Annual Inspection of the Parkersburg, West Virginia Disposal Site

1.1 Compliance Summary

The Parkersburg, West Virginia, Nuclear Waste Policy Act Section 151(c) Disposal Site was inspected on December 11, 2013. The 2013 inspection was originally scheduled to occur in October. However, the partial government shutdown required that the inspection be reschedule later within the same calendar year. The disposal cell was in excellent condition. 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 presence of site monuments was verified during the inspection. All located site monuments were in good condition. The presence of Boundary Monument 3 could not be verified because it was covered with turf. The presence of Boundary Monument 4 could not be verified because it was covered by thick ice. The presence of both Boundary Monument 3 and Boundary Monument 4 was verified in 2012.

Monitoring wells at Parkersburg were last sampled in November 2013. Based on the results of a Groundwater Monitoring Assessment that was issued in August 2013, the sampling frequency is being reduced to once every 10 years. Monitoring wells at Parkersburg are, therefore, scheduled to be sampled again in 2023. Monitoring at Parkersburg is coordinated with monitoring at Canonsburg and Burrell to improve efficiency and decrease travel costs. Sampling results from 2013 will be reported in the 2014 inspection report. All the monitoring wells were properly secured during the inspection.

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,* (U.S. Department of Energy [DOE], September 1995; LTSP) and procedures established by DOE to comply with requirements of Title 10 *Code of Federal Regulations* Part 40.27 (10 CFR 40.27). Table 1 lists these requirements.

Table 1. License Requirements for the Parkersburg Disposal Site

Requirement	Long-Term Surveillance Plan	This Report
Annual Inspection and Report	Section 4.1	Section 1.4
Follow-Up or Contingency Inspections	Section 4.1.7	Section 1.5
Maintenance and Repairs	Section 4.1.8	Section 1.6
Groundwater Monitoring	Section 4.1.9	Section 1.7
Corrective Action	Section 4.1.10	Section 1.8

1.3 Institutional Controls

The 15.50-acre disposal site is owned by the United States of America. DOE assumed ownership of the site on March 4, 1994, under the terms of Subtitle D, Section 151(c), of the Nuclear Waste Policy Act of 1982. Institutional controls at the site include federal ownership of the property and the following features that are inspected annually: site markers, site perimeter fence, survey and boundary monuments, warning/no-trespassing signs, and a locked gate at the site entrance.

1.4 Inspection Results

M. Miller and K. Broberg of the S.M. Stoller Corporation, the Legacy Management Support contractor for the DOE office in Grand Junction, Colorado, conducted the inspection on December 11, 2013. C. Carpenter of the DOE Office of Legacy Management, attended the inspection.

1.4.1 Site Surveillance Features

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

1.4.1.1 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) crosses a field being used for soccer. The access route is along a permanent 20-foot-wide right-of-way. The access route was in good condition.

Entrance gates were replaced in 2007 and were in excellent condition. The two personnel gates were locked with non-DOE locks (PL-1). DOE replacement locks were secured next to the personnel gates during the inspection. The maintenance subcontractor will be asked to remove the non-DOE locks and replace them with the DOE locks.

1.4.1.2 Perimeter Fence and Perimeter Signs

The perimeter fence was replaced in 2007 and was in excellent condition (PL-2). A vegetation free zone is being maintained along the base of the fence (PL-3).

Animal burrows are present under the west perimeter fence (PL-4 and PL-5). A couple of the burrows are quite large. 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. All of the signs were in good condition.

1.4.1.3 Survey Monuments and Boundary Monuments

The Parkersburg site has 6 boundary monuments and one concrete survey monument. The presence of 4 of the 6 boundary monuments was verified during the site inspection; the monuments were in good condition (Boundary Monuments 1, 2, 5, and 6) (PL-6 and PL-7). Turf covered Boundary Monument 3, and ice covered Boundary Monument 4 (PL-8). Inspectors did not check the concrete survey monument during this year's inspection.

