- Drill Cuttings Associated with Non-Aqueous Drilling Fluids (Stock Limitations $C_{16} - C_{18}$ Internal Olefin):
 - Mercury: 1 mg/kg dry weight maximum in the stock barite
 - Cadmium: 3 mg/kg dry weight maximum in the stock barite
 - Polynuclear Aromatic Hydrocarbons (PAHs): PAH mass ratio shall not exceed 1×10^{-5}
 - Sediment Toxicity: Base Fluid Sediment Toxicity Ratio shall not exceed 1.0
 - Biodegradation Rate: Biodegradation Rate Ratio shall not exceed 1.0
- Drill Cuttings Associated with Non-Aqueous Drilling Fluids (Effluent Limitations):
 - Diesel Oil: No discharge
 - SPP Toxicity: Minimum 96-hour LC_{50} of the SPP Toxicity Test shall be 3% by volume
 - Sediment Toxicity: Drilling fluid sediment toxicity ratio shall not exceed 1.0
 - Formation Oil: No discharge
 - Base Fluid Retained on Cuttings: For all NAFs that meet stock limitations ($C_{16} - C_{18}$ internal olefin) the maximum weighted mass ratio averaged over all NAF well sections shall be 6.9 g NAF base fluid/100 g wet drill cuttings

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

- Base Fluid Retained on Cuttings: For all NAFs that meet the C₁₂ – C₁₄ ester or C₈ ester stock limitations the maximum weighted mass ratio averaged over all NAF well sections shall be 9.4 g NAF base fluid/100 g wet drill cuttings
- Well Treatment, Completion, and Workover Fluids:
 - Oil & Grease: 29 mg/L daily average and 42 mg/L daily maximum
- Deck Drainage:
 - Free oil: No discharge as established by visual sheen observation
- Produced Sand
 - No discharge
- Domestic Waste:
 - Foam: No discharge

BCT effluent limitations are established at 40 CFR § 435.14 for the following:

- Produced Wastewater:
 - Oil & Grease: 48 mg/L daily average and 72 mg/L daily maximum
- Water-Based Drilling Fluids and Associated Drill Cuttings:
 - Free oil: No discharge as determined by the static sheen test
- Non-Aqueous Drilling Fluids:
 - No discharge
- Drill Cuttings Associated with Non-Aqueous Drilling Fluids:
 - Free oil: No discharge as determined by the static sheen test
- Well Treatment, Completion, and Workover Fluids:
 - Free oil: No discharge as established by the static sheen method
- Deck Drainage:
 - Free oil: No discharge as established by visual sheen observation
- Produced Sand
 - No discharge
- Sanitary Waste – M10:
 - Total Residual Chlorine: Minimum of 1.0 mg/L (and maintained as close as possible to this level)
- Sanitary Waste - M9IM:
 - Floating solids: No discharge
- Domestic Waste:
 - Floating solids: No discharge
 - For all other domestic waste see 33 CFR Part 151

NSPS effluent limitations are established at 40 CFR § 435.15 for the following:

- Produced Wastewater:
 - Oil & Grease: 29 mg/L daily average and 42 mg/L daily maximum
- Water-Based Drilling Fluids and Associated Drill Cuttings:
 - SPP Toxicity: Minimum 96-hour LC₅₀ of the SPP Toxicity Test shall be 3% by Volume
 - Free oil: No discharge as determined by the static sheen test
 - Diesel Oil: No discharge
 - Mercury: 1 mg/kg dry weight maximum in the stock barite
 - Cadmium: 3 mg/kg dry weight maximum in the stock barite
- Non-Aqueous Drilling Fluids:
 - No discharge

- Drill Cuttings Associated with Non-Aqueous Drilling Fluids (Stock Limitations $C_{16} - C_{18}$ Internal Olefin):
 - Mercury: 1 mg/kg dry weight maximum in the stock barite
 - Cadmium: 3 mg/kg dry weight maximum in the stock barite
 - Polynuclear Aromatic Hydrocarbons (PAHs): PAH mass ratio shall not exceed 1×10^{-5}
 - Sediment Toxicity: Base Fluid Sediment Toxicity Ratio shall not exceed 1.0
 - Biodegradation Rate: Biodegradation Rate Ratio shall not exceed 1.0
- Drill Cuttings Associated with Non-Aqueous Drilling Fluids (Effluent Limitations):
 - Diesel Oil: No discharge
 - SPP Toxicity: Minimum 96-hour LC_{50} of the SPP Toxicity Test shall be 3% by volume
 - Sediment Toxicity: Drilling fluid sediment toxicity ratio shall not exceed 1.0
 - Formation Oil: No discharge
 - Base Fluid Retained on Cuttings: For all NAFs that meet stock limitations ($C_{16} - C_{18}$ internal olefin) the maximum weighted mass ratio averaged over all NAF well sections shall be 6.9 g NAF base fluid/100 g wet drill cuttings
 - Base Fluid Retained on Cuttings: For all NAFs that meet the $C_{12} - C_{14}$ ester or C_8 ester stock limitations the maximum weighted mass ratio averaged over all NAF well sections shall be 9.4 g NAF base fluid/100 g wet drill cuttings
- Well Treatment, Completion, and Workover Fluids:
 - Oil & Grease: 29 mg/L daily average and 42 mg/L daily maximum
- Deck Drainage:
 - Free oil: No discharge as established by visual sheen observation
- Produced Sand:
 - No discharge
- Sanitary Waste - M10:
 - Total Residual Chlorine: Minimum of 1.0 mg/L (and maintained as close as possible to this level)
- Sanitary Waste - M9IM:
 - Floating solids: No discharge
- Domestic Waste:
 - Floating solids: No discharge
 - Foam: No discharge
 - For all other domestic waste see 33 CFR Part 151

TCEQ has established state-wide quality levels for tidal waters at 30 TAC § 319.23 which are provided in the table below. These effluent limitations are end-of-pipe criteria and do not consider instream dilution. EPA failed to consider this state regulation in development of NPDES General Permit No. GMG290000. Data included in the "Supplemental Information Report to the 2004 Final Environmental Impact Statement," dated September 2011 in support of EPA's issuance of NPDES General Permit No. TXG260000 for territorial seas discharges within three miles of the Texas coastline (see Part XI of this fact sheet) for the discharges of produced wastewater; and well treatment, completion, and workover fluids were compared against these levels to determine the need to establish 30 TAC Chapter 319 effluent limitations in the draft state-only discharge general permit. The Offshore Operators Committee (OOC) also provided more recent produced wastewater data which was submitted to RRC in applications for individual authorizations from the time frame between 2016-2020 in an electronic mail (email) communication with TCEQ dated May 4, 2021 (see Part XI of

this fact sheet). This data was also compared against hazardous metals levels established in 30 TAC § 319.23.

Typical TCEQ permitting procedures require inclusion of hazardous metals limitations in discharge permits when available effluent data indicates potential exceedances of levels established in 30 TAC § 319.23. Based on this evaluation 30 TAC Chapter 319 effluent limitations initially were considered for inclusion in the draft state-only discharge general permit for the discharge of produced wastewater for total arsenic, total barium, total cadmium, total manganese, total selenium, total silver, and total zinc. 30 TAC Chapter 319 effluent limitations for the discharge of well treatment, completion, and workover fluids are not warranted based on this analysis.

30 TAC § 319.26 states, in part, that the commission may authorize less stringent quality levels than those set forth in 30 TAC § 319.23 only where the applicant demonstrates that there will be no significant adverse impact on water quality and that the less stringent quality levels are necessary based on considerations consistent with provisions of the Texas Water Code.

The OOC in a letter to TCEQ dated June 10, 2021, applied for an exception to the hazardous metals limitations established in 30 TAC § 319.23 as allowed under 30 TAC § 319.26 in the draft state-only discharge general permit for the discharge of produced wastewater. This letter referenced two previous produced wastewater studies on the Gulf of Mexico conducted by OOC related to conditions established in historical EPA NPDES oil and gas general permits to satisfy the no significant adverse impact on the water quality aspect of the rule. A 2015 study entitled “OOC Produced Water and Water Based Mud Characterization Study” assessed the aquatic life chronic toxicity impacts of produced wastewater discharges. A 1997 study entitled “Gulf of Mexico Produced Water Bioaccumulation Study” assessed bioaccumulation of chemicals in marine organisms and impacts on human consumption of marine organisms. In review of these studies, TCEQ identified shortcomings regarding applying the studies to the drafting of this state-only discharge general permit, which include: the sampling and analysis did not include all the metals listed in 30 TAC Chapter 319, the studies used larger mixing zones than allowed under TCEQ procedures, only chronic aquatic life toxicity was assessed (acute toxicity was not addressed), some methods utilized are not approved under 40 CFR Part 136, and sampling for dissolved metals vs. total metals as total metals are typically assessed by TCEQ. Furthermore, barium and manganese do not have established TCEQ water quality standards that would need to be considered in approving this exception request to demonstrate no significant impact on water quality. Based on TCEQ’s review of these two studies and TCEQ’s own water quality impact assessments outlined in Section XI of this fact sheet, TCEQ supports OOC’s 30 TAC Chapter 319 metals exception request related to the no significant adverse impact on water quality aspect of 30 TAC § 319.26.

To satisfy the second condition established in 30 TAC § 319.26 (less stringent quality levels are necessary based on considerations consistent with provisions of the Texas Water Code), OOC in its June 2021 letter provided information related to the likely economic impact of imposing 30 TAC § 319.23 hazardous metals limitations in the draft state-only discharge general permit based on an inability of treatment technology to achieve compliance with these limitations.

OOC indicated that it would be likely existing offshore oil and gas activities would cease production, new developments would not be pursued, significant cost impacts

would be realized for capture of produced wastewater and onshore transport for ultimate disposal, and a reduction in state lease revenues and royalties would occur should 30 TAC § 319.23 limitations be imposed. Furthermore, the information provided by OOC discussed the health and safety impacts associated with onshore transport and disposal of produced wastewater.

TCEQ performed an assessment of OOC's request associated with this second aspect of the rule conditions and identified the regulatory history associated with the conditions established in 30 TAC § 319.26. 9 TexReg 4078, (July 27, 1984) outlines the Texas Water Development Board's (TWDB) adoption of the existing regulation and amendments to this regulation that existed prior the existing regulation. The Texas Register preamble identifies Section 26.003 of the Texas Water Code, which is the policy statement of this Chapter, as being applicable to applying less stringent levels than those established in 30 TAC § 319.26. Section 26.003 of the Texas Water Code states, in part, "taking into consideration the economic development of the state". OOC's exception request related to economic impacts falls in line with this condition established in the Texas Water Code. This Texas Register publication outlines public comment received on the rule amendments and the TWDB's position on comments received and demonstrations needed to be made by an applicant to justify less stringent hazardous metals levels. The preamble states in part "the applicant will need to show more than difficulty in paying the higher cost of treatment necessary to meet concentrations" for the TWDB to allow less stringent hazardous metals levels. The preamble further goes onto discuss three potential options an applicant could present to the TWDB to demonstrate "more than difficulty in paying higher costs". The three options presented do not have direct applicability to treatment and discharge for produced wastewater offshore oil and gas discharges, however, the preamble does not restrict an applicant to these three options. Based on TCEQ's initial evaluation of this exception request associated with economic impacts, granting less stringent hazardous metals levels could not be supported.

The OOC submitted a supplement to its initial 30 TAC Chapter 319 metals exception request in a letter dated November 22, 2021. OOC's supplemental submission provided more detailed information related to: EPA developed national technology-based standards for offshore produced wastewater discharges, additional and detailed information on economic impacts to the State of Texas and the oil and gas offshore industry if 30 TAC Chapter 319 metals limitations were imposed in the state-only discharge general permit; and provided a study conducted by the American Petroleum Institute (API) of barium fate and transport in the Gulf of Mexico for offshore oil and gas discharges: "Barium in Produced Water: Fate and Effects in Marine Environment." Based on TCEQ's review of OOC's November 22, 2021 letter, TCEQ supports not imposing hazardous metals limitations as established in 30 TAC § 319.23 as allowed under 30 TAC § 319.26.

30 TAC Chapter 319 Hazardous Metals Quality Levels Discharge to Tidal Waters:

Parameter	Daily Average	Daily Composite	Grab Sample
Total Arsenic	0.1 mg/L	0.2 mg/L	0.3 mg/L
Total Barium	1.0 mg/L	2.0 mg/L	4.0 mg/L
Total Cadmium	0.1mg/L	0.2 mg/L	0.3 mg/L
Total Chromium	0.5 mg/L	1.0 mg/L	5.0 mg/L
Total Copper	0.5 mg/L	1.0 mg/L	2.0 mg/L

Parameter	Daily Average	Daily Composite	Grab Sample
Total Lead	0.5 mg/L	1.0 mg/L	1.5 mg/L
Total Manganese	1.0 mg/L	2.0 mg/L	3.0 mg/L
Total Mercury	0.005 mg/L	0.005 mg/L	0.01 mg/L
Total Nickel	1.0 mg/L	2.0 mg/L	3.0 mg/L
Total Selenium	0.1 mg/L	0.2 mg/L	0.3 mg/L
Total Silver	0.05 mg/L	0.1 mg/L	0.2 mg/L
Total Zinc	1.0 mg/L	2.0 mg/L	6.0 mg/L

EPA's existing NPDES General Permit No. GMG290000 established the following technology-based permit limitations for discharges not regulated by 40 CFR Part 435, Subpart A; or are more restrictive than 40 CFR Part 435, Subpart A:

- Produced Wastewater
 - Flow: Monitor
 - Free Oil: No discharge as established by visual observation
- Well Treatment, Completion, and Workover Fluids
 - Priority Pollutants: Prohibited from discharge other than in trace amounts
- Miscellaneous Discharges
 - Free Oil: No discharge as established by visual observation.
- Miscellaneous Discharges of Seawater and Freshwater which have been Chemically Treated
 - Treatment Chemicals: Not to exceed maximum concentration specified in EPA product registration labeling, maximum manufacturer's recommended concentration, or 500 mg/L
 - Free oil: No discharge as established by visual observation
 - Flow: Monitor

TCEQ practice is to establish technology-based pH effluent limitations in discharge permits that authorize potentially contaminated waste streams. Technology-based pH effluent limitations of 6.0-9.0 standard units for the discharge of produced wastewater/hydrate control fluids; well treatment, completion, and workover fluids; and contaminated miscellaneous discharge are proposed in the draft state-only discharge general permit. Appendix D of this fact sheet includes an assessment of pH limitations of 6.0-9.0 standard units demonstrating these proposed effluent limitations will meet instream pH water quality standards. Discharges of drilling fluids/drill cuttings are unique in their characterization and not subject to this condition.

TCEQ is proposing to revise "miscellaneous discharges" and "miscellaneous discharges of seawater and freshwater which have been chemically treated" as currently defined in EPA's existing NPDES General Permit No. GMG290000. These waste streams are proposed to be defined as "uncontaminated miscellaneous discharges" and "contaminated miscellaneous discharges", respectively in the draft state-only discharge general permit. Uncontaminated miscellaneous discharges are proposed to retain technology-based effluent limitations from EPA's existing NPDES General Permit No. GMG290000 (no discharge of free oil based on visual observation). Contaminated miscellaneous discharges are proposed to contain a no discharge of free oil (visual observation) technology-based effluent limitation and flow monitoring consistent with EPA's existing NPDES General Permit No. GMG290000, and a pH effluent limitation of 6.0-9.0 standard units based on TCEQ practice to establish pH technology-based effluent limitations in TCEQ discharge permits that authorize discharge of potentially

contaminated waste streams. TCEQ is proposing to remove effluent limitations in EPA's existing NPDES General permit No. GMG290000 for treatment chemicals used in contaminated miscellaneous discharges as the draft state-only discharge general permit adequately controls chemical usage via WET water quality-based effluent limitations.

TCEQ regulations at 30 TAC § 309.1 establish minimum state-wide secondary treatment standards for the discharge to surface waters of domestic wastewater (which includes both sanitary waste and domestic waste proposed for discharge under the draft state-only discharge general permit). These standards are as follows: BOD (5-day) - 20 mg/L daily average and 65 mg/L single grab; TSS - 20 mg/L daily average and 65 mg/L single grab, Dissolved Oxygen - 2.0 mg/L daily minimum, and pH 6.0-9.0 standard units. 30 TAC § 309.3(g) establishes minimum disinfection requirements for the discharge of domestic wastewater for total residual chlorine (0.5 mg/L minimum with a product of 20 based on minutes of contact time and 4.0 mg/L maximum). 30 TAC § 319.19(a) requires flow monitoring for the discharge of domestic wastewater. TCEQ is proposing effluent limitations which are not established in EPA's existing NPDES General Permit No. GMG290000 for all of the above parameters/conditions. Total residual chlorine effluent limitations are established at a minimum of 1.0 mg/L (based on 20-minute contact time) and 4.0 mg/L daily maximum. All of the above conditions for sanitary waste and domestic waste are proposed to be established for both M10 and M9IM operated facilities.

Technology-based effluent limitations proposed in the draft state-only discharge general permit based on EPA's existing NPDES General Permit No. GMG290000; 40 CFR Part 435, Subpart A; TCEQ established technology standards; or BPJ are established as follows:

- Produced Wastewater and Hydrate Control Fluids

Parameter	Daily Maximum	Daily Average
Free Oil ¹	No discharge	N/A
Oil & Grease	42 mg/L	29 mg/L
pH	6.0-9.0 standard units	N/A

¹ As determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water (visual sheen).

- Well Treatment, Completion, and Workover Fluids

Parameter	Daily Maximum	Daily Average
Flow	Report, MGD	Report, MGD
Free Oil ¹	No discharge	N/A
Oil & Grease	42 mg/L	29 mg/L
pH	6.0-9.0 standard units	N/A

¹ As determined by the static sheen test utilizing EPA Method 1617 established in 40 CFR Part 435, Subpart A, Appendix 1 and in "Analytical Methods for the Oil and Gas Extraction Point Source Category", EPA-821-R-11-004, December 2011, Section 2.

- Deck Drainage

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

Parameter	Daily Maximum	Daily Average
Free Oil ¹	No discharge	N/A

¹ As determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water (visual sheen).

- Domestic Waste

Parameter	Daily Maximum	Daily Average
Flow	Report, MGD	Report, MGD
Floating Solids and Foam	No discharge	N/A
Biochemical Oxygen Demand (5-day)	65 mg/L	20 mg/L
Total Suspended Solids	65 mg/L	20 mg/L
Dissolved Oxygen	2.0 mg/L (minimum)	N/A
Total Residual Chlorine	1.0 mg/L (minimum) and 4.0 mg/L (maximum)	N/A
pH	6.0-9.0 standard units	N/A

- Sanitary Waste (M10 and M9IM)

Parameter	Daily Maximum	Daily Average
Flow	Report, MGD	Report, MGD
Floating Solids	No discharge	N/A
Biochemical Oxygen Demand (5-day)	65 mg/L	20 mg/L
Total Suspended Solids	65 mg/L	20 mg/L
Dissolved Oxygen	2.0 mg/L (minimum)	N/A
Total Residual Chlorine	1.0 mg/L (minimum) and 4.0 mg/L (maximum)	N/A
pH	6.0-9.0 standard units	N/A

- Uncontaminated Miscellaneous Discharges

Parameter	Daily Maximum	Daily Average
Free Oil ¹	No discharge	N/A

¹ As determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water (visual sheen).

- Contaminated Miscellaneous Discharges

Parameter	Daily Maximum	Daily Average
Flow	Report, MGD	N/A
Free Oil ¹	No discharge	N/A
pH	6.0-9.0 standard units	N/A

- ¹ As determined by the presence of a film or sheen upon or discoloration of the surface of the receiving water (visual sheen).

- Water-Based Drilling Fluids and Associated Drill Cuttings

Effluent Limitations:

Parameter	Daily Maximum	Daily Average
Free Oil ¹	No discharge	N/A
SPP Toxicity ²	3%	N/A
Diesel Oil ³	No discharge	N/A

¹ As determined by the static sheen test utilizing EPA Method 1617 established in 40 CFR Part 435, Subpart A, Appendix 1 and in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 2.

