FACT SHEET AND SUPPLEMENTAL INFORMATION

FOR THE PROPOSED 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)

April 7, 2017

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FACT SHEET AND SUPPLEMENTAL INFORMATION

I. Legal Basis

Section 301(a) of the Clean Water Act (CWA or the Act), 33 USC 1311(a), renders it unlawful to discharge pollutants to waters of the United States in the absence of authorizing permits. CWA section 402, 33 U.S.C. section 1342, authorizes the Environmental Protection Agency (EPA) to issue National Pollutant Discharge Elimination System (NPDES) permits allowing discharges on the condition they will meet certain requirements, including CWA sections 301, 304, 306, 401 and 403. Those statutory provisions require NPDES permits include effluent limitations for authorized discharges that: (1) meet standards reflecting levels of technological capability; (2) comply with EPA-approved state water quality standards; (3) comply with other state requirements adopted under authority retained by states under CWA section 510, 33 U.S.C. section 1370; and, (4) cause no unreasonable degradation to the territorial seas, waters of the contiguous zone, or the oceans.

CWA section 301 requires compliance with "best conventional pollution control technology" (BCT) and "best available pollution control technology economically achievable" (BAT) no later than March 31, 1989. CWA section 306 requires compliance with New Source Performance Standards (NSPS) no later than the effective date of such standards. Accordingly, three types of technology-based effluent limitations are included in the proposed permit. With regard to conventional pollutants, i.e., pH, BOD, oil and grease, TSS, and fecal coliform, CWA section 301(b)(1)(E) requires effluent limitations based on BCT. With regard to nonconventional and toxic pollutants, CWA sections 301(b)(2)(A), (C), and (D) require effluent limitations based on BAT. For New Sources, CWA section 306 requires effluent limitations based on New Source Performance Standards (NSPS). Final effluent guidelines specifying BCT, BAT, and NSPS for the Offshore Subcategory of the Oil and Gas Point Source Category (40 CFR 435, Subpart A) were issued January 15, 1993, and were published at 58 FR 12454 on March 4, 1993. Those guidelines were modified on January 22, 2001 (see 66 FR 6850, January 22, 2001), to issue technology based treatment standards for discharges associated with the industry’s use of synthetic based drilling fluids.

II. Regulatory Background

On April 3, 1981 (see 46 FR 20284), EPA published the final general NPDES permit, TX0085642, which authorized discharges from facilities located seaward of the outer boundary of the territorial seas off Louisiana and Texas, an area commonly known as the Outer Continental Shelf. The 1981 general permit implemented "Best Practicable Control Technology Currently Available" (BPT), as established by effluent guidelines for the Offshore Subcategory (see 40 CFR 435). The permits expired April 3, 1983.

EPA reissued the general permit on September 15, 1983 (48 FR 41494), with an expiration date of June 30, 1984. The permit was issued for a short period of time because promulgation of National Effluent Limitations Guidelines for Best Available Technology Economically Achievable were expected by 1983 and again by 1984. The limitations contained

in the permit were unchanged in the 1984 reissuance; however, some changes were made for facilities located near the Flower Garden Banks.

On July 9, 1986 (51 FR 24897), EPA reissued the general permit. In that action EPA Region 6 issued a joint permit with Region 4 authorizing discharges from facilities located in the OCS throughout the Gulf of Mexico. That permit, numbered GMG280000, prohibited discharge of oil based drilling fluids, oil contaminated drilling fluids, drilling fluids containing diesel oil, and drill cuttings generated using oil based drilling fluids. New limits were included in the permit for suspended particulate phase toxicity in drilling fluids, the drilling fluid discharge rate near areas of biological concern, and for free oil in drilling fluids and drill cuttings. The permit expired on July 1, 1991.

On November 19, 1992, EPA Region 6 reissued the NPDES general permit for the Western Gulf of Mexico Outer Continental Shelf (57 FR 54642), GMG290000, covering operators of lease blocks in the Offshore Subcategory of the Oil and gas Extraction Point Source Category located seaward of the outer boundary of the territorial seas of Texas and Louisiana. As a part of that reissuance, new limits for produced water toxicity were added, as well as new limits for cadmium and mercury in stock barite, and a prohibition on the discharge of drilling fluids to which mineral oil has been added. That general permit was modified on December 3, 1993, to implement Offshore subcategory effluent limitations guidelines promulgated March 4, 1993 (58 FR 12504), and to include more accurate calculations of produced water critical dilutions. A general permit covering New Sources in that same area of coverage was issued and combined with the Western Gulf of Mexico Outer Continental Shelf general permit on August 9, 1996 (61 FR 41609). The permit expired on November 19, 1997, and was reissued in two parts on November 2, 1998 (63 FR 58722), and April 19, 1999 (64 FR 19156).

In the 1998 reissuance, EPA Region 6 authorized new discharges of seawater and freshwater to which treatment chemicals, such as biocides and corrosion inhibitors, have been added. The maximum discharge rate limit for produced water was removed. To account for advances in drilling fluid technology, the permit was modified on December 18, 2001 (66 FR 65209), to authorize discharges associated with the use of synthetic based drilling fluids. Additional monitoring requirements were also included at that time to address hydrostatic testing of existing piping and pipelines and those discharges were authorized. That permit expired on November 3, 2003.

The general permit was reissued on October 7, 2004 (69 FR 60150). With that reissuance, EPA made produced water monitoring requirements for facilities located in the hypoxic zone. The permit was issued for a three-year term rather than the typical five-year term so that the results from the produced water hypoxia study could be addressed in a timely manner if additional permit conditions were found to be warranted. In the 2007 permit reissuance (72 FR 31575), requirements to comply with new cooling water intake structure regulations were included. Sub-lethal effects were required to be measured for whole effluent toxicity testing. New testing methods were allowed for monitoring cadmium and mercury in stock barite. That permit expired September 30, 2012.

EPA reissued the permit on September 28, 2012 (77 FR 61605). Operators are required to

file electronic Notice of Intent and Discharge Monitoring Reports. The permit required characterization studies for produced waters and water-based drilling fluids, respectively, so EPA could evaluate whether those discharges might contribute heavy metals at a level toxic to aquatic lives. Other major changes included toxicity testing requirement for hydrate control fluids, spill prevention best management practices, and the discharge of limited amount of drilling fluids with cuttings due to the testing of subsea safety valves.

In this permit renewal, EPA proposes several major changes and proposed changes are discussed in Section VII of this fact sheet.

III. Coverage of Facilities and Locations

A facility means a platform, rig, ship, and any surface/sub-surface fixed or mobile structure from where exploration, development, or production operations are performed. The permit coverage area consists of lease areas that are located in and discharging to Federal waters in the Gulf of Mexico specifically located in the Central to Western portions of the Gulf of Mexico (GMG290000). The lease areas under Region 6 that begin in the Central portion include: Chandeleur, Chandeleur East, Breton Sound, Main Pass, Main Pass South and East, Viosca Knoll (but only those blocks under Main Pass South and East; the Viosca Knoll blocks between Main Pass and Mobile are under EPA Region 4 jurisdiction), South Pass, South Pass South and East, West Delta, West Delta South, Mississippi Canyon, Atwater Valley, Lund, and Lund South. These named lease areas and all lease areas westward are part of Region 6. If facilities located in the Louisiana or Texas territorial seas want to discharge to the Outer Continental Shelf, operators need to file Notice of Intent (NOI) under the authority of this permit, GMG290000. But, facilities located in the Louisiana or Texas territorial seas and discharges to territorial seas must be covered under LAG260000 or TXG260000, respectively. Facilities located in the Louisiana or Texas territorial seas are not authorized to discharge drilling fluids and drill cuttings pursuant to the Offshore Subcategory guidelines (40 CFR 435.13 and 435.14).

The current permit allows either the primary operator or the day-to-day operator to file an NOI for a discharge. Because the primary operator (i.e., the lease holder or designated operator who registers with BOEM) possesses the lease for the block where the exploration, development, or production activity will take place and has operational control over exploration, development, or production activities, including the ability to hire or fire contactors who conduct the actual work that results in discharges regulated by the permit, EPA believes that the primary operator does have operational control over day-to-day operations, EPA proposes to require the NOI to be filed by the primary operator. The EPA will only accept NOIs submitted by other operators (e.g., day-to-day operators or vessel operators) for discharges that could not be controlled by the primary operators. This proposed change will likely reduce unnecessary filing workloads due to changes of day-to-day operators.

Some companies have requested coverage for discharges from oil and gas facilities that are located in the area of coverage but not currently conducting oil and gas extraction activities. Any of the discharges, such as deck drainage and sanitary/domestic waste discharges, are the same as when a facility is operational and would otherwise be authorized by the permit. Actual

exploration and production related discharges would not be occurring during the times the idle facilities were between jobs. Since these facilities are the same as those currently covered by the permit except that the volume and concentration of pollutants in the discharges are expected to be less, it is appropriate that they can be covered under the permit.

For clarification purposes, an eNOI filed for a drilling vessel is valid for any drilling jobs with 1500 feet from the originally filed drilling location. According to the industry, it is not uncommon to make minor position adjustments when drilling more than one well from a common location.

In order to effectively track operators and associated operations, and also because EPA's eNOI system only assigns one feature number to a specific type of discharge (e.g., drilling fluids, produced water, desk drainage, etc.), as proposed the permit would require facilities connected with a bridgeto file separate eNOIs (i.e., one eNOI for each connected facility). Operators must file an eNOI for each facility (e.g., platform, rig, drilling vessel, and etc.). EPA also proposes to require operators to report company number and complex ID/API number assigned by or registered with the Bureau of Safety and Environmental Enforcement (BSEE) with their eNOIs, so that EPA and BSEE may quickly cross reference to identify a specific facility.

IV. Types of Discharges Covered

The discharges proposed to be authorized by the reissued permit are listed below. The definitions of the waste streams are based on those given in the Offshore Subcategory Effluent Limitations Guidelines (40 CFR 435, Subpart A), except for miscellaneous discharges which were not covered by those guidelines. Most of the authorized waste streams are retained from the current 2012 issued permit.

A. Drilling fluids - the circulating fluid (mud) used in the rotary drilling of wells to clean and condition the hole and to counterbalance formation pressure. Classes of drilling fluids are:

> (a) "Water-Based Drilling Fluid" means the continuous phase and suspending medium for solids is a water-miscible fluid, regardless of the presence of oil.
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> (b) "Non-Aqueous Drilling Fluid" means 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, C_{16}-C_{18} internal olefins, and C_8-C_{16} fatty acid/2-ethylhexyl esters).
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> > (i) "Oil-Based" means 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.
> > (ii) "Enhanced Mineral Oil-Based" means the continuous phase of the drilling fluid is enhanced mineral oil.
> > (iii) "Synthetic-Based" means the continuous phase of the drilling fluid is

a synthetic material or a combination of synthetic materials.

B. Drill cuttings - the particles generated by drilling into subsurface geologic formations including cured cement 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).

(a) "Wet Drill Cuttings" means the unaltered drill cuttings and adhering drilling fluid and formation oil carried out from the wellbore with the drilling fluid.

(b) "Dry Drill Cuttings" means the residue remaining in the retort vessel after completing the retort procedure specified in Appendix 7 of 40 CFR 435, Subpart A.

C. 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 this permit. A use of biocide for sump/drain systems to comply with proper operation and maintenance requirements is permitted and toxicity test for such a discharge of drainage is not required.

D. Produced water - the water 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.

Produced water generated from the monoethylene glycol (MEG) reclamation processes including salt slurry generated from the salt centrifuge unit is regulated as produced water. However, separate monitoring requirements must be complied with if such salt slurry is not mixed and discharged with produced water waste stream.

