



## **Comprehensive Radiation Study Plan for Oil & Gas Operations**

The Department of Environmental Protection is committed to ensuring the development and use of Pennsylvania's oil and natural gas occurs in an environmentally responsible manner. In 2013, DEP will undertake the most extensive and comprehensive study ever done to examine the levels of naturally occurring radiation in a variety of equipment, materials and media associated with oil and gas development, as well as the potential environmental impact and exposure to the public and workers.

Radiation occurs naturally in material found in a variety of environments, such as underground rock formations. The handling and treatment of such naturally occurring radioactive material may result in the increase in concentration of radiation levels.

Current industry practices are such that data do not indicate the public or workers face any health risk from exposure to radiation from these materials. This study will provide DEP and the industry with the data needed to ensure these naturally occurring radioactive materials effectively for the long term. The data will assist in determining the need with respect to any issues as they exist during extraction, transportation, treatment and disposal.

At dozens of sites statewide, DEP will sample for and analyze various natural radioactive materials associated with the extraction, development and production of oil and gas to determine their physical or chemical concentration. DEP will consult with independent experts at the outset to ensure its plan is thoroughly rigorous and scientifically sound. Upon completion, DEP will make the final report available to the public.

### Materials to be sampled or studied:

- Drill cuttings
- Produced or flowback waters
- Wastewater recycling and treatment sludges
- Treatment and recycling filter screens
- Extracted natural gas
- Well casing and pipelines with scale
- Fluid and waste trucks and trailers

### Issues to be examined

- Exposure to workers during gas development and extraction

Radiation levels in produced waters and treatment sludges  
Safe and regulatory compliant transportation of materials containing radioactivity  
Impact of treatment operations on radiation levels of water and sludges  
Safe and responsible disposal of wastes in-state and out-of-state  
Radon exposure to workers and public  
Potential need to set radioactivity limits under a waste water permitting program

Site locations

Well pads  
Wastewater treatment plants  
Wastewater recycling facilities  
Landfills

Timetable

12 to 14 months