² As determined by the Minimum 96-hour LC₅₀ of the SPP Toxicity Test by volume. Bioassay test procedure – “Suspended Particulate Phase (SPP) Toxicity Test”, EPA Method 1619 established in Appendix 2 of 40 CFR Part 435, Subpart A and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 3.

³ Drilling fluids to which any diesel oil has been added as a lubricant may not be discharged. Monthly effluent reports shall provide certification indicating compliance with this provision.

Stock Limitations:

Parameter	Daily Maximum	Daily Average
Mercury ¹	1 mg/kg	N/A
Cadmium ²	3 mg/kg	N/A

¹ Dry weight maximum in the stock barite. Sampling shall be conducted using EPA Method 245.5, Method 7471 A, or more recently EPA approved methods.

² Dry weight maximum in the stock barite. Sampling shall be conducted using EPA Method 200.7, Method 200.8, Method 3050 B followed by 6010B or 6020, or more recently EPA approved methods.

- Drill Cuttings Associated with Non-Aqueous Drilling Fluids

Effluent Limitations:

Parameter	Daily Maximum	Daily Average
Free Oil ¹	No discharge	N/A
Diesel Oil ²	No discharge	N/A
SPP Toxicity ³	3%	N/A
Sediment Toxicity ⁴	1.0 ratio	N/A
Formation Oil ⁵	No discharge	N/A
Base Fluid Retained on Cuttings ⁶	6.9 g/100 g	N/A
Base Fluid Retained on Cuttings ⁷	9.4 g/100 g	N/A

- ¹ As determined by the static sheen test utilizing EPA Method 1617 established in 40 CFR Part 435, Subpart A, Appendix 1 and in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 2.
- ² Drill cuttings associated with drilling fluids to which any diesel oil has been added as a lubricant may not be discharged. Monthly effluent reports shall provide certification indicating compliance with this provision.
- ³ Minimum 96-hour LC₅₀ of the SPP Toxicity Test by volume. Bioassay test procedure – “Suspended Particulate Phase (SPP) Toxicity Test”, EPA Method 1619 which is published in Appendix 2 of 40 CFR Part 435, Subpart A and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 3.
- ⁴ Drilling Fluid Sediment Toxicity Ratio = 4-day LC₅₀ of C₁₆ – C₁₈ internal olefin drilling fluid divided by 4-day LC₅₀ of drilling fluid removed from drill cuttings at the solids control equipment as determined by EPA Method 1644: “Method for Conducting a Sediment Toxicity Test with *Leptocheirus plumulosus* and Non-Aqueous Drilling Fluids or Synthetic-Based Drilling Muds” after sediment preparation procedures specified in EPA Method 1646 which are established in Appendix 3 (EPA Method 1646) and Appendix 8 (EPA Method 1644) of 40 CFR Part 435, Subpart A, and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 4 (EPA Method 1646) and Section 10 (EPA Method 1644).
- ⁵ As determined before drilling fluids are shipped offshore by the GC/MS compliance assurance method (EPA Method 1655), and as determined prior to discharge by the RPE method (EPA Method 1670) applied to drilling fluid removed from drill cuttings. If the operator wishes to confirm the results of the RPE method (EPA Method 1670), the operator may use the GC/MS compliance assurance method (EPA Method 1655). Results from the GC/MS compliance assurance method (EPA Method 1655) shall supersede the results of the RPE method (EPA Method 1670). EPA Methods 1655 and 1670 are established in Appendix 5 (EPA Method 1655) and Appendix 6 (EPA Method 1670) of 40 CFR Part 435, Subpart A, and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 6 (EPA Method 1655) and Section 7 (EPA Method 1670).
- ⁶ For NAFs that meet the stock limitations (C₁₆ – C₁₈ internal olefin), the maximum weighted mass ratio (NAF base fluid divided by wet drill cuttings) averaged over all NAF well sections. Ratio is grams of non-aqueous base fluid divided by 100 grams of wet drill cuttings. Maximum permissible retention of non-aqueous drilling fluid (NAF) base fluid on wet drill cuttings averaged over drilling intervals using NAFs as determined by EPA Method 1674, which is established Appendix 7 of 40 CFR Part 435, Subpart A and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 8. This limitation is applicable for NAF base fluids that meet the base fluid sediment toxicity ratio (see footnote 4 above), biodegradation rate ratio (see footnote 8 in stock limitations table below); and the PAH,

mercury, and cadmium stock limitations (C_{16} - C_{18} internal olefin) identified in the stock limitations table below.

- ⁷ For NAFs that meet the C_{12} - C_{14} ester or C_8 ester stock limitations, the maximum weighted mass ratio (NAF base fluid divided by wet drill cuttings) averaged over all NAF well sections. Ratio is grams of non-aqueous base fluid divided by 100 grams of wet drill cuttings. Maximum permissible retention of NAF base fluid on wet drill cuttings average over drilling intervals using NAFs as determined by EPA Method 1674, established in Appendix 7 of 40 CFR Part 435, Subpart A, and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 8. This limitation is applicable for NAF base fluids that meet the ester base fluid sediment toxicity ratio and ester biodegradation rate ratio stock limitations, as follows. Ester base fluid sediment toxicity ratio = 10-day LC_{50} of C_{12} - C_{14} ester or C_8 ester divided by 10-day LC_{50} of stock base fluid as determined by EPA Method 1644: “Method for Conducting a Sediment Toxicity Test with *Leptocheirus plumulosus* and Non-Aqueous Drilling Fluids or Synthetic-Based Drilling Muds” after sediment preparation procedures specified in EPA Method 1646 which are established in Appendix 3 (Method 1646) and Appendix 8 (Method 1644) of 40 CFR Part 435, Subpart A, and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 4 (EPA Method 1646) and Section 10 (EPA Method 1644). Ester Biodegradation Rate Ratio = Cumulative headspace gas production (mL) of C_{12} - C_{14} ester or C_8 ester divided by Cumulative headspace gas production (mL) of stock base fluid, both at 275 days as determined by EPA Method 1647 which is established in Appendix 4 of 40 CFR Part 435, Subpart A, and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 5. PAH Mass Ratio, Mercury, and Cadmium stock limitations (C_{16} - C_{18} internal olefin) are identified in footnotes above.

Stock Limitations (C_{16} - C_{18} Internal Olefins):

Parameter	Daily Maximum	Daily Average
Mercury ¹	1 mg/kg	N/A
Cadmium ²	3 mg/kg	N/A
PAH ³	1.0×10^{-4} ratio	N/A
Sediment Toxicity ⁴	1.0 ratio	N/A
Biodegradation Rate ⁵	1.0 ratio	N/A

- ¹ Dry weight maximum in the stock barite. Sampling shall be conducted using EPA Method 245.5, Method 7471 A, or more recently EPA approved methods.
- ² Dry weight maximum in the stock barite. Sampling shall be conducted using EPA Method 200.7, Method 200.8, Method 3050 B followed by 6010B or 6020, or more recently EPA approved methods.
- ³ PAH Mass Ratio = Mass (grams) of PAH (as phenanthrene) divided by Mass (grams) of stock base fluid as determined by EPA Method 1654, Revision A entitled “PAH Content of Oil by HPLC/UV”, December 1992, which is established in “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 9.

- ⁴ Base Fluid Sediment Toxicity Ratio = 10-day LC_{50} of $C_{16} - C_{18}$ internal olefin divided by 10-day LC_{50} of stock base fluid as determined by EPA Method 1644: “Method for Conducting a Sediment Toxicity Test with *Leptocheirus plumulosus* and Non-Aqueous Drilling Fluids or Synthetic-Based Drilling Muds” after preparing the sediment according to the procedure specified in EPA Method 1646, which are established in Appendix 8 (EPA Method 1644) and Appendix 3 (EPA Method 1646) of 40 CFR Part 435, Subpart A, and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 4 (EPA Method 1646) and Section 10 (EPA Method 1644).
 - ⁵ Biodegradation Rate Ratio = Cumulative headspace gas production (mL) of $C_{16} - C_{18}$ internal olefin divided by Cumulative headspace gas production (mL) of stock base fluid, both at 275 days as determined by EPA Method 1647, which is established in Appendix 4 of 40 CFR Part 435, Subpart A, and “Analytical Methods for the Oil and Gas Extraction Point Source Category”, EPA-821-R-11-004, December 2011, Section 5.
- Non-Aqueous Drilling Fluids (NAFs) including formation test fluids and dewatering effluent- No Discharge
 - Produced Sand - No Discharge

XI. Water Quality-Based Requirements

TCEQ discharge permits to water in the state contain technology-based effluent limitations reflecting the best controls available. Where these technology-based effluent limitations do not protect water quality or the designated uses, additional water quality-based effluent limitations and/or conditions are included in TCEQ discharge permits to water in the state. State narrative and numerical water quality standards are used in conjunction with EPA criteria and other toxicity data bases to determine the adequacy of technology-based effluent limitations and the need for additional water-quality based controls. Furthermore, the draft state-only discharge general permit has been developed to comply with Ocean Discharge Criteria, established in 40 CFR Part 125, Subpart M.

The *Texas Surface Water Quality Standards* (TSWQS), found at 30 TAC Chapter 307, state 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 TCEQ guidance document *Procedures to Implement the Texas Surface Water Quality Standards (IPs)* RG-194 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 wastes that (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 that threatens human health.

A. Assessment of Individual Toxics with Established Water Quality Standards:

The Texas Toxicity Modeling Program (TEXTOX), developed by TCEQ, was used to perform a reasonable potential (RP) screening against available discharge data for this industry (oil and gas extraction) which TCEQ is regulating for the first time. TEXTOX is the method TCEQ uses to calculate water quality-based effluent limitations for toxics

in accordance with the TSWQS and the IPs (RG-194). The receiving stream's physical and chemical characteristics (for the purpose of this state-only discharge general permit is the Gulf of Mexico) are used to calculate what concentrations of pollutants are allowed to be discharged while ensuring that no significant degradation of any water in the state will occur and that existing uses will be maintained and protected. Segment 2501 values found in Appendix D of the IPs (RG-194), pollutant criteria found in the TSWQS, the receiving stream's (Gulf of Mexico for the purpose of this state-only discharge general permit) mixing ability, and the effluent flow are used to calculate the concentration of each pollutant the receiving stream (Gulf of Mexico for the purpose of this state-only discharge general permit) can tolerate that would still be protective of aquatic life and human health.

Calculations of water quality-based effluent limitations for the protection of aquatic life and human health are presented in Appendix A, B, and C. Aquatic life criteria established in Table 1 and human health criteria established in Table 2 of the TSWQS are incorporated into the calculations. TSS values were obtained from Segment 2501 in Appendix D of the IPs (RG-194).

TCEQ practice for determining RP is to compare available analytical data from discharges against percentages of the calculated daily average water quality-based effluent limitations. Permit limitations are required when available analytical data exceeds 85 percent of the calculated daily average water quality-based effluent limitation. Monitoring and reporting are required when available analytical data exceeds 70 percent of the calculated daily average water quality-based effluent limitation.

The underlying methodology and statistics utilized to calculate individual pollutant water quality-based effluent limitations are outlined in RG-194, section titled "Toxic Pollutants," pages 130-173.

TEXTOX Menu 5 was used to calculate appropriate daily average and daily maximum water quality-based effluent limitations. TEXTOX Menu 5 was used to calculate appropriate water quality-based effluent limitations for discharges into the Gulf of Mexico (Segment No. 2501) using a zone of initial dilution (ZID) at 50 feet, an aquatic life mixing zone at 200 feet, and a human health mixing zone at 400 feet consistent with conditions established in RG-194.

Standard TCEQ practice is to evaluate discharges into marine water bodies discharging less than 10 million gallons per day (MGD) using a zone of initial dilution (ZID) at 50 feet of 30%, an aquatic life mixing zone at 200 feet of 8%, and a human health mixing zone at 400 feet of 4% based on EPA's horizontal jet plume model. This approach was utilized to assess the need for water quality-based effluent limitations for the discharge of well treatment, completion, and workover fluids. See further discussion below on assessment of well treatment, completion, and workover fluids discharges.

As discussed above, TCEQ typically utilizes EPA's horizontal plume model for discharges of less than 10 MGD to calculate standard instream dilution rates to marine water bodies. In support of issuance of EPA's existing NPDES General Permit No. TXG260000 for discharges to the territorial seas within three miles of the Texas coastline (effective February 8, 2012), EPA conducted an RP analysis of produced wastewater discharges to the territorial seas which is outlined in EPA's existing fact sheet for TXG260000 (dated October 4, 2011). The fact sheet indicates EPA utilized

Page 30

data obtained from the RRC [per table 6.1 of the 2004 final Environmental Impact Statement (EIS)] to conduct its RP analysis. This data summarized in EPA's TXG260000 fact sheet is included in Table 4-2 of the "Supplemental Information Report to the 2004 Final Environmental Impact Statement," dated September 2011. Data in the 2011 EIS supplement is included in the table below "Produced Wastewater Data." Section 4.4.2 of the 2011 EIS supplement summarizes this RP analysis. It indicates the highest pollutant concentrations for available Texas discharge data obtained from RRC and worst-case discharge scenarios [(3885 barrels per day (bbl/day)) discharge rate and depth to sea floor of 7.32 meters were utilized based on modeling results from CORMIX versions 4.2 GP and 7.0.

EPA's existing TXG260000 nor GMG290000 does not restrict flow rates or depths to sea floor for allowable produced wastewater discharges. Appendix A, Table 1 in EPA's existing TXG260000 establishes produced wastewater discharge critical dilutions at flow rates up to 25,000 bbl/day and depths to sea floor between 0 and >16 meters. EPA's existing NPDES General Permit No. GMG290000 authorizes produced wastewater flows up to and exceeding 75,000 barrels/day. Appendix A, Table 1 of EPA's existing TXG260000 establishes a maximum critical dilution at the edge of the aquatic life mixing zone of 7.8% (which is consistent with TCEQ's established critical dilution at the edge of the aquatic life mixing zone of 8%) when utilizing EPA's horizontal jet plume model. TCEQ initially performed an RP analysis of this EIS data against calculated water quality-based effluent limitations derived from using standard dilution rates from EPA's horizontal jet plume model. The TCEQ's RP analysis indicated the need to include numerous water quality-based effluent limitations not established in EPA's existing TXG260000 or GMG290000.

Based on the TCEQ's initial RP assessment and consistent with historical EPA methodology, TCEQ initiated and completed its own CORMIX modelling assessment for produced wastewater discharges to the Outer Continental Shelf in the Gulf of Mexico. To properly assess individual water quality-based pollutants utilizing dilution modeling, permitted discharge flow is a key component in the analysis (see above discussion on issues with EPA development of existing TXG260000 and GMG290000 related to unrestricted flow rates). TCEQ contacted the OOC to obtain acceptable produced wastewater discharge flow restrictions to be established in the state-only general permit. OOC in coordination with its member companies agreed to a produced wastewater daily average flow restriction for discharges to the Outer Continental Shelf in Texas waters to be included in the state-only general permit at 7000 bbl/day (0.294 MGD when converting 1 bbl = 42 gallons). TCEQ solicited public comment during the formal public comment period based on comments received during an informal comment period sharing the draft general permit with stakeholders to reduce produced wastewater flows to 6000 bbl/day (0.252MGD). Formal public comment was received and TCEQ supports reducing permitted daily average produced wastewater flows to 6000 bbl/day (0.252 MGD) and further analysis below is based on the reduced permitted daily average flow. Additionally, OOC agreed to restrictions on the depth to sea floor from the discharge point of no less than 4-6 meters, and a maximum discharge pipe diameter of six inches. Furthermore, TCEQ obtained more recent produced wastewater analytical data that was submitted in recent permit applications to RRC for state authorizations to discharge from offshore oil and gas extraction facilities to the Gulf of Mexico. The more recent produced wastewater analytical data is summarized in the table below "Produced Wastewater Data" (analytical data from seven offshore platforms were assessed and the highest value observed is included in

the referenced table). Data in parenthesis are included to indicate non-detect values provided in the submitted data that do not meet current TCEQ minimum analytical levels (MALs).

The following is a summary of inputs, assumptions, and other factors utilized in TCEQ's produced wastewater CORMIX assessment:

- Effluent Characterization and CORMIX Model Version
 - CORMIX model Version 11.0GTD (Version 11.0.1.0) was used for all model simulations.
 - The pollutant type was specified as a conservative pollutant, meaning the pollutant does not undergo any decay or growth processes.
 - The pollutant discharge concentration was set to 100% which is appropriate for the characterization of the discharge.
 - A range of effluent densities were considered. Specifically, a maximum effluent density value (1109.4 kg/m³) and a minimum effluent density value (1019.64 kg/m³) were both modeled based on produced water effluent data, as provided by the RRC (temperature and total dissolved solids data provided in the table below), "Produced Wastewater Data".
- Ambient Geometry
 - The input values for average depth and depth at discharge were presumed to be the same in the Gulf of Mexico. The depths are varied according to the modeled input parameters. The minimum depth modeled was 5 m, and the maximum depth modeled was 16 m.
 - The wind speed (U_w) parameter was set to 2 m/s which is representative of a light wind and is the recommended wind speed by the CORMIX User Manual when measured data are not available.
 - The ambient velocity (U_a) was set to 0.05 m/s, consistent with the TCEQ's guidance document, *Mixing Analyses Using CORMIX*.
 - A bottom friction (Manning *n*) value of 0.020 was assumed, consistent with TCEQ guidance for CORMIX analyses. A value of 0.020 is representative of a smooth channel bottom with no weeds.
 - The water body was considered unbounded.
 - In the ambient density data field, a non-freshwater density of 1017.65 kg/m³ was used based on temperature and salinity measurements collected from TCEQ Surface Water Quality Monitoring Stations (SWQM) in the Gulf of Mexico (Segment No. 2501). The ambient density is the average density value based on water column averages of temperature and salinity.
 - From the SWQM data available, the median density difference from the top of the water column to the bottom of the water column was analyzed to determine whether stratification should be factored into the analysis. An additional model scenario was run on the most critical case, but it did not significantly change the model predictions.
- Discharge Geometry
 - The CORMIX1 Single Port model was utilized in this exercise.
 - The nearest bank was set to 1000 m to the left.
 - Port diameters of 4 inches and 6 inches were both used throughout the modeling exercise.

- A submerged offshore discharge configuration was used with a submerged port height of 20 cm below the surface.
- A vertical angle (θ) was set to -90° , and a horizontal angle (σ) was set to 0° . This configuration represents a downward pipe pointing towards the channel bottom and in the direction of the ambient flow (i.e., co-flowing). When the vertical angle (θ) is set to $\pm 90^\circ$, the horizontal angle (σ) is automatically set to 0° .
- Mixing Zone Specifications
 - No water quality standard was specified in the modeled iterations.
 - Model results were assessed at the edges of the regulatory mixing zone boundaries, consistent with the *Procedures to Implement the Texas Surface Water Quality Standards* (TCEQ RG-194). Mixing zone boundaries were assessed at trajectory distances of 60.96 m for the chronic aquatic life mixing zone, 15.24 m for the zone of initial dilution (ZID), and 121.92 m for the human health mixing zone.
 - The region of interest was 1000 m.
- CORMIX Modeling Dilution Results
 - Effluent Fraction at the edge of ZID (50 feet): 3.0%
 - Effluent Fraction at the edge of the Aquatic Life Mixing Zone (200 feet): 2.1%
 - Effluent Fraction at the edge of the Human Health Mixing Zone (400 feet): 1.6%

As described above, TCEQ performed an RP analysis for produced wastewater discharges to the Outer Continental Shelf in the Gulf of Mexico seas utilizing TCEQ's CORMIX modelling results at a daily average flow of 6000 bbl/day (0.252 MGD), depth to sea floor of a minimum of 4-6 meters, and a maximum pipe diameter of six inches. Updated/more recent data obtained from OOC (RRC individual permit application data) were screened against calculated water quality-based effluent limitations in Appendix B. Based on this assessment and in relation to dissolved oxygen modeling discussed below, discharges of produced wastewater are restricted to a pipe diameter of no greater than six inches and depth to sea floor of no less than five meters. This resulted in water quality-based effluent limitations or monitoring/reporting requirements for the following parameters for produced wastewater discharges in the draft state-only general permit:

- Total Barium
- Benzene
- Total Copper
- Total Manganese
- Total Mercury
- Total Nickel
- Total Zinc

Additionally, a water quality-based produced wastewater flow limitation of 0.252 MGD is proposed in the draft state-only general permit (based on the RP analysis previously discussed), as well as monitoring and reporting requirements for total dissolved solids (TDS) and temperature to obtain additional data and confirm the buoyancy of produced wastewater discharges when mixing with Gulf of Mexico ambient water.