E. Produced sand - slurried particles used in hydraulic fracturing, the accumulated formation sands, and scale particles generated during production. Produced sand also includes desander discharge from produced water waste stream and blowdown of water phase from the produced water treatment system.

F. Well treatment, completion fluids and workover fluids - well treatment fluids are any fluids used to restore or improve productivity by chemically or physically altering hydrocarbon-bearing strata after a well has been drilled; well completion fluids are 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; and workover fluids are salt solutions, weighted brines, polymers, or other specialty additives used in a producing well to allow for maintenance, repair or abandonment procedures.

Packer fluids, low solids fluids between the packer, production string and well casing, are considered to be workover fluids and must meet the effluent requirements imposed on workover

fluids. The 2012 permit clarified that propping agents returned with well treatment fluids or produced water meet the definition of produced sands. Fracking fluids are considered well treatment fluids under this permit.

G. Sanitary waste - human body waste discharged from toilets and urinals.

H. Domestic waste - material discharged from galleys, sinks, showers, safety showers, eye wash stations, hand washing stations, fish cleaning stations, and laundries.

I. Miscellaneous discharges –

aqueous film forming foam (AFFF) - AFFF must be collected and stored for onshore disposal unless the vessel uses a non-fluorinated or alternative foaming agent.

blowout preventer control fluid - fluid used to actuate the hydraulic equipment on the blow-out preventer. This permit action clarifies that this discharge 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.

Bulk Transfer Operations Powder - de minimis amounts of bulk product (e.g., barite, cement, etc.) that may be released during transfers from supply boats to a drilling rig.

desalinization unit discharge - wastewater associated with the process of creating freshwater from seawater.

diatomaceous earth filter media - filter media used to filter seawater or other authorized completion fluids and subsequently washed from the filter.

excess cement slurry - the excess mixed cement pumped to wells, including additives and wastes from equipment washdown, after a cementing operation. Mixed cement for equipment testing purposes does not meet the definition of excess cement slurry.

Hydrate Control Fluids - fluids used to prevent, retard, or mitigate the formation of hydrates in and on drilling equipment, process equipment and piping.

mud, cuttings and cement at the sea floor - discharges that occur at the seafloor prior to installation of the marine riser and during marine riser disconnect, well abandonment and plugging operations.

Pipeline Brines - brines used for pipeline/equipment preservation.

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

Subsea production discharges - include: subsea wellhead preservation fluids, subsea production control fluid, umbilical steel tube storage fluid, leak tracer fluid, and riser tensioner fluids.

uncontaminated or treated 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) without contact with or addition of chemicals, oil, or other wastes, or being treated for removal of contaminants prior to discharge. These definitions are modified from the current definitions to distinguish ballast water and bilge water and to add the treated ballast water and bilge water to the definition.

uncontaminated freshwater - freshwater which is discharged without the addition or contact of treatment, chemicals, oil, or other wastes; 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; (3) water used during training and testing

of personnel in fire protection; and (4) water used to pressure test new piping.
uncontaminated seawater - seawater which is returned to the sea without the addition or contact of treatment chemicals, oil, or other wastes. 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; (4) seawater used to pressure test piping; (5) once through noncontact cooling water which has not been treated with biocides, and (6) seawater not treated by chemicals used during Dual Gradient Drilling.

J. Chemically Treated Seawater and Freshwater - seawater or freshwater to which corrosion inhibitors, scale inhibitors, and/or biocides have been added. The existing permitted discharges in the current permit include:

1. Excess seawater which permits the continuous operation of fire control and utility lift pumps,
2. Excess seawater from pressure maintenance and secondary recovery projects,
3. Water released during training of personnel in fire protection,
4. Seawater used to pressure test piping and pipelines,
5. Ballast water,
6. Once through non-contact cooling water,
7. Seawater used as piping or equipment preservation fluids, and
8. Seawater used during Dual Gradient Drilling.

The seawater used during Dual Gradient Drilling (DGD) is a practice of maintaining two effective fluid gradients in the wellbore annulus while drilling. The denser gradient is below the sea floor and the less dense gradient is above the sea floor. There are two discharges associated with DGD: one is seawater used to provide hydraulic power to Mud Lift Pump; and another is seawater used to provide static head in riser during DGD. Depending on the system design, corrosion inhibitors and biocides may need to be used to prevent corrosion and properly operate and maintain the DGD system.

For a sub-sea discharge of chemically treated seawater or freshwater used for piping and equipment preservation, where to collect discharge samples is not practical, EPA authorizes those discharges by permitting the operator to conduct the required toxicity tests prior to the use of the product.

EPA, in 2012, determined that toxicity tests are not required for miscellaneous discharges treated by bromide, chlorine, or hypochlorite. But, uses of bromide, chlorine, or hypochlorite are still required to be in compliance with the technology-based quantity limits.

V. Existing Permit Conditions Retained in the Proposed Permit

Conditions are based on: (A) NSPS for New Source facilities; (B) BCT to control conventional pollutants; (C) BAT to control toxic and nonconventional pollutants; and (D) Ocean Discharge Criteria (CWA section 403(c)). Discussions of the rationale for the specific

effluent limitations for each regulated waste stream appear below.

A. Drilling Fluids

The limitations in the current permit are based on a combination of National Effluent Limitations Guidelines and Ocean Discharge Criteria. The current permit's limitations are proposed to be included in the reissued permit.

1. NSPS, BAT, and BCT

Offshore subcategory guidelines for NSPS (40 CFR 435.15) and BAT (40 CFR 435.13) for drilling fluids discharges from facilities located farther than 3 nautical miles from shore (from the inner boundary of the territorial seas), require no discharge of free oil, no discharge of diesel oil, and a minimum toxicity limit of 3% by volume. In addition, the effluent limitations guidelines prohibit the discharge of non-aqueous based drilling fluids except those adhering to drill cuttings and some small volume discharges. Free oil, for drilling fluids discharges, is measured using the static sheen test method. Toxicity is measured with a 96 hour LC50 on the suspended particulate phase using the Mysidopsis bahia species. Based on the guidelines, cadmium and mercury in stock barite used in drilling fluids are limited to 3 mg/kg dry weight and 1 mg/kg dry weight, respectively.

2. Requirements Based on Ocean Discharge Criteria (CWA section 403(c))

In addition to those effluent limitations guidelines based limits, the reissued permit is proposed to retain the prohibitions of the discharge of oil-based drilling fluids, inverse emulsion drilling fluids, oil contaminated drilling fluids, and drilling fluids to which mineral oil has been added. These prohibitions were included in the permit to ensure compliance with the no discharge of free oil BAT and NSPS limitations. In the current permit, EPA has allowed the discharge of non-aqueous based fluids with water-based drilling fluids if a non-aqueous based fluid was added in water-based drilling fluids as a carrier agent or lubricity additive.

The current permit also contains discharge rate limitations for drilling fluids which ensure discharged drilling fluids are sufficiently dispersed to prevent unreasonable degradation of the marine environment. Those limitations are proposed to remain in the reissued permit.

B. Drill Cuttings

1. All Drill Cuttings

The main source of pollutants in discharged drill cuttings is generally from the drilling fluids which were used in the well. Therefore, based on BAT, BCT, and NSPS, drill cuttings which are authorized to discharge by the general permit must all meet the same limitations and prohibitions as drilling fluids. The discharge of drill cuttings generated using drilling fluids which are oil contaminated or contain diesel oil or mineral oil is prohibited. Cadmium and mercury, as measured in barite used in the drilling fluid, is limited to 3 mg/kg and 1 mg/kg, respectively. Also, the toxicity of the suspended particulate phase of the drilling fluids is limited to 30,000 ppm. Drill cuttings discharges are limited to no free oil, as measured using the static sheen test. These limitations are included in the current permit and are not changed in the reissued permit.

2. Drill Cuttings Generated Using Non-Aqueous Based Drilling Fluids

The current permit authorizes the discharge of drill cuttings generated by use of non-aqueous based drilling fluids. The limitations included in the permit were based on the Effluent Limitations Guidelines, Pretreatment Standards, and New Source Performance Standards for the Oil and Gas Extraction Point Source Category, which was published in the Federal Register on January 22, 2001 (see 66 FR 6850). The limits were included in the permit for both the stock base fluids and those drilling fluids which adhere to discharged drill cuttings. Limitations on the stock base fluid include polynuclear aromatic hydrocarbons (PAH), sediment toxicity (10-day), and biodegradation rate. Prior to its use, the drilling fluid is also limited for formation oil contamination, measured using Gas Chromatography/Mass Spectrometry (GC/MS). Drilling fluids which adhere to discharged drill cuttings are limited for sediment toxicity (4-day), formation oil contamination as measured by either a reverse phase extraction test or GC/MS, and base fluids which are retained on discharged drill cuttings. No changes to those limits are proposed.

C. Produced Water

1. NSPS and BAT

The Offshore Subcategory guidelines for NSPS (40 CFR 435.15) and BAT (40 CFR 435.13) require Oil and Grease limits of 29 mg/l, monthly average, and 42 mg/l, daily maximum. Those limitations are contained in the current permit and are included in the proposed permit.

2. Ocean Discharge Criteria (CWA Section 403(c))

The 7-day toxicity limit and no free oil limit are contained in the current permit based on Ocean Discharge Criteria (CWA section 403(c). No changes to those requirements are proposed as a part of this reissuance.

D. Produced Sand

1. NSPS, BAT and BCT

The current permit prohibits the discharge of produced sand based on NSPS, BAT, and BCT, established by the Offshore Subcategory Effluent Limitations Guidelines. That prohibition is proposed to be maintained.

E. Well Treatment, Completion and Workover Fluids

1. NSPS, BAT, and BCT

The Offshore Subcategory guidelines for NSPS and BAT require Oil and Grease limits of 29 mg/l, monthly average, and 42 mg/l, daily maximum, for well treatment, completion and workover fluids. A limit of no free oil was also established by the guidelines based on BCT. Those limits are contained in the current permit and are not proposed to be changed.

2. Ocean Discharge Criteria (CWA section 403(c))

Discharged well treatment, completion, and workover fluids are proposed to be limited to no free oil as measured using the static sheen test method and no priority pollutants except in

trace amounts. If materials added downhole as well treatment, completion, and workover fluids do not contain priority pollutants then the discharge is assumed to contain no priority pollutants, except in trace amounts. The no free oil limit will help prevent the discharge of toxic pollutants contained in oil, which may contaminate these fluids and cause unreasonable degradation of the marine environment. The limit of no priority pollutants except in trace amounts will help prevent the discharge of fluids containing toxic pollutants which have the potential to cause unreasonable degradation of the marine environment. Both of these limits are included in the current permit based on Ocean Discharge Criteria under CWA section 403(c).

F. Deck Drainage

1. NSPS, BAT and BCT

The current permit's limits are based on the Offshore Subcategory NSPS, BAT and BCT guidelines which all require No Discharge of free oil as determined by the presence of a film or sheen upon, or a discoloration of, the surface of the receiving water (visual sheen). No changes to those limits are proposed.

G. Sanitary Waste

1. NSPS and BCT

For sanitary waste, the Offshore Subcategory NSPS and BCT guidelines require residual chlorine to be a minimum of 1 mg/l and maintained as close to 1 mg/l as possible for offshore facilities continuously manned by ten or more persons. Also, the NSPS and BCT guidelines require No Discharge of floating solids for offshore facilities continuously manned by nine or fewer persons or intermittently manned by any number of persons. The current and proposed permits contain limits for sanitary wastewater which are based on those guidelines.

