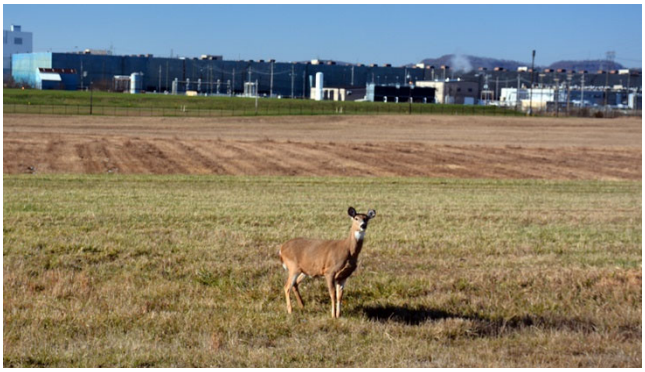
EXECUTIVE SUMMARY

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.



Deer at the Portsmouth Site

Since 1989 DOE's Office of Environmental Management (EM) has been conducting environmental cleanup at PORTS. DOE and its contractors' activities at the site include:

- Environmental remediation, or the cleanup of soil, groundwater and other environmental media from past operations;
- Decontamination and demolition of gaseous diffusion process buildings and associated facilities;
- Disassembly and removal of equipment, removal of wastes including asbestos, PCBs, and hazardous waste, and deactivation of utilities and other systems;
- Reuse and recycling of excess equipment, clean scrap materials, and other items with priority given to transfer to the local community;
- Characterization and disposal of wastes stored or generated on site, including monitoring and maintenance of closed landfills; and
- Conversion of depleted uranium hexafluoride cylinders.

DOE conducts environmental monitoring to assess the impact, if any, that site activities may have on public health and the environment. In 2019, more than 10,000 samples of air, water, external radiation, soil, sediment, vegetation, fish, and wildlife were collected from on and around PORTS and analyzed for radioactive and nonradioactive contaminants.

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 at www.energy.gov/pppo/downloads/portsmouth-annual-site-environmental-reports-0.

Chapters within the ASER provide a more detailed overview of the activities at PORTS, including:

Chapter 1: an introduction to the activities at the site;
Chapter 2: a summary of compliance with laws and regulations;
Chapter 3: details about environmental programs conducted on site;
Chapter 4: radiological environmental monitoring conducted at the site;
Chapter 5: non-radiological monitoring, such as metals and PCBs;
Chapter 6: groundwater monitoring; and
Chapter 7: a summary of the actions taken to ensure the quality of information collected from the monitoring programs.

Major components of the environmental monitoring completed by DOE in 2019 are summarized below:

- 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 (NPDES) outfalls.

- External radiation was measured continuously at 24 on and off-site locations. The measurements were collected quarterly.

- Ambient air was sampled at 16 locations on and off site and analyzed for radionuclides and/or fluoride.

- Surface water samples were collected semiannually from 14 locations on and off-site and analyzed for radionuclides.

- 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.

- More than 300 wells were sampled at varying frequencies to monitor remedial actions, movement of groundwater contaminants, and groundwater quality.

2019 Environmental Performance Summary

In 2019, DOE's monitoring performance at PORTS is summarized below:

- Environmental monitoring data collected in 2019 were similar to data collected in recent years indicating radionuclides, metals, and other chemicals released by PORTS would have a minimal effect on human health and the environment.

- The dose of radiation (based on calculations) that could be received by a member of the public from all pathways of exposure was 0.95 millirem (mrem)/year, which is less than 1% of the DOE annual dose limit of 100 mrem/year.