Produced Wastewater Data:

Pollutant	EIS Data	RRC 2016 - 2020 Data
Total Aluminum	0.610 mg/L	129 mg/L
Total Arsenic	0.090 mg/L	0.152 mg/L
Total Barium	564 mg/L	1200 mg/L
Benzene	13.1 mg/L	37.7 mg/L
Total Cadmium	0.100 mg/L	0.015 mg/L (< 0.2 mg/L)
Hexavalent Chromium	0.143 mg/L	< 0.1 mg/L
Total Copper	0.260 mg/L	0.156 mg/L
Cyanide	0.030 mg/L	0.007 mg/L (< 0.05 mg/L)
Total Lead	0.400 mg/L	0.019 mg/L (< 0.120 mg/L)
Total Mercury	0.0019 mg/L	0.0002 mg/L (< 0.006 mg/L)
Total Nickel	0.639 mg/L	< 0.5 mg/L
Total Selenium	0.268 mg/L	0.292 mg/L
Total Silver	0.020 mg/L	< 0.05 mg/L
Total Zinc	0.218 mg/L	26.3 mg/L
Temperature	----	183 °F
pH	----	5.66 S.U.
Dissolved Oxygen	----	0.0 mg/L
Hardness	----	64,100 mg/L
Total Suspended Solids	----	710 mg/L
Total Dissolved Solids	----	149,000 mg/L
Chlorides	----	90,700 mg/L
Sulfates	----	1530 mg/L
Sulfides	----	0.680 mg/L (< 1.0 mg/L)
Ammonia-Nitrogen	----	68.7 mg/L
Calcium	----	25,400 mg/L
Magnesium	----	849 mg/L
Sodium	----	40,100 mg/L
Potassium	----	1250 mg/L
Iron	----	71.7 mg/L
Total Manganese	----	51.9 mg/L
Oil and Grease	----	14.3 mg/L
Total Organic Carbon	----	3050 mg/L
Phenols	----	20.4 mg/L
Naphthalene	----	65.1 mg/L

Table 2-4 of the “Supplemental Information Report to the 2004 Final Environmental Impact Statement,” in support of issuance of NPDES General Permit No. TXG260000 dated September 2011 provides data for the discharge of fluids from an acidizing well treatment. Section 2.2.2.6 of that document indicates this data was developed from two offshore wells in California. Although this data may not be representative of discharges of well treatment, completion, and workover fluids from offshore oil and gas extraction activities in Texas, TCEQ performed an RP analysis of this discharge data using both the methodology described above for discharges of less than 10 MGD and EPA’s horizontal jet plume model. RRC historically only permitted discharges of produced wastewater. Thus, more recent data for well treatment, completion, and workover fluids specific to Texas offshore discharges is not available. Screening this data against calculated water quality -based effluent limitations in Appendix A indicated no pollutant-specific water quality-based effluent limitations are justified in

Page 34

the draft state-only discharge general permit. EPA's existing NPDES General Permit No. GMG290000 for discharges from OCS facilities includes conditions requiring industry studies on the discharge of these waste streams and the impacts of these discharges to the Gulf of Mexico for acute toxicity. An industry wide study titled "Final Report: Joint Industry Project Study of Well Treatment, Completion, and Workover Effluents", submitted by Offshore Operators Committee, September 23, 2021 was reviewed by TCEQ which included analysis of specific individual pollutants, organics and metals. Based on the short duration identified in this study (median one hour) and small volume (median 473 barrels), typical procedures for screening individual pollutants for compliance with the Texas Surface Water Quality Standards developed by TCEQ are not applicable to the intermittent and low volume nature of these discharges and TCEQ is proposing water quality controls on these discharges via the establishment of 24-hour acute lethal whole effluent toxicity (WET) limitations (see discussion below on whole effluent toxicity assessment).

Well Treatment, Completion, Workover Fluids Data

Pollutant	EIS Data
Total Aluminum	0.0531 mg/L
Total Antimony	< 0.0039 mg/L
Total Arsenic	< 0.0019 mg/L
Total Barium	0.0126 mg/L
Total Beryllium	< 0.0001 mg/L
Total Boron	0.0319 mg/L
Total Cadmium	0.0004 mg/L
Total Calcium	0.0353 mg/L
Total Chromium	0.019 mg/L
Total Cobalt	< 0.0019 mg/L
Total Copper	0.003 mg/L
Total Iron	0.572 mg/L
Total Lead	< 0.00982 mg/L
Total Magnesium	0.162 mg/L
Total Molybdenum	< 0.00096 mg/L
Total Nickel	0.0529 mg/L
Total Selenium	< 0.0029 mg/L
Total Silver	< 0.0007 mg/L
Sodium	1.64 mg/L
Total Thallium	0.005 mg/L
Total Tin	0.00666 mg/L
Total Titanium	0.00068 mg/L
Total Vanadium	0.0361 mg/L
Yttrium	0.00019 mg/L
Total Zinc	0.0285 mg/L
pH	2.48 S.U.
Aniline	0.434 mg/L
Naphthalene	Non-detect
o-Toluidine	1.852 mg/L
2-Methylnaphthalene	Non-detect
2,4,5-Trimethylamine	2.048 mg/L
Oil and Grease	0.619 mg/L

Waste streams other than produced wastewater and well treatment, completion, and workover fluids were not evaluated for the need of individual toxic water quality-based effluent limitations based on either the waste stream being proposed for discharge is not expected to contain toxic pollutants or there is no available data to assess such discharges. Drilling fluids and associated drill cuttings are properly addressed for toxic impacts via technology-based toxicity requirements discussed in the technology-based effluent limitations section of this fact sheet. As discussed in Section X of this fact sheet, a previous version of EPA's NPDES General Permit No. GMG290000 required studies of water-based muds to assess potential toxicity of this discharge. The 2015 study entitled "OOC Produced Water and Water Based Mud Characterization Study" assessed the aquatic life chronic toxicity impacts of water-based muds in addition to produced wastewater discharges. EPA concluded that the technology-based effluent limitations (established in 40 CFR Part 435, Subpart A) properly addressed toxicity from such discharges (as toxicity testing and limitations are established in this regulation) and TCEQ concurs with that position. Flow limitations for the discharge of water-based drilling fluids and associated drill cuttings are established in this draft state-only discharge general permit consistent with conditions established in EPA's existing NPDES General Permit No. GMG290000.

B. Assessment of Barium and Manganese, which Do Not Have Established Water Quality Standards:

Based on the OOC 30 TAC Chapter 319 metals exception request dated June 10, 2021, which is discussed above in the technology-based effluent limitations section of this fact sheet, TCEQ performed an assessment of not applying these state-wide established limitations and the potential water quality impacts of not applying these limitations for produced wastewater discharges to the Outer Continental Shelf in the Gulf of Mexico. This assessment was in addition to the previously discussed review of OOC-conducted and API-conducted aquatic toxicity and bioaccumulation studies. All metals with criteria established in 30 TAC Chapter 319 have established marine water quality standards in the TSWQS, with the exception of barium and manganese.

TCEQ's Water Quality Assessment staff conducted research into EPA nationally developed water quality criteria applicable to marine discharges in the state of Texas as well as other available and applicable marine water quality toxicity data.

The following water quality criteria were determined to be applicable to marine water bodies in the State of Texas for aquatic life toxicity and bioaccumulation of metals in marine organisms:

Barium:

Acute Aquatic Life Criteria:	150 mg/L
Chronic Aquatic Life Criteria:	25 mg/L
Human Health Bioaccumulation Criteria:	N/A

Manganese:

Acute Aquatic Life Criteria:	N/A
Chronic Aquatic Life Criteria:	N/A
Human Health Bioaccumulation Criteria:	0.100 mg/L

Calculations are presented in Appendix C of this fact sheet. Based on this assessment and comparing calculated water quality-based effluent limitations against historically reported analytical data, water quality-based effluent limitations are being proposed in the draft state-only discharge general permit for both total barium and total manganese for the discharge of produced wastewater.

C. Assessment of Dissolved Oxygen Impacts:

Produced wastewater from offshore oil and gas platforms may contain very high levels of oxygen-demanding substances. Available information from discharges into marine waters of the western Gulf of Mexico, off the shores of Texas and Louisiana, indicates frequent very high concentrations and extreme variability of direct oxygen-demanding substances such as Biochemical Oxygen Demand (BOD) and ammonia-nitrogen ($\text{NH}_3\text{-N}$). Typically, these discharges undergo minimal, if any, treatment for constituents of this type. In addition, concentrations of dissolved oxygen (DO) in these produced wastewater discharges are often near 0.0 mg/L, according to available sampling data.

Information related to: discharge flow volumes; 5-day Biochemical Oxygen Demand (BOD_5) concentrations and loadings; $\text{NH}_3\text{-N}$ concentrations and loadings; and effluent DO concentrations was obtained from regulated facility representatives, including through the OOC. Information was also obtained from a hypoxic zone study conducted by EPA to study how produced wastewater discharges from offshore oil and gas operations may contribute to impacts on the hypoxic zone in the western Gulf of Mexico (offshore of Louisiana and the easternmost portion of Texas jurisdictional waters). Neither the hypoxic zone study nor existing EPA general permits for discharges of produced wastewater from offshore oil and gas platforms included an explicit analysis of potential localized DO impacts in relation to established state or federal water quality DO criterion standards in the vicinity of individual produced wastewater discharges. The TSWQS designates the portion of the Gulf of Mexico within Texas jurisdictional waters as having an Exceptional Aquatic Life Use with a corresponding DO criterion of 5.0 mg/L.

In order to assess the potential for more-localized and near-field DO impacts and to set corresponding effluent limits for this state-only discharge general permit, if necessary, an analysis methodology was developed to represent individual produced wastewater discharges and consider the highly dispersive environment of the open waters of the Gulf of Mexico. This analysis approach included the use of CORMIX modeling in combination with a Continuously Stirred Tank Reactor (CSTR) model to evaluate potential DO impacts for a range of discharge conditions that would fall within the scope of this state-only discharge general permit authorization.

A CORMIX modeling analysis was initially developed (using CORMIX 11.0GTD (Version 11.0.1.0) modeling software), separate from the DO modeling analysis, to determine appropriate Critical Condition dilution factor (percent effluent) values to use in the evaluation of this draft state-only discharge general permit. These percent effluent values were determined for the Zone of Initial Dilution (ZID), the Chronic Aquatic Life Mixing Zone, and the Human Health Mixing Zone. These dilution factors are used for the evaluation of pollutants and other substances typically characteristic of or otherwise anticipated to potentially be present in discharges based on the category of wastewater being discharged.

The details of the CORMIX modeling analysis are available from the Critical Conditions review of this draft state-only discharge general permit which was discussed previously. Only the percent effluent (dilution) values corresponding to the Chronic Aquatic Life Mixing Zone portion of the Critical Conditions review are applicable to this DO modeling analysis. The TSWQS prescribe that certain water quality standards, including those applicable to a water body's DO criteria, apply at and beyond the edge of the Chronic Aquatic Life Mixing Zone associated with that discharge, which for open-water marine water bodies is typically at a radius of 200 feet from the point of discharge.

The CORMIX modeling analysis included a variety of discharge scenarios indicated to be within the scope of this draft state-only discharge general permit, with percent effluent predictions varying as these modeled parameter details were adjusted. Percent effluent values were derived for many cases other than the final dilution values determined to be most critical from a Critical Conditions review perspective. These fluctuating model conditions included discharge volume, discharge pipe diameter, and water body average depth (within the modeled portion of the water body). Due to the greater density of these produced wastewater discharges compared to the density of the receiving water body, all CORMIX model cases predicted the effluent plume to be negatively buoyant and that it would consequently sink towards the seafloor bottom. The same modeling scenarios and state-only discharge general permit coverage constraints applicable to the CORMIX analysis also apply to the DO modeling analysis, as the CORMIX modeling results are a critical component of the DO modeling analysis.

Analysis conducted under this draft state-only discharge general permit was established to produced wastewater discharges of up to 7000 barrels/day (bbl/day), equivalent to 0.294 million gallons per day (MGD). Furthermore, the DO modeling results are only considered valid for discharges into waters with an average depth of no less than 5 meters (16.4 feet) in the general vicinity of the discharge. The analysis included here and recommended effluent limitations were not modified for the reduced produced wastewater flow of 6000 barrels/day as public comments received were specific to individual toxics and whole effluent toxicity (WET) limitations established in the publicly noticed general permit. See discussion in the formal response to comments (RTC) document prepared to support issuance of the general permit.

For the analysis of this draft state-only discharge general permit, the CORMIX modeling analysis was set up to predict percent effluent values at the edge of the aquatic life mixing zone under a variety of potential discharge condition combinations -- for average depths between 5 and 6 meters, between 6 and 9 meters, between 9 and 12 meters, between 12 and 14 meters, between 14 and 16 meters, and greater than 16 meters; for discharge pipe diameters of 4 inches and 6 inches; and for discharge flowrates of up to 7000 bbl/day.

For the DO modeling analysis, these CORMIX results were then incorporated into a CSTR modeling approach to assess potential DO impacts beyond the edge of the Chronic Aquatic Life Mixing Zone. The CORMIX-predicted percent effluent values were used to establish predicted levels of oxygen-demanding constituents at the edge of the Chronic Aquatic Life Mixing Zone for further analysis of a similar array of DO modeling cases with various combinations of oxygen-demanding constituent concentrations.

The CSTR modeling runs for this state-only discharge general permit were structured to assess discharge scenarios at 500 bbl/day, 1000 bbl/day, 2000 bbl/day, 3000 bbl/day, 4000 bbl/day, 5000 bbl/day, 6000 bbl/day and 7000 bbl/day (using the highest flows for various flow range groupings) paired with the shallowest of the CORMIX depth range groupings (e.g., for the CORMIX percent effluent predicted value representing a 4-inch diameter discharge pipe for a discharge flowrate range between 6000 bbl/day and 7000 bbl/day at a depth range between 9 meters and 12 meters, the corresponding CSTR model run used that percent effluent with a model discharge flow input of 7000 bbl/day (converted to 0.294 MGD) at a model depth of 9 meters). These highest flow/shallowest depth cases represent higher effluent percentages for each modeled flow/depth/pipe diameter scenario and are thus the most pessimistic from a dissolved oxygen modeling perspective. Deeper scenarios did not equate to more pessimistic DO modeling results as is sometimes the case with an end-of-pipe modeling approach, since the deeper scenarios also equated to lower effluent percentages at the edge of the Chronic Aquatic Life Mixing Zone.

In order to establish ambient water quality values to pair with the effluent quality values, an analysis of data from TCEQ SWQM stations located throughout the Gulf of Mexico was performed. The analysis developed values that would represent an approximation of average conditions that could be used in a general permitting approach. A total of 27 SWQM stations were used, some with surface-only data and some with water-column profile data, and some with a mix of both. The water-column profile samples included a mix of both stratified and unstratified conditions, according to SWQM guidance concerning salinity stratification. Periods of record and data quantities also varied considerably by station.

Using this method, generalized representative ambient water quality values were established for use in the CSTR modeling analysis. These values included a summertime temperature (31.03°C), with July, August, and September found to be the three warmest months; median summertime salinity (31.5 ppt); percent DO saturation (93.67%), using only water-column data and taking salinity stratification into account (using either water-column-average values if not stratified or mixed-surface-layer values if stratified); a baseline ambient DO value of 5.85 mg/L, based on the temperature, salinity, and percent DO saturation values; BOD₅ (3.0 mg/L); and NH₃-N (0.05 mg/L).

Edge-of-mixing-zone concentrations for BOD₅, NH₃-N, and DO were calculated using the CORMIX percent effluent values for various input combinations of end-of-pipe BOD₅ and NH₃-N concentrations, based on available oil and gas offshore facility produced wastewater sampling data, paired with calculated edge-of-mixing zone DO concentration values, using an assumed end-of-pipe effluent DO concentration of 0.0 mg/L and an ambient DO concentration of 5.85 mg/L. These edge-of-mixing-zone concentrations were then used as inputs for the CSTR modeling analysis.

The CSTR models were set up consistent with standard open-water CSTR modeling procedures, using 10-acre model cells (three consecutive 10-acre cells), with average depths set in all cells (different depth scenarios) at depths of 5 meters, 6 meters, 9 meters, 12 meters, 14 meters, and 16 meters. Temperature and salinity in the models were set at 31.03°C and 31.5 ppt, respectively, representing summertime conditions, when DO conditions are typically expected to be most pessimistic, at least in terms of factors that can be represented in this modeling approach.

The CORMIX analysis percent effluent calculations included a presumed small ambient flow (due to currents, tidal action, etc.) of 0.05 meters/second (0.164 feet/second). To be additionally conservative, especially considering the generalized nature of this assessment approach, as well as due to limitations of the CSTR model itself, no additional dilution, dispersion, or ambient flow was included in the CSTR portion of the modeling analysis.

The CSTR models were run at various discharge flows, using mass-balance-calculated BOD₅, NH₃-N, and DO concentration values, derived from the CORMIX percent effluent calculations, for flows of up to 7000 bbl/day for the analysis of this draft state-only discharge general permit. The most pessimistic CSTR modeling cases in regard to predicted DO impacts were determined to be the combinations of overall highest discharge flows and overall shallowest discharge conditions, which corresponded to the highest predicted percent effluent values from the CORMIX modeling analysis.

It should be noted that the CSTR model is not able to simulate temperature or salinity impacts of these discharges beyond the edge of the Chronic Aquatic Life Mixing Zone. However, mass-balance calculations using the percent effluent calculations with available discharge temperature and salinity values in combination with ambient (summertime) values indicates that resultant temperatures and salinities at the edge of the Chronic Aquatic Life Mixing Zone are expected to remain within the range of observed ambient data and are not expected to have a significant impact on predicted DO concentrations beyond the edge of the Chronic Aquatic Life Mixing Zone.

Comparison of these CSTR DO modeling results with available effluent quality data indicates that inclusion of effluent limits for BOD₅ and NH₃-N is warranted in the draft state-only discharge general permit. As different combinations of BOD₅ and NH₃-N effluent limits would achieve similar modeling results, a menu of possible effluent set combinations was discussed with OOC representatives in development of TPDES General Permit No. TXG310000 which is also being proposed to discharge produced wastewater (within three miles of the coastline in the Gulf of Mexico) before the final effluent limit recommendations for the draft TPDES general permit were determined. Based on an increase in produced wastewater flows assessed to 7000 bbl/day in the state-only discharge general permit compared to produced wastewater flows being established in the TPDES TXG310000 general permit, modeling analysis indicated minimal impacts to effluent limitations would occur when adjusting NH₃-N to lower levels, thus NH₃-N are being proposed in the draft state-only discharge general permit as being proposed in the draft TPDES general permit, and BOD₅ values were decreased to meet instream dissolved oxygen standards.

Based on the results of the modeling analysis, end-of-pipe concentration effluent limits of 1,144 mg/L BOD₅ and 112 mg/L NH₃-N are predicted to be adequate for discharge flows of up to 7000 bbl/day to ensure that dissolved oxygen levels beyond the edge of the Chronic Aquatic Life Mixing Zone will be maintained above the criterion established by the Standards Implementation Team for the Gulf of Mexico (Segment No. 2501) (5.0 mg/L). Other effluent set combinations may also be adequate and can be evaluated in future permitting actions.

