



Committed to Responsible NORM Management



Hydraulic fracturing generates development and produced wastewater that can contain low levels of naturally occurring radioactive materials (NORM). This important environmental issue has the full attention of Eureka Resources.

It's true that NORM is everywhere. Almost everything in nature has some small amount of radioactivity, and living systems have adapted to it. However, fracking can extract NORM from underground sources, thereby increasing NORM in our surface environment. Eureka Resources is committed to providing responsible solutions for NORM in the wastewater we receive from our industrial customers.

Detection and Evaluation

We have established proprietary processes for detecting and managing wastewater with NORM.

Our exacting protocols help us reject wastewater that contains any NORM that we cannot safely mitigate, because nothing is more important to us than the safety of our workers, our end products and our environment.

Our purification processes can extract intermediate levels of NORM from wastewater so that it can be properly and responsibly disposed of. In addition, we continually monitor EPA studies and guidance to ensure our processes leverage innovations and comply with the most current best practices.

These and other protocols ensure that our end products are safe.



We're on a mission to leave a clean, wholesome environment for future generations.

Why is NORM associated with the oil and gas industry?

When resources such as oil and gas are extracted from the earth, naturally occurring radioactive materials may be extracted, too. NORM can also be present in development and produced wastewaters. We can remove NORM through our water treatment and processing technology.

Are Marcellus Shale play development and produced wastewaters radioactive?

Eureka Resources sometimes detects low levels of NORM in the wastewater we receive. We have a stringent monitoring and action protocol to ensure that our technology can completely remove any NORM present in the wastewater we intake. If the NORM levels are too high in a delivery of wastewater, we will reject it. Our protocol ensures that our workers are safe, our end products are pure and that any radioactivity we find is properly and responsibly disposed of.

What do you do with NORM that you extract from development and produced wastewaters?

We have strong partnerships with EPA-approved disposal firms for both our ordinary waste and NORM. The hazardous waste partner that collects and disposes of our NORM is headquartered in Ohio.

Will NORM levels in your wastes or products impact me?

No. Our exacting protocols help us reject wastewater that contains any NORM we cannot safely and thoroughly mitigate. We will not risk the safety and wellbeing of our workers, neighbors, customers or the environment.

What is TENORM?

TENORM is an acronym for Technologically Enhanced Naturally Occurring Radioactive Material. The term is usually applied when NORM is present in sufficient quantities or concentrations to require control for purposes of radiological protection of the public or the environment.

Here's what the U.S. Environmental Protection Agency says about TENORM:

- ▶ Technologically Enhanced Naturally Occurring Radioactive Material (TENORM) is defined as, "Naturally occurring radioactive materials that have been concentrated or exposed to the accessible environment as a result of human activities such as manufacturing, mineral extraction, or water processing."
- ▶ "Technologically enhanced" means that the radiological, physical, and chemical properties of the radioactive material have been concentrated or further altered by having been processed, or beneficiated, or disturbed in a way that increases the potential for human and/or environmental exposures.

<https://www.epa.gov/radiation/technologically-enhanced-naturally-occurring-radioactive-materials-tenorm>