

volumes to determine the number of truck trips required. The number of truck trips, in conjunction with the distance travelled between the marine transfer station and the disposal site, enabled an estimate of fuel usage. The use of land-spreading equipment at the disposal site was based on the drilling waste volumes and the projected capacity of the equipment. In evaluating the zero discharge requirement, EPA calculated for those operators that do not have access to the landfill in Cook Inlet, fuel requirements for grinding and injection equipment. The equipment evaluated included the pumps running the cuttings grinding system (the ball mills and conveyors) and the injection pumps. The methodology used to determine fuel consumption is further discussed in the Coastal Technical Development Document. Table 9 summarizes the incremental increase in energy requirements for the drilling fluids and drill cuttings options considered for this rule.

2. Air Emissions

EPA estimated air emissions resulting from the grinding and injection equipment systems, or the operation of boats, cranes, trucks and earth-moving equipment necessary to either dispose of drilling fluids and drill cuttings onshore or to grind and inject these wastes by using emission factors relating the production of air pollutants to time of equipment operation and amount of fuel consumed. The incremental increase in air emissions associated with the control options considered by EPA in this final rulemaking are presented in Table 9.

In developing regulations to control air pollution from OCS sources pursuant to the 1990 Clean Air Act Amendments, the EPA Office of Air Quality Planning and Standards estimated the air emissions associated with various stages of oil/gas resource development activities ("Control Costs Associated With Air Emission Regulations For OCS Facilities," Final Report September 30, 1991. Prepared by Mathtech, Inc. for EPA). In this study, EPA estimated levels of both controlled and uncontrolled emissions from exploration, development, and production operations. Information from this study was used to determine emissions from coastal operations independent of this rule. Nitrogen oxides (NO_x) emissions from exploratory drilling activities were estimated at 78 tons/operation. For comparison, the zero discharge requirement for all drilling activities in the Cook Inlet projected over the next seven years from scheduled

promulgation is estimated at approximately 54 tons of NO_x for each well subject to the zero discharge limitations.

3. Solid Waste Generation and Management

The regulatory options considered for this rule will not cause generation of additional solids as a result of the treatment technology. However, as already discussed, spent drilling fluids and drill cuttings may be disposed of onshore to comply with these options.

There are currently no commercially operating disposal sites in Cook Inlet accepting drilling wastes. The only land disposal facility accepting drilling wastes from Cook Inlet operations is privately owned and operated. The lack of commercial disposal sites would require operators that do not own a land disposal facility to either transport the drilling wastes to the nearest known commercial disposal facility located in Idaho or inject the drilling wastes into underground formations.

Capacity estimates for the only available disposal facility in Cook Inlet show that this landfill has enough storage capacity to accept the volume of drilling fluids and cuttings (422,780 bbls over the next seven years following promulgation of this rule) that would be generated under Option 3 (zero discharge) under the two operators that it now serves. The volume of drilling wastes generated by these two operators under the zero discharge option represents about 71 percent of the excess available capacity at this landfill. The other Cook Inlet operators would not dispose of their drilling fluids and cuttings by landfilling, but rather by grinding and injection (See Section VI), which does not require land disposal.

Under Option 2, the estimated volume of drilling fluids and cuttings requiring land disposal is estimated to be approximately 17 percent of the total wastes generated over the next seven years following promulgation of this rule (or 17 percent of 552,846 bbls which is approximately 94,000 bbls). This is based on the estimate of 83 percent compliance with a toxicity limitation between 100,000 ppm (SPP) and 1,000,000 ppm (SPP). EPA estimates that the two operators having access to the Cook Inlet landfill will send their portion of these wastes there (amounting to approximately 72,000 bbls), and as shown above, there would be sufficient landfill capacity to accommodate this as well as the zero discharge option. The other three operators not having access to the Cook Inlet landfill would most likely dispose of their drilling fluids and cuttings for

this option (amounting to approximately 22,000 bbls) in a landfill available in Idaho, rather than grind and inject them (See Section VI), because this is less expensive than installing grinding and injection equipment for these smaller volumes. Because of this small volume of wastes, EPA assumed that there is ample landfill capacity in the lower 48 states for disposal of 22,000 bbls of wastes that would be generated over the seven years following the scheduled promulgation.

4. Consumptive Water Use

Since little or no additional water is required above that of usual consumption, no consumptive water loss is expected as a result of this rule.

5. Safety

EPA investigated the possibility of an increase in injuries and fatalities that would occur as a result of hauling additional volumes of drilling wastes to shore. EPA acknowledges that safety concerns always exist at oil and gas facilities, regardless of whether pollution control is required. EPA believes that the appropriate response to these concerns is adequate worker safety training and procedures as is practiced as part of the normal and proper operation of oil and gas facilities.

6. Increased Vessel Traffic in Cook Inlet

EPA estimates that a total of 231 boat trips would be required to comply with a zero discharge requirement. This estimate is for all drilling that will take place in the next seven years after expected promulgation of the rule. In actuality, EPA determined, from drilling schedules supplied by industry, that drilling would only occur for seven years after promulgation. Thus, these 231 boat trips equate to approximately 33 additional boat trips per year for seven years. EPA does not expect this to cause traffic problems in the Inlet. In fact, it will serve to provide service companies with additional work. EPA has calculated expected job gains associated with the manufacture, installation and operation of technologies required to comply with this rulemaking.

However, job gains could also be realized due to increased boat trips and related work required of service companies. These job gain estimates have not been quantified.

B. Produced Water

In assessing the non-water quality environmental impacts of the options considered for control of produced water, EPA projected the incremental increase in energy requirements and air