

material produced by the reaction of specific purified chemical feedstock, as opposed to the traditional base fluids such as diesel and mineral oil which are derived from crude oil solely through physical separation processes. Physical separation processes include fractionation and distillation and/or minor chemical reactions such as cracking and hydro processing. Since they are synthesized by the reaction of purified compounds, synthetic materials suitable for use in drilling fluids are typically free of polycyclic aromatic hydrocarbons (PAH's) but are sometimes found to contain levels of PAH up to 0.001 weight percent PAH expressed as phenanthrene. Internal olefins and vegetable esters are two examples of synthetic materials suitable for use by the oil and gas extraction industry in formulating drilling fluids. Internal olefins are synthesized from the isomerization of purified straight-chain (linear) hydrocarbons such as C<sub>16</sub>-C<sub>18</sub> linear alpha olefins. C<sub>16</sub>-C<sub>18</sub> linear alpha olefins are unsaturated hydrocarbons with the carbon to carbon double bond in the terminal position. Internal olefins are typically formed from heating linear alpha olefins with a catalyst. The feed material for synthetic linear alpha olefins is typically purified ethylene. Vegetable esters are synthesized from the acid-catalyzed esterification of vegetable fatty acids with various alcohols. EPA listed these two branches of synthetic fluid base materials to provide examples, and EPA does not mean to exclude other synthetic materials that are either in current use or may be used in the future. A synthetic-based drilling fluid may include a combination of synthetic materials.

(ii) *Well completion fluids* means 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.

(jj) *Well treatment fluids* means any fluid used to restore or improve pro-

ductivity by chemically or physically altering hydrocarbon-bearing strata after a well has been drilled.

(kk) *Workover fluids* means salt solutions, weighted brines, polymers, or other specialty additives used in a producing well to allow for maintenance, repair or abandonment procedures.

(ll) *96-hour LC<sub>50</sub>* means the concentration (parts per million) or percent of the suspended particulate phase (SPP) from a sample that is lethal to 50 percent of the test organisms exposed to that concentration of the SPP after 96 hours of constant exposure.

(mm) *Analytic Methods for the Oil and Gas Extraction Point Source Category* is the EPA document, EPA-821-R-11-004, that compiles analytic methods for this category. Copies may be inspected at the National Archives and Records Administration (NARA). For information on the availability of this material at NARA, call 202-741-6030, or go to:

[http://www.archives.gov/federal\\_register/code\\_of\\_federal\\_regulations/ibr\\_locations.html](http://www.archives.gov/federal_register/code_of_federal_regulations/ibr_locations.html). A copy may also be inspected at EPA's Water Docket, 1200 Pennsylvania Ave. NW., Washington, DC 20460. This method may be obtained at <http://water.epa.gov/scitech/methods/cwa/index.cfm>.

[61 FR 66125, Dec. 16, 1996; 62 FR 1681, Jan. 13, 1997, as amended at 66 FR 6914, Jan. 22, 2001; 69 FR 18803, Apr. 9, 2004; 77 FR 29845, May 18, 2012]

**§ 435.42 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available (BPT).**

Except as provided in 40 CFR 125.30-125.32, any existing point source subject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best practicable control technology currently available.

BPT EFFLUENT LIMITATIONS—OIL AND GREASE  
[In milligrams per liter]

Pollutant parameter waste source	Maximum for any 1 day	Average of values for 30 consecutive days shall not exceed	Residual chlorine minimum for any 1 day
Produced water .....	72 .....	48 .....	NA
Deck drainage .....	(1) .....	(1) .....	NA
Water-based:			
Drilling fluids .....	(1) .....	(1) .....	NA
Drill Cuttings .....	(1) .....	(1) .....	NA
Non-aqueous:			
Drilling fluids .....	No discharge .....	No discharge .....	NA
Drill Cuttings .....	(1) .....	(1) .....	NA
Well treatment, workover, and completion fluids .....	(1) .....	(1) .....	NA
Sanitary:			
M10 .....	NA .....	NA .....	≥ 1
M9IM <sup>3</sup> .....	NA .....	NA .....	NA
Domestic <sup>3</sup> .....	NA .....	NA .....	NA
Produced sand .....	Zero discharge .....	Zero discharge .....	NA

<sup>1</sup> No discharge of free oil. See § 435.41(y).  
<sup>2</sup> Minimum of 1 mg/l and maintained as close to this concentration as possible.  
<sup>3</sup> There shall be no floating solids as a result of the discharge of these wastes.

[61 FR 66125, Dec. 16, 1996, as amended at 66 FR 6916, Jan. 22, 2001; 77 FR 29846, May 18, 2012]

**§ 435.43 Effluent limitations guidelines representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT).**

ject to this subpart must achieve the following effluent limitations representing the degree of effluent reduction attainable by the application of the best available technology economically achievable (BAT):

Except as provided in 40 CFR 125.30–125.32, any existing point source sub-

BAT EFFLUENT LIMITATIONS

Stream	Pollutant parameter	BAT effluent limitations
Produced Water:		
(A) All coastal areas except Cook Inlet .....	.....	No discharge.
(B) Cook Inlet .....	Oil & Grease .....	The maximum for any one day shall not exceed 42 mg/l, and the 30-day average shall not exceed 29 mg/l.
Drilling Fluids, Drill Cuttings, and Dewatering Effluent: <sup>1</sup>		
(A) All coastal areas except Cook Inlet .....	.....	No discharge.
(B) Cook Inlet:		
Water-based drilling fluids, drill cuttings, and dewatering effluent.	SPP Toxicity .....	Minimum 96-hour LC <sub>50</sub> of the SPP Toxicity Test <sup>4</sup> shall be 3% by volume.
	Free oil .....	No discharge. <sup>2</sup>
	Diesel oil .....	No discharge.
	Mercury .....	1 mg/kg dry weight maximum in the stock barite.
	Cadmium .....	3 mg/kg dry weight maximum in the stock barite.
Non-aqueous drilling fluids and dewatering effluent.	.....	No discharge.
Drill cuttings associated with non-aqueous drilling fluids.	.....	No discharge. <sup>5</sup>
Well Treatment, Workover and Completion Fluids:		
(A) All coastal areas except Cook Inlet .....	.....	No discharge.
(B) Cook Inlet .....	Oil & Grease .....	The maximum for any one day shall not exceed 42 mg/l, and the 30-day average shall not exceed 29 mg/l.
Produced Sand .....	.....	No discharge.
Deck Drainage .....	Free Oil <sup>3</sup> .....	No discharge.