

## 2.0 Burrell, Pennsylvania, Disposal Site

### 2.1 Compliance Summary

The Burrell Disposal Site, inspected on September 19, 2006, was in excellent condition. The disposal cell, its cover, and associated drainage features are performing as designed. The missing entrance sign was replaced. Several strands of barbed wire were found broken and need repair. Beaver dams were removed in November 2005 and have not reestablished. Control of undesirable vegetation and noxious weeds continued at the site. Ground water monitoring is required every 5-years and was not performed in 2006; the last monitoring in 2004 indicated there is no contamination being released and that the disposal cell is performing as designed. No requirement for a follow-up or contingency inspection was identified.

### 2.2 Compliance Requirements

Requirements for the long-term surveillance and maintenance of the Burrell, Pennsylvania, Uranium Mill Tailings Radiation Control Act (UMTRCA) Title I disposal site are specified in the *Long-Term Surveillance Plan [LTSP] for the U.S. Department of Energy Burrell Vicinity Property, Blairsville, Pennsylvania* (GJO-2002-331-TAR, U.S. Department of Energy [DOE] Grand Junction, Colorado, April 2000) and in procedures established by DOE to comply with requirements of Title 10 *Code of Federal Regulations* Part 40.27 (10 CFR 40.27). These requirements are listed in Table 2-1.

Table 2-1. License Requirements for the Burrell, Pennsylvania, 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
Ground Water Monitoring	Section 3.7	Section 2.3.4
Corrective Action	Section 3.6.3	Section 2.3.5

**Institutional Controls**—The 72-acre disposal site is owned by the United States of America and was accepted under the U.S. Nuclear Regulatory Commission 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. 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 placed along the property boundary, and locked gates. Verification of these institutional controls is part of the annual inspection.

### 2.3 Compliance Review

#### 2.3.1 Annual Inspection and Report

The site, located southeast of Blairsville, Pennsylvania, was inspected on September 19, 2006. Results of the inspection are described below. Features and photograph locations (PLs) mentioned in this report are shown on Figure 2-1. 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 a site access road within a perpetual right-of-way through private property (Tract 201–E) and across DOE leased land crossing the Norfolk Southern Railroad tracks. The access road leads from the railroad track crossing to the entrance gate in the east end of the chain-link site security fence.

- 2A During the inspection, a railroad crew was observed performing maintenance on the hard-packed, gravel road where potholes and depressions as deep as 6-8 inches had developed. Road damage is apparently due to frequent use by railroad and gas company vehicles and local residents.

Historically the area along the DOE right-of-way has been used for unpermitted dumping, hunting, target practice, and riding of all-terrain vehicles. DOE had attempted to control access across the right-of-way by maintaining a gate at Strangford Road and installing guardrails on each side of the gate. As a result of local complaints that the guardrails blocked parking areas, DOE removed several sections. Following years of replacing locks and the gate being damaged beyond repair in 2002, DOE received NRC concurrence and removed the gate at Strangford Road in 2003. Institutional control for the site is now established at the entrance gate in the security fence. The entrance gate (on the east end of the security fence) and the personnel gate (on the west end of the security fence) were in good condition at the time of the inspection.

- 2B Overall, the security fence was in good condition at the time of the inspection. Several strands of barbed wire were found broken along the south fence line and need repair (PL–1). DOE replaced the fabric on the south panel of the security fence after a maintenance contractor found it damaged.

- 2C In 2006, most of the perimeter signs were in serviceable to excellent condition. Bullet holes occur in several of the signs, but they remain legible. The perimeter signs attached to the northern perimeter fence (P1 through P8) are subject to periodic maintenance and replacement because of the significant amount of public activity in this area. The entrance sign found missing in 2005 was replaced with a perimeter sign, with DOE contact information added; the sign was mounted on the entrance gate. DOE inspectors installed a standard entrance sign in 2006.

