RADIATION

ISSUE SUMMARY: RADIATION PROTECTION

EPA is charged with radiation protection activities by statutes such as Atomic Energy Act; Waste Isolation Pilot Plant (WIPP) Land Withdrawal Act; Clean Air Act; Nuclear Waste Policy Act; Energy Policy Act of 1992; and the 1970 Reorganization Plan No. 3. EPA's radiation protection activities include regulatory development and implementation, radiological emergency response, and radiation science that provides radiological risk assessment for various radiation exposure pathways EPA's radiation protection activities will have to respond to significant recent developments in the nuclear power sector. The passage of the Advance Act demonstrated bipartisan support for increased nuclear energy capacity and deployment of advanced reactor technologies. There is also increasing demand for domestically sourced nuclear fuel. Given the longstanding public concern about the health effects of radiation in the environment, EPA maintains an excellent radiation risk communication program and responds to inquiries from the public and press. EPA websites are an authoritative source of radiation protection information and education for the public and provide technical resources to regulated entities and the scientific community.

KEY POINTS:

To fulfill its statutory responsibilities, EPA's Office of Air and Radiation (OAR) conducts a wide array of cross-program and multi-media activities—

Regulatory Programs

WIPP Oversight: OAR has statutory responsibility for ongoing compliance oversight of the Department of Energy's (DOE) Waste Isolation Pilot Plant (WIPP), a deep geologic repository for disposal of long-lived radioactive waste from the DOE's weapons complex. EPA oversight includes the certification and quinquennial recertification of the WIPP facility's compliance with radioactive waste disposal standards for 10,000 years after facility closure. The State of New Mexico Environment Department also regulates the facility through its hazardous waste permit.

Radionuclide NESHAPs (National Emission Standards for Hazardous Air Pollutants): ORIA implements certain NESHAP Subparts under the Clean Air Act, including ongoing monitoring of air emissions at DOE sites. NESHAP provisions that allow EPA to evaluate and approve uses of phosphogypsum as an alternative to stacking are attracting public interest and concern.

Radiation Science Activities

EPA has authority to advise on radiation matters affecting health, including issuing scientific guidance on radiation protection for Federal agencies. OAR is in the final stages of developing Federal Guidance Report (FGR) No. 16, which provides cancer risk factors for internal and external exposure to radionuclides. This document updates the 1999 FGR-13, based on advancements in science. A Science Advisory Board review began in April 2024.

ONGOING/UPCOMING REVIEWS FOR FY2025:

OAR is reviewing DOE's request to add two new waste panels to the previously certified WIPP repository. These panels are to replace lost disposal capacity resulting from a contamination incident in 2014 and ground control issues throughout WIPPs operational history. Stakeholder meetings in New Mexico were held at the end of August 2024.

OAR issued a pending approval on October 9, 2024, of a request by Mosaic, LLC to use phosphogypsum (PG) in a test road on its property in Florida. A final decision will come after a public comment period.

EPA's Science Advisory Board is currently reviewing FGR-16.

KEY EXTERNAL STAKEHOLDERS:

☒ Congress ☒ Industry ☒States ☒ Tribes ☒ Media ☒ Other Federal Agency
☒ NGO ☒ Local Governments ☒ Public

MOVING FORWARD:

Renewed interest in nuclear energy, and support for advanced nuclear reactor technologies could impact multiple OAR regulations, all of which are implemented by the Nuclear Regulatory Commission:

- Nuclear fuel cycle standards (40 CFR 190) apply to electricity generation for public use. Many smaller advanced reactors are envisioned for other uses, such as for data centers, industrial heat and power, hydrogen production, or maritime propulsion. The rule and its underlying science dates to 1977.
- The Blue Ribbon Commission on America's Nuclear Future and the American Nuclear Society recommended the development of new general standards for a nuclear waste repository. Recently, a coalition of the American Nuclear Society and other nuclear industry associations, together with energy and environmental groups called on Congress to fund and direct EPA to develop new generic protection standards for disposal of high-level nuclear waste. The Senate Appropriations Committee included initial language for this purpose in its FY25 budget allocations. EPA last revised its standards for management and storage of spent nuclear fuel, high-level waste, and transuranic waste in 1993; new general standards for a future repository may be necessary. OAR and the DOE Office of Nuclear Energy entered into a Memorandum of Understanding in February 2024 to share information related to technical aspects of spent fuel management as DOE explores repository solutions other than Yucca Mountain.
- Recent positive economic developments for the uranium industry are prompting more activity for underground uranium mines and uranium recovery facilities. *In-situ* uranium recovery (ISR) is now the predominant method of uranium production. OAR's existing standards address uranium and thorium mill tailings generated by conventional methods and do not explicitly address ISR. The Office of Water also has regulatory responsibilities for ISR through the underground injection control program.

The fertilizer industry has expressed interest in finding alternate uses of phosphogypsum.

DOE is expected to submit its next compliance recertification application for the WIPP by November 2026. During FY2025, EPA intends to complete its review of the two proposed new waste panels. EPA will maintain its normal continuing compliance activities that focus on inspection of waste generator sites (e.g., DOE national laboratories) and the WIPP site itself.