### 2016 Annual Inspection Report of the Parkersburg, West Virginia, Disposal Site

## 1.1 Inspection Summary

The Parkersburg, West Virginia, Nuclear Waste Policy Act Section 151(c), Disposal Site (site) was inspected on October 27, 2016. No evidence of erosion or slope instability on the disposal cell was noted during the inspection. A follow-up or contingency inspection is not required. No evidence of trespass was observed.

The inspection this year included a site visit by a vendor that supplies goats for weed control. A site walk and assessment was made concerning the benefits of using goats for the control of noxious and invasive weeds at the site. The consensus was that the site was not a good candidate for the use of goats. The site is level and easily accessed by mowing equipment, consequently the current mow and spray practices are more cost-effective than using goats.

Monitoring wells at Parkersburg were last sampled in November of 2013. Results from the 2013 tests were included in a groundwater monitoring assessment issued in February 2014 (DOE 2014a). On the basis of the results of the groundwater monitoring assessment issued in August 2013 (DOE 2013), and the follow-up assessment (DOE 2014a), the sampling frequency was reduced to once every 10 years. Monitoring wells at Parkersburg are scheduled to be sampled again in 2023. Monitoring at Parkersburg is coordinated with monitoring at Canonsburg, Pennsylvania, Disposal Site and Burrell, Pennsylvania, Disposal Site, to improve cost efficiency. All of the monitoring wells were properly secured.

## **1.2 Inspection Requirements**

Requirements for the long-term surveillance and maintenance of the site are specified in the *Long-Term Surveillance Plan for the Parkersburg, West Virginia, Disposal Site* (DOE 2014b).

## **1.3 Institutional Controls**

Institutional controls at the site consist of federal control of the site; warning / no trespassing signs (perimeter signs) placed along the property boundary, a site perimeter fence, and locked gates at the site entrances. Institutional controls are verified during the annual inspection.

Inspectors saw no evidence of violation of any of the institutional controls listed above during the site inspection.

## **1.4 Inspection Results**

K. Broberg and J. Homer of the U.S. Department of Energy (DOE) Legacy Management Support contractor conducted the inspection on October 27, 2016. C. Carpenter, the DOE Office of Legacy Management site manager, and S. Witkowsky with Scots Landscape Nursery also participated in the inspection. D. Goodling of Goat Busters also met inspectors at the site, to assist in a site walk and assessment of the viability of using goats to control noxious and invasive weeds.

## **1.5** Site-Surveillance Features

The locations of site-surveillance features are shown on Figure 1. Inspection results and recommended maintenance activities associated with site-surveillance features are described in the following subsections. Photographs to support specific observations are identified in the text and on Figure 1 by photograph location (PL) number.

#### 1.5.1 Access Route, Entrance Gates, and Entrance Signs

The Parkersburg site is immediately adjacent to land owned by the Northwest Pipe Company. Access to the site from Northwest Drive (formerly called Foster Drive) entails crossing a soccer field. The access route is along a permanent 20-foot-wide right-of-way.

A rail spur that crosses the site access route was replaced by Northwest Pipe in 2016. The spur was raised slightly when it was replaced, making it difficult or impossible for some lowclearance vehicles to cross the tracks. Subsequently, Northwest Pipe placed additional gravel on the DOE access route to reduce hazards for low-clearance vehicle crossing access. The operations manager for Northwest Pipe communicated that the gravel crossing is deemed sufficient by Northwest Pipe to protect the new rail lines from vehicles crossing the tracks to get to the DOE site and that a timber grade crossing is not required.

Entrance gates were replaced in 2007. All personnel gates were properly locked.

#### 1.5.2 Perimeter Fence and Perimeter Signs

The perimeter fence was replaced in 2007. The site maintenance subcontractor maintains a vegetation-free zone along the base of the fence line (PL-1 and PL-2).

There were animal burrows observed along the west perimeter fence; a couple of the burrows were quite large (PL-3). The location of the burrows is noted on the site inspection map to alert future inspectors to potential tripping hazards.

The site has one entrance sign and fifteen perimeter signs (PL-4).

#### 1.5.3 Survey Monuments and Boundary Monuments

The Parkersburg site has six boundary monuments and one concrete survey monument. Boundary monuments 1, 2, 5, and 6 were located during the site inspection. Boundary monuments 3 and 4 could not be located, despite the use of GPS instrumentation to aid in location efforts. It is suspected that these two monuments are buried in topsoil. Efforts will be made in 2017 to have the site maintenance subcontractor locate these two monuments. The one concrete survey monument was found (PL-5).

