



# COLORADO

Department of Public  
Health & Environment

Dedicated to protecting and improving the health and environment of the people of Colorado

May 12, 2017

RE: Notice to Landfills - Potential TENORM Characteristics of Exploration and Production Wastes and the Department's Plan for Upgrading Landfill Permitting Documents to Account for This Issue

Dear Solid Waste Landfill Owner or Operator:

The Colorado Department of Public Health and Environment, Hazardous Materials and Waste Management Division, has become aware of a potential issue affecting solid waste landfills that accept oil and gas exploration and production waste (E&P Waste). This waste stream, as you probably know, is not exempt from the Colorado Solid Waste Regulations, 6 CCR 1007-2 when disposed of at a commercial facility. This means that E&P Waste is subject to waste characterization requirements when disposed of in a solid waste landfill. The department is aware that a subset of this waste stream can contain technologically enhanced naturally occurring radioactive materials, or TENORM.

As a landfill owner or operator, you should be aware that the Colorado Solid Waste Act prohibits disposal of materials contaminated by radioactive substances at landfills unless a landfill is specifically designated for that purpose. To implement this broad statutory requirement, the department has established administrative release levels in its "Interim Policy and Guidance Pending Rulemaking for the Control and Disposition of Technologically Enhanced Naturally Occurring Radioactive Materials in Colorado" (February 2007). The administrative release levels are as follows: combined Ra226+228 < 3 pCi/g, natural uranium < 30 pCi/g and natural thorium < 3 pCi/g, each above background. For a landfill to accept TENORM above the administrative release levels, CDPHE and local governing body approval is required. Southside Landfill in Pueblo County is the only operating solid waste landfill with both state and local approval for ongoing, routine disposal of TENORM (limited to water treatment residuals). Some other solid waste landfills (Midway Landfill in El Paso County and Foothills Landfill in Jefferson County) have received case-by-case approvals, again primarily for water treatment residuals. One new solid waste facility, Pawnee Waste in Weld County, has been permitted for disposal of oil and gas waste containing TENORM, but the facility is not yet constructed. Other solid waste sites may be partially permitted, which is to say that such sites have obtained approval from either the state or the local governing body, but not both.



By accepting TENORM in general and E&P TENORM Waste in particular, your landfill could be in violation of the law. Many sites are not characterizing potential TENORM materials and, therefore, the department is concerned that many sites may be unknowingly in violation.

The department's plan for solving this problem is as follows:

1. For landfills without TENORM approval: CDPHE will modify existing engineering design and operations plans (EDOPs) to include adequate procedures for excluding TENORM. The time frame for this activity is expected to take at least through September 1, 2017 to address all sites that accept industrial waste.

This would include adding provisions to the EDOPs of these landfills that require the landfills to request from the generators additional testing for TENORM constituents, as a pre-requisite to approval of the waste profiles associated with those waste streams that have a reasonable likelihood to contain TENORM. The department's Solid Waste Program will make these changes to each site's EDOP by September 1, 2017 for those sites that accept industrial wastes, and;

2. For landfills seeking to obtain approval to accept TENORM: CDPHE will work with these landfills to establish procedures, concentration limits, and other prerequisites such that the TENORM wastes can be managed safely. Important to this effort would be the facility (or more likely, the facility's consultant) performing a radiological dose assessment. This will be done over the next one to three years, on a schedule of the facility's choosing. Most of these sites would also require amendment to their certificates of designation.

The department believes the following subset of the E&P Waste stream has a potential to contain TENORM:

- Filter socks
- Tank bottoms
- Horizontal drill cuttings generated from formations bearing NORM
- Filter press cake
- Waste pipe and flow line sections
- Residual materials dislodged during cleaning and maintenance activities on the following:
  - Crude oil and natural gas pipelines, flow lines and connector pipes (pipe scale scraping/rattling/wire brushing)
  - Natural Gas scrubbers, compressors, reflux pumps, control valves and product lines
  - Gas/oil separators
  - Dehydration vessels
  - Liquid natural gas (LNG) storage tanks

The department has attached a notice to this letter that explains another aspect of TENORM management in Colorado. Please note that the pertinent point of the attached notice is that



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landfills and other waste disposal facilities may not accept TENORM wastes from any out-of-Compact generators unless specifically designated by the Rocky Mountain Low-Level Radioactive Waste Board and licensed by the Radiation Control Program within the Hazardous Materials and Waste Management Division of the department.

If you have any questions regarding the EDOP changes that the Solid Waste and Materials Management Program is planning to implement, please contact Jerry Henderson of the Solid Waste Permitting Unit at 303-692-3455 or [jerry.henderson@state.co.us](mailto:jerry.henderson@state.co.us). If you have any questions regarding the radiological characteristics of these waste streams, or the application of the department's "Interim Policy and Guidance Pending Rulemaking for the Control and Disposition of Technologically Enhanced Naturally Occurring Radioactive Materials in Colorado," please contact Jim Grice of the Radioactive Materials Unit at 303-692-3371.

Sincerely,



Joe Schieffelin, Manager  
Solid Waste and Materials Management Program  
Hazardous Materials and Waste Management Division

Enclosure: Rocky Mountain Low Level Radioactive Waste Board Notice to Waste Generators and Treatment/Disposal Facilities