

industry; the pollutants when found are present in trace amounts not likely to cause toxic effects; and due to the large number and variation in additives or specialty chemicals that are only used intermittently and at a wide variety of drilling locations, it is not feasible to set limitations on specific compounds contained in additives or specialty chemicals.

3. Control and Treatment Technologies

a. Current Practice.

BPT effluent limitations guidelines for coastal drilling fluids and drill cuttings prohibit the discharge of free oil (using the visual sheen test). However, because of either EPA general permits, state requirements, or operational preference, no drilling fluids and cuttings discharges are occurring in the North Slope, the Gulf coast states, or California. The only coastal operators discharging drilling fluids and cuttings are located in Cook Inlet. In Cook Inlet, neither diesel nor mineral-oil-based drilling fluids or resultant cuttings may be discharged to surface waters because they have been shown to cause a visible sheen upon the receiving waters. Compliance with the BPT limitations may be achieved either by product substitution (substituting a water-based fluid for an oil-based fluid), recycle and/or reuse of the drilling fluid, or by onshore disposal of the drilling fluids and cuttings at an approved facility.

NPDES permits issued by EPA for Cook Inlet drilling operations have also included BAT limitations based on "best professional judgement" (BPI). The permit requirements allow discharges of drilling fluids and drill cuttings provided certain limitations are met including a prohibition on the discharges of free oil and diesel oil, as well as limitations on mercury, cadmium, toxicity and oil content. (See Section IV.E for a summary of the permits). Operators may employ any number of the following waste management practices to meet those permit limitations:

- * Product substitution—to meet prohibitions on free oil and diesel oil discharges, as well as the toxicity and/or clean barite limitations,

- * Onshore treatment and/or disposal of drilling fluids and drill cuttings that do not meet the toxicity or clean barite limitations,

- * Waste minimization—enhanced solids control to reduce the overall volume of drilling fluids and drill cuttings, and

- * Conservation and recycling/reuse of drilling fluids.

Refer to the Coastal Technical Development Document, Sections VII-

VIII for a detailed discussion of each of these waste minimization techniques.

b. Additional Technologies Considered.

EPA has evaluated an additional method for drilling fluid and cuttings control and treatment in order to achieve zero discharge: namely, grinding and injection of drilling wastes. This process involves the grinding of the drilling fluids and drill cuttings into a slurry that can be injected into a dedicated disposal well. The grinding system consists of a vibrating ball mill which pulverizes the cuttings and creates an injectable slurry. Recent information has shown that this comparatively contemporary technology has been successfully demonstrated on the North Slope for drilling waste disposal, and is being introduced both in the Gulf Coast coastal areas as well as in Cook Inlet. EPA, therefore believes that this technology is available to coastal operators.

In addition to grinding and injection, EPA has also investigated the feasibility of onshore disposal of this wastestream. For the coastal subcategory drilling activities, in areas other than Cook Inlet, current permits or practice (in the case of the North Slope) require zero discharge of drilling fluids and cuttings. On-land disposal sites located in Alaska are available in these areas and are being utilized to comply with the zero discharge requirement. On-land disposal sites are also available to two out of the five Cook Inlet operators. These two operators jointly operate an oil and gas landfill disposal site on the west side of the Inlet. Using projected drilling schedules provided by industry, EPA estimated that these two operators would generate approximately 76 percent of the drilling wastes produced by the Cook Inlet operators over the next seven years following the scheduled 1996 promulgation of this rule. EPA has determined that there is sufficient on-land disposal capacity to accept all of the drilling fluids and cuttings generated by these two operators at this disposal facility.

EPA investigated the logistical difficulties of storing and transporting drilling wastes in the Cook Inlet, due to the extensive tidal fluctuations, strong currents, and ice formation during winter months. While these climatological and tidal situations may cause complications, EPA has determined that they do not pose insurmountable technical barriers. EPA has taken into consideration supplementary costs incurred by additional winter transportation and storage of drilling wastes in its cost evaluation of the zero discharge

requirement as described later in Section VI.A.

No on-land oil and gas waste disposal facilities are available in Alaska to the other three Cook Inlet operators who plan to drill after promulgation of this rule. EPA investigated the possibility of disposing of drilling wastes at an on-land oil and gas waste disposal site available to Cook Inlet operators located in Idaho. EPA determined that, while it is generally more economical to dispose of drill wastes via grinding and injection, in the case of smaller volumes of drilling wastes, it would be more cost effective to dispose of the wastes by shipping them to the Idaho disposal facility.

Land disposal of oil and gas wastes is also available to Cook Inlet operators at a disposal facility located in Oregon. EPA performed its costing of land disposal assuming the use of the Idaho facility (see discussion of costs later in this section). EPA expects that costs to dispose of the wastes at the Oregon facility would be close to or less than costs using the Idaho facility because transportation of wastes to the Oregon facility would utilize barging to a greater extent, making overall transportation costs less.

The results of this investigation show that the volume of drilling fluids and drill cuttings wastes generated in Cook Inlet can be either disposed of on-land or by grinding and injection. However, during the previous Offshore Guidelines rulemaking affecting Alaska offshore drilling operations, and early in the data gathering stages of this proposed rule, operators raised concerns that compliance with zero discharge could significantly interfere with drilling operations. EPA does not have sufficient information supporting these concerns, and solicits comments on these issues.

Therefore, for this proposal, EPA is also considering options which would allow the discharge of the drilling fluids and drill cuttings in Cook Inlet providing they were to meet certain limitations. These limitations would prohibit the discharge of diesel oil and free oil using the static sheen test, limit cadmium and mercury in the stock barite used in fluid compositions and toxicity at either 30,000 ppm (SPP) or a more stringent toxicity in range of 100,000 ppm (SPP) to 1 million ppm (SPP). Drilling fluids and drill cuttings not meeting these limitations would not be allowed to be discharged, and therefore, would have to be injected or sent to shore for disposal. EPA would base the more stringent toxicity limitations (based on further evaluation as discussed below), in part, on the volume of drilling wastes it determines