

# Draft

FACT SHEET AND SUPPLEMENTAL INFORMATION  
FOR THE PROPOSED REISSUANCE OF  
THE NPDES GENERAL PERMIT FOR DISCHARGES  
FROM THE  
OIL AND GAS EXTRACTION POINT SOURCE CATEGORY  
TO COASTAL WATERS IN TEXAS  
(TXG330000)

October 20, 2006

U.S. Environmental Protection Agency  
Region 6  
1445 Ross Ave.  
Dallas, TX 75202

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## Proposed Reissuance of the NPDES General Permit for Discharges from the Oil and Gas Extraction Point Source Category to Coastal Waters in Texas (TXG330000)

**AGENCY:** Environmental Protection Agency

**ACTION:** Notice of Proposed NPDES General Permit Issuance

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**SUMMARY:** The Regional Administrator of Region 6 today proposes to reissue the National Pollutant Discharge Elimination System (NPDES) general permit No. TXG330000 for existing source and New Source facilities in the Coastal Subcategory of the Oil and Gas Extraction Point Source Category (40 CFR Part 435, Subpart D), located in and discharging to coastal waters in Texas and regulating produced water discharges from Stripper and Offshore Subcategories which discharge into coastal waters of Texas.

The draft permit proposes to retain the limitations and conditions of the expiring permit. Those existing permit limitations conform with the Coastal Subcategory of the Oil and Gas Extraction Effluent Guidelines and contain additional requirements intended to comply with State Water Quality Standards.

The current permit allows the discharge of some Stripper Subcategory produced water which has a total dissolved solids concentration less than 3,000 mg/l, but does not require monitoring to ensure compliance with that limit. The only change proposed is to require annual monitoring for total dissolved solids in those discharges. EPA is proposing that the permit be reissued for a five year term.

**ADDRESS:** Comments should be sent to:

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

**DATE:** Comments must be received by [30 days after publication].

**FOR FURTHER INFORMATION CONTACT:** Ms. Diane Smith, U.S. Environmental Protection Agency, Region 6, 1445 Ross Avenue, Dallas, Texas 75202-2733. Telephone: (214) 655-7191. The complete proposed permit, Fact Sheet and a copy of the Federal Register notice may also be obtained on the Internet at: <http://www.epa.gov/earth1r6/6wq/6wq.htm>

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## FACT SHEET AND SUPPLEMENTAL INFORMATION

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### **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 USC 1342, authorizes EPA to issue NPDES permits allowing discharges on condition they will meet certain requirements, including CWA sections 301, 304, 306, 401 and 403. Those statutory provisions require NPDES permits to include effluent limitations for authorized discharges: (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 USC 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 NSPS.

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Final effluent guidelines specifying BCT, BAT and NSPS for the Coastal Subcategory of the Oil and Gas Point Source Category (40 CFR 435, Subpart D) were issued October 31, 1996, and were published at 61 FR 66125 on December 16, 1996.

## **II. Ocean Discharge Criteria**

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 when issuing NPDES permits. 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). The reissued general permit will not authorize discharges to the territorial sea, contiguous zone or oceans; therefore, no conditions are included in the proposed permit to comply with Ocean Discharge Criteria.

## **III. Regulatory Background**

On September 21, 1993 (see 58 FR 49126), EPA issued the first general NPDES permit authorizing discharges from facilities in the Coastal Subcategory of the Oil and Gas Extraction Point Source Category located in Texas. That permit, TXG330000, authorized discharges from facilities located in coastal waters. It did not address the discharge of produced water or produced sand. Discharges of produced water and produced sand were later prohibited under a general permit issued on January 9, 1995 (see 60 FR 2387). Although the 1995 permit prohibited the discharge of produced water and produced sand from Coastal Subcategory wells, it did authorize produced water discharges from Stripper Subcategory wells producing from several non-saline formations in Texas. The 1993 and 1995 coastal general permits were reissued and combined on November 15, 2001 (see 66 FR 57457). That permit expires December 15, 2006.

## **IV. Facility Coverage**

The general permit covers existing source and new source facilities in the Coastal and Stripper Subcategories of the oil and gas extraction point source category which are located in Texas. A Coastal Subcategory facility is defined as any facility where the wellhead is located in or on a water of the United States, landward of the inner boundary of the territorial seas. In addition, the proposed permit would authorize the discharge of produced water from some Stripper Subcategory wells located east of the 98<sup>th</sup> meridian. Those Stripper Subcategory wells produce less than ten barrels of oil per day from Carrizo/Wilcox, Reklaw, and Bartosh formations. Produced water from those formations is not highly saline and has been found to comply with State Water Quality Standards.

