LMS/PKB/S32427

2020 Annual Inspection Report for the Parkersburg, West Virginia, Disposal Site

February 2021

U.S. DEPARTMENT OF ENERGY | Legacy Management

This page intentionally left blank

Contents

Appendix

Abbreviations

DOE	U.S. Department of Energy
IC	institutional control
LM	Office of Legacy Management
PL	photograph location

1.0 Inspection Summary

The U.S. Department of Energy (DOE) Office of Legacy Management (LM) Parkersburg, West Virginia, Disposal Site (site) was inspected on October 26, 2020. No evidence of erosion or slope instability on the disposal cell was noted during the inspection. A couple minor maintenance needs were noted during the inspection. A follow-up or contingency inspection is not required. No evidence of trespass was observed.

Planned replacement of boundary monuments BM-3 and BM-4 in 2020 was rescheduled for 2021. Identified as noncritical work, the replacements will be conducted when COVID-19 pandemic conditions improve. For cost efficiency, the replacement of missing boundary monuments BM-3 and BM-4 is being coordinated with plans for survey work at nearby Pennsylvania sites.

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 2014b). 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 2019).

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 H. Swiger of the DOE Legacy Management Support contractor conducted the inspection on October 26, 2020. C. Carpenter, LM site manager, and A. McCreary of West Virginia Department of Environmental Protection 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 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 Company that crosses the site right-of-way was replaced in 2016. Northwest Pipe Company 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.

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 not being maintained (PL-2), and the fence fabric was not free of vegetation (PL-3).

It appears that the something ran into the fence in 2020, causing one of the vertical posts to lean slightly (PL-4). The fence remains serviceable; no action needs to be taken at this time to repair the damage.

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. The site has one entrance sign and 16 perimeter signs. All signs were in place and legible but are becoming worn and old.

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 2021. 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. Inspectors did not hike over to view the concrete survey monument this year. It was noted in 2019 that the top of the concrete survey monument appears to be missing and that 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 not being properly controlled around the monitoring wells (PL-5).

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

Animal burrows were observed near monitoring well MW-1. These animal burrows need to be addressed to eliminate tripping hazards (PL-6).

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-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 2019.

The Parkersburg site is in a developed industrial area. Inspectors noted that conditions at the neighboring Northwest Pipe Company property did not appear to be changed from 2019.

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 2020.

1.7 Routine Maintenance and Repairs

Boundary monuments BM-3 and BM-4 are scheduled to be replaced in 2021.

Animal burrows along the west perimeter fence (between perimeter signs P9 and P10) and around monitoring well MW-1 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:

- Worst case: 15–20 years after 1982 site closure (i.e., between 1997 and 2002)
- Most likely case: 35–40 years after 1982 site closure (i.e., between 2017 and 2022)
- 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 2014b). 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 2020 have not improved since 2019. The property was recently mowed and accessible. Vegetation along the fence line and around the monitoring wells was not being 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 2020 was scattered poison hemlock on the western edge of the mowed field outside the fence, and scattered wingstem curly dock in the northwest corner of the mowed field, inside the perimeter fence.

A number of native species continued to be observed in 2020, 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.

No corrective actions were identified based on the inspection conducted in 2020.

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. *November 2013 Groundwater Sampling at the Parkersburg, West Virginia, Disposal Site,* LMS/PKB/S01113, February.

DOE (U.S. Department of Energy), 2019. *Long-Term Surveillance Plan for the Parkersburg, West Virginia, Disposal Site,* LMS/PKB/S11796, May.

3.0 Photographs

Photo Location Number	Azimuth	Photograph Description
PL-1	280	Gravel Access Across Railroad Tracks
PL-2	295	North Fence Line
PL-3	295	Vegetation on Fence Fabric
PL-4	90	Leaning Fence Post
PL-5	—	Monitoring Well MW-5
PL-6	—	Animal Burrows near Monitoring Well MW-1
PL-7	310	View Across Disposal Cell

Note:
— = Photograph taken from directly above.