H. Domestic Waste

1. NSPS, BAT and BCT

The current and proposed permits' limits for domestic waste are based on the Offshore Subcategory NSPS, BAT and BCT established by the Effluent Limitations Guidelines. The guidelines require no floating solids or foam and require compliance with the requirements of 33 CFR Part 151-Vessels Carrying Oil, Noxious Liquid Substances, Garbage, Municipal or Commercial Waste, and Ballast Water.

I. Miscellaneous Discharges

1. Best Professional Judgment

The current permit's requirements of No Free Oil as monitored by the Visual Sheen Test and no floating solids or foam are based on BCT using Best Professional Judgment (BPJ) and are proposed to be continued in the reissued permit. These miscellaneous discharges are not addressed in the Offshore Subcategory guidelines. In addition, the miscellaneous discharges of chemically treated sea water and fresh water are limited for the concentration of treatment chemicals used based on BAT using BPJ and for whole effluent toxicity based on 403(c).

2. Ocean Discharge Criteria (CWA Section 403(c))

Fluids which are used as Sub Sea Wellhead Preservation Fluids, Sub Sea Production Control Fluids, Umbilical Steel Tube Storage Fluids, Leak Tracer Fluids, and Riser Tensioning Fluids shall have a 7-day No Observable Effect Concentration (NOEC) of no less than 50 mg/l. This permit action proposes to restrict the use of products which can not meet the 50 mg/l NOEC limitation by not authorizing discharges if the product fails the toxicity test. Because subsea fluids are inherently stable, according to the OOC comments, it would be reasonable to conduct toxicity tests prior to the application of the product. Therefore, no discharge of a subsea fluid is authorized if that product fails the 50 mg/l NOEC limit. Also, discharges of subsea fluid at a concentration above the product-specific NOEC are prohibited.

Because a 50 mg/l of powder dye solution is much more concentrated than a 50 mg/l of liquid dye solution, in the 2012 permit provided that the maximum concentration that can be used for leak testing is the 7-day NOEC for that specific powder dye.

Chemically treated miscellaneous discharges are required to comply with a 48-hour toxicity testing limitation prior to discharging.

J. All Discharges

For all permitted discharges, the current permit requires no discharge of halogenated phenols based on CWA section 403(c), no discharge of rubbish, trash and other refuse based on the International Convention for the Prevention of Ships (MARPOL), no discharge in areas of biological concern based on CWA section 403(c) and the minimization of discharge of surfactants, dispersants and detergents based on CWA section 403(c). These requirements are not proposed to be changed.

VI. Industry Requested Changes to the Permit

The Offshore Operators Committee (OOC) sent EPA a list of suggestions/recommended changes via an email, dated March 1, 2016. Follows are brief discussions regarding OOC's requests for changes to the permit.

DMR reporting: OOC requested the quarterly Discharge Monitoring Report (DMR) to be submitted within 60 days, instead of 30 days, after the end of the reporting period because some operators and consulting companies need to process quarterly DMRs for more than 1,000 facilities. A tight schedule may compromise reporting's quality assurance/quality control.

After consulting with EPA Headquarters, EPA proposes to include a 60-day time frame for reporting of quarterly DMR.

Analytical method for crude oil: OOC noted that the National Institute Standards and Technology (NIST) has discontinued NIST Method 1582 which was EPA approved method and referenced in the current permit. OOC recommended to use Method 2779, instead.

EPA proposes to include NIST Method 2779 as an alternative method to Method 1582 in the permit. NIST 1582 was a crude oil reference fluid that was used as part of the crude oil contaminations test for non-aqueous based drilling fluids. NIST 1582 has been discontinued and is no longer available. OOC has recommended the use NIST 2779 as a replacement. NIST 2779 is a standard Gulf of Mexico crude oil and is thought to be representative of crude likely to contaminate drilling fluids in the Gulf. Therefore, EPA agrees that the change is appropriate and has proposed to include the new reference fluid as part of the crude oil contamination test method.

Discharge of cement tracers: OOC requested to include cement tracers in the list of miscellaneous discharges. OOC stated that cement tracers would help to clearly identify top of cement behind a wellbore casing and ensure the cemented casing meets technical and HSE requirements for the well. The tracer in question would be a very small quantity (~ 1 mCi) of Sc-46 embedded in inert beads suspended in a gel (~1 cup by volume total), placed in the first 50 bbls of cement pumped (and so may extrude to sea floor for top hole casings). Sc-46 decays by beta emission (with detectable gamma), with a half-life of ~84 days (so effectively gone after 5 half-lives or 420 days). The beads will not float or disperse, rather they will be encapsulated into the cement slurry as it solidifies (over 12-24 hours at the sea floor). Sc-46 beta emissions travel distance in water is estimated at 0.11 cm. The tenth thickness in concrete for the gamma emissions is 16 cm.

Based on information provided by OOC, a small quantity of tracers is used for a job and most tracers will likely be encapsulated into the cement slurry as it solidifies. Also due to the short emission travel distance and short half-life of Sc-46, the proposed discharges are not expected to contribute significant impacts to environment. EPA proposes to add cement tracers to the list of authorized miscellaneous discharges.

Unused cement slurry: OOC requested that the permit authorize the discharge of cement slurry used for testing of equipment or resulting from cement specification changes. OOC listed three sources/causes of such extra cement slurry: commissioning of new units, equipment repairs, and off specification cement. OOC has stated that transportation safety is a concern because unused cement slurry must be transported to onshore for disposal before cement slurry becomes dry.

EPA has concerns that disposal of unused cement slurry which may add 50% of more cement disposal or application to seafloor, as OOC requested and estimated, may have potential to adversely affect seafloor habitats and/or other direct impact to aquatic life who intakes such substances. EPA believes that operators may choose to perform commissioning tests at an onshore location, instead of at offshore, and many operators have chosen this approach already, so the EPA is not considering to authorize discharges for equipment testing purposes. Equipment malfunctions could be identified either during routine maintenance or during an ongoing cementing job. EPA understands if the cement equipment malfunctions during the cementing job, actions to fix the problem must be taken quickly. Therefore, EPA proposes to allow discharges of unused cement slurry for equipment repairs, if such a repair occurs during the cementing job. Since this would be in the nature of an emergency discharge not expected to be routinely

occurring in the normal course of well-run operations, the authorization would be limited to once per calendar year per facility. EPA also proposes to authorize one discharge per well due to the reason of off-specification cement. In either case, as proposed, the operator shall provide date, identification of well or facility, volume of cement, and cause of the discharge with the quarterly report. Record of such discharges shall also be kept on site for inspection.

Chemically treated seawater: OOC has requested that toxicity monitoring and limits for miscellaneous discharges that are chemical treated water not be required for generated ions, such as copper, iron and aluminum. OOC provided some toxicity testing results and claimed that the critical dilutions of such discharges would not exceed No Observed Effect Concentration (NOEC) and Lowest Observed Effect Concentration (LOEC) to tested species. OOC stated that the exemption from toxicity for electrically generated irons is consistent with the Region 4 permit, and, manufacturer details indicate that copper in solution is less than 2 ppb. Which at 100% discharge the copper concentration is lower than that of the marine chronic and acute criteria.

OOC did not provide sufficient manufacturer data such as applicability, toxicity data, or electrically generated iron concentrations to EPA for determination. If OOC could provide more information during the public comment period, EPA may, based on sufficient information, accommodate OOC's request in the final permit.

OOC also requested that the concentration limit of 500 mg/l for treatment chemicals be removed from the permit. OOC stated that the limit for maximum manufacturer's recommended concentration and toxicity testing limit are protective. The concentration limit of 500 mg/l was a BPJ-based limit which was proposed in 1996 and the 500 mg/l value was arbitrary and had no scientific basis. OOC also stated that the use of such a limit is inconsistent with the approach used to regulate produced water discharges.

The 500 mg/l limit is a technology based limit and was added to be consistent with the Clean Water Act's requirements that any permit issued after March 31, 1989 include limits based on the best available technology economically achievable. The toxicity limits were added to ensure that discharges are consistent with the requirements of Ocean Discharge Criteria at CWA Section 403(c). Also, in many cases, EPA establishes both concentration and toxicity limits to regulate a waste stream. For instance, EPA has used toxicity limits, instead of establishing chemical-specific limits, to regulate produced water discharges because EPA has not had enough data to demonstrate chemical-specific limits are necessary to protect water quality or aquatic life of the Gulf of Mexico. EPA required operators to conduct produced water characterization studies in the current 2012 issued permit so EPA might evaluate chemical concentrations in order to determine whether or not chemical-specific limits are necessary. OOC has not provided any specific treatment chemical(s) which manufacturer's recommended concentrations are greater than 500 mg/l and treated water would not be toxic at the recommended concentration.

Cooling Water Intake Structure (CWIS): OOC requested a decrease in the required frequency for visual or remote inspection frequency from monthly to quarterly. OOC provided photographs

which indicated the observable marine growth on screen was less than 20% of the screen area during a 6-month observation period. OOC also requested a reduction in the velocity monitoring frequency

Based on information provided to EPA and also because the permit requires daily monitoring of intake velocity which could be an indicator of screen efficiency, EPA proposes to reduce visual or remote inspection to once per 6-month. The monitoring frequency for intake flow velocity remains daily.

Discharges at the seafloor: OOC requested that "brine and water-based mud discharge at the seafloor for temporary well abandonment" be authorized by the reissued permit as miscellaneous discharges. OOC states that the final phases of many temporary well abandonments (a prelude to permanent abandonment) could involve the discharge of clean brine or water-based mud from the upper most portion of the well at the seafloor. This would occur because a riser is not present (or has been disconnected from the abandoned well). The producing reservoir has been isolated in earlier stages of the abandonment with cement and plugs, and the tubing/annulus/casing has been scoured by prior well fluid circulations. Further, static sheen, oil and grease and priority pollutant limitations would have been already met on prior discharges of the brine (in earlier stages of the abandonment). Any water-based mud usage would have also been shown compliant by earlier drilling fluid monitoring. Finally, the brine and muds are engineered fluids, meeting detailed specifications; one of which is no hydrocarbon content is allowed (for safety and performance reasons).

This activity does not appear likely to result in an environmental impact. These fluids also should have been demonstrated to be in compliance with the permit's limits to the time they were used. Thus the EPA proposes to add "brine and water-based mud discharge at the seafloor for temporary well abandonment" to the list of miscellaneous discharges that are authorized by the permit if such water based drilling fluid and brine have been demonstrated to comply with the permits conditions for their original use (e.g.: water based drilling fluids that have been shown to meet the permit's limits for SPP toxicity, free oil, and cadmium and mercury in stock barite).

VII. Additional Proposed Changes from the Current Permit

This permit action is also proposing additional changes as below:

A. Drilling Fluids

The current permit authorizes discharges of small amounts of drilling fluids that are adhered to marine risers, diverter systems testing, and blow-out preventers (BOPs) in the category of de minimis discharges. This permit renewal clarifies the 2012 permit condition about the quantity of de minimis discharge to discharges that do not include any discharges of leakages.