Secondary treatment levels for BOD (5-day) and minimum dissolved oxygen effluent limitations discussed in the technology-based section of this fact sheet should ensure protection for instream dissolved oxygen criteria for discharges of domestic waste and sanitary waste authorized under the draft state-only discharge general permit assumed

Page 40

at volumes less than 0.1 MGD. Likewise, additional waste streams authorized under the draft state-only discharge general permit (other than produced wastewater) are not expected to contain elevated levels of oxygen demanding substances, or are only discharged intermittently, thus further analysis of these discharges is not justified.

D. Assessment of Thermal/Temperature Impacts:

Based on new/updated analytical data obtained from the OOC (individual permit application data submitted to RRC) for produced wastewater discharges to the territorial seas that indicated significantly elevated temperature levels (see “Produced Wastewater Data” table above indicating values up to 183 F), TCEQ performed an assessment on acceptable temperature levels for produced wastewater discharges to the OCS Facilities in the Gulf of Mexico. No temperature assessment was performed by EPA in development of the existing NPDES TXG260000 or GMG290000 general permits.

In order to determine an acceptable produced wastewater temperature at which the TSWQS will not be exceeded at the maximum discharge volume for produced wastewater to the Outer Continental Shelf in the Gulf of Mexico assessed during development of this draft state-only discharge general permit (7000 bbl/day), simple, conservative heat-balance calculations were run. Note, a revised analysis was not conducted for the reduced permitted discharge volume of 6000 bbl/day. The results indicate that an effluent temperature limit of 145 °F is required to ensure TSWQS for temperature are met at the edge of the chronic aquatic life mixing zone. These calculations are based on draft Thermal Evaluation Procedures, which have undergone two revisions based on stakeholder input received from five public meetings as well as initial comments from EPA. Though these procedures are still draft and have not been officially incorporated in the Texas Procedures to Implement the TSWQS (RG-194), in a letter dated April 1, 2020, the EPA agreed to allow their use in development of standard operating procedures (SOPs) to establish permitting controls and conditions for thermal discharges. As stated previously, issuance of this state-only discharge general permit is not under the TPDES program and EPA oversight, however procedures used to develop TPDES permit conditions are being implemented in assessment of issuance of this state-only discharge general permit.

The screening approach in the draft Thermal Procedures uses a risk-based approach. Screening procedures progress from simple, conservative analyses to more complex, site-specific approaches as necessary. In this case, the simple, conservative analysis was used. There are two thermal criteria applicable to this draft state-only discharge general permit - thermal maximum and maximum temperature differential (rise over ambient). The thermal maximum criterion for Segment 2501 is 95 degrees Fahrenheit (F). The maximum differential applicable to Segment 2501 is 4 degrees F September through May, and 1.5 degrees F for June, July, and August. The screening calculations are as follows:

Screening for compliance with Maximum Temperature Criterion:

Equation 1 below compares the maximum temperature at the edge of the chronic aquatic life mixing zone (right side of equation) with the maximum temperature criterion (T_c) for Segment 2501 (left side of equation). A permit limit is not usually required when Equation 1 is satisfied (that is, $T_c \geq$ right side of equation).

Equation 1: $T_c \geq (E_f)(T_e) + (1 - E_f)(T_a)$

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

Where: T_C = segment maximum temperature criterion (°F)
 E_F = effluent fraction at the edge of the aquatic life mixing zone
 T_E = maximum effluent temperature (°F)
 T_A = ambient temperature (°F)

The following items explain the variables used in Equation 1:

T_C The maximum temperature criterion for the segment is found in Appendix A of the TSWQS.

E_F Effluent fraction at the edge of the aquatic life mixing zone as described in the “Mixing Zones and ZIDs for Aquatic Life Protection” in the Procedures to Implement the Texas Surface Water Quality Standards (2010).

T_E The effluent temperature is (1) the daily maximum permitted temperature (when evaluating existing limits), (2) the maximum of self-reported temperature data for the months of June, July, and August for the preceding two years of available data (when evaluating the need for a temperature limit when the permit only includes monitoring and reporting requirements), or (3) the expected maximum effluent temperature provided in the permit application.

T_A The ambient temperature is initially set at 86.9 °F (30.5 °C), which is the same critical summer temperature used in dissolved oxygen modeling. A site-specific value may be used in lieu of the default temperature by calculating the 90th percentile using ambient temperature data for the months of June, July, and August from the Surface Water Quality Monitoring Information System (SWQMIS) database or other available data.

Screening for compliance with rise over ambient temperature criterion:

Equation 2 below compares the temperature at the edge of the aquatic life mixing zone (right side of equation) with the sum of the ambient temperature (T_A) and the rise over ambient temperature criterion (ΔT_C) (left side of equation). A permit limit is usually not required when Equation 2 is satisfied (that is, $T_A + \Delta T_C \geq$ right side of equation).

Equation 2: $(T_A + \Delta T_C) \geq (E_F)(T_E) + (1 - E_F)(T_A)$

Where: T_A = ambient temperature (°F)
 ΔT_C = rise over ambient temperature criterion (°F)
 E_F = effluent fraction at the edge of the aquatic life mixing zone
 T_E = maximum effluent temperature (°F)

The following items explain the variables used in Equation 2:

T_A The ambient temperature is initially set at 86.9 °F (30.5 °C), which is the same critical summer temperature used in dissolved oxygen modeling. A site-specific value may be used in lieu of the default temperature by calculating the 90th percentile using ambient temperature data for the months of June, July, and August from the SWQMIS database or other available data.

ΔT_c The rise over ambient temperature criteria are found in 30 TAC § 307.4(f). These criteria are water body specific. In this case:

Tidal rivers, bays, and gulf water:

Summer (June, July, and August): 1.5°F

Fall, winter, and spring (September – May): 4°F

E_f Effluent fraction at the edge of the aquatic life mixing zone as described in the “Mixing Zones and ZIDs for Aquatic Life Protection” in the Procedures to Implement the Texas Surface Water Quality Standards (2010).

T_e The effluent temperature is (1) the daily maximum permitted temperature (when evaluating existing limits), (2) the maximum of self-reported temperature data for the months of June, July, and August for the preceding two years of available data (when evaluating the need for a temperature limit when the permit only includes monitoring and reporting requirements), or (3) the expected maximum effluent temperature provided in the permit application.

Temperature analysis conducted under this draft state-only discharge general permit was performed at discharges of up to 7000 barrels/day (bbl/day), equivalent to 0.294 million gallons per day (MGD).

In order to establish ambient water quality values for use in these two thermal evaluation equations, an analysis of data from TCEQ SWQM stations located throughout the Gulf of Mexico was performed to develop values that would represent an approximation of average conditions that could be used in a general permitting approach. A total of 27 SWQM stations were used: some stations had surface-only data, some stations had water-column profile data, and some stations had a mix of both surface data and water-column profile data. The water-column profile samples included a mix of both stratified and unstratified conditions, according to SWQM guidance concerning salinity stratification. Periods of record and quantities of data also varied considerably by station. The data from the SWQM stations was used to obtain the 90th percentile temperature for June, July, and August in accordance with draft Thermal Evaluation Procedures. As a safeguard, additional data for the 90th and 10th percentiles of the lowest winter temperatures were used in the thermal evaluation calculations.

Effluent temperature data from existing facilities that are currently permitted by EPA and/or RRC showed one outlier temperature of 183°F, with the remaining temperatures less than 150°F. The facility reporting the one data point of 183°F was contacted regarding this temperature value. They indicated that this did not appear to be typical and subsequent data obtained from this facility showed temperatures to be less than 150°F.

A range of temperatures was used in the draft Thermal Procedure equations to determine whether the effluent discharged from produced wastewater facilities would violate TSWQS thermal criteria for discharge flows of up to 7000 bbl/day. The most conservative equation in this case was equation 2, rise over ambient. Based on the results of the draft Thermal Evaluation Procedure equations, it was determined that

effluent temperatures up to 145 °F would meet TSWQS temperature criteria for the Gulf of Mexico in Segment 2501 at the edge of the chronic aquatic life mixing zone. To ensure compliance with Segment No. 2501 temperature criteria, an end-of-pipe effluent temperature limit of 145 °F is being proposed for this draft state-only discharge general permit. This temperature effluent limitation is not established in EPA's existing GMG290000 NPDES general permit. Calculations are provided in Appendix E.

Discharges of waste streams proposed to be authorized in this state-only discharge general permit (with the exception of produced wastewater) are not expected to contain elevated temperature levels, thus no effluent limitations and/or monitoring requirements are proposed in the draft state-only discharge general permit for these discharges.

E. Assessment of Bacteria:

The TSWQS establish bacteria criteria for water in the state. Specifically, 30 TAC § 307.4(j) establishes criteria for pathogens, 30 TAC § 307.7(b)(1) establishes criteria for contact recreation, and 30 TAC § 307.7(b)(3)(B) establishes bacteria criteria for the protection of oyster waters. The discharges of sanitary waste and domestic waste proposed in the draft state-only discharge general permit have the potential to contain human pathogens and *Enterococci* and Fecal Coliform water quality-based effluent limitations are proposed to control these discharges. 30 TAC § 309.3(h) requires that bacteria effluent limitations be established in discharge permits to water in the state for the discharge of domestic wastewater (sanitary waste and domestic waste proposed in the draft state-only discharge general permit). 30 TAC § 319.9(b) establishes bacteria monitoring frequencies based on permitted flow (for the purpose of this draft state-only discharge general permit, flows are presumed to be less than 0.1 MGD). The TCEQ is proposing to add bacteria water quality-based effluent limitations not contained in existing EPA NPDES General Permit No. GMG290000 for the discharge of domestic waste and sanitary waste. Other waste streams proposed for authorization to discharge under the state-only discharge general permit are not expected to contain bacteria and thus no conditions associated with bacteria requirements are proposed.

F. Assessment of Dissolved Solids:

30 TAC § 307.4(g)(1) establishes that concentrations of dissolved minerals such as total dissolved solids (TDS) must be maintained such that uses of receiving waters are not impaired. TCEQ has not established numeric TDS standards in the TSWQS for the Gulf of Mexico. Nor has EPA established such controls in GMG290000 for discharges to the Gulf of Mexico. The TSWQS establishes narrative criteria for dissolved solids and proper restrictions of impacts of discharges to the Gulf of Mexico are established in the draft state-only discharge general permit. TDS effluent limitations are not proposed in the draft state-only discharge general permit. Monitoring and reporting requirements for TDS for the discharge of produced wastewater are proposed in the draft state-only discharge general permit as discussed in the Individual Toxics Assessment (CORMIX analysis) section of this fact sheet.

G. Whole Effluent Toxicity (WET) Assessment:

The TSWQS in 30 TAC § 307.6(e) establishes requirements for total toxicity [e.g., whole effluent toxicity (WET)]. This section of the TSWQS establishes WET conditions for both acute and chronic WET. The IPs (RG-194) establish conditions when WET is appropriate

or applicable to certain discharges. 30 TAC § 307.6(e)(2)(A) establishes that facilities whose discharges have a significant potential for exerting toxicity in receiving waters as described in the IP's (RG-194) are required to conduct WET biomonitoring at appropriate dilutions. 30 TAC § 307.6(e)(2)(B) also requires that discharges shall not be acutely toxic to aquatic life, as determined by requiring greater than 50% survival in 100% effluent using a 24-hour acute toxicity test. WET biomonitoring requirements are typically required for continuously flowing discharges or discharges with the potential to exert toxicity in the receiving water body, according to the IP's (RG-194).

Based on information available to TCEQ, conditions contained in EPA's existing NPDES General Permit No. GMG290000, TCEQ has determined that there may be pollutants present in a subset of discharges proposed in the draft state-only discharge general permit that may have the potential to cause toxic conditions in the Gulf of Mexico and are required to be controlled via WET conditions.

Produced wastewater; well treatment, completion, and workover fluids; hydrate control fluids; and contaminated miscellaneous discharges authorized for discharge under this draft state-only discharge general permit may be continuously flowing and/or have the potential to exert toxicity in the Gulf of Mexico. Discharges other than those identified above proposed to be authorized for discharge under this draft state-only discharge general permit either are not typically continuously flowing discharges or do not have the potential to exert toxicity in the Gulf of Mexico, and the effluent limitations for pollutants of concern in the draft state-only discharge general permit will preclude toxicity in the Gulf of Mexico. EPA's effluent limitation guidelines in 40 CFR Part 435, Subpart A specifically include toxicity testing and associated toxicity limitations for the discharge of drilling fluids and associated drill cuttings specific to this unique type of discharge(s) and thus further toxicity assessment is not warranted.

WET limitations proposed in the draft state-only discharge general permit differ from those established in EPA's existing NPDES General Permit No. GMG290000, as follows:

- Produced wastewater and hydrate control fluids discharges include 7-day chronic sublethal WET limitations as established in EPA's existing GMG290000. One single 7-day chronic critical dilution (with its associated dilution series) is established in the draft state-only discharge general permit based on a daily average discharge rate of 6000 bbl/day, where EPA's existing GMG290000 authorized continually varying WET limitations based on the most recent reported flow in monthly DMRs, including produced wastewater flows beyond the 6000 bbl/day flow restriction. 24-hour acute 100% WET limitations are proposed that are not established in EPA's existing GMG290000 and are consistent with TCEQ practice for permitting discharges of this type of nature. Compliance schedules for existing discharges are established for these WET limitations.
- WET limitations for the discharge of contaminated miscellaneous discharges are proposed in the draft state-only discharge general permit for 24-hour acute tests (100% effluent), as opposed to 48-hour acute tests established in EPA's existing NPDES General Permit GMG290000 (where 48-hour acute tests include varying dilutions based on varying discharge rate and pipe diameter). This revision is consistent with RG-194 and TCEQ practice where 48-hour acute WET testing is normally reserved for discharges with extremely low dilution percentages that would typically require 7-day chronic WET conditions.

Compliance schedules for existing discharges are established for these WET limitations.

- Well treatment, completion, and workover fluids discharges are proposed to require 24-hour acute WET limitations to replace conditions established in EPA's existing NPDES General Permit No. GMG290000 that prohibit discharges of priority pollutants other than in trace amounts to improve enforceability of the state-only discharge general permit. EPA's existing NPDES General Permit No. GMG290000 for discharges from OCS facilities includes conditions requiring industry studies on the discharge of these waste streams and the impacts of these discharges to the Gulf of Mexico for acute toxicity. An industry wide study titled "Final Report: Joint Industry Project Study of Well Treatment, Completion, and Workover Effluents", submitted by Offshore Operators Committee, September 23, 2021 was reviewed by TCEQ and supports the addition of the 24-hour acute WET limitation. The study indicated discharges of these waste streams are short in duration (median duration of one hour) and small in volume (median 473 barrels). EPA's draft GMG290000 is proposing 48-hour acute WET limitations at varying dilutions specific to each platform which TCEQ does not support in this general permit and specific conditions established for 24-hour acute WET conditions established in the Texas Surface Water Quality Standards. Compliance schedules for existing discharges are established for these WET limitations.
- Compliance schedules justification for WET limitations is provided in the response to comments (RTC) prepared for this general permit as a result of publishing the draft general permit to solicit public comments and public comments received following publication.

WET testing (biomonitoring) is the most direct measure of potential toxicity, which incorporates the effects of synergism of effluent components and receiving stream water quality characteristics. Biomonitoring and WET limitations of a subset of discharges proposed for authorization are, therefore, required as conditions of this draft state-only discharge general permit to control potential toxicity.

H. Proposed Water Quality-Based Effluent Limitations:

Water quality-based effluent limitations and monitoring/reporting requirements proposed in the draft state-only discharge general permit based on the TSWQS are established as follows: Note the daily maximum flow limitation for water-based drilling fluids/cuttings is proposed based on conditions established in EPA's existing NPDES General Permit No. GMG290000, restricted at 1000 bbl/hr and is not based specifically on the TSWQS.

- Produced Wastewater and Hydrate Control Fluids

Parameter	Daily Maximum	Daily Average
Flow (MGD)	N/A	0.252 MGD
Carbonaceous Biochemical Oxygen Demand (5-day)	N/A	1144 mg/L
Ammonia (as N)	N/A	112 mg/L
Temperature	145 °F	N/A
Total Dissolved Solids	Report mg/L	N/A
Total Barium	2258 mg/L	1068 mg/L
Benzene	Report mg/L	N/A

Parameter	Daily Maximum	Daily Average
Total Copper	0.194 mg/L	0.092 mg/L
Total Manganese	18.1 mg/L	8.54 mg/L
Total Mercury	Report, mg/L	N/A
Total Nickel	Report, mg/L	N/A
Total Zinc	5.40 mg/L	2.55 mg/L
Sublethal Whole Effluent Toxicity (WET) limit (Parameter 51712) <i>Menidia beryllina</i> (Chronic NOEC ¹)	2.1%	2.1%
Sublethal Whole Effluent Toxicity (WET) limit (Parameter 51713) <i>Americamysis bahia</i> (Chronic NOEC ¹)	2.1%	2.1%
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51712) <i>Menidia beryllina</i> (24-hour acute LC50 ²)	> 100%	> 100%
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51713) <i>Americamysis bahia</i> (24-hour acute LC50 ²)	> 100%	> 100%

¹ The NOEC is defined as the greatest effluent dilution at which no significant sublethality is demonstrated. Significant sublethality is defined as a statistically significant difference between a specified effluent dilution and the control for a sublethal endpoint. The daily maximum limitation established above is a 7-day minimum limitation.

² The LC50 (Lethal Concentration 50) is defined as the effluent dilution at which 50% of the organisms survive.

7-day chronic toxicity tests are required to be performed in accordance with protocols described in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms*, Third Edition (EPA-821-R-02-014). The stipulated test species are appropriate to measure the toxicity of the effluent consistent with the requirements of the state water quality standards. The biomonitoring frequency has been established to reflect the likelihood of ambient toxicity and to provide data representative of the toxic potential of the waste stream discharge. The draft state-only discharge general permit requires five (5) dilutions in addition to the control (0% effluent) to be used in the toxicity tests. These additional effluent concentrations are 0.8%, 1.3%, 1.5%, 2.1%, and 2.7%. The low-flow effluent concentration (critical dilution) is defined as 2.1% effluent. The dilution series outlined above was calculated using a 0.75 factor applied to the critical dilution. The critical dilution is the estimated effluent dilution at the edge of the aquatic life mixing zone. If none of the first four consecutive quarterly tests demonstrates significant lethal or sublethal effects, the permittee may submit this information in writing and, upon approval and submittal of an NOC, reduce the testing frequency to once per six months for the invertebrate test species and once per year for the vertebrate test species. If one or more of the first four consecutive quarterly tests demonstrates significant sublethal effects, the permittee is required by the draft state-only discharge general permit to continue quarterly testing for that species until four consecutive quarterly tests demonstrate no significant sublethal effects. At that time, the permittee may apply for the appropriate testing frequency reduction for that species. If one or more of the first four consecutive quarterly tests

demonstrates significant lethal effects, the permittee is required by the draft state-only discharge general permit to continue quarterly testing for that species until the state-only discharge general permit is reissued.

24-hour acute toxicity tests shall be performed in accordance with protocols described in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition (EPA-821-R-02-012) or the latest revision.

- Well Treatment, Completion, and Workover Fluids

Parameter	Daily Maximum	Daily Average
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51712) <i>Menidia beryllina</i> (24-hour acute LC50 ¹)	> 100%	> 100%
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51713) <i>Americamysis bahia</i> (24-hour acute LC50 ¹)	> 100%	> 100%

¹ The LC50 (Lethal Concentration 50) is defined as the effluent dilution at which 50% of the organisms survive.

24-hour acute toxicity tests shall be performed in accordance with protocols described in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition (EPA-821-R-02-012) or the latest revision.

