



Impact of HB 59 on Solid Waste Landfills and Transfer Facilities

Management of Technologically Enhanced Naturally Occurring Radioactive Materials (TENORM) resulting from unconventional oil & gas wells

House Bill 59 was passed by the 130th General Assembly on July 1, 2013. This bill amended several sections of Ohio law to provide for greater oversight and coordination between the Ohio Department of Health (ODH), Ohio Department of Natural Resources (ODNR) and the Ohio Environmental Protection Agency (Ohio EPA) in ensuring the safe management of oil and gas waste. It is anticipated more of this waste will need to be disposed of in Ohio landfills due to increased oil and gas drilling.

What types of solid waste are affected by this legislation?

Primarily, waste substances resulting from the drilling, exploration, and production of unconventional oil and gas wells are subject to the provisions of this legislation. Drilling-related waste substances include, but are not limited to, drill cuttings, refined oil-based muds, fracking sands and ancillary wastes. Some waste substances may be defined as technologically enhanced naturally occurring radioactive material (TENORM). Ohio law also authorizes Ohio EPA to adopt rules governing the receipt, acceptance, processing, handling, management, and disposal of TENORM at solid waste landfills and transfer facilities.

What are NORM and TENORM?

The Ohio Department of Health (ODH), Bureau of Radiation Protection, has primary regulatory authority over radioactive materials and Ohio's TENORM regulations. It is anticipated that most of the material at drilling operations would consist of soil, rock and other subterranean matter and would be categorized as naturally occurring radioactive materials (NORM). NORM is radioactive material naturally present in the environment (i.e., soils, air and water) and can be found everywhere. Since these materials are found in the natural environment, NORM is exempted from regulation by the U.S. Department of Energy, the U.S. Nuclear Regulatory Commission and ODH. NORM such as *uranium* (U), *radium* (Ra), and *thorium* (Th) emit low levels of naturally occurring radiation. Examples of NORM include radon gas in homes and potassium-40 found in all plants and animals including humans.

A part of the oil and gas drilling waste stream will qualify as TENORM. ODH defines TENORM as naturally occurring radioactive material with radionuclide concentrations that are increased by or as a result of past or present human activities. Examples of potential TENORM from oil and gas drilling include tank bottoms, spent drilling muds and pipe scale. TENORM does not include drill cuttings.

For more information, please refer to ODH's [NORM/TENORM information sheet](#) and [Radiation Protection Program webpage](#).

Solid waste facilities that accept TENORM must comply with both ODH's TENORM and Ohio EPA's solid waste facility laws and rules.

Applicable and Related Law

Ohio Revised Code (ORC)
1509 3734 3748

Where can I get a copy of the legislation?

You may view the legislation at legislature.state.oh.us/BillText130/130_HB_59_EN_N.html

More Information

Please contact Aaron Shear at (614) 728-5350 or aaron.shear@epa.ohio.gov.

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What new requirements apply to solid waste landfills and transfer facilities?

Effective Sept. 29, 2013, solid waste landfills and transfer facilities accepting waste substances resulting from unconventional oil and gas wells that are TENORM must first obtain representative analytical results to ensure compliance with applicable law. Facility operators must ensure that representative analytical results adhere to sampling and analytical methods approved by ODH and combined radium 226 and 228 concentrations are below the regulatory limit of 5 picocuries per gram above natural background. Facility operators must complete daily logs that identify waste substances from unconventional oil and gas wells, and copies of analytical results for TENORM must be retained and made available for inspection to the licensing authority.

Solid waste facilities that are permitted by Ohio EPA, under ORC 3734, may accept oil and gas waste substance provided the facility complies with applicable law(s) (see ORC Chapters 1509 and 3748).

Can solid waste landfills and transfer facilities accept TENORM with concentrations above 5 picocuries per gram above natural background?

The Ohio Department of Health, Bureau of Radiation Protection, has primary regulatory authority over radioactive materials and Ohio's TENORM regulations, including licensure of blending activities for purposeful dilution of radium 226 and 228. HB 59 recognizes that solid waste landfills and transfer facilities may want to conduct these types of activities. However, facility operators must obtain necessary authorization from ODH or ODNR, as appropriate. When required authorizations are obtained, Ohio EPA also may require a solid waste landfill or transfer facility to obtain appropriate authorizations. Regardless, waste substances defined as TENORM would be required to achieve the standard of 5 picocuries per gram above natural background prior to disposal.

Does Ohio EPA plan to draft rules to further ensure the safe management of TENORM?

Ohio EPA is considering whether to develop rules for solid waste landfills and transfer facilities that want to accept TENORM wastes containing less than 5 picocuries per gram above natural background. In accordance with ORC 3734.02(P)(4), the Director of Ohio EPA is authorized to impose additional rules at these facilities to ensure the safe management of TENORM wastes, including:

- Monitoring leachate (landfills and transfer facilities) and ground water (landfills) for radium-226 and radium-228 and;
- Establishing and implementing procedures to ensure that TENORM equal to or greater than 5 picocuries per gram above natural background is not accepted at the facility. For landfills, such procedures might be incorporated into the landfill's PCB and hazardous waste prevention and detection program under OAC Rule 3745-27-19(L). For transfer facilities, a separate prevention and detection plan may be considered.

For more information regarding the rulemaking process, please see Ohio EPA's *Early Stakeholder Outreach – HB 59 – TENORM Acceptance at Solid Waste Landfills and Transfer Facilities*.

ORC Section 3748.01 definitions

Naturally occurring radioactive material (NORM) — material that contains any nuclide that is radioactive in its natural physical state.

Technologically enhanced naturally occurring radioactive material (TENORM) — naturally occurring radioactive material with radionuclide concentrations that are increased by or as a result of past or present human activities. TENORM does not include drill cuttings, natural background radiation, byproduct material, or source material.

Drill cuttings — the soil, rock fragments and pulverized material that are removed from a borehole and that may include a de minimus amount of fluid that results from a drilling process.