LMS/PKB/S28133

2019 Annual Inspection Report for the Parkersburg, West Virginia, Disposal Site

January 2020

U.S. DEPARTMENT OF ENERGY | Legacy Management

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Contents

Appendix

Abbreviations

CFR	*Code of Federal Regulations*
DOE	U.S. Department of Energy
ICs	institutional controls
LM	Office of Legacy Management
LMS	Legacy Management Support
PL	photograph location

1.0 Inspection Summary

The Parkersburg, West Virginia, Disposal Site (site) was inspected on October 24, 2019. 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 in 2019 was improved over 2018. The property was recently mowed and accessible. Even though the area was recently mowed, several native species were observed that are consistent with the documentation of native species made in 2018. The U.S. Department of Energy (DOE) Office of Legacy Management (LM) continues to evaluate innovative ways to provide reuse at the Parkersburg site, including the possibility of increasing the percentage cover of native species to establish a healthy native prairie for pollinator purposes.

For cost efficiency, the replacement of missing boundary monument BM-1 and BM-2 is being coordinated with plans for survey work at nearby Pennsylvania sites. To facilitate this coordination, the replacements did not take place in 2019. They are now targeted for replacement in 2020.

Monitoring wells at the Parkersburg site 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 that report and a follow-up assessment (DOE 2014a), the sampling frequency was reduced to once every 10 years. Monitoring wells at the Parkersburg site will be sampled again in 2023. Monitoring at the Parkersburg site 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* (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 DOE Legacy Management Support (LMS) contractor conducted the inspection on October 24, 2019. C. Carpenter, the LM site manager, and M.Dombrowski (LMS contractor) also participated in the inspection.

1.4 Site Surveillance Features

The locations of site surveillance features are shown in Figure A-1 (Appendix A). 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

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 through the grass field.

A rail spur belonging to Northwest Pipe, that crosses the site right-of-way, was replaced in 2016. Northwest Pipe maintains a gravel crossing where the rail spur crosses the site right-of-way to provide vehicle access to the site. The gravel crossing appeared to be well-maintained (PL-1). Vehicle access across the new spur was good.

All entrance gates were properly secured. The entrance sign is current and legible (PL-2).

1.4.2 Perimeter Fence and Perimeter Signs

The perimeter fence was replaced in 2007. The site maintenance subcontractor is tasked with maintaining a vegetation-free zone along the base of the fence line and to keep vegetation from growing on the fence fabric. The vegetation-free zone along the fence line was being maintained, and the fabric was free of vegetation (PL-3).

Animal burrows along the west perimeter fence (between perimeter signs P9 and P10) are noted on the site inspection map to alert future inspectors to potential tripping hazards. The animal burrows are getting rather large and will need to be addressed to eliminate a potential safety hazard to the vegetation management crew (PL-4). The site has 1 entrance sign and 16 perimeter signs. All signs were in place and legible.

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. Boundary monuments BM-3 and BM-4 (identified as missing in 2017) are scheduled to be replaced in 2020. To help reduce costs, the replacements are being coordinated with survey work scheduled at nearby Pennsylvania sites for which a surveying crew will already be mobilized. The top of the concrete survey monument appears to be missing. Replacement of the top is not deemed necessary.

1.4.4 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 tasked with keeping vegetation cleared from around the monitoring wells. Vegetation was being properly controlled around the monitoring wells (PL-5).

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

At the time of the inspection, vegetation on top of the disposal cell had been recently mowed. No evidence of erosion or slope instability on the disposal cell was noted during the inspection (PL-6 and PL-7).

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 noted that conditions at the neighboring Northwest Pipe property did not appear to be changed from 2018.

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 2019.

1.7 Routine Maintenance and Repairs

Boundary monuments BM-3 and BM-4 are scheduled to be replaced in 2010.

Animal burrows along the west perimeter fence (between perimeter signs P9 and P10) need to be addressed to eliminate a potential safety hazard to the vegetation management crew.

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 (DOE 1995). 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 has 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

Vegetation management at the Parkersburg site involves periodic mowing and spot herbicide application. Field conditions in 2019 were much improved over 2018. The property was recently mowed and accessible. Vegetation along the fence line and around monitoring wells was sufficiently controlled.

The current approach of mowing followed by spot herbicide application appears to provide sufficient control of poisonous and noxious weeds at this time. Species of concern include: Canada thistle (*Cirsium arvense*), poison hemlock (*Conium maculetum*), teasel (*Dipsacus fullonum*), reed canary grass (*Phalaris arundinacea*), Johnson grass (*Sorghum halepense*), and poison ivy (*Toxicodendron radicans*). The only species observed in 2019 was scattered poison hemlock on the western edge of the mowed field, outside the perimeter fence.

A number of native species continued to be observed in 2019, consistent with findings from previous inspections. DOE is looking for innovative ways to provide reuse at the Parkersburg site, and providing a native prairie for pollinator purposes is one way this might be achieved. While the open portions of the site consist primarily of cool season grasses and weedy species such as plantains (*Plantago* species) and curly dock (*Rumex crispus*), native species such as mistflower (*Conoclinium coelestinum*), wingstem (*Verbesina alternifolia*), Indian hemp (*Apocynum cannabinum*), and goldenrod (*Solidago* species) were also observed.