**Site Markers and Monuments**—There is only one site marker (SMK–1) at the site that is located at the east end of the site near the entrance gate. The site marker was in excellent condition. Vegetation around the site marker is cleared annually.

The site has seven boundary monuments and three survey monuments. Because of dense vegetation and soil accumulation, several of the monuments typically are difficult to locate. However, all of the monuments were found and were in good condition.

Four pairs of erosion control markers are located in dense stands of vegetation, where they often are difficult to find. In 2006, all erosion control markers were located, inspected, and found to be in good condition. There was no sign of erosion at the site.

**Monitor Wells**—The site has four pairs of monitor wells, with a shallow (alluvial) completion and deeper (bedrock) completion well in each pair. New submersible bladder pumps were installed in all eight wells in fall 2004. Corridors to the wells are mowed annually to maintain access to and provide working space around the wells. All monitor wells were secure and in good condition.

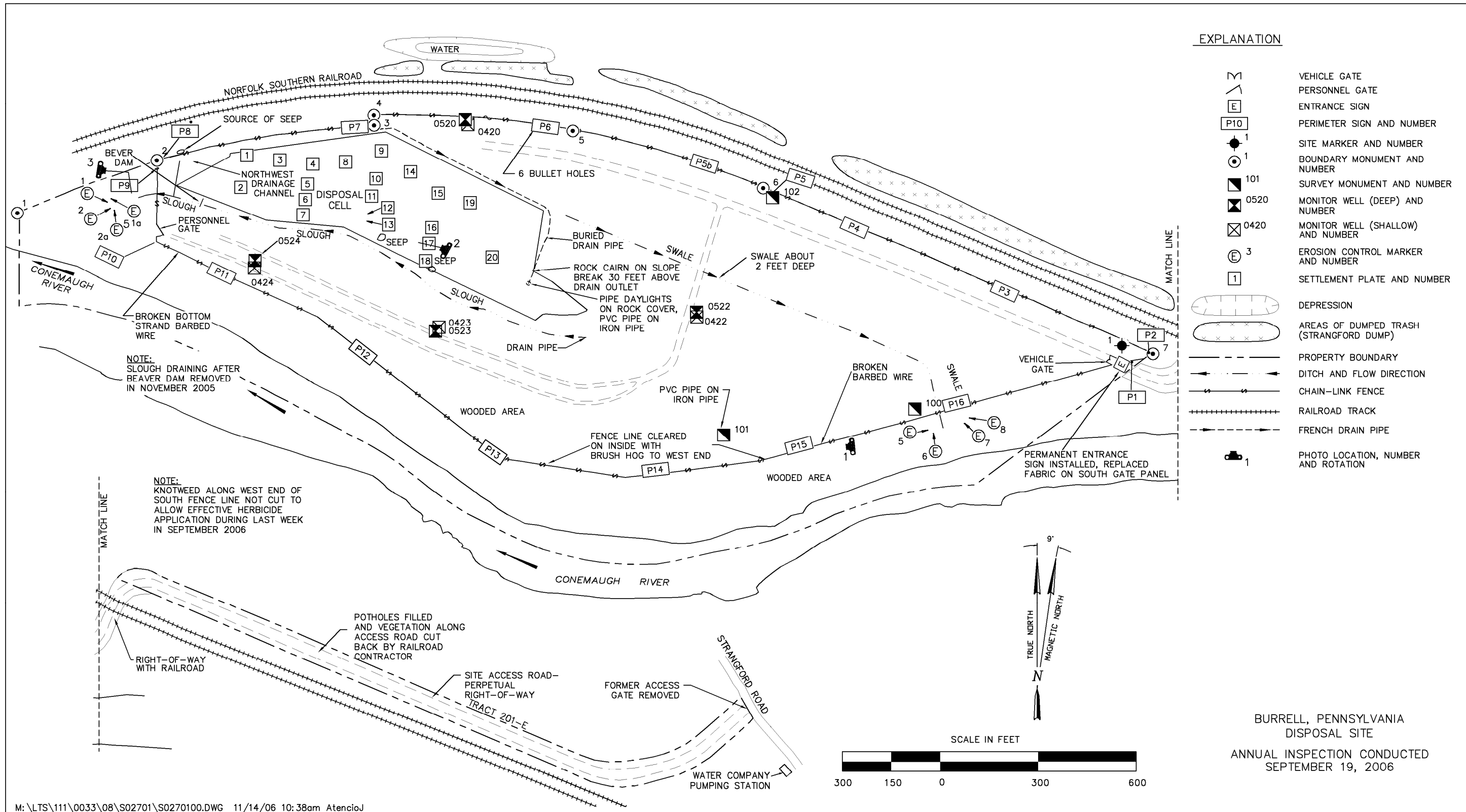


Figure 2-1. 2006 Annual Compliance Drawing for the Burrell, Pennsylvania, Disposal Site

### 2.3.1.2 Transects

To ensure a thorough and efficient inspection, the site was divided into four areas referred to as 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, vegetation, and other features. Inspectors also looked for evidence of settlement, erosion, or other modifying processes that might affect site integrity or the long-term performance of the site.

**Disposal Cell**—The top and side slopes of the disposal cell are covered with riprap and were in excellent condition. There was no evidence of settling, slumping, or other indications of instability. Rock quality was excellent; degradation of the limestone riprap was not evident.

Trees and shrubs continue to establish in the riprap (PL-2), as vegetation eradication is no longer a requirement of the LTSP. A study that evaluated risks posed by encroachment of plants on the disposal cell demonstrated that the plants will not degrade the long-term performance of the cell and may improve performance by reducing moisture in the cover through evapotranspiration. The study concluded that plant growth on the cell poses no added public or environmental risk of exposure to contaminants within the disposal cell because the cell contains only 4 curies of radium-226 and the hazardous constituents are not leachable, even if infiltration occurs. These studies further concluded that plant