The previous permit which was issued in 2012 required operators to conduct water-based drilling fluid characterization study so that the EPA may evaluate whether or not to establish

chemical-specific effluent limitations for drilling fluids is necessary in order to further protect aquatic life. The EPA has received 25 total metal data sets, 5 dissolved metal data sets, and 84 total metal data sets. (Both water-based mud and produced water characterization studies data can be viewed on EPA R6's website http://www3.epa.gov/region6/water/npdes/genpermit/index.htm) Ranges of drilling fluid data reported for each metal are shown in the following table:

Summary of Drilling Fluid Characterization Study Data

Constituent	Marine Chronic Criteria (Dissolved) (mg/l)*	Concentration in Total Form (mg/l)	Concentration in Dissolved Form (mg/l)	Concentration Range in Solid Phase (mg/kg)
Arsenic	0.036	0.001 - 16.0	0.00314 – 0.527	< 0.1 – 88.8
Cadmium	0.0088	0.0008 – 0.282	0.0073 - < 0.20	0.045 - < 2.27
Chromium IV	0.050	0.004 - < 2.0	<0.004 - < 0.04	< 0.68 – 11.4
Copper	0.0031	0.001 - 42.3	<0.02 - < 0.95	<0.1 – 97.0
Free Cyanide	0.001	0.02 - < 1.93	<0.02 - 0.20	0.0235 - < 1.99
Lead	0.0081	0.007 - 115	0.0115 – 5.57	1.67 – 490
Mercury	0.00094	0.000042 - 0.244	0.000076 - 0.00976	<0.0009 – 0.624
Nickel	0.0082	0.005 - 4.14	<0.01 - < 0.25	<0.499 – 12.5
Selenium	0.071	0.001 - < 0.5	0.0118 - < 0.25	< 0.17 - < 2.27
Silver	Not Established	0.0008 - < 0.5	<0.0016 – 0.261	0.0723 – 3.0
Zinc	0.081	0.0025 - 57.4	0.0389 – 2.4	1.56 – 218

- EPA's National Recommended Water Quality Criteria: www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table

Analysis of the total form of metal, instead of dissolved form, was permitted because laboratories had difficulty filtering drilling fluids to obtain dissolved metal concentrations due to the viscous nature of the fluids. Using the average dilution or dispersion values available for drilling fluid discharge scenarios (898 dilutions for organics and 4,203 dispersions for metals; see Section 4.2.3 of 1991 Ocean Discharge Criteria Evaluation), ambient concentrations could be projected at the edge of a 100-rn mixing zone. Based on dissolved concentrations shown above, a discharge of drilling fluid would be unlikely to cause exceedance of federal water quality criteria, which are established in dissolved metal form, at the edge of mixing zone. EPA has determined not to retain the current characterization study requirement.

B. Produced Water

1. Characterization Study

The 2012 issued permit requires operators to conduct a produced water characterization study so EPA may evaluate whether discharges of produced water will cause exceedance of national water quality criteria or not. Based on data from 10 individual reports and one joint report (about 40 participants) received by EPA, the range of concentrations reported for each metal is listed as below:

Summary of Produced Water Characterization Study Data

Constituent	Concentration Range (mg/l)	Marine Chronic Criteria (mg/l)*
Dissolved Arsenic	< 0.05 – 0.106	0.036
Dissolved Cadmium	< 0.01 – 0.05	0.0088
Dissolved Chromium VI	< 0.01	0.050
Dissolved Copper	< 0.035 – 0.05	0.0031
Free Cyanide	0.0047 – 0.253	0.001
Dissolved Lead	< 0.035 – 0.05	0.0081
Dissolved Mercury	< 0.000042 – 0.005	0.00094
Dissolved Nickel	< 0.05 - < 0.4	0.0082
Dissolved Selenium	0.05 – 0.19	0.071
Dissolved Silver	< 0.04 - < 0.1	Not Established
Dissolved Zinc	0.005 – 2.95	0.081

- EPA's National Recommended Water Quality Criteria: www.epa.gov/wqc/national-recommended-water-quality-criteria-aquatic-life-criteria-table

The criteria dilution range listed in the permit for produced water at the edge of 100-meter mixing zone is between 0.07 % and 11.72 % depending on discharge rate, pipe size and the distance of discharge point from sea floor. (For example, the critical dilution ranges for the average rate of 10,000 bbl/day from 0.39% in deep water to 3.39% in shallow water.) In the worst scenario for high discharge volumes (> 50,000 bbl/day) within a shallow depth of waterbody, there may be the potential to cause exceedance of water quality criteria at the edge of mixing zone. For instance, copper, cyanide, nickel and zinc may exceed the federal recommended criteria at the worst scenario of 11.72 % critical dilution. EPA has used the 7-day chronic toxicity testing to detect an aggregate effect of produced water on aquatic life, and toxic metals or chemicals may cause the failure of toxicity testing. The current permit states that "This permit may be reopened to require chemical specific effluent limits, additional testing, and/or other appropriate actions to address toxicity." EPA proposes a monthly retest frequency for 7-day toxicity testing until it passes the toxicity retests. EPA also proposes to require a toxicity reduction evaluation (TRE) in case the operator could not quickly identify the cause of testing failure. Each failure of toxicity test is considered a violation of the permit. EPA issued the final rule on Use of Sufficiently Sensitive Test Methods (79 FR 49001) to ensure that analytical methods are sensitive enough to detect pollutants to a level of water quality criteria. EPA proposes that an operator may use analytical methods which are sensitive to detect Minimum Quantification Levels (MQLs) developed by EPA for EPA Region 6's NPDES permits to demonstrate in compliance with the Sufficiently Sensitive Test Methods rule. The operator may

also choose other options (e.g., adjust the discharge rate, add a diffuser, etc.) to comply with the toxicity limits.

2. Toxicity Testing Frequency

The current permit establishes toxicity testing frequency of once per calendar year for facilities discharging less than 4,600 bbl/day, and once per calendar quarter for facilities discharging 4,600 bbl/day or more. If a facility has been subject to quarterly testing and has been compliant with toxicity limits for one full year (four consecutive quarters), the required testing frequency could be reduced to once per calendar year. The Bureau of Safety and Environmental Enforcement (BSEE), which conducts NPDES permit inspections on behalf of EPA, suggested EPA to remove the frequency reduction allowance due to difficulty of tracking and also said that a frequency of once per year is not representative because those are continuous discharges. As proposed, the reissued permit would require testing at a frequency of twice per calendar year for all sizes of facilities. If the discharge fails the toxicity test, the operator is currently required to conduct monthly retest as discussed above. That requirement to conduct monthly testing after a failure is not proposed to be changed in the reissued permit.

Because toxicity testing is required for all produced water discharges and the number of available laboratories is limited, EPA proposes following time frames for produced water toxicity testing schedules:

(1) For new discharges, the first toxicity test shall be performed within 30 days after the discharge begins and then follow the twice per calendar year schedule.

(2) For existing discharges that were authorized under the 2012 issued permit, the operators may conduct the first toxicity test within 6 months from the effective date of the permit.

(3) The operator must conduct a new toxicity test if the sample used for the previous test did not represent flow back of well completion fluids, workover fluids, well treatment fluids, or hydrate control fluids.

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3. Visual Sheen

The current permit requires the operator to a produced water sample for oil and grease analysis when a sheen is observed in the vicinity of the discharge or within two hours after startup of the system if it is shut down following a sheen discovery. EPA does have a concern that visual sheen may be an indicator of improper operations of treatment process or potential equipment operation and maintenance (O&M) problems. The current permit Part II, Section B has a provision of Proper Operation and Maintenance which requires that the permittee shall at all times properly operate and maintain all facilities and systems of treatment and control (and related appurtenances) which are installed or used by permittee as efficiently as possible and in a manner which will minimize upsets and discharges of excessive pollutants and will achieve compliance with the conditions of this permit.

The current permit also has a provision of visual sheen which states that “Monitoring shall be performed once per day when discharging, during conditions when observation of a

sheen on the surface of the receiving water is possible in the vicinity of the discharge, and when the facility is manned." BSEE inspectors have concerns that an operator might report "no sheen observed" when he conducted the visual monitoring and observed no sheen, but sheen might present after the operator conducted his daily monitoring. Therefore, EPA proposes to change the monitoring frequency from once per day to daily (which is not limited to once per day) during the daylight period and an observation of sheen must be recorded whenever a sheen is observed during the day in order to ensure proper operation and housekeeping are maintained all the time. Because sheen may be an indicator of improper O&M, EPA also proposes to require the operator, if sheen is observed, to conduct inspection of treatment process (e.g., oil/water separator) and investigation of the cause of sheen, and keep a record of findings with the operator's daily log and make the record available for inspector's review.

The current permit requires that a produced water sample shall be collected within two (2) hours of when a sheen is observed. Because a sample taken at two hours after the observation of a sheen may not represent the discharge quality when a sheen is observed, EPA proposes to require a sample with 30 minutes whenever a sheen is observed so a more representative sample could be collected. Any after the fact sampling of produced water discharges does not provide definitive evidence that sufficient oil was not being discharged in the past to cause a sheen, nor that the sheen was not related to a discharge that does have a "no free oil" effluent guideline limitation. Since the oil and grease technology limits for produced water apply before any mixing, those allowable concentrations (i.e., 29 mg/l daily average and 42 mg/l daily max), would actually be further diluted in the actual discharge (see critical dilution tables in Fact Sheet Addendum). For example, at 12.22 percent effluent, the highest critical dilution in the tables, the oil and grease concentration at the edge of the mixing zone, assuming the discharge contained the maximum daily limit of 42 mg/l, would be 5.13 mg/l. EPA believes a produced water discharge compliant with the oil and grease limits prior to discharge is unlikely to result in a visible sheen.

The U.S. Coast Guard stated that operators did not report sheens to the National Response Center (NRC) because they reported sheen to EPA under this permit. This has made the Coast Guard unable to conduct timely inspections to determine the causes of sheens. Also, the United States Attorney's Office for the Eastern District of Louisiana and the United States Department of Justice, Environmental Crimes Section, have been reviewing criminal enforcement for violations of the Clean Water Act, 33 U.S.C. § 1321, and the NPDES General Permit by offshore oil and gas producers in the Gulf of Mexico. In particular, the Department of Justice offices have reviewed the investigation and prosecution of a hypothetical case in which offshore oil and gas producers discharge oil from their produced water outfalls.

The Department of Justice (DOJ) recommended that NPDES permits should be amended to require immediate reporting of sheens to the National Response Center, as discussed further below.

> The Clean Water Act makes it unlawful to discharge oil or hazardous substances "in such quantities as may be harmful," in connection with activities under the Outer Continental Shelf Lands Act. 33 U.S.C. § 1321(b)(3). A Harmful quantity of oil is defined as any quantity that "[c]ause[s] a film or sheen upon or discoloration of the surface of the water or

adjoining shorelines . . . ." 40 C.F.R. § 110.3(b). If an offshore facility discharges a harmful quantity of oil, such as a quantity of oil that causes a sheen, the person in charge of that facility must notify the National Response Center (NRC) as soon as he has knowledge of such discharge. 33 U.S.C. § 1321(b)(5), 40 C.F.R. § 110.6. Further, facilities may not "circumvent [these] provisions" by adding dispersants or emulsifiers to discharged oil. 40 C.F.R. § 110.4.

Despite the general rule that discharges causing a sheen must be reported to the NRC, some offshore facility operators have argued that sheens caused by produced water effluent do not need to be reported. According to those operators, produced water effluent that contains less than the daily and monthly maximum oil concentration allowed by the NPDES permit may cause a sheen. As such, the facility is permitted to release produced water that causes a sheen, and any such release is not a "discharge" under Section 1321(a)(2) of the Clean Water Act.

Although Section 1321(a)(2) establishes an exemption for the term "discharge" for those operating within their permit, the permittee bears the burden of establishing the applicability of the statutory exclusion. *See, e.g., Javierre v. Central Altagracia, Inc.*, 217 U.S. 502, 508 (1910) ("When a proviso like this carves an exception out of the body of a statute or contract, those who set up such exception must prove it."); *United States v. Huseby*, 862 F. Supp. 2d 951, 959, 262 n.14 (D. Minn. 2012) (holding defendant "bears the burden of demonstrating an exception to the [Clean Water Act] applies").