PL-1. Gravel Access Across Railroad Tracks

PL-2. North Fence Line

PL-3. Vegetation on Fence Fabric

PL-4. Leaning Fence Post

PL-5. Monitoring Well MW-5

PL-6. Animal Burrows near Monitoring Well MW-1

PL-7. View Across Disposal Cell

This page intentionally left blank

Appendix A

Site Drawing

This page intentionally left blank

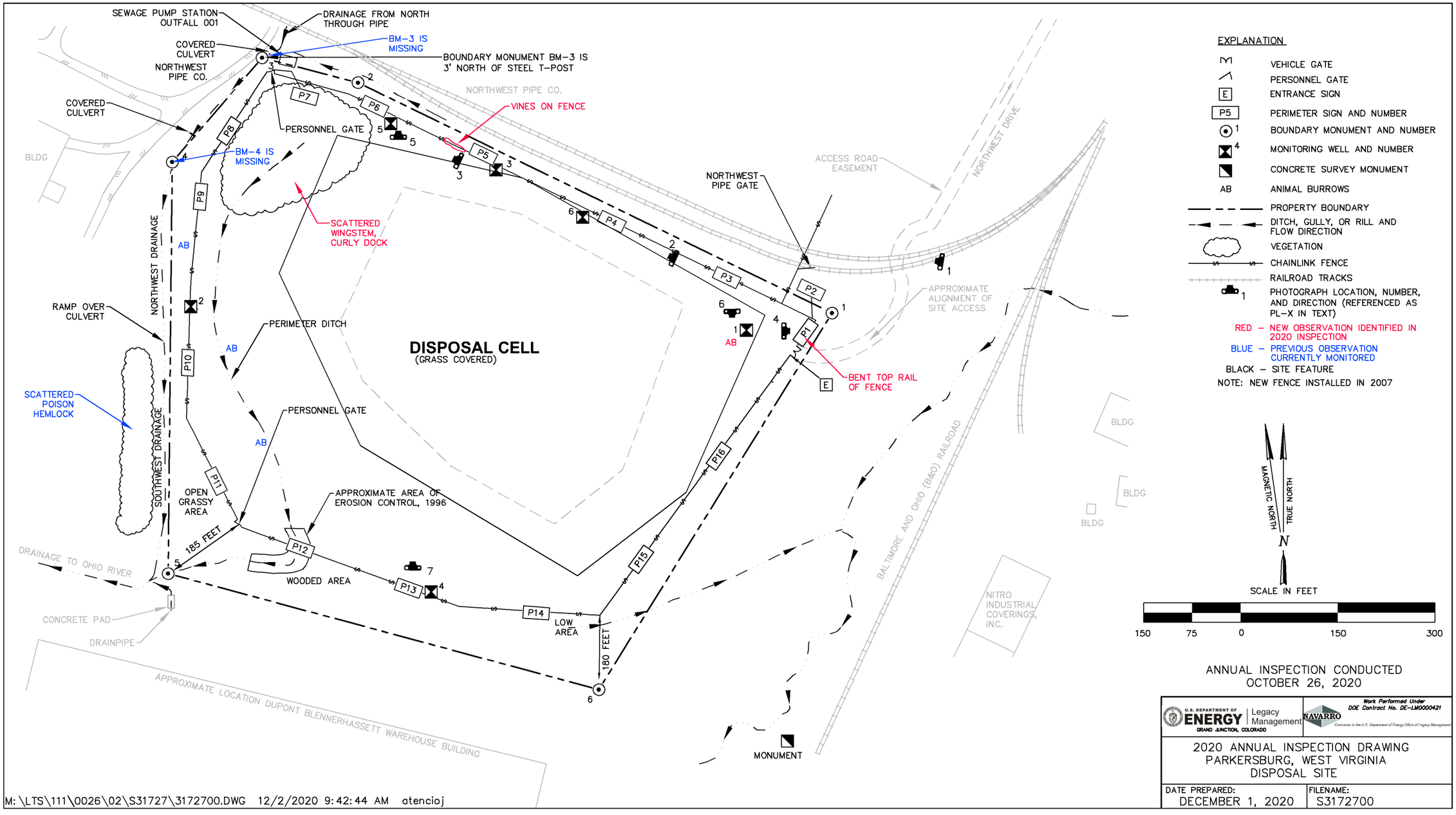

Figure A-1. 2020 Annual Inspection Drawing for the Parkersburg, West Virginia, Disposal Site

This page intentionally left blank