#### 1.5.4 Monitoring Wells

There are six groundwater monitoring wells at the Parkersburg site. All six wells are inside the security fence. The wells are numbered in the chronological order in which they were drilled and installed. All six wells were properly locked. The site maintenance subcontractor is keeping vegetation cleared from around the monitoring wells (PL-6).



Figure 1. 2016 Annual Inspection Drawing for the Parkersburg Disposal Site

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Of the six monitoring wells, well construction and completion records for wells 1 through 4 are incomplete; therefore, only wells 5 and 6 are routinely sampled for water quality parameters. Water levels are collected at all six wells. Sampling and water level measurements were last collected in November 2013 and are scheduled again in 2023. Sampling results from 2013 were reported in a groundwater monitoring assessment (DOE 2014a). Sampling at Parkersburg is coordinated with sampling at the Canonsburg and Burrell sites to improve cost efficiency.

## 1.6 Transects

To ensure a thorough and efficient inspection, inspectors divided the site into two transects, as follows: (1) the stabilization mound, and (2) the site perimeter and outlying area.

Inspectors walked a series of traverses inside the area of each transect. Within each transect, the inspectors examined specific site-surveillance features, drainage structures, vegetation, and other features. Inspectors also looked for evidence of settlement, erosion, or other modifying processes that might affect site integrity or long-term performance.

#### **1.6.1 Stabilization Mound**

No evidence of erosion or slope instability on the disposal cell was noted during the inspection (PL-7). Dominant vegetation consists of fescue, crown vetch, and goldenrod. The cover was recently mowed, but it appeared that areas that had been infested with poison hemlock were sufficiently controlled.

#### 1.6.2 Site Perimeter and Outlying Area

The drainage channel in the southwest corner of the site, lined with high-density polyethylene (HDPE) honeycomb baffles and brick energy-dissipation baffles in August 1996, is functioning as designed. Erosion in the channel appears to be unchanged from last year.

The Parkersburg site is in a developed industrial area. Inspectors observed that there appears to be a lot of activity at Northwest Pipe. The area west of the perimeter fence, near boundary monument BM-4, was cleared of vegetation and is being -maintained by Northwest Pipe.

Several invasive species were observed in the eastern wooded portion of the site. Reed canary grass and wintercreeper have become established at locations identified on Figure 1. Neither species is designated by the State of West Virginia as a noxious weed, but both are considered invasive due to their aggressive growth and the fact that they are non-native to the local ecosystem.

## 1.7 Follow-Up or Contingency Inspections

DOE will conduct follow-up inspections if (1) an annual inspection or other site visit reveals a condition that must be reevaluated during a return to the site, or (2) a citizen or outside agency notifies DOE that conditions at the site are substantially changed.

No follow-up or contingency inspections were required in 2016.

## **1.8 Routine Maintenance and Repairs**

It is recommended that boundary monuments 3 and 4 be located in 2017.

## 1.9 Environmental Monitoring

#### 1.9.1 Groundwater Monitoring

During site characterization, computer modeling was conducted to estimate the number of years that it would take a contaminant plume to reach monitoring wells MW-5 or MW-6, assuming that the cover allowed precipitation to infiltrate and saturate the buried waste materials and form a leachate plume. The modeling provided time estimates for how long it would take a leachate plume to travel through unsaturated materials, reach the water table, travel in the groundwater, and reach monitoring wells MW-5 or MW-6.

Three different modeling scenarios were assessed: (1) worst case, (2) most likely case, and (3) best case.

- 2. Worst case: 15–20 years after 1982 site closure (i.e., between 1997 and 2002)
- 3. Most likely case: 35–40 years after 1982 site closure (i.e., between 2017 and 2022)
- 4. Best case: 95–100 years after 1982 site closure (i.e., between 2078 and 2082)

Groundwater sampling was last conducted in 2013. Results from 2013 were reported in a groundwater monitoring assessment report (DOE 2014a). Those sampling results provided no evidence for a contaminant plume and indicated that no large changes in groundwater quality had occurred. Therefore the "worst case" scenario had not occurred. The next sampling round is scheduled for 2023, which will correspond with the conclusion of the timeframe associated with the "most likely case" scenario.

#### **1.9.2** Vegetation Management

Poisonous and noxious weed control was continued in 2016. Species of poisonous or noxious or invasive weeds at the site include Canada thistle, poison hemlock, Johnson grass, poison ivy, teasel, reed canary grass, and privet.