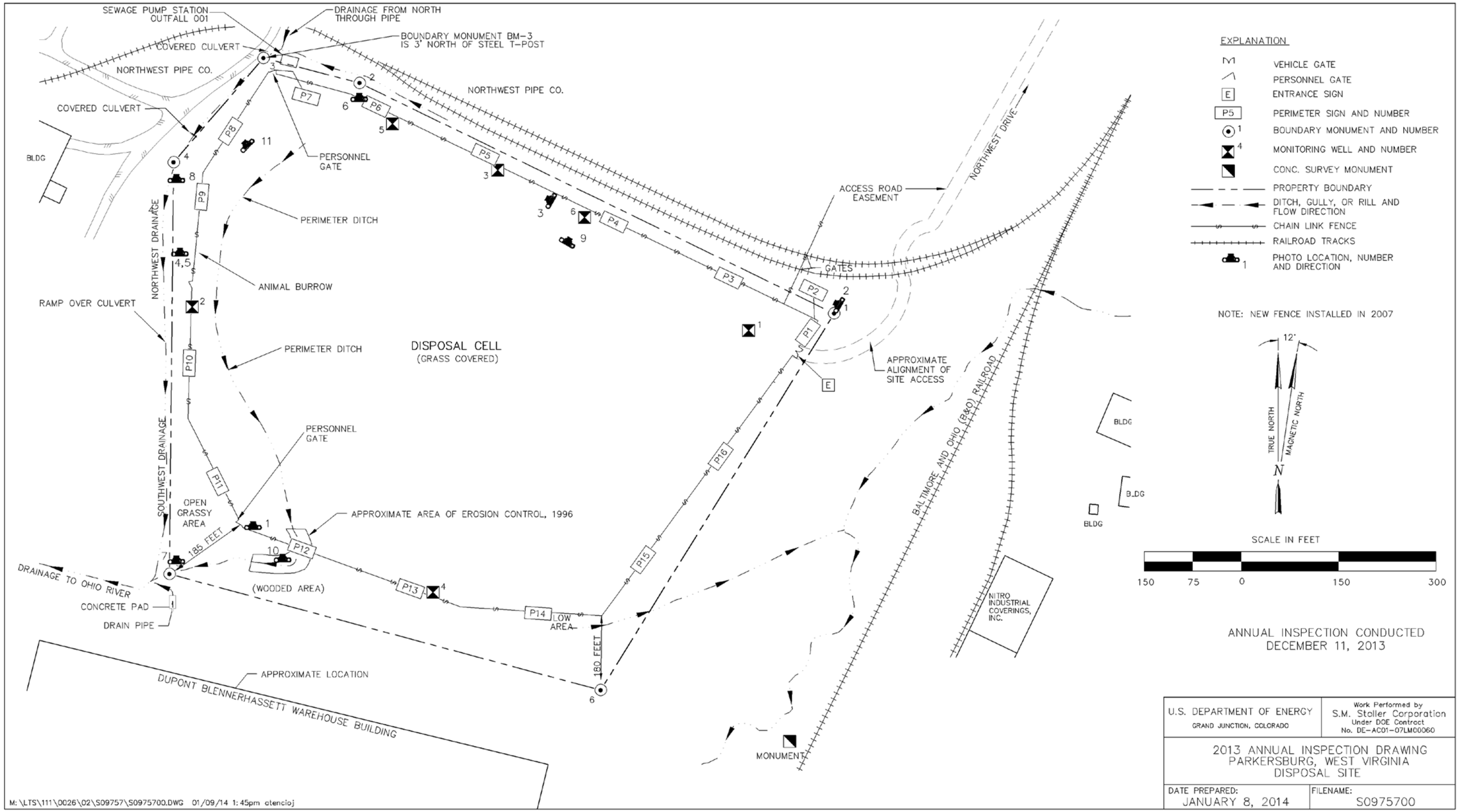

Figure 1. 2013 Annual Inspection Drawing for the Parkersburg Disposal Site

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1.4.1.4 Monitoring Wells

There are six groundwater monitoring wells at the Parkersburg site (PL-9). All six wells are located inside the security fence. The wells are numbered in the chronological order in which they were drilled and installed.

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, though, at all 6 wells. Sampling and water level measurements were last collected in November 2013 and are scheduled again in 2023. Sampling results from 2013 will be reported in the 2014 Annual Report. Sampling at Parkersburg is coordinated with sampling at Canonsburg and Burrell to improve efficiency and decrease travel costs.

1.4.2 Inspection Areas

To ensure a thorough and efficient inspection, the site was divided into three inspection areas (referred to as "transects" in the LTSP): (1) the disposal cell and area inside the security fence, (2) area between security fence and property boundary, (3) outlying area.

Within each inspection area, 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.