And as a practical matter, the vast majority of offshore facilities do not and cannot test the oil content of the produced water effluent at the time a sheen is observed. Thus, the operator cannot, in fact, know whether the discharge that caused the sheen is within permit limits. Because permittees cannot establish at the time of the sheen that the produced water effluent was within permit limits, the permit exception of Section 1321(a)(2) is inapplicable and the sheen must be immediately reported to the NRC.

EPA agrees with DOJ that the operator could not demonstrate that the discharge of produced water complies with the oil & grease effluent limitation at the time when a sheen is observed. The daily maximum of 42mg/l and daily average of 29 mg/l technology-based effluent limitations apply to the produced water prior to commingling with any other waste streams, addition of sea water or mixing with ambient water. But, monitoring of sheen is conducted after the produced water is discharged into the ocean and diluted by ocean water, so a sheen on ocean surface may indicate potential exceedance of oil and grease effluent limitations. Therefore, EPA proposes to add the following language to "Section I.B.4.b. Produced Water Monitoring Requirements":

"A visual observation of a sheen is presumed to be a discharge within the meaning of 33 U.S.C. §§ 1321(a)(2) and (b)(3), and must be reported to the National Response Center (NRC) pursuant to 40 CFR § 110.6."

C. Marine Sanitation Device Excerption

The current permit deems the use of marine sanitation device (MSD) to be in compliance with permit prohibitions and limitations for sanitary waste and domestic waste. The permit requires the MSD be tested yearly for proper operation. Because certain type of MSD does not provide automatic disinfection treatment and United States Coast Guard does not conduct annual inspection on MSD, the MSD may not provide adequate or necessary treatment for sanitary or domestic wastes if not properly maintained on an ongoing, rather than yearly, basis. Also, the MSD excerption has confused operators about observation and reporting requirements. Therefore, EPA proposes to delete the MSD excerption. Operators who work at a facility whether the facility is equipped with MSD or not need to comply with all operation, observation and reporting requirements established for discharges of sanitary or domestic wastes.

D. Miscellaneous Discharges

In the current permit, miscellaneous discharges cover about 20 different kinds of discharges and some discharges have more monitoring requirements than others. For clarification purposes, EPA proposes to re-categorize those discharges based on their nature and potential pollutants of concern and establishes specific monitoring requirements and/or effluent limitations for each type of discharges. EPA proposes to modify visual sheen monitoring to require that observation of a sheen must be recorded whenever a sheen is observed during the day.

EPA has a concern that if brine used for pipeline preservation contains much higher dissolved solids than the receiving water, it may be toxic to aquatic life at times when a high volume of such brine is discharged. EPA proposes to add toxicity limitation for pipeline brine discharges. Commenters may provide 7-day chronic toxicity testing results during the public comment period to demonstrate an acceptable discharge rate and total dissolved solids of brine that will reasonably substitute the toxicity testing requirement.

EPA requests comment on replacing the 48-hour toxicity testing requirement with a discharge rate limitation for discharges of chemically treated miscellaneous discharges if commenters can demonstrate, in most of common cases, a discharge of chemically treated seawater or freshwater under certain discharge rate will pass the toxicity tests.

The Bureau of Ocean Energy Management (BOEM) requested that EPA clarify whether the existing NPDES permit allows discharges from pipelines, umbilical, or jumpers during decommissioning (e.g., tubing clogged by gelled products, gas hydrate formation, infrastructure to capture the product has already been removed, downhole disposal wells have already been plugged and abandoned). BOEM stated that “Umbilicals often contain multiple internal conduits for conveying a variety of materials from a platform to, and within, a well fields subsea architecture for a variety of operations. These umbilicals may contain, for example, soluble hydrate control fluids such as methanol or ethylene glycol. Although those chemicals may be relatively soluble, their additive volume could be quite high, depending on the length and diameter of the pipeline or umbilical or jumper, on the order of barrels. Does that volume still allow these chemicals to be considered miscellaneous?”

Based on information provided by BOEM/BSEE, chemicals contained in pipelines, umbilical, or jumpers appear to be consistent with the miscellaneous discharge that are currently authorized under the existing permit as miscellaneous discharges or chemically treated miscellaneous discharges. So, such discharges during decommissioning process must comply with all applicable permit conditions established for miscellaneous discharges or for chemically treated miscellaneous discharges. But, EPA proposes to restrict such discharges if an operator were to abandon a pipeline or umbilical in place with chemicals in it (i.e., not flushing and capturing the chemicals before abandonment or discharging at the time of abandonment). Because a great amount of hydrate control fluids released to waterbody may cause dissolved oxygen deficit, EPA requests comments on whether to set flow limits for discharges of methanol within a 7-day period to 20 barrels (bbl, or 840 gallons) and for ethylene glycol within a 7-day period to 200 barrels (bbl, or 8,400 gallons) or not. Based on information provided by the OOC when EPA developed the current permit, the current permit requires toxicity tests if the volume of a discharge of methanol or ethylene glycol exceed the above mentioned criteria.

E. Cooling Water Intake Structure Information and Entrainment Monitoring Study

The participants in the industrial-wide Cooling Water Intake Structure (CWIS) Entrainment Monitoring Study (EMS) submitted the final report dated March 24, 2014, to EPA. Four platforms (sampling sites) in the Gulf of Mexico were sampled during a 2-year period (January 23, 2011 to January 24, 2013). During individual surveys, sampling at each study site consisted of vertically stratified ichthyoplankton collections taken from the ambient water column at dawn, midday, and dusk using a 1-m^2 multiple opening/closing net and environmental sensing system (MOCNESS). Each tow with the MOCNESS provided one plankton sample for each of three depth ranges: 0 to 100 m, 100 to 200 m, and 200 to 300 m. Fish eggs and larvae collected in these samples were counted and larvae were identified to the lowest practicable identification level. Representatives of 164 fish families (and higher order taxa if family could not be determined) were taken in the MOCNESS collections. The family Myctophidae (lanternfishes) was the most abundant family with the 20,804 specimens accounting for 34% of the total collection of 60,376 fish larvae. The second and third most abundant families were Sternoptychidae (hatchetfishes) and Bregmacerotidae (codlets) represented by 7,713 and 4,508 specimens, respectively. Collectively, these three taxa comprised 55% of the total collection of ichthyoplankton. No adult fish were collected in any tow.

In the executive summary of the EMS report, it concludes that “This report describes the results of a numerical simulation of the flow field around a generic cooling water intake structure. The simulation was carried out to visualize the extent of the water column near the intake that is influenced by the flow of water towards the intake and where the fish eggs and larvae that are present may be subject to entrainment….Results of the simulation showed that the region where the 5 MGD flow creates a vertical velocity greater than 0.05 ft/s extends less than 1 pipe diameter below the intake mouth. As a result, only eggs and larvae that happen to pass by the intake within a small distance of the intake mouth are subject to entrainment.” The report also concludes:

1. The study successfully provided information to assist development of potential measures that could be taken if the need for mitigating the effects of entrainment is required.

Ichthyoplankton densities in the 200 to 300 m depth range were only a fraction of those found at shallower depths, suggesting that site-specific sampling at structures with water intakes below 200 m may not be necessary.

2. The findings of this study suggest that SEAMAP (Southeast Area Monitoring and Assessment Program) data provide an adequate basis for estimating entrainment losses.

3. The observed sampling sites were over depths and distances offshore where ichthyoplankton densities were a small fraction of those observed closer to shore over the continental shelf. Relative to the daily ichthyoplankton abundances passing each site, this level of entrainment was not biologically significant. Commercially or recreationally important species were either not collected during 2 years of biweekly sampling or were collected so infrequently as to preclude robust estimates of their densities useful for modeling net impacts on the adult population. The entrainment of ichthyoplankton by CWIS will not have a noticeable or biologically significant impact.

The study report also shows the following results:

1. Densities were greatest in at least one of the western sites for all responses except total eggs, suggesting a general trend in abundance of larval fish increasing from east to west. Total eggs had higher representation at the shallowest site.

2. It appeared that the general trend for total eggs, total larvae, Myctophidae, and Sternoptychidae was to reach peak densities during spring (March and April), while Bregmacerotidae was more consistent except for dramatic spikes in density for June and December. All density responses appear to be low during the fall (October and November).

3. Larval density in the upper 100 m of the water column was nearly five times higher than density observed at 100 to 200 m depth and approximately 16 times higher than larval densities at 200 to 300 m depth.

4. Fish egg abundance exhibited a clear seasonal pattern peaking in March and declining to a minimum in November. Egg density in the upper 100 m of the water column was approximately two to three times higher than the deeper depths.

The OOC requested that offshore operators may use SEAMAP data, instead of entrainment monitoring, to comply with the entrainment monitoring requirements pursuant to the CWIS Phase III Rule which requires new fixed offshore oil and gas extraction facilities without sea chest to conduct entrainment sampling over a 24-hour period and no less than biweekly during the primary period of reproduction, larval recruitment, and peak abundance (40 CFR 125.137(a)(5). Based on the EMS findings, EPA determines that the primary period of reproduction, larval recruitment, and peak abundance is March and April. And, also because the depth of CWIS is one of the primary factors which determine quantity of entrained species, EPA proposes 24-hour sampling requirements (for fixed facilities without sea chest) with varied frequency depending on the location of intake as below:

Intake Screen or Opening Locates Below Water Surface	< = 100 Meters (M)	> 100 M, but < = 200 M	> 200 M
Frequency	Three Samples per Year	Two Samples per Year	One Sample per Year

Monitoring Period	March or April, and June, and December	March or April and June	March or April
Reporting	Entrainment per Sample Event and Total Annual Entrainment		

Each sampling event shall include collections of samples from all intake structures in that facility. EPA may require the facility which intake structures locate less than 100 meters below the seawater surface to implement additional entrainment control measures if EPA determines that entrainment monitoring results have demonstrated environmental adverse impacts.

If site-specific entrainment monitoring data would demonstrate that either intake structures have insignificant entrainment impacts or the number of entrained species is lower than or close to SEAMAP data, EPA may consider, either during the final permit decision for this term of the permit or when EPA renew the next permit term depending on how many site-specific monitoring data are available to EPA, only to require entrainment monitoring for newly installed fixed facilities to collect two-year entrainment data.

EPA also proposes to reduce application information collections from new facilities as identified in the current permit Part I.B.12.a. Instead of submitting such information to EPA, the new facility operator shall keep those information (either paper or electronic document) accessible for inspection. The operator of new facility still shall report basic information, such as facility location, design intake capacity, and intake velocity, in NOI as required in permit Part I.A.2, but shall keep the records of details and all calculations or drawings with the facility and make it available for inspection. New facilities which have any intake structure with a designed intake velocity greater than 0.5 ft/sec are not authorized to discharge cooling water under this permit.

F. Clarification for Representative Samples

The BSEE inspectors brought to EPA's attention that some operators filtered samples with coffee filters prior to delivery of samples to the laboratory for analysis. All samples collected for analysis must be representative of monitored discharges. Any preparation of samples, such as composition, filtration, storage, and etc., must be in compliance with the standards of procedure established for the analytical methods. Operators shall not alter the sample. For instance, operators shall not filter the sample with coffee filter, add any substance into the sample, or do something inconsistent with the regulatory standards. Permit Part II, Section C.2 clearly states this requirement. The proposed permit adds a statement in Part I.B to read as "All monitoring under this permit is required to comply with the approved test method procedure as described in 40 CFR Part 136, 40 CFR Part 435, and any protocol specified in this permit. This include sample collection, preparation, preservation and analysis protocol and use of sufficiently stringent test methods. Any changes to methods or protocol must be approved through the alternate test method procedures in accordance with 40 CFR Part 136."

