LMS/PKB/S17853

2017 Annual Inspection Report for the Parkersburg, West Virginia, Disposal Site

December 2017

U.S. DEPARTMENT OF ENERGY | Legacy Management

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Contents

Appendix

Abbreviations

DOE	U.S. Department of Energy
IC	institutional control
PL	photograph location

1.0 Inspection Summary

The Parkersburg, West Virginia, Disposal Site (site) was inspected on October 13, 2017. 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.

Vegetation management efforts have been partially successful and can be improved. Poison hemlock and Canada thistle are on the decline. However, excessive thatch buildup makes the site susceptible to invasive species. Possibilities to improve the vegetation management efforts, including conservation reuse initiatives, will be investigated. Boundary monuments BM-3 and BM-4 could not be located, so they need to be replaced.

Monitoring wells at Parkersburg were last sampled in November 2013. Results from those tests were included in a groundwater monitoring report issued in February 2014 (DOE 2014c). Based on results from the groundwater monitoring report issued in February 2014 (DOE 2014c) and a 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 the Canonsburg, Pennsylvania, Disposal Site and the Burrell, Pennsylvania, Disposal Site to maximize cost efficiency. All of the monitoring wells were properly secured.

1.1 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* (LMS/PKB/S11796-0.0) (DOE 2014b).

1.2 Institutional Controls

Institutional controls (ICs) at the site consist of federal control of the site; perimeter signs placed along the property boundary, a site perimeter fence, and locked gates at the site entrances. ICs are verified during the annual inspection.

The inspection team did not observe any evidence that the ICs have been compromised or are not functioning effectively as intended.

1.3 Inspection Results

K. Broberg and J. Homer of the U.S. Department of Energy (DOE) Legacy Management Support contractor conducted the inspection on October 13, 2017. C. Carpenter, the Office of Legacy Management site manager, and S. Witkowsky with Scots Landscape Nursery also participated in the inspection.

1.4 Site Surveillance Features

The locations of site surveillance features are shown in Figure A-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 in Figure A-1 by photograph location (PL) number.

1.4.1 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 grass field. The access route is along a permanent 20-foot-wide right-of-way.

A rail spur that crosses the site right-of-way was replaced by Northwest Pipe in 2016. Vehicle access across the new spur is good. Northwest Pipe installed a new gate on the spur that connects to the site perimeter fence (PL-1).

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

1.4.2 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-2).

Animal burrows were present along the west perimeter fence; a couple of the burrows were quite large. Burrow locations are noted on the site inspection map to alert future inspectors to potential tripping hazards.

The site has one entrance sign and 16 perimeter signs. All signs were present and undamaged.

1.4.3 Survey Monuments and Boundary Monuments

The Parkersburg site has six boundary monuments and one concrete survey monument. Boundary monuments BM-1, BM-2, BM-5, and BM-6 were located during the site inspection (PL-3). Despite the use of GPS instrumentation and a metal detector, boundary monuments BM-3 and BM-4 could not be located and need to be replaced. The concrete survey monument was not visited this year; it was visited in 2016.

1.4.4 Monitoring Wells

There are six groundwater monitoring wells at the Parkersburg site (PL-4). 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.

Of the six monitoring wells, well construction and completion records for wells MW-1 through MW-4 are incomplete; therefore, only wells MW-5 and MW-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 report (DOE 2014c). Sampling at Parkersburg is coordinated with sampling at the Canonsburg and Burrell sites to maximize cost efficiency.

1.5 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.

1.5.1 Stabilization Mound

No evidence of erosion or slope instability on the disposal cell was noted during the inspection (PL-5). Dominant vegetation consists of fescue, crown vetch, and goldenrod.

1.5.2 Site Perimeter and Outlying Area

The drainage channel in the southwest corner of the site, lined with high-density polyethylene 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 what 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 (PL-6).

Several invasive species were observed in the eastern wooded portion of the site. Reed canary grass and wintercreeper have become established at locations identified in Figure A-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 because they are nonnative to the local ecosystem.

The soccer nets that were present on the fields next to the site in previous years have been removed.

1.6 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 2017.

1.7 Routine Maintenance and Repairs

Boundary monuments BM-3 and BM-4 need to be replaced.

1.8 Environmental Monitoring

1.8.1 Groundwater Monitoring

During site characterization, modeling was conducted to estimate the number of years, after site closure in 1982, that it would take a contaminant plume to travel through unsaturated materials, reach the water table, travel in groundwater, and 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 following two models were used: the Hydrologic Evaluation of Landfill Performance model and the Multimedia Exposure Assessment Model.

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

1. Worst case: 15–20 years after 1982 site closure (i.e., between 1997 and 2002)
2. Most likely case: 35–40 years after 1982 site closure (i.e., between 2017 and 2022)
3. 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 report (DOE 2014c). Those sampling results provided no evidence for a contaminant plume and indicated that no significant changes in groundwater quality had occurred. Therefore the "worst case" scenario had not occurred. The next sampling round is scheduled for 2023, which corresponds with the conclusion of the time frame associated with the "most likely case" scenario.

1.8.2 Vegetation Management

Control of poisonous and noxious weeds continued in 2017. Species of poisonous, 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, primarily along the security fence, in 1999. 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. Spraying for poison hemlock in 2011 allowed teasel to repopulate, especially in the northwest corner of the site. No reestablished populations of poison hemlock or teasel were observed in 2017.

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.

Vegetation management efforts have been partially successful and can be improved. Poison hemlock and Canada thistle are on the decline. However, excessive thatch buildup has left several large bare areas that are susceptible to invasive species (PL-7). Possibilities to improve the vegetation management efforts, including conservation reuse initiatives, will be investigated.