- Contaminated Miscellaneous Discharges

Parameter	Daily Maximum	Daily Average
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51712) <i>Menidia beryllina</i> (LC50 ¹)	> 100%	> 100%
Lethal Whole Effluent Toxicity (WET) limit (Parameter 51713) <i>Americamysis bahia</i> (Acute LC50 ¹)	> 100%	> 100%

¹ The LC50 (Lethal Concentration 50) is defined as the effluent dilution at which 50% of the organisms survive.

24-hour acute toxicity tests shall be performed in accordance with protocols described in *Methods for Measuring the Acute Toxicity of Effluents and Receiving Waters to Freshwater and Marine Organisms*, Fifth Edition (EPA-821-R-02-012) or the latest revision.

- Domestic Waste

Parameter	Daily Maximum	Daily Average
Enterococci	130 cfu or MPN/100 mL	35 cfu or MPN/100 mL
Fecal Coliform	43 cfu or MPN/100 mL	14 cfu or MPN/100 mL

- Sanitary Waste (M10 and M91M)

Parameter	Daily Maximum	Daily Average
Enterococci	130 cfu or MPN/100 mL	35 cfu or MPN/100 mL
Fecal Coliform	43 cfu or MPN/100 mL	14 cfu or MPN/100 mL

- Water-Based Drilling Fluids/Cuttings

Parameter	Daily Maximum	Daily Average
Flow (MGD)	1.008 MGD	N/A

I. Anti-degradation review:

Part II, Section B.3 of the draft state-only discharge general permit states that the Executive Director may require an application for an individual TCEQ discharge permit to authorize a discharge from any activity that will not maintain existing uses of the Gulf of Mexico. Part II, Section B.5 of the draft state-only discharge general permit disallows new sources or new dischargers of constituents of concern to impaired waters (CWA Section 303(d) listed water bodies) unless otherwise allowable under 30 TAC Chapter 305. Part II, Section B.6 of the draft state-only discharge general permit states that the Executive Director may require an applicant to apply for an individual TCEQ discharge permit based on conditions of an approved TMDL and TMDL implementation plan. Part II, Section B.7 of the draft state-only discharge general permit prohibits discharges that would adversely affect a listed endangered or threatened species or its critical habitat. Part II, Section B.11 of the draft state-only discharge general permit prohibits the discharge into areas of biological concern, including marine sanctuaries. Part II, Section B.12 of the draft state-only discharge general permit prohibits the discharge of radioactive materials or substances in excess of the amount regulated by 30 TAC Chapter 336.

In accordance with 30 TAC §307.5, effective as state rule February 7, 2018, and TCEQ's *IPs* (RG-194), an antidegradation review of this draft state-only discharge general permit was performed in order to ensure that no significant degradation of the Gulf of Mexico will occur and that existing uses will be maintained and protected. It has been preliminarily determined that if the draft state-only discharge general permit requirements are properly implemented, no significant degradation is expected, and existing uses will be maintained and protected.

XII. Cooling Water Intake Structure Requirements

As discussed in previous sections of this fact sheet, this state-only discharge permit is not under the TPDES program and EPA oversight. Again, TCEQ intention is to apply all applicable federal requirements under the CWA and NPDES program to operations authorized under this state-only discharge general permit, including requirements related to cooling water intake structures (CWISs).

Section § 316(b) of the CWA requires that the location, design, construction, and capacity of CWISs reflect the Best Technology Available (BTA) for minimizing Impingement Mortality and Entrainment. EPA promulgated 316(b) Phase III regulations at 40 CFR Part 125, Subpart N, which require new offshore oil and gas facilities (including OCS Facilities) to take measures to reduce entrainment and impingement of aquatic life.

316(b) Phase III regulations apply to new facilities which intake 2 million gallons per day of water and use at least 25 percent for cooling. Phase III regulations also apply on a BPJ basis to new and existing facilities which use a CWIS but do not meet these minimum threshold requirements. The facilities which are affected by these requirements include: 1) new facilities which are regulated by the Offshore Subcategory of the Oil and Gas Extraction Point Source Category Effluent Limitation Guidelines in 40 CFR Part 435 and commenced construction after July 17, 2006; and 2) existing facilities which are regulated by the Offshore Subcategory of the Oil and Gas Extraction Point Source Category Effluent Limitation Guidelines in 40 CFR Part 435 and commenced construction on or prior to July 17, 2006. EPA regulations for CWISs for New Offshore Oil and Gas Extraction Facilities under Section 316(b) are established in 40 CFR Part 125, Subpart N, Effluent Guidelines and Standards. In general, EPA's regulations require operators to submit information demonstrating that 316(b) Phase III facilities will be designed so that the water intake velocity is less than 0.5 feet per second and other measures such as screens are employed to reduce entrainment when feasible. Every new or existing offshore oil and gas facility which meets the criteria above must comply with the CWIS requirements even when more than one facility (new and/or existing) are working at the same site.

The 316(b) Phase III regulations also require baseline and periodic biological monitoring. Baseline monitoring is required to characterize the biological community which could be impacted by the intake of cooling water. Periodic monitoring is intended to measure the number of organisms and types of species entrained in the system. As proposed, the draft state-only discharge general permit will require certain 316(b) Phase III facilities to conduct this biological monitoring. Such a study will need to include sufficient detail to demonstrate the intake structure designs are sufficient to minimize impacts due to entrainment and impingement and that no additional measures are warranted.

TCEQ is proposing to expand CWIS requirements in this draft state-only discharge general permit, as compared to the equivalent EPA's existing GMG290000 NPDES general permit. EPA's existing NPDES General Permit No. GMG290000 only applied requirements to new CWIS's. EPA regulations at 40 CFR § 125.130(c), 40 CFR § 125.90(b), and 40 CFR § 125.91(d) apply to existing and below threshold offshore oil and gas CWIS's. TCEQ is proposing to subject these operations to requirements established in EPA regulations.

XIII. Monitoring and Reporting

Monitoring is required by 40 CFR § 122.44(i) for each pollutant limited in a permit to ensure compliance with the permit limitations. The draft state-only discharge general permit has the following criteria established for monitoring.

- A. Samples shall be collected, measurements shall be taken, and visual observations shall be made at times and in a manner so as to be representative of the monitored and/or observed discharge. Specific and unique sampling requirements for effluent and stock limitations associated with the discharge of water-based drilling fluids and associated drill cuttings, and drill cuttings associated with non-aqueous drilling fluids are established in the draft state-only discharge general permit.

- B. All samples shall be collected according to the latest edition of "Standard Methods for the Examination of Water and Wastewater" (prepared and published jointly by the American Public Health Association, the American Water Works Association, and the Water Environment Federation), or the EPA's, "Methods for Chemical Analysis of Water and Wastes" (1979), or the EPA's, "Biological Field and Laboratory Methods for Measuring the Quality of Surface Waters and Effluents" (1973). The effluent limitations for the observation of free oil, floating solids, and foam are not subject to this condition. Specific and unique sampling requirements for effluent and stock limitations associated with the discharge of water-based drilling fluids and associated drill cuttings, and drill cuttings associated with non-aqueous drilling fluids are established in the draft state-only discharge general permit.
- C. Sample containers, holding times, and preservation methods shall either follow the requirements specified in 40 CFR Part 136 or the latest edition of "Standard Methods for the Examination of Water and Wastewater." The effluent limitations for the observation of free oil, floating solids, and foam are not subject to this condition. Specific and unique sampling requirements for effluent and stock limitations associated with the discharge of water-based drilling fluids and associated drill cuttings, and drill cuttings associated with non-aqueous drilling fluids are established in the draft state-only discharge general permit.
- D. The permittee shall ensure that properly trained and authorized personnel monitor, sample, and as applicable, observe the discharge. Specific and unique sampling requirements for effluent and stock limitations associated with the discharge of water-based drilling fluids and associated drill cuttings, and drill cuttings associated with non-aqueous drilling fluids are established in the draft state-only discharge general permit.
- E. The sampling point and observation point (as applicable) must be downstream of any treatment unit or treatment technique that is used to improve or otherwise alter the quality of the discharge. Specific and unique sampling requirements for effluent and stock limitations associated with the discharge of water-based drilling fluids and associated drill cuttings, and drill cuttings associated with non-aqueous drilling fluids are established in the draft state-only discharge general permit.
- F. Analytical results for determining compliance with effluent and stock limitations shall be submitted to the TCEQ Enforcement Division (MC-224) on an approved form established by the Executive Director. Effluent and stock sampling shall be conducted in accordance with the monitoring frequencies specified in this draft state-only discharge general permit. The Monthly Effluent Report (MER) for any given month shall be due by the 20th day of the following month. The MER for annual testing shall be due by March 31st of the following year. All MERs shall be signed in accordance with the requirements in Part IV.8 of this draft state-only discharge general permit. If non-compliance with a discharge occurs, the permittee shall provide notification according to Part III.B.6 of this state-only general permit.
- G. All laboratory tests submitted to demonstrate compliance with this draft state-only discharge general permit must meet the requirements of 30 TAC Chapter

25, Environmental Testing Laboratory Accreditation and Certification. The effluent limitations for the observation of free oil, floating solids, and foam are not subject to this condition. Specific and unique sampling requirements for effluent and stock limitations associated with the discharge of water-based drilling fluids and associated drill cuttings, and drill cuttings associated with non-aqueous drilling fluids are established in the draft state-only discharge general permit which may not be subject to these requirements.

H. Records of monitoring and observation activities shall include:

1. date, time, and place of sample, measurement, or observation;
2. identity of individual who collected the sample, made the measurement, or made the observation;
3. date and time of laboratory analysis (the effluent limitations for the observation of free oil, floating solids, and foam are not subject to this condition);
4. identity of the individual and laboratory who performed the analysis (the effluent limitations for the observation of free oil, floating solids, and foam are not subject to this condition);
5. the technique or method of analysis (the effluent limitations for the observation of free oil, floating solids, and foam are not subject to this condition);
6. the results of the analysis, measurement, or observation; and
7. quality assurance/quality control records (the effluent limitations for the observation of free oil, floating solids, and foam are not subject to this condition).

I. If the permittee monitors any pollutant in a discharge or stock material more frequently than required by the draft state-only discharge general permit using approved analytical methods as specified in Part IV.7 of the draft state-only discharge general permit, all results of such monitoring shall be included in the calculation and recording of the values on the MER. Increased frequency of sampling shall be indicated on the MER.

J. Any effluent or stock violation which deviates from the permitted effluent or stock limitation by more than 40% shall be reported by the permittee in writing to the appropriate Regional Office and the Enforcement Division (MC-224) within five working days of becoming aware of the noncompliance.

XIV. Procedures for Final Decision

According to 30 TAC Chapter 205, *General Permits for Waste Discharges*, when the draft state-only discharge general permit is proposed, notice shall be published, at a minimum, in at least one newspaper of statewide or regional circulation and in the *Texas Register*. The Commission may also publish notice in additional newspapers of statewide or regional circulation. Mailed notice shall also be provided to the following:

- the county judge of the county or counties in which the discharges under the draft state-only discharge general permit could be located;
- if applicable, state and federal agencies for which notice is required in 40 CFR § 124.10(c);
- persons on a relevant mailing list kept under 30 TAC § 39.407, relating to Mailing Lists; and
- any other person the Executive Director or Chief Clerk may elect to include.

After notice of the draft state-only discharge general permit is published in the *Texas Register* and the newspaper(s), the public will have 30 days to provide public comment on the draft state-only discharge general permit.

Any person, agency, or association may make a request for a public meeting on the draft state-only discharge general permit to the Executive Director of the TCEQ before the end of the public comment period. A public meeting will be granted when the Executive Director or Commission determines, on the basis of requests, that a significant degree of public interest in the draft state-only discharge general permit exists. A public meeting is intended for the taking of public comment and is not a contested case proceeding under the Texas Administrative Procedure Act.

If the Executive Director calls a public meeting, the Commission will give notice of the date, time, and place of the meeting, as required by Commission rule. The Executive Director shall prepare a response to all significant public comments on the draft state-only discharge general permit raised during the public comment period. The Executive Director shall make the response available to the public. The draft state-only discharge general permit will then be filed with the Commission to consider final authorization of the draft state-only discharge general permit. The Executive Director's response to public comment shall be made available to the public and filed with the Chief Clerk at least ten days before the Commission acts on the draft state-only discharge general permit.

XV. Administrative Record

The following section is a list of the fact sheet citations to applicable statutory or regulatory provisions and appropriate supporting references.

A. NPDES General Permits

NPDES General Permit No. TXG260000 for Discharges from the Offshore Subcategory of the Oil and Gas Extraction Point Source Category to the Territorial Seas effective February 8, 2012.

NPDES General Permit No. GMG290000 for New and Existing Sources and New Discharges in the Offshore Subcategory of the Oil and Gas Extraction Point Source Category for the Western Portion of the Outer Continental Shelf of the Gulf of Mexico effective October 1, 2017.

B. 40 CFR Citations

40 FR Parts 122, 124, 125, 136, and 435

C. TCEQ Rules

30 TAC Chapters 39, 205, 281, 305, 307, 309, 319, 331, 335, and 336

D. Letters/Memoranda/Records of Communication

Letter dated April 1, 2020 from C. Maguire (EPA) to L. Stepney (TCEQ) with attached "Draft Evaluating Thermal Discharges dated July 27, 2017."

Electronic mail (email) from M. Lutz (J. Conner Consulting, Inc.) to Chris Linendoll (TCEQ) with attached Excel spreadsheet dated May 4, 2021 related to produced wastewater data submitted to RRC for offshore produced wastewater discharges.

Letter dated June 10, 2021 from Greg Southworth, Associate Director, Offshore Operators Committee to Earl Lott, Director, Office of Water, TCEQ.

Letter dated June 17, 2021 from Earl Lott, Director, Office of Water, TCEQ to Greg Southworth, Associate Director, Offshore Operators Committee.

Notice to Oil and Gas Operators, prepared by Texas Railroad Commission of Texas, Oil and Gas Division, dated August 2021.

Letter dated November 22, 2021 from Greg Southworth, Associate Director, Offshore Operators Committee to Earl Lott, Director, Office of Water, TCEQ.

TCEQ Interoffice Memorandum dated September 27, 2022 from J. Michalk (Water Quality Assessment Section) to Industrial Permits Team related to critical conditions assessment and CORMIX modeling at produced water (wastewater) flows at 7000 barrels/day for development of the WQG280000 oil and gas general permit.

TCEQ Interoffice Memorandum dated September 27, 2022 from J. Michalk (Water Quality Assessment Section) to Industrial Permits Team related to dissolved oxygen impact assessment for development of the WQG280000 oil and gas general permit.

TCEQ Interoffice Memorandum dated October 3, 2022 from M. Pfeil (Water Quality Assessment Section) to Industrial Permits Team related to barium/manganese marine water quality criteria for development of the WQG280000 oil and gas general permit.

TCEQ Interoffice Memorandum dated October 6, 2022 from P. Schaefer (Water Quality Assessment Section) to Industrial Permits Team related to temperature/thermal impact assessment for development of the WQG280000 oil and gas general permit.

WQG280000 Antidegradation Review, Interoffice Memorandum from the Standards Implementation Team to Wastewater Permitting Section dated November 29, 2022.

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

Letter dated June 8, 2023 from M. Lutz, J. Connor Consulting to Office of the Chief Clerk, TCEQ.

Letter dated June 11, 2023 from S. Hamm, W&T Offshore, Inc. to Office of the Chief Clerk, TCEQ.

TCEQ Interoffice Memorandum dated August 3, 2023 from J. Michalk (Water Quality Assessment Section) to Industrial Permits Team related to critical conditions assessment and CORMIX modeling at produced water (wastewater) flows at 6000 barrels/day for development of the WQG280000 oil and gas general permit.

E. Miscellaneous

EPA, National Recommended Water Quality Criteria: 2002, EPA-822-R-02-047, November 2002.

EPA, Quality Criteria for Water 1986 (EPA 440/5-86-001)

TCEQ, *Implementation Procedures of the Texas Surface Water Quality Standards*, (RG-194), January 2010.

“Supplemental Information Report to the 2004 Final Impact Statement, New Source NPDES General Permit for Discharges from the Offshore Subcategory of the Oil and Gas Extraction Point Source Category to the Territorial Seas of Texas (Permit No. TXG260000)”, September 2011.

Fact Sheet and Supplemental Information for the Proposed NPDES General Permit for Discharges from the Offshore Subcategory of the Oil and Gas Extraction Point Source Category to the Territorial Seas of Texas (Permit Number TXG260000), October 4, 2011.

Fact Sheet and Supplemental Information for the Final Reissuance of the NPDES General Permit for New and Existing Sources in the Offshore Subcategory of the Oil and Gas Extraction Point Source Category for the Western Portion of the Outer Continental Shelf of the Gulf of Mexico (GMG290000), September 18, 2017.

“Characteristics of Produced Water Discharged to the Gulf of Mexico Hypoxic Zone”, prepared by Environmental Assessment Division Argonne National Laboratory, ANL/EAD/05-3, August 2005.

“OOC Produced Water and Water Based Mud Characterization Study” – Final Report, prepared by Tetra Tech, September 2015.

“Gulf of Mexico Produced Water Bioaccumulation Study”, prepared by Continental Shelf Associates, Inc., April 1997.

Texas Register Publication, 9 TexReg 405, published January 20, 1984, amendments to 31 TAC Section 329.46.

“Barium in Produced Water: Fate and Effects in the Marine Environment”, American Petroleum Institute, September 1995, Publication Number 4633.

CORMIX Model Version 11.0 GTD (Version 11.0.1.0).

CORMIX User Manual (published December 2007 and updated February 2017 by Robert L. Doneker and Gerhard H. Jirka).

TCEQ’s Guidance Manual for Mixing Analyses Using CORMIX (revised on October 2, 2018 by Mark Rudolph, P.E.).

SWQM data for the Gulf of Mexico: TCEQ Surface Water Quality Monitoring Stations (SWQM) in the Gulf of Mexico (Segment No. 2501).

“Analytic Methods for the Oil and Gas Extraction Point Source Category”, U.S. Environmental Protection Agency, Engineering and Analysis Division, EPA-821-R-11-004, December 2011.

“Final Report: Joint Industry Project Study of Well Treatment, Completion, and Workover Effluents”, submitted by Offshore Operators Committee, September 23, 2021.