G. Clarification for Application of Chemicals

Several vendors and operators have approached EPA for application of new products for treatment of wastewaters or miscellaneous discharges. This permit does not prohibit application of new chemicals, but does require that any chemical applied to control algae or bacterial to meet quantity and quality limits set forth in Part I.B.11.a for treatment chemicals. For chemicals used to remove pollutants from discharges, operators must follow the instruction and manufacturer's recommended dosage, and ensure that the discharge will comply with effluent limitations and toxicity requirements, if applicable, established in the permit.

The EPA is proposing to clarify flow monitoring requirements for miscellaneous discharges to accurately quantify the total volume of discharges during the reporting period.

H. Well Treatment, Well Completion, and Workover Fluids

The current permit prohibits discharges of well treatment, well completion, and workover fluids (TCW) which contain priority pollutants except in trace amounts. If materials added downhole as well treatment, completion, or workover fluids contain no priority pollutants, the discharge is assumed not to contain priority pollutants except possibly in trace amounts. Vendor certification indicating the fluids contain no priority pollutants is acceptable for meeting this requirement. To be consistent with EPA Region 4's proposed general permit for offshore oil and gas extraction, EPA proposes to add an additional statement "In case either a vendor certification is not available or the present of priority pollutants is in doubt, "Trace amounts" shall mean the amount equal to or less than the most sensitive method detection limit listed in 40 CFR Part 136 for the applicable parameter or as sensitive as MQLs listed in Appendix E of the permit."

Hydraulic fracturing has led to a significant increase in access to previously inaccessible oil and gas resources and progress toward energy independence for the United States. The activity has also resulted in a high level of public concern across the country. Much of the hydraulic fracturing done in onshore oil and gas wells creates fractures in shale or other relatively impermeable rocks that allows hydrocarbon resources to more readily flow toward the well bore. That type of hydraulic fracturing requires great pressure and large amounts of fracturing fluids. Although hydraulic fracturing is a common practice for offshore oil and gas wells, there are significant differences in the operation compared to that done onshore. Offshore oil and gas in the Gulf of Mexico is currently extracted mostly from unconsolidated sands that have a high permeability. Oil and gas flow freely toward the well bore in those deposits and fracturing is not needed to increase permeability. Instead, hydraulic fracturing is done to repair formation damage near the well bore and prevent erosion of the sand as hydrocarbon flows to the well. Hydraulic fracturing of consolidated formations is also done in a manner different from onshore practices. According to the OOC, off shore hydraulic fracturing requires significantly lower volumes of hydraulic fracturing fluid and additives compared to most onshore wells.

Hydraulic fracturing fluids have been authorized to be discharged offshore under the category of well treatment fluids. Much of those fluids are also comingled with produced water from the formation and discharged with the produced water stream. No available information

has been found that suggests that there have been major changes in the chemicals used offshore since the discharges and chemical additives were examined during development of the Effluent Limitations Guidelines; however, no detailed data gathering and analysis has been conducted in a number of years. Because these discharges have not been studied in detail for a number of years and EPA does not have extensive data showing currently used chemical additives, chemical reporting and toxicity testing requirements are included in the proposed permit. As proposed, the permit would require that the following be assessed for each well in which well treatment, completion, or workover operations are conducted and the fluids discharged. Such TCW assessments shall be conducted for each applicable well by operators either corporately or individually. The general information of a specific TWC could be used for assessment reporting purposes. Each TWC assessment shall include the following information:

1) Lease and block number
2) API well number
3) Type of well treatment or workover operation conducted
4) Date of discharge
5) Time discharge commenced
6) Duration of discharge
7) Volume of well treatment
8) Volume of completion or workover fluids used
9) The common names and chemical parameters for all additives to the fluids
10) The volume of each additive
11) Concentration of all additives in the well treatment
12) Concentration of all additives in the completion, or workover fluid
13) The No Observable Effect Concentration (NOEC) of 48-hour acute Whole Effluent Toxicity (WET) test for well treatment fluids discharged separately from the produced water discharge

Operators shall use the following methods to perform the 48-hour Acute Whole Effluent Toxicity Test Method:

a) The permittee shall utilize the Mysidopsis bahia (Mysid shrimp) acute static renewal 48-hour definitive toxicity test using EPA-821-R-02-012. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.

b) The permittee shall utilize the Menidia beryllina (Inland Silverside minnow) acute static renewal 48-hour definitive toxicity test using EPA-821-R-02-012. A minimum of five (5) replicates with eight (8) organisms per replicate must be used in the control and in each effluent dilution of this test.

c) The NOEC is defined as the greatest effluent dilution which does not result in lethality that is statistically different from the control (0% effluent) at the 95% confidence level.

Industry-Wide Study Alternative: Alternatively, operators who discharge well treatment completion and/or workover fluids may participate in an EPA-approved industry-wide study as an alternative to conducting monitoring of the fluids characteristic and reporting information on the associated operations. That study would, at a minimum, provide a characterization of well treatment, completion, and workover fluids used in a representative number of active wells of varying depths (shallow, medium depth and deep depths). In addition, an approved industry-wide study would be expected to provide greater detail on the characteristics of the resulting discharges, including their chemical composition and the variability of the chemical composition and toxicity. The study area should include a statistical valid number of samples of wells located in the Western and Central Areas of the GOM and may include the Eastern Gulf of Mexico (GOM) under the permitting jurisdiction of EPA Region 4, and operators may join the study after the start date. The study plan should also include interim dates/milestones.

A plan for an industry–wide study plan would be required to be submitted to EPA for approval within six months after the effective date of this permit. If the Region approves an equivalent industry-wide well treatment fluids discharge monitoring study, the monitoring conducted under that study shall constitute compliance with these monitoring requirements for permittees who participate in such the industry-wide study. Once approved, the study plan will become an enforceable part of this permit. The study must commence within six months of EPA's approval. If the Region does not approve the study plan or if a permittee does not participate in the study, compliance with all the monitoring requirements for well, completion, and workover fluids is required (see above). The final study report must be submitted no later than three years from the effective date of this permit.

J. Dispersants, surfactants, or detergents

The existing general permit prohibits the discharge of dispersants, surfactants, or detergents except as necessary to comply with safety requirements of the Occupational Safety and Health Administration (OSHA) or the Bureau of Safety Environment and Enforcement (BSEE). An example of an appropriate use of dispersants, surfactants, or detergents consistent with the permit's prohibition would be cleaning of minor splatters on the drill deck that could cause workers to slip and falls.

In several cases inspectors found that dispersants, surfactants, or detergents have been used on platforms for purposes that are not consistent with the permit's prohibition. Enforcement actions based on those inspections were the subject of the following court cases: United States v. ATP Oil & Gas Corporation, 955 F. Supp. 2d 616, 618 (E.D. La., 2013) and United States v. Champion ES Holdings, Inc., 2:16-cr-160, Dkt. 20 (E.D. La., Oct. 5, 2016).

In the example of United States v. ATP Oil and Gas Corporation, inspectors found that tubing on the platform led from a drum containing surfactants to the produced water discharge. Addition of a surfactants to the produced water discharge would break up oil in the discharge and prevent detection of a sheen on the receiving water. This action could circumvent the intent of the permit's produced water sheen monitoring requirements. By breaking oil into smaller droplets, dispersants, surfactants, and detergents also tend make the oil more available to aquatic

life and potentially more toxic.

The United States v. Champion ES Holding, Inc. case addressed surfactants that were supplied to an offshore operator that were added to the produced water stream for the purpose of hiding sheens on the surface of the receiving water associated with the produced water discharge.

These two cases appear to suggest that clarification of the permit's language addressing dispersants, surfactants, or detergents would be helpful. The permit language is proposed to be changed as follows.

Current Permit Language:
Section I.C.3: The facility operator shall minimize the discharge of dispersants, surfactants and detergents except as necessary to comply with the safety requirements of the Occupational Safety and Health Administration and the Minerals Management Service.

Proposed Permit Language:
Section I.C.3: The discharge of dispersants, surfactants, and detergents is prohibited except when it is incidental to their being used to comply with safety requirements of the Occupational Safety and Health Administration and the Bureau of Safety and Environmental Enforcement.

Section I.B.4.a: The addition of dispersants or emulsifiers to produced water discharges is prohibited. 40 CFR § 110.4.

I. Certification Statement

Today's proposed permit contains a revised certification statement in the permit, Part II.D.10.c. This certification statement includes an additional sentence: "I have no personal knowledge that the information submitted is other than true, accurate, and complete." EPA believes this addition to the certification language is necessitated by the recent decision in U.S. v. Robison, 505 F.3d 1208 (11th Cir. 2007). In Robison, the Court of Appeals struck down the defendant's conviction for a false statement on the grounds that the certification language did not require him to have personal knowledge regarding the truth or falsity of the information submitted to EPA. Rather, the court reasoned that EPA's certification required the defendant to certify, in part, that he made an inquiry of the persons who prepared and submitted the information and based on that inquiry, the information was accurate to the best of his knowledge. The court further reasoned that there is no requirement in the certification that the person attest to his personal knowledge regarding the information submitted. The government had argued at trial that the defendant had personal knowledge that the facility had committed violations. As a result, EPA feels it is necessary to include language which clarifies that the signatory is certifying that he or she has no personal knowledge that the information submitted is other than true, accurate, and complete.

VIII. References

1. Letter of July 15, 2011, from Offshore Operators Committee to Isaac Chen regarding permit revisions/clarifications and past determinations for GMG290000 renewal 2012.

2. Letter of December 15, 2011, from Offshore Operators Committee to Isaac Chen.

3. Email dated March 1, 2016, from Offshore Operators Committee to Isaac Chen, regarding initial comments for the permit renewal.

4. Email dated December 9, 2016, from Bureau of Ocean Energy Management to Isaac Chen.

5. Email dated January 9, 2017, from Bureau of Safety and Environmental Enforcement to Scott Wilson.

6. Email dated January 20, 2017, from Bureau of Safety and Environmental Enforcement to Isaac Chen.

ADDENDUM TO THE FACT SHEET AND SUPPLEMENTAL INFORMATION FOR THE PROPOSED 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)

Produced Water Critical Dilution Percent Effluent Values

The critical dilution percent effluent tables are retained from the current general permit (GMG290000). CORMIX 7.0.0.0 was employed to determine the critical dilutions used at the edge of the 100-meter regulatory mixing zone. The common parameters for all model runs are arranged by the appropriate input parameter pages.

