2.0 Burrell, Pennsylvania, Disposal Site

2.1 Compliance Summary

The Burrell, Pennsylvania, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I Disposal Site, inspected on October 20, 2009, was in excellent condition. The disposal cell and all associated drainage diversion structures were in good condition and functioning as designed. Deep-rooted plants continue to grow on the disposal cell in accordance with the revised LTSP issued in April 2000.

A vegetation management plan was implemented to control noxious and invasive plants in 2008. Since the plan's implementation, herbaceous cover across the site has improved dramatically. The vegetation management process will continue in 2010.

Groundwater monitoring is required every 5 years and was conducted in October 2009; however, results were not available and will be reported in 2010. Past monitoring results have indicated that the disposal cell is not releasing any contamination.

No cause for a follow-up or contingency inspection was identified.

2.2 Compliance Requirements

Requirements for the long-term surveillance and maintenance of the Burrell Disposal Site are specified in the *Long-Term Surveillance Plan* [LTSP] *for the U.S. Department of Energy* [DOE] *Burrell Vicinity Property, Blairsville, Pennsylvania* (GJO−2002−331−TAR, DOE, April 2000) and in procedures established by DOE to comply with the requirements of Title 10 *Code of Federal Regulations* Part 40.27 (10 CFR 40.27). Table 2–1 lists these requirements.

Table 2–1. License Requirements for the Burrell Disposal Site

Requirement	Long-Term Surveillance Plan	This Report
Annual Inspection and Report	Section 3.3	Section 2.3.1
Follow-Up or Contingency Inspections	Section 3.5	Section 2.3.2
Routine Maintenance and Repairs	Section 3.6	Section 2.3.3
Groundwater Monitoring	Section 3.7	Section 2.3.4
Corrective Action	Section 3.6.3	Section 2.3.5

Institutional Controls—Institutional controls at the disposal site, as defined by DOE Policy 454.1, consist of federal ownership of the property, a site perimeter fence, warning/no-trespassing signs along the property boundary, and locked gates.

The 72-acre disposal site is owned by the United States of America and was accepted under the U.S. Nuclear Regulatory Commission (NRC) general license (10 CFR 40.27) in 1994. DOE is the licensee and, in accordance with the requirements for UMTRCA Title I sites, is responsible for the custody and long-term care of the site.

Inspectors found no evidence that these institutional controls were ineffective or violated.

2.3 Compliance Review

2.3.1 Annual Inspection and Report

The site, southeast of Blairsville, Pennsylvania, was inspected on October 20, 2009. The results of the inspection are described below. Figure 2–1 shows features and photograph locations (PLs) mentioned in this report. Numbers in the left margin of this report refer to items summarized in the "Executive Summary" table.

2.3.1.1 Specific Site-Surveillance Features

Site Access, Fence, Gates, and Signs—Access to the site is off Strangford Road on an access road that lies within a perpetual right-of-way through private property (Tract 201–E). The access road continues across DOE-leased land and crosses the Norfolk Southern Railroad tracks to the entrance gate at the east end of the site. Authorized personnel who need access to the railroad tracks and to the several natural-gas wells nearby also use the road.

The chain-link security fence, replaced in 2007, remains in excellent condition. A vegetation-free corridor has been established along the fence line (PL–1). The entrance gate and four personnel gates were in good condition. Of the 17 perimeter signs mounted on the security fence, 15 were in good condition. Perimeter signs P5 and P16 have bullet holes in them but remain legible.

Site Markers and Monuments—The site has nine markers (a site marker and eight erosion control markers). Site marker SMK–1 was in excellent condition. All eight erosion control markers were located during the inspection, and seven were in good condition. Erosion control marker E–7 was damaged this past year and will be repaired or replaced (PL–2). Vegetation control efforts this past year have made the erosion control markers easier to find.

The site has 10 monuments (three survey monuments and seven boundary monuments). All three survey monuments were in good condition. Of the seven boundary monuments, five were in good condition. Boundary monument BM–4 was missing, and boundary monument BM–5 was damaged. Both are considered to be minor maintenance items that will be addressed in 2010.

Monitoring wells—The site has four pairs of monitoring wells. Each pair consists of a shallow (alluvial) completion and a deeper (bedrock) completion. All wells were located and observed to be secured with a lock, labeled with identification numbers, and in good condition. The protective casings, although rusted, remain functional.

2.3.1.2 Transects

To ensure a thorough and efficient inspection, inspectors divided the site into four areas called "transects": (1) the disposal cell, (2) the area between the disposal cell and site boundary, (3) the site perimeter, and (4) the outlying area.