Appendix A: Water Quality-Based Effluent Limitations Calculations – Well Treatment, Completion, and Workover Fluids

TEXT0X MENU #5 - BAY OR WIDE TIDAL RIVER

The water quality-based effluent limitations developed below are calculated using:

Table 1, 2014 Texas Surface Water Quality Standards (30 TAC 307) for Saltwater Aquatic Life

Table 2, 2018 Texas Surface Water Quality Standards for Human Health

"Procedures to Implement the Texas Surface Water Quality Standards," TCEQ, June 2010

PERMIT INFORMATION

Permittee Name:	State-Only Outer Continental Shelf Oil and Gas General Permit
TCEQ Permit No:	WQG280000
Outfall No:	N/A (Well Treatment/Completion/Workover Fluids)
Prepared by:	Water Quality Division
Date:	9/22/2020

DISCHARGE INFORMATION

Receiving Waterbody:	Gulf of Mexico
Segment No:	2501
TSS (mg/L):	12
Effluent Flow for Aquatic Life (MGD)	<10
% Effluent for Chronic Aquatic Life (Mixing Zone):	8
% Effluent for Acute Aquatic Life (ZID):	30
Oyster Waters?	Yes
Effluent Flow for Human Health (MGD):	<10
% Effluent for Human Health:	4

CALCULATE DISSOLVED FRACTION (AND ENTER WATER EFFECT RATIO IF APPLICABLE):

<i>Estuarine Metal</i>	<i>Intercept (b)</i>	<i>Slope (m)</i>	<i>Partition Coefficient (Kp)</i>	<i>Dissolved Fraction (Cd/Ct)</i>	<i>Source</i>	<i>Water Effect Ratio (WER)</i>	<i>Source</i>
Aluminum	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Arsenic	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Cadmium	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Chromium (total)	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Chromium (trivalent)	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Chromium (hexavalent)	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Copper	4.85	-0.72	11830.13	0.876		1.00	Assumed
Lead	6.06	-0.85	138897.98	0.375		1.00	Assumed
Mercury	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Nickel	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Selenium	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Silver	5.86	-0.74	115187.64	0.420		1.00	Assumed
Zinc	5.36	-0.52	62925.37	0.570		1.00	Assumed

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

CALCULATED DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS FOR AQUATIC LIFE PROTECTION:

<i>Parameter</i>	<i>SW Acute Criterion (µg/L)</i>	<i>SW Chronic Criterion (µg/L)</i>	<i>WLAa (µg/L)</i>	<i>WLAc (µg/L)</i>	<i>LTAa (µg/L)</i>	<i>LTAc (µg/L)</i>	<i>Daily Avg. (µg/L)</i>	<i>Daily Max. (µg/L)</i>
Acrolein	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aldrin	1.3	N/A	4.33	N/A	1.39	N/A	2.03	4.31
Aluminum	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	149	78	497	975	159	595	233	494
Cadmium	40.0	8.75	133	109	42.7	66.7	62.7	132
Carbaryl	613	N/A	2043	N/A	654	N/A	961	2033
Chlordane	0.09	0.004	0.300	0.0500	0.0960	0.0305	0.0448	0.0948
Chlorpyrifos	0.011	0.006	0.0367	0.0750	0.0117	0.0458	0.0172	0.0364
Chromium (trivalent)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium (hexavalent)	1090	49.6	3633	620	1163	378	555	1176
Copper	13.5	3.6	51.4	51.4	16.4	31.3	24.1	51.1
Copper (oyster waters)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	51.1
Cyanide (free)	5.6	5.6	18.7	70.0	5.97	42.7	8.78	18.5
4,4'-DDT	0.13	0.001	0.433	0.0125	0.139	0.00763	0.0112	0.0237
Demeton	N/A	0.1	N/A	1.25	N/A	0.763	1.12	2.37
Diazinon	0.819	0.819	2.73	10.2	0.874	6.24	1.28	2.71
Dicofol [Kelthane]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dieldrin	0.71	0.002	2.37	0.0250	0.757	0.0153	0.0224	0.0474
Diuron	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endosulfan I (<i>alpha</i>)	0.034	0.009	0.113	0.113	0.0363	0.0686	0.0533	0.112
Endosulfan II (<i>beta</i>)	0.034	0.009	0.113	0.113	0.0363	0.0686	0.0533	0.112
Endosulfan sulfate	0.034	0.009	0.113	0.113	0.0363	0.0686	0.0533	0.112
Endrin	0.037	0.002	0.123	0.0250	0.0395	0.0153	0.0224	0.0474
Guthion [Azinphos Methyl]	N/A	0.01	N/A	0.125	N/A	0.0763	0.112	0.237
Heptachlor	0.053	0.004	0.177	0.0500	0.0565	0.0305	0.0448	0.0948
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	0.16	N/A	0.533	N/A	0.171	N/A	0.250	0.530
Lead	133	5.3	1182	177	378	108	158	335
Malathion	N/A	0.01	N/A	0.125	N/A	0.0763	0.112	0.237
Mercury	2.1	1.1	7.00	13.8	2.24	8.39	3.29	6.96
Methoxychlor	N/A	0.03	N/A	0.375	N/A	0.229	0.336	0.711
Mirex	N/A	0.001	N/A	0.0125	N/A	0.00763	0.0112	0.0237
Nickel	118	13.1	393	164	126	99.9	146	310
Nonylphenol	7	1.7	23.3	21.3	7.47	13.0	10.9	23.2
Parathion (ethyl)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pentachlorophenol	15.1	9.6	50.3	120	16.1	73.2	23.6	50.0
Phenanthrene	7.7	4.6	25.7	57.5	8.21	35.1	12.0	25.5
Polychlorinated Biphenyls [PCBs]	10	0.03	33.3	0.375	10.7	0.229	0.336	0.711
Selenium	564	136	1880	1700	602	1037	884	1870
Silver	2	N/A	15.9	N/A	5.08	N/A	7.47	15.8
Toxaphene	0.21	0.0002	0.700	0.00250	0.224	0.00153	0.00224	0.00474
Tributyltin [TBT]	0.24	0.0074	0.800	0.0925	0.256	0.0564	0.0829	0.175
2,4,5 Trichlorophenol	259	12	863	150	276	91.5	134	284
Zinc	92.7	84.2	542	1847	174	1127	255	539

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

CALCULATED DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS FOR HUMAN HEALTH PROTECTION:

<i>Parameter</i>	<i>Fish Only Criterion (µg/L)</i>	<i>WLAh (µg/L)</i>	<i>LTAh (µg/L)</i>	<i>Daily Avg. (µg/L)</i>	<i>Daily Max. (µg/L)</i>
Acrylonitrile	115	2875	2674	3930	8315
Aldrin	1.147E-05	0.000287	0.000267	0.000392	0.000829
Anthracene	1317	32925	30620	45011	95228
Antimony	1071	26775	24901	36604	77441
Arsenic	N/A	N/A	N/A	N/A	N/A
Barium	N/A	N/A	N/A	N/A	N/A
Benzene	581	14525	13508	19857	42010
Benzidine	0.107	2.68	2.49	3.65	7.73
Benzo(a)anthracene	0.025	0.625	0.581	0.854	1.80
Benzo(a)pyrene	0.0025	0.0625	0.0581	0.0854	0.180
Bis(chloromethyl)ether	0.2745	6.86	6.38	9.38	19.8
Bis(2-chloroethyl)ether	42.83	1071	996	1463	3096
Bis(2-ethylhexyl) phthalate [Di(2-ethylhexyl) phthalate]	7.55	189	176	258	545
Bromodichloromethane [Dichlorobromomethane]	275	6875	6394	9398	19884
Bromoform [Tribromomethane]	1060	26500	24645	36228	76645
Cadmium	N/A	N/A	N/A	N/A	N/A
Carbon Tetrachloride	46	1150	1070	1572	3326
Chlordane	0.0025	0.0625	0.0581	0.0854	0.180
Chlorobenzene	2737	68425	63635	93543	197905
Chlorodibromomethane [Dibromochloromethane]	183	4575	4255	6254	13232
Chloroform [Trichloromethane]	7697	192425	178955	263064	556550
Chromium (hexavalent)	502	12550	11672	17157	36298
Chrysene	2.52	63.0	58.6	86.1	182
Cresols [Methylphenols]	9301	232525	216248	317884	672532
Cyanide (free)	N/A	N/A	N/A	N/A	N/A
4,4'-DDD	0.002	0.0500	0.0465	0.0683	0.144
4,4'-DDE	0.00013	0.00325	0.00302	0.00444	0.00939
4,4'-DDT	0.0004	0.0100	0.00930	0.0136	0.0289
2,4'-D	N/A	N/A	N/A	N/A	N/A
Danitrol [Fenpropathrin]	473	11825	10997	16165	34201
1,2-Dibromoethane [Ethylene Dibromide]	4.24	106	98.6	144	306
<i>m</i> -Dichlorobenzene [1,3-Dichlorobenzene]	595	14875	13834	20335	43022
<i>o</i> -Dichlorobenzene [1,2-Dichlorobenzene]	3299	82475	76702	112751	238542
<i>p</i> -Dichlorobenzene [1,4-Dichlorobenzene]	N/A	N/A	N/A	N/A	N/A
3,3'-Dichlorobenzidine	2.24	56.0	52.1	76.5	161
1,2-Dichloroethane	364	9100	8463	12440	26319
1,1-Dichloroethylene [1,1-Dichloroethene]	55114	1377850	1281401	1883658	3985155
Dichloromethane [Methylene Chloride]	13333	333325	309992	455688	964075
1,2-Dichloropropane	259	6475	6022	8851	18727
1,3-Dichloropropene [1,3-Dichloropropylene]	119	2975	2767	4067	8604
Dicofol [Kelthane]	0.30	7.50	6.98	10.2	21.6
Dieldrin	2.0E-05	0.000500	0.000465	0.000683	0.00144
2,4-Dimethylphenol	8436	210900	196137	288321	609986
Di- <i>n</i> -Butyl Phthalate	92.4	2310	2148	3158	6681
Dioxins/Furans [TCDD Equivalents]	7.97E-08	0.0000020	0.0000019	0.0000027	0.0000058
Endrin	0.02	0.500	0.465	0.683	1.44
Epichlorohydrin	2013	50325	46802	68799	145554
Ethylbenzene	1867	46675	43408	63809	134998
Ethylene Glycol	1.68E+07	420000000	390600000	574182000	1214766000
Fluoride	N/A	N/A	N/A	N/A	N/A
Heptachlor	0.0001	0.00250	0.00233	0.00341	0.00723
Heptachlor Epoxide	0.00029	0.00725	0.00674	0.00991	0.0209

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

<i>Parameter</i>	<i>Fish Only Criterion (µg/L)</i>	<i>WLAh (µg/L)</i>	<i>LTAh (µg/L)</i>	<i>Daily Avg. (µg/L)</i>	<i>Daily Max. (µg/L)</i>
Hexachlorobenzene	0.00068	0.0170	0.0158	0.0232	0.0491
Hexachlorobutadiene	0.22	5.50	5.12	7.51	15.9
Hexachlorocyclohexane (<i>alpha</i>)	0.0084	0.210	0.195	0.287	0.607
Hexachlorocyclohexane (<i>beta</i>)	0.26	6.50	6.05	8.88	18.7
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	0.341	8.53	7.93	11.6	24.6
Hexachlorocyclopentadiene	11.6	290	270	396	838
Hexachloroethane	2.33	58.3	54.2	79.6	168
Hexachlorophene	2.90	72.5	67.4	99.1	209
4,4'-Isopropylidenediphenol [Bisphenol A]	15982	399550	371582	546224	1155618
Lead	3.83	255	237	349	738
Mercury	0.0250	0.625	0.581	0.854	1.80
Methoxychlor	3.0	75.0	69.8	102	216
Methyl Ethyl Ketone	9.92E+05	24800000	23064000	33904080	71729040
Methyl <i>tert</i> -butyl ether [MTBE]	10482	262050	243707	358248	757927
Nickel	1140	28500	26505	38962	82430
Nitrate-Nitrogen (as Total Nitrogen)	N/A	N/A	N/A	N/A	N/A
Nitrobenzene	1873	46825	43547	64014	135431
N-Nitrosodiethylamine	2.1	52.5	48.8	71.7	151
N-Nitroso-di- <i>n</i> -Butylamine	4.2	105	97.7	143	303
Pentachlorobenzene	0.355	8.88	8.25	12.1	25.6
Pentachlorophenol	0.29	7.25	6.74	9.91	20.9
Polychlorinated Biphenyls [PCBs]	6.4E-04	0.0160	0.0149	0.0218	0.0462
Pyridine	947	23675	22018	32366	68475
Selenium	N/A	N/A	N/A	N/A	N/A
1,2,4,5-Tetrachlorobenzene	0.24	6.00	5.58	8.20	17.3
1,1,2,2-Tetrachloroethane	26.35	659	613	900	1905
Tetrachloroethylene [Tetrachloroethylene]	280	7000	6510	9569	20246
Thallium	0.23	5.75	5.35	7.86	16.6
Toluene	N/A	N/A	N/A	N/A	N/A
Toxaphene	0.011	0.275	0.256	0.375	0.795
2,4,5-TP [Silvex]	369	9225	8579	12611	26681
1,1,1-Trichloroethane	784354	19608850	18236231	26807258	56714676
1,1,2-Trichloroethane	166	4150	3860	5673	12003
Trichloroethylene [Trichloroethene]	71.9	1798	1672	2457	5198
2,4,5-Trichlorophenol	1867	46675	43408	63809	134998
TTHM [Sum of Total Trihalomethanes]	N/A	N/A	N/A	N/A	N/A
Vinyl Chloride	16.5	413	384	563	1193

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

CALCULATED 70% AND 85% OF DAILY AVERAGE EFFLUENT LIMITATIONS FOR AQUATIC LIFE PROTECTION:

<i>Parameter</i>	<i>70% of Daily Avg. (µg/L)</i>	<i>85% of Daily Avg. (µg/L)</i>
Acrolein	N/A	N/A
Aldrin	1.42	1.73
Aluminum	N/A	N/A
Arsenic	163	198
Cadmium	43.9	53.3
Carbaryl	672	817
Chlordane	0.0313	0.0381
Chlorpyrifos	0.0120	0.0146
Chromium (trivalent)	N/A	N/A
Chromium (hexavalent)	389	472
Copper	16.9	20.5
Copper (oyster waters)	N/A	N/A
Cyanide (free)	6.14	7.46
4,4'-DDT	0.00784	0.00952
Demeton	0.784	0.952
Diazinon	0.898	1.09
Dicofol [Kelthane]	N/A	N/A
Dieldrin	0.0156	0.0190
Diuron	N/A	N/A
Endosulfan I (<i>alpha</i>)	0.0373	0.0453
Endosulfan II (<i>beta</i>)	0.0373	0.0453
Endosulfan sulfate	0.0373	0.0453
Endrin	0.0156	0.0190
Guthion [Azinphos Methyl]	0.0784	0.0952
Heptachlor	0.0313	0.0381
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	0.175	0.213
Lead	110	134
Malathion	0.0784	0.0952
Mercury	2.30	2.79
Methoxychlor	0.235	0.285
Mirex	0.00784	0.00952
Nickel	102	124
Nonylphenol	7.68	9.32
Parathion (ethyl)	N/A	N/A
Pentachlorophenol	16.5	20.1
Phenanthrene	8.45	10.2
Polychlorinated Biphenyls [PCBs]	0.235	0.285
Selenium	619	751
Silver	5.22	6.35
Toxaphene	0.00156	0.00190
Tributyltin [TBT]	0.0580	0.0705
2,4,5 Trichlorophenol	94.1	114
Zinc	178	216

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

CALCULATED 70% AND 85% OF DAILY AVERAGE EFFLUENT LIMITATIONS FOR HUMAN HEALTH PROTECTION:

<i>Parameter</i>	<i>70% of Daily Avg. (µg/L)</i>	<i>85% of Daily Avg. (µg/L)</i>
Acrylonitrile	2751	3340
Aldrin	0.000274	0.000333
Anthracene	31508	38260
Antimony	25622	31113
Arsenic	N/A	N/A
Barium	N/A	N/A
Benzene	13899	16878
Benzidine	2.55	3.10
Benzo(a)anthracene	0.598	0.726
Benzo(a)pyrene	0.0598	0.0726
Bis(chloromethyl)ether	6.56	7.97
Bis(2-chloroethyl)ether	1024	1244
Bis(2-ethylhexyl) phthalate [Di(2-ethylhexyl) phthalate]	180	219
Bromodichloromethane [Dichlorobromomethane]	6579	7988
Bromoform [Tribromomethane]	25359	30793
Cadmium	N/A	N/A
Carbon Tetrachloride	1100	1336
Chlordane	0.0598	0.0726
Chlorobenzene	65480	79512
Chlorodibromomethane [Dibromochloromethane]	4378	5316
Chloroform [Trichloromethane]	184144	223604
Chromium (hexavalent)	12009	14583
Chrysene	60.2	73.2
Cresols [Methylphenols]	222519	270202
Cyanide (free)	N/A	N/A
4,4'-DDD	0.0478	0.0581
4,4'-DDE	0.00311	0.00377
4,4'-DDT	0.00956	0.0116
2,4'-D	N/A	N/A
Danitol [Fenpropathrin]	11316	13741
1,2-Dibromoethane [Ethylene Dibromide]	101	123
<i>m</i> -Dichlorobenzene [1,3-Dichlorobenzene]	14234	17285
<i>o</i> -Dichlorobenzene [1,2-Dichlorobenzene]	78926	95838
<i>p</i> -Dichlorobenzene [1,4-Dichlorobenzene]	N/A	N/A
3,3'-Dichlorobenzidine	53.5	65.0
1,2-Dichloroethane	8708	10574
1,1-Dichloroethylene [1,1-Dichloroethene]	1318561	1601109
Dichloromethane [Methylene Chloride]	318982	387335
1,2-Dichloropropane	6196	7524
1,3-Dichloropropene [1,3-Dichloropropylene]	2846	3457
Dicofol [Kelthane]	7.17	8.71
Dieldrin	0.000478	0.000581
2,4-Dimethylphenol	201824	245073
Di- <i>n</i> -Butyl Phthalate	2210	2684
Dioxins/Furans [TCDD Equivalents]	0.0000019	0.0000023
Endrin	0.478	0.581
Epichlorohydrin	48159	58479
Ethylbenzene	44666	54237
Ethylene Glycol	401927400	488054700
Fluoride	N/A	N/A
Heptachlor	0.00239	0.00290
Heptachlor Epoxide	0.00693	0.00842

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

Parameter	70% of Daily Avg. (µg/L)	85% of Daily Avg. (µg/L)
Hexachlorobenzene	0.0162	0.0197
Hexachlorobutadiene	5.26	6.39
Hexachlorocyclohexane (<i>alpha</i>)	0.200	0.244
Hexachlorocyclohexane (<i>beta</i>)	6.22	7.55
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	8.15	9.90
Hexachlorocyclopentadiene	277	336
Hexachloroethane	55.7	67.6
Hexachlorophene	69.3	84.2
4,4'-Isopropylidenediphenol [Bisphenol A]	382357	464291
Lead	244	296
Mercury	0.598	0.726
Methoxychlor	71.7	87.1
Methyl Ethyl Ketone	23732856	28818468
Methyl <i>tert</i> -butyl ether [MTBE]	250773	304511
Nickel	27273	33117
Nitrate-Nitrogen (as Total Nitrogen)	N/A	N/A
Nitrobenzene	44810	54412
N-Nitrosodiethylamine	50.2	61.0
N-Nitroso-di- <i>n</i> -Butylamine	100	122
Pentachlorobenzene	8.49	10.3
Pentachlorophenol	6.93	8.42
Polychlorinated Biphenyls [PCBs]	0.0153	0.0185
Pyridine	22656	27511
Selenium	N/A	N/A
1,2,4,5-Tetrachlorobenzene	5.74	6.97
1,1,2,2-Tetrachloroethane	630	765
Tetrachloroethylene [Tetrachloroethylene]	6698	8134
Thallium	5.50	6.68
Toluene	N/A	N/A
Toxaphene	0.263	0.319
2,4,5-TP [Silvex]	8828	10719
1,1,1-Trichloroethane	18765081	22786170
1,1,2-Trichloroethane	3971	4822
Trichloroethylene [Trichloroethene]	1720	2088
2,4,5-Trichlorophenol	44666	54237
TTHM [Sum of Total Trihalomethanes]	N/A	N/A
Vinyl Chloride	394	479

Appendix B: Water Quality-Based Effluent Limitations Calculations – Produced Wastewater Discharges

TEXTTOX MENU #5 - BAY OR WIDE TIDAL RIVER

The water quality-based effluent limitations developed below are calculated using:

Table 1, 2014 Texas Surface Water Quality Standards (30 TAC 307) for Saltwater Aquatic Life

Table 2, 2018 Texas Surface Water Quality Standards for Human Health

"Procedures to Implement the Texas Surface Water Quality Standards," TCEQ, June 2010

PERMIT INFORMATION

Permittee Name:	State-Only Outer Continental Shelf Oil & Gas General Permit
TCEQ Permit No:	WQG280000
Outfall No:	N/A (Produced Wastewater)
Prepared by:	Water Quality Division
Date:	August 3, 2023

DISCHARGE INFORMATION

Receiving Waterbody:	Gulf of Mexico
Segment No:	2501
TSS (mg/L):	12
Effluent Flow for Aquatic Life (MGD)	0.252
% Effluent for Chronic Aquatic Life (Mixing Zone):	2.1
% Effluent for Acute Aquatic Life (ZID):	3
Oyster Waters?	yes
Effluent Flow for Human Health (MGD):	0.252
% Effluent for Human Health:	1.6