1. *Effluent Characterization*
    a. The pollutant is assumed to function as a conserved pollutant which means that the pollutant does not undergo any decay of growth processes.
    b. The pollutant discharge concentration is set to 100% which is appropriate for the characterization of the discharge.
    c. Effluent density is the averaged value (1070 kg/m^3) based on previously obtained data used for the preceding issuance of the GMG290000 permit.
2. *Ambient Geometry*
    a. The average depth and the depth at discharge are presumed to be the same in the Gulf of Mexico. This assumption is representative for the vast majority of the seafloor in the Gulf. The depths are varied according to the modeled input parameters.
    b. Wind Speed (Uw) parameter is set to 4 m/s which is representative of a light wind at the design conditions.
    c. The ambient velocity (Ua) is set to 0.1 m/s which is conservative with respect to the dispersion of the pollutant and current speeds in the Gulf of Mexico.
    d. The water body is considered to be unbounded which is appropriate in an ocean setting.
    e. Bottom friction (Manning *n*) is considered to be low based upon the character of the bottom of the OCS. A representative value for a smooth bottom and no weeds was used which is represented by a value of 0.020.
    f. In the ambient density data field, a non-fresh water density of 1017 kg/m^3 is an appropriate salt water density at the surface. A linear density gradient of 0.182 kg/m^3/m is used which is appropriate given the maximum density (bottom density- RHOAB) used in the modeling is 1020.822 kg/m^3.
3. *Discharge Geometry*
    a. The CORMIX1 Single Port model is utilized in this exercise.
    b. The nearest bank is set to 3000 m to the left which is the minimum distance which is appropriate to the OCS.
    c. Port diameter is varied with the representative diameters used in the modeling exercise.
    d. A submerged offshore discharge configuration is used with a submerged port height of 20 cm below the surface. The 20 cm above the port is not included in the density gradient portion of the calculation.
    e. The appropriate vertical angle (θ) and horizontal angle (σ) for a topside downward oriented pipe are -90° and 0° respectively.
4. *Mixing Zone Specifications*

a. No water quality standard is specified in the modeled iterations
b. A downstream mixing zone distance is set to 100 m.
c. The region of interest is 3000 m.

The tables representing the appropriate critical dilution effluent percentages are as follows:

Table 1-A: Critical Dilution (Percent Effluent) for Discharges with a Depth Difference Between the Discharge Pipe and the Sea Floor of Greater than 0 Meters to 4 Meters

Discharge Rate	**Pipe Diameter (inches)**					
(bbl/day)	**>0" to 5"**	**>5" to 7"**	**>7" to 9"**	**>9" to 11"**	**>11" to 15"**	**>15"**
0 to 500	0.07	0.20	0.16	0.13	0.10	0.08
501 to 1000	0.16	0.39	0.32	0.26	0.20	0.16
1001 to 2000	0.35	0.35	0.63	0.56	0.40	0.31
2001 to 3000	0.55	0.54	0.94	0.79	0.60	0.47
3001 to 4000	0.89	0.85	0.85	0.85	0.85	0.85
4001 to 5000	1.14	1.09	1.08	1.08	1.08	1.08
5001 to 6000	1.40	1.35	1.30	1.31	1.31	1.31
6001 to 7000	1.66	1.59	1.51	1.53	1.53	1.54
7001 to 8000	1.90	1.83	1.75	1.74	1.73	1.73
8001 to 9000	2.13	2.07	2.00	1.94	1.93	1.94
9001 to 10,000	2.38	2.30	2.21	2.13	2.13	2.14
10,001 to 15,000	3.15	3.39	3.28	3.18	3.04	3.04
15,001 to 20,000	4.34	4.39	4.25	4.15	3.83	3.92
20,001 to 25,000	5.14	5.43	5.20	5.17	4.77	4.46
25,001 to 35,000	6.36	7.18	7.18	6.86	6.56	5.96
35,001 to 50,000	7.29	8.91	9.44	9.20	8.62	8.03
50,001 to 75,000	8.33	10.52	11.72	12.22	11.34	10.90

Table 1-B: Critical Dilution (Percent Effluent) for Discharges with a Depth Difference Between the Discharge Pipe and the Sea Floor of Greater than 4 Meters to 6 Meters

Discharge Rate	**Pipe Diameter (inches)**					
(bbl/day)	**>0" to 5"**	**>5" to 7"**	**>7" to 9"**	**>9" to 11"**	**>11" to 15"**	**>15"**
0 to 500	0.07	0.14	0.11	0.09	0.07	0.05
501 to 1000	0.10	0.27	0.22	0.18	0.14	0.11
1001 to 2000	0.18	0.18	0.44	0.37	0.28	0.22
2001 to 3000	0.29	0.29	0.66	0.55	0.42	0.33
3001 to 4000	0.40	0.39	0.39	0.74	0.56	0.43
4001 to 5000	0.51	0.50	0.49	0.92	0.70	0.54
5001 to 6000	0.75	0.73	0.70	0.71	0.70	0.70
6001 to 7000	0.90	0.87	0.83	0.82	0.83	0.83
7001 to 8000	1.05	1.01	0.97	0.96	0.96	0.96

8001 to 9000	1.18	1.15	1.10	1.08	1.08	1.08
9001 to 10,000	1.32	1.28	1.24	1.19	1.20	1.20
10,001 to 15,000	1.93	1.92	1.87	1.81	1.78	1.75
15,001 to 20,000	2.46	2.52	2.42	2.34	2.24	2.25
20,001 to 25,000	2.97	3.02	2.94	2.95	2.76	2.73
25,001 to 35,000	3.75	4.00	4.01	3.95	3.82	3.54
35,001 to 50,000	4.54	5.31	5.43	5.37	5.14	4.84
50,001 to 75,000	5.49	6.64	7.14	7.34	6.90	6.73

Table 1-C: Critical Dilution (Percent Effluent) for Discharges with a Depth Difference Between the Discharge Pipe and the Sea Floor of Greater than 6 Meters to 9 Meters

Discharge Rate	**Pipe Diameter (inches)**					
(bbl/day)	**>0" to 5"**	**>5" to 7"**	**>7" to 9"**	**>9" to 11"**	**>11" to 15"**	**>15"**
0 to 500	0.08	0.10	0.08	0.06	0.05	0.04
501 to 1000	0.11	0.19	0.15	0.13	0.10	0.08
1001 to 2000	0.14	0.14	0.31	0.26	0.20	0.15
2001 to 3000	0.17	0.17	0.46	0.39	0.29	0.23
3001 to 4000	0.20	0.20	0.20	0.51	0.39	0.30
4001 to 5000	0.24	0.24	0.23	0.64	0.49	0.38
5001 to 6000	0.30	0.29	0.29	0.29	0.59	0.46
6001 to 7000	0.36	0.35	0.34	0.34	0.69	0.53
7001 to 8000	0.48	0.47	0.45	0.45	0.45	0.45
8001 to 9000	0.56	0.54	0.52	0.51	0.52	0.52
9001 to 10,000	0.63	0.62	0.60	0.58	0.58	0.58
10,001 to 15,000	0.99	0.98	0.95	0.92	0.90	0.91
15,001 to 20,000	1.29	1.34	1.30	1.26	1.19	1.20
20,001 to 25,000	1.58	1.61	1.58	1.57	1.50	1.49
25,001 to 35,000	2.11	2.15	2.15	2.09	2.07	1.95
35,001 to 50,000	2.69	2.88	2.91	2.91	2.85	2.71
50,001 to 75,000	3.37	3.90	4.12	4.15	4.01	3.94

Table 1-D: Critical Dilution (Percent Effluent) for Discharges with a Depth Difference Between the Discharge Pipe and the Sea Floor of Greater than 9 Meters to 12 Meters

Discharge Rate	**Pipe Diameter (inches)**					
(bbl/day)	**>0" to 5"**	**>5" to 7"**	**>7" to 9"**	**>9" to 11"**	**>11" to 15"**	**>15"**
0 to 500	0.08	0.07	0.06	0.05	0.04	0.03
501 to 1000	0.11	0.15	0.12	0.10	0.08	0.06
1001 to 2000	0.14	0.14	0.24	0.20	0.15	0.12
2001 to 3000	0.17	0.17	0.36	0.30	0.23	0.18

3001 to 4000	0.19	0.19	0.19	0.40	0.31	0.24
4001 to 5000	0.21	0.21	0.21	0.50	0.38	0.30
5001 to 6000	0.23	0.23	0.23	0.23	0.46	0.36
6001 to 7000	0.24	0.24	0.24	0.24	0.53	0.41
7001 to 8000	0.19	0.19	0.19	0.19	0.61	0.47
8001 to 9000	0.20	0.20	0.20	0.20	0.69	0.53
9001 to 10,000	0.30	0.23	0.23	0.23	0.76	0.59
10,001 to 15,000	0.74	0.74	0.72	0.70	0.69	0.69
15,001 to 20,000	0.76	0.77	0.75	0.75	0.72	0.72
20,001 to 25,000	0.97	0.98	0.96	0.94	0.91	0.90
25,001 to 35,000	1.34	1.34	1.34	1.32	1.29	1.24
35,001 to 50,000	1.79	1.81	1.86	1.82	1.80	1.73
50,001 to 75,000	2.37	2.58	2.64	2.61	2.61	2.55

Table 1-E: Critical Dilution (Percent Effluent) for Lower Volume Discharges with a Depth Difference Between the Discharge Pipe and the Sea Floor of Greater than 12 Meters

Discharge Rate	**Pipe Diameter (inches)**					
(bbl/day)	**>0" to 5"**	**>5" to 7"**	**>7" to 9"**	**>9" to 11"**	**>11" to 15"**	**>15"**
0 to 500	0.08	0.07	0.05	0.04	0.03	0.03
501 to 1000	0.11	0.13	0.10	0.09	0.07	0.05
1001 to 2000	0.15	0.15	0.21	0.18	0.13	0.10
2001 to 3000	0.17	0.17	0.31	0.26	0.20	0.16
3001 to 4000	0.19	0.19	0.19	0.35	0.27	0.21
4001 to 5000	0.21	0.21	0.21	0.44	0.33	0.26
5001 to 6000	0.23	0.23	0.23	0.23	0.40	0.31
6001 to 7000	0.24	0.24	0.24	0.24	0.47	0.36
7001 to 8000	0.19	0.19	0.19	0.19	0.53	0.41

Table 1-F: Critical Dilution (Percent Effluent) for Higher Volume Discharges with a Depth Difference Between the Discharge Pipe and the Sea Floor of Greater than 12 Meters

Depth Difference Greater than 12 Meters to 14 Meters

Discharge Rate	**Pipe Diameter (inches)**					
(bbl/day)	**>0" to 5"**	**>5" to 7"**	**>7" to 9"**	**>9" to 11"**	**>11" to 15"**	**>15"**
8001 to 9000	0.20	0.20	0.20	0.20	0.60	0.47
9001 to 10,000	0.21	0.21	0.21	0.21	0.67	0.52
10,001 to 15,000	0.39	0.39	0.39	0.39	0.39	0.39
15,001 to 20,000	0.73	0.74	0.71	0.71	0.68	0.68
20,001 to 25,000	0.94	0.95	0.93	0.92	0.89	0.88
25,001 to 35,000	1.06	1.04	1.21	1.02	0.99	0.96