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

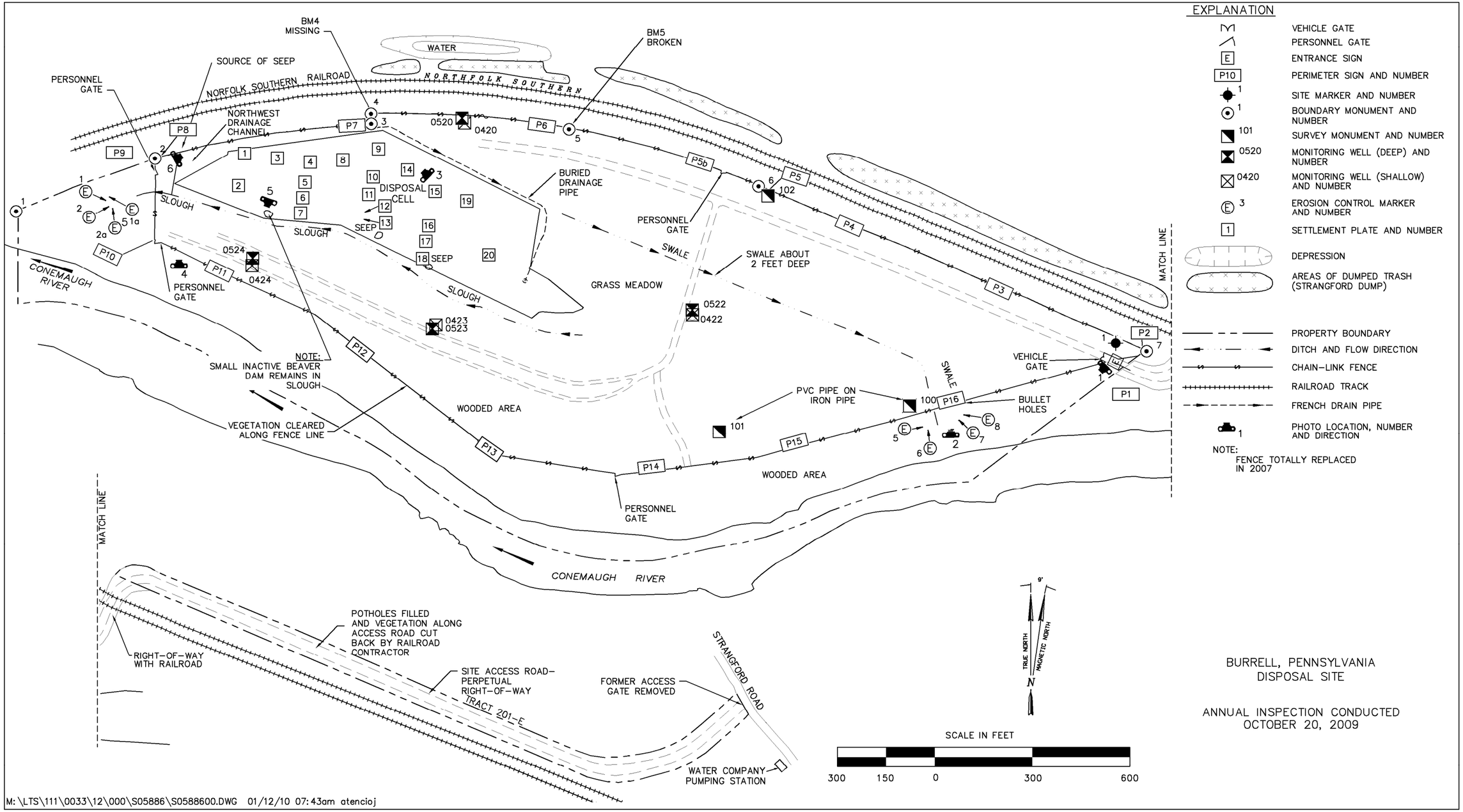

Figure 2–1. 2009 Annual Compliance Drawing for the Burrell Disposal Site

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Disposal Cell—The riprap-covered disposal cell was in excellent condition. There were no indications of cell instability, such as slumping, bulging, or differential settlement. Rock quality was excellent; degradation of the limestone riprap was not evident.

Active control of vegetation on the cell cap has not been required since 2000 (per the revised LTSP). Past studies at the Burrell Site concluded that deep-rooted plant growth on the cell puts the public and the environment at no greater risk of exposure to contaminants within the disposal cell. Vegetation growth on the cell might actually enhance cover performance through evapotranspiration. These studies further concluded that plant growth would not impede the proper functioning of the radon barrier. NRC concurred in the revised LTSP, which no longer requires active control of deep-rooted vegetation on the cell cover. NRC has suggested that DOE reevaluate the effects of vegetation on cover performance in 10 or 20 years to confirm performance parameters and predictions.