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 2018.

2.0 References

10 CFR 192. "Health and Environmental Protection Standards for Uranium and Thorium Mill Tailings," *Code of Federal Regulations*.

DOE (U.S. Department of Energy), 1995. *AMAX Radioactive Material Storage Area, Parkersburg, West Virginia, Site Characterization Results*, GJPO-ES-15, September.

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, 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	360	Gravel access across railroad tracks
PL-2	0	Site entrance sign
PL-3	280	Northeast fence
PL-4	0	Animal burrows
PL-5	0	Monitoring well 5
PL-6	225	South side of disposal cell
PL-7	280	Top of disposal cell

PL-1. Gravel access across railroad tracks

PL-2. Site entrance sign

PL-3. Northeast fence

PL-4. Animal burrows

PL-5. Monitoring well 5

PL-6. South side of disposal cell

PL-7. Top of disposal cell

Appendix A

Site Drawing

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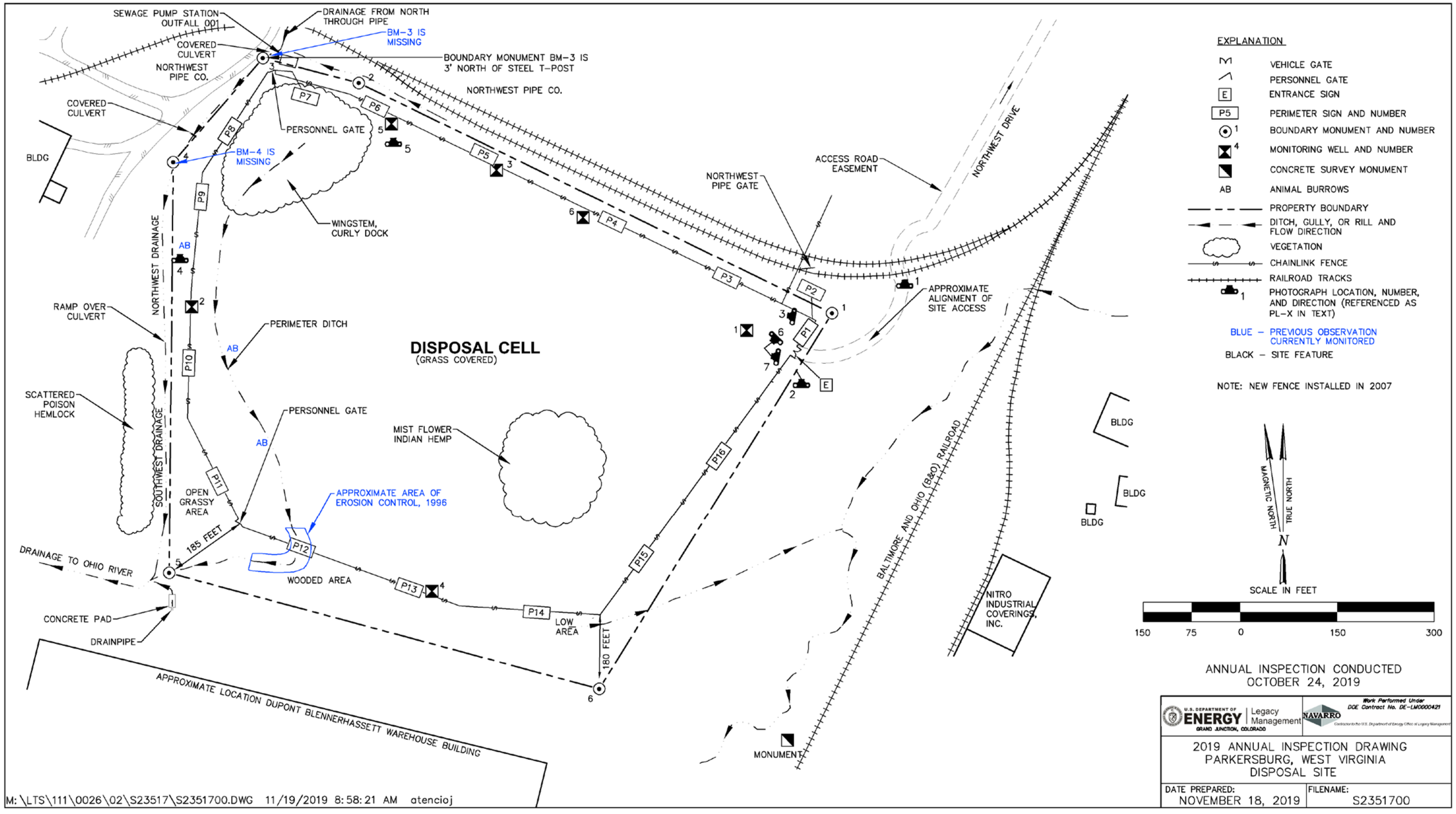

Figure A-1. 2019 Annual Inspection Drawing for the Parkersburg, West Virginia, Disposal Site

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