1.4.2.1 Disposal Cell and Area inside the Security Fence

The grass covered disposal cell was in excellent condition. No evidence of erosion or slope instability on the disposal cell was noted during the inspection. Dominant vegetation consists of fescue, crown vetch, and goldenrod. The vegetation on the disposal cell cover (essentially in the area inside the security fence) appeared healthy and vigorous.

1.4.2.2 Area between Security Fence and Property Boundary

The drainage channel in the southwest corner of the site, lined with HDPE honeycomb baffles and brick energy dissipation baffles in August 1996, is in good condition and functioning as designed. Erosion in the channel appears to be unchanged from last year (PL-10).

1.4.2.3 Outlying Area

The Parkersburg site is in a developed industrial area. Inspectors observed that Northwest Pipe Company appears to remain very active (PL-11).

1.5 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 2013.

1.6 Routine Maintenance and Repairs

No maintenance needs were identified during the inspection.

1.7 Environmental Monitoring

1.7.1 Groundwater Monitoring

During site characterization, computer modeling was conducted to estimate the number of years that it would take a contaminant plume to reach MW-5 or MW-6, based on the assumption that the cover allowed precipitation to infiltrate and saturate the buried waste materials forming 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, and then travel in the groundwater to reach monitoring wells MW-5 or MW-6.

Three different modeling scenarios were assessed: worst case, most likely case, and best case.

- Worst Case scenario: 15-20 years (after site closure in 1982) (i.e., between 1997 and 2002).
- Most Likely Case: 35-40 years (after site closure in 1982) (i.e., between 2017 and 2022).
- Best Case: 95-100 years (after site closure in 1982) (i.e., between 2078 and 2082).

Groundwater sampling was last conducted in 2013. Results from 2013 will be presented in the 2014 Inspection Report. Previous sampling results provided no evidence for a contaminant plume and indicated that no large changes in groundwater quality had occurred.

1.7.2 Vegetation Management

Poisonous and noxious weed control continues. Species of poisonous or noxious weeds present at the Parkersburg site include Canada thistle, poison hemlock, Johnsongrass, poison ivy, and teasel.

Canada thistle was first identified at the site in 1999, primarily along the security fence. This weed is not a listed noxious species in West Virginia, but it is considered noxious in the neighboring states of Ohio and Pennsylvania. It seemed to be out competing desirable species on the site, as it had spread to a significant portion of the cell cover and perimeter. As a best management practice to maintain plant diversity on the property, 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 had grown to heights of up to 10 feet and covered approximately 4 acres on and around the cell. Poison hemlock is a listed noxious weed species in West Virginia; and it poses a safety hazard to personnel who must walk through or work in infested areas, as 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 take hold in its place, especially in the northwest corner of the site. The spraying program was amended in 2012 to include spraying for teasel. No large areas of teasel were noted during this year's inspection.

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

No large areas of poison ivy were noted during this year's inspection.

1.8 Corrective Action

Corrective action is taken to correct out-of-compliance or hazardous conditions that create a potential health and safety problem or that may affect the integrity of the disposal cell or compliance with 40 CFR 192.

No corrective action was required in 2013.

1.9 Photographs

Photo Location Number	Azimuth	Photograph Description
1	NA	Locks on personnel gate between Perimeter Signs P11 and P12.
2	300	View down northeast fence line.
3	300	View down northeast fence line.
4	NA	Animal burrows under west fence.
5	NA	Animal burrows under west fence.
6	NA	Boundary Monument 2.
7	NA	Boundary Monument 5.
8	NA	Boundary Monument 4 beneath the ice.
9	30	Monitoring well 6.
10	NA	Erosion control area.
11	315	Looking toward Northwest Pipe Co. property.

PKB 12/2013. PL-1. Locks on personnel gate between Perimeter Signs P11 and P12.

PKB 12/2013. PL-2. View down northeast fence line.

PKB 12/2013. PL-3. View down northeast fence line.

PKB 12/2013. PL-4. Animal burrows under west fence.

PKB 12/2013. PL-5. Animal burrows under west fence.

PKB 12/2013. PL-6. Boundary Monument 2.

PKB 12/2013. PL-7. Boundary Monument 5.

PKB 12/2013. PL-8. Boundary Monument 4 beneath the ice.

PKB 12/2013. PL-9. Monitoring well 6.

PKB 12/2013. PL-10. Erosion control area.

PKB 12/2013. PL-11. Looking toward Northwest Pipe Co. property.