growth would not be detrimental to the proper functioning of the radon barrier. Because vegetation grows so vigorously at this site, effective vegetation control on the cell cover would require an aggressive program entailing, at a minimum, an annual application of herbicides. The potential environmental and health risks associated with such a program are greater than risks resulting from allowing vegetation to establish naturally. The LTSP was revised (April 2000) to allow vegetation to grow on the disposal cell without further intervention; stating that such growth will not increase risk to public health, safety, or the environment. In their concurrence of the of the revised LTSP, the U.S. Nuclear Regulatory Commission suggested that DOE reevaluate the effects of vegetation on cover performance in 10 or 20 years to confirm performance parameters and predictions.

A perforated pipe and rock-filled trench drain were installed along the base of the north side slope of the disposal cell in August 1998 to prevent ponding in that area and to intercept water that was suspected to be flowing under to cell and emerging as seeps along the south side of the cell. At the time of the 2006 inspection, the area along the drain was dry and no water was flowing from the outlet. The wire hardware cloth was intact in the drain outlet. Water never has been observed flowing from the outlet since the system was installed, perhaps because the material through which the trench passes absorbs water. Much of the material on this site is imported fill and debris and is expected to be permeable.

In 2005, inspectors found that the slough along the south side of the disposal cell, fed by ground water, had backed up as a result of a beaver dam on the slough west of the site boundary. The dam caused water to back up half way up the security fence. In November 2005, DOE coordinated with State wildlife officials to remove the beavers in accordance with State regulations, and then breached the dam. Water levels in the slough have returned to normal

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(PL-3). A smaller beaver dam remains that has caused some ponding of water, but is not currently considered problem enough to warrant removal; the water had not risen to the elevation of the contaminated materials within the cell.

Seep locations along the base of the south side slope of the disposal cell were inspected and found to be dry. No water has been found at the seeps since the drain was installed north of the cell, which suggests that the drain is diverting water that otherwise would flow beneath the disposal cell.