## **V. Types of Discharges Covered**

The discharges proposed to be either authorized or prohibited by the reissued permit are listed below. The definitions of the waste streams are the same as those given in the Coastal and

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Striped Subcategory guidelines (40 CFR 435, Subparts D and F) except for miscellaneous discharges which were not covered by those guidelines. The waste streams specifically are:

- 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.
  - (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<sub>16</sub>-C<sub>18</sub> internal olefins, and C<sub>8</sub>-C<sub>16</sub> fatty acid/2-ethylhexyl esters).
    - (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.

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

**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 treating 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.

**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** -

**Distillation and reverse osmosis brine** - wastewater associated with the process of creating freshwater from seawater.

**Blowout preventer fluid** - fluid used to actuate the hydraulic equipment on the blow-out preventer.

**uncontaminated ballast and bilge water** - seawater added or removed to maintain proper draft.

**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.

**boiler blowdown** - discharges from boilers necessary to minimize solids build-up in the boilers, including vents from boilers and other heating systems.

**Draft** **excess cement slurry** - the excess mixed cement, including additives and wastes from equipment washdown, after a cementing operation.

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

**uncontaminated water** - freshwater and seawater which is discharged without the addition of chemicals; included are: (1) discharges of excess water that permit the continuous operation of fire control and utility lift pumps; (2) excess water 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.

## VI. Specific Permit Conditions

Conditions in the proposed permit 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) State Water Quality Standards (WQS). Discussions of the rationale for the specific effluent limitations for each regulated waste stream appear below.

### A. Drilling Fluids and Drill Cuttings

The limitations in the expiring permit are based on a combination of National Effluent Limitations Guidelines. The previous permit prohibited the discharge of drilling fluids and drill cuttings based on BCT (40 CFR 435.44), BAT (40 CFR 435.43), and NSPS (40 CFR 435.45). Those prohibitions are proposed to be included in the reissued permit without any changes.

### B. Dewatering

The previous permit prohibited the discharge of dewatering effluent from reserve pits which received drilling fluids and/or drill cuttings after January 15, 1997. That prohibition is consistent with the Effluent Guidelines BCT, BAT, and NSPS based limitations and is not proposed to be changed. Since the Effluent Guidelines did not prohibit the discharge of drilling fluids and drill cuttings prior to January 15, 1997, dewatering of reserve pits which received those wastes prior to that time is not prohibited by the Effluent Guidelines. The previous permit's authorization of dewatering effluent from reserve pits that received drilling fluids and drill cuttings prior to January 15, 1997 is proposed to remain unchanged in the reissued permit. Those discharges are proposed to be limited for free oil, oil and grease, total suspended solids (TSS), total dissolved solids (TDS), chemical oxygen demand (COD) pH, chlorides, and hazardous metals.

### C. Produced Water

#### 1. Coastal Subcategory

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NSPS (40 CFR 435.45) and BAT (40 CFR 435.43) established by the Coastal Subcategory Effluent Guidelines prohibit the discharge of produced water. That prohibition was included in the previous permit and is proposed to remain in the reissued permit.

## 2. Stripper Subcategory

The Stripper Subcategory (40 CFR, Subpart F) covers wells located onshore and producing 10 barrels of crude oil per day or less. No limitations are established by the Effluent Guidelines for the Stripper Subcategory. BAT for produced water discharges from Stripper Subcategory wells was established when the permit was first issued in 1995. The discharge of produced water from wells located east of the 98<sup>th</sup> meridian was authorized and limited to a total dissolved solids concentration of 3000 mg/l and monthly average and daily maximum oil and grease concentration of 25 mg/l and 35 mg/l, respectively. Authorized discharges were also limited to produced water which originated from the Charrizo/Wilcox, Reklaw, and Bartosh formations. Those limits are not proposed to be changed.

## 3. Offshore Subcategory

NSPS (40 CFR 435.15) and BAT (40 CFR 435.13) established by the Offshore Subcategory Effluent Guidelines allow the discharge of produced water. However, transfer of waste water from one Effluent Guidelines subcategory to another is addressed under 40 CFR 435, Subpart G. Subpart G requires that the Effluent Guidelines that apply are those which cover the more stringent of either the location where the waste water was produced or the location where it is disposed. Therefore, if waste water is produced from an Offshore Subcategory well and transported to Coastal waters for disposal, the discharge prohibition of the Coastal Subcategory Effluent Guidelines apply. The current permit prohibits the discharge of produced water from Offshore Subcategory wells. That prohibition is not proposed to be changed.

### **D. Produced Sand**

The expiring permit prohibited the discharge of produced sand based on NSPS, BAT, and BCT, established by the Coastal Subcategory Effluent Guidelines. That prohibition is not proposed to be change.

### **E. Well Treatment, Completion and Workover Fluids**

The expiring permit prohibited the discharge of produced sand based on NSPS and BAT, established by the Coastal Subcategory Effluent Guidelines. That prohibition is not proposed to be change.