Although vegetation is allowed to grow on the disposal cell, the cell is sprayed for noxious weeds. The Japanese knotweed infestation on the cell cap is still declining, but continued efforts are needed to reduce stands on the south slope. Deep-rooted woody species continue to proliferate on the cell cap (i.e., sycamore, tree of heaven, elm, tulip poplar, black locust, catalpa, and maple). As the trees mature, there is some concern that uprooting could damage the disposal cell cover, which would require repair (PL–3). Vegetative growth on the disposal cell will continue to be monitored.

Two seeps that have been previously observed on the south slope of the disposal cell were dry at the time of the inspection.

Area Between the Disposal Cell and Site Boundary—The area surrounding the disposal cell and inside the security fence was cleared during reclamation and is covered by thick grass and reestablishing hardwood trees. Periodic mowing maintains access to monitoring wells. The area east of the cell remains grassland.

2A In 2008, a new vegetation management plan was implemented to control noxious and invasive plants across the site. The plan's implementation has greatly reduced the presence of noxious and invasive plants. The combination of spot herbicide application and more-frequent mowing is proving to be effective and will continue. The plan includes utilizing a woodland right-of-way mix to reduce the re-sprouting of Japanese knotweed and other noxious weeds in areas cleared by spot herbicide application; this mix is being tested along the south perimeter fence (PL–4). If successful, utilizing this seed mix could reduce the need for future herbicide applications.

A French drain was installed along the base of the north side slope of the disposal cell in 1998 to prevent water from ponding next to the cell. The outlet for the French drain is in the southeast corner of the disposal cell and is in good shape.

2B A small, inactive beaver dam (PL–5) remains within the slough at the base of the south slope of the disposal cell, and water continues to collect behind it. The water level behind the dam is not high enough to saturate the tailings or impact the integrity of the disposal cell and appears unchanged from prior inspection. Therefore, DOE has elected not to remove the dam. Instead, DOE will continue to monitor the dam and its possible impacts on the disposal site.

Site Perimeter—A known seep along the north security fence, about 60 feet east of perimeter sign P8 and west of the disposal cell, was flowing at the time of the 2009 inspection (PL–6). This

area will continue to be monitored for seeps to determine if they threaten the disposal cell's integrity. Conceivably, the seeps also could destabilize the nearby railroad embankment. The water for this seep may be coming from other seeps on the bluffs, above and just north of the railroad tracks.

Outlying Area—The area beyond the site boundary for a distance of 0.25 mile was visually examined for signs of erosion, development, and other changes that might affect the site. North of the site, a dirt road parallels the railroad tracks and provides access to a long, narrow, wooded area that has been used as an illegal dump over the years. In 2009, no new trash was observed. The dump is not a threat to the disposal site but is an indication of the overall level of activity near the disposal site and may be a predictor of vandalism. For this reason, the area will continue to be monitored. All other areas around the site remained unchanged.

2.3.2 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 contingent inspections were required in 2009.

2.3.3 Routine Maintenance and Repairs

In 2009, noxious and invasive weed control continued and the routes to the monitoring wells were mowed.

2.3.4 Groundwater Monitoring

In accordance with the LTSP, DOE monitors groundwater at this site as a best management practice to evaluate the disposal cell's performance. The groundwater monitoring network consists of eight wells (in four pairs) that are monitored for four target analytes: lead, molybdenum, selenium, and uranium. The revised LTSP stipulates that monitoring be performed every 5 years. DOE conducted groundwater monitoring in October 2009. However, results were not available for this reporting period and will be presented in 2010. Past results have indicated that no contamination is being released and that the disposal cell is performing as designed. The next monitoring is scheduled for 2014.

2.3.5 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 2009.

2.3.6 Photographs

Table 2–2. Photographs Taken at the Burrell Disposal Site

Photograph Location Number	Azimuth	Description
PL–1	225	Looking west down the inside of the south perimeter fence.
PL–2	NA	Erosion control marker E–7 damage, possibly by grass-cutting equipment.
PL–3	315	Sycamore tree on top of the disposal cell.
PL–4	350	Vegetation test area along the outside of the south perimeter fence.
PL–5	200	Inactive beaver dam; unchanged from prior inspection.
PL–6	60	Active seep under the north perimeter fence.

BUR 10/2009. PL–1. Looking west down the inside of the south perimeter fence.

BUR 10/2009. PL–2. Erosion control marker E–7 damage, possibly by grass-cutting equipment.

BUR 10/2009. PL–3. Sycamore tree on top of the disposal cell.

BUR 10/2009. PL–4. Vegetation test area along the outside of the south perimeter fence.

BUR 10/2009. PL–5. Inactive beaver dam; unchanged from prior inspection.

BUR 10/2009. PL–6. Active seep under the north perimeter fence.