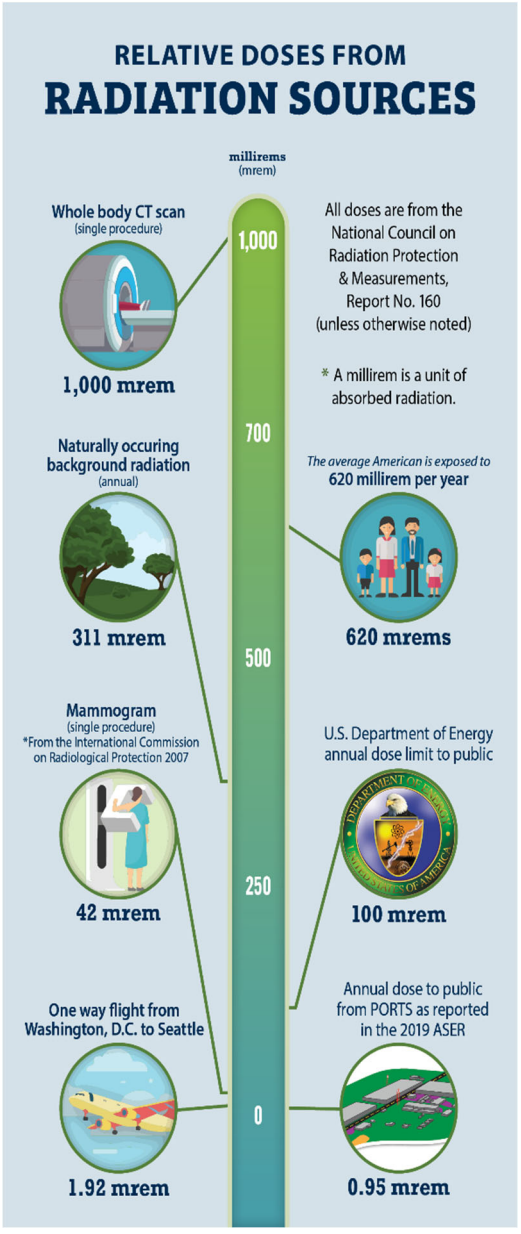
- Concentrations of most contaminants detected within the groundwater plumes at PORTS were stable or decreasing in 2019. Concentrations of trichloroethene (TCE) or metals were increasing in a few wells in the monitoring areas. These areas continue to be closely monitored. Changing TCE concentrations in the X-701B monitoring area and near the Little Beaver Creek are being further investigated.

- 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 standards, or within background levels.

- 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 standards.

- Sampling of sediment in 2019 for metals indicated that no appreciable differences were evident in the concentrations upstream and downstream from PORTS. Contaminant levels for radionuclides were within background levels or below DOE standards.



- PCBs were detected in on-site sediment samples and are being addressed as a part of the ongoing site cleanup mission. Concentrations in off-site sediment samples were below the level of concern established by regional screening levels of the U.S. Environmental Protection Agency (EPA) and Ohio EPA.

- Contaminant levels for radionuclides in soil were within background levels or below DOE standards.

- Radionuclides were not detected in samples of deer, fish, food crops, milk, and eggs collected in 2019.

- In 2019, 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.

During 2019, PORTS reported the following:

- Five water discharge locations called NPDES outfalls exceeded discharge limits set by Ohio EPA for total suspended solids, which are soil and other particles in water that make the water cloudy. These exceedances were caused by a combination of excessive rainfall and operational issues. Operational issues were corrected immediately. Another outfall exceeded discharge limits for TCE. Equipment maintenance immediately corrected the issue.

- DOE's contractor instituted updated maintenance actions and policy enhancements in response to a Notice of Violation (NOV) from Ohio EPA related to three issues pertaining to the NPDES permit. These issues included the exceedances of the discharge limitation for total suspended solids that were discussed above.

- An inaccurate field measurement instrument for drinking water resulted in two NOVs from Ohio EPA. The instrument was replaced and manganese concentrations measured by the new instrument were confirmed to be less than secondary drinking water standards by both the PORTS on-site laboratory and an independent off-site analytical laboratory.

- An Ohio EPA Resource Conservation and Recovery Act (RCRA) inspection noted a visible oil stain beneath a transformer at the X-530 Switchyard, resulting in an NOV. DOE's contractor removed and properly disposed the first nine inches of contaminated ballast (similar to gravel) from beneath the transformer, installed drip collection systems on transformers to collect inadvertent leaks and prevent future releases to the environment, and developed and implemented an inspection program to monitor for oil leaks in the switchyard and drip collection systems.

DOE and its contractors at PORTS are committed to enhancing environmental stewardship and to reducing any impacts that site operations may cause to the environment. PORTS implements sound stewardship practices in the protection of land, air, water, and other natural or cultural resources potentially impacted by their operations. A report of progress in achieving specified Environmental Management System (EMS) goals is submitted annually to DOE Headquarters. The environmental stewardship scorecard for PORTS in fiscal year 2019 was green, which indicates standards for the Environmental Management System implementation were met.

A complete summary of the environmental programs can be found in the chapters following this Executive Summary.