CALCULATE DISSOLVED FRACTION (AND ENTER WATER EFFECT RATIO IF APPLICABLE):

<i>Estuarine Metal</i>	<i>Intercept (b)</i>	<i>Slope (m)</i>	<i>Partition Coefficient (Kp)</i>	<i>Dissolved Fraction (Cd/Ct)</i>	<i>Source</i>	<i>Water Effect Ratio (WER)</i>	<i>Source</i>
Aluminum	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Arsenic	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Cadmium	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Chromium (total)	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Chromium (trivalent)	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Chromium (hexavalent)	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Copper	4.85	-0.72	11830.13	0.876		1.00	Assumed
Lead	6.06	-0.85	138897.98	0.375		1.00	Assumed
Mercury	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Nickel	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Selenium	N/A	N/A	N/A	1.00	Assumed	1.00	Assumed
Silver	5.86	-0.74	115187.64	0.420		1.00	Assumed
Zinc	5.36	-0.52	62925.37	0.570		1.00	Assumed

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

CALCULATED DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS FOR AQUATIC LIFE PROTECTION:

<i>Parameter</i>	<i>SW Acute Criterion (µg/L)</i>	<i>SW Chronic Criterion (µg/L)</i>	<i>WLAa (µg/L)</i>	<i>WLAc (µg/L)</i>	<i>LTAa (µg/L)</i>	<i>LTAc (µg/L)</i>	<i>Daily Avg. (µg/L)</i>	<i>Daily Max. (µg/L)</i>
Acrolein	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Aldrin	1.3	N/A	43.3	N/A	13.9	N/A	20.3	43.1
Aluminum	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Arsenic	149	78	4967	3714	1589	2266	2336	4942
Cadmium	40.0	8.75	1333	417	427	254	373	790
Carbaryl	613	N/A	20433	N/A	6539	N/A	9611	20335
Chlordane	0.09	0.004	3.00	0.190	0.960	0.116	0.170	0.361
Chlorpyrifos	0.011	0.006	0.367	0.286	0.117	0.174	0.172	0.364
Chromium (trivalent)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Chromium (hexavalent)	1090	49.6	36333	2362	11627	1441	2117	4480
Copper	13.5	3.6	514	196	164	119	175	371
Copper (oyster waters)	3.6	N/A	196	N/A	62.6	N/A	92.0	194
Cyanide (free)	5.6	5.6	187	267	59.7	163	87.8	185
4,4'-DDT	0.13	0.001	4.33	0.0476	1.39	0.0290	0.0427	0.0903
Demeton	N/A	0.1	N/A	4.76	N/A	2.90	4.27	9.03
Diazinon	0.819	0.819	27.3	39.0	8.74	23.8	12.8	27.1
Dicofol [Kelthane]	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Dieldrin	0.71	0.002	23.7	0.0952	7.57	0.0581	0.0854	0.180
Diuron	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Endosulfan I (<i>alpha</i>)	0.034	0.009	1.13	0.429	0.363	0.261	0.384	0.813
Endosulfan II (<i>beta</i>)	0.034	0.009	1.13	0.429	0.363	0.261	0.384	0.813
Endosulfan sulfate	0.034	0.009	1.13	0.429	0.363	0.261	0.384	0.813
Endrin	0.037	0.002	1.23	0.0952	0.395	0.0581	0.0854	0.180
Guthion [Azinphos Methyl]	N/A	0.01	N/A	0.476	N/A	0.290	0.427	0.903
Heptachlor	0.053	0.004	1.77	0.190	0.565	0.116	0.170	0.361
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	0.16	N/A	5.33	N/A	1.71	N/A	2.50	5.30
Lead	133	5.3	11823	673	3783	411	603	1276
Malathion	N/A	0.01	N/A	0.476	N/A	0.290	0.427	0.903
Mercury	2.1	1.1	70.0	52.4	22.4	32.0	32.9	69.6
Methoxychlor	N/A	0.03	N/A	1.43	N/A	0.871	1.28	2.71
Mirex	N/A	0.001	N/A	0.0476	N/A	0.0290	0.0427	0.0903
Nickel	118	13.1	3933	624	1259	381	559	1183
Nonylphenol	7	1.7	233	81.0	74.7	49.4	72.5	153
Parathion (ethyl)	N/A	N/A	N/A	N/A	N/A	N/A	N/A	N/A
Pentachlorophenol	15.1	9.6	503	457	161	279	236	500
Phenanthrene	7.7	4.6	257	219	82.1	134	120	255
Polychlorinated Biphenyls [PCBs]	10	0.03	333	1.43	107	0.871	1.28	2.71
Selenium	564	136	18800	6476	6016	3950	5807	12285
Silver	2	N/A	159	N/A	50.8	N/A	74.7	158
Toxaphene	0.21	0.0002	7.00	0.00952	2.24	0.00581	0.00854	0.0180
Tributyltin [TBT]	0.24	0.0074	8.00	0.352	2.56	0.215	0.315	0.668
2,4,5 Trichlorophenol	259	12	8633	571	2763	349	512	1084
Zinc	92.7	84.2	5423	7037	1735	4293	2551	5397

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

CALCULATED DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS FOR HUMAN HEALTH PROTECTION:

<i>Parameter</i>	<i>Fish Only Criterion (µg/L)</i>	<i>WLAh (µg/L)</i>	<i>LTAh (µg/L)</i>	<i>Daily Avg. (µg/L)</i>	<i>Daily Max. (µg/L)</i>
Acrylonitrile	115	7188	6684	9826	20788
Aldrin	1.147E-05	0.000717	0.000667	0.000980	0.00207
Anthracene	1317	82313	76551	112529	238072
Antimony	1071	66938	62252	91510	193603
Arsenic	N/A	N/A	N/A	N/A	N/A
Barium	N/A	N/A	N/A	N/A	N/A
Benzene	581	36313	33771	49642	105026
Benzidine	0.107	6.69	6.22	9.14	19.3
Benzo(a)anthracene	0.025	1.56	1.45	2.13	4.51
Benzo(a)pyrene	0.0025	0.156	0.145	0.213	0.451
Bis(chloromethyl)ether	0.2745	17.2	16.0	23.4	49.6
Bis(2-chloroethyl)ether	42.83	2677	2489	3659	7742
Bis(2-ethylhexyl) phthalate [Di(2-ethylhexyl) phthalate]	7.55	472	439	645	1364
Bromodichloromethane [Dichlorobromomethane]	275	17188	15984	23497	49711
Bromoform [Tribromomethane]	1060	66250	61613	90570	191614
Cadmium	N/A	N/A	N/A	N/A	N/A
Carbon Tetrachloride	46	2875	2674	3930	8315
Chlordane	0.0025	0.156	0.145	0.213	0.451
Chlorobenzene	2737	171063	159088	233859	494764
Chlorodibromomethane [Dibromochloromethane]	183	11438	10637	15636	33080
Chloroform [Trichloromethane]	7697	481063	447388	657660	1391377
Chromium (hexavalent)	502	31375	29179	42892	90745
Chrysene	2.52	158	146	215	455
Cresols [Methylphenols]	9301	581313	540621	794712	1681330
Cyanide (free)	N/A	N/A	N/A	N/A	N/A
4,4'-DDD	0.002	0.125	0.116	0.170	0.361
4,4'-DDE	0.00013	0.00813	0.00756	0.0111	0.0234
4,4'-DDT	0.0004	0.0250	0.0233	0.0341	0.0723
2,4'-D	N/A	N/A	N/A	N/A	N/A
Danitol [Fenpropathrin]	473	29563	27493	40414	85503
1,2-Dibromoethane [Ethylene Dibromide]	4.24	265	246	362	766
<i>m</i> -Dichlorobenzene [1,3-Dichlorobenzene]	595	37188	34584	50839	107557
<i>o</i> -Dichlorobenzene [1,2-Dichlorobenzene]	3299	206188	191754	281878	596356
<i>p</i> -Dichlorobenzene [1,4-Dichlorobenzene]	N/A	N/A	N/A	N/A	N/A
3,3'-Dichlorobenzidine	2.24	140	130	191	404
1,2-Dichloroethane	364	22750	21158	31101	65799
1,1-Dichloroethylene [1,1-Dichloroethene]	55114	3444625	3203501	4709146	9962888
Dichloromethane [Methylene Chloride]	13333	833313	774981	1139221	2410189
1,2-Dichloropropane	259	16188	15054	22129	46819
1,3-Dichloropropene [1,3-Dichloropropylene]	119	7438	6917	10167	21511
Dicofol [Kelthane]	0.30	18.8	17.4	25.6	54.2
Dieldrin	2.0E-05	0.00125	0.00116	0.00170	0.00361
2,4-Dimethylphenol	8436	527250	490343	720803	1524965
Di- <i>n</i> -Butyl Phthalate	92.4	5775	5371	7895	16703
Dioxins/Furans [TCDD Equivalents]	7.97E-08	0.0000050	0.0000046	0.0000068	0.0000144
Endrin	0.02	1.25	1.16	1.70	3.61
Epichlorohydrin	2013	125813	117006	171998	363887
Ethylbenzene	1867	116688	108519	159523	337495
Ethylene Glycol	1.68E+07	1050000000	976500000	1435455000	3036915000
Fluoride	N/A	N/A	N/A	N/A	N/A
Heptachlor	0.0001	0.00625	0.00581	0.00854	0.0180
Heptachlor Epoxide	0.00029	0.0181	0.0169	0.0247	0.0524

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

<i>Parameter</i>	<i>Fish Only Criterion (µg/L)</i>	<i>WLAh (µg/L)</i>	<i>LTAh (µg/L)</i>	<i>Daily Avg. (µg/L)</i>	<i>Daily Max. (µg/L)</i>
Hexachlorobenzene	0.00068	0.0425	0.0395	0.0581	0.122
Hexachlorobutadiene	0.22	13.8	12.8	18.7	39.7
Hexachlorocyclohexane (<i>alpha</i>)	0.0084	0.525	0.488	0.717	1.51
Hexachlorocyclohexane (<i>beta</i>)	0.26	16.3	15.1	22.2	46.9
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	0.341	21.3	19.8	29.1	61.6
Hexachlorocyclopentadiene	11.6	725	674	991	2096
Hexachloroethane	2.33	146	135	199	421
Hexachlorophene	2.90	181	169	247	524
4,4'-Isopropylidenediphenol [Bisphenol A]	15982	998875	928954	1365562	2889046
Lead	3.83	638	594	872	1846
Mercury	0.0250	1.56	1.45	2.13	4.51
Methoxychlor	3.0	188	174	256	542
Methyl Ethyl Ketone	9.92E+05	62000000	57660000	84760200	179322600
Methyl <i>tert</i> -butyl ether [MTBE]	10482	655125	609266	895621	1894818
Nickel	1140	71250	66263	97405	206076
Nitrate-Nitrogen (as Total Nitrogen)	N/A	N/A	N/A	N/A	N/A
Nitrobenzene	1873	117063	108868	160036	338579
N-Nitrosodiethylamine	2.1	131	122	179	379
N-Nitroso-di- <i>n</i> -Butylamine	4.2	263	244	358	759
Pentachlorobenzene	0.355	22.2	20.6	30.3	64.1
Pentachlorophenol	0.29	18.1	16.9	24.7	52.4
Polychlorinated Biphenyls [PCBs]	6.4E-04	0.0400	0.0372	0.0546	0.115
Pyridine	947	59188	55044	80915	171188
Selenium	N/A	N/A	N/A	N/A	N/A
1,2,4,5-Tetrachlorobenzene	0.24	15.0	14.0	20.5	43.3
1,1,2,2-Tetrachloroethane	26.35	1647	1532	2251	4763
Tetrachloroethylene [Tetrachloroethylene]	280	17500	16275	23924	50615
Thallium	0.23	14.4	13.4	19.6	41.5
Toluene	N/A	N/A	N/A	N/A	N/A
Toxaphene	0.011	0.688	0.639	0.939	1.98
2,4,5-TP [Silvex]	369	23063	21448	31528	66703
1,1,1-Trichloroethane	784354	49022125	45590576	67018147	141786692
1,1,2-Trichloroethane	166	10375	9649	14183	30007
Trichloroethylene [Trichloroethene]	71.9	4494	4179	6143	12997
2,4,5-Trichlorophenol	1867	116688	108519	159523	337495
TTHM [Sum of Total Trihalomethanes]	N/A	N/A	N/A	N/A	N/A
Vinyl Chloride	16.5	1031	959	1409	2982

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

CALCULATED 70% AND 85% OF DAILY AVERAGE EFFLUENT LIMITATIONS FOR AQUATIC LIFE PROTECTION:

<i>Parameter</i>	<i>70% of Daily Avg. (µg/L)</i>	<i>85% of Daily Avg. (µg/L)</i>
Acrolein	N/A	N/A
Aldrin	14.2	17.3
Aluminum	N/A	N/A
Arsenic	1635	1985
Cadmium	261	317
Carbaryl	6728	8170
Chlordane	0.119	0.145
Chlorpyrifos	0.120	0.146
Chromium (trivalent)	N/A	N/A
Chromium (hexavalent)	1482	1800
Copper	122	149
Copper (oyster waters)	64.4	78.2
Cyanide (free)	61.4	74.6
4,4'-DDT	0.0298	0.0362
Demeton	2.98	3.62
Diazinon	8.98	10.9
Dicofol [Kelthane]	N/A	N/A
Dieldrin	0.0597	0.0725
Diuron	N/A	N/A
Endosulfan I (<i>alpha</i>)	0.269	0.326
Endosulfan II (<i>beta</i>)	0.269	0.326
Endosulfan sulfate	0.269	0.326
Endrin	0.0597	0.0725
Guthion [Azinphos Methyl]	0.298	0.362
Heptachlor	0.119	0.145
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	1.75	2.13
Lead	422	512
Malathion	0.298	0.362
Mercury	23.0	27.9
Methoxychlor	0.896	1.08
Mirex	0.0298	0.0362
Nickel	391	475
Nonylphenol	50.8	61.7
Parathion (ethyl)	N/A	N/A
Pentachlorophenol	165	201
Phenanthrene	84.5	102
Polychlorinated Biphenyls [PCBs]	0.896	1.08
Selenium	4065	4936
Silver	52.2	63.5
Toxaphene	0.00597	0.00725
Tributyltin [TBT]	0.221	0.268
2,4,5 Trichlorophenol	358	435
Zinc	1785	2168

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

CALCULATED 70% AND 85% OF DAILY AVERAGE EFFLUENT LIMITATIONS FOR HUMAN HEALTH PROTECTION:

<i>Parameter</i>	<i>70% of Daily Avg. (µg/L)</i>	<i>85% of Daily Avg. (µg/L)</i>
Acrylonitrile	6878	8352
Aldrin	0.000686	0.000833
Anthracene	78770	95650
Antimony	64057	77783
Arsenic	N/A	N/A
Barium	N/A	N/A
Benzene	34749	42196
Benzidine	6.39	7.77
Benzo(a)anthracene	1.49	1.81
Benzo(a)pyrene	0.149	0.181
Bis(chloromethyl)ether	16.4	19.9
Bis(2-chloroethyl)ether	2561	3110
Bis(2-ethylhexyl) phthalate [Di(2-ethylhexyl) phthalate]	451	548
Bromodichloromethane [Dichlorobromomethane]	16447	19972
Bromoform [Tribromomethane]	63399	76984
Cadmium	N/A	N/A
Carbon Tetrachloride	2751	3340
Chlordane	0.149	0.181
Chlorobenzene	163701	198780
Chlorodibromomethane [Dibromochloromethane]	10945	13290
Chloroform [Trichloromethane]	460362	559011
Chromium (hexavalent)	30024	36458
Chrysene	150	183
Cresols [Methylphenols]	556298	675505
Cyanide (free)	N/A	N/A
4,4'-DDD	0.119	0.145
4,4'-DDE	0.00777	0.00944
4,4'-DDT	0.0239	0.0290
2,4'-D	N/A	N/A
Danitol [Fenpropathrin]	28290	34352
1,2-Dibromoethane [Ethylene Dibromide]	253	307
<i>m</i> -Dichlorobenzene [1,3-Dichlorobenzene]	35587	43213
<i>o</i> -Dichlorobenzene [1,2-Dichlorobenzene]	197315	239597
<i>p</i> -Dichlorobenzene [1,4-Dichlorobenzene]	N/A	N/A
3,3'-Dichlorobenzidine	133	162
1,2-Dichloroethane	21771	26436
1,1-Dichloroethylene [1,1-Dichloroethene]	3296402	4002774
Dichloromethane [Methylene Chloride]	797455	968338
1,2-Dichloropropane	15490	18810
1,3-Dichloropropene [1,3-Dichloropropylene]	7117	8642
Dicofol [Kelthane]	17.9	21.7
Dieldrin	0.00119	0.00145
2,4-Dimethylphenol	504562	612682
Di- <i>n</i> -Butyl Phthalate	5526	6710
Dioxins/Furans [TCDD Equivalents]	0.0000048	0.0000058
Endrin	1.19	1.45
Epichlorohydrin	120398	146198
Ethylbenzene	111666	135594
Ethylene Glycol	1004818500	1220136750
Fluoride	N/A	N/A
Heptachlor	0.00598	0.00726
Heptachlor Epoxide	0.0173	0.0210

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

Parameter	70% of Daily Avg. (µg/L)	85% of Daily Avg. (µg/L)
Hexachlorobenzene	0.0406	0.0493
Hexachlorobutadiene	13.1	15.9
Hexachlorocyclohexane (<i>alpha</i>)	0.502	0.610
Hexachlorocyclohexane (<i>beta</i>)	15.5	18.8
Hexachlorocyclohexane (<i>gamma</i>) [Lindane]	20.3	24.7
Hexachlorocyclopentadiene	693	842
Hexachloroethane	139	169
Hexachlorophene	173	210
4,4'-Isopropylidenediphenol [Bisphenol A]	955893	1160727
Lead	610	741
Mercury	1.49	1.81
Methoxychlor	179	217
Methyl Ethyl Ketone	59332140	72046170
Methyl <i>tert</i> -butyl ether [MTBE]	626934	761278
Nickel	68184	82794
Nitrate-Nitrogen (as Total Nitrogen)	N/A	N/A
Nitrobenzene	112025	136030
N-Nitrosodiethylamine	125	152
N-Nitroso-di- <i>n</i> -Butylamine	251	305
Pentachlorobenzene	21.2	25.7
Pentachlorophenol	17.3	21.0
Polychlorinated Biphenyls [PCBs]	0.0382	0.0464
Pyridine	56640	68777
Selenium	N/A	N/A
1,2,4,5-Tetrachlorobenzene	14.3	17.4
1,1,2,2-Tetrachloroethane	1576	1913
Tetrachloroethylene [Tetrachloroethylene]	16746	20335
Thallium	13.7	16.7
Toluene	N/A	N/A
Toxaphene	0.657	0.798
2,4,5-TP [Silvex]	22070	26799
1,1,1-Trichloroethane	46912702	56965425
1,1,2-Trichloroethane	9928	12056
Trichloroethylene [Trichloroethene]	4300	5221
2,4,5-Trichlorophenol	111666	135594
TTHM [Sum of Total Trihalomethanes]	N/A	N/A
Vinyl Chloride	986	1198

Appendix C: Water Quality-Based Effluent Limitations Calculations – Produced Wastewater Discharges (Barium and Manganese)

TEXTOX MENU #5 - BAY OR WIDE TIDAL RIVER

The water quality-based effluent limitations developed below are calculated using:

Table 1, 2014 Texas Surface Water Quality Standards (30 TAC 307) for Saltwater Aquatic Life

Table 2, 2018 Texas Surface Water Quality Standards for Human Health

"Procedures to Implement the Texas Surface Water Quality Standards," TCEQ, June 2010

PERMIT INFORMATION

Permittee Name:	State-Only Outer Continental Shelf Oil and Gas General Permit
TPDES Permit No:	WQG280000
Prepared by:	Water Quality Division
Date:	August 3, 2023