35,001 to 50,000	1.47	1.48	1.42	1.45	1.43	1.38
50,001 to 75,000	1.90	2.06	2.04	2.06	2.02	1.98
Depth Difference Greater than 14 Meters to 16 Meters						
Discharge Rate	**Pipe Diameter (inches)**					
(bbl/day)	**>0" to 5"**	**>5" to 7"**	**>7" to 9"**	**>9" to 11"**	**>11" to 15"**	**>15"**
8001 to 9000	0.20	0.20	0.20	0.20	0.53	0.41
9001 to 10,000	0.21	0.21	0.21	0.21	0.59	0.46
10,001 to 15,000	0.39	0.39	0.39	0.39	0.39	0.39
15,001 to 20,000	0.43	0.44	0.44	0.44	0.44	0.44
20,001 to 25,000	0.68	0.69	0.67	0.67	0.64	0.48
25,001 to 35,000	1.05	1.03	1.02	1.01	0.99	0.95
35,001 to 50,000	1.48	1.48	1.45	1.44	1.42	1.39
50,001 to 75,000	1.62	1.69	1.70	1.69	1.68	1.63
Depth Difference Greater than 16 Meters to 19 Meters						
Discharge Rate	**Pipe Diameter (inches)**					
(bbl/day)	**>0" to 5"**	**>5" to 7"**	**>7" to 9"**	**>9" to 11"**	**>11" to 15"**	**>15"**
8001 to 9000	0.20	0.20	0.20	0.21	0.46	0.36
9001 to 10,000	0.21	0.21	0.21	0.21	0.51	0.40
10,001 to 15,000	0.39	0.39	0.39	0.40	0.40	0.40
15,001 to 20,000	0.44	0.44	0.44	0.45	0.45	0.45
20,001 to 25,000	0.48	0.48	0.48	0.49	0.49	0.49
25,001 to 35,000	0.55	0.55	0.55	0.57	0.57	0.57
35,001 to 50,000	1.07	1.06	1.04	1.02	1.00	0.96
50,001 to 75,000	1.58	1.61	1.60	1.59	1.54	1.53
Depth Difference Greater than 19 Meters						
Discharge Rate	**Pipe Diameter (inches)**					
(bbl/day)	**>0" to 5"**	**>5" to 7"**	**>7" to 9"**	**>9" to 11"**	**>11" to 15"**	**>15"**
8001 to 9000	0.20	0.20	0.20	0.20	0.42	0.33
9001 to 10,000	0.21	0.21	0.21	0.21	0.47	0.36
10,001 to 15,000	0.39	0.39	0.39	0.39	0.39	0.39
15,001 to 20,000	0.44	0.44	0.44	0.44	0.44	0.44
20,001 to 25,000	0.48	0.48	0.48	0.48	0.48	0.48
25,001 to 35,000	0.55	0.55	0.55	0.55	0.56	0.56
35,001 to 50,000	0.64	0.64	0.64	0.65	0.65	0.65
50,001 to 75,000	1.32	1.33	1.32	1.30	1.26	1.25

CORMIX 7.0.0.0 is the latest version of the CORMIX model available to the Agency at the time of revised effluent table development and represents the most robust version of the model used in

the effort to describe the critical dilutions. Several significant updates are included in the latest version when compared to the previous model versions used (CORMIX 3.2/4.0) in the critical dilution percent effluent tables. A list of features, updates, and bug fixes can be found at http://www.mixzon.com/quality_assurance.php. In particular, the handling of negatively buoyant plumes and density gradients has been addressed.

In summary, Tables 1-A through 1-F hereby supersede all previous iterations of the critical dilution percent effluent tables and should be utilized in all instances associated with the general permit number GMG290000.

SUPPLEMENTAL INFORMATION FOR OTHER STATUTORY AND REGULATORY REQUIREMENTS:

Clean Water Act. The Clean Water Act ("CWA") establishes a comprehensive program "to restore and maintain the chemical, physical, and biological integrity of the Nation's waters." 33 U.S.C. § 1251(a). The CWA also includes the objective of attaining "water quality which provides for the protection and propagation of fish, shellfish and wildlife and … recreation in and on the water." 33 U.S.C. § 1251(a)(2)). To achieve these goals, the CWA requires EPA to control point source discharges of pollutants to Waters of the United States through the issuance of National Pollutant Discharge Elimination System ("NPDES") permits.

NPDES permits issued for oil and gas exploration, development, and production discharges are required under Section 402(a)(1) of the CWA to include conditions for meeting technology-based effluent limits established under Section 301 and, where applicable, Section 306. Once an effluent limitations guideline or new source performance standard is promulgated in accordance with these sections, NPDES permits issued by the NPDES permitting authorities must incorporate requirements based on such limitations and standards. See 40 CFR 122.44(a)(1). Effluent limitation guidelines for the Offshore Subcategory of the Oil and Gas Extraction Point Source Category are found at 40 CFR 435, Subpart A.

Oil Spill Requirements. Section 311 of the Clean Water Act, (CWA or the Act), prohibits the discharge of oil and hazardous materials in harmful quantities. Discharges that are authorized by NPDES permits are excluded from the provisions of Section 311. However, the permit does not preclude the institution of legal action or relieve permittees from any responsibilities, liabilities, or penalties for other, unauthorized discharges of oil and hazardous materials which are covered by Section 311 of the Act. This permit does not authorize spills or any uncontrolled discharges.

Ocean Discharge Criteria Evaluation. When issuing permits for discharges into waters of the territorial sea, contiguous zone, or oceans, CWA section 403 requires EPA to consider guidelines for determining potential degradation of the marine environment. These Ocean Discharge Criteria (40 CFR 125, Subpart M) are intended to "prevent unreasonable degradation of the marine environment and to authorize imposition of effluent limitations, including a prohibition of discharge, if necessary, to ensure this goal" (see 45 FR 65942, October 3, 1980). EPA Region 6 has previously determined that discharges in compliance with the Western Gulf of Mexico Outer Continental Shelf general permit (GMG290000) will not cause unreasonable degradation of the marine environment (see 57 FR 54642, November 19, 1992, 64 FR 19156, April 19, 1999, 66 FR 65209, December 18, 2001, 69 FR 60150, October 7, 2004, 72 FR 31575, June 7, 2007, and 77 FR 61605, October 10, 2012).

After consideration of the ten factors discussed in the "Ocean Discharge Criteria Evaluation For The General Permit GMG290000" and information provided in 1991 document, it is determined that no unreasonable degradation of the marine environment will result from the discharges authorized under this permit, with all permit limitations, conditions, and monitoring requirements in effect. After reviewing the available information, the Region has included a variety of technology-based, water quality-based, and Section 403-based requirements in the final

permit to ensure compliance with Section 403 of the Clean Water Act, under a no reasonable degradation determination as well as other relevant sections of the Act.

Marine Protection, Research, and Sanctuaries Act. The Marine Protection, Research and Sanctuaries Act (MPRSA) of 1972 regulates the transportation for dumping of materials into ocean waters and establishes permit programs for ocean dumping. The NPDES permit EPA reissues today does not authorize dumping under MPRSA.

In addition to the MPRSA establishes the Marine Sanctuaries Program, implemented by the National Oceanographic and Atmospheric Administration (NOAA), which requires NOAA to designate certain ocean waters as marine sanctuaries for the purpose of preserving or restoring their conservation, recreational, ecological or aesthetic values. Pursuant to the Marine Protection and Sanctuaries Act, NOAA has designated the Flower Garden Banks, an area within the coverage of the OCS general permit, a marine sanctuary. The OCS general permit prohibits discharges in areas of biological concern, including marine sanctuaries. The permit authorizes discharges incidental to oil and gas production from a facility which predates designation of the Flower Garden Banks National Marine Sanctuary as a marine sanctuary. EPA has previously worked extensively with NOAA to ensure that authorized discharges are consistent with regulations governing the National Marine Sanctuary.

National Environmental Policy Act. In connection with its oil and gas leasing programs under the Outer Continental Shelf Lands Act, the Bureau of Ocean Energy Management (BOEM) prepared a draft Programmatic Environmental Impact Statement (EIS) which addresses the 2017-2022 Outer Continental Shelf (OCS) Oil and Gas Leasing Program, published as a Draft Proposed Program (DPP) in January 2015 (USDOI, BOEM, 2015). EPA Region 6 is a cooperating agency for this DPP. The Proposed Action is considered to be a major federal action with potential national implications, and the Programmatic EIS will be used to inform decisions on the 2017-2022 oil and gas program proposal. In accordance with the National Environmental Policy Act (NEPA) and its implementing regulations; the Programmatic EIS addresses the purpose of and need for action; identifies alternatives and their screening; describes the affected environment; and analyzes the potential environmental impacts of the Proposed Action, alternatives, and expected and potential mitigation. Potential contributions to cumulative impacts resulting from activities associated with the Proposed Action are also analyzed. Hypothetical scenarios were developed for the Proposed Action to help depict the levels of activities, number and size of accidental events (such as oil spills), and focus analyses of potential impacts that might result. Environmental impacts caused by routing operations, including discharges under this NPDES general permit (GMG290000) are also evaluated. Information provided in the EIS supports this Ocean Discharge Criteria evaluation.

Magnuson-Stevens Fisheries Conservation and Management Act. The Magnuson-Stevens Fisheries Conservation and Management Act requires that federal agencies proposing to authorize actions that may adversely affect essential fish habitat (EFH) consult with NMFS. The entire Gulf of Mexico has been designated EFH. EPA intends to adopt the EFH analysis BOEM prepared in the above mentioned Draft EIS for lease sales in the Western and Central Planning Areas (WPA and CPA). BOEM concludes in the Draft EIS that “Impacts of routine dredging and

discharges are localized in time and space and are regulated by Federal and State agencies through permitting processes; therefore, there would be minimal impact to fish resources and essential fish habitat from these routine activities associated with a WPA or CPA proposed action." BOEM also concludes that "If there is an effect of an oil spill on fish resources in the Gulf of Mexico, it is expected to cause a minimal decrease in standing stocks of any population. This is because most spill events would be localized, therefore affecting a small portion of fish populations." This permit contains limitations conforming to EPA's Oil and Gas extraction, Offshore Subcategory Effluent Limitations Guidelines at 40 CFR Part 435 and additional requirements assuring that regulated discharges will cause no unreasonable degradation of the marine environment, as required by section 403(c) of the Clean Water Act. This permit also does not authorize spills or any uncontrolled discharges.

Endangered Species Act (ESA). The National Marine Fisheries Service (NMFS) previously concurred with EPA's determination that reissuance of the General Permit for the Outer Continental Shelf of the Western Gulf of Mexico (OCS general permit) was not likely to adversely affect any listed threatened or endangered species or designated critical habitat when the permit was reissued in 1991 and 1998 and when it was modified in 1993 and 2001. When EPA reissued the OCS general permit in 2004, EPA requested written concurrence on EPA's "may affect but are not likely to adversely affect" determination from NMFS. In a letter dated July 12, 2004, NMFS provided such concurrence on the 2004 issued OCS general permit. Since 2004, EPA has proposed reissuance of the permit in 2006 and 2012, respectively. EPA has proposed more environmentally protective conditions, such as new intake structure requirements and more stringent whole effluent toxicity limits based on sub-lethal effects. Since those changes would increase the level of protection, EPA determined that reissuance of the permit was not likely to adversely affect any listed threatened or endangered species or their critical habitat.

State Water Quality Standards and State Certification. The permit does not authorize discharges to State waters; therefore, the state water quality certification provisions of CWA section 401 do not apply to this proposed action.

Coastal Zone Management Act. EPA determined that activities proposed to be authorized by this reissued permit are consistent with the local and state Coastal Zone Management Plans. The proposed permit and consistency determination are submitted to the State of Louisiana and the State of Texas for interagency review at the time of public notice.

Paperwork Reduction Act. The information collection required by this permit will reduce paperwork significantly by implementation of electronic reporting requirements. EPA estimates that it takes 10 to 15 minutes to fill up all information required by eNOI for each facility. And it takes much less time to add, delete, or modify eNOI. EPA also requires an electronic discharge monitoring report (NetDMR) requirement in the permit. The time for NetDMR preparation will be much less than that for paper DMR. The electronic filing systems will also significantly reduce the mailing cost.

Regulatory Flexibility Act. The Regulatory Flexibility Act, 5 U.S.C. 601 et seq, requires that EPA prepare a regulatory flexibility analysis for regulations that have a significant impact on a

substantial number of small entities. As indicated below, the permit reissuance proposed today is not a “rule” subject to the Regulatory Flexibility Act. EPA prepared a regulatory flexibility analysis, however, on the promulgation of the Offshore Subcategory guidelines on which many of the permit’s effluent limitations are based. That analysis shows that reissuance of this permit will not have a significant impact on a substantial number of small entities.