### **F. Deck Drainage**

The expiring permit's limits are based on the Coastal Subcategory NSPS, BAT, BCT, and BPT Effluent Guidelines which all require No Discharge of Free Oil as determined by the

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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**

For sanitary waste, the Coastal Subcategory NSPS and BCT Effluent Guidelines require residual chlorine be maintained as close to 1 mg/l as possible for facilities continuously manned by ten or more persons. Also, the NSPS, BCT, and best practicable control technology currently available (BPT) Effluent Guidelines require No Discharge of floating solids for facilities continuously manned by nine or fewer persons or intermittently manned by any number of persons. The expiring and proposed permits contain limits for sanitary wastewater which are based on those guidelines.

### **H. Domestic Waste**

The expiring and proposed permits' limits for domestic waste are based on the Coastal Subcategory NSPS, BAT and BCT established by the Effluent Limitations Guidelines. Based on BAT, the discharge of foam is proposed to be prohibited. The discharge of floating solids and garbage are proposed to be prohibited based on BCT and NSPS. The prohibition of the discharge of garbage, including operational waste is consistent with the requirements of 33 CFR 151. These requirements are included in the current permit and are not proposed to be changed.

### **I. Miscellaneous Discharges**

The current permit authorizes the following miscellaneous discharges: distillation and reverse osmosis brine, blowout preventer fluid, uncontaminated ballast and bilge water, mud, cuttings and cement at the sea floor, boiler blowdown, excess cement slurry, diatomaceous earth filter media, and uncontaminated water. No technology based limits have been established by the Coastal Subcategory Effluent Guidelines for these discharges. The current permit contains limits of no free oil, which are based on BCT developed using best professional judgement. No changes to those limits are proposed.

## **VII. State Water Quality Standards**

When the current permit was issued EPA determined that the authorized discharges would comply with State WQS. The Railroad Commission of Texas concurred with that determination. Since there are no changes proposed to the permit's limitations and prohibitions EPA has again determined that the authorized discharges will comply with State WQS. The permit contains stringent controls on the most significant discharges associated with oil and gas extraction. Drilling fluid and drill cuttings discharges are prohibited. The discharge of produced water is prohibited with the exception of the relatively rare and small volume discharge from some Stripper Subcategory wells. Discharge from Stripper Subcategory wells have been made at only 17 locations under the current permit. Those discharges have been fairly small in volume, averaging 46,000 gallons per day. The concentration of oil and grease, which has been

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determined to be an indicator of other pollutants in produced water, is much lower than typical produced water discharges and averages 6.9 mg/l. Other discharges authorized by the permit are typically much smaller in volume than drilling fluids and cuttings or produced water discharges tend to be. Discharges such as deck drainage also do not typically contain pollutants in concentrations that have the potential to impact water quality. Additionally, deck drainage is the only waste stream typically discharged from facilities covered under the general permit.

EPA has determined that discharges proposed to be authorized by the general permit will comply with State WQS; however, the permit is being sent to the Railroad Commission of Texas for certification. Additional conditions may be included in the final permit if that agency determine they are needed to ensure compliance with Water Quality Standards.

## **VIII. Changes from the Expiring Permit**

### **Total Dissolved Solids Monitoring**

The current permit includes a total dissolved solids (TDS) limit 3,000 mg/l for Stripper Subcategory produced water but does require monitoring to ensure compliance with the limit. 40 CFR 122.44(i) requires that permits require monitoring at a sufficient frequency to assure compliance with limitations but in no case less than once per year. Total dissolved solids monitoring is proposed to be included in the permit to comply with that regulation. The required frequency of monitoring is typically determined based on effluent variability and the compliance history of the discharge. The total dissolved solids concentration of produced water is expected to exhibit a very low degree of variability. Therefore, monitoring is proposed to be required at the least frequent interval allowed by the regulation, once per year.

## **IX. References**

*Development Document for Final Effluent Limitations Guidelines and Standards for the Coastal Subcategory of the Oil and Gas Extraction Point Source Category*, USEPA, Office of Water, EPA-821-R-96-023, October, 1996.

*Development Document for Interim Final Effluent Limitations Guidelines and Proposed New Source Performance Standards for the Oil and Gas Extraction Point Source Category*, EPA 440/1-76/055-a, United States Environmental Protection Agency, September, 1976.

*Final NPDES General Permit for New and Existing Sources in the Offshore Subcategory of the Oil and Gas Extraction Category for the Western Portion of the Outer Continental Shelf of the Gulf of Mexico (GMG290000)*, 69 FR 60150, October 7, 2004.

*Final NPDES General Permit for Discharges from the Oil and Gas Extraction Point Source Category to Coastal Waters in Texas (TXG330000)*, 66 FR 57457, November 15, 2001.