DISCHARGE INFORMATION

% Effluent for Chronic Aquatic Life (Mixing Zone):	2.1
% Effluent for Acute Aquatic Life (ZID):	3
% Effluent for Human Health:	1.6

CALCULATED DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS FOR AQUATIC LIFE PROTECTION:

Parameter	SW Acute Criterion (µg/L)	SW Chronic Criterion (µg/L)	WLAa (µg/L)	WLAc (µg/L)	LTAa (µg/L)	LTAc (µg/L)	Daily Avg. (µg/L)	Daily Max. (µg/L)
Barium	150,000	25,000	5,000,000	1,190,476	1,600,000	726,190	1,067,500	2,258,452

CALCULATED DAILY AVERAGE AND DAILY MAXIMUM EFFLUENT LIMITATIONS FOR HUMAN HEALTH PROTECTION:

Parameter	Fish Only Criterion (µg/L)	WLAh (µg/L)	LTAh (µg/L)	Daily Avg. (µg/L)	Daily Max. (µg/L)
Manganese	100	6,250	5,813	8,544	18,077

SCREENING VALUES (70% AND 85% OF DAILY AVERAGE EFFLUENT LIMITATIONS):

Aquatic Life Parameter	70% of Daily Avg. (µg/L)	85% of Daily Avg. (µg/L)
Barium	747,250	907,375

Human Health Parameter	70% of Daily Avg. (µg/L)	85% of Daily Avg. (µg/L)
Manganese	5,981	7,263

Calculated Limitations:

Barium:

Daily Average = 1,067,500 µg/L / 1,000 µg/L/ mg = **1,068 mg/L**

Daily Maximum = 2,258,452 / 1,000 µg/L/ mg = **2,259 mg/L**

Manganese:

Daily Average = 8,544 µg/L/ 1,000 µg/L/ mg = **8.54 mg/L**

Daily Maximum = 18,077 µg/L/ 1,000 µg/L/ mg = **18.08 mg/L**

Appendix D: Saltwater pH screening for – Produced Wastewater from oil and gas facilities

Calculation of pH of a mixture in seawater.
Based on the CO2SYS program (Lewis and Wallace, 1998)

Saltwater pH screening for WQG280000 (Produced Water from oil and gas facilities)

INPUT			
1. MIXING ZONE BOUNDARY CHARACTERISTICS			
Dilution factor at mixing zone boundary	✓	41.667	Enter the reciprocal of the percentage of effluent at the mixing zone boundary as the dilution factor.
Depth at plume trapping level (m)		20.000	Range of depths used from 1 - 200 and 6.00 pH effluent still meets segment 6.5 criterion at the edge of MZ.
2. BACKGROUND RECEIVING WATER CHARACTERISTICS			
Temperature (deg C):		20.00	
pH:		7.20	Draft 2022 IPs appendix D
Salinity (psu):		31.50	average salinity in Gulf of Mexico = 31.5. Range of salinities tested = 20 - 40 psu
Total alkalinity/50.44 (meq/L)	✓	1.80	used alkalinity from draft 2022 IPs appendix D and divided by 50.44 to get mg/meq
3. EFFLUENT CHARACTERISTICS			
Temperature (deg C):		20.00	
pH:		6.00	
Salinity (psu)		120.00	Range of salinity values tested from 1 to 120
Total alkalinity/50.44 (meq/L):		3.97	Range of alkalinity values tested from 20 to 200. Assume minimal total alkalinity at low effluent pH based on carbonate equilibrium chemistry of natural and treated waters

OUTPUT	
CONDITIONS AT THE MIXING ZONE BOUNDARY	
Temperature (deg C):	20.00
Salinity (psu)	33.62
Density (kg/m^3)	1023.80
Alkalinity (mmol/kg-SW):	1.81
Total Inorganic Carbon (mmol/kg-SW):	2.12
pH at Mixing Zone Boundary:	6.65

Notes:

To convert from units of mgCaCO3/L to meq/L divide by 50.044 mg/meq

PSU refers to the Practical Salinity Scale (PSS) and is approximately equivalent to parts per thousand (ppt)

Appendix E: Water Thermal Evaluation Sheet

Equation 1- Compliance with the Maximum Temperature Criterion:

Equation	Left Side Equation	Right Side Equation	
$TC \geq (Ef)(TE) + (1 - Ef)(TA)$	$\geq 95 \text{ }^{\circ}\text{F}$	88.17728 $^{\circ}\text{F}$	True

Variable	Value
TC (Segment maximum temperature criterion):	95 $^{\circ}\text{F}$ ¹
EF (Effluent fraction at the edge of the mixing zone):	0.024 ²
TE (Maximum effluent temperature):	145 $^{\circ}\text{F}$
TA (Ambient temperature):	86.78 $^{\circ}\text{F}$ ³
TA January/Feb.:	62.6 $^{\circ}\text{F}$ ⁴
TA January:	45.5 $^{\circ}\text{F}$ ⁵

Equation 2: Compliance With Rise Over Ambient:

Equation		Left Side Equation	Right Side Equation	
$(TA + \Delta TC) \geq (EF)(TE) + (1 - EF)(TA)$	Summer	88.28 $^{\circ}\text{F} \geq$	88.17728 $^{\circ}\text{F}$	True
$(TA + \Delta TC) \geq (EF)(TE) + (1 - EF)(TA)$	Winter	90.78 $^{\circ}\text{F} \geq$	88.17728 $^{\circ}\text{F}$	True

Variable	Value
ΔTC June, July, August ⁶	1.5 $^{\circ}\text{F}$
ΔTC Sept. - May ⁷	4 $^{\circ}\text{F}$

¹ From Appendix A TSWQS.

² 2.4% is highest percent effluent at edge of aquatic life mixing zone based on a September 27, 2022 critical conditions memo.

³ 90th percentile of gulf temperatures for June July and August.

⁴ 90th percentile winter temperature.

⁵ 10th percentile winter temperature.

⁶ From TSWQS.

⁷ From TSWQS.

Fact Sheet and Executive Director's Final Decision
General Permit Number WQG280000

A range of possible effluent temperatures was evaluated. The most stringent equation in this case is rise over ambient and that equation indicates that the temperature criterion will be met at effluent temperatures up to 145 degrees F.

SOP ⁸	Winter (Summer Ambient)	90.78 °F ≥	88.17728 °F	True
Non-SOP ⁹	Winter (90th Percentile)	66.6 °F ≥	64.5776 °F	True
Non-SOP ¹⁰	Winter (10th Percentile)	49.5 °F ≥	47.888 °F	True

Month	90th Percentile Temperature	90th Percentile Temperature
June	29.7 °C	85.46 °F
July	30.6 °C	87.08 °F
August	31 °C	87.8 °F
Average June-August	30.43333333°C	86.78 °F

Month	10th Percentile Temperature	10th Percentile Temperature
January	7.5 °C	45.5 °F

Month	90th Percentile Temperature.	90th Percentile Temperature
January	17 °C	62.6 °F
February	17 °C	62.6 °F
Average	17 °C	62.6 °F

⁸ Rise over ambient checked per thermal evaluation SOPs using 90th percentile summer temperature.

⁹ Rise over ambient checked using 90th percentile temperature from January and February.

¹⁰ Rise over ambient checked using 10th percentile temperature from January (month with coldest average temperatures).

COMMISSIONERS' RESPONSE TO PUBLIC COMMENT ON GENERAL PERMIT NO. WQG280000

The Executive Director (ED) of the Texas Commission on Environmental Quality (commission or TCEQ) files this Response to Public Comment on new TCEQ state-only discharge General Permit Number WQG280000 which authorizes the discharge into the Gulf of Mexico of various waste streams associated with oil and gas extraction activities from new and existing Outer Continental Shelf facilities located between 3.0 statute miles and 10.2 statute miles from the Texas coastline in the Gulf of Mexico.

As required by Texas Water Code (TWC), §26.040(d) and 30 Texas Administrative Code §205.3(e), before a general permit is issued, the Executive Director must prepare a response to all timely, relevant, and material, or significant comments. The response must be made available to the public and filed with the Office of the Chief Clerk at least ten days before the commission considers the approval of the general permit. This response addresses all timely received public comments, whether or not withdrawn. Timely public comments were received from J. Connor Consulting, Inc. and W&T Offshore, Inc. Both comment letters are closely related and included comments on the same issues identified below.

Background

The proposed state-only Oil and Gas Extraction Activities General Permit Number WQG280000 authorizes the discharge into the Gulf of Mexico and/or prohibition of discharge for the following waste streams: produced wastewater; well treatment, completion, and workover fluids; water based drilling fluids and associated drill cuttings; non-aqueous based drilling fluids; non-aqueous based drill cuttings; produced sand; dewatering effluent; formation test fluids; hydrate control fluids; domestic waste; sanitary waste; contaminated miscellaneous discharges; uncontaminated miscellaneous discharges; and deck drainage. Discharges authorized versus being prohibited are primarily based on U.S Environmental Protection Agency (EPA) regulations established in Title 40 Code of Federal Regulations (CFR) Part 435 - Oil and Gas Extraction Point Source Category, Subpart A - Offshore Subcategory. The proposed new general permit implements House Bill 2771, 86th Legislative Session, which transfers permitting authority for discharges of certain waste streams (including waste streams proposed for authorization under the new general permit from crude oil and natural gas facilities into water in the state from the Railroad Commission of Texas (RRC) to TCEQ. This new proposed TCEQ general permit will provide a streamlined permitting program under the general permit versus the previous need to obtain individual permit state authorization from the RRC via filing of individual permit applications. Oil and gas extraction facilities located greater than 3.0 statute miles from the Texas coastline will continue to require separate authorization under the National Pollutant Discharge Elimination System (NPDES) program from EPA as EPA does not delegate NPDES authority to regulate discharges to states further than three statute miles from the state coastline. Whereas oil and gas extraction facilities located greater than 10.2 statute miles from the Texas coastline are not required to obtain TCEQ discharge authorization, as the State of Texas does not have legal authority to regulate such discharges. Such discharges are only required to obtain authorization to discharge from EPA. Discharges of the waste streams identified above would be eligible

COMMISSIONERS' RESPONSE TO PUBLIC COMMENT ON GENERAL PERMIT NO. WQG280000

for authorization under this general permit upon issuance of the general permit.

Eligible applicants seeking authorization to discharge waste streams identified above into the Gulf of Mexico (located between 3.0 statute miles and 10.2 statute miles from the Texas coastline) under this general permit must submit a completed Notice of Intent (NOI).

All waste streams authorized for discharge under the TCEQ state-only discharge general permit are subject to numeric effluent limitations (or no discharge of the identified pollutant based on visual observation) for varying pollutants with associated established monitoring and reporting requirements. The TCEQ state-only discharge general permit also establishes prohibitions on discharges of various waste streams based on EPA regulations. These effluent limitations and prohibitions on discharges are primarily based on EPA's existing NPDES oil and gas extraction activities general permit GMG290000 and conditions in EPA's effluent limitation guidelines established at 40 CFR Part 435, Subpart A. Additional effluent limitations are proposed in the TCEQ state-only discharge general permit based on TCEQ regulations and conditions established in the Texas Surface Water Quality Standards. Narrative requirements and best management practices are established for all discharges authorized under the general permit.

Procedural Background

TCEQ published notice of the draft TCEQ state-only general permit to solicit public comment in the *Texas Register* on May 5, 2023; and in the *Dallas Morning News* and the *Houston Chronicle* on May 12, 2023. The public comment period ended on June 12, 2023. This TCEQ state-only general permit is subject to the procedural requirements adopted pursuant to House Bill 801, 76th Texas Legislature, 1999. The TCEQ state-only general permit is not subject to the procedural requirements adopted pursuant to House Bill 709, 84th Texas Legislature, 2015.

Comments and Responses

Comment:

Both commenters requested that a three-year interim compliance schedule be allowed for 24-hour acute lethal and 7-day chronic sublethal whole effluent toxicity (WET) limitations for the discharge of produced wastewater. The commenters included justification based on EPA suspending 24-hour acute WET testing for such discharges via correspondence in its existing NPDES TXG260000 general permit (note this state-only general permit is not under authority of the NPDES program) and that EPA's existing NPDES GMG290000 general permit (applicable to Outer Continental Shelf facilities) does not establish 24-hour acute lethal WET conditions, as well as impacts that could potentially be realized by oil and gas extraction operations located in offshore Texas Gulf of Mexico waters, and economic impacts on the State of Texas should such compliance schedules not be supported.

COMMISSIONERS' RESPONSE TO PUBLIC COMMENT
ON GENERAL PERMIT NO. WQG280000

Response:

The ED supports the submitted comments and has revised the draft general permit to allow a three-year compliance schedule to achieve compliance related to WET limitations for existing permitted Outer Continental Shelf produced water (wastewater) discharges; well treatment, completion, and workover fluids discharges, and contaminated miscellaneous discharges. Any discharges from new Outer Continental Shelf oil and gas extraction operations are subject to WET limitations upon initiation of discharge(s) following obtaining authorization to discharge under the TCEQ general permit.

In the comment letters, the commenters indicated EPA's GMG290000 NPDES general permit (applicable to Outer Continental Shelf facilities) did not establish 24-hour acute WET limitations conditions. Furthermore, the comment letters alluded to EPA suspending 24-hour acute lethal WET testing/effluent limitations for territorial seas produced water (wastewater) discharges authorized under its TXG260000 territorial seas facilities discharges general permit and replacing that condition with 48-hour acute WET testing and establishing WET limitations at varying critical dilutions based on site specific dilution modeling conducted at each production platform. The ED obtained the referenced correspondence related to TXG260000 established in a letter dated May 9, 2016 from B. Larsen (EPA) to S. Robinson (Tradition Resources Offshore LLC) which confirmed EPA's suspension of 24-hour acute lethal WET testing/limitations under the TXG260000 general permit. The ED is proposing to establish the 24-hour acute lethal WET testing/limitations in the draft general permit and allowing a three-year compliance schedule based on EPA's previous suspension of these conditions and EPA not imposing such conditions in its existing GMG290000 NPDES general permit. The ED further supports the three-year compliance schedule for 7-day chronic sublethal WET limitations for produced water (wastewater) discharges. EPA's existing GMG290000 NPDES general permit allowed site specific critical dilutions (with the associated WET limitation) based on varying discharge volumes and site-specific dilution factors. TCEQ is proposing in the draft general permit to subject produced water (wastewater) discharges to one single critical dilution and associated 7-day chronic sublethal WET limitation at the full permitted produced water (wastewater) flow of 6,000 barrels per day (0.252 million gallons per day). This condition is more restrictive than conditions established in EPA's existing GMG290000 general permit, and thus justifies the three-year compliance schedule for 7-day chronic sublethal WET limitations.

Although, not submitted in the public comment letter, TCEQ is proposing to revise the draft general permit to establish compliance schedules for 24-hour acute lethal WET limitations for the discharge of well treatment, completion, and workover fluids and 24-hour acute lethal WET limitations for contaminated miscellaneous discharges. These WET limitations are being newly established in the draft TCEQ general permit and are more stringent than conditions established in EPA's existing GMG290000 general permit. TCEQ proposed three-year compliance schedules for newly established metals/toxics water quality-based effluent limitations in the publicly noticed general permit, and establishing these additional compliance schedules makes conditions in the draft general permit consistent.

Comment:

COMMISSIONERS' RESPONSE TO PUBLIC COMMENT
ON GENERAL PERMIT NO. WQG280000

Both commenters requested that the draft general permit be revised to reduce permitted produced water (wastewater) daily average flow limitations from 7,000 barrels/day (0.294 million gallons per day (MGD)) to 6,000 barrels/day (0.252 MGD) and revise/remove water quality-based effluent limitations for toxics (metals) accordingly based on the reduced permitted discharge volume. The commenters continued comments on impacts that could potentially be realized by oil and gas extraction operations located in offshore Texas Gulf of Mexico waters, and economic impacts on the State of Texas should such revisions not be supported.

Response:

The ED supports the submitted comments and has revised the draft general permit to reduce permit produced water (wastewater) discharges to a daily average flow of 6,000 barrels/day (0.252 MGD). As a result of revised analysis based on the reduced permitted flows; monitoring and reporting requirements for total silver are removed; effluent limitations for benzene are revised to a monitoring/reporting requirement only; effluent concentration limitations for total barium, total copper, total manganese, and total zinc are increased; and the 7-day chronic sublethal WET daily average and 7-day minimum limitations are revised from 2.4% effluent to 2.1% effluent. A reduction in permitted flow reduces the total mass of pollutants being discharged into the Gulf of Mexico.

Dissolved oxygen and temperature impacts (and associated effluent limitations) are based on the previous analysis of 7,000 barrels/day (0.294 MGD).

TEXAS COMMISSION ON ENVIRONMENTAL QUALITY



A RESOLUTION in the matter of new Texas Commission on Environmental Quality General Permit Authorizing Discharges from Oil and Gas Extraction Activities; General Permit No. WQG280000; TCEQ Docket No. 2023-0526-MIS

WHEREAS, under Texas Water Code (TWC), § 26.121, no person may discharge waste or pollutants into any water in the state except as authorized by a rule, permit, or order issued by the Texas Commission on Environmental Quality (TCEQ or Commission);

WHEREAS, under TWC, § 26.027, the TCEQ has the authority to issue permits and amendments to permits for the discharge of waste or pollutants into water in the state;

WHEREAS, under TWC, § 26.040, the TCEQ has the authority to issue a general permit to authorize the discharge of waste into water in the state;

WHEREAS, under TWC, § 26.131, TCEQ has the authority to regulate discharges into water in the state of produced water, hydrostatic test water, and gas plant effluent resulting from resulting from oil and gas extraction activities;

WHEREAS, a new TCEQ general permit authorizing discharges into water in the state from oil and gas extraction activities located in the Gulf of Mexico (between 3.0 and 10.2 statute miles from the Texas coastline), was drafted and proposed by the Executive Director and is attached as Exhibit A;

WHEREAS, the TCEQ received public comments on the general permit, and drafted a Response to Public Comment, which is attached as Exhibit B;

WHEREAS, the Commission reviewed in accordance with Texas Natural Resources Code, § 33.205 and 30 Texas Administrative Code (TAC) § 205.5(f) the new general permit for consistency with the Texas Coastal Management Program (CMP) and found that the general permit is consistent with applicable CMP goals and policies and that the general permit will not adversely affect any applicable coastal natural resource areas as identified in the CMP;

WHEREAS, the Commission determined in accordance with TWC, § 26.040(a)(1) - (4) that the general permit would authorize dischargers who engage in the same or substantially similar types of operations, discharge the same types of waste, are

subject to the same requirements regarding effluent limitations or operating conditions, and are subject to the same or similar monitoring requirements;

WHEREAS, the Commission finds in accordance with TWC, § 26.040(a)(5) that the general permit would apply to dischargers who are more appropriately regulated under a general permit than under individual permits and that:

(A) the general permit has been drafted to assure that it can be readily enforced and that the Commission can adequately monitor compliance with the terms of the general permit; and

(B) the category of discharges covered by the general permit will not include a discharge of pollutants that will cause significant adverse effects to water quality; and

THEREFORE, after consideration of all public comments and the responses to such comments, the Commission, by this resolution, hereby issues the general permit, attached as Exhibit A, as recommended by the Executive Director and as approved by the Commission during its November 29, 2023, public meeting. The Commission, by this resolution, also hereby issues the Executive Director's Response to Comments as approved by the Commission during its November 29, 2023 public meeting as the Commission's Response to Public Comment, attached as Exhibit B.

Furthermore, the Commission directs staff to make any non-substantive changes to the general permit and the Commission's Response to Public Comments to satisfy *Texas Register* format requirements and requests that the general permit and Commission's Response to Public Comments be made available to the public in accordance with the requirements of TWC, § 26.040(d) and 30 TAC § 205.3(e).

It is so **RESOLVED**.

TEXAS COMMISSION ON
ENVIRONMENTAL QUALITY

Jon Niermann, Chairman

Date Signed