



November 17, 2014

**Subject: Landfill acceptance and disposal of waste substances from horizontal wells - update**

Dear Facility Operator:

As oil and gas drilling activity in the Utica/Point Pleasant and Marcellus Shale formations continues to develop, licensed municipal solid waste landfills in Ohio and surrounding states should expect to see increased volumes of incoming waste substances generated from the drilling process, including drill cuttings, tank bottoms, and used frac sands. In addition, landfill operators may see increased volumes of filter media, including filter socks from processing and treatment activities of fluids at waste substance facilities<sup>1</sup>, or from underground injection control wells used for the disposal of brine.

House Bill 59 strengthened Ohio laws administered by the Ohio Department of Natural Resources (ODNR), Ohio Department of Health (ODH), and Ohio Environmental Protection Agency (Ohio EPA) that ensure oil and gas waste substances are properly managed and disposed. Our agencies wanted to take an opportunity to highlight some important impacts to Ohio landfills resulting from House Bill 59 and shale development.

Stabilization of Waste Substances

Since January 1, 2014, ODNR regulates the storage, recycling, treatment (i.e. stabilization), and processing of waste substances associated with a horizontal well<sup>2</sup>, and Ohio law provides for the disposal of waste substances other than brine at Ohio solid waste landfills. Due to the liquid content in waste substances, these materials may require stabilization or other processing prior to landfill disposal. Generally, waste substances passing the paint-filter test are solid wastes regulated by Ohio EPA when disposed in accordance with ORC Chapter 3734; however, waste substances also include materials that do not pass the paint-filter test or do not meet the definition of solid waste.

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<sup>1</sup> Section 1509.022(B)(2)(a) states, in part, that "No person shall store, recycle, treat, process, or dispose of in this state brine or other waste substances associated with the exploration, development, well stimulation, production operations, or plugging of oil and gas resources without an order or permit issued under this section or section 1509.06 or 1509.21 of the Revised Code". Landfill acceptance of waste that contains brine and requires stabilization is prohibited, unless authorization is obtained pursuant to ORC Section 1509.22.

<sup>2</sup> See ORC Section 1509.022(B)(2)(a).

### Drill Cuttings Designation as Solid Waste

Drill cuttings generated during the phase of drilling performed through underground source(s) of drinking water (USDW), prior to the cementation of surface casing, are considered earthen material and are not regulated as a solid waste by Ohio EPA. This phase of well construction is drilled with air, fresh water, a freshwater based drilling fluid, or a combination thereof because only additives suitable for drilling through potable water supplies may be used while drilling these intervals. Even though these drill cuttings are not regulated as a solid waste by Ohio EPA, they are a waste substance regulated by ODNR.

Drill cuttings generated below the surface casing are classified as a solid waste and must be sent to a licensed solid waste landfill or otherwise managed in accordance with applicable law. Drill cuttings classified as a solid waste are subject to state and local disposal and generation fees.

If a solid waste landfill accepts drill cuttings that are earthen material and not a solid waste, it is recommended that landfill operators request written documentation from its customers that affirms the information listed in the table below. This documentation should be maintained in the facility daily log.

### **Criteria for Determining When Drill Cuttings are Earthen Material or Solid Waste (ORC Chapter 3734)**

<b>Earthen Material</b>	<b>Solid Waste</b>
<ul style="list-style-type: none"><li>• Drill cuttings generated during drilling through USDW (drilled on air, fresh water, and fresh water-based drilling fluid)</li><li>• Drill cuttings containing only additives suitable for drilling through potable water supplies</li></ul>	<ul style="list-style-type: none"><li>• Drill cuttings generated below surface casing</li><li>• Drill cuttings containing additives not suitable for drilling through potable water supplies, including but not limited to refined-oil based substances or other contaminants</li><li>• Drill cuttings stabilized with solid wastes or non-earthen reagents</li><li>• Drill cuttings mixed with solid wastes</li></ul>

### Waste Substances Designation as NORM

Landfill owners and operators should be aware of the radioactive content of drilling-related waste substances accepted for disposal. Drill cuttings, whether an earthen material or a solid waste, are defined as naturally occurring radioactive material (NORM) when mechanically processed to remove drilling fluids in order to pass the "paint-filter test". Landfill acceptance of solid waste classified as NORM is not subject to the analytical results provision of ORC Section 3734.02(Q).

Since September 29, 2013, Ohio landfill owners and operators are required to obtain representative analytical results for drilling-related waste substances defined as technologically enhanced naturally occurring radioactive material (TENORM). ODH published a document titled NORM/TENORM Information Sheet, which summarizes the applicability of NORM and TENORM to drilling-related waste substances. The table below summarizes common waste substances that are sent to solid waste landfills for disposal.

### Summary of NORM/TENORM Waste Substances Resulting from Oil & Gas Exploration & Production

NORM	TENORM
<ul style="list-style-type: none"> <li>• Drill cuttings - pass the “paint-filter test” (drilling fluids <u>removed</u> by shakers, presses, centrifuges, and other processes)</li> </ul>	<ul style="list-style-type: none"> <li>• Waste Substances that contain used drilling fluids and pass the “paint-filter test”, and may have previously been stabilized with Portland cement, quick lime, or other ODNR DOGRM approved stabilization agents</li> <li>• Used refined oil-based muds</li> <li>• Used frac sands</li> <li>• Tank bottoms</li> <li>• Pipe scale</li> <li>• Used filter media, including filter socks from underground injection control wells</li> </ul>

### Representative Sampling and Analysis of TENORM

Ohio Law (ORC 3734.02(Q)) requires landfill owners and operators to obtain representative analytic results for TENORM associated with horizontal wells prior to acceptance at the facility. To provide compliance assistance on sampling and analysis methods, ODH Bureau of Radiation Protection (BRP) developed guidance<sup>3</sup>. When accepting TENORM from horizontal wells for disposal, it is ODH BRP’s recommendation that facility personnel who approve special wastes discuss these

<sup>3</sup> ODH has published the following guidance regarding the representative sampling and analysis of TENORM –

- **Acceptable TENORM Analytical Methods for Radium-226 and Radium-228**  
<http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/rp/technical%20support/TENORM/TENORM.ashx>
- **Guidance for Sampling Waste Containing TENORM**  
<http://www.odh.ohio.gov/~media/ODH/ASSETS/Files/rp/radiation%20protection/2013/2014/Sampling%20Protocols%20Document%2022014.ashx>

recognized sampling and analysis methods with oil and gas customers. It is also recommended that landfill owners and operators adhere to ODH published guidance, and supporting documentation should be obtained if an alternative sampling frequency is used for the purpose of obtaining representative results. ODH advises that each container be individually sampled and analyzed. (See Footnote<sup>3</sup>)

Upcoming Rulemaking and Interested Party Comment Period

As you may know, Ohio EPA distributed an Early Stakeholder Outreach communication last year, and the rule package will be released for interested party comments in the near future. ODNR, ODH, and Ohio EPA look forward to future conversations with you to develop a regulatory framework that supports this important environmental and public health objective. In the interim, our agencies will continue to share developments with the solid waste industry relevant to drilling-related wastes, as they become available.

If you have any questions or concerns regarding this letter, please feel free to contact Aaron Shear, Ohio EPA Division of Materials and Waste Management, at (614) 644-2621.

Sincerely,



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