Canada thistle was first identified at the site in 1999, primarily along the security fence. This weed is not listed as a noxious species in West Virginia, but it is considered noxious in the neighboring states of Ohio and Pennsylvania. It seemed to be outcompeting desirable species on the site as it spread to a significant portion of the cell cover and perimeter. As a best management practice to maintain plant diversity on the site, DOE added control of this species to the scope of routine maintenance activities in 2001. No large areas of Canada thistle were noted during this year's inspection.

Poison hemlock was discovered on the site in 2003. In the past, plants grew to heights of up to 10 feet and covered approximately 4 acres on and around the cell. Poison hemlock is listed as a noxious weed species in West Virginia; it poses a safety hazard to personnel who must walk through or work in infested areas and all parts of the plant are poisonous. Poison hemlock poses a particular hazard to children, who often play in the soccer fields adjacent to the site. Spraying

for poison hemlock in 2011 allowed teasel to repopulate, especially in the northwest corner of the site. No re-established populations of poison hemlock or teasel were observed in 2016. One area of poison hemlock was observed south of the perimeter fence. The area was not mowed as recently as other portions of the perimeter were, and it is anticipated that continued mowing and spraying will address this population. The land management subcontractor will be made aware of the condition.

Johnson grass is listed as a noxious weed species in West Virginia and was first identified at the site in 2003. It reproduces via horizontal roots and seed, and can be controlled with herbicide. No large areas of Johnson grass were noted during this year's inspection.

No large areas of poison ivy were noted during this year's inspection. As stated earlier, reed canary grass and privet were observed in the wooded area east of the disposal cell. No specific control is recommended at this time, but the areas should be observed in future inspections to determine whether control is warranted in the future.

Subsequent to the site walk and assessment with Goat Busters, there was consensus that the Parkersburg site would not be a good candidate for using goats to control noxious and invasive weeds. Given the terrain of the site, and easy access for mowing equipment, the current mow and spray practices are considered to be cost-effective. The site, though, may benefit from a more integrated vegetation management approach that includes, among other things, pollinator and health/conservation initiative measures.

## **1.10** Corrective Action

Corrective action is taken to correct out-of-compliance or hazardous conditions that create potential health and safety problems or that may affect the integrity of the disposal cell or compliance with Title 40 *Code of Federal Regulations* Section 192.

No corrective actions were identified based on the inspection conducted in 2016.

## **1.11 References**

DOE (U.S. Department of Energy), 2013. *Groundwater Monitoring Assessment Parkersburg, West Virginia, Disposal Site*. LMS/PKB/S11932, August.

DOE (U.S. Department of Energy), 2014a. November 2013 Groundwater Sampling at the Parkersburg, West Virginia, Disposal Site, LMS/PKB/S01113, February.

DOE (U.S. Department of Energy), 2014b. *Long-Term Surveillance Plan for the Parkersburg, West Virginia, Disposal Site,* LMS/PKB/S11796-0.0, September.

# **1.12 Photographs**

Photo Location Number	Azimuth	Photograph Description
PL-1	195	Looking Southwest Down the Inside of the Southeast Perimeter Fence
PL-2	30	Looking Northeast Down the Inside of the Southeast Perimeter Fence
PL-3	90	Looking East at Animal Burrows Beneath the West Perimeter Fence
PL-4	300	Looking Northeast at Perimeter Sign P1
PL-5	NA	Looking Down at Concrete Survey Monument
PL-6	300	Looking Northeast at Monitoring Well 6
PL-7	90	Looking East Across the Top of the Disposal Cell

![](_page_8_Picture_0.jpeg)

PL-1. Looking Southwest Down the Inside of the Southeast Perimeter Fence

![](_page_8_Picture_2.jpeg)

PL-2. Looking Northeast Down the Inside of the Southeast Perimeter Fence

![](_page_9_Picture_0.jpeg)

PL-3. Looking East at Animal Burrows Beneath the West Perimeter Fence

![](_page_9_Picture_2.jpeg)

PL-4. Looking Northeast at Perimeter Sign P1

![](_page_10_Picture_0.jpeg)

PL-5. Looking Down at Concrete Survey Monument

![](_page_10_Picture_2.jpeg)

PL-6. Looking Northeast at Monitoring Well 6

![](_page_11_Picture_0.jpeg)

PL-7. Looking East Across the Top of the Disposal Cell