1.9 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 (40 CFR 192).

No corrective actions were identified based on the inspection conducted in 2017.

2.0 References

DOE (U.S. Department of Energy), 2014a. *Groundwater Monitoring Assessment Parkersburg, West Virginia, Disposal Site,* LMS/PKB/S11932, June.

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

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

3.0 Photographs

Photo Location Number	Azimuth	Photograph Description
PL-1	190	Looking Southwest Toward Site, Showing New Gate Installed on Rail Spur Leading to Northwest Pipe Property, with DOE Site in Background
PL-2	30	Looking Northeast Down Fence Line
PL-3	0	Looking Down at Boundary Monument BM-1
PL-4	270	Looking West at Protective Casing of Monitoring Well MW-2
PL-5	80	Looking Northeast Across the Top of the Disposal Cell
PL-6	315	Looking Northeast at New Drainage Pipe Installed From Northwest Pipe Property, with Site Fence in Background
PL-7	350	Looking Northwest at Personnel Gate in Northwest Corner of the Site, with Northwest Pipe Facility in the Background

PL-1. Looking Southwest Toward Site, Showing New Gate Installed on Rail Spur Leading to Northwest Pipe Property, with DOE Site in Background

PL-2. Looking Northeast Down Fence Line

PL-3. Looking Down at Boundary Monument BM-1

PL-4. Looking West at Protective Casing of Monitoring Well MW-2

PL-5. Looking Northeast Across the Top of the Disposal Cell

PL-6. Looking Northeast at New Drainage Pipe Installed from Northwest Pipe Property, with Site Fence in Background

PL-7. Looking Northwest at Personnel Gate in Northwest Corner of the Site, with Northwest Pipe Facility in the Background

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Appendix A

Site Drawing

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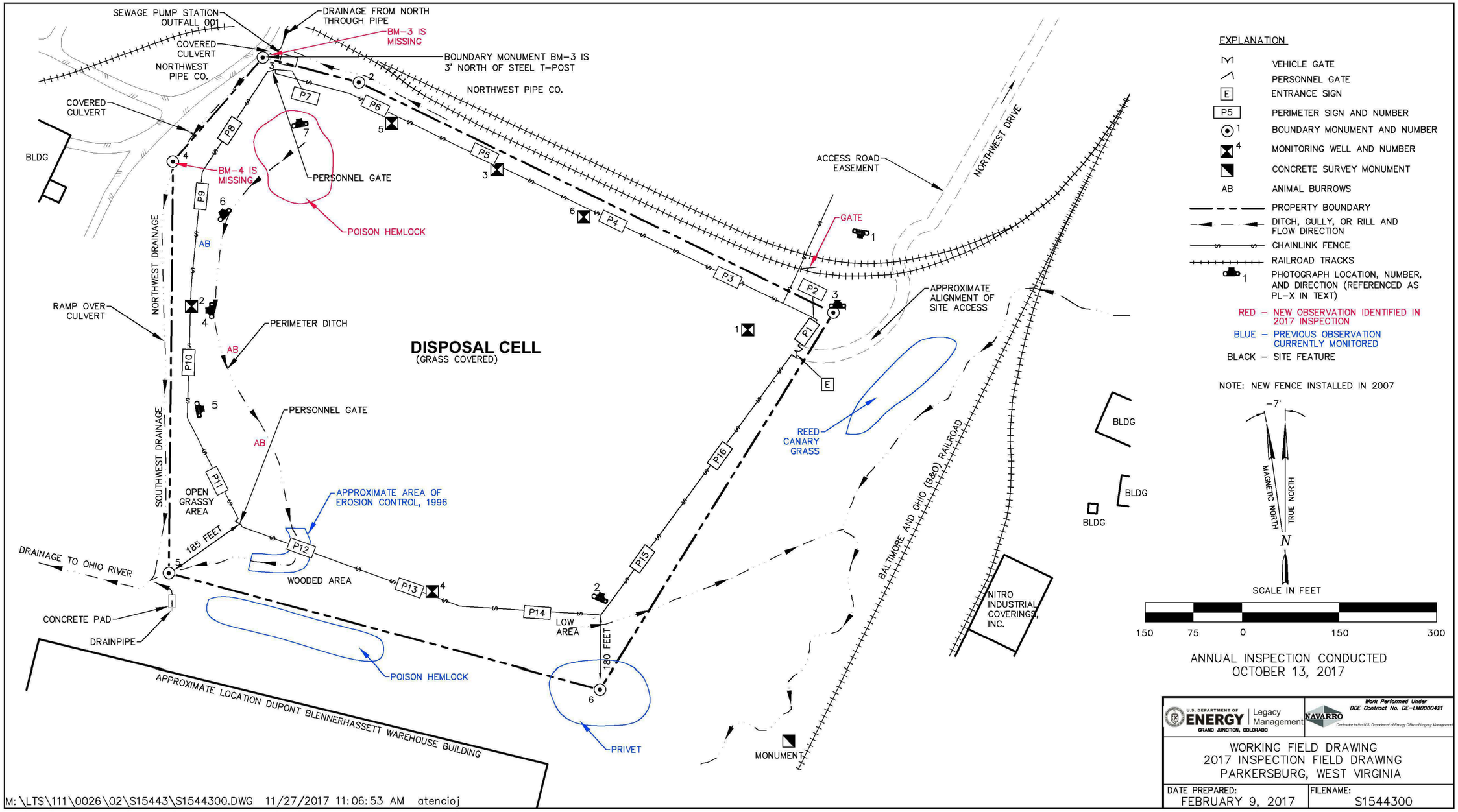

Figure A-1. 2017 Annual Inspection Drawing for the Parkersburg, West Virginia, Disposal Site

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