

# Executive Summary



**Figure ES.1. A deer in the brush at PORTS**

The U.S. Department of Energy (DOE) Portsmouth Gaseous Diffusion Plant (PORTS) is located on a 5.8-square-mile site in a rural area of Pike County, Ohio. The site is 2 miles east of the Scioto River. PORTS, which produced enriched uranium via the gaseous diffusion process from 1954 to 2001, is one of three former uranium enrichment plants used for national security and the commercial sector.

Since 1989 DOE's Office of Environmental Management has been conducting cleanup operations at PORTS even as the site supported the commercial nuclear sector. DOE activities at the site

include restoring impacts from past operations to protect human health and the environment; stabilizing infrastructure and removing radioactive and hazardous wastes from facilities; characterizing and disposing of waste stored or generated on site; and decontaminating and decommissioning the gaseous diffusion plant and its support facilities.

Each year, DOE PORTS prepares the Annual Site Environmental Report (ASER) according to the requirements of DOE Order 231.1B, *Environment, Safety, and Health Reporting*. The ASER is a key component of DOE's effort to keep the public informed about environmental conditions at PORTS. This report and previous ASERs can be found [here](#).

---

***DOE conducts environmental monitoring to assess the potential impact of site activities on public health and the environment. In 2021, measurements for external radiation were taken on and around PORTS; more than 5,000 samples of air, water, soil, sediment, vegetation, fish, and wildlife were collected and analyzed for radioactive and nonradioactive contaminants.***

The ASER offers a detailed overview of environmental activities at PORTS, which are organized as follows:

Chapter 1: Introduction to PORTS history and mission

Chapter 2: Summary of compliance with laws and regulations

Chapter 3: Details of the PORTS environmental management programs

Chapter 4: Types of radiological environmental monitoring conducted at PORTS and the calculated impacts

Chapter 5: Non-radiological monitoring of air, surface water, sediment, and fish

Chapter 6: Groundwater protection

Chapter 7: Actions to ensure the quality of information from field sampling to analytical data to data management

DOE conducts environmental monitoring to evaluate and assess any unplanned releases. Major sampling efforts of environmental monitoring for 2021 are summarized below.

