

Effluent characteristic	Discharge limitation	Monitoring requirements		
		Measurement frequency	Sample type/method	Reported values
Diesel oil content	No discharge	N/A	Grab/GC Part III.B.2.b	Presence or absence.
Mercury and cadmium in barite.	1 mg/kg Hg 3 mg/kg Cd	Once per well	AAS	mg/kg dry wt.
Chemical inventory	N/A	Once per mud system	Part III.B.2.a	N/A.
Metal analyses	N/A	Once per bioassay	Part III.B.2.g	N/A.
		Once per mud system	Part III.B.2.e	N/A.

¹ Maximum flow rate of total muds and cuttings includes predilutant water; water depths are measured from mean lower low water.

² Report total volumes for all types of operations (exploratory, production and development). For exploratory operations, drilling discharges are limited to no more than five wells at a single drilling site. If a step-out or sidetracked well is drilled from a previously drilled hole, the step-out well is counted as new well. Requests to discharge from more than five wells per site will be considered by the Water Division Director on a case-by-case basis.

a. *Drilling mud and additive formulations.* Only those drilling muds, specialty additives, and mineral oil pills that meet the criteria of this permit and are contained in the operator's Mud Plan (see Part III.B.1.b. below) may be discharged. In no case shall toxicity of the discharged mud exceed the toxicity limit of 30,000 ppm SPP (see Part III.B.1. above)

b. *Mud Plan—Planned discharge of drilling muds and additives.* The Permittee shall develop and have on-site at all times a written procedural plan for the formulation and control of drilling mud/additive systems (the "Mud Plan"). The Mud Plan must specify which mud/additive systems will be used. The Mud Plan shall be implemented during drilling operations.

The Mud Plan shall be available to the Agency upon request. Prior to commencement of discharges from a given well, the Permittee shall provide EPA with written certification that a Mud Plan does exist for the well and is available to the Agency. (See Parts I.A.3., I.B.3. and I.C.3.).

At a minimum, the Mud Plan shall provide the following information:

(1) The well name, well number, NPDES permit number, and the types of mud/additive systems proposed for use as basic identification of the Mud Plan for each well drilled.

(2) Specific for use at each well and for each mud/additive system, a list including commercial product names, descriptions of the products, and the maximum proposed discharge concentrations for each product. Concentrations shall be stated in terms of "lb/bbl" or "gal/bbl"; although, "% (wt)" or "% (vol)" may be appropriate in some instances. Each mud/additive system shall be clearly labelled (e.g., KCl/polymer mud, freshwater lignosulfonate mud, spud mud). Components of the basic mud shall be listed separately from specialty or contingency additives that may be used.

(3) A record of the operator's determination of how discharge is expected to comply with the 30,000 ppm SPP toxicity limitation. Operator's determination must be based upon, but necessarily limited to, the following criteria:

(a) Estimates of worst-case cumulative discharge toxicity (e.g., based on additive toxicity estimates or commercially calculated discharge toxicity estimates).

(b) Estimates of discharge toxicity based on the use of mineral oil pills (and subsequent discharge of residual mineral oil concentrations (see Part III.B.1.g. below)) must be shown separately from the estimate for the basic mud with other additives.

(c) Where possible, overall toxicity shall be minimized.

(4) A clearly stated procedure for determining whether or not an additive not originally planned for or included in toxicity estimations discussed above may be used and discharged.

(5) An outline of the mud planning process which shall be consistent with other permit requirements. Names and titles of personnel responsible for the mud planning process shall be included.

c. *Certification of Mud Plan.* For each well the operator shall submit written certification stating that a Mud Plan is complete, on-site, and available upon request. In addition, each certification shall identify the well it pertains to by well name, well number and NPDES permit number. Written certification shall be submitted no later than the written notice of intent to commence discharge (see Parts I.A.3., I.B.3. and I.C.3.).

If the operator elects to use a particular sequence of mud/additive systems on subsequent wells, a previous Mud Plan may be re-used. Information identifying the Mud Plan, however, must reflect use of the plan for the current well (see Part III.B.1.e(1), above).

d. *Restrictions on the use of mineral oil pills in drilling muds.* The discharge of residual amounts of mineral oil pills (mineral oil plus additives) is authorized by the permit provided that the mineral oil pill and at least a 50 bbl buffer of drilling fluid on either side of the pill are removed from the circulating drilling fluid system and not discharged to waters of the United States. In the event that more than one pill is applied to a single well, the previous pill and buffer shall be removed prior to application of a subsequent pill. Residual mineral oil concentration in the discharged mud shall not exceed 2% v/v (API Recommended Practice 13-1, 1990) (see Part III.B.2.b. below). The discharged mud must comply with all permit conditions, including no discharge of free oil.

Should drilling mud containing residual mineral oil pill (after pill and buffer removal) be discharged the following information shall be reported with 60 days of the discharge:

(1) Dates of pill application, recovery, and discharge;

(2) Results of the Drilling Fluids Toxicity Test on samples of:

(a) the mud *before* each pill is added and

(b) the mud *after removal* of each pill and buffer (taken when residual mineral oil pill concentration is expected to greatest);

(3) Name of spotting compound and mineral oil product used;

(4) Volumes of spotting compound, mineral oil, water, and barite in the pill;

(5) Total volume of mud circulating prior to pill application, volume of pill formulated, and volume of pill circulated;

(6) Volume of pill recovered, volume of mud buffer recovered, and volume of mud circulating after pill and buffer recovery;

(7) Percent recovery of the pill (include calculations);

(8) Estimated concentrations of residual spotting compound and