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Revisions to National Emission Standards for Radon Emissions from Operating Mill Tailings

The Environmental Protection Agency (EPA) has drafted a new rule that regulates radon emissions from uranium waste facilities. These facilities process raw uranium ore into concentrated “yellow cake” to make nuclear fuel. The waste piles emit radon, a radioactive gas that is the top cause of lung cancer for nonsmoking Americans.

Three kinds of uranium operations are covered by the proposed EPA rule:

- 1) Uranium Mills
- 2) In-Situ Leach Uranium Mines
- 3) Uranium Heap Leaching facilities

Uranium Mills

In the United States, there are currently three conventional uranium mills either operating or on standby status. The White Mesa Mill near Blanding, Utah has a few waste impoundments and evaporation ponds- one of which already exceeded one of the radon limits that EPA now proposes to eliminate.

The Sweetwater mill near Rawlins, Wyoming and the Shootaring Canyon project in Garfield County, Utah still have active ponds radiating radon according to the operators’ monitoring records.

Under the rule, there are two options for conventional uranium waste.

1) Phased disposal as long as no more than two operating impoundments accept the waste and neither pit covers more than 40 acres each.

Or

2) Continuous disposal of the radioactive waste as long as no more than 10 acres remains uncovered at any given time.

Under the existing rule, EPA requires mills to cover the waste with water and monitor radon emissions. However, now EPA proposes eliminating the monitoring requirement thereby preventing the public from knowing how much radioactive gas the ponds emit.

In-Situ Leach/ Unconventional Impoundments

The majority of uranium recovery facilities use a technique called In-Situ Leaching. (ISL). ISL mines currently account for about 80% of domestic uranium production.

With 16 existing facilities in the United States already, EPA expects between 20-30 more over the next decade.

ISL involves the underground injection of a solution through an aquifer designed to leach uranium from the target ore body. The operator then pumps the uranium out of the ground and concentrates it into yellowcake. The radioactive waste is then placed in a holding or evaporation pond subject to this rule.

To keep radon from escaping, the proposed rule requires operators to top off the ISL waste ponds with at least one meter of water, which can include polluted processed water. EPA also proposes to allow evaporation ponds of unlimited size while eliminating monitoring requirements.

Heap Leach Impoundments/ Unconventional Impoundments

Heap leaching involves placing small pieces of low-grade ore in a large pile or heap. Operators then spray an acidic solution over it to dissolve the uranium. Once the uranium is extracted, the waste is then pumped to a holding or evaporation pond regulated by this rule.

Heap leach operations have not existed in the United States since the 1980s and there is no regulatory framework applicable to this obsolete technology. Three heap leach mines are proposed in southern Wyoming.

Like with conventional impoundments, this rule allows no more than two ponds in operation. The ponds must keep 30% moisture content and neither can exceed 40 acres. The proposed rule does not require any radon monitoring.

Shortcomings of this Rule

- 1) EPA removes size and monitoring requirements for all impoundments. Instead of lowering the radon emission limits, EPA assumes regulated facilities already meet the standard.
- 2) EPA should require conventional and unconventional impoundments install Maximum Achievable Control Technology (MACT) rather than keep the same old technology the industry has always used.
- 3) EPA does not define "operation" as from the period beginning from the first day the operator places the waste in the impoundment until when the closure period ends. This will prevent operators from avoiding regulation by accepting waste during the period of closure.