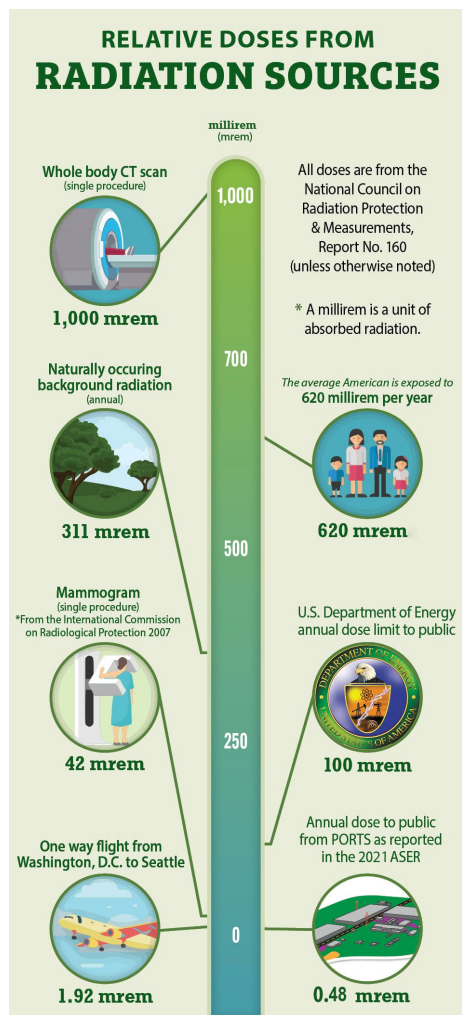


Figure ES.2. Relative doses from radiation sources

- Discharges of radionuclides, chemicals, and other water quality parameters to Little Beaver Creek, the Scioto River, or other water bodies were measured at 11 locations called National Pollutant Discharge Elimination System outfalls.
- External radiation was measured continuously at 29 on-site and off-site locations. The measurements were reported quarterly.
- Ambient air was sampled at 25 on-site and off-site locations and analyzed for radionuclides. Twelve ambient air monitoring stations monitored non-radiological air pollutants that could be released due to decontamination and decommissioning activities: metals, volatile organic compounds, and asbestos. Particulate matter was monitored at seven locations. Fluoride was monitored at 15 on-site and off-site locations.
- Surface water samples were collected from 21 on-site and off-site locations and analyzed for radionuclides. Samples from locations that monitor the On-Site Waste Disposal Facility were also analyzed for chlorinated organic compounds and PCBs.
- Sediment was sampled at 18 locations and analyzed for radionuclides, metals, and PCBs.
- Soil samples were collected at 15 locations, including on-site, fence line, off-site, and background locations and analyzed for radionuclides.
- Biota samples, including vegetation, deer, fish, food crops, milk, and eggs, were analyzed for radionuclides. Fish were also analyzed for PCBs.
- Approximately 340 wells were sampled at varying frequencies to monitor remedial actions, movement of groundwater contaminants, and groundwater quality.

2021 Environmental Performance Summary

DOE’s monitoring performance at PORTS for 2021 is summarized below.

- Environmental monitoring data collected in 2021 are similar to data collected in previous years and indicate radionuclides, metals, and other chemicals released by PORTS would only minimally affect human health and the environment.
- The calculated radiation dose that could be received by a member of the public from all pathways of exposure (see Figure ES.2) was 0.48 millirem (mrem), compared to the DOE annual dose limit of 100 mrem.

- The calculated radiation dose that could be received by a member of the public from all pathways of exposure associated with operation of the On-Site Waste Disposal Facility was 0.0853 mrem, compared to the Ohio Department of Health and DOE annual dose limit of 25 mrem.
- Concentrations of most contaminants detected within the groundwater plumes at PORTS were stable or decreasing in 2021. Concentrations of trichloroethene or metals were increasing in a few monitoring wells in the groundwater plumes. These areas are on site and continue to be closely monitored.
- Operation of the On-Site Waste Disposal Facility began on May 25, 2021. Monitoring results for groundwater, surface water, ambient air, and external radiation did not identify any issues to be addressed in the operation of the On-Site Waste Disposal Facility.
- Results for the residential water supply monitoring program indicated that PORTS has not affected drinking water wells outside the site boundaries.
- Ambient air monitoring contaminant levels for both radionuclides and fluoride continued to be either not detected, detected below DOE Order limits, or within background levels.
- Ambient air monitoring at the stations installed in 2020 and 2021 indicated that levels of particulate matter, metals, volatile organic compounds, and asbestos, if detectable, were within health-based standards.
- Surface water monitoring contaminant levels for radionuclides at on-site and off-site locations upstream and downstream from PORTS continued to be either not detected or below DOE Order limits.
- Sampling of sediment in 2021 for metals indicated that no appreciable differences were evident in the concentrations detected at locations upstream and downstream from PORTS. Contaminant levels for radionuclides were within background levels or below DOE Order limits.
- Concentrations of PCBs in on-site and off-site sediment samples were below the level of concern established by regional screening levels of the US Environmental Protection Agency (EPA) and Ohio EPA.
- Contaminant levels for radionuclides in soil and food crops were within background levels or below DOE Order limits.
- Radionuclides were not detected in samples of fish, deer, milk, and eggs collected in 2021.
- In 2021, PCBs were detected in fish caught in on-site and off-site creeks within the range of concentrations detected in recent years. The detections were within the consumption advisory limits set by the Ohio Department of Health.

DOE received a Notice of Violation from Ohio EPA on June 6, 2022 based on information evaluated during a compliance inspection conducted on August 26, 2021. Ohio EPA determined that DOE had not distributed a Quick Reference Guide for Hazardous Waste Contingency Plan (a type of emergency response plan) to local emergency responders. Local emergency responders had previously received copies of the Hazardous Waste Contingency Plan; the quick reference guide was a new Ohio EPA requirement. The violation was resolved when DOE distributed the Hazardous Waste Contingency Plan Quick Reference Guide to emergency responders and provided proof of distribution to Ohio EPA. No additional activities were required.

DOE and its contractors at PORTS are committed to enhancing environmental stewardship and reducing any impacts that site operations may have on the environment. PORTS implements sound stewardship practices in protecting of land, air, water, and other natural or cultural resources potentially affected by its operations. A report of progress in achieving specified Environmental Management System goals is submitted annually to DOE Headquarters. The environmental stewardship scorecard for PORTS was

green for fiscal year 2021, indicating that the site met standards for implementing the Environmental Management System.

The chapters that follow this Executive Summary offer a more complete description of the environmental program at PORTS.