**Area Between the Disposal Cell and Site Boundary**—Thick grass and thickets of native hardwood trees cover the area between the disposal cell and the site security fence. In 2003, spotted knapweed and poison hemlock had spread across much of the DOE property and were interspersed with native desirable plants. The knapweed is an undesirable invasive plant that was out-competing desirable species at the site. Poison hemlock poses a safety hazard to personnel who must walk through or work within infested areas. To comply with federal invasive species directives and to maintain plant diversity on the property, DOE initiated an aggressive weed control program of herbicide applications and mowing in spring 2004 after consultation with Pennsylvania State University. DOE continued the vegetation control program in 2006 and only minor occurrences of immature plants were found. DOE will continue the weed management program in 2007.

**Site Perimeter**—A significant amount of seep water was observed along the security fence about 60 feet east of perimeter sign P8 and immediately west of the disposal cell. The area will continue to be monitored to ensure the water does not pose a threat to the integrity or performance of the disposal cell.

Since the removal of the beaver dam, water in the slough has returned to normal flows and relieved ponding that was covering the bottom of the security fence on the west end of the property (PL-3).

The base of the fence was sprayed with a broad-spectrum herbicide to keep vegetation from damaging the fence and to enable inspection of the fence. The mowing subcontractor also clears vegetation from along accessible portions of the fence before the inspections.

**Outlying Area**—The area beyond the site boundary for a distance of 0.25 mile was visually inspected for signs of erosion, development, and other changes that might affect the site. A dirt railroad access road along the north side of the tracks provides access to a long, narrow wooded area along the tracks that has been used for unpermitted dumping. Dumping activity appears to have decreased since 2004. Although township authorities are aware of the problem, none of the trash has been removed. This activity is not a direct threat to the disposal site but the amount of dumping is an indication of the overall level of activity near the disposal site and may be a predictor of vandalism. Other areas around the site remained unchanged.

Canada thistle, a state-listed noxious weed, was identified on railroad property near boundary monument BM-2 in 2002. As arranged with the Norfolk Southern Railroad, DOE treated the infestation with herbicide in spring and fall since 2004. The treatment was continued in 2006.

### 2.3.2 Follow-Up or Contingency Inspections

DOE will conduct follow-up inspections if (1) a condition is identified during the annual inspection or other site visit that requires a return to the site to evaluate the condition, or (2) DOE is notified by a citizen or outside agency that conditions at the site are substantially changed.

No follow-up or contingency inspections were required in 2006.

### 2.3.3 Routine Maintenance and Repairs

In 2006, DOE installed an entrance sign, cleared encroaching vegetation along the site perimeter security fence and continued the undesirable vegetation and noxious weed control program.

### 2.3.4 Ground Water Monitoring

In accordance with the LTSP, DOE monitors ground water at this site, as a best management practice, to evaluate the performance of the disposal cell. The ground water monitoring network consists of eight wells (in four pairs) that are monitored for four target analytes: lead, molybdenum, selenium, and uranium. The revised LTSP (April 2000) stipulates monitoring is to be performed every 5 years. DOE last conducted ground water monitoring in November 2004 (presented in the 2005 report); the results indicated there is no contamination being released and that the disposal cell is performing as designed. The next monitoring is scheduled for October 2009.

### 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 2006.

### 2.3.6 Photographs

*Table 2-2. Photographs Taken at the Burrell, Pennsylvania, Disposal Site*

<b>Photograph Location Number</b>	<b>Azimuth</b>	<b>Description</b>
PL-1	265	Broken strands of barbed wire on south fence line.
PL-2	300	Vegetation growth on the disposal cell south side slope.
PL-3	100	Slough and west fence line





*BUR 9/2006. PL-1. Broken strands of barbed wire on south fence line.*



*BUR 9/2006. PL-2. Vegetation growth on the disposal cell south side slope.*





*BUR 9/2006. PL-3. Slough and west fence line.*



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