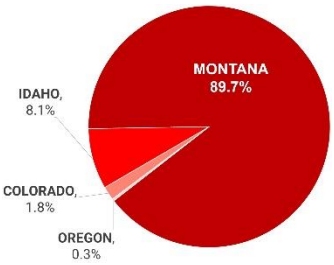
Frequently Asked Questions about TENORM *

Facts, Figures, Disposal, Safety and Environmental Protection

Q: What is TENORM – Technologically Enhanced Naturally Occurring Radioactive Material?
A: TENORM is defined as naturally occurring radioactive materials that are concentrated or exposed to the environment as a result of human activities such as manufacturing, mineral extraction or water processing. When crude oil is extracted, material is brought to the surface including radioactive substances found in nature like soils, rocks and water.

Q: What are some examples of TENORM generated by oil industry processes?
A: TENORM is found in various materials as part of the oil and gas extraction and production process. This includes drill cuttings, waste water, tank sludge, pipe scale, and disposable filter socks used during oil extraction and production.

Q: Is TENORM dangerous? Why is the handling and disposal of TENORM monitored and regulated?
A: The geologic formations that contain oil and gas deposits also contain naturally-occurring radionuclides. Materials brought to the surface contain very low levels of radioactivity, but because they are concentrated through industrial processes, radioactivity reaches levels that require regulation. Long-term exposure to any form of radiation can be harmful, but occasional exposure to the low levels found in North Dakota TENORM should cause no ill effects. People are exposed to naturally-occurring sources of radioactivity every day. Low levels of radiation are found in common items such as coffee grounds, kitty litter, banana peels, fertilizer, granite countertops and Colman lanterns.



Q: What happens to TENORM now? Why are there no TENORM landfills in North Dakota?
A: Most TENORM now goes to a facility near Glendive, Montana, and some is shipped to Idaho, Colorado and Oregon for disposal. Previous proposals to establish disposal facilities have not happened for various reasons including local opposition, delays by counties to study the issue, and some companies have simply abandoned plans. However, conditions are changing and it's likely Montana may soon reject all or most North Dakota TENORM. Therefore, it is important that in-state disposal options be explored and developed. Proper handling of this waste product is essential to support the oil industry and the billions in economic activity it generates.

Q: What sort of TENORM disposal options are currently under consideration?
A: Two applications for a conditional use permit to include TENORM waste disposal have been submitted to the Williams County Commission. One was filed by WISCO Inc. to amend its existing permit for a 103-acre parcel at its location west of Williston. The other application was filed by Secure Energy Services to amend its permit to offer TENORM disposal on a 160-acre parcel at its landfill north of Williston. Another disposal option is currently provided by KT Enterprises, which operates a slurry disposal well near Johnsons Corner in McKenzie County. The waste material is pulverized into a fine powder, mixed with produced water, and injected thousands of feet underground into a sandstone formation.

Q: If the county grants a conditional use permit for TENORM disposal, what happens next?
A: After it has obtained a local permit, the applicant must apply for a license from the ND Department of Environmental Quality for specific radioactive material disposal. The application must include a diagram of the planned facility, which the DEQ will review for environmental compliance. A substantial license fee is also required. The company's application must include financial assurance to cover the cost of closure and post-closure plans, which is reviewed annually and adjusted for inflation. The company is also required to have a plan for detecting and quantifying materials it will accept, and provide a radiation safety program for its workers, the public and the environment.

Q: What restrictions and limits are provided to ensure the safety of TENORM disposal operations?
A: North Dakota administrative rules allow permitted landfills to accept no more than 25,000 tons of TENORM per year. That amount would represent about two or three truckloads per day. Regulations also limit the level of radioactivity to a maximum of 50 picocuries per gram, require that waste is tracked from its point of origin to disposal, and that multiple readings are taken for every load that is accepted. Monitoring wells are also required around the perimeter of the disposal site, that one foot of daily cover is put in place, and that ten feet of soil covers the facility at closure.

WESTERN DAKOTA ENERGY ASSOCIATION

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