

under permits to accept non-hazardous oil and gas waste by State agencies. These wells have been approved for the disposal of non-hazardous oil field waste materials including naturally occurring radioactive material (NORM). This method of disposal would be used as an alternative to existing methods of disposal authorized by the NRC in the current license.

3.0 Purpose and Need for the Proposed Action

The purpose of the proposed action is to allow the licensee an additional disposal alternative due to the fact that some locations where the tracer operations are conducted do not allow shallow pits to be used for well waste disposals. This proposed action would allow the continued use of tracer materials in those areas and allow the efficient production of oil and gas, thereby reducing the cost of recovery to the well operators. The NRC is fulfilling its responsibility under the Atomic Energy Act to make a decision for the proposed action that ensures protection of the public health and safety and the environment.

4.0 Alternative to the Proposed Action

The only alternative to the proposed action of allowing the alternative disposal in Class II disposal wells is no action. The no-action alternative would be to allow the licensee to maintain waste as discussed above as authorized in the current NRC license.

5.0 The Affected Environment and Environmental Impacts

The NRC staff has reviewed the proposed action and the alternatives and examined their impacts.

5.1 Proposed Action

The proposed action would authorize the use of state approved Class II disposal wells already permitted and in operation where materials are injected below the water table. The depth of Class II disposal wells range from 5,000 to 15,000 feet which is well below usable groundwater. Because this disposal method would use existing approved structures, there would be no significant impact to historic and cultural resources, ecological resources, land use or visual resources. In addition, due to the design of the patented Zero-Wash product (no wash off of radioactive material), the crush strength of the Zero-Wash product (*i.e.*, greater than 10,000 psi), and the design of these Class II wells, the waste would not contaminate groundwater and would not migrate from the formation where injected. Because the proposed

action will only use pre-existing Class II disposal wells, there would be no increased air emissions or noise, and there would be no significant impacts on local or regional business conditions, populations or demographics. During the permitting process for Class II disposal wells, potential socioeconomic and environmental impacts are investigated as part of the National Environmental Policy Act process. In general, Class II disposal wells are not located in populated or business areas.

If approved, Core Laboratories' generic 10 CFR 20.2002 waste disposal authorization would contain the following provisions: (1) A requirement to assure that the radioactive concentration of waste would be less than 1,000 picocuries/gram (pCi/g); (2) the half-life of the radioactive material being disposed would be less than 120 days and include only the following tracers: Sodium-24, chromium-51, rubidium-86, iodine-131, xenon-133, scandium-46, zirconium-95, antimony-124, and iridium-192; and (3) Core Laboratories would maintain a written agreement with the Class II disposal well owner or operator to control access to the well until the radioactivity has decayed to unrestricted release levels.

Increased radiation exposure to the general public from transporting waste containing residual tracer material to the disposal site would be negligible. There are two routes of exposure possible, external and internal. The internal exposure would be from ingestion of the material. The particle size is such that it is not respirable. The material is not soluble in the body thereby reducing the resident time in the body. At the concentrations expected, an individual would need to ingest 200 pounds of the material to receive one-tenth of the regulatory annual limit of intake specified in 10 CFR part 20, appendix B. The maximum radiation exposure level, at a distance of 1-foot from a vehicle transporting this waste, would be on the order of 0.1 mR/hr. The radiation level in the cab of the transport vehicle would be on the order of 0.004 mR/hr. Using an average transport time of 1-hour and assuming the same driver was used for all of the expected disposals (10 per year), the exposure to the driver of the vehicle would be 0.04 mR. Due to its low radiation level and radioactive concentration, an accident causing the release of the waste returns from the transport vehicle would result in little exposure to workers or members of the public during the subsequent cleanup efforts.

Tracer injection operations at the disposal wells are automated to

minimize the time required for personnel to be in the immediate area of the injected material. Assuming an injection time of 4 hours per disposal, and an individual within 1-foot of the radioactive material during the injection operation, the total exposure per year would not be expected to exceed 4 mR from this operation. The disposal site would be surveyed to meet the NRC criteria for unrestricted use in accordance with 10 CFR part 20 after the sandout material is injected into a Class II disposal well.

Radioactive material as defined by Department of Transportation regulation 49 CFR 173.403 is material that exceeds a concentration of 2,000 pCi/g. The residual radioactive material concentrations being shipped are below this limit. There would be no increase in the number of transport vehicles on the highways due to this proposed aspect of well-logging operations. The current practice of transporting well-logging returns to a decay-in-storage facility or shallow disposal pit requires that at least one transport vehicle be used. Procedures would be in place to handle any emergency situation arising from any incident involving the handling or transportation of this material.

Overall, the environmental impacts resulting from the release of this material into Class II disposal wells are expected to be insignificant. The NRC staff concluded that the State's and EPA's requirements for permitting the operation of Class II disposal wells were stringent and thoroughly covered any radiological or non-radiological environmental concern. There are no additional activities which would result in cumulative impacts to the environment.

5.2 Alternative

When compared to the Class II disposal well proposal, the no-action alternative would result in increased risk of exposing occupational workers and the members of the public to radioactive material. Core Laboratories' use of shallow earthen pits and decay-in-storage facilities requires additional handling of the radioactive material and increases the potential for individuals to access radioactive material. Core Laboratories would continue use of shallow earthen pits, transporting the sandout material to the new pits, covering the disposal pits with at least 2 feet of soil, and marking the disposal sites in order to control access to the public. Additionally, Core Laboratories would continue to maintain sandout material in leased decay-in-storage facilities. In addition to radiological