

INSIGHTS

Recent Developments in Regulation of Oil and Gas NORM

January 28, 2015

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Federal and state regulators are considering new rules applicable to naturally occurring radioactive material (NORM) and technologically-enhanced NORM (TENORM) in oil and gas waste. We discuss some of the most recent and expected developments below. **Pennsylvania PADEP TENORM Study** On January 15, 2015, PADEP released the [results of its TENORM study](#), which focused on quantifying TENORM associated with oil and gas drilling in Pennsylvania. PADEP's study examined the full spectrum of potential exposure pathways, from well sites, to wastewater treatment plants and landfills, to gas distribution and end use. While PADEP's overall observation from the study was that there is "little potential" for radiation exposure from oil and gas development, the agency recommends additional study that could lead to additional regulations or a change in practices. Some of PADEP's recommendations moving forward are set forth below:

- Radium should be added to the Pennsylvania spill protocol to ensure cleanups are adequately characterized.
- There are potential radiological environmental impacts that should be studied at all facilities in Pennsylvania that treat oil and gas wastes to determine if any areas require remediation. If elevated radiological impacts are found, the development of radiological discharge limitations and spill policies should be considered.
- TENORM disposal protocols should be reviewed to ensure the safety of long-term disposal of waste containing TENORM.
- Further study of radiological environmental impacts from the use of brine from the O&G industry for dust suppression and road stabilization should be conducted.

PA Limits Oil and Gas TENORM Disposal at Landfills PADEP implemented some changes even before the TENORM study was released. Beginning January 1, 2015, landfills in Pennsylvania must adhere to new limitations on the amount of certain oil and gas derived TENORM that they accept for disposal. PADEP opted for this change without modifying the current regulatory regime. Instead, in late December 2014, PADEP sent letters directly to landfills that accept TENORM, outlining the new requirements, which cut the amount of oil and gas TENORM that can be disposed of at state landfills by one third. Under PADEP's new requirements:

- A landfill's TENORM allocation for 2015 will be calculated on a monthly basis rather than on a monthly allocation;
- PADEP's TENORM tracking sheet includes a new multiplier of "3" for waste code 804, which is primarily sludge from the treatment of oil and gas well wastewater. DEP says this multiplier is necessary because sludge generated from processing oil and natural gas related waste "is not in a state of secular equilibrium and, consequently, its radioactive concentration (pCi/g) is approximately three or more times higher than indicated by the measured exposure rate ($\mu\text{R/hr}$)"; and
- PADEP has indicated that the goal of the new requirements for landfill operators is to achieve a homogenous mixture of the amount of TENORM accepted along with municipal solid waste throughout the year and maintain the 50:1 ratio in volume.

PADEP has indicated the reason for the changes is to help state landfills avoid exceeding their design criteria. **North Dakota** With the immense success it is seeing in the Bakken play, North Dakota has undertaken to revise its TENORM regulatory program to address the increased generation of oil and gas waste. In collaboration with the Argonne National Lab, the State conducted its own TENORM study, which was released in November 2014. Among other topics, the ND/Argonne Study looked at determining acceptable TENORM disposal limits for Oilfield Special Waste at landfills. Based on the results of the ND/Argonne Study, the North Dakota Department of Health (NDDoH) announced that it was proposing new and amended rules applicable to the management of TENORM. If finalized, the State's proposed rules would establish a registration process for generators and transporters, as well as standards for tracking and reporting waste and disposal in landfills. North Dakota is accepting comments on the proposed rules through February 6, 2015. Some of the new proposed requirements include:

- All TENORM generators must register with the NDDoH;
- All TENORM must be tracked from production to disposal;
- TENORM waste up to 50 picocuries per gram may be disposed of at approved Oilfield Special Waste Landfills and Large Volume Industrial Waste Landfills;
- Any facility approved by the NDDoH to accept TENORM of up to 50 picocuries per gram will be limited to no more than 25,000 tons/year of TENORM waste; and
- All TENORM waste must be buried a minimum of 10 feet below the top of the closed landfill.

Federal CWA Effluent Limitations EPA is expected to release an advanced notice of proposed rulemaking in the first half of 2015 to develop pretreatment standards and Effluent Limitation Guidelines (ELGs) for unconventional oil and gas extraction, under 40 CFR Part 435. In the 2012 Program Plan, EPA noted that the treatment technologies currently used at centralized waste treatment facilities (CWTs) are not designed to address high levels of pollutants typically found in unconventional wastewater, including NORM and other pollutants. It is not clear how long the comment period will be, but the Agency is aiming to issue a final rule by April 2016. This

rulemaking is drawing attention from both sides of the shale debate, particularly because a sensible rule would again allow the industry to utilize POTW treatment capacity to handle relatively benign produced water and reduce shipping costs in regions where underground injection control wells are less prevalent (e.g., Pennsylvania). **What's Next?** We anticipate that states with oil and gas activity will continue to tweak their regulatory programs over the coming months and years. While some states may propose regulatory changes that open up more proximate options for TENORM disposal, other states could opt for more restrictive regulation, forcing industry to dispose of TENORM outside the state where it was generated. As additional studies and rulemakings proceed, industry will want to take advantage of available opportunities to participate in the stakeholder process.