

RADIATION PROTECTION PROGRAM

DEP's [Bureau of Radiation Protection](#) (BRP) is responsible for ensuring the public, occupational, and environmental exposure to radiation from non-natural and controllable natural sources is As Low As Reasonably Achievable. The program includes the oversight of radioactive materials, radiation-generating machines, radon testing and mitigation, and environmental surveillance. Our program provides emergency response capability for four operating nuclear power sites and Three Mile Island.

BRP's [Environmental Surveillance Section](#) is responsible for evaluating long-term trends in environmental radiation levels; assessing the environmental impact of particular sites; and providing this information to the public. The section's monitoring activity is focused on radiation levels in the outdoor environment affected by human activities such as industrial processes, weapons testing, and wastes from medical facilities. This section analyzes samplings of air, water, milk, fish, sediment, and produce, for levels of non-natural radioactivity. The U.S. Nuclear Regulatory Commission (NRC) has established guidelines for levels of exposure to radiation thought to be safe. These facilities also have radiological environmental surveillance programs and provide annual data reports to NRC.

BRP's [Decommissioning Section](#) performs technical reviews of decontamination and decommissioning activities for radioactive materials licensees and non-licensed radiologically contaminated sites. The section also reviews decommissioning plans, reviews site-specific release criteria, conducts in-process site inspections, reviews final status surveys, develops and implements confirmatory surveys, and determines if the facility is suitable for release.

The Radiation Protection Program ensures radioactive materials licensees comply with federal regulatory limits for radionuclides by incorporating NRC regulation by reference in 25 Pa. Code Subpart D, Article V. The NRC has direct liquid discharge and sanitary sewer effluent limits in 10 CFR Part 20, Appendix B ([10CFR20](#)) (Table 1). In addition, the EPA has drinking water standards for radionuclides (Table 2).

Table 1. Radionuclide effluent limits and direct liquid discharge to sewers. Please note the table within 10 CFR Part 20 has an extensive list of radionuclides. Below are just two radionuclides BRP is monitoring within a landfill leachate study.

Radionuclide	Effluent	Release to Sewers^{*Monthly} Avg
Radium 226	60 pCi/L	600 pCi/L
Radium 228	60 pCi/L	600 pCi/L

Table 2. Radionuclide drinking water standards.

Combined Radium-226 & Radium-228	5 pCi/L
Uranium	30 ug/L
Gross Alpha Emitters	15 pCi/L
Beta Particle & Photon Radioactivity	4 mrem/yr.

*Adapted from EPA: [Radionuclides Rule - A Quick Reference Guide](#)

The program produces environmental radiation annual reports describing previous years' important work and environmental surveillance data. DEP's full 2020 Environmental Radiation in Pennsylvania Annual Report is available [here](#). During 2022, several key items were completed related to water quality:

- Over 700 Nuclear Power Plant site visits and safety reviews, and hundreds environmental sampling tasks,
- Landfill leachate monitoring, and
- DEP's continued Water Quality Network sampling at nine stations for radionuclides; all were indicative of natural background radiation levels.

Most of the funding for program activities comes from fees, although some comes from small EPA radon grants, fines, and penalties. Funding for water protection is not individually provided for in the program's budget. Nonetheless, an overview of the expected revenue in the current spending plan is provided in Table 3.

Table 3. Overview of FY 2022-2023 spending plan.

Radon Certification*	\$1.0 million
X-Ray Machines	\$4.0 million
Radioactive Material*	\$4.0 million
Nuclear Power Plants	\$2.6 million
Fines & Penalties	\$50,000